PLANNING BOARD

Tuesday, September 12, 2023 at 4:30 PM
Room 24 (Basement Level of City Hall)

MEMBERS
Brandon Mazer, Chair
Justin Barker, Vice Chair
Marpheen Chann
Sean Murphy
David Silk
Austin Smith
Maggie Stanley

Remote Access Information Field
The Planning Board will hold a hybrid meeting in Room 24, Basement Level City Hall. The public may attend the meeting in person or Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board. Prior to the meeting, please check the Agenda Center (https://portlandme.portal.civicclerk.com) to view memos and reports which will be posted by the end of the day on the Friday before the Planning Board meeting as well as start times for each item as placement on the agenda can change.

To submit written public comment on an agenda item, email planningboard@portlandmaine.gov. Submissions must be received by 12:00 pm the day before the Planning Board meeting to guarantee their inclusion in the agenda packet. All submissions must include the commenter's name and legal address. To help ensure your comment is submitted for the correct item, please include the name of the agenda item (see below).

REMOTE PARTICIPATION
Allow your computer to install the free Zoom app to get the best meeting experience. If you are not able to attend either in person or via Zoom, a recording will be available in the Agenda Center following the meeting.

Please click the link below to join the webinar:
You are invited to a Zoom webinar.
When: Sep 12, 2023 04:30 PM Eastern Time (US and Canada)
Topic: Planning Board Workshop and Public Hearing 9/12/2023
https://portlandmaine-gov.zoom.us/j/84300464809
Or One tap mobile :
+19292056099,,84300464809# US (New York)
+13017158592,,84300464809# US (Washington DC)
Or Telephone:
Dial(for higher quality, dial a number based on your current location):
+1 929 205 6099 US (New York)
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+1 253 205 0468 US
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Webinar ID: 843 0046 4809
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Please note that the placement of items on this agenda are subject to change – please check the Agenda Center prior to the meeting for the item start time.

AGENDA:

WORKSHOP - 4:30 PM

i. Major Site Plan and Conditional Use; 1 Hope Avenue; GenX Capital Partners, LLC, Applicant. The Planning Board will hold a hybrid workshop to consider a major site plan and conditional use application for inclusionary zoning to facilitate the development of a 60-unit Planned Residential Unit Development, consisting of 12 triplex structures, 12 duplex structures, a new private street and associated utility improvements, at 1 Hope Avenue. The subject property is currently undeveloped woodlands, is 13.7 acres in size, and is located within the R-3 Residential zone. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-002454-2023.

PUBLIC HEARING - 6:00 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON AUGUST 15, 2023 AND AUGUST 17, 2023

Attendance will be added as soon as it is finalized.

4. REPORTS OF DECISIONS AT THE MEETING HELD ON AUGUST 15, 2023 AND AUGUST 17, 2023

i. Decisions will be added as soon as they are finalized.

5. NEW BUSINESS

i. Level III Site Plan, Subdivision and Conditional Use; 58 Fore Street; Portland Foreside Development Company, Applicant. The Planning Board will hold a hybrid public hearing to consider a proposal for Phase 2 of the Portland Foreside Master Development Plan (MDP), which involves development of Blocks 4, 5 and 6 of the project. The development would include 444 residential units, 98,851 square feet of retail, service and restaurant space, 644 - off-street parking spaces, and a 128-room hotel. This application also includes a major subdivision amendment, and will trigger inclusionary zoning conditional use review. The subject property is a 10.7-acre parcel zoned B-6, R-6, and EWPZ, with a portion of the site located within the Shoreland Zone and within the Portland Company Historic District and Munjoy Hill Historic District. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number PL-002202-2022

ii. Zoning Map Amendment; 17&25 Bates Street; Troy Huynh, Applicant. The Planning Board will hold a hybrid public hearing to consider a zoning map amendment to rezone property (429 J010001, 429 J007001, 429 J011001, 429 J006001, 429 J005001) from R-P Residence Professional to B-2b Community Business; property (166 F005001, 166 F006001) from R-5 Residential to B-2b Community Business; and property (429 I001001, 429 I005001, 429 I006001, 429 I007001, 429 J004001, 429 J003001, 429 J002001, 166 G015001, 166 G011001, 166 F003001, 429 C004001, 429 C006001, 429 C007001, 429 H030001, 429 H031001, 429 H047001, 429 H046001, 429 H029001, 429 H028001, 429 J005001) from B-2 Community Business to B-2b Community Business. The application is intended to facilitate a mixed-use commercial and residential development on the 17 & 25 Bates Street property, currently zoned R-P. The City is recommending that additional properties be included in this rezoning based upon the land-use goals and future land use vision of Portland's Plan 2030. A project and plan summary are available for viewing on the city's CSS Portal (https://css.portlandmaine.gov/) by referencing Plan Number ZN-002413-2023.

To:	Chair Mazer & Members of the Planning Board
From:	Charles Tetelman
Date:	September 8, 2023
Re:	1 Hope Avenue
Project ID:	PL-002454-2023
CBLs:	390 A001, 448 A001001, 449 A002
Meeting Date:	September 12, 2023

I. INTRODUCTION

GenX Capital Partners, LLC has submitted a Major Site Plan application as well as an Inclusionary Zoning Conditional Use application to facilitate the development of a Planned Residential Unit Development (PRUD) on a 13.59 acre (592,061 square feet) parcel, addressed at 1 Hope Avenue, zoned R-3 Residential. The proposed development includes 60 new residential units, housed within 12 duplex buildings and 12 triplex buildings, along with a 20 ft. wide paved private road.



Figure 1: Proposed Hope Avenue Development

The application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code, Site Plan standards (Section 14.6), Subdivision standards (Section 15.4), Inclusionary Zoning (Section 18.2.3), and Site Location of Development (Site Law) (Technical Manual Section 14).

The Planning and Urban Development Department mailed 54 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the September 2, 2023 and September 5, 2023 editions of the *Portland Press Herald*.

Applicant:	GenX Capital Partners, LLC
Applicant	Shinberg Consulting, LLC
Representatives:	Haley Ward, Inc.
	Barton & Loguidice, Inc.

II. REQUIRED REVIEWS | PROJECT DATA

Required Reviews	
Site Plan Standards	Section 14.6
Subdivision Standards	Section 15.4** - Subdivision review for PRUDs is triggered by Table 6-A, Footnote 4.
Inclusionary Zoning	Section 18.2.3
Site Location of Development	Technical Manual Section 14
Design Review	Design Review Manual Section (h) PRUDs in the R-3 Residential Zones

Project Data	
Existing Zoning	R-3 Residential
Property Size	592,061
Existing Use	Undeveloped, Forest
Proposed Use	Planned Residential Unit Development (PRUD)
Total Developed Area	388,990 sq. ft.
Impervious Surface Area	176,418 sq. ft.
Parking Spaces	135 spaces

III. BACKGROUND

In 2002, the City of Portland annexed property previously landlocked from Falmouth with no practical roadway access except through Portland. Annexation of the property to Portland was the only feasible manner to develop the property and provide municipal services. Through state legislature action, Portland annexed the land from Falmouth. Following the annexation, the City of Portland purchased the land area now known as the Presumpscot River Preserve to conserve upland shore frontage along the Presumpscot River. The City purchased the 48-acre parcel along the Presumpscot River from Lloyd Wolf and Bob Adam.



Figure 2: 2002 Annexation and Property Changes

As part of the purchase and sale agreement, the City Council agreed to subsequently rezone the remaining portions of the newly annexed land as a conditional zone for residential development. Figure 2 shows the

outcome of the annexation and land transfers, with property outlined in blue showing land conveyed to and developed by Lloyd Wolf that is currently zoned C-40 Contract Zone and R-2 Residential. Property outlined in red depicts land conveyed to Bob Adam, which encompasses the 13.59-acre parcel at 1 Hope Avenue, which is zoned R-3 Residential. The property outlined in green shows the Presumpscot River Preserve, which is located within the RPZ Resource Protection Zone.

In 2005, Lloyd Wolf entered into a Conditional Zoning Agreement with the City of Portland and worked with the City to establish Contract Zone C-40. This contract zone encompassed three separate parcels including the currently built-out six-lot Basket Lane subdivision, approved in 2012; the 13-lot Brandy Lane subdivision, approved in 2018, which is currently under development, and a single lot on Hope Avenue.

13.59 acres located just west of the Basket Lane subdivision (1 Hope Avenue) were sold to Robert Bouchard of Estelle Estates. In 2018, the new property owner sought to enter into a contract zone outlined in the 2002 agreement with the City of Portland. However, City Staff suggested pursuing a zoning map amendment to rezone the parcel to R-3 Residential, which had also served as the basis for the C-40 Contract Zone, as the City had sought to limit the number of new contract zones. At the October 1, 2018 Planning Board meeting, the Planning Board voted unanimously to approve the zoning map amendment to rezone 1 Hope Avenue to R-3 Residential. Since this approval, GenX Capital Partners LLC purchased the property.

IV. EXISTING CONDITIONS AND SURROUNDING AREA

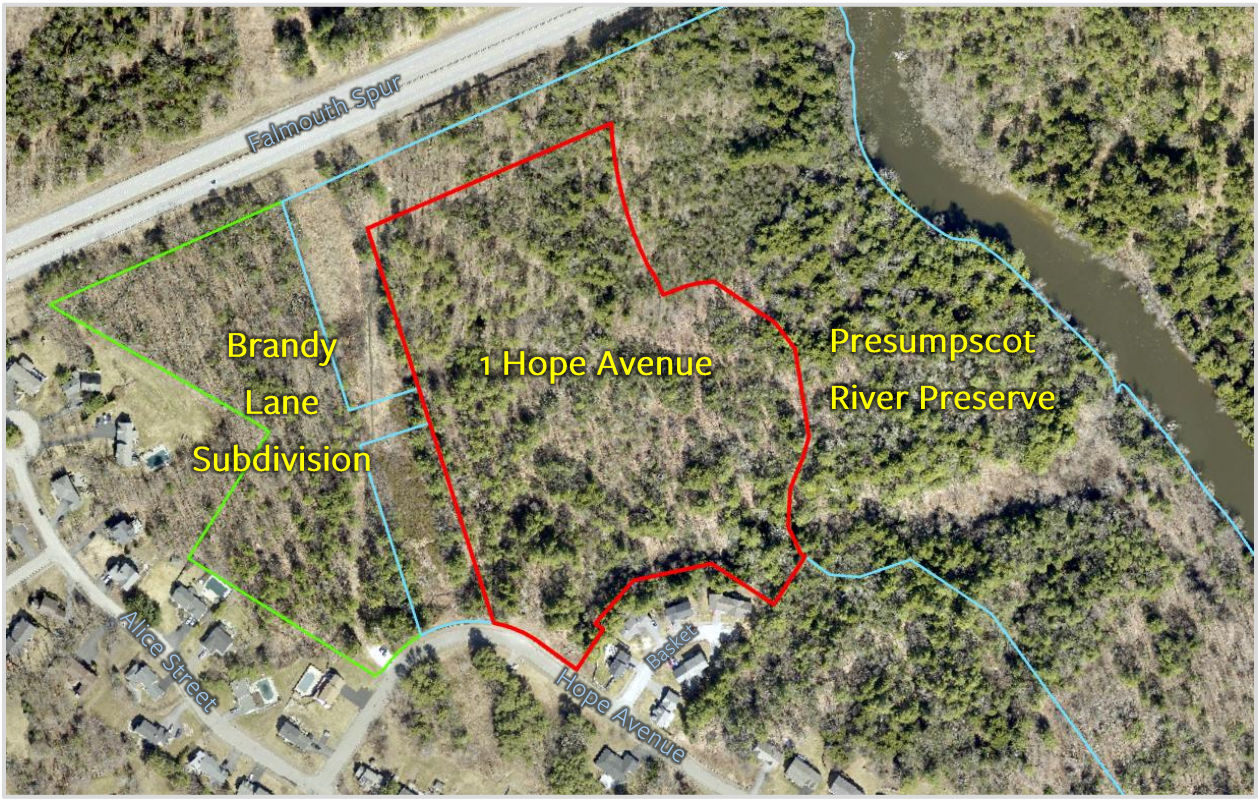


Figure 3: Surrounding Context

The development site consists of three parcels, totaling 13.59 acres, that is currently undeveloped woodlands bounded by the Presumpscot River Preserve to the east, the Basket Lane Subdivision to the

southeast, and Hope Avenue to the south. The property has a high degree of relief in topography due to a transecting stream running approximately east-west along the southerly property boundary, and a consistent slope towards the Presumpscot River. Other property constraints include extensive wetlands located throughout the site. Immediately to the west of the proposed development site is a Central Maine Power (CMP) transmission line, which is situated within a 135-foot wide utility easement. The Brandy Lane Subdivision also partially borders the proposed development to the west. Development of Brandy Lane commenced in 2018, and the construction of new single-family homes began in 2023. In looking at the surrounding context, this area of North Deering is predominantly low-density single-family housing, with the majority of properties being zoned R-2 Residential.

V. PROPOSED DEVELOPMENT

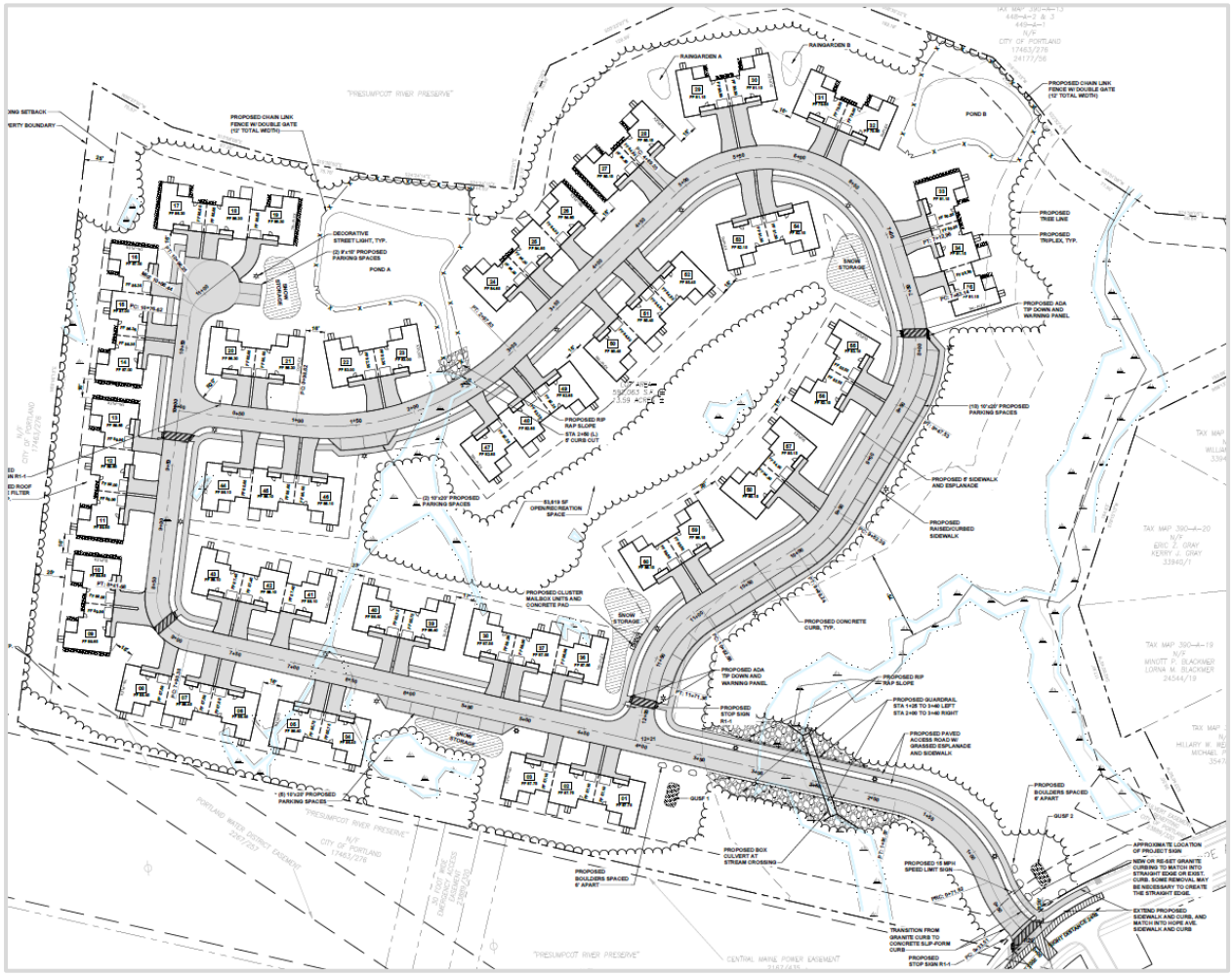


Figure 4: Proposed Development Site Plan

GenX Capital Partners, LLC is proposing to develop 60 new dwelling units through a combination of duplex and triplex buildings. The development includes a private road through the site that connects to an existing curb cut on Hope Avenue. The proposed road contains a stream crossing with a box culvert. The proposed development includes sidewalks throughout the site connecting into the existing sidewalk network at Hope Avenue. As the site is located adjacent to existing conservation land and an extensive trail network managed

by Portland Trails, the applicant is proposing to dedicate passive recreation open space as part of this development and would connect the site with existing trails in the area.

VI. RIGHT, TITLE, & INTEREST

The applicant has provided a short form quitclaim deed dated June 17, 2022 for the parcels associated with 1 Hope Avenue as demonstration of Right, Title, and Interest (Attachment 3). The deed includes an easement to the City of Portland for the purpose of providing a gravel emergency access road and a 3,083 sq. ft. culvert easement benefiting the City of Portland which includes the right to construct, repair, and perpetually maintain the culverts, pipes, or ditches related to the existing drainage system. The applicant has provided an easement dated December 30, 1955 granted to Portland Water District for the purposes of accessing portions of the site as well as lay, relay, repair, maintain, and remove water pipe or pipes (Attachment 6).

VII. FINANCIAL & TECHNICAL CAPACITY

The applicant has provided evidence demonstrating technical capacity (Attachment 3) which details the previous projects developed and financed by GenX Capital Partners, LLC and includes current and past development projects in the Greater Portland area.

The applicant has provided evidence demonstration technical capacity (Attachment 3) which highlights key members of the development team including Shinberg Consulting, Haley Ward Engineering, Owen Haskell Surveyors, RS Leonard Landscape Architecture, and Barton & Loguidice Inc. These teams have a wide-ranging portfolio of successful work in Portland and Maine. The document handful of projects constructed in the area.

VIII. ZONING ANALYSIS



Figure 5: City of Portland Zoning Map

The proposed development is located entirely within the R-3 Residential zone. The R-3 Residential zone provides for medium-density residential development characterized by single-family homes on individual lots and also allows for planned residential unit developments (PRUD) on substantially sized parcels. Aside from residential uses, the R-3 zone also permits, for example, parks, , municipal uses, and wind energy systems. The applicant is proposing a PRUD and is subject to *Table 7-B: PRUD Dimensional* Standards in Chapter 14 Article 7 Dimensional Requirements. The table below provides information on PRUD Dimensional Requirements in the R-3 zone and the proposed development's conformance:

R-3 PRUD Zoning Analysis			
Dimensional Requirement	Required	Proposed	Status
Minimum Lot Area	3 acres	13.59 acres	Met
Minimum Net Land Area per Dwelling Unit	6,500 sq. ft. / DU	6,831 sq. ft. / DU	Met
Maximum Units Per Building	>5 acres – 6	3	Met
Maximum Average Number of Units Per Building	>5 ac. – 5	2.5	Met
Maximum Structure Height	35 ft.	More Information Needed	Under Review
Maximum Building Length	With Integral Garages: 140 ft.	More Information Needed	Under Review
Minimum Building Setback from External Subdivision Property Lines	3 or Fewer DU in Buildings: 25 ft.	More Information Needed	Under Review
Minimum Distance Between Detached PRUD Dwelling Units	16 ft.	16 ft.	Met
Minimum Common Recreation Open Space Area	300 sq. ft. / DU	893 sq. ft. / DU	Under Review
Habitable Space Elevation	No habitable space in a PRUD shall be below grade, except basements that are a part of below above-ground units.		Met

IX. SITE PLAN REVIEW

The proposed development has been reviewed by staff for conformance with the City of Portland Site Plan Ordinance, Section 14.6. According to Section 6 Table 6-A, PRUDs shall also be subject to the Subdivision Review, Section 15.4. City Staff provided an initial round of comments on June 13, 2023 (Attachment A) and a second round of comments on August 3, 2023 (Attachment B). Additionally, the Urban Designer provided a Design Review Memo on July 24, 2023 (Attachment C). The applicant provided comment responses and updated drawings on July 11, 2023 and August 29, 2023. City Staff have not reviewed the most recent submission.

Transportation

The applicant is proposing to construct a new private roadway off of Hope Avenue that will provide vehicular and pedestrian access to the 60 proposed units. The street loops around the site with a small cul-de-sac at the northwest corner of the site. City Staff have requested that a traffic calming study be completed to evaluate current speed conditions on nearby streets and identify strategies as needed to calm traffic and facilitate safe street conditions. Although the applicant is proposing sidewalks from Hope Avenue through most of the site, City Staff have requested that additional sidewalks be constructed in order to serve all residential units. Additionally, City Staff have recommended an evaluation of pedestrian facilities documenting adequate accessibility from the site to the nearest METRO transit stop; the closest transit stations are at the intersection of Washington Avenue, Auburn Street, and Garsoe Drive along GP METRO Route 9a and 9b. The evaluation needs to detail conditions of sidewalks, ADA Compliance, signage, crosswalks, and any locations that could be a safety concern. The applicant provided a response in Comment Response III (Attachment 16) noting that the Garsoe Drive and Hope Avenue sidewalks were constructed circa 2000 and 2005 respectively. The applicant noted a paved sidewalk ramps at roadway intersections, however, no painted crosswalks or detectable warning strips were witnessed in the surrounding streets. Generally, the pavement appears in good condition with occasional cracking. Some tripping hazards occur nearby tree growths along Garsoe, within 50 ft. of Auburn Street.

The applicant has submitted a Traffic Assessment and Speed Study (Attachments 12) as requested by the third-party traffic engineer. City Staff have not reviewed the most recent submissions.

Environmental Quality

The existing site is currently an undeveloped woodland. The applicant has provided a letter from Maine Department of Inland Fisheries and Wildlife (MDIFW) indicating that certain endangered and threatened species have rare occurrences in the proposed development area. City Staff have requested an updated letter from MDIFW as the originally submitted letter suggested an updated letter from MDIFW at the time of site plan application. City Staff have also requested that a tree survey be completed that identifies the location, quantity, specie and proposed preservation/removal status of all trees 16" DBH or. The site plan depicts the limit of broad tree clearing, with no clearing around the perimeter of the site, or within the interior trail area. City Staff are still reviewing potential impacts to wetlands within the development area.

City Staff provided detailed landscaping comments regarding species of trees and other plantings and have recommended native species alternatives. City Staff have requested a plan that includes connections to the surrounding trail network. As part of site plan review and the design review, City staff noted that the applicant should consider additional connections to the external trail network wherever possible with a minimum addition of a connection at the northeasterly corner of the property. In addition, the applicant should consider incorporating existing trees and groves of trees into the overall PRUD design to minimize the need for tree clearing and maintain a substantial tree canopy.

Sewer Capacity

In March of 2023, the applicant met with the Department of Public Works Water Resources Division regarding the proposed development. City Staff noted that the City-owned pump stations in the area at Hope Avenue and Curtis Road were at capacity and could not provide sufficient capacity for the proposed development. DPW provided guidance and information in order to assist the applicant in developing possible solutions to increase sewer capacity to service this development. On July 20, 2023, the applicant submitted a Preliminary Sewer Alternative Analysis to DPW with four proposed approaches to upgrading surrounding infrastructure.

DPW has determined that the applicant should eliminate the storage and pumping system proposed on the development site and instead, connect the development by gravity to the Hope Avenue collection system, and upgrade the Hope Avenue pump station to meet a condition of 150 gpm per pump. DPW further noted that the Curtis Road pump station may warrant future upgrades. Based upon existing conditions and the proposed upgrades, there would be adequate sewer capacity to service the proposed development.

Water Quality, Stormwater Management, and Erosion Control

As an undeveloped woodland site with wetlands present, the applicant is proposing significant grading and erosion control work as well as a sitewide stormwater management system consisting of a newly constructed stream crossing near the entrance of the site along Hope Avenue, two separate wet ponds on the North portion of the site, two grassed underdrained soil filters, two bioretention cells, and roof drip edge filters for each structure. The applicant is proposing to treat 98.60% of the impervious area and 85.97% of the developed area. Maine DEP Chapter 500 requires the applicant to provide treatment of no less than 95% of the impervious area and no less than 80% of the developed area. The proposed development is subject to Site Location of Development as the project is proposing over three acres of developed area and impervious surfaces. The Site Law standards are discussed below. City Staff provided comments on the stormwater management plan and the civil plan set regarding conformance with Chapter 500 Maine DEP Stormwater Standards and the *City of Portland Technical Manual* (Attachment 9). The applicant has provided extensive responses to comments that have not yet been reviewed by the Third-Party Stormwater reviewer.

The applicant also requires a Natural Resources Protection Act (NRPA) Permit-by-Rule (PBR) application for the construction of the stream crossing proposed on site. The applicant is required to file notice with the Maine Department of Environmental Protection. Additionally, the applicant requires a NRPA Tier 1 Freshwater Wetland Alteration for the proposed impact to developments. The applicant will need to submit all permits to the City from both the MEDEP and the US Army Corps of Engineers. In their most recent submission, the applicant provided a copy of the NRPA PBR application (Attachment 9).

X. SITE LOCATION OF DEVELOPMENT

The proposed development is required to receive approval for a Site Location of Development (SLOD) Permit application. The City of Portland has delegated review authority for SLOD permits. Section 14.3 of the *Technical Manual* contains the SLOD standards required to be met. The applicant has provided a SLOD application (Attachment 9). City Staff continue to review the project against the relevant SLOD requirements of the *City of Portland Technical Manual*.

XI. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant is required to hold a Neighborhood Meeting as part of this application process. The applicant held a neighborhood meeting on May 31, 2023 (Attachment 17).

The Planning & Urban Development Department has received 10 Public Comments (PC1 – PC10) regarding the proposed development. Many of the comments raised concerns to the potential traffic increase along Hope Avenue and speak to the safety and single-family character of the surrounding neighborhood.

XII. NEXT STEPS

- City Staff and Third-Party Review of Updated Materials
- Applicant Resubmission
- City Staff and Third-Party Review
- Schedule next Planning Board meeting

XIII. ATTACHMENTS

STAFF ATTACHMENTS

A. City Staff + Third Party Review I
B. City Staff + Third Party Review II
C. Design Review Memo

APPLICANT SUBMITTAL

1. Project Description + Narrative
2. Major Site Plan + Subdivision Checklist
3. RTI + AA + Fin-Tech Capacity
4. Waiver Requests
5. Zoning Information
6. Easements
7. Availability of Public Utilities
8. Building Information and Design Specs
9. Evidence of State Approvals and Applications
10. Site Plan Standards
11. Stormwater Management
12. Traffic Assessment
13. Geotechnical Report
14. Response to Comments I 6.2.23
15. Response to Comments II 7.4.23
16. Response to Comments III 8.9.23
17. Neighborhood Meeting

PLANS

Plan 1. Cover
Plan 2. Legend
Plan 3. Civil Notes
Plan 4. Boundary Survey
Plan 5. Existing Conditions
Plan 6. Proposed Site Plan
Plan 7. Proposed Grading Plan

Plan 8. Utility
Plan 9. Lighting
Plan 10. Main Road Plan and Profile
Plan 11. Loop Road Plan and Profile
Plan 12. Pre Hydrology
Plan 13. Post Hydrology
Plan 14. Treatment
Plan 15 Landscaping I
Plan 16. Landscaping II
Plan 17. Active Recreation
Plan 18. Open Space
Plan 19. Details

PUBLIC COMMENT
PC 1. Jason Cole
PC 2. Nathan Hankla
PC 3. Bob Benak
PC 4. Benjamin Hober
PC 5. Libby Derrig
PC 6. Hillary Weimont
PC 7. Bryn Sewell
PC 8. Jessie Pinchoff
PC 9. Rick Tyler
PC 10. Harry Boucher

City Staff Comments | June 2, 2023 | PL-002454-2023 | 1 Hope Avenue
Planner: Charles Tetelman (ctetelman@portlandmaine.gov)

Please submit a written response to the comments below and upload the response, revised submissions, and new material to Project Dox (make sure all submissions maintain the same file naming format to allow for versioning) Once uploaded, please send an email to ctetelman@portlandmaine.gov notifying the planner of the resubmission:

**updated 6.13.23 to include further comments from DPW Water Resources.*

NEW COMMENTS FROM DPW WATER RESOURCES:

- DPW has determined there is not sufficient capacity in the existing sewer system to accept flows from the proposed development project. Both City owned and cperated pump stations in the area at Hope Avenue and Curtis Road are both currently at capacity. This information was previously conveyed to the applicant team by DPW during a meeting conducted in March of 2023. During that meeting, DPW directed the developer to review the "2016 Curtis Road Pump Station Upgrade Alternatives" report to review potential options, identify a possible solution and present it to DPW for review. DPW also requested that the developer provide the department proposed project wastewater flows. The applicant has not yet submitted any additional information to DPW for review since the March 2023 meeting.
- The applicant makes a statement in the site plan documents that *"the existing Hope Avenue pump station does not have capacity to accept wastewater from the proposed development during peak hours"*. For clarity, DPW has determined and previously communicated to the applicant that both the Hope Avenue and Curtis Road pump stations do not have average daily flow or peak hour design capacity to serve the proposed development.
- The applicant shall clarify the proposed private force main size and revise the connection to the Hope Avenue sewer in accordance with technical manual standard 2.5.1 or 2.5.2. The proposed connection is contingent on DPW granting the applicant wastewater capacity approval.
- It appears that in order to complete construction of some of the lots and the drainage infrastructure, work will be required outside the boundaries and on City property with a Land Bank designation and with conservation easements. The applicant needs to clearly show their construction and impact envelope and cannot assume they will be able to obtain access/temporary impact easements offsite. This will need to be addressed, since most conservation easements do not provide for temporary access and construction easements.
- The Land Bank Commission may need to review any proposed temporary impact easements on Land Bank designated property.
- Stormwater discharges from the proposed wet ponds and other proposed green infrastructure systems into the existing drainage channels/streams on the steep slopes leading to the river will likely result in significant erosion impacts and potential impacts to the conservation area and trail network without a thoughtful and robust outlet protection design for each outfall. DPW has observed significant erosion at existing stormwater discharge points associated with previous development in this area. The terrain downstream of the project area is steep and the soils are known to be thin to bedrock and highly erodible.
- City of Portland Technical manual standard 8.2.1 requires the establishment of a 100' buffer set back for development adjacent to perennial streams. The applicant shall plot this setback requirement for the stream which runs through the site on sheets C704 and C103 and revise the design to meet this setback requirement.

GENERAL

- Required documents for Design Review:
  - Landscape Plan with Proposed Plantings, recreation and open space areas
  - Architectural Renderings and Floor Plans for the two-family housing types
  - Proposed Exterior Façade Materials throughout the proposed development
- City Staff (DPW mostly) met with applicant team in March 2023 and it was determined that the City does not have wastewater capacity to serve this development without significant upgrades to the City's sewer system in this area. The applicant partially acknowledges the capacity issue in the site plan submission documents. City Staff have not heard back from the applicant since the original meeting back in March. Additionally, it does not appear that the applicant has formally submitted a wastewater capacity application as part of the preliminary site plan submission. City Staff are still working to determine if impact fees could be eliminated or reduce to offset potential infrastructure upgrade costs. Additional DPW Water Resources are to come.

ZONING

- In a PRUD the net land area per dwelling unit needs to be determined. Net land area is defined in section 7.2 as: *The land area arrived at by subtracting from lot area the square footage of the following: a) areas of special flood hazard; b) existing watercourses measured by the area between the top of the banks at the normal high-water mark; c) wetlands; and d) slopes of 25% or greater. Where a slope of 25% or greater was altered to less than 25% within the two years immediately preceding a development proposal, such slope shall also be subtracted from the lot area.* The applicant needs to provide the calculation for the net land area to determine what the proposed net land area is for the 60 units.
- The Zoning Analysis states that there is 900 sf of common recreation open space per unit. Footnote 2 under Table 7-B states: *Common open space shall be designated on the site. The primary purposes of such open space areas shall be for passive or active recreation. Such spaces may include natural, landscaped or hardscaped elements. At a minimum, a contiguous area of 6,000 SF shall be provided.* They show a bubbled continuous area labeled open/recreation space on the proposed subdivision plan, but they don't indicate the square footage. They need a minimum of 18,000 sf of common recreation open space.
- Under design standards on the subdivision plan the applicant states that the building height will be 25'. Please submit any elevations for the triplexes and duplexes?

TRANSPORTATION

- The applicant should consider adding a sidewalk to the end of the cul-de-sac. Crosswalks shall also be provided for roadway crossings.
- The applicant shall conduct a traffic calming study on the abutting neighborhood streets that will provide access to the development. This study shall document existing vehicle speed conditions and identify strategies to address potential problems.
- The applicant shall conduct an evaluation of pedestrian facilities documenting adequate accessibility from the site to the nearest Metro transit stop.

- Third-Party Traffic Consultant has determined that the traffic from the proposed development will not create unacceptable mobility problems.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

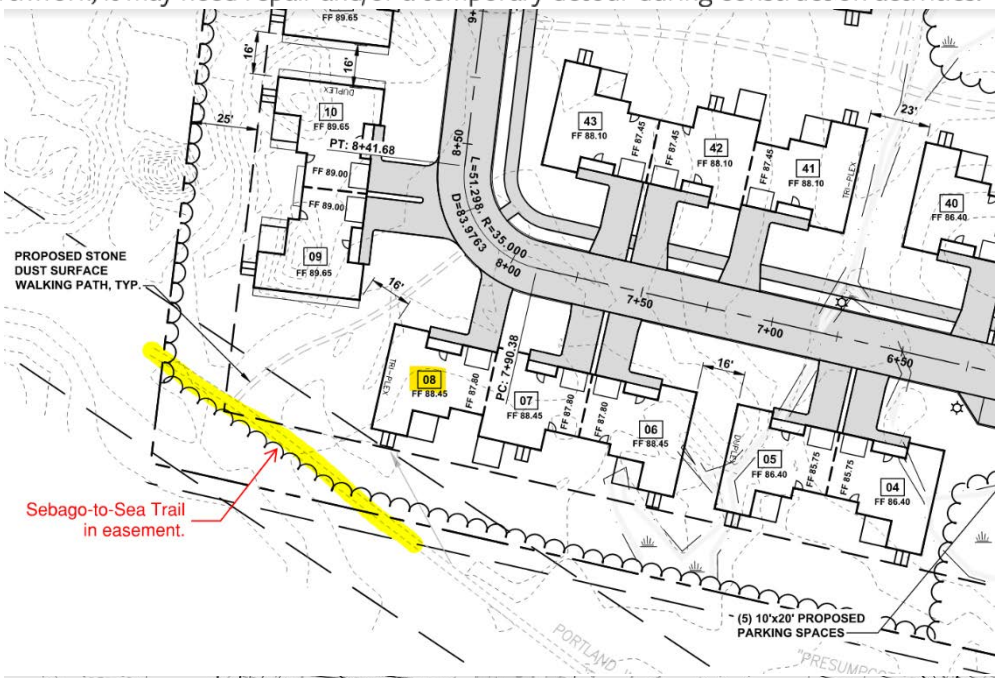
- Please submit a Stormwater Management Report.
- Please provide copies of the Site-Location of Development Permit.
- Provide documentation to illustrate that sufficient site distance exists from the development looking towards Hope Avenue.
- The City's Technical Manual has been recently updated and approved. After reviewing the proposed details for this project it is clear that you are using the outdated details. The applicant shall update all proposed details (Site, Sewer, Stormwater, Landscape, ... details) to meet the requirements of the recently approved technical manual update. CAD files can be obtained upon request.
- The applicant shall create a 20 scale plan depicting and labeling all improvements in the ROW. Improvements and existing conditions in the ROW shall be dimensions on the plan view sheets. For example ROW, street, lanes sidewalk, esplanade driveways (and other improvements) widths as well as when a width changes.
- The applicant shall update the plans to label and or provide spot grades and slopes for the proposed sidewalks and driveway improvements at grade breaks.
- The proposed bituminous sidewalk cross slope shall not exceed 2% at the property line. If the existing sidewalk grades are not compliant at the property line, then the limits of sidewalk replacement shall be extended to include a 5 foot minimum transition zone from the proposed 2% to the existing sidewalk slope.
- If the existing Granite Curb will be reset the applicant shall insure that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation / during construction.
- On the site plan note the location of the curb that will be removed and reset per the current City standards.
- It is the City's standard to have the sidewalk material continued through the driveway aprons at grade with the proposed sidewalk and not in excess of 2% cross-slope. The applicant shall depict the proposed sidewalk and driveway on the plans to meet the current City standards. The sidewalk and driveway shall be constructed in accordance with the City's Sidewalk and Driveway Apron Material Policy and the granite curb installed per the current City standards. The applicant shall update the plans and provide spot grades and slopes for the proposed sidewalk. The sidewalk material shall be continued through the driveway aprons at grade with the proposed sidewalk and not in excess of 2% cross-slope per the current City standards.
- Consolidate proposed service trenches to have one final trench repair. All pavement cuts in the City ROW shall be repaired per the Minor Excavation Pavement Repair Details (prior to paving the finished surface) found in the Rules and Regulations for Excavation Activity.

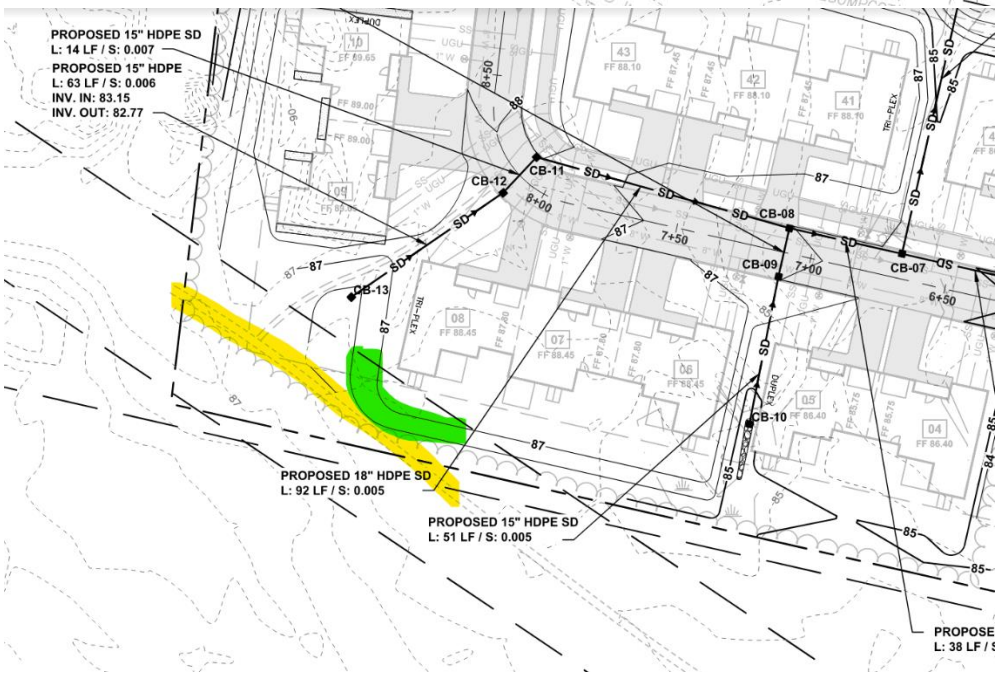
PUBLIC SAFETY

- Additional hydrants will be required.

LANDSCAPING & ENVIRONMENTAL QUALITY

- Based on the proposed grading, it appears that the Sebago-to-Sea Trail will be impacted by adjacent fill at the back of unit 08. Depending on whether the trail is actually disrupted by earthwork, it may need repair and/or a temporary detour during construct on activities.





- Please provide clarity to the terms and conditions of the Portland Water District Easement that overlaps a corner of the proposed development's parcel. The Sebago-to-Sea Trail falls within this easement. Does the easement allow regrading within it? Has there been any coordination with

Portland Trails about possible trail impacts and the proposed trail connection that the developer is making? If not, there should be some coordination between Parks, Portland Trails, and the applicant to discuss trail impacts, possible need for a temporary trail detour and the trail connection that's proposed.

- The survey does not identify existing trees, DBH and species present on site. It is understood that the extent of tree canopy and tree removal is very extensive. The technical manual Section 4.3.1 provides for this condition: "For sites with a high density of existing trees, the survey shall identify all existing shade and ornamental trees that may have been part of a prior landscape scheme for the site and the location, average size and species of groves of trees, and individual trees greater than 16" DBH." The applicant should use the tree replacement rates noted in the technical manual.
- The applicant should keep in mind Chapter 14 Land Use Code requirements Landscape Preservation, Site Landscaping and Buffers, and Street Trees. The Landscape Preservation requirements are as follows: " All development subject to zoning setbacks shall preserve a minimum of 30% of existing trees 10 inches DBH or greater within the required setback area unless trees are non-native invasive species, as identified in the landscaping and landscape preservation standards of the Technical Manual, or are deemed unsalvageable by the Portland City Arborist or their designee.
    - Waiver Language Example:
    - "Where the applicant can demonstrate that preservation of existing vegetation would compromise development of the site, the review authority may permit the substitution of landscaping in other areas of the site as described in Table 14-D and/or a financial contribution to the City of Portland Tree Fund for an amount proportionate to the cost of trees removed. Replacement trees shall be of a species identified on the City of Portland Recommended Tree List as described in the landscaping and landscape preservation standards of the Technical Manual. Where the planting of replacement trees on the site is not feasible, the applicant shall contribute an amount proportionate to the cost of required replacement trees to the City of Portland Tree Fund, as described in the Landscaping and landscape preservation standards of the Technical Manual."
- The site plan does not show proposed street trees or plant material. Consequently, it is not possible to evaluate whether and how the applicant is meeting street tree requirements. The applicant shall provide a planting plan/landscape plan which identifies street trees and other proposed plant material by location, size and species/cultivar.

City Staff and Third-Party Peer Reviewers have completed the latest review of this application based off of the most recent submissions. Comments below have been provided to the Planning & Urban Development Department from the Department of Public Works, Water Resources, Zoning, and Third-Party Consulting Engineers (Stormwater + Traffic).

Please submit a written response to the comments below and upload the response, revised submissions, and new material to Project Dox (make sure all submissions maintain the same file naming format to allow for versioning). Once uploaded, please send an email to ctetelman@portlandmaine.gov notifying the planner of the resubmission.

Be advised that additional comments may be forthcoming and other changes may still be required if the comments are not addressed adequately. If you have any questions, please do not hesitate to ask.

General Review Comments

Review	Discussion	Status
Design Review	Overview: A design review memo has been sent over to the applicant team. Comments: • Design review comments are in design review memo.	Under Review
Zoning	Overview: The applicant is subject to the R-3 PRUD Dimensional Standards. The applicant has provided the net land area calculation and are meeting the 6,500 sq. ft. of net land area per dwelling unit. Comments: • Zoning still requires building elevations to confirm the heights of the structures. • Based on other comments, Zoning staff will continue to review the common open space requirement. Roadways and sidewalks are not considered common open space elements. However, the undeveloped/landscaped internal area does satisfy the 18,000 sq. ft. of common open space required and the required contiguous area of 6,000 sq. ft.	Under Review
EPlan / Project Dox	Please be sure to maintain the file naming conventions. Adding 'v2' to the documents just creates more files. If you keep the same file name, Project Dox tracks the files and maintains versioning.	Upkeep
Additional Submissions Requested: • Building elevations for both the two-unit and three-unit proposed building types.		

14.6.1: Transportation Standards

Standard	Discussion	Status
Impact on Surrounding Street Systems	Overview: The applicant is proposing to construct a road off of Hope Avenue to provide vehicular access to the 60 proposed units. The street loops around the site with a small cul-de-sac on the northwest portion of the site. The Comments: • The applicant should provide a traffic calming study on the abutting neighborhood streets that will provide access to the development. The study should document existing vehicle speed conditions and identify strategies to address potential problems. • Driveway spacing dimensions shall meet City Standards (Technical Manual)	Not Met

	• Improvements in ROW should be dimensioned on the plan sheets including streets, lanes, sidewalks, esplanades, and driveways as well as roadway width changes. • The applicant should submit plans and turning templates that show how emergency vehicle access will be maintained throughout development.	
Access and Circulation	Overview: Sidewalks start off of Hope Avenue and are mostly throughout the site. Comments: • The applicant should consider adding a sidewalk to the end of the cul-de-sac. Crosswalks shall also be provided for roadway crossings. The sidewalk should extend to serve all residential units on the cul-de-sac. • The applicant should conduct an evaluation of pedestrian facilities documenting adequate accessibility from the site to the nearest Metro transit stop. The most recent response was general; the evaluation should detail conditions of sidewalks, ADA compliance, signage, crosswalks, and any locations that should be a concern from a safety perspective. • Update crosswalk design detail to meet City Standards (Technical Manual) • The applicant should conduct a sidewalk waiver analysis justifying the provision of a sidewalk on only one side of the street.	Not Met
Public Transit Access	Overview: The site is located near GP METRO Route 9a and 9b. The closest bust stations are at the intersection of Washington Avenue, Auburn Street, and Garsoe Drive. Comments: • Has the applicant spoken to GP METRO to discuss improvements to the bus route to provide more consistent bus routes to this area? Increased transit to the site and surrounding neighborhood could have positive impacts on traffic and congestion in the area.	Met
Parking	Overview: The applicant is providing driveways for each unit and on-street parking intermittently throughout the site. Comments: • One area of on-street parking (on cul-de-sac) does not have a sidewalk for access into and out of the vehicle while abutting a snow storage area – reasonable access to vehicles should be provided. • Consider shortening the driveway lengths – each driveway should provide enough space for one vehicle as one additional vehicle should be parked in the garage. Shortening driveway lengths will allow for the buildings to be set closer to the road and providing more space for recreation in the rear and potentially moving the tree clearing lines.	Not Met
Transportation Demand Management	Overview: A TDM is not required as part of this application. Comments: • Although a TDM is not required, has the applicant considered employing TDM strategies to mitigate traffic and encourage multi-modal transportation?	Not applicable
Additional Submissions Requested: • Traffic Calming Study on surrounding street context • Emergency Vehicle Turning Templates • Further evaluation of pedestrian facilities • Sidewalk Waiver Analysis • Updated crosswalk design detail		

14.6.2: Environmental Quality Standards		
Standard	***Discussion***	***Status***
Preservation of Significant Natural Features	Overview: The applicant provided a letter from Maine IFW which notes that project details are lacking for a complete review. The letter notes a handful of endangered/threatened species that have rare occurrences in the proposed development area. The letter also notes that 'prior to the start of any future site disturbance, [IFW] recommends additional consultation with the municipality, and other state resource agencies..." Comments: • Provide an updated letter from Maine IFW on Significant Natural Features in the area of development.	Not Met
Landscape Preservation	Overview: The applicant has included a limit of tree clearing on the perimeter of the site as well as the interior trail area. City Staff are still reviewing the impacts to wetlands in the area. Comments: • The applicant shall submit a tree survey to identify trees over 16" DBH and track/quantify trees and removal of trees. See Technical Manual section 4.3.1 for tree surveying requirements on sites with a high density of existing trees.	Not Met
Site Landscaping and Buffers	Overview: The applicant has submitted a landscape plan with plantings throughout the site. Comments: • City Arborist team has observed, in recent years, that the Princeton Elm (though disease resistant) exhibits boor and unsightly branching structure as it matures. This makes it prone to wind and storm damage as it becomes established. The Jefferson cultivar is also disease resistant and exhibits better branching – it is preferred over Princeton where available. • Given the pre-development woodland on the site consists of Pine, Oak, Maple, Birch, and Poplar, City Staff would prefer to see oaks as the street tree along the entry drive to the development. The Pin Oak in particular has proven reliable as a standard, single-leader street tree where overhead space allows. • City Staff encourage more species diversity in small trees where possible other than simple Serviceberry; recommended alternatives include Musclewood, Carpinus caroliniana where appropriate. Where blooms are desired, another alternative could be the American Smoketree. • The proposed trees near the entrance to the Sebago to Sea trail should be species that blend with the native tree canopy of the surrounding forest. The trees shown on this part of the landscape plan are currently unlabeled. • As an alternative to Rhus aromatica 'gro-low', City Staff suggest Diervilla lonicera for a spreading/roving groundcover alternative. Where a shorter groundcover is desired, Prunus pumila var. Depressa (Sand Cherry) has proven durable and attractive. • Technical Manual requires at least 50% of proposed trees and shrubs/perennials be native plant species. See Technical Manual section 4.7.3; A few native alternatives to the species currently specified include Pennsylvania Sedge + Appalachian Sedge (rather than Japanese Sedge), Geranium maculatum (rather than Cranesbill Geranium), and Kalmia latifolia (rather than Hybrid Rhododendron).	Not Met

	• Planting strips shown between adjacent driveways appear to be 2' wide or narrower. This narrow strip of vegetation between driveways is unlikely to survive and will revert into a compacted strip of weeds or bare soil. City Staff suggest a minimum of four feet for this strip if a planted buffer is the intention; alternative layouts may remove this feature. • The landscape plan is not clear about where the rain garden mix is being specified and where the conservation seed mix is being proposed. Labels or dedicated hatches/colors would help. • Please provide a plan that includes the surrounding trail network (if possible). The applicant should consider additional connections to external trail network wherever possible and at least a connection on both sides of the development. • Could the applicant consider alternative layouts (homes closer to road, reducing driveway footprints) to increase forested buffers?	
Water Quality, Stormwater Management and Erosion Control	Overview: A perennial stream and significant wetlands are located on site. The applicant is proposing a box culvert stream crossing at the entrance of the site and significant grading/ESC work. The proposed development includes two detention pond features. Chapter 500 Stormwater Management, NRPA permits, and SLOD are all required reviews as part of this application. Comments: • DPW Water Resources has received and is currently reviewing the preliminary sewer capacity alternatives analysis report provide by the applicant. • There appears to be no design/NRPA permitting information for the proposed box culvert. Design and permitting information for the culvert should be provided for review. The proposed culvert alignment appears to shift the existing stream alignment at the downstream end of the culvert. Provide further information on the impacts of this alignment change. • Has the applicant completed a geotechnical analysis to ensure the 1:1 rip-rap slope being proposed at the entrance drive culvert is adequate? The rip-rap slope stabilization detail on sheet C504 depicts a max slope of 2:1. • The applicant's comment response letter indicates that plunge pools or level spreaders will be used at proposed stormwater discharge points to prevent erosion downstream from the site. The plans should be updated to reflect this comment. Construction details and design information on the proposed plunge pools and level spreaders should also be provided. • The applicant's comment response letter indicates that the revised plans depict the required 100' perennial stream setback on sheets C103 and C704. The 100' setback line could not be located on the updated plans. Please provide a plan showing the 100' setback on sheets C103 and C704 so the impacts can be assessed. • The should add a clear limit of work line on the sheets C103 and C704 to ensure abutting public land won't be impacted by the proposed grading work at the property lines. The proposed grading for the embankment slope associated with wet pond A extends right up to the property line. • Grading Plan: The roof drip edge pipe discharge should be clarified. No pipes are shown, but are included in the proposed detail. Similarly, the pipes and structures within the soil filter sand biocells are not shown and will need to be included as part of the overall piping plan.	Not Met

	• Grading Plan: For both Wetponds A and B, the pipes discharging from the outlet structures are shown discharging directly to the pond slopes without any specific outlet protection shown on the plan. City Staff would suggest sending the discharge pipes to the rip rap spillways for each pond – take advantage of the stabilization that is already proposed for those areas. • Grading Plan: The intent for slope stabilization adjacent to the roadway at the location of the culvert should be clarified. The detail for rip raped slope stabilization is noted for max 2:1 side slopes, and the proposed slopes at this location are 1:1. This is a very steep slope, and an engineered solution for stabilization will likely be required. • City Staff recommend that the stormdrainage be turned on the utility plan for clarity, similar to how the utility info is included on the grading plan. City Staff note that the proposed transformer out at Hope Avenue may be too close to the proposed drainage. • The proposed underground electric is shown very close to the 1:1 sloped edge over the cross culvert. Applicant should confirm with CMP that the proposed layout can be constructed. • The project is required comply with MaineDEP Chapter 500 and City of Portland Technical Manual Section 5 Requirements: ○ Basic Standards: Erosion and Sedimentation Control will be required per MaineDEP standards. Some details have been provided, but standard notes and a plan showing proposed locations are necessary. Specific care should be made around the proximity to wetlands and around ESC controls for proposed steep slopes. ○ General Standards: There is a minor typo on the calculations for Bioretention Cell B – the calculation references the underdrained soil filter area requirements, but the calculation wascompleted correctly with the larger bioretention area requirements. Just worth noting for the record in case there is ever a review or question on treatment levels. ○ General Standards; The calculations for bioretention cells reference an 18" impoundment depth. The detail and notes also shows an 18" depth from filter to emergency spillway. The MaineDEP BMP allows for 6" of depth of storage over the filter media for bioretention cells. Inclusion of 6" of storage in the filter media is also allowed. ○ General Standards: An O&M Plan and Stormwater Maintenance Agreements will be required for each of the proposed systems. ○ Flooding Standards: The project is reducing flows at all study point locations except for the first point, which sees a small increase. ○ Flooding Standards: City Staff recommend that the applicant review the time of concentration values utilized for the post-development HydroCAD model. Typically a minimum TC value of 5 or 6 minutes (I've seen justification for both) is utilized as the limitations of the software may cause issues when very small TC values are utilized. TC values of 0.1 minutes are used for some subcatchments in this model. ○ Flooding Standards: There are a few subcatchments in the post-development model with high time of concentration values that should be re-evaluated. Post subcatchments 10 has a larger TC value than the pre-development subcatchment (I believe 4) it relates to. Subcatchments 2C and 2D have large TC values as well. City Staff recommend looking at these again to make sure that the post-	

	development values reflecting existing conditions are consistent with pre-development evaluations. ○ Flooding Standards: The post-development figure should label the summation points that are being considered for the evaluation. ○ Flooding Standards: The grading plan does not include any of the piping associated with the roof drip edges. It should clarify how those are connected and where they discharge to. It is not clear how they discharge to the different summation points being considered for the Flooding Standard evaluation.	
Additional Submissions Requested: • Updated letter from Maine IFW • Tree Survey • Updated Landscape Plan • Culvert/Stream Crossing Permits and Design Details (NRPA/Army Corps) • Construction Management Plan and Narrative • Updated ESC/Grading Plans • O&M Plan and Stormwater Maintenance Agreement Drafts		

14.6.3: Public Infrastructure + Community Safety Standards

Standard	Discussion	Status
Consistency with City Master Plans	Overview: There are no Master Plans relevant to this proposed development. Comments: • None	Not Applicable
Public Safety and Fire Prevention	Overview: Comments: • Provide Turning Templates that demonstrate adequate maneuverability for emergency vehicles throughout the site and, specifically, at the cul-de-sac. • Has the applicant reached out to DPW to talk about E-911 Addressing?	Not Met
Public Utilities	Overview: The applicant is proposing to utilize public sewer, water, and electric utilities. As noted above, DPW Water Resources is reviewing the wastewater alternatives analysis report. Casella Waste will be disposing solid waste and the applicant has provided an ability to serve letter from Casella. Comments: • The applicant will need to provide an ability to serve from CMP and Portland Water District.	Not Met
Additional Submissions Requested: • Ability to Serve from CMP and PWD		

14.6.4: Site Design Standards

Standard	Discussion	Status
Massing, Ventilation and Wind Impact	Overview: N/A Comments: • None	Not Applicable
Shadow	Overview:	Not applicable

	Comments: •	
Snow and Ice Loading	Overview:	Not Met
	Comments: • The applicant needs to confirm that the snow storage area in the cul-de-sac will not interfere with emergency vehicle turnarounds. • The applicant will need to provide a narrative outlining how snow will be managed and stored on site.	
View Corridors	Overview:	Not applicable
	Comments: •	
Historic Resources	Overview:	Not applicable
	Comments: •	
Exterior Lighting	Overview: The applicant has provided a photometric plan and details.	Under Review
	Comments: • City Staff are still reviewing these submissions.	
Noise and Vibration	Overview:	Not Met
	Comments: • The applicant will need to note how HVAC units and exterior utilities will be screened and if any are expected to generate noise.	
Signage and Wayfinding	Overview:	Under Review
	Comments: • Will the applicant be proposing any signage?	
Design Standards	Overview: Design Review memo attached.	Under Review
	Comments: • Comments in design review memo.	
Additional Submissions Requested: • None		

Design Review
Planning and Urban Development Department

Subject:	1 Hope Avenue
Zone:	R-3
Date of Review:	Monday, July 24, 2023
Reviewer(s):	Sean King (Urban Designer), Zachary Powell (Senior Planner), Charles Tetelman (Planner)
Project ID:	PL-002454-2023

I. DESIGN REVIEW COMMENTS

(h) Planned Residential Unit Development (PRUDs) in the R-3 Residential Zones.

*(1) **STANDARDS.** Planned residential unit developments (PRUDs) in the R-3, R-5 or R-5a residential zones and manufactured housing parks in any zone shall meet the following standards. Design standard not met are shown in red.*

Standard (1) a. Design relationship to the site

The layout and design of buildings, roadways, parking areas, open space, recreation amenities, landscaping, drainage facilities and control mechanisms and other site improvements are organized to complement and accentuate the natural topography, vegetation, streams, water features, and other existing features of the site, and the solar orientation provides natural light within dwelling units, in outdoor open space and in recreation areas.

Staff comments: The proposed placement, orientation and arrangement of buildings types (Duplex and Triplex units) seek to minimize disturbance to the site's natural features, significant wetlands and forested areas. The development plan preserves wetlands within the center of the site for passive recreation use with the preservation of existing trees and includes drainage facilities towards the perimeter of the development area that staff finds appropriate. The proposed internal vehicular circulation includes a single vehicular access drive that loops around with individual driveways for each dwelling unit, staff finds the organization of streets is a response to natural features and topography. Staff finds a variety of driveway lengths that prioritize stacked parked cars over the location of buildings within closer proximity to the proposed streets, and recommends the applicant clarify the intent of this site layout.

Standard (1) b. Internal design character and relationship to the surrounding neighborhood

The design and layout of the development and buildings exhibit a cohesive design character and complement existing development in the surrounding neighborhood by virtue of such features as architectural style, height, scale and massing, character of exterior facades and roofs, circulation, open space, landscaping, and the transition of scale and massing with the surrounding neighborhood. Buildings with more than two (2) dwelling units or greater than forty (40) feet in length shall provide variation in roof and facade character through changes in facade setback, roof configuration, and projecting or recessed building elements.

Staff comments:
Context: The surrounding neighborhood is dominated by single-family residences organized on similar lot sizes that connect to the public street network. The proposed development and multi-family buildings exhibit a cohesive design character and site connectivity to Hope Lane, which is a small neighborhood

street. The site context is a wooded forest with existing wetlands, the applicant has proposed a native plant palette that generally transitions the development site into the existing vegetation to remain and forested edges of the property abutting the City of Portland public property.

Architectural character: The surrounding neighborhood context of single-family residences include traditional lap siding with attached garages and simple roof forms. The architectural character of the proposed building types (Duplex and Triplex) appears to include variations of vinyl siding material at entrances, living spaces and roof eaves. The proposed 2-story building types include shared entrance canopies and window fenestration patterns oriented toward primary circulation routes. The applicant shall submit elevations around the perimeter (front, side and rear) of proposed building types with material selection labeled for staff review.

Pedestrian circulation: The proposed pedestrian circulation prioritizes sidewalks in several locations throughout the development but also does not propose sidewalks along many frontages which would require residents to traverse roadways to access pedestrian pathways internal to the site. Staff finds the distribution of sidewalks for residences to be inadequate and the applicant shall provide additional sidewalks as necessary with the intent to preserve existing vegetation to the greatest extent possible and promote greater walkability.

Standard (1) c. Recreation and open space

All open spaces on the site shall be integrated into the development and designated on the site plan. Each development shall have the following features:

1. External buffers: An effective and permanent screening from neighboring properties and roadways;

Staff comments: The proposed development intends to minimize existing vegetation clearing to preserve trees and natural features at the property edges. Staff finds the proposed street trees promote a welcoming buffer into the private property. Staff finds the clearing of vegetation adjacent to the City of Portland's property, known as Presumpscot River Preserve, and the location of development to not be adequately screened and recommends the applicant restrict grading within the trail easement to reduce the amount of existing tree clearing. Staff finds the conservation wildlife mix to be appropriate adjacent to natural features and recommends slope stabilization on slopes greater than 3:1 slope.

2. Internal buffers: Areas planted, maintained and located in such a manner as to provide privacy between units and buildings and paved areas and screening of parking, utilities, roadways, waste collection facilities and storage facilities;

Staff comments: The proposed development has indicated internal buffers through shade and ornamental trees located within proximity to each dwelling unit and parking. In addition, planted screening adjacent to existing vegetation and walking trail buffer dwelling units that staff finds meet this design standard.

3. Passive recreational open space: Open spaces, designated and improved with such features as gardens, picnic areas, walking trails; benches and lawn and seating areas;

Staff comments: The proposed development has indicated proposed walking trails located at the center of the development and a trail connection to the existing Presumpscot River Preserve. Staff finds the proposed play and/or fitness features complement the proposed passive recreational use. Staff finds the location of snow storage over proposed trails to obstruct and recommends the applicant relocate snow storage appropriately to allow for year-long trail access. Staff finds that additional trail connections at the north would allow for an increase in recreational use to contribute to the overall development of open space as required per *Land Use Code Table 7-B*.

4. Active recreational open space: Open spaces designated and improved for active recreational use with facilities such as tennis courts, basketball courts, multipurpose game fields, swimming pools, and children's playgrounds; and

Staff comments: The proposed development has indicated play and/or fitness features to be placed along trail, staff finds that these open space elements contribute more to the passive recreational. Staff requests the applicant provide additional details of proposed recreational elements, size and an open space diagram to indicate the proposed open space as required per *Land Use Code Table 7-B*.

5. Private open spaces: Open spaces designated for the individualized use of unit owners such as yards, decks and patios;

Staff comments: The proposed development has indicated private decks at the rear of each dwelling unit, yard space and ornamental tree plantings that staff finds meets this design standard. Staff recommends additional screening (e.g. shrubs, vegetated trellises) to partition private decks from adjacent units and requests the applicant label all recreation and open space on the overall landscape plan.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Project Description

The Presumpscot Woods project is a proposed residential, condominium development consisting of the creation of 60 new dwelling units through a combination of duplex and triplex buildings supported by a private access way and associated utilities. The project is located off Hope Avenue, in Portland, Maine on Parcels 390/A001, 448/A001001, 449/A002. The applicant/owner, GenX Capital Partners, LLC (Owner), is proposing to develop this subdivision under the PRUD dimensional standards within the City's R-3 Zoning District.

The project site is approximately 13.7 acres in size and, although located in an urban residential neighborhood, it is currently forested and undeveloped. The land slopes range from gentle to steep on the outskirts of the property. There are small pockets of wetlands within the site and a narrow stream located in an eroded channel that divides the property. The site abuts the Falmouth Spur of the Maine Turnpike to the north and undeveloped, conservation lands to the east, which border the Presumpscot River.

Access to the site will be through an existing curb cut on Hope Ave. The Owner proposes a 20-foot wide, private access road with sidewalk on one side to traverse the property and provide vehicle, bicycle, and pedestrian access to each residential unit. A combination of garage space, driveway length, and on-street parallel parking provide applicable parking for residents and guests, while maintaining clear roadway widths for emergency access.

Residential units will be presented in a combination of duplex and triplex buildings. Each unit will be two-stories tall and include three (3) bedrooms, single-car garage, front porch, rear patio, and other such amenities. Underground power and communications conductors will service each unit along with public sewer and water services. It is expected that each unit will have individual propane tanks to provide fuel for heating, cooling, cooking, etc. Residential scale lighting will be provided by a combination of street-side light pole fixtures and residential light fixtures on the front porch of each unit.

Given the proximity of conservation land and public trail systems, the Owner is proposing to dedicate passive recreation open space as part of the development. Areas of natural forest are proposed to be maintained, with the possibility of creating and maintaining natural surface walking trails that connect to existing trails in the area.

Per the Green New Deal, the City of Portland requires that 25 percent of the 60 proposed

housing units be offered as affordable housing units (AHUs), resulting in a total of 15 AHUs for this project. The applicant is proposing to meet this requirement by constructing 8 AHUs and paying a compensation fee to offset the remaining 7 AHUs. The applicant is proposing to integrate the AHUs into the development as required by the regulations. The interior finishes of the AHUs are expected to be less expensive to construct than the market rate units and they will have 3-bedroom units, with single bay garage, front porch, back patio, etc., like the market rate units.

The Presumpscot Woods Subdivision requires review and approval through the City of Portland (City) Major Site Plan and Subdivision permitting process, as well as the Maine Department of Environmental Protection (MDEP) Site Location of Development Act (SLODA) and Natural Resources Protection Act (NRPA) permitting process. On behalf of the Owner, we are submitting application materials in support of each of these permit applications. We look forward to meeting with City Staff and Planning Board as this project's review progresses. Please feel free to reach out to us with any questions or comments.

Presumpscot Woods Subdivision
0 Hope Ave., Portland, Maine
Site Plan and Subdivision Standards Assessment

To the best of our knowledge, the Presumpscot Woods development is in compliance with all applicable sections of the City of Portland's Land Use Code, Chapter 14 – Site Plan Standards, Chapter 15 – Subdivisions, and the City of Portland's Technical Manual. Narratives have been provided with this application detailing how the development complies with each of the applicable ordinance sections. We look forward to working with the City of Portland Staff and Planning Board to finalize the project's compliance with City Standards.

CITY OF PORTLAND
Planning & Urban Development Department

MAJOR SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

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

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing for your project.

GENERAL APPLICATION DOCUMENTS	
Yes NA	**Project Description** ● Cover letter with detailed project description
Yes NA	**Completed Checklist** (this document)
Yes NA	**Evidence of 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** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes NA	**Site Plan Standards Assessment** (see Section 14.6 of the land use code) ● Summary of project compliance with site plan standards of the land use code
Yes NA	**Summary of Existing and/or Proposed Easements or Covenants, applicable.** ● Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way
Yes NA	**Waiver Requests** (see Waiver Table) ● Written request for waiver describing request and compliance with applicable waiver standards
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

MAJOR 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**	**Impact on Surrounding Street Systems (14-14.6.1(A))** ● Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes **NA**	**Access and Circulation (14-14.6.1(B))** Identify and describe the following: ● Site access and internal circulation, including ADA access ● Drive-up features, if applicable ● Loading and servicing needs, routes, and geometry, providing turning templates for delivery vehicles, if applicable ● Sidewalks and condition along street frontages and internal walkways ● Engineered details for ADA ramps and public sidewalks, meeting sidewalk material policy and construction requirements (Technical Manual, Section 1)
Yes **NA**	**Public Transit (14-14.6.1(C)), if applicable** Identify and describe the following: ● Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter
Yes **NA**	**Off-Street Parking (14-14.6.1(D)), if applicable** Identify and describe the following: ● Proposed vehicular and bicycle parking supply (including ADA-compliant parking) in relation to applicable parking requirements in Article 19 of the land use code ● Curb cut separation and parking layout (Technical Manual, Section 1) ● Construction details for bicycle racks ● Management plan for snow storage and removal
Yes **NA**	**Transportation Demand Management (TDM) (14-14.6.1(E)), if applicable** ● Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements

ENVIRONMENTAL	
Yes NA	**Preservation of Significant Natural Features (14-14.6.2(A)), if applicable** Identify and describe the following: ● High and moderate value waterfowl and wading habitat ● Aquifers (for Casco Bay Islands) ● Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) ● Proposed preservation areas and protection measures ● Documentation from environmental compliance consultants and determinations from applicable state and federal agencies
Yes NA	**Landscape Preservation (14-14.6.2(B))** Identify and describe the following: ● Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4) ● Measures to protect existing vegetation during construction
Yes NA	**Site Landscaping and Buffers (14-14.6.2(C))** Identify and describe the following: ● Overall landscaping approach and consistency with standards ● The use of screening and buffering of service areas and between non-residential and residential uses ● Existing Heritage or Feature Trees on site and measures to preserve ● Compliance with street tree requirements
Yes NA	**Water Quality, Stormwater Management, and Erosion Control (14-14.6.2(D))** Identify and describe the following: ● Erosion and sedimentation control plan and measures ● Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater law, as applicable ● Subsurface sanitary sewage disposal and groundwater protection measures

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY	
Yes **NA**	**Consistency with City Master Plans (14-14.6.3(A))** ● Describe proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes **NA**	**Public Safety and Fire Prevention (14-14.6.3(B))** Identify and describe the following: ● Compliance with Crime Prevention through Environmental Design (CPTED) requirements (Technical Manual, Section 3) ● Emergency vehicle access ● Consistency with public safety standards (Technical Manual, Section 3)
Yes **NA**	**Availability and Adequacy of Public Utilities (14-14.6.3(C)) (Technical Manual, Sections 2 & 9)** Identify and describe the following: ● Electrical services, including providing underground services ● Existing and proposed connections for public utilities and required public utility upgrades ● Sewer line connections
SITE DESIGN	
Yes **NA**	**Massing, Ventilations and Wind Impact (14-14.6.4(A))** Identify and describe the following: ● Wind and ventilation impacts on adjoining structures and/or adjacent public spaces, including wind study, if applicable ● Bulk, location, or height impacts on adjoining structures
Yes **NA**	**Shadows (14-14.6.4(B)), if applicable** ● Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes **NA**	**Snow and Ice Loading (14-14.6.4(C))** ● Describe building design measures to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes **NA**	**View Corridors (14-14.6.4(D)), if applicable** ● Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes **NA**	**Historic Resources (14-14.6.4(E)), if applicable** Identify and describe the following: ● The site's status as a designated landmark, within a historic district or historic landscape district, or within 100 feet of any designated landmark, historic district, or historic landscape district ● Compliance with standards for preservation and documentation of archaeological resources

Yes **NA**	**Exterior Lighting (14-14.6.4(F))** ● Describe how the proposed site lighting will adhere to photometrics requirements as it relates to light trespass and full cutoff fixture design, pursuant to Technical Manual Section 12
Yes **NA**	**Noise and Vibration (14-14.6.4(G))** ● Provide data on noise levels for HVAC and other mechanical equipment, such as design specifications, to demonstrate consistency with state and federal noise emissions requirements as well as City code
Yes **NA**	**Signage and Wayfinding (14-14.6.4(H)), if applicable** ● Provide signage plan showing the location, dimensions, height and setback of all existing and proposed signs ● Provide drawings of all commercial and directional signage on site
Yes **NA**	**Zone-Related Design Standards (14-14.6.4(I))** ● Address any applicable design review standards by zone, including compliance with Design Manual

MAJOR SITE PLAN
DRAWINGS CHECKLIST

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

All drawings must be submitted in a 24 x 36 sheet size.

BOUNDARY SURVEY (stamped by a Maine Licensed Surveyor and drawn as per Technical Manual Sec. 13)

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

All sheets – Include a title block with project title and the following information:

- Project street address
- Name and address of property owner & applicant
- Licensed design professional, incl firm that produced plans
- North arrow
- Date of preparation and revision history block
- Tax parcel (chart, block, and lot) number

Existing Conditions Plan with the following:

- Existing structures, with distance from primary building façade(s) to the property line
- Approximate location of structures on abutting properties
- All streets and intersections adjacent to the site
- Existing driveways, pedestrian ways, and bicycle infrastructure, including dimensions and materials
- Existing public transit infrastructure
- Existing vehicle & bicycle parking areas
- Existing utilities on site and within adjacent rights-of-way
- Existing grades (two-foot contours preferred)
- Location of water courses, wetlands, and vegetation, or other significant natural features
- Existing soil conditions and location of test pits and borings
- Zoning boundary lines, including overlays
- Location of all existing easements and rights-of-way

Proposed Site Plan with the following:

- Proposed structures, including distance from primary building façade(s) to property lines
- Ground floor area, and finished floor elevations for all buildings
- Any proposed geometric modifications to streets and intersections adjacent to site
- Location, dimensions and materials of all proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas, including turning templates
- Proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications
- Location of all snow storage areas
- Exterior lighting (please see Technical Manual Sec. 12 for photometrics requirements)

- Location of fire hydrants
- Location of solid waste management receptacles
- Location of all proposed HVAC and mechanical equipment, including proposed screening, where applicable
- Location of proposed easements and rights-of-way, including dimensions
- Please utilize color-coding and/or hatches and shading to delineate changes between the pre and post development condition as needed

UTILITY PLAN including:

- Proposed electrical infrastructure
- Location, sizing and directional flows of all proposed sewer and stormwater infrastructure
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- Proposed grades
- Proposed stormwater management measures meeting Technical Manual (Section 5) standards
- Any proposed alteration of a watercourse or wetlands
- Any groundwater protection measures
- Proposed buffers and preservation measures for wetlands or significant natural features

LANDSCAPE PLAN including:

- Existing vegetation to be preserved and preservation measures
- Proposed landscaping, screening, and street trees, including caliper widths for trees
- Planting schedule, including street trees

ARCHITECTURAL PLANS AND RENDERINGS including:

- Exterior building elevations, color renderings, illustrations of all sides
- Axonometric and street-level views for structures greater than three stories in height
- Provide context drawings, if applicable (Design Manual, page 1)
- Floor plans

CONSTRUCTION MANAGEMENT PLAN including:

- Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
- Include a drawing and written narrative

OTHER

- Details and cross-sections, as necessary

CITY OF PORTLAND
Planning & Urban Development Department

SUBDIVISION
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

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

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing of your project.

		GENERAL APPLICATION DOCUMENTS
Yes	NA	**Project Description** • Cover letter with detailed project description
Yes	NA	**Completed Checklist** (this document)
Yes	NA	**Evidence of 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** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes	NA	**Subdivision Standards Assessment** (see Article 15.4 of the land use code) • Summary of compliance with subdivision review standards of the land use code
Yes	NA	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes	NA	**Waiver Requests** (see Waiver Table) • Written request for waiver describing request and compliance with applicable waiver standards
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

SUBDIVISION
SUPPLEMENTAL SUBMISSIONS CHECKLIST

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

Yes (NA)	• When private sewage systems are used, the results and supporting data of a soil test of each lot in the subdivision conducted by a soil evaluator licensed in the state.
Yes (NA)	• When the adequacy of the subdivision's load bearing capacity is in question, a geotechnical report with supporting data that includes the result of test borings shall be prepared by a professional engineer registered in the state and submitted.
(Yes) NA	• Price range of houses that will be built in the subdivision.
(Yes) NA	• Traffic impact analysis.
Yes (NA)	• High intensity soil survey, if required by the Planning Authority.
(Yes) NA	• Types and estimated quantities of solid waste to be generated by the development.
(Yes) NA	• A narrative describing all proposed buffer strips, their dimensions, and maintenance plans and responsibilities.
(Yes) NA	• A description of any wetlands, wildlife and fisheries habitats, archaeological sites or unusual natural areas located on or near the project site and a description of the methods that will be used to protect such area.
(Yes) NA Yes NA	• Construction plan outlining the anticipated sequence of construction of the major features of the project including without limitation roads, retention basins, sewer lines, seeding and other erosion and sedimentation control measures, and pollution abatement measures and also setting forth the approximate dates for commencement and completion of the project.
(Yes) NA	• When conditions warrant, a program to control dust, erosion and sedimentation and/or vehicular traffic during construction.
Yes (NA)	• At the option of the subdivider, any other information that may be necessary for the full and proper consideration of the subdivision shall be submitted in writing.

SUBDIVISION
DRAWINGS CHECKLIST

Please submit each document as a separate PDF file.
All drawings must be submitted in a 24 x 36 sheet size.

SUBDIVISION PLAT (at a scale not more than 1"=60', unless lots are more than one acre in size)

1. Date, north point, title and graphic scale.
2. Names, addresses and stamp or certification, if applicable, of registered professional engineer, subdivider, and owner
3. Vicinity sketch (may be shown on separate plan);
4. Names of adjacent property owners with parcels over 25,000 square feet or names of adjacent subdivision;
5. Location and designation of any zoning district boundaries affecting the subdivision;
6. Total site data, including total area of the subdivision, total area in streets, total area in recreation or open space and number of house lots;
7. Based on a recent survey by the subdivider, existing contours at two foot intervals or as otherwise required by the Public Works Authority. Existing structures which are to remain will shall be delineated;
8. Tract boundary lines and property lines of lots, with accurate dimensions and either bearings or deflection angles. All lots shall be numbered;
9. Names of proposed streets, width of rights of way, typical cross section reservation, and depth of construction materials;
10. Locations, widths and purposes of other rights of way or easements to be recorded;
11. All appropriate street geometry information, including point of curvature, point of tangency, tangent distance, radii and interior angle, in standard engineering format;
12. Location of those utilities existing on or adjacent to the tract to be subdivided, including size and elevation of buried or underground utilities (may be shown on separate plan);
13. Designation of flood hazard areas, as defined by the National Flood Insurance Program and shown on the city flood hazard boundary map, as well as any other areas in the subdivision subject to inundation by stormwater or storm sewer overflow;
14. All potential wetlands within the proposed subdivision, regardless of the size of those wetlands;

15. Any river, stream or brook within or abutting the proposed subdivision. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. § 480 B, Subsection 9.

16. Existing historic sites and structures which either appear on the National Register or are nominated to the National Register by the state historic preservation officer;

17. Proposed private and public utility system including water, gas, telephone, fire hydrants, and any other services which shall supply the area (may be shown on separate plan);

18. Sanitary sewer and storm drain plans and profiles showing size, kind and slope of pipe, proposed manhole rim and invert elevations and catch basin locations and drains (may be shown on separate plan);

19. Lighting plan showing the location, design, height and spacing from each other of the support poles, in accordance with standards and specifications established by the Public Works Authority (may be shown on separate plan);

20. Tree plan showing groups of existing, sizeable trees which the subdivider intends to preserve (may be shown on separate plan);

21. A detailed plan of the entire subdivision and the immediate vicinity showing all existing and proposed drainage both on- and off-site including drainage swales, ditches, etc., with directional flow arrows and approximate slope grades, and showing proposed finished "spot elevations" around the perimeter of the subdivision. Proposed drainage shall be shown as it may affect or restrict development on individual lots and with reference to improvements for which a performance guarantee is required under this article. Where deemed feasible by the Public Works Authority, proposed finished contours at intervals of two feet shall be provided on the drainage plan upon request (may be shown on separate plan);

22. All future phases and sections of the subdivision proposed by the subdivider (may be shown on separate plan);

23. Proposed parks and school sites, or other public open space that the developer proposes to convey to the city;

24. Streets and right of way monuments and property line markers;

25. Profiles of each street or way in the subdivision shall be shown on the subdivision plat. They shall be drawn to a longitudinal scale of 40 feet to one foot and a vertical scale of four feet to one inch. Such profiles shall include separate profiles of each side line and center line of the street or way. Any buildings abutting on the street shall be shown in standard engineering format as requested by the Public Works Authority.

26. Where submission drawings are available in electronic form, the applicant shall submit any available electronic CAD files with final plans.

Drew Olehowski

From: Mark McClure <mark@genxcp.com>
Sent: Wednesday, September 6, 2023 2:04 PM
To: Greg Shinberg
Cc: Jon Whitten, Jr.; Drew Olehowski
Subject: Re: Authorization letter for Shinberg Consulting

I hereby authorize Greg Shinberg as my designated agent for the approvals of Presumpscot Woods.

Thank you

Mark McClure
Managing Partner
GenX Capital Partners LLC
www.GenXCP.com
214-417-1218

From: Greg Shinberg <gls@shinbergconsulting.com>
Sent: Wednesday, September 6, 2023 1:55:38 PM
To: Mark McClure <mark@genxcp.com>
Cc: Jon Whitten, Jr. <jwhitten@haleyward.com>; Drew Olehowski <dolehowski@haleyward.com>
Subject: Authorization letter for Shinberg Consulting

Hi Mark,

Please send an email that designates Greg Shinberg of Shinberg Consulting as the authorized agent for local and state agencies for the approvals for Presumpscot Woods.

Greg Shinberg
Owner, Shinberg Consulting, LLC
gls@shinbergconsulting.com
Mail: PO Box 4424, Portland, ME 04101
Office: 181 State Street, Suite 303, Portland, ME 04101
Tel: (207) 772-7070
Cell: (207) 653-7510



Warning: The sender of this message could not be validated and may not be the actual sender.

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Wed May 04 2022 13:40:06. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GENX CAPITAL PARTNERS LLC	20201169FC	LIMITED LIABILITY COMPANY (FOREIGN)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
05/12/2020	N/A	FLORIDA

Other Names **(A=Assumed ; F=Former)**

NONE

Clerk/Registered Agent

REGISTERED AGENTS INC
415 CONGRESS ST
STE 202A
PORTLAND, ME 04101

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MAINE REAL ESTATE TAX-Paid

DLN: 1002240198225

QUITCLAIM DEED

ESTELLE ESTATES, LLC, a Maine limited liability company with its principal place of business in Portland, County of Cumberland and State of Maine, for consideration paid, grants to 338 FALMOUTH FORESIDE PARTNERS LLC, a Maine limited liability company with its principal place of business in Falmouth, County of Cumberland and State of Maine, with a mailing address of 2 Town Landing Road, Falmouth, ME 04105, WITH QUITCLAIM COVENANT, in and to the land, buildings, improvements and all appurtenances thereof situated in the City of Portland, County of Cumberland and State of Maine bounded and described as follows:

PARCEL ONE

A certain lot or parcel of land located on the northeasterly side of Hope Avenue in the City of Portland, County of Cumberland, State of Maine, generally depicted as "Lot 24" on a certain plan entitled "Riverwalk Subdivision Plan" prepared by Titcomb Associates, Sheet 1 of 2, dated October 25, 2005, recorded in the Cumberland County Registry of Deeds in Plan Book 206, Page 412, being more particularly bounded and described as follows:

Beginning at a point on the northwesterly side of Lot 1 as depicted on a plan of Presumpscot River Place III recorded in the Cumberland County Registry of Deeds in Plan Book 202, Page 650, said point of beginning lying N 31°28'15" E by said Lot 1 a distance of Three Hundred Forty-Six and 08/100 (346.08) feet from the northeasterly sideline of Hope Avenue as depicted on said plan of Presumpscot River Place III. Thence:

1) N 58°31'45" W a distance of One Hundred Fifty-Two and 96/100 (152.96) feet to a point.

2) S 75°51'37" W a distance of One Hundred Sixty-Four and 63/100 (164.63) feet to a point.

3) S 39°42'09" W a distance of One Hundred Seventeen and 91/100 (117.91) feet to a point.

4) S 58°31'45" E a distance of Twenty and 00/100 (20.00) feet to a point.

5) S 31°28'15" W a distance of Ninety-Nine and 50/100 (99.50) feet to a point on the northeasterly side of said Hope Avenue.

6) N 55°52'57" W by said Hope Avenue a distance of Ninety and 61/100 (90.61) feet to a point of curvature.

7) Northwesterly by said Hope Avenue following a curve to the left having a radius of Two Hundred Twenty-Five and 00/100 (225.00) feet an arc distance of One Hundred One and 64/100

(101.64) feet to a point and land now or formerly of the City of Portland as described in a deed recorded in said Registry in Book 17463, Page 276.

8) N 19°30'58" W by said land of City of Portland and Lot 1 as depicted on a plan entitled "Riverwalk Subdivision Plan" made by Titcomb Associates dated October 25, 2005, a distance of Eight Hundred Forty-Seven and 44/100 (847.44) feet to a point.

9) N 64°27'37" E by said land of City of Portland a distance of Five Hundred Forty-Four and 52/100 (544.52) feet to a point.

10) S 02°55'37" E by said land of City of Portland a distance of Seventy-Five and 57/100 (75.57) feet to a point.

11) S 16°16'41" E by said land of City of Portland a distance of Ninety-Seven and 28/100 (97.28) feet to a point.

12) S 21°57'26" E by said land of City of Portland a distance of Seventy-Five and 78/100 (75.78) feet to a point.

13) S 26°42'50" E by said land of City of Portland and land depicted as Land Proposed for Conveyance to City of Portland (11,714 s.f.) on said Riverwalk Subdivision Plan a distance of One Hundred Twenty and 38/100 (120.38) feet to a point.

14) N 67°31'46" E by said Land Proposed for Conveyance to City of Portland (11,714 s.f.) a distance of Fifty and 73/100 (50.73) feet to a point.

15) N 74°57'11" E by said Land Proposed for Conveyance to City of Portland (11,714 s.f.) a distance of Twenty-Seven and 25/100 (27.25) feet to a point.

16) N 82°42'53" E by said Land Proposed for Conveyance to City of Portland (11,714 s.f.) a distance of Thirty and 98/100 (30.98) feet to a point.

17) S 57°41'42" E by said Land Proposed for Conveyance to City of Portland (11,714 s.f.) a distance of One Hundred Twenty-Nine and 99/100 (129.99) feet to a point and land depicted as Land Proposed for Conveyance to Adam-Wolf (13,787 s.f.) on said Riverwalk Subdivision Plan.

18) S 05°41'39" E by said Land Proposed for Conveyance to Adam-Wolf (13,787 s.f.) a distance of Fifty-Three and 28/100 (53.28) feet to a point.

19) S 12°34'45" W by said Land Proposed for Conveyance to Adam-Wolf (13,787 s.f.) a distance of One Hundred Twelve and 44/100 (112.44) feet to a point.

20) S 54°10'20" E by said Land Proposed for Conveyance to Adam-Wolf (13,787 s.f.) a distance of One Hundred Ten and 21/100 (110.21) feet to a point.

21) S 59°34'29" E by said Land Proposed for Conveyance to Adam-Wolf (13,787 s.f.) a distance of Twenty-Eight and 61/100 (28.61) feet to a point and land depicted as Land Proposed for Conveyance to City of Portland (46,012 s.f.).

22) S 14°07'58" W by said Land Proposed for Conveyance to City of Portland (46,012 s.f.) a distance of Forty-Seven and 20/100 (47.20) feet to a point.

23) S 20°34'09" W by said Land Proposed for Conveyance to City of Portland (46,012 s.f.) a distance of Sixty-Six and 74/100 (66.74) feet to a point.

24) S 01°32'31" W by said Land Proposed for Conveyance to City of Portland (46,012 s.f.) a distance of Seventy-Seven and 90/100 (77.90) feet to a point.

25) S 27°16'40" E by said Land Proposed for Conveyance to City of Portland (46,012 s.f.) a distance of Sixty and 84/100 (60.84) feet to a point.

26) S 55°18'28" E by said Land Proposed for Conveyance to City of Portland (46,012 s.f.) a distance of Eleven and 40/100 (11.40) feet to a point and the northwesterly side of Lot 1 as depicted on a plan entitled "Presumpscot River Place III" recorded in said Registry in Plan Book 202, Page 650.

27) S 31°28'15" W by said Lot 1 a distance of One Hundred Seventeen and 43/100 (117.43) feet to the point of beginning.

Bearings are based on true north.

The above described parcel is a portion of land now or formerly of Lloyd B. Wolf and Robert L. Adam as described in a deed recorded in the Cumberland County Registry of Deeds in Book 7058, Page 70.

Reference is herein made to Private & Special Laws of Maine, Second Regular Session of the 120th Legislature, Chapter 62, S.P. 499-L.D. 1586, An Act to Separate Territory from the Town of Falmouth and Annex it to the City of Portland, approved April 2, 2002.

The above described parcel is conveyed TOGETHER WITH, a certain easement located on the northerly side of but not adjacent to Hope Avenue in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

A thirty (30) foot wide strip of land, the centerline of which begins at a point lying N 19°30'58" W a distance of Thirty-Seven and 50/100 (37.50) feet from the northeasterly corner of the second parcel conveyed to the City of Portland as described in a deed recorded in the Cumberland County Registry of Deeds in Book 17463, Page 276, with said centerline continuing S 70°29'02''W to the easterly sideline of a road to be constructed by Grantor and referred to as "Road A" on preliminary concept plans for the development of Grantor's property, as such road is actually built.

The easement shall be appurtenant to Grantee's above described premises (Parcel One herein). The easement shall be for the purpose of providing a gravel emergency access road (public or private), as may be required by the City of Portland pursuant to Grantee's development of the dominant tenement. Grantor agrees to extend such easement rights to the general public, as necessary, by separate easement deed. In the event that Grantee is not required to construct such emergency access road, as a condition of site plan approval, subdivision approval or any conditional zone agreement that Grantee may enter into with the City of Portland to develop the dominant tenement, all rights of Grantee and his successors in and to the easement created hereby shall be promptly terminated, and Grantee shall record an instrument in the Cumberland County Registry of Deeds confirming the termination of such easement rights.

The above described parcel is conveyed subject to any and all easements and restrictions of record and includes all rights, easements, privileges and appurtenances pertaining thereto.

The above described parcel is conveyed subject to a portion of a certain culvert easement, benefiting the City of Portland, located on the northeasterly sideline of Hope Avenue in the City of Portland, County of Cumberland, State of Maine, shown as "City of Portland Culvert Easement" on the above referenced "Riverwalk Subdivision Plan" prepared by Titcomb Associates, Sheet 1 of 2, dated October 25, 2005, and more particularly bounded and described as follows:

Beginning at a point on the northeasterly sideline of Hope Avenue, said point lying N 55°52'57" W by said Hope Avenue a distance of Two Hundred Sixty-Five and 28/100 (265.28) feet from the westerly corner of Lot 1 as depicted on a plan of Presumpscot River Place III recorded in the Cumberland County Registry of Deeds in Plan Book 202, Page 650. Thence:

1) N 55°52'57" W by said Hope Avenue a distance of Thirty-One and 95/100 (31.95) feet to a point.

2) N 06°46'58' W a distance of Eighty and 00/100 (80.00) feet to a point.

3) S 85°29'48" E a distance of Thirty- Five and 69/100 (35.69) feet to a point.

4) S 06°46'58" E a distance of Eighty and 18/100 (80.15) feet to a point.

5) S 31°28'15" W a distance of Seventeen and 51/100 (17.51) feet to a point and said Hope Avenue.

Bearings are based on true north.

The above described portion of the culvert easement contains 3,083 square feet. The above described culvert easement includes the right to construct, repair and perpetually maintain through, under, across and upon said easement parcel, culverts, pipes, ditches or the like, for conveying drainage water, and to lay, relay, repair, alter, enlarge, maintain and remove said drainage systems upon, across or under said easement parcel, with all necessary fixtures and appurtenances, to trim, cut down and remove bushes and trees growing on said easement parcel, to remove grass, vegetation and crops growing on said easement parcel and to excavate or fill said easement parcel,

all to such extent as in the judgment of the City of Portland is necessary for any of the above purposes, and to enter upon said easement parcel at any and all times for any of the foregoing purposes.

The above described parcel is conveyed subject to a certain drainage easement, benefiting the City of Portland, adjoining the above referenced culvert easement, shown as "City of Portland Drainage Easement" on the above referenced "Riverwalk Subdivision Plan" prepared by Titcomb Associates, Sheet 1 of 2, dated October 25, 2005, being thirty and 00/100 (30.00) feet in width, beginning near the northeasterly corner of the above described culvert easement and continuing northeasterly across the above described parcel. The center of said drainage easement follows the center of the naturally occurring drainage course, which course may vary from time to time. The easement includes the right to construct, repair and perpetually maintain through, under, across and upon said easement parcel, culverts, pipes, ditches or the like, for conveying drainage water, and to lay, relay, repair, alter, enlarge, maintain and remove said drainage systems upon, across or under said easement parcel, with all necessary fixtures and appurtenances, to trim, cut down and remove bushes and trees growing on said easement parcel, to remove grass, vegetation and crops growing on said easement parcel and to excavate or fill said easement parcel, all to such extent as in the judgment of the City of Portland is necessary for any of the above purposes, and to enter upon said easement parcel at any and all times for any of the foregoing purposes.

The above described parcel is conveyed subject to a certain Portland Water District Easement, recorded in the Cumberland County Registry of Deeds in Book 2267, Page 257.

PARCEL TWO

A certain lot or parcel of land located in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

Beginning at a point on a line of the remaining land now or formerly of Lloyd B. Wolf and Robert L. Adam as described in a deed recorded in the Cumberland County Registry of Deeds in Book 7058, Page 70, said point of beginning lying N 62° 51'18" W a distance of One Hundred Twenty-Nine and 32/100 (129.32) feet from the northerly corner of Lot 1 as depicted on the Presumpscot River Place Phase III- Subdivision Plan, dated December 4, 2001 recorded in said Registry in Plan Book 202, Page 650; Thence:

1) N 59°34'29" W by said remaining land of Adam and Wolf a distance of Twenty-Eight and 61/100 (28.61) feet to a point

2) N 54°10'20" W by said remaining land of Adam and Wolf a distance of One Hundred Ten and 21/100 (110.21) feet to a point.

3) N 12°34'45" E by said remaining land of Adam and Wolf a distance of a distance of One Hundred Twelve and 44/100 (112.44) feet to a point.

4) N 05°41'39" W by said remaining land of Adam and Wolf a distance of Fifty-Three and 28/100 (53.28) feet to a point.

5) S 57°41'42" E a distance of Twenty-One and 28/100 (21.28) feet to a point.

6) S 39°27'41" E a distance of Sixty-Six and 70/100 (66.70) feet to a point.

7) S 10°53'57' E a distance of One Hundred Eighty-Two and 18/100 (182.18) feet to the point of beginning.

Bearings are based on true north.

Being the same premises conveyed to Grantor and Grantee herein by the City of Portland, by deed of even or recent date herewith, to be recorded at the Cumberland County Registry of Deeds. The above described parcel is a portion of land formerly of the City of Portland as described in a deed recorded in the Cumberland County Registry of Deeds in Book 17463, Page 276. Reference is herein made to Private & Special Laws of Maine, Second Regular Session of the 120th Legislature, Chapter 62, S.P. 499-L.D. 1586, An Act to Separate Territory from the Town of Falmouth and Annex it to the City of Portland, approved April 2, 2002.

The above described parcel is conveyed subject to any and all easements and restrictions of record and includes all rights, easements, privileges and appurtenances pertaining thereto.

Meaning and intending to convey, and hereby conveying, all and the same premises described in the Deed of Sale by Personal Representative of the Estate of Robert Lincoln Adam to Estelle Estates, LLC dated November 19, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35303, Page 331.

IN WITNESS WHEREOF, ESTELLE ESTATES, LLC has executed, acknowledged and delivered this Quitclaim Deed by and through Paul F. Driscoll, its Vice President, on this 17th day of June, 2022, hereunto duly authorized.

ESTELLE ESTATES, LLC

Witness

By: _____

Paul F. Driscoll
Its Vice President

[Acknowledgment Located on Following Page]

STATE OF MAINE
Cumberland, ss.

June 17, 2022

Personally appeared the above-named Paul F. Driscoll, Vice President of Estelle Estates, LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Estelle Estates, LLC.

Before me,

Jamee McCormack

~~Notary Public~~/Attorney-at-Law

Jamee McCormack

GenX Capital Partners

Property Location: O Hope Lane, Portland, ME

Subject: Level III Site Plan Application

Date: September 26, 2022

General Application Documents: Financial Capability

The following are key members of the development team:

1) Shinberg Consulting, Portland, Maine
2) Haley Ward Engineering, Saco, Maine
3) Owen Haskell Surveyors, Falmouth, Maine
4) RS Leonard Landscape Architecture, Portland, Maine
5) John Q. Adams, P.E. Barton & Loguidice, Inc. Transportation Engineer, Scarborough, Maine
6) GenX Capital Partners, LLC, Portland, ME

GenX Capital Partners, LLC has developed and also financed more than $500 million in commercial real estate projects over the past 6 years throughout the U.S.

Current and Past Successful development projects

Cottages at Pine Meadow, Saco, Maine- 32 home "Over 55" subdivision that is now 90% SOLD OUT- $10+ million development

1179 Shore Rd, Cape Elizabeth, Maine- $1.7MM

3 Caydens Way, Cape Elizabeth, Maine- $1.3 MM

Carr Woods, 18 Home Subdivision, Cape Elizabeth, Maine- $22 million Pre-Approved development- Town has approved GenX/Mark McClure's technical and financial capability

The Mark, Cumberland Foreside, Maine- 45 unit FULLY APPROVED condo development. GenX has capitalized the initial $4MM in soft and acquisition costs with lender and equity financing. Bank financing term sheets in place. Town of Cumberland has approved GenX-McClure's financial capacity for this $21 million development

53 Waites Landing, Falmouth, ME $2.2MM

2 Town Landing, Falmouth ME $2.4MM

GenX Capital Partners has also financed more than 15 projects thus far in Maine for clients to the tune of $20+ million for 2022

www.GenXCP.com
www.GenX-Lending.com

GenX Capital Partners

Property Location: O Hope Lane, Portland, ME

Subject: Level III Site Plan Application

Date: September 26, 2022

General Application Documents: Financial Capability

The following are key members of the development team:

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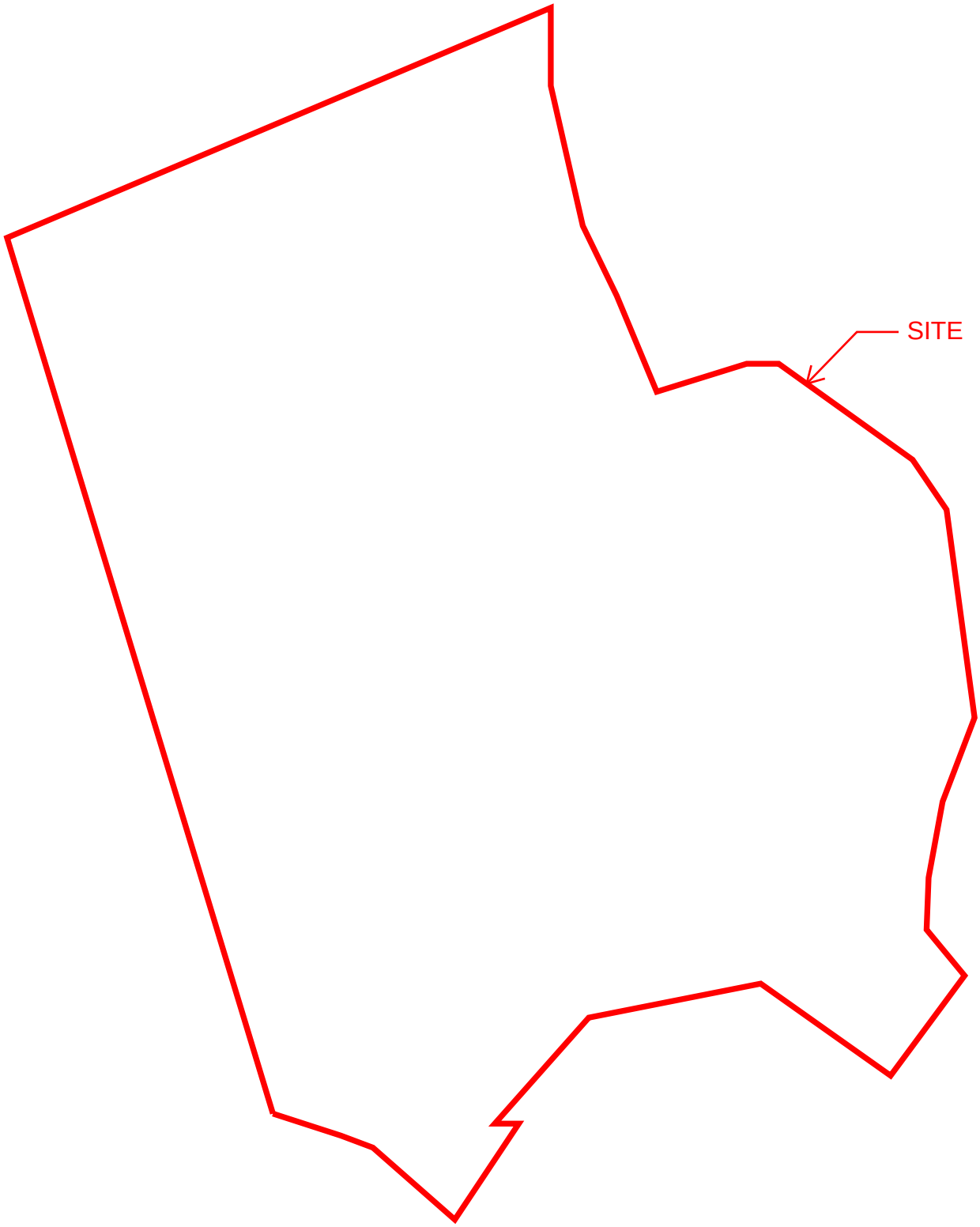
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www.GenXCP.com
www.GenX-Lending.com


SITE

shinberg
CONSULTING, LLC

181 State Street, PO Box 4424, Portland, Maine 04101
(207) 772-7070 Office | info@shinbergconsulting.com

Property Location: O Hope Lane, Portland, ME

Subject: Level III Site Plan Application

Date: September 26, 2022

General Application Documents: Technical Capability

The following are key members of the development team:

1) Shinberg Consulting, Portland, Maine
2) Haley Ward Engineering, Saco, Maine
3) Owen Haskell Surveyors, Falmouth, Maine
4) RS Leonard Landscape Architecture, Portland, Maine
5) John Q. Adams, P.E. Barton & Loguidice, Inc. Transportation Engineer, Scarborough, Maine

Haley Ward has worked with the LA, Surveyor and Engineers on several projects.

Shinberg Consulting has provided Owners Representative services to private and public entities since 2004.

We have acted as the Owners Representative services in addition to part ownership for projects located at 135 Sheridan St. and 645 Congress St.

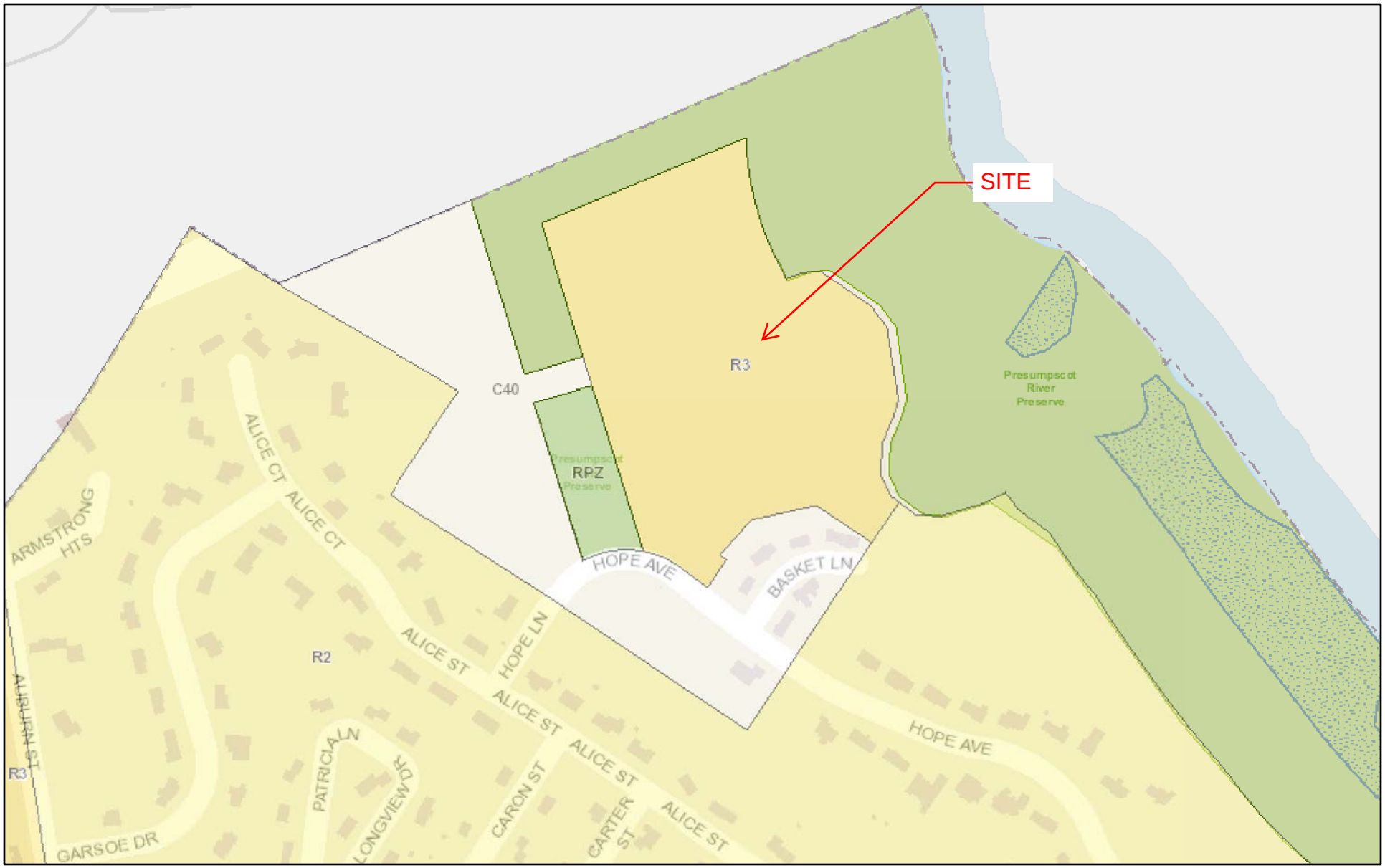
Some of the notable projects that Shinberg Consulting has provided Owners Representative Services include:

- The Intermed Building
- Hyatt Hotel Old Port
- The Press Hotel
- 63 Marginal Way
- 280 Fore St.
- The Mina Building
- 50 Portland Pier
- 154 Clark St. for Shalom House
- Randall Place for The Opportunity Alliance
- 135 Sheridan Street
- 645 Congress Street
- Ocean House Common in Cape Elizabeth
- Two Lights Dental and apartments Cape Elizabeth
- 192 Western Avenue in South Portland

Presumpscot Woods
0 Hope Ave., Portland, Maine
Waiver Requests

Currently the applicant is not proposing to request any waivers for this project. They request the right to request waivers, if needed, as the permitting review process continues.

ArcGIS Web Map



5/2/2022, 9:15:00 AM

1:4,080

0 0.03 0.07 0.13 mi

0 0.05 0.1 0.2 km

City of Portland, DPS

Zoning

- IR-1 Island Residential
- IR-2 Island Residential
- IR-3 Island Residential
- I-B Island Business
- ITS Island` Transfer Station
- R1 Residential
- R2 Residential
- R3 Residential
- R4 Residential
- R5 Residential
- R-5A Residential
- R6 Residential
- R-6A Residential

ArcGIS Web AppBuilder
City of Portland, DPS |

Presumpscot Woods
0 Hope Ave., Portland, Maine
Zoning Related Standards

The Presumpscot Woods project is a Planned Residential Unit Development (PRUD) within the R-3 residential zone. The proposed buildings are similar in size, scale and use to the existing residential neighborhoods in the area. Please review the attached building plans and renderings for further building design information. We have also attached a Zoning Analysis Table that summarizes the zoning requirements for the site and how our design complies with those requirements.

ZONING ANALYSIS Relevant Zone(s) R-3 PRUD

All Projects: **REFER TO PRUD REQUIRMENTS TABLE, BELOW**

	Required	Proposed
Lot Size	PRUD	
Area Per Dwelling Unit	PRUD	
Minimum Street Frontage	PRUD	
Front Yard Minimum	PRUD	
Front Yard Maximum	PRUD	
Rear Yard	PRUD	
Yard Right	PRUD	
Yard Left	PRUD	
Side Street Setback	PRUD	
Step Back	N/A	
Maximum Lot Coverage	35%	29.8%
Minimum Lot Coverage	N/A	
Maximum Height	PRUD	
Open Space	PRUD	
Maximum Impervious Area	N/A	
Pavement Setback	N/A	
Floor Area Ratio	N/A	
Off Street Parking Spaces	1 SPC/UNIT	2.5 SPC/UNIT
Loading Bays	N/A	
Other 1	N/A	
Other 2	N/A	
Other 3	N/A	

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size	3 AC	13.7 AC
Minimum Lot Area per Dwelling	6500 SF	~9900 SF
Maximum # Units per Building	6	3
Maximum Building Length	140'	110'
Maximum Accessory Building Length	N/A	N/A
Minimum Setbacks	25'	25'
Minimum Building Separation	16'	16'
Minimum Open Space	300 SF/UNIT	900 +

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):			

Presumpscot Woods
0 Hope Ave., Portland, Maine
Existing or Proposed Easements or Covenants

The Presumpscot Woods project property is currently subject certain drainage easements and an access easement that are described within the property's deed and depicted on the Existing Conditions Plan. Both documents are included within other sections of the Major Site Plan application. It is expected that new easements will need to be created to support maintenance of proposed utilities.

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TO HAVE AND TO HOLD the aforegranted and bargained premises, with all the privileges and appurtenances thereof to the said Central Maine Power Company, its successors and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee, its successors and assigns, that I am lawfully seized in fee of the premises; that they are free of all incumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs, shall and will warrant and defend the same to the said Grantee, its successors and assigns forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, I, the said Lester F. Smith

and I, Mildred L. Smith , wife of the said Lester F. Smith

joining in this deed as Grantor , and relinquishing and conveying my rights by descent and all other rights in the above described premises, have hereunto set our hand(s) and seal(s) this 28th day of November , in the year of our Lord one thousand nine hundred and fifty-five.

Signed, Sealed and Delivered
in presence of

Arline W. Smith

Lester F. Smith
Lester F. Smith

Mildred L. Smith
Mildred L. Smith

FLORIDA
STATE OF [redacted] ss. November 28, 1955.
COUNTY OF PINELLAS

Personally appeared the above named Lester F. Smith and Mildred L. Smith

and acknowledged the above instrument to be their free act and deed.

DOCUMENTARY

NOTARY PUBLIC STATE OF FLORIDA AT LARGE

Notary Public, State of Florida at Large.
My Commission Expires September 1, 1958.

Before me,

H. Cora C. Bonnesen
Justice of the Peace
Notary Public

Information for Grantee's File. Do Not Record. Consideration
W. O. Check No. P. P. O.
REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE DEC 30 1955
Received at 9 H — M A.M. and recorded in
BOOK 2267 PAGE 256 Robert T. Crane Register

KNOW ALL MEN BY THESE PRESENTS, That Philip L. Hamlin, of Portland in the County of Cumberland and State of Maine, in consideration of One Dollar ($1.00) and other valuable considerations paid by Portland Water District, a corporation organized and existing under the laws of the State of Maine and located at Portland in the said County of Cumberland and State of Maine, the receipt whereof I do hereby acknowledge, do hereby give, grant, bargain, sell and convey, unto the said Portland Water District, its successors and assigns forever, the following described property:

Hamlin to Portland Water District

The right perpetually to enter at any and all times upon three (3) certain strips of land situated partly in said Portland and partly in Falmouth in said County of Cumberland and State of Maine, being a part of the land conveyed to the Grantor by Harold L. Carter by deed dated May 8, 1946, recorded in Cumberland County Registry of Deeds in Book 1819, Page 249, to which deed reference is hereby made for a more particular description of said land, the first of said strips being fifty (50) feet in width and lying equally on either side of the following described center line, namely, twenty-five (25) feet in width on either side of said center line and its projection at both ends:
Beginning at a point in the dividing line between said land

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of the Grantor and land of Harold W. Stevens, said point being distant Westerly along said dividing line, twenty-five (25) feet from the Westerly sideline of a certain right-of-way conveyed by the Grantor to Central Maine Power Company by deed dated February 10, 1954, and recorded in said Registry of Deeds in Book 2167, Page 435; thence N. 38° W. parallel to and distant twenty-five (25) feet Westerly from the Westerly sideline of said Central Maine Power Company right-of-way and the Northwesterly extension thereof five hundred eighty-five (585) feet, more or less, to a stake (said stake being hereinafter referred to as Stake B); thence N. 21° 27' E. across the dividing line between the Town of Falmouth and the City of Portland and across said Central Maine Power Company right-of-way one thousand seventy-nine and seven tenths (1,079.7) feet, more or less, to an iron pipe; thence N. 5° 49' W. fifty (50) feet, more or less, to the Southerly side line of a certain lot or parcel of land conveyed by the Grantor to Maine Turnpike Authority by deed dated June 25, 1954, recorded in said Registry of Deeds in Book 2181, Page 423.

Also the right to enter upon a triangular strip adjacent to said first described strip and more particularly bounded and described as follows: Beginning in the Easterly side line of said first described strip at a point opposite Stake B hereinabove described; thence N. 21° 27' E. along the Easterly sideline of said first described strip across the dividing line between the Town of Falmouth and the City of Portland two hundred thirty-four (234) feet; thence S. 8° 16½' E. across said dividing line between the Town of Falmouth and the City of Portland four hundred six (406) feet, more or less, to the Easterly sideline of said first

described strip; thence N. 38° W. along the Easterly sideline of said first described strip two hundred thirty-four (234) feet to the point of beginning.

The second of said strips also being fifty (50) feet in width and lying equally on either side of the following described center line, namely, twenty-five (25) feet in width on either side of said center line and its projection at both ends: Beginning in the Northerly sideline of said Maine Turnpike Authority land at its point of intersection with the Northerly extension of the center line of the first described strip; thence continuing N. 5° 49' W. forty (40) feet, more or less, to an iron pipe, said iron pipe being distant twenty-five (25) feet Easterly from the Easterly sideline of land of Frederick R. Pride, et al.; thence N. 25° 01' E. parallel to and distant twenty-five (25) feet Easterly from the Easterly sideline of said Pride land five hundred (500) feet, more or less, to a stake (said stake being hereinafter referred to as Stake C).

The third of said strips also being fifty (50) feet in width and lying ten (10) feet on the Northwesterly side and forty (40) feet on the Southeasterly side of the following described center line and its projection at both ends: Beginning at a point in the Westerly sideline of the first described strip, said point being distant Northerly along the Westerly sideline of said first described strip one hundred forty (140) feet from the dividing line between said land of the Grantor and said land of Harold W. Stevens; thence Southwesterly parallel to and distant one hundred forty (140) feet Northwesterly from said Stevens land nine hundred fifty (950) feet, more or less, to Carter Street, so-called, as shown on Plan of Land of Philip E. Hamlin, dated March 25, 1953, made by Myron U. Lamb, recorded in Cumberland County Registry of Deeds in Plan Book 44, Page 37.

And to construct and perpetually maintain through and across said strips conduits or pipe lines for conveying water and to lay, relay, repair, maintain and remove water pipe or pipes upon or under said strips with all necessary fixtures and appurtenances together with the right at all times to make connections with said conduits or pipe lines to land adjoining said strips by means of pipes or services; to trim, cut down and remove bushes and trees and to remove grass and crops growing on said strips to such extent as in the judgment of the Grantee is necessary for any of the above purposes and to enter upon said strips at any and all times for any of the foregoing purposes; reserving to the Grantor, his heirs and assigns, the use and enjoyment of said strips for such purposes only as will in no way interfere with the perpetual use thereof by the Grantee, its successors and assigns, for the purposes above mentioned, provided that no building or any kind of permanent structure shall be erected on said strips by the Grantor, his heirs and

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assigns, and that the Grantor, his heirs and assigns, shall not remove earth from said strips or place fill thereon without the written permission of the Grantee; provided further, however, that the Grantor, his heirs and assigns, shall have the right to lay out and construct a road or street over and along the third strip hereinabove described, and to make any customery use of said strip as a public street. 259

Together with the right perpetually to enter at any and all times for any of the foregoing purposes upon that portion of said Carter Street as shown on the above mentioned Plan, extending from the Southwesterly terminus of the third strip of land hereinabove described in a Southwesterly direction a distance of nine hundred (900) feet, more or less, to Summit Street.

Also hereby conveying a strip of land situated in said Falmouth and also being a portion of the land conveyed to the Grantor by Harold L. Carter by said deed dated May 8, 1946,

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recorded in said Registry of Deeds in Book 1819, Page 249, said strip being fifty (50) feet in width and lying equally on either side of the following described center line, namely twenty-five (25) feet in width on either side of said center line and its projection at both ends: Beginning at Stake C hereinabove described; thence N. 25° 01' E. parallel to and distant twenty-five (25) feet Easterly from the Easterly sideline of said Pride land three hundred eighty-five (385) feet, more or less, to a stake on the Southerly bank of the Presumpscot River; thence continuing N. 25° 01' E. parallel to and distant twenty-five (25) feet Easterly from the Easterly sideline of said Pride land to the center of said Presumpscot River and land of Nathan S. Clifford, et al.

The above described courses are magnetic and as of the year 1955.

This conveyance is made subject to the easement conveyed by the Grantor to said Central Maine Power Company by the abovementioned deed dated February 10, 1954, recorded in Cumberland County Registry of Deeds in Book 2167, Page 435.

TO HAVE AND TO HOLD the aforegranted and bargained premises, with all privileges and appurtenances thereof to the said Portland Water District, its successors and assigns, to its and their use and behoof forever.

AND I do COVENANT with the said Grantee, its successors and assigns, that I am lawfully seized in fee of the premises; that they are free of all incombrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my Heirs, shall and will WARRANT AND DEFEND the same to the said Grantee, its successors and assigns, forever, against the lawful claims and demands of all persons.

IN WITNESS WHEREOF, the said Philip E. Hamlin and Elizabeth G. Hamlin, wife of the said Philip E. Hamlin, joining in this deed as Grantor, and relinquishing and conveying her rights by descent and all other rights in the above described premises, have hereunto set their hands and seals this 30th day of December in the year of our Lord one thousand nine hundred and fifty-five.



Signed, Sealed and Delivered
in Presence of:

Edward J. Perna — Philip E. Hamlin

to both — Elizabeth G. Hamlin

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STATE OF MAINE
CUMBERLAND, SS. December 30, 1955

Personally appeared the above named Philip E. Hamlin and acknowledged the above instrument to be his free act and deed.

Before me,
Edward J. Morris
Justice of the Peace

REGISTRY OF DEEDS
CUMBERLAND COUNTY MAINE
Received DEC 30 1955
at 4 H 36 M P M, and recorded
in BOOK 2267 PAGE 257
Attest: Robert W. Crane
Register

1200 7-53 2000

PERMIT OR EASEMENT FOR POLE LOCATIONS ON PRIVATE PROPERTY

Hinman to Central Maine Power Co

Permit

KNOW ALL MEN BY THESE PRESENTS, That Ethel C. Hinman

of West Newton in the County of Middlesex and State of Massachusetts, in consideration of One Dollar and other valuable consideration, paid by Central Maine Power Company, a Maine corporation of Augusta, Maine, the receipt whereof is hereby acknowledged, does hereby grant to the Central Maine Power Company, its successors and assigns, the right to set and maintain Two poles over and across my land situated in the Town of No. Bridgton County of Cumberland said State, together with fixtures and wires connecting to convey electricity to my residence and also the right to attach wires and appliances for guying from said poles where necessary to and into my land, the location of the poles to be as follows:

One pole Northwesterly from pole #6, as now staked in Central Maine Power Compwny's so called "Wells Line", and to be numbered #7. Also one pole Southeasterly from said pole #7 to be known as 7.1.

Also with the right to enter upon my said land for the purpose of trimming and cutting such tree or trees as may in the judgment of said Central Maine Power Company, its successors or assigns, interfere with or endanger said electric lines or their operation.

IN WITNESS THEREOF, the said Ethel C. Hinman and wife of the said joining in this right and easement as grantor and relinquishing and conveying her rights by descent and all other rights in the above described easement, have hereunto set her hand (s) and seal (s) this third day of September 1955.

Signed, Sealed and Delivered
in the presence of

O. E. Durgin

Ethel C Hinman

STATE OF MAINE,

Cumberland ss. September 3, 1955

Personally appeared the above named Ethel C. Hinman and acknowledged this instrument to be her free act and deed, before me,

O. E. Durgin
Justice of the Peace.

(Note: Use this form when one customer only is involved).

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE DEC 30 1955
Received at 9 H — M A M, and recorded in
BOOK 2267 PAGE 260 Robert W. Crane Register

Presumpscot Woods
0 Hope Ave., Portland, Maine
Availability and Adequacy of Public Utilities

The Presumpscot Woods project is proposing to utilize public sewer, water, and electric utilities.

Public water will be supplied from the existing main on Hope Avenue. The location of the proposed main and services are shown on the Proposed Utilities plan. A letter of Ability to serve has been requested from the Portland Water District and is currently pending review.

Wastewater generated by this development will be disposed of using the public system on Hope Avenue. Correspondence with City staff providing further detail on this topic has been provided with this application..

Stormwater runoff will be treated and detained appropriately on-site. Treated runoff will outlet to existing drainage features on the site and allowed to flow to the Presumpscot River as it does today, in the pre-development condition. Minimal runoff is proposed to be directed to Hope Ave. or any City maintained drainage components.

The development proposes to connect to power and communications infrastructure from Hope Avenue. All power and communications infrastructure are proposed to be installed underground.

Solid Waste will be disposed of using individual receptacles for each unit. A letter of ability to serve from Casella Waste has been provided.

Drew Olehowski

From: Dumont, Katherine <Katherine.Dumont@cmpco.com>
Sent: Friday, August 25, 2023 8:46 AM
To: Drew Olehowski; Jon Whitten, Jr.
Subject: CMP Three Phase Service Process and Ability to Serve Letter - Hope Avenue Portland Me Notification # TBD
Attachments: Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; August 2022 EDET.xlsx

You don't often get email from katherine.dumont@cmpco.com. Learn why this is important

Drew Olehowski
Haley Ward Inc-Civil Engineer
203 Anderson St #2
Portland, ME 04101

RE: Hope Avenue
60 Unit Development
Letter of Ability to Serve Request

SAP TBD
Project Description:

The development area is approximately acres in size and is currently undeveloped. The proposed project will include a mixed residential development with a network of roadways and walkways, landscaped areas, trails, and stormwater maintenance facilities.
The proposed mixed residential development is expected to provide 60 units subdivision. The existing site is located off Alice St.

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 CMP at 800-565-3181.

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let us know. The underlined links will redirect you to the appropriate site for additional information.

Service Milestones for Three Phase Services and CT Rated Single Phase Services. There are additional requirements for primary metered Solar Service Installations listed in the Chapter 324 Interconnections section below. Please refer to CMP Installation Checklists for other installations.

- Call 800-750-4000 option 4 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. If the loads are over 500 kw, more in depth load studies may be required with our Distribution Planning and Transmission Planning Departments. Be advised that these will involve more detailed load information, a load study agreement (signed contract), as well as other items. This additional study process may add up to two additional months to completion of the job.

- Submit the easement information worksheet, including where any CMP structures may be on ANY private property (Poles, Wires, Anchors). You are responsible for obtaining all information for all required easements. 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.
- For Primary Metered installations (including PV), please have the access road in for pole staking.
- 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 scheduled once the preliminary information is complete. This will allow us to cost out the job and develop a CMP Invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- Submit completed W9 so that your bill can be properly processed. This is a new CMP process.
- 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.

As you may be aware, there are global supply chain issues impacting the utility industry. CMP is closely monitoring and managing their inventory in order to serve our customers. Larger padmount transformers may not be readily available for the date that you will need to be energized. Please consider this as part of your construction plan. The energy service advisor will continue to work closely with you and let you know as soon as the transformer becomes available. Should you have any questions or concerns throughout this process, please do not hesitate to contact your ESA directly at the number or email provided.

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 An additional resource is our Distribution Construction Standards: CMP Distribution Construction Standards CMP Distribution Construction Standards.

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.

In addition, we have recently added on an online map that shows single phase and three phase power locations within CMP. Here is that link: CMP ArcGIS Information

Metering:

All metering (including locations) must be preapproved by CMP. If you have any questions, please consult the CMP Handbook of Standard Requirements

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
W9

Please do not hesitate to contact me with any questions regarding your project.

Kind Regards,
Kathy

Central Maine Power
An Avangrid company

Katherine Dumont
Energy Service Specialist

162 Canco Rd
Portland, ME 04103

207-242-5744
katherine.dumont@cmpco.com

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Drew Olehowski

From: AMaP MEANS <means@pwd.org>
Sent: Friday, August 18, 2023 10:42 AM
To: Drew Olehowski
Subject: RE: Presumpscot Woods - Ability to Serve - Proj # 525533

Good morning,

The plans were received. I have forwarded them on for review, you should hear back soon with next steps.

Have a great weekend,

Kathryn Rodriguez

MEANS Group
Main Extensions and New Services
Portland Water District
225 Douglass Street
Portland, ME 04104-3553
P:(207)774-5961 Ext. 3199
F:(207)761-8307
MEANS@pwd.org

From: Drew Olehowski <dolehowski@haleyward.com>
Sent: Friday, August 18, 2023 9:45 AM
To: AMaP MEANS <means@pwd.org>
Subject: RE: Presumpscot Woods - Ability to Serve - Proj # 525533

ATTENTION: This email did NOT originate from Portland Water District. This email is from an external source outside of the District. Exercise EXTREME caution when opening external attachments or links from unknown senders.

Please see attached.

Drew Olehowski, PE
Civil Engineer
t: 207.283.9151

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From: AMaP MEANS <means@pwd.org>
Sent: Friday, August 18, 2023 9:36 AM
To: Drew Olehowski <dolehowski@haleyward.com>
Subject: RE: Presumpscot Woods - Ability to Serve - Proj # 525533

Good morning,

I have not received any other emails than this one.

Drew Olehowski

From: Reed Allen <rhallen@portlandmaine.gov>
Sent: Wednesday, August 16, 2023 3:45 PM
To: Drew Olehowski; Greg Shinberg
Cc: Jon Whitten, Jr.; Benjamin Pearson; Bradley Roland; jrp@portlandmaine.gov; mgrooms@portlandmaine.gov; Charles Tetelman; William C. Boornazian
Subject: Re: Hope Ave Sewer Alternatives Report 1

Greg and Drew,

Thank you for providing your initial alternatives analysis to meet the development needs in this limited capacity area. We have reviewed all the options presented in conjunction with the future proposed flow rates and existing conditions. Note we do not assume a different capacity approval for peak flows vs average daily flows and those conditions need to be associated with our infrastructure to have adequate design capacity. We have not provided a response to each alternative and are choosing to provide key points which lead into a recommendation for the developers review.

We have determined that:

- The 8" gravity sewer pipe connecting discharge flows from the Hope Avenue pump station to the gravity sewer system in Alice Street has adequate capacity to accept the proposed flows.
- The Curtis road pump station upgrades in 2019 included a maximum design capacity of 420 gpm which is enough to convey the future flow rates proposed. The station has had to be turned down due to electrical overloads and may be considered planned maintenance to correct issues to meet future conditions. The existing conditions of this station at the proposed flow rates are still under review at this time.
- The Curtis road Forcemain has adequate capacity for existing and future flows.
- The Hope Avenue pump station was taken over from a previous development and has stated design capacity in some documentation that's considered large enough for additional flows although the City has never seen this capability nor has it been required to handle such additional proposed flows. The associated type of equipment, age and current conditions would be a best fit for run to failure for equipment replacement and therefore is not scheduled to be upgraded or replaced at this time.
- The functionality, operation and maintenance of a proposed 24,000 gallon wet/well storage and pumping station shown on the proposed site plans is not understood or recommended. It would appear this system could have many unknown failures conditions, odors, and long-term maintenance issues. Proper sewer capacity requirements need to assume normal conditions which assume peak hours, so it is also unnecessary to construct such an equalization and pumping system.

Based on these conditions, the proposed flow rates, and taking into consideration efficient use of funds to meet the sewer capacity requirements the most appropriate actions would be as follows:

- Eliminate the storage / pumping system proposed on the development site and connect the development by gravity to the Hope Avenue collection system.
- Upgrade the Hope Avenue pump station to meet a condition of 150 gpm per pump. We note that original design conditions proposed these values so efforts are likely to be focused on in-kind replacement of existing equipment. This may include additional maintenance of the Forcemain such as “pigging” the line to assure the system will have adequate capacity upon completion of the development. Details of needs would be determined further along in the planning process.
- The Curtis road pump station may warrant future upgrades but it the interest of time and likely less significant in nature we feel comfortable moving past this at the current response.

We're happy to meet and discuss these design considerations ahead of your September planning board workshop.

Thank you,
Reed

Reed Allen, EI
Water Resources Engineer
He/Him

City of Portland Public Works
212 Canco Rd, Suite B
Portland, Maine 04103
Tel: (207) 874-8828
rhallen@portlandmaine.gov



On Thu, Aug 10, 2023 at 11:02 AM William C. Boornazian <wboornazian@portlandmaine.gov> wrote:

> Drew,
>
> In progress, we had to verify some more existing conditions. You can expect our response early next week at the latest.
>
> Regards,
>
> -Bill
>
> On Thu, Aug 10, 2023 at 7:58 AM Drew Olehowski <dolehowski@haleyward.com> wrote:
>
> > Good morning, Bill,
> >
> > I wanted to check in on the status of your review of the Hope Avenue Sewer Alternatives Report. Do you still expect to provide preliminary comments this week?
> >
> > Thank you,
> >
> > Drew Olehowski, PE
> > Civil Engineer
> > t: 207.283.9151
> > This e-mail may be confidential and is intended solely for the use of the individual to whom it is addressed. Any views or opinions expressed are solely those of the author
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May 17, 2022

Haley Ward
120 Main St Suite 132
Saco ME 04072
Attn: Drew Olehowski

Re: Capabilities Statement – GenX Capital Partners Development, Portland, ME

Dear Mr. Daniels,

This letter is to confirm that Casella Waste Services located in Hermon, ME has the capabilities to pick up, truck, and dispose of all volumes of Construction and Demolition Debris generated by the proposed construction at the GenX Capital Partners Development Project located in Portland, ME. These materials can be disposed of at the Juniper Ridge Secured Landfill Facility located in West Old Town, ME.

Casella Waste Services can transport all anticipated volumes of non-hazardous MSW (Municipal Solid Waste) to the Penobscot Energy Recovery Corporation facility located in Orrington, ME. (Anticipate 600#/Wk) We are also prepared to handle all amounts of Wood products that may be generated from this development at Re-Energy located in Lewiston, ME, as well as Carboard Recycling at Casella Recycling, located in Scarborough, ME.

This letter is not a quote for services. Rather it is a statement of capabilities. The sole purpose of this letter is to communicate the willingness and capabilities that Casella Waste Services has towards providing these services as requested.

Please feel free to contact me with any future requests. I can be reached at (207) 310-0509.

Sincerely,

Adam Graham

Adam Graham
Accounts Manager
Casella Waste Services

Presumpscot Woods
0 Hope Ave., Portland, Maine
Solid Waste

Solid waste to be generated by this development will include construction waste and municipal household waste.

Construction Waste

Solid waste generated by this development will include vegetative waste from the clearing required for the project, as well as general construction debris from the development of the project features.

This project will require approximately 10 acres of clearing of an undeveloped area. Using a conservative estimate of 80 tons of wood waste per acre, (https://www.forest2market.com/blog/how-many-tons-of-wood-are-on-an-acre-of-land), this project will generate approximately 800 tons of woods waste. Vegetative waste will either be sold or mulched and used as erosion control on site.

The project will develop approximately 85,000 square feet of residential building area, and it is estimated that a new construction project yields 3.9 lbs of construction waste per square foot of building area (https://www.buildings.com/department/article/10192921/diverting-construction-waste); therefore, this project will generate approximately 331,500lbs, or 165 tons of building construction waste. This waste will be disposed of by the contractor at a local transfer station – see the attached letter from Pine Tree Waste.

Municipal Solid Waste

After construction is completed, this development will generate a consistent stream of residential household waste. It is estimated that 4 lbs of waste is generated per dwelling unit per day (https://www2.calrecycle.ca.gov/wastecharacterization/general/rates) For this 60-unit development, there will be 240 lbs of waste generated per day, or 0.84 tons per week. Household waste will be collected by the city from the individual buildings on a weekly basis - see the attached letter from the Public Works Dept.

Att. 8



TriPlex ELEVATION

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

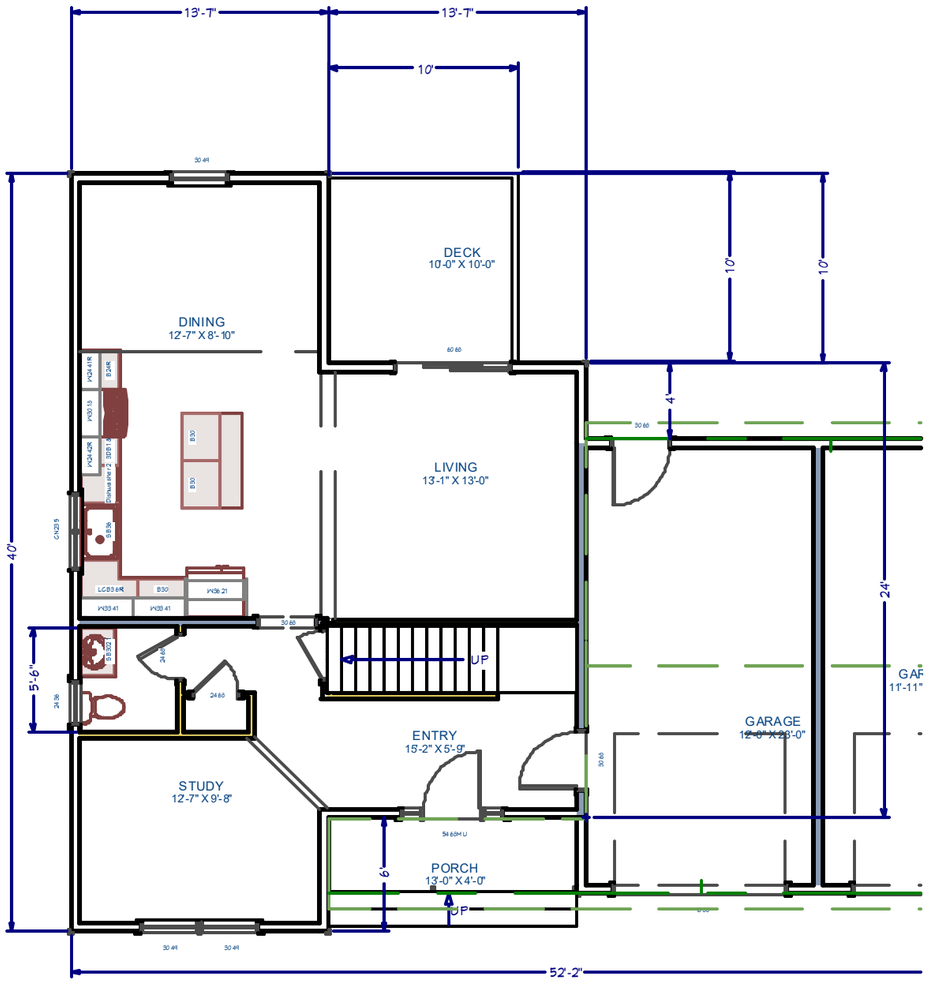
Hope Ave

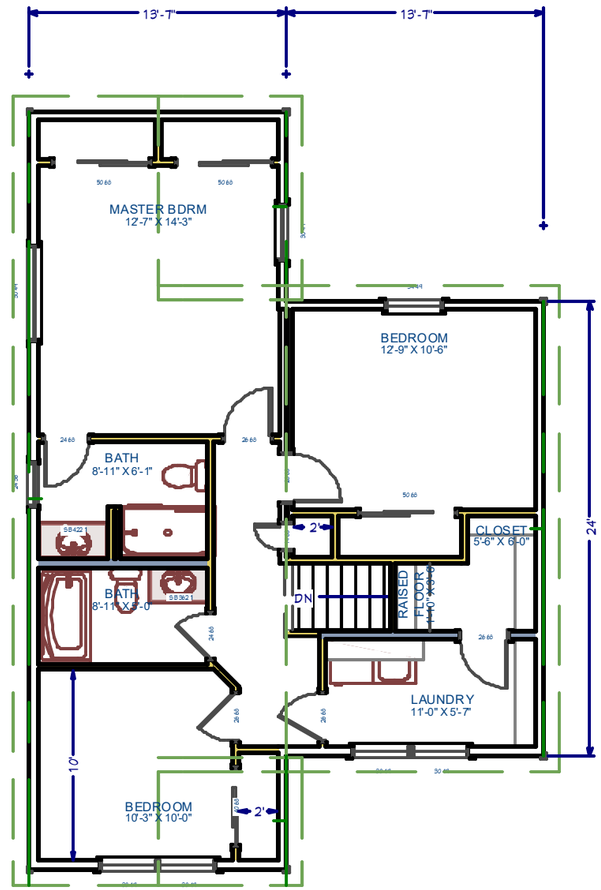
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY
	1





Standard Unit - 1,741sf

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

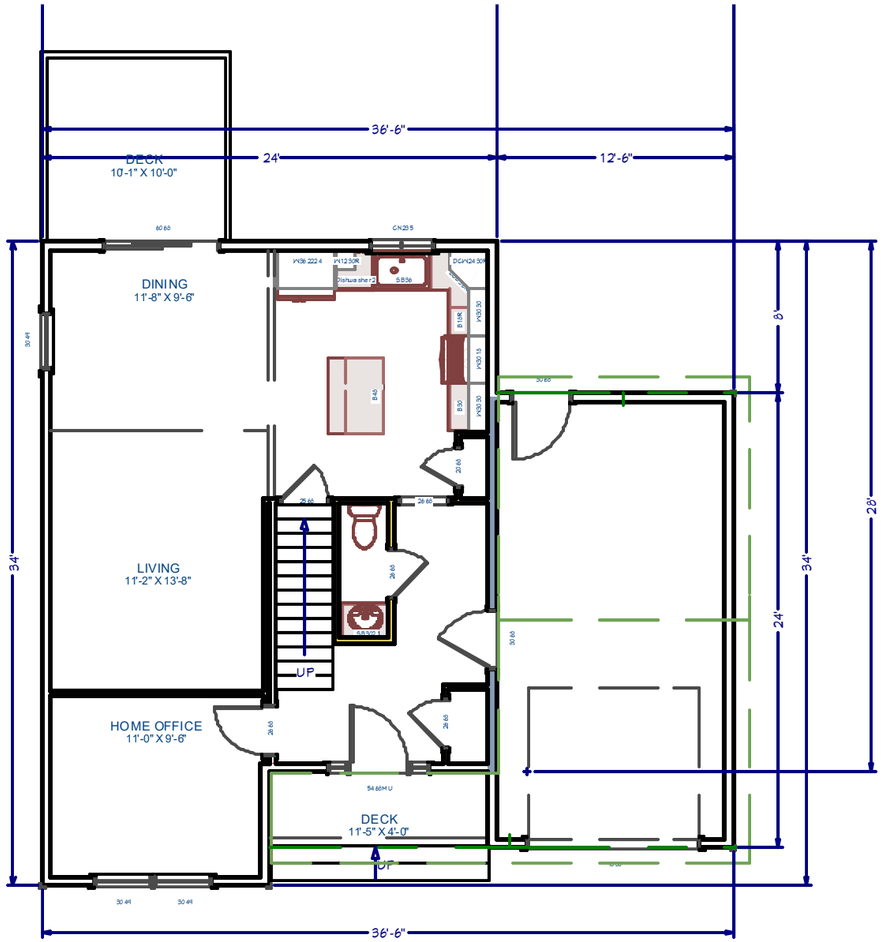
Hope Ave

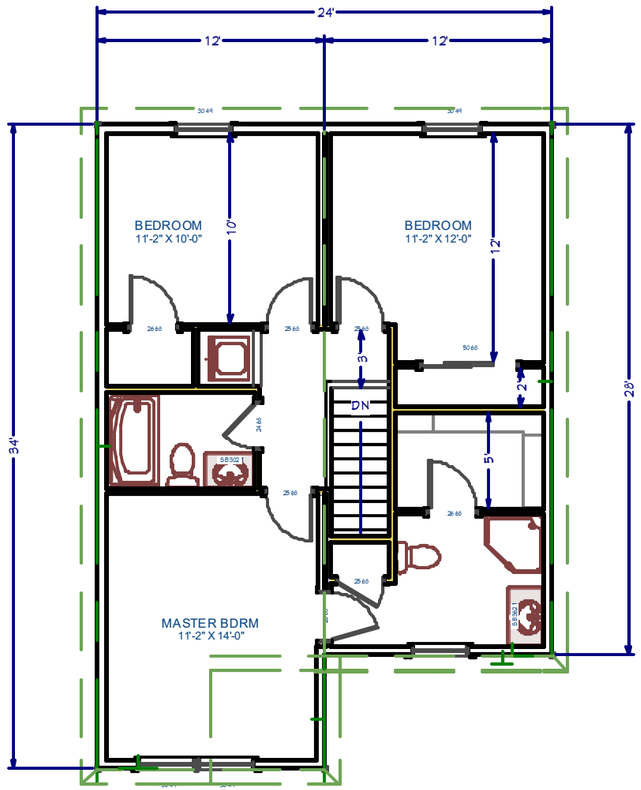
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	2





Work Force Unit - 1,488sf

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

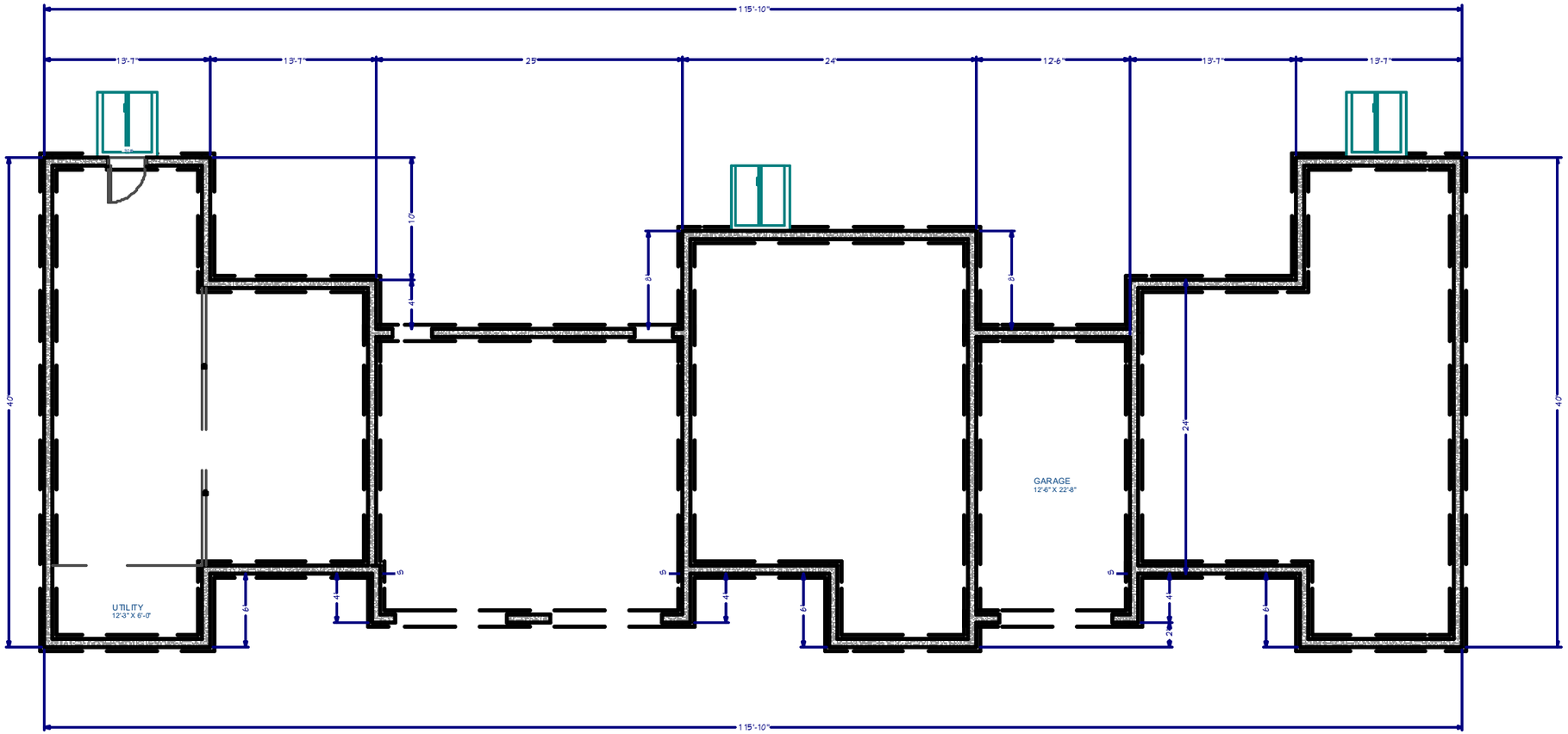
Hope Ave

Portland, Maine

CONST. TYPE	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	3



Foundation Layout with Dimensions
Triplex - Two Standard/One Work Force Unit
New Plan 40' x 115'10 (Old Plan 40'6 x 106'6)

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

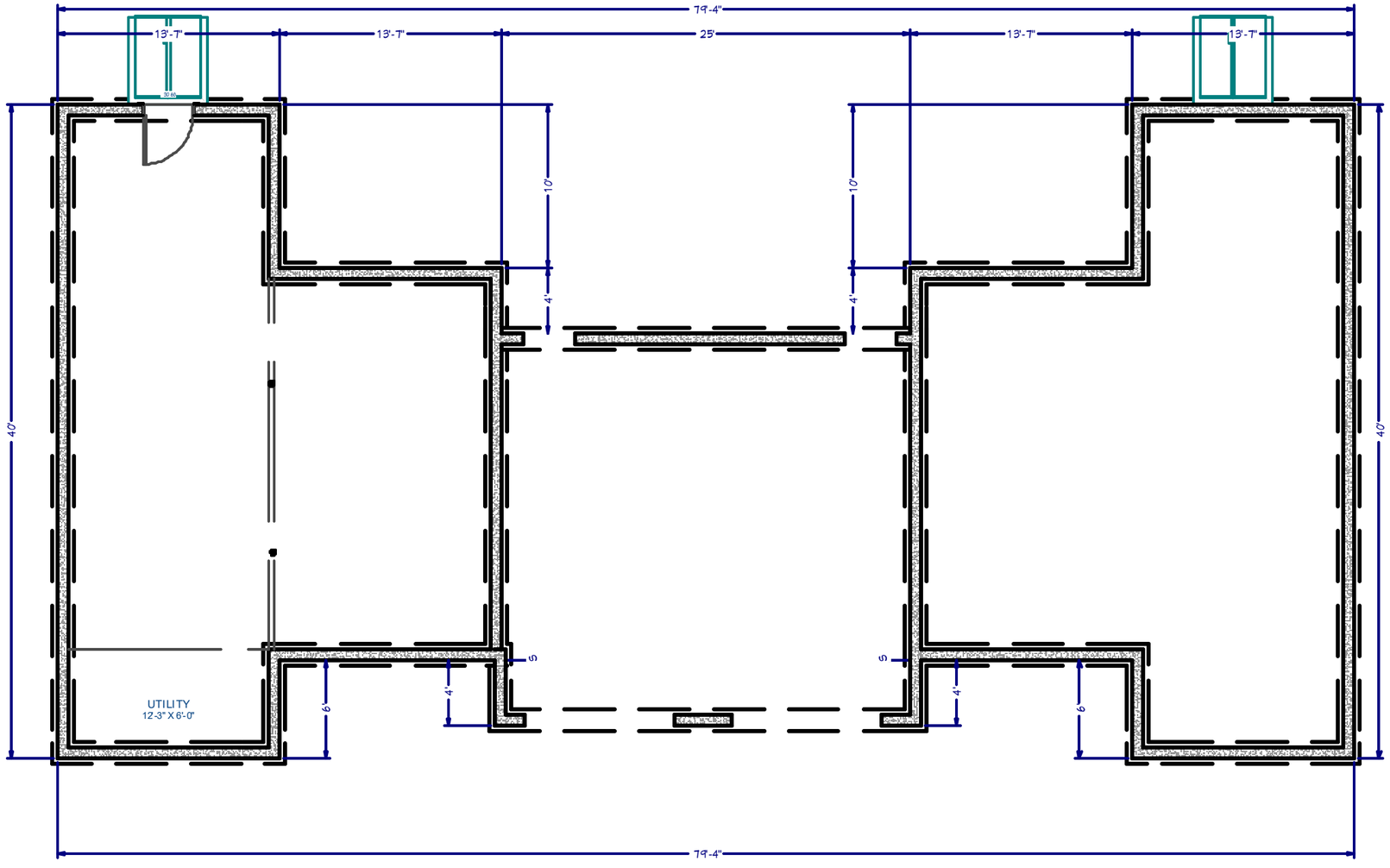
Floorplans and Elevations

Hope Ave
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	4



Foundation Layout with Dimension
Duplex #2- Two Standard Units
New Plan 40' x 79'4" (Old Plan 40'6 x 73')

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

Hope Ave
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	5

PREMIUM
series

Clopay®

America's Favorite Garage Doors®



Model 9200, Short Elegant Panel with Optional Colonial 509 Window Design

intellicore®
insulation technology

Premium Series garage doors featuring Intellicore® insulation technology represent the ultimate smart choice for homeowners. Clopay's Intellicore® insulation is a proprietary polyurethane foam that is injected into our Premium Series doors, expanding to fill the entire structure. The result is a door with incredible strength and durability. Its dense insulation also produces a quieter door, and with one of the industry's leading R-values of 18.4, it provides year-round comfort and improved energy efficiency.



WARMER
Energy efficiency provides year-round comfort

QUIETER
Dense insulation reduces noise by up to 16 decibels

STRONGER
Enhanced strength resists everyday wear and tear

PREMIUM series

Improve your home's appearance and energy efficiency with a Clopay Premium Series insulated garage door. Available with Intellicore® polyurethane insulation or bonded polystyrene insulation in 2" or 1-3/8" thicknesses, Premium Series models offer exceptional insulating R-values, strength and security, as well as quiet operation and a beautiful appearance. Choose from two panel styles, multiple color options and a wide range of window options to create a door that fits your budget and enhances your home's curb appeal.

3-LAYER CONSTRUCTION

- Weathertight tongue-and-groove section joints help seal out wind, rain and snow.
- Replaceable vinyl bottom weatherseal in a rust-resistant aluminum retainer helps seal out the elements.
- 2" thick polystyrene and all Intellicore® insulation filled doors come standard with 10-ball nylon rollers and heavy-duty 14 gauge steel hinges.
- Clopay's Safe-T-Bracket® helps prevent serious injury that could occur if the bottom bracket were removed with the garage door closed and under tension.
- Prepainted white end stiles and interior steel backing create a clean, finished appearance.
- Inside/outside step plates and grip handles make doors easy and safe to operate.
- 2" thick polystyrene and all Intellicore® insulation filled doors comply with 2015 IECC air infiltration requirement of 0.40 cfm/ft² or less (IECC, Section C402.5.2).



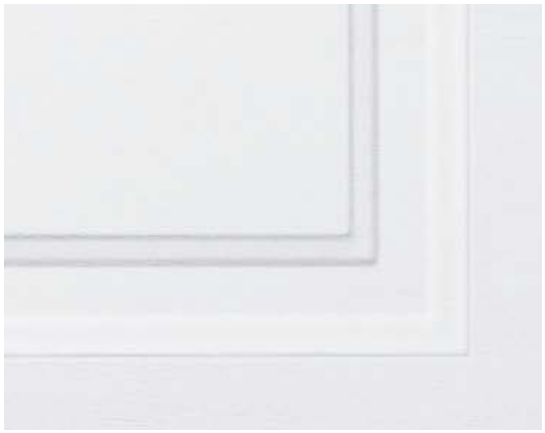
2"	1-3/8"	2"	1-3/8"
Polyurethane Models		Bonded Polystyrene Models	
27 GAUGE STEEL†	27 GAUGE STEEL†	27 GAUGE STEEL†	26 GAUGE STEEL
9200 short panel 9203 long panel	9130 short panel 9133 long panel	4300 short panel 4310 long panel	4050 short panel 4053 long panel
2" POLYURETHANE	1⅜" POLYURETHANE	2" POLYSTYRENE	1⅜" POLYSTYRENE
EFFICIENCY 18.4 R-VALUE*	EFFICIENCY 12.9 R-VALUE*	EFFICIENCY 9.0 R-VALUE*	EFFICIENCY 6.5 R-VALUE*

*Calculated door section R-value is in accordance with DASMA TDS-163.
† Models with Ultra-Grain® finish and Black paint options are 25 gauge steel.



Model 9203, Long Elegant Panel with Optional Charleston 608 Window Design

DETAIL



Deep panel edging and natural embossed woodgrain texture improve appearance close-up and from the curb.

STYLE



Elegant Short
Complements homes with traditional styling. Models 9200, 9130, 4300 and 4050.

Elegant Long
Ideal for ranch style homes. Models 9203, 9133, 4310 and 4053.

Doors range from 6' to 16' high and 6'2" to 20' wide. Consult your Clopay Dealer for size options.
WindCode® Doors are available to meet most regional wind load requirements.
Consult your local dealer for specific information.



Model 4050, Short Elegant Panel with Optional Colonial 509 Window Design

COLORS

Standard White

Glacier White*†

Almond

Desert Tan

Sandtone

Bronze

Chocolate

Mocha Brown*

Hunter Green

Gray

Charcoal*

Black*‡

- Exterior steel on standard color doors has a natural woodgrain texture.
- Doors can be painted to match the home's exterior using a high-quality latex exterior paint. Do not use oil-based paint.

Due to the printing process, colors may vary. See your Clopay Dealer for color samples.

**Not available on Models 4050 and 4053.*
†Popular in select markets, Glacier White is a brighter white.
‡Additional charges apply.

CUSTOM PAINT OPTION

COLOR BLAST®

Color Blast® finish offers more than 1,500 Sherwin-Williams® color options to complement your home. Clopay's durable two-part paint system has been thoroughly tested and is backed by a five-year warranty.

ULTRA-GRAIN® FINISH OPTION



Classic Medium Finish



Classic Cherry Finish



Classic Walnut Finish

Due to the printing process, colors may vary.
Not available on Models 4050 or 4053.
Additional charges apply.

- Painted steel surface simulates a real stained door without the need of staining and the ongoing maintenance of wood.
- Woodgrain runs horizontal on stiles and vertical on panels for an authentic, natural look.
- Available in Medium, Cherry or Walnut Classic finishes that complement Clopay Entry Doors, shutters and other exterior stained wood products.
- Exterior steel surface on an Ultra-Grain® finish door has a stucco texture to create a more natural woodgrain appearance.

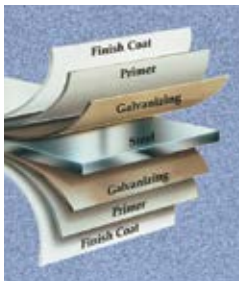


Model 4300, Short Elegant Panel;
Shown in Ultra-Grain® Classic Cherry Finish



Model 9200, Short Elegant Panel with Plain Short Windows; Shown in Ultra-Grain® Classic Cherry Finish

RUST-PREVENTION SYSTEM



Steel skins are protected through a tough, layered coating system, including a hot-dipped galvanized layer, a protective metal oxide pretreatment and a baked-on primer and top coat.

GREATER ENERGY EFFICIENCY



Thermal break* separates the interior from the exterior skin to improve energy efficiency and comfort.

**Thermal break is not present on Models 4050 and 4053.*

ENVIRONMENTAL ASSURANCE

Clopay doors are compliant with environmental laws and regulations. Clopay doors do not contain HFCs. All Clopay doors are compliant with:

- California SB 1013
- Washington HB 1112 – Hydrofluorocarbon Greenhouse Gas Emissions
- Canadian regulations amending the ozone-depleting substances and halocarbon alternatives regulations

WARRANTIES

PAINT SYSTEM	WINDOWS	HARDWARE
LIMITED LIFE WARRANTY	LIMITED 10 YR WARRANTY	LIMITED 3 YR WARRANTY

WINDOW OPTIONS

Our windows add natural light to your garage while adding curb appeal to your home. All Clopay window frames are UV-protected and are color matched to our prefinished door colors. Window frames screw in from the inside for easy glass replacement or to change designs.

ARCHITECTURAL SERIES WINDOWS

These windows are from Clopay's Architectural Series, featuring a larger viewing area and are available on select models and heights. Short windows are 19-1/2" × 16" and long windows are 42" × 16".

Available on These Models

9200* 9133
9203 4300*
9130* 4310



Windows are available single pane or insulated in clear, frosted, seeded, obscure and rain designs.



DECORATIVE INSERT SERIES WINDOWS

UV-protected cellular plastic insert designs snap into either the inside or outside of the window frame for easy cleaning or to change designs. Windows are offered in single strength, double strength, acrylic, obscure or insulated glass. Short windows are 19-1/2" × 12" and long windows are 40-1/2" × 12".

Available on These Models

9200* 4300*
9203 4310
9130* 4050*
9133 4053



Windows are available single pane or insulated in clear, frosted, obscure and rain designs. Clear acrylic also available.



Short windows not available on long panel doors.
** Panel emboss may not align with windows due to size difference. Some size limitations apply.*
† Shown with clear glass. Acrylic and obscure glass optional.
‡ Sunset windows not available on Ultra-Grain® finish doors.
Additional charges for optional glass apply.
Acrylic windows require special cleaning. Never use products that contain ammonia or petroleum products to clean acrylic. Please visit clopaydoor.com/acrylic for complete details.

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TriPlex ELEVATION

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

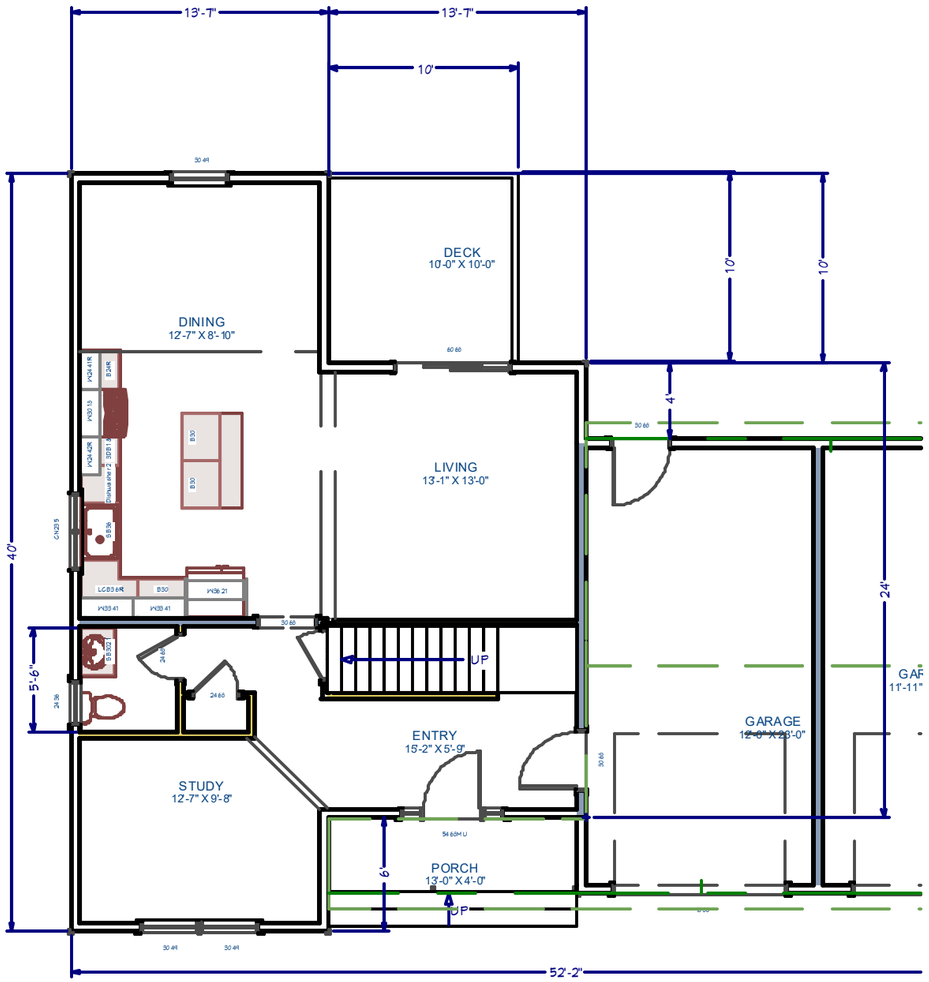
Hope Ave

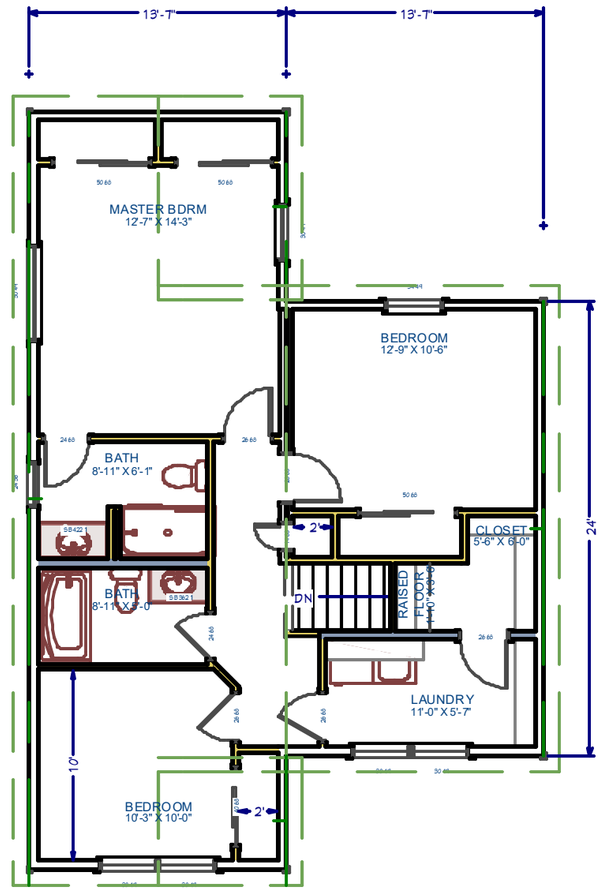
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY
	1





Standard Unit - 1,741sf

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

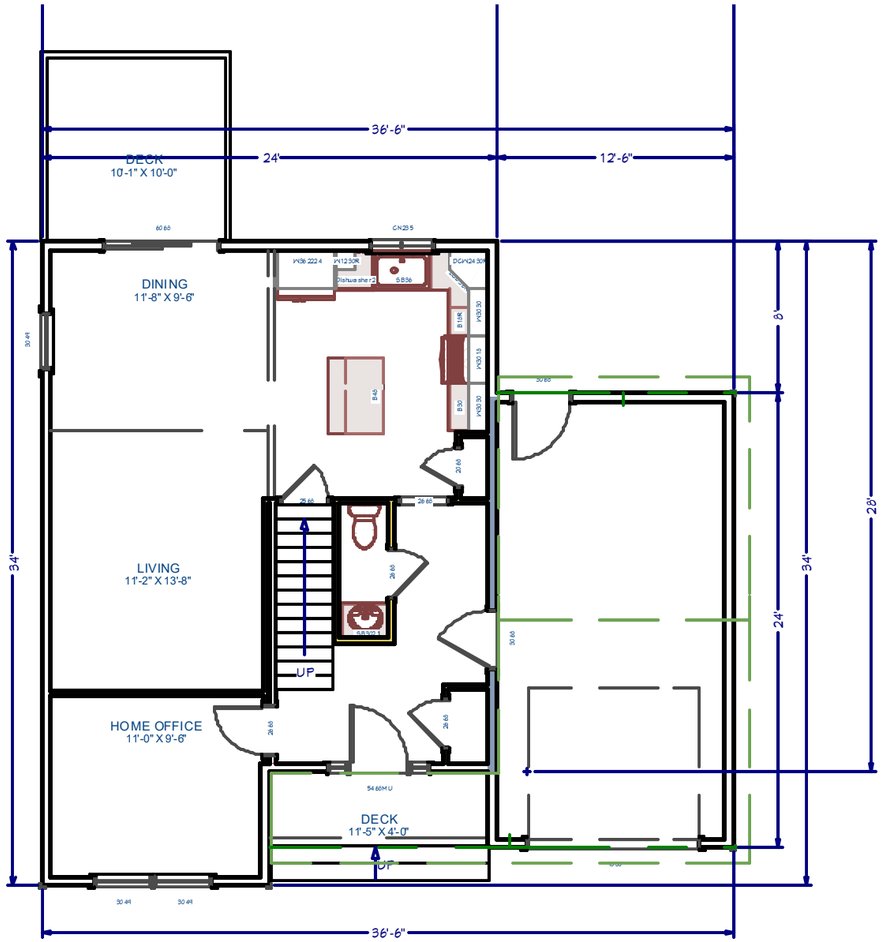
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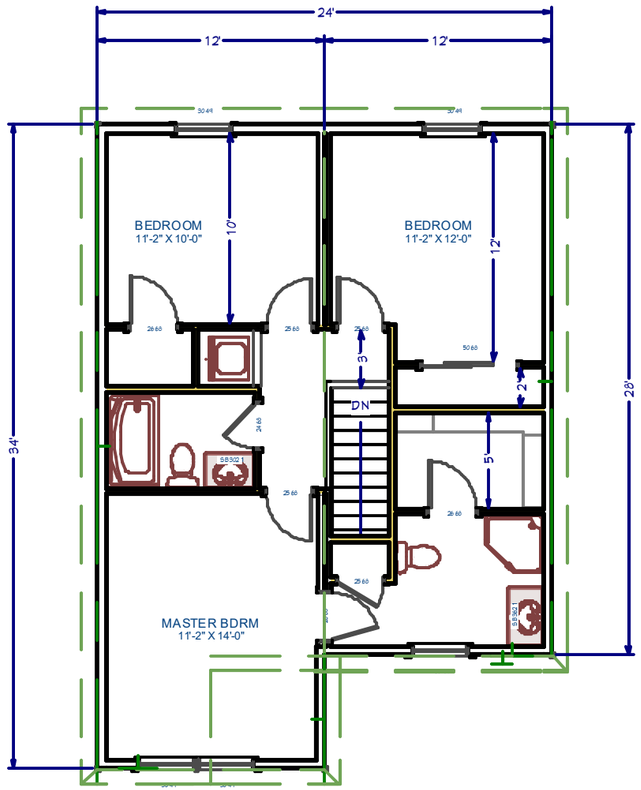
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	2





Work Force Unit - 1,488sf

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

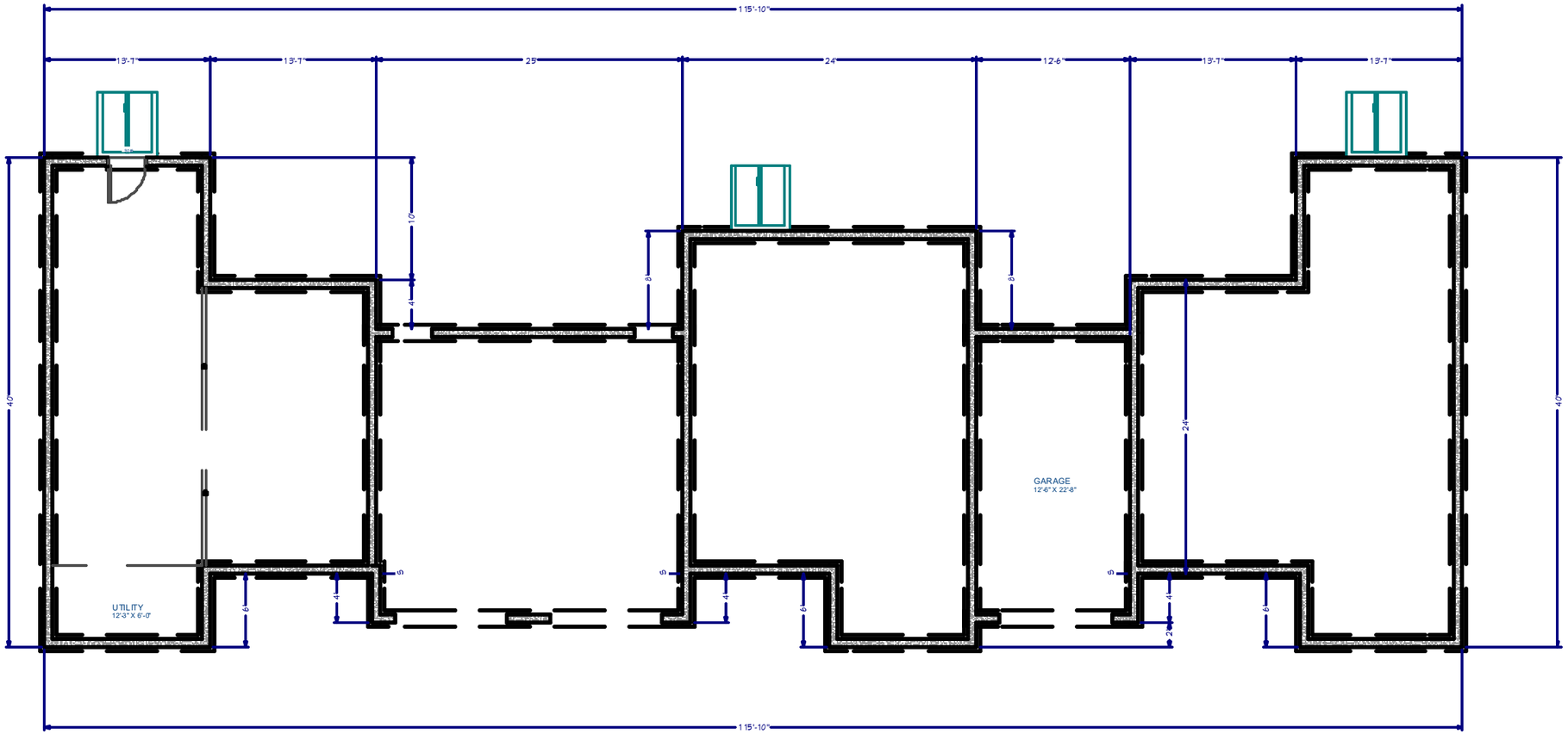
Hope Ave

Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY
	3



Foundation Layout with Dimensions
Triplex - Two Standard/One Work Force Unit
New Plan 40' x 115'10 (Old Plan 40'6 x 106'6)

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

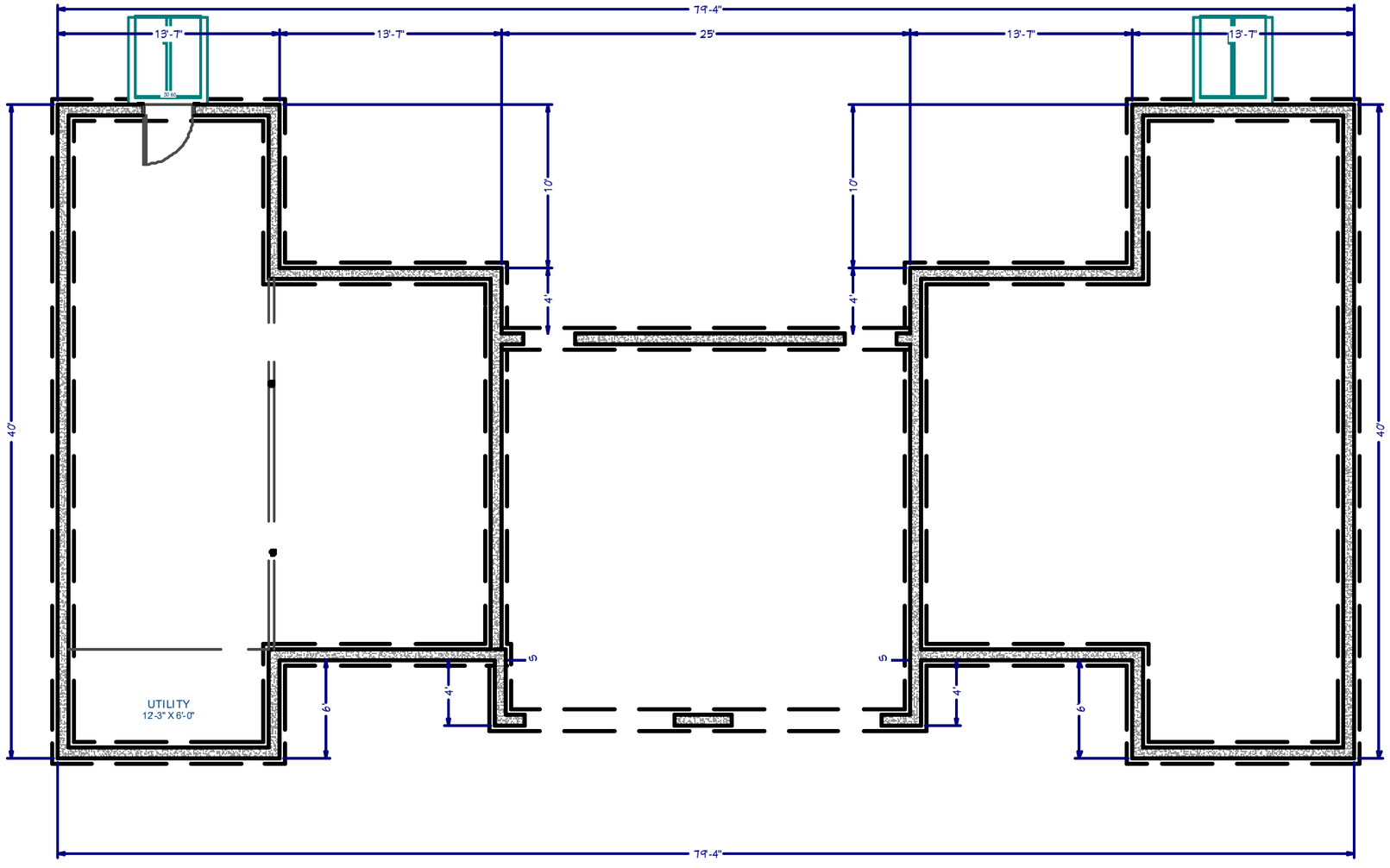
Floorplans and Elevations

Hope Ave
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

SERIAL NUMBER	STUDY	4



Foundation Layout with Dimension
Duplex #2- Two Standard Units
New Plan 40' x 79'4" (Old Plan 40'6 x 73')

REVISION	DATE
1	2/8/23
2	2/9/23
3	3/14/23

Floorplans and Elevations

Hope Ave
Portland, Maine

CONST. TYPE.	USE GROUP	DATE
5B	Single Family	1/8/23

ACME DEVELOPMENT

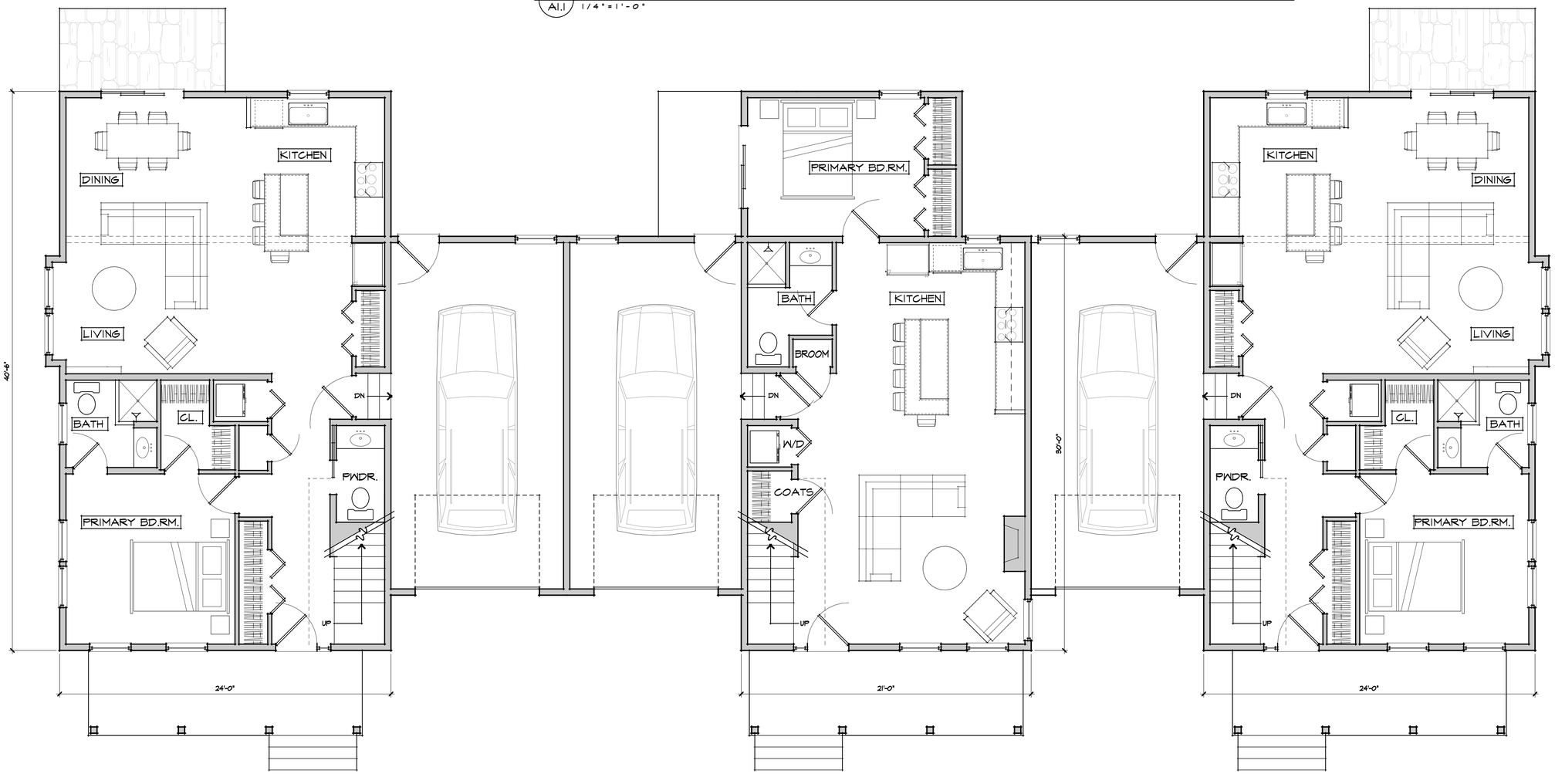
SERIAL NUMBER	STUDY	5

Upgrades to Standard Westchester Specifications as Indicated on Purchase Order – Both Units

- Floor Section
  - Install 12 x 12 Ceramic Tile in All Bathrooms, Laundry areas
  - Install Hardwood Floors onsite in LR/DR/LR/Study/Entry
  - Carpets installed in Bedrooms 2 and 3, 2nd floor Hall and Stairs to second floor
- Walls
  - Upgraded to Zip Sheathing ILO Plywood
- Roofs
  - Upgraded to R-49 Ceiling Insulation
  - Upgraded to 7/12 Pitch Roof
- Electric
  - Added Additional Lighting (Recess, ceiling, etc) above Standard Minimum requirements
- Interior
  - Upgrade Interior Doors to Solid Masonite
  - Upgrade Trim from Standard
- Kitchen
  - Upgrade Cabinets to Marlin – Hardwood Painted with Deluxe Construction
  - Upgrade Countertop to Quartz/Granit in Standard Unit (Smaller Unit to remain Formica)
  - Upgrade Sink / Faucet in Standard Unit (installed onsite) – Smaller Unit to be standard
- All Bathrooms
  - Upgrade Cabinets to Marlin – Hardwood Painted w
  - Upgrade toilet to Comfort Height



2 A1.1 PERSPECTIVE
1/4" = 1'-0"



1,707 SQ.FT. 1,428 SQ.FT. 1,707 SQ.FT.

0' 5' 10' 20'

1 A1.1 FIRST FLOOR PLAN (TWO LARGER UNITS / ONE SMALLER UNIT)
1/4" = 1'-0"

NOT FOR CONSTRUCTION

REVISIONS
07.08.22: PROGRESS
07.21.22: PROGRESS

PRESUMPSCOT WOODS
PORTLAND, MAINE
PROPOSED

DRAWING TITLE:
1ST FLOOR PLAN

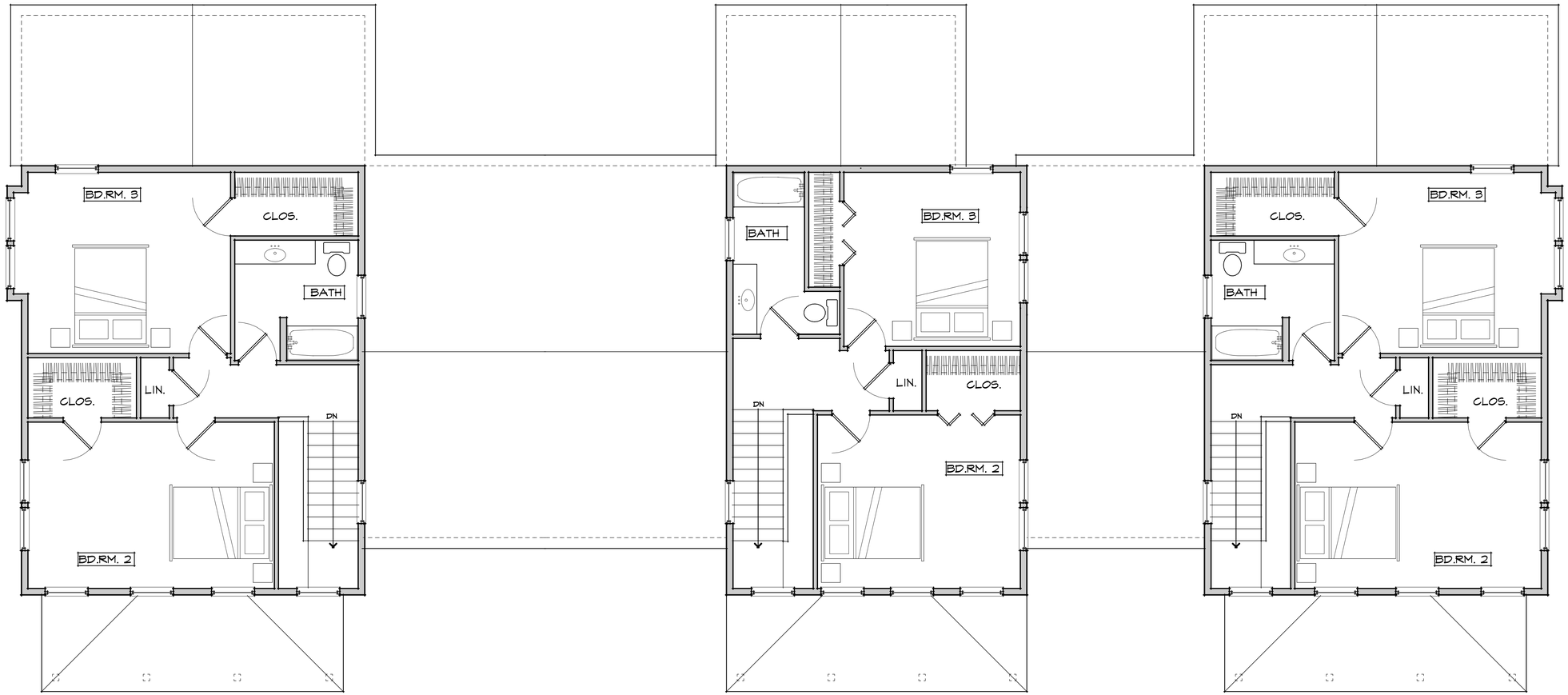
DATE: 07.07.22
SCALE: 1/4" = 1'-0"
DRAWN BY: A. MALTESE

A1.1

A. MALTESE DESIGN
44 ABBIE LN.
DAMARISCOTTA, ME 04543
TEL.: 207.542.2646
E-MAIL: adammaltese@gmail.com

PLOT SCALE 1/2"=1'-0"
7/21/2022 1:13 PM

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1,707 SQ.FT. 1,428 SQ.FT. 1,707 SQ.FT.

1 / A1.2 SECOND FLOOR PLAN (TWO LARGER UNITS / ONE SMALLER UNIT)

1/4"=1'-0"

NOT FOR CONSTRUCTION

REVISIONS

07.08.22: PROGRESS

07.21.22: PROGRESS

PRESUMPSCOT WOODS

PORTLAND, MAINE
PROPOSED

DRAWING TITLE:

2ND FLOOR PLAN

DATE: 04.01.18

SCALE: 1/4" = 1'-0"

DRAWN BY: A. MALTESE

A1.2

A. MALTESE DESIGN

44 ABBIE LN.
DAMARISCOTTA, ME 04543

TEL.: 207.542.2646

E-MAIL: adammaltese@gmail.com

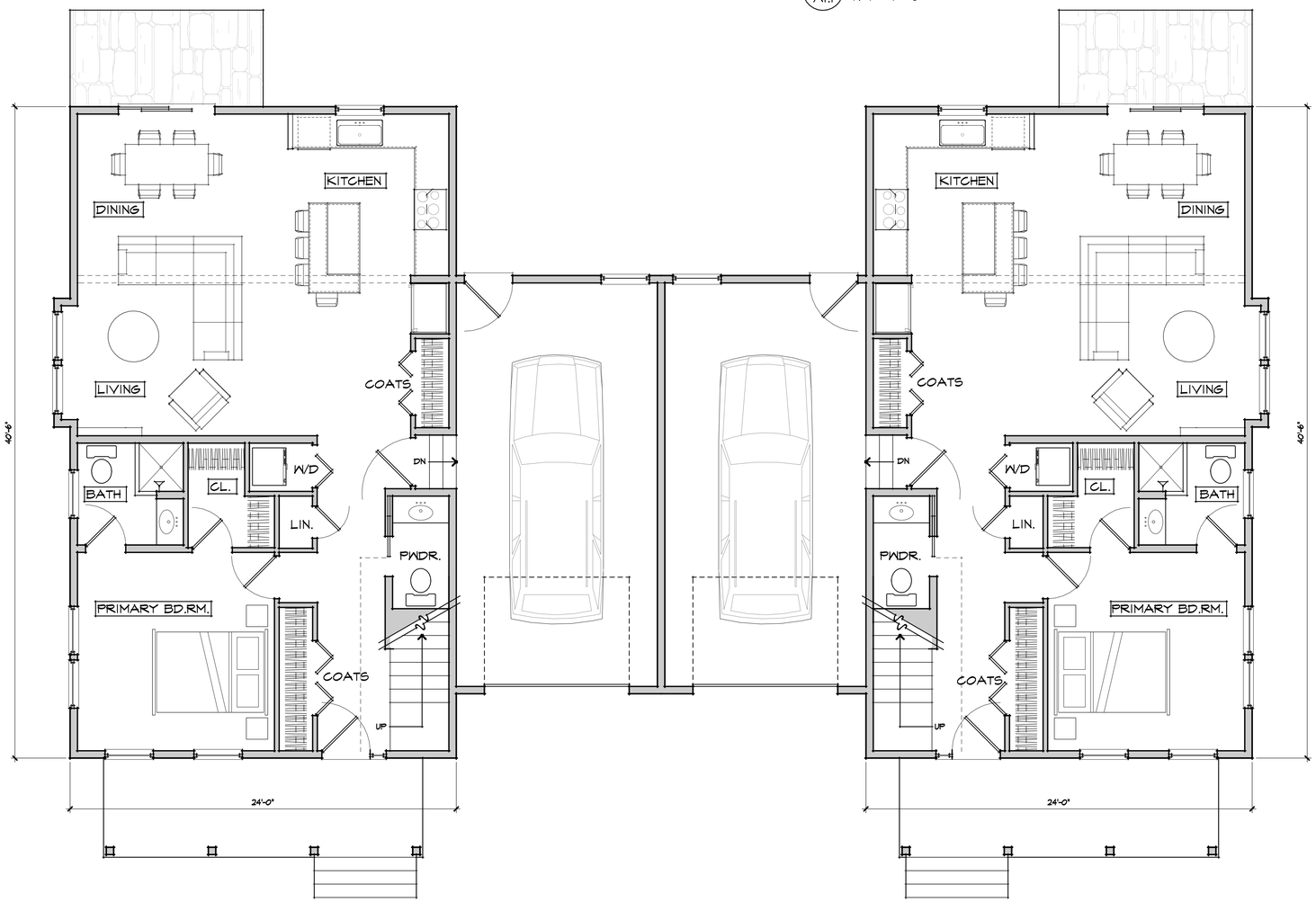
PLOT SCALE: 1/2"=1'-0"

7/21/2022 1:12 PM

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2 A1.1 PERSPECTIVE
1/4"=1'-0"



1,707 SQ.FT. 1,707 SQ.FT. 0' 5' 10' 20'

1 A1.1 FIRST FLOOR PLAN (TWO LARGER UNITS)
1/4"=1'-0"

NOT FOR CONSTRUCTION

REVISIONS
07.08.22: PROGRESS
07.21.22: PROGRESS

PRESUMPSCOT WOODS
PORTLAND, MAINE
PROPOSED

DRAWING TITLE:
1ST FLOOR PLAN

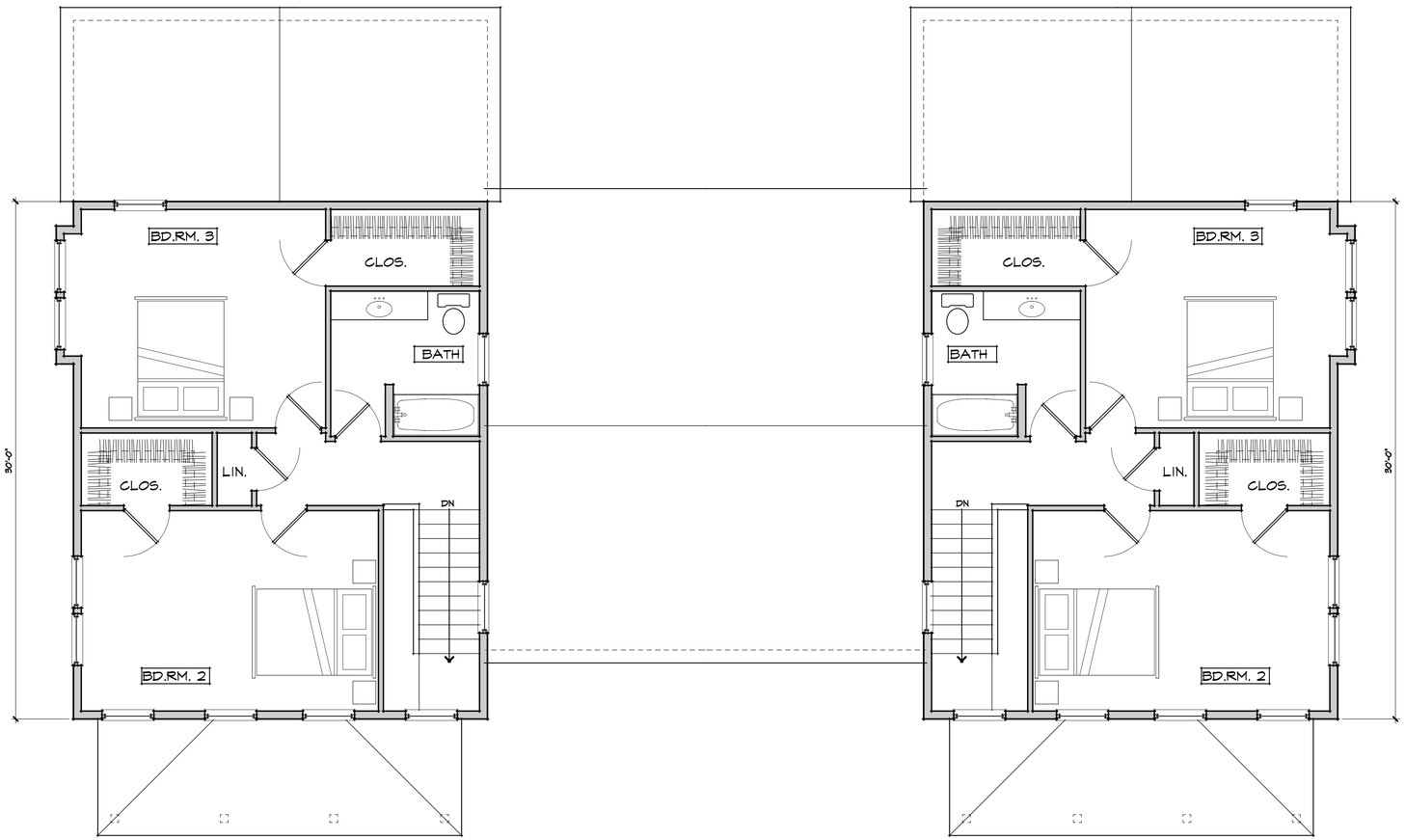
DATE: 07.07.22
SCALE: 1/4" = 1'-0"
DRAWN BY: A. MALTESE

A1.1

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44 ABBIE LN.
DAMARISCOTTA, ME 04543
TEL.: 207.542.2646
E-MAIL: adammaltese@gmail.com

PLOT SCALE: 1/2"=1'-0"
7/21/2022 1:15 PM

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1,707 SQ.FT.

1,707 SQ.FT.

1 / A1.2 SECOND FLOOR PLAN (TWO LARGER UNITS)
1/4"=1'-0"

NOT FOR CONSTRUCTION

REVISIONS
07.08.22: PROGRESS
07.21.22: PROGRESS

PRESUMPSCOT WOODS

PORTLAND, MAINE
PROPOSED

DRAWING TITLE:
2ND FLOOR PLAN

DATE: 04.01.18
SCALE: 1/4" = 1'-0"
DRAWN BY: A. MALTESE

A1.2

A. MALTESE DESIGN
44 ABBIE LN.
DAMARISCOTTA, ME 04543
TEL.: 207.542.2646
E-MAIL: adammaltese@gmail.com

PLOT SCALE: 1/2"=1'-0"
7/21/2022 1:10 PM

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Westchester Specifications

Floor System

- 2 x 10 floor joist 16" on center as required by span with double rim joist. Steel joist hangers where required.
- Solid wood bridging installed at center spans. Double Metal Bridging on all 15' and 16' wide units.
- 3/4 Nominal (23/32) Tongue and groove plywood sturdi-floor glued and fastened.
- Wall to wall carpet with 3/8" pad and tack strip. Shipped loose for field installation.

Exterior

- 2 x 6 studding 16" on center.
- R-21 Batt type wall insulation.
- 1/2" Nominal (15/32) rated plywood sheathing, exposure #1, glued and fastened.
- Andersen® Tilt Wash® 400 Series double-hung vinyl clad windows with High Performance™ insulating glass, removable grilles and full screens. Extended window sill included.
- Andersen® vinyl clad wood framed sliding glass patio door with tempered double glass and screen.
- Insulated Thermatru® "smooth star" fiberglass exterior doors.
- Wireless chime for two doors.
- Low maintenance Certainteed® "Mainstreet" solid vinyl siding with lifetime non-prorated transferable warranty.
- Air infiltration barrier installed on all exterior insulated walls.
- 5/12 Roof Pitch with dimensional fiberglass/ asphalt self sealing shingles with limited lifetime warranty and aluminum drip edge.
- 5/8" Nominal (19/32) rated plywood roof sheathing, exposure #1.
- Full length attic shingle-over ridge ventilating system.
- Ice and water shield installed under shingles 6' up on all eave overhangs.
- R-38 ceiling insulation, foam baffles and eves.
- Low maintenance ventilating soffit and fascia system.

Interior

- Full 8' ceiling height.
- 2 x 4 studding 16" on center.
- 1/2" drywall on walls and 5/8" on ceilings with smooth finish.
- All interior drywall surfaces primed with white latex no voc paint with smooth finish.
- All interior openings are cased in pine.
- Six panel hardboard hollow core interior doors painted white with triple brushed nickel hinges and lever hardware.
- Painted colonial wood interior trim with extended window sills.
- Pre-finished ventilated closet shelving.
- First floor stairwell walls insulated.

Kitchen

- Oak or hardwood frame cabinetry with recessed panel doors. Choice of colors.
- All kitchen designs incorporate lazy susan and angled wall cabinets.
- Self edge high pressure laminate counter top with 4" backsplash.
- Double bowl stainless steel sink with Delta single lever faucet and pull-out spray.
- Recessed light over kitchen sink.
- Lighted ventless range hood with choice of colors.

Bathrooms

- Oak or hardwood frame cabinetry with recessed panel doors. Choice of colors.
- Self edge high pressure laminate vanity top with 4" backsplash and china basin.
- Dual handle Delta® vanity faucet.
- Mirror with lights above and recess mirrored medicine cabinet.
- Bath fan/light combination
- Elongated vitreous china water closet.
- One piece smooth finish fiberglass tub/ shower unit with choice of color.
- All shower valves incorporate pressure balancing valve to prevent "shower shock".
- Towel bar, towel ring and paper-holder to match faucet finish.

Electrical/Plumbing

- PEX water lines.
- Hot water baseboard heat.
- Washer and dryer hook up available.
- 200 Amp service panel with circuit breakers shipped loose for field installation.
- Ground fault protected receptacles provided in kitchen, bath and exterior locations as required by code. Arc Fault receptacles are used in all bedrooms.
- Smoke detector/alarm system with built-in battery back up provided as required by code.
- Carbon monoxide detectors.
- Lighting fixtures provided at kitchen, dining, bath, walk in closet, hall, entry foyer, exterior door locations and basement stairwells.

Code Compliance Policy

Westchester Modular Homes are built in accordance with state specific adopted codes including residential, building, mechanical, plumbing, and electrical codes. In order to assure code compliance it is the builder's responsibility to notify Westchester Modular Homes prior to order placement of any additional provisions that may be required by any authorities having jurisdiction.

Specifications and suppliers are subject to change without notice.

Westchester Modular Homes, Inc. is a wholesale manufacturer of modular components that sells its products to residential builders from whom you buy your new home. Westchester Modular Homes, Inc. is independent of the builders that use its products and services, and is only responsible for manufacturing and servicing according to the terms and conditions of the contract and warranty it has with the builder of your new home.

Westchester Modular Homes, Inc.

AN EMPLOYEE OWNED COMPANY

30 Reagans Mill Road • Wingdale, NY 12594

800-832-3888 • 845-832-9400

WestchesterModular.com

Featuring High-Quality Andersen Products

Andersen Windows

ENERGY STAR PARTNER

Presumpscot Woods
0 Hope Ave., Portland, Maine
Evidence of State and Federal Approvals

The Presumpscot Woods project will be required to obtain approvals through the Maine Department of Environmental Protection (MDEP) and the Army Corps of Engineers.

Required MDEP permitting will include a Site Location of Development Act (SLODA) permit, and Natural Resources Protection Act (NRPA) permits. Because the City of Portland has delegated authority, they will review the project for SLODA requirements. A NRPA PBR application for the proposed stream crossing, and a NRPA Tier 1 application for wetland impacts, will be required. These applications will be submitted simultaneously with the City Site Plan Application, and evidence of approval will be sent to the City upon receipt.

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING

NATURAL RESOURCES PROTECTION ACT PERMIT-BY-RULE NOTIFICATION

TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

FOR PRESUMPSCOT WOODS

Portland, Maine

Applicant:

GenX Capital Partners LLC

2 Cotton Street | Portland, ME 04101



OCTOBER 2022

JN: 13773.001

Report Prepared By:

Haley Ward

One Merchants Plaza, Suite 701 | Bangor, Maine 04401

Corporate Office
One Merchants Plaza
Suite 701
Bangor, ME 04401
T: 207.989.4824
F: 207.989.4881

HALEYWARD.COM

TABLE OF CONTENTS

APPLICATION
NARRATIVE
LOCATION MAP
PHOTOGRAPHIC LOG
GOOD STANDING RECORDS
    GENX PARTNERS, LLC
    SHINBERG CONSULTING, LLC

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	GENX CAPITAL PARTNERS	Name:	HALEY WARD INC., ATTN: JON WHITTEN, JR.
Mailing Address:	2 COTTON STREET	Mailing Address:	ONE MERCHANTS PLAZA, SUITE 701
Mailing Address:		Mailing Address:	
Town/State/Zip:	PORTLAND, ME 04101	Town/State/Zip:	BANGOR, ME 04401
Daytime Phone #:	Ext:	Daytime Phone #:	(207) 989-4824 Ext:
Email Address:	gls@shinbergconsulting.com	Email Address:	jwhitten@haleyward.com

PROJECT INFORMATION

Part of a larger project? (check 1):	☑ Yes ☐ No	After the Fact? (check 1):	☐ Yes ☑ No	Project involves work below mean low water? (check 1):	☑ Yes ☐ No	Name of waterbody:	UNNAMED STREAM
Project Town:	PORTLAND		Town Email Address:	jrather@portlandmaine.gov		Map and Lot Number:	390/A001
Brief Project Description:	PLANNED RESIDENTIAL UNIT DEVELOPMENT WITH 60 UNITS.						
Project Location & Brief Directions to Site:	FROM CANCO ROAD, TURN LEFT ONTO ME-26. FOLLOW FOR 0.6 MILES, THEN TURN RIGHT ONTO ALLEN AVE. FOLLOW FOR 0.5 MILES, THEN TURN LEFT ONTO SUMMIT STREET. FOLLOW FOR 0.7 MILES, THEN TURN RIGHT ONTO CURTIS ROAD.FOLLOW FOR 0.6 MILES, THEN TURN LEFT ONTO HOPE AVENUE. ENTRANCE TO SITE IS JUST AFTER BASKET LANE ON RIGHT.						

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, Chapter 305. I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- ☐ **Sec. (2) Act. Adj. to Prot. Natural Res.**
- ☐ **Sec. (3) Intake Pipes**
- ☐ **Sec. (4) Replacement of Structures**
- ☐ **Sec. (6) Movement of Rocks or Veg.**
- ☐ **Sec. (7) Outfall Pipes**
- ☐ **Sec. (8) Shoreline Stabilization**
- ☐ **Sec. (9) Utility Crossing**
- ☑ **Sec. (10) Stream Crossing**
- ☐ **Sec. (11) State Transportation Facilities**
- ☐ **Sec. (12) Restoration of Natural Areas**
- ☐ **Sec. (13) F&W Creat./Water Qual. Improv.**
- ☐ **Sec. (15) Public Boat Ramps**
- ☐ **Sec. (16) Coastal Sand Dune Projects**
- ☐ **Sec. (17) Transfer/Permit Extension**
- ☐ **Sec. (18) Maintenance Dredging**
- ☐ **Sec. (19) Act. Near SVP Habitat**
- ☐ **Sec. (20) Act. Near Waterfowl/Bird Habitat**

NOTE: Municipal permits also *may* be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE

- ☑ ***Attach*** **all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.**
- ☑ ***Attach*** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- ☑ ***Attach*** *Proof of Legal Name* if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are not required to provide any proof of identity.

FEE: Pay by credit card at the Payment Portal. The Permit-by-Rule fee may be found here https://www.maine.gov/dep/feeschedule.pdf and is currently $266.

- ☑ ***Attach*** **payment confirmation from the Payment Portal when filing this notification form.**

Signature & Certification:

- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant (may be typed):		Date:	10/24/2022

Keep a copy as a record of permit. Email this completed form with attachments to DEP at: DEP.PBRNotification@maine.gov. DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

NARRATIVE

The Presumpscot Woods project is a proposed residential, condominium development consisting of the creation of 60 new dwelling units through a combination of duplex and triplex buildings supported by a private access way and associated utilities. The project is located off Hope Avenue, in Portland, Maine on Parcels 390/A001, 448/A001001, 449/A002. The applicant/owner, GenX Capital Partners, LLC (Owner), is proposing to develop this subdivision under the PRUD dimensional standards within the City's R-3 Zoning District.

The project site is approximately 13.7 acres in size and, although located in an urban residential neighborhood, it is currently forested and undeveloped. The land slopes range from gentle to steep on the outskirts of the property. There are small pockets of wetlands within the site and a narrow stream located in an eroded channel that divides the property. The site abuts the Falmouth Spur of the Maine Turnpike to the north and undeveloped, conservation lands to the east, which border the Presumpscot River.

There is one proposed stream crossing associated with this project. The stream was identified in a Natural Resource Survey conducted by Flycatcher LLC in July 2022.

The watershed of the stream to be crossed includes approximately 20 acres of residential area in North Deering. The stream is perennial and has a bankful width of approximately 4 feet at the proposed crossing location. The channel originates in the general location of the proposed crossing and is approximately 1,500 feet long, draining directly into the Presumpscot River.

A 4-sided concrete box culvert is proposed for the crossing. The crossing has been designed to meet the Army Corps of Engineers' Stream Smart guidelines. Construction will occur during the approved crossing construction work window (July 15 - October 1) during periods of low water and will adhere to all standards and conditions outlined under Section 10 of Chapter 305 – Permit by Rule Standards and the current Erosion and Sediment Control BMPS.

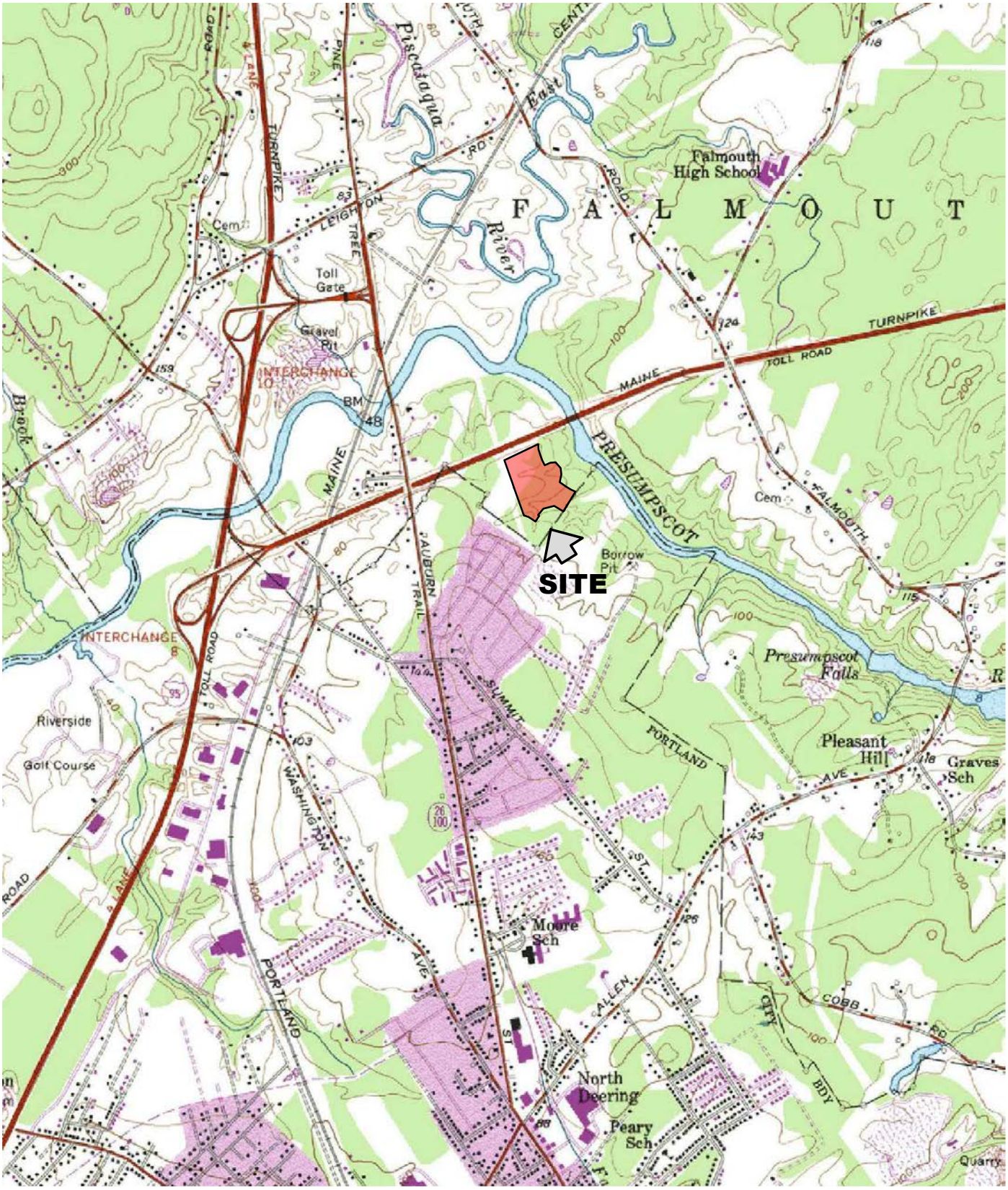
This Applicant is also seeking City of Portland Site Plan and Subdivision approval, a Maine Department of Environmental Protection (MDEP) Site Location of Development permit, and a MDEP NRPA Tier 1 permit for wetland alterations for this Site.

SITE LOCATION AND NATURAL RESOURCE PLAN

Refer to the attached Site Location Map which shows the location of the proposed stream crossing.

LOCATION MAP

Terrain Navigator.© Maptech 800-627-7236



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
PORTLAND WEST
@ 1:24,000

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ENGINEERING | ENVIRONMENTAL | SURVEYING

HOPE AVENUE DEVELOPMENT
PORTLAND, MAINE

LOCATION MAP

05/02/2022
13773.001

Photo No. 1 Photo Date: August 2022 Site Location: Portland, Maine Description: Approximate location of stream crossing, looking downstream. Photo By: DJO	

Photo No. 2 Photo Date: August 2022 Site Location: Portland, Maine Description: Approximate location of stream crossing, looking upstream. Photo By: DJO	

Photo No. 3	
Photo Date: August 2022	
Site Location: Portland, Maine	
Description: Approximate location of stream crossing, looking downstream.	
Photo By: DJO	

Photo No. 4	
Photo Date: August 2022	
Site Location: Portland, Maine	
Description: Approximate location of stream crossing, looking downstream.	
Photo By: DJO	

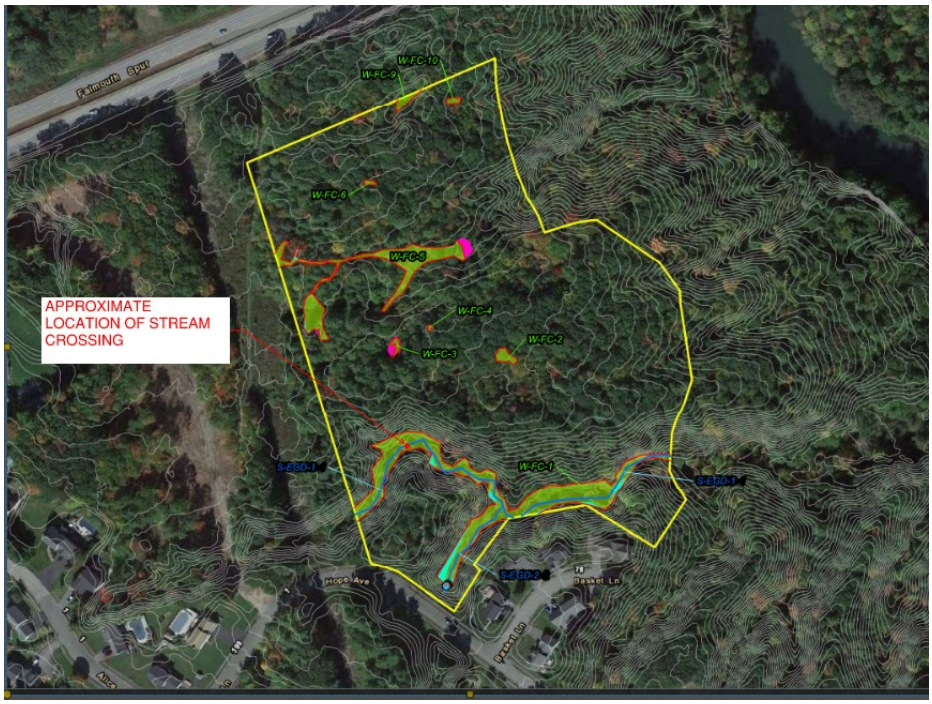
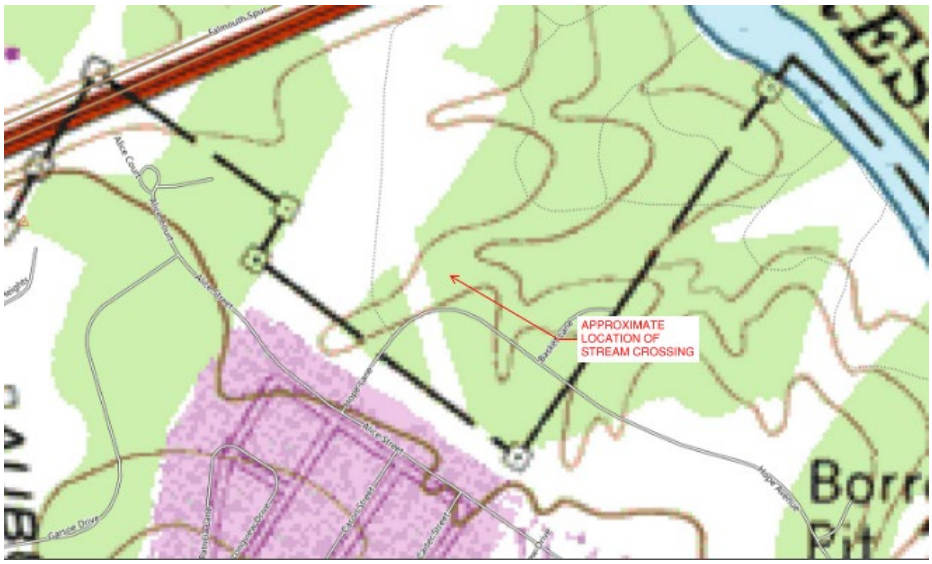
Photo No. 5	
Photo Date: August 2022	
Site Location: Portland, Maine	
Description: Approximate location of stream crossing.	
Photo By: Google Earth	

Photo No. 6	
Photo Date: August 2022	
Site Location: Portland, Maine	
Description: Approximate location of stream crossing.	
Photo By: TerrainNav	

GOOD STANDING RECORDS

GENX PARTNERS, LLC
SHINBERG CONSULTING, LLC

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Mon Apr 18 2022 09:39:36. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GENX CAPITAL PARTNERS LLC	20201169FC	LIMITED LIABILITY COMPANY (FOREIGN)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
05/12/2020	N/A	FLORIDA

Other Names **(A=Assumed ; F=Former)**

NONE

Clerk/Registered Agent

REGISTERED AGENTS INC
415 CONGRESS ST
STE 202A
PORTLAND, ME 04101

Back to previous screen | New Search

Click on a link to obtain additional information.

List of Filings	View list of filings
Obtain additional information:	
Certificate of Existence (more info)	Short Form without amendments ($30.00)

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MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Mon Apr 18 2022 09:56:17. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
SHINBERG CONSULTING, LLC	20061216DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
10/27/2005	N/A	MAINE

Other Names **(A=Assumed ; F=Former)**

NONE

Clerk/Registered Agent

GREG L. SHINBERG
PO BOX 4424
PORTLAND, ME 04101

Back to previous screen | New Search

Click on a link to obtain additional information.

List of Filings	View list of filings	
Obtain additional information:		
Additional Addresses	Plain Copy	Certified copy
Certificate of Existence (more info)	Short Form without amendments ($30.00)	Long Form with amendments ($30.00)

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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:	GENX CAPITAL PARTNERS, LLC	**6. Name of Agent: (if applicable)**	HALEY WARD, INC. (Attn: Jon Whitten Jr., PE)
2. Applicant's Mailing Address:	PO BOX 4424, PORTLAND, ME 04101	**7. Agent's Mailing Address:**	ONE MERCHANTS PLAZA SUITE 701 BANGOR, ME 04401
3. Applicant's Daytime Phone #:	207-772-7070	**8. Agent's Daytime Phone # :**	207-989-4824
4. Applicant's Fax #: (if available)	N/A	**9. Agent's Fax # :**	207-989-4881
5. Applicant's *e-mail address*: (license will be sent via e-mail)	gls@shinberg.com	**10. Agent's *e-mail address* (license will be sent via e-mail**	jwhitten@haleyward.com

PROJECT INFORMATION

11. Name of Development:	PRESUMPSCOT WOODS						
12. Map and Lot #'s:	**Map #:** 390/448/449	**Lot #:** A001/A001001/A002	**13. Deed Reference #'s:**		**Book #:** 39511	**Page #:** 313	
14. Location of Project City/Town:	PORTLAND	**15. County:**	CUMBERLAND	**16. UTM Northing**	4838090N	**17. UTM Easting**	190398966E
18. Brief Description of Project including total parcel size:	60-UNIT PLANNED RESIDENITAL UNIT DEVELOPMENT ON 13.07 ACRES OFF HOPE AVE. IN PORTLAND, ME.						

19. Type of Direct Watershed: (Check all that apply)	☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming	☒ **River, stream or brook** ☐ Urban impaired stream ☒ **Freshwater wetland**	☐ Coastal wetland ☐ Wellhead or public water

19. Name of Waterbody Project Site drains to:	PRESUMPSCOT RIVER

21. Amount of Developed Area:	Total acres: 8.93 acres	Existing Developed area: 0 acres	New Developed area: 8.93 acres
22. Amount of Impervious Area:	Total acres: 4.05 acres	Existing Impervious: 0 acres	New Impervious area: 4.05 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):	N/A
29. Names of DEP staff person(s) present at the pre-application meeting:	N/A
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.

Signed: _____ **Title** Agent **Date:** 04/06/2023

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:** 04/06/2023

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: _____

Name (print): Jon H. Whitten, Jr., PE (ME#10414)

Date: 04/06/2023

Re/Cert/Lic No.: _____
Engineer X
Geologist _____
Soil Scientist _____
Land Surveyor _____
Site Evaluator _____
Active Member of the Maine Bar _____
Professional Landscape Architect _____
Other _____

"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 address located on the front page of this application (see #5 for the applicant and #10 for the agent). ***Do not sign if you elect to "opt out" or receive the decision via regular mail.***

Signed (Applicant) _____ ***Date:*** _____

and/or

Signed (Agent) _____ ***Date:*** ***04/06/2023***

Presumpscot Woods
0 Hope Ave., Portland, Maine
Buffering

The Presumpscot Woods project proposes to maintain a significant amount of natural vegetation in open/common areas which will act as a visual and noise buffer from surrounding properties. Open/common areas will be protected and maintained through the common ownership and management of the development's Condominium Association. These areas are depicted within the Site Plan Set. There are no stormwater treatment buffers proposed for this project.

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

August 2, 2022

Drew Olehowski
Haley Ward
One Merchants Plaza, Suite 701
Bangor, ME 04401

RE: Information Request – GenX Capital Partners LLC Project, Portland

Dear Drew:

Per your request received on May 16, 2022, 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 *GenX Capital Partners LLC* project in Portland. Please note that as project details are lacking our comments should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bat Species – Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Spotted Turtle - Occurrences of spotted turtle, a State Threatened species, have been documented within the vicinity of the proposed project. Spotted turtles are most frequently associated with small, acidic wetlands and vernal pools located in large, intact landscapes. Development activity that compromises riparian integrity or migration permeability among seasonally critical wetlands can lead to degradation of habitat quality and potential loss of local populations for either of these species. Additionally, development projects that lead to significant increases in local traffic volume will likely lead to increased roadkill and possible extirpation of local populations.

Eastern Ribbon Snake - There is a potential for occurrences of Eastern ribbon snake, a state Species of Special Concern, within the project area. This rare species is a slender, semiaquatic snake often observed near the edges of emergent marshes, wet meadows, scrub-shrub wetlands, beaver impoundments, bogs, river and stream floodplains, and vegetated shorelines of ponds and lakes.

If habitats for either turtle or snake species are present in the project area, we recommend that they be avoided and adequately buffered with 250-foot intact, no cut buffers. Alternatively, the applicant can survey for spotted turtle and ribbon snakes to determine presence or absence in the project area. These surveys should be conducted by qualified biologists following MDIFW's most recent survey protocols.

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e., natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

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

Drew Olehowski

From: Drew Olehowski
Sent: Tuesday, August 29, 2023 9:57 AM
To: Settele, Rebecca
Subject: GenX Capital Partners LLC, Portland, ME
Attachments: MDIFWResponse_ERid5998_ERVerID7272-FINAL.pdf; 13773.001 MDIFW.pdf

Good morning, Becca,

In Fall of 2022, we reached out to your office regarding a project owned by GenX Capital Partners, to be located off Hope Avenue in Portland, ME. I have attached your original response letter. The City of Portland has provided comments on this project, one of which was to obtain an updated letter from your office on significant natural features in this area. I have attached a copy of our current site plan for use in your review. Please let me know if I can be of further assistance for your review of this project.

Thank you,

HALEY WARD
AN EMPLOYEE-OWNED COMPANY

Drew Olehowski, PE
Civil Engineer
t: 207.283.9151 m: 207.576.6488
a: 120 Main Street, Suite 132, Saco, ME 04072

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Presumpscot Woods
0 Hope Ave., Portland, Maine
Consistency with City Master Plans

The Presumpscot Woods project is not associated with any active City Master Plans.

The Portland Water and Sewer districts have been contacted to determine if off-site infrastructure is capable of serving this development. Refer to the applicable sections of this application for more information on proposed sewer and water systems. Easements will be provided for these systems as necessary. There are no other easements proposed at this time.

EVOLVE

EPTT Town & Country

LED Post Top



Project Name _____

Date _____ Type _____

Notes _____

The **Evolve**® LED Post Top Town & Country (EPTT) offers energy efficiency and quality of light in a classic look and style. The advanced LED optical system provides improved horizontal and vertical uniformity, reduced glare and improved lighting control.

CONSTRUCTION

Housing:	Die-cast aluminum housing with traditional lantern design. Cupola compatible with C136.41-2010 PE's, Shorting Caps and LightGrid Nodes
Refractors:	Acrylic, Polycarbonate, None/Open
Lens:	Impact resistant UV resistant polymer
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness Standard = Black, Dark Bronze (RAL & custom colors available)
Weight:	14 - 18 lbs (6.2 - 8 kg)

OPTICAL SYSTEM

Lumens:	1,930-8,530
Distribution:	Symmetric Asymmetric
CCT:	2700K, 3000K, 4000K, 5000K
CRI (Min):	≥70

ELECTRICAL

Input Voltage:	120-277V
Input Frequency:	50/60Hz
Power Factor:	≥ 90% at rated watts
Total Harmonic Distortion:	≤ 20% at rated watts

SURGE PROTECTION*

Standard	Optional
☐ 10kV/5kA	☐ Secondary 10kV/5kA (R Option)

*Per ANSI C136.2-2015

LUMEN MAINTENANCE

Projected Lxx per IES TM-21-11 at 25°C

Distribution	LXX(10K) @ Hours		
	25,000 HR	50,000 HR	60,000 HR
02, 03	L99	L99	L98
04, 05, 06, 07	L96	L91	L89

Note: Projected Lxx based on LM80 (≥ 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements.

AMBIENT TEMPERATURE FACTOR

Ambient Temp (°C)	Initial Flux Factor	Ambient Temp (°C)	Initial Flux Factor
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

RATINGS

Operating Temperature:	-40°C to 50°C (Optical Code 02-06) -40°C to 40°C (Optical Code 07)
Vibration:	3G per ANSI C136.31-2010
LM-79:	Testing in accordance with IES Standards

CONTROLS

Dimming:	Standard - 0-10V	☐
	Optional - DALI (Option U)	☐
Sensors:	Photo Electric Sensors (PE) available LightGrid Compatible	

WARRANTY

☐ 5 Year (Standard) ☐ 10 Year (Optional)

DLC LISTED · UL 1598 WET LOCATIONS · IP65 Optical · CONTROLS ENABLED

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

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EPTT Town & Country

LED Post top

Catalog Logic

Project Name _____

Date _____ Type _____

Notes _____

E P T T 0 2

_ _ _ _

EPTT Town & Country

LED Post top

Spec Tables

Project Name _____

Date _____ Type _____

Notes _____

LUMEN OUTPUT	DIST. CODE	DESCRIPTION	REFRACTOR CODE	TYPICAL INITIAL LUMENS			WATTAGE	BUG RATINGS		
				2700K	3000K	4000K/5000K	120-277V	2700K	3000K	4000K/5000K
02	A	Symmetric	A	2600	2810	2930	25	B1-U3-G2	B1-U3-G2	B1-U3-G2
03	A	Symmetric	A	3070	3310	3450	29	B2-U3-G2	B2-U3-G2	B2-U3-G2
04	A	Symmetric	A	4230	4560	4760	41	B2-U3-G2	B2-U3-G2	B2-U3-G2
05	A	Symmetric	A	5150	5560	5790	50	B2-U3-G3	B2-U3-G3	B2-U4-G3
06	A	Symmetric	A	5710	6160	6410	56	B2-U4-G3	B2-U4-G3	B3-U4-G3
07	A	Symmetric	A	6960	7500	7820	72	B3-U4-G3	B3-U4-G3	B3-U4-G3
02	B	Asymmetric	A	2430	2630	2730	25	B1-U3-G2	B1-U3-G2	B1-U3-G2
03	B	Asymmetric	A	2870	3100	3220	29	B1-U3-G2	B1-U3-G2	B1-U3-G2
04	B	Asymmetric	A	3950	4270	4440	41	B1-U3-G3	B1-U3-G3	B1-U3-G3
05	B	Asymmetric	A	4810	5190	5410	50	B1-U4-G3	B2-U4-G3	B2-U4-G3
06	B	Asymmetric	A	5330	5750	5990	56	B2-U4-G3	B2-U4-G3	B2-U4-G3
07	B	Asymmetric	A	6500	7010	7300	72	B2-U4-G3	B2-U4-G3	B2-U4-G3
02	A	Symmetric	P	2770	2230	2330	25	B1-U3-G1	B1-U3-G1	B1-U3-G1
03	A	Symmetric	P	2440	2630	2740	29	B1-U3-G1	B1-U3-G2	B1-U3-G2
04	A	Symmetric	P	3370	3630	3780	41	B2-U3-G2	B2-U3-G2	B2-U3-G2
05	A	Symmetric	P	4100	4420	4600	50	B2-U3-G2	B2-U4-G2	B2-U4-G2
06	A	Symmetric	P	4540	4900	5100	56	B2-U4-G2	B2-U4-G2	B2-U4-G2
07	A	Symmetric	P	5530	5970	6220	72	B2-U4-G3	B2-U4-G3	B3-U4-G3
02	B	Asymmetric	P	1930	2090	2170	25	B1-U3-G2	B1-U3-G1	B1-U3-G2
03	B	Asymmetric	P	2280	2460	2560	29	B1-U3-G2	B1-U3-G2	B1-U3-G2
04	B	Asymmetric	P	3140	3390	3530	41	B1-U3-G2	B1-U3-G2	B1-U3-G2
05	B	Asymmetric	P	3830	4130	4300	50	B1-U3-G2	B1-U4-G3	B1-U4-G3
06	B	Asymmetric	P	4240	4580	4770	56	B1-U4-G3	B1-U4-G3	B2-U4-G3
07	B	Asymmetric	P	5170	5580	5810	72	B2-U4-G3	B2-U4-G3	B2-U4-G3
02	A	Symmetric	N	2840	3070	3190	25	B2-U0-G1	B2-U0-G1	B2-U0-G1
03	A	Symmetric	N	3350	3620	3770	29	B2-U0-G1	B2-U0-G1	B2-U0-G1
04	A	Symmetric	N	4620	4980	5190	41	B2-U0-G1	B3-U0-G1	B3-U0-G1
05	A	Symmetric	N	5620	6070	6320	50	B3-U0-G1	B3-U0-G1	B3-U0-G1
06	A	Symmetric	N	6230	6720	7000	56	B3-U0-G1	B3-U0-G1	B3-U0-G1
07	A	Symmetric	N	7590	8190	8530	72	B3-U0-G1	B3-U0-G1	B3-U0-G1
02	B	Asymmetric	N	2660	2870	2980	25	B1-U0-G1	B1-U0-G1	B1-U0-G1
03	B	Asymmetric	N	3130	3380	3520	29	B1-U0-G1	B1-U0-G1	B1-U0-G1
04	B	Asymmetric	N	4320	4660	4850	41	B1-U0-G1	B1-U0-G1	B1-U0-G2
05	B	Asymmetric	N	5250	5670	5900	50	B1-U0-G2	B1-U0-G2	B1-U0-G2
06	B	Asymmetric	N	5820	6280	6540	56	B1-U0-G2	B1-U0-G2	B2-U0-G2
07	B	Asymmetric	N	7090	7650	7970	72	B2-U0-G2	B2-U0-G2	B2-U0-G2

For additional information on EPTT IES files, please click the following link: **EPTT IES Files**

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EVOLVE

EPTT Town & Country

LED Post top

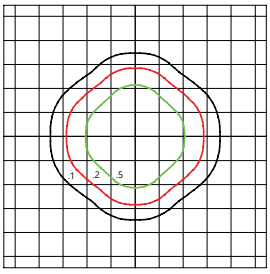
Photometric Plots

Project Name _____

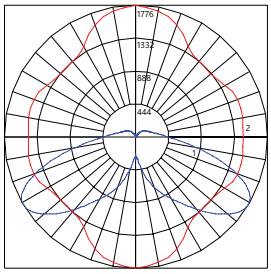
Date _____ Type _____

Notes _____

EPTT
Symmetric (Acrylic Refractor)
7,820 Lumens
5,000K
EPTT02 _07AA50_-120-277V.IES

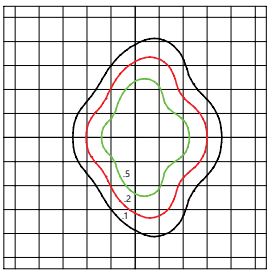


- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade

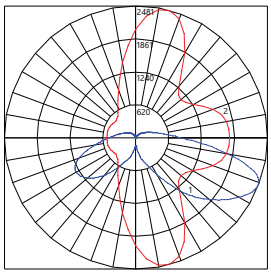


— Vertical plane through horizontal angle of Max. Cd at 90°
— Horizontal cone through vertical angle of Max. Cd at 58°

EPTT
Asymmetric (Acrylic Refractor)
7,300 Lumens
5,000K
EPTT02 _07BA50_-120-277V.IES

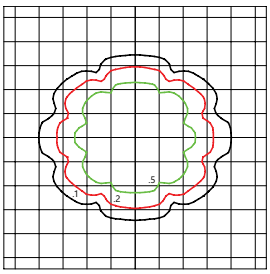


- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade

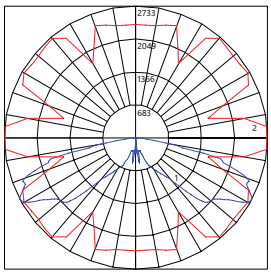


— Vertical plane through horizontal angle of Max. Cd at 75°
— Horizontal cone through vertical angle of Max. Cd at 69°

EPTT
Symmetric (No Refractor)
8,530 Lumens
5,000K
EPTT02 _07AN50_-120-277V.IES

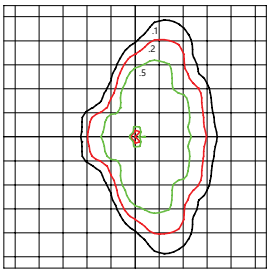


- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade

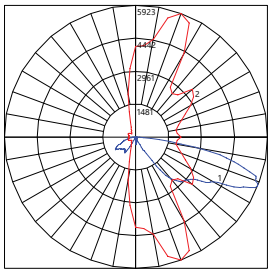


— Vertical plane through horizontal angle of Max. Cd at 5°
— Horizontal cone through vertical angle of Max. Cd at 62°

EPTT
Asymmetric (No Refractor)
7,970 Lumens
5,000K
EPTT02 _07BN50_-120-277V.IES

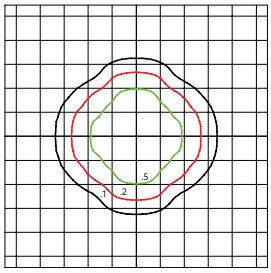


- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade

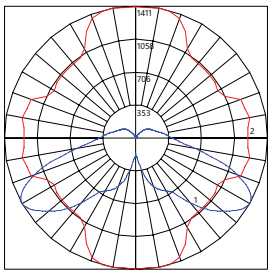


— Vertical plane through horizontal angle of Max. Cd at 70°
— Horizontal cone through vertical angle of Max. Cd at 68°

EPTT
Symmetric (Poly Refractor)
6,220 Lumens
5,000K
EPTT02 _07AP50_-120-277V.IES

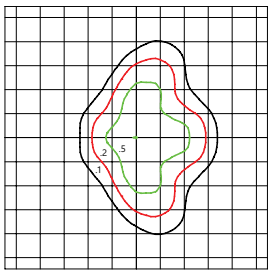


- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade

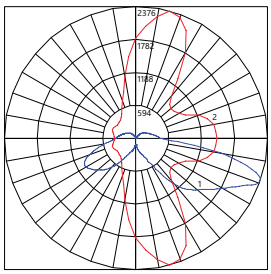


— Vertical plane through horizontal angle of Max. Cd at 80°
— Horizontal cone through vertical angle of Max. Cd at 60°

EPTT
Asymmetric (Poly Refractor)
8,810 Lumens
5,000K
EPTT02 _07BP50_-120-277V.IES



- Grid Distance in Units of Mounting Height at 16'
- Initial Footcandle Values at Grade



— Vertical plane through horizontal angle of Max. Cd at 75°
— Horizontal cone through vertical angle of Max. Cd at 71°

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EPTT Town & Country

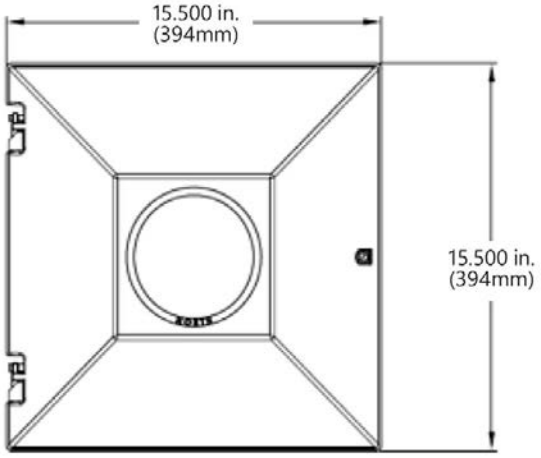
LED Post top

Mounting & Accessories

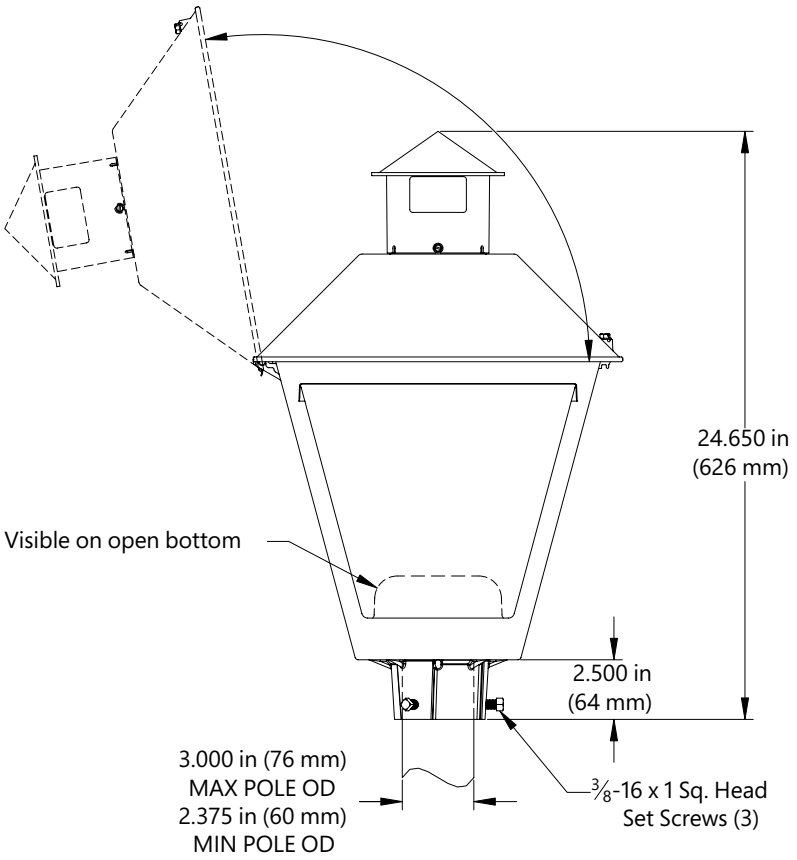
Project Name _____

Date _____ Type _____

Notes _____



TOP VIEW



SIDE VIEW

MOUNTING

- Mounts to 2-3/8 to 3-inch (60-76mm) OD vertical tenon
- Suggested Mounting Height = 8-18 ft. (2.5 - 5.5M)

EFFECTIVE PROJECTED AREA

- 1.6 sq. ft. max (0.15 sq M max)

WEIGHT

- 14 lbs (6.2 kgs) - 18 lbs (8 kgs)

EPTT HOUSE SIDE SHIELDS

Part Number	Description
LSPX-TT	Perforated Shield for Open Sided or Refractor Designs
LSSX-TT	Solid "Black" Shield for Open Sided or Refractor Designs
LR-TC	Ladder Rest - Black

NETWORK LIGHTING CONTROLS



Current's **LightGrid**™ Outdoor Lighting Control System is designed for Street and Roadway Applications. It enables remote monitoring, control, and asset management of a single fixture or a group of fixtures through a web enabled Central Management System.

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Presumpscot Woods
0 Hope Ave., Portland, Maine
Exterior Lighting

The Presumpscot Woods project proposes street lighting to provide a safe means of vehicular and pedestrian access throughout the development. The proposed street lighting has been designed in accordance with the City of Portland Technical Manual, Section 10 – Municipal Street Lighting. Locations of proposed lighting fixtures can be seen on Sheets C102. A photometric layout has been provided (Sheet C105.) This exterior lighting layout only includes street lighting; individual lights will be used for the individual units but were not shown on this plan. A copy of the cutsheet for the proposed street lighting fixtures has been included.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Historic Areas

The Presumpscot Woods project is not located within the City's Historic District. The Maine Historic Preservation Commission was contacted, and they did not identify any sensitive areas on the site; a copy of their response has been provided.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Massing, Ventilations, and Wind Impact

The proposed buildings will not result in health or safety problems from a reduction in ventilation to abutting structures or changes to the existing wind climate that would result in unsafe wind conditions for users of the site and/or adjacent public spaces. The site is surrounded by dense wooded areas, and so the construction of these buildings will not block wind from abutting properties.

The proposed project site will conform in use and appearance to the surrounding neighborhood. The development is not expected to minimize the value or utility to neighboring structures under different ownership.

The development will include residential buildings with their own individual HVAC systems. These systems will not negatively impact abutting properties or public spaces.

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING

RECEIVED
MAY 16 2022
By 0782-22

May 16, 2022

Maine Historic Preservation Commission
Attn: Ms. Megan Rideout
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065
Megan.M.Rideout@maine.gov

RECEIVED
MAY 27 2022
AND SCANNED

Re: GenX Capital Partners, LLC | Hope Avenue Subdivision | Portland, ME

Dear Ms. Rideout:

GenX Capital Partners, LLC is currently preparing Local and State permit applications for the construction of an approximately 10-acre residential development in Portland, Maine. The project site is to be located on a 14-acre property that is mostly wooded and undeveloped. The parcel is located in North Deering, just south of the Falmouth Spur Road. The proposed project will include approximately 60 duplexes and a private road.

Per permitting requirements, we are submitting this request to your office to determine if any historical sites of concern are located within the project area. The development will be screened on all sides by a vegetated buffer, and buildings in the surrounding neighborhood were constructed within the last 50 years; therefore, a photolog of nearby structures has not been provided. Any response can be forwarded to our office located at 1 Merchants Plaza, Suite 701, Bangor, ME 04401 or by email at dolehowski@haleyward.com.

Thank you for your assistance in this matter.

Sincerely,
Haley Ward, Inc.

Drew Olehowski, P.E.
Civil Engineer

DJO/cmg
Enc.

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney
Kirk F. Mohney,
State Historic Preservation Officer
Maine Historic Preservation Commission

5/23/22
Date

One Merchants Plaza, Suite 701, Bangor, ME 04401
T: 207.989.4824 | HALEYWARD.COM

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

May 17, 2022

Drew Olehowski
Haley Ward
One Merchants Plaza, Suite 701
Bangor, ME 04401

Via email: dolehowski@haleyward.com

Re: Rare and exemplary botanical features in proximity to: #13773.001, GenX Capital Partners, Hope Avenue Subdivision, Portland, Maine

Dear Mr. Olehowski:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received May 16, 2022 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-804490
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: #13773.001, GenX Capital Partners, Hope Avenue Subdivision, Portland, ME

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Allegheny Vine						
	E	S1	G4	1860-10	9	Rocky summits and outcrops (non-forested, upland),Dry
American Sea-blite						
	T	S2	G5	1932-09-12	5	Tidal wetland (non-forested, wetland)
Bottlebrush Grass						
	SC	S3	G5	1905-09-13	10	Hardwood to mixed forest (forest, upland)
Broad Beech Fern						
	SC	S2	G5	1872-08	15	Hardwood to mixed forest (forest, upland)
	SC	S2	G5	2016-09-04	28	Hardwood to mixed forest (forest, upland)
Clothed Sedge						
	E	S1	G5	2000-06-06	5	Dry barrens (partly forested, upland)
Columbia Water-meal						
	SC	S2	G5	2002-08-04	2	Open water (non-forested, wetland)
Ebony Spleenwort						
	SC	S2	G5	1910-06-06	10	Rocky summits and outcrops (non-forested,
Engelmann's Spikerush						
	PE	SH	G4G5	1916-08-31	2	Open wetland, not coastal nor rivershore (non-forested,
Enriched Northern Hardwoods						
		S3	GNR	2001-08-28	34	Hardwood to mixed forest (forest, upland)
Fern-leaved False Foxglove						
	SC	S3	G5	1902-09-02	13	Dry barrens (partly forested, upland),Hardwood to mixed
Foxtail Bog-clubmoss						
	E	S1	G5	2017-08-22	1	

Great Blue Lobelia						
	PE	SX	G5	1905-09	3	Forested wetland,Non-tidal rivershore (non-forested,
Hollow Joe-pye Weed						
	SC	S2	G5?	2011-08-04	19	Open wetland, not coastal nor rivershore (non-forested,
	SC	S2	G5?	2014-06-18	24	Open wetland, not coastal nor rivershore (non-forested,
Horned Pondweed						
	SC	S2	G5	1913-09-13	9	Tidal wetland (non-forested, wetland)
MacGregor's Rye						
	SC	S2	G5	2019-08-20	13	
Marsh Milkwort						
	PE	SH	G5T4	1903-08-18	1	Dry barrens (partly forested, upland),Open wetland, not
Missouri Rockcress						
	T	S1	G5	1905-06-11	5	Rocky summits and outcrops (non-forested,
Mountain-laurel						
	SC	S2	G5	1985-08-01	13	Conifer forest (forest, upland),Hardwood to mixed forest
Mountain Honeysuckle						
	E	S2	G5	2007-07-30	10	Dry barrens (partly forested, upland),Hardwood to mixed
	E	S2	G5	2007-10-05	11	Dry barrens (partly forested, upland),Hardwood to mixed
	E	S2	G5	2018-06-02	14	Dry barrens (partly forested, upland),Hardwood to mixed
Pitch Pine Woodland						
		S3	G2	2005-12-08	28	Rocky summits and outcrops (non-forested, upland)
Pocket Swamp						
		S2	G5	2017-07-27	24	Forested wetland,Hardwood to mixed forest (forest,
Rattlesnake Hawkweed						
	E	S1	G5T4Q	1909-07	1	Dry barrens (partly forested, upland)
Salt-hay Saltmarsh						
		S3	G5	2020-07-02	68	Tidal wetland (non-forested, wetland)
Screwstem						
		S1	G5T3T5	2020-09-17	4	

Screwstem					
	S1	G5T3T5	2014-09-24	17	
Slender Knotweed					
PE	SH	G5	1902-09-07	1	Dry barrens (partly forested, upland)
Small Reed Grass					
SC	S3	G5	2011-08-28	18	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly					
SC	S3	G5	2017-08-22	32	Forested wetland
Spotted Pondweed					
T	S1	G5	2016-06-22	3	Open water (non-forested, wetland)
Tidal Marsh Estuary Ecosystem					
	S3	GNR	2011-08-25	8	Tidal wetland (non-forested, wetland)
Upper Floodplain Hardwood Forest					
	S3	GNR	2012	20	Forested wetland
Upright Bindweed					
T	S2	G4G5	2007-06-28	5	Dry barrens (partly forested, upland),Old field/roadside
Variable Sedge					
E	S1	G3	2012-08-09	1	Dry barrens (partly forested, upland),Hardwood to mixed
E	S1	G3	2017-08-22	4	Dry barrens (partly forested, upland),Hardwood to mixed
E	S1	G3	2018-08-29	6	Dry barrens (partly forested, upland),Hardwood to mixed
E	S1	G3	1911	8	Dry barrens (partly forested, upland),Hardwood to mixed
E	S1	G3	1911-06-29	9	Dry barrens (partly forested, upland),Hardwood to mixed
Vasey's Pondweed					
SC	S2	G4	1901-08-04	7	Open water (non-forested, wetland)
Water-plantain Spearwort					
PE	SH	G4	1903-07-29	2	Open water (non-forested, wetland)
Wild Garlic					
SC	S2	G5	1918-07-16	6	Forested wetland,Hardwood to mixed forest (forest,
Wild Leek					

Wild Leek						
	SC	S3	G5	2018-05-02	55	Hardwood to mixed forest (forest, upland),Forested

Date Exported: 2022-05-17 09:08

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

Presumpscot Woods
0 Hope Ave., Portland, Maine
Noise and Vibration

The Presumpscot Woods project is a residential development; therefore, it is expected to conform with the nature of the surrounding area and is not expected to generate noise or vibrations that will significantly, negatively impact surrounding areas.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Public Safety and Fire Prevention

To the best of our knowledge, the Presumpscot Woods project has been designed to meet all public safety and fire prevention standards.

The development is a residential neighborhood that is generally open and allows for natural surveillance. A combination on on-street lighting and residential scale lighting on each unit is proposed to provide adequate lighting to promote safe use of the access ways and sidewalks.

The proposed access ways have been designed to have a 20-foot-wide paved surface and turning radii adequate for typical maneuvering and turning around of emergency vehicles. Each unit has a single bay garage and space for an additional vehicle in a driveway to minimize the need to park on the street. Additionally, on-street parking spaces are proposed to further ensure that the minimum 20-foot-wide clear space is maintained throughout the subdivision.

Buildings are spaced with the required separation distances listed in the City of Portland Technical Manual and will adhere to fire protection requirements as part of their design and construction. The buildings will include sprinkler systems, as required.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Shadow

The Presumpscot Woods project has been designed to avoid adverse impacts of shadows. Proposed buildings are similar in height to those of the surrounding neighborhood and will not create any shadowing on abutting properties. The proposed open space for the development is located at the center of the lot away from proposed buildings, where shadowing will not be an issue.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Signage and Wayfinding

Signage and Wayfinding for the Presumpscot Woods development will consist of a main identifying sign at the site entrance on Hope Avenue, and traffic signage throughout the site. Individual buildings are residential in use and will not require signage. The proposed site-sign and traffic signage will adhere to the standards identified in the Land Use Code.

Presumpscot Woods
0 Hope Ave., Portland, Maine
Snow and Ice Loading

The Presumpscot Woods project has been designed to avoid adverse impacts of snow and ice loading. The proposed structures are not adjacent to any public ways where falling snow and ice would present a danger. Designated snow storage areas are shown on the Proposed Site Plan.

Presumpscot Woods
0 Hope Ave., Portland, Maine
View Corridors

The Presumpscot Woods project will not obstruct any public view corridors identified in the *Downtown Vision View Corridor Protection Plan.*

Att. 11

SECTION 12

STORMWATER MANAGEMENT

UPDATE FOR APRIL 2023 RESUBMISSION

The following stormwater management report was prepared for the original project layout that was submitted to the City in October 2022. Since this submission, the project layout has been modified. The footprint of the revised buildings was slightly altered, and many of the duplexes were replaced with triplexes. As a result, the proposed impervious area was decreased. Because the impervious area was reduced and the stormwater treatment areas are nearly the same, we believe that the original stormwater report adequately demonstrates that the applicable stormwater management standards have been met.

ORIGINAL OCTOBER 2022 SUBMISSION

A. NARRATIVE

The intent of this Stormwater Management Plan is to comply with the requirements of the City of Portland Land Use Ordinance, the City of Portland Technical Manual, and the Maine Department of Environmental Protection (MDEP) Chapter 500 regulations.

This project involves creation of a Planned Residential Unit Development in Portland, Maine. This permit application will account for the development of 60 residential units, open space, and a private road. This project includes the creation of approximately 4.05 acres (176,552 square feet) of new impervious surface, 4.88 acres (212,580 square feet) of landscaped area, and 8.93 acres (389,132 square feet) of total developed area. Based on the Chapter 500 rules, the Basic Standards, General Standards, and Flooding Standards apply to this project. As a result, it will be required to treat 95% of the impervious area and 80% of the developed area. Additionally, the inner-site road network is defined as linear and is only required to treat 75% of new impervious and 50% of developed area for that portion. We are proposing to utilize grass under drained soil filters, bioretention cells, wet ponds, and roof dripline filters to provide the stormwater management for this project.

Basic Standard Submission: Information is provided as required for the Basic Standard Submission in Section 14.0-Basic Standards.

Phosphorous Standard Submission: This development is not located within a lake watershed; this standard does not apply.

Urban Impaired Stream Standard Submission: This development is not located within an urban impaired stream watershed; this standard does not apply.

General Standards Submission: The following information is provided as required in the General Standard Submission.

1. Narrative: The proposed development will include 60 dwelling units (duplexes and triplexes) and open space. These areas will be included in the "site" portion of the project, while the inner-site road network will be classified as the "linear portion." The site portion will create a total of approximately 113,450 square feet of new impervious surface and 284,785 square feet of total developed area. The linear portion will create a total of approximately 63,102 square feet of new impervious surface and 71,759 square feet of developed area.
2. Drainage Plans: A set of Hydrology Plans and Proposed Site Plans are provided in Appendix A of this Application. These plans include watershed boundaries and locations of the stormwater management features.
3. Calculations: This project will include various filters which have been designed in accordance with Chapters 4 and 7 of the MDEP Stormwater BMP Technical Design Manual, Volume III. Sizing calculations can be seen in Section 12A.
4. Details, Designs, and Specifications: Please refer to the plans for stormwater management details, designs, and specifications.

Flooding Standard Submission: The following information is provided as required in the Flooding Standard Submission.

1. Control of Peak Flows: The project is required to meet Flooding Standards in accordance with Chapter 500 requirements. The Pre- and Post-Development Hydrology models and narrative are located in Section 12B.

2. Details, Design, and Specifications: The model runoff calculations are performed using a HydroCAD 10.0 model. Sizing of the required stormwater treatment methods are included in Section 12A.

SECTION 12A

STORMWATER QUALITY CONTROL NARRATIVE

The Hope Avenue Subdivision project is primarily being developed to provide housing opportunity in Portland, Maine. In total, the project will develop approximately 9 acres of undeveloped wooded area. The proposed development will include a site portion and a linear portion.

The Site portion of the project consists of residential duplexes/triplexes with attached garages and landscaped open space. The site portion will cover approximately 317,373 square feet and will consist of approximately 113,450 square feet of new impervious area and 203,923 square feet of new landscaped developed area that will be stabilized with vegetation or other approved permanent measures. Approximately 32,588 square feet of developed site area will be designated to be restored to natural conditions, lowering the total developed site portion to 284,785 square feet.

The linear portion of the project consists of the inner site road network. This road will be 20' wide and will include curbing and sidewalk on one side. The road is approximately 2,353 linear feet. The road network will consist of approximately 63,102 square feet of new impervious area.

Based on Maine Department of Environmental Protection stormwater standards, the required treatment is 95% of the impervious surface and 80% of the developed area resulting from the impervious surface, landscaped surface, and stormwater conveyance provisions created by the development. The portion of the project involving the access road qualifies for the linear portion exemption. As a result, this portion of the development is required to treat 75% of the impervious and 50% of the developed area.

The project is proposing grassed underdrain soil filters, bioretention cells, wet ponds, and roof dripline filters to meet stormwater quality standards. The systems will be located at various locations within the Site to maximize the treatment of runoff and provide the necessary treatment areas. The locations of these treatment devices are shown on the Proposed Site Plans (Appendix A).

The following tables summarize the impervious and developed area created by the project, as well as the treatment structure, area treated, and relationship with the total developed and impervious areas for the project.

SITE AREA

PROJECT AREA	IMPERVIOUS AREA	DEVELOPED AREA
Total Proposed Site Area	113,450 SF (2.60 acres)	284,785 SF (6.53 acres)

STORMWATER TREATMENT SYSTEMS (SITE AREA)

TREATMENT METHOD	AREA TREATED	
	IMPERVIOUS AREA	DEVELOPED AREA
Grassed Underdrained Soil Filter A	2,103 SF	4,037 SF
Grassed Underdrained Soil Filter B	0 SF	3,633 SF
Bioretention Cell A	910 SF	2,865 SF
Bioretention Cell B	854 SF	2,371 SF
Wetpond A	58,466 SF	134,948 SF
Wetpond B	35,955 SF	83,386 SF
Roof Drip Edge Filters	13,579 SF	13,579 SF
TOTAL	111,867 SF	244,819 sf
PERCENT OF TOTAL AREA TREATED	98.60	85.97

As can be seen in the table above, we are proposing to treat 98.60% of the Impervious Area and 85.97% of the Developed Area from the site portion of the project. This exceeds the standards required by Chapter 500.

LINEAR AREA

PROJECT AREA	IMPERVIOUS AREA	DEVELOPED AREA
Total Proposed Linear Area	63,102 SF (1.44 acres)	71,759 SF (1.64 acres)

STORMWATER TREATMENT SYSTEMS (LINEAR AREA)

TREATMENT METHOD	AREA TREATED	
	IMPERVIOUS AREA	DEVELOPED AREA
Grassed Underdrained Soil Filter A	1,835 SF	1,980 SF
Grassed Underdrained Soil Filter B	2,629 SF	3,079 SF
Bioretention Cell A	0	0
Bioretention Cell B	0	0
Wetpond A	27,146 SF	30,027
Wetpond B	25,348 SF	28,931 SF
Roof Drip Edge Filters	0	0
TOTAL	56,958 SF	64,017 SF
PERCENT OF TOTAL AREA TREATED	90.26	89.21

As can be seen in the table above, we are proposing to treat 90.26% of the Impervious Area and 89.21% of the Developed Area from the site portion of the project. This exceeds the standards required by Chapter 500.

BMP DESCRIPTIONS AND SIZING CALCULATIONS

The proposed stormwater quality control devices have been designed in accordance with the standards outlined in Stormwater Management for Maine, Volume II BMP Manual, January 2006 and revised May 2016. Construction and maintenance will be done according to the standards outlined in this manual.

Descriptions of the treatment types follow.

1. Grassed Underdrain Soil Filter A

Description:
The proposed soil filter will treat developed area in Sub catchment 11. This filter is located on Type C, upland soils and will outlet into natural drainage pathways. A test pit was taken at the proposed filter location.

Calculations:
This filter was sized using Chapter 7.1 of the MDEP Stormwater BMP Technical Design Manual, Volume III.

Required Filter Area:
5% (imperious area) + 2% (landscaped area)
= 0.05(3,938 SF) + 0.02 (2,079 SF)
= 238 SF (Proposed filter is 240 SF)

Required Treatment Volume:

1-inch*(impervious area) + 0.4-inches*(Landscaped Area)

= (1/12*3,938 SF) +(0.4/12*2,079 SF)

= 397 CF (Proposed filter is 546 CF @ 18-inches of impoundment depth)

Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),

A_F = Filter Area (sf) = 240 sf,

A_o = Area of the 2" ball valve opening (sf) = 0.001 sf (5% open)

H = Storage Height (ft) = 3.50 ft (1.5 ft CPV, 2.0 ft soil filter)

and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{240}{3600 \cdot 0.001}\sqrt{\frac{2 \cdot 3.5}{32.2}} = 28 \text{ hours}$$

2. Grassed Underdrain Soil Filter B

Description:

The proposed soil filter will treat developed area from Subcatchment 12. This filter is located on Type C, upland soils and will outlet into natural drainage pathways. A test pit was taken at the proposed filter location.

Calculations:

This filter was sized using Chapter 7.1 of the MDEP Stormwater BMP Technical Design Manual, Volume III.

Required Filter Area:

5% (imperious area) + 2% (landscaped area)

= 0.05(2,629 SF) + 0.02 (4,083 SF)

= 213 SF (Proposed filter is 220 SF)

Required Treatment Volume:

1-inch*(impervious area) + 0.4-inches*(Landscaped Area)

= (1/12*2,629 SF) +(0.4/12*4,083 SF)

= 355 CF (Proposed filter is 512 CF @ 18-inches of impoundment depth)

Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),
A_F = Filter Area (sf) = 220 sf,
A_o = Area of the 2" ball valve opening (sf) = 0.001 sf (5% open)
H = Storage Height (ft) = 3.5 ft (1.5 ft CPV, 2.0 ft soil filter)
and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{220}{3600 \cdot 0.001}\sqrt{\frac{3.50}{32.2}} = 26 \text{ hours}$$

3. Bioretention Cell A

Description:
The proposed soil filter will treat developed area from Subcatchment 7. This filter is located on Type D, upland soils and will outlet into natural drainage pathways. A test pit was taken at the proposed filter location.

Calculations:
This filter was sized using Chapter 7.1 of the MDEP Stormwater BMP Technical Design Manual, Volume III.

Required Filter Area:
7% (imperious area) + 3% (landscaped area)
= 0.07(910 SF) + 0.03 (1,955 SF)
= 122 SF (Proposed filter is 140 SF)

Required Treatment Volume:
1-inch*(impervious area) + 0.4-inches*(Landscaped Area)
= (1/12*910 SF) +(0.4/12*1,955 SF)
= 141 CF (Proposed filter is 151 CF @ 6-inches of impoundment depth)

Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),
A_F = Filter Area (sf) = 140 sf,
A_o = Area of the outlet orifice (sf) = 0.0003 sf (0.25-inch diameter)
H = Storage Height (ft) = 3.50 ft (1.5 ft CPV, 2.0 ft soil filter)
and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{140}{3600 \cdot 0.0003}\sqrt{\frac{2 \cdot 3.50}{32.2}} = 46 \text{ hours}$$

4. Bioretention Cell B

Description:
The proposed soil filter will treat developed area from Parcels 8. This filter is located on Type C, upland soils and will outlet into natural drainage pathways. A test pit was taken at the proposed filter location.

Calculations:
This filter was sized using Chapter 7.1 of the MDEP Stormwater BMP Technical Design Manual, Volume III.

Required Filter Area:
7% (imperious area) + 3% (landscaped area)
= 0.07(854 SF) + 0.03 (1,517 SF)
= 105 SF (Proposed filter is 116 SF)

Required Treatment Volume:
1-inch*(impervious area) + 0.4-inches*(Landscaped Area)
= (1/12*854 SF) +(0.4/12*1517 SF)
= 121 CF (Proposed filter is 142 CF @ 6-inches of impoundment depth)

Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),
A_F = Filter Area (sf) = 116 sf,
A_o = Area of the 2" ball valve opening (sf) = 0.001 sf (5% open)
H = Storage Height (ft) = 3.50 ft (1.5 ft CPV, 2.0 ft soil filter)
and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{116}{3600 \cdot 0.001}\sqrt{\frac{2 \cdot 3.50}{32.2}} = 26 \text{ hours}$$

5. Wet Pond A

Description:

This pond has been designed to provide flood control as well as water quality treatment. The wet pond is designed to store 23,252 cubic feet with a mean depth of 4.2 feet. An outlet structure will be constructed to promote plug flow through the pond and maximize settlement of pollutants. Calculating the size required for the mean depth is provided below. A test pit was taken at the proposed wet pond location.

Calculations:

Required Permanent Pool Volume:
(2" x Impervious Area) + (0.8" x Landscaped Area) = (2" x 85,621 SF) + (0.8" x 134,635 SF)
= 23,244 CF
Provided: 23,252 CF @ elevation 74.09.

Required Channel Protection Volume:
(1" x Impervious Area) + (0.4" x Landscaped Area) = (1" x 85,621 SF) + (0.4" x 134,635 SF)
= 11,622 CF
Provided: 11,659 CF @ elevation 76.05.

Wetpond Mean Depth
= Storage divided by surface area 1' below Permanent Pool Elevation
= 18,538 CF/4,410 SF = 4.20'

Gravel Trench Length
3 x Channel Protection Volume/1000 = 3 x 11,659 CF / 1000 = 34.97' (35' Provided)

Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),
A_F = Filter Area (sf) = 280 sf,
A_o = Area of the 2" ball valve opening (sf) = 0.001 sf (5% open)
H = Storage Height (ft) = 4.46 ft (1.96 ft CPV, 2.5 ft soil filter)
and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{280}{3600 \cdot 0.001}\sqrt{\frac{2 \cdot 4.46}{32.2}} = 37 \text{ hours}$$

6. Wet Pond B

Description:
This pond has been designed to provide flood control as well as water quality treatment. The wet pond is designed to store 14,538 cubic feet with a mean depth of 3.31 feet. An outlet structure will be constructed to promote plug flow through the

pond and maximize settlement of pollutants. Calculating the size required for the mean depth is provided below. A test pit was taken at the proposed wet pond location.

Calculations:

Required Permanent Pool Volume:
(2" x Impervious Area) + (0.8" x Landscaped Area) = (2" x 61,303 SF) + (0.8" x 64,733 SF)
= 14,532 CF
Provided: 14,538 CF @ elevation 70.76'.

Required Channel Protection Volume:
(1" x Impervious Area) + (0.4" x Landscaped Area) = (1" x 61,303 SF) + (0.4" x 64,733 SF)
= 7,266 CF
Provided: 7,285 CF @ elevation 72.39.

Wetpond Mean Depth
= Storage divided by surface area 1' below Permanent Pool Elevation
= 10,924 CF/3,294 SF = 3.31'

Gravel Trench Length
3 x Channel Protection Volume/1000 = 3 x 7,285 CF / 1000 = 21.85 (25' Provided)
Drain time

$$\Delta t = \frac{A_F}{3600 \cdot A_o}\sqrt{\frac{2H}{G}}$$

Where Δt = Drain time (hrs),
A_F = Filter Area (sf) = 200 sf,
A_o = Area of the 2" ball valve opening (sf) = 0.001 sf (5% open)
H = Storage Height (ft) = 4.13 ft (1.63 ft CPV, 2.5 ft soil filter)
and G = Acceleration due to gravity (32.2 ft/s^2).

$$\Delta t = \frac{200}{3600 \cdot 0.001}\sqrt{\frac{2 \cdot 4.13}{32.2}} = 25 \text{ hours}$$

7. Roof Dripline Filters

Roof dripline filters will be utilized to treat runoff from the backside of several of the proposed building roofs. The filter widths were determined as follows:

Volume from 1" of runoff from typical roof area: 80 CF
Typical length of filter: 45 LF
Stone Reservoir Layer: 12" thick

Stone Reservoir Voids: 40%
Stone Reservoir volume required: 80CF/0.4 = 200 CF
Filter Width Required: 200CF/12" depth/45'length = 4.5'
Filter Width Provided: 4.5'

The proposed stormwater quality control devices have been designed in accordance with the standards outlined in Stormwater Management for Maine, Volume II BMP Manual, January 2006, and revised May 2016. Construction and maintenance will be done according to the standards outlined in this manual.

SECTION 12B

STORMWATER PEAK RUNOFF CONTROL NARRATIVE

As previously stated, the project is required to meet the flooding standard under Chapter 500 Section 4.E(2)(a). To meet the flooding standard, HydroCAD calculations were performed to compare pre-development and post-development conditions. Curve numbers and peak runoff flows were calculated using HydroCAD.

The pre-development site is undeveloped woodland with some trails, wetlands, and a stream. Soils on the site per the USDA web soil survey are classified as Elmwood fine sandy loam (Hydrologic Soil Group B,) Hinckley Suffield complex (Hydrologic Soil Group A,) Suffield silt loam (Hydrologic Soil Group C,) and Windsor loamy sand (Hydrologic Soil Group A.) The southern and eastern portions of the Site drain to the south and east to a stream which drains to the Presumpscot River. The northern and western portions drain to the north, also to the Presumpscot River. The post-development site was broken into 41 subareas encompassing the same footprint as pre-development. Most of the developed site areas are collected in underdrain soil filters, wet ponds, and roof drip edge filters located at various locations around the development. These filters release runoff as controlled flow to natural drainage pathways

Summation Points were chosen in similar areas between pre-development and post-development to compare peak flow runoff for the 2-year, 10-year, and 25-year storm events. Summation Points 1 and 2 are located north of the site and compare the runoff flowing to the Presumpscot River. Summation points 3, and 4 are located east of the site and are a comparison of the runoff flowing to an unnamed tributary stream to the river.

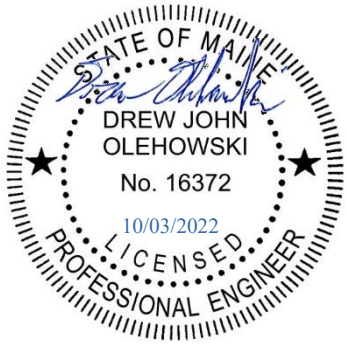
Based on results of the HydroCAD, it is expected that stormwater runoff from the site will be similar or lessened in post-development conditions as in pre-development conditions. Overall, it is expected that runoff from the site will be similar to post-development conditions and a similar stormwater runoff will be realized. A comparison of each of the watershed areas in both Pre- and Post-Development is organized in the table below.

		2 Year (cfs)	10 Year (cfs)	25 Year (cfs)	25 Year Net Change (cfs)	25 Year % Change
Summation Point 1	Pre	0.05	0.92	2.10	+1.11	+52.85
	Post	0.29	1.65	3.21		
Summation Point 2	Pre	0.83	3.80	7.12	-5.22	-73.31
	Post	0.01	0.62	1.90		
Summation Point 3	Pre	0.26	1.66	3.38	-1.94	-66.27
	Post	0.05	0.51	1.44		
Summation Point 4	Pre	3.41	8.88	13.94	-0.89	-6.38
	Post	3.50	8.27	13.05		

As can be seen in the table above, most of the summation points will see decreased post development flow rates due to stormwater detention. For Summation Point 1, there will be an increase of 1.11 CFS for the 25-year storm event. Summation Point 1 is a wetland located on undeveloped, forested property that is unlikely to be developed due to its wetland cover type and proximity to the highway and the conservation area. Surface runoff in this area flows over approximately 1,000 feet of forested, conservation land, eventually entering the Presumpscot River. This model does not include the additional storage capacity likely available for the wetland summation point. Given these conditions, a 1.11 CFS increase in the 25-year, 24-hour storm event can be considered insignificant. For Summation Point 4, there is a 0.09 cfs increase for the 2-year event. Summation Point 4 represents an existing stream that runs through conservation land to the Presumpscot River. There are no downstream properties that would be impacted by this increase, and it is our opinion that the stream has the capacity to handle a <0.1 cfs increase. Based on the results of our stormwater management design and calculations we conclude that this project will not have significant negative impacts on adjacent and downstream areas.

Prepared by:
Haley Ward, Inc.

Drew Olehowski, PE
Project Engineer



A. Narrative. The proposed construction will require the implementation of temporary and permanent erosion control measures. These measures will be implemented in accordance with the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual, prior to removal of any on-site vegetation or disturbance of any on-site soil. The general erosion and sediment control specifications and details, as provided within this section, are intended to describe measures to be used by contractors working on the site to maintain compliance with the standards established in the BMPs. These standards include information on temporary and permanent erosion control measures, rates of seeding and applied mulch, slope and soil stabilization, effect of construction schedule, and other details.

   The proposed location and use of erosion control measures on-site are shown on the Proposed Site Plan provided with this application. There are no known existing erosion control concerns with the site. Implementation of proper erosion control measures will be required by site conditions to confine sediment and debris within the limit of soil disturbance. Proper use and maintenance of erosion control measures will provide protection against off-site transport of sediment and discharge of sediment to undisturbed areas of the development.

B. Completion Date. Spring 2024

C. Site Features. For site features please refer to the enclosed plan.

D. Temporary and Permanent Erosion Control Measures. For temporary and permanent erosion control measures please refer to the enclosed plan.

E. Limits of Disturbed Areas. Areas of disturbance will be limited to the proposed work shown on the enclosed plan.

F. Design Drawings and Specifications. For design drawings please refer to the enclosed plan. The following specifications will be utilized by the site contractor during construction of the project.

EROSION CONTROL PLAN SPECIFICATIONS

A. General

1. All work and measures will be as per the Maine Erosion and Sediment Control BMPs manual.

2. The following specifications will be employed.

B. Prior to Construction

1. Prior to beginning of construction, erosion and sedimentation controls shall be in place.

C. During Construction

1. Exposed soil surfaces will be treated immediately if they are to remain ungraded more than 30 days, or if they are at final grades.

2. Drainage ways, either designed or incidental, will have filter barriers installed.

3. All work and materials necessary to minimize sediment loss from the site will be provided.

4. All erosion control measures will be inspected and repaired after every rainfall greater than ½-inch and at least daily during rain events lasting longer than 24 hours.

D. Post Construction

1. Erosion control measures will be maintained until permanent soil stabilization has been achieved with a growth of vegetation greater than 90%.

PART 1 - GENERAL

1.01 Description of Work

A. Provide and maintain devices to control erosion, siltation, sedimentation, and dust that occur during construction operations. Undertake every reasonable precaution and do whatever is necessary to avoid erosion of soil and to prevent silting of wetland areas and drainage ditches.

B. Provide measures to control dust caused whether on or off the project site.

C. Deficiencies in erosion control measures indicated by failures or erosion will be corrected as soon as reasonably possible by providing additional measures or different techniques to correct the situation and prevent subsequent erosion.

D. Exposure of soils on embankments, excavations, and graded areas will be kept as short as possible. Initiate seeding and other erosion control practices as soon as reasonably possible.

1.02 Quality Assurance

A. Conform to all requirements of applicable Federal, State and local permits and conform to the recommendations of the Maine Erosion and Sediment Control BMPs (see Part B below) whether the measures are specifically noted herein, or not.

B. Standards: Maine Erosion and Sediment Control BMPs Manual, hereinafter called Erosion Control Handbook.

PART 2 - PRODUCTS

2.01 Materials: Use the following materials to implement and construct erosion control measures.

A. Hay Bale: Rectangular shaped bales of hay or straw weighting at least 40 pounds per bale; free from noxious weed seeds and rough or woody materials.

B. Mulch: Type and use as specified by the Erosion Control Handbook

1. Long fibered hay or straw in dry condition and which are relatively free of weeds and foreign matter detrimental to plant life.

2. Mulch netting: Plastic or nylon mesh netting with approximate openings of ¼-inch to 1-inch.

C. Permanent Seeding: Cut and fill slopes and disturbed areas will be stabilized as follows:

1. Four inches of loam will be spread over disturbed areas and smoothed to a uniform surface.

2. In lieu of tests, agricultural limestone will be spread at the rate of three tons per acre. 10-20-20 fertilizer will follow at the rate of 800 lbs. per acre. These two soil additives will be incorporated into the soil prior to seeding.

3. Following seed bed preparation, back slopes will be seeded to a mixture of 83% creeping red fescue, and 17% rye grass. Seeding rate is 3 lbs. per 1,000 square feet. Lawn quality sod may be substituted for seed.

4. Hay mulch at the rate of 90 lbs. per 1,000 square feet of a hydro-application of asphalt, wood, or paper fiber will be applied following seeding. A suitable binder such as curason or terrtack will be used on hay mulch for wind control.

5. If final seeding of the disturbed areas is not completed by September 15th of the year of the construction, then on that date these areas will be graded and a cover crop of rye at the rate of 112 lbs/acre or 3 lbs/1,000 sq. ft. will be applied. The rye seeding will be preceded by an application of 3 tons of lime and 800 lbs. of 10-20-20 fertilizer or its equivalent and covered by a layer of jute mat to aide in stabilization.

PART 3 - EXECUTION

3.01 Construction

A. Hay Bales:

1. Install as directed by Erosion Control Handbook, and stake with required stakes.

B. Mulch:

1. Undertake after each area has been properly prepared.

2. When seed for erosion control is sown prior to placing the mulch, place mulch on the seeded areas within 48 hours after seeding.

3. Blowing chopped mulch will be permitted.

4. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see the ground through the mulch.

5. Remove matted mulch or bunches.

C. Temporary Erosion Control Matting (where necessary):

1. Surface Preparation:
   a. Conform to grades for slopes and ditches shown of the drawings.
   b. Finish to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed.
   c. Loosen soil surface to permit bedding of the matting.
   d. Unless otherwise directed, apply seed prior to placement.

2. Installation:
   a. Place strips lengthwise in the direction of the flow of water.
   b. Where strips are laid parallel or meet as in a tee, overlap at least four inches.
   c. Overlap ends at least six inches in a shingle fashion.
   d. The up-slope end of each strip of the matting will be turned down and buried to a depth of not less than six inches with the soil firmly tamped against it.
   e. Build check slots at right angles to the direction of the flow of water. Space so that one check slot or one end occurs within each 50 feet of slope length. Construct by placing a tight fold of the matting at least six inches vertically into the ground and tamp the same as up-slope ends.
   f. Bury edges of matting around the edges of the catch basins and other structures.
   g. Where determined by the Engineers, additional seed will be spread over matting, particularly at those locations disturbed by building the slots. Matting will then be pressed onto the ground with a light lawn roller or by other satisfactory means.

h. Drive staples vertically into the ground flush with the surface.
i. On slopes flatter than 4:1, space staples not more than three feet and one row, alternately spaced, down the center.
j. On grades 4:1 or steeper, place in the same three rows, but spaced two feet apart.
k. On all overlapping or butting edges, double the number of staples, with the spacing halved; all ends of the matting and all required check slots will likewise have staples spaced every foot.

D. Permanent Seeding:

1. Seed with appropriate seeds and application rates as noted in Section 2.01C.

2. Mulch areas where seeding has been applied. Do not mulch seeded areas where matting will be immediately installed.

E. Topsoil Storage:

1. Topsoil which is stockpiled on the site for use in loam applications will be placed out of natural drainages, in piles that have side slopes of 2:1 to 1.5:1.

2. A trench (depth as required) will be constructed around the base of the pile to prevent eroding soil from washing into drainages.

F. Dust Control: Utilize the application of sprinkled water to reduce the emission of airborne soil particulates from the Project site.

G. Temporary Berms: Construct temporary barriers along the toe of embankments using side drains, as necessary.

H. Temporary Basins: Construct temporary sedimentation basins adequate to avoid siltation of surface water bodies.

I. Other Temporary Measures:

1. Type and use will be as specified in the Erosion Control Handbook.

J. Winter Stabilization Notes

1. At this time, it is not expected that significant soil disturbance will occur during winter months or periods of heavy icing. If construction is performed during

these times, the following construction practices will be followed.

a. All disturbed areas not stabilized with stone or other measures will have approved erosion control matting installed and be dormant seeded.
b. No frozen soil material or material containing significant snow or ice will be used for fill material.
c. All material stockpiles will have silt fence and/or hay bales installed downgradient of piles.
d. Follow general erosion control notes described previously wherever possible and as conditions permit.

3.02 Maintenance

A. Inspect erosion control practices immediately after each rainfall greater than ½-inch and at least daily during rainfall lasting longer than 24 hours or snowmelt for damage. Provide maintenance and make appropriate repairs or replacement.

B. Remove silt from around hay bales when it has reached one foot above grade or prior to expected heavy runoff or siltation.

C. Repair matting if any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, make satisfactory repairs immediately.

3.03 Removal of Temporary Erosion Control

A. Remove temporary materials and devices when permanent soil stabilization has been substantially achieved. For vegetated areas, substantially complete means 95% vegetated cover has been established.

B. Level and grade to the extent required to present a sightly appearance and to prevent any obstruction of the flow of water or any other interference with the operation of or access to the permanent works.

C. Remove unsuitable materials from site and dispose of in a lawful manner.

The following Maintenance Plan will be employed for this facility. The Homeowners Association will be responsible for all maintenance. Erosion control measures for this site were designed by:

Jon Whitten Jr., P.E.
Haley Ward, Inc.
120 Main Street
Saco, ME 04072
(207) 989-4824
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A Pre- and Post-Construction Maintenance Plan for the stormwater management system and erosion control measures are included in this section.

MAINTENANCE PLAN

The MDEP's Stormwater Management for Maine: Best Management Practices (2006), and the MDEP's Chapter 500: Stormwater Management were used as guidelines in the development of this Maintenance Plan. General maintenance requirements are listed below.

A. DURING CONSTRUCTION

The general contractor will be responsible for the inspection and maintenance of all stormwater management system components during construction.

Inspection: Inspection of disturbed and impervious areas, erosion control measures, materials' storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site will be performed at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. Inspections shall be conducted by a person with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

Maintenance: All erosion control measures will be kept in effective operating condition until areas are permanently stabilized. If BMPs need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation will be completed within 7 calendar days and prior to any rainfall event.

Documentation: A log shall be kept summarizing the inspections and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, Construction Inspection Log.

B. POST-CONSTRUCTION

The Owner or their assigns will be responsible for the inspection and maintenance of all stormwater management system components.

Inspection and Corrective Action

1. Vegetated Areas: Inspections and maintenance of vegetated areas will be performed early in the growing season or after significant rainfall to identify any erosion problems. Areas where erosion is evident will be covered with an appropriate lining, or erosive flows will be diverted to an area able to handle the flows. Any bare areas or areas with sparse growth will be replanted.

2. Ditches, Swales, and Culverts: Inspections and maintenance of ditches, culverts, and swales will be performed in the Spring, late Fall, and after rain events greater than 1-inch in depth to remove any obstructions to flow, to remove any accumulated sediments within the structures, and to repair any erosion of channel linings, check dams, inlet protection, or outlet protection. Vegetated ditches and swales must be mowed no more than twice per year and cut no less than 6-inch in height.

3. Inspection: shall be performed by an individual with experience and/or training on the maintenance and functions of these devices.

4. Roadways: Gravel roadways will be graded at least twice per year, if needed, to maintain drainage patterns as designed

5. Stormwater Wet Ponds: Maintenance of the wet ponds built for the treatment of stormwater will at a minimum include the items listed below.
    a. Embankment Inspection and Maintenance: A description will be provided of the yearly inspections of the impoundment embankments to identify excessive settlement, slope erosion, internal piping, and downstream swamping. Actions to be taken will be identified if any problems are found. Semi-annual mowing will be done to prevent the growth of woody vegetation on the embankment.
    b. Outlet Inspection and Clean Out: A description will be provided of the semi-annual inspection of the impoundment's outlet control structure to identify broken seals, obstructed orifices, plugged trash racks, and piping along the outlet barrel. Actions to be taken will be identified if any problems are found. A means of removal and disposal of any sediments and debris within the control structure will be provided.
    c. Sediment Removal and Disposal: Occasional removal and disposal of accumulated sediments within the impoundment will be performed as necessary. The clean out frequency ranges from 5-20 years, depending on the sediment load to the pond or basin.

6. Stormwater Filters: Maintenance of the filters built for the treatment of stormwater will at a minimum include the items listed below.
    a. Embankment Inspection and Maintenance: A description will be provided of the yearly inspections of the impoundment embankments to identify excessive settlement, slope erosion, internal piping, and downstream swamping. Actions to be taken will be identified if any problems are found. Semi-annual mowing will be done to prevent the growth of woody vegetation on the embankment.

b. Outlet Inspection and Clean Out: A description will be provided of the semi-annual inspection of the impoundment's outlet control structure to identify broken seals, obstructed orifices, plugged trash racks, and piping along the outlet barrel. Actions to be taken will be identified if any problems are found. A means of removal and disposal of any sediments and debris within the control structure will be provided.

c. Soil Filter Replacement: The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

7. Documentation: A log will be kept summarizing the inspections, maintenance, and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, BMP Inspection Log.

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.

HOUSEKEEPING

1. Spill Prevention - During construction, controls will be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. Groundwater Protection - During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater will not be stored or handled in areas of the site draining to an infiltration area. Dikes, berms, sumps, and other forms of 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.

3. Fugitive Sediment and Dust - Actions will be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil will not be used for dust control. Water will be used for dust control during construction.

   Operations during wet months that cause mud to be tracked off the site onto public roads will provide sweeping of the road areas at least once per week and prior to significant storm events.

4. Debris and Other Materials - Litter, construction debris, and chemicals exposed to stormwater will be prevented from becoming a pollutant source. The nature of this development will not cause problems related to debris and other materials.

5. Trench or Foundation De-Watering - If de-watering is necessary, the collected water will be removed from the ponded area and spread through natural wooded buffers or discharged into a construction sedimentation basin. The water will not be allowed to flow over disturbed areas to the site.

GENX CAPITAL PARTNERS, LLC
CONSTRUCTION INSPECTION LOG

Inspection Date	Inspector (Name and Qualifications)	Major Observations	Work Performed

Notes

1) Major Observations include the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle 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 locations(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.
2) Work Performed will include a description of the corrective action taken, the date the corrective action was taken, and the name and qualifications of the person taking the corrective actions
3) The log must be made accessible to MDEP staff and a copy must be provided upon request.
4) The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

GENX CAPITAL PARTNERS, LLC
BMP INSPECTION LOG

Date	Inspector (Name and Qualifications)	ID Number	BMP Structure	Work Performed	Comments

Notes

1) If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal.
2) BMP structures shall be numbered sequentially and located on attached site map.
3) The log must be made accessible to MDEP staff and a copy must be provided upon request.
4) The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)		
	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCHBASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean-out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATEMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean-out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

ArcGIS Web Map



4/18/2022, 12:36:57 PM

Streams

Waves Transects

Flood Zones 1986 Effective

AE

VE

500 Year

1:4,514

0 0.04 0.07 0.15 mi

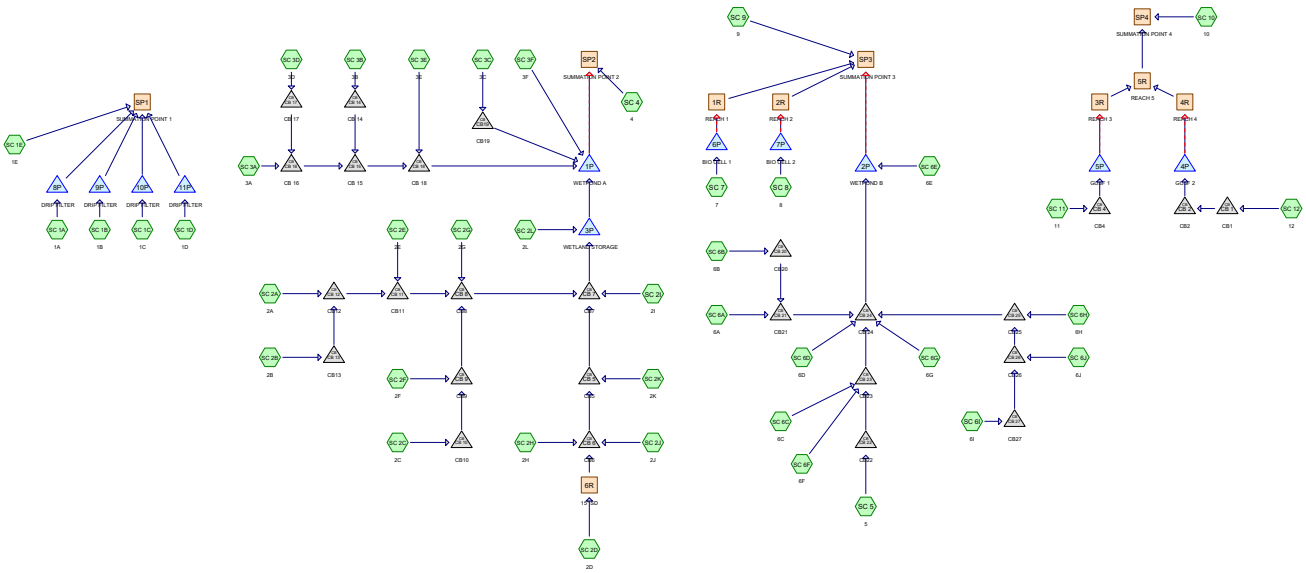
0 0.05 0.1 0.2 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Web AppBuilder for ArcGIS
Maxar |

Presumpscot Woods
0 Hope Ave., Portland, Maine
Soils Report

A medium-intensity soils report has been provided for this development, (see attached.) According to the USDA Soils Map of the project area, soils are mainly sandy loams and are not anticipated to have a negative impact on the structural integrity of the project, or the ability to manage stormwater runoff.



Subcat Reach Pond Link

Routing Diagram for Post Development
Prepared by Haley Ward, Printed 8/28/2023
HydroCAD® 10.20-2b s/n 00641 © 2021 HydroCAD Software Solutions LLC

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC 10: 10 Runoff Area=211,215 sf 6.82% Impervious Runoff Depth>0.72"
Flow Length=975' Tc=26.3 min CN=71 Runoff=3.30 cfs 0.292 af

SubcatchmentSC 11: 11 Runoff Area=6,017 sf 65.45% Impervious Runoff Depth>1.94"
Tc=5.0 min CN=90 Runoff=0.50 cfs 0.022 af

SubcatchmentSC 12: 12 Runoff Area=6,712 sf 39.17% Impervious Runoff Depth>1.09"
Tc=5.0 min CN=78 Runoff=0.33 cfs 0.014 af

SubcatchmentSC 1A: 1A Runoff Area=967 sf 100.00% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.10 cfs 0.005 af

SubcatchmentSC 1B: 1B Runoff Area=1,186 sf 100.00% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.006 af

SubcatchmentSC 1C: 1C Runoff Area=1,595 sf 100.00% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.008 af

SubcatchmentSC 1D: 1D Runoff Area=1,152 sf 100.00% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.006 af

SubcatchmentSC 1E: 1E Runoff Area=61,853 sf 0.00% Impervious Runoff Depth>0.10"
Flow Length=90' Tc=7.4 min CN=51 Runoff=0.03 cfs 0.012 af

SubcatchmentSC 2A: 2A Runoff Area=5,111 sf 68.52% Impervious Runoff Depth>1.55"
Flow Length=127' Tc=4.9 min CN=85 Runoff=0.35 cfs 0.015 af

SubcatchmentSC 2B: 2B Runoff Area=18,599 sf 11.42% Impervious Runoff Depth>0.98"
Flow Length=100' Slope=0.0400 '/' Tc=17.3 min CN=76 Runoff=0.54 cfs 0.035 af

SubcatchmentSC 2C: 2C Runoff Area=16,958 sf 14.97% Impervious Runoff Depth>1.03"
Flow Length=150' Slope=0.0400 '/' Tc=18.2 min CN=77 Runoff=0.50 cfs 0.033 af

SubcatchmentSC 2D: 2D Runoff Area=25,546 sf 9.63% Impervious Runoff Depth>0.98"
Flow Length=160' Tc=16.7 min CN=76 Runoff=0.75 cfs 0.048 af

SubcatchmentSC 2E: 2E Runoff Area=1,667 sf 77.68% Impervious Runoff Depth>1.69"
Tc=5.0 min CN=87 Runoff=0.12 cfs 0.005 af

SubcatchmentSC 2F: 2F Runoff Area=4,179 sf 89.40% Impervious Runoff Depth>2.39"
Tc=5.0 min CN=95 Runoff=0.40 cfs 0.019 af

SubcatchmentSC 2G: 2G Runoff Area=4,722 sf 88.63% Impervious Runoff Depth>2.39"
Tc=5.0 min CN=95 Runoff=0.45 cfs 0.022 af

SubcatchmentSC 2H: 2H Runoff Area=2,889 sf 97.92% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.29 cfs 0.015 af

SubcatchmentSC 2I: 2I Runoff Area=3,581 sf 90.51% Impervious Runoff Depth>2.48"
Tc=5.0 min CN=96 Runoff=0.35 cfs 0.017 af

SubcatchmentSC 2J: 2J Runoff Area=3,699 sf 93.21% Impervious Runoff Depth>2.48"
Tc=5.0 min CN=96 Runoff=0.36 cfs 0.018 af

SubcatchmentSC 2K: 2K Runoff Area=5,912 sf 84.88% Impervious Runoff Depth>2.30"
Tc=5.0 min CN=94 Runoff=0.55 cfs 0.026 af

SubcatchmentSC 2L: 2L Runoff Area=47,113 sf 19.70% Impervious Runoff Depth>1.03"
Flow Length=240' Tc=9.4 min CN=77 Runoff=1.89 cfs 0.093 af

SubcatchmentSC 3A: 3A Runoff Area=5,173 sf 62.27% Impervious Runoff Depth>0.98"
Tc=5.0 min CN=76 Runoff=0.23 cfs 0.010 af

SubcatchmentSC 3B: 3B Runoff Area=2,001 sf 78.66% Impervious Runoff Depth>1.55"
Tc=5.0 min CN=85 Runoff=0.14 cfs 0.006 af

SubcatchmentSC 3C: 3C Runoff Area=20,436 sf 68.42% Impervious Runoff Depth>1.54"
Flow Length=297' Tc=8.3 min CN=85 Runoff=1.27 cfs 0.060 af

SubcatchmentSC 3D: 3D Runoff Area=3,167 sf 63.75% Impervious Runoff Depth>1.04"
Tc=5.0 min CN=77 Runoff=0.15 cfs 0.006 af

SubcatchmentSC 3E: 3E Runoff Area=2,986 sf 96.99% Impervious Runoff Depth>2.48"
Tc=5.0 min CN=96 Runoff=0.29 cfs 0.014 af

SubcatchmentSC 3F: 3F Runoff Area=46,508 sf 39.26% Impervious Runoff Depth>0.56"
Tc=5.0 min CN=67 Runoff=1.12 cfs 0.050 af

SubcatchmentSC 4: 4 Runoff Area=58,116 sf 8.45% Impervious Runoff Depth>0.04"
Tc=5.0 min CN=47 Runoff=0.01 cfs 0.004 af

SubcatchmentSC 5: 5 Runoff Area=61,473 sf 26.96% Impervious Runoff Depth>0.73"
Flow Length=492' Tc=8.3 min CN=71 Runoff=1.78 cfs 0.086 af

SubcatchmentSC 6A: 6A Runoff Area=4,112 sf 82.08% Impervious Runoff Depth>2.02"
Tc=5.0 min CN=91 Runoff=0.35 cfs 0.016 af

SubcatchmentSC 6B: 6B Runoff Area=6,451 sf 75.28% Impervious Runoff Depth>1.85"
Tc=5.0 min CN=89 Runoff=0.52 cfs 0.023 af

SubcatchmentSC 6C: 6C Runoff Area=4,203 sf 79.90% Impervious Runoff Depth>2.02"
Tc=5.0 min CN=91 Runoff=0.36 cfs 0.016 af

SubcatchmentSC 6D: 6D Runoff Area=7,390 sf 70.24% Impervious Runoff Depth>1.69"
Tc=5.0 min CN=87 Runoff=0.55 cfs 0.024 af

SubcatchmentSC 6E: 6E Runoff Area=11,284 sf 12.68% Impervious Runoff Depth>0.52"
Flow Length=50' Slope=0.0200 '/' Tc=5.7 min CN=66 Runoff=0.24 cfs 0.011 af

SubcatchmentSC 6F: 6F Runoff Area=6,530 sf 75.51% Impervious Runoff Depth>1.85"
Tc=5.0 min CN=89 Runoff=0.52 cfs 0.023 af

SubcatchmentSC 6G: 6G Runoff Area=4,787 sf 90.01% Impervious Runoff Depth>2.30"
Tc=5.0 min CN=94 Runoff=0.45 cfs 0.021 af

SubcatchmentSC 6H: 6H Runoff Area=2,481 sf 100.00% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=98 Runoff=0.25 cfs 0.013 af

SubcatchmentSC 6I: 6I Runoff Area=10,162 sf 78.30% Impervious Runoff Depth>1.94"
Tc=5.0 min CN=90 Runoff=0.84 cfs 0.038 af

SubcatchmentSC 6J: 6J Runoff Area=7,163 sf 95.48% Impervious Runoff Depth>2.48"
Tc=5.0 min CN=96 Runoff=0.70 cfs 0.034 af

SubcatchmentSC 7: 7 Runoff Area=2,865 sf 31.76% Impervious Runoff Depth>0.32"
Tc=5.0 min CN=60 Runoff=0.03 cfs 0.002 af

SubcatchmentSC 8: 8 Runoff Area=2,371 sf 36.02% Impervious Runoff Depth>0.48"
Tc=5.0 min CN=65 Runoff=0.05 cfs 0.002 af

SubcatchmentSC 9: 9 Runoff Area=32,610 sf 6.95% Impervious Runoff Depth>0.04"
Tc=5.0 min CN=47 Runoff=0.00 cfs 0.003 af

Reach 1R: REACH 1 Inflow=0.03 cfs 0.002 af
Outflow=0.03 cfs 0.002 af

Reach 2R: REACH 2 Inflow=0.03 cfs 0.002 af
Outflow=0.03 cfs 0.002 af

Reach 3R: REACH 3 Avg. Flow Depth=0.02' Max Vel=1.19 fps Inflow=0.10 cfs 0.022 af
n=0.025 L=425.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.10 cfs 0.022 af

Reach 4R: REACH 4 Avg. Flow Depth=0.02' Max Vel=1.19 fps Inflow=0.10 cfs 0.014 af
n=0.025 L=250.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.10 cfs 0.014 af

Reach 5R: REACH 5 Avg. Flow Depth=0.05' Max Vel=1.02 fps Inflow=0.20 cfs 0.036 af
n=0.035 L=360.0' S=0.0300 '/' Capacity=384.63 cfs Outflow=0.20 cfs 0.036 af

Reach 6R: 15" SD Avg. Flow Depth=0.34' Max Vel=2.75 fps Inflow=0.75 cfs 0.048 af
15.0" Round Pipe n=0.013 L=38.0' S=0.0050 '/' Capacity=4.57 cfs Outflow=0.75 cfs 0.048 af

Reach SP1: SUMMATION POINT 1 Inflow=0.29 cfs 0.037 af
Outflow=0.29 cfs 0.037 af

Reach SP2: SUMMATION POINT 2 Inflow=0.01 cfs 0.004 af
Outflow=0.01 cfs 0.004 af

Reach SP3: SUMMATION POINT 3 Inflow=0.05 cfs 0.006 af
Outflow=0.05 cfs 0.006 af

Reach SP4: SUMMATION POINT 4 Inflow=3.50 cfs 0.328 af
Outflow=3.50 cfs 0.328 af

Pond 1P: WETPOND A Peak Elev=73.70' Storage=21,345 cf Inflow=6.74 cfs 0.490 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 2P: WETPOND B Peak Elev=70.43' Storage=13,259 cf Inflow=6.26 cfs 0.305 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond 3P: WETLAND STORAGE Peak Elev=80.05' Storage=1,875 cf Inflow=5.56 cfs 0.345 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=4.17 cfs 0.344 af

Pond 4P: GUSF 2 Peak Elev=75.81' Storage=129 cf Inflow=0.33 cfs 0.014 af
Primary=0.10 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.014 af

Pond 5P: GUSF 1 Peak Elev=82.93' Storage=280 cf Inflow=0.50 cfs 0.022 af
Primary=0.10 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.022 af

Pond 6P: BIO CELL 1 Peak Elev=78.51' Storage=0 cf Inflow=0.03 cfs 0.002 af
Primary=0.03 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.002 af

Pond 7P: BIO CELL 2 Peak Elev=77.01' Storage=24 cf Inflow=0.05 cfs 0.002 af
Primary=0.03 cfs 0.002 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.002 af

Pond 8P: DRIP FILTER Peak Elev=0.39' Storage=31 cf Inflow=0.10 cfs 0.005 af
Outflow=0.04 cfs 0.005 af

Pond 9P: DRIP FILTER Peak Elev=0.57' Storage=45 cf Inflow=0.12 cfs 0.006 af
Outflow=0.06 cfs 0.006 af

Pond 10P: DRIP FILTER Peak Elev=0.68' Storage=54 cf Inflow=0.16 cfs 0.008 af
Outflow=0.14 cfs 0.008 af

Pond 11P: DRIP FILTER Peak Elev=0.55' Storage=44 cf Inflow=0.12 cfs 0.006 af
Outflow=0.05 cfs 0.006 af

Pond CB 1: CB1 Peak Elev=77.08' Inflow=0.33 cfs 0.014 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.33 cfs 0.014 af

Pond CB 10: CB10 Peak Elev=82.64' Inflow=0.50 cfs 0.033 af
15.0" Round Culvert n=0.013 L=55.0' S=0.0051 '/' Outflow=0.50 cfs 0.033 af

Pond CB 11: CB11 Peak Elev=82.96' Inflow=0.78 cfs 0.055 af
15.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=0.78 cfs 0.055 af

Pond CB 12: CB12 Peak Elev=83.15' Inflow=0.68 cfs 0.050 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.68 cfs 0.050 af

Pond CB 13: CB13 Peak Elev=83.55' Inflow=0.54 cfs 0.035 af
15.0" Round Culvert n=0.013 L=75.0' S=0.0049 '/' Outflow=0.54 cfs 0.035 af

Pond CB 14: CB 14 Peak Elev=83.44' Inflow=0.14 cfs 0.006 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0910 '/' Outflow=0.14 cfs 0.006 af

Pond CB 15: CB 15 Peak Elev=81.71' Inflow=0.52 cfs 0.022 af
15.0" Round Culvert n=0.013 L=135.0' S=0.0200 '/' Outflow=0.52 cfs 0.022 af

Pond CB 16: CB 16 Peak Elev=81.93' Inflow=0.38 cfs 0.016 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=0.38 cfs 0.016 af

Pond CB 17: CB 17 Peak Elev=82.27' Inflow=0.15 cfs 0.006 af
15.0" Round Culvert n=0.013 L=76.0' S=0.0050 '/' Outflow=0.15 cfs 0.006 af

Pond CB 18: CB 18 Peak Elev=79.01' Inflow=0.81 cfs 0.036 af
15.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=0.81 cfs 0.036 af

Pond CB 2: CB2 Peak Elev=77.04' Inflow=0.33 cfs 0.014 af
6.0" Round Culvert n=0.013 L=15.0' S=0.0053 '/' Outflow=0.33 cfs 0.014 af

Pond CB 20: CB20 Peak Elev=79.22' Inflow=0.52 cfs 0.023 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.52 cfs 0.023 af

Pond CB 21: CB21 Peak Elev=79.10' Inflow=0.87 cfs 0.039 af
15.0" Round Culvert n=0.013 L=116.0' S=0.0285 '/' Outflow=0.87 cfs 0.039 af

Pond CB 22: CB22 Peak Elev=75.10' Inflow=1.78 cfs 0.086 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.78 cfs 0.086 af

Pond CB 23: CB23 Peak Elev=75.05' Inflow=2.54 cfs 0.125 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=2.54 cfs 0.125 af

Pond CB 24: CB 24 Peak Elev=75.33' Inflow=6.03 cfs 0.293 af
24.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=6.03 cfs 0.293 af

Pond CB 25: CB25 Peak Elev=77.65' Inflow=1.80 cfs 0.084 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0107 '/' Outflow=1.80 cfs 0.084 af

Pond CB 26: CB26 Peak Elev=79.14' Inflow=1.55 cfs 0.072 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0132 '/' Outflow=1.55 cfs 0.072 af

Pond CB 27: CB27 Peak Elev=79.24' Inflow=0.84 cfs 0.038 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=0.84 cfs 0.038 af

Pond CB 4: CB4 Peak Elev=82.57' Inflow=0.50 cfs 0.022 af
15.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.50 cfs 0.022 af

Pond CB 5: CB5 Peak Elev=81.84' Inflow=1.59 cfs 0.106 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=1.59 cfs 0.106 af

Pond CB 6: CB6 Peak Elev=81.96' Inflow=1.06 cfs 0.080 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=1.06 cfs 0.080 af

Pond CB 7: CB7 Peak Elev=81.67' Inflow=3.81 cfs 0.252 af
24.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=3.81 cfs 0.252 af

Pond CB 8: CB8 Peak Elev=82.50' Inflow=1.87 cfs 0.129 af
15.0" Round Culvert n=0.013 L=42.0' S=0.0050 '/' Outflow=1.87 cfs 0.129 af

Pond CB 9: CB9 Peak Elev=82.35' Inflow=0.67 cfs 0.053 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.67 cfs 0.053 af

Pond CB19: CB19 Peak Elev=77.16' Inflow=1.27 cfs 0.060 af
15.0" Round Culvert n=0.013 L=40.0' S=0.0150 '/' Outflow=1.27 cfs 0.060 af

Total Runoff Area = 16.826 ac Runoff Volume = 1.172 af Average Runoff Depth = 0.84"
75.20% Pervious = 12.654 ac 24.80% Impervious = 4.172 ac

Summary for Subcatchment SC 10: 10

Runoff = 3.30 cfs @ 12.23 hrs, Volume= 0.292 af, Depth> 0.72"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	67	39	>75% Grass cover, Good, HSG A
	49,329	60	Woods, Fair, HSG B
	11,304	61	>75% Grass cover, Good, HSG B
	121,487	73	Woods, Fair, HSG C
	10,078	74	>75% Grass cover, Good, HSG C
	4,535	79	Woods, Fair, HSG D
*	14,415	98	IMPERVIOUS
	211,215	71	Weighted Average
	196,800		93.18% Pervious Area
	14,415		6.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.7	140	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	75	0.0100	10.72	386.00	**Channel Flow,** Area= 36.0 sf Perim= 18.0' r= 2.00' n= 0.022 Earth, clean & straight
0.8	470	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
26.3	975	Total			

Summary for Subcatchment SC 11: 11

Runoff = 0.50 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 1.94"
Routed to Pond CB 4 : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	2,079	74	>75% Grass cover, Good, HSG C
*	3,938	98	IMPERVIOUS
	6,017	90	Weighted Average
	2,079		34.55% Pervious Area
	3,938		65.45% Impervious Area

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

Summary for Subcatchment SC 12: 12

Runoff = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af, Depth> 1.09"
Routed to Pond CB 1 : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,115	39	>75% Grass cover, Good, HSG A
	2,968	74	>75% Grass cover, Good, HSG C
*	2,629	98	IMPERVIOUS
	6,712	78	Weighted Average
	4,083		60.83% Pervious Area
	2,629		39.17% Impervious Area

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

Summary for Subcatchment SC 1A: 1A

Runoff = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af, Depth> 2.65"
Routed to Pond 8P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	967	98	IMPERVIOUS
	967		100.00% Impervious Area

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

Summary for Subcatchment SC 1B: 1B

Runoff = 0.12 cfs @ 11.95 hrs, Volume= 0.006 af, Depth> 2.65"
Routed to Pond 9P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	1,186	98	IMPERVIOUS
	1,186		100.00% Impervious Area

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

Summary for Subcatchment SC 1C: 1C

Runoff = 0.16 cfs @ 11.95 hrs, Volume= 0.008 af, Depth> 2.65"
Routed to Pond 10P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	1,595	98	IMPERVIOUS
	1,595		100.00% Impervious Area

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

Summary for Subcatchment SC 1D: 1D

Runoff = 0.12 cfs @ 11.95 hrs, Volume= 0.006 af, Depth> 2.65"
Routed to Pond 11P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	1,152	98	IMPERVIOUS
	1,152		100.00% Impervious Area

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

Summary for Subcatchment SC 1E: 1E

Runoff = 0.03 cfs @ 12.37 hrs, Volume= 0.012 af, Depth> 0.10"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

Area (sf)	CN	Description
34,276	36	Woods, Fair, HSG A
21,674	73	Woods, Fair, HSG C
2,952	39	>75% Grass cover, Good, HSG A
2,951	74	>75% Grass cover, Good, HSG C
61,853	51	Weighted Average
61,853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1200	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.4	90	Total			

Summary for Subcatchment SC 2A: 2A

Runoff = 0.35 cfs @ 11.96 hrs, Volume= 0.015 af, Depth> 1.55"
Routed to Pond CB 12 : CB12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	845	39	>75% Grass cover, Good, HSG A
	764	74	>75% Grass cover, Good, HSG C
*	3,502	98	IMPERVIOUS
	5,111	85	Weighted Average
	1,609		31.48% Pervious Area
	3,502		68.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
4.3	35	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	80	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	127	Total			

Summary for Subcatchment SC 2B: 2B

Runoff = 0.54 cfs @ 12.11 hrs, Volume= 0.035 af, Depth> 0.98"
Routed to Pond CB 13 : CB13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	12,451	73	Woods, Fair, HSG C
	4,024	74	>75% Grass cover, Good, HSG C
*	2,124	98	IMPERVIOUS
	18,599	76	Weighted Average
	16,475		88.58% Pervious Area
	2,124		11.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.8	50	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.3	100	Total			

Summary for Subcatchment SC 2C: 2C

Runoff = 0.50 cfs @ 12.12 hrs, Volume= 0.033 af, Depth> 1.03"
Routed to Pond CB 10 : CB10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	10,994	73	Woods, Fair, HSG C
	3,426	74	>75% Grass cover, Good, HSG C
*	2,538	98	IMPERVIOUS
	16,958	77	Weighted Average
	14,420		85.03% Pervious Area
	2,538		14.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.7	100	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	150	Total			

Summary for Subcatchment SC 2D: 2D

Runoff = 0.75 cfs @ 12.10 hrs, Volume= 0.048 af, Depth> 0.98"
Routed to Reach 6R : 15" SD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	20,100	73	Woods, Fair, HSG C
	2,985	74	>75% Grass cover, Good, HSG C
*	2,461	98	IMPERVIOUS
	25,546	76	Weighted Average
	23,085		90.37% Pervious Area
	2,461		9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	110	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	160	Total			

Summary for Subcatchment SC 2E: 2E

Runoff = 0.12 cfs @ 11.96 hrs, Volume= 0.005 af, Depth> 1.69"
Routed to Pond CB 11 : CB11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	251	39	>75% Grass cover, Good, HSG A
	121	74	>75% Grass cover, Good, HSG C
*	1,295	98	IMPERVIOUS
	1,667	87	Weighted Average
	372		22.32% Pervious Area
	1,295		77.68% Impervious Area

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

Summary for Subcatchment SC 2F: 2F

Runoff = 0.40 cfs @ 11.95 hrs, Volume= 0.019 af, Depth> 2.39"
Routed to Pond CB 9 : CB9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	443	74	>75% Grass cover, Good, HSG C
*	3,736	98	IMPERVIOUS
	4,179	95	Weighted Average
	443		10.60% Pervious Area
	3,736		89.40% Impervious Area

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

Summary for Subcatchment SC 2G: 2G

Runoff = 0.45 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 2.39"
Routed to Pond CB 8 : CB8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	537	74	>75% Grass cover, Good, HSG C
*	4,185	98	IMPERVIOUS
	4,722	95	Weighted Average
	537		11.37% Pervious Area
	4,185		88.63% Impervious Area

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

Summary for Subcatchment SC 2H: 2H

Runoff = 0.29 cfs @ 11.95 hrs, Volume= 0.015 af, Depth> 2.65"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	60	74	>75% Grass cover, Good, HSG C
*	2,829	98	IMPERVIOUS
	2,889	98	Weighted Average
	60		2.08% Pervious Area
	2,829		97.92% Impervious Area

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

Summary for Subcatchment SC 2I: 2I

Runoff = 0.35 cfs @ 11.95 hrs, Volume= 0.017 af, Depth> 2.48"
Routed to Pond CB 7 : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	340	74	>75% Grass cover, Good, HSG C
*	3,241	98	IMPERVIOUS
	3,581	96	Weighted Average
	340		9.49% Pervious Area
	3,241		90.51% Impervious Area

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

Summary for Subcatchment SC 2J: 2J

Runoff = 0.36 cfs @ 11.95 hrs, Volume= 0.018 af, Depth> 2.48"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	251	74	>75% Grass cover, Good, HSG C
*	3,448	98	IMPERVIOUS
	3,699	96	Weighted Average
	251		6.79% Pervious Area
	3,448		93.21% Impervious Area

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

Summary for Subcatchment SC 2K: 2K

Runoff = 0.55 cfs @ 11.95 hrs, Volume= 0.026 af, Depth> 2.30"
Routed to Pond CB 5 : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	894	74	>75% Grass cover, Good, HSG C
*	5,018	98	IMPERVIOUS
	5,912	94	Weighted Average
	894		15.12% Pervious Area
	5,018		84.88% Impervious Area

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

Summary for Subcatchment SC 2L: 2L

Runoff = 1.89 cfs @ 12.01 hrs, Volume= 0.093 af, Depth> 1.03"
Routed to Pond 3P : WETLAND STORAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	965	39	>75% Grass cover, Good, HSG A
	2,059	60	Woods, Fair, HSG B
	2,162	61	>75% Grass cover, Good, HSG B
	12,048	73	Woods, Fair, HSG C
	20,596	74	>75% Grass cover, Good, HSG C
*	9,283	98	IMPERVIOUS
	47,113	77	Weighted Average
	37,830		80.30% Pervious Area
	9,283		19.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	90	0.0500	3.35		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	240	Total			

Summary for Subcatchment SC 3A: 3A

Runoff = 0.23 cfs @ 11.96 hrs, Volume= 0.010 af, Depth> 0.98"
Routed to Pond CB 16 : CB 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,952	39	>75% Grass cover, Good, HSG A
*	3,221	98	IMPERVIOUS
	5,173	76	Weighted Average
	1,952		37.73% Pervious Area
	3,221		62.27% Impervious Area

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

Summary for Subcatchment SC 3B: 3B

Runoff = 0.14 cfs @ 11.96 hrs, Volume= 0.006 af, Depth> 1.55"
Routed to Pond CB 14 : CB 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	427	39	>75% Grass cover, Good, HSG A
*	1,574	98	IMPERVIOUS
	2,001	85	Weighted Average
	427		21.34% Pervious Area
	1,574		78.66% Impervious Area

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

Summary for Subcatchment SC 3C: 3C

Runoff = 1.27 cfs @ 12.00 hrs, Volume= 0.060 af, Depth> 1.54"
Routed to Pond CB19 : CB19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,684	39	>75% Grass cover, Good, HSG A
	439	60	Woods, Fair, HSG B
	3,700	61	>75% Grass cover, Good, HSG B
	630	74	>75% Grass cover, Good, HSG C
*	13,983	98	IMPERVIOUS
	20,436	85	Weighted Average
	6,453		31.58% Pervious Area
	13,983		68.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.1	65	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	220	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.3	297	Total			

Summary for Subcatchment SC 3D: 3D

Runoff = 0.15 cfs @ 11.96 hrs, Volume= 0.006 af, Depth> 1.04"
Routed to Pond CB 17 : CB 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,148	39	>75% Grass cover, Good, HSG A
*	2,019	98	IMPERVIOUS
	3,167	77	Weighted Average
	1,148		36.25% Pervious Area
	2,019		63.75% Impervious Area

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

Summary for Subcatchment SC 3E: 3E

Runoff = 0.29 cfs @ 11.95 hrs, Volume= 0.014 af, Depth> 2.48"
Routed to Pond CB 18 : CB 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	90	39	>75% Grass cover, Good, HSG A
*	2,896	98	IMPERVIOUS
	2,986	96	Weighted Average
	90		3.01% Pervious Area
	2,896		96.99% Impervious Area

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

Summary for Subcatchment SC 3F: 3F

Runoff = 1.12 cfs @ 11.97 hrs, Volume= 0.050 af, Depth> 0.56"
Routed to Pond 1P : WETPOND A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	19,802	39	>75% Grass cover, Good, HSG A
	7,113	61	>75% Grass cover, Good, HSG B
	1,334	74	>75% Grass cover, Good, HSG C
*	18,259	98	IMPERVIOUS
	46,508	67	Weighted Average
	28,249		60.74% Pervious Area
	18,259		39.26% Impervious Area

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

Summary for Subcatchment SC 4: 4

Runoff = 0.01 cfs @ 15.04 hrs, Volume= 0.004 af, Depth> 0.04"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	34,054	36	Woods, Fair, HSG A
	7,162	39	>75% Grass cover, Good, HSG A
	10,830	60	Woods, Fair, HSG B
	1,162	61	>75% Grass cover, Good, HSG B
*	4,908	98	IMPERVIOUS
	58,116	47	Weighted Average
	53,208		91.55% Pervious Area
	4,908		8.45% Impervious Area

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

Summary for Subcatchment SC 5: 5

Runoff = 1.78 cfs @ 12.01 hrs, Volume= 0.086 af, Depth> 0.73"
Routed to Pond CB 22 : CB22

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	14,519	60	Woods, Fair, HSG B
	30,033	61	>75% Grass cover, Good, HSG B
	346	74	>75% Grass cover, Good, HSG C
*	16,575	98	IMPERVIOUS
	61,473	71	Weighted Average
	44,898		73.04% Pervious Area
	16,575		26.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
2.3	210	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.3	130	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.3	492	Total			

Summary for Subcatchment SC 6A: 6A

Runoff = 0.35 cfs @ 11.95 hrs, Volume= 0.016 af, Depth> 2.02"
Routed to Pond CB 21 : CB21

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	737	61	>75% Grass cover, Good, HSG B
*	3,375	98	IMPERVIOUS
	4,112	91	Weighted Average
	737		17.92% Pervious Area
	3,375		82.08% Impervious Area

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

Summary for Subcatchment SC 6B: 6B

Runoff = 0.52 cfs @ 11.95 hrs, Volume= 0.023 af, Depth> 1.85"
Routed to Pond CB 20 : CB20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,595	61	>75% Grass cover, Good, HSG B
*	4,856	98	IMPERVIOUS
	6,451	89	Weighted Average
	1,595		24.72% Pervious Area
	4,856		75.28% Impervious Area

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

Summary for Subcatchment SC 6C: 6C

Runoff = 0.36 cfs @ 11.95 hrs, Volume= 0.016 af, Depth> 2.02"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	845	61	>75% Grass cover, Good, HSG B
*	3,358	98	IMPERVIOUS
	4,203	91	Weighted Average
	845		20.10% Pervious Area
	3,358		79.90% Impervious Area

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

Summary for Subcatchment SC 6D: 6D

Runoff = 0.55 cfs @ 11.96 hrs, Volume= 0.024 af, Depth> 1.69"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	2,199	61	>75% Grass cover, Good, HSG B
*	5,191	98	IMPERVIOUS
	7,390	87	Weighted Average
	2,199		29.76% Pervious Area
	5,191		70.24% Impervious Area

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

Summary for Subcatchment SC 6E: 6E

Runoff = 0.24 cfs @ 11.99 hrs, Volume= 0.011 af, Depth> 0.52"
Routed to Pond 2P : WETPOND B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	9,853	61	>75% Grass cover, Good, HSG B
*	1,431	98	IMPERVIOUS
	11,284	66	Weighted Average
	9,853		87.32% Pervious Area
	1,431		12.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Subcatchment SC 6F: 6F

Runoff = 0.52 cfs @ 11.95 hrs, Volume= 0.023 af, Depth> 1.85"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,599	61	>75% Grass cover, Good, HSG B
*	4,931	98	IMPERVIOUS
	6,530	89	Weighted Average
	1,599		24.49% Pervious Area
	4,931		75.51% Impervious Area

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

Summary for Subcatchment SC 6G: 6G

Runoff = 0.45 cfs @ 11.95 hrs, Volume= 0.021 af, Depth> 2.30"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	478	61	>75% Grass cover, Good, HSG B
*	4,309	98	IMPERVIOUS
	4,787	94	Weighted Average
	478		9.99% Pervious Area
	4,309		90.01% Impervious Area

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

Summary for Subcatchment SC 6H: 6H

Runoff = 0.25 cfs @ 11.95 hrs, Volume= 0.013 af, Depth> 2.65"
Routed to Pond CB 25 : CB25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	2,481	98	IMPERVIOUS
	2,481		100.00% Impervious Area

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

Summary for Subcatchment SC 6I: 6I

Runoff = 0.84 cfs @ 11.95 hrs, Volume= 0.038 af, Depth> 1.94"
Routed to Pond CB 27 : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	2,205	61	>75% Grass cover, Good, HSG B
*	7,957	98	IMPERVIOUS
	10,162	90	Weighted Average
	2,205		21.70% Pervious Area
	7,957		78.30% Impervious Area

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

Summary for Subcatchment SC 6J: 6J

Runoff = 0.70 cfs @ 11.95 hrs, Volume= 0.034 af, Depth> 2.48"
Routed to Pond CB 26 : CB26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	324	61	>75% Grass cover, Good, HSG B
*	6,839	98	IMPERVIOUS
	7,163	96	Weighted Average
	324		4.52% Pervious Area
	6,839		95.48% Impervious Area

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

Summary for Subcatchment SC 7: 7

Runoff = 0.03 cfs @ 11.99 hrs, Volume= 0.002 af, Depth> 0.32"
Routed to Pond 6P : BIO CELL 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,682	39	>75% Grass cover, Good, HSG A
	273	61	>75% Grass cover, Good, HSG B
*	910	98	IMPERVIOUS
	2,865	60	Weighted Average
	1,955		68.24% Pervious Area
	910		31.76% Impervious Area

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

Summary for Subcatchment SC 8: 8

Runoff = 0.05 cfs @ 11.98 hrs, Volume= 0.002 af, Depth> 0.48"
Routed to Pond 7P : BIO CELL 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	1,036	39	>75% Grass cover, Good, HSG A
	481	61	>75% Grass cover, Good, HSG B
*	854	98	IMPERVIOUS
	2,371	65	Weighted Average
	1,517		63.98% Pervious Area
	854		36.02% Impervious Area

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

Summary for Subcatchment SC 9: 9

Runoff = 0.00 cfs @ 15.04 hrs, Volume= 0.003 af, Depth> 0.04"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	19,552	36	Woods, Fair, HSG A
	2,610	39	>75% Grass cover, Good, HSG A
	7,418	60	Woods, Fair, HSG B
	765	61	>75% Grass cover, Good, HSG B
*	2,265	98	IMPERVIOUS
	32,610	47	Weighted Average
	30,345		93.05% Pervious Area
	2,265		6.95% Impervious Area

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

Summary for Reach 1R: REACH 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 0.32" for 2 YEAR event
Inflow = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: REACH 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 0.37" for 2 YEAR event
Inflow = 0.03 cfs @ 12.06 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.06 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: REACH 3

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 1.94" for 2 YEAR event
Inflow = 0.10 cfs @ 11.70 hrs, Volume= 0.022 af
Outflow = 0.10 cfs @ 13.35 hrs, Volume= 0.022 af, Atten= 0%, Lag= 99.0 min
Routed to Reach 5R : REACH 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 6.0 min

Peak Storage= 36 cf @ 13.30 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 4.04'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 425.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -12.75'



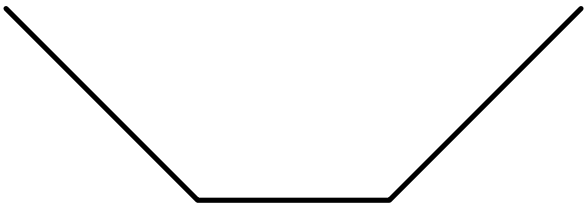
Summary for Reach 4R: REACH 4

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 1.09" for 2 YEAR event
Inflow = 0.10 cfs @ 11.85 hrs, Volume= 0.014 af
Outflow = 0.10 cfs @ 12.70 hrs, Volume= 0.014 af, Atten= 0%, Lag= 51.0 min
Routed to Reach 5R : REACH 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 3.5 min

Peak Storage= 21 cf @ 12.65 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 4.04'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 250.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -7.50'



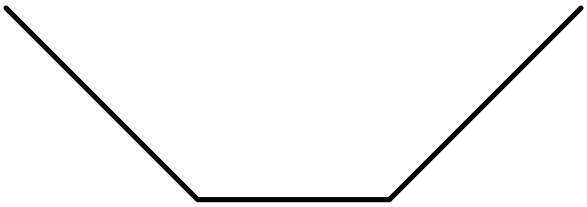
Summary for Reach 5R: REACH 5

Inflow Area = 0.292 ac, 51.59% Impervious, Inflow Depth > 1.49" for 2 YEAR event
Inflow = 0.20 cfs @ 12.70 hrs, Volume= 0.036 af
Outflow = 0.20 cfs @ 12.75 hrs, Volume= 0.036 af, Atten= 0%, Lag= 3.0 min
Routed to Reach SP4 : SUMMATION POINT 4

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.02 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 7.0 min

Peak Storage= 71 cf @ 12.70 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 4.10'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 384.63 cfs

4.00' x 4.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 360.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'



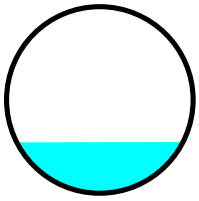
Summary for Reach 6R: 15" SD

Inflow Area = 0.586 ac, 9.63% Impervious, Inflow Depth > 0.98" for 2 YEAR event
Inflow = 0.75 cfs @ 12.10 hrs, Volume= 0.048 af
Outflow = 0.75 cfs @ 12.11 hrs, Volume= 0.048 af, Atten= 1%, Lag= 0.4 min
Routed to Pond CB 6 : CB6

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.75 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.12 fps, Avg. Travel Time= 0.6 min

Peak Storage= 10 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.34' , Surface Width= 1.12'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.57 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 38.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.19'



Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.532 ac, 7.34% Impervious, Inflow Depth > 0.29" for 2 YEAR event
Inflow = 0.29 cfs @ 12.03 hrs, Volume= 0.037 af
Outflow = 0.29 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.390 ac, 32.52% Impervious, Inflow Depth > 0.01" for 2 YEAR event
Inflow = 0.01 cfs @ 15.04 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 15.04 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.762 ac, 39.87% Impervious, Inflow Depth > 0.02" for 2 YEAR event
Inflow = 0.05 cfs @ 12.05 hrs, Volume= 0.006 af
Outflow = 0.05 cfs @ 12.05 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.141 ac, 9.37% Impervious, Inflow Depth > 0.77" for 2 YEAR event
Inflow = 3.50 cfs @ 12.23 hrs, Volume= 0.328 af
Outflow = 3.50 cfs @ 12.23 hrs, Volume= 0.328 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: WETPOND A

Inflow Area = 5.056 ac, 38.87% Impervious, Inflow Depth > 1.16" for 2 YEAR event
Inflow = 6.74 cfs @ 12.01 hrs, Volume= 0.490 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP2 : SUMMATION POINT 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP2 : SUMMATION POINT 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 73.70' @ 20.00 hrs Surf.Area= 4,779 sf Storage= 21,345 cf

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	66.00'	41,844 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	1,128	0	0
67.00	1,476	1,302	1,302
68.00	1,870	1,673	2,975
69.00	2,290	2,080	5,055
70.00	2,747	2,519	7,574
71.00	3,240	2,994	10,567
72.00	3,779	3,510	14,077
73.00	4,356	4,068	18,144
74.00	4,960	4,658	22,802
75.00	5,867	5,414	28,216
76.00	6,838	6,353	34,568
77.00	7,714	7,276	41,844

Device	Routing	Invert	Outlet Devices
#1	Primary	69.14'	**6.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.14' / 68.89' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	74.09'	**0.50 cfs Exfiltration when above 74.09'**
#3	Device 1	76.05'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	76.50'	**10.0' 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

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
  ├**2=Exfiltration** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: WETPOND B

Inflow Area = 2.893 ac, 48.64% Impervious, Inflow Depth > 1.26" for 2 YEAR event
Inflow = 6.26 cfs @ 11.97 hrs, Volume= 0.305 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
  Routed to Reach SP3 : SUMMATION POINT 3
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
  Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 70.43' @ 20.00 hrs Surf.Area= 3,733 sf Storage= 13,259 cf

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	65.00'	24,924 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	1,409	0	0
66.00	1,752	1,581	1,581
67.00	2,121	1,937	3,517
68.00	2,514	2,318	5,835
69.00	2,933	2,724	8,558
70.00	3,408	3,171	11,729
71.00	4,167	3,788	15,516
72.00	4,698	4,433	19,949
73.00	5,252	4,975	24,924

Device	Routing	Invert	Outlet Devices
#1	Primary	68.26'	**4.0" Round Culvert** L= 85.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.26' / 67.84' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	70.76'	**0.50 cfs Exfiltration when above 70.76'**
#3	Device 1	72.39'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	72.50'	**10.0' 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

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=65.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=65.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: WETLAND STORAGE

Inflow Area = 3.213 ac, 31.19% Impervious, Inflow Depth > 1.29" for 2 YEAR event
Inflow = 5.56 cfs @ 11.99 hrs, Volume= 0.345 af
Outflow = 4.17 cfs @ 12.08 hrs, Volume= 0.344 af, Atten= 25%, Lag= 5.3 min
Primary = 4.17 cfs @ 12.08 hrs, Volume= 0.344 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 80.05' @ 12.08 hrs Surf.Area= 3,463 sf Storage= 1,875 cf

Plug-Flow detention time= 7.8 min calculated for 0.343 af (99% of inflow)
Center-of-Mass det. time= 6.2 min (792.5 - 786.3)

Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	15,212 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.00	112	0	0
81.00	6,500	6,612	6,612
82.00	10,700	8,600	15,212

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.00' / 78.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.13 cfs @ 12.08 hrs HW=80.04' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.13 cfs @ 3.62 fps)

Summary for Pond 4P: GUSF 2

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 1.09" for 2 YEAR event
Inflow = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af
Outflow = 0.10 cfs @ 11.85 hrs, Volume= 0.014 af, Atten= 70%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.85 hrs, Volume= 0.014 af
Routed to Reach 4R : REACH 4
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : REACH 4

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.81' @ 12.10 hrs Surf.Area= 255 sf Storage= 129 cf

Plug-Flow detention time= 6.6 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 6.4 min (806.3 - 799.9)

Volume	Invert	Avail.Storage	Storage Description
#1	75.23'	1,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.23	192	0	0
77.00	385	511	511
78.00	634	510	1,020

Device	Routing	Invert	Outlet Devices
#1	Primary	72.98'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 72.98' / 72.88' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	75.23'	**0.10 cfs Exfiltration when above 75.23'**
#3	Secondary	76.73'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.85 hrs HW=75.29' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.49 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=75.23' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: GUSF 1

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 1.94" for 2 YEAR event
Inflow = 0.50 cfs @ 11.95 hrs, Volume= 0.022 af
Outflow = 0.10 cfs @ 11.70 hrs, Volume= 0.022 af, Atten= 80%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.70 hrs, Volume= 0.022 af
Routed to Reach 3R : REACH 3
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 3R : REACH 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.93' @ 12.12 hrs Surf.Area= 394 sf Storage= 280 cf

Plug-Flow detention time= 15.6 min calculated for 0.022 af (100% of inflow)
Center-of-Mass det. time= 15.5 min (782.7 - 767.2)

Volume	Invert	Avail.Storage	Storage Description
#1	82.00'	1,228 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.00	210	0	0
83.00	408	309	309
84.00	673	541	850
84.50	841	379	1,228

Device	Routing	Invert	Outlet Devices
#1	Primary	79.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.75' / 79.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	82.00'	**0.10 cfs Exfiltration when above 82.00'**
#3	Secondary	83.50'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.70 hrs HW=82.03' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=82.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: BIO CELL 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 0.32" for 2 YEAR event
Inflow = 0.03 cfs @ 11.99 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.2 min
Primary = 0.03 cfs @ 12.00 hrs, Volume= 0.002 af
Routed to Reach 1R : REACH 1
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 1R : REACH 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 78.51' @ 12.00 hrs Surf.Area= 140 sf Storage= 0 cf

Plug-Flow detention time= 0.2 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (854.0 - 853.9)

Volume	Invert	Avail.Storage	Storage Description
#1	78.50'	714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.50	140	0.0	0	0
79.00	140	40.0	28	28
80.50	775	100.0	686	714

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	78.50'	**0.10 cfs Exfiltration at all elevations**
#3	Secondary	79.50'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.10 cfs @ 12.00 hrs HW=78.51' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.42 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=78.50' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: BIO CELL 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 0.48" for 2 YEAR event
Inflow = 0.05 cfs @ 11.98 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.06 hrs, Volume= 0.002 af, Atten= 44%, Lag= 5.1 min
Primary = 0.03 cfs @ 12.06 hrs, Volume= 0.002 af
Routed to Reach 2R : REACH 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 2R : REACH 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.01' @ 12.05 hrs Surf.Area= 119 sf Storage= 24 cf

Plug-Flow detention time= 106.7 min calculated for 0.002 af (75% of inflow)
Center-of-Mass det. time= 38.1 min (872.3 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	76.50'	748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.50	116	0.0	0	0
77.00	116	40.0	23	23
78.50	850	100.0	725	748

Device	Routing	Invert	Outlet Devices
#1	Primary	74.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.75' / 74.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	77.00'	**0.10 cfs Exfiltration when above 77.00'**
#3	Secondary	77.50'	**5.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.10 cfs @ 12.06 hrs HW=77.00' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=76.50' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: DRIP FILTER

Inflow Area = 0.022 ac,100.00% Impervious, Inflow Depth > 2.65" for 2 YEAR event
Inflow = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af
Outflow = 0.04 cfs @ 11.80 hrs, Volume= 0.005 af, Atten= 59%, Lag= 0.0 min
Primary = 0.04 cfs @ 11.80 hrs, Volume= 0.005 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.39' @ 12.06 hrs Surf.Area= 200 sf Storage= 31 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.0 min (735.7 - 732.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.04 cfs @ 11.80 hrs HW=0.02' (Free Discharge)
└─**1=Culvert** (Passes 0.04 cfs of 0.45 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 9P: DRIP FILTER

Inflow Area = 0.027 ac,100.00% Impervious, Inflow Depth > 2.65" for 2 YEAR event
Inflow = 0.12 cfs @ 11.95 hrs, Volume= 0.006 af
Outflow = 0.06 cfs @ 12.05 hrs, Volume= 0.006 af, Atten= 47%, Lag= 6.2 min
Primary = 0.06 cfs @ 12.05 hrs, Volume= 0.006 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.57' @ 12.05 hrs Surf.Area= 200 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.2 min (737.0 - 732.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.06 cfs @ 12.05 hrs HW=0.56' (Free Discharge)
└─**1=Culvert** (Passes 0.04 cfs of 0.51 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.71 fps)

Summary for Pond 10P: DRIP FILTER

Inflow Area = 0.037 ac,100.00% Impervious, Inflow Depth > 2.65" for 2 YEAR event
Inflow = 0.16 cfs @ 11.95 hrs, Volume= 0.008 af
Outflow = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af, Atten= 11%, Lag= 3.4 min
Primary = 0.14 cfs @ 12.01 hrs, Volume= 0.008 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.68' @ 12.01 hrs Surf.Area= 200 sf Storage= 54 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.3 min (737.0 - 732.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.14 cfs @ 12.01 hrs HW=0.67' (Free Discharge)
1=Culvert (Passes 0.04 cfs of 0.52 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.04 cfs)
3=Broad-Crested Rectangular Weir (Weir Controls 0.10 cfs @ 1.15 fps)

Summary for Pond 11P: DRIP FILTER

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth > 2.65" for 2 YEAR event
Inflow = 0.12 cfs @ 11.95 hrs, Volume= 0.006 af
Outflow = 0.05 cfs @ 12.05 hrs, Volume= 0.006 af, Atten= 53%, Lag= 6.3 min
Primary = 0.05 cfs @ 12.05 hrs, Volume= 0.006 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.55' @ 12.06 hrs Surf.Area= 200 sf Storage= 44 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.2 min (736.9 - 732.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.05 cfs @ 12.05 hrs HW=0.55' (Free Discharge)
1=Culvert (Passes 0.04 cfs of 0.51 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.04 cfs)
3=Broad-Crested Rectangular Weir (Weir Controls 0.01 cfs @ 0.59 fps)

Summary for Pond CB 1: CB1

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 1.09" for 2 YEAR event
Inflow = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af
Outflow = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af
Routed to Pond CB 2 : CB2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.08' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.32 cfs @ 11.96 hrs HW=77.07' (Free Discharge)
1=Culvert (Barrel Controls 0.32 cfs @ 1.92 fps)

Summary for Pond CB 10: CB10

Inflow Area = 0.389 ac, 14.97% Impervious, Inflow Depth > 1.03" for 2 YEAR event
Inflow = 0.50 cfs @ 12.12 hrs, Volume= 0.033 af
Outflow = 0.50 cfs @ 12.12 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.12 hrs, Volume= 0.033 af
Routed to Pond CB 9 : CB9

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.64' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.25'	**15.0" Round Culvert** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.25' / 81.97' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.50 cfs @ 12.12 hrs HW=82.64' (Free Discharge)
1=Culvert (Barrel Controls 0.50 cfs @ 2.27 fps)

Summary for Pond CB 11: CB11

Inflow Area = 0.583 ac, 27.27% Impervious, Inflow Depth > 1.14" for 2 YEAR event
Inflow = 0.78 cfs @ 12.00 hrs, Volume= 0.055 af
Outflow = 0.78 cfs @ 12.00 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.78 cfs @ 12.00 hrs, Volume= 0.055 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 82.96' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.47'	**15.0" Round Culvert** L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.47' / 82.00' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.78 cfs @ 12.00 hrs HW=82.96' (Free Discharge)
1=Culvert (Barrel Controls 0.78 cfs @ 2.59 fps)

Summary for Pond CB 12: CB12

Inflow Area = 0.544 ac, 23.73% Impervious, Inflow Depth > 1.10" for 2 YEAR event
Inflow = 0.68 cfs @ 12.01 hrs, Volume= 0.050 af
Outflow = 0.68 cfs @ 12.01 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
Primary = 0.68 cfs @ 12.01 hrs, Volume= 0.050 af
Routed to Pond CB 11 : CB11

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.15' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.67'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.67' / 82.57' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.01 hrs HW=83.15' (Free Discharge)
1=Culvert (Barrel Controls 0.67 cfs @ 2.29 fps)

Summary for Pond CB 13: CB13

Inflow Area = 0.427 ac, 11.42% Impervious, Inflow Depth > 0.98" for 2 YEAR event
Inflow = 0.54 cfs @ 12.11 hrs, Volume= 0.035 af
Outflow = 0.54 cfs @ 12.11 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.11 hrs, Volume= 0.035 af
Routed to Pond CB 12 : CB12

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.55' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.15'	**15.0" Round Culvert** L= 75.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.15' / 82.78' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.53 cfs @ 12.11 hrs HW=83.55' (Free Discharge)
1=Culvert (Barrel Controls 0.53 cfs @ 2.32 fps)

Summary for Pond CB 14: CB 14

Inflow Area = 0.046 ac, 78.66% Impervious, Inflow Depth > 1.55" for 2 YEAR event
Inflow = 0.14 cfs @ 11.96 hrs, Volume= 0.006 af
Outflow = 0.14 cfs @ 11.96 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 11.96 hrs, Volume= 0.006 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.44' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.25'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.25' / 81.43' S= 0.0910 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.13 cfs @ 11.96 hrs HW=83.44' (Free Discharge)
1=Culvert (Inlet Controls 0.13 cfs @ 1.16 fps)

Summary for Pond CB 15: CB 15

Inflow Area = 0.237 ac, 65.89% Impervious, Inflow Depth > 1.11" for 2 YEAR event
Inflow = 0.52 cfs @ 11.96 hrs, Volume= 0.022 af
Outflow = 0.52 cfs @ 11.96 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 11.96 hrs, Volume= 0.022 af
Routed to Pond CB 18 : CB 18

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 81.71' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.33'	**15.0" Round Culvert** L= 135.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.33' / 78.63' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.50 cfs @ 11.96 hrs HW=81.70' (Free Discharge)
1=Culvert (Inlet Controls 0.50 cfs @ 1.64 fps)

Summary for Pond CB 16: CB 16

Inflow Area = 0.191 ac, 62.83% Impervious, Inflow Depth > 1.00" for 2 YEAR event
Inflow = 0.38 cfs @ 11.96 hrs, Volume= 0.016 af
Outflow = 0.38 cfs @ 11.96 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 11.96 hrs, Volume= 0.016 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 81.93' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.58'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.58' / 81.43' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.37 cfs @ 11.96 hrs HW=81.92' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.37 cfs @ 2.02 fps)

Summary for Pond CB 17: CB 17

Inflow Area = 0.073 ac, 63.75% Impervious, Inflow Depth > 1.04" for 2 YEAR event
Inflow = 0.15 cfs @ 11.96 hrs, Volume= 0.006 af
Outflow = 0.15 cfs @ 11.96 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.15 cfs @ 11.96 hrs, Volume= 0.006 af
Routed to Pond CB 16 : CB 16

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.27' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.06'	**15.0" Round Culvert** L= 76.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.06' / 81.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.14 cfs @ 11.96 hrs HW=82.27' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.14 cfs @ 1.64 fps)

Summary for Pond CB 18: CB 18

Inflow Area = 0.306 ac, 72.86% Impervious, Inflow Depth > 1.41" for 2 YEAR event
Inflow = 0.81 cfs @ 11.96 hrs, Volume= 0.036 af
Outflow = 0.81 cfs @ 11.96 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 11.96 hrs, Volume= 0.036 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.01' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.53'	**15.0" Round Culvert** L= 73.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.53' / 77.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.79 cfs @ 11.96 hrs HW=79.00' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.79 cfs @ 1.85 fps)

Summary for Pond CB 2: CB2

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 1.09" for 2 YEAR event
Inflow = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af
Outflow = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 11.96 hrs, Volume= 0.014 af
Routed to Pond 4P : GUSF 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.04' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**6.0" Round Culvert** L= 15.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 76.47' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.32 cfs @ 11.96 hrs HW=77.03' (Free Discharge)
1=Culvert (Barrel Controls 0.32 cfs @ 2.13 fps)

Summary for Pond CB 20: CB20

Inflow Area = 0.148 ac, 75.28% Impervious, Inflow Depth > 1.85" for 2 YEAR event
Inflow = 0.52 cfs @ 11.95 hrs, Volume= 0.023 af
Outflow = 0.52 cfs @ 11.95 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 11.95 hrs, Volume= 0.023 af
Routed to Pond CB 21 : CB21

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.22' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.80'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 78.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.51 cfs @ 11.95 hrs HW=79.21' (Free Discharge)
1=Culvert (Barrel Controls 0.51 cfs @ 2.14 fps)

Summary for Pond CB 21: CB21

Inflow Area = 0.242 ac, 77.92% Impervious, Inflow Depth > 1.92" for 2 YEAR event
Inflow = 0.87 cfs @ 11.95 hrs, Volume= 0.039 af
Outflow = 0.87 cfs @ 11.95 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.87 cfs @ 11.95 hrs, Volume= 0.039 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 79.10' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.60'	**15.0" Round Culvert** L= 116.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.60' / 75.29' S= 0.0285 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.86 cfs @ 11.95 hrs HW=79.10' (Free Discharge)
1=Culvert (Inlet Controls 0.86 cfs @ 1.89 fps)

Summary for Pond CB 22: CB22

Inflow Area = 1.411 ac, 26.96% Impervious, Inflow Depth > 0.73" for 2 YEAR event
Inflow = 1.78 cfs @ 12.01 hrs, Volume= 0.086 af
Outflow = 1.78 cfs @ 12.01 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.01 hrs, Volume= 0.086 af
Routed to Pond CB 23 : CB23

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.10' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.40'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.40' / 74.30' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.74 cfs @ 12.01 hrs HW=75.09' (Free Discharge)
1=Culvert (Barrel Controls 1.74 cfs @ 2.71 fps)

Summary for Pond CB 23: CB23

Inflow Area = 1.658 ac, 34.43% Impervious, Inflow Depth > 0.91" for 2 YEAR event
Inflow = 2.54 cfs @ 11.99 hrs, Volume= 0.125 af
Outflow = 2.54 cfs @ 11.99 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
Primary = 2.54 cfs @ 11.99 hrs, Volume= 0.125 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.05' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.20'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.20' / 74.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.48 cfs @ 11.99 hrs HW=75.04' (Free Discharge)
1=Culvert (Barrel Controls 2.48 cfs @ 2.95 fps)

Summary for Pond CB 24: CB 24

Inflow Area = 2.634 ac, 52.18% Impervious, Inflow Depth > 1.34" for 2 YEAR event
Inflow = 6.03 cfs @ 11.97 hrs, Volume= 0.293 af
Outflow = 6.03 cfs @ 11.97 hrs, Volume= 0.293 af, Atten= 0%, Lag= 0.0 min
Primary = 6.03 cfs @ 11.97 hrs, Volume= 0.293 af
Routed to Pond 2P : WETPOND B

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.33' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.00'	**24.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.00' / 73.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.84 cfs @ 11.97 hrs HW=75.30' (Free Discharge)
1=Culvert (Barrel Controls 5.84 cfs @ 3.82 fps)

Summary for Pond CB 25: CB25

Inflow Area = 0.455 ac, 87.23% Impervious, Inflow Depth > 2.22" for 2 YEAR event
Inflow = 1.80 cfs @ 11.95 hrs, Volume= 0.084 af
Outflow = 1.80 cfs @ 11.95 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.95 hrs, Volume= 0.084 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.65' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.90'	**15.0" Round Culvert** L= 150.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.90' / 75.29' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.79 cfs @ 11.95 hrs HW=77.65' (Free Discharge)
1=Culvert (Inlet Controls 1.79 cfs @ 2.33 fps)

Summary for Pond CB 26: CB26

Inflow Area = 0.398 ac, 85.40% Impervious, Inflow Depth > 2.16" for 2 YEAR event
Inflow = 1.55 cfs @ 11.95 hrs, Volume= 0.072 af
Outflow = 1.55 cfs @ 11.95 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min
Primary = 1.55 cfs @ 11.95 hrs, Volume= 0.072 af
Routed to Pond CB 25 : CB25

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 79.14' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.45'	**15.0" Round Culvert** L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.45' / 77.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.54 cfs @ 11.95 hrs HW=79.14' (Free Discharge)
1=Culvert (Inlet Controls 1.54 cfs @ 2.23 fps)

Summary for Pond CB 27: CB27

Inflow Area = 0.233 ac, 78.30% Impervious, Inflow Depth > 1.94" for 2 YEAR event
Inflow = 0.84 cfs @ 11.95 hrs, Volume= 0.038 af
Outflow = 0.84 cfs @ 11.95 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 11.95 hrs, Volume= 0.038 af
Routed to Pond CB 26 : CB26

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.24' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.70'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.70' / 78.55' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 11.95 hrs HW=79.23' (Free Discharge)
1=Culvert (Barrel Controls 0.83 cfs @ 2.47 fps)

Summary for Pond CB 4: CB4

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 1.94" for 2 YEAR event
Inflow = 0.50 cfs @ 11.95 hrs, Volume= 0.022 af
Outflow = 0.50 cfs @ 11.95 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 11.95 hrs, Volume= 0.022 af
Routed to Pond 5P : GUSF 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.57' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.15'	**15.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.15' / 82.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 11.95 hrs HW=82.57' (Free Discharge)
1=Culvert (Barrel Controls 0.49 cfs @ 2.05 fps)

Summary for Pond CB 5: CB5

Inflow Area = 0.873 ac, 36.16% Impervious, Inflow Depth > 1.45" for 2 YEAR event
Inflow = 1.59 cfs @ 11.97 hrs, Volume= 0.106 af
Outflow = 1.59 cfs @ 11.97 hrs, Volume= 0.106 af, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 11.97 hrs, Volume= 0.106 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 81.84' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.10'	**15.0" Round Culvert** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.10' / 80.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.55 cfs @ 11.97 hrs HW=81.83' (Free Discharge)
1=Culvert (Barrel Controls 1.55 cfs @ 3.00 fps)

Summary for Pond CB 6: CB6

Inflow Area = 0.738 ac, 27.19% Impervious, Inflow Depth > 1.30" for 2 YEAR event
Inflow = 1.06 cfs @ 11.99 hrs, Volume= 0.080 af
Outflow = 1.06 cfs @ 11.99 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 11.99 hrs, Volume= 0.080 af
Routed to Pond CB 5 : CB5

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 81.96' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.35'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.35' / 81.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.05 cfs @ 11.99 hrs HW=81.96' (Free Discharge)
1=Culvert (Barrel Controls 1.05 cfs @ 2.61 fps)

Summary for Pond CB 7: CB7

Inflow Area = 2.132 ac, 37.02% Impervious, Inflow Depth > 1.42" for 2 YEAR event
Inflow = 3.81 cfs @ 11.97 hrs, Volume= 0.252 af
Outflow = 3.81 cfs @ 11.97 hrs, Volume= 0.252 af, Atten= 0%, Lag= 0.0 min
Primary = 3.81 cfs @ 11.97 hrs, Volume= 0.252 af
Routed to Pond 3P : WETLAND STORAGE

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 81.67' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.69'	**24.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.69' / 80.19' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.70 cfs @ 11.97 hrs HW=81.65' (Free Discharge)
1=Culvert (Barrel Controls 3.70 cfs @ 3.64 fps)

Summary for Pond CB 8: CB8

Inflow Area = 1.176 ac, 33.92% Impervious, Inflow Depth > 1.32" for 2 YEAR event
Inflow = 1.87 cfs @ 11.98 hrs, Volume= 0.129 af
Outflow = 1.87 cfs @ 11.98 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 11.98 hrs, Volume= 0.129 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.50' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.67'	**15.0" Round Culvert** L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.67' / 81.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.83 cfs @ 11.98 hrs HW=82.49' (Free Discharge)
1=Culvert (Barrel Controls 1.83 cfs @ 3.04 fps)

Summary for Pond CB 9: CB9

Inflow Area = 0.485 ac, 29.68% Impervious, Inflow Depth > 1.30" for 2 YEAR event
Inflow = 0.67 cfs @ 12.00 hrs, Volume= 0.053 af
Outflow = 0.67 cfs @ 12.00 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.00 hrs, Volume= 0.053 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.35' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.87'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.87' / 81.77' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.67 cfs @ 12.00 hrs HW=82.35' (Free Discharge)
1=Culvert (Barrel Controls 0.67 cfs @ 2.29 fps)

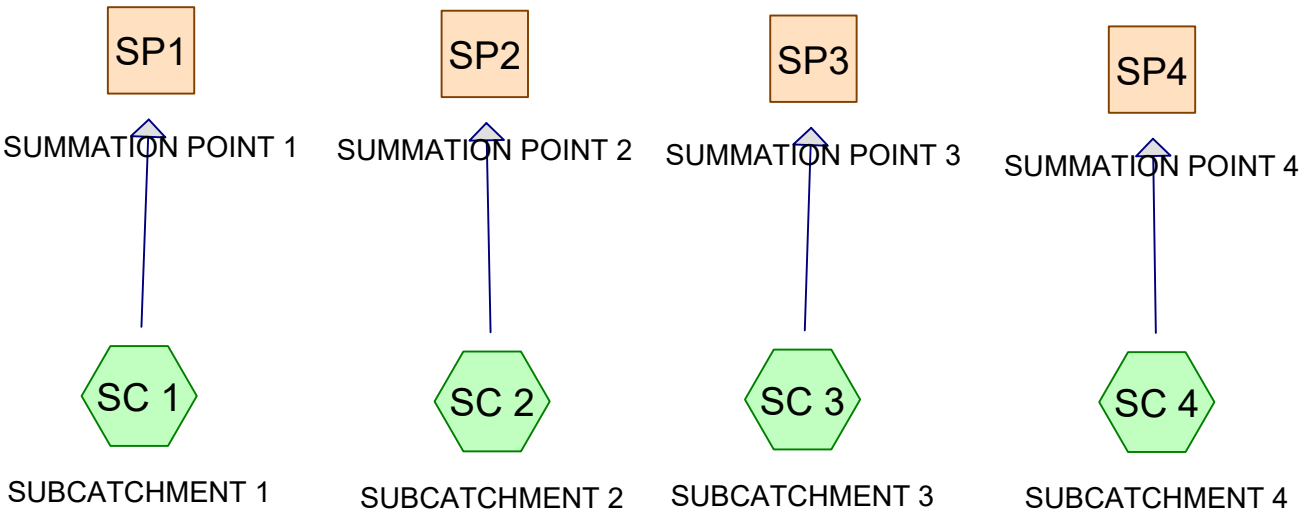
Summary for Pond CB19: CB19

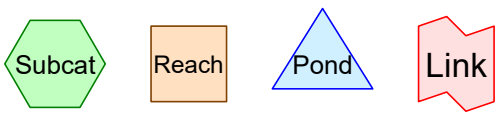
Inflow Area = 0.469 ac, 68.42% Impervious, Inflow Depth > 1.54" for 2 YEAR event
Inflow = 1.27 cfs @ 12.00 hrs, Volume= 0.060 af
Outflow = 1.27 cfs @ 12.00 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 1.27 cfs @ 12.00 hrs, Volume= 0.060 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.16' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**15.0" Round Culvert** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 75.95' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.26 cfs @ 12.00 hrs HW=77.16' (Free Discharge)
1=Culvert (Inlet Controls 1.26 cfs @ 2.10 fps)





Routing Diagram for Pre Development
Prepared by Haley Ward, Printed 8/28/2023
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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 SC 1: SUBCATCHMENT1 Runoff Area=62,407 sf 0.00% Impervious Runoff Depth>0.12"
Flow Length=90' Tc=12.0 min CN=52 Runoff=0.05 cfs 0.014 af

Subcatchment SC 2: SUBCATCHMENT2 Runoff Area=283,071 sf 0.00% Impervious Runoff Depth>0.28"
Flow Length=860' Tc=40.1 min CN=59 Runoff=0.83 cfs 0.151 af

Subcatchment SC 3: SUBCATCHMENT3 Runoff Area=140,971 sf 0.00% Impervious Runoff Depth>0.20"
Flow Length=590' Tc=32.8 min CN=56 Runoff=0.26 cfs 0.054 af

Subcatchment SC 4: SUBCATCHMENT4 Runoff Area=246,493 sf 2.12% Impervious Runoff Depth>0.64"
Flow Length=880' Tc=24.7 min CN=69 Runoff=3.41 cfs 0.300 af

Reach SP1: SUMMATION POINT 1 Inflow=0.05 cfs 0.014 af
Outflow=0.05 cfs 0.014 af

Reach SP2: SUMMATION POINT 2 Inflow=0.83 cfs 0.151 af
Outflow=0.83 cfs 0.151 af

Reach SP3: SUMMATION POINT 3 Inflow=0.26 cfs 0.054 af
Outflow=0.26 cfs 0.054 af

Reach SP4: SUMMATION POINT 4 Inflow=3.41 cfs 0.300 af
Outflow=3.41 cfs 0.300 af

Total Runoff Area = 16.826 ac Runoff Volume = 0.518 af Average Runoff Depth = 0.37"
99.29% Pervious = 16.706 ac 0.71% Impervious = 0.120 ac

Summary for Subcatchment SC 1: SUBCATCHMENT 1

Runoff = 0.05 cfs @ 12.17 hrs, Volume= 0.014 af, Depth> 0.12"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

Area (sf)	CN	Description
34,923	36	Woods, Fair, HSG A
27,484	73	Woods, Fair, HSG C
62,407	52	Weighted Average
62,407		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.0	90	Total			

Summary for Subcatchment SC 2: SUBCATCHMENT 2

Runoff = 0.83 cfs @ 12.52 hrs, Volume= 0.151 af, Depth> 0.28"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

Area (sf)	CN	Description
148,732	73	Woods, Fair, HSG C
92,813	36	Woods, Fair, HSG A
41,526	60	Woods, Fair, HSG B
283,071	59	Weighted Average
283,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.8	75	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	270	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	310	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	75	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	80	0.1900	2.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.1	860	Total			

Summary for Subcatchment SC 3: SUBCATCHMENT 3

Runoff = 0.26 cfs @ 12.45 hrs, Volume= 0.054 af, Depth> 0.20"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

Area (sf)	CN	Description
24,080	36	Woods, Fair, HSG A
116,891	60	Woods, Fair, HSG B
140,971	56	Weighted Average
140,971		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
9.4	400	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.8	590	Total			

Summary for Subcatchment SC 4: SUBCATCHMENT 4

Runoff = 3.41 cfs @ 12.21 hrs, Volume= 0.300 af, Depth> 0.64"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.10"

	Area (sf)	CN	Description
	87,038	60	Woods, Fair, HSG B
	146,744	73	Woods, Fair, HSG C
	7,481	79	Woods, Fair, HSG D
*	5,230	98	IMPERVIOUS
	246,493	69	Weighted Average
	241,263		97.88% Pervious Area
	5,230		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	70	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	520	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
24.7	880	Total			

Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.433 ac, 0.00% Impervious, Inflow Depth > 0.12" for 2 YEAR event
Inflow = 0.05 cfs @ 12.17 hrs, Volume= 0.014 af
Outflow = 0.05 cfs @ 12.17 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.498 ac, 0.00% Impervious, Inflow Depth > 0.28" for 2 YEAR event
Inflow = 0.83 cfs @ 12.52 hrs, Volume= 0.151 af
Outflow = 0.83 cfs @ 12.52 hrs, Volume= 0.151 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.236 ac, 0.00% Impervious, Inflow Depth > 0.20" for 2 YEAR event
Inflow = 0.26 cfs @ 12.45 hrs, Volume= 0.054 af
Outflow = 0.26 cfs @ 12.45 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.659 ac, 2.12% Impervious, Inflow Depth > 0.64" for 2 YEAR event
Inflow = 3.41 cfs @ 12.21 hrs, Volume= 0.300 af
Outflow = 3.41 cfs @ 12.21 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC 10: 10 Runoff Area=211,215 sf 6.82% Impervious Runoff Depth>1.64"
Flow Length=975' Tc=26.3 min CN=71 Runoff=8.07 cfs 0.664 af

SubcatchmentSC 11: 11 Runoff Area=6,017 sf 65.45% Impervious Runoff Depth>3.27"
Tc=5.0 min CN=90 Runoff=0.82 cfs 0.038 af

SubcatchmentSC 12: 12 Runoff Area=6,712 sf 39.17% Impervious Runoff Depth>2.19"
Tc=5.0 min CN=78 Runoff=0.66 cfs 0.028 af

SubcatchmentSC 1A: 1A Runoff Area=967 sf 100.00% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.15 cfs 0.007 af

SubcatchmentSC 1B: 1B Runoff Area=1,186 sf 100.00% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.18 cfs 0.009 af

SubcatchmentSC 1C: 1C Runoff Area=1,595 sf 100.00% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.24 cfs 0.012 af

SubcatchmentSC 1D: 1D Runoff Area=1,152 sf 100.00% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.009 af

SubcatchmentSC 1E: 1E Runoff Area=61,853 sf 0.00% Impervious Runoff Depth>0.50"
Flow Length=90' Tc=7.4 min CN=51 Runoff=1.00 cfs 0.059 af

SubcatchmentSC 2A: 2A Runoff Area=5,111 sf 68.52% Impervious Runoff Depth>2.80"
Flow Length=127' Tc=4.9 min CN=85 Runoff=0.62 cfs 0.027 af

SubcatchmentSC 2B: 2B Runoff Area=18,599 sf 11.42% Impervious Runoff Depth>2.02"
Flow Length=100' Slope=0.0400 '/' Tc=17.3 min CN=76 Runoff=1.13 cfs 0.072 af

SubcatchmentSC 2C: 2C Runoff Area=16,958 sf 14.97% Impervious Runoff Depth>2.10"
Flow Length=150' Slope=0.0400 '/' Tc=18.2 min CN=77 Runoff=1.04 cfs 0.068 af

SubcatchmentSC 2D: 2D Runoff Area=25,546 sf 9.63% Impervious Runoff Depth>2.02"
Flow Length=160' Tc=16.7 min CN=76 Runoff=1.58 cfs 0.099 af

SubcatchmentSC 2E: 2E Runoff Area=1,667 sf 77.68% Impervious Runoff Depth>2.98"
Tc=5.0 min CN=87 Runoff=0.21 cfs 0.010 af

SubcatchmentSC 2F: 2F Runoff Area=4,179 sf 89.40% Impervious Runoff Depth>3.76"
Tc=5.0 min CN=95 Runoff=0.62 cfs 0.030 af

SubcatchmentSC 2G: 2G Runoff Area=4,722 sf 88.63% Impervious Runoff Depth>3.76"
Tc=5.0 min CN=95 Runoff=0.70 cfs 0.034 af

SubcatchmentSC 2H: 2H Runoff Area=2,889 sf 97.92% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.44 cfs 0.022 af

SubcatchmentSC 2I: 2I Runoff Area=3,581 sf 90.51% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=96 Runoff=0.53 cfs 0.026 af

SubcatchmentSC 2J: 2J Runoff Area=3,699 sf 93.21% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=96 Runoff=0.55 cfs 0.027 af

SubcatchmentSC 2K: 2K Runoff Area=5,912 sf 84.88% Impervious Runoff Depth>3.66"
Tc=5.0 min CN=94 Runoff=0.86 cfs 0.041 af

SubcatchmentSC 2L: 2L Runoff Area=47,113 sf 19.70% Impervious Runoff Depth>2.11"
Flow Length=240' Tc=9.4 min CN=77 Runoff=3.85 cfs 0.190 af

SubcatchmentSC 3A: 3A Runoff Area=5,173 sf 62.27% Impervious Runoff Depth>2.03"
Tc=5.0 min CN=76 Runoff=0.47 cfs 0.020 af

SubcatchmentSC 3B: 3B Runoff Area=2,001 sf 78.66% Impervious Runoff Depth>2.80"
Tc=5.0 min CN=85 Runoff=0.24 cfs 0.011 af

SubcatchmentSC 3C: 3C Runoff Area=20,436 sf 68.42% Impervious Runoff Depth>2.79"
Flow Length=297' Tc=8.3 min CN=85 Runoff=2.23 cfs 0.109 af

SubcatchmentSC 3D: 3D Runoff Area=3,167 sf 63.75% Impervious Runoff Depth>2.11"
Tc=5.0 min CN=77 Runoff=0.30 cfs 0.013 af

SubcatchmentSC 3E: 3E Runoff Area=2,986 sf 96.99% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=96 Runoff=0.45 cfs 0.022 af

SubcatchmentSC 3F: 3F Runoff Area=46,508 sf 39.26% Impervious Runoff Depth>1.38"
Tc=5.0 min CN=67 Runoff=2.91 cfs 0.123 af

SubcatchmentSC 4: 4 Runoff Area=58,116 sf 8.45% Impervious Runoff Depth>0.34"
Tc=5.0 min CN=47 Runoff=0.55 cfs 0.037 af

SubcatchmentSC 5: 5 Runoff Area=61,473 sf 26.96% Impervious Runoff Depth>1.66"
Flow Length=492' Tc=8.3 min CN=71 Runoff=4.14 cfs 0.195 af

SubcatchmentSC 6A: 6A Runoff Area=4,112 sf 82.08% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=91 Runoff=0.57 cfs 0.027 af

SubcatchmentSC 6B: 6B Runoff Area=6,451 sf 75.28% Impervious Runoff Depth>3.18"
Tc=5.0 min CN=89 Runoff=0.86 cfs 0.039 af

SubcatchmentSC 6C: 6C Runoff Area=4,203 sf 79.90% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=91 Runoff=0.58 cfs 0.027 af

SubcatchmentSC 6D: 6D Runoff Area=7,390 sf 70.24% Impervious Runoff Depth>2.98"
Tc=5.0 min CN=87 Runoff=0.94 cfs 0.042 af

SubcatchmentSC 6E: 6E Runoff Area=11,284 sf 12.68% Impervious Runoff Depth>1.32"
Flow Length=50' Slope=0.0200 '/' Tc=5.7 min CN=66 Runoff=0.66 cfs 0.028 af

SubcatchmentSC 6F: 6F Runoff Area=6,530 sf 75.51% Impervious Runoff Depth>3.18"
Tc=5.0 min CN=89 Runoff=0.87 cfs 0.040 af

SubcatchmentSC 6G: 6G Runoff Area=4,787 sf 90.01% Impervious Runoff Depth>3.66"
Tc=5.0 min CN=94 Runoff=0.70 cfs 0.034 af

SubcatchmentSC 6H: 6H Runoff Area=2,481 sf 100.00% Impervious Runoff Depth>4.01"
Tc=5.0 min CN=98 Runoff=0.38 cfs 0.019 af

SubcatchmentSC 6I: 6I Runoff Area=10,162 sf 78.30% Impervious Runoff Depth>3.27"
Tc=5.0 min CN=90 Runoff=1.38 cfs 0.064 af

SubcatchmentSC 6J: 6J Runoff Area=7,163 sf 95.48% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=96 Runoff=1.07 cfs 0.053 af

SubcatchmentSC 7: 7 Runoff Area=2,865 sf 31.76% Impervious Runoff Depth>0.95"
Tc=5.0 min CN=60 Runoff=0.12 cfs 0.005 af

SubcatchmentSC 8: 8 Runoff Area=2,371 sf 36.02% Impervious Runoff Depth>1.25"
Tc=5.0 min CN=65 Runoff=0.13 cfs 0.006 af

SubcatchmentSC 9: 9 Runoff Area=32,610 sf 6.95% Impervious Runoff Depth>0.34"
Tc=5.0 min CN=47 Runoff=0.31 cfs 0.021 af

Reach 1R: REACH 1 Inflow=0.10 cfs 0.005 af
Outflow=0.10 cfs 0.005 af

Reach 2R: REACH 2 Inflow=0.10 cfs 0.005 af
Outflow=0.10 cfs 0.005 af

Reach 3R: REACH 3 Avg. Flow Depth=0.03' Max Vel=1.19 fps Inflow=0.17 cfs 0.038 af
n=0.025 L=425.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.14 cfs 0.038 af

Reach 4R: REACH 4 Avg. Flow Depth=0.02' Max Vel=1.19 fps Inflow=0.10 cfs 0.028 af
n=0.025 L=250.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.10 cfs 0.028 af

Reach 5R: REACH 5 Avg. Flow Depth=0.05' Max Vel=1.08 fps Inflow=0.24 cfs 0.066 af
n=0.035 L=360.0' S=0.0300 '/' Capacity=384.63 cfs Outflow=0.23 cfs 0.065 af

Reach 6R: 15" SD Avg. Flow Depth=0.51' Max Vel=3.38 fps Inflow=1.58 cfs 0.099 af
15.0" Round Pipe n=0.013 L=38.0' S=0.0050 '/' Capacity=4.57 cfs Outflow=1.57 cfs 0.099 af

Reach SP1: SUMMATION POINT 1 Inflow=1.65 cfs 0.097 af
Outflow=1.65 cfs 0.097 af

Reach SP2: SUMMATION POINT 2 Inflow=0.62 cfs 0.352 af
Outflow=0.62 cfs 0.352 af

Reach SP3: SUMMATION POINT 3 Inflow=0.51 cfs 0.248 af
Outflow=0.51 cfs 0.248 af

Reach SP4: SUMMATION POINT 4 Inflow=8.27 cfs 0.729 af
Outflow=8.27 cfs 0.729 af

Pond 1P: WETPOND A Peak Elev=75.23' Storage=29,611 cf Inflow=12.76 cfs 0.943 af
Primary=0.50 cfs 0.315 af Secondary=0.00 cfs 0.000 af Outflow=0.50 cfs 0.315 af

Pond 2P: WETPOND B Peak Elev=71.45' Storage=17,427 cf Inflow=11.60 cfs 0.567 af
Primary=0.35 cfs 0.217 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.217 af

Pond 3P: WETLAND STORAGE Peak Elev=80.50' Storage=3,780 cf Inflow=10.39 cfs 0.647 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=7.61 cfs 0.645 af

Pond 4P: GUSF 2 Peak Elev=76.70' Storage=399 cf Inflow=0.66 cfs 0.028 af
Primary=0.10 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.028 af

Pond 5P: GUSF 1 Peak Elev=83.54' Storage=565 cf Inflow=0.82 cfs 0.038 af
Primary=0.10 cfs 0.037 af Secondary=0.07 cfs 0.001 af Outflow=0.17 cfs 0.038 af

Pond 6P: BIO CELL 1 Peak Elev=78.59' Storage=5 cf Inflow=0.12 cfs 0.005 af
Primary=0.10 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.005 af

Pond 7P: BIO CELL 2 Peak Elev=77.08' Storage=33 cf Inflow=0.13 cfs 0.006 af
Primary=0.10 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.005 af

Pond 8P: DRIP FILTER Peak Elev=0.65' Storage=52 cf Inflow=0.15 cfs 0.007 af
Outflow=0.12 cfs 0.007 af

Pond 9P: DRIP FILTER Peak Elev=0.70' Storage=56 cf Inflow=0.18 cfs 0.009 af
Outflow=0.17 cfs 0.009 af

Pond 10P: DRIP FILTER Peak Elev=0.77' Storage=61 cf Inflow=0.24 cfs 0.012 af
Outflow=0.24 cfs 0.012 af

Pond 11P: DRIP FILTER Peak Elev=0.69' Storage=55 cf Inflow=0.17 cfs 0.009 af
Outflow=0.16 cfs 0.009 af

Pond CB 1: CB1 Peak Elev=77.23' Inflow=0.66 cfs 0.028 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.66 cfs 0.028 af

Pond CB 10: CB10 Peak Elev=82.83' Inflow=1.04 cfs 0.068 af
15.0" Round Culvert n=0.013 L=55.0' S=0.0051 '/' Outflow=1.04 cfs 0.068 af

Pond CB 11: CB11 Peak Elev=83.18' Inflow=1.54 cfs 0.109 af
15.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=1.54 cfs 0.109 af

Pond CB 12: CB12 Peak Elev=83.39' Inflow=1.37 cfs 0.099 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.37 cfs 0.099 af

Pond CB 13: CB13 Peak Elev=83.75' Inflow=1.13 cfs 0.072 af
15.0" Round Culvert n=0.013 L=75.0' S=0.0049 '/' Outflow=1.13 cfs 0.072 af

Pond CB 14: CB 14 Peak Elev=83.50' Inflow=0.24 cfs 0.011 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0910 '/' Outflow=0.24 cfs 0.011 af

Pond CB 15: CB 15 Peak Elev=81.87' Inflow=1.01 cfs 0.044 af
15.0" Round Culvert n=0.013 L=135.0' S=0.0200 '/' Outflow=1.01 cfs 0.044 af

Pond CB 16: CB 16 Peak Elev=82.09' Inflow=0.77 cfs 0.033 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=0.77 cfs 0.033 af

Pond CB 17: CB 17 Peak Elev=82.36' Inflow=0.30 cfs 0.013 af
15.0" Round Culvert n=0.013 L=76.0' S=0.0050 '/' Outflow=0.30 cfs 0.013 af

Pond CB 18: CB 18 Peak Elev=79.20' Inflow=1.46 cfs 0.066 af
15.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=1.46 cfs 0.066 af

Pond CB 2: CB2 Peak Elev=77.57' Inflow=0.66 cfs 0.028 af
6.0" Round Culvert n=0.013 L=15.0' S=0.0053 '/' Outflow=0.66 cfs 0.028 af

Pond CB 20: CB20 Peak Elev=79.35' Inflow=0.86 cfs 0.039 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.86 cfs 0.039 af

Pond CB 21: CB21 Peak Elev=79.26' Inflow=1.43 cfs 0.066 af
15.0" Round Culvert n=0.013 L=116.0' S=0.0285 '/' Outflow=1.43 cfs 0.066 af

Pond CB 22: CB22 Peak Elev=75.51' Inflow=4.14 cfs 0.195 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=4.14 cfs 0.195 af

Pond CB 23: CB23 Peak Elev=75.50' Inflow=5.41 cfs 0.261 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=5.41 cfs 0.261 af

Pond CB 24: CB 24 Peak Elev=75.95' Inflow=10.95 cfs 0.538 af
24.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=10.95 cfs 0.538 af

Pond CB 25: CB25 Peak Elev=77.90' Inflow=2.82 cfs 0.135 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0107 '/' Outflow=2.82 cfs 0.135 af

Pond CB 26: CB26 Peak Elev=79.36' Inflow=2.45 cfs 0.116 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0132 '/' Outflow=2.45 cfs 0.116 af

Pond CB 27: CB27 Peak Elev=79.41' Inflow=1.38 cfs 0.064 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=1.38 cfs 0.064 af

Pond CB 4: CB4 Peak Elev=82.70' Inflow=0.82 cfs 0.038 af
15.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=0.82 cfs 0.038 af

Pond CB 5: CB5 Peak Elev=82.14' Inflow=2.76 cfs 0.190 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=2.76 cfs 0.190 af

Pond CB 6: CB6 Peak Elev=82.23' Inflow=1.99 cfs 0.148 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=1.99 cfs 0.148 af

Pond CB 7: CB7 Peak Elev=82.05' Inflow=6.66 cfs 0.457 af
24.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=6.66 cfs 0.457 af

Pond CB 8: CB8 Peak Elev=82.89' Inflow=3.41 cfs 0.241 af
15.0" Round Culvert n=0.013 L=42.0' S=0.0050 '/' Outflow=3.41 cfs 0.241 af

Pond CB 9: CB9 Peak Elev=82.55' Inflow=1.26 cfs 0.098 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.26 cfs 0.098 af

Pond CB19: CB19 Peak Elev=77.41' Inflow=2.23 cfs 0.109 af
15.0" Round Culvert n=0.013 L=40.0' S=0.0150 '/' Outflow=2.23 cfs 0.109 af

Total Runoff Area = 16.826 ac Runoff Volume = 2.407 af Average Runoff Depth = 1.72"
75.20% Pervious = 12.654 ac 24.80% Impervious = 4.172 ac

Summary for Subcatchment SC 10: 10

Runoff = 8.07 cfs @ 12.21 hrs, Volume= 0.664 af, Depth> 1.64"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	67	39	>75% Grass cover, Good, HSG A
	49,329	60	Woods, Fair, HSG B
	11,304	61	>75% Grass cover, Good, HSG B
	121,487	73	Woods, Fair, HSG C
	10,078	74	>75% Grass cover, Good, HSG C
	4,535	79	Woods, Fair, HSG D
*	14,415	98	IMPERVIOUS
	211,215	71	Weighted Average
	196,800		93.18% Pervious Area
	14,415		6.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.7	140	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	75	0.0100	10.72	386.00	**Channel Flow,** Area= 36.0 sf Perim= 18.0' r= 2.00' n= 0.022 Earth, clean & straight
0.8	470	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
26.3	975	Total			

Summary for Subcatchment SC 11: 11

Runoff = 0.82 cfs @ 11.95 hrs, Volume= 0.038 af, Depth> 3.27"
Routed to Pond CB 4 : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	2,079	74	>75% Grass cover, Good, HSG C
*	3,938	98	IMPERVIOUS
	6,017	90	Weighted Average
	2,079		34.55% Pervious Area
	3,938		65.45% Impervious Area

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

Summary for Subcatchment SC 12: 12

Runoff = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af, Depth> 2.19"
Routed to Pond CB 1 : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,115	39	>75% Grass cover, Good, HSG A
	2,968	74	>75% Grass cover, Good, HSG C
*	2,629	98	IMPERVIOUS
	6,712	78	Weighted Average
	4,083		60.83% Pervious Area
	2,629		39.17% Impervious Area

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

Summary for Subcatchment SC 1A: 1A

Runoff = 0.15 cfs @ 11.95 hrs, Volume= 0.007 af, Depth> 4.01"
Routed to Pond 8P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	967	98	IMPERVIOUS
	967		100.00% Impervious Area

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

Summary for Subcatchment SC 1B: 1B

Runoff = 0.18 cfs @ 11.95 hrs, Volume= 0.009 af, Depth> 4.01"
Routed to Pond 9P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	1,186	98	IMPERVIOUS
	1,186		100.00% Impervious Area

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

Summary for Subcatchment SC 1C: 1C

Runoff = 0.24 cfs @ 11.95 hrs, Volume= 0.012 af, Depth> 4.01"
Routed to Pond 10P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	1,595	98	IMPERVIOUS
	1,595		100.00% Impervious Area

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

Summary for Subcatchment SC 1D: 1D

Runoff = 0.17 cfs @ 11.95 hrs, Volume= 0.009 af, Depth> 4.01"
Routed to Pond 11P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	1,152	98	IMPERVIOUS
	1,152		100.00% Impervious Area

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

Summary for Subcatchment SC 1E: 1E

Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.059 af, Depth> 0.50"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

Area (sf)	CN	Description
34,276	36	Woods, Fair, HSG A
21,674	73	Woods, Fair, HSG C
2,952	39	>75% Grass cover, Good, HSG A
2,951	74	>75% Grass cover, Good, HSG C
61,853	51	Weighted Average
61,853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1200	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.4	90	Total			

Summary for Subcatchment SC 2A: 2A

Runoff = 0.62 cfs @ 11.95 hrs, Volume= 0.027 af, Depth> 2.80"
Routed to Pond CB 12 : CB12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	845	39	>75% Grass cover, Good, HSG A
	764	74	>75% Grass cover, Good, HSG C
*	3,502	98	IMPERVIOUS
	5,111	85	Weighted Average
	1,609		31.48% Pervious Area
	3,502		68.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
4.3	35	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	80	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	127	Total			

Summary for Subcatchment SC 2B: 2B

Runoff = 1.13 cfs @ 12.10 hrs, Volume= 0.072 af, Depth> 2.02"
Routed to Pond CB 13 : CB13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	12,451	73	Woods, Fair, HSG C
	4,024	74	>75% Grass cover, Good, HSG C
*	2,124	98	IMPERVIOUS
	18,599	76	Weighted Average
	16,475		88.58% Pervious Area
	2,124		11.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.8	50	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.3	100	Total			

Summary for Subcatchment SC 2C: 2C

Runoff = 1.04 cfs @ 12.11 hrs, Volume= 0.068 af, Depth> 2.10"
Routed to Pond CB 10 : CB10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	10,994	73	Woods, Fair, HSG C
	3,426	74	>75% Grass cover, Good, HSG C
*	2,538	98	IMPERVIOUS
	16,958	77	Weighted Average
	14,420		85.03% Pervious Area
	2,538		14.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.7	100	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	150	Total			

Summary for Subcatchment SC 2D: 2D

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.02"
Routed to Reach 6R : 15" SD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	20,100	73	Woods, Fair, HSG C
	2,985	74	>75% Grass cover, Good, HSG C
*	2,461	98	IMPERVIOUS
	25,546	76	Weighted Average
	23,085		90.37% Pervious Area
	2,461		9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	110	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	160	Total			

Summary for Subcatchment SC 2E: 2E

Runoff = 0.21 cfs @ 11.95 hrs, Volume= 0.010 af, Depth> 2.98"
Routed to Pond CB 11 : CB11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	251	39	>75% Grass cover, Good, HSG A
	121	74	>75% Grass cover, Good, HSG C
*	1,295	98	IMPERVIOUS
	1,667	87	Weighted Average
	372		22.32% Pervious Area
	1,295		77.68% Impervious Area

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

Summary for Subcatchment SC 2F: 2F

Runoff = 0.62 cfs @ 11.95 hrs, Volume= 0.030 af, Depth> 3.76"
Routed to Pond CB 9 : CB9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	443	74	>75% Grass cover, Good, HSG C
*	3,736	98	IMPERVIOUS
	4,179	95	Weighted Average
	443		10.60% Pervious Area
	3,736		89.40% Impervious Area

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

Summary for Subcatchment SC 2G: 2G

Runoff = 0.70 cfs @ 11.95 hrs, Volume= 0.034 af, Depth> 3.76"
Routed to Pond CB 8 : CB8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	537	74	>75% Grass cover, Good, HSG C
*	4,185	98	IMPERVIOUS
	4,722	95	Weighted Average
	537		11.37% Pervious Area
	4,185		88.63% Impervious Area

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

Summary for Subcatchment SC 2H: 2H

Runoff = 0.44 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 4.01"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	60	74	>75% Grass cover, Good, HSG C
*	2,829	98	IMPERVIOUS
	2,889	98	Weighted Average
	60		2.08% Pervious Area
	2,829		97.92% Impervious Area

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

Summary for Subcatchment SC 2I: 2I

Runoff = 0.53 cfs @ 11.95 hrs, Volume= 0.026 af, Depth> 3.85"
Routed to Pond CB 7 : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	340	74	>75% Grass cover, Good, HSG C
*	3,241	98	IMPERVIOUS
	3,581	96	Weighted Average
	340		9.49% Pervious Area
	3,241		90.51% Impervious Area

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

Summary for Subcatchment SC 2J: 2J

Runoff = 0.55 cfs @ 11.95 hrs, Volume= 0.027 af, Depth> 3.85"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	251	74	>75% Grass cover, Good, HSG C
*	3,448	98	IMPERVIOUS
	3,699	96	Weighted Average
	251		6.79% Pervious Area
	3,448		93.21% Impervious Area

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

Summary for Subcatchment SC 2K: 2K

Runoff = 0.86 cfs @ 11.95 hrs, Volume= 0.041 af, Depth> 3.66"
Routed to Pond CB 5 : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	894	74	>75% Grass cover, Good, HSG C
*	5,018	98	IMPERVIOUS
	5,912	94	Weighted Average
	894		15.12% Pervious Area
	5,018		84.88% Impervious Area

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

Summary for Subcatchment SC 2L: 2L

Runoff = 3.85 cfs @ 12.01 hrs, Volume= 0.190 af, Depth> 2.11"
Routed to Pond 3P : WETLAND STORAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	965	39	>75% Grass cover, Good, HSG A
	2,059	60	Woods, Fair, HSG B
	2,162	61	>75% Grass cover, Good, HSG B
	12,048	73	Woods, Fair, HSG C
	20,596	74	>75% Grass cover, Good, HSG C
*	9,283	98	IMPERVIOUS
	47,113	77	Weighted Average
	37,830		80.30% Pervious Area
	9,283		19.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	90	0.0500	3.35		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	240	Total			

Summary for Subcatchment SC 3A: 3A

Runoff = 0.47 cfs @ 11.96 hrs, Volume= 0.020 af, Depth> 2.03"
Routed to Pond CB 16 : CB 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,952	39	>75% Grass cover, Good, HSG A
*	3,221	98	IMPERVIOUS
	5,173	76	Weighted Average
	1,952		37.73% Pervious Area
	3,221		62.27% Impervious Area

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

Summary for Subcatchment SC 3B: 3B

Runoff = 0.24 cfs @ 11.95 hrs, Volume= 0.011 af, Depth> 2.80"
Routed to Pond CB 14 : CB 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	427	39	>75% Grass cover, Good, HSG A
*	1,574	98	IMPERVIOUS
	2,001	85	Weighted Average
	427		21.34% Pervious Area
	1,574		78.66% Impervious Area

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

Summary for Subcatchment SC 3C: 3C

Runoff = 2.23 cfs @ 11.99 hrs, Volume= 0.109 af, Depth> 2.79"
Routed to Pond CB19 : CB19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,684	39	>75% Grass cover, Good, HSG A
	439	60	Woods, Fair, HSG B
	3,700	61	>75% Grass cover, Good, HSG B
	630	74	>75% Grass cover, Good, HSG C
*	13,983	98	IMPERVIOUS
	20,436	85	Weighted Average
	6,453		31.58% Pervious Area
	13,983		68.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.1	65	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	220	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.3	297	Total			

Summary for Subcatchment SC 3D: 3D

Runoff = 0.30 cfs @ 11.96 hrs, Volume= 0.013 af, Depth> 2.11"
Routed to Pond CB 17 : CB 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,148	39	>75% Grass cover, Good, HSG A
*	2,019	98	IMPERVIOUS
	3,167	77	Weighted Average
	1,148		36.25% Pervious Area
	2,019		63.75% Impervious Area

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

Summary for Subcatchment SC 3E: 3E

Runoff = 0.45 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 3.85"
Routed to Pond CB 18 : CB 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	90	39	>75% Grass cover, Good, HSG A
*	2,896	98	IMPERVIOUS
	2,986	96	Weighted Average
	90		3.01% Pervious Area
	2,896		96.99% Impervious Area

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

Summary for Subcatchment SC 3F: 3F

Runoff = 2.91 cfs @ 11.96 hrs, Volume= 0.123 af, Depth> 1.38"
Routed to Pond 1P : WETPOND A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	19,802	39	>75% Grass cover, Good, HSG A
	7,113	61	>75% Grass cover, Good, HSG B
	1,334	74	>75% Grass cover, Good, HSG C
*	18,259	98	IMPERVIOUS
	46,508	67	Weighted Average
	28,249		60.74% Pervious Area
	18,259		39.26% Impervious Area

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

Summary for Subcatchment SC 4: 4

Runoff = 0.55 cfs @ 12.00 hrs, Volume= 0.037 af, Depth> 0.34"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	34,054	36	Woods, Fair, HSG A
	7,162	39	>75% Grass cover, Good, HSG A
	10,830	60	Woods, Fair, HSG B
	1,162	61	>75% Grass cover, Good, HSG B
*	4,908	98	IMPERVIOUS
	58,116	47	Weighted Average
	53,208		91.55% Pervious Area
	4,908		8.45% Impervious Area

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

Summary for Subcatchment SC 5: 5

Runoff = 4.14 cfs @ 12.00 hrs, Volume= 0.195 af, Depth> 1.66"
Routed to Pond CB 22 : CB22

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	14,519	60	Woods, Fair, HSG B
	30,033	61	>75% Grass cover, Good, HSG B
	346	74	>75% Grass cover, Good, HSG C
*	16,575	98	IMPERVIOUS
	61,473	71	Weighted Average
	44,898		73.04% Pervious Area
	16,575		26.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
2.3	210	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.3	130	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.3	492	Total			

Summary for Subcatchment SC 6A: 6A

Runoff = 0.57 cfs @ 11.95 hrs, Volume= 0.027 af, Depth> 3.37"
Routed to Pond CB 21 : CB21

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	737	61	>75% Grass cover, Good, HSG B
*	3,375	98	IMPERVIOUS
	4,112	91	Weighted Average
	737		17.92% Pervious Area
	3,375		82.08% Impervious Area

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

Summary for Subcatchment SC 6B: 6B

Runoff = 0.86 cfs @ 11.95 hrs, Volume= 0.039 af, Depth> 3.18"
Routed to Pond CB 20 : CB20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,595	61	>75% Grass cover, Good, HSG B
*	4,856	98	IMPERVIOUS
	6,451	89	Weighted Average
	1,595		24.72% Pervious Area
	4,856		75.28% Impervious Area

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

Summary for Subcatchment SC 6C: 6C

Runoff = 0.58 cfs @ 11.95 hrs, Volume= 0.027 af, Depth> 3.37"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	845	61	>75% Grass cover, Good, HSG B
*	3,358	98	IMPERVIOUS
	4,203	91	Weighted Average
	845		20.10% Pervious Area
	3,358		79.90% Impervious Area

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

Summary for Subcatchment SC 6D: 6D

Runoff = 0.94 cfs @ 11.95 hrs, Volume= 0.042 af, Depth> 2.98"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	2,199	61	>75% Grass cover, Good, HSG B
*	5,191	98	IMPERVIOUS
	7,390	87	Weighted Average
	2,199		29.76% Pervious Area
	5,191		70.24% Impervious Area

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

Summary for Subcatchment SC 6E: 6E

Runoff = 0.66 cfs @ 11.98 hrs, Volume= 0.028 af, Depth> 1.32"
Routed to Pond 2P : WETPOND B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	9,853	61	>75% Grass cover, Good, HSG B
*	1,431	98	IMPERVIOUS
	11,284	66	Weighted Average
	9,853		87.32% Pervious Area
	1,431		12.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Summary for Subcatchment SC 6F: 6F

Runoff = 0.87 cfs @ 11.95 hrs, Volume= 0.040 af, Depth> 3.18"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,599	61	>75% Grass cover, Good, HSG B
*	4,931	98	IMPERVIOUS
	6,530	89	Weighted Average
	1,599		24.49% Pervious Area
	4,931		75.51% Impervious Area

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

Summary for Subcatchment SC 6G: 6G

Runoff = 0.70 cfs @ 11.95 hrs, Volume= 0.034 af, Depth> 3.66"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	478	61	>75% Grass cover, Good, HSG B
*	4,309	98	IMPERVIOUS
	4,787	94	Weighted Average
	478		9.99% Pervious Area
	4,309		90.01% Impervious Area

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

Summary for Subcatchment SC 6H: 6H

Runoff = 0.38 cfs @ 11.95 hrs, Volume= 0.019 af, Depth> 4.01"
Routed to Pond CB 25 : CB25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	2,481	98	IMPERVIOUS
	2,481		100.00% Impervious Area

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

Summary for Subcatchment SC 6I: 6I

Runoff = 1.38 cfs @ 11.95 hrs, Volume= 0.064 af, Depth> 3.27"
Routed to Pond CB 27 : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	2,205	61	>75% Grass cover, Good, HSG B
*	7,957	98	IMPERVIOUS
	10,162	90	Weighted Average
	2,205		21.70% Pervious Area
	7,957		78.30% Impervious Area

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

Summary for Subcatchment SC 6J: 6J

Runoff = 1.07 cfs @ 11.95 hrs, Volume= 0.053 af, Depth> 3.85"
Routed to Pond CB 26 : CB26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	324	61	>75% Grass cover, Good, HSG B
*	6,839	98	IMPERVIOUS
	7,163	96	Weighted Average
	324		4.52% Pervious Area
	6,839		95.48% Impervious Area

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

Summary for Subcatchment SC 7: 7

Runoff = 0.12 cfs @ 11.97 hrs, Volume= 0.005 af, Depth> 0.95"
Routed to Pond 6P : BIO CELL 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,682	39	>75% Grass cover, Good, HSG A
	273	61	>75% Grass cover, Good, HSG B
*	910	98	IMPERVIOUS
	2,865	60	Weighted Average
	1,955		68.24% Pervious Area
	910		31.76% Impervious Area

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

Summary for Subcatchment SC 8: 8

Runoff = 0.13 cfs @ 11.97 hrs, Volume= 0.006 af, Depth> 1.25"
Routed to Pond 7P : BIO CELL 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	1,036	39	>75% Grass cover, Good, HSG A
	481	61	>75% Grass cover, Good, HSG B
*	854	98	IMPERVIOUS
	2,371	65	Weighted Average
	1,517		63.98% Pervious Area
	854		36.02% Impervious Area

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

Summary for Subcatchment SC 9: 9

Runoff = 0.31 cfs @ 12.00 hrs, Volume= 0.021 af, Depth> 0.34"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	19,552	36	Woods, Fair, HSG A
	2,610	39	>75% Grass cover, Good, HSG A
	7,418	60	Woods, Fair, HSG B
	765	61	>75% Grass cover, Good, HSG B
*	2,265	98	IMPERVIOUS
	32,610	47	Weighted Average
	30,345		93.05% Pervious Area
	2,265		6.95% Impervious Area

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

Summary for Reach 1R: REACH 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 0.95" for 10 YEAR event
Inflow = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af
Outflow = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: REACH 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 1.14" for 10 YEAR event
Inflow = 0.10 cfs @ 11.90 hrs, Volume= 0.005 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: REACH 3

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 3.27" for 10 YEAR event
Inflow = 0.17 cfs @ 12.12 hrs, Volume= 0.038 af
Outflow = 0.14 cfs @ 12.30 hrs, Volume= 0.038 af, Atten= 20%, Lag= 10.9 min
Routed to Reach 5R : REACH 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 6.0 min

Peak Storage= 49 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.03' , Surface Width= 4.06'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 425.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -12.75'



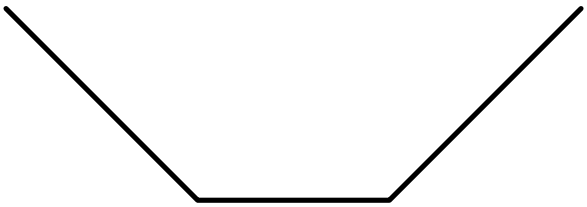
Summary for Reach 4R: REACH 4

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 2.19" for 10 YEAR event
Inflow = 0.10 cfs @ 11.70 hrs, Volume= 0.028 af
Outflow = 0.10 cfs @ 13.70 hrs, Volume= 0.028 af, Atten= 0%, Lag= 120.0 min
Routed to Reach 5R : REACH 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.19 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 3.5 min

Peak Storage= 21 cf @ 13.65 hrs
Average Depth at Peak Storage= 0.02' , Surface Width= 4.04'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 250.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -7.50'



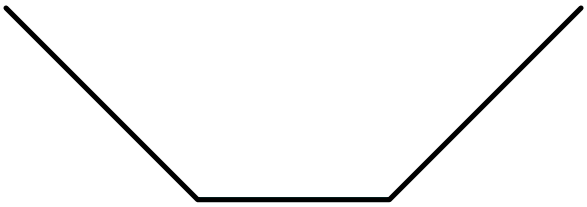
Summary for Reach 5R: REACH 5

Inflow Area = 0.292 ac, 51.59% Impervious, Inflow Depth > 2.69" for 10 YEAR event
Inflow = 0.24 cfs @ 12.30 hrs, Volume= 0.066 af
Outflow = 0.23 cfs @ 12.45 hrs, Volume= 0.065 af, Atten= 2%, Lag= 9.1 min
Routed to Reach SP4 : SUMMATION POINT 4

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.08 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 6.8 min

Peak Storage= 77 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.05' , Surface Width= 4.11'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 384.63 cfs

4.00' x 4.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 360.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'



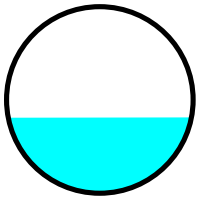
Summary for Reach 6R: 15" SD

Inflow Area = 0.586 ac, 9.63% Impervious, Inflow Depth > 2.02" for 10 YEAR event
Inflow = 1.58 cfs @ 12.09 hrs, Volume= 0.099 af
Outflow = 1.57 cfs @ 12.10 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB 6 : CB6

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 0.5 min

Peak Storage= 18 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.23'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.57 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 38.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.19'



Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.532 ac, 7.34% Impervious, Inflow Depth > 0.76" for 10 YEAR event
Inflow = 1.65 cfs @ 12.01 hrs, Volume= 0.097 af
Outflow = 1.65 cfs @ 12.01 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.390 ac, 32.52% Impervious, Inflow Depth > 0.66" for 10 YEAR event
Inflow = 0.62 cfs @ 12.45 hrs, Volume= 0.352 af
Outflow = 0.62 cfs @ 12.45 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.762 ac, 39.87% Impervious, Inflow Depth > 0.79" for 10 YEAR event
Inflow = 0.51 cfs @ 12.00 hrs, Volume= 0.248 af
Outflow = 0.51 cfs @ 12.00 hrs, Volume= 0.248 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.141 ac, 9.37% Impervious, Inflow Depth > 1.70" for 10 YEAR event
Inflow = 8.27 cfs @ 12.21 hrs, Volume= 0.729 af
Outflow = 8.27 cfs @ 12.21 hrs, Volume= 0.729 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: WETPOND A

Inflow Area = 5.056 ac, 38.87% Impervious, Inflow Depth > 2.24" for 10 YEAR event
Inflow = 12.76 cfs @ 12.00 hrs, Volume= 0.943 af
Outflow = 0.50 cfs @ 12.45 hrs, Volume= 0.315 af, Atten= 96%, Lag= 27.1 min
Primary = 0.50 cfs @ 12.45 hrs, Volume= 0.315 af
Routed to Reach SP2 : SUMMATION POINT 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP2 : SUMMATION POINT 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.23' @ 15.62 hrs Surf.Area= 6,094 sf Storage= 29,611 cf

Plug-Flow detention time= 285.8 min calculated for 0.314 af (33% of inflow)
Center-of-Mass det. time= 188.6 min (973.1 - 784.4)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	41,844 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	1,128	0	0
67.00	1,476	1,302	1,302
68.00	1,870	1,673	2,975
69.00	2,290	2,080	5,055
70.00	2,747	2,519	7,574
71.00	3,240	2,994	10,567
72.00	3,779	3,510	14,077
73.00	4,356	4,068	18,144
74.00	4,960	4,658	22,802
75.00	5,867	5,414	28,216
76.00	6,838	6,353	34,568
77.00	7,714	7,276	41,844

Device	Routing	Invert	Outlet Devices
#1	Primary	69.14'	**6.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.14' / 68.89' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	74.09'	**0.50 cfs Exfiltration when above 74.09'**
#3	Device 1	76.05'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	76.50'	**10.0' 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

Primary OutFlow Max=0.50 cfs @ 12.45 hrs HW=74.24' (Free Discharge)
└**1=Culvert** (Passes 0.50 cfs of 1.43 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.50 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 2P: WETPOND B

Inflow Area = 2.893 ac, 48.64% Impervious, Inflow Depth > 2.35" for 10 YEAR event
Inflow = 11.60 cfs @ 11.97 hrs, Volume= 0.567 af
Outflow = 0.35 cfs @ 14.68 hrs, Volume= 0.217 af, Atten= 97%, Lag= 162.9 min
Primary = 0.35 cfs @ 14.68 hrs, Volume= 0.217 af
  Routed to Reach SP3 : SUMMATION POINT 3
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
  Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 71.45' @ 14.68 hrs Surf.Area= 4,404 sf Storage= 17,427 cf

Plug-Flow detention time= 289.4 min calculated for 0.217 af (38% of inflow)
Center-of-Mass det. time= 194.3 min (965.6 - 771.2)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	24,924 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	1,409	0	0
66.00	1,752	1,581	1,581
67.00	2,121	1,937	3,517
68.00	2,514	2,318	5,835
69.00	2,933	2,724	8,558
70.00	3,408	3,171	11,729
71.00	4,167	3,788	15,516
72.00	4,698	4,433	19,949
73.00	5,252	4,975	24,924

Device	Routing	Invert	Outlet Devices
#1	Primary	68.26'	**4.0" Round Culvert** L= 85.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.26' / 67.84' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	70.76'	**0.50 cfs Exfiltration when above 70.76'**
#3	Device 1	72.39'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	72.50'	**10.0' 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

Primary OutFlow Max=0.35 cfs @ 14.68 hrs HW=71.45' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.35 cfs @ 3.96 fps)
└**2=Exfiltration** (Passes 0.35 cfs of 0.50 cfs potential flow)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=65.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Summary for Pond 3P: WETLAND STORAGE

Inflow Area = 3.213 ac, 31.19% Impervious, Inflow Depth > 2.42" for 10 YEAR event
Inflow = 10.39 cfs @ 11.99 hrs, Volume= 0.647 af
Outflow = 7.61 cfs @ 12.09 hrs, Volume= 0.645 af, Atten= 27%, Lag= 6.0 min
Primary = 7.61 cfs @ 12.09 hrs, Volume= 0.645 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 80.50' @ 12.09 hrs Surf.Area= 4,915 sf Storage= 3,780 cf

Plug-Flow detention time= 7.8 min calculated for 0.643 af (99% of inflow)
Center-of-Mass det. time= 6.5 min (784.0 - 777.5)

Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	15,212 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.00	112	0	0
81.00	6,500	6,612	6,612
82.00	10,700	8,600	15,212

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.00' / 78.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.58 cfs @ 12.09 hrs HW=80.50' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 7.58 cfs @ 4.16 fps)

Summary for Pond 4P: GUSF 2

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 2.19" for 10 YEAR event
Inflow = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af
Outflow = 0.10 cfs @ 11.70 hrs, Volume= 0.028 af, Atten= 85%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.70 hrs, Volume= 0.028 af
Routed to Reach 4R : REACH 4
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 4R : REACH 4

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.70' @ 12.17 hrs Surf.Area= 352 sf Storage= 399 cf

Plug-Flow detention time= 26.0 min calculated for 0.028 af (100% of inflow)
Center-of-Mass det. time= 25.8 min (811.1 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	75.23'	1,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.23	192	0	0
77.00	385	511	511
78.00	634	510	1,020

Device	Routing	Invert	Outlet Devices
#1	Primary	72.98'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 72.98' / 72.88' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	75.23'	**0.10 cfs Exfiltration when above 75.23'**
#3	Secondary	76.73'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66
2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.70 hrs HW=75.27' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=75.23' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 5P: GUSF 1

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 3.27" for 10 YEAR event
Inflow = 0.82 cfs @ 11.95 hrs, Volume= 0.038 af
Outflow = 0.17 cfs @ 12.12 hrs, Volume= 0.038 af, Atten= 79%, Lag= 9.9 min
Primary = 0.10 cfs @ 11.65 hrs, Volume= 0.037 af
Routed to Reach 3R : REACH 3
Secondary = 0.07 cfs @ 12.12 hrs, Volume= 0.001 af
Routed to Reach 3R : REACH 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.54' @ 12.12 hrs Surf.Area= 550 sf Storage= 565 cf

Plug-Flow detention time= 34.8 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 34.7 min (789.9 - 755.2)

Volume	Invert	Avail.Storage	Storage Description
#1	82.00'	1,228 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.00	210	0	0
83.00	408	309	309
84.00	673	541	850
84.50	841	379	1,228

Device	Routing	Invert	Outlet Devices
#1	Primary	79.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.75' / 79.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	82.00'	**0.10 cfs Exfiltration when above 82.00'**
#3	Secondary	83.50'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.65 hrs HW=82.04' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.06 cfs @ 12.12 hrs HW=83.53' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.06 cfs @ 0.41 fps)

Summary for Pond 6P: BIO CELL 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 0.95" for 10 YEAR event
Inflow = 0.12 cfs @ 11.97 hrs, Volume= 0.005 af
Outflow = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af, Atten= 17%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.95 hrs, Volume= 0.005 af
Routed to Reach 1R : REACH 1
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 1R : REACH 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 78.59' @ 12.00 hrs Surf.Area= 140 sf Storage= 5 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min (822.3 - 822.0)

Volume	Invert	Avail.Storage	Storage Description
#1	78.50'	714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.50	140	0.0	0	0
79.00	140	40.0	28	28
80.50	775	100.0	686	714

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	78.50'	**0.10 cfs Exfiltration at all elevations**
#3	Secondary	79.50'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.10 cfs @ 11.95 hrs HW=78.54' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.42 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=78.50' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 7P: BIO CELL 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 1.25" for 10 YEAR event
Inflow = 0.13 cfs @ 11.97 hrs, Volume= 0.006 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.005 af, Atten= 25%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.90 hrs, Volume= 0.005 af
Routed to Reach 2R : REACH 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 2R : REACH 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.08' @ 12.02 hrs Surf.Area= 153 sf Storage= 33 cf

Plug-Flow detention time= 42.8 min calculated for 0.005 af (90% of inflow)
Center-of-Mass det. time= 11.4 min (822.2 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	76.50'	748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.50	116	0.0	0	0
77.00	116	40.0	23	23
78.50	850	100.0	725	748

Device	Routing	Invert	Outlet Devices
#1	Primary	74.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.75' / 74.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	77.00'	**0.10 cfs Exfiltration when above 77.00'**
#3	Secondary	77.50'	**5.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.10 cfs @ 11.90 hrs HW=77.02' (Free Discharge)
└**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
└**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=76.50' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 8P: DRIP FILTER

Inflow Area = 0.022 ac,100.00% Impervious, Inflow Depth > 4.01" for 10 YEAR event
Inflow = 0.15 cfs @ 11.95 hrs, Volume= 0.007 af
Outflow = 0.12 cfs @ 12.01 hrs, Volume= 0.007 af, Atten= 19%, Lag= 3.8 min
Primary = 0.12 cfs @ 12.01 hrs, Volume= 0.007 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.65' @ 12.02 hrs Surf.Area= 200 sf Storage= 52 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.2 min (734.0 - 729.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.11 cfs @ 12.01 hrs HW=0.64' (Free Discharge)
└─**1=Culvert** (Passes 0.04 cfs of 0.52 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 1.03 fps)

Summary for Pond 9P: DRIP FILTER

Inflow Area = 0.027 ac,100.00% Impervious, Inflow Depth > 4.01" for 10 YEAR event
Inflow = 0.18 cfs @ 11.95 hrs, Volume= 0.009 af
Outflow = 0.17 cfs @ 12.00 hrs, Volume= 0.009 af, Atten= 8%, Lag= 2.8 min
Primary = 0.17 cfs @ 12.00 hrs, Volume= 0.009 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.70' @ 12.00 hrs Surf.Area= 200 sf Storage= 56 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.1 min (733.9 - 729.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.16 cfs @ 12.00 hrs HW=0.70' (Free Discharge)
└─**1=Culvert** (Passes 0.04 cfs of 0.53 cfs potential flow)
└─**2=Exfiltration** (Exfiltration Controls 0.04 cfs)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 1.24 fps)

Summary for Pond 10P: DRIP FILTER

Inflow Area = 0.037 ac,100.00% Impervious, Inflow Depth > 4.01" for 10 YEAR event
Inflow = 0.24 cfs @ 11.95 hrs, Volume= 0.012 af
Outflow = 0.24 cfs @ 11.97 hrs, Volume= 0.012 af, Atten= 3%, Lag= 1.3 min
Primary = 0.24 cfs @ 11.97 hrs, Volume= 0.012 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.77' @ 11.97 hrs Surf.Area= 200 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.0 min (733.8 - 729.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.22 cfs @ 11.97 hrs HW=0.76' (Free Discharge)
1=Culvert (Passes 0.04 cfs of 0.53 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.04 cfs)
3=Broad-Crested Rectangular Weir (Weir Controls 0.18 cfs @ 1.44 fps)

Summary for Pond 11P: DRIP FILTER

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth > 4.01" for 10 YEAR event
Inflow = 0.17 cfs @ 11.95 hrs, Volume= 0.009 af
Outflow = 0.16 cfs @ 12.00 hrs, Volume= 0.009 af, Atten= 9%, Lag= 3.0 min
Primary = 0.16 cfs @ 12.00 hrs, Volume= 0.009 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.69' @ 12.00 hrs Surf.Area= 200 sf Storage= 55 cf

Plug-Flow detention time= 4.2 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 4.1 min (733.9 - 729.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.16 cfs @ 12.00 hrs HW=0.69' (Free Discharge)
1=Culvert (Passes 0.04 cfs of 0.53 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.04 cfs)
3=Broad-Crested Rectangular Weir (Weir Controls 0.12 cfs @ 1.23 fps)

Summary for Pond CB 1: CB1

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 2.19" for 10 YEAR event
Inflow = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af
Outflow = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af
Routed to Pond CB 2 : CB2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.23' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.64 cfs @ 11.96 hrs HW=77.22' (Free Discharge)
1=Culvert (Barrel Controls 0.64 cfs @ 2.26 fps)

Summary for Pond CB 10: CB10

Inflow Area = 0.389 ac, 14.97% Impervious, Inflow Depth > 2.10" for 10 YEAR event
Inflow = 1.04 cfs @ 12.11 hrs, Volume= 0.068 af
Outflow = 1.04 cfs @ 12.11 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.11 hrs, Volume= 0.068 af
Routed to Pond CB 9 : CB9

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.83' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.25'	**15.0" Round Culvert** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.25' / 81.97' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.03 cfs @ 12.11 hrs HW=82.83' (Free Discharge)
1=Culvert (Barrel Controls 1.03 cfs @ 2.71 fps)

Summary for Pond CB 11: CB11

Inflow Area = 0.583 ac, 27.27% Impervious, Inflow Depth > 2.24" for 10 YEAR event
Inflow = 1.54 cfs @ 12.00 hrs, Volume= 0.109 af
Outflow = 1.54 cfs @ 12.00 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Primary = 1.54 cfs @ 12.00 hrs, Volume= 0.109 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 83.18' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.47'	**15.0" Round Culvert** L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.47' / 82.00' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.54 cfs @ 12.00 hrs HW=83.18' (Free Discharge)
1=Culvert (Barrel Controls 1.54 cfs @ 3.06 fps)

Summary for Pond CB 12: CB12

Inflow Area = 0.544 ac, 23.73% Impervious, Inflow Depth > 2.19" for 10 YEAR event
Inflow = 1.37 cfs @ 12.01 hrs, Volume= 0.099 af
Outflow = 1.37 cfs @ 12.01 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.01 hrs, Volume= 0.099 af
Routed to Pond CB 11 : CB11

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.39' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.67'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.67' / 82.57' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.35 cfs @ 12.01 hrs HW=83.38' (Free Discharge)
1=Culvert (Barrel Controls 1.35 cfs @ 2.71 fps)

Summary for Pond CB 13: CB13

Inflow Area = 0.427 ac, 11.42% Impervious, Inflow Depth > 2.02" for 10 YEAR event
Inflow = 1.13 cfs @ 12.10 hrs, Volume= 0.072 af
Outflow = 1.13 cfs @ 12.10 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min
Primary = 1.13 cfs @ 12.10 hrs, Volume= 0.072 af
Routed to Pond CB 12 : CB12

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.75' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.15'	**15.0" Round Culvert** L= 75.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.15' / 82.78' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.13 cfs @ 12.10 hrs HW=83.75' (Free Discharge)
1=Culvert (Barrel Controls 1.13 cfs @ 2.80 fps)

Summary for Pond CB 14: CB 14

Inflow Area = 0.046 ac, 78.66% Impervious, Inflow Depth > 2.80" for 10 YEAR event
Inflow = 0.24 cfs @ 11.95 hrs, Volume= 0.011 af
Outflow = 0.24 cfs @ 11.95 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 11.95 hrs, Volume= 0.011 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.50' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.25'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.25' / 81.43' S= 0.0910 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.24 cfs @ 11.95 hrs HW=83.50' (Free Discharge)
1=Culvert (Inlet Controls 0.24 cfs @ 1.35 fps)

Summary for Pond CB 15: CB 15

Inflow Area = 0.237 ac, 65.89% Impervious, Inflow Depth > 2.20" for 10 YEAR event
Inflow = 1.01 cfs @ 11.96 hrs, Volume= 0.044 af
Outflow = 1.01 cfs @ 11.96 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 11.96 hrs, Volume= 0.044 af
Routed to Pond CB 18 : CB 18

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 81.87' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.33'	**15.0" Round Culvert** L= 135.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.33' / 78.63' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.99 cfs @ 11.96 hrs HW=81.87' (Free Discharge)
1=Culvert (Inlet Controls 0.99 cfs @ 1.97 fps)

Summary for Pond CB 16: CB 16

Inflow Area = 0.191 ac, 62.83% Impervious, Inflow Depth > 2.06" for 10 YEAR event
Inflow = 0.77 cfs @ 11.96 hrs, Volume= 0.033 af
Outflow = 0.77 cfs @ 11.96 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 11.96 hrs, Volume= 0.033 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 82.09' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.58'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.58' / 81.43' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.75 cfs @ 11.96 hrs HW=82.08' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.75 cfs @ 2.41 fps)

Summary for Pond CB 17: CB 17

Inflow Area = 0.073 ac, 63.75% Impervious, Inflow Depth > 2.11" for 10 YEAR event
Inflow = 0.30 cfs @ 11.96 hrs, Volume= 0.013 af
Outflow = 0.30 cfs @ 11.96 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 11.96 hrs, Volume= 0.013 af
Routed to Pond CB 16 : CB 16

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.36' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.06'	**15.0" Round Culvert** L= 76.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.06' / 81.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.29 cfs @ 11.96 hrs HW=82.35' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.29 cfs @ 2.00 fps)

Summary for Pond CB 18: CB 18

Inflow Area = 0.306 ac, 72.86% Impervious, Inflow Depth > 2.57" for 10 YEAR event
Inflow = 1.46 cfs @ 11.96 hrs, Volume= 0.066 af
Outflow = 1.46 cfs @ 11.96 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 11.96 hrs, Volume= 0.066 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.20' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.53'	**15.0" Round Culvert** L= 73.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.53' / 77.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.43 cfs @ 11.96 hrs HW=79.19' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 1.43 cfs @ 2.18 fps)

Summary for Pond CB 2: CB2

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 2.19" for 10 YEAR event
Inflow = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af
Outflow = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min
Primary = 0.66 cfs @ 11.96 hrs, Volume= 0.028 af
Routed to Pond 4P : GUSF 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.57' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**6.0" Round Culvert** L= 15.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 76.47' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.64 cfs @ 11.96 hrs HW=77.54' (Free Discharge)
1=Culvert (Inlet Controls 0.64 cfs @ 3.28 fps)

Summary for Pond CB 20: CB20

Inflow Area = 0.148 ac, 75.28% Impervious, Inflow Depth > 3.18" for 10 YEAR event
Inflow = 0.86 cfs @ 11.95 hrs, Volume= 0.039 af
Outflow = 0.86 cfs @ 11.95 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 11.95 hrs, Volume= 0.039 af
Routed to Pond CB 21 : CB21

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.35' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.80'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 78.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.85 cfs @ 11.95 hrs HW=79.35' (Free Discharge)
1=Culvert (Barrel Controls 0.85 cfs @ 2.42 fps)

Summary for Pond CB 21: CB21

Inflow Area = 0.242 ac, 77.92% Impervious, Inflow Depth > 3.25" for 10 YEAR event
Inflow = 1.43 cfs @ 11.95 hrs, Volume= 0.066 af
Outflow = 1.43 cfs @ 11.95 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 11.95 hrs, Volume= 0.066 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 79.26' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.60'	**15.0" Round Culvert** L= 116.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.60' / 75.29' S= 0.0285 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.41 cfs @ 11.95 hrs HW=79.25' (Free Discharge)
1=Culvert (Inlet Controls 1.41 cfs @ 2.17 fps)

Summary for Pond CB 22: CB22

Inflow Area = 1.411 ac, 26.96% Impervious, Inflow Depth > 1.66" for 10 YEAR event
Inflow = 4.14 cfs @ 12.00 hrs, Volume= 0.195 af
Outflow = 4.14 cfs @ 12.00 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 4.14 cfs @ 12.00 hrs, Volume= 0.195 af
Routed to Pond CB 23 : CB23

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.51' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.40'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.40' / 74.30' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.12 cfs @ 12.00 hrs HW=75.51' (Free Discharge)
1=Culvert (Barrel Controls 4.12 cfs @ 3.33 fps)

Summary for Pond CB 23: CB23

Inflow Area = 1.658 ac, 34.43% Impervious, Inflow Depth > 1.89" for 10 YEAR event
Inflow = 5.41 cfs @ 11.99 hrs, Volume= 0.261 af
Outflow = 5.41 cfs @ 11.99 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min
Primary = 5.41 cfs @ 11.99 hrs, Volume= 0.261 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.50' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.20'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.20' / 74.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.27 cfs @ 11.99 hrs HW=75.48' (Free Discharge)
1=Culvert (Barrel Controls 5.27 cfs @ 3.54 fps)

Summary for Pond CB 24: CB 24

Inflow Area = 2.634 ac, 52.18% Impervious, Inflow Depth > 2.45" for 10 YEAR event
Inflow = 10.95 cfs @ 11.97 hrs, Volume= 0.538 af
Outflow = 10.95 cfs @ 11.97 hrs, Volume= 0.538 af, Atten= 0%, Lag= 0.0 min
Primary = 10.95 cfs @ 11.97 hrs, Volume= 0.538 af
Routed to Pond 2P : WETPOND B

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.95' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.00'	**24.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.00' / 73.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.63 cfs @ 11.97 hrs HW=75.91' (Free Discharge)
1=Culvert (Barrel Controls 10.63 cfs @ 4.42 fps)

Summary for Pond CB 25: CB25

Inflow Area = 0.455 ac, 87.23% Impervious, Inflow Depth > 3.57" for 10 YEAR event
Inflow = 2.82 cfs @ 11.95 hrs, Volume= 0.135 af
Outflow = 2.82 cfs @ 11.95 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 11.95 hrs, Volume= 0.135 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.90' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.90'	**15.0" Round Culvert** L= 150.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.90' / 75.29' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.81 cfs @ 11.95 hrs HW=77.90' (Free Discharge)
1=Culvert (Inlet Controls 2.81 cfs @ 2.68 fps)

Summary for Pond CB 26: CB26

Inflow Area = 0.398 ac, 85.40% Impervious, Inflow Depth > 3.51" for 10 YEAR event
Inflow = 2.45 cfs @ 11.95 hrs, Volume= 0.116 af
Outflow = 2.45 cfs @ 11.95 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Primary = 2.45 cfs @ 11.95 hrs, Volume= 0.116 af
Routed to Pond CB 25 : CB25

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 79.36' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.45'	**15.0" Round Culvert** L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.45' / 77.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.44 cfs @ 11.95 hrs HW=79.36' (Free Discharge)
1=Culvert (Inlet Controls 2.44 cfs @ 2.56 fps)

Summary for Pond CB 27: CB27

Inflow Area = 0.233 ac, 78.30% Impervious, Inflow Depth > 3.27" for 10 YEAR event
Inflow = 1.38 cfs @ 11.95 hrs, Volume= 0.064 af
Outflow = 1.38 cfs @ 11.95 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 1.38 cfs @ 11.95 hrs, Volume= 0.064 af
Routed to Pond CB 26 : CB26

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.41' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.70'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.70' / 78.55' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.37 cfs @ 11.95 hrs HW=79.40' (Free Discharge)
1=Culvert (Barrel Controls 1.37 cfs @ 2.78 fps)

Summary for Pond CB 4: CB4

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 3.27" for 10 YEAR event
Inflow = 0.82 cfs @ 11.95 hrs, Volume= 0.038 af
Outflow = 0.82 cfs @ 11.95 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 11.95 hrs, Volume= 0.038 af
Routed to Pond 5P : GUSF 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.70' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.15'	**15.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.15' / 82.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.81 cfs @ 11.95 hrs HW=82.70' (Free Discharge)
1=Culvert (Barrel Controls 0.81 cfs @ 2.31 fps)

Summary for Pond CB 5: CB5

Inflow Area = 0.873 ac, 36.16% Impervious, Inflow Depth > 2.61" for 10 YEAR event
Inflow = 2.76 cfs @ 11.98 hrs, Volume= 0.190 af
Outflow = 2.76 cfs @ 11.98 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min
Primary = 2.76 cfs @ 11.98 hrs, Volume= 0.190 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.14' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.10'	**15.0" Round Culvert** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.10' / 80.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.70 cfs @ 11.98 hrs HW=82.13' (Free Discharge)
1=Culvert (Barrel Controls 2.70 cfs @ 3.41 fps)

Summary for Pond CB 6: CB6

Inflow Area = 0.738 ac, 27.19% Impervious, Inflow Depth > 2.41" for 10 YEAR event
Inflow = 1.99 cfs @ 12.01 hrs, Volume= 0.148 af
Outflow = 1.99 cfs @ 12.01 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min
Primary = 1.99 cfs @ 12.01 hrs, Volume= 0.148 af
Routed to Pond CB 5 : CB5

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.23' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.35'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.35' / 81.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.98 cfs @ 12.01 hrs HW=82.22' (Free Discharge)
1=Culvert (Barrel Controls 1.98 cfs @ 3.04 fps)

Summary for Pond CB 7: CB7

Inflow Area = 2.132 ac, 37.02% Impervious, Inflow Depth > 2.57" for 10 YEAR event
Inflow = 6.66 cfs @ 11.98 hrs, Volume= 0.457 af
Outflow = 6.66 cfs @ 11.98 hrs, Volume= 0.457 af, Atten= 0%, Lag= 0.0 min
Primary = 6.66 cfs @ 11.98 hrs, Volume= 0.457 af
Routed to Pond 3P : WETLAND STORAGE

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 82.05' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.69'	**24.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.69' / 80.19' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.53 cfs @ 11.98 hrs HW=82.03' (Free Discharge)
1=Culvert (Barrel Controls 6.53 cfs @ 4.14 fps)

Summary for Pond CB 8: CB8

Inflow Area = 1.176 ac, 33.92% Impervious, Inflow Depth > 2.46" for 10 YEAR event
Inflow = 3.41 cfs @ 11.98 hrs, Volume= 0.241 af
Outflow = 3.41 cfs @ 11.98 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min
Primary = 3.41 cfs @ 11.98 hrs, Volume= 0.241 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.89' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.67'	**15.0" Round Culvert** L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.67' / 81.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.35 cfs @ 11.98 hrs HW=82.88' (Free Discharge)
1=Culvert (Barrel Controls 3.35 cfs @ 3.52 fps)

Summary for Pond CB 9: CB9

Inflow Area = 0.485 ac, 29.68% Impervious, Inflow Depth > 2.43" for 10 YEAR event
Inflow = 1.26 cfs @ 12.01 hrs, Volume= 0.098 af
Outflow = 1.26 cfs @ 12.01 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.01 hrs, Volume= 0.098 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.55' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.87'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.87' / 81.77' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.25 cfs @ 12.01 hrs HW=82.55' (Free Discharge)
1=Culvert (Barrel Controls 1.25 cfs @ 2.66 fps)

Summary for Pond CB19: CB19

Inflow Area = 0.469 ac, 68.42% Impervious, Inflow Depth > 2.79" for 10 YEAR event
Inflow = 2.23 cfs @ 11.99 hrs, Volume= 0.109 af
Outflow = 2.23 cfs @ 11.99 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Primary = 2.23 cfs @ 11.99 hrs, Volume= 0.109 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.41' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**15.0" Round Culvert** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 75.95' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.20 cfs @ 11.99 hrs HW=77.40' (Free Discharge)
1=Culvert (Inlet Controls 2.20 cfs @ 2.48 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 SC 1: SUBCATCHMENT1 Runoff Area=62,407 sf 0.00% Impervious Runoff Depth>0.54"
Flow Length=90' Tc=12.0 min CN=52 Runoff=0.92 cfs 0.065 af

Subcatchment SC 2: SUBCATCHMENT2 Runoff Area=283,071 sf 0.00% Impervious Runoff Depth>0.88"
Flow Length=860' Tc=40.1 min CN=59 Runoff=3.80 cfs 0.476 af

Subcatchment SC 3: SUBCATCHMENT3 Runoff Area=140,971 sf 0.00% Impervious Runoff Depth>0.73"
Flow Length=590' Tc=32.8 min CN=56 Runoff=1.66 cfs 0.196 af

Subcatchment SC 4: SUBCATCHMENT4 Runoff Area=246,493 sf 2.12% Impervious Runoff Depth>1.50"
Flow Length=880' Tc=24.7 min CN=69 Runoff=8.88 cfs 0.709 af

Reach SP1: SUMMATION POINT 1 Inflow=0.92 cfs 0.065 af
Outflow=0.92 cfs 0.065 af

Reach SP2: SUMMATION POINT 2 Inflow=3.80 cfs 0.476 af
Outflow=3.80 cfs 0.476 af

Reach SP3: SUMMATION POINT 3 Inflow=1.66 cfs 0.196 af
Outflow=1.66 cfs 0.196 af

Reach SP4: SUMMATION POINT 4 Inflow=8.88 cfs 0.709 af
Outflow=8.88 cfs 0.709 af

Total Runoff Area = 16.826 ac Runoff Volume = 1.446 af Average Runoff Depth = 1.03"
99.29% Pervious = 16.706 ac 0.71% Impervious = 0.120 ac

Summary for Subcatchment SC 1: SUBCATCHMENT 1

Runoff = 0.92 cfs @ 12.07 hrs, Volume= 0.065 af, Depth> 0.54"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

Area (sf)	CN	Description
34,923	36	Woods, Fair, HSG A
27,484	73	Woods, Fair, HSG C
62,407	52	Weighted Average
62,407		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.0	90	Total			

Summary for Subcatchment SC 2: SUBCATCHMENT 2

Runoff = 3.80 cfs @ 12.43 hrs, Volume= 0.476 af, Depth> 0.88"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

Area (sf)	CN	Description
148,732	73	Woods, Fair, HSG C
92,813	36	Woods, Fair, HSG A
41,526	60	Woods, Fair, HSG B
283,071	59	Weighted Average
283,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.8	75	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	270	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	310	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	75	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	80	0.1900	2.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.1	860	Total			

Summary for Subcatchment SC 3: SUBCATCHMENT 3

Runoff = 1.66 cfs @ 12.34 hrs, Volume= 0.196 af, Depth> 0.73"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

Area (sf)	CN	Description
24,080	36	Woods, Fair, HSG A
116,891	60	Woods, Fair, HSG B
140,971	56	Weighted Average
140,971		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
9.4	400	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.8	590	Total			

Summary for Subcatchment SC 4: SUBCATCHMENT 4

Runoff = 8.88 cfs @ 12.20 hrs, Volume= 0.709 af, Depth> 1.50"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	87,038	60	Woods, Fair, HSG B
	146,744	73	Woods, Fair, HSG C
	7,481	79	Woods, Fair, HSG D
*	5,230	98	IMPERVIOUS
	246,493	69	Weighted Average
	241,263		97.88% Pervious Area
	5,230		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	70	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	520	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
24.7	880	Total			

Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.433 ac, 0.00% Impervious, Inflow Depth > 0.54" for 10 YEAR event
Inflow = 0.92 cfs @ 12.07 hrs, Volume= 0.065 af
Outflow = 0.92 cfs @ 12.07 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.498 ac, 0.00% Impervious, Inflow Depth > 0.88" for 10 YEAR event
Inflow = 3.80 cfs @ 12.43 hrs, Volume= 0.476 af
Outflow = 3.80 cfs @ 12.43 hrs, Volume= 0.476 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.236 ac, 0.00% Impervious, Inflow Depth > 0.73" for 10 YEAR event
Inflow = 1.66 cfs @ 12.34 hrs, Volume= 0.196 af
Outflow = 1.66 cfs @ 12.34 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.659 ac, 2.12% Impervious, Inflow Depth > 1.50" for 10 YEAR event
Inflow = 8.88 cfs @ 12.20 hrs, Volume= 0.709 af
Outflow = 8.88 cfs @ 12.20 hrs, Volume= 0.709 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentSC 10: 10 Runoff Area=211,215 sf 6.82% Impervious Runoff Depth>2.49"
Flow Length=975' Tc=26.3 min CN=71 Runoff=12.40 cfs 1.008 af

SubcatchmentSC 11: 11 Runoff Area=6,017 sf 65.45% Impervious Runoff Depth>4.36"
Tc=5.0 min CN=90 Runoff=1.07 cfs 0.050 af

SubcatchmentSC 12: 12 Runoff Area=6,712 sf 39.17% Impervious Runoff Depth>3.16"
Tc=5.0 min CN=78 Runoff=0.93 cfs 0.041 af

SubcatchmentSC 1A: 1A Runoff Area=967 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.19 cfs 0.009 af

SubcatchmentSC 1B: 1B Runoff Area=1,186 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.012 af

SubcatchmentSC 1C: 1C Runoff Area=1,595 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.31 cfs 0.016 af

SubcatchmentSC 1D: 1D Runoff Area=1,152 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.22 cfs 0.011 af

SubcatchmentSC 1E: 1E Runoff Area=61,853 sf 0.00% Impervious Runoff Depth>0.98"
Flow Length=90' Tc=7.4 min CN=51 Runoff=2.35 cfs 0.116 af

SubcatchmentSC 2A: 2A Runoff Area=5,111 sf 68.52% Impervious Runoff Depth>3.85"
Flow Length=127' Tc=4.9 min CN=85 Runoff=0.84 cfs 0.038 af

SubcatchmentSC 2B: 2B Runoff Area=18,599 sf 11.42% Impervious Runoff Depth>2.96"
Flow Length=100' Slope=0.0400 '/' Tc=17.3 min CN=76 Runoff=1.64 cfs 0.105 af

SubcatchmentSC 2C: 2C Runoff Area=16,958 sf 14.97% Impervious Runoff Depth>3.05"
Flow Length=150' Slope=0.0400 '/' Tc=18.2 min CN=77 Runoff=1.50 cfs 0.099 af

SubcatchmentSC 2D: 2D Runoff Area=25,546 sf 9.63% Impervious Runoff Depth>2.96"
Flow Length=160' Tc=16.7 min CN=76 Runoff=2.29 cfs 0.144 af

SubcatchmentSC 2E: 2E Runoff Area=1,667 sf 77.68% Impervious Runoff Depth>4.06"
Tc=5.0 min CN=87 Runoff=0.28 cfs 0.013 af

SubcatchmentSC 2F: 2F Runoff Area=4,179 sf 89.40% Impervious Runoff Depth>4.85"
Tc=5.0 min CN=95 Runoff=0.79 cfs 0.039 af

SubcatchmentSC 2G: 2G Runoff Area=4,722 sf 88.63% Impervious Runoff Depth>4.85"
Tc=5.0 min CN=95 Runoff=0.89 cfs 0.044 af

SubcatchmentSC 2H: 2H Runoff Area=2,889 sf 97.92% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.55 cfs 0.028 af

SubcatchmentSC 2I: 2I Runoff Area=3,581 sf 90.51% Impervious Runoff Depth>4.94"
Tc=5.0 min CN=96 Runoff=0.68 cfs 0.034 af

SubcatchmentSC 2J: 2J Runoff Area=3,699 sf 93.21% Impervious Runoff Depth>4.94"
Tc=5.0 min CN=96 Runoff=0.70 cfs 0.035 af

SubcatchmentSC 2K: 2K Runoff Area=5,912 sf 84.88% Impervious Runoff Depth>4.76"
Tc=5.0 min CN=94 Runoff=1.10 cfs 0.054 af

SubcatchmentSC 2L: 2L Runoff Area=47,113 sf 19.70% Impervious Runoff Depth>3.06"
Flow Length=240' Tc=9.4 min CN=77 Runoff=5.52 cfs 0.276 af

SubcatchmentSC 3A: 3A Runoff Area=5,173 sf 62.27% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=76 Runoff=0.68 cfs 0.029 af

SubcatchmentSC 3B: 3B Runoff Area=2,001 sf 78.66% Impervious Runoff Depth>3.85"
Tc=5.0 min CN=85 Runoff=0.33 cfs 0.015 af

SubcatchmentSC 3C: 3C Runoff Area=20,436 sf 68.42% Impervious Runoff Depth>3.85"
Flow Length=297' Tc=8.3 min CN=85 Runoff=3.01 cfs 0.150 af

SubcatchmentSC 3D: 3D Runoff Area=3,167 sf 63.75% Impervious Runoff Depth>3.06"
Tc=5.0 min CN=77 Runoff=0.43 cfs 0.019 af

SubcatchmentSC 3E: 3E Runoff Area=2,986 sf 96.99% Impervious Runoff Depth>4.94"
Tc=5.0 min CN=96 Runoff=0.57 cfs 0.028 af

SubcatchmentSC 3F: 3F Runoff Area=46,508 sf 39.26% Impervious Runoff Depth>2.17"
Tc=5.0 min CN=67 Runoff=4.58 cfs 0.193 af

SubcatchmentSC 4: 4 Runoff Area=58,116 sf 8.45% Impervious Runoff Depth>0.73"
Tc=5.0 min CN=47 Runoff=1.67 cfs 0.081 af

SubcatchmentSC 5: 5 Runoff Area=61,473 sf 26.96% Impervious Runoff Depth>2.51"
Flow Length=492' Tc=8.3 min CN=71 Runoff=6.26 cfs 0.295 af

SubcatchmentSC 6A: 6A Runoff Area=4,112 sf 82.08% Impervious Runoff Depth>4.46"
Tc=5.0 min CN=91 Runoff=0.74 cfs 0.035 af

SubcatchmentSC 6B: 6B Runoff Area=6,451 sf 75.28% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=89 Runoff=1.13 cfs 0.053 af

SubcatchmentSC 6C: 6C Runoff Area=4,203 sf 79.90% Impervious Runoff Depth>4.46"
Tc=5.0 min CN=91 Runoff=0.76 cfs 0.036 af

SubcatchmentSC 6D: 6D Runoff Area=7,390 sf 70.24% Impervious Runoff Depth>4.06"
Tc=5.0 min CN=87 Runoff=1.25 cfs 0.057 af

SubcatchmentSC 6E: 6E Runoff Area=11,284 sf 12.68% Impervious Runoff Depth>2.09"
Flow Length=50' Slope=0.0200 '/' Tc=5.7 min CN=66 Runoff=1.04 cfs 0.045 af

SubcatchmentSC 6F: 6F Runoff Area=6,530 sf 75.51% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=89 Runoff=1.14 cfs 0.053 af

SubcatchmentSC 6G: 6G Runoff Area=4,787 sf 90.01% Impervious Runoff Depth>4.76"
Tc=5.0 min CN=94 Runoff=0.89 cfs 0.044 af

SubcatchmentSC 6H: 6H Runoff Area=2,481 sf 100.00% Impervious Runoff Depth>5.09"
Tc=5.0 min CN=98 Runoff=0.48 cfs 0.024 af

SubcatchmentSC 6I: 6I Runoff Area=10,162 sf 78.30% Impervious Runoff Depth>4.36"
Tc=5.0 min CN=90 Runoff=1.80 cfs 0.085 af

SubcatchmentSC 6J: 6J Runoff Area=7,163 sf 95.48% Impervious Runoff Depth>4.94"
Tc=5.0 min CN=96 Runoff=1.36 cfs 0.068 af

SubcatchmentSC 7: 7 Runoff Area=2,865 sf 31.76% Impervious Runoff Depth>1.61"
Tc=5.0 min CN=60 Runoff=0.21 cfs 0.009 af

SubcatchmentSC 8: 8 Runoff Area=2,371 sf 36.02% Impervious Runoff Depth>2.01"
Tc=5.0 min CN=65 Runoff=0.22 cfs 0.009 af

SubcatchmentSC 9: 9 Runoff Area=32,610 sf 6.95% Impervious Runoff Depth>0.73"
Tc=5.0 min CN=47 Runoff=0.93 cfs 0.046 af

Reach 1R: REACH 1 Inflow=0.10 cfs 0.009 af
Outflow=0.10 cfs 0.009 af

Reach 2R: REACH 2 Inflow=0.10 cfs 0.009 af
Outflow=0.10 cfs 0.009 af

Reach 3R: REACH 3 Avg. Flow Depth=0.07' Max Vel=1.79 fps Inflow=0.70 cfs 0.050 af
n=0.025 L=425.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.52 cfs 0.050 af

Reach 4R: REACH 4 Avg. Flow Depth=0.08' Max Vel=1.87 fps Inflow=0.70 cfs 0.041 af
n=0.025 L=250.0' S=0.0300 '/' Capacity=538.48 cfs Outflow=0.57 cfs 0.040 af

Reach 5R: REACH 5 Avg. Flow Depth=0.12' Max Vel=1.75 fps Inflow=1.01 cfs 0.090 af
n=0.035 L=360.0' S=0.0300 '/' Capacity=384.63 cfs Outflow=0.87 cfs 0.090 af

Reach 6R: 15" SD Avg. Flow Depth=0.63' Max Vel=3.73 fps Inflow=2.29 cfs 0.144 af
15.0" Round Pipe n=0.013 L=38.0' S=0.0050 '/' Capacity=4.57 cfs Outflow=2.29 cfs 0.144 af

Reach SP1: SUMMATION POINT 1 Inflow=3.21 cfs 0.163 af
Outflow=3.21 cfs 0.163 af

Reach SP2: SUMMATION POINT 2 Inflow=1.90 cfs 0.636 af
Outflow=1.90 cfs 0.636 af

Reach SP3: SUMMATION POINT 3 Inflow=1.44 cfs 0.388 af
Outflow=1.44 cfs 0.388 af

Reach SP4: SUMMATION POINT 4 Inflow=13.26 cfs 1.098 af
Outflow=13.26 cfs 1.098 af

Pond 1P: WETPOND A Peak Elev=76.42' Storage=37,503 cf Inflow=17.75 cfs 1.340 af
Primary=1.73 cfs 0.555 af Secondary=0.00 cfs 0.000 af Outflow=1.73 cfs 0.555 af

Pond 2P: WETPOND B Peak Elev=72.59' Storage=22,801 cf Inflow=16.15 cfs 0.795 af
Primary=0.40 cfs 0.261 af Secondary=0.64 cfs 0.063 af Outflow=1.04 cfs 0.325 af

Pond 3P: WETLAND STORAGE Peak Elev=80.83' Storage=5,580 cf Inflow=14.50 cfs 0.908 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=10.31 cfs 0.905 af

Pond 4P: GUSF 2 Peak Elev=76.89' Storage=468 cf Inflow=0.93 cfs 0.041 af
Primary=0.10 cfs 0.035 af Secondary=0.60 cfs 0.006 af Outflow=0.70 cfs 0.041 af

Pond 5P: GUSF 1 Peak Elev=83.64' Storage=623 cf Inflow=1.07 cfs 0.050 af
Primary=0.10 cfs 0.043 af Secondary=0.60 cfs 0.007 af Outflow=0.70 cfs 0.050 af

Pond 6P: BIO CELL 1 Peak Elev=79.11' Storage=46 cf Inflow=0.21 cfs 0.009 af
Primary=0.10 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.009 af

Pond 7P: BIO CELL 2 Peak Elev=77.28' Storage=75 cf Inflow=0.22 cfs 0.009 af
Primary=0.10 cfs 0.009 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.009 af

Pond 8P: DRIP FILTER Peak Elev=0.71' Storage=57 cf Inflow=0.19 cfs 0.009 af
Outflow=0.17 cfs 0.009 af

Pond 9P: DRIP FILTER Peak Elev=0.76' Storage=61 cf Inflow=0.23 cfs 0.012 af
Outflow=0.22 cfs 0.012 af

Pond 10P: DRIP FILTER Peak Elev=0.81' Storage=65 cf Inflow=0.31 cfs 0.016 af
Outflow=0.29 cfs 0.016 af

Pond 11P: DRIP FILTER Peak Elev=0.75' Storage=60 cf Inflow=0.22 cfs 0.011 af
Outflow=0.22 cfs 0.011 af

Pond CB 1: CB1 Peak Elev=77.33' Inflow=0.93 cfs 0.041 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=0.93 cfs 0.041 af

Pond CB 10: CB10 Peak Elev=82.97' Inflow=1.50 cfs 0.099 af
15.0" Round Culvert n=0.013 L=55.0' S=0.0051 '/' Outflow=1.50 cfs 0.099 af

Pond CB 11: CB11 Peak Elev=83.35' Inflow=2.19 cfs 0.156 af
15.0" Round Culvert n=0.013 L=95.0' S=0.0049 '/' Outflow=2.19 cfs 0.156 af

Pond CB 12: CB12 Peak Elev=83.55' Inflow=1.96 cfs 0.143 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.96 cfs 0.143 af

Pond CB 13: CB13 Peak Elev=83.90' Inflow=1.64 cfs 0.105 af
15.0" Round Culvert n=0.013 L=75.0' S=0.0049 '/' Outflow=1.64 cfs 0.105 af

Pond CB 14: CB 14 Peak Elev=83.55' Inflow=0.33 cfs 0.015 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0910 '/' Outflow=0.33 cfs 0.015 af

Pond CB 15: CB 15 Peak Elev=81.99' Inflow=1.43 cfs 0.063 af
15.0" Round Culvert n=0.013 L=135.0' S=0.0200 '/' Outflow=1.43 cfs 0.063 af

Pond CB 16: CB 16 Peak Elev=82.20' Inflow=1.11 cfs 0.048 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=1.11 cfs 0.048 af

Pond CB 17: CB 17 Peak Elev=82.42' Inflow=0.43 cfs 0.019 af
15.0" Round Culvert n=0.013 L=76.0' S=0.0050 '/' Outflow=0.43 cfs 0.019 af

Pond CB 18: CB 18 Peak Elev=79.33' Inflow=2.00 cfs 0.091 af
15.0" Round Culvert n=0.013 L=73.0' S=0.0100 '/' Outflow=2.00 cfs 0.091 af

Pond CB 2: CB2 Peak Elev=78.36' Inflow=0.93 cfs 0.041 af
6.0" Round Culvert n=0.013 L=15.0' S=0.0053 '/' Outflow=0.93 cfs 0.041 af

Pond CB 20: CB20 Peak Elev=79.44' Inflow=1.13 cfs 0.053 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.13 cfs 0.053 af

Pond CB 21: CB21 Peak Elev=79.37' Inflow=1.87 cfs 0.088 af
15.0" Round Culvert n=0.013 L=116.0' S=0.0285 '/' Outflow=1.87 cfs 0.088 af

Pond CB 22: CB22 Peak Elev=75.82' Inflow=6.26 cfs 0.295 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=6.26 cfs 0.295 af

Pond CB 23: CB23 Peak Elev=75.83' Inflow=7.92 cfs 0.385 af
24.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=7.92 cfs 0.385 af

Pond CB 24: CB 24 Peak Elev=76.58' Inflow=15.11 cfs 0.750 af
24.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=15.11 cfs 0.750 af

Pond CB 25: CB25 Peak Elev=78.13' Inflow=3.64 cfs 0.177 af
15.0" Round Culvert n=0.013 L=150.0' S=0.0107 '/' Outflow=3.64 cfs 0.177 af

Pond CB 26: CB26 Peak Elev=79.53' Inflow=3.16 cfs 0.152 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0132 '/' Outflow=3.16 cfs 0.152 af

Pond CB 27: CB27 Peak Elev=79.53' Inflow=1.80 cfs 0.085 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=1.80 cfs 0.085 af

Pond CB 4: CB4 Peak Elev=82.79' Inflow=1.07 cfs 0.050 af
15.0" Round Culvert n=0.013 L=10.0' S=0.0050 '/' Outflow=1.07 cfs 0.050 af

Pond CB 5: CB5 Peak Elev=82.39' Inflow=3.75 cfs 0.261 af
15.0" Round Culvert n=0.013 L=62.0' S=0.0050 '/' Outflow=3.75 cfs 0.261 af

Pond CB 6: CB6 Peak Elev=82.44' Inflow=2.80 cfs 0.208 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0050 '/' Outflow=2.80 cfs 0.208 af

Pond CB 7: CB7 Peak Elev=82.34' Inflow=9.09 cfs 0.632 af
24.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=9.09 cfs 0.632 af

Pond CB 8: CB8 Peak Elev=83.37' Inflow=4.72 cfs 0.337 af
15.0" Round Culvert n=0.013 L=42.0' S=0.0050 '/' Outflow=4.72 cfs 0.337 af

Pond CB 9: CB9 Peak Elev=82.70' Inflow=1.77 cfs 0.138 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0050 '/' Outflow=1.77 cfs 0.138 af

Pond CB19: CB19 Peak Elev=77.59' Inflow=3.01 cfs 0.150 af
15.0" Round Culvert n=0.013 L=40.0' S=0.0150 '/' Outflow=3.01 cfs 0.150 af

Total Runoff Area = 16.826 ac Runoff Volume = 3.545 af Average Runoff Depth = 2.53"
75.20% Pervious = 12.654 ac 24.80% Impervious = 4.172 ac

Summary for Subcatchment SC 10: 10

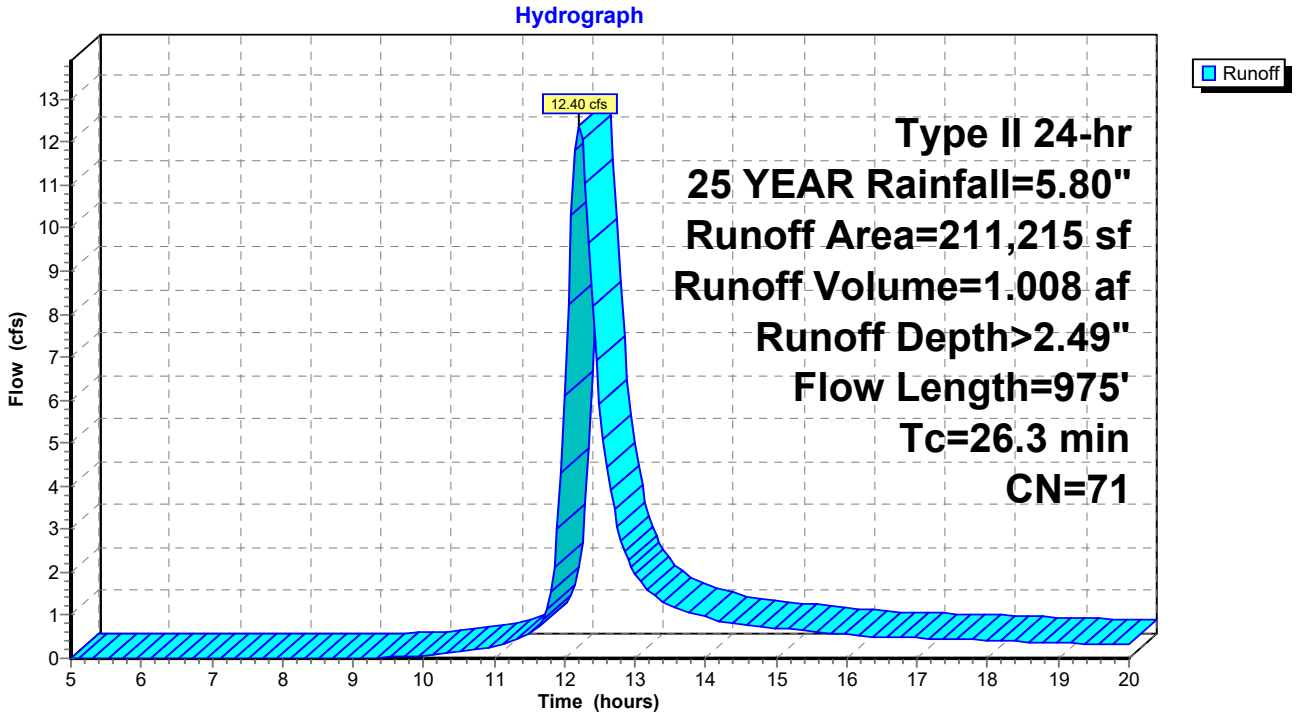
Runoff = 12.40 cfs @ 12.21 hrs, Volume= 1.008 af, Depth> 2.49"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	67	39	>75% Grass cover, Good, HSG A
	49,329	60	Woods, Fair, HSG B
	11,304	61	>75% Grass cover, Good, HSG B
	121,487	73	Woods, Fair, HSG C
	10,078	74	>75% Grass cover, Good, HSG C
	4,535	79	Woods, Fair, HSG D
*	14,415	98	IMPERVIOUS
	211,215	71	Weighted Average
	196,800		93.18% Pervious Area
	14,415		6.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.7	140	0.0300	0.87		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	75	0.0100	10.72	386.00	**Channel Flow,** Area= 36.0 sf Perim= 18.0' r= 2.00' n= 0.022 Earth, clean & straight
0.8	470	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
26.3	975	Total			

Subcatchment SC 10: 10



Summary for Subcatchment SC 11: 11

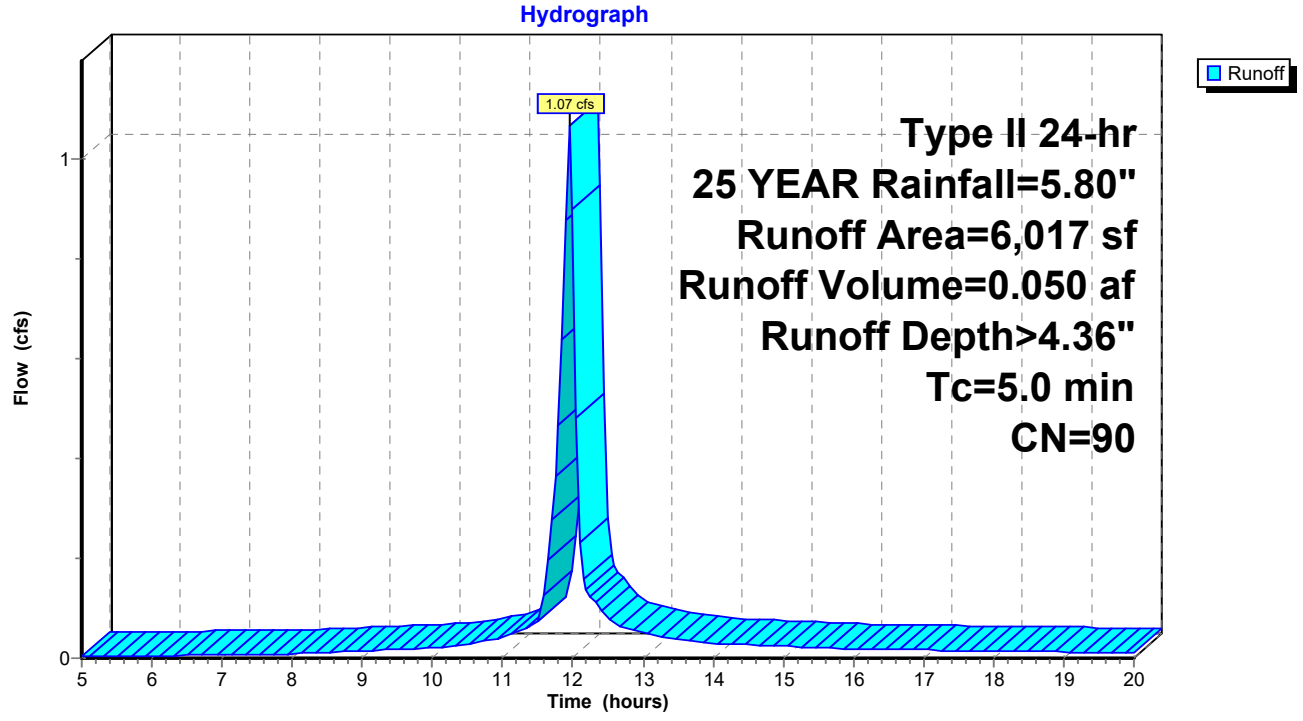
Runoff = 1.07 cfs @ 11.95 hrs, Volume= 0.050 af, Depth> 4.36"
Routed to Pond CB 4 : CB4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	2,079	74	>75% Grass cover, Good, HSG C
*	3,938	98	IMPERVIOUS
	6,017	90	Weighted Average
	2,079		34.55% Pervious Area
	3,938		65.45% Impervious Area

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

Subcatchment SC 11: 11



Summary for Subcatchment SC 12: 12

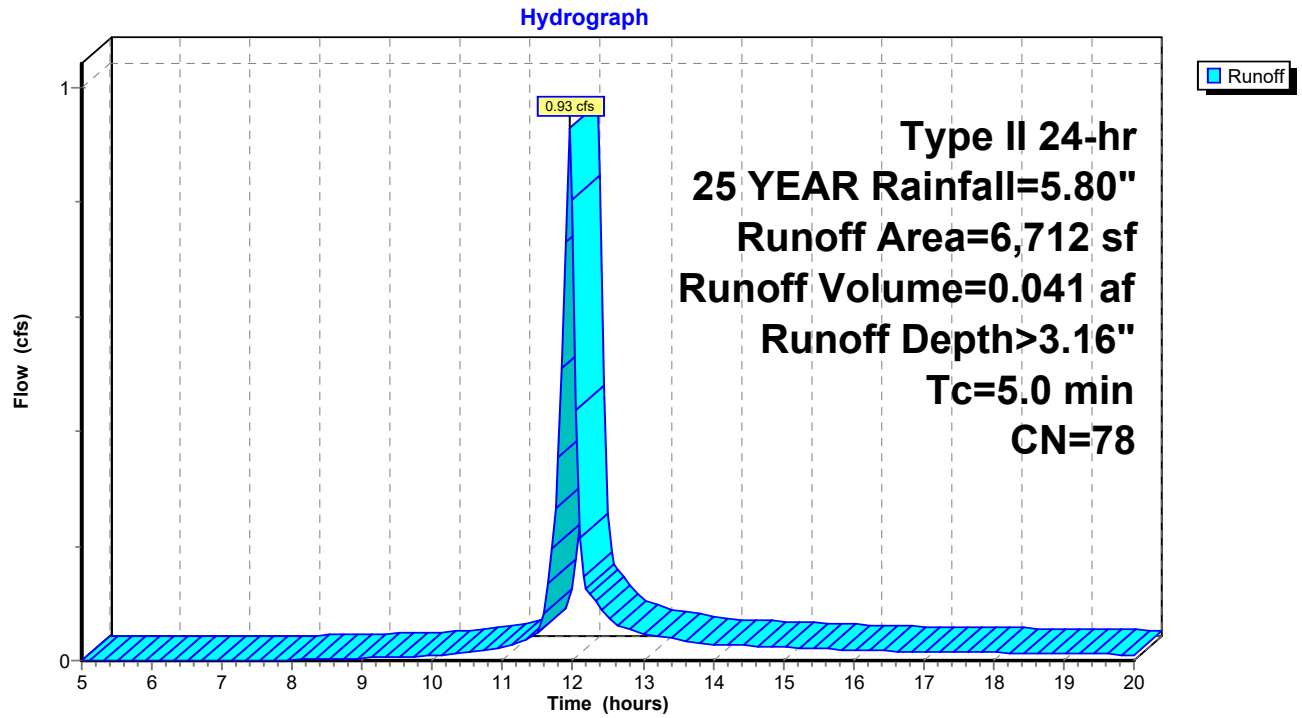
Runoff = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af, Depth> 3.16"
Routed to Pond CB 1 : CB1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,115	39	>75% Grass cover, Good, HSG A
	2,968	74	>75% Grass cover, Good, HSG C
*	2,629	98	IMPERVIOUS
	6,712	78	Weighted Average
	4,083		60.83% Pervious Area
	2,629		39.17% Impervious Area

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

Subcatchment SC 12: 12



Summary for Subcatchment SC 1A: 1A

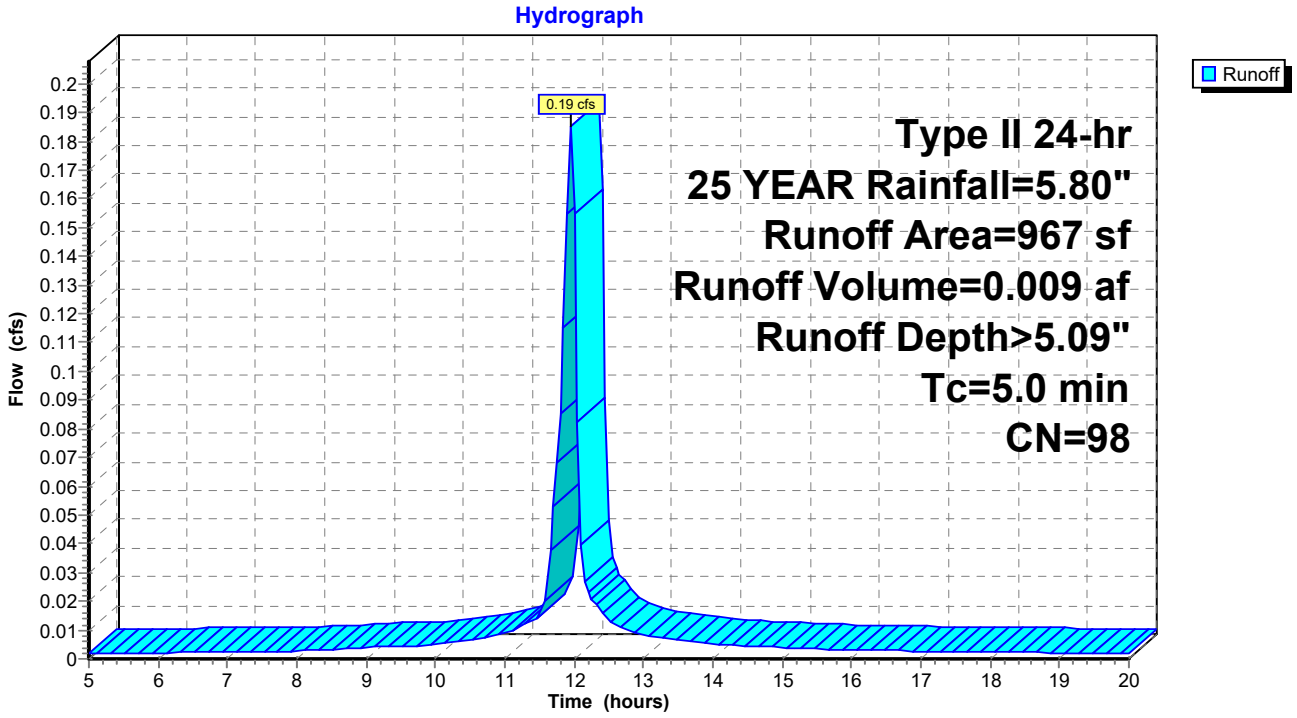
Runoff = 0.19 cfs @ 11.95 hrs, Volume= 0.009 af, Depth> 5.09"
Routed to Pond 8P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	967	98	IMPERVIOUS
	967		100.00% Impervious Area

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

Subcatchment SC 1A: 1A



Summary for Subcatchment SC 1B: 1B

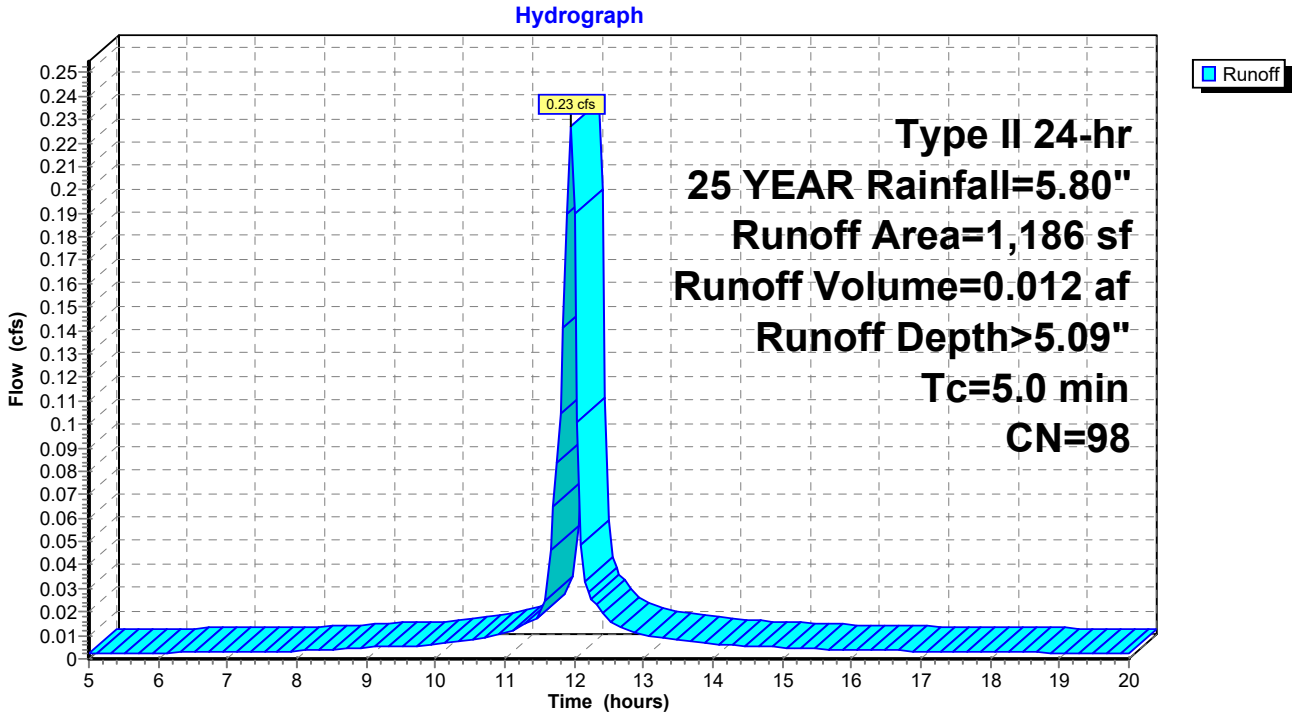
Runoff = 0.23 cfs @ 11.95 hrs, Volume= 0.012 af, Depth> 5.09"
Routed to Pond 9P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,186	98	IMPERVIOUS
	1,186		100.00% Impervious Area

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

Subcatchment SC 1B: 1B



Summary for Subcatchment SC 1C: 1C

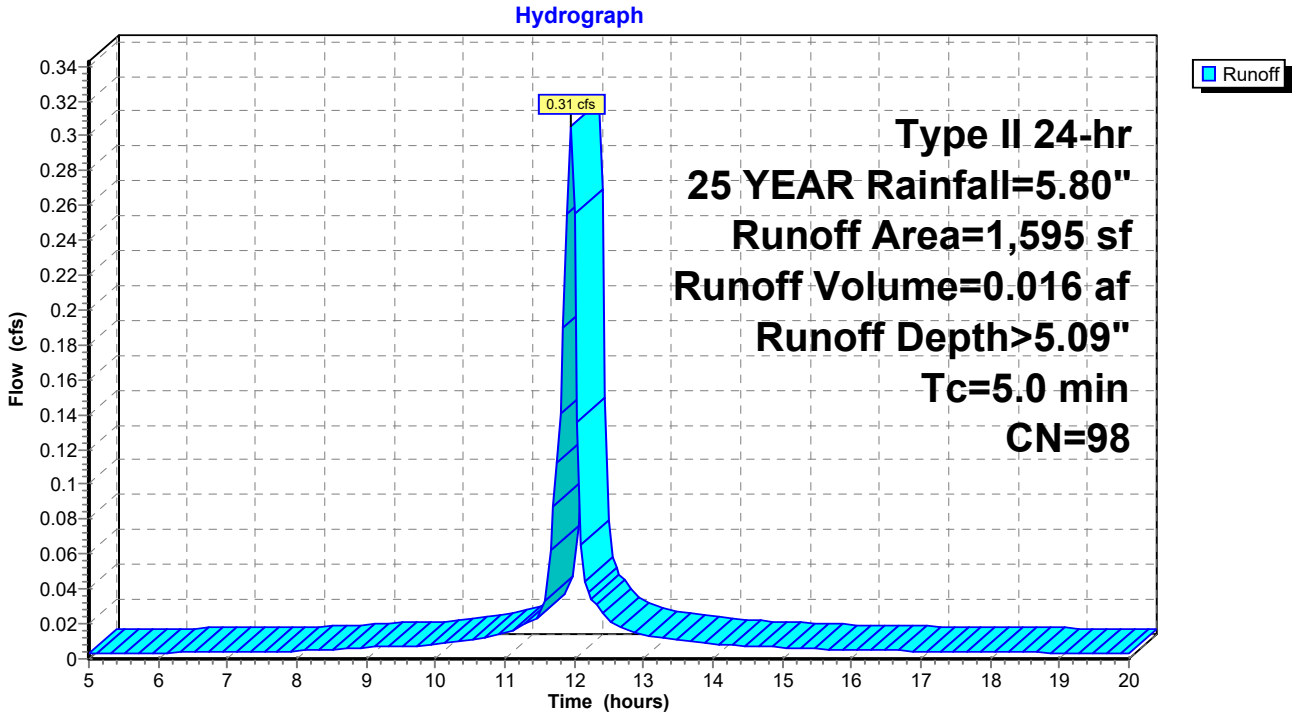
Runoff = 0.31 cfs @ 11.95 hrs, Volume= 0.016 af, Depth> 5.09"
Routed to Pond 10P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,595	98	IMPERVIOUS
	1,595		100.00% Impervious Area

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

Subcatchment SC 1C: 1C



Summary for Subcatchment SC 1D: 1D

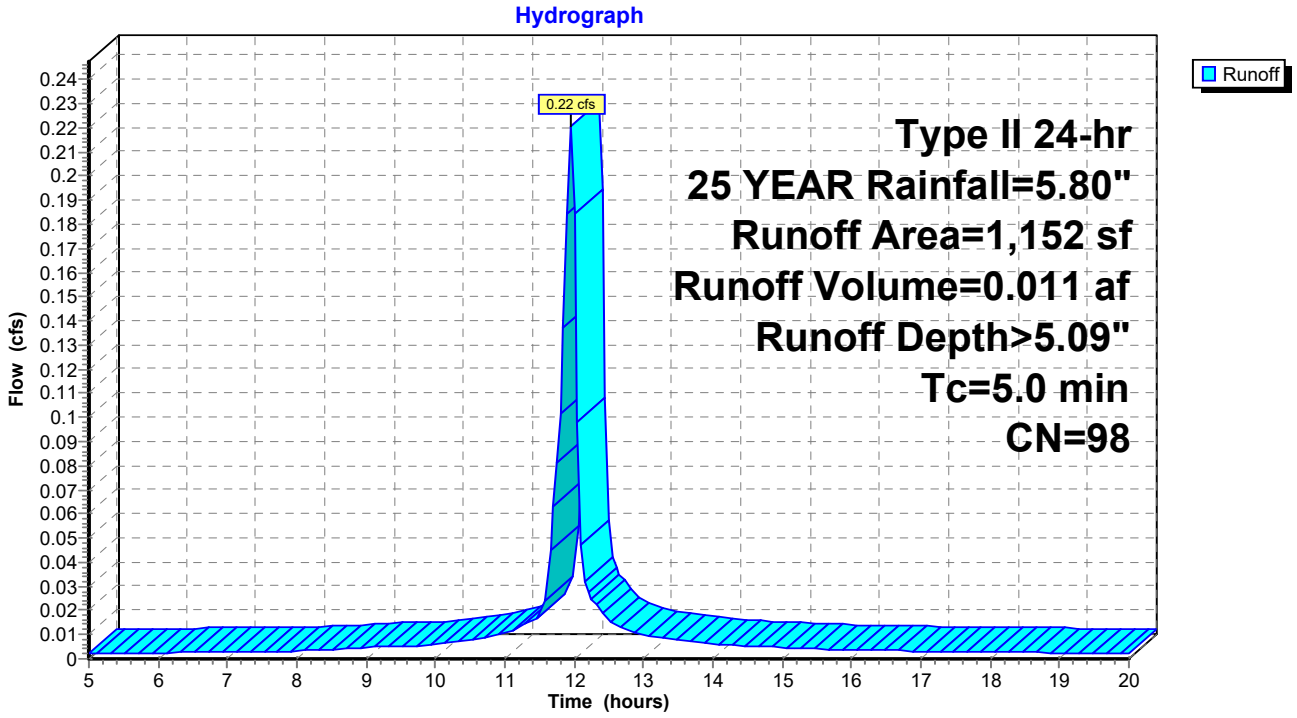
Runoff = 0.22 cfs @ 11.95 hrs, Volume= 0.011 af, Depth> 5.09"
Routed to Pond 11P : DRIP FILTER

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	1,152	98	IMPERVIOUS
	1,152		100.00% Impervious Area

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

Subcatchment SC 1D: 1D



Summary for Subcatchment SC 1E: 1E

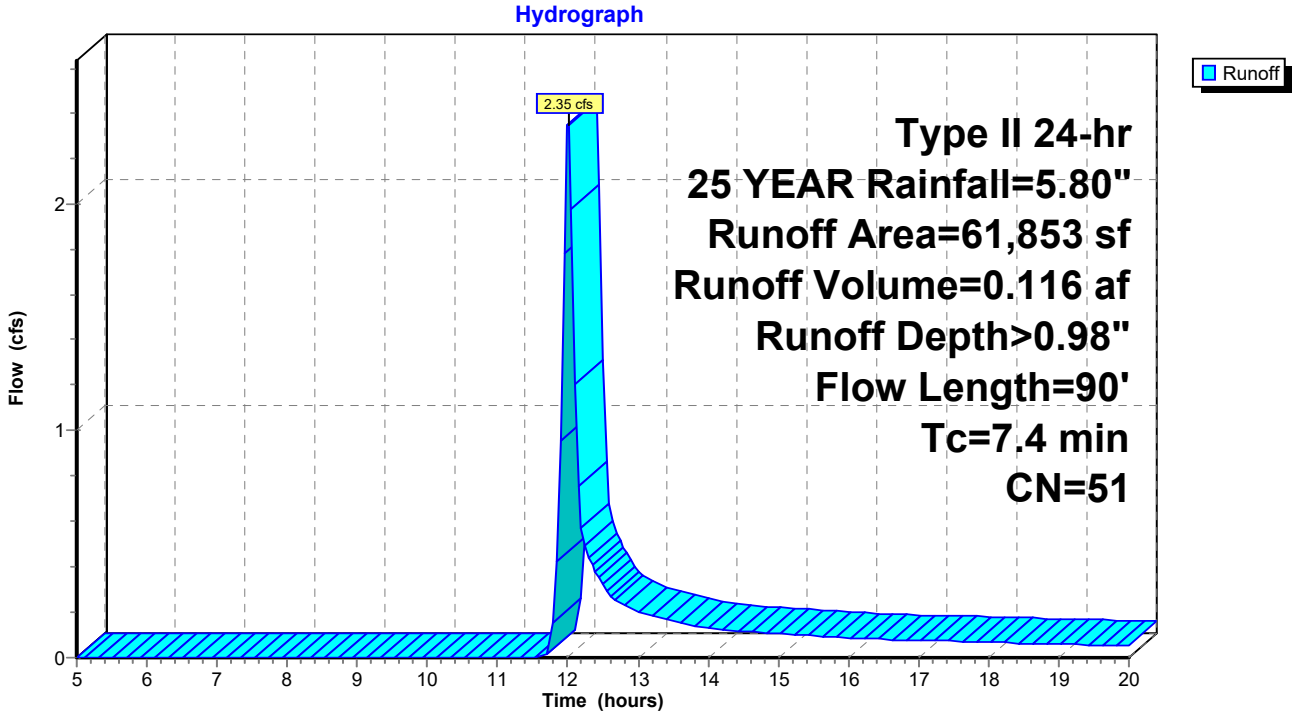
Runoff = 2.35 cfs @ 12.01 hrs, Volume= 0.116 af, Depth> 0.98"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

Area (sf)	CN	Description
34,276	36	Woods, Fair, HSG A
21,674	73	Woods, Fair, HSG C
2,952	39	>75% Grass cover, Good, HSG A
2,951	74	>75% Grass cover, Good, HSG C
61,853	51	Weighted Average
61,853		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1200	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.4	90	Total			

Subcatchment SC 1E: 1E



Summary for Subcatchment SC 2A: 2A

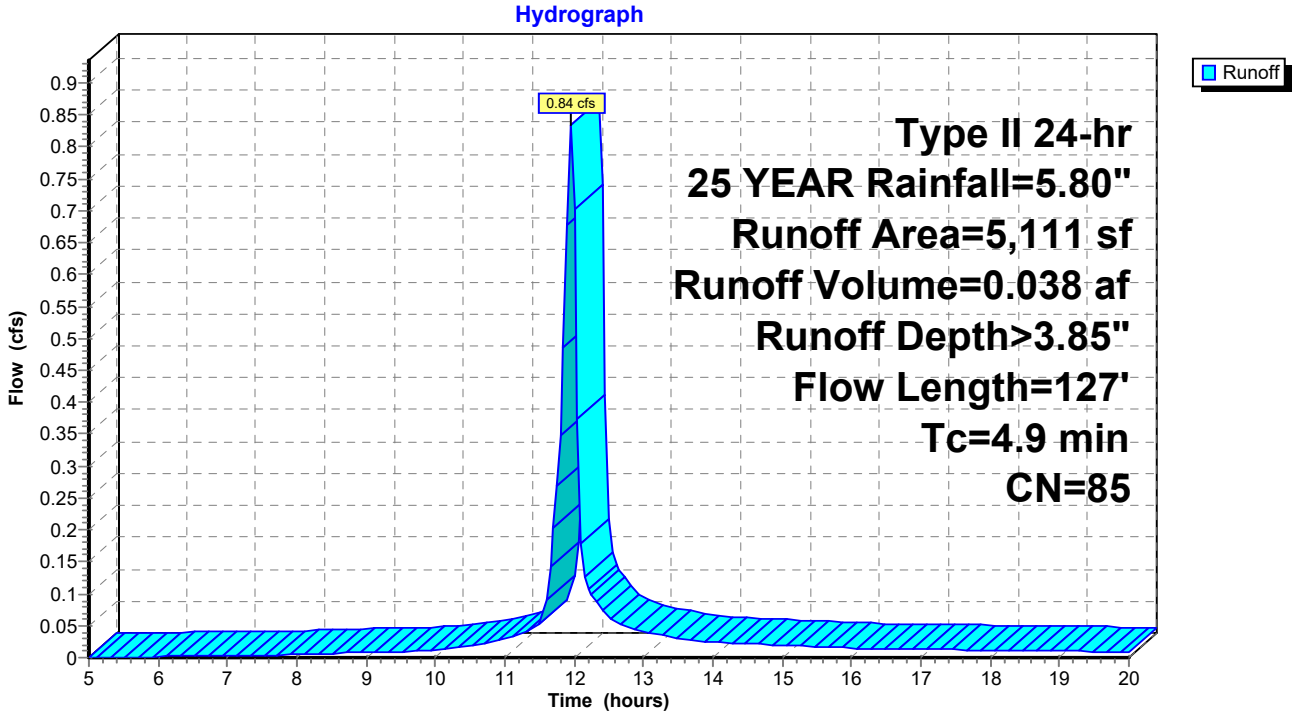
Runoff = 0.84 cfs @ 11.95 hrs, Volume= 0.038 af, Depth> 3.85"
Routed to Pond CB 12 : CB12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	845	39	>75% Grass cover, Good, HSG A
	764	74	>75% Grass cover, Good, HSG C
*	3,502	98	IMPERVIOUS
	5,111	85	Weighted Average
	1,609		31.48% Pervious Area
	3,502		68.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
4.3	35	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.5	80	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.9	127	Total			

Subcatchment SC 2A: 2A



Summary for Subcatchment SC 2B: 2B

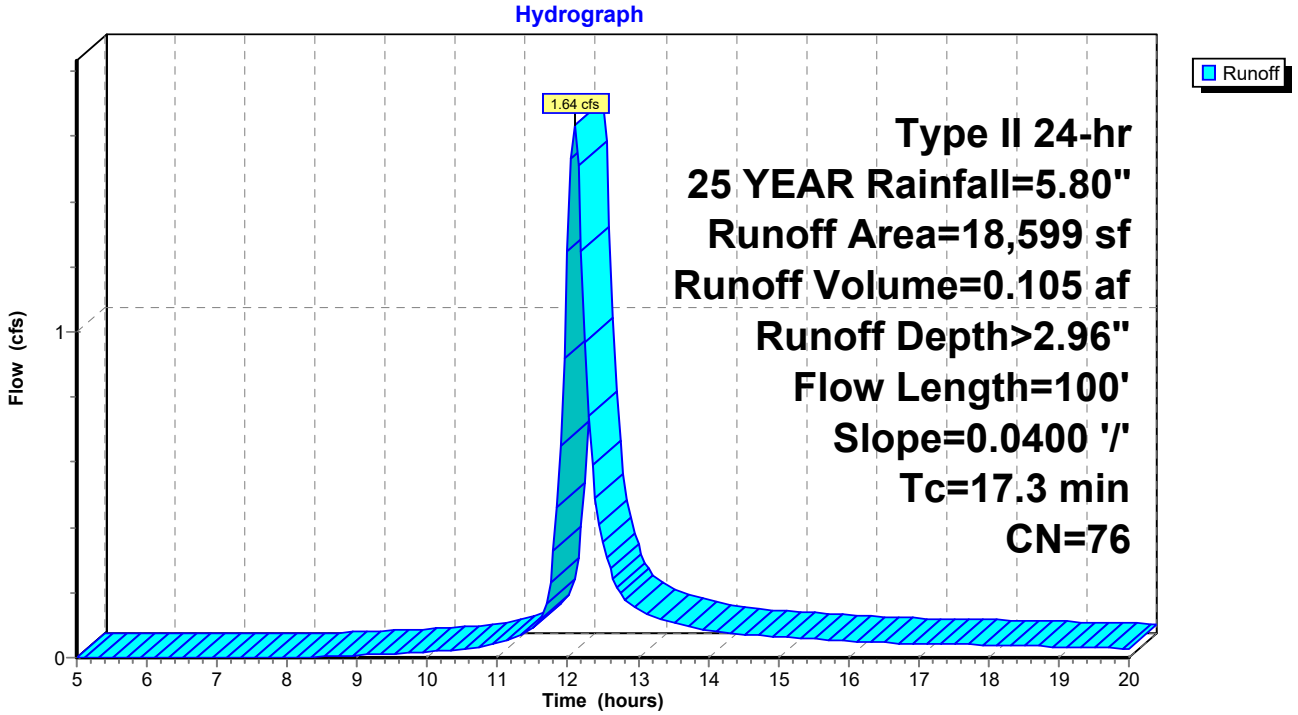
Runoff = 1.64 cfs @ 12.10 hrs, Volume= 0.105 af, Depth> 2.96"
Routed to Pond CB 13 : CB13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	12,451	73	Woods, Fair, HSG C
	4,024	74	>75% Grass cover, Good, HSG C
*	2,124	98	IMPERVIOUS
	18,599	76	Weighted Average
	16,475		88.58% Pervious Area
	2,124		11.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.8	50	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
17.3	100	Total			

Subcatchment SC 2B: 2B



Summary for Subcatchment SC 2C: 2C

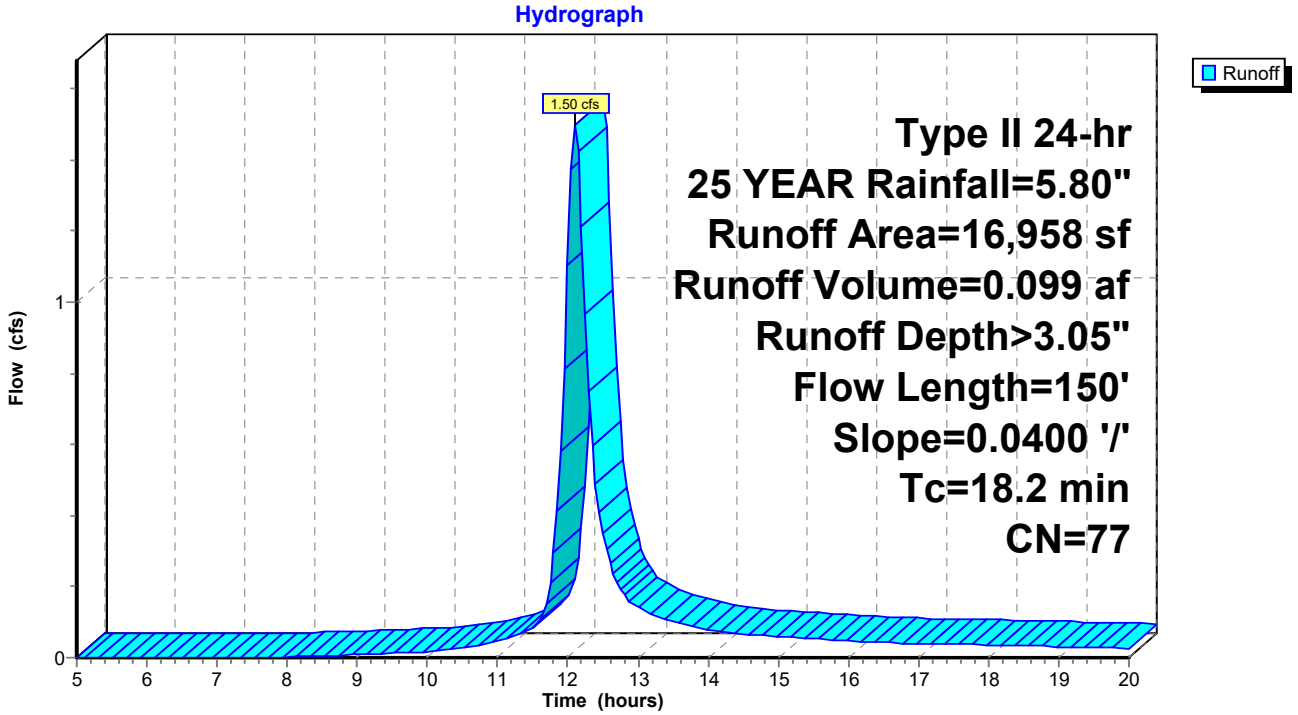
Runoff = 1.50 cfs @ 12.11 hrs, Volume= 0.099 af, Depth> 3.05"
Routed to Pond CB 10 : CB10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	10,994	73	Woods, Fair, HSG C
	3,426	74	>75% Grass cover, Good, HSG C
*	2,538	98	IMPERVIOUS
	16,958	77	Weighted Average
	14,420		85.03% Pervious Area
	2,538		14.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	50	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.7	100	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	150	Total			

Subcatchment SC 2C: 2C



Summary for Subcatchment SC 2D: 2D

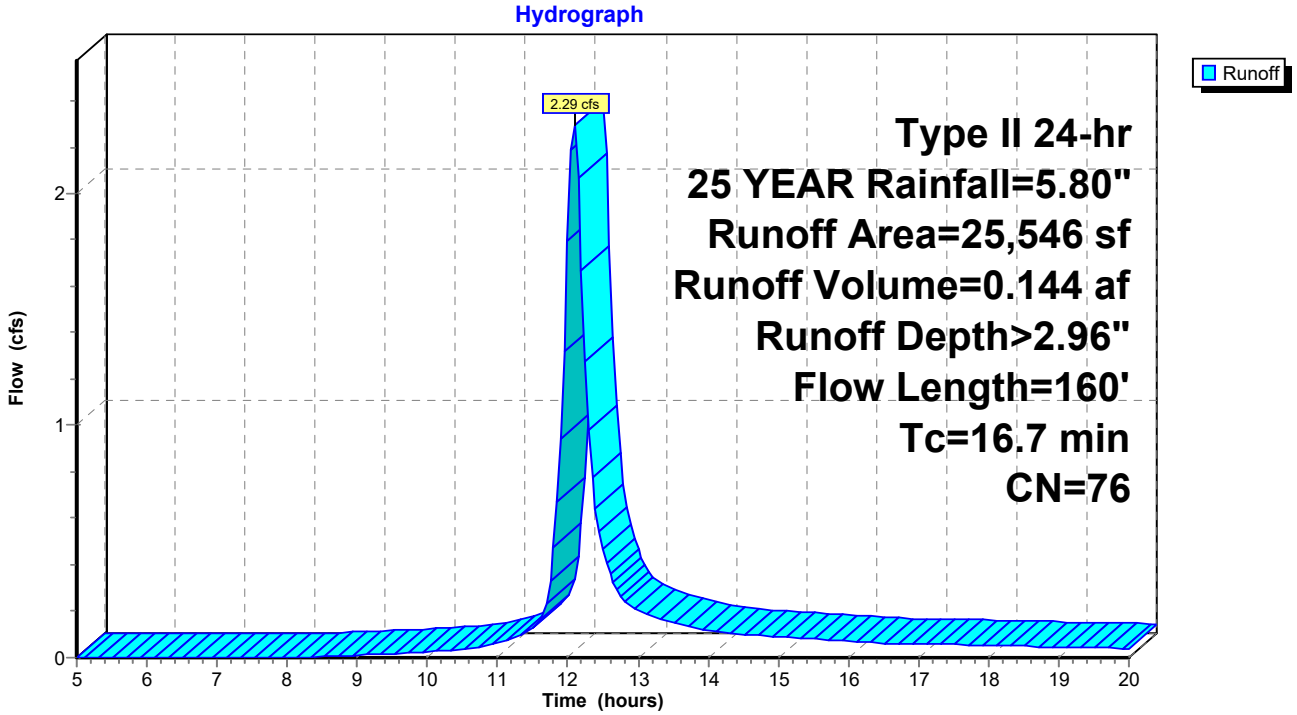
Runoff = 2.29 cfs @ 12.09 hrs, Volume= 0.144 af, Depth> 2.96"
Routed to Reach 6R : 15" SD

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	20,100	73	Woods, Fair, HSG C
	2,985	74	>75% Grass cover, Good, HSG C
*	2,461	98	IMPERVIOUS
	25,546	76	Weighted Average
	23,085		90.37% Pervious Area
	2,461		9.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	50	0.0600	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	110	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
16.7	160	Total			

Subcatchment SC 2D: 2D



Summary for Subcatchment SC 2E: 2E

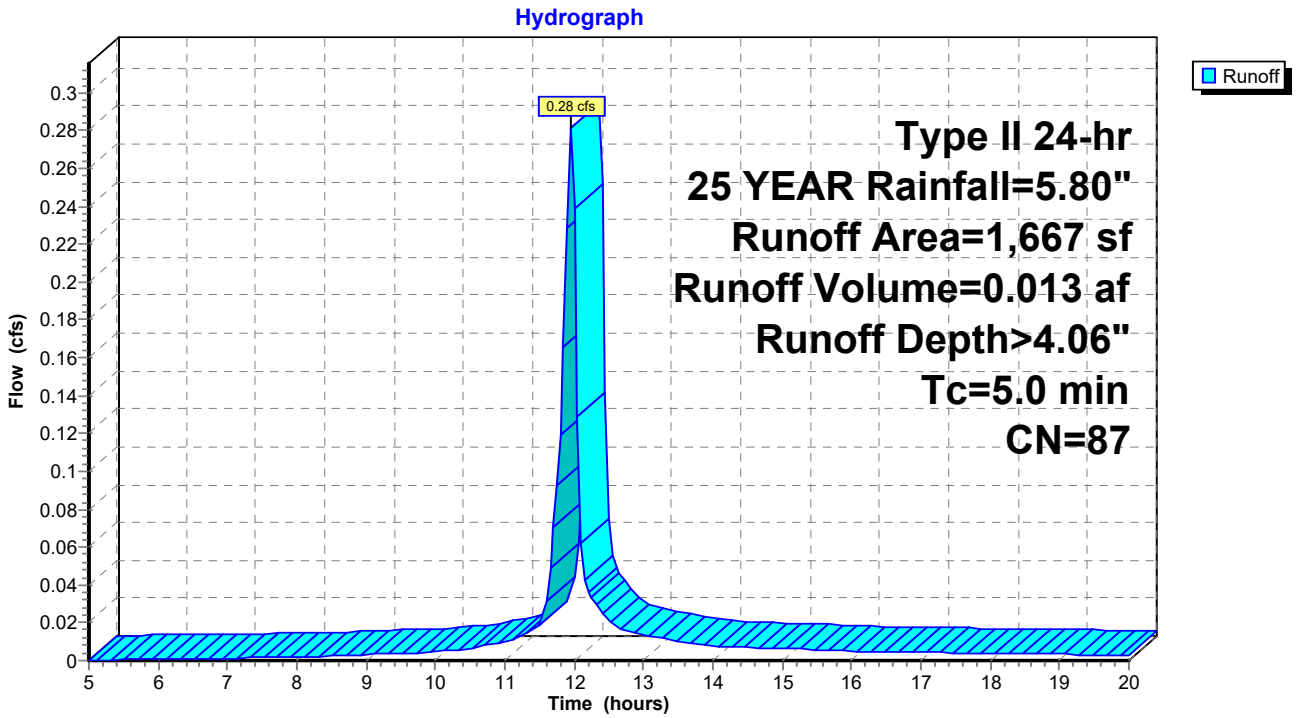
Runoff = 0.28 cfs @ 11.95 hrs, Volume= 0.013 af, Depth> 4.06"
Routed to Pond CB 11 : CB11

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	251	39	>75% Grass cover, Good, HSG A
	121	74	>75% Grass cover, Good, HSG C
*	1,295	98	IMPERVIOUS
	1,667	87	Weighted Average
	372		22.32% Pervious Area
	1,295		77.68% Impervious Area

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

Subcatchment SC 2E: 2E



Summary for Subcatchment SC 2F: 2F

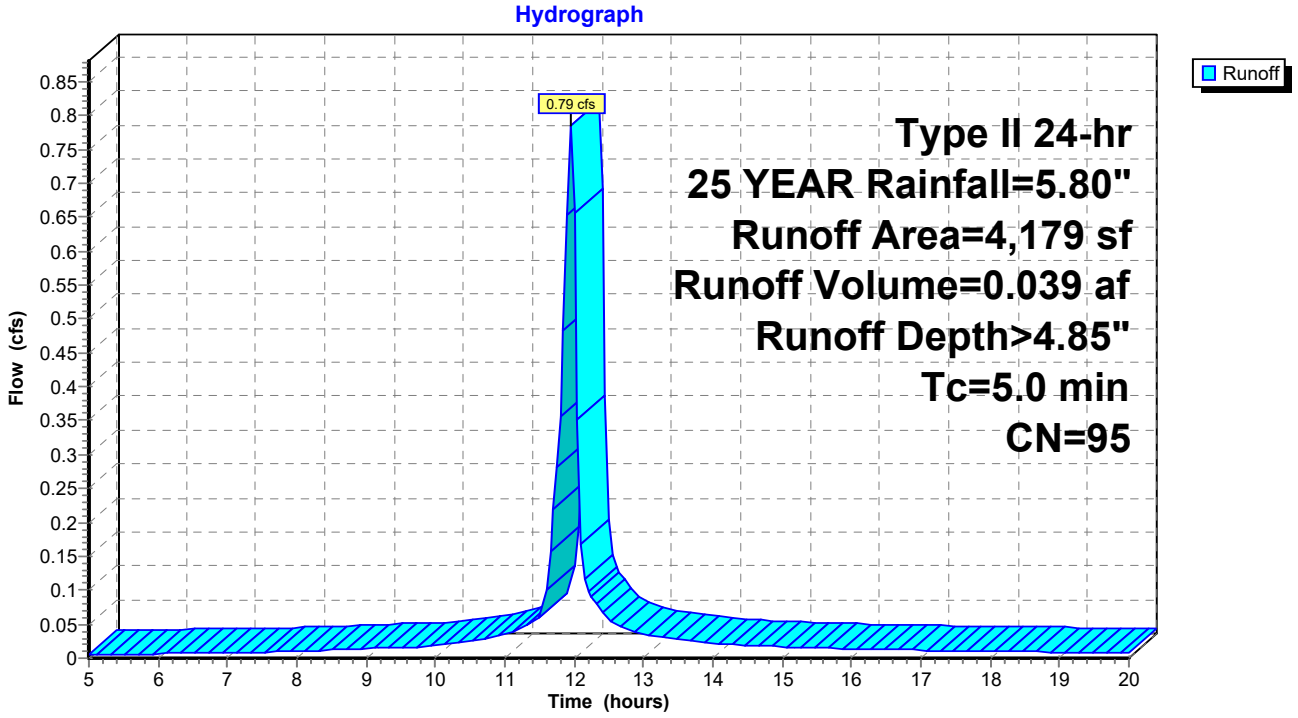
Runoff = 0.79 cfs @ 11.95 hrs, Volume= 0.039 af, Depth> 4.85"
Routed to Pond CB 9 : CB9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	443	74	>75% Grass cover, Good, HSG C
*	3,736	98	IMPERVIOUS
	4,179	95	Weighted Average
	443		10.60% Pervious Area
	3,736		89.40% Impervious Area

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

Subcatchment SC 2F: 2F



Summary for Subcatchment SC 2G: 2G

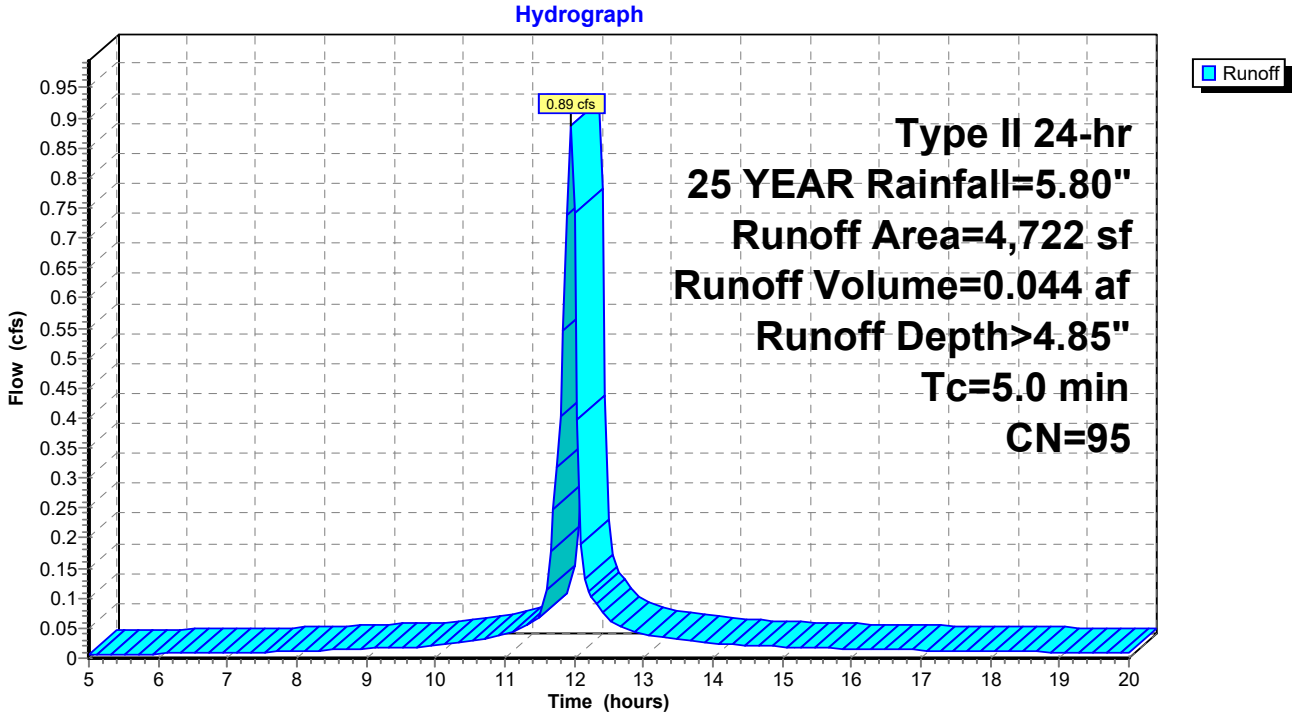
Runoff = 0.89 cfs @ 11.95 hrs, Volume= 0.044 af, Depth> 4.85"
Routed to Pond CB 8 : CB8

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	537	74	>75% Grass cover, Good, HSG C
*	4,185	98	IMPERVIOUS
	4,722	95	Weighted Average
	537		11.37% Pervious Area
	4,185		88.63% Impervious Area

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

Subcatchment SC 2G: 2G



Summary for Subcatchment SC 2H: 2H

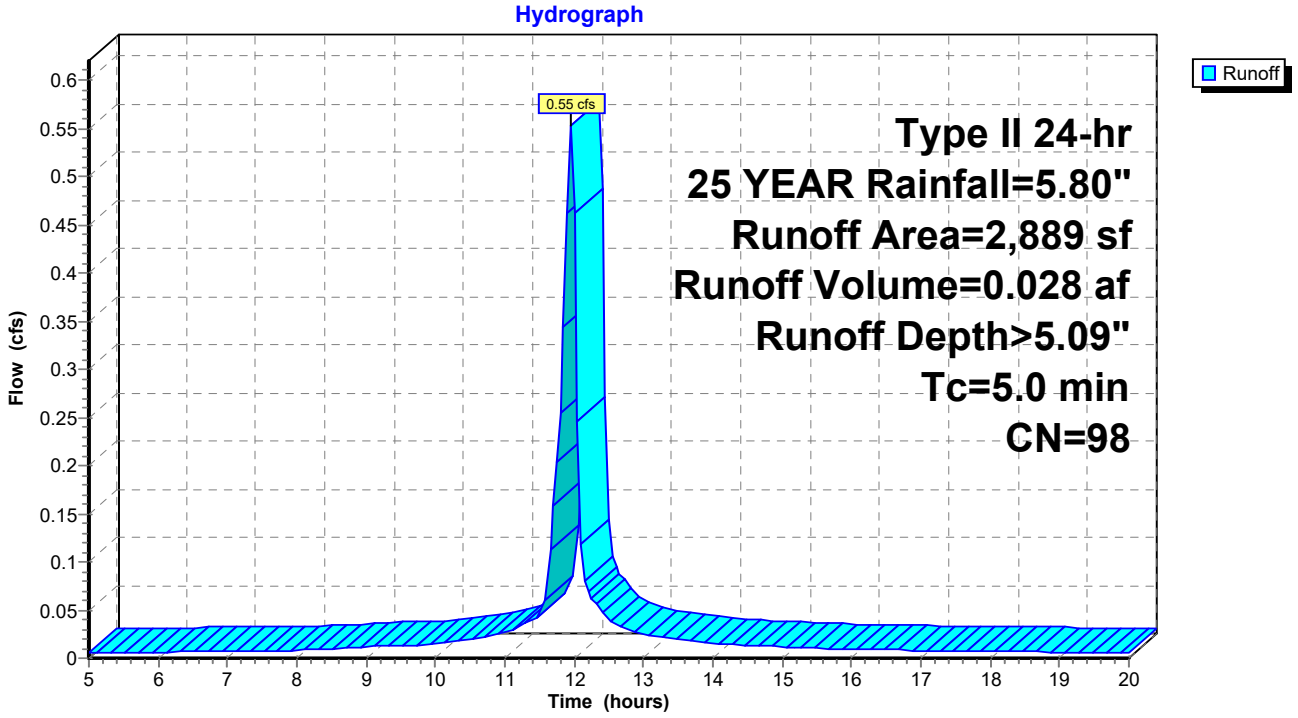
Runoff = 0.55 cfs @ 11.95 hrs, Volume= 0.028 af, Depth> 5.09"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	60	74	>75% Grass cover, Good, HSG C
*	2,829	98	IMPERVIOUS
	2,889	98	Weighted Average
	60		2.08% Pervious Area
	2,829		97.92% Impervious Area

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

Subcatchment SC 2H: 2H



Summary for Subcatchment SC 2I: 2I

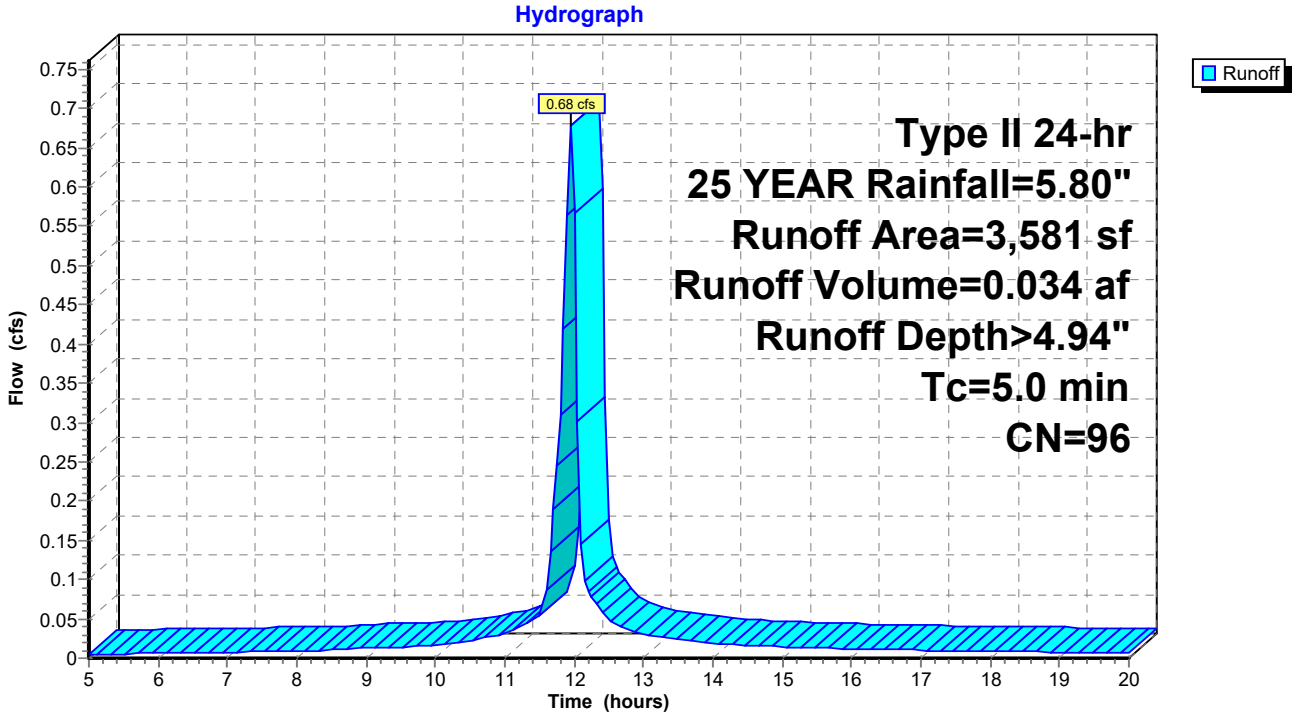
Runoff = 0.68 cfs @ 11.95 hrs, Volume= 0.034 af, Depth> 4.94"
Routed to Pond CB 7 : CB7

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	340	74	>75% Grass cover, Good, HSG C
*	3,241	98	IMPERVIOUS
	3,581	96	Weighted Average
	340		9.49% Pervious Area
	3,241		90.51% Impervious Area

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

Subcatchment SC 2I: 2I



Summary for Subcatchment SC 2J: 2J

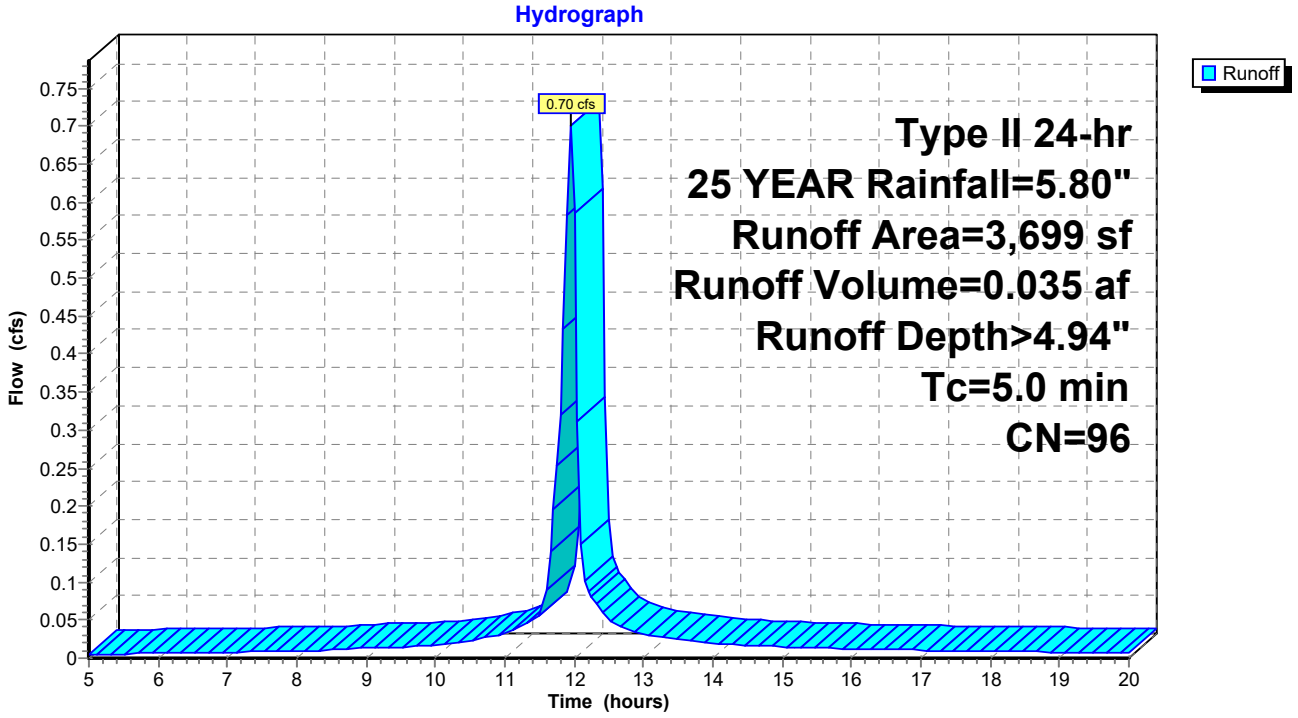
Runoff = 0.70 cfs @ 11.95 hrs, Volume= 0.035 af, Depth> 4.94"
Routed to Pond CB 6 : CB6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	251	74	>75% Grass cover, Good, HSG C
*	3,448	98	IMPERVIOUS
	3,699	96	Weighted Average
	251		6.79% Pervious Area
	3,448		93.21% Impervious Area

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

Subcatchment SC 2J: 2J



Summary for Subcatchment SC 2K: 2K

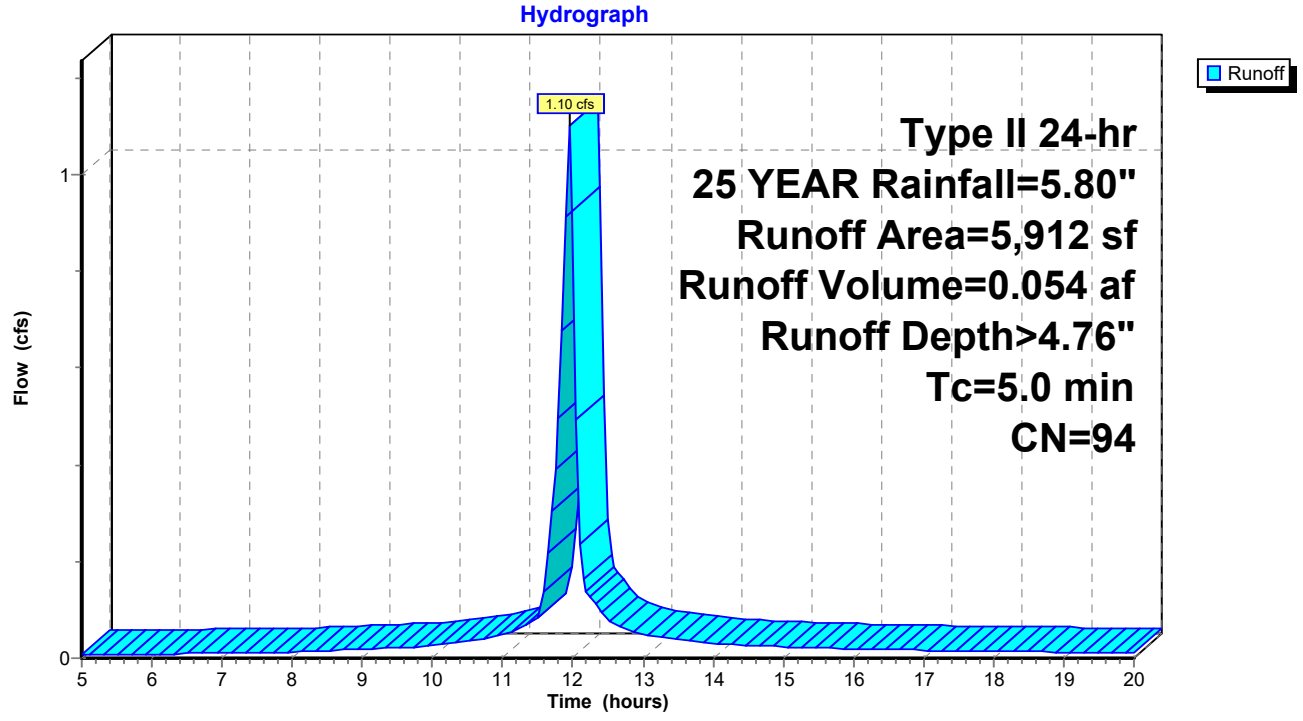
Runoff = 1.10 cfs @ 11.95 hrs, Volume= 0.054 af, Depth> 4.76"
Routed to Pond CB 5 : CB5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	894	74	>75% Grass cover, Good, HSG C
*	5,018	98	IMPERVIOUS
	5,912	94	Weighted Average
	894		15.12% Pervious Area
	5,018		84.88% Impervious Area

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

Subcatchment SC 2K: 2K



Summary for Subcatchment SC 2L: 2L

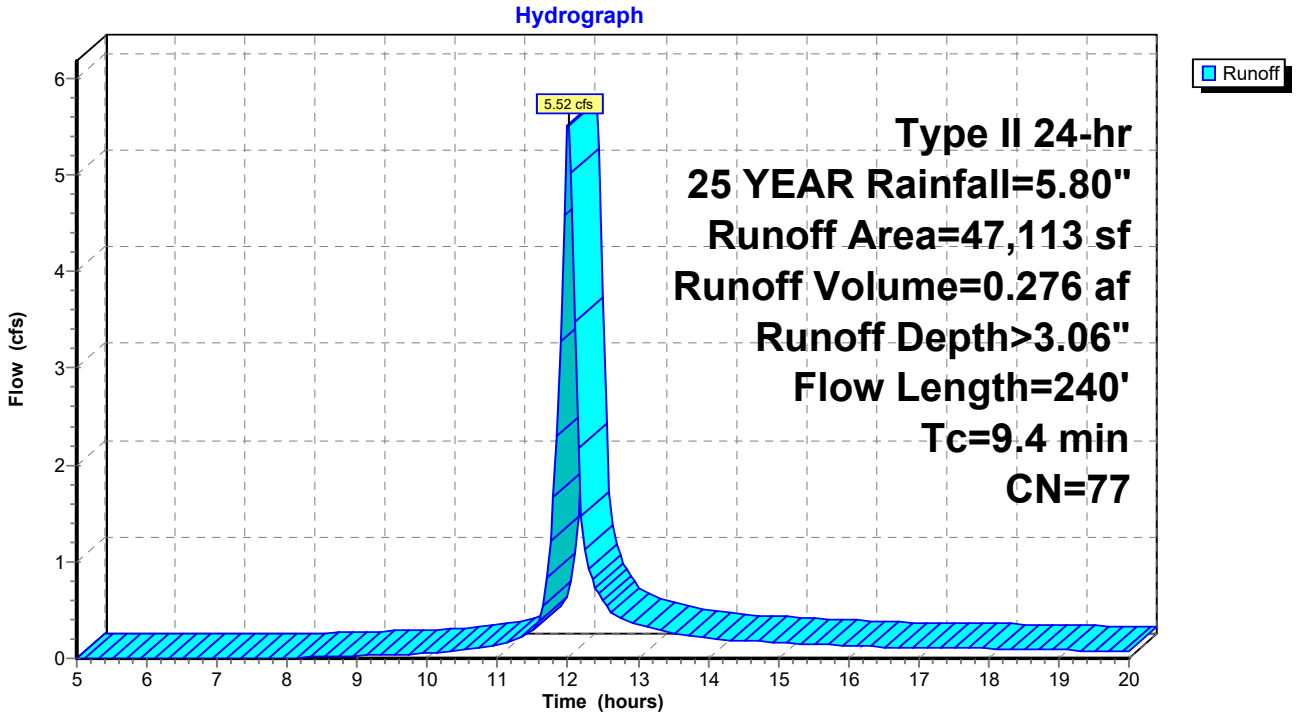
Runoff = 5.52 cfs @ 12.01 hrs, Volume= 0.276 af, Depth> 3.06"
Routed to Pond 3P : WETLAND STORAGE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	965	39	>75% Grass cover, Good, HSG A
	2,059	60	Woods, Fair, HSG B
	2,162	61	>75% Grass cover, Good, HSG B
	12,048	73	Woods, Fair, HSG C
	20,596	74	>75% Grass cover, Good, HSG C
*	9,283	98	IMPERVIOUS
	47,113	77	Weighted Average
	37,830		80.30% Pervious Area
	9,283		19.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	90	0.0500	3.35		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
3.3	100	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.4	240	Total			

Subcatchment SC 2L: 2L



Summary for Subcatchment SC 3A: 3A

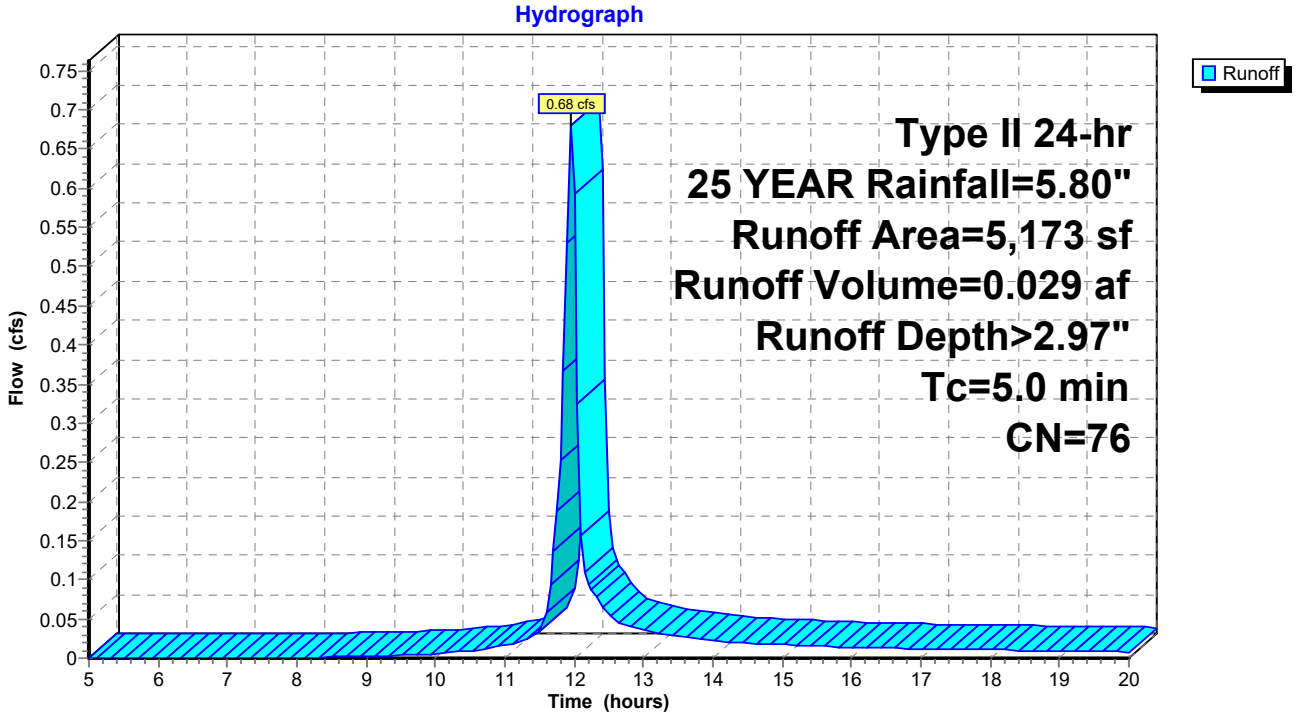
Runoff = 0.68 cfs @ 11.96 hrs, Volume= 0.029 af, Depth> 2.97"
Routed to Pond CB 16 : CB 16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,952	39	>75% Grass cover, Good, HSG A
*	3,221	98	IMPERVIOUS
	5,173	76	Weighted Average
	1,952		37.73% Pervious Area
	3,221		62.27% Impervious Area

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

Subcatchment SC 3A: 3A



Summary for Subcatchment SC 3B: 3B

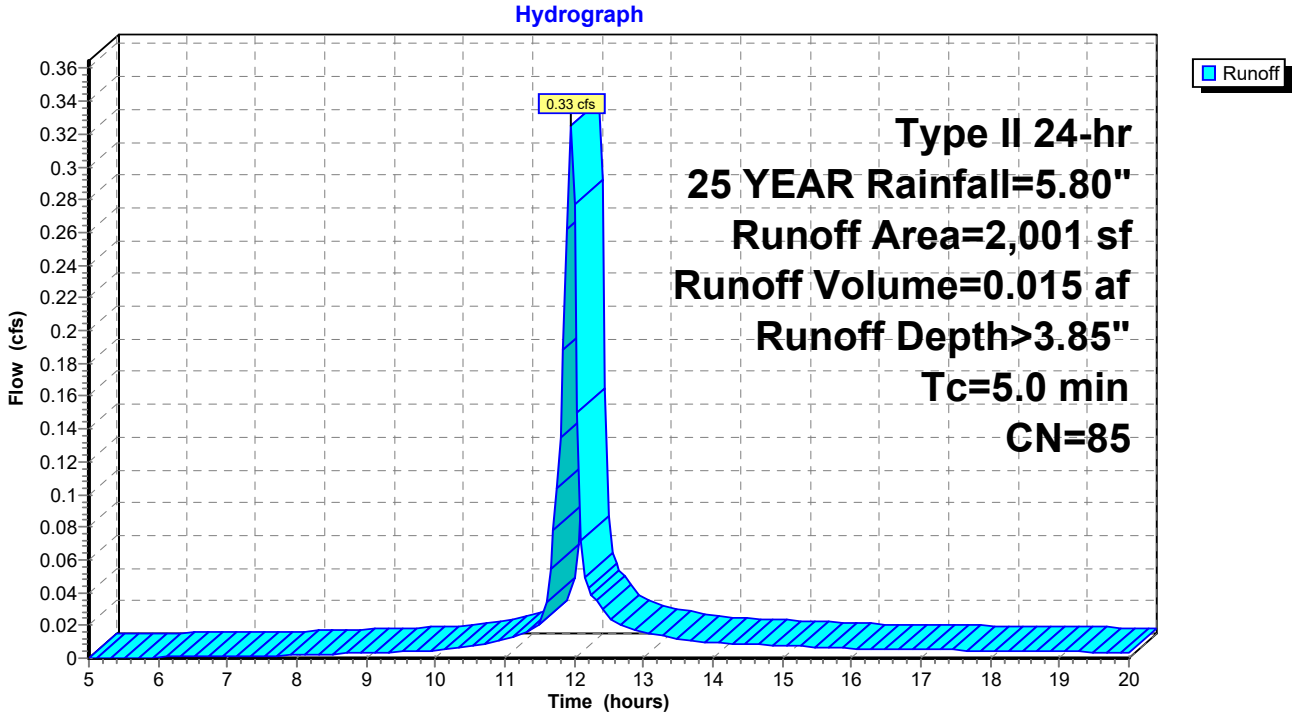
Runoff = 0.33 cfs @ 11.95 hrs, Volume= 0.015 af, Depth> 3.85"
Routed to Pond CB 14 : CB 14

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	427	39	>75% Grass cover, Good, HSG A
*	1,574	98	IMPERVIOUS
	2,001	85	Weighted Average
	427		21.34% Pervious Area
	1,574		78.66% Impervious Area

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

Subcatchment SC 3B: 3B



Summary for Subcatchment SC 3C: 3C

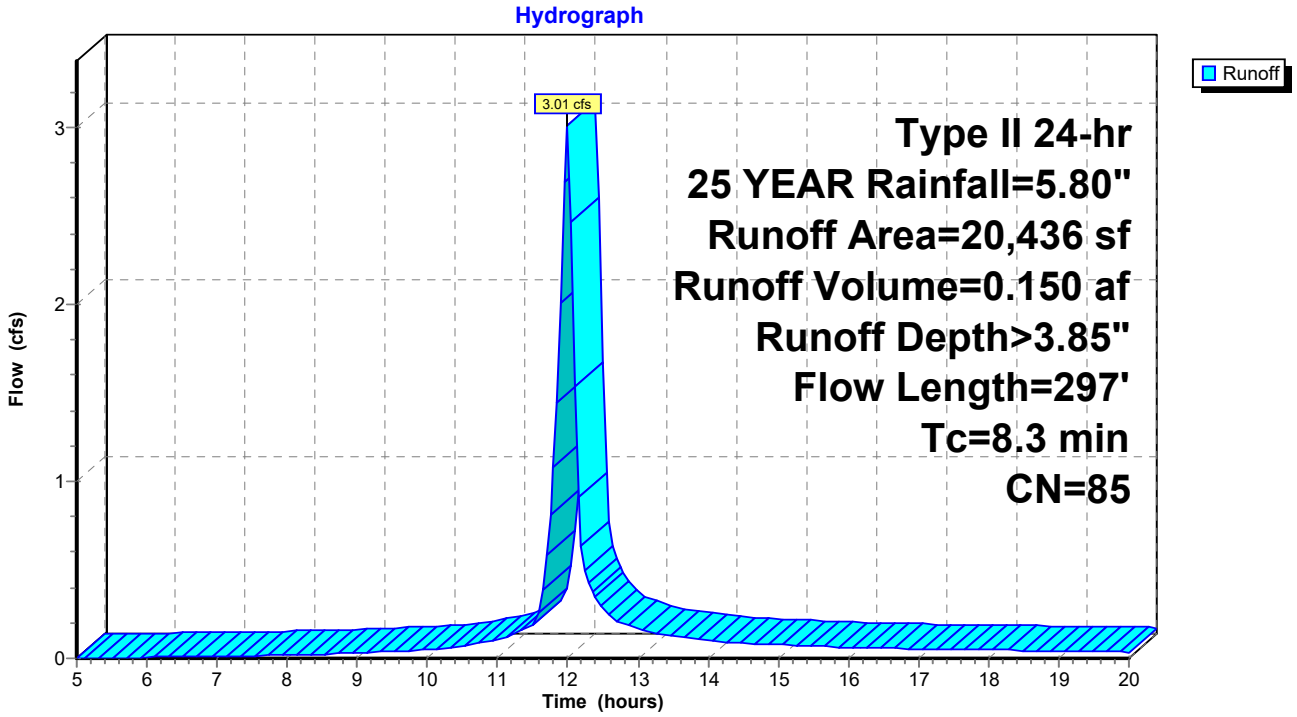
Runoff = 3.01 cfs @ 11.99 hrs, Volume= 0.150 af, Depth> 3.85"
Routed to Pond CB19 : CB19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,684	39	>75% Grass cover, Good, HSG A
	439	60	Woods, Fair, HSG B
	3,700	61	>75% Grass cover, Good, HSG B
	630	74	>75% Grass cover, Good, HSG C
*	13,983	98	IMPERVIOUS
	20,436	85	Weighted Average
	6,453		31.58% Pervious Area
	13,983		68.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.1	65	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	220	0.0250	3.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.3	297	Total			

Subcatchment SC 3C: 3C



Summary for Subcatchment SC 3D: 3D

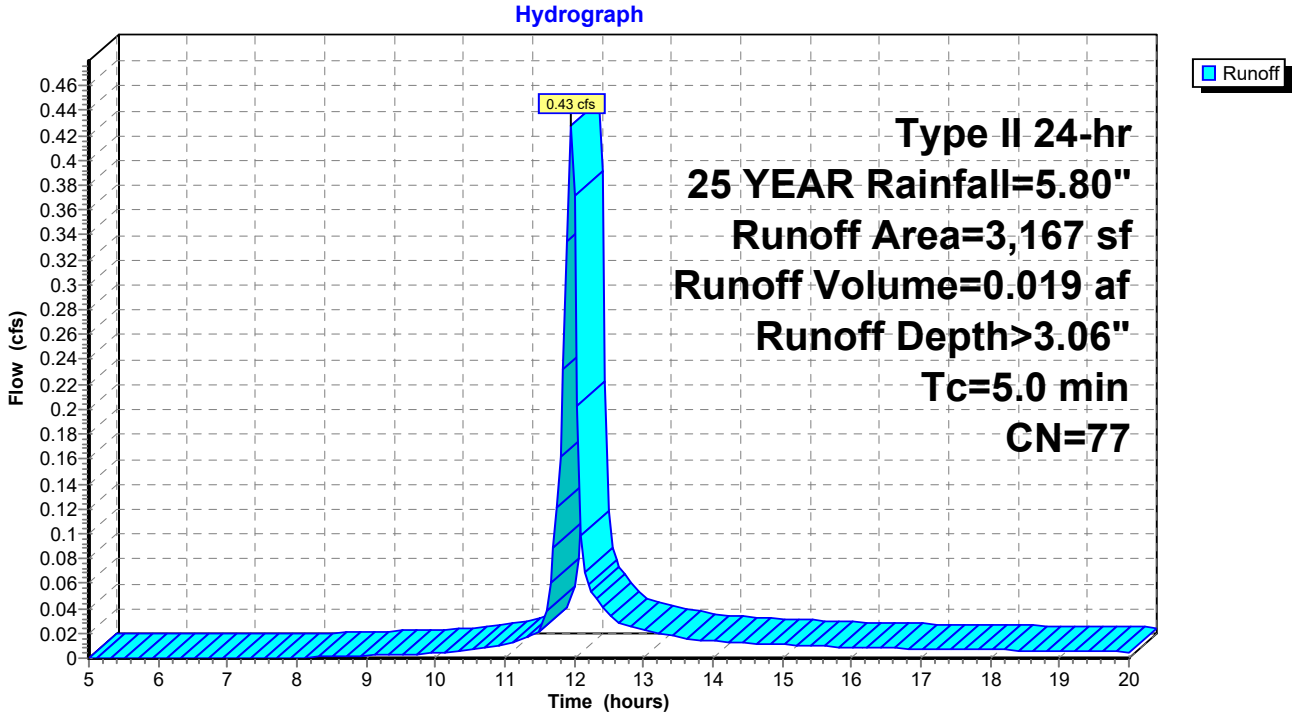
Runoff = 0.43 cfs @ 11.96 hrs, Volume= 0.019 af, Depth> 3.06"
Routed to Pond CB 17 : CB 17

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,148	39	>75% Grass cover, Good, HSG A
*	2,019	98	IMPERVIOUS
	3,167	77	Weighted Average
	1,148		36.25% Pervious Area
	2,019		63.75% Impervious Area

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

Subcatchment SC 3D: 3D



Summary for Subcatchment SC 3E: 3E

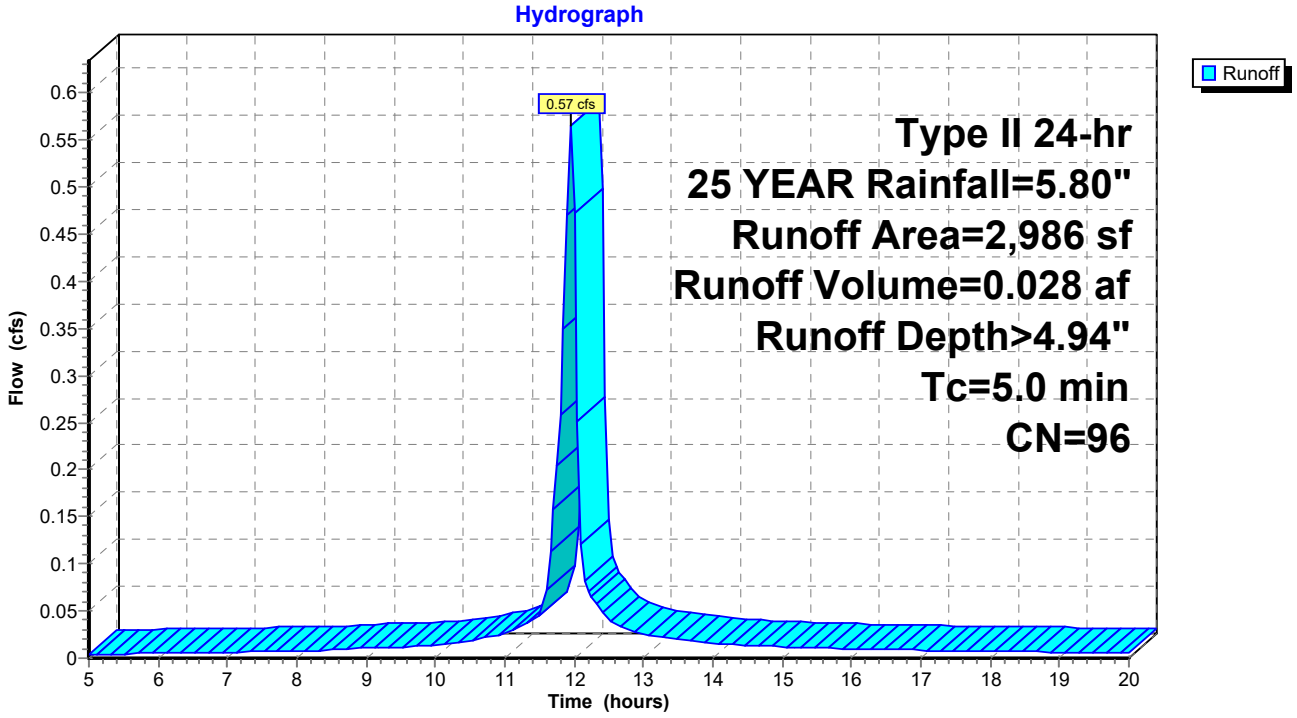
Runoff = 0.57 cfs @ 11.95 hrs, Volume= 0.028 af, Depth> 4.94"
Routed to Pond CB 18 : CB 18

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	90	39	>75% Grass cover, Good, HSG A
*	2,896	98	IMPERVIOUS
	2,986	96	Weighted Average
	90		3.01% Pervious Area
	2,896		96.99% Impervious Area

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

Subcatchment SC 3E: 3E



Summary for Subcatchment SC 3F: 3F

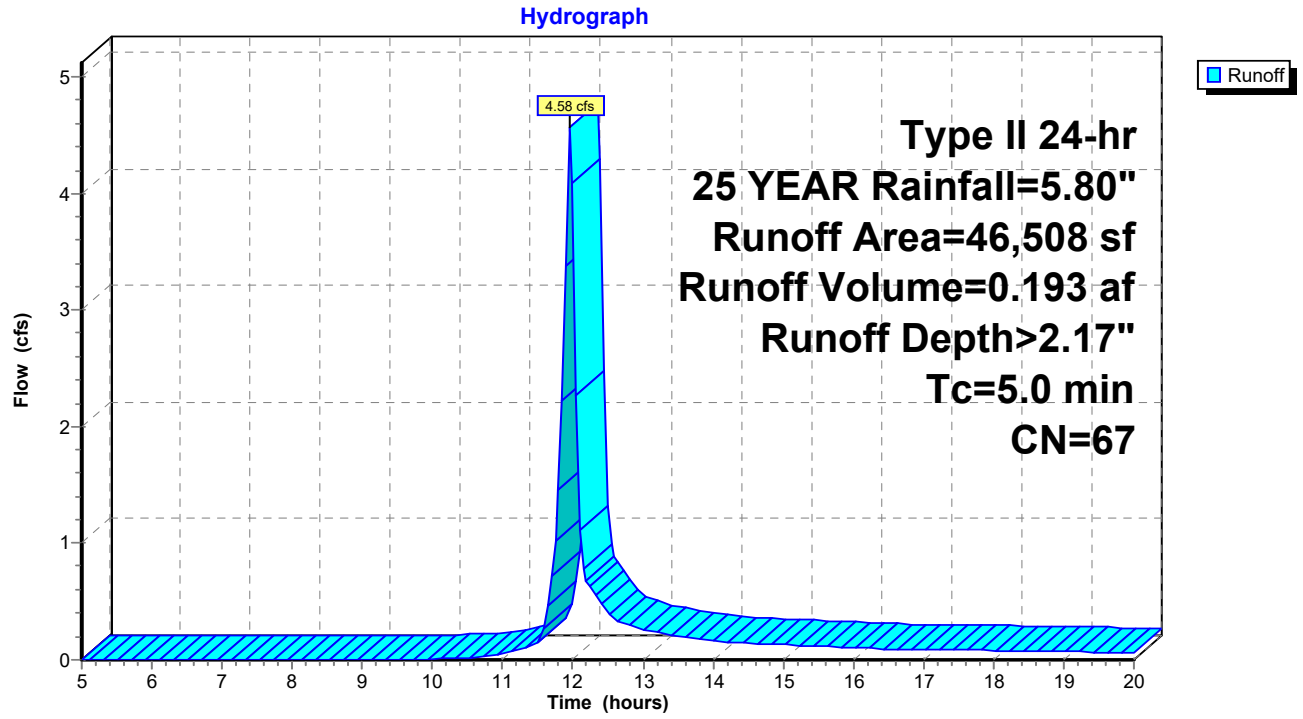
Runoff = 4.58 cfs @ 11.96 hrs, Volume= 0.193 af, Depth> 2.17"
Routed to Pond 1P : WETPOND A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	19,802	39	>75% Grass cover, Good, HSG A
	7,113	61	>75% Grass cover, Good, HSG B
	1,334	74	>75% Grass cover, Good, HSG C
*	18,259	98	IMPERVIOUS
	46,508	67	Weighted Average
	28,249		60.74% Pervious Area
	18,259		39.26% Impervious Area

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

Subcatchment SC 3F: 3F



Summary for Subcatchment SC 4: 4

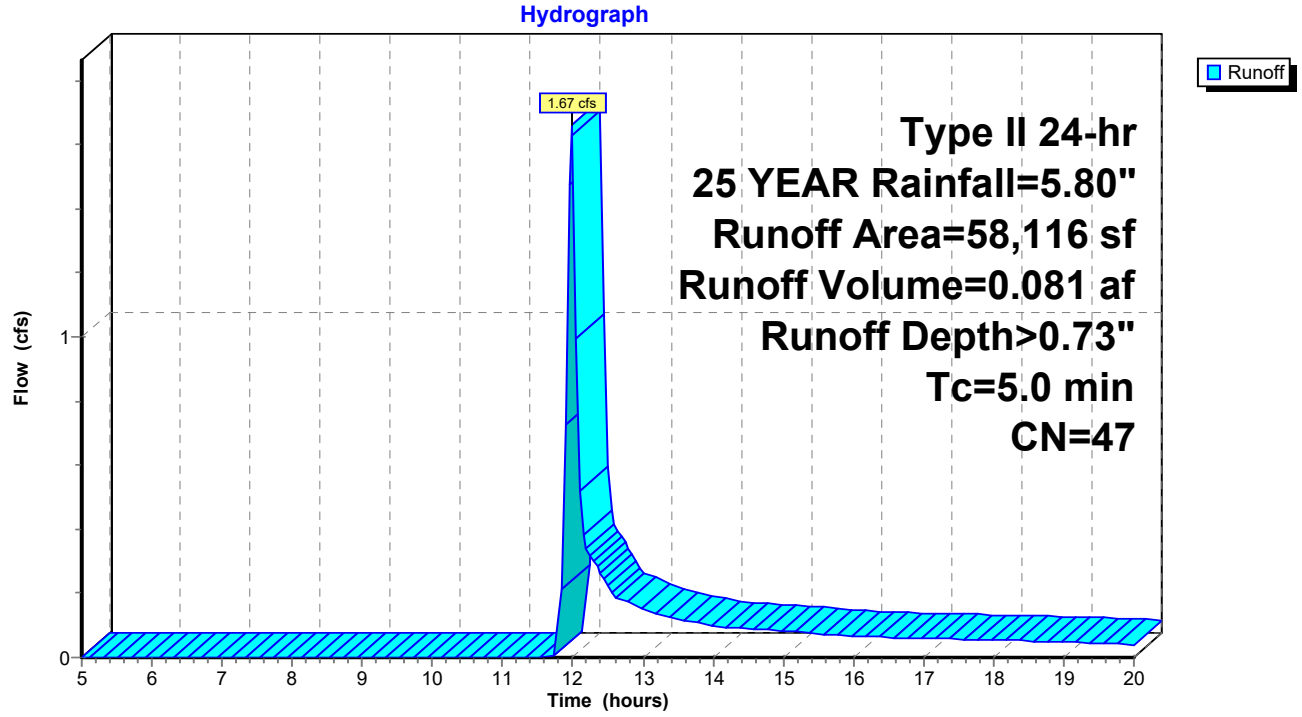
Runoff = 1.67 cfs @ 11.98 hrs, Volume= 0.081 af, Depth> 0.73"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	34,054	36	Woods, Fair, HSG A
	7,162	39	>75% Grass cover, Good, HSG A
	10,830	60	Woods, Fair, HSG B
	1,162	61	>75% Grass cover, Good, HSG B
*	4,908	98	IMPERVIOUS
	58,116	47	Weighted Average
	53,208		91.55% Pervious Area
	4,908		8.45% Impervious Area

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

Subcatchment SC 4: 4



Summary for Subcatchment SC 5: 5

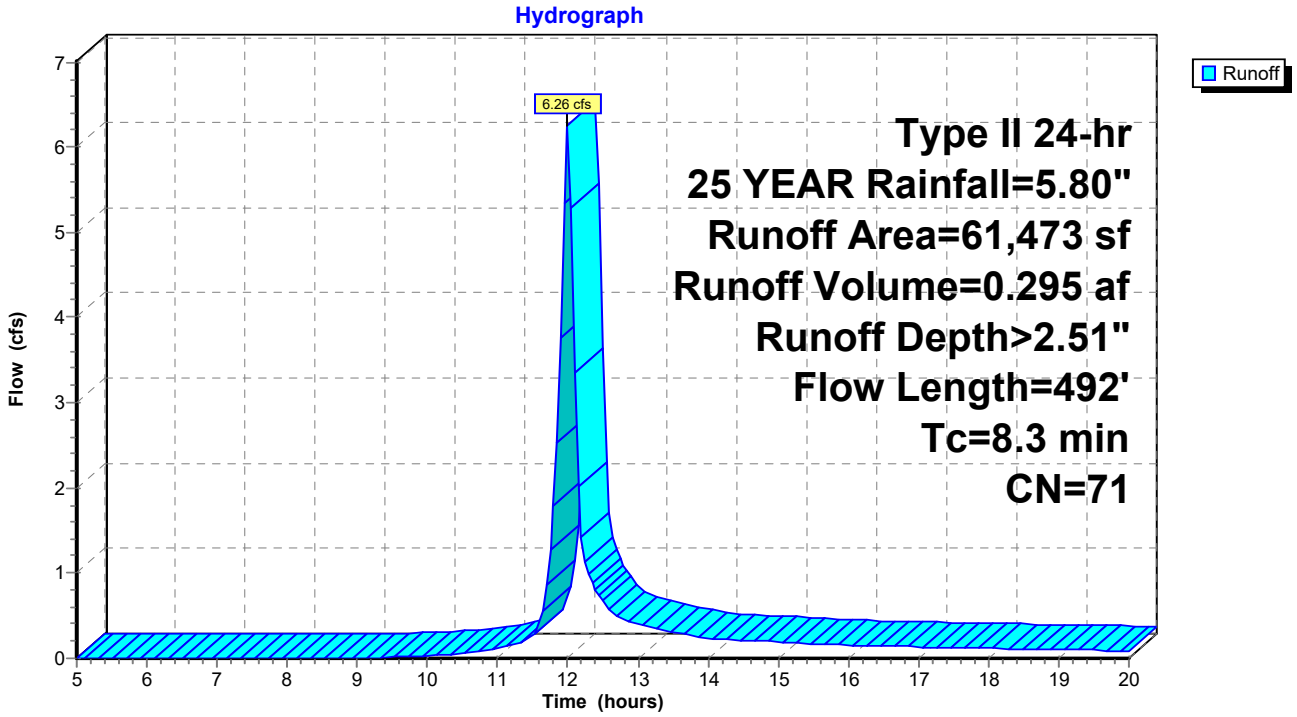
Runoff = 6.26 cfs @ 12.00 hrs, Volume= 0.295 af, Depth> 2.51"
Routed to Pond CB 22 : CB22

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	14,519	60	Woods, Fair, HSG B
	30,033	61	>75% Grass cover, Good, HSG B
	346	74	>75% Grass cover, Good, HSG C
*	16,575	98	IMPERVIOUS
	61,473	71	Weighted Average
	44,898		73.04% Pervious Area
	16,575		26.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	12	0.0580	1.36		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
2.3	210	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.3	130	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
8.3	492	Total			

Subcatchment SC 5: 5



Summary for Subcatchment SC 6A: 6A

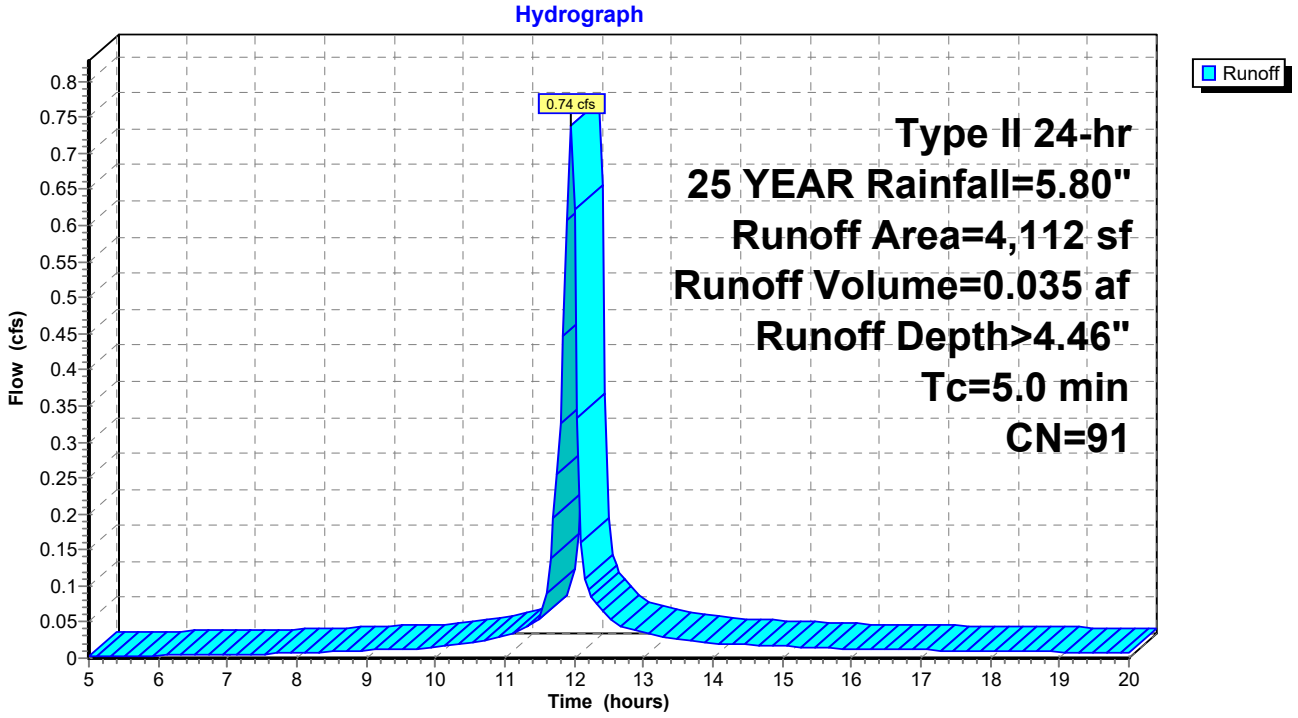
Runoff = 0.74 cfs @ 11.95 hrs, Volume= 0.035 af, Depth> 4.46"
Routed to Pond CB 21 : CB21

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	737	61	>75% Grass cover, Good, HSG B
*	3,375	98	IMPERVIOUS
	4,112	91	Weighted Average
	737		17.92% Pervious Area
	3,375		82.08% Impervious Area

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

Subcatchment SC 6A: 6A



Summary for Subcatchment SC 6B: 6B

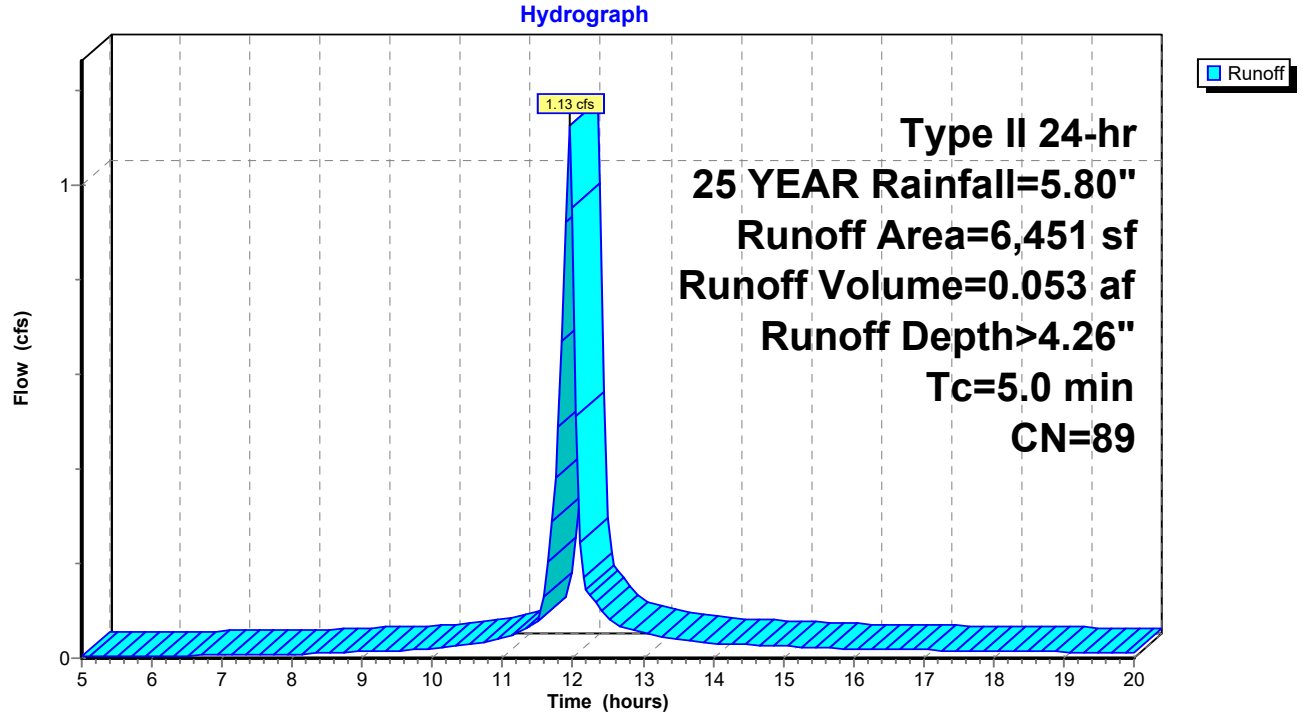
Runoff = 1.13 cfs @ 11.95 hrs, Volume= 0.053 af, Depth> 4.26"
Routed to Pond CB 20 : CB20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,595	61	>75% Grass cover, Good, HSG B
*	4,856	98	IMPERVIOUS
	6,451	89	Weighted Average
	1,595		24.72% Pervious Area
	4,856		75.28% Impervious Area

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

Subcatchment SC 6B: 6B



Summary for Subcatchment SC 6C: 6C

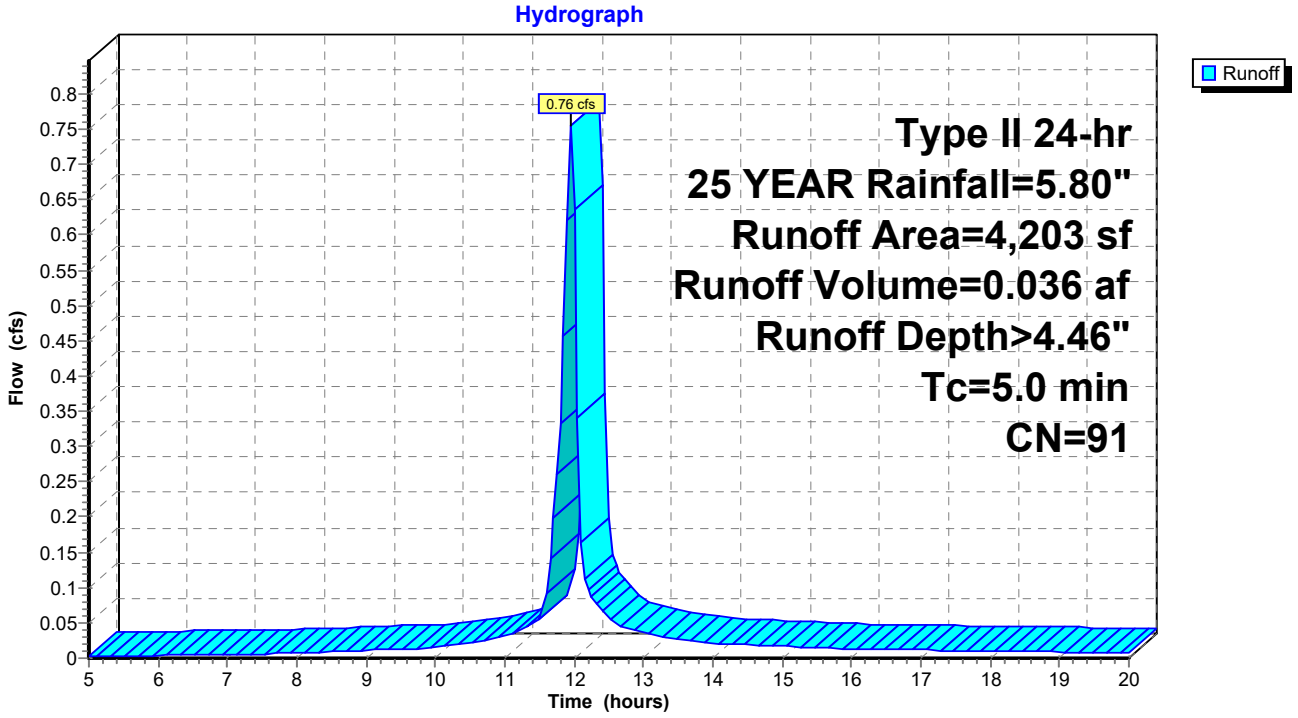
Runoff = 0.76 cfs @ 11.95 hrs, Volume= 0.036 af, Depth> 4.46"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	845	61	>75% Grass cover, Good, HSG B
*	3,358	98	IMPERVIOUS
	4,203	91	Weighted Average
	845		20.10% Pervious Area
	3,358		79.90% Impervious Area

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

Subcatchment SC 6C: 6C



Summary for Subcatchment SC 6D: 6D

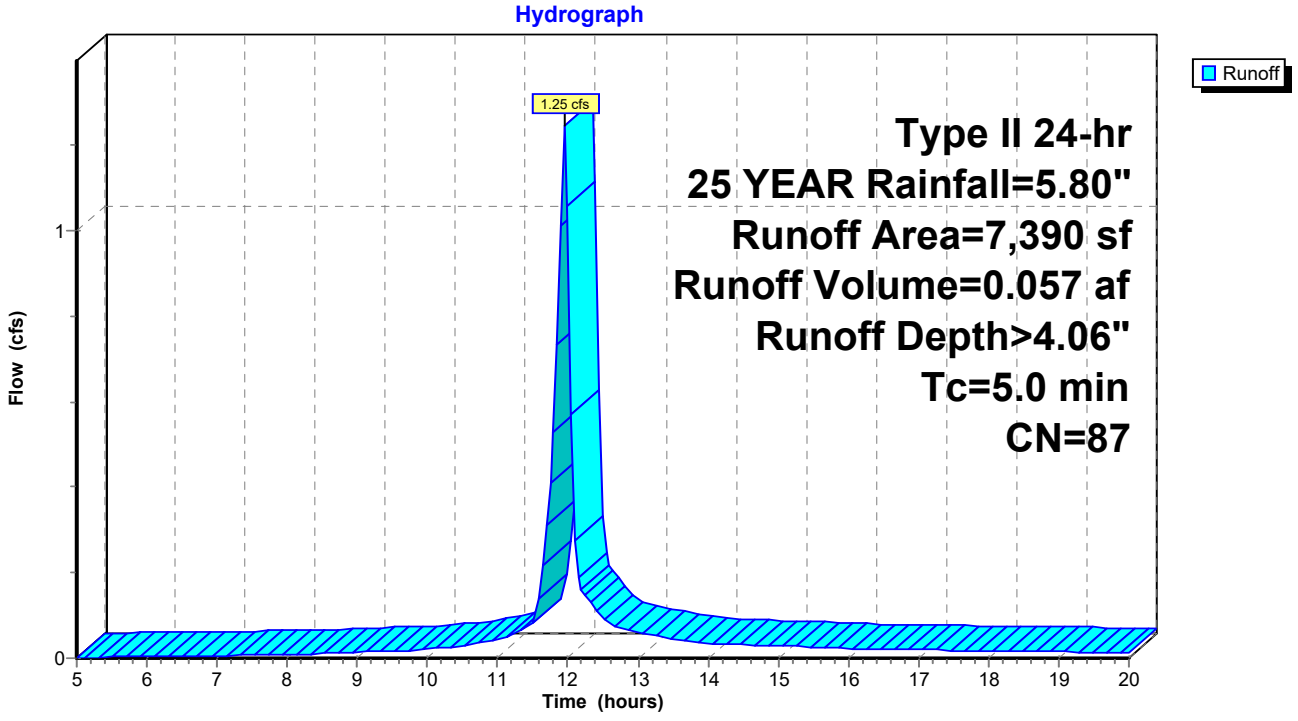
Runoff = 1.25 cfs @ 11.95 hrs, Volume= 0.057 af, Depth> 4.06"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	2,199	61	>75% Grass cover, Good, HSG B
*	5,191	98	IMPERVIOUS
	7,390	87	Weighted Average
	2,199		29.76% Pervious Area
	5,191		70.24% Impervious Area

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

Subcatchment SC 6D: 6D



Summary for Subcatchment SC 6E: 6E

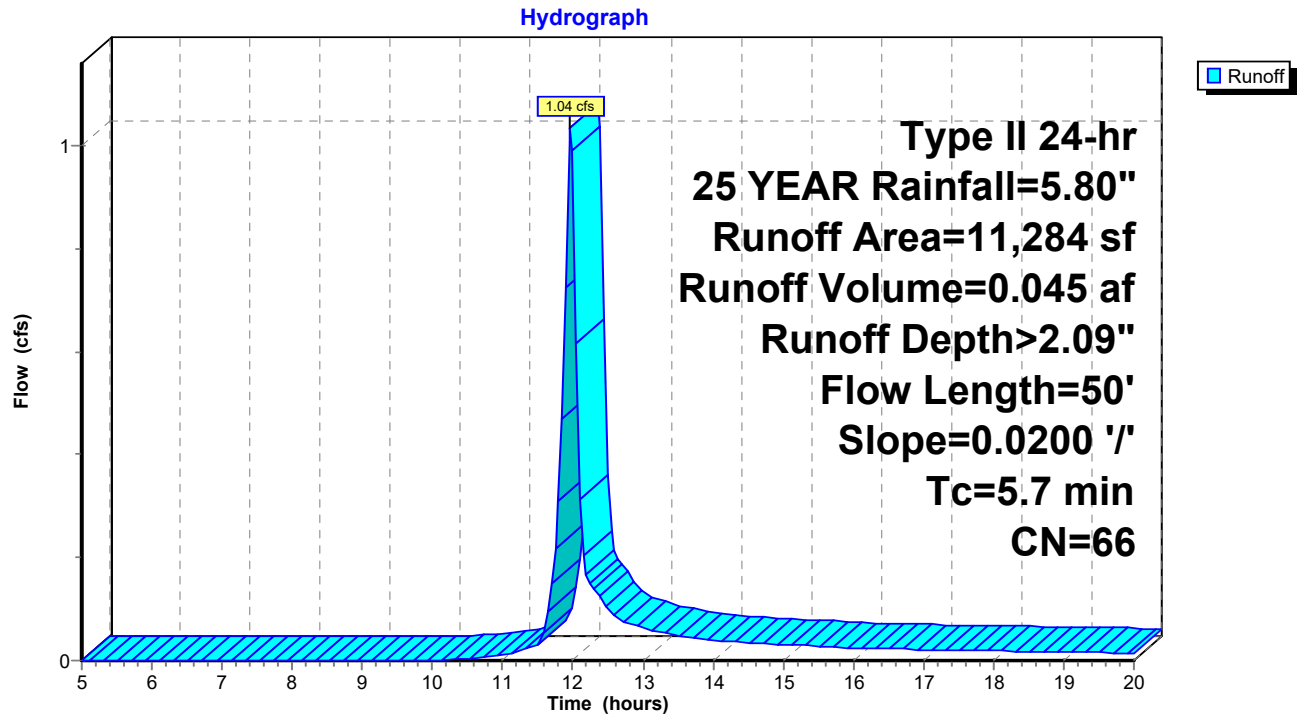
Runoff = 1.04 cfs @ 11.97 hrs, Volume= 0.045 af, Depth> 2.09"
Routed to Pond 2P : WETPOND B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	9,853	61	>75% Grass cover, Good, HSG B
*	1,431	98	IMPERVIOUS
	11,284	66	Weighted Average
	9,853		87.32% Pervious Area
	1,431		12.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment SC 6E: 6E



Summary for Subcatchment SC 6F: 6F

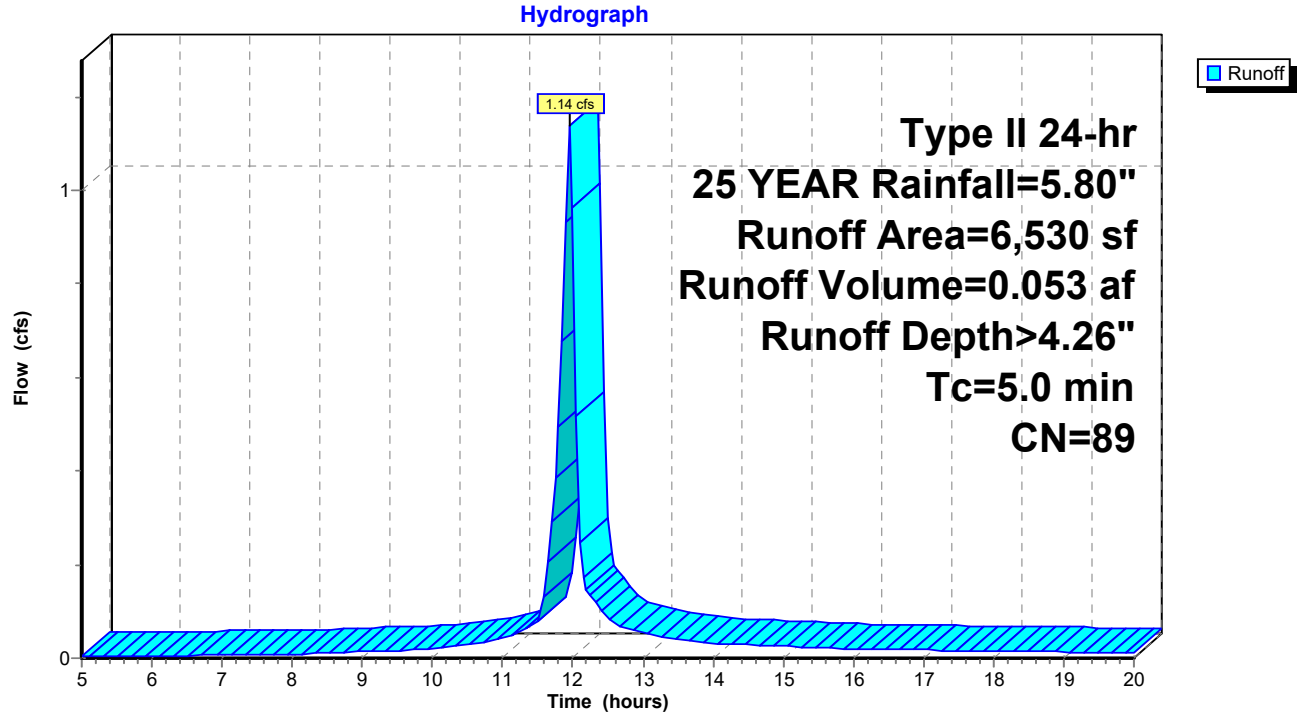
Runoff = 1.14 cfs @ 11.95 hrs, Volume= 0.053 af, Depth> 4.26"
Routed to Pond CB 23 : CB23

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,599	61	>75% Grass cover, Good, HSG B
*	4,931	98	IMPERVIOUS
	6,530	89	Weighted Average
	1,599		24.49% Pervious Area
	4,931		75.51% Impervious Area

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

Subcatchment SC 6F: 6F



Summary for Subcatchment SC 6G: 6G

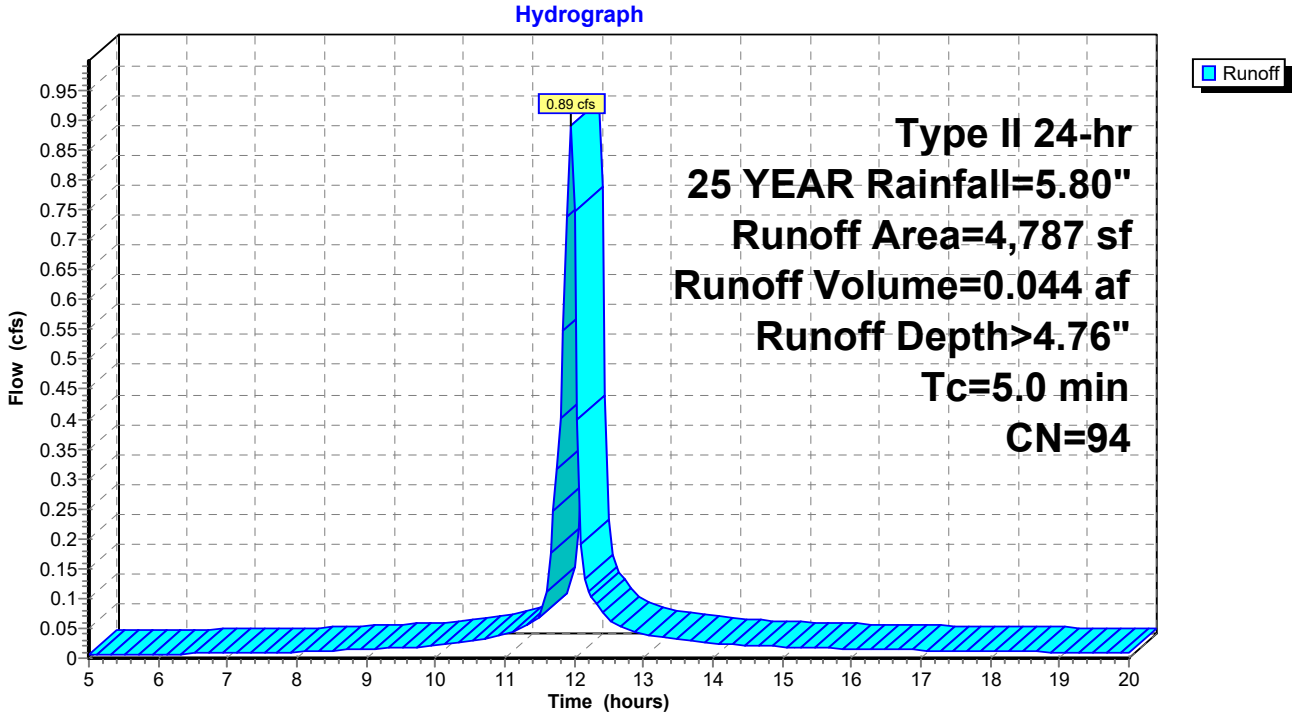
Runoff = 0.89 cfs @ 11.95 hrs, Volume= 0.044 af, Depth> 4.76"
Routed to Pond CB 24 : CB 24

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	478	61	>75% Grass cover, Good, HSG B
*	4,309	98	IMPERVIOUS
	4,787	94	Weighted Average
	478		9.99% Pervious Area
	4,309		90.01% Impervious Area

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

Subcatchment SC 6G: 6G



Summary for Subcatchment SC 6H: 6H

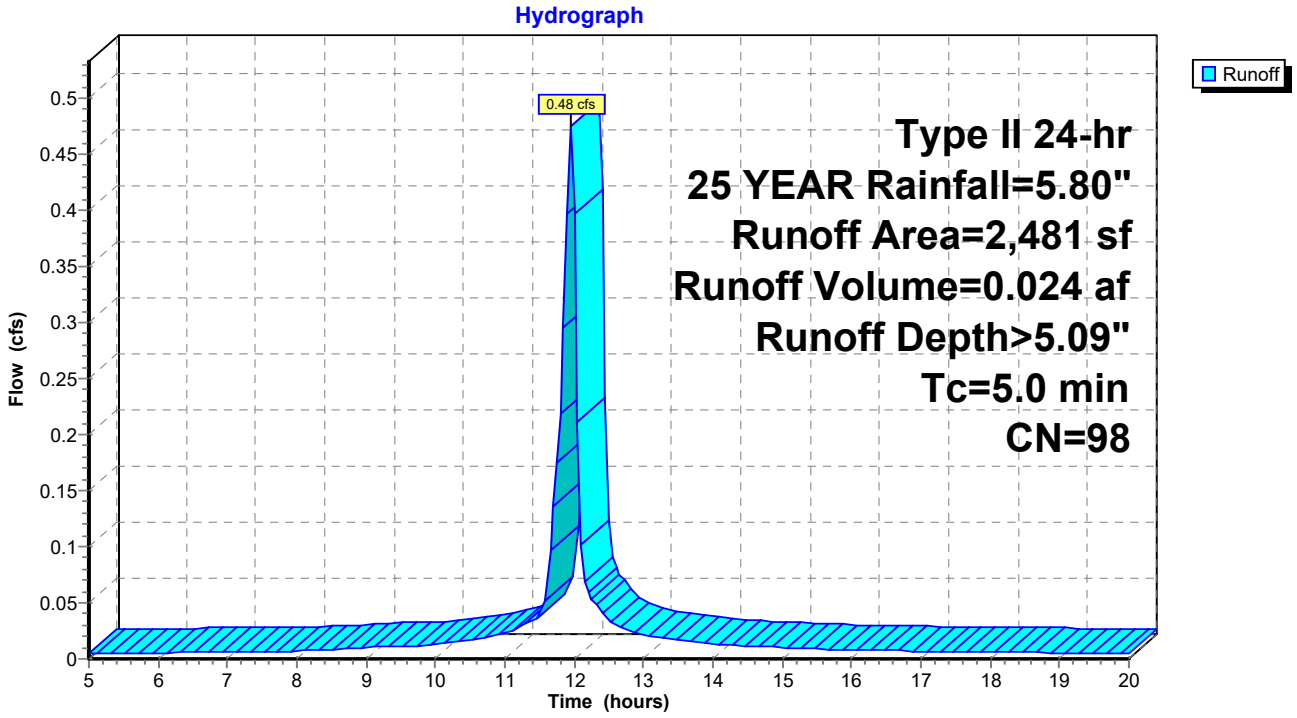
Runoff = 0.48 cfs @ 11.95 hrs, Volume= 0.024 af, Depth> 5.09"
Routed to Pond CB 25 : CB25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	2,481	98	IMPERVIOUS
	2,481		100.00% Impervious Area

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

Subcatchment SC 6H: 6H



Summary for Subcatchment SC 6I: 6I

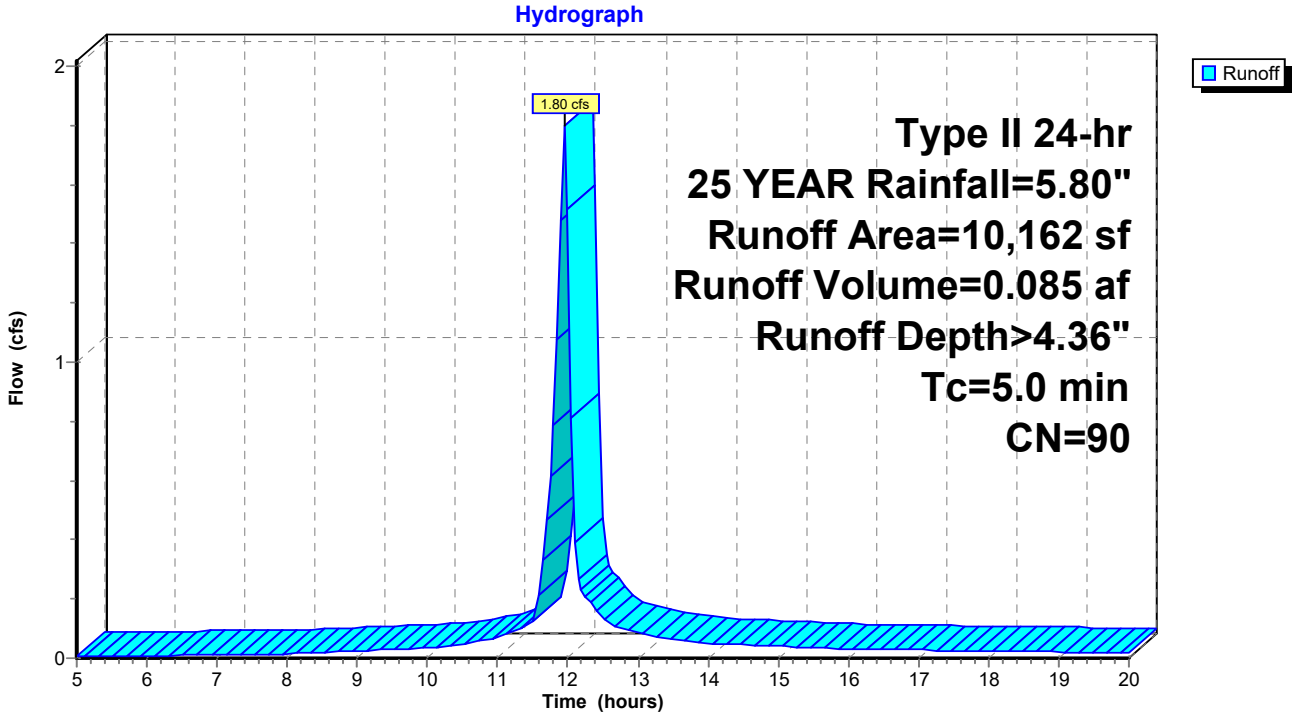
Runoff = 1.80 cfs @ 11.95 hrs, Volume= 0.085 af, Depth> 4.36"
Routed to Pond CB 27 : CB27

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	2,205	61	>75% Grass cover, Good, HSG B
*	7,957	98	IMPERVIOUS
	10,162	90	Weighted Average
	2,205		21.70% Pervious Area
	7,957		78.30% Impervious Area

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

Subcatchment SC 6I: 6I



Summary for Subcatchment SC 6J: 6J

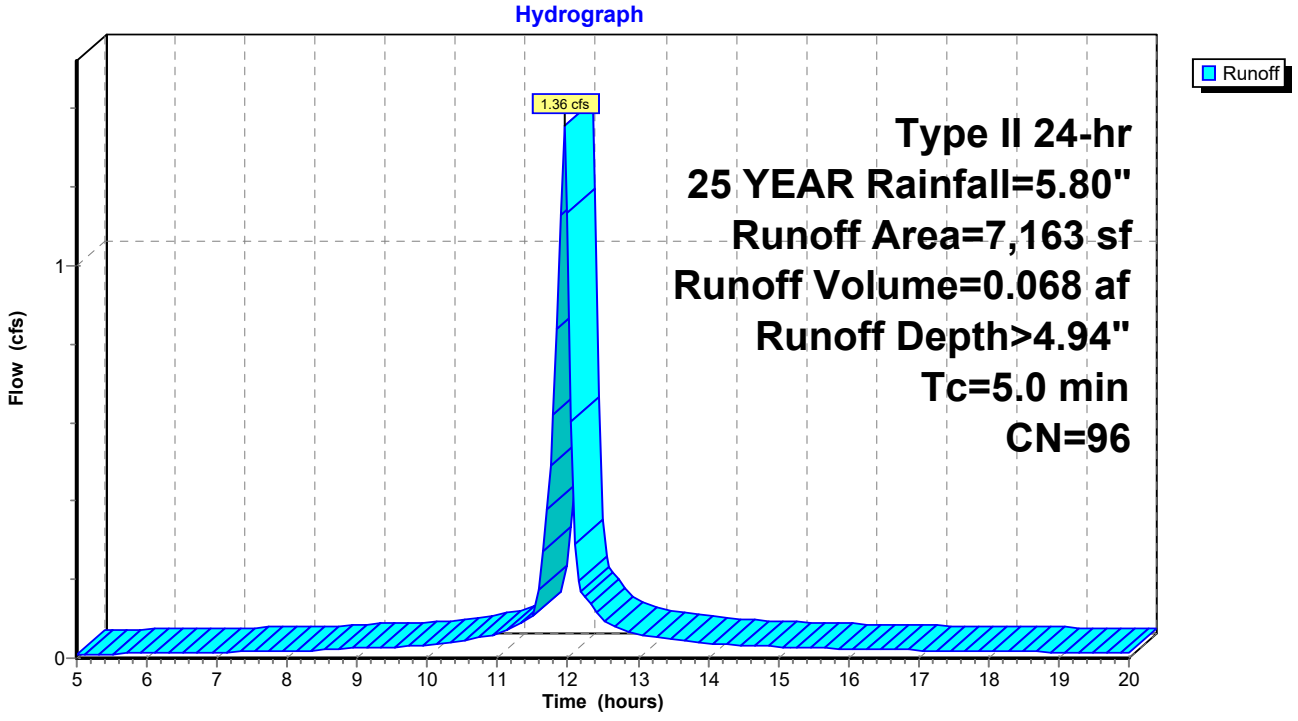
Runoff = 1.36 cfs @ 11.95 hrs, Volume= 0.068 af, Depth> 4.94"
Routed to Pond CB 26 : CB26

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	324	61	>75% Grass cover, Good, HSG B
*	6,839	98	IMPERVIOUS
	7,163	96	Weighted Average
	324		4.52% Pervious Area
	6,839		95.48% Impervious Area

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

Subcatchment SC 6J: 6J



Summary for Subcatchment SC 7: 7

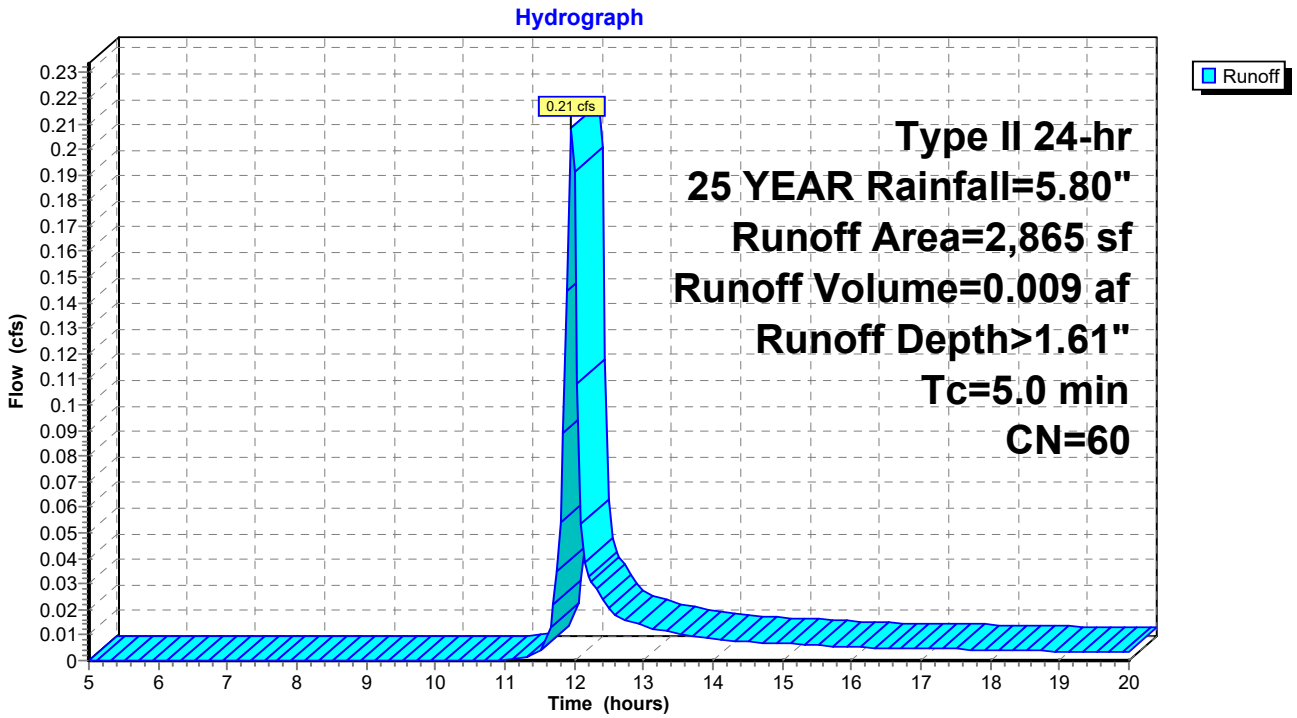
Runoff = 0.21 cfs @ 11.97 hrs, Volume= 0.009 af, Depth> 1.61"
Routed to Pond 6P : BIO CELL 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,682	39	>75% Grass cover, Good, HSG A
	273	61	>75% Grass cover, Good, HSG B
*	910	98	IMPERVIOUS
	2,865	60	Weighted Average
	1,955		68.24% Pervious Area
	910		31.76% Impervious Area

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

Subcatchment SC 7: 7



Summary for Subcatchment SC 8: 8

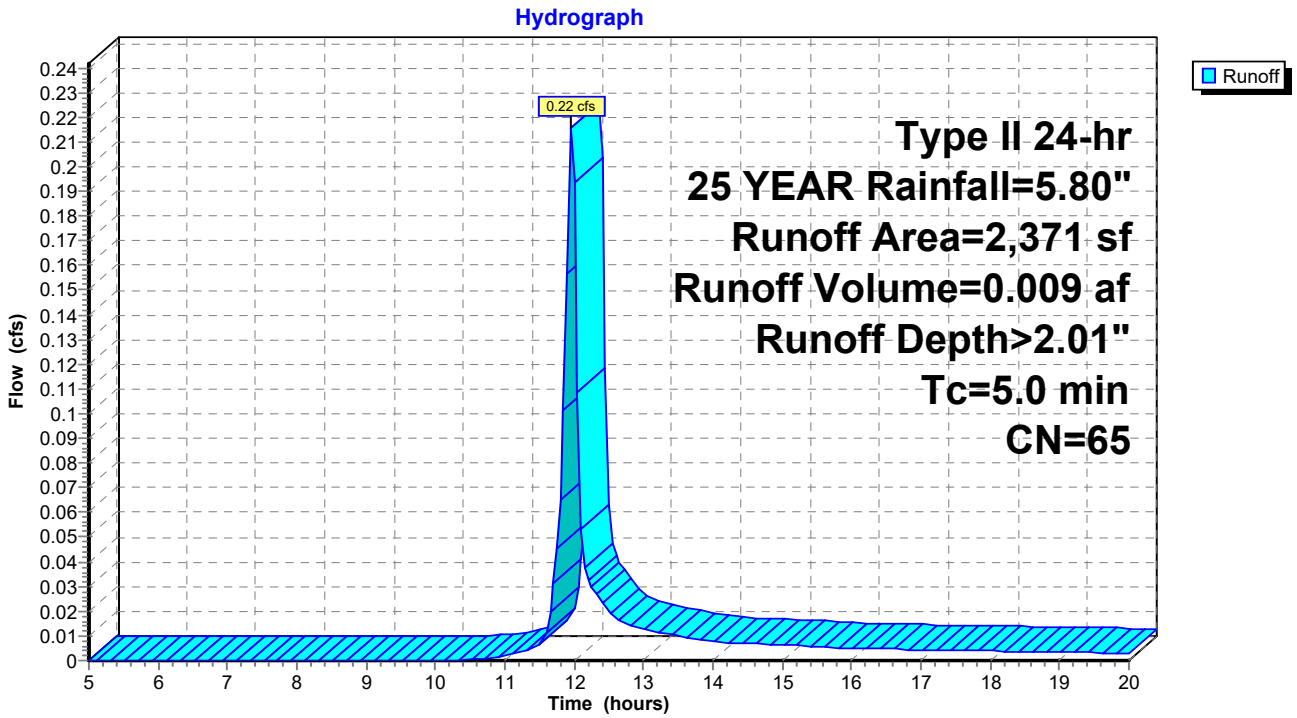
Runoff = 0.22 cfs @ 11.96 hrs, Volume= 0.009 af, Depth> 2.01"
Routed to Pond 7P : BIO CELL 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	1,036	39	>75% Grass cover, Good, HSG A
	481	61	>75% Grass cover, Good, HSG B
*	854	98	IMPERVIOUS
	2,371	65	Weighted Average
	1,517		63.98% Pervious Area
	854		36.02% Impervious Area

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

Subcatchment SC 8: 8



Summary for Subcatchment SC 9: 9

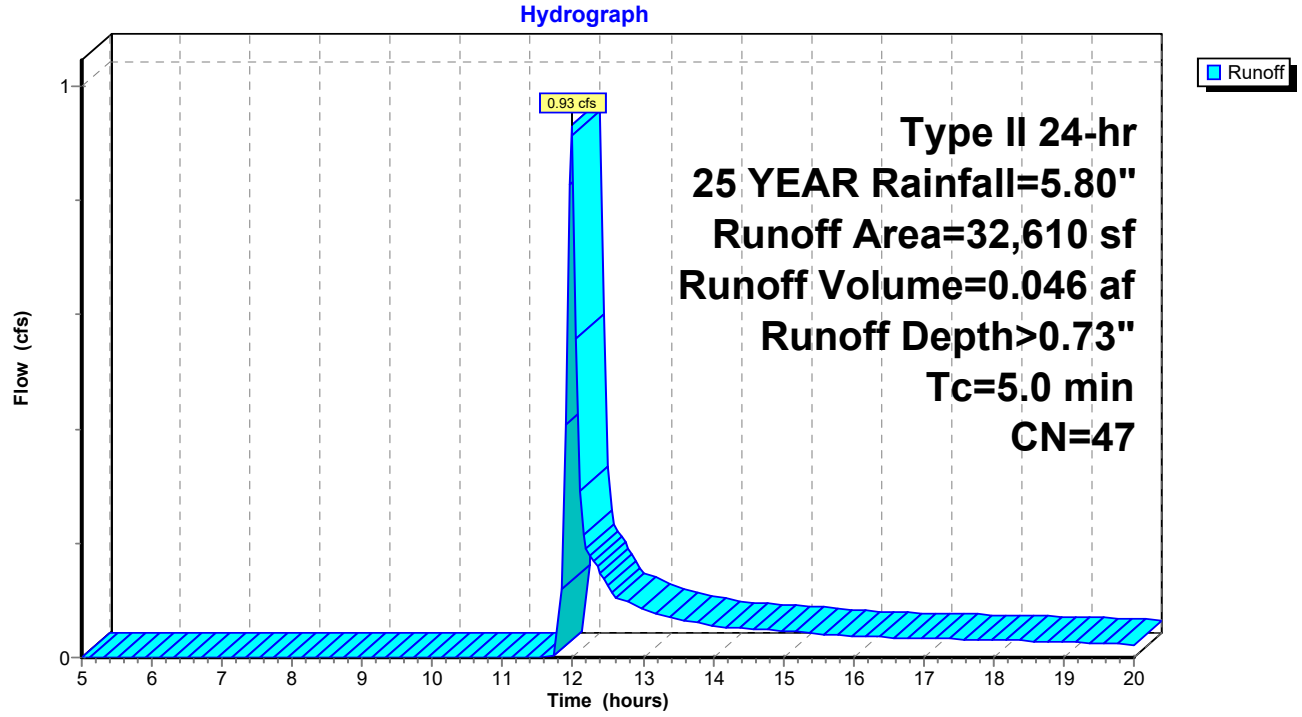
Runoff = 0.93 cfs @ 11.98 hrs, Volume= 0.046 af, Depth> 0.73"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	19,552	36	Woods, Fair, HSG A
	2,610	39	>75% Grass cover, Good, HSG A
	7,418	60	Woods, Fair, HSG B
	765	61	>75% Grass cover, Good, HSG B
*	2,265	98	IMPERVIOUS
	32,610	47	Weighted Average
	30,345		93.05% Pervious Area
	2,265		6.95% Impervious Area

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

Subcatchment SC 9: 9

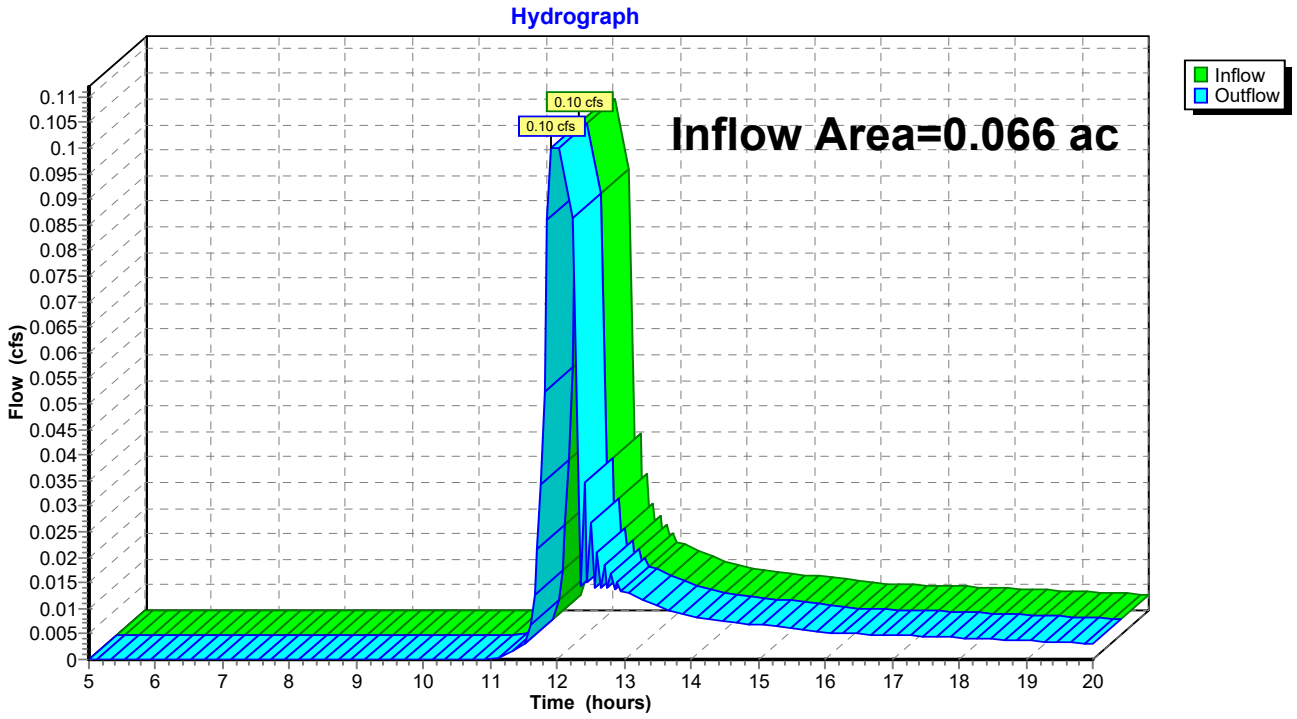


Summary for Reach 1R: REACH 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 1.61" for 25 YEAR event
Inflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: REACH 1

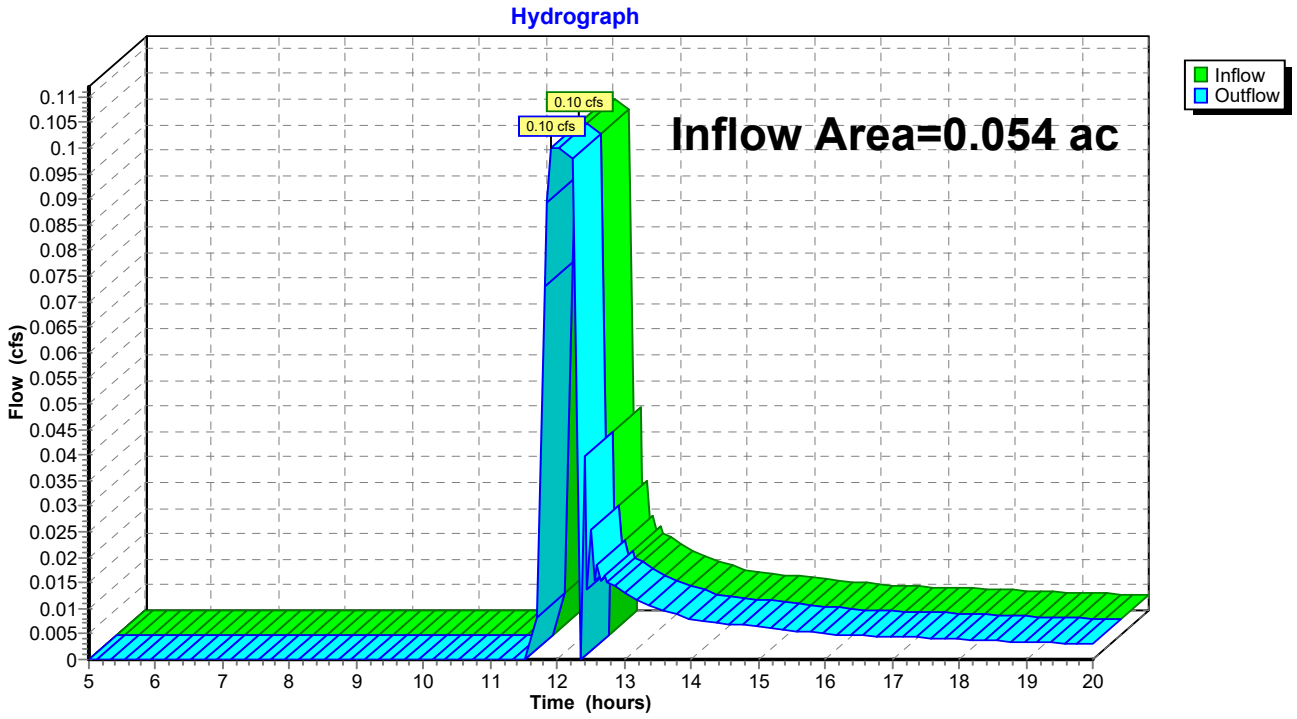


Summary for Reach 2R: REACH 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 1.90" for 25 YEAR event
Inflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: REACH 2



Summary for Reach 3R: REACH 3

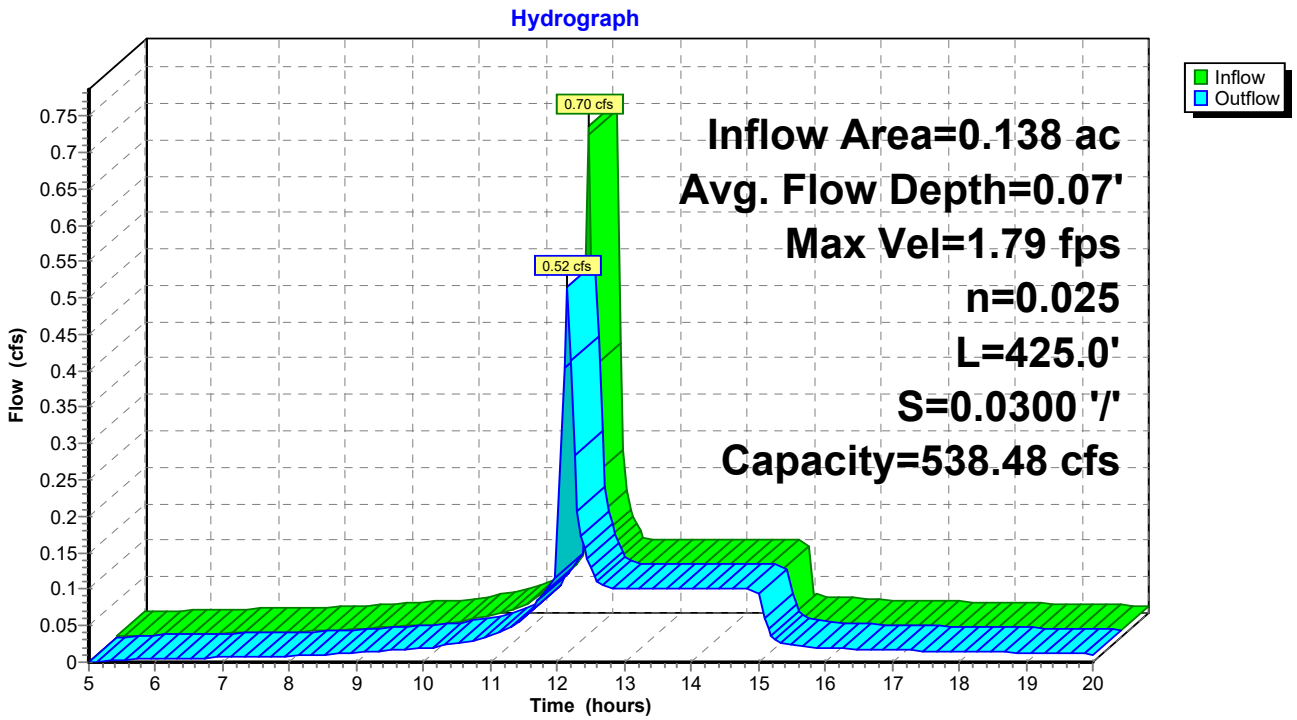
Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 4.36" for 25 YEAR event
Inflow = 0.70 cfs @ 12.04 hrs, Volume= 0.050 af
Outflow = 0.52 cfs @ 12.15 hrs, Volume= 0.050 af, Atten= 27%, Lag= 6.8 min
Routed to Reach 5R : REACH 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.79 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 5.9 min

Peak Storage= 126 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.07' , Surface Width= 4.15'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 425.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -12.75'





Summary for Reach 4R: REACH 4

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 3.16" for 25 YEAR event
Inflow = 0.70 cfs @ 12.02 hrs, Volume= 0.041 af
Outflow = 0.57 cfs @ 12.10 hrs, Volume= 0.040 af, Atten= 18%, Lag= 4.7 min
Routed to Reach 5R : REACH 5

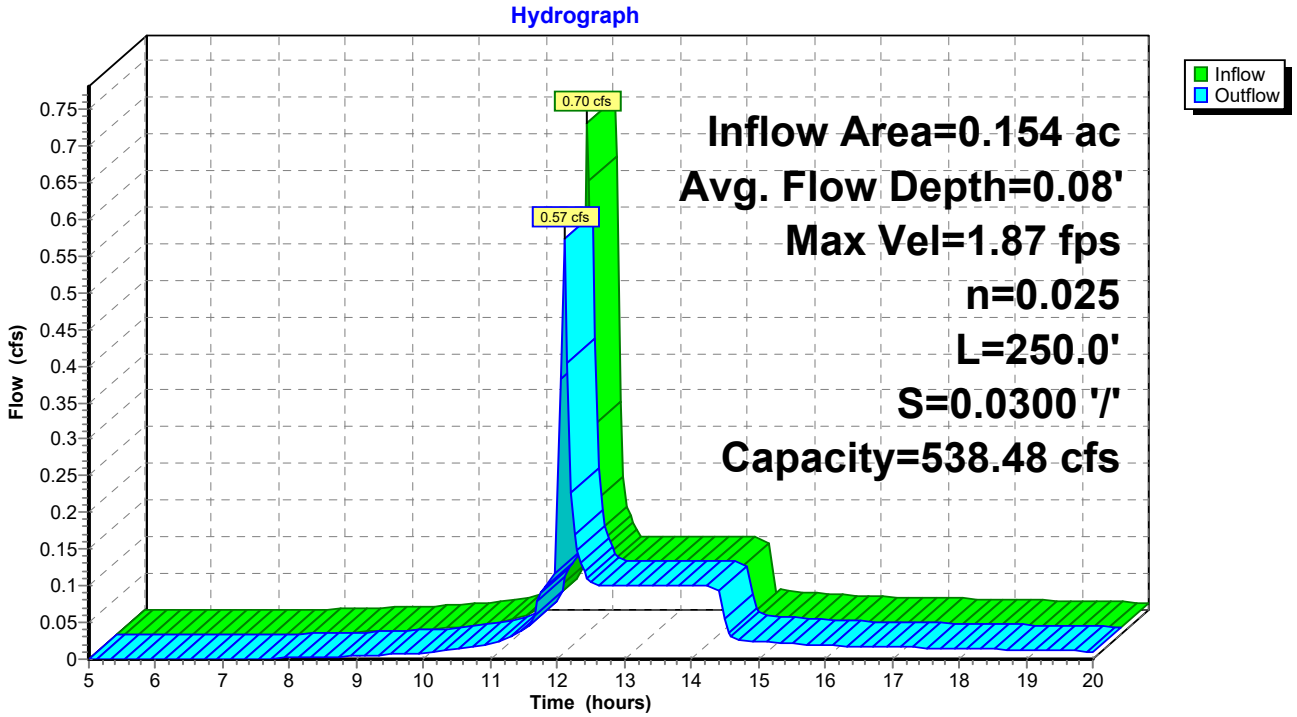
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.87 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.20 fps, Avg. Travel Time= 3.5 min

Peak Storage= 83 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.08' , Surface Width= 4.16'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 538.48 cfs

4.00' x 4.00' deep channel, n= 0.025 Earth, clean & winding
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 250.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -7.50'



Reach 4R: REACH 4



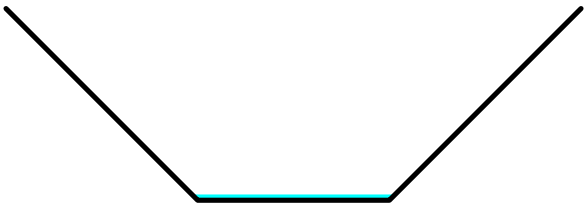
Summary for Reach 5R: REACH 5

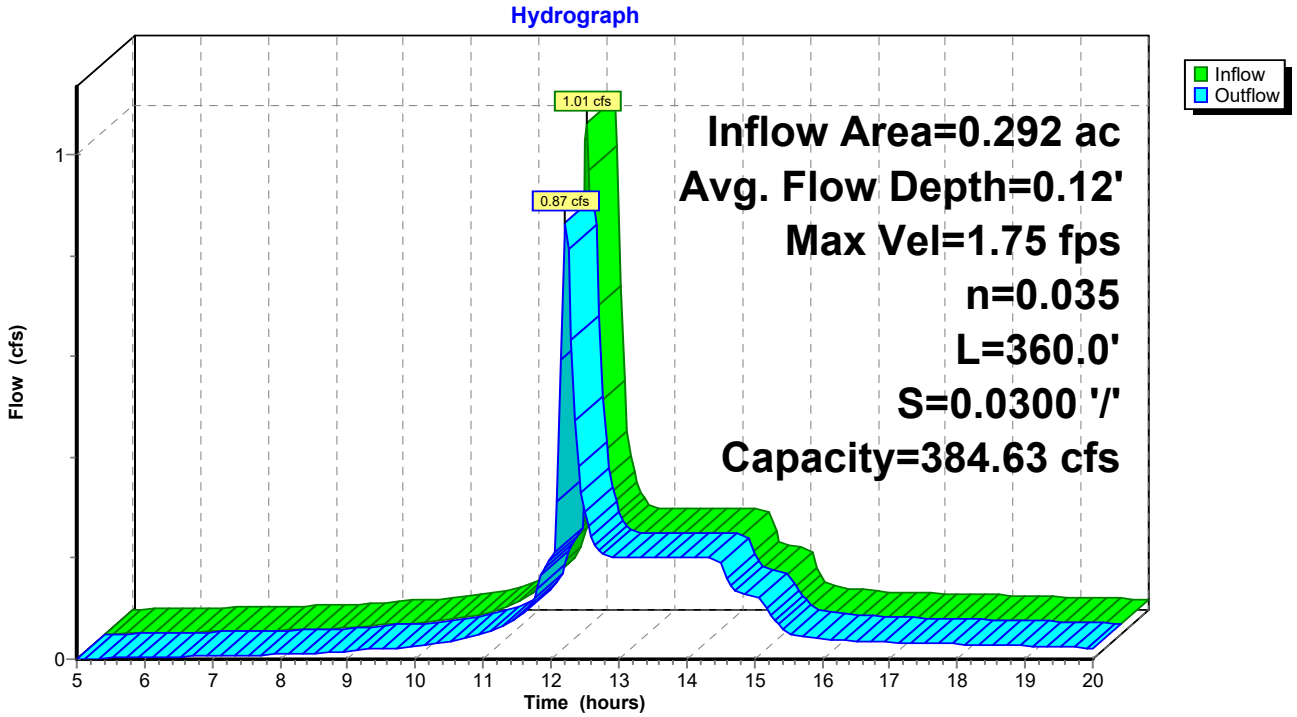
Inflow Area = 0.292 ac, 51.59% Impervious, Inflow Depth > 3.72" for 25 YEAR event
Inflow = 1.01 cfs @ 12.12 hrs, Volume= 0.090 af
Outflow = 0.87 cfs @ 12.22 hrs, Volume= 0.090 af, Atten= 15%, Lag= 6.0 min
Routed to Reach SP4 : SUMMATION POINT 4

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.75 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.89 fps, Avg. Travel Time= 6.7 min

Peak Storage= 182 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.12' , Surface Width= 4.25'
Bank-Full Depth= 4.00' Flow Area= 32.0 sf, Capacity= 384.63 cfs

4.00' x 4.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 1.0 '/' Top Width= 12.00'
Length= 360.0' Slope= 0.0300 '/'
Inlet Invert= 0.00', Outlet Invert= -10.80'





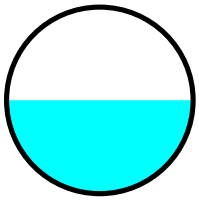
Summary for Reach 6R: 15" SD

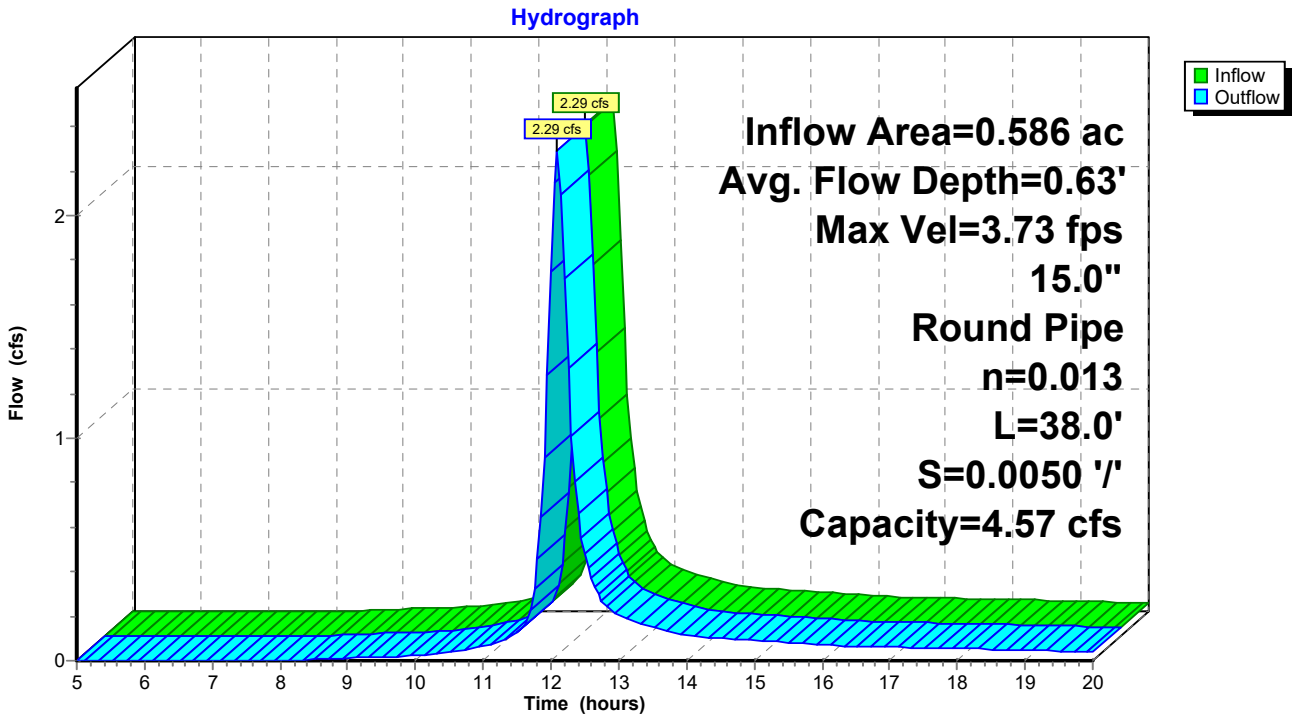
Inflow Area = 0.586 ac, 9.63% Impervious, Inflow Depth > 2.96" for 25 YEAR event
Inflow = 2.29 cfs @ 12.09 hrs, Volume= 0.144 af
Outflow = 2.29 cfs @ 12.10 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.3 min
Routed to Pond CB 6 : CB6

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.73 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.37 fps, Avg. Travel Time= 0.5 min

Peak Storage= 23 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 1.25'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 4.57 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 38.0' Slope= 0.0050 '/'
Inlet Invert= 0.00', Outlet Invert= -0.19'



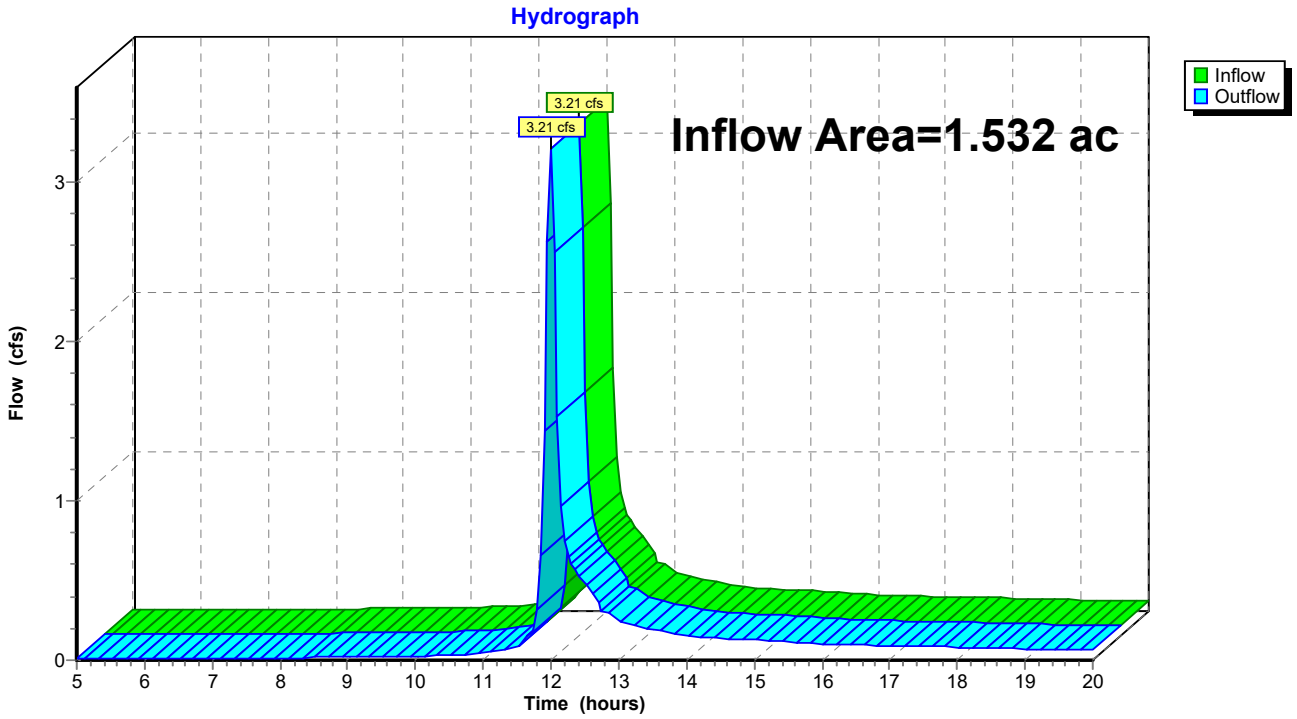


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.532 ac, 7.34% Impervious, Inflow Depth > 1.28" for 25 YEAR event
Inflow = 3.21 cfs @ 12.00 hrs, Volume= 0.163 af
Outflow = 3.21 cfs @ 12.00 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

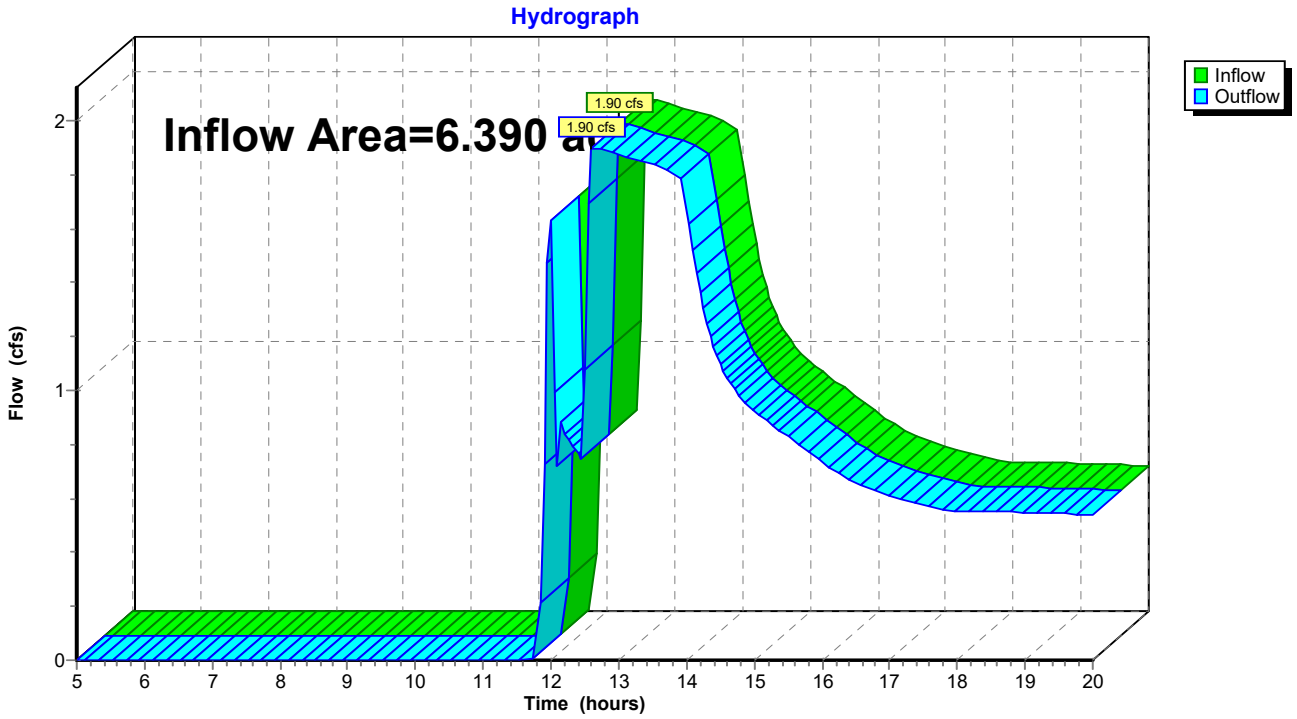


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.390 ac, 32.52% Impervious, Inflow Depth > 1.20" for 25 YEAR event
Inflow = 1.90 cfs @ 12.60 hrs, Volume= 0.636 af
Outflow = 1.90 cfs @ 12.60 hrs, Volume= 0.636 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2

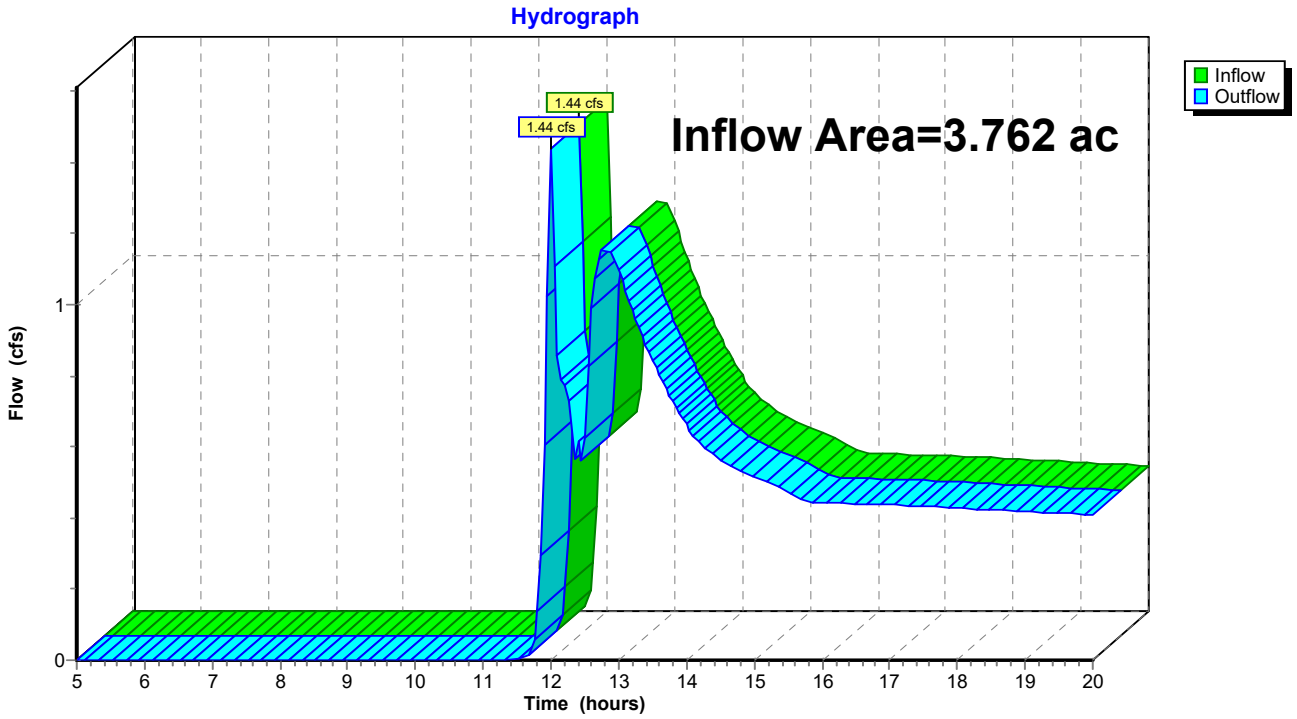


Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.762 ac, 39.87% Impervious, Inflow Depth > 1.24" for 25 YEAR event
Inflow = 1.44 cfs @ 12.00 hrs, Volume= 0.388 af
Outflow = 1.44 cfs @ 12.00 hrs, Volume= 0.388 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: SUMMATION POINT 3

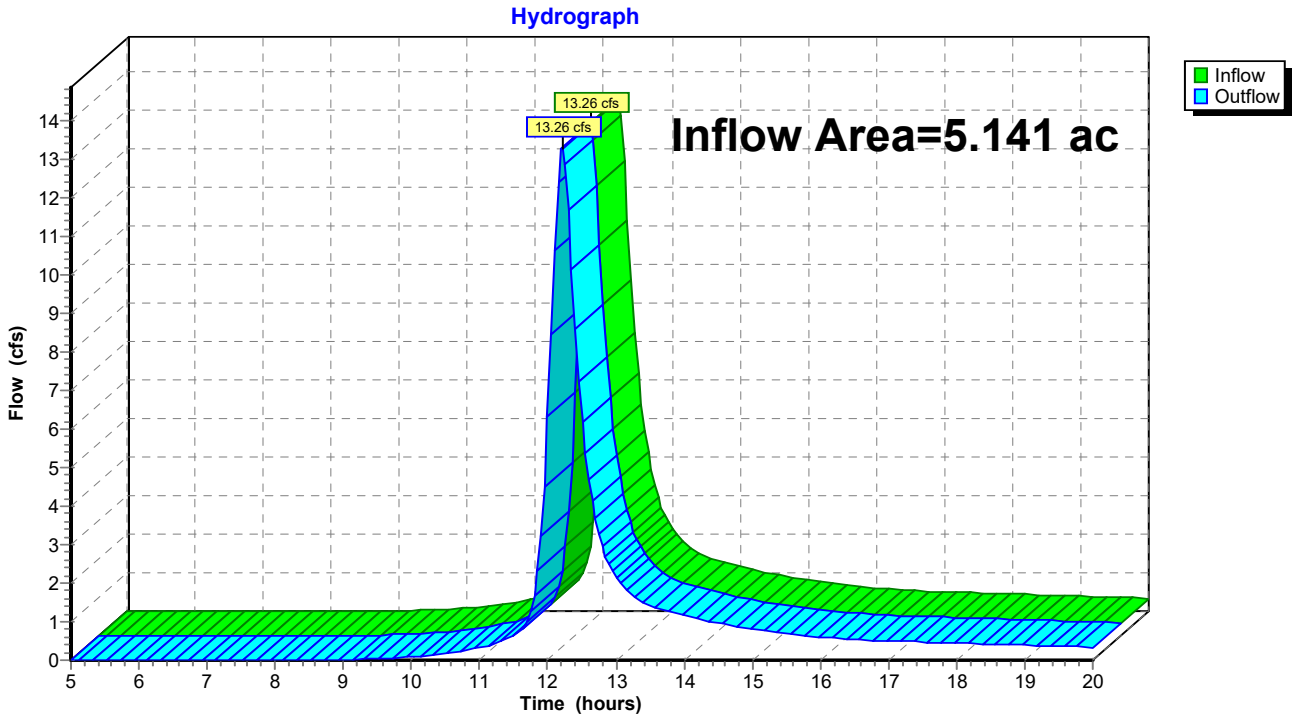


Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.141 ac, 9.37% Impervious, Inflow Depth > 2.56" for 25 YEAR event
Inflow = 13.26 cfs @ 12.21 hrs, Volume= 1.098 af
Outflow = 13.26 cfs @ 12.21 hrs, Volume= 1.098 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP4: SUMMATION POINT 4



Summary for Pond 1P: WETPOND A

Inflow Area = 5.056 ac, 38.87% Impervious, Inflow Depth > 3.18" for 25 YEAR event
Inflow = 17.75 cfs @ 11.99 hrs, Volume= 1.340 af
Outflow = 1.73 cfs @ 13.06 hrs, Volume= 0.555 af, Atten= 90%, Lag= 63.8 min
Primary = 1.73 cfs @ 13.06 hrs, Volume= 0.555 af
Routed to Reach SP2 : SUMMATION POINT 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach SP2 : SUMMATION POINT 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.42' @ 13.06 hrs Surf.Area= 7,204 sf Storage= 37,503 cf

Plug-Flow detention time= 219.2 min calculated for 0.553 af (41% of inflow)
Center-of-Mass det. time= 130.3 min (909.2 - 778.9)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	41,844 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

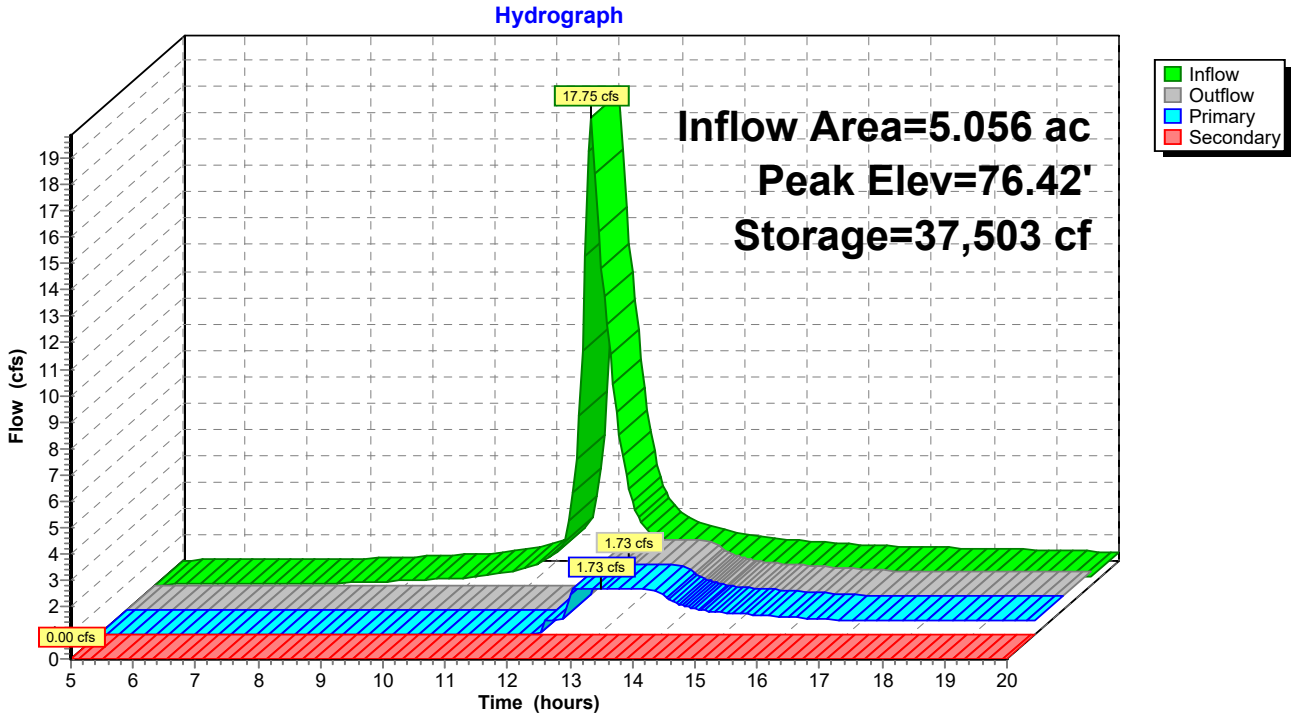
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	1,128	0	0
67.00	1,476	1,302	1,302
68.00	1,870	1,673	2,975
69.00	2,290	2,080	5,055
70.00	2,747	2,519	7,574
71.00	3,240	2,994	10,567
72.00	3,779	3,510	14,077
73.00	4,356	4,068	18,144
74.00	4,960	4,658	22,802
75.00	5,867	5,414	28,216
76.00	6,838	6,353	34,568
77.00	7,714	7,276	41,844

Device	Routing	Invert	Outlet Devices
#1	Primary	69.14'	**6.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.14' / 68.89' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	74.09'	**0.50 cfs Exfiltration when above 74.09'**
#3	Device 1	76.05'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	76.50'	**10.0' 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

Primary OutFlow Max=1.73 cfs @ 13.06 hrs HW=76.42' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.73 cfs @ 8.79 fps)
  └─**2=Exfiltration** (Passes < 0.50 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 4.59 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=66.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: WETPOND A



Summary for Pond 2P: WETPOND B

Inflow Area = 2.893 ac, 48.64% Impervious, Inflow Depth > 3.30" for 25 YEAR event
Inflow = 16.15 cfs @ 11.97 hrs, Volume= 0.795 af
Outflow = 1.04 cfs @ 12.82 hrs, Volume= 0.325 af, Atten= 94%, Lag= 51.2 min
Primary = 0.40 cfs @ 12.82 hrs, Volume= 0.261 af
Routed to Reach SP3 : SUMMATION POINT 3
Secondary = 0.64 cfs @ 12.82 hrs, Volume= 0.063 af
Routed to Reach SP3 : SUMMATION POINT 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 72.59' @ 12.82 hrs Surf.Area= 5,023 sf Storage= 22,801 cf

Plug-Flow detention time= 254.0 min calculated for 0.325 af (41% of inflow)
Center-of-Mass det. time= 162.1 min (928.5 - 766.5)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	24,924 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

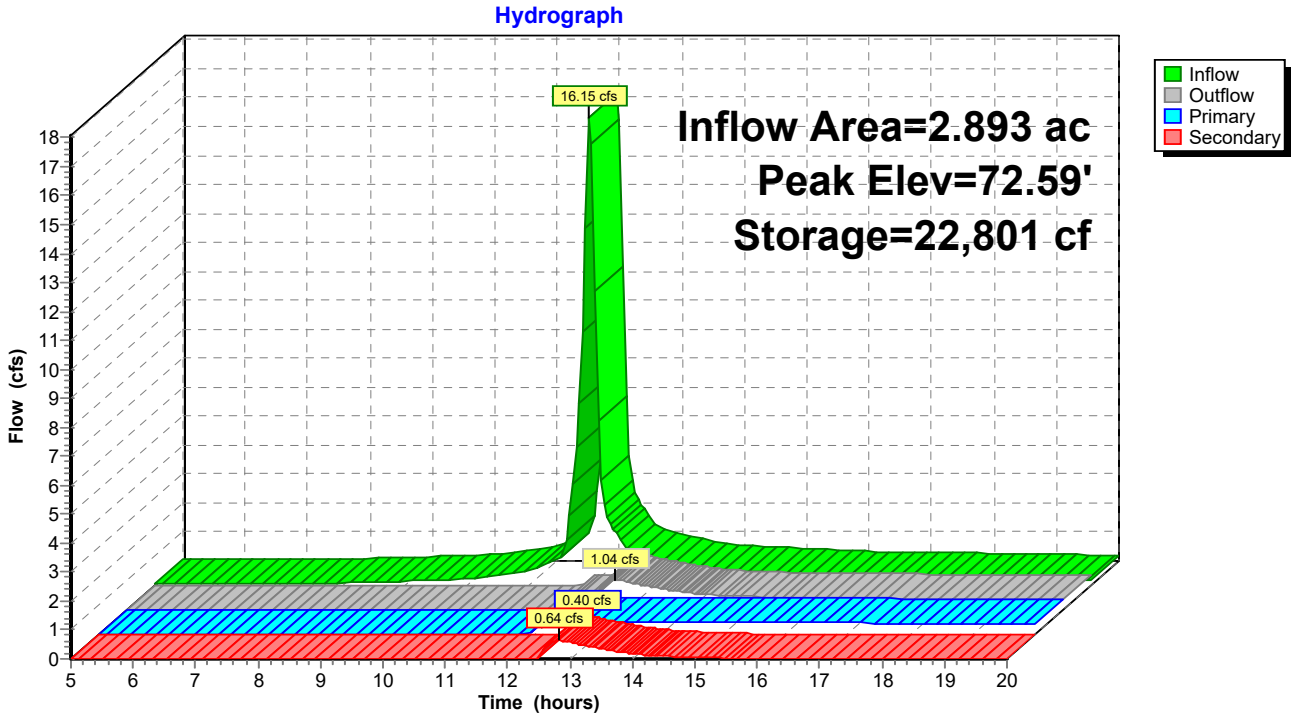
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
65.00	1,409	0	0
66.00	1,752	1,581	1,581
67.00	2,121	1,937	3,517
68.00	2,514	2,318	5,835
69.00	2,933	2,724	8,558
70.00	3,408	3,171	11,729
71.00	4,167	3,788	15,516
72.00	4,698	4,433	19,949
73.00	5,252	4,975	24,924

Device	Routing	Invert	Outlet Devices
#1	Primary	68.26'	**4.0" Round Culvert** L= 85.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.26' / 67.84' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#2	Device 1	70.76'	**0.50 cfs Exfiltration when above 70.76'**
#3	Device 1	72.39'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	72.50'	**10.0' 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

Primary OutFlow Max=0.40 cfs @ 12.82 hrs HW=72.59' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.40 cfs @ 4.60 fps)
  └─**2=Exfiltration** (Passes < 0.50 cfs potential flow)
  └─**3=Orifice/Grate** (Passes < 1.79 cfs potential flow)

Secondary OutFlow Max=0.60 cfs @ 12.82 hrs HW=72.59' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 0.60 cfs @ 0.70 fps)

Pond 2P: WETPOND B



Summary for Pond 3P: WETLAND STORAGE

Inflow Area = 3.213 ac, 31.19% Impervious, Inflow Depth > 3.39" for 25 YEAR event
Inflow = 14.50 cfs @ 11.99 hrs, Volume= 0.908 af
Outflow = 10.31 cfs @ 12.10 hrs, Volume= 0.905 af, Atten= 29%, Lag= 6.5 min
Primary = 10.31 cfs @ 12.10 hrs, Volume= 0.905 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 80.83' @ 12.10 hrs Surf.Area= 5,971 sf Storage= 5,580 cf

Plug-Flow detention time= 7.9 min calculated for 0.902 af (99% of inflow)
Center-of-Mass det. time= 6.7 min (778.9 - 772.2)

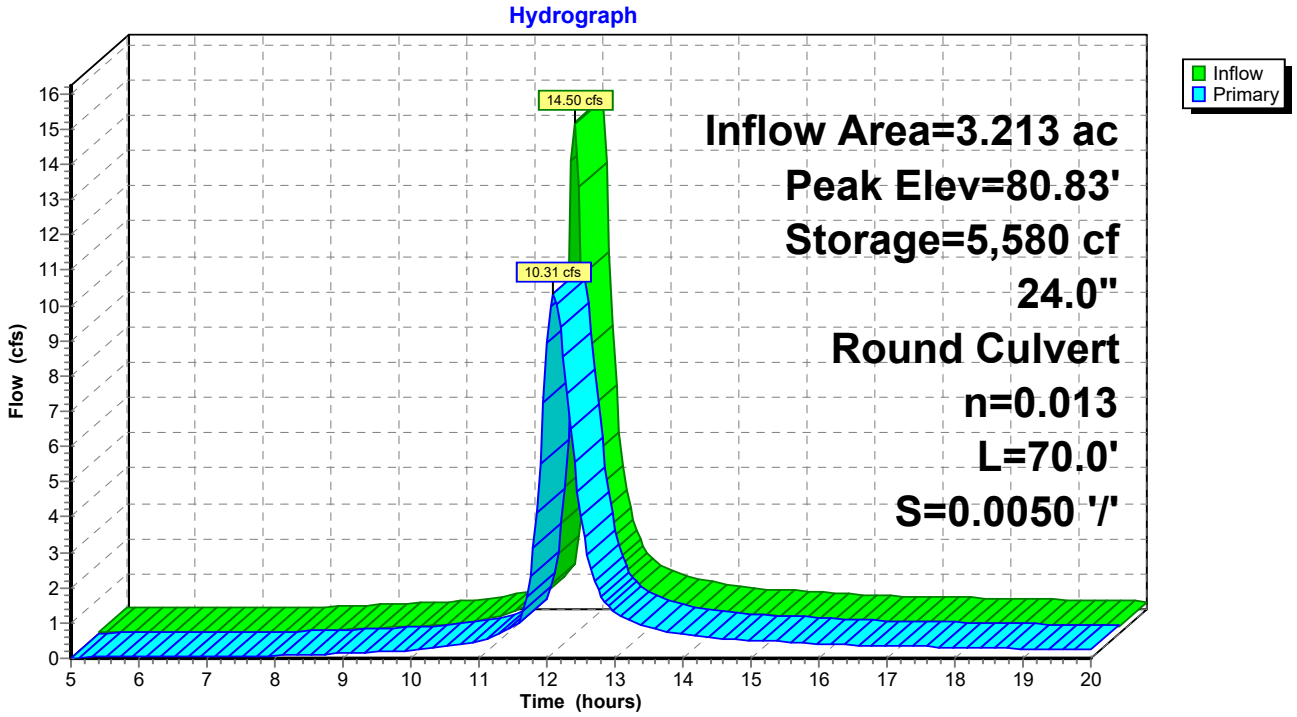
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	15,212 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.00	112	0	0
81.00	6,500	6,612	6,612
82.00	10,700	8,600	15,212

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.00' / 78.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.30 cfs @ 12.10 hrs HW=80.83' (Free Discharge)
1=Culvert (Barrel Controls 10.30 cfs @ 4.47 fps)

Pond 3P: WETLAND STORAGE



Summary for Pond 4P: GUSF 2

Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 3.16" for 25 YEAR event
Inflow = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af
Outflow = 0.70 cfs @ 12.02 hrs, Volume= 0.041 af, Atten= 25%, Lag= 4.1 min
Primary = 0.10 cfs @ 11.65 hrs, Volume= 0.035 af
Routed to Reach 4R : REACH 4
Secondary = 0.60 cfs @ 12.02 hrs, Volume= 0.006 af
Routed to Reach 4R : REACH 4

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.89' @ 12.02 hrs Surf.Area= 373 sf Storage= 468 cf

Plug-Flow detention time= 24.0 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 23.8 min (801.1 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1	75.23'	1,020 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

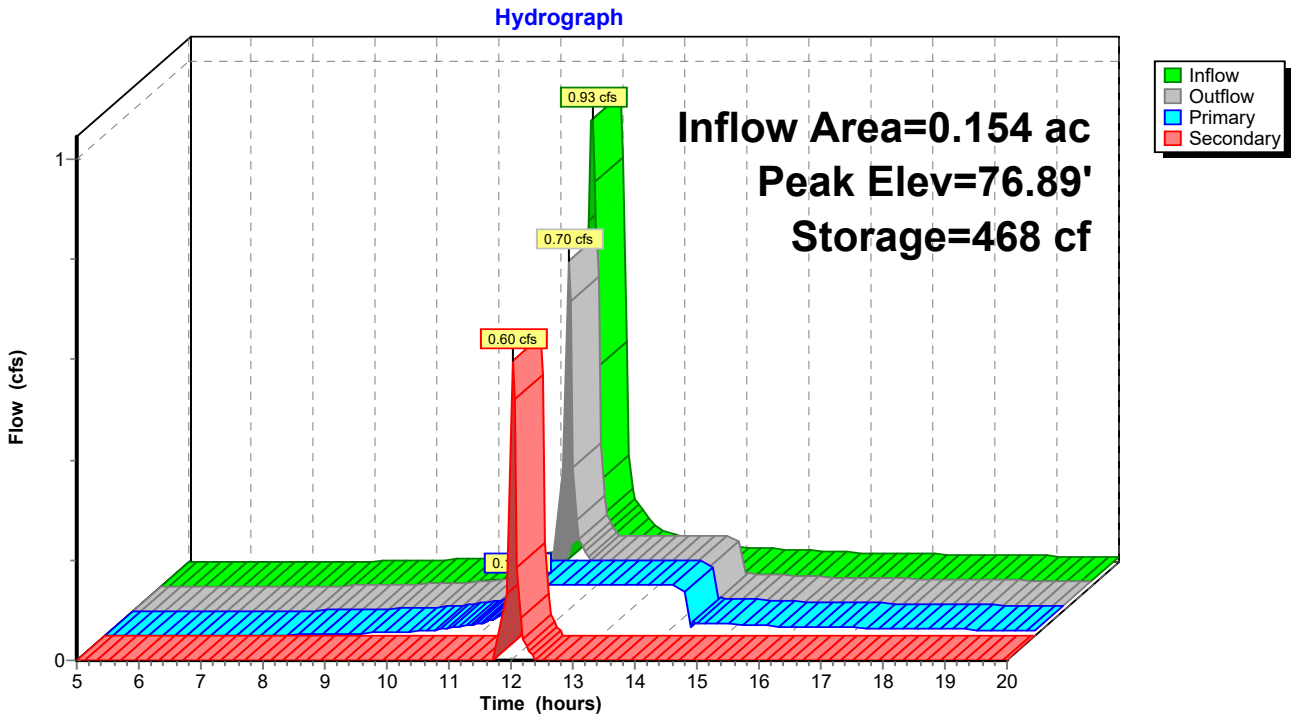
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.23	192	0	0
77.00	385	511	511
78.00	634	510	1,020

Device	Routing	Invert	Outlet Devices
#1	Primary	72.98'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 72.98' / 72.88' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	75.23'	**0.10 cfs Exfiltration when above 75.23'**
#3	Secondary	76.73'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.65 hrs HW=75.27' (Free Discharge)
1=Culvert (Passes 0.10 cfs of 0.48 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.53 cfs @ 12.02 hrs HW=76.86' (Free Discharge)
3=Broad-Crested Rectangular Weir (Weir Controls 0.53 cfs @ 0.84 fps)

Pond 4P: GUSF 2



Summary for Pond 5P: GUSF 1

Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 4.36" for 25 YEAR event
Inflow = 1.07 cfs @ 11.95 hrs, Volume= 0.050 af
Outflow = 0.70 cfs @ 12.04 hrs, Volume= 0.050 af, Atten= 34%, Lag= 5.2 min
Primary = 0.10 cfs @ 11.60 hrs, Volume= 0.043 af
Routed to Reach 3R : REACH 3
Secondary = 0.60 cfs @ 12.04 hrs, Volume= 0.007 af
Routed to Reach 3R : REACH 3

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.64' @ 12.04 hrs Surf.Area= 577 sf Storage= 623 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 30.8 min (780.2 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1	82.00'	1,228 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

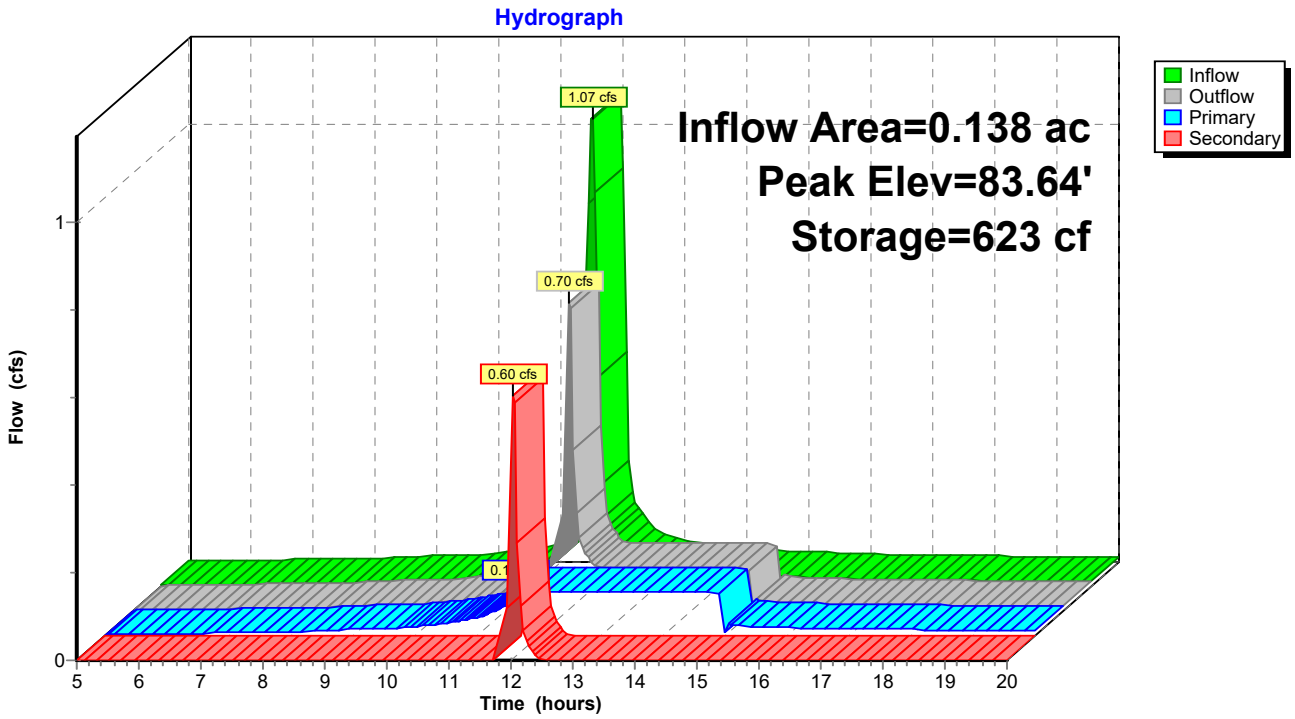
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.00	210	0	0
83.00	408	309	309
84.00	673	541	850
84.50	841	379	1,228

Device	Routing	Invert	Outlet Devices
#1	Primary	79.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 79.75' / 79.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	82.00'	**0.10 cfs Exfiltration when above 82.00'**
#3	Secondary	83.50'	**5.0' long x 4.0' 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) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 11.60 hrs HW=82.03' (Free Discharge)
↑**1=Culvert** (Passes 0.10 cfs of 0.48 cfs potential flow)
↑**2=Exfiltration** (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.56 cfs @ 12.04 hrs HW=83.63' (Free Discharge)
↑**3=Broad-Crested Rectangular Weir** (Weir Controls 0.56 cfs @ 0.86 fps)

Pond 5P: GUSF 1



Summary for Pond 6P: BIO CELL 1

Inflow Area = 0.066 ac, 31.76% Impervious, Inflow Depth > 1.61" for 25 YEAR event
Inflow = 0.21 cfs @ 11.97 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af, Atten= 52%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af
Routed to Reach 1R : REACH 1
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 1R : REACH 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.11' @ 12.06 hrs Surf.Area= 186 sf Storage= 46 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.7 min (811.6 - 809.9)

Volume	Invert	Avail.Storage	Storage Description
#1	78.50'	714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

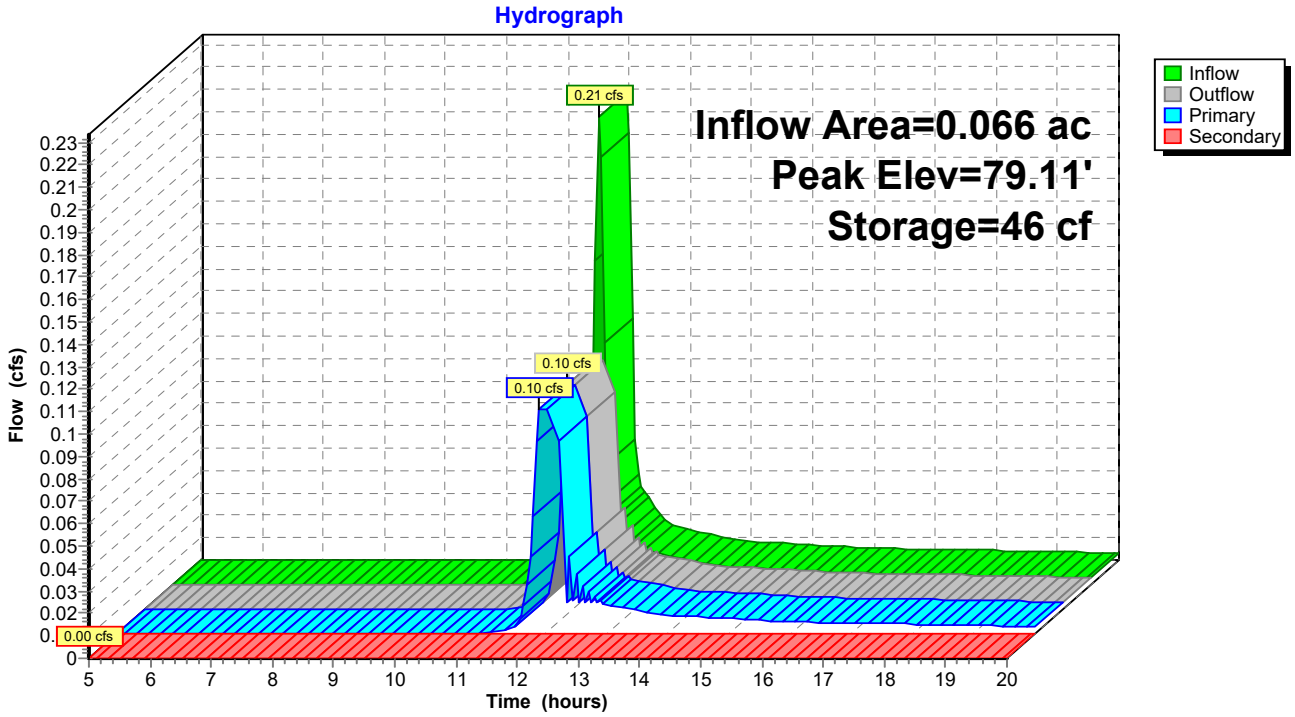
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.50	140	0.0	0	0
79.00	140	40.0	28	28
80.50	775	100.0	686	714

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	78.50'	**0.10 cfs Exfiltration at all elevations**
#3	Secondary	79.50'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.10 cfs @ 11.90 hrs HW=78.59' (Free Discharge)
1=Culvert (Passes 0.10 cfs of 0.43 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=78.50' (Free Discharge)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 6P: BIO CELL 1



Summary for Pond 7P: BIO CELL 2

Inflow Area = 0.054 ac, 36.02% Impervious, Inflow Depth > 2.01" for 25 YEAR event
Inflow = 0.22 cfs @ 11.96 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af, Atten= 54%, Lag= 0.0 min
Primary = 0.10 cfs @ 11.90 hrs, Volume= 0.009 af
Routed to Reach 2R : REACH 2
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Reach 2R : REACH 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.28' @ 12.06 hrs Surf.Area= 254 sf Storage= 75 cf

Plug-Flow detention time= 29.2 min calculated for 0.009 af (94% of inflow)
Center-of-Mass det. time= 9.0 min (809.7 - 800.7)

Volume	Invert	Avail.Storage	Storage Description
#1	76.50'	748 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

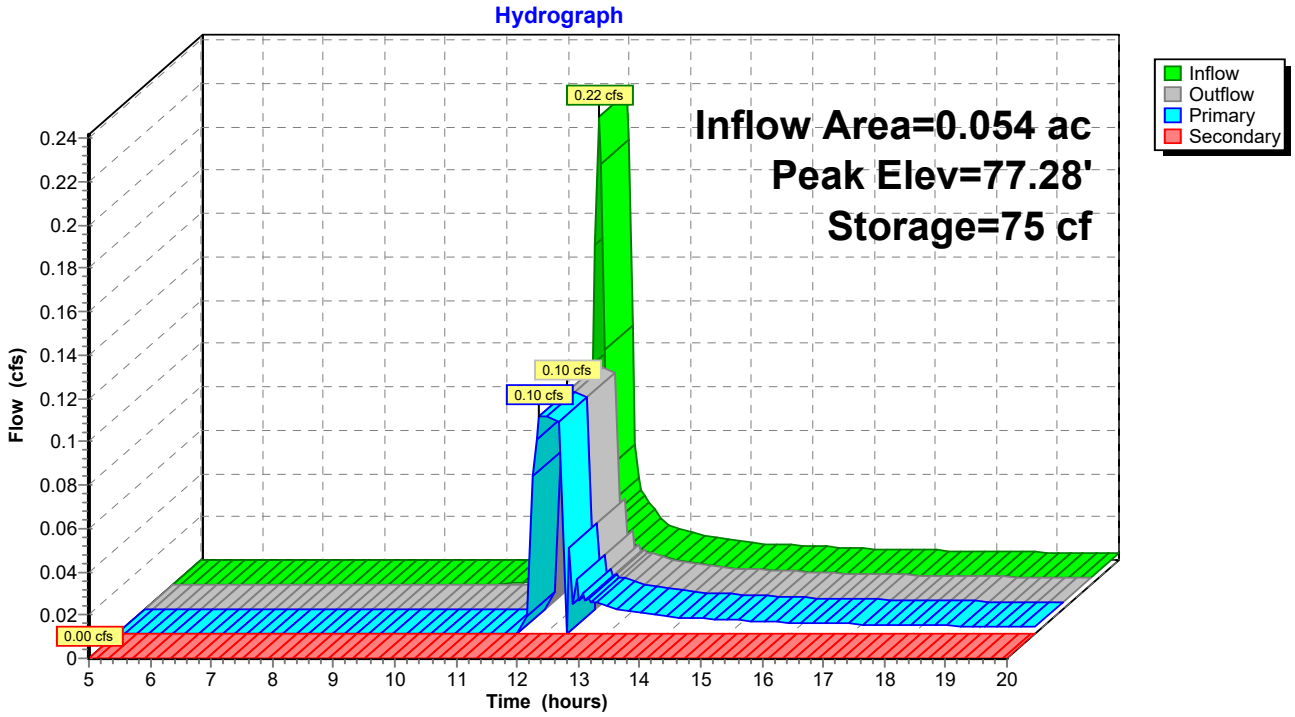
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.50	116	0.0	0	0
77.00	116	40.0	23	23
78.50	850	100.0	725	748

Device	Routing	Invert	Outlet Devices
#1	Primary	74.75'	**4.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.75' / 74.65' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	77.00'	**0.10 cfs Exfiltration when above 77.00'**
#3	Secondary	77.50'	**5.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.10 cfs @ 11.90 hrs HW=77.06' (Free Discharge)
1=Culvert (Passes 0.10 cfs of 0.49 cfs potential flow)
2=Exfiltration (Exfiltration Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=76.50' (Free Discharge)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 7P: BIO CELL 2



Summary for Pond 8P: DRIP FILTER

Inflow Area = 0.022 ac,100.00% Impervious, Inflow Depth > 5.09" for 25 YEAR event
Inflow = 0.19 cfs @ 11.95 hrs, Volume= 0.009 af
Outflow = 0.17 cfs @ 11.99 hrs, Volume= 0.009 af, Atten= 7%, Lag= 2.5 min
Primary = 0.17 cfs @ 11.99 hrs, Volume= 0.009 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.71' @ 11.99 hrs Surf.Area= 200 sf Storage= 57 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.1 min (732.7 - 728.6)

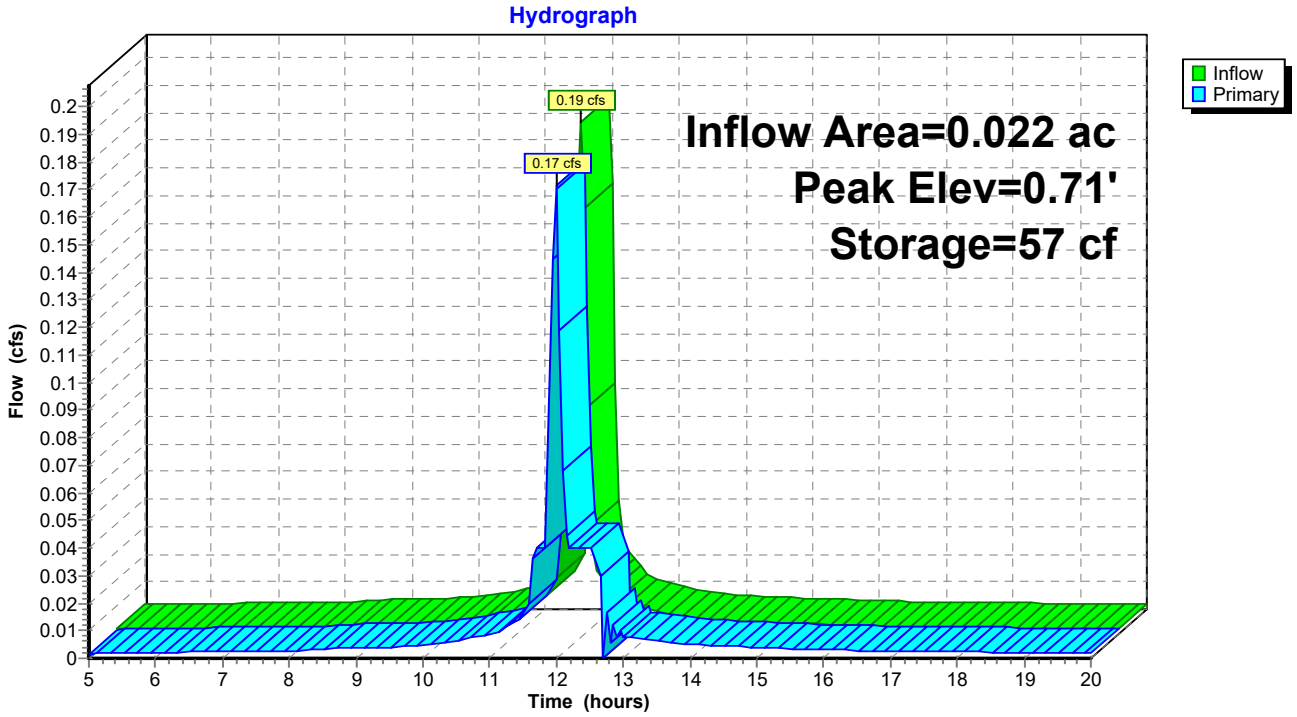
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.17 cfs @ 11.99 hrs HW=0.70' (Free Discharge)
- **1=Culvert** (Passes 0.04 cfs of 0.53 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.04 cfs)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 1.25 fps)

Pond 8P: DRIP FILTER



Summary for Pond 9P: DRIP FILTER

Inflow Area = 0.027 ac,100.00% Impervious, Inflow Depth > 5.09" for 25 YEAR event
Inflow = 0.23 cfs @ 11.95 hrs, Volume= 0.012 af
Outflow = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af, Atten= 2%, Lag= 1.4 min
Primary = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.76' @ 11.97 hrs Surf.Area= 200 sf Storage= 61 cf

Plug-Flow detention time= 4.1 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 4.0 min (732.6 - 728.6)

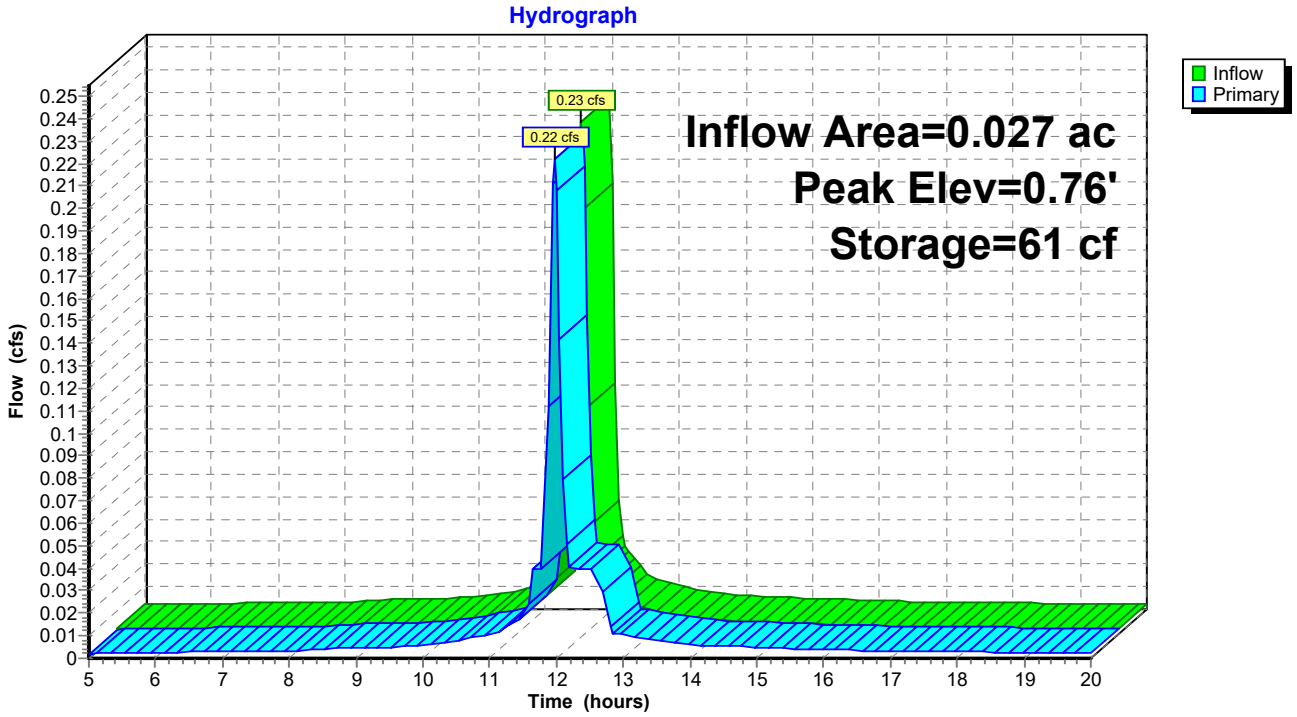
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.21 cfs @ 11.97 hrs HW=0.74' (Free Discharge)
- **1=Culvert** (Passes 0.04 cfs of 0.53 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.04 cfs)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 0.17 cfs @ 1.39 fps)

Pond 9P: DRIP FILTER



Summary for Pond 10P: DRIP FILTER

Inflow Area = 0.037 ac,100.00% Impervious, Inflow Depth > 5.09" for 25 YEAR event
Inflow = 0.31 cfs @ 11.95 hrs, Volume= 0.016 af
Outflow = 0.29 cfs @ 11.97 hrs, Volume= 0.016 af, Atten= 4%, Lag= 1.1 min
Primary = 0.29 cfs @ 11.97 hrs, Volume= 0.016 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.81' @ 11.97 hrs Surf.Area= 200 sf Storage= 65 cf

Plug-Flow detention time= 3.9 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (732.4 - 728.6)

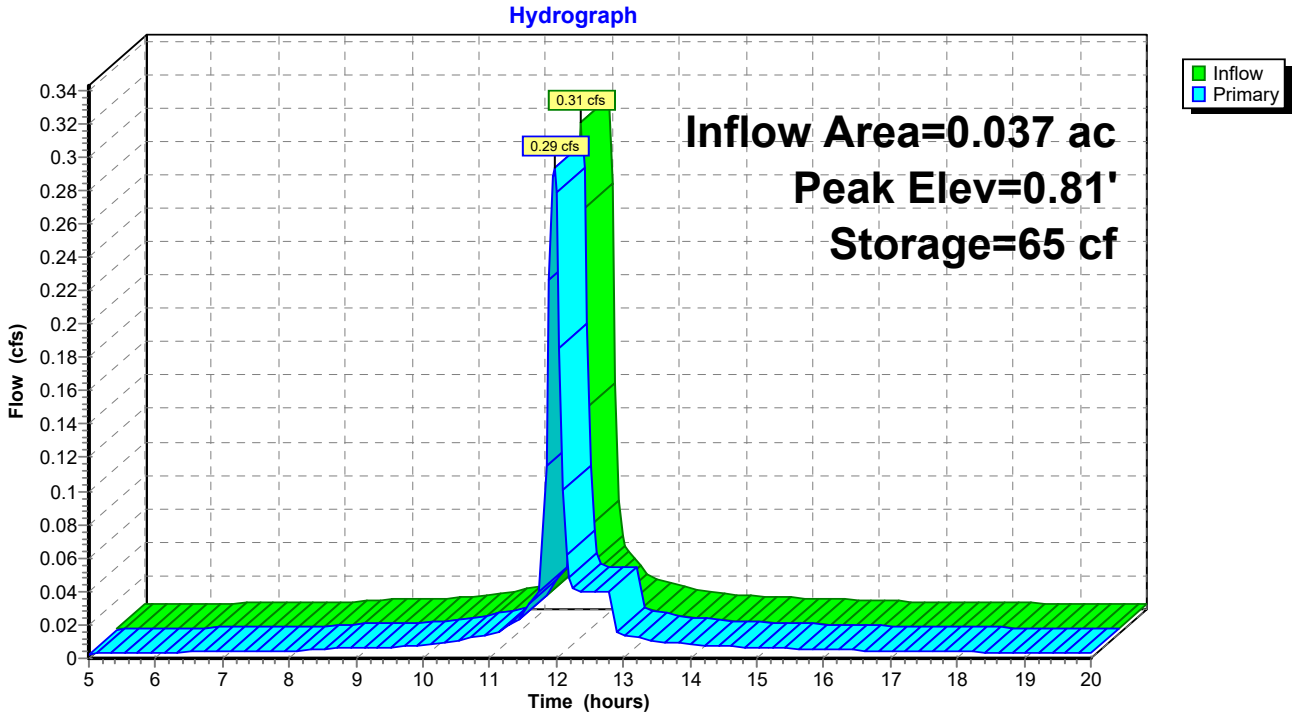
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.28 cfs @ 11.97 hrs HW=0.81' (Free Discharge)
- **1=Culvert** (Passes 0.04 cfs of 0.54 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.04 cfs)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 0.24 cfs @ 1.59 fps)

Pond 10P: DRIP FILTER



Summary for Pond 11P: DRIP FILTER

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth > 5.09" for 25 YEAR event
Inflow = 0.22 cfs @ 11.95 hrs, Volume= 0.011 af
Outflow = 0.22 cfs @ 11.97 hrs, Volume= 0.011 af, Atten= 2%, Lag= 1.5 min
Primary = 0.22 cfs @ 11.97 hrs, Volume= 0.011 af
Routed to Reach SP1 : SUMMATION POINT 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.75' @ 11.97 hrs Surf.Area= 200 sf Storage= 60 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.0 min (732.6 - 728.6)

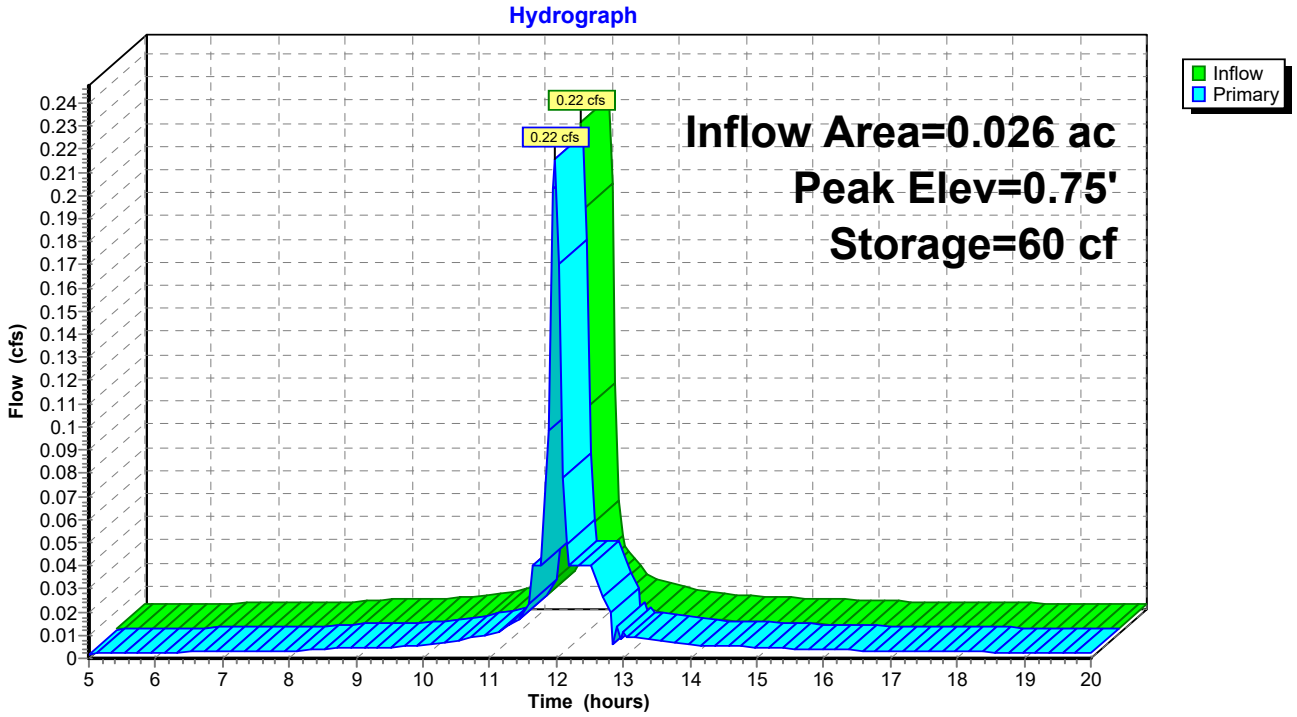
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	80 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 200 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	200	0	0
1.00	200	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	-2.00'	**4.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= -2.00' / -2.01' S= 0.0010 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	0.00'	**0.04 cfs Exfiltration at all elevations**
#3	Primary	0.50'	**0.5' 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=0.20 cfs @ 11.97 hrs HW=0.74' (Free Discharge)
- **1=Culvert** (Passes 0.04 cfs of 0.53 cfs potential flow)
  - **2=Exfiltration** (Exfiltration Controls 0.04 cfs)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 0.16 cfs @ 1.37 fps)

Pond 11P: DRIP FILTER



Summary for Pond CB 1: CB1

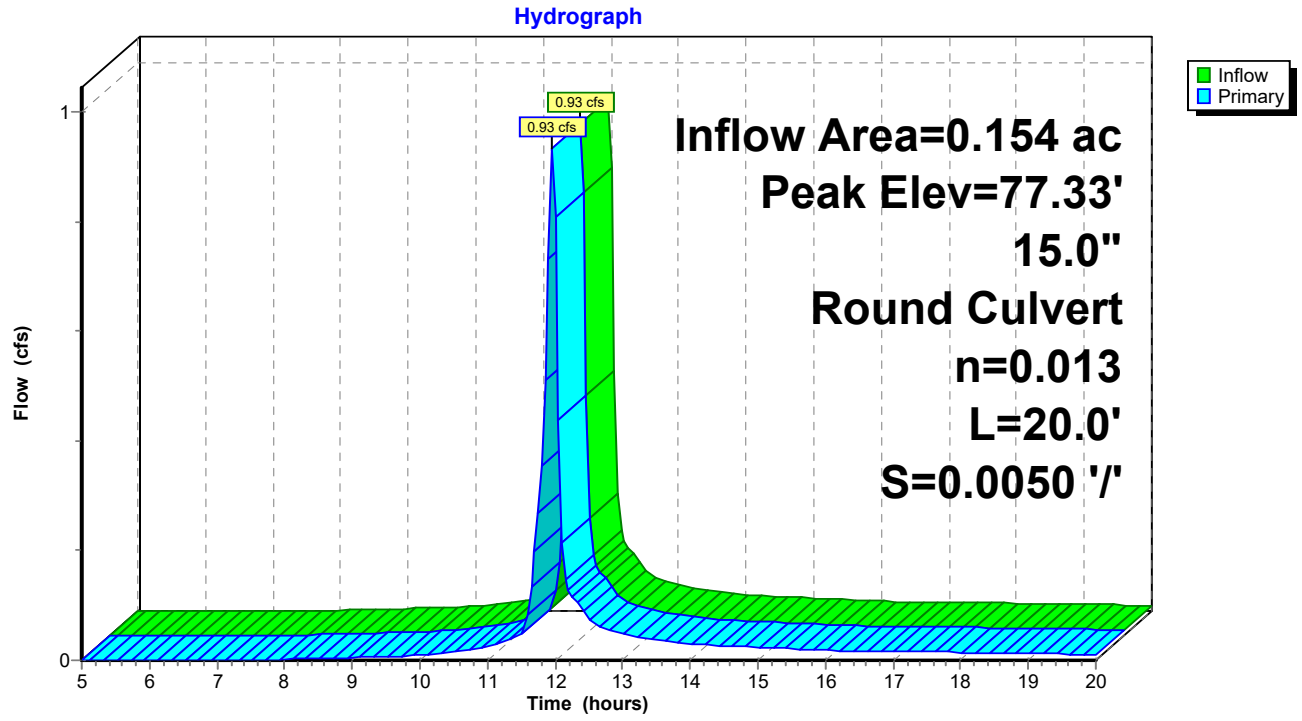
Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 3.16" for 25 YEAR event
Inflow = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af
Outflow = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af
Routed to Pond CB 2 : CB2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.33' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.75'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.75' / 76.65' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.91 cfs @ 11.96 hrs HW=77.32' (Free Discharge)
1=Culvert (Barrel Controls 0.91 cfs @ 2.46 fps)

Pond CB 1: CB1



Summary for Pond CB 10: CB10

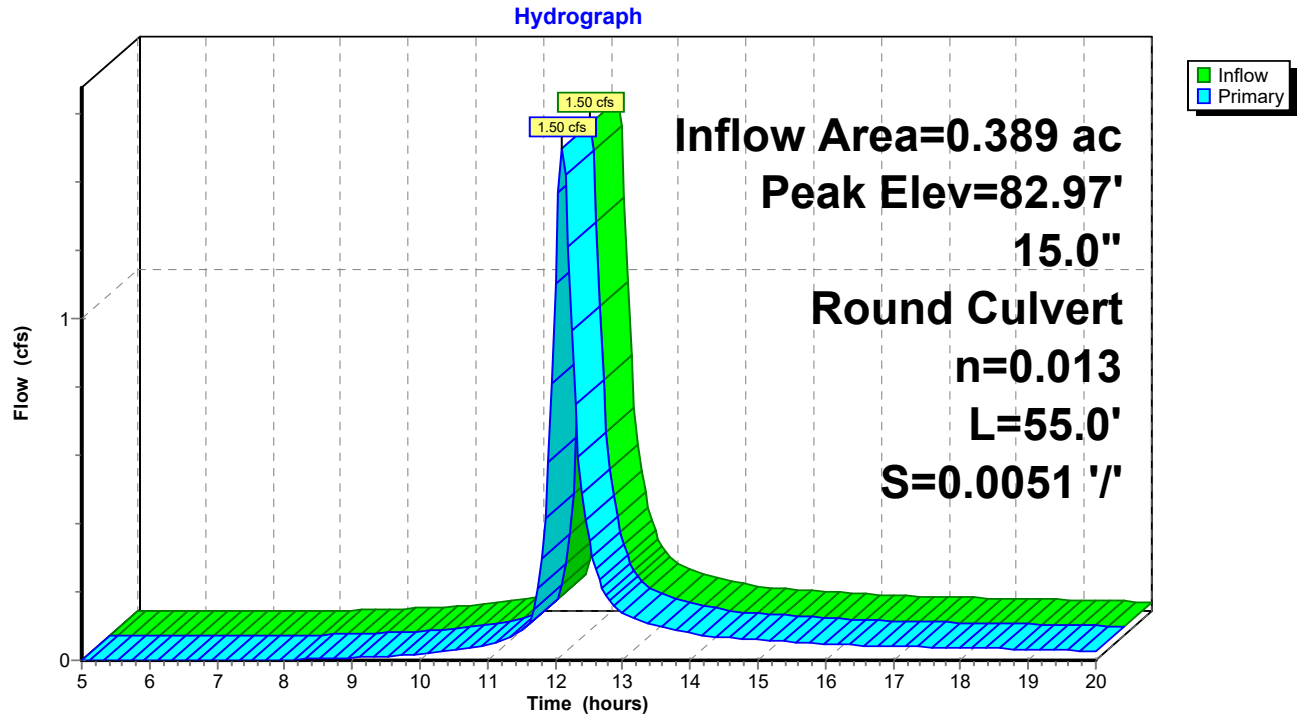
Inflow Area = 0.389 ac, 14.97% Impervious, Inflow Depth > 3.05" for 25 YEAR event
Inflow = 1.50 cfs @ 12.11 hrs, Volume= 0.099 af
Outflow = 1.50 cfs @ 12.11 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.50 cfs @ 12.11 hrs, Volume= 0.099 af
Routed to Pond CB 9 : CB9

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.97' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.25'	**15.0" Round Culvert** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.25' / 81.97' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.49 cfs @ 12.11 hrs HW=82.97' (Free Discharge)
1=Culvert (Barrel Controls 1.49 cfs @ 2.96 fps)

Pond CB 10: CB10



Summary for Pond CB 11: CB11

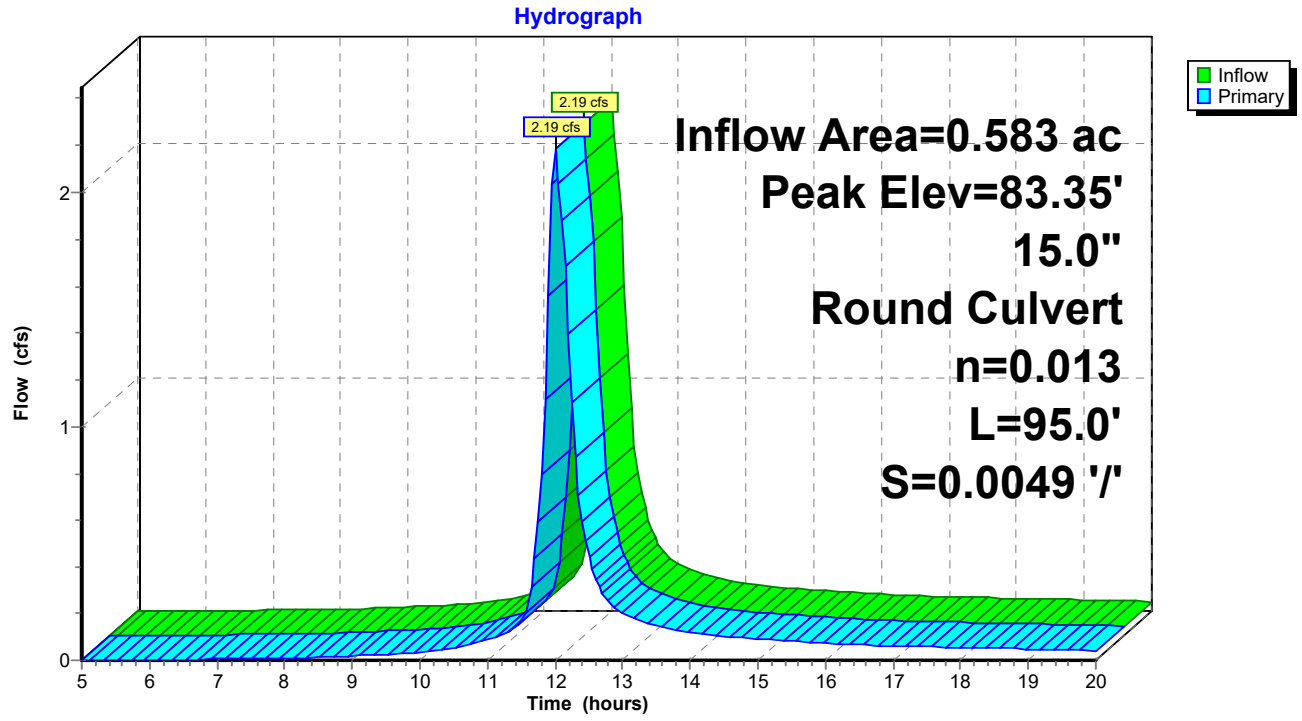
Inflow Area = 0.583 ac, 27.27% Impervious, Inflow Depth > 3.21" for 25 YEAR event
Inflow = 2.19 cfs @ 12.00 hrs, Volume= 0.156 af
Outflow = 2.19 cfs @ 12.00 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.00 hrs, Volume= 0.156 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.35' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.47'	**15.0" Round Culvert** L= 95.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.47' / 82.00' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.19 cfs @ 12.00 hrs HW=83.35' (Free Discharge)
1=Culvert (Barrel Controls 2.19 cfs @ 3.33 fps)

Pond CB 11: CB11



Summary for Pond CB 12: CB12

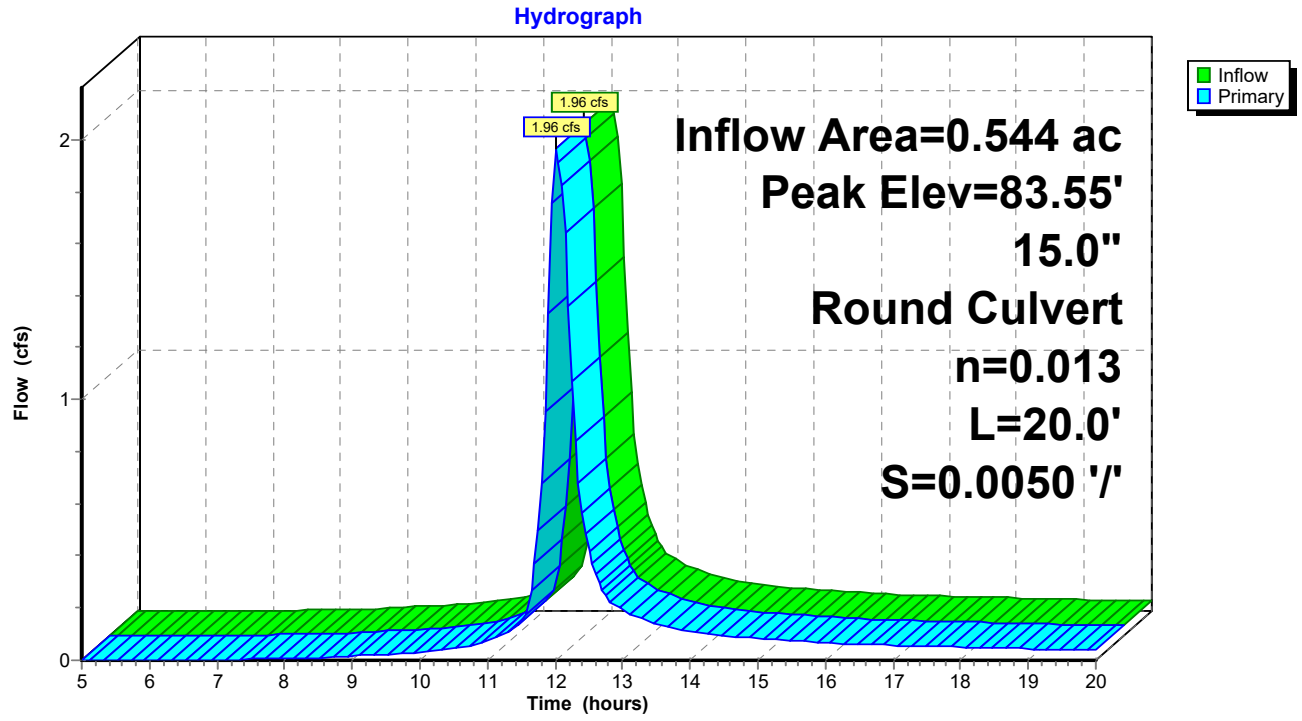
Inflow Area = 0.544 ac, 23.73% Impervious, Inflow Depth > 3.15" for 25 YEAR event
Inflow = 1.96 cfs @ 12.02 hrs, Volume= 0.143 af
Outflow = 1.96 cfs @ 12.02 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.02 hrs, Volume= 0.143 af
Routed to Pond CB 11 : CB11

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.55' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.67'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.67' / 82.57' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.94 cfs @ 12.02 hrs HW=83.55' (Free Discharge)
1=Culvert (Barrel Controls 1.94 cfs @ 2.96 fps)

Pond CB 12: CB12



Summary for Pond CB 13: CB13

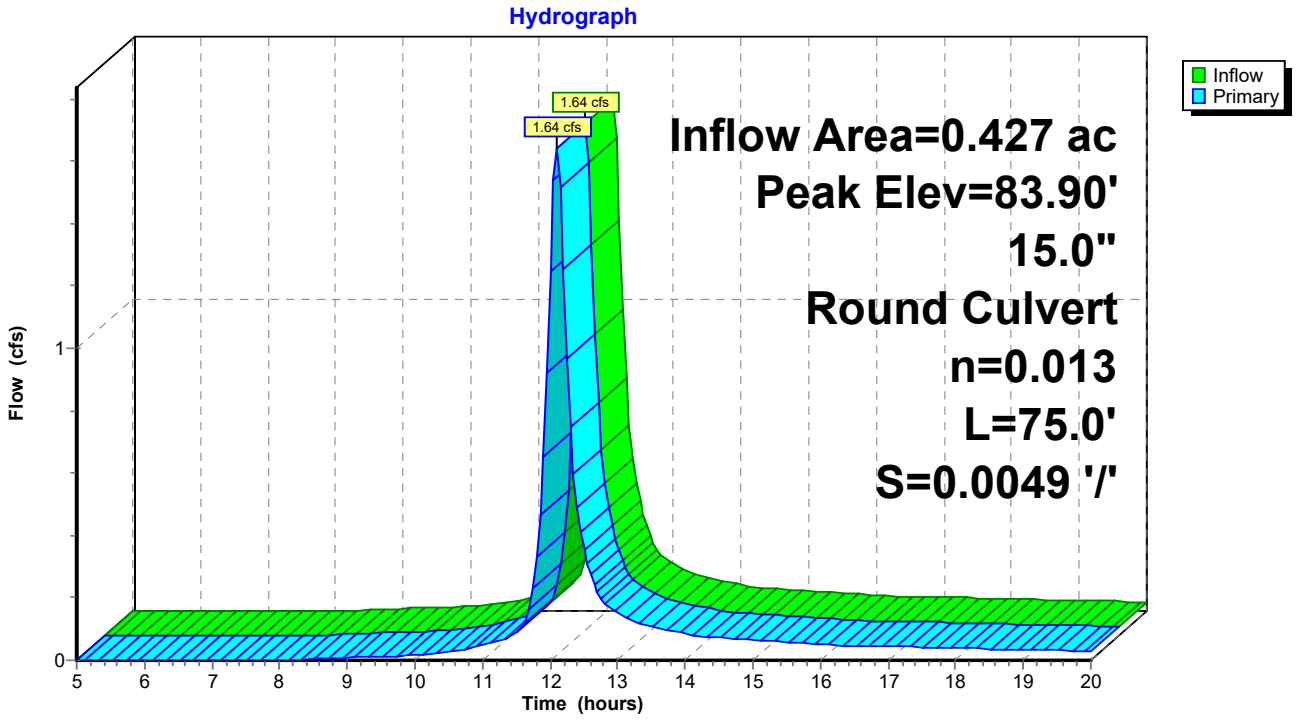
Inflow Area = 0.427 ac, 11.42% Impervious, Inflow Depth > 2.96" for 25 YEAR event
Inflow = 1.64 cfs @ 12.10 hrs, Volume= 0.105 af
Outflow = 1.64 cfs @ 12.10 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.64 cfs @ 12.10 hrs, Volume= 0.105 af
Routed to Pond CB 12 : CB12

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.90' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.15'	**15.0" Round Culvert** L= 75.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.15' / 82.78' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.64 cfs @ 12.10 hrs HW=83.90' (Free Discharge)
1=Culvert (Barrel Controls 1.64 cfs @ 3.06 fps)

Pond CB 13: CB13



Summary for Pond CB 14: CB 14

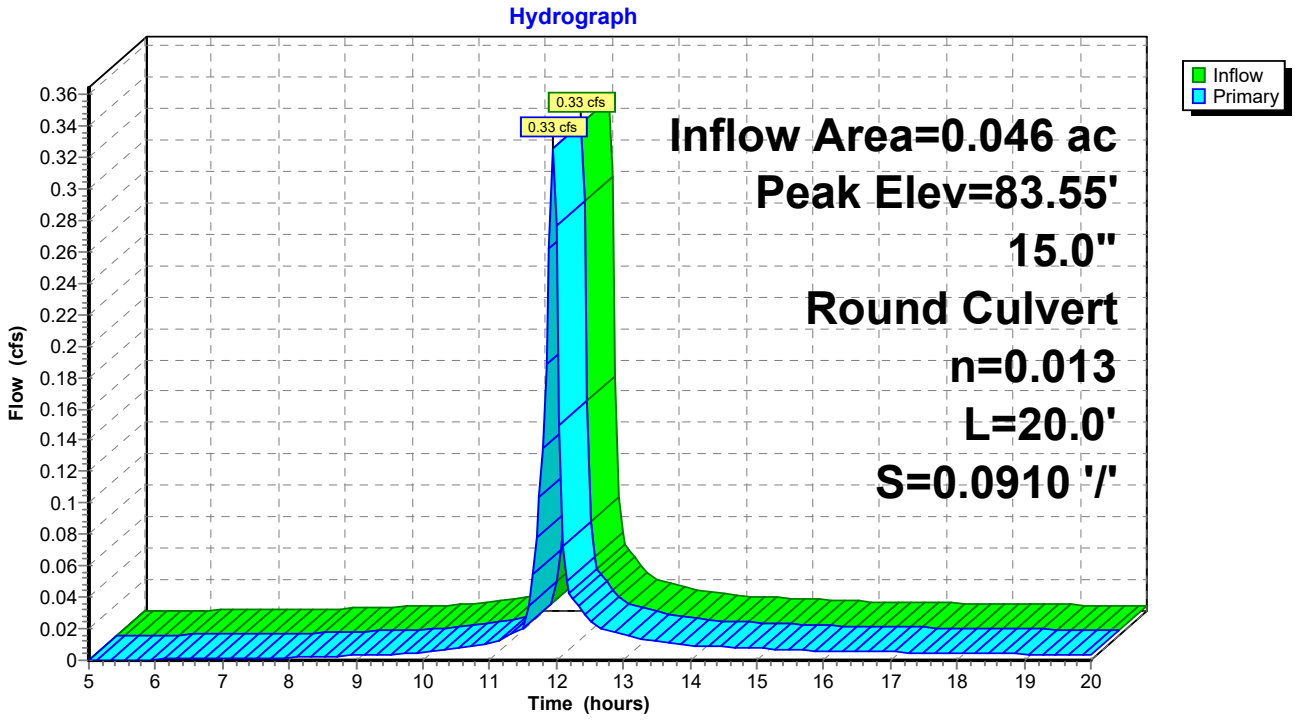
Inflow Area = 0.046 ac, 78.66% Impervious, Inflow Depth > 3.85" for 25 YEAR event
Inflow = 0.33 cfs @ 11.95 hrs, Volume= 0.015 af
Outflow = 0.33 cfs @ 11.95 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 11.95 hrs, Volume= 0.015 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.55' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	83.25'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.25' / 81.43' S= 0.0910 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.32 cfs @ 11.95 hrs HW=83.54' (Free Discharge)
1=Culvert (Inlet Controls 0.32 cfs @ 1.46 fps)

Pond CB 14: CB 14



Summary for Pond CB 15: CB 15

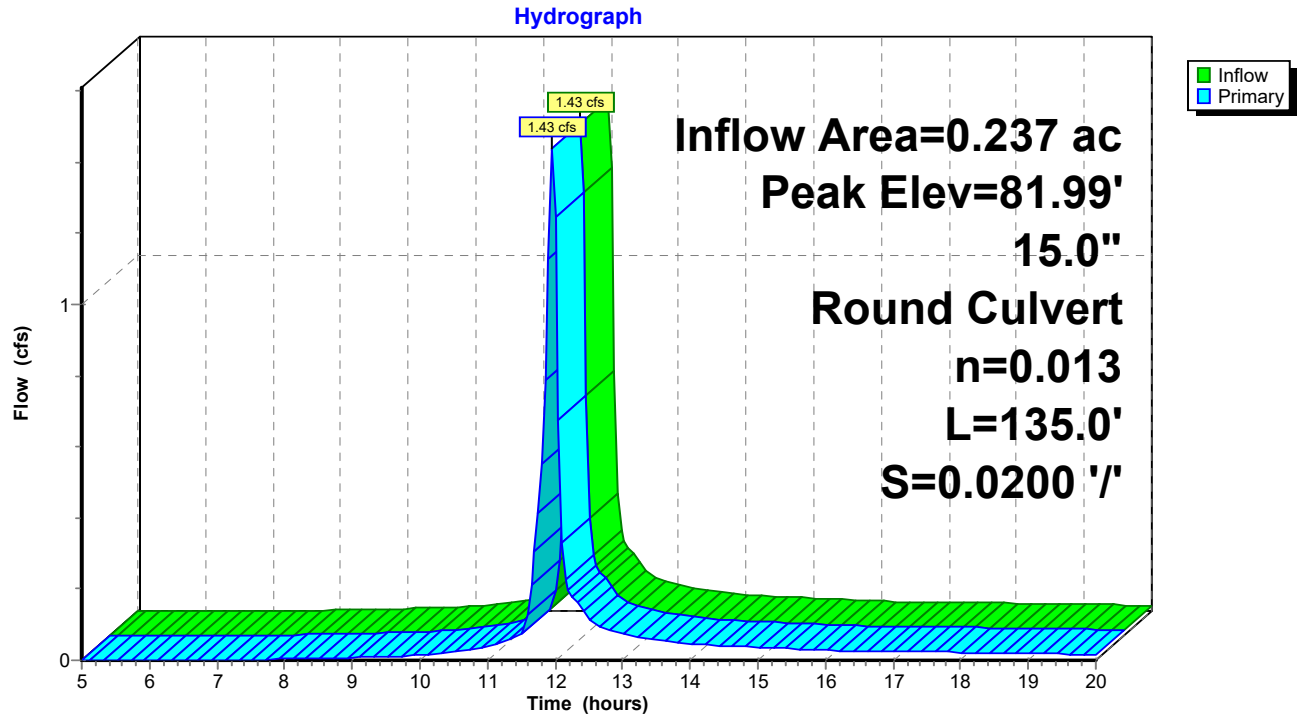
Inflow Area = 0.237 ac, 65.89% Impervious, Inflow Depth > 3.17" for 25 YEAR event
Inflow = 1.43 cfs @ 11.96 hrs, Volume= 0.063 af
Outflow = 1.43 cfs @ 11.96 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 11.96 hrs, Volume= 0.063 af
Routed to Pond CB 18 : CB 18

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 81.99' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.33'	**15.0" Round Culvert** L= 135.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.33' / 78.63' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.41 cfs @ 11.96 hrs HW=81.98' (Free Discharge)
1=Culvert (Inlet Controls 1.41 cfs @ 2.17 fps)

Pond CB 15: CB 15



Summary for Pond CB 16: CB 16

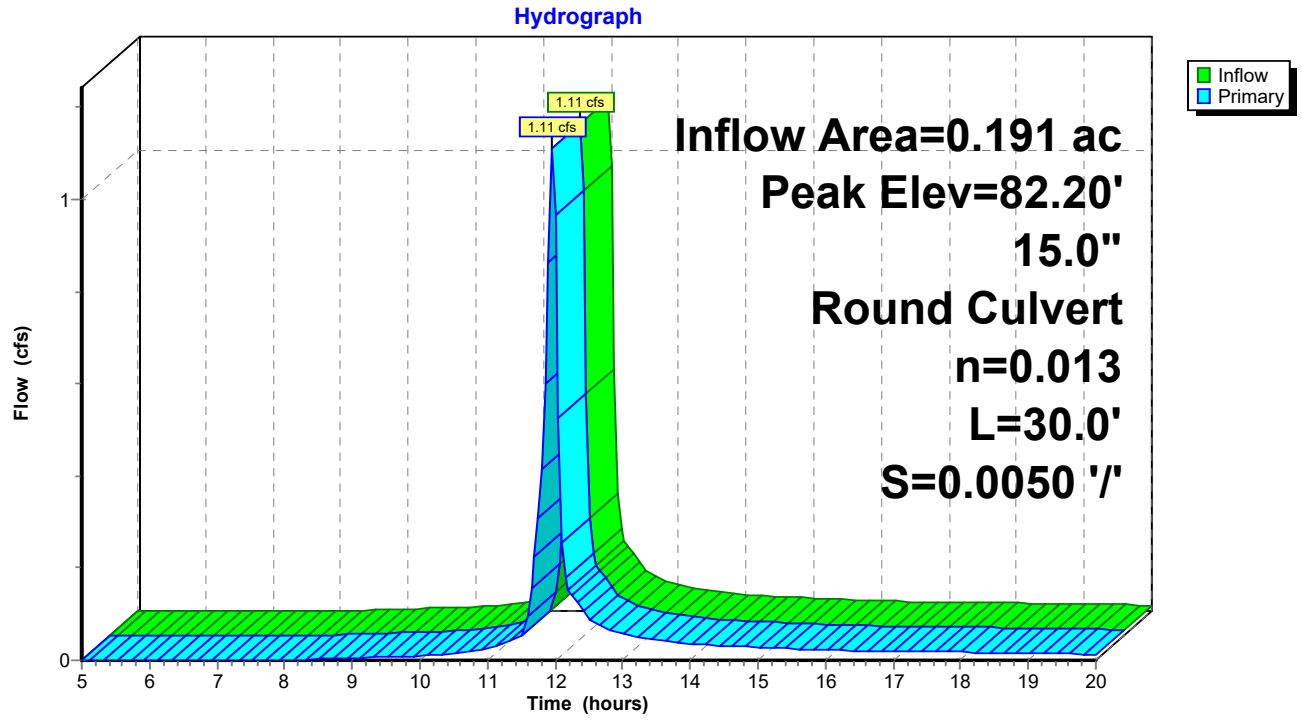
Inflow Area = 0.191 ac, 62.83% Impervious, Inflow Depth > 3.00" for 25 YEAR event
Inflow = 1.11 cfs @ 11.96 hrs, Volume= 0.048 af
Outflow = 1.11 cfs @ 11.96 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 11.96 hrs, Volume= 0.048 af
Routed to Pond CB 15 : CB 15

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.20' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.58'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.58' / 81.43' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.09 cfs @ 11.96 hrs HW=82.20' (Free Discharge)
1=Culvert (Barrel Controls 1.09 cfs @ 2.63 fps)

Pond CB 16: CB 16



Summary for Pond CB 17: CB 17

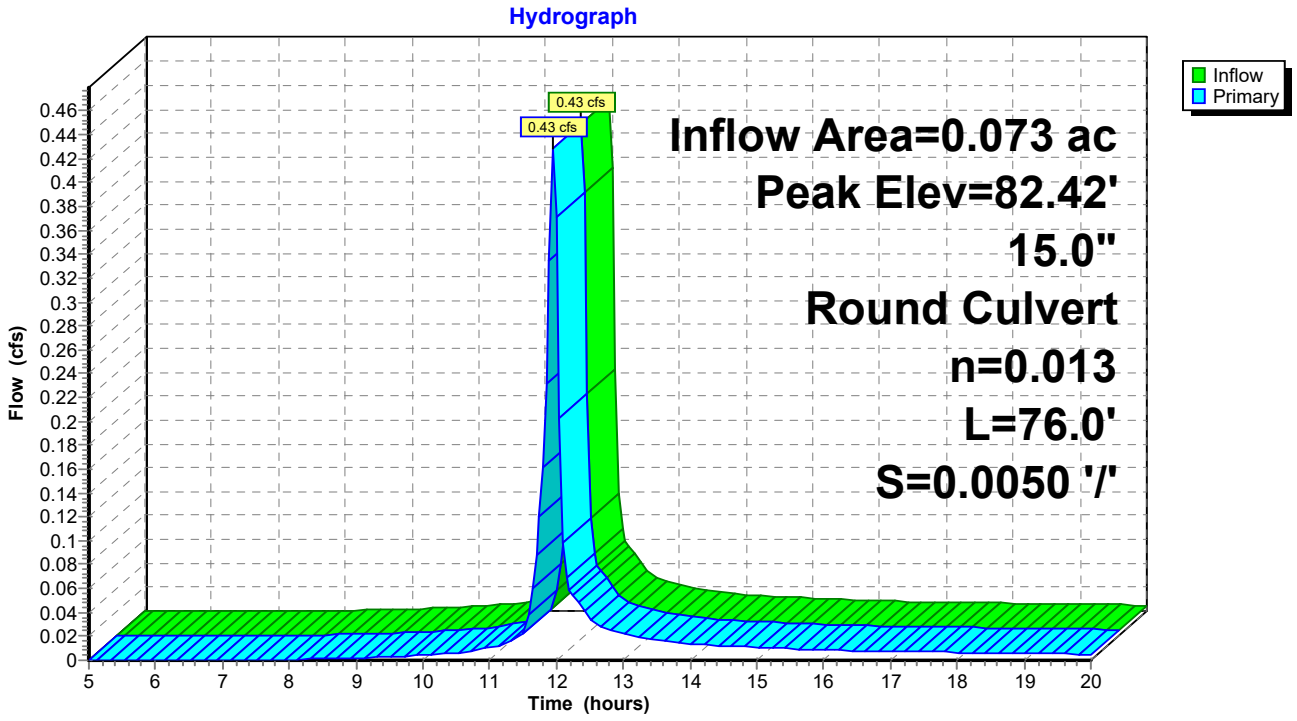
Inflow Area = 0.073 ac, 63.75% Impervious, Inflow Depth > 3.06" for 25 YEAR event
Inflow = 0.43 cfs @ 11.96 hrs, Volume= 0.019 af
Outflow = 0.43 cfs @ 11.96 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.43 cfs @ 11.96 hrs, Volume= 0.019 af
Routed to Pond CB 16 : CB 16

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.42' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.06'	**15.0" Round Culvert** L= 76.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.06' / 81.68' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.42 cfs @ 11.96 hrs HW=82.41' (Free Discharge)
1=Culvert (Barrel Controls 0.42 cfs @ 2.20 fps)

Pond CB 17: CB 17



Summary for Pond CB 18: CB 18

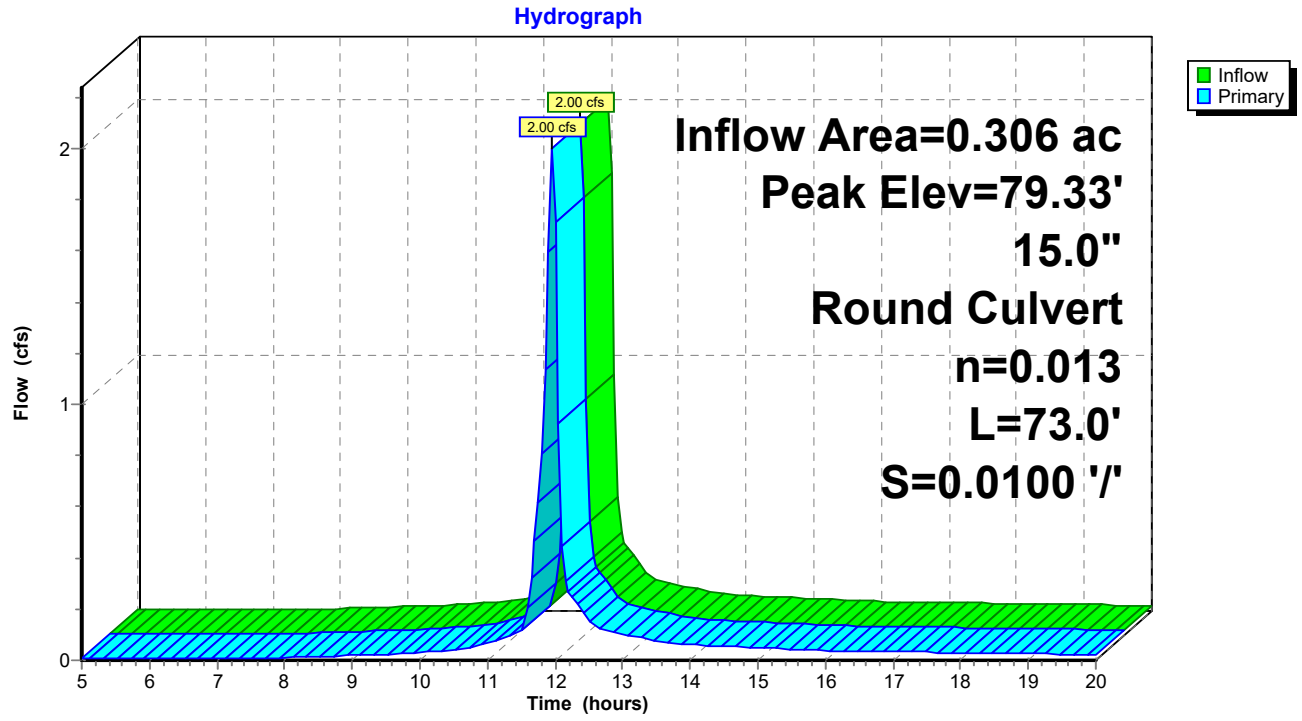
Inflow Area = 0.306 ac, 72.86% Impervious, Inflow Depth > 3.56" for 25 YEAR event
Inflow = 2.00 cfs @ 11.95 hrs, Volume= 0.091 af
Outflow = 2.00 cfs @ 11.95 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min
Primary = 2.00 cfs @ 11.95 hrs, Volume= 0.091 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.33' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.53'	**15.0" Round Culvert** L= 73.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.53' / 77.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.97 cfs @ 11.95 hrs HW=79.32' (Free Discharge)
1=Culvert (Inlet Controls 1.97 cfs @ 2.40 fps)

Pond CB 18: CB 18



Summary for Pond CB 2: CB2

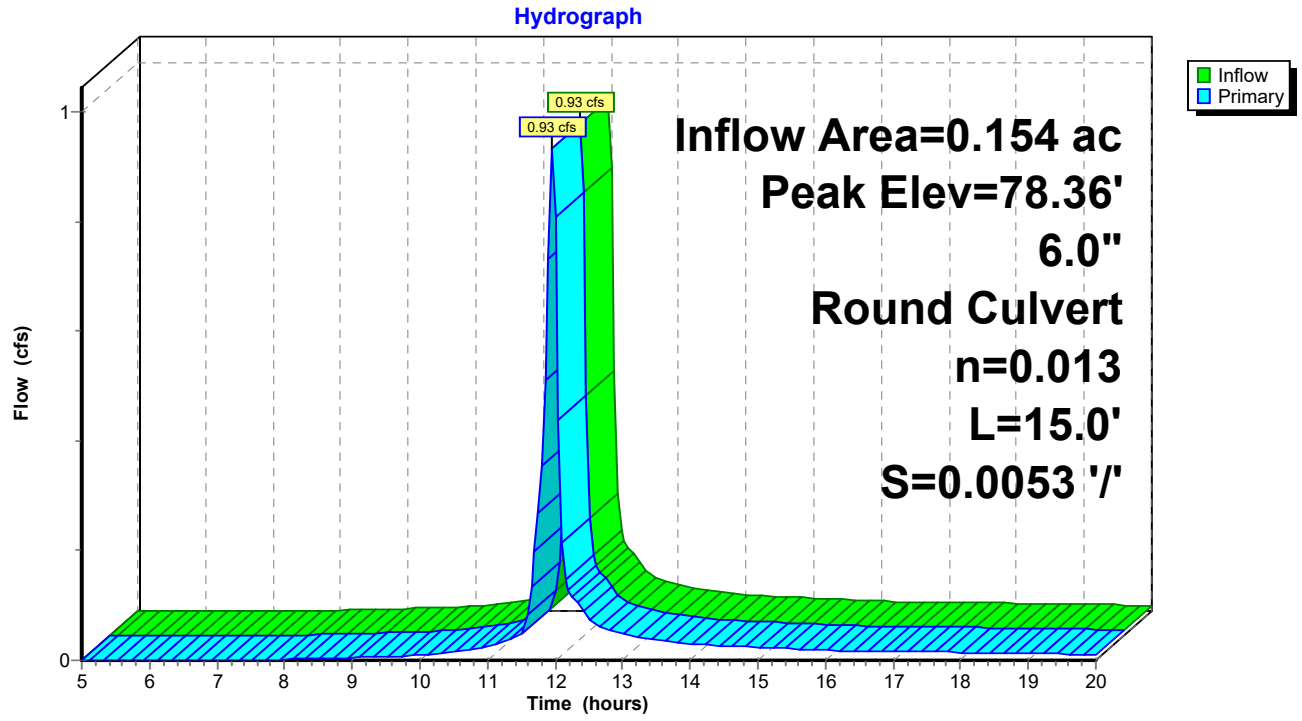
Inflow Area = 0.154 ac, 39.17% Impervious, Inflow Depth > 3.16" for 25 YEAR event
Inflow = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af
Outflow = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 11.96 hrs, Volume= 0.041 af
Routed to Pond 4P : GUSF 2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 78.36' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**6.0" Round Culvert** L= 15.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 76.47' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.92 cfs @ 11.96 hrs HW=78.31' (Free Discharge)
1=Culvert (Inlet Controls 0.92 cfs @ 4.67 fps)

Pond CB 2: CB2



Summary for Pond CB 20: CB20

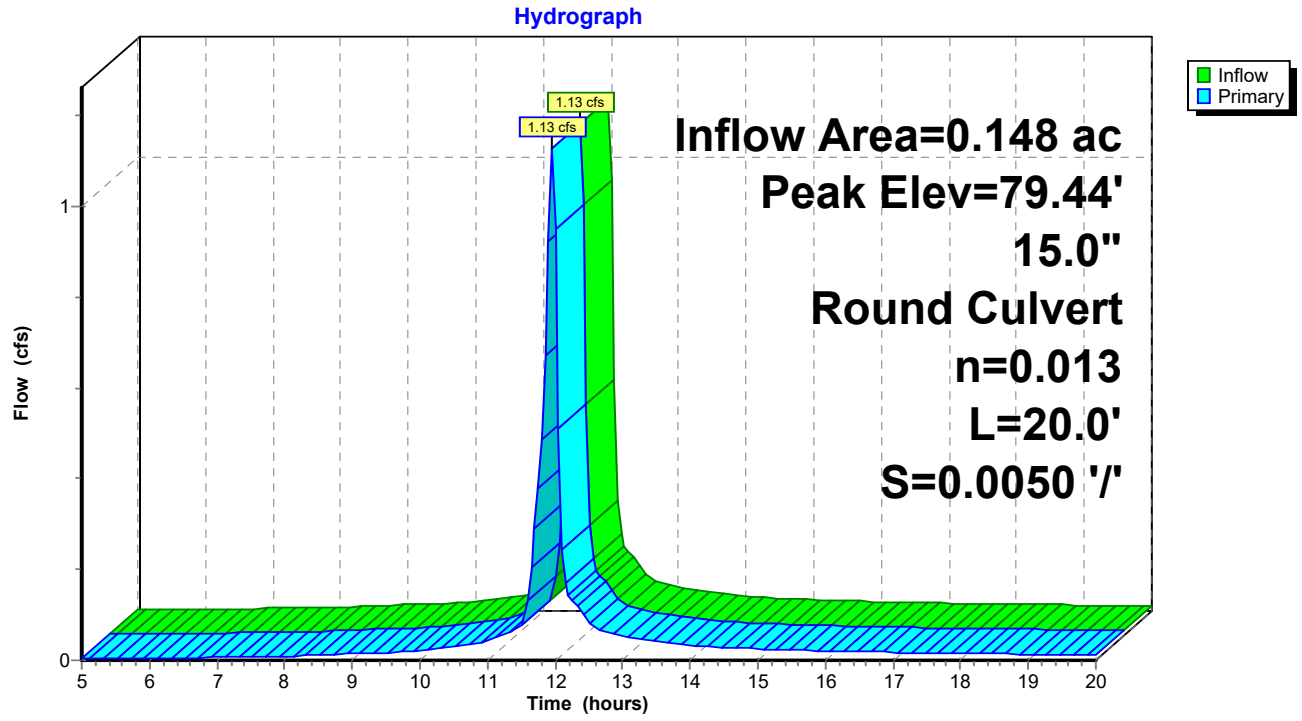
Inflow Area = 0.148 ac, 75.28% Impervious, Inflow Depth > 4.26" for 25 YEAR event
Inflow = 1.13 cfs @ 11.95 hrs, Volume= 0.053 af
Outflow = 1.13 cfs @ 11.95 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 1.13 cfs @ 11.95 hrs, Volume= 0.053 af
Routed to Pond CB 21 : CB21

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.44' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.80'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 78.70' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.12 cfs @ 11.95 hrs HW=79.44' (Free Discharge)
1=Culvert (Barrel Controls 1.12 cfs @ 2.59 fps)

Pond CB 20: CB20



Summary for Pond CB 21: CB21

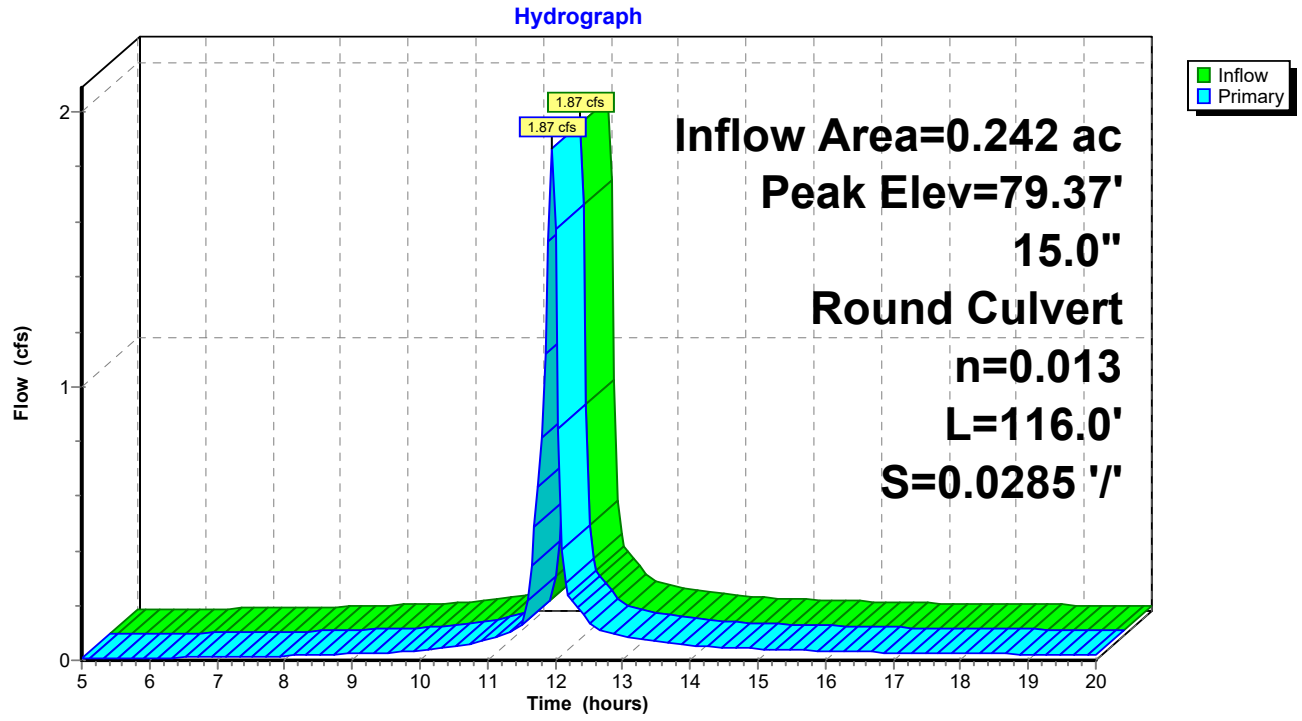
Inflow Area = 0.242 ac, 77.92% Impervious, Inflow Depth > 4.34" for 25 YEAR event
Inflow = 1.87 cfs @ 11.95 hrs, Volume= 0.088 af
Outflow = 1.87 cfs @ 11.95 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 11.95 hrs, Volume= 0.088 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.37' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.60'	**15.0" Round Culvert** L= 116.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.60' / 75.29' S= 0.0285 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.86 cfs @ 11.95 hrs HW=79.37' (Free Discharge)
1=Culvert (Inlet Controls 1.86 cfs @ 2.35 fps)

Pond CB 21: CB21



Summary for Pond CB 22: CB22

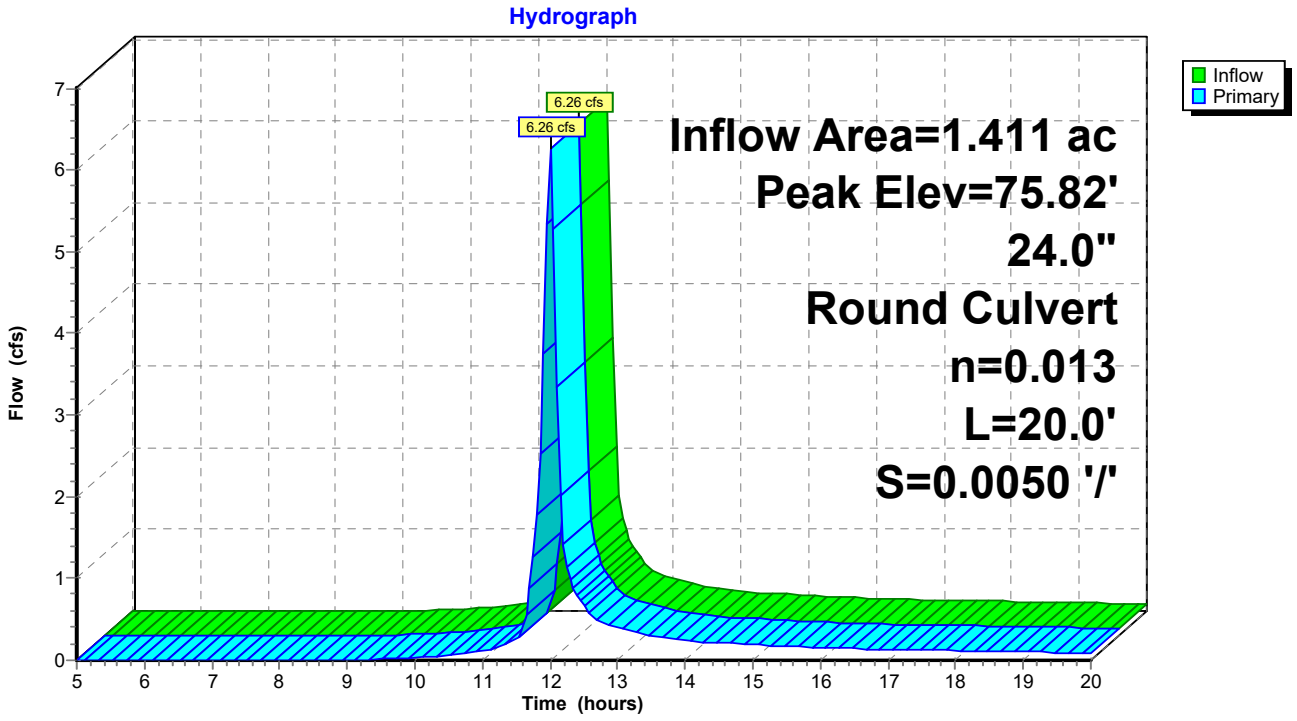
Inflow Area = 1.411 ac, 26.96% Impervious, Inflow Depth > 2.51" for 25 YEAR event
Inflow = 6.26 cfs @ 12.00 hrs, Volume= 0.295 af
Outflow = 6.26 cfs @ 12.00 hrs, Volume= 0.295 af, Atten= 0%, Lag= 0.0 min
Primary = 6.26 cfs @ 12.00 hrs, Volume= 0.295 af
Routed to Pond CB 23 : CB23

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.82' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.40'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.40' / 74.30' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.25 cfs @ 12.00 hrs HW=75.81' (Free Discharge)
1=Culvert (Barrel Controls 6.25 cfs @ 3.70 fps)

Pond CB 22: CB22



Summary for Pond CB 23: CB23

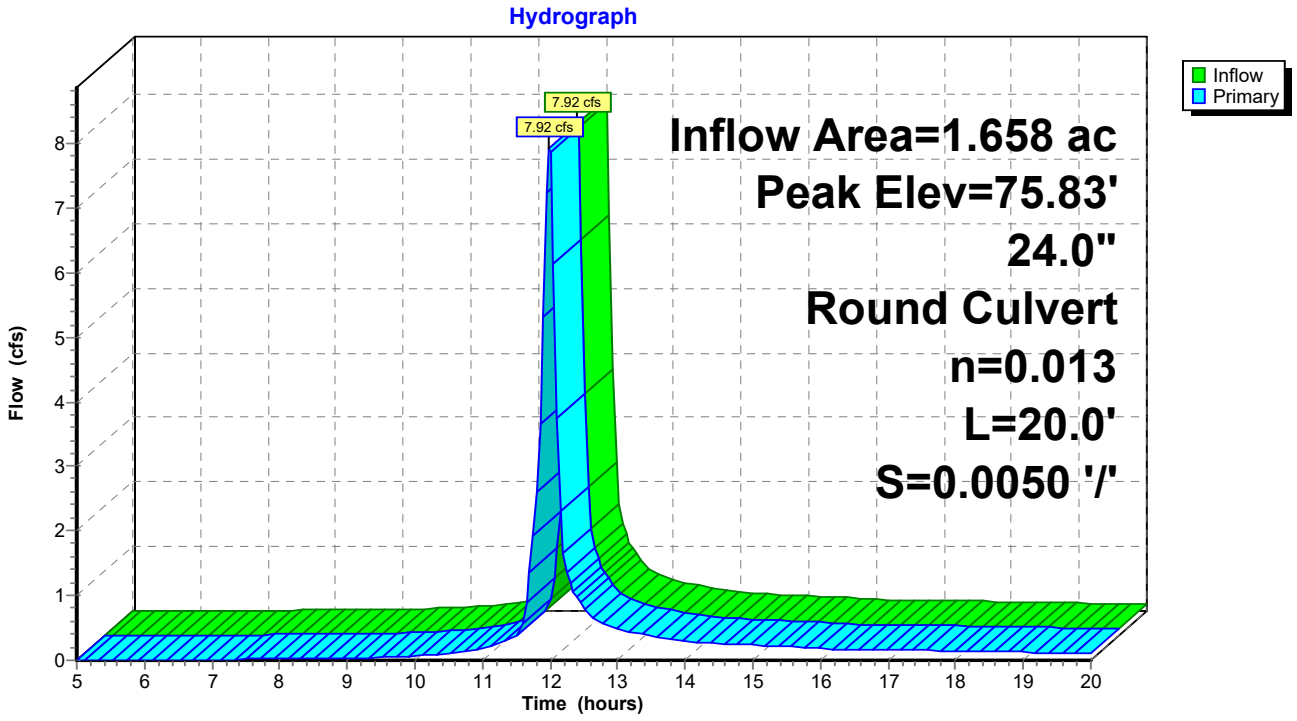
Inflow Area = 1.658 ac, 34.43% Impervious, Inflow Depth > 2.78" for 25 YEAR event
Inflow = 7.92 cfs @ 11.99 hrs, Volume= 0.385 af
Outflow = 7.92 cfs @ 11.99 hrs, Volume= 0.385 af, Atten= 0%, Lag= 0.0 min
Primary = 7.92 cfs @ 11.99 hrs, Volume= 0.385 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.83' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.20'	**24.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.20' / 74.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.71 cfs @ 11.99 hrs HW=75.80' (Free Discharge)
1=Culvert (Barrel Controls 7.71 cfs @ 3.91 fps)

Pond CB 23: CB23



Summary for Pond CB 24: CB 24

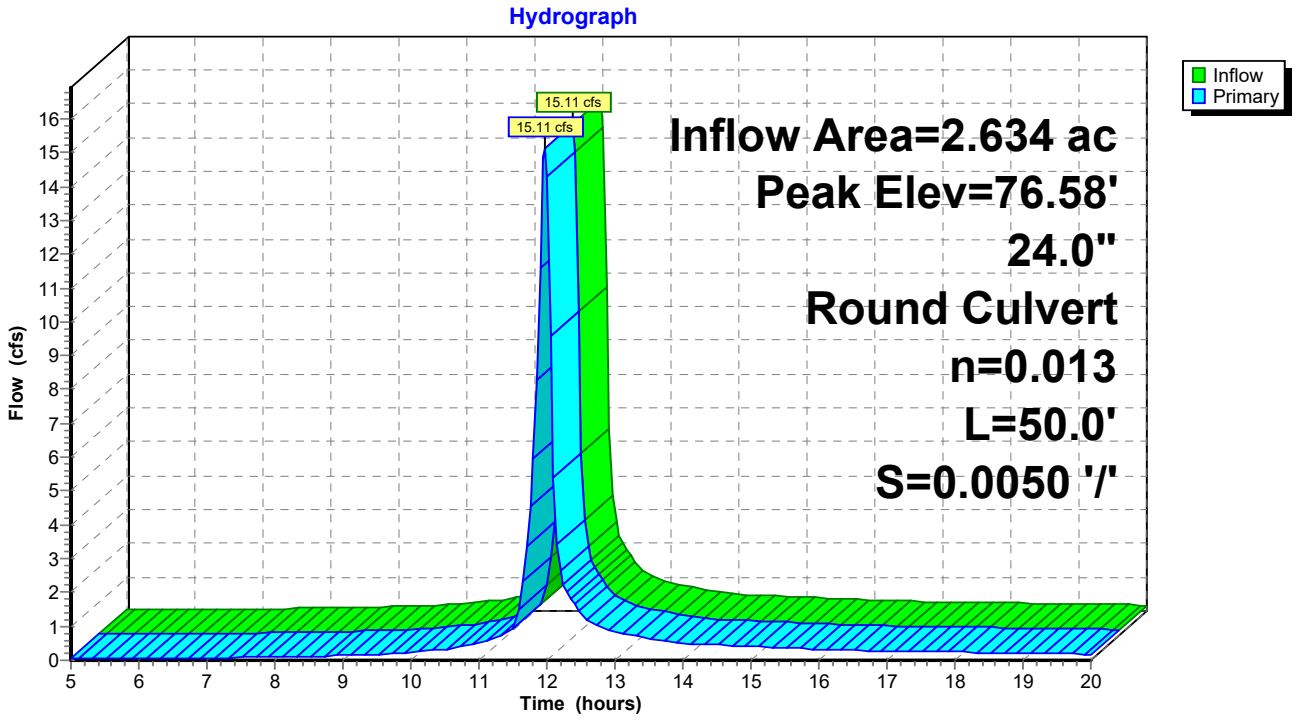
Inflow Area = 2.634 ac, 52.18% Impervious, Inflow Depth > 3.42" for 25 YEAR event
Inflow = 15.11 cfs @ 11.97 hrs, Volume= 0.750 af
Outflow = 15.11 cfs @ 11.97 hrs, Volume= 0.750 af, Atten= 0%, Lag= 0.0 min
Primary = 15.11 cfs @ 11.97 hrs, Volume= 0.750 af
Routed to Pond 2P : WETPOND B

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.58' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	74.00'	**24.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.00' / 73.75' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.68 cfs @ 11.97 hrs HW=76.51' (Free Discharge)
1=Culvert (Inlet Controls 14.68 cfs @ 4.67 fps)

Pond CB 24: CB 24



Summary for Pond CB 25: CB25

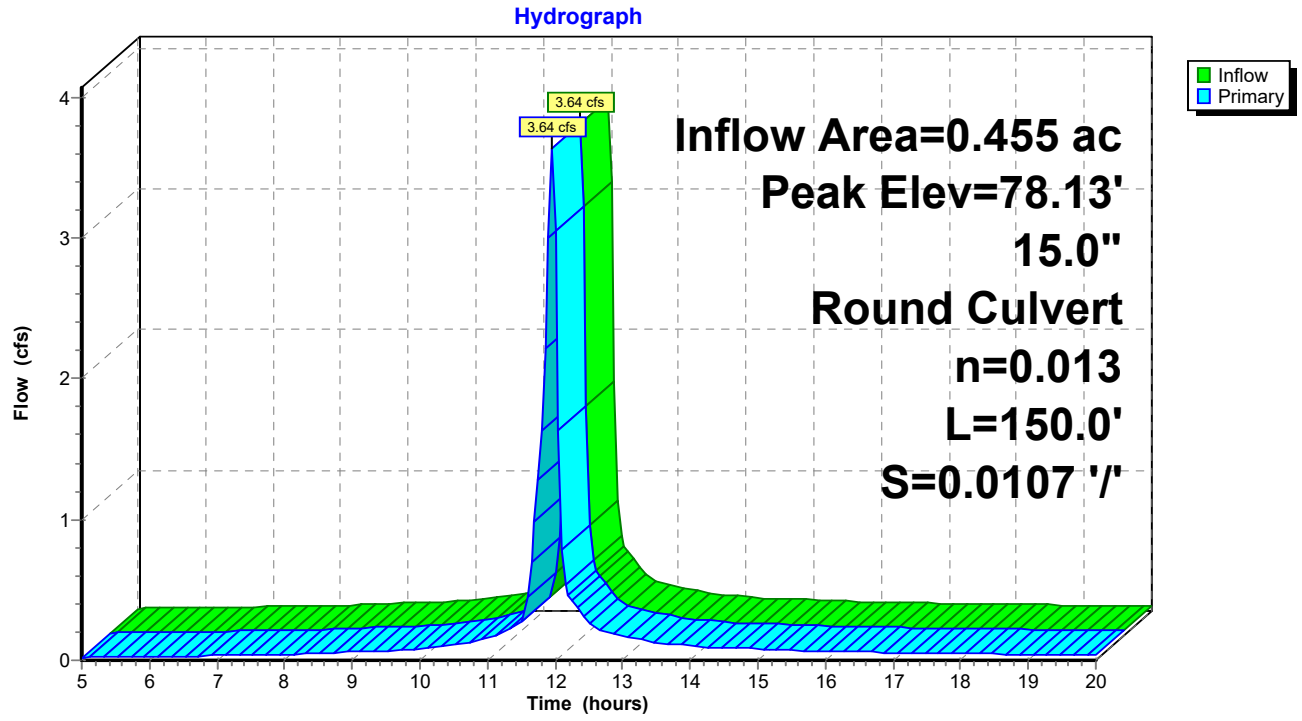
Inflow Area = 0.455 ac, 87.23% Impervious, Inflow Depth > 4.66" for 25 YEAR event
Inflow = 3.64 cfs @ 11.95 hrs, Volume= 0.177 af
Outflow = 3.64 cfs @ 11.95 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Primary = 3.64 cfs @ 11.95 hrs, Volume= 0.177 af
Routed to Pond CB 24 : CB 24

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 78.13' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.90'	**15.0" Round Culvert** L= 150.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.90' / 75.29' S= 0.0107 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.63 cfs @ 11.95 hrs HW=78.12' (Free Discharge)
1=Culvert (Inlet Controls 3.63 cfs @ 2.97 fps)

Pond CB 25: CB25



Summary for Pond CB 26: CB26

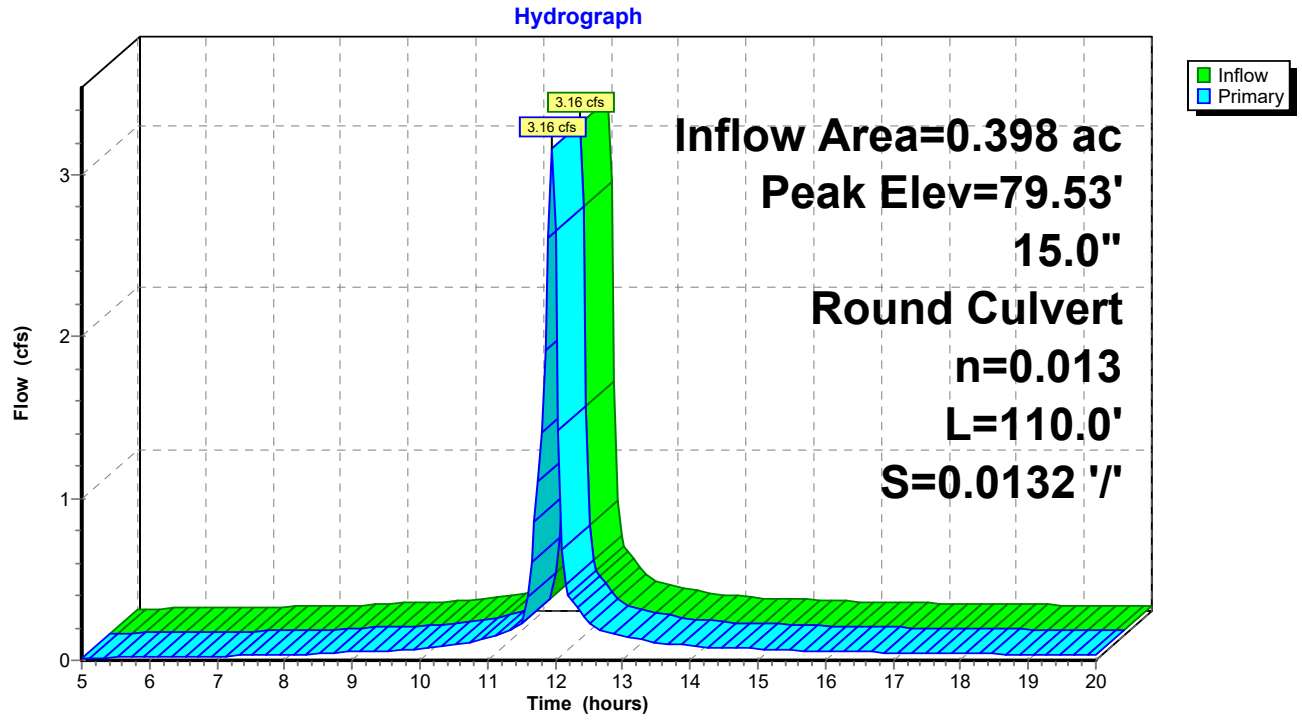
Inflow Area = 0.398 ac, 85.40% Impervious, Inflow Depth > 4.60" for 25 YEAR event
Inflow = 3.16 cfs @ 11.95 hrs, Volume= 0.152 af
Outflow = 3.16 cfs @ 11.95 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min
Primary = 3.16 cfs @ 11.95 hrs, Volume= 0.152 af
Routed to Pond CB 25 : CB25

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.53' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.45'	**15.0" Round Culvert** L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.45' / 77.00' S= 0.0132 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.15 cfs @ 11.95 hrs HW=79.53' (Free Discharge)
1=Culvert (Inlet Controls 3.15 cfs @ 2.79 fps)

Pond CB 26: CB26



Summary for Pond CB 27: CB27

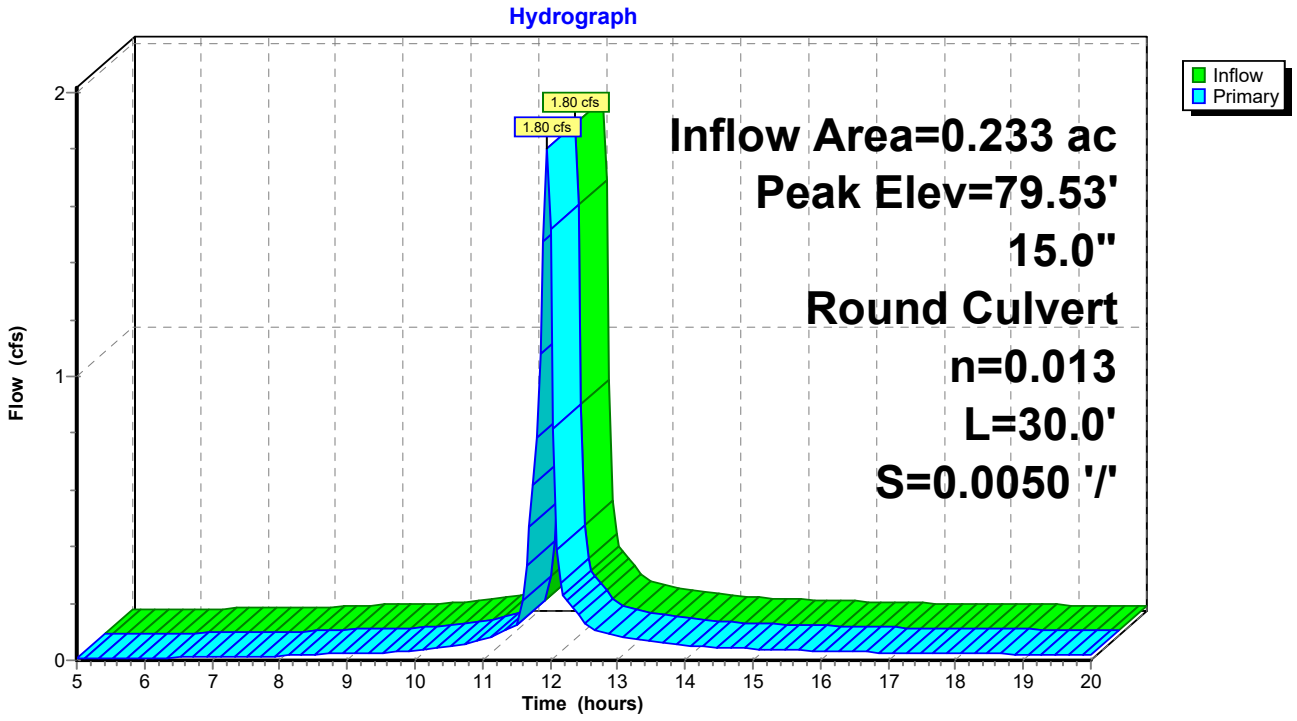
Inflow Area = 0.233 ac, 78.30% Impervious, Inflow Depth > 4.36" for 25 YEAR event
Inflow = 1.80 cfs @ 11.95 hrs, Volume= 0.085 af
Outflow = 1.80 cfs @ 11.95 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min
Primary = 1.80 cfs @ 11.95 hrs, Volume= 0.085 af
Routed to Pond CB 26 : CB26

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.53' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	78.70'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.70' / 78.55' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.79 cfs @ 11.95 hrs HW=79.52' (Free Discharge)
1=Culvert (Barrel Controls 1.79 cfs @ 2.97 fps)

Pond CB 27: CB27



Summary for Pond CB 4: CB4

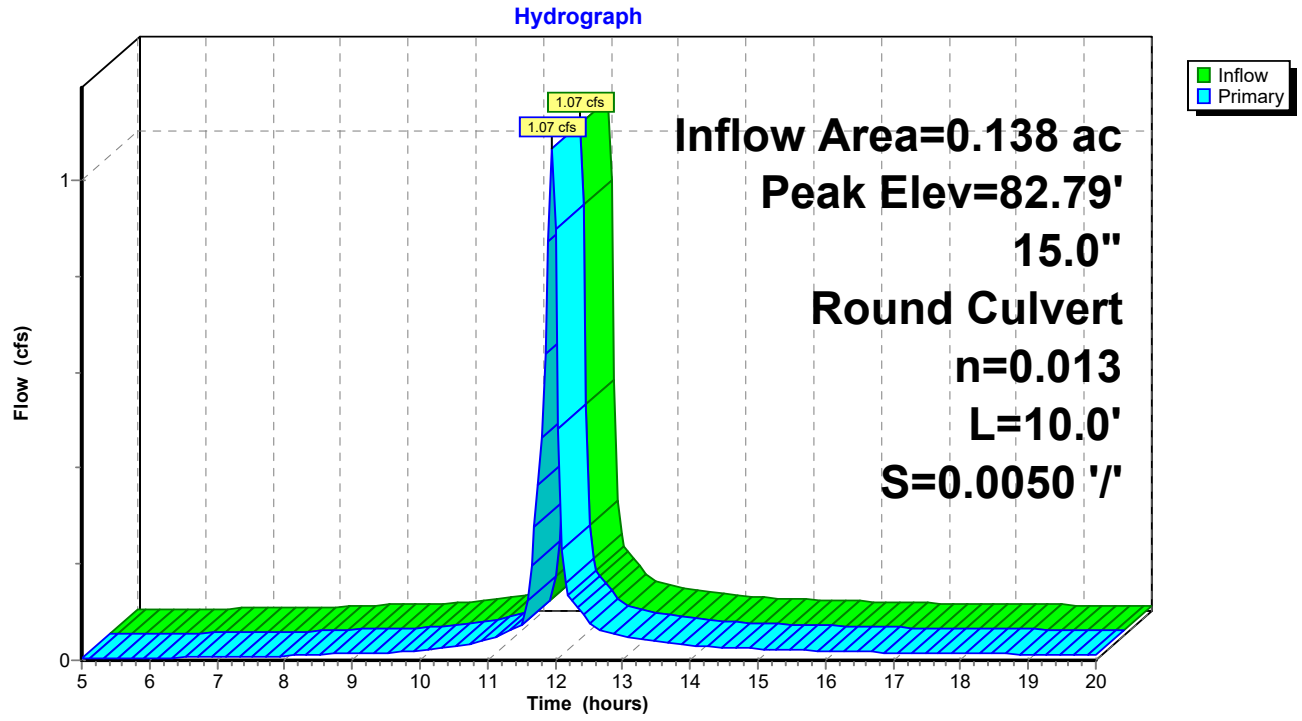
Inflow Area = 0.138 ac, 65.45% Impervious, Inflow Depth > 4.36" for 25 YEAR event
Inflow = 1.07 cfs @ 11.95 hrs, Volume= 0.050 af
Outflow = 1.07 cfs @ 11.95 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 11.95 hrs, Volume= 0.050 af
Routed to Pond 5P : GUSF 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.79' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	82.15'	**15.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 82.15' / 82.10' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.06 cfs @ 11.95 hrs HW=82.78' (Free Discharge)
1=Culvert (Barrel Controls 1.06 cfs @ 2.47 fps)

Pond CB 4: CB4



Summary for Pond CB 5: CB5

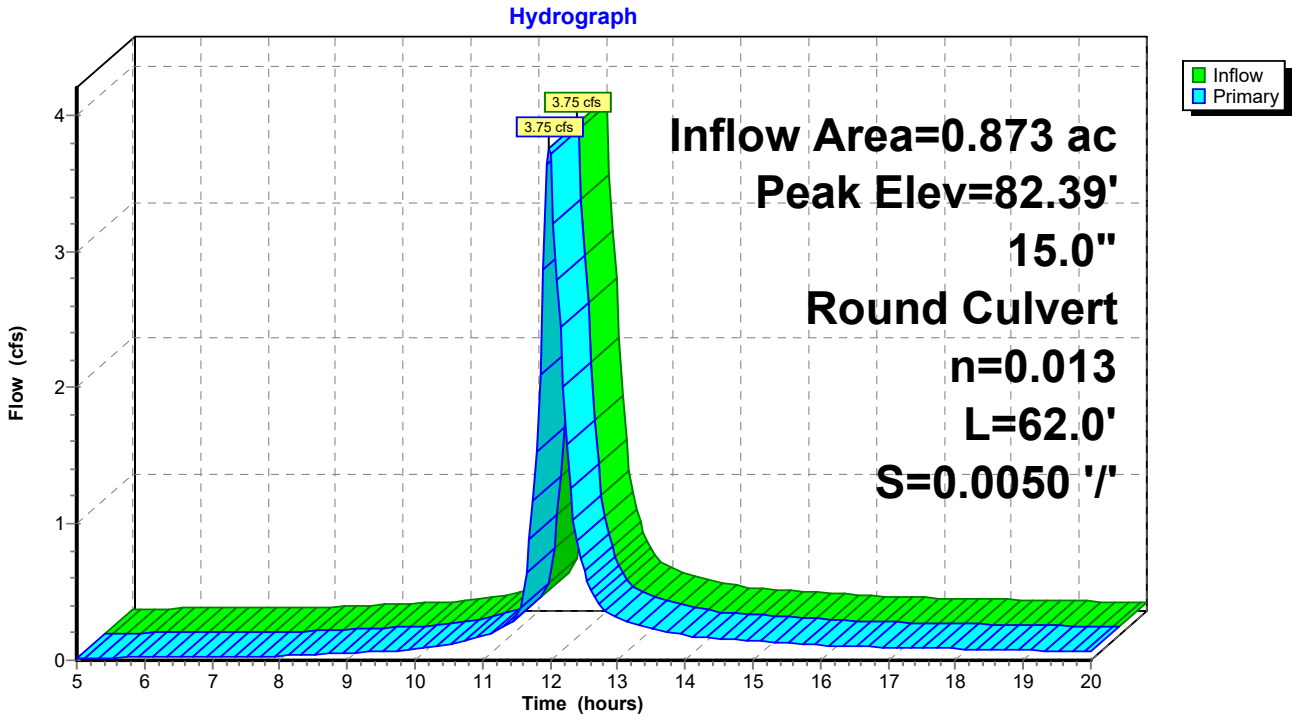
Inflow Area = 0.873 ac, 36.16% Impervious, Inflow Depth > 3.59" for 25 YEAR event
Inflow = 3.75 cfs @ 11.98 hrs, Volume= 0.261 af
Outflow = 3.75 cfs @ 11.98 hrs, Volume= 0.261 af, Atten= 0%, Lag= 0.0 min
Primary = 3.75 cfs @ 11.98 hrs, Volume= 0.261 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.39' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.10'	**15.0" Round Culvert** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.10' / 80.79' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.68 cfs @ 11.98 hrs HW=82.37' (Free Discharge)
1=Culvert (Barrel Controls 3.68 cfs @ 3.66 fps)

Pond CB 5: CB5



Summary for Pond CB 6: CB6

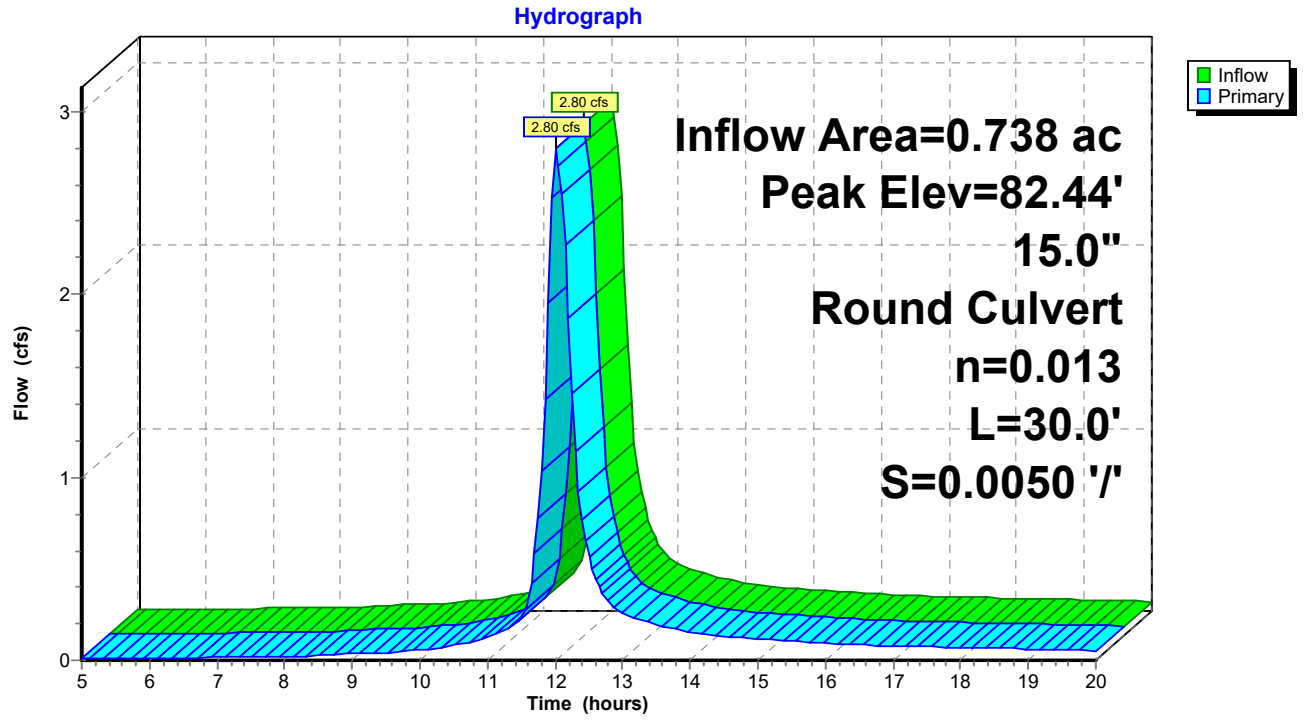
Inflow Area = 0.738 ac, 27.19% Impervious, Inflow Depth > 3.38" for 25 YEAR event
Inflow = 2.80 cfs @ 12.01 hrs, Volume= 0.208 af
Outflow = 2.80 cfs @ 12.01 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
Primary = 2.80 cfs @ 12.01 hrs, Volume= 0.208 af
Routed to Pond CB 5 : CB5

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.44' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.35'	**15.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.35' / 81.20' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.77 cfs @ 12.01 hrs HW=82.43' (Free Discharge)
1=Culvert (Barrel Controls 2.77 cfs @ 3.30 fps)

Pond CB 6: CB6



Summary for Pond CB 7: CB7

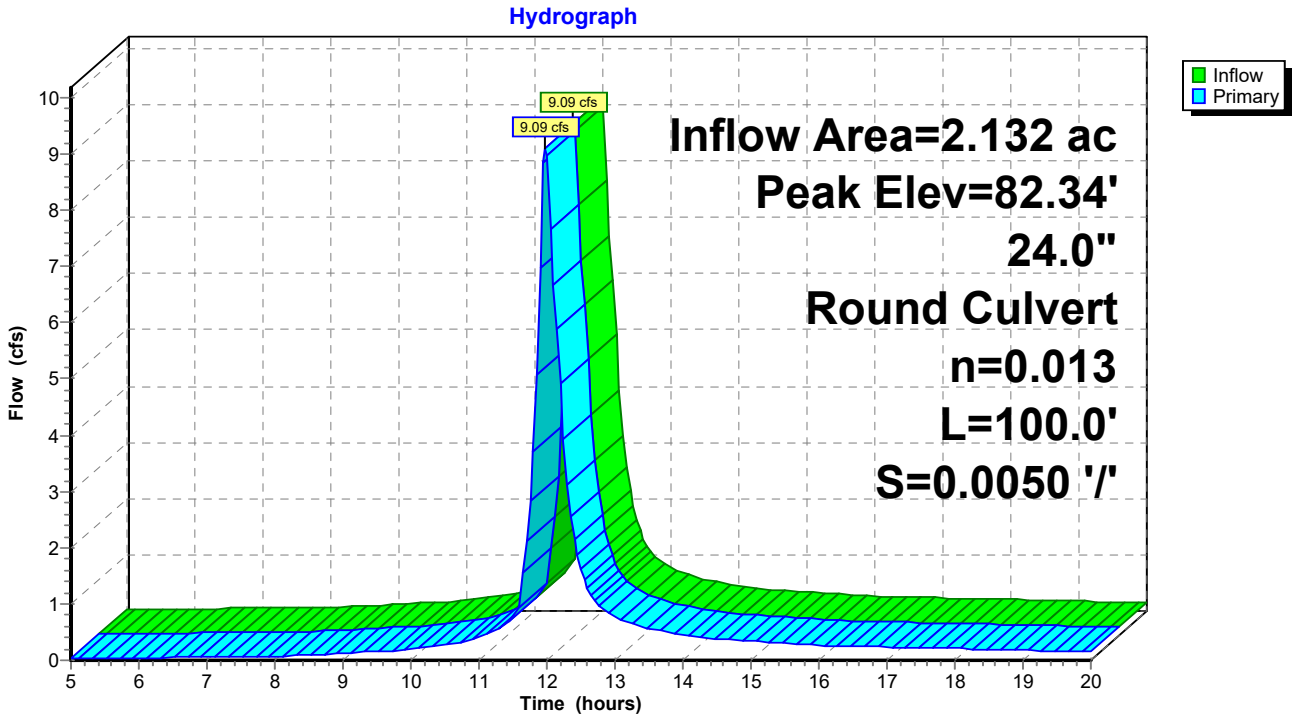
Inflow Area = 2.132 ac, 37.02% Impervious, Inflow Depth > 3.56" for 25 YEAR event
Inflow = 9.09 cfs @ 11.98 hrs, Volume= 0.632 af
Outflow = 9.09 cfs @ 11.98 hrs, Volume= 0.632 af, Atten= 0%, Lag= 0.0 min
Primary = 9.09 cfs @ 11.98 hrs, Volume= 0.632 af
Routed to Pond 3P : WETLAND STORAGE

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.34' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	80.69'	**24.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 80.69' / 80.19' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.92 cfs @ 11.98 hrs HW=82.32' (Free Discharge)
1=Culvert (Barrel Controls 8.92 cfs @ 4.43 fps)

Pond CB 7: CB7



Summary for Pond CB 8: CB8

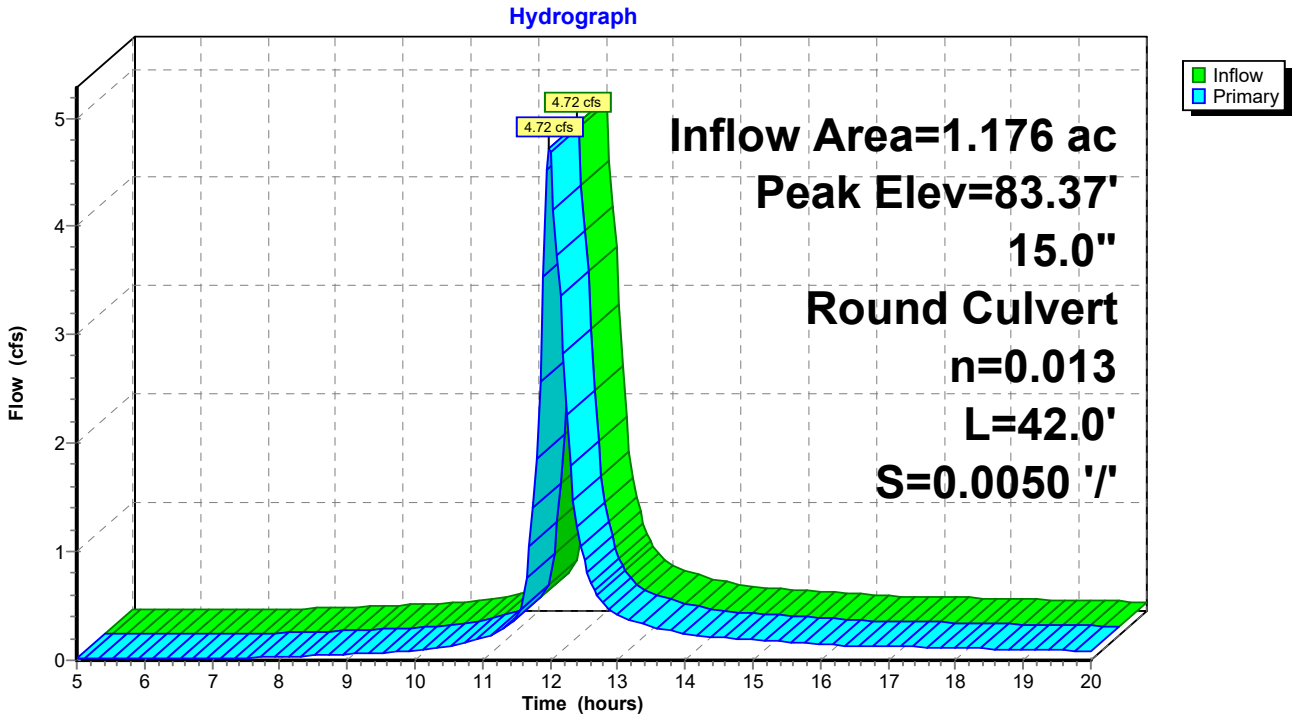
Inflow Area = 1.176 ac, 33.92% Impervious, Inflow Depth > 3.44" for 25 YEAR event
Inflow = 4.72 cfs @ 11.99 hrs, Volume= 0.337 af
Outflow = 4.72 cfs @ 11.99 hrs, Volume= 0.337 af, Atten= 0%, Lag= 0.0 min
Primary = 4.72 cfs @ 11.99 hrs, Volume= 0.337 af
Routed to Pond CB 7 : CB7

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 83.37' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.67'	**15.0" Round Culvert** L= 42.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.67' / 81.46' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.63 cfs @ 11.99 hrs HW=83.33' (Free Discharge)
1=Culvert (Barrel Controls 4.63 cfs @ 3.77 fps)

Pond CB 8: CB8



Summary for Pond CB 9: CB9

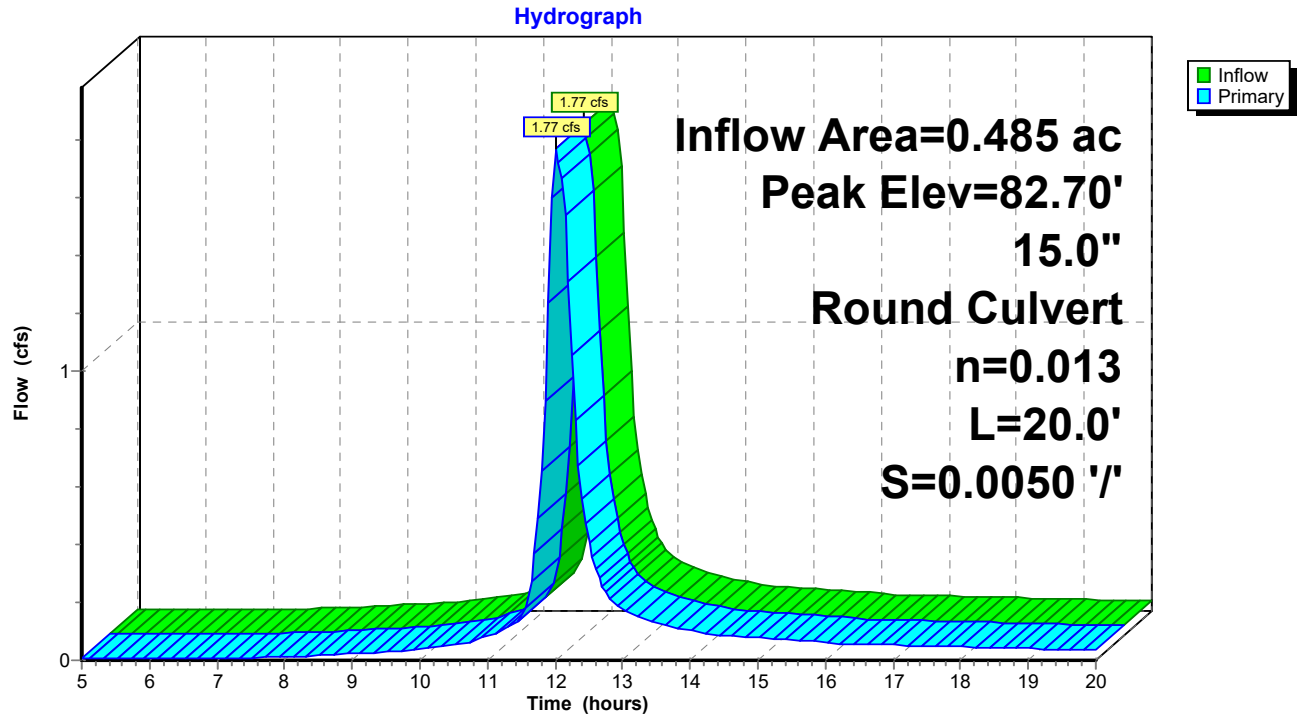
Inflow Area = 0.485 ac, 29.68% Impervious, Inflow Depth > 3.40" for 25 YEAR event
Inflow = 1.77 cfs @ 12.02 hrs, Volume= 0.138 af
Outflow = 1.77 cfs @ 12.02 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.02 hrs, Volume= 0.138 af
Routed to Pond CB 8 : CB8

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 82.70' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	81.87'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.87' / 81.77' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.75 cfs @ 12.02 hrs HW=82.70' (Free Discharge)
1=Culvert (Barrel Controls 1.75 cfs @ 2.89 fps)

Pond CB 9: CB9



Summary for Pond CB19: CB19

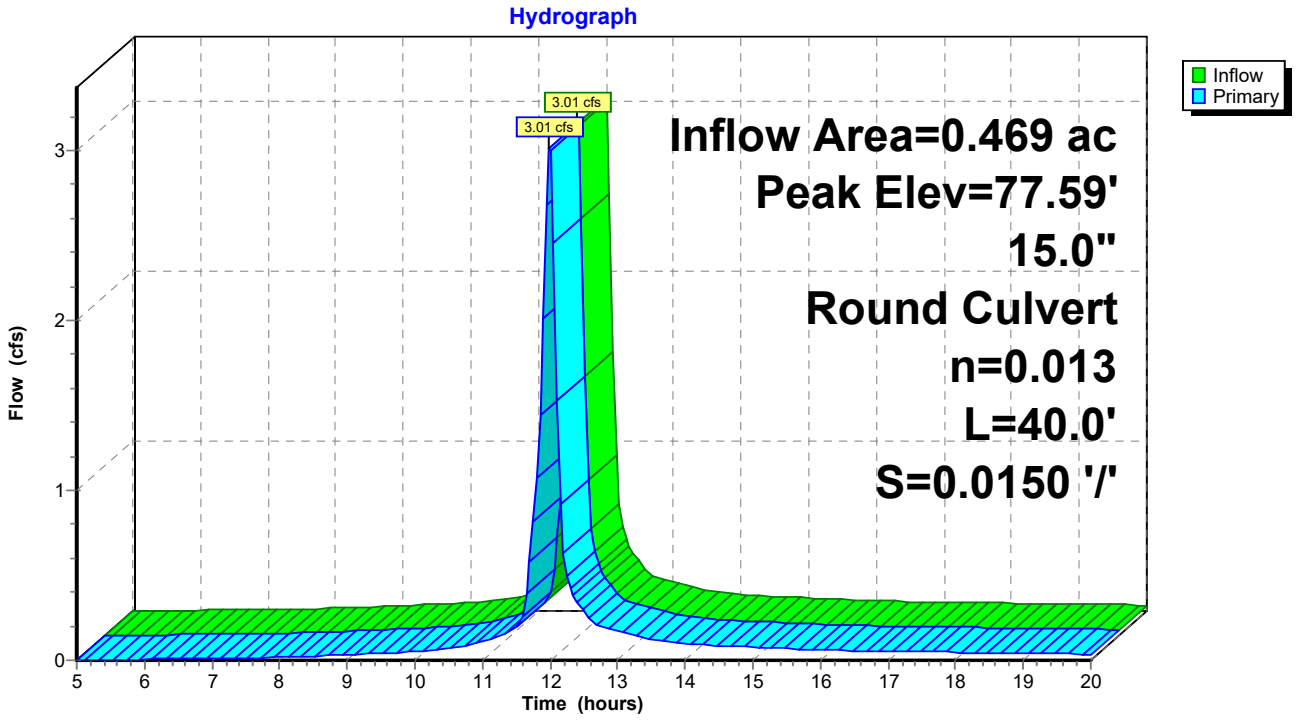
Inflow Area = 0.469 ac, 68.42% Impervious, Inflow Depth > 3.85" for 25 YEAR event
Inflow = 3.01 cfs @ 11.99 hrs, Volume= 0.150 af
Outflow = 3.01 cfs @ 11.99 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min
Primary = 3.01 cfs @ 11.99 hrs, Volume= 0.150 af
Routed to Pond 1P : WETPOND A

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.59' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	76.55'	**15.0" Round Culvert** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 76.55' / 75.95' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.96 cfs @ 11.99 hrs HW=77.58' (Free Discharge)
1=Culvert (Inlet Controls 2.96 cfs @ 2.73 fps)

Pond CB19: CB19



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 SC 1: SUBCATCHMENT1 Runoff Area=62,407 sf 0.00% Impervious Runoff Depth>1.04"
Flow Length=90' Tc=12.0 min CN=52 Runoff=2.10 cfs 0.124 af

Subcatchment SC 2: SUBCATCHMENT2 Runoff Area=283,071 sf 0.00% Impervious Runoff Depth>1.51"
Flow Length=860' Tc=40.1 min CN=59 Runoff=7.12 cfs 0.819 af

Subcatchment SC 3: SUBCATCHMENT3 Runoff Area=140,971 sf 0.00% Impervious Runoff Depth>1.30"
Flow Length=590' Tc=32.8 min CN=56 Runoff=3.38 cfs 0.351 af

Subcatchment SC 4: SUBCATCHMENT4 Runoff Area=246,493 sf 2.12% Impervious Runoff Depth>2.32"
Flow Length=880' Tc=24.7 min CN=69 Runoff=13.94 cfs 1.096 af

Reach SP1: SUMMATION POINT 1 Inflow=2.10 cfs 0.124 af
Outflow=2.10 cfs 0.124 af

Reach SP2: SUMMATION POINT 2 Inflow=7.12 cfs 0.819 af
Outflow=7.12 cfs 0.819 af

Reach SP3: SUMMATION POINT 3 Inflow=3.38 cfs 0.351 af
Outflow=3.38 cfs 0.351 af

Reach SP4: SUMMATION POINT 4 Inflow=13.94 cfs 1.096 af
Outflow=13.94 cfs 1.096 af

Total Runoff Area = 16.826 ac Runoff Volume = 2.389 af Average Runoff Depth = 1.70"
99.29% Pervious = 16.706 ac 0.71% Impervious = 0.120 ac

Summary for Subcatchment SC 1: SUBCATCHMENT 1

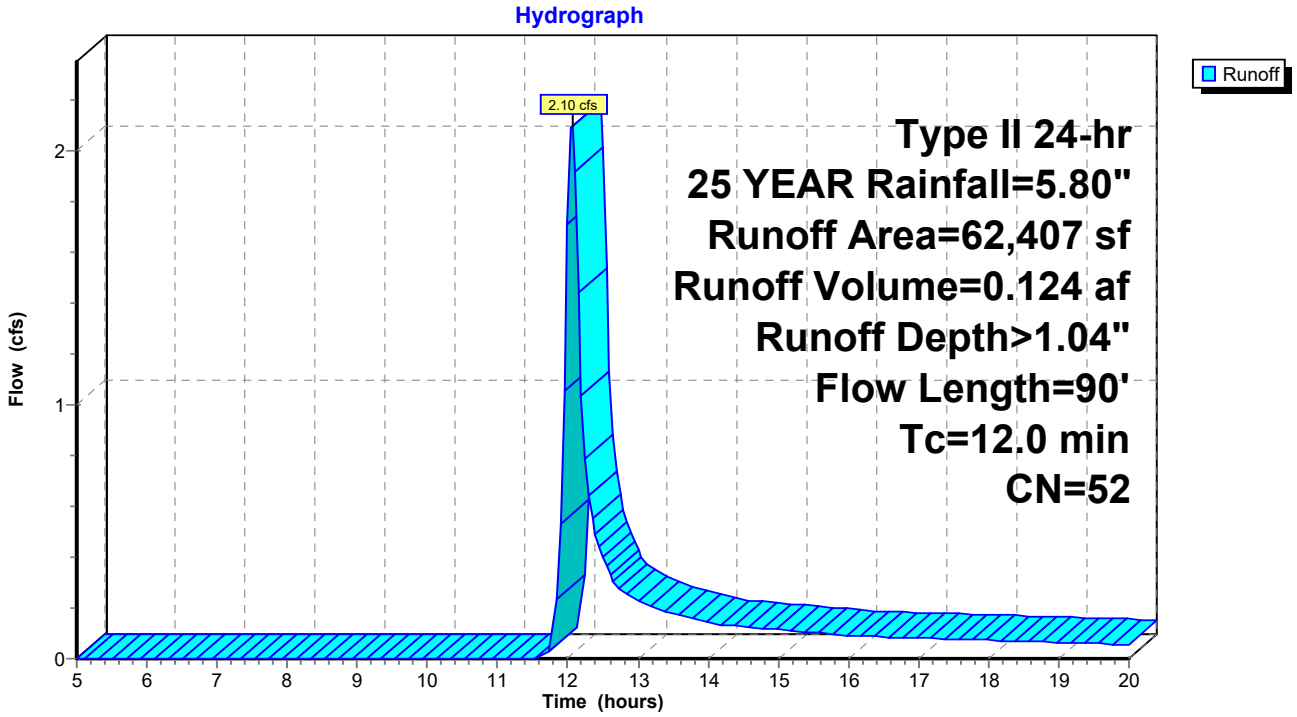
Runoff = 2.10 cfs @ 12.06 hrs, Volume= 0.124 af, Depth> 1.04"
Routed to Reach SP1 : SUMMATION POINT 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

Area (sf)	CN	Description
34,923	36	Woods, Fair, HSG A
27,484	73	Woods, Fair, HSG C
62,407	52	Weighted Average
62,407		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	50	0.1200	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.3	40	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.0	90	Total			

Subcatchment SC 1: SUBCATCHMENT 1



Summary for Subcatchment SC 2: SUBCATCHMENT 2

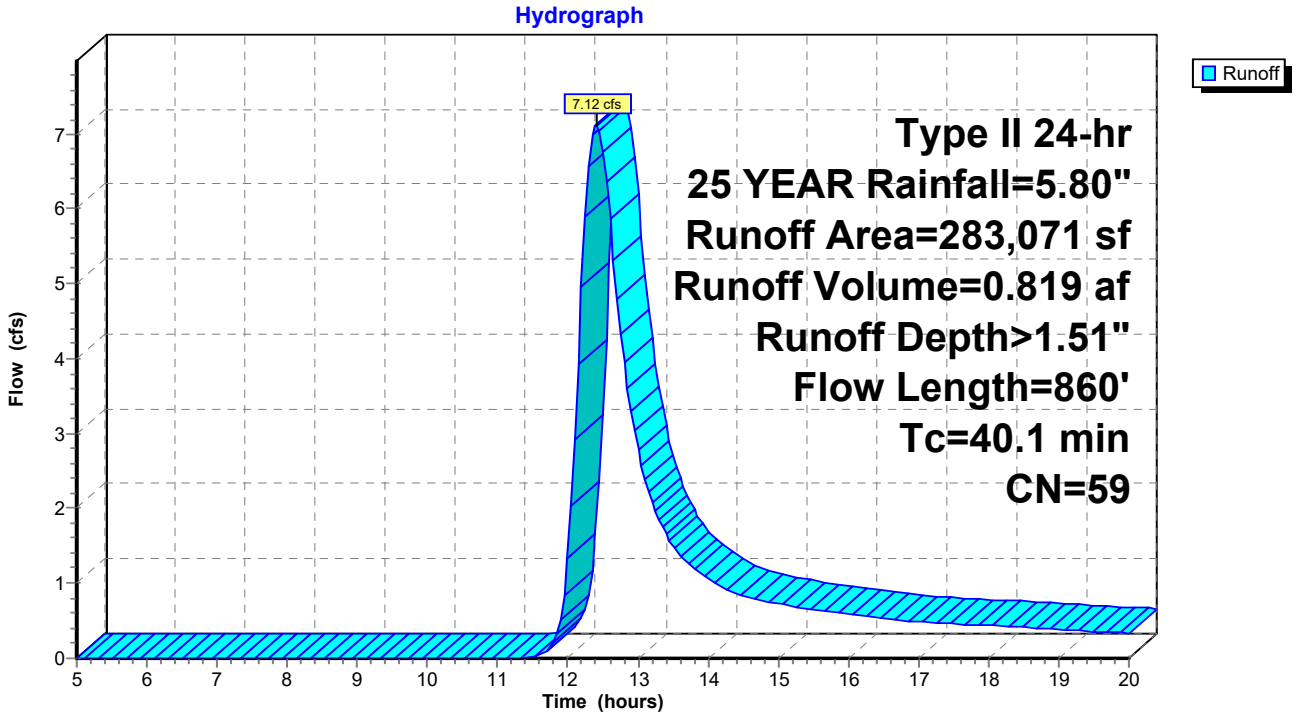
Runoff = 7.12 cfs @ 12.41 hrs, Volume= 0.819 af, Depth> 1.51"
Routed to Reach SP2 : SUMMATION POINT 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

Area (sf)	CN	Description
148,732	73	Woods, Fair, HSG C
92,813	36	Woods, Fair, HSG A
41,526	60	Woods, Fair, HSG B
283,071	59	Weighted Average
283,071		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.8	75	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	270	0.0150	0.61		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.3	310	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.2	75	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.6	80	0.1900	2.18		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
40.1	860	Total			

Subcatchment SC 2: SUBCATCHMENT 2



Summary for Subcatchment SC 3: SUBCATCHMENT 3

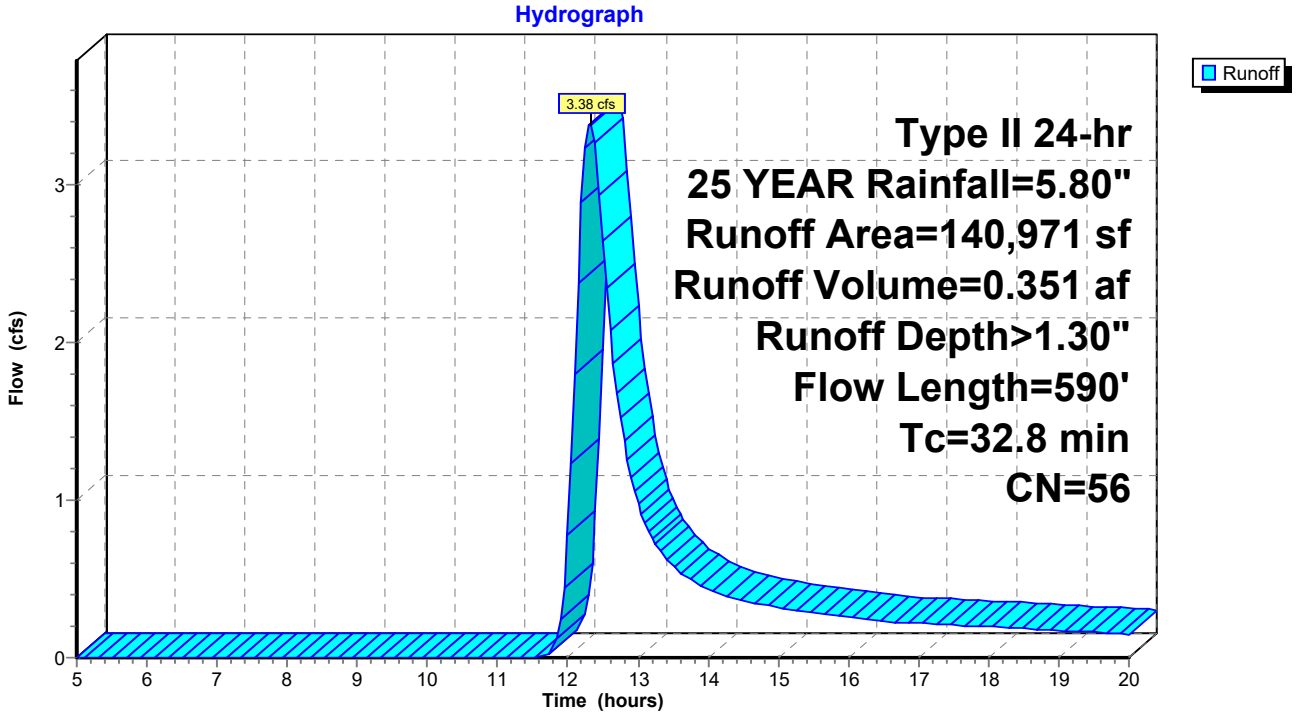
Runoff = 3.38 cfs @ 12.32 hrs, Volume= 0.351 af, Depth> 1.30"
Routed to Reach SP3 : SUMMATION POINT 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

Area (sf)	CN	Description
24,080	36	Woods, Fair, HSG A
116,891	60	Woods, Fair, HSG B
140,971	56	Weighted Average
140,971		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
9.4	400	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	140	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.8	590	Total			

Subcatchment SC 3: SUBCATCHMENT 3



Summary for Subcatchment SC 4: SUBCATCHMENT 4

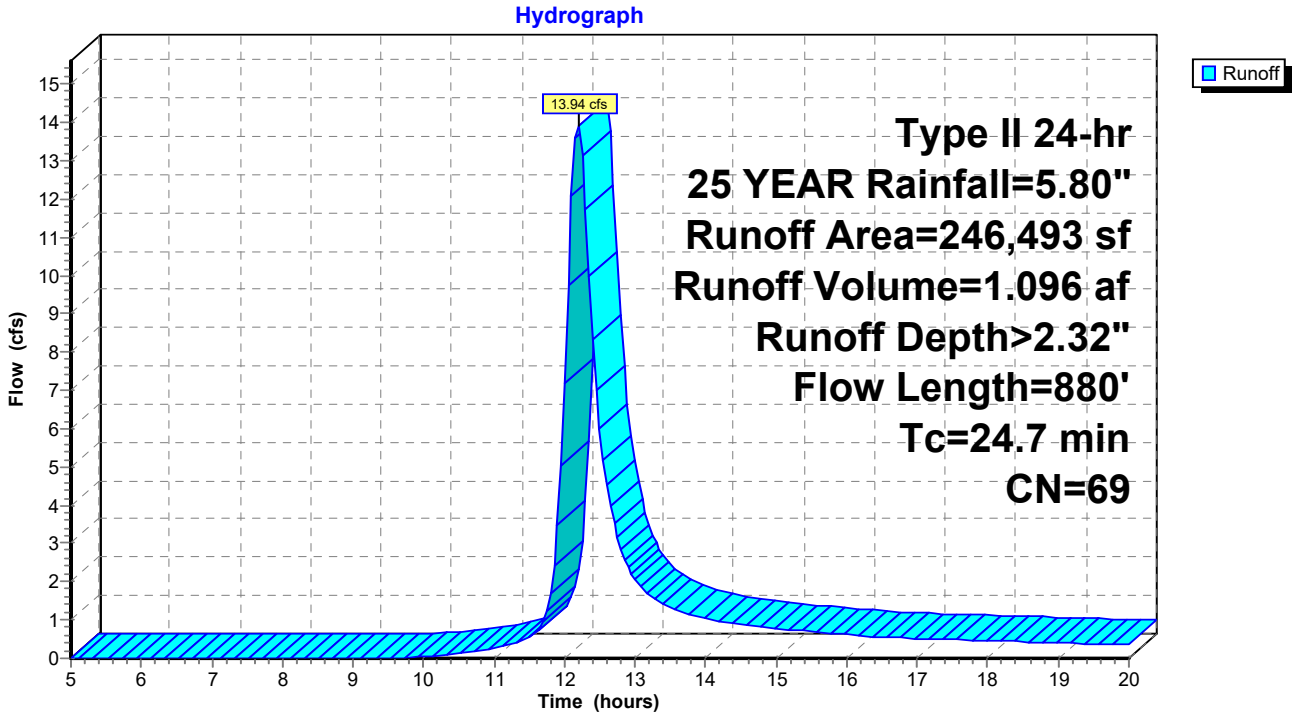
Runoff = 13.94 cfs @ 12.19 hrs, Volume= 1.096 af, Depth> 2.32"
Routed to Reach SP4 : SUMMATION POINT 4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 YEAR Rainfall=5.80"

	Area (sf)	CN	Description
	87,038	60	Woods, Fair, HSG B
	146,744	73	Woods, Fair, HSG C
	7,481	79	Woods, Fair, HSG D
*	5,230	98	IMPERVIOUS
	246,493	69	Weighted Average
	241,263		97.88% Pervious Area
	5,230		2.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	50	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.2	70	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.7	90	0.1750	2.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.8	520	0.0300	10.39	166.29	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
0.2	150	0.0700	15.88	254.01	**Channel Flow,** Area= 16.0 sf Perim= 12.0' r= 1.33' n= 0.030 Earth, grassed & winding
24.7	880	Total			

Subcatchment SC 4: SUBCATCHMENT 4

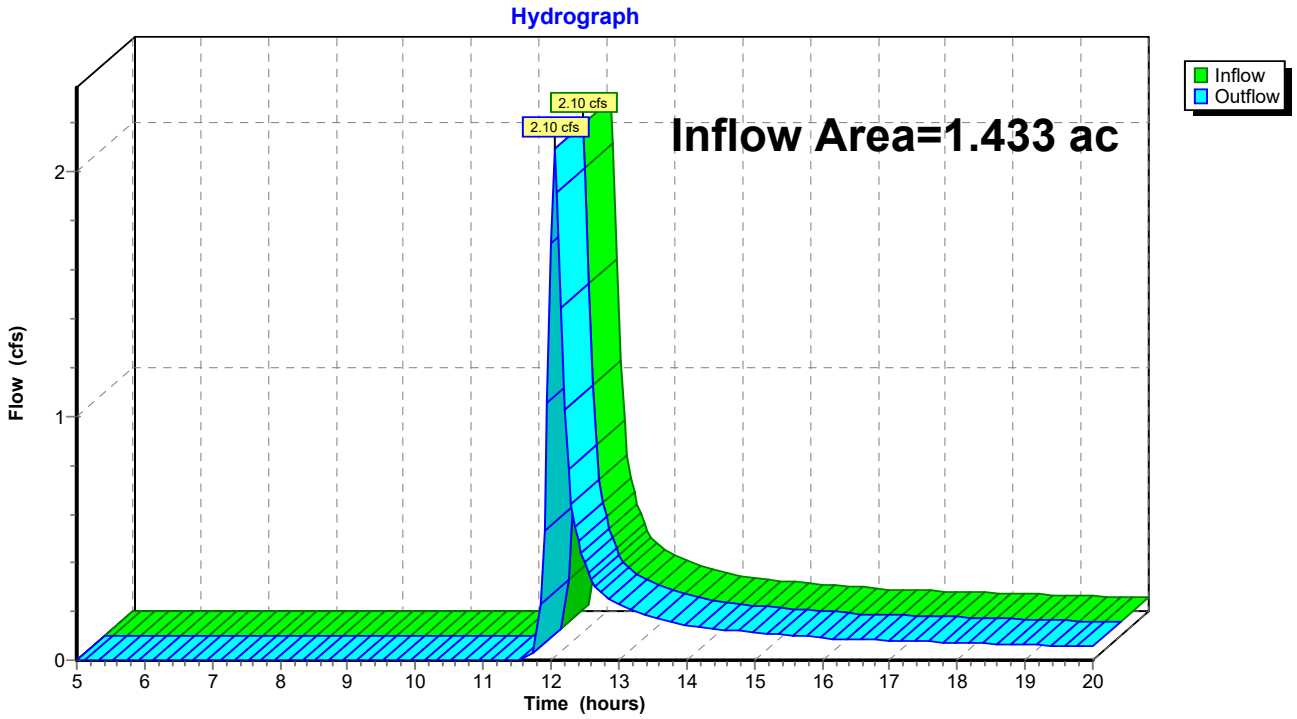


Summary for Reach SP1: SUMMATION POINT 1

Inflow Area = 1.433 ac, 0.00% Impervious, Inflow Depth > 1.04" for 25 YEAR event
Inflow = 2.10 cfs @ 12.06 hrs, Volume= 0.124 af
Outflow = 2.10 cfs @ 12.06 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP1: SUMMATION POINT 1

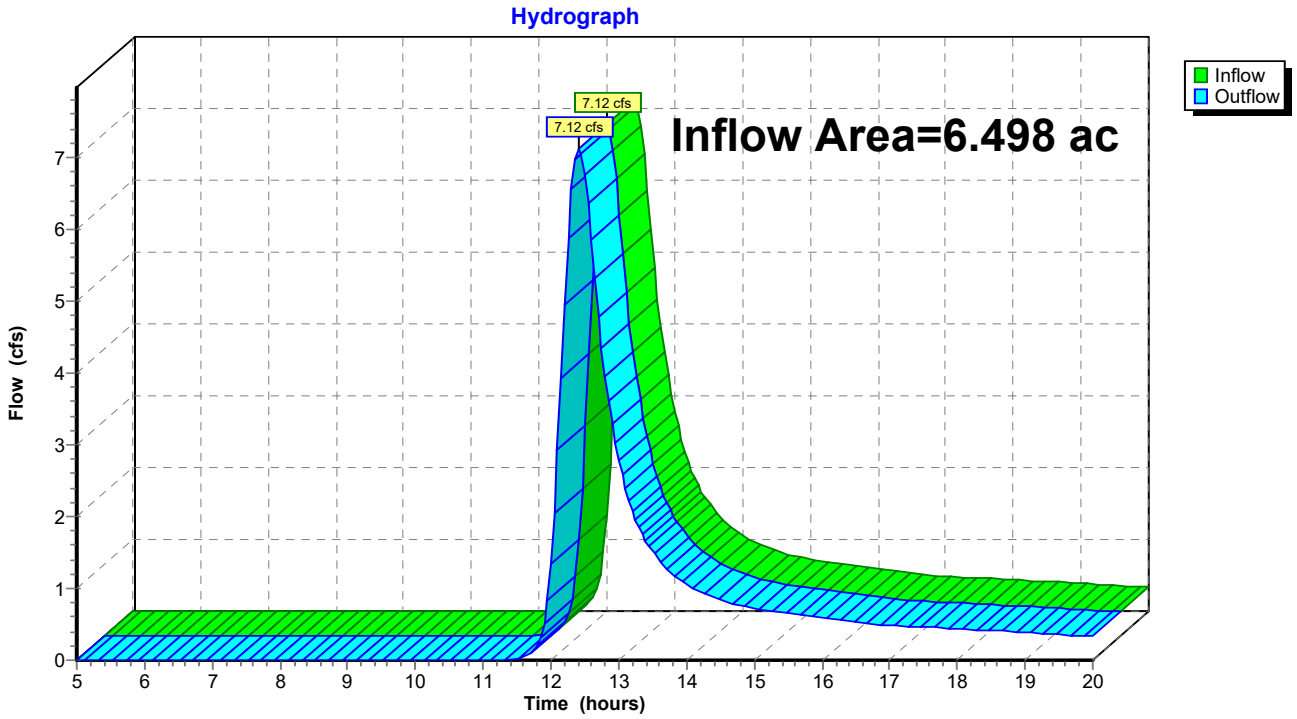


Summary for Reach SP2: SUMMATION POINT 2

Inflow Area = 6.498 ac, 0.00% Impervious, Inflow Depth > 1.51" for 25 YEAR event
Inflow = 7.12 cfs @ 12.41 hrs, Volume= 0.819 af
Outflow = 7.12 cfs @ 12.41 hrs, Volume= 0.819 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP2: SUMMATION POINT 2

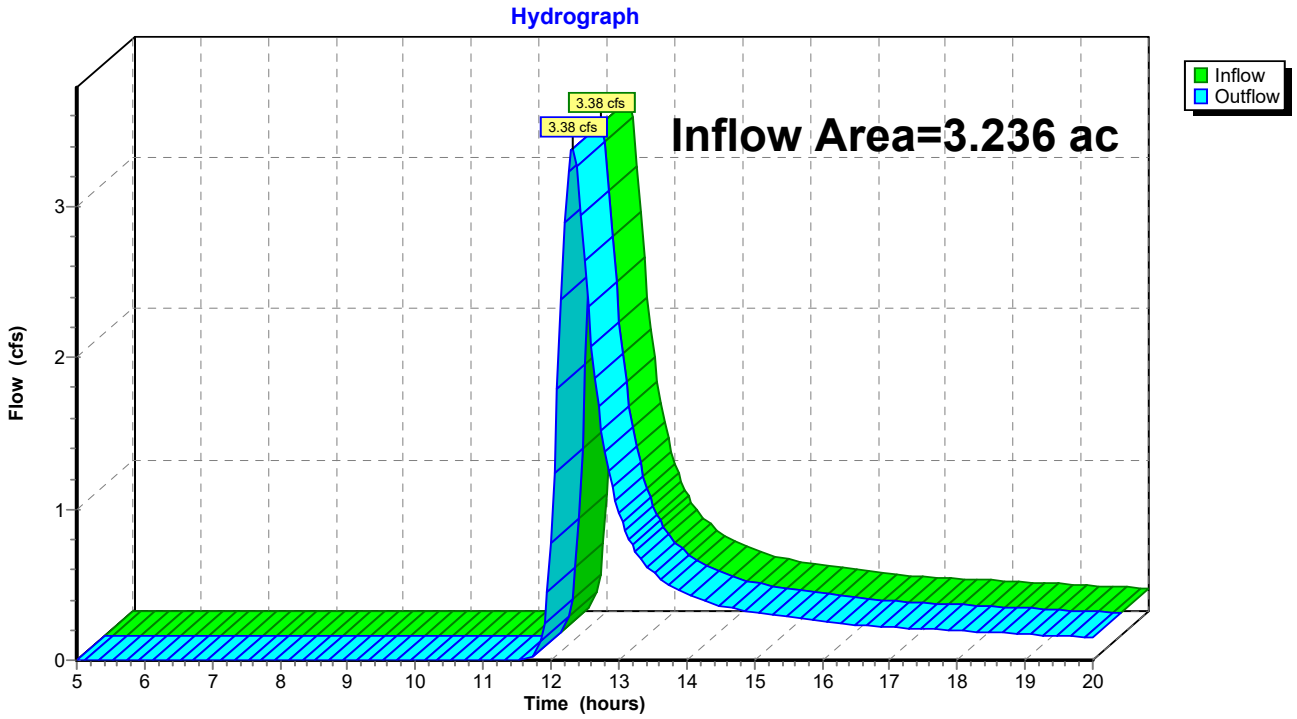


Summary for Reach SP3: SUMMATION POINT 3

Inflow Area = 3.236 ac, 0.00% Impervious, Inflow Depth > 1.30" for 25 YEAR event
Inflow = 3.38 cfs @ 12.32 hrs, Volume= 0.351 af
Outflow = 3.38 cfs @ 12.32 hrs, Volume= 0.351 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP3: SUMMATION POINT 3

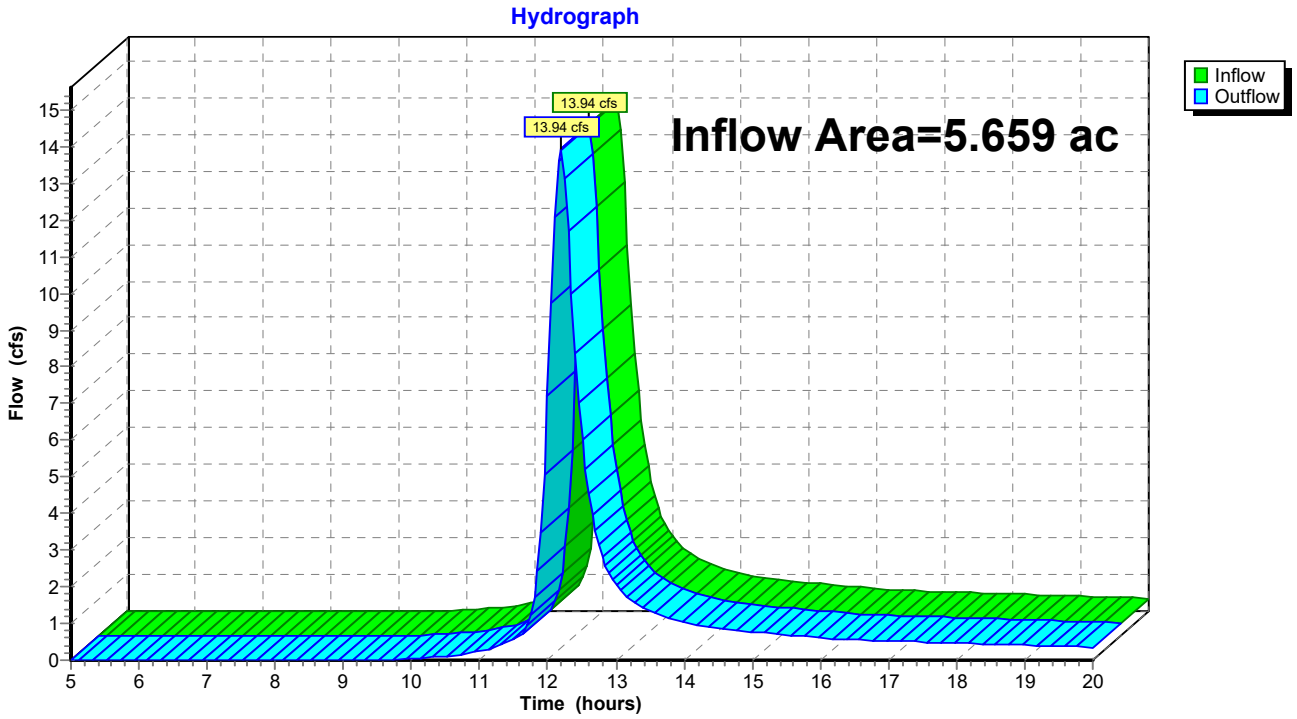


Summary for Reach SP4: SUMMATION POINT 4

Inflow Area = 5.659 ac, 2.12% Impervious, Inflow Depth > 2.32" for 25 YEAR event
Inflow = 13.94 cfs @ 12.19 hrs, Volume= 1.096 af
Outflow = 13.94 cfs @ 12.19 hrs, Volume= 1.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP4: SUMMATION POINT 4



Wetland and Stream Review

Date:	July 28, 2022
To:	Mark McClure (GenX Capital Partners, LLC)
From:	Meg Thurrell (Flycatcher LLC)
CC:	Richard Jordan (Flycatcher); Jon Whitten (Haley Ward); Ron Goddard and Greg Shinberg
Subject:	Hope Ave, Portland – Wetland and Stream Review Results

As requested by GenX Capital Partners, LLC, In July of 2022, Flycatcher LLC completed a wetland and stream review on a 13.7-acre parcel located on Hope Avenue in Portland, Maine (the Survey Area – Attachment 1). The Survey Area was previously delineated in 2017. Flycatcher determined that the previously delineated wetland boundaries were generally accurate, with the exception of a few small areas (some wetland area was added and some area was removed). Flycatcher also flagged and GPS-located two streams which were mentioned in the existing reporting but were not included in GIS information provided by GenX Capital's engineering consultant, Haley Ward.

A locus map and map of delineated natural resources are included herein as Attachment 1. Photographs of delineated resources are presented in Attachment 2. The 2017 wetland delineation report is included as Attachment 3.

SURVEY AREA

The Survey Area is located north of Hope Avenue, to the south of the Falmouth I-95 Spur and to the east of a Central Maine Power transmission line corridor. The surrounding area is mostly residential, interspersed with some forested lands. The Presumpscot River is located to the east of the Survey Area.

The Survey Area is primarily comprised of forested uplands interspersed with historically eroded valleys with wetland drainage features and streams. Surface drainage tends generally to the north and east, toward the Presumpscot River.

There is evidence of recreational and former logging trails throughout the Survey Area. Active trail features include bike/foot bridges. There is also evidence of former sand/gravel extractions, including apparent borrow pits and spoil piles along the northern and western edges of the Survey Area.

METHODS

Wetlands

It is our understanding that wetlands within the Survey Area were previously delineated in 2017 by TRC. Flycatcher was provided with GIS data of the previously delineated boundaries.

The US Army Corps of Engineers (USACE) and Maine Department of Environmental Protection (MDEP) require wetlands to be reviewed when delineations are greater than 5 years old. Flycatcher scientists reviewed the previously-mapped wetland boundaries based on the criteria and protocol provided in the 1987 USACE Wetland Delineation Manual and the Northcentral and Northeast Regional Supplement (Version 2.0). The manual and supplement provide a repeatable methodology to identify wetland areas and are the accepted wetland delineation methodology of the MDEP and the USACE. When wetlands were identified (or confirmed), the boundaries were marked with pink survey flagging labelled with the word "Wetland Delineation." Unmoved boundary flags were not re-located, new flags were geo-located as described below under "GPS Location".

Watercourses

Watercourse identification followed the NRPA definition of a "river, stream or brook" (Section 480-B). If a watercourse meeting the above definition was observed, blue survey flagging was hung along the centerline (for streams less than six feet in width) or along the top of the bank (for streams six feet or wider). The locations of each flag were geolocated as described below under "GPS Location."

GPS Location

Features (e.g., wetland boundaries) located during the site visit were geolocated using a mapping grade global positioning system ("GPS") unit (Juniper Systems' Geode GPS Antenna and ESRI's ArcGIS Collector software). The data were collected using real-time correction and standards specified by the manufacturer to achieve sub-meter accuracy. A shapefile of final results was provided to Haley Ward's Jon Whitten on July 21, 2022.

Agency Outreach

No outreach to natural resource agencies (e.g. MNAP, MDIFW, USFWS) was conducted as part of this survey.

FINDINGS

Wetlands

Flycatcher verified the presence of eight (8) wetlands on site, no new (previously unmapped) wetlands were observed. Most of the wetlands are forested pit and mound depressions (natural and unnatural) or riparian drainage wetlands associated with southern stream channels. The previous wetland delineations were found to be generally accurate, however Flycatcher scientists adjusted the boundary of wetlands in a few small areas as highlighted in Attachment 1.

Summary descriptions of wetlands are provided in Table 1. Photographs are included in Attachment 2.

The 2017 delineation report is included in Attachment 3. This report includes a representative USACE delineation form ("Wetland 5"); the data therein was confirmed (soils, hydrology and vegetation) as accurate during the 2022 review.

Watercourses

Two (2) perennial watercourses (MDEP streams) were identified within the Survey Area associated with and located within the boundaries of wetland W-FC-1. These watercourses were between 2 and 4 feet wide and had sand, gravel, and cobble bottoms. S-EGD-1 flowed east and was between 1 and 10 inches deep. S-EGD-2, a tributary to S-EGD-1, flowed northeast and was between 2 inches and 1.5 feet deep.

Table 1. Wetland Summary

Resource ID	*Dominant Covertype*	*Hydrology Indicators*	*Dominant Vegetation*	*Hydric Soil Indicators*	*Potential WoSS*[1]	*Description*
W-FC-1	PSS/ PEM	High Water Table (A2), Saturation (A3), Water-Stained Leaves (B9), Drainage Patterns (B10), Geomorphic Position (D2)	Green ash *(Fraxinus pennsylvanica),* red maple *(Acer rubrum),* Eastern hemlock *(Tsuga canadensis)*, American hornbeam *(Carpinus caroliniana),* maple-leaf arrow-wood *(Viburnum acerifolium),* sensitive fern *(Onoclea sensibilis),* wrinkle-leaf goldenrod *(Solidago rugosa),* cinnamon fern *(Osmundastrum cinnamomeum),* wrinkle-leaf goldenrod *(Solidago rugosa),* jack-in-the-pulpit *(Arisaema triphyllum),* spotted touch-me-not *(Impatiens capensis)*	Depleted Matrix (F3)	Yes – wetland within 25 ft of a stream is WoSS	Ravine riparian wetland to S-EGD-1
W-FC-2, 3, 4, & 6	PFO	High Water Table (A2), Saturation (A3), Water-Stained Leaves (B9)	Sensitive fern, cinnamon fen, fowl manna grass *(Glyceria striata),* eastern poison ivy *(Toxicodendron pubescens),* red maple	Depleted Matrix (F3)	No	Very small, isolated areas of ruts and depressions with groundwater discharge on seepy side slopes.
W-FC-5	PFO	Water Marks (B1), Sparsely Vegetated Concave Surface (B8), Water-Stained Leaves (B9), Drainage Patterns (B10), Moss Trim Lines (B16)	White pine *(Pinus strobus),* red maple, red oak *(Quercus rubra),* green ash, glossy false buckthorn *(Frangula alnus),* fringed sedge *(Carex crinite)*, broadleaf meadowsweet *(Spiraea latifolia)*, sensitive fern *(Onoclea sensibilis),* fowl manna grass *(Glyceria striata),* Asian bittersweet *(Celastrus orbiculatus)*	Depleted Matrix (F3)	No	Eroded drainage on side lope; deeper rutted and ephemerally ponded area on the western edge of the property. Wetland ends where a large, natural drainage valley forms below a footbridge and recreational trail.
W-FC-9 & 10	PUBx	Water Marks (B1), Sparsely Vegetated Concave Surface (B8), Water-Stained Leaves (B9), Moss Trim Lines (B16)	No vegetation in the basins	Depleted Matrix (F3)	No	Former sand/gravel borrow pits.

[1] MDEP NRPA Freshwater Wetlands of Special Significance. WoSS findings are based on review of on-site features; the Maine Department of Inland Fisheries and Wildlife (MDIFW) and Maine Natural Areas Program (MNAP) were not consulted regarding the potential presence of significant wildlife habitats or communities.

Thank you for the opportunity to assist you with natural resource review for this project. If you have questions regarding the results provided in this report, please do not hesitate to contact me or Rich Jordan (rich@flycatcherllc.com).

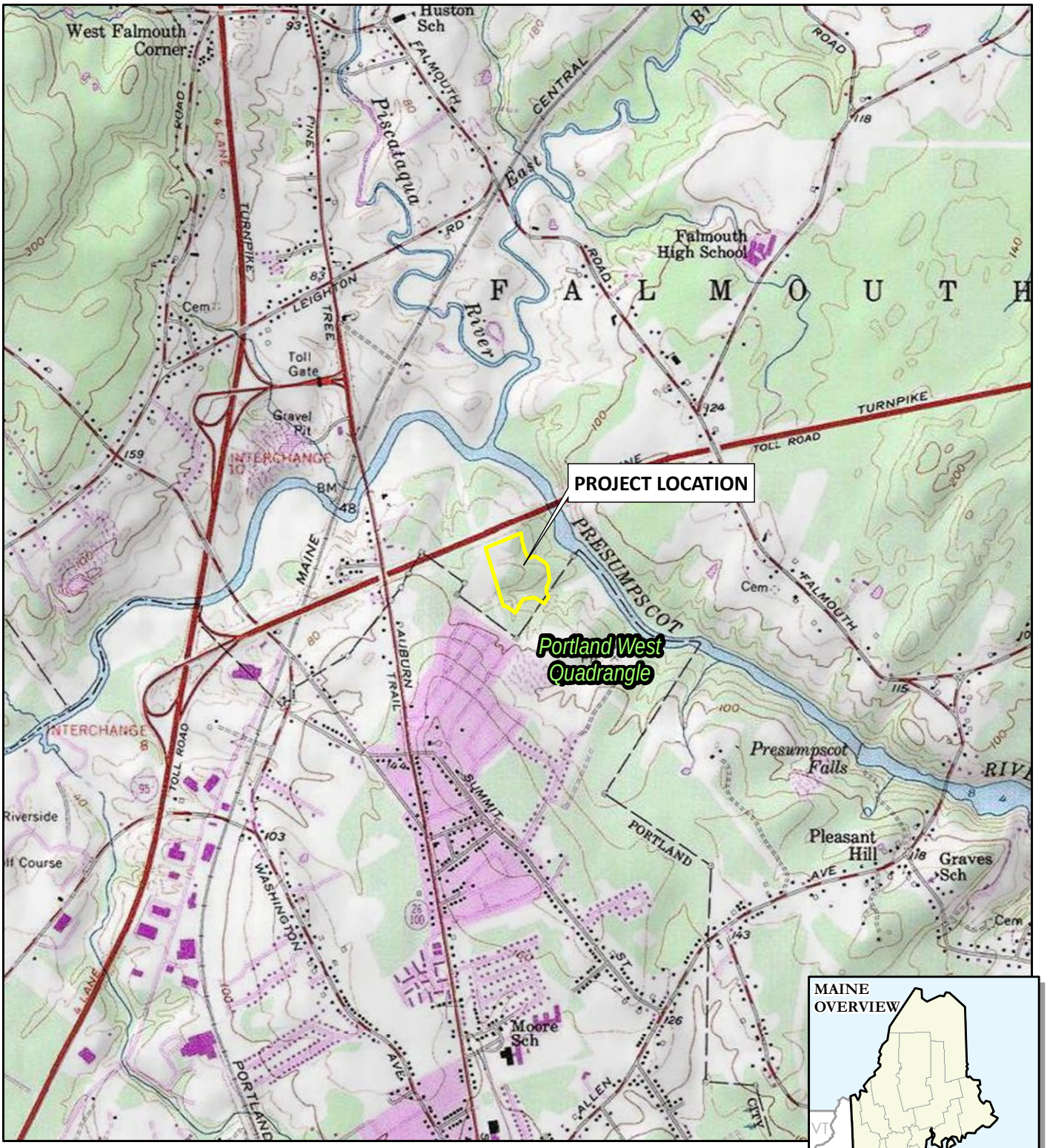
Sincerely,



Meg Thurrell, Environmental Scientist and Biologist
Flycatcher LLC

ATTACHMENT 1

2022 Locus Map and Map of Wetlands/Streams



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1 " = 2,000 '
1:24,000

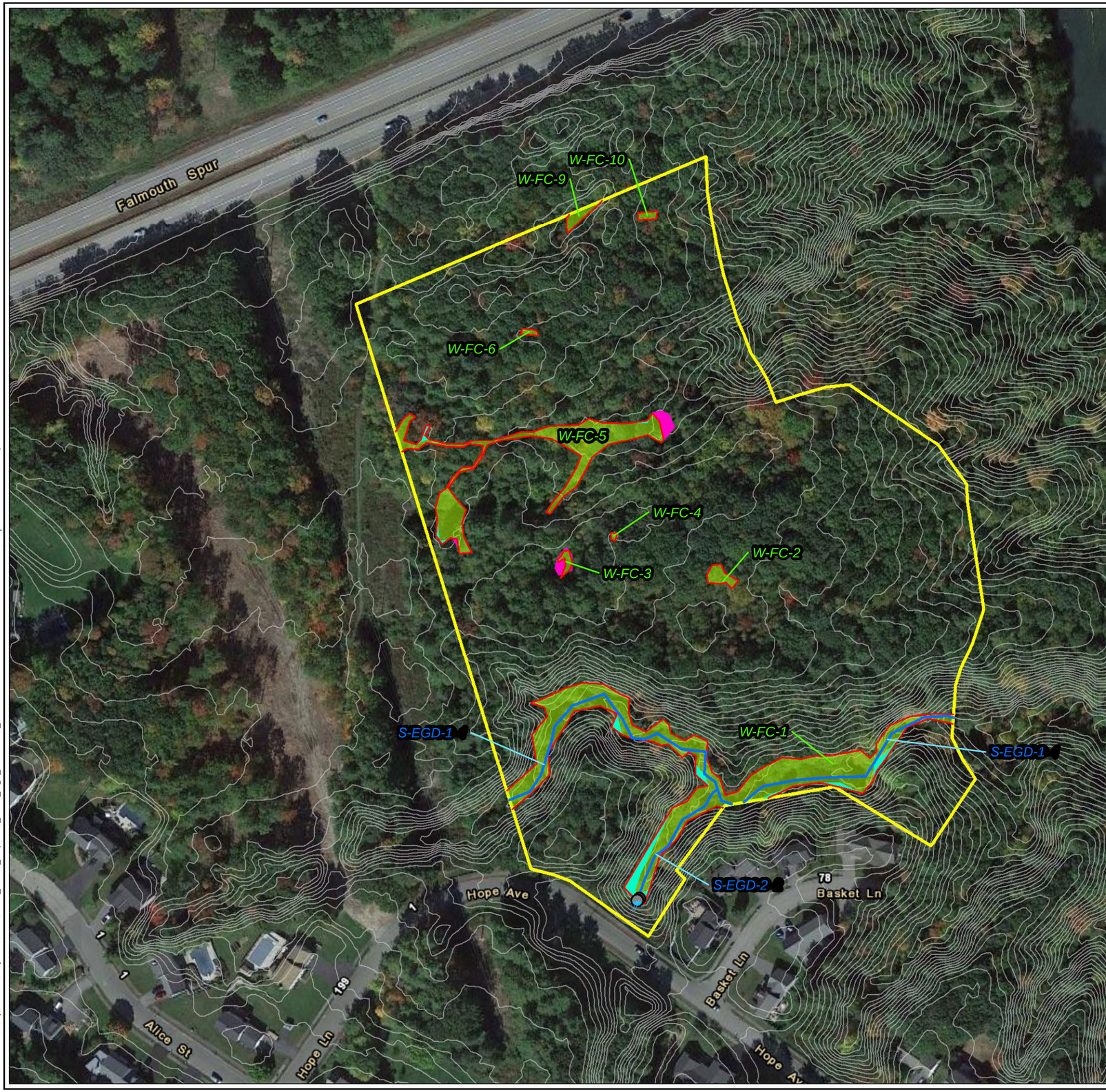
0 2,000 4,000 FEET

PROJECT:	**GENX CAPITAL PARTNERS, LLC** **HOPE AVENUE** **PORTLAND, CUMBERLAND COUNTY, MAINE**
LEGEND:	SURVEY AREA USGS 7.5-MINUTE QUADRANGLE BOUNDARY

DRAWN BY:	D. KENWORTHY
CHECKED BY:	R. JORDAN
MONTH:	JULY
YEAR:	2022
PROJ. NO.:	22W-1
CLIENT:	GENX

FIGURE 1

D:\Flycatcher\Projects\GenX\GenX_22W1_HopeAve_Delin_Fig1_USGS_8x11P.mxd -- Saved By: JAKEN on 7/20/2022, 15:18:19 PM



LEGEND

- SURVEY AREA
- CULVERT
- DELINEATED PERENNIAL STREAM (CENTERLINE)
- DELINEATED WETLAND BOUNDARY
- DELINEATED WETLAND
- PREVIOUS WETLAND AREA REMOVED
- EXPANDED WETLAND AREA
- 2-FOOT CONTOUR LINE



NOTES:

1 BASEMAP IMAGERY FROM ESRI/NAIP "WORLD IMAGERY" SERVICE LAYER.
2 RESOURCE DELINEATIONS WERE CONDUCTED BY FLYCATCHER IN JULY 2022.

N

0 150 300
Feet
1 " = 150 '
1:1,800

PROJECT:
GENX CAPITAL PARTNERS, LLC
HOPE AVENUE
PORTLAND, CUMBERLAND COUNTY, MAINE

TITLE:
DELINEATED WETLAND AND WATERCOURSE MAP

DRAWN BY:	D. KENWORTHY	PROJ NO.:	22W-1
CHECKED BY:	R. JORDAN		**FIGURE 2**
MONTH:	JULY		
YEAR:	2022		

Flycatcher LAND + SCIENCE + PEOPLE

GenX Capital Partners

FILE NO.: GenX_22W1_HopeAve_Delin_Fig2_Resources_11X17L.mxd

Plot Date: 7/21/2022, 06:00:59 AM by JAKEN -- LAYOUT: ANSI B(11"x17")
Path: D:\Flycatcher\Projects\GenX\GenX_22W1_HopeAve_Delin_Fig2_Resources_11X17L.mxd
Coordinate System: NAD 1983 StatePlane Maine West FIPS 1802 Feet (Foot US)
Map Rotation: 0

ATTACHMENT 2

Representative Photographs



Wetland W-FC-1 and stream S-EGD-1, July 7, 2022.



Wetland W-FC-1 and stream S-EGD-2, July 7, 2022.



Wetland W-FC-3, July 16, 2022.



Wetland W-FC-4, July 16, 2022.



Wetland W-FC-5, July 16, 2022.



Wetland W-FC-6, July 16, 2022.



Wetland W-FC-9, July 16, 2022.



Wetland W-FC-10, July 16, 2022.

ATTACHMENT 3

TRC Wetland Report - 2017

TRC
6 Ashley Drive
Scarborough, ME 04074

Main 207-879-1930
Fax 207-879-9293

Memorandum

To: Doug Reynolds, Gorrill-Palmer

From: Stephenie Jordan, TRC

Subject: Natural Resource Survey – Hope Avenue, Portland, Maine

Date: November 1, 2017

CC: Rich Jordan (TRC)

Dear Doug,

Per your request, on October 17th and 23rd, 2017, TRC wetland scientists visited the property located off Hope Avenue in Portland, Maine. The purpose of this site visit was to review and revise, as necessary, delineated wetland and stream boundaries that were mapped several years ago on the property (old mapping conducted by another firm). The U.S. Army Corps of Engineers (USACE) and the Maine Department of Environmental Protection (MDEP) typically require a review of wetland delineations that are over five years old in the event that site conditions have changed or new standards have been developed that change the way we determine the extent of wetland boundaries. The previous delineation appears to have occurred over 10 years ago. Despite the length of time between mapping efforts, in general, TRC agreed with and confirmed many of the original wetland boundaries, however we found a few of the wetlands previously delineated currently do not have hydric soils or other criteria required to be identified as a jurisdictional wetland by the USACE and MDEP. These features were remapped or removed as appropriate. Other features were confirmed to be consistent with the original delineation. No new wetland areas were identified or added.

Property Description and Survey Area

The survey area borders an existing Central Maine Power transmission line corridor and Portland Water District mainline to the west and northwest, Hope Avenue to the south, the Falmouth I-95 Spur toll road to the north, and undeveloped forest land to the east (Attachment A - Resource Map). The Presumpscot River flows within the mature forest approximately 500 feet west of the survey area. The survey area consists of approximately 13 acres of undeveloped forest land that has historically been disturbed presumably by agricultural and forestry uses. Several depressions associated with historic ditching and borrow areas were observed on the property within the upland forest and rusty farm equipment can be found within the survey area.

Methodology

Prior to the site visit, TRC wetland delineators reviewed existing data sources including:

- United States Geological Survey (USGS) topographic mapping;
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping;
- Natural Resources Conservation Service (NRCS) medium-intensity soil survey mapping;
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs);
- State of Maine Office of GIS (MEGIS) data; and
- Recent and historic aerial photography.

These data were used to assist in the identification of protected natural resources during the field surveys.

Wetlands: Wetland delineations were conducted in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0 (USACE 2012). This supplement follows criteria established in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory, Technical Report T-87-1, 1987), but is region specific, giving the wetland delineator a better tool to apply to regional vegetation communities, indicators of hydrology and indicators of hydric soils when conducting a wetland boundary determination. This document provides a repeatable methodology to identify potential wetland areas within the project study area.

The study area was investigated on foot. When a location having the requisite three factors that constitute a wetland (i.e., hydrophytic vegetation, indicators of hydrology, and the presence of hydric soils) was encountered, the boundaries were flagged in the field and each flag was geo-located using a mapping grade global positioning system (GPS) unit (e.g. a Trimble GeoXH). The data were then post-processed using data collection and processing standards designed by the manufacturer to achieve sub-meter accuracy. These data are being provided to Gorrill Palmer as an ESRI Shapefile for use in project design and planning natural resource avoidance and minimization measures.

Streams: Watercourse identification followed the Maine Natural Resources Protection Act (NRPA) definition of a "River, stream or brook." Streams meeting this definition were flagged and geolocated as described above.

Non-Jurisdictional Drainages: As part of this survey, non-stream drainage areas were located and mapped as "non-jurisdictional drainages" (NJDs). Typical examples of NJDs include concentrated surface flow in uplands, natural or dug ditches, and drainage swales of natural or unnatural origin. The key difference between NJDs and regulated resources is a lack of stream characteristics or a combination of hydric soils, dominance of hydrophytic plants and evidence of hydrology. Furthermore, NJDs commonly lack a discernable streambed, contiguous defined stream banks, and/or evidence of mineral scour within the drainage path. Although non-regulated, these features often drain to protected resources or offsite, and they may be potential conduits for siltation or sedimentation during rain events. NJDs are important to note so that mitigation measures can be taken during construction to limit soil disturbance and prevent unintended impacts to adjacent resources.

Findings

Ten previously identified wetlands were reviewed and evaluated for the presence of the three factors that constitute a wetland. Based on the current site-specific conditions and the latest version of the USACE wetland delineation manual, not all of these features (either wholly or in part) exhibited indicators of hydrophytic vegetation, hydric soil, or wetland hydrology. All features identified on site are described in more detail below and numbered and displayed on the Resource Map in Attachment A.

Copies of the representative wetland/upland data forms, photographs, and GIS shapefiles showing the location of the review areas and delineated resources are also provided with this report. The unique identifiers noted on the data forms and photographs can be cross referenced against the data herein and the resource map to see where a particular resource is located.

All wetlands discussed herein are considered forested wetlands.

Review Area #1

This wetland feature is located in a valley that follows a perennial stream (a tributary to the Presumpscot River). The location of this previously flagged feature was confirmed as being unchanged from the prior delineation. The wetland and stream complex was reviewed, however, only a portion of the wetland near the site entrance from Hope Avenue was flagged in the field.

Review Areas #2, 3, 4, 6, and 10

All of these features were reviewed, confirmed and flagged as previously delineated.

Review Area #5

This wetland feature follows a slight pattern of microtopographic relief in the landscape and drains to the northeast via a non-jurisdictional (upland) drainage feature. Review area 5 appears to indicate both ditching and erosional features, and appears to be a relic of former agricultural use and impacts. The NJD pattern indicates that water flows from the wetland and to the northeast, eventually forming into a tributary (offsite) that drains to the Presumpscot River during storm events. The wetland was flagged in the field and the NJD feature GPS-located as shown on the Resource Map in Attachment A.

Review Areas #7 and 8

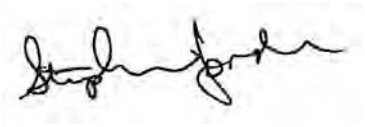
Although these two features had previously been identified as wetland in the previous (old) survey, they are lacking the indicators of hydrophytic vegetation and hydric soils described in current wetland delineation manuals. Both features are small localized depressions that are likely associated with historic ditching and excavation. Vegetation surrounding the depressions included red oak, red maple, and hemlock, all are tree species that can be found in upland areas. Signs of hydrology included moss trim lines and microtopographic relief but a closer examination of soils showed no indications of saturation during the growing season in the upper part of the soil. Based on this evidence, we concluded that these depressions do not hold water long enough to develop the anaerobic conditions that form hydric soils or favor the growth of hydrophytic vegetation and therefore, are not wetlands.

Review Area #9

This depressional feature is likely an old burrow pit. It is likely that portions of this area fill with storm and meltwater during certain times of the year, but it appears that the site drains rather quickly after filling. The southwestern portion of the previously delineated excavation area was evaluated closely and determined to lack hydrophytic vegetation and hydric soils. The wetland boundary was redelineated as shown on the Resource Map in Attachment A and flagged in the field.

If you have any questions regarding my assessments, or if you would like additional assistance with project permitting, please do not hesitate to contact me or Rich.

Respectfully submitted,



Stephenie Jordan

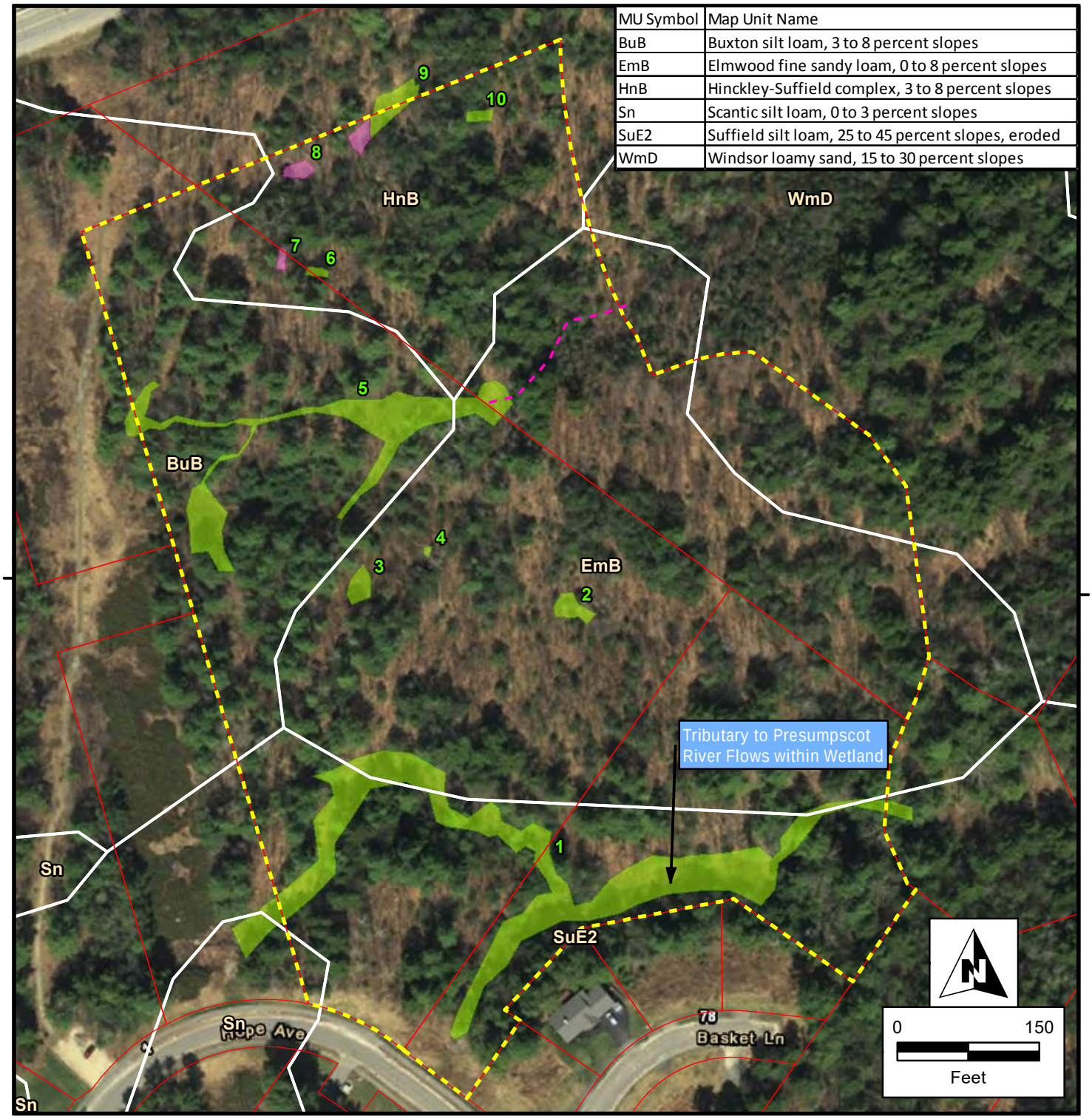
Wetland Scientist

Cell: 207-319-9801 Office: 207-274-2611

Email: sjordan@trcsolutions.com

ATTACHMENT A

Resource Mapping



MU Symbol	Map Unit Name
BuB	Buxton silt loam, 3 to 8 percent slopes
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes
HnB	Hinckley-Suffield complex, 3 to 8 percent slopes
Sn	Scantic silt loam, 0 to 3 percent slopes
SuE2	Suffield silt loam, 25 to 45 percent slopes, eroded
WmD	Windsor loamy sand, 15 to 30 percent slopes



- Parcel Boundaries
- Limit of Wetlands Survey
- Delineated Non-Jurisdictional Drainage
- Delineated Wetland
- Old Data Wetlands Reviewed and Removed
- NRCS Soils

Data Sources: ESRI, TRC, MEGIS, NRCS
Coordinate System: NAD 1983 UTM Zone 19N M

Hope Avenue

Portland, Maine

Resource Map

Aerial Location Figure

6 Ashley Drive
Scarborough, ME 04074
TRC

Created: 11/1/2017

V:\PROJECTS\AUGUSTA\Small_Projects\222955_Hope_Ave_Portland\Hope_Ave_Resource_Map.mxd

ATTACHMENT B

Photographic Log



Review Area #1: Water flowing in perennial stream within wetland, 10/18/2017.



Review Area #2: Looking southwest in wetland, 10/18/2017.



Review Area #3: Looking north in wetland, 10/18/2017. Review Area #4 is a small depressional feature located approximately 40 feet to the northeast of the wetland shown above.



Review Area #5: Looking east from wetland toward non-jurisdictional drainage, 10/18/2017.



Review Area #5: Looking west toward wetland, 10/18/2017.



Review Area #6: Looking west toward wetland, 10/18/2017.



Review Area #7: Looking northwest toward depression in upland forest (does not meet the criteria for a wetland), 10/18/2017.



Review Area #8: Looking northeast toward bowl-like depression that is likely an old burrow pit (does not meet the criteria for a wetland), 10/18/2017.



Review Area #9: Facing northeast in wetland, 10/18/2017.



Review Area #10: Facing west looking at wetland, 10/18/2017.

ATTACHMENT C

Representative Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hope Ave City/County: Portland, Cumb. Co. Sampling Date: 10-23-17

Applicant/Owner: G.P. (client) State: ME Sampling Point: wet-5

Investigator(s): S. Jordan, R. Jordan Section, Township, Range: —

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): —

Subregion (LRR or MLRA): LRR Lat: 43° 43' 27.18" Long: 70° 17' 13.87" Datum: —

Soil Map Unit Name: Buxton Silt Loam NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	If yes, optional Wetland Site ID: ____
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: (Explain alternative procedures here or in a separate report.)

Evidence of Drainage in channels heading east.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ✓ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ✓ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No ✓	Depth (inches): ____
Water Table Present?	Yes ____	No ✓	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ✓	Depth (inches): ____

Wetland Hydrology Present? Yes ✓ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: Wet-5

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pin strobus *Aerial	* 25	N	FACU
2. Ace rubrum	* 25	N	FAC
3. Que rubra	* 10	N	FACU
4. Fra pensylvanica	* 10	N	FACW
5.			
6.			
7.			
	70	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Rhamnus frangula	15	Y	FAC
2. Fra pensylvanicum	15	Y	FACW
3. Ace rubrum	10	Y	FAC
4.			
5.			
6.			
7.			
	40	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Car crinita	10	Y	OBL
2. Ono sensibilis	5	N	FACW
3. Spi Latifolia	10	Y	FAC+
4. Gly striata	5	N	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1. Oriental bittersweet	5	N	UpL
2.			
3.			
4.			
	5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	1	x 2 =	2
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	6	(A)	12 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: Wet-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1	-	-	-	-	-	-	-	Duff
1-9	7.5YR 4/2	50	7.5YR 7/8	50	C	M	Silo	compact Bw
9-15+	10YR 4/1	90	7.5YR 6/8	10	C	M	Silo	compact Bc

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

No dark surface but depleted matrix

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hope Avenue City/County: Portland Cumb. Co Sampling Date: 10-23-17

Applicant/Owner: G.P. (client) State: ME Sampling Point: upl-5

Investigator(s): SJordan, RJordan Section, Township, Range: —

Landform (hillslope, terrace, etc.): fill pile Local relief (concave, convex, none): convex Slope (%): —

Subregion (LRR or MLRA): LRR Lat: 43° 43' 27.18" Long: 70° 17' 13.87" Datum: _____

Soil Map Unit Name: Buxton Silt Loam NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UpL

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pin strobus	30	Y	FACU
2. Que rubra	20	Y	FACU-
3.			
4.			
5.			
6.			
7.			
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15)			
1. Fag grandifolia	15	Y	FACU
2. Rha frangula	15	Y	FAC
3.			
4.			
5.			
6.			
7.			
	30	= Total Cover	

Herb Stratum (Plot size: 5)			
1. Aster spp	15	Y	Unk
2. Pin strobus	5	N	FACU
3. Lonicera spp	10	Y	Unk
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30	= Total Cover	

Woody Vine Stratum (Plot size: 30)			
1. celas orbiculatus	<5	N	Upl
2.			
3.			
4.			
	<5	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	5 (A)		19 (B)

Prevalence Index = B/A = 3.8

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UpL-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15+	2.5YR 5/4	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Disturbed fill pile, No redox, friable soils

Barton & Loguidice

Traffic Assessment

Date: September 29, 2022

To: **Greg Shinberg, Shinberg Consulting, LLC.**

From: Jacob Sirois
Engineer 1
Barton & Loguidice, LLC.

John Q. Adams, P.E., PTOE
Associate, Senior Transportation Engineer
Barton & Loguidice, LLC.

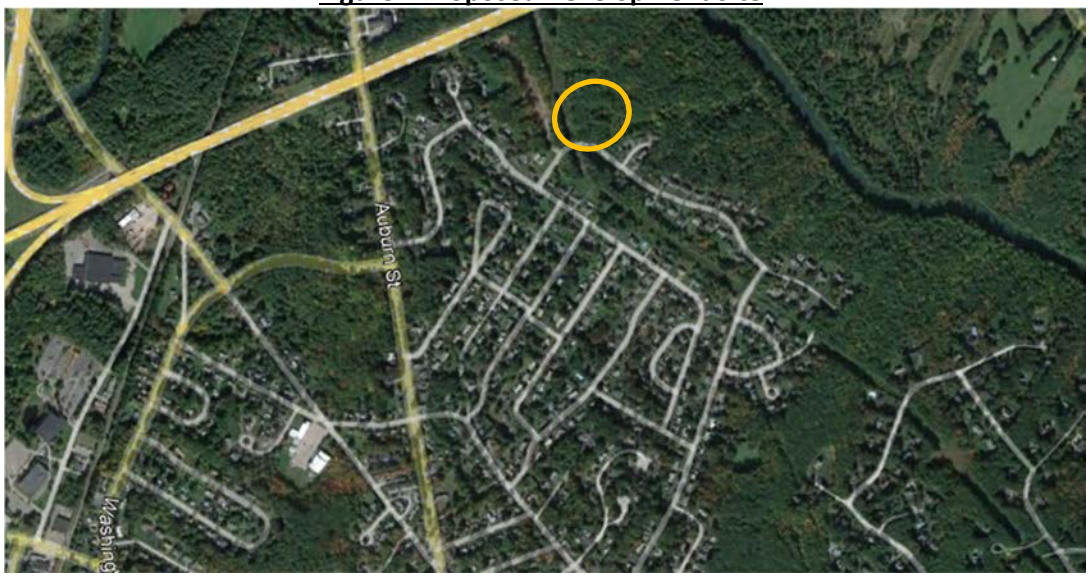
Re: **Hope Avenue Residential Subdivision**
Hope Avenue, Portland, Maine

Introduction

A 60-unit residential duplex subdivision is proposed on Hope Avenue in the City of Portland (refer to Figure 1 below for project location. The site will be accessed via a single 20-foot wide full-access entrance located on the northern side of Hope Avenue, approximately 150-feet north of the intersection of Hope Avenue and Alice Street. The residential units will be provided access via an internal 20-ft. wide circulating roadway that runs bi-directionally throughout the site.

The purpose of this traffic assessment is to evaluate and measure the level of impact on traffic operations and safety resulting with the development of the proposed project. Site generated trip projections are provided for "key" peak hour time periods throughout a typical week; road safety conditions were determined based upon a review of MaineDOT's latest road safety data and intersection sight distance was field reviewed and measured to ensure safe and acceptable sight distance is provided at the proposed intersection with Hope Lane.

Figure 1 Proposed Development Site



Site Trip Generation

Daily and peak hour trip generation was determined for the proposed development based upon trip tables presented in the 11th edition of the Institute of Transportation Engineers (ITE) "**TRIP GENERATION**

MANUAL". The ITE publication provides numerous land use categories and the average volume of trips generated by each category.

Site trip estimates for the Hope Avenue Residential Subdivision are based upon LUC #215 – Single-Family Attached Housing; which is described in the ITE publication as: *any single-family housing unit that shares a wall with an adjoining unit*. Calculation of the total number of trips generated per each corresponding time period are summarized below in Table 1.1.

Table 1.1
ITE Trip Generation Calculations

Land Use	Single-Family Attachedd Housing - LUC 215					
Time Period	Dwelling Units	Avg. Trip Generation Rate Trips/Dwelling Units	Trips Generated	Distribution Entering / Exiting	Enter	Exit
Weekday	60	7.20	432	50% / 50%	216	216
AM Weekday Peak Hour (Street)	60	0.48	29	31% / 69%	9	20
PM Weekday Peak Hour (Street)	60	0.57	35	57% / 43%	20	15
AM Weekday Peak Hour (Generator)	60	0.55	33	25% / 75%	8	25
PM Weekday Peak Hour (Generator)	60	0.61	37	62% / 38%	23	14

As presented in the preceding table, this development will generally be a low trip generator; generating a maximum of 33 Weekday AM peak hour trips and 37 Weekday PM peak hour trips during the sites peak hours. During the peak hour of the adjacent street, the trips generated by the proposed development are slightly lower, with 29 trips during the AM peak hour and 35 trips during the PM peak hour. During the typical weekday, there will be a total of 432 daily trips.

Vehicle Sight Distance

The City of Portland's Entrance and Driveway Rules require the following sight distances for roadways:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	**200 feet**
30 mph	250 feet
35 mph	305 feet
40 mph	360 feet
45 mph	425 feet
50 mph	495 feet

The section of Hope Avenue fronting the proposed residential development is presently unposted and assumed to be 25mph, which requires a sight distance of 200-feet. The City of Portland's Regulations require sight distance to be measured in accordance with the following procedures: *"Sight distance is measured to and from the point on the centerline of the proposed access that is located 10-feet from the edge of traveled way. The height of the hypothetical person's view is considered to be 3½ feet above the pavement and the height of the object being viewed is considered to be 4¼ feet above the pavement."* Our field measurements looking both left and right from the proposed site driveway entrance directionally onto Hope Avenue indicate existing sight distances are in excess of the requirements based on a posted speed limit of 25mph. Looking to the left from the site entrance we measured a sight distance of **240-feet**, and a measurement in excess of **300-feet** was recorded to right. An increase of sight distance, looking

to the right, can be achieved by minor clearing of trees on Lot# 448 B001, located on the southern side of Hope Avenue, and shown below in the following image which has the site driveway entrance circled.

Potential Clearing Zone



Existing Road Safety Conditions

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2019 through 2021) crash data for network of roadways between Hope Avenue and Auburn Street (refer to the map titled "*Hope Avenue, Portland*" for the roads included in the safety analysis). Their report is presented as follows:

2019 -2021 Traffic Accident Summary

Location	Total Crashes	Critical Rate Factor
1. Auburn Street @ Washington Avenue Extension	1	0.26
2. Auburn Street @ Clayton Street	2	0.54
3. Auburn Street @ Summit Street	2	0.61
4. Auburn Street @ Garsoe Drive	1	0.26
5. Summit Street @ Frost Hill Road and Jackson Street	1	0.92
6. Summit Street @ Hillside Road	1	1.03
7. Alice Street @ Garsoe Drive	1	-15.35
8. Auburn Street btw. Summit Park Avenue and Jackson Street	4	0.92
9. Auburn Street btw. Jackson Street and Clayton Street	2	0.42
10. Summit Street btw. Clayton Street and Hillside Road	1	0.67
11. Summit Street btw. Abby Lane and Carter Street	1	0.63
12. Curtis Street btw. Wendy Way and Summit Street	1	0.10
13. Longview Drive btw. Patricia Lane	1	2.94
14. Jackson Street btw. Summit Street and Kenneth Street	1	1.47

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents in a three-year period***
- ***A Critical Rate Factor greater than 1.00***

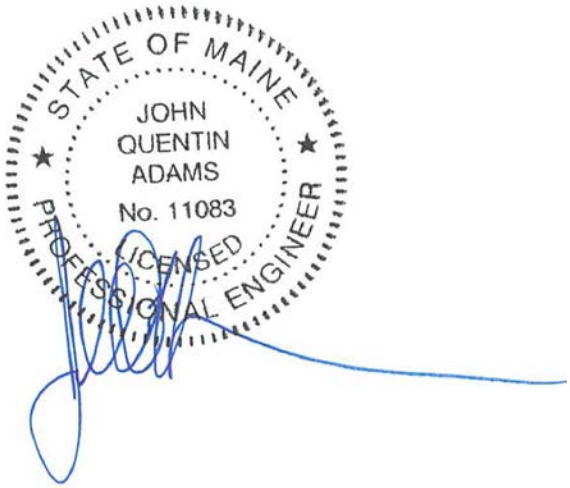
As the data presented in the chart shows, there are no identified high crash locations within the defined study area.

On-site Parking

The project is proposing 135 total parking spaces. The intent is for each of the 60 units to be provided with one space in their garage and one outdoor space in their driveway. In addition, the site will be provided with 15 on-street spaces for guests, see enclosed preliminary site plan. The required width for the on-street spaces will be designed in addition to the proposed roadway width of 20 feet so that parked vehicles on-street will not stop or restrict emergency vehicles from efficiently and safely accessing the site.

Summary

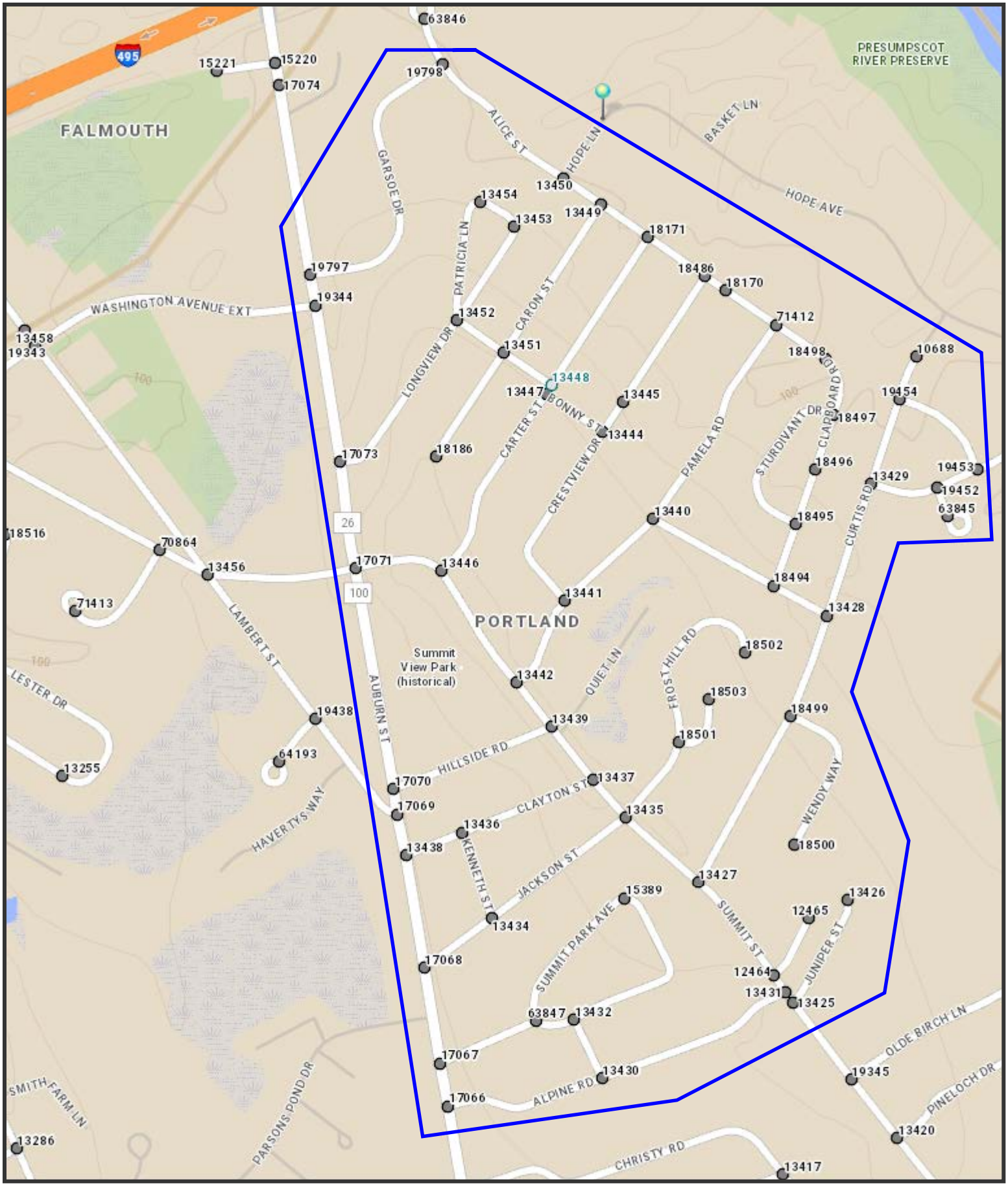
1. The expected trip generation for the proposed development is estimated to be 432 weekday daily trips. The project generates a total of 33 trips during the weekday AM peak hour and 37 trips during the weekday PM. Overall, the project will be a low volume trip generator and will be well below the minimum MaineDOT threshold of 100 new peak hour trips ends that would require a Traffic Movement Permit.
2. A review of MaineDOT crash data available for the latest 3-yeaar period (2019-2021) for the section of Hope Avenue at Alice Street, and the section of Curtis Road between Hope Avenue and Summit Street was reviewed. Our review indicated that there were no high crash locations within the defined study area.
3. Vehicle sight distance field measurements looking both left and right from the proposed site driveway entrance directionally onto Hope Avenue indicate existing sight distances are in excess of the requirements based on a posted speed of 25mph. Looking to the left from the site entrance, we measured a sight distance in excess of 300-feet, and a measurement of 240-feet was recorded to the right.



John Q. Adams, PE, PTOE, Date: 09/29/2022

APPENDIX

HOPE AVENUE, PORTLAND



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.1 Miles

1 inch = 0.14 miles

Date: 9/1/2022
Time: 3:45:14 PM

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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0026X**	Start Node: **17066**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19797**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560689**	Start Node: **13425**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **17071**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560178**	Start Node: **13427**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **10688**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560851**	Start Node: **18498**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19798**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560819**	Start Node: **13428**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13440**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560819**	Start Node: **13440**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13442**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560838**	Start Node: **13440**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **71412**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561166**	Start Node: **18494**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18498**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560011**	Start Node: **17066**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13431**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561241**	Start Node: **19797**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **19798**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560116**	Start Node: **13446**	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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

	End Node: **18171**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560172**	Start Node: **13441**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18486**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560114**	Start Node: **13449**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18186**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560455**	Start Node: **17073**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13453**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0561114**	Start Node: **13452**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13453**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560562**	Start Node: **13448**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13451**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560562**	Start Node: **13451**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13452**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560066**	Start Node: **13444**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13447**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561177**	Start Node: **18495**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18497**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561203**	Start Node: **13429**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **19453**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0561215**	Start Node: **19454**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **19453**	End Offset: **0**	☑ **Exclude Last 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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0561217**	Start Node: **19452**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63845**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560372**	Start Node: **13439**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **17070**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560138**	Start Node: **13438**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13437**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560400**	Start Node: **17068**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13435**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560415**	Start Node: **13434**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13436**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560688**	Start Node: **17067**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13432**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0561120**	Start Node: **13430**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13432**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561120**	Start Node: **13432**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **63847**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0561167**	Start Node: **13435**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18502**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0561169**	Start Node: **18501**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18503**	End Offset: **0**	☐ **Exclude Last 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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0561179**	Start Node: **18499**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18500**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560695**	Start Node: **12464**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **12465**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560409**	Start Node: **13425**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13426**	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
17066	0026X - 4.16	Int of ALPINE RD, AUBURN ST	2	0	0	0	0	0	0	0.0	3.621	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17067	0026X - 4.20	Int of AUBURN ST SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	3.633	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17070	0026X - 4.43	Int of AUBURN ST HILLSIDE RD	2	0	0	0	0	0	0	0.0	2.708	0.00	0.37	0.00
												Statewide Crash Rate:	0.12	
19344	0026X - 4.83	Int of AUBURN ST WASHINGTON AV EXT	2	1	0	1	0	0	0	100.0	3.836	0.09	0.34	0.00
												Statewide Crash Rate:	0.12	
13438	0026X - 4.37	Int of AUBURN ST CLAYTON ST	2	2	0	0	0	0	2	0.0	3.588	0.19	0.35	0.00
												Statewide Crash Rate:	0.12	
17069	0026X - 4.41	Int of AUBURN ST LAMBERT ST	2	0	0	0	0	0	0	0.0	3.643	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17071	0026X - 4.61	Int of AUBURN ST SUMMIT ST	2	2	0	0	1	1	0	100.0	3.006	0.22	0.36	0.00
												Statewide Crash Rate:	0.12	
19797	0026X - 4.86	Int of AUBURN ST GARSOE DR	2	1	0	0	1	0	0	100.0	3.764	0.09	0.34	0.00
												Statewide Crash Rate:	0.12	
17073	0026X - 4.70	Int of AUBURN ST LONGVIEW RD	2	0	0	0	0	0	0	0.0	2.993	0.00	0.36	0.00
												Statewide Crash Rate:	0.12	
17068	0026X - 4.28	Int of AUBURN ST JACKSON ST	2	0	0	0	0	0	0	0.0	3.627	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
13425	0560689 - 0.47	Int of JUNIPER ST SUMMIT ST	2	0	0	0	0	0	0	0.0	1.121	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
13431	0560689 - 0.48	0503845 POR,SUMMIT ST,ALPINE RD.	2	0	0	0	0	0	0	0.0	1.106	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
12464	0560689 - 0.50	0502876 POR,SUMMIT ST,TALBOT ST	2	0	0	0	0	0	0	0.0	1.150	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
13427	0560689 - 0.60	Int of CURTIS RD SUMMIT ST	2	0	0	0	0	0	0	0.0	1.161	0.00	0.45	0.00
												Statewide Crash Rate:	0.12	
13435	0560689 - 0.68	Int of FROST HILL RD JACKSON ST SUMMIT ST	2	1	0	0	0	0	1	0.0	0.718	0.46	0.50	0.00
												Statewide Crash Rate:	0.12	
13437	0560689 - 0.72	Int of CLAYTON ST SUMMIT ST	2	0	0	0	0	0	0	0.0	0.618	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13439	0560689 - 0.78	Int of HILLSIDE RD SUMMIT ST	2	1	0	0	0	1	0	100.0	0.646	0.52	0.50	1.03
												Statewide Crash Rate:	0.12	
13442	0560689 - 0.83	Int of ABBY LN SUMMIT ST	2	0	0	0	0	0	0	0.0	0.602	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13446	0560689 - 0.94	Int of CARTER ST SUMMIT ST	2	0	0	0	0	0	0	0.0	0.381	0.00	0.52	0.00
												Statewide Crash Rate:	0.12	
18499	0560178 - 0.16	Int of CURTIS RD WENDY WY	2	0	0	0	0	0	0	0.0	0.421	0.00	0.52	0.00
												Statewide Crash Rate:	0.12	
13428	0560178 - 0.25	Int of ABBY LN CURTIS RD	2	0	0	0	0	0	0	0.0	0.335	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13429	0560178 - 0.36	Int of CURTIS RD OVERSET RD	2	0	0	0	0	0	0	0.0	0.200	0.00	0.44	0.00
												Statewide Crash Rate:	0.12	

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
19454	0560178 - 0.43	Int of CURTIS RD WHALE BOAT RD	2	0	0	0	0	0	0	0.0	0.110	0.00	0.16	0.00
												Statewide Crash Rate:	0.12	
10688	0560178 - 0.47	End of CURTIS RD	2	0	0	0	0	0	0	0.0	0.043	0.00	-1.30	0.00
												Statewide Crash Rate:	0.12	
18498	0560851 - 0	Int of ALICE ST CLAPBOARD RD	2	0	0	0	0	0	0	0.0	0.040	0.00	-1.45	0.00
												Statewide Crash Rate:	0.12	
71412	0560851 - 0.05	Int of ALICE ST PAMELA DR	2	0	0	0	0	0	0	0.0	0.054	0.00	-0.74	0.00
												Statewide Crash Rate:	0.12	
18170	0560851 - 0.10	Non Int ALICE ST	2	0	0	0	0	0	0	0.0	0.049	0.00	-0.97	0.00
												Statewide Crash Rate:	0.12	
18486	0560851 - 0.12	0508906 POR,ALICE ST,CRESTVIEW ST	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
18171	0560851 - 0.18	Int of ALICE ST CARTER ST	2	0	0	0	0	0	0	0.0	0.042	0.00	-1.34	0.00
												Statewide Crash Rate:	0.12	
13449	0560851 - 0.23	Int of ALICE ST CARON ST	2	0	0	0	0	0	0	0.0	0.039	0.00	-1.58	0.00
												Statewide Crash Rate:	0.12	
13450	0560851 - 0.27	Non Int ALICE ST	2	0	0	0	0	0	0	0.0	0.029	0.00	-2.57	0.00
												Statewide Crash Rate:	0.12	
19798	0560851 - 0.41	Int of ALICE CT ALICE ST GARSOE DR	2	1	0	0	0	0	1	0.0	0.070	4.76	-0.31	0.00
												Statewide Crash Rate:	0.12	
18494	0560819 - 0.05	0508914 POR,ABBY LA,CLAPBOARD RD.	2	0	0	0	0	0	0	0.0	0.145	0.00	0.32	0.00
												Statewide Crash Rate:	0.12	
13440	0560819 - 0.16	Int of ABBY LN PAMELA DR	2	0	0	0	0	0	0	0.0	0.073	0.00	-0.26	0.00
												Statewide Crash Rate:	0.12	
13441	0560819 - 0.26	Int of ABBY LN CRESTVIEW DR	2	0	0	0	0	0	0	0.0	0.228	0.00	0.47	0.00
												Statewide Crash Rate:	0.12	
18495	0561166 - 0.05	Int of CLAPBOARD RD STURDIVANT DR	2	0	0	0	0	0	0	0.0	0.110	0.00	0.16	0.00
												Statewide Crash Rate:	0.12	
18496	0561166 - 0.10	0508916 POR,CLAPBOARD RD,.10 BK.ABBY	2	0	0	0	0	0	0	0.0	0.047	0.00	-1.06	0.00
												Statewide Crash Rate:	0.12	
18497	0561166 - 0.15	Int of CLAPBOARD RD STURDIVANT DR	2	0	0	0	0	0	0	0.0	0.064	0.00	-0.45	0.00
												Statewide Crash Rate:	0.12	
13430	0560011 - 0.13	0503844 POR,ALPINE RD,UNN 62	2	0	0	0	0	0	0	0.0	0.081	0.00	-0.13	0.00
												Statewide Crash Rate:	0.12	
P13447	0560116 - 0.17	Int of BONNY ST CARTER ST	2	0	0	0	0	0	0	0.0	0.100	0.00	0.09	0.00
												Statewide Crash Rate:	0.12	
A13448	0560116 - 0.18	Int of CARTER ST PANORAMIC VIEW ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.12	
13444	0560172 - 0.17	Int of BONNY ST CRESTVIEW DR	2	0	0	0	0	0	0	0.0	0.124	0.00	0.24	0.00
												Statewide Crash Rate:	0.12	
13445	0560172 - 0.20	0503859 POR,CRESTVIEW DR,.12 AHD ALICE	2	0	0	0	0	0	0	0.0	0.080	0.00	-0.15	0.00
												Statewide Crash Rate:	0.12	
13451	0560114 - 0.15	Int of CARON ST PANORAMIC VIEW ST	2	0	0	0	0	0	0	0.0	0.069	0.00	-0.33	0.00
												Statewide Crash Rate:	0.12	

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
18186	0560114 - 0.25	0508605 POR,CARON ST,END	2	0	0	0	0	0	0	0.0	0.014	0.00	-7.52	0.00
												Statewide Crash Rate:	0.12	
13452	0560455 - 0.16	Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN	2	0	0	0	0	0	0	0.0	0.085	0.00	-0.07	0.00
												Statewide Crash Rate:	0.12	
13453	0560455 - 0.25	0503867 POR,PATRICIA LA,LONGVIEW RD.	2	0	0	0	0	0	0	0.0	0.019	0.00	-4.99	0.00
												Statewide Crash Rate:	0.12	
13454	0561114 - 0.10	0503868 POR,PATRICIA LA,.10 BK.60562	2	0	0	0	0	0	0	0.0	0.017	0.00	-5.58	0.00
												Statewide Crash Rate:	0.12	
19452	0561203 - 0.06	Int of OVERSET RD, WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
19453	0561203 - 0.10	Int of OVERSET RD WHALE BOAT RD	2	0	0	0	0	0	0	0.0	0.053	0.00	-0.80	0.00
												Statewide Crash Rate:	0.12	
63845	0561217 - 0.03	Loop of WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.030	0.00	-2.45	0.00
												Statewide Crash Rate:	0.12	
63845	0561217 - 0.08	Loop of WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.030	0.00	-2.45	0.00
												Statewide Crash Rate:	0.12	
13436	0560138 - 0.05	Int of CLAYTON ST KENNETH ST	2	0	0	0	0	0	0	0.0	0.053	0.00	-0.77	0.00
												Statewide Crash Rate:	0.12	
13434	0560400 - 0.07	Int of JACKSON ST KENNETH ST	2	0	0	0	0	0	0	0.0	0.122	0.00	0.23	0.00
												Statewide Crash Rate:	0.12	
63847	0560688 - 0.09	Non Int SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	0.136	0.00	0.29	0.00
												Statewide Crash Rate:	0.12	
15389	0560688 - 0.22	Non Int SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	0.052	0.00	-0.83	0.00
												Statewide Crash Rate:	0.12	
13432	0560688 - 0.38	Int of SUMMIT PARK AV UNNAMED 62	2	0	0	0	0	0	0	0.0	0.103	0.00	0.11	0.00
												Statewide Crash Rate:	0.12	
18501	0561167 - 0.08	Int of FROST HILL RD OLD BARN LN	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
18502	0561167 - 0.24	0508922 POR,FROST HILL RD,END	2	0	0	0	0	0	0	0.0	0.026	0.00	-3.04	0.00
												Statewide Crash Rate:	0.12	
18503	0561169 - 0.05	0508923 POR,OLD BARN LA,END	2	0	0	0	0	0	0	0.0	0.007	0.00	-16.20	0.00
												Statewide Crash Rate:	0.12	
18500	0561179 - 0.14	End of WENDY WY	2	0	0	0	0	0	0	0.0	0.023	0.00	-3.82	0.00
												Statewide Crash Rate:	0.12	
12465	0560695 - 0.06	0502877 POR,TALBOT ST, END	2	0	0	0	0	0	0	0.0	0.012	0.00	-9.38	0.00
												Statewide Crash Rate:	0.12	
13426	0560409 - 0.10	End of JUNIPER ST	2	0	0	0	0	0	0	0.0	0.018	0.00	-5.27	0.00
												Statewide Crash Rate:	0.12	
Study Years:	3.00	**NODE TOTALS:**		9	0	1	2	2	4	55.6	45.500	0.07	0.19	0.34

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
17066	17067	3106528	0 - 0.04	0026X - 4.16	0.04	2	0	0	0	0	0	0	0.0	0.00143	0.00	608.38	0.00
Int of ALPINE RD, AUBURN ST				ST RTE 26											Statewide Crash Rate: 187.10		
17067	17068	3122276	0 - 0.08	0026X - 4.20	0.08	2	4	0	0	0	0	4	0.0	0.00286	466.46	509.30	0.00
Int of AUBURN ST SUMMIT PARK AV				ST RTE 26											Statewide Crash Rate: 187.10		
13438	17068	3130462	0 - 0.09	0026X - 4.28	0.09	2	2	0	0	0	1	1	50.0	0.00321	207.89	494.37	0.00
Int of AUBURN ST CLAYTON ST				ST RTE 26											Statewide Crash Rate: 187.10		
13438	17069	3106258	0 - 0.04	0026X - 4.37	0.04	2	0	0	0	0	0	0	0.0	0.00143	0.00	609.02	0.00
Int of AUBURN ST CLAYTON ST				ST RTE 26											Statewide Crash Rate: 187.10		
17069	17070	3123986	0 - 0.02	0026X - 4.41	0.02	2	0	0	0	0	0	0	0.0	0.00053	0.00	756.09	0.00
Int of AUBURN ST LAMBERT ST				ST RTE 26											Statewide Crash Rate: 187.10		
17070	17071	3130499	0 - 0.18	0026X - 4.43	0.18	2	0	0	0	0	0	0	0.0	0.00483	0.00	445.32	0.00
Int of AUBURN ST HILLSIDE RD				ST RTE 26											Statewide Crash Rate: 187.10		
17071	17073	3938275	0 - 0.09	0026X - 4.61	0.09	2	0	0	0	0	0	0	0.0	0.00263	0.00	520.33	0.00
Int of AUBURN ST SUMMIT ST				ST RTE 26											Statewide Crash Rate: 187.10		
17073	19344	192822	0 - 0.13	0026X - 4.70	0.13	2	0	0	0	0	0	0	0.0	0.00387	0.00	470.91	0.00
Int of AUBURN ST LONGVIEW RD				ST RTE 26											Statewide Crash Rate: 187.10		
19344	19797	3118714	0 - 0.03	0026X - 4.83	0.03	2	0	0	0	0	0	0	0.0	0.00110	0.00	648.88	0.00
Int of AUBURN ST WASHINGTON AV EXT				ST RTE 26											Statewide Crash Rate: 187.10		
13425	13431	188172	0 - 0.01	0560689 - 0.47	0.01	2	0	0	0	0	0	0	0.0	0.00011	0.00	1493.47	0.00
Int of JUNIPER ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
12464	13431	186821	0 - 0.02	0560689 - 0.48	0.02	2	0	0	0	0	0	0	0.0	0.00021	0.00	1480.08	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
12464	13427	186820	0 - 0.10	0560689 - 0.50	0.10	2	0	0	0	0	0	0	0.0	0.00122	0.00	1013.16	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13427	13435	188174	0 - 0.08	0560689 - 0.60	0.08	2	0	0	0	0	0	0	0.0	0.00053	0.00	1249.83	0.00
Int of CURTIS RD SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13435	13437	188190	0 - 0.04	0560689 - 0.68	0.04	2	0	0	0	0	0	0	0.0	0.00024	0.00	1459.76	0.00
Int of FROST HILL RD JACKSON ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13437	13439	188194	0 - 0.06	0560689 - 0.72	0.06	2	1	0	0	0	0	0	0.0	0.00037	910.87	1353.11	0.00
Int of CLAYTON ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13439	13442	5095097	0 - 0.05	0560689 - 0.78	0.05	2	0	0	0	0	0	0	0.0	0.00030	0.00	1404.28	0.00
Int of HILLSIDE RD SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13442	13446	188204	0 - 0.11	0560689 - 0.83	0.11	2	1	0	0	1	0	0	100.0	0.00040	832.72	1328.27	0.00
Int of ABBY LN SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13446	17071	5084411	0 - 0.07	0560689 - 0.94	0.07	2	0	0	0	0	0	0	0.0	0.00021	0.00	1478.21	0.00
Int of CARTER ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13427	18499	5080637	0 - 0.16	0560178 - 0	0.16	2	1	0	0	0	0	1	0.0	0.00071	467.08	1161.28	0.00
Int of CURTIS RD SUMMIT ST				RD INV 05 60178											Statewide Crash Rate: 351.32		
13428	18499	188178	0 - 0.09	0560178 - 0.16	0.09	2	0	0	0	0	0	0	0.0	0.00032	0.00	1392.58	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		

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
13428	13429	5084409	0 - 0.11	0560178 - 0.25	0.11	2	0	0	0	0	0	0	0.0	0.00024	0.00	1458.95	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
13429	19454	188180	0 - 0.07	0560178 - 0.36	0.07	2	0	0	0	0	0	0	0.0	0.00007	0.00	1336.05	0.00
Int of CURTIS RD OVERSET RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
10688	19454	5095093	0 - 0.04	0560178 - 0.43	0.04	2	0	0	0	0	0	0	0.0	0.00003	0.00	231.45	0.00
End of CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
71412	18498	5095160	0 - 0.05	0560851 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-950.49	0.00
Int of ALICE ST PAMELA DR				RD INV 05 60851											Statewide Crash Rate: 351.32		
18170	71412	5095159	0 - 0.05	0560851 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-856.95	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
18170	18486	193763	0 - 0.02	0560851 - 0.10	0.02	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7868.46	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
18171	18486	193765	0 - 0.06	0560851 - 0.12	0.06	2	0	0	0	0	0	0	0.0	0.00001	0.00	-4792.46	0.00
Int of ALICE ST CARTER ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13449	18171	5095153	0 - 0.05	0560851 - 0.18	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-	0.00
Int of ALICE ST CARON ST				RD INV 05 60851											Statewide Crash Rate: 351.32	10215.50	
13449	13450	188213	0 - 0.04	0560851 - 0.23	0.04	2	0	0	0	0	0	0	0.0	0.00001	0.00	-8795.41	0.00
Int of ALICE ST CARON ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13450	19798	5087298	0 - 0.14	0560851 - 0.27	0.14	2	0	0	0	0	0	0	0.0	0.00005	0.00	962.43	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13428	18494	188177	0 - 0.05	0560819 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00005	0.00	1021.10	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	18494	188201	0 - 0.11	0560819 - 0.05	0.11	2	0	0	0	0	0	0	0.0	0.00006	0.00	1234.92	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	13441	188199	0 - 0.10	0560819 - 0.16	0.10	2	0	0	0	0	0	0	0.0	0.00008	0.00	1349.53	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13441	13442	188202	0 - 0.08	0560819 - 0.26	0.08	2	0	0	0	0	0	0	0.0	0.00019	0.00	1495.81	0.00
Int of ABBY LN CRESTVIEW DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	71412	5095156	0 - 0.19	0560838 - 0	0.19	2	0	0	0	0	0	0	0.0	0.00002	0.00	-976.30	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60838											Statewide Crash Rate: 351.32		
18494	18495	194000	0 - 0.05	0561166 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00006	0.00	1217.38	0.00
0508914 POR,ABBY LA,CLAPBOARD RD.				RD INV 05 61166											Statewide Crash Rate: 351.32		
18495	18496	194001	0 - 0.05	0561166 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1015.72	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61166											Statewide Crash Rate: 351.32		
18496	18497	194003	0 - 0.05	0561166 - 0.10	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1015.72	0.00
0508916 POR,CLAPBOARD RD,.10 BK.ABBY				RD INV 05 61166											Statewide Crash Rate: 351.32		
18497	18498	5095094	0 - 0.05	0561166 - 0.15	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2843.86	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61166											Statewide Crash Rate: 351.32		
13430	17066	188183	0 - 0.13	0560011 - 0	0.13	2	0	0	0	0	0	0	0.0	0.00009	0.00	1455.01	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 60011											Statewide Crash Rate: 351.32		

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
13430	13431	188181	0 - 0.17	0560011 - 0.13	0.17	2	0	0	0	0	0	0	0.0	0.00010	0.00	1464.82	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 60011											Statewide Crash Rate: 351.32		
19797	19798	195401	0 - 0.26	0561241 - 0	0.26	2	0	0	0	0	0	0	0.0	0.00023	0.00	1462.68	0.00
Int of AUBURN ST GARSOE DR				RD INV 05 61241											Statewide Crash Rate: 351.32		
13446	13447	188208	0 - 0.17	0560116 - 0	0.17	2	0	0	0	0	0	0	0.0	0.00016	0.00	1514.73	0.00
Int of CARTER ST SUMMIT ST				RD INV 05 60116											Statewide Crash Rate: 351.32		
13447	13448	188210	0 - 0.01	0560116 - 0.17	0.01	2	0	0	0	0	0	0	0.0	0.00001	0.00	-	0.00
Int of BONNY ST CARTER ST				RD INV 05 60116											Statewide Crash Rate: 351.32	10785.99	
13448	18171	188212	0 - 0.15	0560116 - 0.18	0.15	2	0	0	0	0	0	0	0.0	0.00007	0.00	1291.62	0.00
Int of CARTER ST PANORAMIC VIEW ST				RD INV 05 60116											Statewide Crash Rate: 351.32		
13441	13444	5084404	0 - 0.17	0560172 - 0	0.17	2	0	0	0	0	0	0	0.0	0.00024	0.00	1454.05	0.00
Int of ABBY LN CRESTVIEW DR				RD INV 05 60172											Statewide Crash Rate: 351.32		
13444	13445	188205	0 - 0.03	0560172 - 0.17	0.03	2	0	0	0	0	0	0	0.0	0.00002	0.00	-925.05	0.00
Int of BONNY ST CRESTVIEW DR				RD INV 05 60172											Statewide Crash Rate: 351.32		
13445	18486	188207	0 - 0.12	0560172 - 0.20	0.12	2	0	0	0	0	0	0	0.0	0.00010	0.00	1458.63	0.00
0503859 POR,CRESTVIEW DR,.12 AHD ALICE				RD INV 05 60172											Statewide Crash Rate: 351.32		
13449	13451	188214	0 - 0.15	0560114 - 0	0.15	2	0	0	0	0	0	0	0.0	0.00006	0.00	1118.53	0.00
Int of ALICE ST CARON ST				RD INV 05 60114											Statewide Crash Rate: 351.32		
13451	18186	188218	0 - 0.10	0560114 - 0.15	0.10	2	0	0	0	0	0	0	0.0	0.00003	0.00	-364.08	0.00
Int of CARON ST PANORAMIC VIEW ST				RD INV 05 60114											Statewide Crash Rate: 351.32		
13452	17073	188221	0 - 0.16	0560455 - 0	0.16	2	0	0	0	0	0	0	0.0	0.00013	0.00	1514.30	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 60455											Statewide Crash Rate: 351.32		
13452	13453	188219	0 - 0.09	0560455 - 0.16	0.09	2	0	0	0	0	0	0	0.0	0.00003	0.00	-598.80	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 60455											Statewide Crash Rate: 351.32		
13452	13454	188220	0 - 0.10	0561114 - 0	0.10	2	0	0	0	0	0	0	0.0	0.00003	0.00	-603.99	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 61114											Statewide Crash Rate: 351.32		
13453	13454	188222	0 - 0.04	0561114 - 0.10	0.04	2	1	0	0	0	0	0	0.0	0.00000	95129.38	-	0.00
0503867 POR,PATRICIA LA,LONGVIEW RD.				RD INV 05 61114											Statewide Crash Rate: 351.32	32321.31	
13448	13451	5084406	0 - 0.05	0560562 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2085.47	0.00
Int of CARTER ST PANORAMIC VIEW ST				RD INV 05 60562											Statewide Crash Rate: 351.32		
13451	13452	188217	0 - 0.05	0560562 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2566.86	0.00
Int of CARON ST PANORAMIC VIEW ST				RD INV 05 60562											Statewide Crash Rate: 351.32		
13444	13447	5084405	0 - 0.06	0560066 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00002	0.00	-3507.00	0.00
Int of BONNY ST CRESTVIEW DR				RD INV 05 60066											Statewide Crash Rate: 351.32		
18495	18497	5084408	0 - 0.15	0561177 - 0	0.15	2	0	0	0	0	0	0	0.0	0.00007	0.00	1319.16	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61177											Statewide Crash Rate: 351.32		
13429	19452	188179	0 - 0.06	0561203 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00005	0.00	901.52	0.00
Int of CURTIS RD OVERSET RD				RD INV 05 61203											Statewide Crash Rate: 351.32		

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
19452	19453	195141	0 - 0.04	0561203 - 0.06	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1748.14	0.00
Int of OVERSET RD, WHITEHEAD CIR				RD INV 05 61203											Statewide Crash Rate: 351.32		
19453	19454	195143	0 - 0.09	0561215 - 0	0.09	2	0	0	0	0	0	0	0.0	0.00003	0.00	-422.78	0.00
Int of OVERSET RD WHALE BOAT RD				RD INV 05 61215											Statewide Crash Rate: 351.32		
19452	63845	2672710	0 - 0.03	0561217 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00001	0.00	-15963.47	0.00
Int of OVERSET RD, WHITEHEAD CIR				RD INV 05 61217											Statewide Crash Rate: 351.32		
63845	63845	2672712	0 - 0.05	0561217 - 0.03	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7454.27	0.00
Loop of WHITEHEAD CIR				RD INV 05 61217											Statewide Crash Rate: 351.32		
13439	17070	5080633	0 - 0.14	0560372 - 0	0.14	2	0	0	0	0	0	0	0.0	0.00011	0.00	1496.36	0.00
Int of HILLSIDE RD SUMMIT ST				RD INV 05 60372											Statewide Crash Rate: 351.32		
13436	13438	5080634	0 - 0.05	0560138 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-768.23	0.00
Int of CLAYTON ST KENNETH ST				RD INV 05 60138											Statewide Crash Rate: 351.32		
13436	13437	5080632	0 - 0.12	0560138 - 0.05	0.12	2	0	0	0	0	0	0	0.0	0.00004	0.00	758.25	0.00
Int of CLAYTON ST KENNETH ST				RD INV 05 60138											Statewide Crash Rate: 351.32		
13434	17068	5080631	0 - 0.07	0560400 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00008	0.00	1397.33	0.00
Int of JACKSON ST KENNETH ST				RD INV 05 60400											Statewide Crash Rate: 351.32		
13434	13435	188187	0 - 0.14	0560400 - 0.07	0.14	2	1	0	0	0	0	1	0.0	0.00015	2233.96	1516.44	1.47
Int of JACKSON ST KENNETH ST				RD INV 05 60400											Statewide Crash Rate: 351.32		
13434	13436	188188	0 - 0.07	0560415 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00001	0.00	-3788.09	0.00
Int of JACKSON ST KENNETH ST				RD INV 05 60415											Statewide Crash Rate: 351.32		
63847	17067	5080630	0 - 0.09	0560688 - 0	0.09	2	0	0	0	0	0	0	0.0	0.00010	0.00	1479.51	0.00
Non Int SUMMIT PARK AV				RD INV 05 60688											Statewide Crash Rate: 351.32		
63847	15389	2672735	0 - 0.13	0560688 - 0.09	0.13	2	0	0	0	0	0	0	0.0	0.00006	0.00	1127.42	0.00
Non Int SUMMIT PARK AV				RD INV 05 60688											Statewide Crash Rate: 351.32		
13432	15389	5080629	0 - 0.16	0560688 - 0.22	0.16	2	0	0	0	0	0	0	0.0	0.00010	0.00	1459.60	0.00
Int of SUMMIT PARK AV UNNAMED 62				RD INV 05 60688											Statewide Crash Rate: 351.32		
13430	13432	188182	0 - 0.05	0561120 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-3231.28	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 61120											Statewide Crash Rate: 351.32		
13432	63847	2672733	0 - 0.03	0561120 - 0.05	0.03	2	0	0	0	0	0	0	0.0	0.00003	0.00	250.13	0.00
Int of SUMMIT PARK AV UNNAMED 62				RD INV 05 61120											Statewide Crash Rate: 351.32		
13435	18501	5080635	0 - 0.08	0561167 - 0	0.08	2	0	0	0	0	0	0	0.0	0.00007	0.00	1253.71	0.00
Int of FROST HILL RD JACKSON ST SUMMIT ST				RD INV 05 61167											Statewide Crash Rate: 351.32		
18501	18502	194006	0 - 0.16	0561167 - 0.08	0.16	2	0	0	0	0	0	0	0.0	0.00008	0.00	1409.29	0.00
Int of FROST HILL RD OLD BARN LN				RD INV 05 61167											Statewide Crash Rate: 351.32		
18501	18503	194007	0 - 0.05	0561169 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-11731.96	0.00
Int of FROST HILL RD OLD BARN LN				RD INV 05 61169											Statewide Crash Rate: 351.32		
18499	18500	5080636	0 - 0.14	0561179 - 0	0.14	2	0	0	0	0	0	0	0.0	0.00006	0.00	1223.01	0.00
Int of CURTIS RD WENDY WY				RD INV 05 61179											Statewide Crash Rate: 351.32		

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
12464	12465	186819	0 - 0.06	0560695 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00001	0.00	-4093.82	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60695											Statewide Crash Rate: 351.32		
13425	13426	5080638	0 - 0.10	0560409 - 0	0.10	2	0	0	0	0	0	0	0.0	0.00004	0.00	376.37	0.00
Int of JUNIPER ST	SUMMIT ST			RD INV 05 60409											Statewide Crash Rate: 351.32		
Study Years:	3.00			**Section Totals:**	6.92		11	0	0	1	1	7	18.2	0.03004	122.05	356.73	0.34
				Grand Totals:	6.92		20	0	1	3	3	11	35.0	0.03004	221.91	471.25	0.47

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
17066	17067	3106528	0 - 0.04	0026X - 4.16	0	0	0	0	0	0				
17067	17068	3122276	0 - 0.08	0026X - 4.20	4	0	0	0	0	4	2019-1418	01/13/2019	4.24	PD
											2021-17141	07/06/2021	4.24	PD
											2021-24573	09/16/2021	4.25	PD
											2021-34736	12/10/2021	4.27	PD
13438	17068	3130462	0 - 0.09	0026X - 4.28	2	0	0	0	1	1	2019-50246	04/27/2019	4.29	C
											2021-25703	09/25/2021	4.32	PD
13438	17069	3106258	0 - 0.04	0026X - 4.37	0	0	0	0	0	0				
17069	17070	3123986	0 - 0.02	0026X - 4.41	0	0	0	0	0	0				
17070	17071	3130499	0 - 0.18	0026X - 4.43	0	0	0	0	0	0				
17071	17073	3938275	0 - 0.09	0026X - 4.61	0	0	0	0	0	0				
17073	19344	192822	0 - 0.13	0026X - 4.70	0	0	0	0	0	0				
19344	19797	3118714	0 - 0.03	0026X - 4.83	0	0	0	0	0	0				
13425	13431	188172	0 - 0.01	0560689 - 0.47	0	0	0	0	0	0				
12464	13431	186821	0 - 0.02	0560689 - 0.48	0	0	0	0	0	0				
12464	13427	186820	0 - 0.10	0560689 - 0.50	0	0	0	0	0	0				
13427	13435	188174	0 - 0.08	0560689 - 0.60	0	0	0	0	0	0				
13435	13437	188190	0 - 0.04	0560689 - 0.68	0	0	0	0	0	0				
13437	13439	188194	0 - 0.06	0560689 - 0.72	1	0	0	0	0	0	2021-26097	09/29/2021	0.73	
13439	13442	5095097	0 - 0.05	0560689 - 0.78	0	0	0	0	0	0				
13442	13446	188204	0 - 0.11	0560689 - 0.83	1	0	0	1	0	0	2021-13280	05/30/2021	0.85	B
13446	17071	5084411	0 - 0.07	0560689 - 0.94	0	0	0	0	0	0				
13427	18499	5080637	0 - 0.16	0560178 - 0	1	0	0	0	0	1	2019-3097	01/25/2019	0.05	PD
13428	18499	188178	0 - 0.09	0560178 - 0.16	0	0	0	0	0	0				
13428	13429	5084409	0 - 0.11	0560178 - 0.25	0	0	0	0	0	0				
13429	19454	188180	0 - 0.07	0560178 - 0.36	0	0	0	0	0	0				
10688	19454	5095093	0 - 0.04	0560178 - 0.43	0	0	0	0	0	0				
71412	18498	5095160	0 - 0.05	0560851 - 0	0	0	0	0	0	0				
18170	71412	5095159	0 - 0.05	0560851 - 0.05	0	0	0	0	0	0				
18170	18486	193763	0 - 0.02	0560851 - 0.10	0	0	0	0	0	0				
18171	18486	193765	0 - 0.06	0560851 - 0.12	0	0	0	0	0	0				
13449	18171	5095153	0 - 0.05	0560851 - 0.18	0	0	0	0	0	0				
13449	13450	188213	0 - 0.04	0560851 - 0.23	0	0	0	0	0	0				
13450	19798	5087298	0 - 0.14	0560851 - 0.27	0	0	0	0	0	0				
13428	18494	188177	0 - 0.05	0560819 - 0	0	0	0	0	0	0				
13440	18494	188201	0 - 0.11	0560819 - 0.05	0	0	0	0	0	0				
13440	13441	188199	0 - 0.10	0560819 - 0.16	0	0	0	0	0	0				
13441	13442	188202	0 - 0.08	0560819 - 0.26	0	0	0	0	0	0				
13440	71412	5095156	0 - 0.19	0560838 - 0	0	0	0	0	0	0				

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
18494	18495	194000	0 - 0.05	0561166 - 0	0	0	0	0	0	0				
18495	18496	194001	0 - 0.05	0561166 - 0.05	0	0	0	0	0	0				
18496	18497	194003	0 - 0.05	0561166 - 0.10	0	0	0	0	0	0				
18497	18498	5095094	0 - 0.05	0561166 - 0.15	0	0	0	0	0	0				
13430	17066	188183	0 - 0.13	0560011 - 0	0	0	0	0	0	0				
13430	13431	188181	0 - 0.17	0560011 - 0.13	0	0	0	0	0	0				
19797	19798	195401	0 - 0.26	0561241 - 0	0	0	0	0	0	0				
13446	13447	188208	0 - 0.17	0560116 - 0	0	0	0	0	0	0				
13447	13448	188210	0 - 0.01	0560116 - 0.17	0	0	0	0	0	0				
13448	18171	188212	0 - 0.15	0560116 - 0.18	0	0	0	0	0	0				
13441	13444	5084404	0 - 0.17	0560172 - 0	0	0	0	0	0	0				
13444	13445	188205	0 - 0.03	0560172 - 0.17	0	0	0	0	0	0				
13445	18486	188207	0 - 0.12	0560172 - 0.20	0	0	0	0	0	0				
13449	13451	188214	0 - 0.15	0560114 - 0	0	0	0	0	0	0				
13451	18186	188218	0 - 0.10	0560114 - 0.15	0	0	0	0	0	0				
13452	17073	188221	0 - 0.16	0560455 - 0	0	0	0	0	0	0				
13452	13453	188219	0 - 0.09	0560455 - 0.16	0	0	0	0	0	0				
13452	13454	188220	0 - 0.10	0561114 - 0	0	0	0	0	0	0				
13453	13454	188222	0 - 0.04	0561114 - 0.10	1	0	0	0	0	0	2020-30449	12/06/2020	0.13	
13448	13451	5084406	0 - 0.05	0560562 - 0	0	0	0	0	0	0				
13451	13452	188217	0 - 0.05	0560562 - 0.05	0	0	0	0	0	0				
13444	13447	5084405	0 - 0.06	0560066 - 0	0	0	0	0	0	0				
18495	18497	5084408	0 - 0.15	0561177 - 0	0	0	0	0	0	0				
13429	19452	188179	0 - 0.06	0561203 - 0	0	0	0	0	0	0				
19452	19453	195141	0 - 0.04	0561203 - 0.06	0	0	0	0	0	0				
19453	19454	195143	0 - 0.09	0561215 - 0	0	0	0	0	0	0				
19452	63845	2672710	0 - 0.03	0561217 - 0	0	0	0	0	0	0				
63845	63845	2672712	0 - 0.05	0561217 - 0.03	0	0	0	0	0	0				
13439	17070	5080633	0 - 0.14	0560372 - 0	0	0	0	0	0	0				
13436	13438	5080634	0 - 0.05	0560138 - 0	0	0	0	0	0	0				
13436	13437	5080632	0 - 0.12	0560138 - 0.05	0	0	0	0	0	0				
13434	17068	5080631	0 - 0.07	0560400 - 0	0	0	0	0	0	0				
13434	13435	188187	0 - 0.14	0560400 - 0.07	1	0	0	0	0	1	2021-16139	06/28/2021	0.14	PD
13434	13436	188188	0 - 0.07	0560415 - 0	0	0	0	0	0	0				
63847	17067	5080630	0 - 0.09	0560688 - 0	0	0	0	0	0	0				
63847	15389	2672735	0 - 0.13	0560688 - 0.09	0	0	0	0	0	0				
13432	15389	5080629	0 - 0.16	0560688 - 0.22	0	0	0	0	0	0				
13430	13432	188182	0 - 0.05	0561120 - 0	0	0	0	0	0	0				
13432	63847	2672733	0 - 0.03	0561120 - 0.05	0	0	0	0	0	0				
13435	18501	5080635	0 - 0.08	0561167 - 0	0	0	0	0	0	0				

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
18501	18502	194006	0 - 0.16	0561167 - 0.08	0	0	0	0	0	0				
18501	18503	194007	0 - 0.05	0561169 - 0	0	0	0	0	0	0				
18499	18500	5080636	0 - 0.14	0561179 - 0	0	0	0	0	0	0				
12464	12465	186819	0 - 0.06	0560695 - 0	0	0	0	0	0	0				
13425	13426	5080638	0 - 0.10	0560409 - 0	0	0	0	0	0	0				
				Totals:	11	0	0	1	1	7				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day	PM											
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	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3
MONDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	4
Totals	0	0	0	0	0	0	0	2	1	0	2	2	4	1	0	3	2	0	1	0	0	1	0	1	0	**20**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	19
2-(Sport) Utility Vehicle	6
3-Passenger Van	1
4-Cargo Van (10K lbs or Less)	0
5-Pickup	8
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	1
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)	2
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	2
25-Other	2
26-Construction	0
27-Farm Vehicle	0
Total	**41**

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	1	14	2	1	0	0	18
Ran Off Roadway	3	0	0	0	0	0	3
Failed to Yield Right-of-Way	6	0	0	0	0	0	6
Ran Red Light	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0
Improper Turn	2	0	0	0	0	0	2
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	3	0	0	0	0	0	3
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	2	0	0	0	0	0	2
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	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	**18**	**14**	**2**	**1**	**0**	**0**	**35**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	16	14	2	1	0	0	33
Physically Impaired	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	1	0	0	0	0	0	1
Other	1	0	0	0	0	0	1
Total	**18**	**14**	**2**	**1**	**0**	**0**	**35**

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	4	0	0	0	0	4
20-24	7	0	0	0	0	7
25-29	4	0	0	0	0	4
30-39	6	0	0	0	0	6
40-49	8	0	0	0	0	8
50-59	3	0	0	0	0	3
60-69	5	0	0	0	0	5
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	2	0	0	0	0	2
Total	**39**	**0**	**0**	**0**	**0**	**39**

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.)	2
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**37**
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	35		
14-Parked Motor Vehicle	0		
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		

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	1
5-Stop Signs - Other	5
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	0
13-None	13
14-Other	1
Total	**20**

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	3	3
C	3	4
PD	11	0
Total	**18**	**8**

Road Character

Road Grade	Total
1-Level	16
2-On Grade	2
3-Top of Hill	1
4-Bottom of Hill	1
5-Other	0
Total	**20**

Light

Light Condition	Total
1-Daylight	15
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	4
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**20**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	Total
JANUARY	3	0	1	4
FEBRUARY	0	1	0	1
MARCH	0	0	0	0
APRIL	2	0	0	2
MAY	0	1	1	2
JUNE	1	0	1	2
JULY	0	0	1	1
AUGUST	0	0	0	0
SEPTEMBER	0	0	3	3
OCTOBER	0	0	0	0
NOVEMBER	0	1	1	2
DECEMBER	1	1	1	3
Total	**7**	**4**	**9**	**20**

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	4	2	0	2	0	1	0	0	0	0	0	0	0	0	9
Head-on - Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Intersection Movement	0	0	5	0	0	1	0	0	0	0	0	0	0	0	6
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	1	0	1	1	0	1	0	0	0	0	0	0	0	0	4
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	**6**	**2**	**6**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**

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	2	0	0	0	0	0	0	0	0	0	0	2
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	6	1	0	0	0	0	0	0	0	0	2	9
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
Cloudy												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
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	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	2	2
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	1	1
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	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
TOTAL	**12**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**20**

Barton & Loguidice

Traffic Assessment –Speed Study

Date: 8/25/2023

To: Jon Whitten, Jr., P.E., Project Manager
Haley Ward

From: Jacob Sirois, E.I.
Engineer 1
Barton & Loguidice, LLC.

John Q. Adams, P.E., PTOE
Associate, Senior Transportation Engineer
Barton & Loguidice, LLC.

Re: **Speed Study**, **Hope Avenue Residential Multi-Family Subdivision**
Hope Avenue, Portland, Maine

~~~
~~~

Garsoe Drive

Garsoe Drive is a residential street with single family homes along both sides. The roadway is approximately 24 ft. wide, with a cross-section generally comprised of a curbed roadway, esplanades and sidewalk on both sides of the road with street lights and street trees. Based on our observations, the context of this roadway provides traffic calming and prevailing speeds were generally at or below the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 1 below.

Table 1 - Garsoe Drive Speed Data Results

Speed Limit	Northbound	Southbound
Average	17.7	21.0
85th Percentile	20.5	25.8

The data indicates that both the Average and 85th Percentile Speeds were generally at or below the posted speed limit of 25mph. In the northbound direction the average speed was 17.7 mph and 85th was 20.5 mph, and the southbound average speed was 21.0 mph and the 85th was 25.8 mph. Based on these results motorists were generally adhering to or driving below the posted speed limit.

Hope Avenue

Hope Avenue is a residential street with single family home along both sides. The roadway is approximately 24 ft. wide, with a cross-section generally comprised of a curbed roadway, esplanades and sidewalk on both sides of the road with street lights and street trees. The context of this roadway provides traffic calming and generally does not seem to encourage higher speeds above the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 2 below.

Table 2 - Hope Ave Speed Data Results

Speed Limit	Eastbound	Westbound
Average	17.5	22.0
85th Percentile	17.9	27.6

The data indicates that both the Average and 85th Percentile Speeds were generally near or below the posted speed limit of 25 mph. In the eastbound direction the average speed was 17.5 mph and the 85th was 17.9 mph, and the westbound average speed was 22.0 mph and the 85th was 27.6 mph. Based on these results motorists were generally adhering to or driving below the posted speed limit.

Curtis Street

Curtis Street is a residential street with single family homes along both sides and a posted speed of 25 mph. The roadway is wider than either Hope Avenue or Garsoe Drive, but does have on-street parking which takes up some of the roadway width. Based on our observations, the roadway has three different widths as you traverse from Summit Street northerly to Hope Avenue, a distance of about 2,800 ft. See descriptions below:

Southerly Section (Summit Street to Abby Street) - roadway approximately 28 ft. wide, no curbing, but esplanades, sidewalks, and street trees on both sides, with on-street parking. There is an all-way stop at the intersection of Abby Street and Curtis Street, which tends to slow traffic.

Middle Section (Abby Street to south of Overset Street) – roadway approximately 36-37 ft. wide, no curbing, but esplanades, sidewalks, and street trees, with on-street parking.

Northerly Section (Overset Street to Hope Ave) – roadway approximately 32 ft. wide, curbed roadway with esplanades, sidewalks, street trees, street lights on both sides of street, with on-street parking.

The context of this roadway provides some traffic calming and has prevailing speeds near the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 2 below.

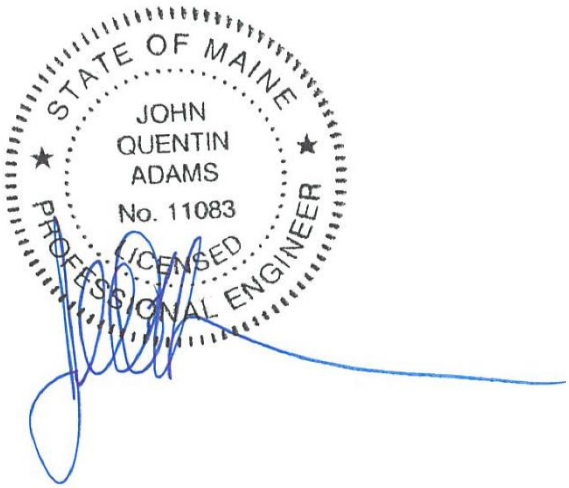
Table 3 – Curtis Street Speed Study Results

Speed Limit	Northbound	Southbound
Average	24.6	24.0
85th Percentile	27.0	28.5

The data indicates that both the Average and 85th Percentile Speeds were generally near or below the posted speed limit of 25mph. In the northbound direction the average speed was 24.6 mph and 85th was 27.0 mph, and in the southbound direction the average was 24.0 mph and 85th was 28.6 mph. Based on these results motorists were generally driving at or near the posted speed limit.

Summary

The speed data collected on Garsoe Drive, Hope Avenue and Curtis Street indicates that there does not seem to be a significant issue with motorists driving at excessive speeds. Generally, the average speeds recorded on the three roads were below the posted speed limit of 25 mph, and the recorded 85th percentile speeds were below or only 2 to 3 miles above the speed limit. It is typical of many speed studies to see average speeds that are 5 mph over the posted speed limit and 85th percentile speeds that are 10 to 15 mph over the speed limit. Based on the results of this speed study, it does not appear that additional traffic calming elements are required at this time.



John Q. Adams, PE, PTOE, Date: 08/25/2023

APPENDIX

Speed Study Data for Garsoe Dr, Hope Ave, and Curtis St

Study done by:	Street		Speed Limit	Location Description
JTasse	**Garsoe Dr,** on straight section		**25**	similar to Hope, narrow, 25' curved
DATE	between curves as marked on map			
7/27/23	NORTHBOUND	SOUTHBOUND		very few cars observed
Time	15	20		
5:30-6	20	15		4 Different residents mentioned a speed problem on Summit,
	13	25		
	18	18		
	15	27		
	25			
	18			

Study done by:	Street	City/Town	Speed Limit	Location Description
J Tasse	**Hope Ave**	**Portland**	**25**	
DATE				
7/27/23	East BOUND	West BOUND		very few vehicles observed on street
Time	17	14		much narrower street (25'?) curved
4:55-5:30	18	30		
		22		
				residents thanked me for doing speed study;

Study done by:	Street		Speed Limit	Location Description
JTasse	**Curtis St,** just north of Wendy Lane.		**25**	Wide residential street 30+ feet?
DATE				
7/27/23	NORTHBOUND	SOUTHBOUND		
Time	26	22		
4:15-4:50	29	23		
	21	24		
	24	23	3 residents thanked me for doing speed study; claimed	
	24	23		
	27	17		
	27	25		
	27	22		
	27	23		
	24	30		
	23	24		
	26	19		
	30	29		
	24	29		
	20	24		
	18	27		
	22			
	24			
	24			
	23			
	28			
	23			
	25			
	25			
	23			
	25			
	25			
	25			
	25			

Jon Whitten, Jr.

From: Drew Olehowski
Sent: Friday, August 18, 2023 12:00 PM
To: Jon Whitten, Jr.
Subject: FW: Presumpscot Woods Development
Attachments: image003.jpg

Fyi.

Drew Olehowski, PE
Civil Engineer
t: 207.283.9151
This e-mail may be confidential and is intended solely for the use of the individual to whom it is addressed. Any views or opinions expressed are solely those of the author ar HaleyWard, Inc. If you are not the intended recipient (or responsible for delivery of the message to such person),you may not use, copy, distribute or deliver to anyone this action in reliance on it. In such case, you should delete this message, and notify us immediately at 207 989 4824 or by email bangor@haleyward.com.

From: Mike Tremblay <mtremblay@gpmetro.org>
Sent: Friday, August 18, 2023 11:58 AM
To: Drew Olehowski <dolehowski@haleyward.com>
Subject: Re: Presumpscot Woods Development

You don't often get email from mtremblay@gpmetro.org. Learn why this is important

Good morning Drew,

Thank you for reaching out.

Auburn St. is served by Metro's Route 9, which, as of next Sunday, will run every 30 minutes Monday thru Saturday and every 60 minutes on Sunday. Auburn/Garsoe is part of a spur that serves West Falmouth, and is only served by select Route 9B trips, about once per hour (every trip on weekends) That joins up with the more regular service south of Washington St. Ext.

While transit will certainly be an option for residents of this development, it should be noted that the subdivision will be about 1/2 mile away from the closest bus stop. We typically consider a residence to be transit-accessible if it is within a 1/4 mile walk to a fixed transit route, though folks' individual mobility needs and choices would certainly make a walk to Auburn at Garsoe possible.

The stop that residents would most likely use to wait for the bus going inbound to Portland is Stop #675, which is on the opposite side of Auburn Street, with no crosswalk or accessible features at that stop. Improvements at this location would make transit use by residents of this area more feasible. Those elements, if pursued, would need to be designed in coordination with DPW.

Please let me know if you need anything else.

Thanks,
Mike

--

Mike Tremblay, P.E. *(he, him, his)*

Director of Transit Development

Greater Portland Metro

114 Valley Street | Portland, ME 04102

Office: 207.517.3023 | Mobile: 508.451.0208

e-mail: mtremblay@gpmetro.org | website: www.gpmetro.org



On Fri, Aug 18, 2023 at 9:53 AM 'Drew Olehowski' via Information Desk <info@gpmetro.org> wrote:

> Good morning,
>
> Haley Ward is currently assisting with the design of a new 60-unit subdivision to be located off Hope Avenue. As a part of the City's review process, they have requested we reach out to you for comment regarding potential improvements to the bus route to provide more consistent bus routes to this area. The nearest bus stops to this development are located at Auburn St/Garsoe Dr.
>
> Thank you,

HALEY WARD

AN EMPLOYEE-OWNED COMPANY

Drew Olehowski, PE
Civil Engineer
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Presumpscot Woods
0 Hope Ave., Portland, Maine
Geotechnical Report

A geotechnical report has not been provided for this development. The project area is currently forested and undeveloped, and the proposed structure foundations will not be placed on fill material. A medium intensity soils map is included in the application for review.

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July 7, 2023

Charles Tetelman, Planner
City of Portland Planning & Urban Development Dept.
389 Congress St.
Portland, ME 04101
ctetelman@portlandmaine.gov

Re: Response to Review Comments (PL-002454-2023) | Presumpscot Woods Subdivision | 0 Hope Ave., Portland, ME

Charles,
On behalf of the applicant, GenX Capital Partners, we present the following response to review comments from various departments within the City of Portland. The review comments from your June 2, 2023, last revised June 16, 2023 are presented below in BOLD, followed by our responses in BLUE. Updated and newly created plans and documents will soon be uploaded on the City's portals for further review and comment.

NEW COMMENTS FROM DPW WATER RESOURCES:

1. DPW has determined there is not sufficient capacity in the existing sewer system to accept flows from the proposed development project. Both City owned and operated pump stations in the area at Hope Avenue and Curtis Road are both currently at capacity. This information was previously conveyed to the applicant team by DPW during a meeting conducted in March of 2023. During that meeting, **DPW directed the developer to review the "2016 Curtis Road Pump Station Upgrade Alternatives" report to review** potential options, identify a possible solution and present it to DPW for review. DPW also requested that the developer provide the department proposed project wastewater flows. The applicant has not yet submitted any additional information to DPW for review since the March 2023 meeting.

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The Applicant is currently working with Haley Ward on a proposed solution for the wastewater capacity issue. It is expected that significant infrastructure upgrades on Hope Avenue and the surrounding area will be necessary to accommodate the proposed development. It is expected that the offsite upgrades will be designed simultaneously with the City's review of this project.

2. The Applicant makes a statement in the site plan documents that "the existing Hope Avenue pump station does not have capacity to accept wastewater from **the proposed development during peak hours". For clarity, DPW has determined** and previously Communicated to the applicant that both the Hope Avenue and Curtis Road pump stations do not have average daily flow or peak hour design capacity to serve the proposed development.

   Understood.

3. The Applicant shall clarify the proposed private force main size and revise the Connection to the Hope Avenue sewer in accordance with technical manual standard 2.5.1 or 2.5.2 The proposed Connection is Contingent on DPW granting the applicant wastewater capacity approval.

   The proposed wastewater infrastructure has not been finalized. This design will progress simultaneously with the City's review of this application.

4. It appears that in order to Complete Construction of some of the lots and the drainage infrastructure, work will be required outside the boundaries and on City property with a Land Bank designation and with conservation easements. The applicant needs to Clearly show their construction and impact envelope and cannot assume they will be able to obtain access/temporary impact easements offsite. This will need to be addressed, since most conservation easements do not provide for temporary access and construction easements.

   No proposed grading or erosion control features are shown outside of the property boundaries. Therefore, it is expected that the construction footprint will be within the property boundaries as well and there will be no need for temporary easements on adjacent properties.

5. The Land Bank Commission may need to review any proposed temporary impact easements on Land Bank designated property.

   We do not foresee the need for any temporary impact easements.

6. Stormwater discharges from the proposed wet ponds and other proposed green infrastructure systems into the existing drainage channels/streams on the steep slopes leading to the river will likely result in significant erosion impacts and potential impacts to the conservation area and trail network without a thoughtful and robust outlet protection design for each outfall. DPW has observed significant erosion at existing stormwater discharge points associated with previous development in this area. The terrain downstream of the project area is steep and the soils are known to be thin to bedrock and highly erodible.

   It is noted that pre- and post-development hydrology models have been prepared which demonstrate that there is no increase in stormwater discharge rates at this site's summation points (see Stormwater Report.) Additional outfall controls, such as level spreaders or plunge pools, will be provided to better protect the downstream areas adjacent to the outlet points of the proposed stormwater management features.

7. City of Portland Technical manual standard 8.2.1 requires the establishment of a 100' **buffer setback for development adjacent to** perennial! streams. The applicant shall plot this setback requirement for the stream which runs through the site on sheets C704 and C103 and revise the design to meet this setback requirement.

   We have shown the 100-foot setback from the edge of the stream as recommended. We have minimized the development areas within the 100-foot setback, with the only direct impact to the stream/wetland area being the stream crossing for the access roadway. Other wetland impacts will be permitted under the NRPA permitting process through Maine Department of Environmental Protection (MDEP).

GENERAL

1. Required documents for Design Review:
   a. Landscape Plan with Proposed Plantings, recreation, and open space areas
   b. Architectural Renderings and Floor Plans for the two-family housing types
   c. Proposed Exterior Facade Materials throughout the proposed development.

   These items were provided to Charles Tetelman and uploaded to the portal(s) on June 16, 2023.

2. City Staff (DPW mostly) met with applicant team in March 2023, and it was determined that the City does not have wastewater Capacity to serve this development without significant **upgrades to the City's sewer system in this area.**

The applicant partially acknowledges the Capacity issue in the site plan submission documents. City Staff have not heard back from the applicant since the original meeting back in March 2023. Additionally, it does not appear that the Applicant has formally submitted a wastewater Capacity Application as part of the preliminary site plan submission. City Staff are still working to determine if impact fees could be eliminated or reduce to offset potential infrastructure upgrade costs. Additional DPW Water Resources are to come.

See the responses to DPW comments, above.

ZONING

1. In a PRUD the net land area per dwelling unit needs to be determined. Wet land area is defined in section 7.2 as: The land area arrived at by subtracting from lot area the square footage of the following: a) areas of special flood hazard; b) existing watercourses measured by the area between the top of the banks at the normal high-water mark; c) wetlands; and d) slopes of 25% or greater. Where a slope 25% or greater was altered to less than 25% within the two years immediately preceding a development proposal, such slope shall also be subtracted from the lot area. The applicant needs to provide the calculation for the net land area to determine what the proposed net land area is for the 6o units.

   It is our understanding that the minimum net land area per dwelling unit (SF/DU) for a PRUD development, within the R3 Zone, is 6,500 SF/DU. We have added a Net Land Area Table to the Site Plan drawing which depicts the calculations for Net Land Area. The table shows the calculations result in just over 6,800 SF/DU, which is above the minimum standard.

2. The Zoning Analysis states that there is 900 sf of common recreation open space per unit. Footnote 2 under Table 7-B states: Common open space shall be designated on the site. The primary purposes of such open space areas shall be for passive or active recreation. Such spaces may include natural, landscaped or hardscaped elements. At a minimum, a contiguous area of 6,000 SF shall be provided. They show a bubbled continuous area labeled open/recreation space **on the proposed subdivision plan, but they don't indicate the sq**uare footage. They need a minimum of 18,000 sf of common recreation open space.

   The "bubbled continuous area" on the plans is not intended to depict open space, per say. The bubbled line type on the design plans indicate a rough, proposed tree line. Common Open Space for the development includes all areas outside of the Limited Common Elements that are to be associated with each dwelling unit. In other words, all roadways, sidewalks, lawn areas,

forested/wooded areas, walking trails, etc. are considered common open space within the development. The undeveloped/landscaped area at the center of the development represents well over 50,000 SF of open space that is available for passive recreation, including walking trails.

3. Under design standards on the subdivision plan the applicant states that the building height will be 25'. **Please submit any elevations for the trip**lexes and duplexes?

   The applicant has supplied a building elevation plan for the triplex building type. Since the triplex is a duplex with a smaller unit in the middle, this elevation represents the duplex building type as well. The maximum size of any unit will be the "market rate unit" type. The duplex buildings will include two "market rate units" adjacent to each other and the Triplex building type will add a "smaller rate unit" in between the "market rate units".

TRANSPORTATION

1. The applicant should consider adding a sidewalk to the end of the cul-de-sac. Crosswalks shall also be provided for roadway crossings.

   We are adding a sidewalk up the north side of the roadway leading to the cul-de-sac. A crosswalk will be added as well.

2. The applicant shall conduct a traffic calming study on the abutting neighborhood streets that will provide access to the development. This study shall document existing vehicle speed conditions and identify strategies to address potential problems.

   John Adams, PE with Barton & Loguidice, the project's transportation engineer, will arrange for an existing speed condition study within the neighborhood and identify strategies to address any potential problems. They will coordinate with the City Traffic Engineer for better definition of "abutting neighborhood streets"

3. The applicant shall conduct an evaluation of pedestrian facilities documenting adequate accessibility from the site to the nearest Metro transit stop.

   According to online information, the closest Metro Bus Stop(s) is located at the intersection of Auburn Street and Garsoe Drive. There are existing, paved, public sidewalks along both sides of Garsoe Dr., Alice St., and Hope Ave. allowing contiguous pedestrian access from the proposed development to the Metro Bus Stop(s).

4. The third-Party Traffic Consultant has determined that the traffic from the proposed development will not create unacceptable mobility problems.

   Understood.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

1. Please submit a Stormwater Management Report.

   A Stormwater Management Report was uploaded to the portal(s) as part of our initial application.

2. Please provide copies of the Site-Location of Development Permit.

   The applicant is seeking congruent review of the Site Plan/Subdivision Application and the SLODA Application by the City of Portland, through their Delegated Review Authority. We have uploaded the SLODA application to the portals for review.

3. Provide documentation to illustrate that sufficient site distance exists from the development looking towards Hope Avenue.

   We have added the minimum stopping sight distances to the design plans.

4. **The City's Technical Manual has been recently updated and** approved. After reviewing the proposed details for this project, it is clear that you are using the outdated details. The applicant shall update at! proposed details (Site, Sewer, Stormwater, Landscape, ... details) to meet the requirements of the recently approved technical! manual update. CAD files can be obtained upon request.

   We are currently updating the design plans to include the recently updated details from the City's Technical Manual, as requested.

5. The applicant shall create a 20-scale plan depicting and labeling all improvements in the ROW. Improvements and existing conditions in the ROW shall be dimensions on the plan view sheets. For example ROW, street, lanes sidewalk, esplanade driveways (and other improvements) widths as well as when a width changes.

   The proposed improvements within a ROW are limited to the proposed intersection of the private driveway with Hope Avenue. We will provide a 20-scale drawing exhibit for that portion of the project.

6. The applicant shall update the plans to label and or provide spot grades and slopes for the proposed sidewalks and driveway improvements at grade breaks.

   The 20-scale drawing exhibit includes spot grades indicating that the sidewalks within the public ROW will not exceed 2% slope.

7. The proposed bituminous sidewalk cross slope shall not exceed 2% at the property line. If the existing sidewalk grades are not compliant at the property line, then the limits of sidewalk replacement shall be extended to include a 5 foot minimum transition zone from the proposed 2% to the existing sidewalk slope.

   The 20-scale drawing exhibit includes spot grades indicating that the sidewalks within the public ROW will not exceed 2% slope. All other driveways and sidewalks are private.

8. If the existing Granite Curb will be reset the applicant shall insure that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation during construction.

   The removal, installation, and/or resetting of granite curbing will be limited to the proposed intersection of the private driveway with Hope Avenue. The applicant is aware of the requirements stated above.

9. On the site plan note the location of the curb that will be removed and reset per the current City standards.

   This will be indicated on the 20-scale drawing exhibit.

10. **It is the City's standard to have the sidewalk material continued through the** driveway aprons at grade with the proposed sidewalk and not in excess of 2% cross-slope. The applicant shall depict the proposed sidewalk and driveway on the plans to meet the current City standards. The sidewalk and driveway shall be **constructed in accordance with the City's Sidewalk and Driveway Apron** Material Policy and the granite curb installed per the current City standards. The applicant shall update the plans and provide spot grades and slopes for the proposed sidewalk. The sidewalk material shall be continued through the driveway aprons at grade with the proposed sidewalk and not in excess of 2% cross-slope per the current City standards.

    We are aware of these requirements. The existing and proposed sidewalks are all bituminous pavement material. The existing and proposed roadways/driveways are bituminous pavement as well. We have included the driveway apron detail as required.

11. Consolidate proposed service trenches to have one final trench repair. All pavement cuts in the City ROW shall be repaired per the Minor Excavation Pavement Repair Details (prior to paving the finished surface) found in the Rules and Regulations for Excavation Activity.

    We will limit the trench repair area as much as possible and the applicant is aware of the requirements to repair the trench within the ROW.

PUBLIC SAFETY

1. Additional hydrants will be required.

    We look forward to finalizing the number and location of fire hydrants as the review process continues.

LANDSCAPING & ENVIRONMENTAL QUALITY

1. Based on the proposed grading, it appears that the Sebago-to-Sea Trail will be impacted by adjacent fill at the back of unit 08. Depending on whether the trail is actually disrupted by earthwork, it may need repair and/or a temporary detour during construction.

   The Sebago-to-Sea trail is not expected to be significantly impacted by the construction of the project. The applicant does intend to connect a new walking trail to the existing trail in the northwestern corner of the project. No changes in elevation are expected and actual disturbance of the existing trail will be minimized as much as possible.

2. Please provide clarity to the terms and conditions of the Portland Water District **Easement that overlaps a corner of the proposed development's parcel. The** Sebago-to-Sea Trail falls within this easement. Does the easement allow regrading within it? Has there been any coordination with Portland Trails about possible trail impacts and the proposed trail connection that the developer is making? If not, there should be some coordination between Parks, Portland Trails, and the applicant to discuss trail impacts, possible need for a temporary trail detour and **the trail connection that's proposed.**

   We look forward to coordinating the applicant's desired connection to the Sebago-to-Sea trail with Parks and Portland Trails soon. The construction of the development is not expected to restrict access to the existing trails, apart from the actual connection point. The construction for this connection will be very limited in scale and duration. The contractor will be required to provide safe access around the construction activity and timing will need to be coordinated with Parks and Portland Trails.

3. The survey does not identify existing trees, DBH and species present on site. It is understood that the extent of tree canopy and tree removal is very extensive. The technical manual Section 4.3.1 provides for this **Condition: "For sites with a high** density of existing trees, the survey shall identify all existing shade and ornamental trees that may have been part of a prior landscape scheme for the site and the location, average size and species of groves of trees, and individual trees greater than 1**6" DBH." The applicant should use the tree replacement rates noted in the** technical manual.

   We will work with the project's Surveyor and Landscape Architect to be sure we are meeting the City's requirements for tree coverage/plantings.

4. The applicant should keep in mind Chapter 14 Land Use Code requirements Landscape Preservation, Site Landscaping and Buffers, and Street Trees. The Landscape Preservation requirements are as follows: "All development subject to zoning setbacks shall preserve a minimum 30% of existing trees 10 inches DBH or greater within the required setback area unless trees are non-native invasive species, as identified in the landscaping and landscape preservation standards of the Technical Manual, or are deemed unsalvageable by the Portland City Arborist or their designee.
    a. Waiver Language Example:
    "Where the applicant can demonstrate that preservation of existing vegetation would compromise development of the site, the review authority may permit the substitution of landscaping in other areas of the site as described in Table 14-D and/or a financial! contribution to the City of Portland Tree Fund for an amount proportionate to the cost of trees removed. Replacement trees shall be of a species identified on the City of Portland recommended Tree List as described in the landscaping and landscape preservation standards of the Technical Manual. Where the planting of replacement trees on the site is not feasible, the applicant shall Contribute an amount proportionate to the Cost of required replacement trees to the City of Portland Tree Fund, as described in the Landscaping and Landscape preservation standards of the Technical **Manual."**

We will work with the project's Surveyor and Landscape Architect to be sure we are meeting the City's requirements for tree coverage/plantings.

5. The site plan does not show proposed street trees or plant material. Consequently, it is not possible to evaluate whether and how the applicant is meeting street tree requirements. The applicant shall provide a planting plan/landscape plan which identifies street trees and other proposed plant material by location, size and species/caliper.

The Landscape Plans that have been updated to the portal(s) show the location, size and species/caliper to all proposed plantings.

Thank you for your continued review of this project. We look forward to talking through things in more detail at a Planning Board Workshop meeting in the near future. Please let us know if you have any further questions in the meantime.

Sincerely,
HALEY WARD, INC.



Jon H. Whitten, Jr., PE
Senior Project Manager

Enc.

JHW

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MEMO

To: City of Portland | Planning & Urban Development Department

From: Jon Whitten, Jr., PE

Re: 1 Hope Avenue Development (Presumpscot Woods) | Response to Design Review Memo | PL-002454-2023

Date: August 29, 2023

Haley Ward, Inc. (Haley Ward) has prepared this memo in response to comments within the **City's Design Review Memo**, dated July 24, 2023, and submitted to us via email on August 9, 2023. Review Comments and Recommendations are in Bold, followed by our responses.

STANDARD (1) A. DESIGN RELATIONSHIP TO THE SITE

The proposed placement, orientation and arrangement of buildings types (Duplex and Triplex units) seek to minimize disturbance to the site's natural features, significant wetlands and forested areas. The development plan preserves wetlands within the center of the site for passive recreation use with the preservation of existing trees and includes drainage facilities towards the perimeter of the development area that staff finds appropriate. The proposed internal vehicular circulation includes a single vehicular access drive that loops around with individual driveways for each dwelling unit, staff finds the organization of streets is a response to natural features and topography. Staff finds a variety of driveway lengths that prioritize stacked parked cars over the location of buildings within closer proximity to the proposed streets, and recommends the applicant clarify the intent of this site layout.

Part of our initial design criteria for the positioning of buildings was to have a driveway that was approximately 20 feet from the edge of roadway, or edge of sidewalk, to allow a single vehicle parking spot outside each garage. This distance would help to ensure that no vehicles were encroaching on the 20-foot wide accessway, as that width is mandated for emergency access, and it would limit encroachment of vehicles on the

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sidewalk. As the design progressed it was obvious that some buildings would need to be located further away from the edge of roadway to maintain the minimum separation distance between buildings. At no point was the length of the driveway driven by the desire to park more than one vehicle between the road/sidewalk and the garage.

STANDARD (1) B. INTERNAL DESIGN CHARACTER AND RELATIONSHIP TO THE SURROUNDING NEIGHBORHOOD

Context: The surrounding neighborhood is dominated by single-family residences organized on similar lot sizes that connect to the public street network. The proposed development and multi-family buildings exhibit a cohesive design character and site connectivity to Hope Lane, which is a small neighborhood street. The site context is a wooded forest with existing wetlands, the applicant has proposed a native plant palette that generally transitions the development site into the existing vegetation to remain and forested edges of the property abutting the City of Portland public property.

Architectural character: The surrounding neighborhood context of single-family residences includes traditional lap siding with attached garages and simple roof forms. The architectural character of the proposed building types (Duplex and Triplex) appears to include variations of vinyl siding material at entrances, living spaces and roof eaves. The proposed 2-story building types include shared entrance canopies and window fenestration patterns oriented toward primary circulation routes. The applicant shall submit elevations around the perimeter (front, side and rear) of proposed building types with material selection labeled for staff review.

The applicant has provided/submitted general elevation renderings and a list of interior and exterior finishes based on the modular home packages that they have chosen to utilize for this project. Additionally, the applicant is currently awaiting delivery of the project specific architectural plans for the actual duplex and triplex configurations that are proposed. We will submit the new architectural plans with elevations as soon as they become available to us.

Pedestrian circulation: The proposed pedestrian circulation prioritizes sidewalks in several locations throughout the development but also does not propose sidewalks along many frontages which would require residents to traverse roadways to access pedestrian pathways internal to the site. Staff finds the distribution of sidewalks for residences to be inadequate and the applicant shall provide additional sidewalks as necessary with the intent to preserve existing vegetation to the greatest extent possible and promote greater walkability.

The project is being designed and permitted as a Planned Residential Unit Development (PRUD) project; therefore, the roadway and sidewalks are to be privately owned and maintained and are not required to meet the design criteria for public roadways. The private roadway is 20 feet wide, has limited, but dedicated on-

street parking spaces, and will host a limited number of vehicles per day. Given these factors, it is expected that pedestrians needing to cross the roadway will experience limited resistance from vehicle traffic. The choice to include a single sidewalk for much of the roadway length was a conscious choice to limit impervious area and still provide a dedicated pedestrian pathway within a short distance from any driveway.

STABDARD (1) C. RECREATION AND OPEN SPACE

1. *External buffers: An effective and permanent screening from neighboring properties and roadways;*

   The proposed development intends to minimize existing vegetation clearing to preserve trees and natural features at the property edges. Staff finds the proposed street trees promote a welcoming buffer into the private property. Staff finds the clearing of vegetation adjacent to the City of Portland's property, known as Presumpscot River Preserve, and the location of development to not be adequately screened and recommends the applicant restrict grading within the trail easement to reduce the amount of existing tree clearing. Staff finds the conservation wildlife mix to be appropriate adjacent to natural features and recommends slope stabilization on slopes greater than 3:1 slope.

   We have limited the disturbance area within the Portland Water District Easement that crosses the southwest corner of the project site. Disturbance is limited to allow for the construction of the nearest building and a new connection to the *Sebago to the Sea Trail* trail, within the easement.

2. *Internal buffers: Areas planted, maintained and located in such a manner as to provide privacy between units and buildings and paved areas and screening of parking, utilities, roadways, waste collection facilities and storage facilities;*

   The proposed development has indicated internal buffers through shade and ornamental trees located within proximity to each dwelling unit and parking. In addition, planted screening adjacent to existing vegetation and walking trail buffer dwelling units that staff finds meet this design standard.

   No response required.

3. *Passive recreational open space: Open spaces, designated and improved with such features as gardens, picnic areas, walking trails; benches and lawn and seating areas;*

   The proposed development has indicated proposed walking trails located at the center of the development and a trail connection to the existing Presumpscot River Preserve. Staff finds the proposed play and/or fitness features complement the proposed passive recreational use. Staff finds the location of snow storage over proposed trails to obstruct and recommends the applicant relocate snow storage appropriately to allow for year-

long trail access. Staff finds that additional trail connections at the north would allow for an increase in recreational use to contribute to the overall development of open space as required per *Land Use Code Table 7-B.*

We will modify the areas designated as snow storage to best fit the need for year-round access to the internal walking trails. We are currently working with the applicant and Portland Trails to choose the best location for new connection(s) to the existing *Sebago to the Sea Trail* trail.

4. *Active recreational open space: Open spaces designated and improved for active recreational use with facilities such as tennis courts, basketball courts, multipurpose game fields, swimming pools, and children's playgrounds; and*

The proposed development has indicated play and/or fitness features to be placed along trail, staff finds that these open space elements contribute more to the passive recreational. Staff requests the applicant provide additional details of proposed recreational elements, size and an open space diagram to indicate the proposed open space as required per *Land Use Code Table 7-B.*

Regina Leonard, RLS, the project's Landscape Architect, has created an Open Space Plan to better depict the size and location of open space and recreational features, as requested.

5. *Private open spaces: Open spaces designated for the individualized use of unit owners such as yards, decks, and patios;*

The proposed development has indicated private decks at the rear of each dwelling unit, yard space and ornamental tree plantings that staff finds meets this design standard. Staff recommends additional screening (e.g. shrubs, vegetated trellises) to partition private decks from adjacent units and requests the applicant label all recreation and open space on the overall landscape plan.

The Landscape Plans have been updated, as requested.

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MEMO

To: City of Portland | Planning & Urban Development Department

From: Jon Whitten, Jr., PE

Re: 1 Hope Avenue Development | Review Comments Round II
PL-002454-2023

Date: August 29, 2023

Haley Ward, Inc. (Haley Ward) has prepared this memo in response to comments within the City's **Review Comments Round II** letter, dated August 3, 2023, and submitted to us via email on August 9, 2023. Review Comments and Recommendations are in Bold, followed by our responses.

GENERAL REVIEW COMMENTS

DESIGN REVIEW

Design review comments are in the design review memo.
We have prepared a separate response memo for the comments included in the Design Review Memo from the City.

ZONING

- **Zoning still requires building elevations to confirm the heights of the structures.**
  General building elevations with dimensions have been submitted for review. The applicant is currently awaiting more specific architectural plans. See more on this within our response to the City's Design Review Memo.

- **Based on other comments, Zoning staff will continue to review the common open space requirement. Roadways and sidewalks are not considered common open space elements. However, the undeveloped/landscaped internal area does satisfy the 18,000 sq. ft. of common open space required and the required contiguous area of 6,000 sq. ft.**

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Additional information regarding open space and recreational space has been added to the Landscape Plans. Please see our responses to the City's Design Review Memo and RSLLA's responses to the landscaping comments within this memo.

EPLAN/PROJECT DOX

Please be sure to maintain the file naming conventions. Adding 'v2' to the documents just creates more files. If you keep the same file name, Project Dox tracks the files and maintains versioning.
Understood. Sorry for any confusion.

ADDITIONAL SUBMISSIONS REQUESTED:

Building elevations for both the two-unit and three-unit proposed building types.
General building elevations with dimensions have been previously submitted for review. The applicant is currently awaiting more specific architectural plans. See more on this within our response to the Design Review Memo.

14.6.1 TRANSPORTATION STANDARDS

IMPACT ON SURROUNDING STREET SYSTEMS

- The applicant should provide a traffic calming study on the abutting neighborhood streets that will provide access to the development. The study should document existing vehicle speed conditions and identify strategies to address potential problems. Driveway spacing dimensions shall meet City Standards (Technical Manual)
  John Q. Adams, PE, with Barton & Loguidice, LLC, is the Traffic Engineer for this project. Mr. Adams recently coordinated a speed study within the Hope Avenue neighborhood and found that the posted speed limits are being adhered to. ***Based on the results of the speed study, it does not appear that additional traffic calming elements are required at this time.*** Please refer to Mr. Adam's report for more information.

- Improvements in ROW should be dimensioned on the plan sheets including streets, lanes, sidewalks, esplanades, and driveways as well as roadway width changes.
  The proposed road is classified as private; therefore, no new rights-of-way (ROW) are proposed for this project. Dimensions to improvements within the ROW on Hope Avenue have been added to the drawing set. Improvements associated with the sewer-upgrade portion of this project will be addressed as that portion of the project progresses.

- The applicant should submit plans and turning templates that show how emergency vehicle access will be maintained throughout development.
  An emergency vehicle access plan has been added to the drawing set, Sheet C-102.

ACCESS AND CIRCULATION

- The applicant should consider adding a sidewalk to the end of the cul-de-sac. Crosswalks shall also be provided for roadway crossings. The sidewalk should extend to serve all residential units on the cul-de-sac.
  We have added a length of sidewalk adjacent to the cul-de-sac, as requested.

- The applicant should conduct an evaluation of pedestrian facilities documenting adequate accessibility from the site to the nearest Metro transit stop. The most recent response was general; the evaluation should detail conditions of sidewalks, ADA compliance, signage, crosswalks, and any locations that should be a concern from a safety perspective.
  The existing sidewalks on either side of Hope Avenue, Alice Street, and Garsoe Drive are five-foot-wide paved sidewalks that are City owned and maintained. It appears that the Garsoe Drive sidewalks were originally constructed circa 2000 and the Hope Avenue sidewalks circa 2005. There are paved sidewalk ramps at roadway intersections. No painted crosswalks or detectable warning strips were witnessed within any of the existing neighborhood streets, including Garsoe, Alice, Hope, Curtis, Longview, Patricia, Panoramic View, Caron, Carter, Crestview, Bonny, Abby, Pamela, Clapboard, etc.

  The existing pavement along Hope Avenue, Alice Street, and Garsoe Drive sidewalks appears to be in good shape. The widths are constant throughout, and the surface is smooth. Occasional cracking of the pavement was observed, but they are narrow and no significant change in elevation was observed. The only cracks that appeared as though they may be, or may become, a tripping hazard were ones created by root growth on the north side of Garsoe, within 50 feet or so of Auburn Street. This section of the sidewalk is shaded by tree growth and tree limbs do appear to constrict the usable width of the sidewalk. The sidewalk on the opposite side of Garsoe is in good shape.

- Update crosswalk design detail to meet City Standards (Technical Manual)
  The crosswalk detail has been updated as requested.

- The applicant should conduct a sidewalk waiver analysis justifying the provision of a sidewalk on only one side of the street.
  It is our understanding that a PRUD development project does not need to meet the design standards for a public roadway, including the number of sidewalks. Therefore, a waiver is not required for the proposed sidewalk layout.

PUBLIC TRANSIT ACCESS

- Has the applicant spoken to GP METRO to discuss improvements to the bus route to provide more consistent bus routes to this area? Increased transit to the site and surrounding neighborhood could have positive impacts on traffic and congestion in the area.

We have reached out to GP METRO for comment on this topic and they have provided a response that we have submitted for review. They indicate that there is a bus stop at/near the Auburn Street and Garsoe Drive intersection. Auburn Street is served by Metro's Route 9 which runs every 30 minutes Monday through Saturday and every 60 minutes on Sunday. Please see the response email message for more information regarding the bus route and the bus stop on Auburn Street.

PARKING

- One area of on-street parking (on cul-de-sac) does not have a sidewalk for access into and out of the vehicle while abutting a snow storage area - reasonable access to vehicles should be provided.

  Parking spaces outside of the individual unit garages and driveways are for guest/temporary parking. It is not expected that these parking spaces will be used for daily parking or overnight parking by residents, therefore, constant access to all spaces is not a priority. The parking spaces are proposed to provide temporary parking spots, outside of the emergency access route through the project.

- Consider shortening the driveway lengths - each driveway should provide enough space for one vehicle as one additional vehicle should be parked in the garage. Shortening driveway lengths will allow for the buildings to be set closer to the road and providing more space for recreation in the rear and potentially moving the tree clearing lines.

  The majority of driveways are between 20 and 26 feet long and have room to park one vehicle between the garage and edge of roadway or sidewalk. There are a few driveways that ended up close to 36 feet long to maintain the minimum separation between buildings. The intent of each driveway is to allow one vehicle to park off the roadway and outside of the garage. Parked cars will not be allowed to obstruct the travel width of the roadway.

TRANSPORTATION DEMAND MANAGEMENT

Although a TDM is not required, has the applicant considered employing TDM strategies to mitigate traffic and encourage multi-modal transportation?

Although the applicant and our design team have not employed specific TDM strategies, there are existing, lower-volume roadways within the neighborhood that effectively calm traffic to allow for safe use of various modes of transportation. Vehicle traffic from the proposed project will keep traffic volumes low and will not lessen the ability of the system to support various modes of transportation. Additionally, parking is limited, and new communications and power supply lines will support the ability to telework.

ADDITIONAL SUBMISSIONS REQUESTED:

- Traffic Calming Study on surrounding street context
- Emergency Vehicle Turning Templates
- Further evaluation of pedestrian facilities
- Sidewalk Waiver Analysis
- Updated crosswalk design detail

14.6.2 ENVIRONMENTAL QUALITY STANDARDS

PRESERVATION OF SIGNIFICANT NATURAL FEATURES

Provide an updated letter from Maine IFW on Significant Natural Features in the area of development.

A copy of the updated design drawings, as well as the wetland delineation report, have been sent to MDIFW as requested. We will submit any updated response from MDIFW, when received.

LANDSCAPE PRESERVATION

The applicant shall submit a tree survey to identify trees over 16" DBH and track/quantify trees and removal of trees. See Technical Manual section 4-3.1 for tree surveying requirements on sites with a high density of existing trees.

Owen Haskell and Regina Leonard, RLA are completing a tree survey in accordance with Technical Manual section 4-3.1, as requested. We will submit a copy for review as soon as it is completed.

SITE LANDSCAPING AND BUFFERS

Please see RSLLA's Response to Comments memo for responses to these comments.

- City Arborist team has observed, in recent years, that the Princeton Elm (though disease resistant) exhibits boor and unsightly branching structure as it matures. This makes it prone to wind and storm damage as it becomes established. The Jefferson cultivar is also disease resistant and exhibits better branching - it is preferred over Princeton where available.
- Given the pre-development woodland on the site consists of Pine, Oak, Maple, Birch, and Poplar, City Staff would prefer to see oaks as the street tree along the entry drive to the development. The Pin Oak in particular has proven reliable as a standard, single-leader street tree where overhead space allows.
- City Staff encourage more species diversity in small trees where possible other than simple Serviceberry; recommended alternatives include Musclewood, Carpinus caroliniana where appropriate. Where blooms are desired, another alternative could be the American Smoketree.
- The proposed trees near the entrance to the Sebago to Sea trail should be species that blend with the native tree canopy of the surrounding forest. The trees shown on this part of the landscape plan are currently unlabeled.
- As an alternative to Rhus aromatica 'gro-low', City Staff suggest Diervilla lonicera for a

spreading/roving groundcover alternative. Where a shorter groundcover is desired, Prunus pumila var. Depressa (Sand Cherry) has proven durable and attractive.

- Technical Manual requires at least 50% of proposed trees and shrubs/perennials be native plant species. See Technical Manual section 4.7-3; A few native alternatives to the species currently specified include Pennsylvania Sedge+ Appalachian Sedge (rather than Japanese Sedge), Geranium maculatum (rather than Cranesbill Geranium), and Kalmia latifolia (rather than Hybrid Rhododendron).
- Planting strips shown between adjacent driveways appear to be 2' wide or narrower. This narrow strip of vegetation between driveways is unlikely to survive and will revert into a compacted strip of weeds or bare soil. City Staff suggest a minimum of four feet for this strip if a planted buffer is the intention; alternative layouts may remove this feature.
- The landscape plan is not clear about where the rain garden mix is being specified and where the conservation seed mix is being proposed. Labels or dedicated hatches/colors would help.
- Please provide a plan that includes the surrounding trail network (if possible). The applicant should consider additional connections to external trail network wherever possible and at least a connection on both sides of the development.
- Could the applicant consider alternative layouts (homes closer to road, reducing driveway footprints) to increase forested buffers?

WATER QUALITY, STORMWATER MANAGEMENT AND EROSION CONTROL

- DPW Water Resources has received and is currently reviewing the preliminary sewer capacity alternatives analysis report provide by the applicant.

  We have included email responses from DPW regarding the required/preferred method to upgrade the existing Hope Avenue Sewer Lift Station. We have revised the plans to eliminate the proposed holding tank and private lift station within the project limits. The system is now proposed to be a gravity pipe system that will connect into the existing piping within Hope Avenue. We will continue to work with DPW to generate a design scenario that is adequate for permitting approval.

- There appears to be no design/NRPA permitting information for the proposed box culvert. Design and permitting information for the culvert should be provided for review. The proposed culvert alignment appears to shift the existing stream alignment at the downstream end of the culvert. Provide further information on the impacts of this alignment change.

  A NRPA Permit by Rule application was submitted to the MDEP for the proposed stream crossing in October 2022. The permit was granted after the 14-day review window had passed, with no comments received from MDEP. The proposed box culvert has been oriented so that the inlet and outlet are both at the low points of the existing stream channel based on topography; therefore, the stream alignment will not be significantly modified. It is noted that the delineated stream, as shown, does not match exactly to the contour lines and therefore, we understand the basis of the review comment.

- Has the applicant completed a geotechnical analysis to ensure the 1:1 rip-rap slope being proposed at the entrance drive culvert is adequate? The rip-rap slope stabilization detail on sheet C504 depicts a max slope of 2:1.
  The rip rap stabilization detail on sheet C504 has been revised to correctly show a max slope of 1:1. Field work and access for a geotechnical engineering study of the site is currently being arranged.

- The applicant's comment response letter indicates that plunge pools or level spreaders will be used at proposed stormwater discharge points to prevent erosion downstream from the site. The plans should be updated to reflect this comment. Construction details and design information on the proposed plunge pools and level spreaders should also be provided.
  The drawing set has been updated to include information on the stormwater discharge point controls. Level Spreaders and plunge pools have been designed in accordance with the MDEP Erosion Control Design Manual.

- The applicant's comment response letter indicates that the revised plans depict the required 100' perennial stream setback on sheets C103 and C704. The 100' setback line could not be located on the updated plans. Please provide a plan showing the 100' setback on sheets C103 and C704 so the impacts can be assessed.
  This 100' setback has been labeled on Sheets C103 and C704.

- The (engineer) should add a clear limit of work line on sheets C103 and C704 to ensure abutting public land won't be impacted by the proposed grading work at the property lines. The proposed grading for the embankment slope associated with wet pond A extends right up to the property line.
  A limit of work line has been added, as requested.

- Grading Plan: The roof drip edge pipe discharge should be clarified. No pipes are shown, but are included in the proposed detail. Similarly, the pipes and structures within the soil filter sand biocells are not shown and will need to be included as part of the overall piping plan.
  Piping for the proposed stormwater management features has been added to the drawing set.

- Grading Plan: For both Wetponds A and B, the pipes discharging from the outlet structures are shown discharging directly to the pond slopes without any specific outlet protection shown on the plan. City Staff would suggest sending the discharge pipes to the rip rap spillways for each pond - take advantage of the stabilization that is already proposed for those areas.
  Wetpond discharge points have been revised, as suggested.

- Grading Plan: The intent for slope stabilization adjacent to the roadway at the location of the culvert should be clarified. The detail for rip raped slope stabilization is noted for max 2:1 side slopes, and the proposed slopes at this location are 1:1. This is a very steep slope, and an engineered solution for stabilization will likely be required.
  The riprap slope stabilization detail has been updated to include the correct 1:1 slope. Slopes in this location are proposed to be as steep as possible in order to minimize impacts to surrounding protected natural resources. Guardrail is proposed for the crossing to provide vehicular and pedestrian safety.

- City Staff recommend that the storm drainage be turned on the utility plan for clarity, similar to how the utility info is included on the grading plan. City Staff note that the proposed transformer out at Hope Avenue may be too close to the proposed drainage.
  Line types/weights have been updated on the drawing set as requested. The proposed transformer has been shifted to be the required 10' away from drainage.

- The proposed underground electric is shown very close to the 1:1 sloped edge over the cross culvert. Applicant should confirm with CMP that the proposed layout can be constructed.
  We are currently attempting to get in touch with someone at CMP to discuss this issue.

- The project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Section 5 Requirements:
  - Basic Standards: Erosion and Sedimentation Control will be required per MaineDEP standards. Some details have been provided, but standard notes and a plan showing proposed locations are necessary. Specific care should be made around the proximity to wetlands and around ESC controls for proposed steep slopes.
    Standard erosion control notes have been added to the drawing set. A note requiring double rows of erosion controls adjacent to protected natural resources has been added.

  - General Standards: There is a minor typo on the calculations for Bioretention Cell B - the calculation references the underdrained soil filter area requirements, but the calculation was completed correctly with the larger bioretention area requirements. Just worth noting for the record in case there is ever a review or question on treatment levels.
    The calculation for Bioretention Cell B has been corrected in the provided updated stormwater report.

  - General Standards; The calculations for bioretention cells reference an 18" impoundment depth. The detail and notes also shows an 18" depth from filter to emergency spillway. The MaineDEP BMP allows for 6" of depth of storage over the filter media for bioretention cells. Inclusion of 6" of storage in the filter media is also allowed.

The design drawings, HydroCAD calculations, and Stormwater Report have been revised to reflect the intended 6" storage depth for the proposed bioretention cells.

- General Standards: An O&M Plan and Stormwater Maintenance Agreements will be required for each of the proposed systems.
  O&M Plans are included in the Erosion Control Plan that was uploaded with the original submission. Stormwater Maintenance Agreements are currently being prepared and will be provided when available.

- Flooding Standards: The project is reducing flows at all study point locations except for the first point, which sees a small increase.
  This is correct. Justification for the increase to Summation Point 1 is included in the Stormwater Management Report.

- Flooding Standards: City Staff recommend that the applicant review the time of concentration values utilized for the post-development HydroCAD model. Typically a minimum TC value of 5 or 6 minutes (I've seen justification for both) is utilized as the limitations of the software may cause issues when very small TC values are utilized. TC values of 0.1 minutes are used for some subcatchments in this model.
  The design drawings, HydroCAD calculations, and Stormwater Report have been revised to reflect a minimum TC value of 5 minutes.

- Flooding Standards: There are a few subcatchments in the post- development model with high time of concentration values that should be re-evaluated. Post subcatchments 10 has a larger TC value than the pre-development subcatchment (1 believe 4) it relates to. Subcatchments 2C and 2D have large TC values as well. City Staff recommend looking at these again to make sure that the post- development values reflecting existing conditions are consistent with pre-development evaluations.
  The design drawings, HydroCAD calculations, and Stormwater Report have been revised to reflect the revised TC values for the above mentioned subcatchments. The Pre-Development model had inadvertently used the cover type "Woods, light underbrush" while the Post Development model had used "Woods, dense underbrush;" this has been corrected so that the cover types match as intended.

- Flooding Standards: The post-development figure should label the summation points that are being considered for the evaluation.
  Sheet C702 has been updated to include the same Summation Points as shown on Sheet C701.

- Flooding Standards: The grading plan does not include any of the piping associated with the roof drip edges. It should clarify how those are connected and where they discharge to. It is not clear how they discharge to the different summation points being considered for the Flooding Standard evaluation.
  Piping for the proposed stormwater management features has been added to the drawing set.

ADDITIONAL SUBMISSIONS REQUESTED:

- Updated letter from Maine IFW
- Tree Survey
- Updated Landscape Plan
- Culvert/Stream Crossing Permits and Design Details (NRPA/Army Corps)
- Construction Management Plan and Narrative
- Updated ESC/Grading Plans
- O&M Plan and Stormwater Maintenance Agreement Drafts

14.6.3 PUBLIC INFRASTRUCTURE + COMMUNITY SAFETY STANDARDS

PUBLIC SAFETY AND FIRE PREVENTION

- Provide Turning Templates that demonstrate adequate maneuverability for emergency vehicles throughout the site and, specifically, at the cul-de-sac.
  Emergency Vehicle access plans have been added to the drawing set, sheet C-102.

- Has the applicant reached out to DPW to talk about E-911 Addressing? GREG

Greg Shinberg, of Shinberg Consultants, LLC., the Owner's Representative for this project, has contacted DPW and has verified that Presumpscot Woods is an appropriate name for the project and access roadway.

PUBLIC UTILITIES

The applicant will need to provide an ability to serve from CMP and Portland Water District.

ADDITIONAL SUBMISSIONS REQUESTED

Ability to Serve from CMP and PWD

Ability to serve requests have been sent to CMP and PWD. We recently received the ability to serve letter from CMP via email. We have submitted this email for review. PWD continues their review of the plan set.

14.6.4 SITE DESIGN STANDARDS

SNOW AND ICE LOADING

- The applicant needs to confirm that the snow storage area in the cul-de-sac will not interfere with emergency vehicle turnarounds.
  Emergency Vehicle access plans have been added to the drawing set, sheet C-102. As shown, the snow storage area will not interfere with emergency vehicle turnarounds.

- The applicant will need to provide a narrative outlining how snow will be managed and stored on site.

  The Homeowners' Association will hire a commercial contractor to displace snow off of traveled areas. Snow will be stored in non-traveled areas until such time that access to any traveled area is limited. At which time, the stored snow will be removed from the site and disposed of in such a way as to comply with local and state regulations. Large snow storage areas are shown on Sheet C102. Traveled areas (that are owned in common) include roadway surfaces, driveways, sidewalks, recreational trails, designated parking spaces, etc.

EXTERIOR LIGHTING

City Staff are still reviewing these submissions.

NOISE AND VIBRATION

The applicant will need to note how HVAC units and exterior utilities will be screened and if any are expected to generate noise.

It is expected that residential sized heat pumps will be utilized for heating and cooling each unit. These units generate very little noise and will be located on the ground, outside the units. They will be placed such that they are not seen from the roadway and/or screened by landscape plantings.

SIGNAGE AND WAYFINDING

Will the applicant be proposing any signage?

The applicant proposes to install a project sign at the project entrance with Hope Avenue. The sign will not be internally illuminated. Other street signs are expected to be installed to help direct people to unit numbers, set an internal speed limit of 15 MPH, depict no parking on the street, etc. These signs will be small in surface area and maintained by the Homeowner's Association.

DESIGN STANDARDS

Comments in design review memo.

Please see our separate response to the Design Review Memo under separate cover.

MEMORANDUM

RS LEONARD
Landscape Architecture

DATE: August 18, 2023

RE: 1 Hope Avenue

TO: Portland Planning Dept.

FROM: Regina Leonard

CC: Project team

Responses to 8/03/23 Review Comments (entitled Review Comments Round II)

Landscape Preservation	**Overview:** The applicant has included a limit of tree clearing on the perimeter of the site as well as the interior trail area. City Staff are still reviewing the impacts to wetlands in the area.
	Comment: • The applicant shall submit a tree survey to identify trees over 16" DBH and track/quantify trees and removal of trees. See Technical Manual section 4-3.1 for tree surveying requirements on sites with a high density of existing trees.
	Response: • A survey is currently being conducted to pick up trees 16" DBH and above. We will prepare a written summary of the existing cover, significant trees, and preservation / mitigation once this information is obtained.

Site Landscaping and Buffers	**Overview:** The applicant has submitted a landscape plan with plantings throughout the site.
	Comments: • City Arborist team has observed, in recent years, that the Princeton Elm (though disease resistant) exhibits boor and unsightly branching structure as it matures. This makes it prone to wind and storm damage as it becomes established. The Jefferson cultivar is also disease resistant and exhibits better branching - it is preferred over Princeton where available.
	Response: • The Jefferson Elm has been substituted as recommended
	Comment: • Given the pre-development woodland on the site consists of Pine, Oak, Maple, Birch, and Poplar, City Staff would prefer to see oaks as the street tree along the entry drive to the development. The Pin Oak in particular has proven reliable as a standard, single-leader street tree where overhead space allows.

	Response: • Recommendation substitution noted and reflected on the plan.
	Comment: • City Staff encourage more species diversity in small trees where possible other than simple Serviceberry; recommended alternatives include Musclewood, Carpinus caroliniana where appropriate. Where blooms are desired, another alternative could be the American Smoketree.
	Response: • Small trees have been diversified as requested.
	Comment: • The proposed trees near the entrance to the Sebago to Sea trail should be species that blend with the native tree canopy of the surrounding forest. The trees shown on this part of the landscape plan are currently unlabeled.
	Response: • The plan has been updated to include native trees that blend with the canopy near the entrance of the Sebago to Sea trail. The trees are labeled and incorporated into the planting key.
	Comment: • As an alternative to Rhus aromatica 'gro-low', City Staff suggest Diervilla lonicera for a spreading/roving groundcover alternative. Where a shorter groundcover is desired, Prunus pumila var. Depressa (Sand Cherry) has proven durable and attractive.
	Response: • As requested by staff, the plan has been updated with alternatives to Rhus aromatica 'Gro-Low' for the specified areas.
	Comment: • Technical Manual requires at least 50% of proposed trees and shrubs/perennials be native plant species. See Technical Manual section 4.7-3; A few native alternatives to the species currently specified include Pennsylvania Sedge+ Appalachian Sedge (rather than Japanese Sedge), Geranium maculatum (rather than Cranesbill Geranium), and Kalmia latifolia (rather than Hybrid Rhododendron).
	Response: • We believe the Landscape Plan complies with the 50% native species requirement of the Technical Standards. The Landscape Plan includes non-native cultivars around the units where the ornamental function and reliability are most desired and largely native species throughout the remainder of the site. • In response to staff comments, we have substituted the Kalmia 'Sarah' which is similar in flowering, habit, and culture to the Rhododendron x. 'Mardis Gras.'

	• The 'Rozanne' cultivar is a repeat blooming cross selected for its performance. We prefer this cultivar over the native geranium for this reason as well as its improved adaptability to a variety of site conditions. • The Carex 'Eversheen' was selected for its complimentary coloration, texture, and foliage qualities as part of a specific planting palette.
	Comment: • Planting strips shown between adjacent driveways appear to be 2' wide or narrower. This narrow strip of vegetation between driveways is unlikely to survive and will revert into a compacted strip of weeds or bare soil. City Staff suggest a minimum of four feet for this strip if a planted buffer is the intention; alternative layouts may remove this feature.
	Response: • The planting strips have been removed from the plan.
	Comment: • The landscape plan is not clear about where the rain garden mix is being specified and where the conservation seed mix is being proposed. Labels or dedicated hatches/colors would help.
	Response: • Rain garden areas are hatched and called out on sheet L-01. The planting specifications for the rain gardens are referenced on sheet L-02. No seeding is specified for these areas. All areas to be seeded with Conservation Wildlife seed mix are hatched and called out on sheet L-01.
	Comment: Please provide a plan that includes the surrounding trail network (if possible). The applicant should consider additional connections to external trail network wherever possible and at least a connection on both sides of the development.
	Response: • Please reference the site location plan for context and external trail connections.
	Comment: Could the applicant consider alternative layouts (homes closer to road, reducing driveway footprints) to increase forested buffers?
	Response: • Please reference the site plan comments and responses.

shinberg CONSULTING

NEIGHBORHOOD MEETING SIGN IN SHEET

JUNE 7, 2023 5 TO 7 PM
EAST END COMMUNITY CENTER, 195 NORTH ST.
PORTLAND, MAINE
RESIDENTIAL CONDOMINIUM DEVELOPMENT LOCATED AT 246 EASTERN PROMENADE AND 15 TURNER STREET

MEMBERS OF THE PUBLIC IN ATTENDANCE

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DEVELOPER AND CONSUTANT TEAM IN ATTENDANCE

NAME	EMAIL
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GREG SHINBERG	GLS@SHINBERGCONSULTING.COM
EVAN DEMERS	EVAN@MUELLERARCHITECTS.COM
mark mueller	mark@muellerarchitects.com

Jason Cole <jcole@pictorenterprises.com> 6:32 AM (2 hours ago)
to planning@portlandmaine.gov

City of Portland Planning Board:

I hope this letter finds you well. I am writing to express my deep concerns regarding the proposed condo development in the residential housing zoned area of our neighborhood. As a resident, Portland, business owner, homeowner, and tax payer in this community, I firmly believe that preserving the integrity and character of our residential area is of utmost importance.

Our neighborhood has thrived under the existing residential housing zoning regulations, which have fostered a sense of tranquility, community cohesion, and a high quality of life for its residents. Introducing a condo development in this area poses several significant challenges that could have adverse effects on our neighborhood.

Firstly, the potential increase in traffic due to the proposed condo development raises concerns about traffic congestion and road safety. Our residential streets are not designed to accommodate the volume of vehicles associated with higher-density developments. This could lead to traffic bottlenecks, longer commute times, and increased frustration for residents. Furthermore, the influx of vehicles may contribute to speeding on our previously calm and slow roads, posing a direct danger to children playing and pedestrians in the neighborhood.

Moreover, the introduction of a condo development may attract a more transient population, potentially resulting in increased rental properties. While rental properties themselves are not inherently negative, a higher proportion of rentals can lead to a decrease in neighborhood stability and community engagement. Homeowners who take pride in their properties may find their surroundings impacted by a lack of long-term investment and a reduced sense of pride in the neighborhood.

Additionally, the potential for an increase in rental properties and a transient population can have implications for safety and crime rates. Higher turnover and a less connected community can make it easier for criminal activities to go unnoticed. This could potentially lead to an increase in crime, affecting the overall safety and security of our neighborhood.

Lastly, the introduction of a condo association in our housing neighborhood could have a significant negative impact on property values. The imposition of condo association rules, potential conflicts, and financial uncertainties may deter potential buyers and erode the exclusivity and financial stability that homeowners have come to expect.

In light of these concerns, I respectfully request that the city carefully considers the potential consequences and reassess the proposal for the condo development in our residential housing zoned area. I believe it is vital to preserve the established zoning regulations that have safeguarded the character and harmony of our neighborhood for the benefit of all residents.

I kindly urge you to take into account the long-term interests of existing homeowners, the potential dangers posed by increased traffic and speeding, the importance of community cohesion, the impact of rental properties on neighborhood stability, the maintenance of property values, and the possible increase in crime rates when making decisions about the proposed condo development.

Thank you for your attention to this matter. I trust that you will carefully consider the concerns raised by the community and act in the best interests of the residents who call this neighborhood their home.

Thank you,

Jason Cole
141 Hope Ave
Portland, ME 04103
207-888-2314
jcole@pictorenterprises.com

Nathan Hankla <nathanhankla@gmail.com> 9:30 AM (19 minutes ago)
to planning@portlandmaine.gov

Hi,

I am writing to push to stop the development of 60 units in the largest green space in Portland proposed by Gen X Capita off of Hope Ave.
Overall I am shocked how poorly the planning department is doing in keeping Portland "The Forest City" as all the trail signs say. This current project would destroy a over a mile of some of the best trails in Portland. And impact the watershed area of the river that we have been working for decades on cleaning up.

Building 60 “luxury” condos on the outskirts of town is not going to solve any housing issues at all. They will generally be retirees who will come for the summer and then leave them empty most of the winter.

Nathan Hankla
nathanhankla@gmail.com

Robert <rgbenak@gmail.com> Jun 3, 2023, 8:51:20 AM (yesterday)

to planning@portlandmaine.gov, jmy, info@shinbergconsulting.com, northdeeringportlandneighbors@gmail.com

Hi Planning Board,
My Name is Bob Benak and I live at 4 Alice St in North Deering. Recently, Shinberg Consulting hosted a Community Meeting on behalf of GenX Capital Partners about a proposed development at/near 1 Hope Ave (referenced by PL-002454-2023). I was at the meeting and took notes/minutes during the conversation, and I've attached them here as a submission of community input about the proposal. I ask that they be uploaded to the proposal's area on the city's website so as to be available for stakeholders of the proposal to review. Can you do this for us please? Greg from Shinberg (in copy) hosted and made a good effort to take diligent notes as questions and concerns were raised, but he only had a pen and paper so it's possible this document captures some things he missed.

I left a vm this afternoon with Ms Munson explaining that I would be emailing over some meeting minutes and notes, so I hope this isn't too much of a cold email :).

Greg, Thank you for your time on Wednesday. I wanted to be sure to include you here so that you may raise these questions and concerns to GenX Cap and provide answers.

Thank you,
Bob Benak

I. Meeting began shortly after 7pm and introductions were given from the 4 gentlemen from the development team:
   A. Greg Shinberg, of Shinberg Consulting, appeared as Owner Representative of GenX Capital Partners, LLC.
   B. John Whitten, civil engineer represented Haley Ward, the enlisted civil engineering firm who has written the plans for the proposal
   C. [younger gentlemen who seemed to be with John's firm, but didn't introduce himself and didn't speak during open discussion]
   D. Andrew Peterson represented Westchester Modular Homes which is the home product partner for the proposal

II. Remarks from development team:
   A. Greg Shinberg began the conversation outlining the scope of the project from a high level. This naturally raised many questions from concerned neighborhood residents. Greg requested questions be held until after the initial remarks as some questions would most likely be answered along the way.
      1. Greg mentioned the team has sought input from Jamie Parker, Portland Trails Manager given the proposal abuts the Presumpscot River Preserve
      2. The outline of the proposal includes an access point near the electrical service equipment on Hope avenue
      3. The proposal is for 60 rental units of 3 bedrooms each, configured in duplexes or triplexes
      4. With regard to the 25% mandate for affordable units: 25% of 60 is 15. The proposal intends to maintain 8 units as affordable, and pay a fee in lieu for the other 7. The fee in this case is $172,000 per unit totaling ~$1.2M paid to the city.
   B. John Whitten spoke to the layout of the proposal with a few remarks regarding permitting and zoning
      1. Since the proposal is for rental units, the proposal would be left as a singular property with a common ownership.
      2. The property is currently R3 zoned, as is most of the neighborhood
   C. Andrew Peterson gave a few remarks about the home product choice and the construction process
      1. These are prefab homes, meaning they are largely constructed offsite
      2. The modules are then trucked into the neighborhood where they are pieced together at the build site
      3. Andrew did not elaborate on the specifics of the onsite construction process before open discussion began.

III. Question and Answer portion of the meeting. Greg ran point on Q/A, calling on residents who raised their hands to ask questions. Greg made an effort to record questions that were asked by residents with a pen and notepad.

A. Q: A resident asked a general question about the expected timeline for the proposal
    1. A: Greg mentioned that it could take over 2 years, specifying that the road construction could take 6-12 months depending on the time of year, and the build process could take 15 to 16 months thereafter
B. Q: A resident noted that with the recent Brandy Lane deforesting, the traffic noise from the Spur has increased significantly, and likely displaced animals which we used to see. Assuming the same risk applies to the proposal, have noise barriers been considered? The resident also recommended that a noise study be conducted.
    1. A: Greg replied that to date noise barriers have not been considered.
C. Q: A resident noted that there is unbuildable land within the Haley Ward design and asked whether that land would be donated back to the city.
    1. A: Greg replied that he did not know if that had been considered.
D. Q: Multiple residents asked general questions related to the Planning and Development process in Portland, and specifically where in that process this proposal is at this time.
    1. A: Greg replied that this is the first meeting of this proposal (previous meetings which included residents related to this property were related to previous proposals which are no longer active). Greg said as well that this proposal has not been presented to the Planning Board yet, and upon doing so, that process could extend 6 to 12 months depending on circumstances.
E. Q: Multiple residents emphasized great concern for the number of moving trucks traveling through the neighborhood which would be expected with 60 rental units of this size. If even half of the rental units turn over annually, that's 30 additional moving trucks moving through our neighborhood annually. A related concern about the formal max load capacity and general wear and tear on our neighborhood streets was expressed.
    1. A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
F. Q: A resident noted that she has direct experience with many of our neighbors who utilize affordable housing and other related social programs. She noted that in her experience working with these neighbors, this proposal meets very few of the practical needs of many users of such programs. Namely: This development is nowhere near an existing bus line. This development is not walking distance to any grocery store, convenience store, pharmacy or other healthcare services. With this in mind, the resident questioned the strategy of the builder.
    1. A: Greg acknowledged the concern, and repeated that the proposal would keep 8 units as affordable, and that 7 would pay a fee in lieu.
G. Q: Multiple residents noted multiple concerns about Lyseth and Lyman schools already being overcrowded, and noting that 60 3 bedroom homes would only exacerbate this. Specifics concerns included:

1. A resident noted that in the 5 years that his family have lived in the neighborhood, the schools' ratings have been in decline. How then would it be a good idea to add 60 more families to the district?
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
2. A resident noted that the Lambert Woods project by Maine Cooperative Development Partners is already going to add 162 units to the school district. How then would it be a good idea to add a total of 222 new housing units to a school district already overcrowded?
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
3. A resident noted that since Lambert Woods is already planned, the Planning Board should delay consideration of the GenX Capital Partners proposal until after the 162 new homes at Lambert are filled so as not to risk an even bigger shock to the school system around the same time.
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
4. A resident asked Greg whether either the Brandy Lane project or the Lambert project were taken into consideration when crafting the Genx Capital Partners proposal.
    a) A: Greg responded that the proposal has not yet been taken to the Planning Board.
5. A resident asked Greg when development causes overcrowding for classrooms and districts, who in his experience helps solve those problems.
    a) A: Greg responded that he did not know.

H. Q: A resident noted overcrowding with our healthcare system, not just schools, noting that it is 6 months out to see a pediatrician in the area.
    1. A: As this was more of a concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

I. Q: A resident noted the multiple disconnects between the proposal and the character of the impacted neighborhood: Namely, the current housing units are single family, and the vast majority are not rentals. Given the obvious differences in the proposal, the resident did not believe GenX Capital Partners to be acting in good faith as a community member/business partner and was only concerned about maximizing profit from the land.

1. A: As this was more of a concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

J. Q: A resident asked whether the new homes would be visible from the Presumpscot River Preserve Trail System.
    1. A: John answered that he did not know, but that a Profile could be established/conducted in order to determine this.

K. Q: A resident asked whether any of the proposed development would cause elimination or modification of any of the Presumpscot River Preserve Trail System, including Hope Loop, Middle Loop, and South Loop.
    1. A: John answered not that he was aware of that consequence but indicated he would find out.

L. Q: A resident asked how far from the river the nearest point of the proposed project resides.
    1. A: John answered that they would be back from the river by 500 to 700 feet.
    2. A: Greg answered that the Planning Board Chairperson ultimately makes the decision about approving a proposal, and before deciding, will do a 'site walk' for a closer look. Greg also made comments that neighborhood residents would be notified in a timely manner of the site walk, and would be able to attend to ask questions and/or voice concerns.

M. Q: A resident expressed concern about how secretive the process has seemed. The resident also expressed concern that the original proposal was for single family homes, and that they were also age restricted to 55+. She expressed that she feels bamboozled by the developers.
    1. A: As this was more of a concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

N. Q: A resident expressed concern about a slippery slope for this development, wherein if approved it might be more easily expanded, and residents could have to deal with multiple construction phases.
    1. A: Greg answered that to his understanding this was not possible, but noted that the existing proposal itself, if approved, could be constructed in phases.

O. Q: A resident noted known nefarious strategies by some developers whereby deforestation occurs before building approval is obtained, thereby making an easier approval by the Planning Board because there is no longer forest/animal life there to protect, and sought assurance from Greg as a representative for GenX Cap Partners, that this would not take place.
    1. A: Greg said he could not give that assurance because he's not the developer, however noted that if he were the developer, he could give such assurance.
    2. A: John answered citing DEP regulations would also prevent deforestation from happening out of process

P. Q: Multiple residents expressed multiple concerns about traffic patterns and increase

1. Currently residents living on Hope, Alice, and Curtis use Curtis when exiting the neighborhood heading South/East toward the peninsula. Adding 120 more vehicles to these streets could double the traffic on Curtis.
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
2. Currently residents living on Hope, Alice, and Garsoe use Garsoe when exiting the neighborhood heading North/West toward the highway, grocery store, or northern suburbs. Adding 120 more vehicles to these streets could double traffic on Garsoe. It was also noted that part of Alice and all of Garsoe are narrower than Portland requires for new streets. It seems foolish to double the traffic volume on a street with a width that is not permissible(safe) in new developments.
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
3. It was recommended that a traffic study be conducted.
    a) A: Greg confirmed a traffic study was planned
4. Multiple residents noted that our kids play basketball, hockey, ride bikes, and walk to the bus when snow blocks the sidewalk, and other such activities in the road. The resident expressed concern of someone getting harmed by increased traffic.
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
5. A resident expressed that a main part of moving to her home was the low amount of traffic, and expressed concern that this proposal would take that away.
    a) A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

Q. Q: A resident summarized concerns by noting that basically every way current residents value the neighborhood gets harmed by a development of this size, namely: increased traffic, increased noise, elimination of 14 acres of trees/wildlife.
    1. A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

R. Q: Multiple residents expressed concern with the radius of homes who received notifications of the proposal as well as notifications of today's meeting to discuss it. Multiple residents outside the radius but still within the potentially affected area were informed by word of mouth from neighbors today (5/31). Multiple residents noted that others they knew would have attended today's meeting, but were unable to based on the short notice. It was requested to Greg that GenX Cap Partners act in good faith and hold an additional community meeting before moving forward with the planning meeting. Different suggestions for a new radius of notified homes were offered by residents, and included some specific streets, the whole subdivision, and the whole Lyman and Lyseth feeder district area homes. Consensus for notification seemed to be all homes NE of Summit, NW of Curtis, SW of Hope, and SE of Garsoe.
    1. Greg agreed that he would establish another community meeting and took notes on the conversation for the Planning Board in case a review of the proposed development notification radius may be able to be increased. Greg doubted he would be able to get another community meeting organized before the first Planning Meeting.

S. Q: A resident encouraged other attending residents to appear at the first Planning Meeting.
    1. A: As this was not really directed at the presenters, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.
    2. A: John also noted that a placard with information about dates of relevant events would be posted to the proposal site.

T. Q: A resident asked Greg where residents could locate the notes he took during the meeting.
    1. A: Greg responded that the notes would be sent to the Planning Board and upon receipt should get uploaded to the Planning Board's website and tied to the proposal code (PL-002454-2023)

U. Q: A resident asked whether these proposed units could get brought back to single family homes.
    1. A: Greg responded that he did not know.

V. Q: A resident noted that if the proposal could get back to single family homes and back to the 55+ age restriction, that would still create increased traffic, but does solve the overcrowding school concern.
    1. A: As this was more of an expressed concern and not a direct question, Greg responded that he would take a note about that and ensure it was visible to the Planning Board when delivering the meeting notes.

Benjamin Haber <haber568@gmail.com> Sun, Jun 4, 10:03 PM (9 hours ago) Reply
to planningboard, ctetelman

Dear Mr. Tetelman and Members of the Planning Board,

My name is Benjamin Haber and my family and I are residents of Hope Ave in Portland. I am writing to let you know that we are opposed to the proposed land development at 1 Hope Ave for the reasons below:

Zoning

This area is zoned R-3 which is low-density, single-family zoning. The proposed development is 60 rental units made up of duplex and triplex buildings. This does not adhere to the current zoning, however, there is a loophole called PRUD (planned residential unit development) that the developer is hoping to use to circumvent the current zoning laws. This area is a beautiful wooded single-family neighborhood that abuts the Presumpscot River Preserve. These units just do not fit into the neighborhood and it would be a shame to scar this beautiful neighborhood with urban sprawl. It is clear that the developers are only here for a profit and could not care less about the neighborhood, can we let this happen to our city? We have zoning laws for a reason, we are all held to standards and forced to follow laws, why is this law allowed to be bypassed?

Traffic and Safety

Our neighborhood is quiet and safe which is the main reason we moved here. Our children can play outside with low traffic and relative safety. The addition of 60 units would amount to years of construction noise, countless large vehicles with little ability to stop for a child learning to ride their bike, kids riding or walking to school or chasing a ball in the street. All of this traffic would be forced to turn onto Hope Ave right at the current bus stop for Lyseth Elementary endangering dozens of kids daily. Being a residential neighborhood there is absolutely no useful public transportation so everyone living here needs a car to get anywhere. After these units are occupied, there would be at least 120 more cars which will only have one way out of the complex and will have to use one of only two exits out of the neighborhood. Along with this passenger vehicle traffic, with these being rental units, there will be moving trucks at least once a year for each unit (120 trucks) as many of these renters will be in the market for single family homes because that is why you live in Maine. Can our roads handle this? Another point to mention is Garsoe Dr is more narrow than most streets in Portland. This road will be the MAIN thoroughfare for this development and the unfinished Brandy Lane development. Garsoe will become very dangerous for everyone including the half of the residents of this street which happen to be kids. I understand that there will be traffic studies and school availability studies along with wildlife and environmental studies but I have concerns about the validity of such studies. My concerns with traffic studies at this time are multifactorial with these issues front and center: 1. Brandy Lane is not occupied yet thus traffic impacts are not yet known and would be hard to factor in. 2. There is a 160 unit complex proposed less then ½ mile from this proposed site on Lambert St. How can a traffic study or school availability study be accurate before either of these new developments are complete? We are not talking about the addition of 10 single family homes which may add 20 cars, this is 60 units on top of 160 units in a ½ mile radius. Portland is extremely family friendly but if parents begin to feel that their children are unsafe they will look elsewhere to live.

School Overcrowding

The one elementary school servicing this area is Lyseth Elementary and this school is already at capacity. The addition of Brandy Lane, the 160 units at Lambert St and this proposed development would add about 472 students to this area. Albeit not every child will be elementary school age but the writing is on the wall. Lyseth has 490 students now and these three developments within ½ mile of each other will double the student population, is that sustainable? Can a school accommodate twice as many students overnight? At that rate a new school would be necessary, is that a possibility? How will we bus all of these kids to school? We already have a school bus driver shortage as is, how do we get more bus drivers? How will the addition of more school buses add to traffic? The overcrowding that Lyseth already has is evident with its race to the bottom of the school grading system. Will doubling the enrollment help these children learn? We pay a very high tax rate and our children deserve the best education we can offer.

Environmental Impacts

As mentioned earlier this development cuts into the Presumpscot River Preserve. This area of trails is one of the most special places I have ever seen within a city's limits. This amazing area needs to be protected at all costs. This proposed development would lacerate the forest right up to the preserve boundaries. The addition of this development without a doubt would change the feeling of being out on the preserve trails as it will be visible from many areas of this beautiful place. Along with changing the physical area the beings that call this area home will be negatively affected as well. Countless animals, birds, reptiles, amphibians, fish, insects, and plants will be forced from this area. The trees and plants help with drainage and erosion which will no doubt affect the surrounding dwellings, brooks, creeks and the river itself. I understand that the developer will do the absolute minimum environmental studies required by law but I feel that these will be wholly inadequate to understand the impact of this development will have on the environment surrounding my house.

This neighborhood is a sanctuary and I do not mind sharing it but 60 rental units in a single-family zone seems excessive. I know the city is desperate for more housing but if you were to come visit this property you will see that this land is not the place to house what is essentially a 60 unit apartment complex. It is your job make sure that anyone building in this city follows laws passed by the city council and I am asking for your consideration in this matter and appreciate your help.

Informed citizen and voter

Benjamin Haber

Libby Derrig <ederrig@spurwink.org> 2:12 PM (1 hour ago)
to Charles Tetelman, planningboard@portlandmaine.gov

Hello there,

I am writing to express my concerns about the proposed housing project of 60 multi-units off Hope Avenue. I am sure by now you are well aware that the neighborhood is extremely upset by this and we plan to attend as many meetings and reach out to as many people as possible to express our concerns. I will not laundry list the reasons why this is a horrible idea but will simply start with the logistics of: nature conservation, size of street, traffic implications, school capacity, new development going in on Auburn street hasn't even begun yet. Etc…

After speaking to folks that attended a neighborhood meeting last week to discuss this it sounds like the plans are far from hashed out, ill-conceived and present many logistical issues at a very premature level.

We are all extremely worried about how this will negatively affect the lives of our families.

Best, Libby Derrig

108 Hope Avenue

Hillary Weimont <hweimont@gmail.com> 9:28 AM (1 hour ago)
to planning@portlandmaine.gov

Hello,

My name is Hillary Weimont Saucier, and I am writing to convey my concerns as a Portland resident and neighbor of the proposed development on Hope Avenue. I live at 8 Basket Lane, which is the closest house to the new proposed road/entrance to the proposed development.

Before I get into my specific concerns about the proposed development, I want to point out one concern that I hope you will immediately act on. We received a postcard from the city notifying us of the proposed development due to our proximity to the site, as well as a letter inviting us to the neighborhood meeting from Shinberg Consulting. However, we believe this development affects many more of our neighbors and that they should also receive formal notification and invitations to future meetings. Shinberg Consulting indicated at the last neighborhood meeting that they are open to holding another neighborhood meeting.

I believe (and neighbors I've spoken to agree) that the city should notify the entire neighborhood, meaning everyone who uses both Garson to Auburn and Curtis to Summit as a way to exit the neighborhood, as well as a couple small roads that could also be used to exit the neighborhood. My reason for including all these roads is that all residents on these roads will face significant additional traffic on their streets or the streets they use to exit the neighborhood. These roads include:

Garsoe Drive
Alice Street
Alice Court
Brandy Lane
Basket Lane
Hope Ave
Curtis Road
Pamela Road
Abby Lane
Crestview Drive
Sturdevant Drive
Overset Road
Clapboard Road
Whaleboat Road
Wendy Way
Whitehead Circle
Caron Street
Carter Street
Bonny Street
Longview Drive
Panoramic View Drive
Longview Drive
Patricia Lane

Thank you for considering adding notification to these additional residents who will be significantly impacted should this development proceed as planned.

I am submitting additional concerns for your consideration below, organized by topic.

Notification Process:

As mentioned above, I believe notification to the neighborhood thus far has been insufficient and that additional affected parties should be notified so that they may have the opportunity to participate in the process. Please see list of suggested streets for notification above.

Additionally, information on the citizen self portal was insufficient at the time I received the notification informing me of the proposal and inviting me to view information on the portal. When I visited the portal a few days after

receiving notification, there was almost no information about the new development to review. It was not until the neighborhood meeting hosted by Shinberg Consulting that I was able to learn anything of substance about the proposed development. I request that you please ensure pertinent information is uploaded to the portal in a timely manner.

Traffic and Safety

Our neighborhood is already quite large, with only two main exit points, Garsoe to Auburn and Curtis to Summit.

As currently proposed, the developer plans to build 60 units for rent at the Hope Ave site. The units are intended to be 2-3 bedrooms. This means we are likely to have 2 or more cars per unit, meaning 120+ additional cars in the neighborhood needing to exit the neighborhood. This is on top of the 12 or so single family homes that are being built on the new Brandy Lane. So really we are talking about closer to 150 additional cars in the neighborhood.

It can already be challenging to exit Garsoe onto Auburn Street or Curtis to Summit to Allen Ave. The significant increase in traffic exiting this neighborhood will make it even more difficult and dangerous to exit.

Furthermore, Garsoe is already a very narrow road. I am very concerned about the additional traffic on such a narrow road and also concerned about having large construction vehicles on this road for many years throughout the development process. The homes on Brandy Lane have not yet even been constructed, but the vehicles coming in and out during the process of clearing the land and building the road were very disruptive to traffic on Garsoe and it felt quite unsafe to have such large vehicles on a very narrow street.

Additionally, given that the developer is planning for rental units, I am also concerned that even once construction is done, we will face an indefinite stream of moving trucks from renters constantly moving in and out of apartments.

Of particular concern related to both the additional shorter term traffic from construction vehicles and the longer term issues of additional cars from new residents and moving trucks due to rental turnover, is safety. I am concerned not only about accidents between vehicles but also accidents between vehicles and pedestrians, particularly children.

Our neighborhood is full of children. We have two young children ourselves, and the fact that the neighborhood is family friendly and there are so many other children for our kids to play with and that it feels like a relatively safe neighborhood for such play is a major reason we bought our home here.

We are very concerned about the significant increase in traffic and the risk that will pose to our children and others in the neighborhood who are playing and riding bikes and scooters and walking to the bus stop.

Finally, I'm also concerned that the large development planned for 165 Lambert Street will affect traffic in the area as well, as many of these folks will be driving on the same part of Auburn Street. The combination of two new developments in the same area of Auburn Street will mean a lot more traffic all around.

I also recall reading that there have been significant concerns with traffic accidents on Summit Street, which is also a narrow street considering how much traffic it already gets. This new development will certainly affect traffic issues on Summit.

Noise

With the recent construction of Brandy Lane, we experienced a significant increase in noise from construction vehicles. This will increase again as the homes on Brandy Lane are built (the road has been empty for months with no homes being constructed, I suspect because no one wants to build a home there given the proximity and noise to the highway).

The noise from constructing the proposed large development on Hope Ave will be significant for us and many other neighbors for many years.

In addition to construction noise, we are concerned about additional highway noise. As noted above, the removal of woods to create Brandy Lane led to significant highway noise that we and other neighbors can now hear

constantly. The removal of even more woods with this new development will open us up to even more highway noise.

The additional highway noise impacts current residents, both in terms of what we have to listen to every day, and it will likely also make it more difficult to sell our homes, should we choose to do so.

Schools and City Services

From what I have heard and observed, the city's schools are already stressed to the max. We were fortunate to get a lottery spot for our son to attend public PreK, but due to the high demand at our neighborhood school, Lyseth, he was not able to get a spot there. I worry that adding more students to the already maxxed out school will mean our daughter will also not be able to get a spot and we will have our kids in two different schools.

School was actually closed due to staff shortages at least one day this year, which was shocking to me. I do not ever remember that happening when I was growing up. Busses were also cancelled on a pretty regular basis, something else I never remember happening during my youth. This will only become worse as we add stress on these schools.

Between the 12 or so houses on Brandy and the 60 units in the proposed new development, that is a significant amount of strain to add on our local schools, Lyseth and Lyman Moore. This, combined with the very large development planned on Lambert Street, this is a huge potential increase in students for the schools in North Deering.

I am concerned about overcrowding in schools, the stress on teachers that may lead to more teachers and other staff leaving the district, availability of school services such as before and after care and bussing, and other city services for families that are already stretched thin. For example, it is already very difficult to get into swim lessons through Portland Rec. You have to sign on immediately when registration opens at 9 am and you still risk not getting a spot in swim lessons.

Environmental

I am also very concerned about the impact to the beautiful woods and the nearby Presumscot River Preserve and trail system. One of the reasons we decided to buy our home in this neighborhood was the trails and woods. We love that we are in the city of Portland but are still in the woods. This is one of the best things about Portland. You have the benefits of city living (proximity to great restaurants and a wide variety of arts, culture, etc., as well as diversity you do not see in suburban towns in Maine) but you can still be close to nature. It seems a shame to destroy so many acres of woods and reduce the amount of green space in Portland.

Before Brandy Lane was built, we used to see foxes and deer in the neighborhood. Now we see neither. With the destruction of another 13+ acres of woods in the neighborhood, wildlife habitats will be further destroyed.

I also worry about the impact of this large new development so close to the Presumscot River Preserve and the Presumscot River itself. What will be environmental impact be?

I'd also like to know more about how this will impact the trail system. Will existing trails be removed or relocated? How close to the trails and to the Preserve and River will the new units be?

It seems there will be a significant impact to the trail system, but it's not clear what the extent of that will be. It would be helpful for the developer or the city to provide a map that shows how existing woods and trails will be impacted and the distance between the development and the trails. Will it even still feel like you are walking in the woods, or will it feel like you are just walking on a small path with limited trees between the highway and a large development?

Real Estate and Zoning

The constant construction in the neighborhood for years to come, in addition to the introduction of rental units in a neighborhood that was previously all single family homes, the additional traffic, the additional highway noise, the reduction in wooded areas and negative impact on the trails, and many other factors from this large development will make this neighborhood less desirable to live in.

The drop is desirability will make it more difficult for those of us here who choose not to stay to sell our homes at a price that will allow us to buy comparable homes elsewhere. As I am sure you are aware, home prices and mortgage rates have skyrocketed. This puts many of us in a difficult situation where the neighborhood we are in is no longer the place we planned to raise our children but we cannot afford to move.

When we purchased our home, we were aware of this parcel of land and the potential that it could be developed. However, the plans we reviewed for this parcel did not indicate that it could be developed as rental units. The prior plans were for R-3 zone single family homes or 55+ housing. We have been blindsided by the plans for 60 rental units.

This area is Zone R-3, which is supposed to be low-density, single family zoning. How is it legal for the developer to build 60 units made of up duplexes and triplexes? I feel like we were completely misled to believe that this land could only be developed into single family homes. Had we known a giant development of rental units was an option, we might have considered passing on buying this house.

I fully recognize that the impact of the current housing crisis affects many others who have not yet been able to buy their own homes, as we have. We were renters ourselves for many years until we bought this house as our first in our mid 30s. I know the city is struggling to solve the housing concerns of many and it’s not an easy problem to solve.

However, I’m concerned that this developer is not really seeking to help people who need homes but rather just seeking to profit. If you look at the website of GenX Capital Partners, you can immediate see they refer to themselves as “opportunistic” and talk about getting “outsized returns.” I do not see anything that indicates they care about developing affordable housing or care about anything other than money. Rather than focusing on what housing is truly needed and who will be helped, they seem focused on maximizing profits, which is why they are presumably stuffing as many rental units as possible into the development, rather than matching the current makeup of the neighborhood of single family homes or building rental units in a location that is more helpful to renters.

I wonder who will even want to rent these units, since we have almost no walkable services or businesses and very limited public transportation in this part of North Deering. It does not seem like an area that is conducive to what renters are looking for, or at least what I was looking for when I was a renter in Portland, which was in part to be able to walk to work and walk to various businesses. Will these become short term rentals? Will they become housing for college students, where 2 or 3 bedroom units are occupied by 4-6 students, increasing the traffic in the area even more? I would like to know if studies have been done and what they’ve shown about what type of renters will be attracted to rental units in residential neighborhoods with no walkable businesses or services, such as this.

I also note again that there is already a large development of 162 affordable units planned for 165 Lambert Street, which is very closeby. Is it really necessary and advisable to add another 60 units of rentals in the same area of North Deering? It seems that affordable housing is the real need and 165 Lambert will help address that need more than the proposed 60 units here, most of which will not be affordable, so they may just end up being short term rentals for out of state visitors anyway.

As we learn more about the developers plans, I may submit additional comments. However, these are my initial thoughts and concerns.

Thank you for considering my comments. Again, please consider notifying residents throughout the neighborhood. This large development affects many more people than were notified.

Hillary Weimont Saucier

Bryn Sewell <bryn.sewell@gmail.com> Jun 9, 2023, 2:45:35 PM (2 days ago)
to planning@portlandmaine.gov

Good afternoon,

I have a question about the development proposal for 1 Hope Ln (PL-002454-2023)

I am aware that Portland has a huge housing need, but I would like to know whether this particular project is meeting that need as it is currently proposed?

What I believe I understood the proxy for the developer to be explaining at the town hall meeting was that the rental homes will start at about $2500/month per unit, for the unsubsidised units, and move upward in cost from there. Is there much of a market for units with this high price tag?

And for the subsidized house units, is there any plan to spread the city bus line into this neighborhood to allow for those folks to have access to affordable transportation as well? And are there enough subsidised units to meet the need for increased housing equity? My concern is whether the developer should be asked to increase the number of subsidised units to improve housing equity.

Thanks very much for any information you can provide.

Bronwyn Sewell

Jessie Pinchoff <jpinchoff@gmail.com>
to planningboard@portlandmaine.gov

Dear Planning Board,

I hope this email finds you well. I'm writing to express my deep concern and strong opposition regarding the proposed construction of a 60 unit rental complex on Hope Ave, in m should be opposed due to several critical issues.

Impact on Schools: Our neighborhood's educational institutions are already operating at or near capacity. The addition of 60 rental units will undoubtedly strain the local schools, system and ensure that any further developments align with the educational resources available in the area. Especially given that there is ANOTHER giant building approved on Hope/Garsoe/Alice/Curtis). Beyond schools, there are no daycare spots available, and Pre-K is already a lottery system because the demand cant be met.

Traffic Congestion and Safety: Our neighborhood's narrow streets were barely designed to accommodate the existing number of homes and residents. The influx of additional ve particularly the roads, will not be equipped to handle the increased traffic volume. Such congestion would not only inconvenience residents but also compromise the safety of pe well, though it shouldnt affect the smaller streets it will certainly affect Auburn/Summit traffic. Curtis/Hope/Alice/Garsoe streets are very small with no traffic lights.

Environmental Concerns: Our neighborhood is fortunate to be in close proximity to the Presumpscot River and nature preserve, home to old-growth forest, deer, owls, foxes, and wildlife and the destruction of natural habitats. The Presumpscot has historical significance and is the largest freshwater input into Casco Bay. I have only seen the bare minimum preserve that will be destroyed.

Insufficient Focus on Affordable Housing: While affordable housing is a pressing issue in our city, it is disheartening to learn that 8 out of the 60 units planned for the rental compl will NOT make a dent in the critical housing needs of the city. The developer is buying out the requirement for additional units to be made affordable, so this development seems

I kindly request that you thoroughly consider the concerns raised regarding this proposed rental complex. Thank you for your attention to this matter. I trust that you will consider infrastructure/resources to support this development, especially in light of the permanent loss of forest and wildlife that would result.

Sincerely,

Jessie Pinchoff
22 Whaleboat Road
Portland Maine 04103
jpinchoff@gmail.com
646-416-2388

Reply all Reply to author Forward

Charles Tetelman <ctetelman@portlandmaine.gov> Jul 24, 2023, 2:55:10 PM (18 hours ago)
to Planning Board

---------- Forwarded message ---------
From: **rick tyler** <rtyler207@yahoo.com>
Date: Sat, Jul 22, 2023 at 7:12 AM
Subject: Hope Avenue Project
To: ctetelman@portlandmaine.gov <ctetelman@portlandmaine.gov>

As a someone who is keeping a close eye on this development, the email below and word amongst their email list is you are working with them in holding up the developers as long as you can for their first workshop. Just confirming

On Thu, Jun 22, 2023 at 12:29 PM Mike Schrameyer <geonosis42@gmail.com> wrote:

> Hi Neighbors,
>
> Thanks Erica for scheduling our first neighborhood meeting. I'm planning on being there and excited to see people at the meeting.
>
> And thanks to everyone else who's been doing some research and offering to help.
>
> I've got a few more updates and thoughts on my end leading into tomorrow's meeting.
>
> I just got off the phone with Charles Tetelman at the Portland Permitting office. He gave me a rough, unofficial timeline for the nexts steps regarding this development proposal. He said they have a backlog of 3-4 other large development projects that they're trying to work through before they hop on the Hope Ave proposal. He said the permitting/planning team will likely begin their internal review in earnest around mid-July and will be able to offer us more detailed info about the development, permitting, etc starting then. He's anticipating the planning board workshop will be in September, or October. So, we've got a little bit of time to get organized here, but I wouldn't rest on our laurels in the meantime. Let's try to get moving on this and continue to raise awareness so we're ready when these things happen.
>
> I believe someone in the email chain asked about getting a second legal opinion? In addition to chatting with Kristin Collins at Petri Flaherty, I also reached out to Amy Tchao, a land use attorney at Dummond Woodsum. Her assistant took down my info and was going to run a conflict of interest check and get back to me. I haven't heard back yet, so I'm planning on calling this afternoon to see if they're interested in working with us. Happy to choose whoever we think will best represent us.
>
> I spoke with some of my Civil Engineer friends over the past few days. Here are a few highlights from what they told me:
>
> - Portland permitting is usually very stubborn with the permitting process, for both those applying for and those resisting development (lots of "red tape" the city forces all developments to work through).

    - Because of this, Portland usually requires developers, like GenX capital, to follow all applicable codes and laws (cross all the t's, dot all the i's)
    - For groups like ours that are looking to shut down a development, it takes more than just a "please don't do this" from the permitting perspective. The planning board meetings are where the "please don't do this" argument is taken into consideration.
    - That being said, it is possible that GenX may request what is called a "zoning variance", or a "hardship variance". This means that they're asking to be allowed to not have to meet a certain code that they otherwise would have to in order for them to move forward with the proposed development as is. A review of zoning codes could help here. A technical analysis by a Civil Engineering firm could also be helpful in uncovering these zoning variances. If we do find them, this will be our best footing to stand on in terms of challenging the legality of the development proposal from a permitting perspective.
    - Charles confirmed that of the ~13 acres that the lot encompasses, a sizable portion is considered wetlands. If the developer wants to disturb, or "fill in" a large enough area of these wetlands for development they will need to apply for a state "wetlands fill permit" through the Maine Department of Environmental Protections (DEP) and will have to pay a certain amount in fines if the area is large enough. We may be able to request a citizen's appeal of this permit when the state DEP is reviewing it?
    - On the off chance that there are endangered species, or vernal pools for example on the land, we may be able to fight this from an environmental perspective in this way. Has anyone walked those "unofficial" trails and seen anything like this? I'd put money on a family of red foxes living there. And I've seen owls from time to time on the trail. Although, I'm not sure if they're protected species.
    - It was recommended to me that the traffic study is probably the best bang for our buck. So, if we can raise the funds, this is what we should prioritize (IMO)
- Unfortunately, none of my friends have the time or resources to do the technical analyses on their own. They can be fairly extensive and require specialized software tools. But I did get some 3rd party referrals that we could employ. GenX is using Haley Ward for their site plans. And Portland typically uses Woodard and Curran for their independent studies. We'll want to avoid these two firms because of conflict of interest.
    - The one exception to this is if the city and/or the developer is conducting a traffic study, we may be able to ask a 3rd party firm to review that study for validity and completeness. This could help us save some time and money in this respect.
- Another thing to keep in mind is that GenX Capital is using a fairly simple equation to determine if developing this lot is worth it. It's basically revenue from selling the units minus total project costs equals profits (revenue - costs = profits). And they are likely trying to remain above a certain profit margin to justify this project.
    - We might have a chance in forcing GenX to abandon the project by either causing their revenue to be less, like demanding single family homes, or more affordable non-luxury units, or forcing the project costs to be too high, like by challenging any "hardship variance requests" for example. If GenX thinks they'll have to eat too much into their profits fighting us, they may just withdraw the proposal. I'd say our job is to adversely affect both sides of this equation as best we can.

One thing that Kristin Collins, the land use attorney that I spoke with on Monday, mentioned, that I forgot to relay, was that she's dealt with our district 5 city councilor, Mark Dion, quite a bit professionally. She described him as someone who is pro-business, pro-development, and anti-regulation. She didn't think trying to sway his opinion was worth our time and effort. She instead

suggested trying to find other councilors, or board members, that seem to be more pro-environment to reach out to and try to convince to be our allies. I did a quick google search of the planning board members and someone like Marpheen Chann, who is also a board member of the Maine Conservation Voters group that is all about protecting Maine's environment may be our best bet.

That's all I've got for now. Looking forward to discussing some of these items with you all tomorrow evening.

-Mike

PC 10

From: **Read Me** <celtics@gmx.com>
Date: Tue, Aug 15, 2023 at 12:46 PM
Subject: 0 Hope Ave
To: <Ctetelman@portlandmaine.gov>

Dear Mr. Tetelman,

With regards to 0 Hope Ave and the proposed sub division: Presumpscott Woods

My neighbors want to join a battle to stop the project. I am actually for it, for many reasons.

However, my research indicates that years ago:

Bob Adams and Alan Wolfe owned the land and agencent parcels. They donate land to Portland in exchange for getting a contract zone on this parcel.

Further, when Amy Cook was a district councilor for Portland, she advocated for the previous owner: Peter Bouchard to get lifted the 55+ restriction in the contract zone language. The reasoning was the school in the district didn't have enough students.

It's always been my ascertion that if a project meets the guidelines the city must grant approvals (obviously with conditions that ensure safety and realistic development for the particular parcel of land).

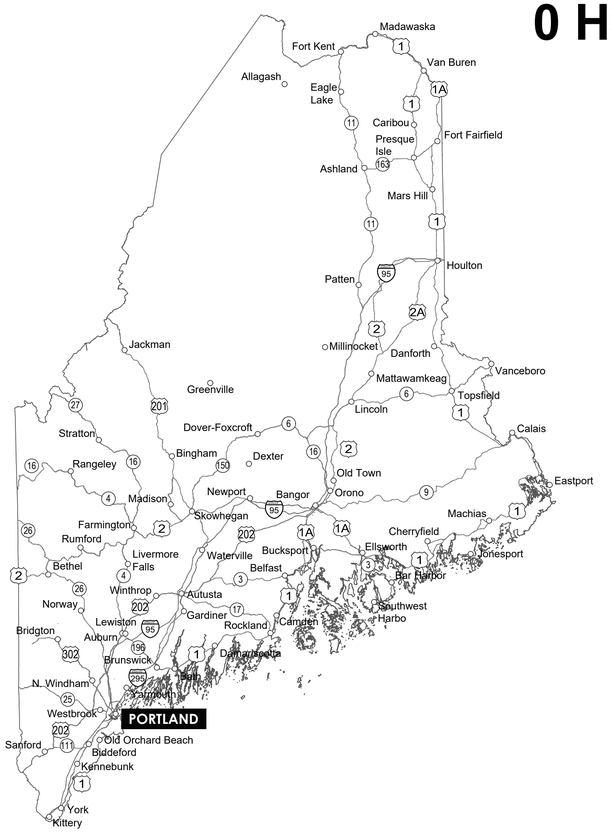
What is your position with respect to the contract zone?

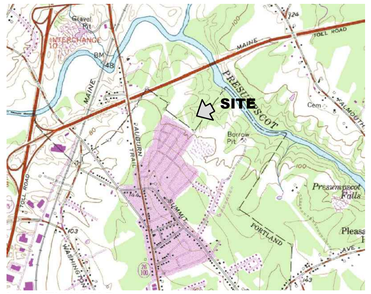
Sincerely,

Harry Boucher

PRESUMPSCOT WOODS SUBDIVISION

0 HOPE AVENUE, PORTLAND, MAINE





LOCATION MAP: USGS QUADRANGLE: PORTLAND WEST
SCALE: 1"=2000'
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ISSUED FOR PERMITTING
REVISION #2
2023.08.29

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ENGINEERING | ENVIRONMENTAL | SURVEYING
www.haleyward.com

shinberg CONSULTING

PROJECT INFORMATION

PROJECT NUMBER:
13773.001

PROJECT ADDRESS:
0 HOPE AVENUE
PORTLAND, MAINE

PROJECT LOCATION:
CUMBERLAND COUNTY

OWNER/APPLICANT
GENX CAPITAL PARTNERS, LLC
2 COTTON STREET
PORTLAND, MAINE 04101

OWNER'S REPRESENTATIVE
SHINBERG CONSULTING, LLC
GREG SHINBERG
181 STATE STREET
PORTLAND, MAINE 04101

CIVIL ENGINEER
HALEY WARD, INC.
JON H. WHITTEN, JR., P.E. #10414
120 MAIN STREET, SUITE 132
SACO, MAINE 04072

SURVEYOR
OWEN HASKELL, INC.
SAMUEL D. GLIDDEN, PLS
390 US ROUTE ONE, SUITE 10
FALMOUTH, MAINE 04105

LANDSCAPE ARCHITECT
RS LEONARD
LANDSCAPE ARCHITECTURE
REGINA LEONARD, RLA
29 BRIDGE STREET
TOPSHAM, MAINE 04086

TRAFFIC ENGINEER
BARTON & LOGUIDICE, INC.
JOHN Q. ADAMS, P.E.
383 US ROUTE ONE, SUITE 2A, BOX 4
SCARBOROUGH, MAINE 04074

UTILITY PROVIDERS

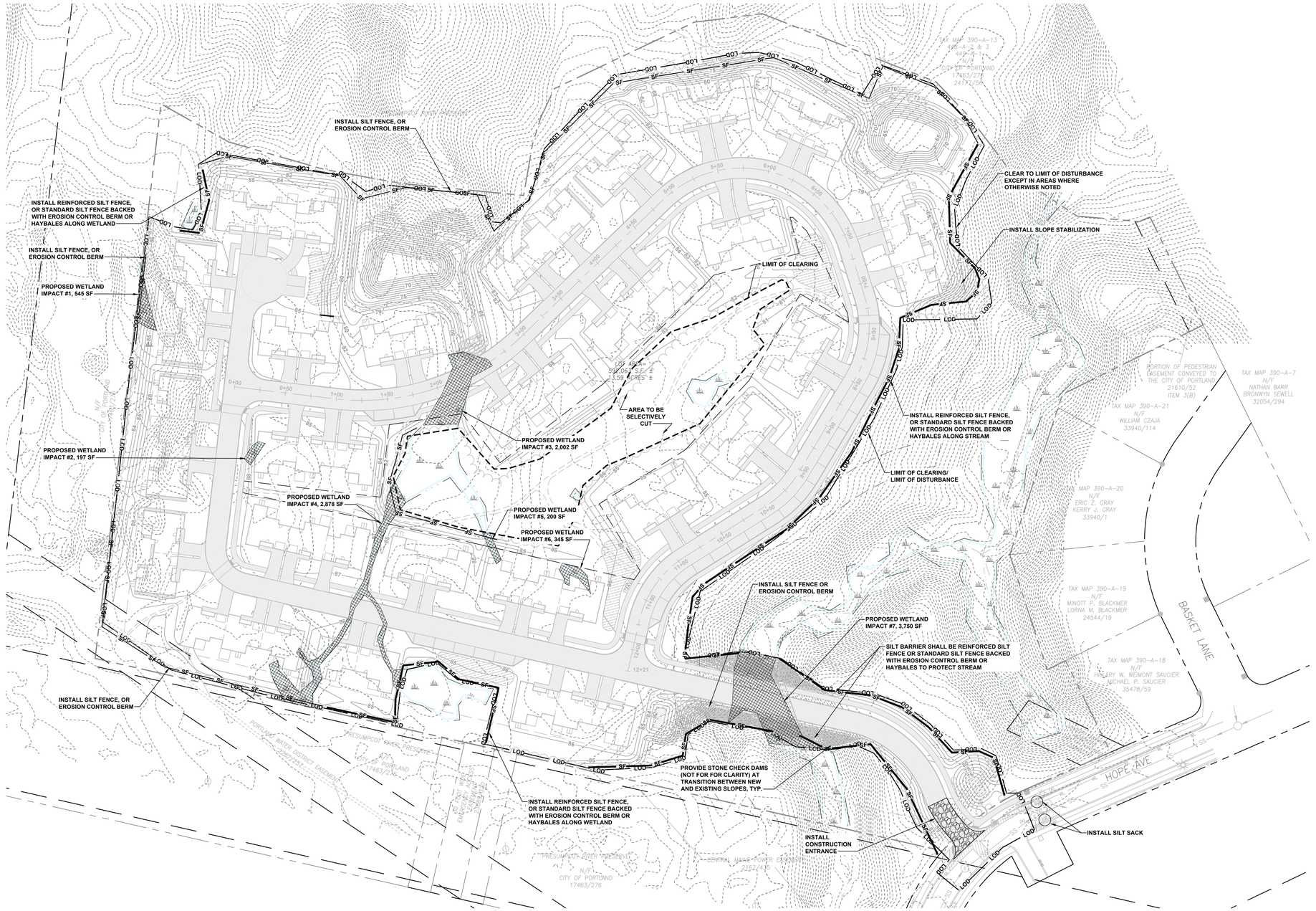
WATER:
PORTLAND WATER DISTRICT
225 DOUGLASS STREET
PORTLAND, ME 04104-3553
T. 207.774.5961

SEWER:
CITY OF PORTLAND PUBLIC WORKS
SEWER DIVISION
212 CANCO ROAD
PORTLAND, ME 04103-4221
T. 207-874-8801

ELECTRIC:
CENTRAL MAINE POWER
T. 800.565.3181

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GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 inch = 50 ft.

REV.	DATE	DESCRIPTION	BY	CHK
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING NOT FOR CONSTRUCTION

HALEY WARD
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One Merchants Plaza, Suite 701
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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

EROSION CONTROL, CLEARING LIMITS, LEGEND AND NOTES

DATE	SCALE
2022.08.29	1"=50'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C001** REV. **2**

ABBREVIATIONS

@	AT	GAL	GALLON	PERF	PERFORATED
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	GALV	GALVANIZED	PSF	POUNDS PER SQUARE FOOT
APPROX;±	APPROXIMATELY	GPH	GALLONS PER HOUR	PSI	POUNDS PER SQUARE INCH
		GPM	GALLONS PER MINUTE	PVC	POLYVINYL CHLORIDE
BLDG	BUILDING			PL	PROPERTY LINE
		HDPE	HIGH DENSITY POLYETHYLENE	POH	PROPOSED OVERHEAD ELECTRIC
CL	CENTERLINE			PUGE	PROPOSED UNDERGROUND ELECTRIC
CB	CATCH BASIN			R	RADIUS
		ID	INSIDE DIAMETER		
CLR	CLEAR	IN.	INCHES	S	SLOPE
CMP	CORRUGATED METAL PIPE	INT.	INTERSECTION	SCL	STORMWATER COLLECTION LINE
CO	CLEANOUT	INV.	INVERT	SCS	STORMWATER COLLECTION SYSTEM
CPE	CORRUGATED POLYETHYLENE			SDR	STANDARD DIMENSION RATIO
		MAX.	MAXIMUM	SE	SOUTHEAST
		MDOT	MAINE DEPT. OF TRANSPORTATION	SHT	SHEET
DI	DUCTILE IRON	MH	MANHOLE	SQ	SQUARE
DIA.	DIAMETER	MIN	MINIMUM	SS	STAINLESS STEEL
				SY	SQUARE YARD
E	EASTING	N	NORTHING		
EL	ELEVATION	NE	NORTHEAST	TBM	TEMPORARY BENCH MARK
EFM	EXISTING FORCE MAIN	N.T.S.	NOT TO SCALE	TOC	TOP OF CONCRETE
EPS	EXTRUDED POLYSTYRENE	NWT	NON WOVEN GEOTEXTILE	TYP	TYPICAL
FM	FORCEMAIN	OD	OUTSIDE DIAMETER		
		O.C.	ON CENTER		
		OH	OVERHEAD		
		OZ	OUNCES		

LEGEND:

DESCRIPTION	EXISTING	PROPOSED
BENCHMARK		
SURVEY STATION		
MANHOLE		
UTILITY POLE		
SIGN		
CATCH BASIN		
HYDRANT		
WATER VALVE		
GATE VALVE		
PROPERTY LINE		NA
EDGE OF GRAVEL		
EDGE OF PAVEMENT		
CENTERLINE		
MAJOR FOOT CONTOUR	100	100
MINOR FOOT CONTOUR	98	98
TREE LINE		

DESCRIPTION	EXISTING	PROPOSED
WATERLINE	W	W
STORM DRAIN	SD	SD
FORCE MAIN		FM
SANITARY SEWER	SS	SS
UNDERGROUND UTILITIES	UGE	UGU
SEDIMENT CONTROL BARRIER	NA	SF
CHAIN LINK FENCE	NA	X
WETLAND BOUNDARY		
STREAM		
LIMIT OF DISTURBANCE	NA	LOD
PAVED SURFACE		
RIP RAP	NA	
WETLAND IMPACT	NA	
SNOW STORAGE		
WETLAND		

SOURCE NOTES:

1. EXISTING CONDITIONS IS BASED UPON BOUNDARY AND TOPOGRAPHIC SURVEY AT HOPE LAND MADE FOR GENX CAPITAL PARTNERS, 2 COTTON STREET, PORTLAND, ME 04101, BY OWEN HASKELL, INC. PROFESSIONAL LAND SURVEYORS, DATED SEPTEMBER 12, 2022.
2. THIS SURVEY IS ORIENTED TO THE MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
4. THERE MAY BE ADDITIONAL UNDERGROUND WIRES, CABLES, UTILITIES, AND/OR STRUCTURES NOT SHOWN ON THIS PLAN. THE LOCATIONS SHOWN HEREON ARE BASED UPON SURFACE FEATURES VISIBLE AT THE TIME OF THE SURVEY. NO EXCAVATIONS WERE MADE DURING THE COURSE OF THIS SURVEY TO VERIFY AND/OR LOCATE ANY UNDERGROUND STRUCTURES.
5. THE EXISTING TOPOGRAPHY IS A COMBINATION OF SURVEY PERFORMED BY OWEN HASKELL, INC. PROFESSIONAL LAND SURVEYORS AND STATE OF MAINE LIDAR.
6. PROPOSED LAYOUT IS BASED UPON BUILDING FLOOR PLANS FOR PRESUMPSCOT WOODS, PREPARED BY A. MALTESE DESIGN, DATED 07.08.22.
7. NATURAL RESOURCE DATA WAS PROVIDED IN DWG. AND PDF. FORMAT FOR PROJECT GENX CAPITAL PARTNERS, LLC, HOPE AVENUE, PORTLAND, CUMBERLAND COUNTY, MAINE, DELINEATED WETLAND AND WATERCOURSE MAP, PREPARED BY FLYCATCHER, AND DATED JULY 2022.

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\00-HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL\DSIGN_DWGS\13773.001-C-SN.DWG, 2023.08.29, 10:39 AM

EROSION AND SEDIMENTATION CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS)SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OR SOIL DISTURBANCE ACTIVITIES. BMPS SHALL COMPLY WITH THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION RULES AND REGULATIONS AND MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS: HTTPS://WWW.MAINE.GOV/DEP/LAND/EROSION/ESCBMPS/ESC_BMP_FIELD.PDF
2. ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENTATION CONTROL BEST MANAGEMENT PRACTICES (BMPS), PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION.
3. ALL SEDIMENT BARRIERS AND EROSION CONTROL MEASURES SHALL BE INSTALLED BEFORE THE START OF CONSTRUCTION AS NOTED IN THE WRITTEN EROSION AND SEDIMENT CONTROL PLAN.
4. EROSION CONTROL MEASURES WITHIN 50 FEET OF PROTECTED NATURAL RESOURCES SHALL HAVE A DOUBLE PERIMETER EROSION CONTROL AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.
5. OPEN AREAS THAT ARE STRIPPED OR GRADED SHALL BE LIMITED TO ONE ACRE OR NO LARGER THAN CAN BE MULCHED IN ONE DAY.
6. SEDIMENT BARRIERS SHALL BE PLACED DOWNGRADIENT OF ALL STOCKPILES. STORMWATER RUNOFF SHOULD BE PREVENTED FROM RUNNING INTO STOCKPILES.
7. MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE CONTRACTOR WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE
8. MINIMIZE DISTURBED AREA AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.
9. WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED, AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.
10. PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWN GRADIENT 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. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.
11. PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROWS. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.
12. INSTALL SILT FENCES OR SEDIMENT BARRIERS ALONG CONTOUR DIVIDING FLAT AND STEEP SLOPES, AREAS WITH DIFFERENT DISTURBANCE SCHEDULES, AROUND TEMPORARY STOCKPILES OR IN OTHER UNSPECIFIED POSSIBLE CIRCUMSTANCES SHOULD BE CONSIDERED BY THE CONTRACTOR. THE INTENT OF SUCH INTERIOR SILT FENCES IS TO LIMIT SEDIMENT TRANSPORT WITHIN THE SITE TOWARD THE PROTECTED RESOURCES.
13. SILT FENCE AND SEDIMENT BARRIERS WILL BE INSPECTED, REPLACED AND/OR REPAIRED IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL (0.5 INCH OR GREATER) OR SNOW MELT OR LOSS OF SERVICEABILITY DUE TO SEDIMENT ACCUMULATION. AT A MINIMUM, ALL EROSION CONTROL DEVICES WILL BE OBSERVED WEEKLY.
14. EROSION CONTROL MIX BERMS SHALL CONSIST OF A MIX OF SHREDDED WOOD FRAGMENTS AND GRIT THAT MUST BE WELL GRADED WITH AN ORGANIC CONTENT THAT IS BETWEEN 50 AND 100% OF WEIGHT. MINERAL PORTION OF THE MIX SHOULD BE NATURALLY INCLUDED IN THE PRODUCT WITH NO ROCKS GRATER THAN 4-INCHES OR LARGE AMOUNTS OF FINES (SILTS AND CLAYS). MIX SHOULD BE FREE OF REFUSE OR MATERIAL TOXIC TO PLANT GROWTH.
15. EROSION CONTROL MIX SHALL BE USED ON SLOPES 3:1 OR SHALLOWER. SLOPES BETWEEN 3:1 AND 2:1 SHALL HAVE EROSION CONTROL BLANKET. SLOPES BETWEEN 2:1 AND 1.5:1 SHALL HAVE RIP RAP. SLOPES GREATER THAN 1.5:1 ARE PROHIBITED.
16. HAYBALES MAY BE INSTALLED IN ADDITION TO SILT FENCE OR USED AROUND CATCH BASINS TO PROVIDE ADDITIONAL SEDIMENT CAPTURE AND CONTROL.
17. EROSION CONTROL BLANKETS INTENDED FOR TEMPORARY SLOPE OR CHANNEL STABILIZATION SIMILAR TO NORTH AMERICAN GREEN ERONET BIODEGRADABLE EROSION CONTROL BLANKET OR SIMILAR.
18. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT WILL BE RETURNED TO CONSTRUCTION SITE.
19. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE STABILIZED BY A SUITABLE GROWTH OF GRASS. ONCE A SUITABLE GROWTH OF GRASS HAS BEEN OBTAINED, ALL TEMPORARY EROSION CONTROL ITEMS SHALL BE REMOVED BY THE CONTRACTOR. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THEY ARE REMOVED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, SEEDED, AND MULCHED IMMEDIATELY.
20. A SUITABLE BINDER SUCH AS TERRTACK WILL BE USED ON THE HAY MULCH FOR WIND CONTROL.
21. IF FINAL SEEDING OF DISTURBED AREAS IS NOT COMPLETED BY SEPTEMBER 15TH OF THE YEAR OF CONSTRUCTION, THEN ON THAT DATE THESE AREAS WILL BE GRADED AND SEEDED WITH WINTER RYE AT THE RATE OF 112 POUNDS PER ACRE OR 3 POUNDS PER 1000 SQUARE FEET. THE RYE SEEDING WILL BE PRECEDED BY AN APPLICATION OF 3 TONS OF LIME AND 800 LBS. OF 10-20-20 FERTILIZER OR ITS EQUIVALENT. MULCH WILL BE APPLIED AT A RATE OF 90 POUNDS PER 1000 SQUARE FEET.
22. IF THE RYE SEEDING CANNOT BE COMPLETED BY OCTOBER 1ST OR IF THE RYE DOES NOT MAKE ADEQUATE GROWTH BY DECEMBER 1ST, THEN ON THOSE DATES, HAY MULCH WILL BE APPLIED AT 150 POUNDS PER 1000 SQUARE FEET.
23. ALL CATCH BASINS ARE TO BE PROTECTED BY STRAW BALE OR SILT FENCE IN ACCORDANCE WITH SECTION B-3 STORM DRAIN INLET PROTECTION OF THE MAINE BMP HANDBOOK. SURROUNDING AREAS CAN BE EXCAVATED OR LEFT LOW AS A SEDIMENT TRAP. CURB INLETS SHALL BE PROTECTED BY GUTTERGATORS, OR APPROVED EQUIVALENT.
24. CONTRACTOR TO PROVIDE SEDIMENT SACKS IN ALL EXISTING BASINS PRIOR TO CONSTRUCTION.
25. 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. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATER BODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.
26. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.
27. PERMEANT 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, OR RIP-RAP, OR ROAD SUB-BASE. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS; AMEND AREAS OF DISTURBED SUBSOILS WITH TOPSOIL, COMPOST, OR FERTILIZERS; PROTECT SEEDED AREAS WITH MULCH OR, IF NECESSARY, EROSION CONTROL BLANKETS; AND SCHEDULE SODDING, PLANTING, AND SEEDING SO TO AVOID DIE-OFF FROM SUMMER DROUGHT AND FALL FROSTS. NEWLY SEEDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL-ESTABLISHED WITH 90% COVER BY HEALTHY VEGETATION. IF NECESSARY, AREAS MUST BE REWORKED AND RE-STABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO A PARTICULAR SITE.
    A. SEEDED AREAS: FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.
    B. SODDED AREAS: FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.
    C. PERMANENT MULCH: FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.
    D. RIPRAP: FOR AREAS STABILIZED WITH RIP-RAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIP-RAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIP-RAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.
    E. PAVED AREAS: FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED, PROVIDED IT IS FREE OF FINE MATERIALS THAT MAY RUNOFF WITH A RAIN EVENT
    F. DITCHES, CHANNELS, AND SWALES: FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH A 90% COVER OF HEALTHY VEGETATION, WITH A WELL-GRADED RIP-RAP LINING, TURF REINFORCEMENT MAT, OR WITH ANOTHER NON-EROSIVE LINING SUCH AS CONCRETE OR ASPHALT PAVEMENT. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE CHANNEL LINING, UNDERCUTTING OF THE CHANNEL BANKS, OR DOWN-CUTTING OF THE CHANNEL.
28. ALL DISTURBED AREAS WILL BE SEEDED WITH 2.5 LBS. RED FESCUE AND 0.5 LBS. RYE GRASS PER 1,000 SQUARE FEET AND MULCHED AT A RATE OF 90 LBS. PER 1,000 SQUARE FEET OR EQUIVALENT APPLICATION OF SEED AND MULCH.
29. IF PERMANENT BMP LOCATIONS ARE TO BE USED AS SEDIMENT TRAPS THEN THE AREAS OF THE AREAS OF THE BMPS SHALL BE RESTORED AS NEEDED TO PREPARE FOR LONG TERM USE, SUCH AS BY REMOVAL OF SEDIMENT, REGRADING ELEVATIONS, INSTALLING UNDERDRAINS (WHERE APPROPRIATE) AND STABILIZING THE AREA.
30. 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.
    A. SITE STABILIZATION: FOR WINTER STABILIZATION, HAY MULCH IS APPLIED AT TWICE THE STANDARD TEMPORARY STABILIZATION RATE. AT THE END OF EACH CONSTRUCTION DAY, AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE STABILIZED. MULCH MAY NOT BE SPREAD ON TOP OF SNOW.
    B. SEDIMENT BARRIERS: ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS.
    C. DITCH: ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE DEPARTMENT.
    D. SLOPES: MULCH NETTING MUST BE USED TO ANCHOR MULCH ON ALL SLOPES GREATER THAN 8% UNLESS EROSION CONTROL BLANKETS OR EROSION CONTROL MIX IS BEING USED ON THESE SLOPES.
31. STORMWATER CHANNELS: DITCHES, SWALES, AND OTHER OPEN STORMWATER CHANNELS MUST BE DESIGNED, CONSTRUCTED, AND STABILIZED USING MEASURES THAT ACHIEVE LONG-TERM EROSION CONTROL. DITCHES, SWALES AND OTHER OPEN STORMWATER CHANNELS MUST BE SIZED TO HANDLE, AT A MINIMUM, THE EXPECTED VOLUME RUN-OFF. EACH CHANNEL SHOULD BE CONSTRUCTED IN SECTIONS SO THAT THE SECTION'S GRADING, SHAPING, AND INSTALLATION OF THE PERMANENT LINING CAN BE COMPLETED THE SAME DAY. IF A CHANNEL'S FINAL GRADING OR LINING INSTALLATION MUST BE DELAYED, THEN DIVERSION BERMS MUST BE USED TO DIVERT STORMWATER AWAY FROM THE CHANNEL, PROPERLY-SPACED CHECK DAMS MUST BE INSTALLED IN THE CHANNEL TO SLOW THE WATER VELOCITY, AND A TEMPORARY LINING INSTALLED ALONG THE CHANNEL TO PREVENT SCOURING.
    A. THE CHANNEL SHOULD RECEIVE ADEQUATE ROUTINE MAINTENANCE TO MAINTAIN CAPACITY AND PREVENT OR CORRECT ANY EROSION OF THE CHANNEL'S BOTTOM OR SIDE SLOPES.
    B. WHEN THE WATERSHED DRAINING TO A DITCH OR SWALE IS LESS THAN 1 ACRE OF TOTAL DRAINAGE AND LESS THAN ¼ ACRE OF IMPERVIOUS AREA, DIVERSION OF RUNOFF TO ADJACENT WOODED OR OTHERWISE VEGETATED BUFFER AREAS IS ENCOURAGED WHERE THE OPPORTUNITY EXISTS.
32. SEDIMENT BASINS: SEDIMENT BASINS MUST BE DESIGNED TO PROVIDE STORAGE FOR EITHER THE CALCULATED RUNOFF FROM A 2-YEAR, 24-HOUR STORM OR PROVIDE FOR 3,600 CUBIC FEET OF CAPACITY PER ACRE DRAINING TO THE BASIN. OUTLET STRUCTURES MUST DISCHARGE WATER FROM THE SURFACE OF THE BASIN WHENEVER POSSIBLE. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED IF THE DISCHARGING WATERS ARE LIKELY TO CREATE EROSION. ACCUMULATED SEDIMENT MUST BE REMOVED AS NEEDED FROM THE BASIN TO MAINTAIN AT LEAST ½ OF THE DESIGN CAPACITY OF THE BASIN.

    THE USE OF CATIONIC TREATMENT CHEMICALS, SUCH AS POLYMERS, FLOCCULANTS, OR OTHER CHEMICALS THAT CONTAIN AN OVERALL POSITIVE CHARGE DESIGNED TO REDUCE TURBIDITY IN STORMWATER MUST RECEIVE PRIOR APPROVAL FROM THE DEPARTMENT. WHEN REQUESTING APPROVAL TO USE CATIONIC TREATMENT CHEMICALS, YOU MUST DESCRIBE APPROPRIATE CONTROLS AND IMPLEMENTATION PROCEDURES TO ENSURE THE USE WILL NOT LEAD TO A VIOLATION OF WATER QUALITY STANDARDS. IN ADDITION, YOU MUST SPECIFY THE TYPE(S) OF SOIL LIKELY TO BE TREATED ON THE SITE, CHEMICALS TO BE USED AND HOW THEY ARE TO BE APPLIED AND IN WHAT QUANTITY, ANY MANUFACTURER'S RECOMMENDATIONS, AND ANY TRAINING HAD BY PERSONNEL WHO WILL HANDLE AND APPLY THE CHEMICALS.
33. CULVERTS: CULVERTS MUST BE SIZED TO AVOID UNINTENDED FLOODING OF UPSTREAM AREAS OR FREQUENT OVERTOPPING OF ROADWAYS. CULVERT INLETS MUST BE PROTECTED WITH APPROPRIATE MATERIALS FOR THE EXPECTED ENTRANCE VELOCITY, AND PROTECTION MUST EXTEND AT LEAST AS HIGH AS THE EXPECTED MAXIMUM ELEVATION OF STORAGE BEHIND THE CULVERT. CULVERT OUTLET DESIGN MUST INCORPORATE MEASURES, SUCH AS APRONS, TO PREVENT SCOUR OF THE STREAM CHANNEL. OUTLET PROTECTION MEASURES MUST BE DESIGNED TO STAY WITHIN THE CHANNEL LIMITS. THE DESIGN MUST TAKE ACCOUNT OF TAILWATER DEPTH.
34. PARKING AREAS: PARKING AREAS MUST BE CONSTRUCTED TO ENSURE RUNOFF IS DELIVERED TO ADJACENT SWALES, CATCH BASINS, CURB GUTTERS, OR BUFFER AREAS WITHOUT ERODING AREAS DOWNSLOPE. THE PARKING AREA'S SUBBASE COMPACTION AND GRADING MUST BE DONE TO ENSURE RUNOFF IS EVENLY DISTRIBUTED TO ADJACENT BUFFERS OR SIDE SLOPES. CATCH BASINS MUST BE LOCATED AND SET TO PROVIDE ENOUGH STORAGE DEPTH AT THE INLET TO ALLOW INFLOW OF PEAK RUNOFF RATES WITHOUT BY-PASS OF RUNOFF TO OTHER AREAS.
35. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

INSPECTION AND MAINTENANCE

THE FOLLOWING STANDARDS MUST BE MET DURING CONSTRUCTION:

1. 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 (0.5" OR MORE IN A CONSECUTIVE 24-HOUR PERIOD), 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.
2. 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 (0.5" OR MORE IN A CONSECUTIVE 24-HOUR PERIOD). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.
3. 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.

HOUSEKEEPING

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.
2. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF 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. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.
3. FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.
4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. EXCAVATION DE-WATERING: EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE POND AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
6. AUTHORIZED NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:
    (A) DISCHARGES FROM FIREFIGHTING ACTIVITY;
    (B) FIRE HYDRANT FLUSHINGS;
    (C) VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
    (D) DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
    (E) ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
    (F) PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
    (G) UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
    (H) UNCONTAMINATED GROUNDWATER OR SPRING WATER;
    (I) FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
    (J) UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
    (K) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
    (L) LANDSCAPE IRRIGATION.
7. UNAUTHORIZED NON-STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
    (A) WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
    (B) FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
    (C) SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
    (D) TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.

STANDARD DESIGN NOTES ON FILTER BASINS

SOIL FILTER MEDIA

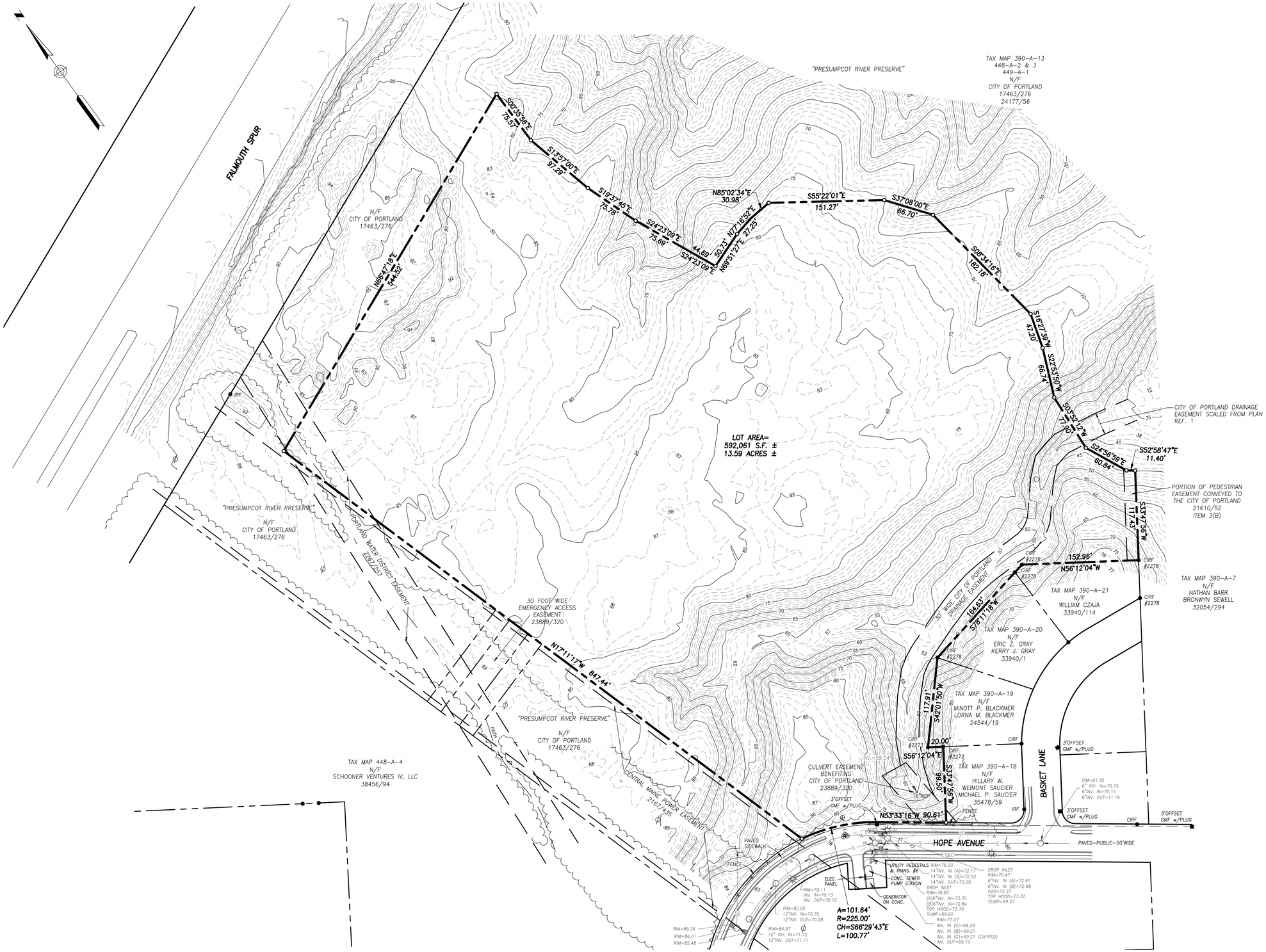
1. THE SOIL FILTER MATERIAL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES. NO OTHER MATERIAL OR SUBSTANCE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDRENCE TO THE PLANTING OR MAINTENANCE OPERATION CAN BE MIXED WITH THE FILTER.
2. GRADATION TESTS AND PERMEABILITY TESTING OF THE SOIL FILTER MATERIAL SHALL BE PERFORMED BY A QUALIFIED SOIL TESTING LABORATORY AND SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE PLACEMENT AND COMPACTION.
3. THE MIXTURE SHALL CONTAIN BY VOLUME THE FOLLOWING:
    A. 50% OF SANDY SOIL - MEDOT #703.01 WILL NOT CONTAIN SUFFICIENT FINE AND TOPSOIL/LOAM WILL HAVE TO COMPENSATE THE DEFICIENCY
    B. 20% OF LOAMY TOPSOIL
    C. 30% OF SUPERHUMUS OR EQUIVALENT COMPOSTED WOODY FIBERS AND FINE SHREDDED BARK
4. THE BLENDED SOIL FILTER MIXTURE OF BARK MULCH, SAND AND LOAM SHALL HAVE 8% TO 12% PASSING THE #200 SIEVE. THE MIXTURE SHALL HAVE A CLAY CONTENT OF LESS THAN 2%. THE TESTING OF ALL MATERIALS SHALL BE PERFORMED BY A QUALIFIED LABORATORY AND SUBMITTED TO THE ENGINEER FOR REVIEW.
5. SOIL FILTER MEDIA MIXTURE SHALL HAVE A PERMEABILITY OF 2.4 IN/HR TO 4 IN/HR UPON COMPACTION BETWEEN 90 AND 92% STANDARD PROCTOR (ASTM D698).

UNDERDRAIN BEDDING

1. THE UNDERDRAIN BEDDING MATERIAL (12 INCHES MINIMUM) SHALL BE CLEAN GRAVEL MEETING THE GRADATION MEDOT SPECIFICATION 703.22 UNDERDRAIN TYPE C GRADATION MEDOT SPECIFICATIONS 703.22 UNDERDRAIN TYPE B.

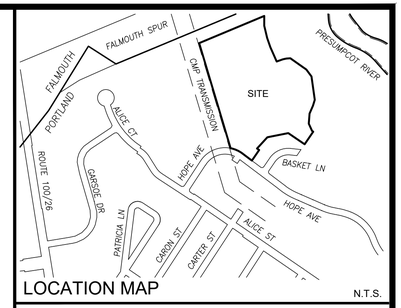
TRANSITION LAYER

1. THE TRANSITION LAYER (6 INCH MINIMUM) SHALL MEET THE GRADATION MEDOT SPECIFICATION 703.22 UNDERDRAIN TYPE B. THE SAND SHALL HAVE LESS THAN 5% FINES PASSING THE #200 SIEV



SCALE : 1" = 60'

0' 30' 60' 120'



LOCATION MAP N.T.S.

LEGEND

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- CAPPED IRON ROD TO BE SET
- UTILITY POLE
- MANHOLE
- CATCH BASIN
- LIGHT POLE
- FENCE
- GUARDRAIL
- CURB
- 80 — 1' CONTOUR
- IPF/IRF — IRON PIPE/ROD FOUND
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK / PAGE

PLAN REFERENCES

1. "RIVERWALK SUBDIVISION PLAN" MADE FOR GORRILL-PALMER DATED OCTOBER 25, 2005 AND REVISED FEBRUARY 24, 2006 AS RECORDED IN PLAN BOOK 206, PAGES 412 & 413.

2. "PLAN OF BRANDY LANE SUBDIVISION PLAT" MADE FOR LBW, LLC DATED JANUARY 15, 2018 AND REVISED THROUGH JUNE 7, 2021 AS RECORDED IN PLAN BOOK 221, PAGE 435.

3. "PLAN OF PROPERTY FOR ROBERT ADAM" MADE BY LAND USE CONSULTANTS DATED AUGUST, 1978 AS RECORDED IN PLAN BOOK 125, PAGES 45 & 46.

4. "PRESUMPSCOT RIVER PLACE III SUBDIVISION PLAN" MADE FOR ROBERT ADAM AND BURT WOLF BY TITCOMB ASSOCIATES DATED DECEMBER 4, 2001 AND REVISED THROUGH OCTOBER 21, 2002 AS RECORDED IN PLAN BOOK 202, PAGE 650.

GENERAL NOTES

1. OWNER OF RECORD: ESTELLE ESTATES, LLC
   TAX MAP: 448 BLOCK A LOT 1
   409 BLOCK A LOT 2
   390 BLOCK A LOT 1
   C.C.R.D. BOOK 35303 PAGE 331

2. BEARINGS ARE BASED ON STATE PLANE COORDINATE SYSTEM, MAINE WEST ZONE, NAD83 PER GPS OBSERVATION.

3. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM BASED UPON GPS OBSERVATION. THE ELEVATION BENCHMARK FROM PLAN REFERENCE 2 APPEARS TO BE 0.76 FEET HIGH COMPARED TO THIS SURVEY.

4. CONTOUR INFORMATION IS A COMPOSITE OF GROUND SURVEYING AND 2020 LIDAR DATA AVAILABLE FROM THE MAINE OFFICE OF G.I.S. THE LIDAR DATA HAS BEEN FIELD VERIFIED BY OWEN HASKELL, INC., YIELDING AN OVERALL R.M.S.E. OF 0.09 FEET AT THE SAMPLE POINTS TAKEN AROUND THE SITE. THE CONTOURS IN THE DEVELOPED PORTION OF HOPE AVENUE ARE THE RESULT OF A TOTAL STATION SURVEY.

5. SITE BENCHMARK IS A PLUG IN A GRANITE MONUMENT LOCATED 3 FOOT OFFSET OF THE POINT OF CURVATURE OF THE STREET LINE OF THE SUBJECT PROPERTY. THE ELEVATION IS 77.35 FEET.

CERTIFICATE

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 CURRENT STANDARDS OF PRACTICE.

SAMUEL D. GLIDDEN, PLS #2520

9/12/22
DATE

STATE OF MAINE — SAMUEL D. GLIDDEN 2520 — PROFESSIONAL LAND SURVEYOR

Boundary and Topographic Survey
On
Hope Avenue, Portland, Maine
Made for
GenX Capital Partners
2 Cotton Street, Portland, ME 04101

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: SDG	DATE: SEPT. 12, 2022	JOB NO. 2022-086 P
CHECKED BY: RCJ	SCALE: 1" = 60'	DRWG. NO. 1

PROPERTY BOUNDARY

FORESTED

WETLAND, TYP.

LOT AREA=
592,063 S.F. ±
13.59 ACRES ±

100' PERENNIAL SETBACK

75' STREAM SETBACK

APPROXIMATE STREAM LOCATION

TAX MAP 390-A-13
448-A-2 & 3
449-A-1
N/F
CITY OF PORTLAND
17463/276
24177/56

TAX MAP 390-A-21
N/F
WILLIAM CZAJA
33940/114

TAX MAP 390-A-20
N/F
ERIC Z. GRAY
KERRY J. GRAY
33940/1

TAX MAP 390-A-19
N/F
MINOTT P. BLACKMER
LORNA M. BLACKMER
24544/19

TAX MAP 390-A-18
N/F
HILLARY W. WEIMONT SAUCIER
MICHAEL P. SAUCIER
35478/59

PORTION OF PEDESTRIAN EASEMENT CONVEYED TO THE CITY OF PORTLAND
21610/52
ITEM 3(B)

PORTLAND WATER DISTRICT EASEMENT
2267/207

"PRESUMPCOT RIVER PRESERVE"
N/F
CITY OF PORTLAND
17463/276

CENTRAL MAINE POWER EASEMENT
2162/445

BASKET LANE

HOPE AVENUE

DROP INLET
RIM=76.93
14"INV. IN (A)=72.17
14"INV. IN (B)=72.52
14"INV. OUT=70.20

DROP INLET
RIM=76.47
6"INV. IN (A)=72.61
6"INV. IN (B)=72.98
H20=72.27
TOP HOOD=73.37
SUMP=69.57

DROP INLET
RIM=76.60
(A)6"INV. IN=73.35
(B)6"INV. IN=72.84
TOP HOOD=73.70
SUMP=69.60

RIM=77.07
INV. IN (A)=69.29
INV. IN (B)=69.21
INV. IN (C)=69.27 (CAPPED)
INV. OUT=69.19

RIM=79.11
INV. IN=70.13
INV. OUT=70.12

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
One Merchants Plaza, Suite 701
Bangor, Maine 04401
207.989.4824
WWW.HALEYWARD.COM

PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

EXISTING CONDITIONS PLAN

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C101** REV. **2**

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\000\HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL\DESIGN_DWGS\013773.000-CIV-EXI.DWG, 2023.08.29, 10:40 AM

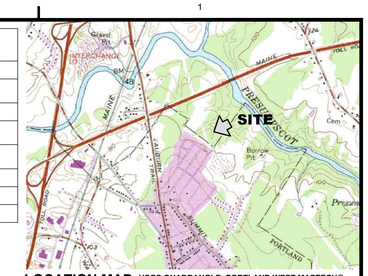
GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

PRUD LAND AREA CALCULATION

TOTAL LAND AREA	592,063 SF
WETLAND & WATERCOURSE AREA	42,951.25 SF
AREA WITH SLOPE >25%	139,230 SF
AREA OF SPECIAL FLOOD HAZARD	N/A
TOTAL NET AREA FOR DEVELOPMENT	409,882 SF
NUMBER OF UNITS	60 UNITS
RESULTING NET AREA/UNIT	6,831 SF
REQUIRED NET AREA/UNIT	6,500 SF



LOCATION MAP - SCALE: 1"=2000'

USGS QUADRANGLE: PORTLAND WEST MAPTECH®
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PARCEL INFORMATION

MAP / LOT:	390/A001, 448/A001001, 449/A002	
LOT AREA:	13.59	ACRES
ZONE OR DISTRICT:	R-3 PRUD	
FLOOD ZONE:	ZONE C (MINIMAL HAZARD)	
WATER:	MUNICIPAL	
SEWER:	MUNICIPAL	

SITE DEVELOPMENT DATA

EXISTING IMPERVIOUS SF / AC:	0	0.00
NEW IMPERVIOUS SF/AC:	176,147	4.04
TOTAL IMPERVIOUS SF / AC:	176,147	4.04
TOTAL DEVELOPED SF / AC:	388,727	8.92
LOT COVERAGE ALLOWED/ PROVIDED:	35%	30%
NEW ROADWAY AND PARKING SF / AC	52,171	1.20
NEW OPEN / RECREATION SPACE SF/AC	43,700	1.00
WETLAND IMPACTS SF / AC:	10,917	0.25

DESIGN STANDARDS

	REQUIRED	*PROPOSED*
R.O.W. WIDTH:	50'	N/A
TRAVELED WAY WIDTH:	20'	20'
MINIMUM GRADE:	0.5%	1%
MAXIMUM GRADE:	8%	4%
ROADWAY CROWN:	3% LOCAL / 2% OTH	2%
MAX GRADE @ INT.	3% FOR 100'	2.46%
BUILDING HEIGHT:	35 FT	25
MINIMUM FRONT SETBACK:	25 FT	340
MINIMUM REAR SETBACK:	25 FT	25
MINIMUM SIDE SETBACK:	25 FT	25
MINIMUM FRONTAGE:	50 FT	191.39
MINIMUM LOT WIDTH:	65 FT	191.39
PARKING REQUIRED	1 PER DWELLING / UNIT	
PARKING PROVIDED	(2) 1 GARAGE / 1 DRIVEWAY	

RECORD OWNER:
GENX CAPITAL PARTNERS, LLC
2 COTTON STREET
PORTLAND, MAINE 04101

THIS IS TO CERTIFY THAT AFTER REVIEWING THE SITE PLAN SUBMISSION INFORMATION FOR THE PROJECT SHOWN ON THIS PLAN AND CONSIDERING EACH OF THE CRITERIA SET FORTH IN THE CITY OF PORTLAND'S CODE OF ORDINANCES AND IN ACCORDANCE WITH THE APPLICATION REQUIREMENTS, THE UNDERSIGNED HAVE MADE FINDINGS OF FACT ESTABLISHING THAT THIS PLAN ALONG WITH ITS ADDITIONAL SUBMISSION INFORMATION (IF APPLICABLE) HAS MET ALL THE CRITERIA SET FORTH AND THEREFORE THE SITE PLAN IS APPROVED.

APPROVED BY THE CITY OF PORTLAND PLANNING BOARD ON: _____

CONDITIONS: _____

PLANNING BOARD SIGNED ON: _____

REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
One Merchants Plaza, Suite 701
Bangor, Maine 04401
207.989.4824
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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

PROPOSED SITE PLAN

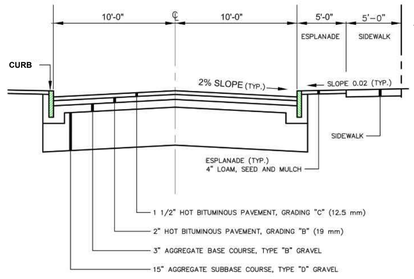
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SCALE	1"=40'
DRAWN BY	BLQ
DESIGNED BY	BLQ
CHECKED BY	JHW
PROJECT No.	13773.001
DRAWING No.	C102
REV.	2

STATE OF MAINE
CUMBERLAND, SS.
REGISTRY OF DEEDS
RECEIVED AND FILED

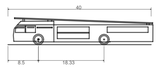
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Attest _____ Register

RECORDED AS MAP FILE:



LOCAL STREET CROSS SECTION
NOT TO SCALE



Ladder Truck	40.000ft
Overall Length	8.330ft
Overall Width	7.514ft
Overall Body Height	0.764ft
Min Body Ground Clearance	8.330ft
Max Track Width	6.00s
Lock-to-lock time	45.00°
Max Wheel Angle	

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\000\HOPE_AVE_DUPLEXES\JHW\02-CAD_DRAWINGS\CIVIL\DESIGN_DWGS\13773.000-C-SP.DWG, 2023.08.29, 10:40 AM

GENERAL NOTES:

1. DRIP EDGE FILTERS SHALL BE DAYLIGHTED WITH 6" SOLID HDPE PIPE WITH RODENT SCREEN TO REAR OF BUILDINGS, TYP.
2. FOUNDATION DRAINS SHALL BE TIED INTO THE NEAREST CATCH BASIN (BASEMENTS SHALL REQUIRE SUMP PUMPS).
3. CONTRACTOR SHALL USE MEANS AND METHODS NECESSARY TO ENSURE CONSTRUCTION VEHICLES AND ACTIVITIES DO NOT EXTEND BEYOND THE PROPERTY BOUNDARY.

PROPOSED RIP RAP SPILLWAY
OUTLET: 76.65
BIOCELL A REFER TO DETAIL ON SHEET C504
PROPOSED 15" HDPE SD L: 14 LF / S: 0.007
OUTLET: 74.65
BIOCELL B REFER TO DETAIL ON SHEET C504
PROPOSED 15" HDPE SD L: 115 LF / S: 0.029
PROPOSED 2:1 RIP RAP SLOPE AND SPILLWAY
PROPOSED 4" HDPE PIPE L: 75 LF / S: 0.005
PROPOSED 6" HDPE PIPE L: 40 LF / S: 0.005
WETPOND A OUTLET STRUCTURE REFER TO DETAIL AND TABLE ON SHEET C505
PROPOSED 2:1 RIP RAP SLOPE AND SPILLWAY
WETPOND A
WETPOND B
PROPOSED OUTLET PROTECTION
WETPOND B OUTLET STRUCTURE REFER TO DETAIL AND TABLE ON SHEET C505
PROPOSED 24" HDPE L: 43 LF / S: 0.002 INV. IN: 74.00 INV. OUT: 74.08
PROPOSED 15" HDPE L: 69 LF / S: 0.005 INV. IN: 84.08 INV. OUT: 83.74
PROPOSED 24" HDPE SD L: 15 LF / S: 0.020
PROPOSED 15" HDPE SD L: 143 LF / S: 0.011
PROPOSED BANK STABILIZATION
PROPOSED 12" HDPE L: 34 LF / S: 0.018 INV. IN: 76.45 INV. OUT: 75.85
100' PERENNIAL STREAM SETBACK
PROPOSED 15" HDPE SD L: 32 LF / S: 0.015
PROPOSED 15" HDPE SD L: 15 LF / S: 0.007
PROPOSED 15" HDPE SD L: 110 LF / S: 0.013
PROPOSED 15" HDPE SD L: 70 LF / S: 0.005
PROPOSED 15" HDPE SD L: 128 LF / S: 0.032
PROPOSED 18" HDPE L: 67 LF / S: 0.005 INV. IN: 76.50 INV. OUT: 76.15
PROPOSED 24" HDPE SD L: 93 LF / S: 0.005
PROPOSED 15" HDPE SD L: 24 LF / S: 0.006
PROPOSED 15" HDPE SD L: 14 LF / S: 0.007
PROPOSED 15" HDPE L: 63 LF / S: 0.006 INV. IN: 83.15 INV. OUT: 82.77
PROPOSED 18" HDPE SD L: 92 LF / S: 0.005
PROPOSED 15" HDPE SD L: 51 LF / S: 0.005
PROPOSED 15" HDPE L: 15 LF / S: 0.157 INV. IN: 83.80 INV. OUT: 81.45
PROPOSED 15" HDPE SD L: 58 LF / S: 0.005
PROPOSED 15" HDPE SD L: 38 LF / S: 0.006
PROPOSED CONCRETE BOX CULVERT 6' H x 6' W x 72' L
PROPOSED 15" HDPE SD L: 14 LF / S: 0.007
PROPOSED GUSF 2 SOIL GROUP: C FILTER SIZE: 10'x20' REFER TO DETAIL AND TABLE ON SHEET C505
OUTLET: 72.88
PROPOSED 15" HDPE SD L: 17 LF / S: 0.005
OUTLET: 79.65
RIP RAP SPILLWAY AND 2:1 SLOPE
PROPOSED GUSF 1 SOIL GROUP: C FILTER SIZE: 10'x20' REFER TO DETAIL AND TABLE ON SHEET C505
PROPOSED RIP RAP SPILLWAY
PROPOSED 15" HDPE SD L: 27 LF / S: 0.002
PROPOSED 15" HDPE SD L: 14 LF / S: 0.005
PROPOSED 15" HDPE SD L: 24 LF / S: 0.006
CB-01 CB-02 CB-03 CB-04 CB-05 CB-06 CB-07 CB-08 CB-09 CB-10 CB-11 CB-12 CB-13 CB-14 CB-15 CB-16 CB-17 CB-18 CB-19 CB-20 CB-21 CB-22 CB-23 CB-24 CB-25 CB-26 CB-27
SMH-18 SMH-19 SMH-20
HOPE AVE
BAY

GRAPHIC SCALE

40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS
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207.989.4824
WWW.HALEYWARD.COM

PROJECT
PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE
PROPOSED GRADING AND DRAINAGE PLAN

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	DSB	JHW

PROJECT No. 13773.001

DRAWING No. **C103** REV. **2**

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\001-HOPE_AVE_DUPLEXES-HWG\0-CAD_DRAWINGS\CIVIL\DESIGN_DWGS\13773.001-C-GR.DWG, 2023.08.29, 4:06 PM

SMH-01
STA 11+16.00
OFFSET: 22.89L
RIM: 86.00
INV. OUT: 81.00

PROPOSED BLOW-OFF

PROPOSED 8" SDR 35 SS MAIN
L: 129 LF / S: 0.0075

PROPOSED 8" SDR 35 SS MAIN
L: 90 LF / S: 0.0050

PROPOSED 8" WATER
MAIN GATE VALVES

SMH-02
STA 9+91.00
OFFSET: 5.08R
RIM: 87.33
INV. IN: 80.03
INV. OUT: 77.21

SMH-08
STA 0+99.00
OFFSET: 5.09R
RIM: 84.08
INV. IN: 77.66
INV. OUT: 77.76

SMH-10
STA 2+95.00
OFFSET: 5.08R
RIM: 81.51
INV. OUT: 77.16

PROPOSED FIRE
HYDRANT W/ 6" SERVICE
AND GATE VALVES

PROPOSED AIR
RELIEF VALVE

SMH-03
STA 8+42.00
OFFSET: 5.02R
RIM: 88.08
INV. IN: 76.48
INV. OUT: 76.36

PROPOSED 8" SDR 35 SS MAIN
L: 145 LF / S: 0.0050

SMH-09
STA 1+75.59
OFFSET: 13.29R
RIM: 82.24
INV. IN: 78.14

PROPOSED 8" SDR 35 SS MAIN
L: 76 LF / S: 0.0050

PROPOSED 8" SDR 35 SS MAIN
L: 184 LF / S: 0.0050

PROPOSED 8" SDR 35 SS MAIN
L: 185 LF / S: 0.0050

PROPOSED 8" SDR 35 SS MAIN
L: 38 LF / S: 0.0047

SMH-04
STA 7+88.00
OFFSET: 5.15R
RIM: 87.28
INV. IN: 76.18
INV. OUT: 76.08

SMH-05
STA 6+00.00
OFFSET: 5.03R
RIM: 84.91
INV. IN: 75.16
INV. OUT: 75.06

PROPOSED AIR
RELIEF VALVE

PROPOSED 1" AIR VALVE 3'
FROM GATE VALVE

PROPOSED 8" WATER MAIN GATE
VALVES AND 8"x8" SWIVEL TEE

PROPOSED 4" SDR 35 SS SERVICE, TYP.

1" COPPER WATER SERVICE, TYP.

SMH-11
STA 4+88.00
OFFSET: 5.07R
RIM: 82.03
INV. IN: 76.21
INV. OUT: 76.11

PROPOSED 8" SDR 35 SS MAIN
L: 75 LF / S: 0.0185

SMH-12
STA 5+73.00
OFFSET: 5.25R
RIM: 79.36
INV. IN: 74.72
INV. OUT: 74.82

PROPOSED 8" SDR 35 SS MAIN
L: 43 LF / S: 0.0055

PROPOSED FIRE
HYDRANT W/ 6" SERVICE
AND GATE VALVES

PROPOSED 8" SDR 35 SS MAIN
L: 148 LF / S: 0.0051

SMH-13
STA 6+24.18
OFFSET: 22.91R
RIM: 79.80
INV. IN: 74.38
INV. OUT: 74.22

PROPOSED 8" SDR 35 SS MAIN
L: 189 LF / S: 0.0050

TYPICAL SERVICES FOR EACH RESIDENCE:
1" COPPER WATER LINE W/ SHUT OFF VALVE
UNDERGROUND ELECTRICAL/COMMUNICATION
4" SDR35 SANITARY SEWER
(PROVIDE 5' MIN. SPACING BETWEEN WATER, SEWER, AND UGU)
TRI-PLEX UNITS SHALL RECEIVE (1) 4" FIRE SERVICE, TYP.

SMH-14
STA 8+00.00
OFFSET: 5.08R
RIM: 80.55
INV. IN: 73.46
INV. OUT: 73.36

PROPOSED 8" SDR 35 SS MAIN
L: 177 LF / S: 0.0055

SMH-15
STA 9+87.00
OFFSET: 5.21R
RIM: 83.35
INV. IN: 72.38
INV. OUT: 72.48

SMH-16
STA 11+03.11
OFFSET: 7.18R
RIM: 84.78
INV. IN: 71.80
INV. OUT: 71.70

SMH-17
STA 11+52.00
OFFSET: 7.30R
RIM: 85.26
INV. IN: 71.45
INV. OUT: 71.35

SMH-06
STA 4+11.00
OFFSET: 5.07R
RIM: 86.12
INV. IN: 74.13
INV. OUT: 74.00

PROPOSED 8" SDR 35 SS MAIN
L: 112 LF / S: 0.0061

PROPOSED 8" SDR 35 SS MAIN
L: 48 LF / S: 0.0052

PROPOSED 8" SDR 35 SS MAIN
L: 62 LF / S: 0.0053

PROPOSED FIRE HYDRANT W/
6" SERVICE AND GATE VALVES

MAINTAIN 10' MIN. SEPARATION BETWEEN
WATER AND SEWER THROUGHOUT

PROPOSED 8" SDR 35 SS MAIN
L: 245 LF / S: 0.0102

PROPOSED
UNDERGROUND
ELECTRIC

SMH-18
STA 1+62.29
OFFSET: 7.43R
RIM: 80.90
INV. IN: 71.50
INV. OUT: 71.40

PROPOSED 8" SDR 35 SS MAIN
L: 47 LF / S: 0.0064

SMH-19
STA 1+13.29
OFFSET: 7.87R
RIM: 80.71
INV. IN: 71.10
INV. OUT: 71.00

PROPOSED 8" SDR 35 SS MAIN
L: 70 LF / S: 0.0054

APPROXIMATE LOCATION
OF PROPOSED
TRANSFORMER

PROPOSED AIR
RELIEF VALVE

PROPOSED 8" DI
WATER MAIN, TYP.

SMH-20
STA 0+38.51
OFFSET: 6.38R
RIM: 78.78 ~
INV. IN: 70.62
INV. OUT: 70.52

PROPOSED 8" GATE VALVE

REMOVE EXISTING 2"
BLOW-OFF AND BEGIN
INSTALLATION. INSTALL
CHLORINE TAP WITHIN FIRST
10' OF INSTALLATION

PROPOSED 8" SDR 35 SS MAIN
L: 47 LF / S: 0.0049

COORDINATE
CONNECTION OF
UTILITIES WITH THE CITY

CORE AND BOOT EXISTING
MANHOLE TO RECEIVE
NEW 8" PIPE
INV. IN: 70.29

BASKET LANE

HOPE AVE

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

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PROJECT
PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE
UTILITIES PLAN

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	DJO/BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C104** REV. **2**

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\001\HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL\DESIGN_DWGS\13773.001-CUT DWG, 2023.08.29, 4:09 PM

LIGHTING SCHEDULE

TYPE	QTY	CATALOG NUMBER	DESCRIPTION	LAMP	LUMENS	LUMEN MULTIPLIER	LLF	WATTS	MOUNTING HEIGHT
A	22	EPTT01_06DA30_____-120-277V	EVOLVE POST TOP TOWN & COUNTRY	LED	5300.174	1	1	56	14 FEET

NOTE:
EACH RESIDENTIAL UNIT SHALL HAVE AN INDIVIDUAL LIGHT SOURCE AT ENTRYWAYS THAT ARE NOT INCLUDED ON THIS PLAN.



GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

LIGHTING PLAN

DATE	SCALE
2022.08.29	1"=40'

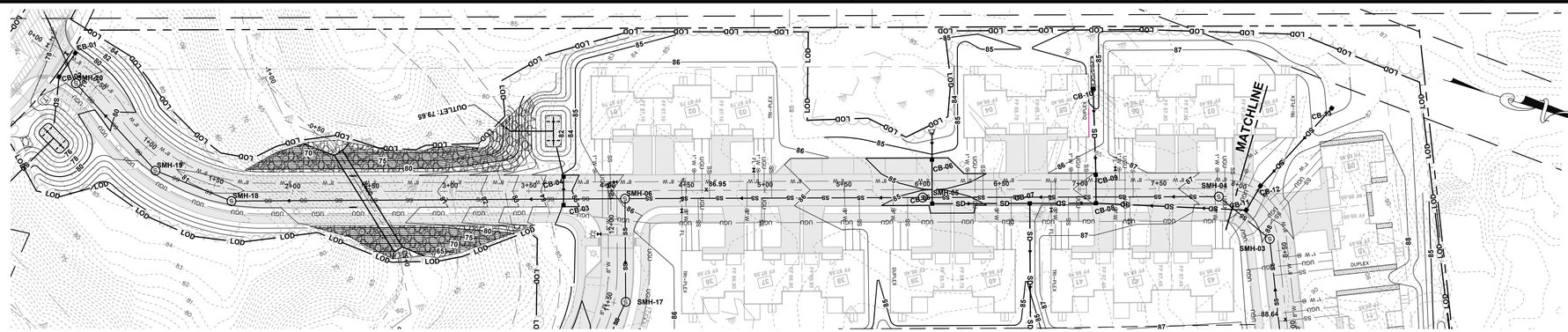
DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	DJO	JHW

PROJECT No.
13773.001

DRAWING No.
C105

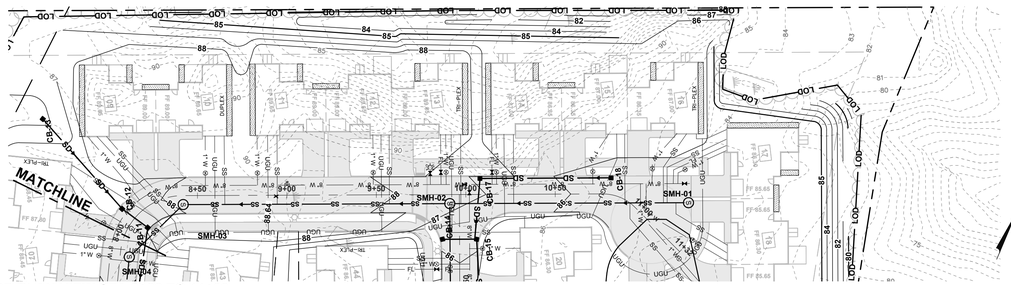
REV.
2

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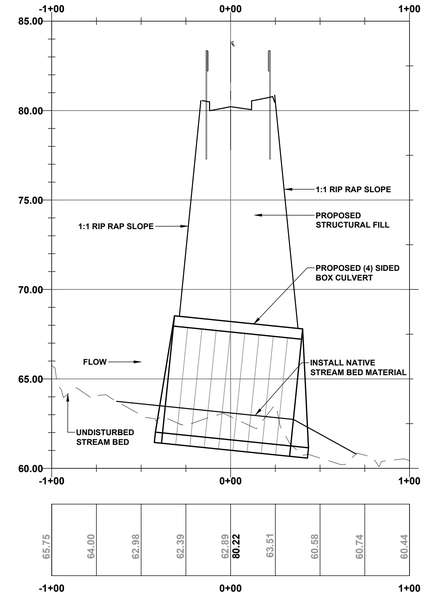
MAIN RD PLAN VIEW STA 0+00 TO 8+00

SCALE: 1"=40'



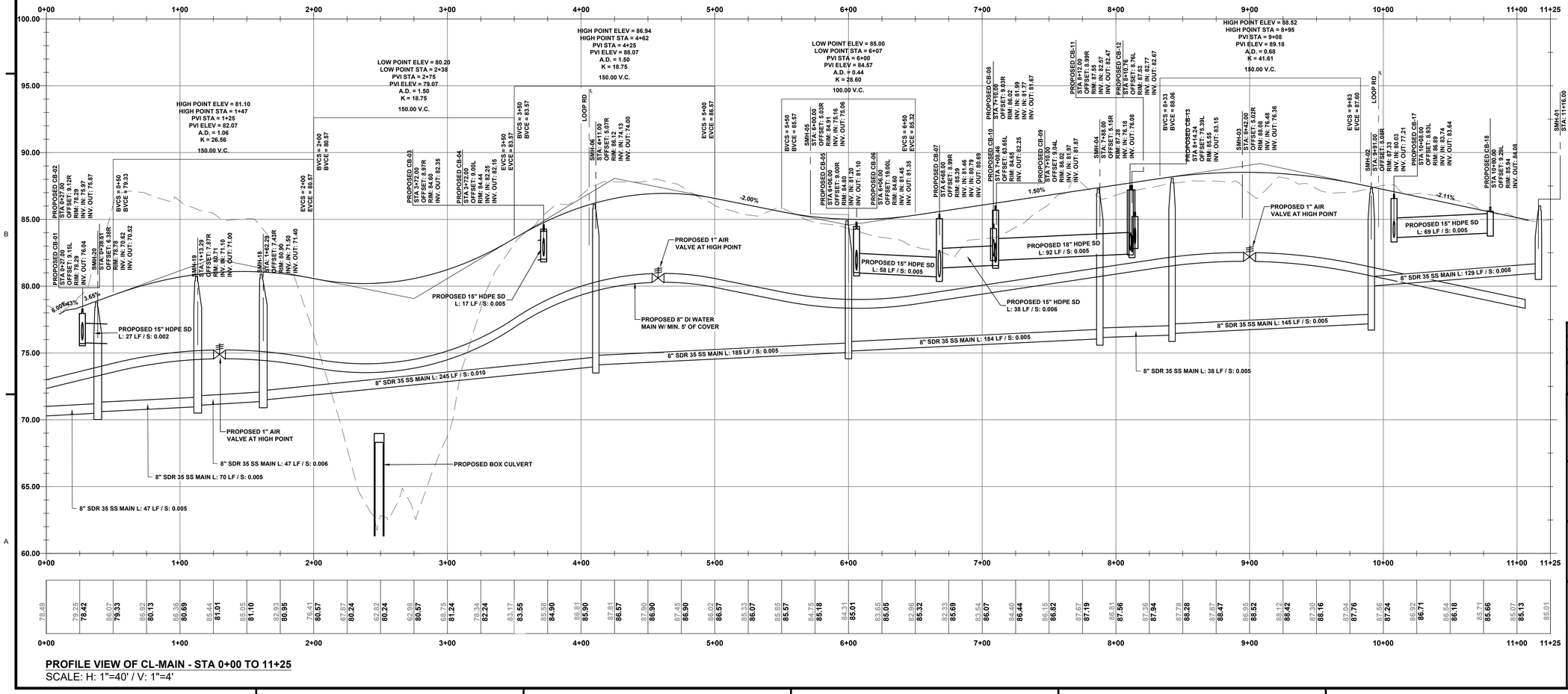
MAIN RD PLAN VIEW STA 8+00 TO 11+09

SCALE: 1"=40'



PROFILE VIEW OF STREAM CROSSING - STA -1+00 TO 1+00

SCALE: H: 1"=40' / V: 1"=4'



PROFILE VIEW OF CL-MAIN - STA 0+00 TO 11+25

SCALE: H: 1"=40' / V: 1"=4'

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

MAIN RD
PLAN AND PROFILE

DATE	SCALE
2022.08.29	1"=40'

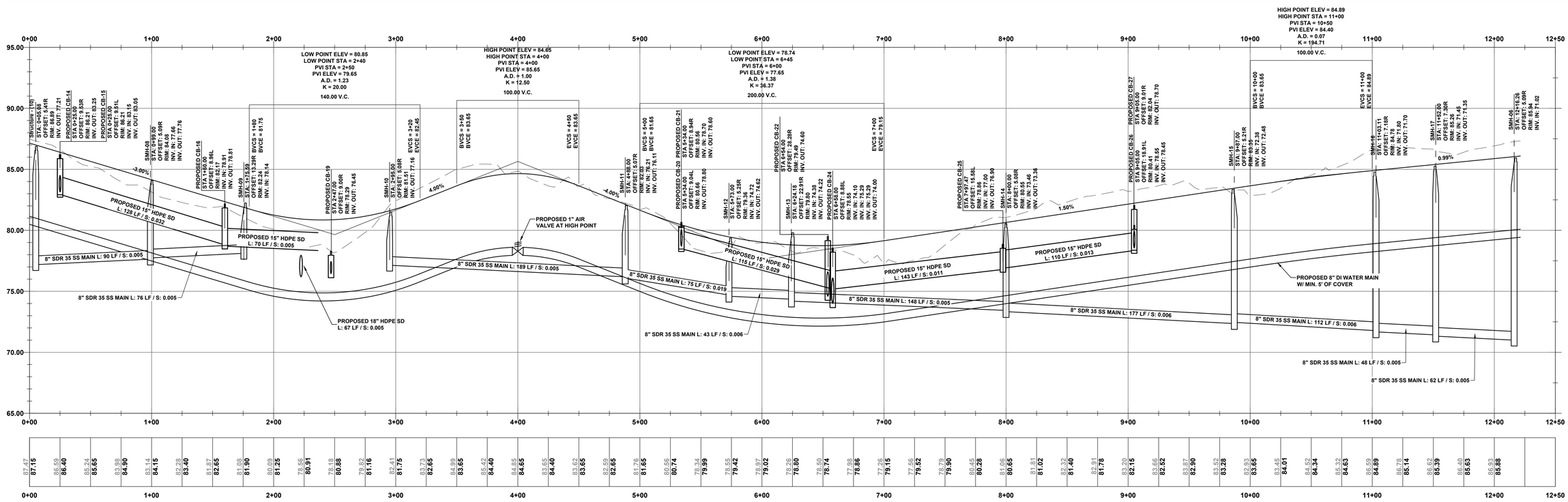
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BLQ	BLQ	JHW

PROJECT No.
13773.001

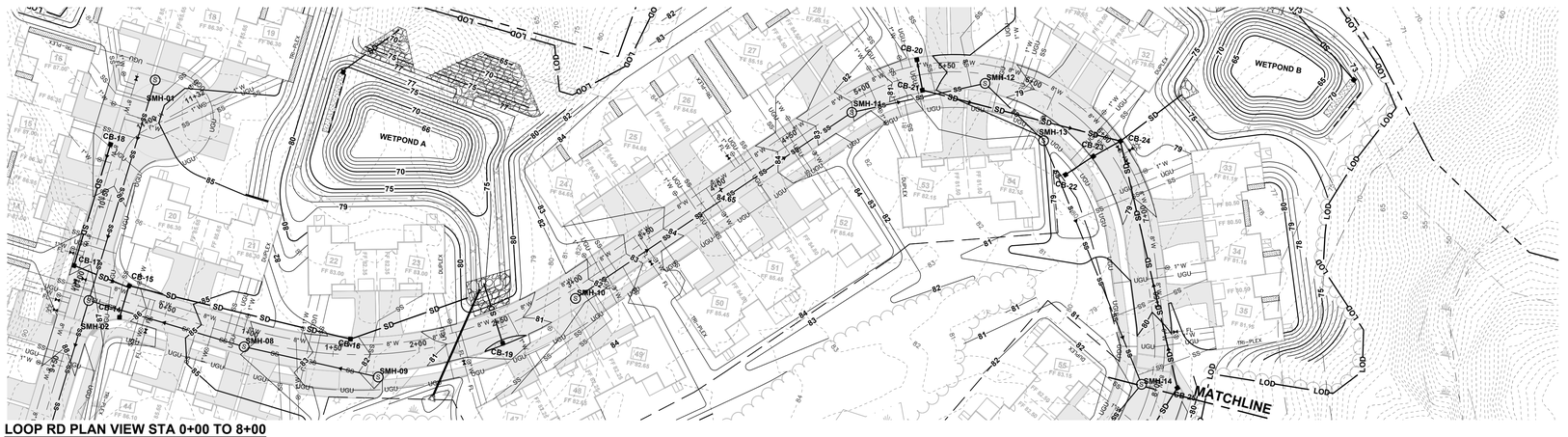
DRAWING No.
C201

REV.
2

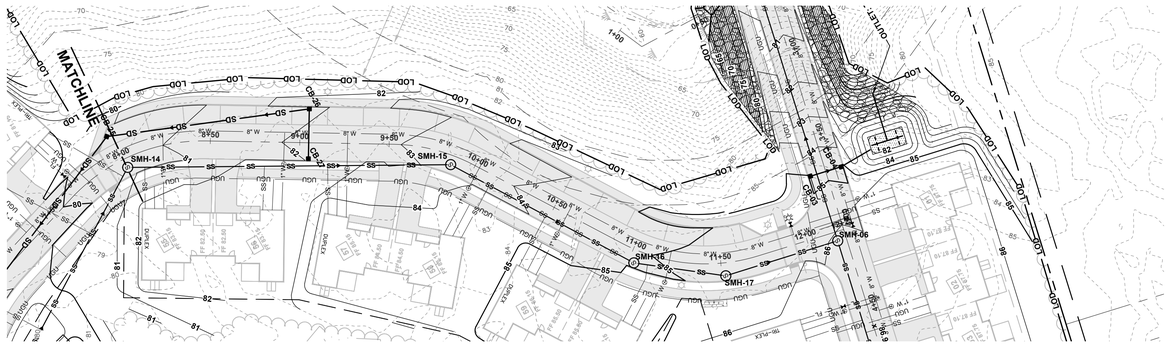
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PROFILE VIEW OF CL-LOOP - STA 0+00 TO 12+50
SCALE: H: 1"=40' / V: 1"=4'



LOOP RD PLAN VIEW STA 0+00 TO 8+00
SCALE: 1"=40



LOOP RD PLAN VIEW STA 8+00 TO 11+09
SCALE: 1"=40

GRAPHIC SCALE
40 0 20 40 80 120
(IN FEET)
1 inch = 40 ft.

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PROJECT
PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE
LOOP RD
PLAN AND PROFILE

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C202** REV. **2**

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\001-HOPE_AVE_DUPLEXES-AWARD\CAD_DRAWINGS\CIVIL\DSGN_DWGS\13773.001-C-GRLOWG, 2023.08.29, 4:02 PM

LEGEND:

- PROPERTY LINE
- WATERSHED BOUNDARY LINE
- 6F — WATERSHED DESIGNATION
- TIME OF CONCENTRATION FLOW PATH
- 50' SF — FLOW PATH DESCRIPTION
- SF — SHEET FLOW
- SC — SHALLOW CONCENTRATED FLOW
- CF — CHANNEL FLOW
- PF — PIPE FLOW
- STORMWATER FLOW DIRECTION
- EmB — SOIL I.D.
- SOILS BOUNDARY

SUMMATION POINT 1
SUMMATION POINT 2
SUMMATION POINT 3
SUMMATION POINT 4
PROPERTY BOUNDARY
75' STREAM SETBACK
APPROXIMATE STREAM LOCATION
WETLAND, TYP.
WOODED
1
2
3
4
50' SF S: 0.12
40' SC S: 0.01
50' SF S: 0.02
75' SC S: 0.02
270' SC S: 0.015
50' SF S: 0.02
310' SC S: 0.02
75' SC S: 0.04
80' SC S: 0.16
140' SC S: 0.08
400' SC S: 0.03
90' CF S: 0.07
825' CF S: 0.03
50' SF S: 0.04
70' SC S: 0.04
90' SC S: 0.175
50' SF S: 0.04

WmD, EmB, BuB, SuE2, Sn, C/D

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS
ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
One Merchants Plaza, Suite 701
Bangor, Maine 04401
207.989.4824
WWW.HALEYWARD.COM

PROJECT
PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE
PRE-DEVELOPMENT HYDROLOGY PLAN

DATE	SCALE
2022.08.29	1"=40'

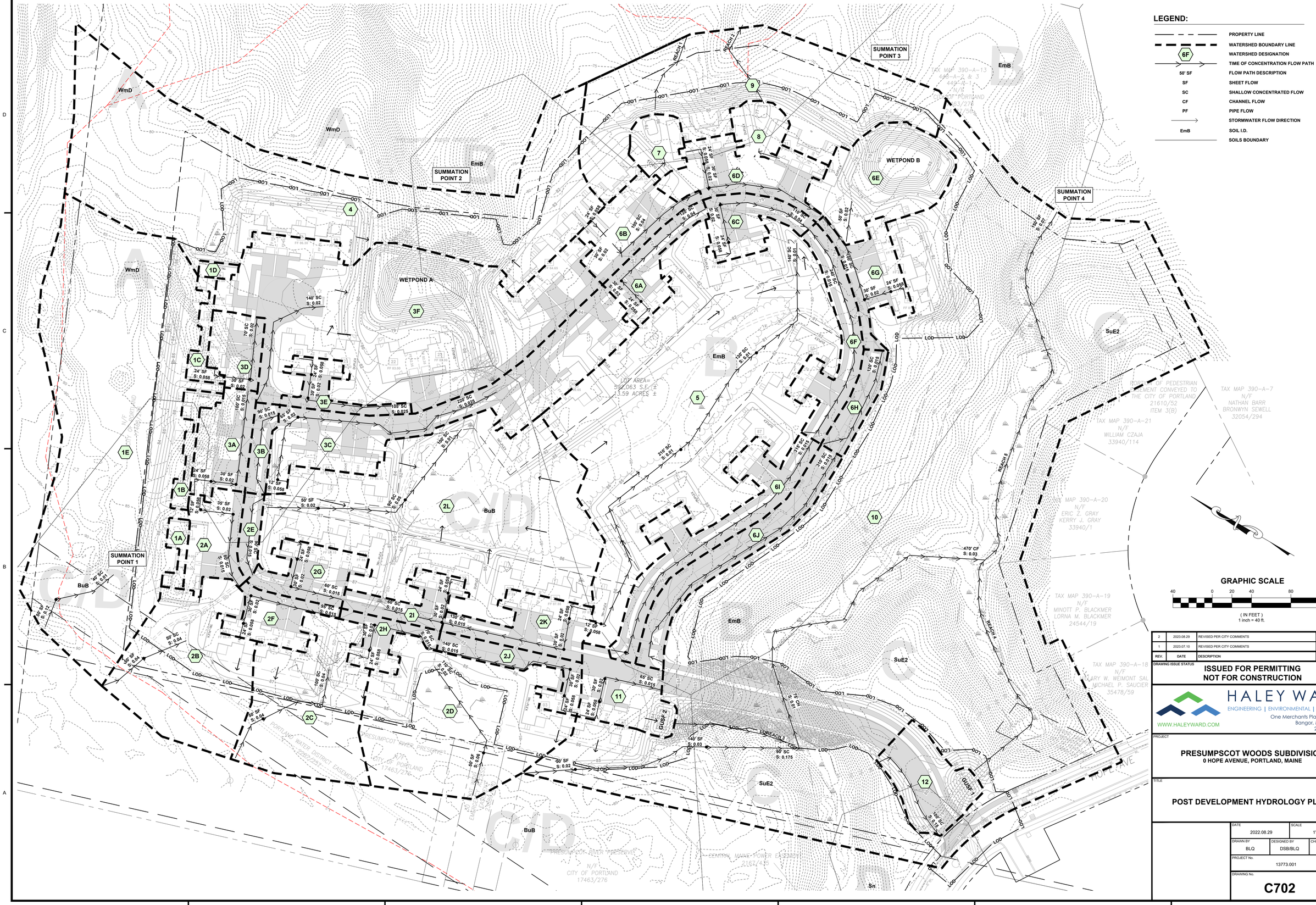
DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	BLQ	JHW

PROJECT No.
13773.001

DRAWING No.
C701

REV.
2

FILE LOCATION: P:\13773-SHINER\ENG_CONSULTING\00-HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL\DSIGN_DWGS\13773.00I-C-PRE_HY.DWG, 2023.08.29, 10:50 AM



REV.	DATE	DESCRIPTION	BY	CHK.
2	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING NOT FOR CONSTRUCTION

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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

POST DEVELOPMENT HYDROLOGY PLAN

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	DSB/BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C702** REV. **2**

FILE LOCATION: P:\13773.SHINBERG_CONSULTING\001-HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL DSIGN_DWGS\13773.001-C-POST_HY.DWG, 2023.08.29, 10:51 AM

LEGEND:

- DRAINAGE AREA
- RESTORATION AREA
- DRAINING TO WETPOND A
- DRAINING TO WETPOND B
- DRAINING TO DRIP FILTER BMP
- DRAINING TO GUSF 1
- DRAINING TO GUSF 2

WETPOND A

WETPOND B

GUSF 1

GUSF 2

UNTREATED AREA TO BE RESTORED TO NATURAL CONDITIONS, TYP.

LOT AREA=
592,063 S.F. ±
13.59 ACRES ±

TAX MAP 390-A-13
449-A-2 & 3
449-A-1
N/F
CITY OF PORTLAND
14463/276
24172/58

TAX MAP 390-A-21
N/F
WILLIAM CZAJA
33940/114

TAX MAP 390-A-20
N/F
ERIC Z. GRAY
KERRY J. GRAY
33940/1

TAX MAP 390-A-19
N/F
MINOTT P. BLACKMER
LORNA M. BLACKMER
24544/19

TAX MAP 390-A-18
N/F
MARY W. WEIMONT SAUCIER
MICHAEL P. SAUCIER
35478/59

PORTION OF PEDESTRIAN EASEMENT CONVEYED TO THE CITY OF PORTLAND 21610/52 ITEM 3(B)

PORTLAND WATER DISTRICT EASEMENT 2292/242

PRESUMPSCOT RIVER PRESERVE
N/F
CITY OF PORTLAND
17463/276

CENTRAL MAINE POWER EASEMENT 2162/435

HOPE AVE

BASKET LANE

GRAPHIC SCALE

40 0 20 40 80 120

(IN FEET)
1 inch = 40 ft.

REV.	DATE	DESCRIPTION	BY	CHK.
2.	2023.08.29	REVISED PER CITY COMMENTS	BLQ	JHW
1.	2023.07.10	REVISED PER CITY COMMENTS	PJM	JHW

DRAWING ISSUE STATUS

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

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PROJECT

PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

TITLE

STORMWATER TREATMENT PLAN

DATE	SCALE
2022.08.29	1"=40'

DRAWN BY	DESIGNED BY	CHECKED BY
BLQ	DSB/BLQ	JHW

PROJECT No. 13773.001

DRAWING No. **C703** REV. **2**

FILE LOCATION: P:\13773-SHINBERG_CONSULTING\001-HOPE_AVE_DUPLEXES-JHW\02-CAD_DRAWINGS\CIVIL\DESIGN_DWGS\13773.001-C-TREAT.DWG, 2023.08.29, 10:52 AM



PLANTING NOTES:

1. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
2. IN THE CASE OF ANY DISCREPANCIES BETWEEN SPECIES AND QUANTITIES CALLED OUT IN THE PLANTING KEY AND THOSE SHOWN ON THE PLAN, QUANTITIES AND SPECIES SHOWN ON THE PLAN SHALL OVER-RIDE.
3. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES.
4. ALL PLANTS SUBJECT TO APPROVAL BY LANDSCAPE ARCHITECT. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANTINGS THAT DO NOT CONFORM TO THE DRAWINGS OR SPECIFICATIONS OUTLINED HEREIN.
5. EXISTING TREES TO REMAIN SHALL BE PROTECTED BY PVC FENCING PLACED AT THE DRIP-LINE OR AS SHOWN ON THE PLANS TO PREVENT DAMAGE AND COMPACTION OF THE ROOT SYSTEM. NO GRADING, SOIL DISTURBANCE, OR STORAGE OF MATERIALS OR EQUIPMENT SHALL OCCUR WITHIN THE DRIP-LINE UNLESS OTHERWISE SHOWN ON PLANS. ANY EXCAVATION WITHIN SUCH AREAS SHALL BE PERFORMED BY HAND TO AVOID DAMAGE OF THE ROOT SYSTEM.
6. NO PLANT SHALL BE PUT INTO THE GROUND BEFORE ROUGH GRADING HAS BEEN FINISHED AND APPROVED BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. FINISH GRADE OF PLANTINGS SHALL MATCH ADJACENT FINISH GRADES UNLESS OTHERWISE NOTED ON DRAWINGS OR DIRECTED AND/OR APPROVED BY THE LANDSCAPE ARCHITECT.
7. PLANTING BEDS CONSIST OF 3 PARTS FERTILE, FRIABLE LOAM AMENDED WITH 1 PART ORGANIC COMPOST: EARTHLIFE BY NEW ENGLAND ORGANICS, FALMOUTH, ME, TEL. 207-781-5011, OR APPROVED EQUAL. THE PREPARED SOIL SHALL BE SPREAD UNIFORMLY, AT A 12 INCH MINIMUM DEPTH IN PLANTING BEDS AND 4" IN AREAS TO BE SEEDED, AS SHOWN ON PLANS
8. LANDSCAPE ARCHITECT SHALL APPROVE FINAL PLACEMENT OF ALL PLANT MATERIALS AND RESERVES THE RIGHT TO MAKE FIELD ADJUSTMENTS TO PLANTINGS AS NECESSARY.
9. ALL PLANTS SHALL BE SET PLUMB UNLESS OTHERWISE SPECIFIED.
10. ALL PLANTINGS SHALL BE TOPPED WITH A MINIMUM OF 3" OF WELL COMPOSTED, DARK PINE BARK MULCH. SEEDED AREAS SHALL BE MULCHED WITH SHREDDED STRAW OR APPROVED MULCH.
11. ALL DISTURBED AREAS NOT OTHERWISE PLANTED SHALL BE SEEDED AS SHOWN ON THE PLANS OR AS APPROVED. SEEDING AREAS SHALL BE LIGHTLY MULCHED WITH A LAYER OF CLEAN, WEED-FREE STRAW.
6. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24-HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED AS REQUIRED THEREAFTER TO ENSURE SURVIVAL AND GROWTH THROUGH THE FIRST GROWING SEASON.
7. SEEDED LAWN AREAS SHALL BE WATERED REGULARLY AND MAINTAINED THROUGH ESTABLISHMENT AND/OR FIRST MOWING.
8. PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF INSTALLATION. DURING THE ONE YEAR GUARANTEE, THE CONTRACTOR SHALL REPLACE, IN KIND, ANY DEAD, DISEASED, OR SUBSTANDARD PLANT MATERIAL AT NO COST TO THE OWNER.
9. SATISFACTORY CONSERVATION COVER: AT END OF MAINTENANCE PERIOD, A HEALTHY, WELL-ROOTED, DENSE COVER (90%) OF THE APPROPRIATE SPECIES HAS BEEN ESTABLISHED.
10. THE CONTRACTOR SHALL RECEIVE FINAL ACCEPTANCE FROM THE OWNER FOLLOWING THE ONE YEAR GUARANTEE, PROVIDED THE PROVISIONS OF THE PLANT GUARANTEE HAVE BEEN SATISFACTORILY MET.

PLANTING SCHEDULE - SITE LANDSCAPING

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE/COND.
TREES				
7	ARB	ACER RUBRA 'BURGUNDY BELLE'	BURGUNDY BELL RED MAPLE	2.5" CAL
14	ART	ACER TRILOBUM	TRIDENT MAPLE	2" CAL
12	AXA	AMELANCHIER X 'AUTUMN BRILLIANCE	NORTHERN SERVICEBERRY	5-6' CLUMP
14	CBF	CARPINUS B. 'FASTIGIATA'	UPRIGHT HORNBEAM	2" CAL.
19	CVI	CHIONANTHUS VIRGINICUS	FRINGETREE	#7 POT
6	CXS	CORNUS X 'STELLAR PINK'	RUTGERS HYBRID DOGWOOD	#7 POT
23	CCC	CRATAEGUS C. 'CRUSADER'	THORNLESS HAWTHORN	2" CAL.
13	OSV	OSTRYA VIRGINIANA	AMERICAN HOP HORNBEAM	2" CAL.
3	PGD	PICEA G. 'DENSATA'	WHITE SPRUCE	5-6' HT.
9	PST	PINUS STROBUS	EASTERN WHITE PINE	5-6' HT.
14	QP	QUERCUS PALUSTRIS	PIN OAK	2.5" CAL.
8	UAJ	ULMUS A. 'JEFFERSON'	AMERICAN ELM HYBRID	2.5" CAL.
SHRUBS				
17	AAB	ARONIA A. BRILLIANTISSIMA	RED CHOKEBERRY	#5 POT
18	DIL	DIERVILLA LONICERA	NORTHERN BUSH HONEYSUCKLE	#3 POT
15	IGC	ILEX GLABRA 'COMPACTA'	INKBERRY	#3 POT
19	PJP	PRUNUS 'JADE PARADE'	SPREADING SAND CHERRY	#3 POT
15	VTR	VIBURNUM T. 'REDWING'	AMERICAN CRANBERRYBUSH	#3 POT

NOTE:
REFERENCE SHEET LA-102 FOR TYPICAL UNIT PLANTINGS AND RAIN GARDEN SPECIES LIST

SEED MIXES

LAWN MIX . PREMIUM LAWN MIXTURE, SEEDWAY, WALES, ME; TEL. 207-933-2109. APPLICATION RATE: 8 LBS/SF

CONSERVATION WILDLIFE MIX. ERNST CONSERVATION SEEDS, INC.; TEL. 814-336-2404. APPLICATION RATE: 10 LBS/ACRE WITH 30 LBS/ACRE COVER CROP. SEEDED SLOPES OVER 3:1 SHALL BE STABILIZED WITH BIODEGRADABLE, EROSION CONTROL FABRIC.

PASSIVE & ACTIVE RECREATION / OPEN SPACE:

1. REQUIREMENTS: 18,000 SF OPEN SPACE FOR ACTIVE & PASSIVE RECREATIONAL ACTIVITIES (PRUD WITH WORKFORCE HOUSING).
2. DESCRIPTION OF PROVISIONS: OVER 1,000 LINEAR FEET OF EXISTING / PROPOSED TRAILS (3,000 SF) THROUGH THE SITE WITH OPEN LAWN AREAS AND WOODS, AS WELL AS PLAY / FITNESS FEATURES AND SEATING PLACED ALONG TRAIL (APPROX. 1,500 SF) MARKED AS A, B, C ON THE PLAN) AT THE CENTER OF THE SITE BETWEEN UNITS 47-54 TO THE NORTH AND UNITS 55-60 TO THE SOUTH.REFERENCE PLAN DETAIL & CUT SHEETS IN SITE PLAN RESPONSE PACKET.
3. FEATURES: A) LOG PLAY STACK, B) ROPE CLIMBER, 3) STEPPING COLUMNS; TIMBERFORM LINE BY COLUMBIA CASCADE OR APPROVED EQUAL.

SCALE 1"=40'
40' 0 20' 40' 80'

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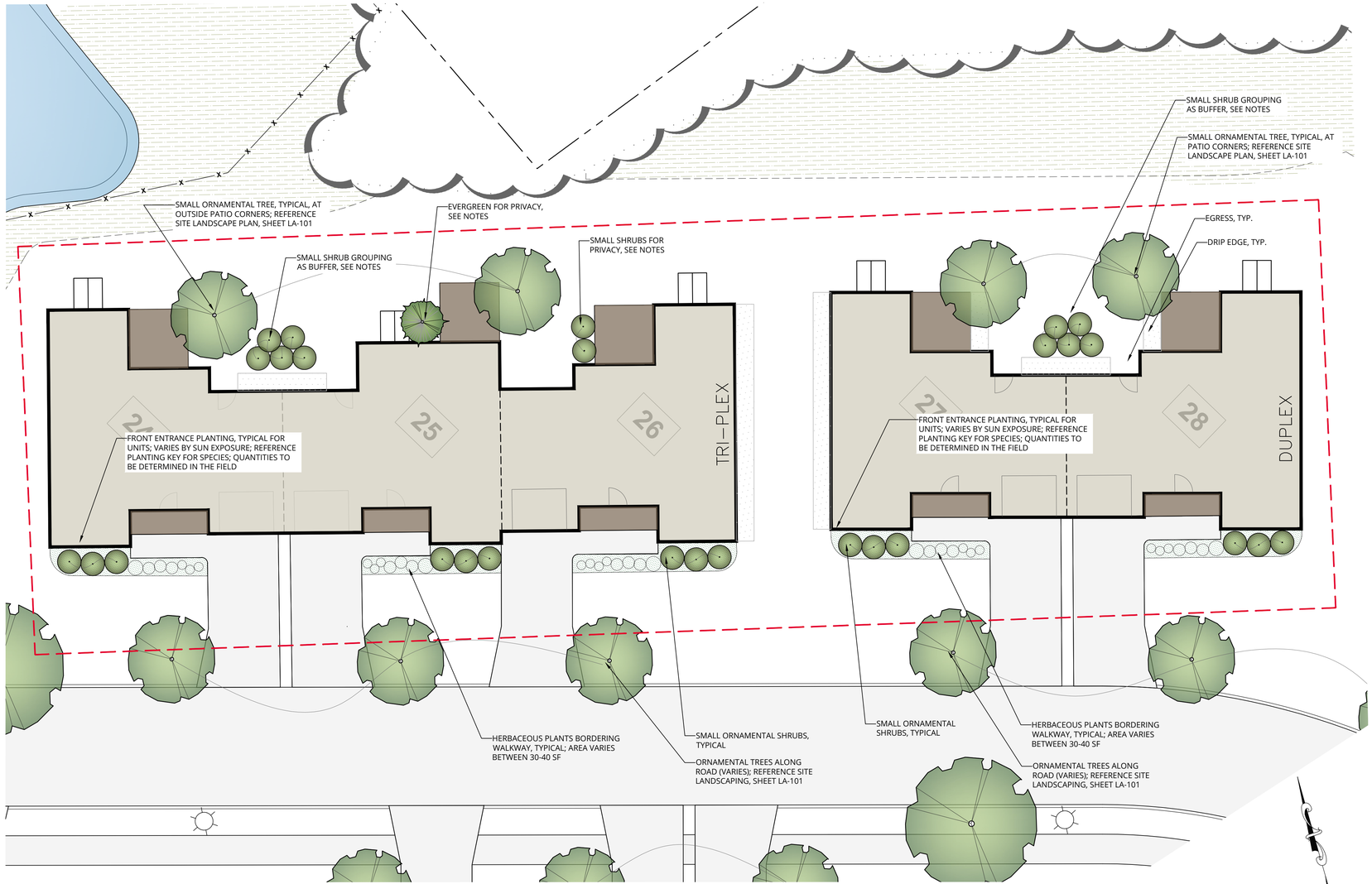
REVISION - DATE - DESCRIPTION - DRAWN BY - CHECKED BY	1	2	3	4	5	6	7
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PROJECT & CLIENT
PRESUMPSCOT WOODS SUBDIVISION
1 HOPE AVENUE, PORTLAND, MAINE

SHEET TITLE:
LANDSCAPE PLAN & DETAILS

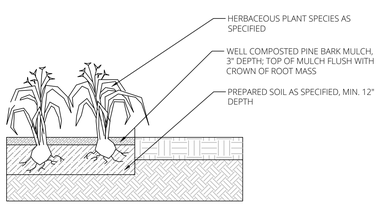
REGISTERED LANDSCAPE ARCHITECT
REGINA S. LEONARD
6/15/2023
STATE OF MAINE

SCALE: AS NOTED
ISSUE DATE: 6/15/23
DSGN/DRWN: RSL | CHECK: HW
PROJECT NO.: HW-HOPE AVENUE
SHEET 1 OF 2
LA-101

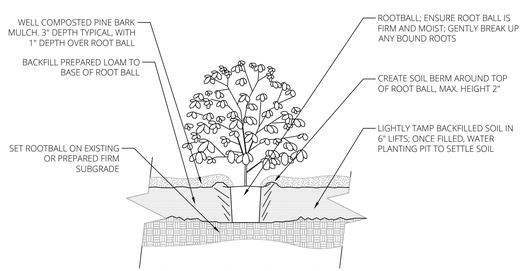


TYPICAL UNIT PLANTINGS, BY BUILDING TYPE

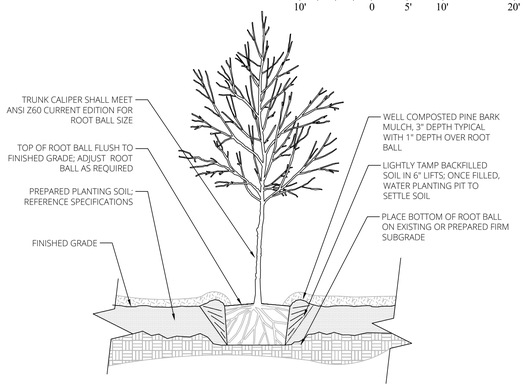
SCALE 1"=10'
10' 0 5' 10' 20'



PERENNIALS INSTALLATION DETAIL
NOT TO SCALE



SHRUB INSTALLATION DETAIL
NOT TO SCALE



TREE INSTALLATION DETAIL - BALL & BURLAP
NOT TO SCALE

PLANTING LIST - UNITS (FRONT YARDS)

BOTANICAL NAME	COMMON NAME	SIZE/COND.
FULL SUN PLANTINGS		
GROUP SELECTION #1:		
CARYOPTERIS X 'DARK KNIGHT'	BLUE MIST SPIREA	#5 POT
DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS	#3 POT
COREPOSIS V. 'ZESTY ZINGER'	THREADLEAF COREOPSIS	#3 POT
GROUP SELECTION #2:		
SPIRAEA X 'ANTHONY WATERER'	BUMALD SPIREA	#5 POT
PENNISETUM A. 'HAMELN'	DWARF FOUNTAIN GRASS	#3 POT
COREOPSIS V. 'MOONBEAM'	THREADLEAF COREOPSIS	#3 POT
PARTIAL SHADE PLANTINGS		
GROUP SELECTION #1:		
HYDRANGEA P. 'LITTLE QUICKFIRE'	DWARF QUICKFIRE HYDRANGEA	#5 POT
CAREX O. 'EVERCOLOR EVERSHEEN'	JAPANESE SEDGE	#3 POT
GERANIUM X. 'ROZANNE'	CRANESBILL GERANIUM	#3 POT
GROUP SELECTION #2:		
RHODODENDRON X 'MARDI GRAS'	HYBRID DWARF RHODODENDRON	#5 POT
HAKONECHLOA M. 'AUREOLA'	JAPANESE HAKONE GRASS	#3 POT
DICENTRA X. 'KING OF HEARTS'	FRINGED BLEEDING HEART	#3 POT

PLANTING LIST - UNITS (BACK YARDS)

BOTANICAL NAME	COMMON NAME	SIZE/COND.
SMALL SHRUBS (SPECIES SELECTION): *GROUPINGS OF (5): 24* *GROUPINGS OF (2): 14*		
CLETHRA A. 'VANILLA SPICE'	VANILLA SPICE SUMMERSWEET	#3 POT
CLETHRA A. 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	#3 POT
FOTHERGILLA X. 'BLUE SHADOW'	BLUE SHADOW FOTHERGILLA	#3 POT
HYDRANGEA A. 'ANNABELLE'	ANNABELLE HYDRANGEA	#3 POT
HYDRANGEA A. 'INVINCIBELLE RUBY'	INVINCIBELLE RUBY HYDRANGEA	#3 POT
VIBURNUM D. 'BLUE MUFFIN'	BLUE MUFFIN ARROWWOOD	#3 POT
EVERGREENS *(9) TOTAL*		
THUJA O. 'SMARAGD'	EASTERN ARBORVITAE	5-6' HT.

UNIT PLANTINGS NOTES:

1. UNIT PLANTINGS ARE SHOWN TO DEMONSTRATE INTENT ONLY. ACTUAL PLANTINGS WILL VARY DEPENDING ON FIELD CONDITIONS, INCLUDING AVAILABLE SPACE, SOILS, AND SUN EXPOSURE.
2. SPECIES FOR UNIT PLANTINGS SHALL BE SELECTED FROM THE UNIT PLANTINGS KEY SHOWN IN THE DRAWINGS. QUANTITIES TO BE DETERMINED.
3. QUANTITIES FOR UNIT PLANTINGS ARE ESTIMATED AS SHOWN IN THE TYPICAL EXAMPLE.
4. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
5. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES.
6. PROPOSED SUBSTITUTIONS TO THE LISTED UNIT PLANTINGS SPECIES LIST HEREIN SHALL BE APPROVED BY LANDSCAPE ARCHITECT.
7. LANDSCAPE ARCHITECT SHALL APPROVE FINAL PLACEMENT OF ALL PLANT MATERIALS AND RESERVES THE RIGHT TO MAKE FIELD ADJUSTMENTS TO PLANTINGS AS NECESSARY.
8. PLANT MATERIALS AND PLANTING METHODS SHALL CONFORM TO THE PLANTING NOTES/SPECIFICATIONS OUTLINED ON SHEET LA-101.

PLANTING LIST - RAIN GARDENS

BOTANICAL NAME	COMMON NAME	SIZE/COND.
PERENNIAL SPECIES		
AQUILEGIA CANADENSIS	COLUMBINE	PLUG
ASCLEPIAS INCARNATA	SWAMP MILKWEED	PLUG
ASTER NOVAE ANGLIAE	NEW ENGLAND ASTER	PLUG.
CHELONE GLABA	WHITE TURTLEHEAD	PLUG
EUTROCHIUM PURPUREUM	JOE PYE WEED	PLUG.
LOBELIA CARDINALIS	HELENS FLOWER	PLUG.
MONARDA FISTULOSA	WILD BERGAMOT	PLUG
PENSTEMON DIGITALIS	FOXGLOVE BEARDTONGUE	PLUG
RUDBECKIA FULGIDA	BLACK EYED SUSAN	PLUG
VERBENA HASTATA	BLUE VERVAIN	PLUG
GRASS SPECIES		
CAREX STRICTA	TUSSOCK SEDGE	PLUG
JUNCUS EFFUSUS	COMMON RUSH	PLUG
PANICUM V. 'HANS HELMS'	SWITCH GRASS	PLUG.
PANICUM V. 'NORTHWIND'	SWITCH GRASS	PLUG
SHRUB SPECIES		
CLETHRA ALNIFOLIA	SUMMERSWEET	SEEDLING
CORNUS RACEMOSA	GRAY DOGWOOD	SEEDLING
ILEX VERTICILLATA	WINTERBERRY	SEEDLING
VIBURNUM DENTATUM	ARROWWOOD VIRBURNUM	SEEDLING

RAIN GARDEN NOTES:

1. REFERENCE CIVIL DRAWINGS FOR RAIN GARDEN FILTER MEDIA SPECIFICATIONS AND DETAILS.
2. RAIN GARDEN SPECIES LIST TO DEMONSTRATE INTENT. SPECIES, IF SUBSTITUTED, SHALL BE SELECTED BASED ON NATIVE ORIGIN, BENEFICIAL VALUES TO WILDLIFE, AND/OR CULTURAL REQUIREMENTS.
3. PLANT MATERIALS, INCLUDING SPECIES AND CONDITIONS TO BE DETERMINED BASED ON FIELD CONDITIONS.
4. RAIN GARDEN INSTALLATION SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS AS WELL AS ALL LOCAL AND ENVIRONMENTAL REGULATORY REQUIREMENTS.
5. PLANTINGS / RAIN GARDEN ESTABLISHMENT (90 PERCENT COVERAGE OR AS REQUIRED BY REGULATORY AGENCIES) SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF INSTALLATION.

RS LEONARD
Landscape Architecture
WWW.HALEYWARD.COM

REVISION - DATE - DESCRIPTION - DRAWN BY - CHECKED BY

1	5/20/22	PLANTING ADJUSTMENTS	RSLLA	BK-HW
2				
3				
4				
5				
6				
7				

PROJECT & CLIENT
PRESUMPSCOT WOODS SUBDIVISION
0 HOPE AVENUE, PORTLAND, MAINE

SHEET TITLE:
LANDSCAPE DETAILS

REGISTERED LANDSCAPE ARCHITECT
REGINA S. LEONARD
3123
6/15/2023
STATE OF MAINE

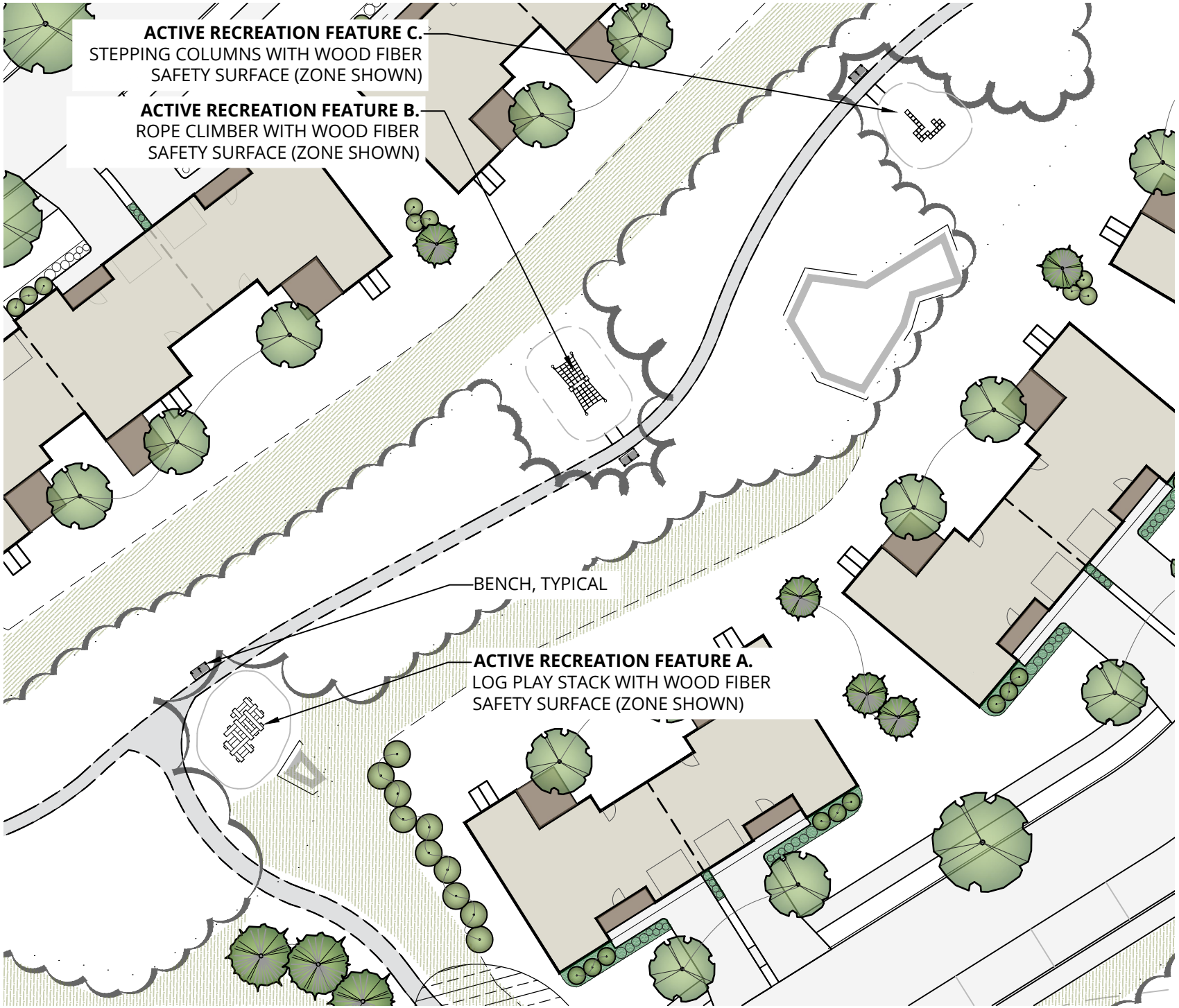
SCALE:
AS NOTED

ISSUE DATE:
6/15/2023

DSGN/DRWN: RSL
CHECK: HW

PROJECT NO.
HW-HOPE AVENUE

SHEET 2 OF 2
LA-102



RS LEONARD Landscape Architecture

PROJECT & CLIENT
PRESUMPSCOT WOODS SUBDIVISION
1 Hope Ave., Portland, ME

SHEET TITLE:
ACTIVE RECREATION AREAS

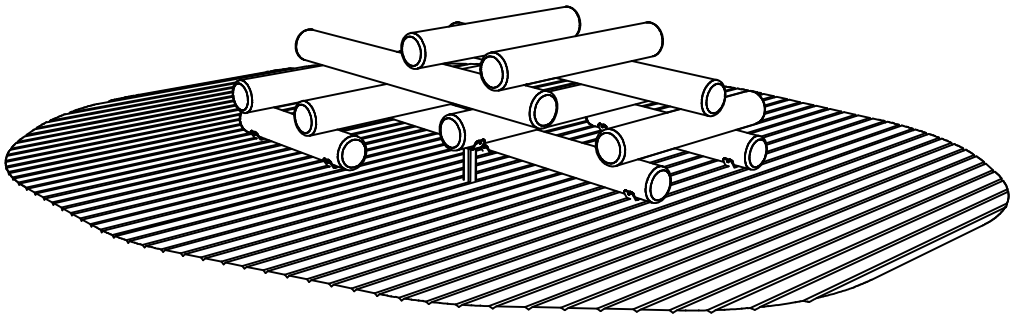
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AS NOTED

ISSUE DATE:
8/18/23

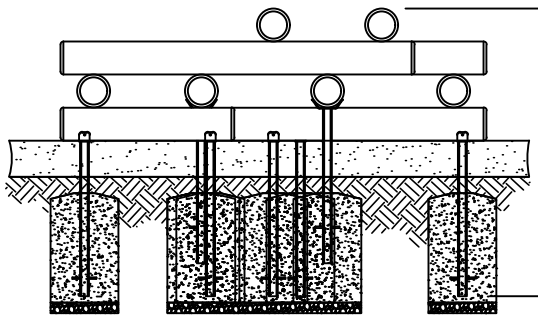
DSGN/DRWN
RSLLA

SHEET 1 OF 5

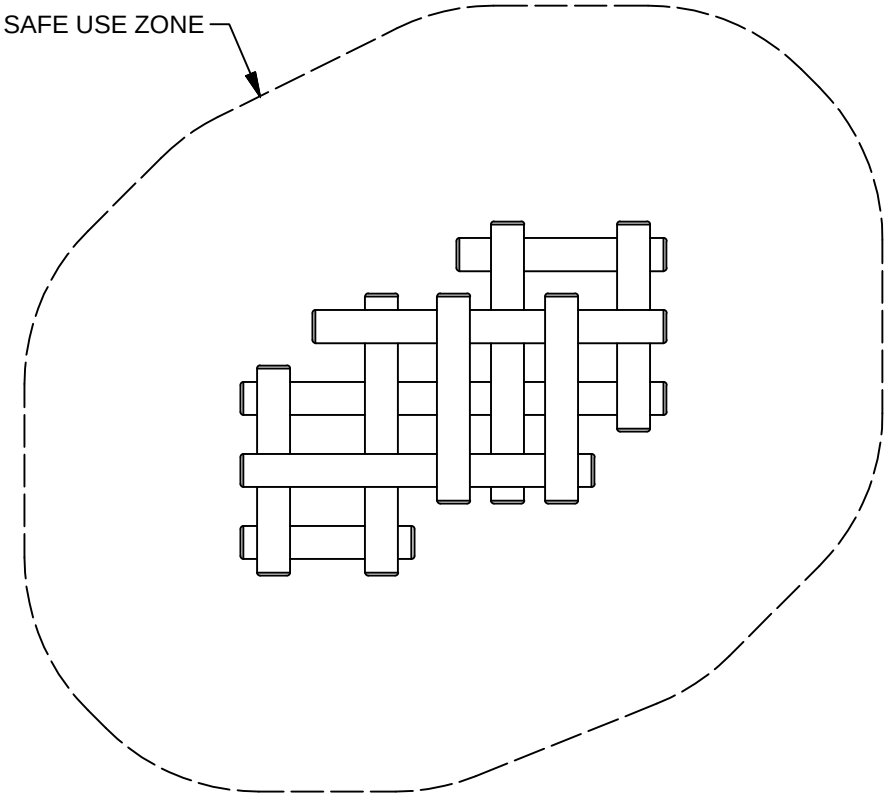
LA-A



ISO VIEW
SCALE: NONE



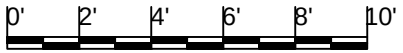
FRONT VIEW
SCALE 3/16"=1'-0"



EQUIPMENT ONLY:
11'-10" x 9'-10" (3.7m x 3m)

MINIMUM SAFE USE ZONE:
23'-10" x 21'-10" (7.3m x 6.7m)

PLAN VIEW WITH USE ZONE
SCALE 3/16"=1'-0"



NOTE:
CONCRETE FOOTING AND NO. 4 REBAR (BY OTHERS) PER LOCAL SOIL CONDITIONS. CONSULT PROJECT ENGINEER FOR EXACT REQUIREMENTS.

Date	Revision	By
△		
△		
△		
△		

Scale: NOTED
Drawn by: DGR 03-30-18
Ck'd by: CL 03-30-18

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Portland, Oregon 97201-3464
U.S.A.

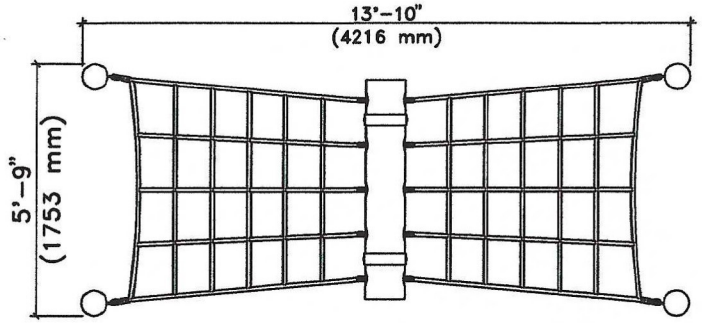
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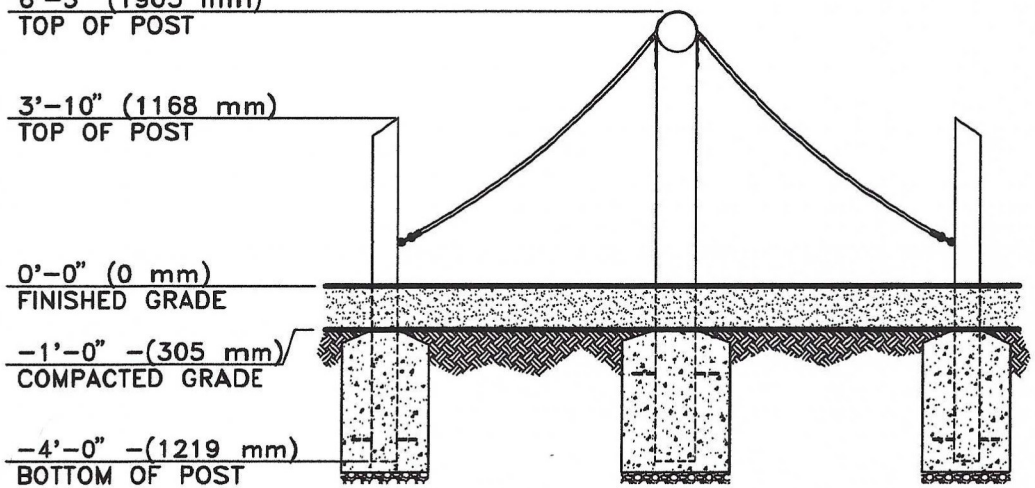
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Title:
CLASSIC TIMBERFORM
MODEL NO. 4500-401
PLAY STACK

Drawing No.: W-4500-401
Sheet: 1 of 1

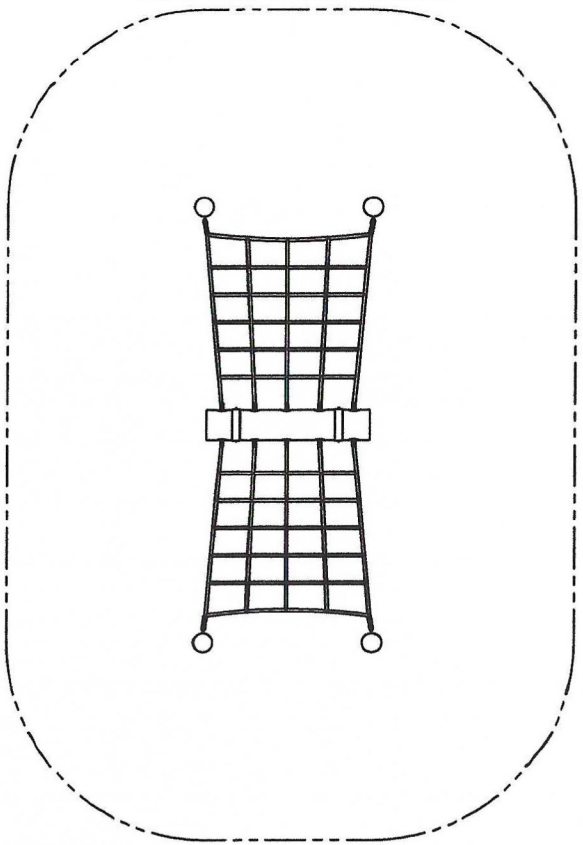


TOP VIEW
SCALE: 1/4"=1'-0"



NOTE:
CONCRETE FOOTING AND NO. 4 REBAR (BY OTHERS) PER LOCAL SOIL CONDITIONS. CONSULT PROJECT ENGINEER FOR EXACT REQUIREMENTS.

FRONT VIEW
SCALE: 1/4"=1'-0"



EQUIPMENT ONLY:
6' x 14' (1.8m x 4.3m)

MINIMUM SAFE USE ZONE:
18' x 26' (5.5m x 7.9m)

PLAN VIEW WITH USE ZONE
SCALE: 3/16"=1'-0"

0' 2' 4' 6' 8'

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△

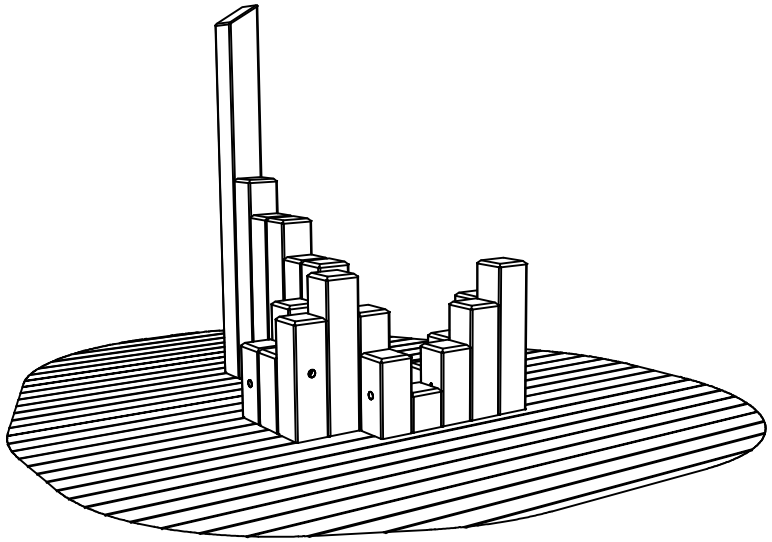
Scale	Drawn by: DW	12-08-16
NOTED	Ck'd by: CL	12-08-16

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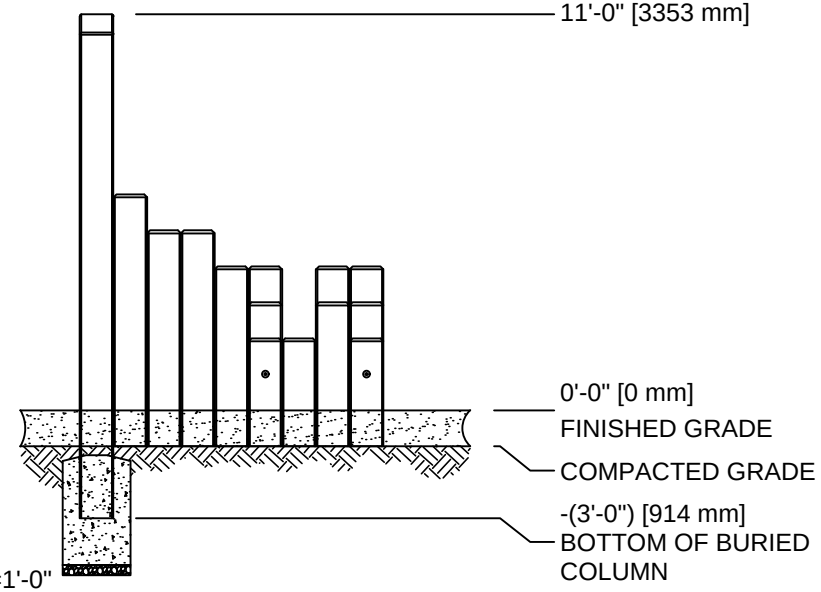
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MODEL NO. 4500-021
ROPE NET CLIMBER

Drawing No. W-4500-021

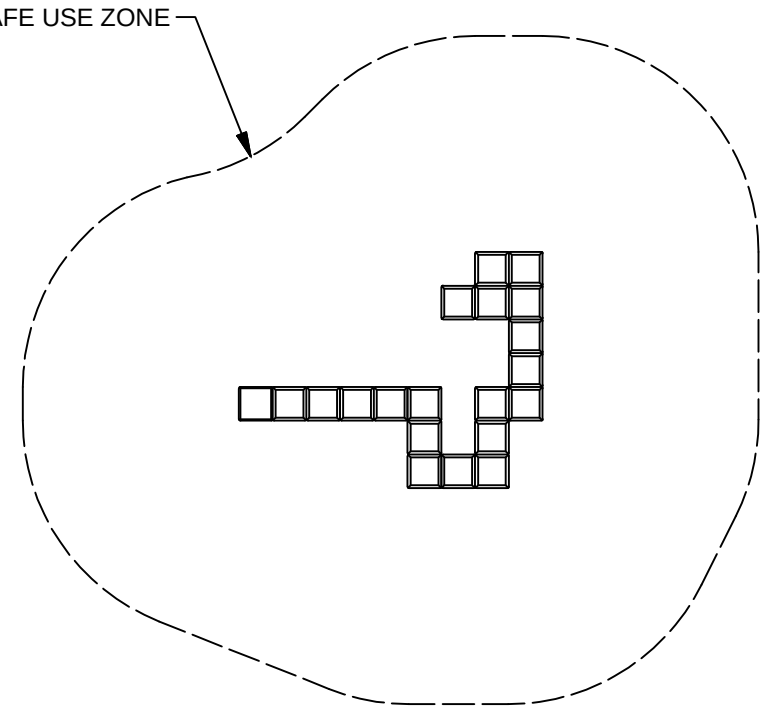
Sheet 1 of 1



ISOMETRIC VIEW
SCALE: NONE



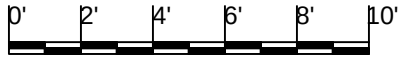
FRONT VIEW
SCALE 3/16"=1'-0"



EQUIPMENT ONLY:
8'-6" x 6'-7" (2.7m x 2m)

MINIMUM SAFE USE ZONE:
20'-6" x 18"-7" (6.8m x 5.8m)

PLAN VIEW WITH USE ZONE
SCALE 3/16"=1'-0"



NOTE:
CONCRETE FOOTING AND NO. 4 REBAR (BY OTHERS) PER LOCAL SOIL CONDITIONS. CONSULT PROJECT ENGINEER FOR EXACT REQUIREMENTS.

Date	Revision	By
△		
△		
△		
△		

Scale: NOTED
Drawn by: DGR 05-14-18
Ck'd by: CL 05-14-18

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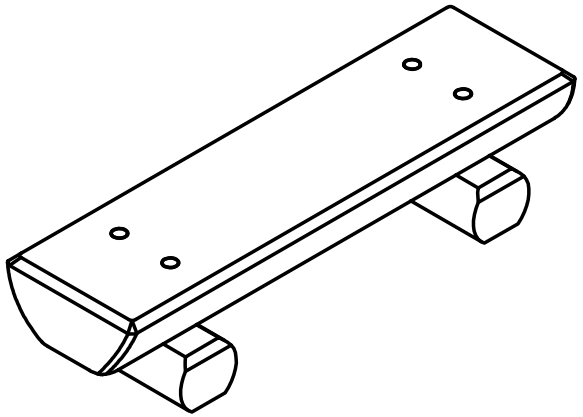
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Title:
CLASSIC TIMBERFORM
MODEL NO. 4500-515
STEPPING COLUMNS

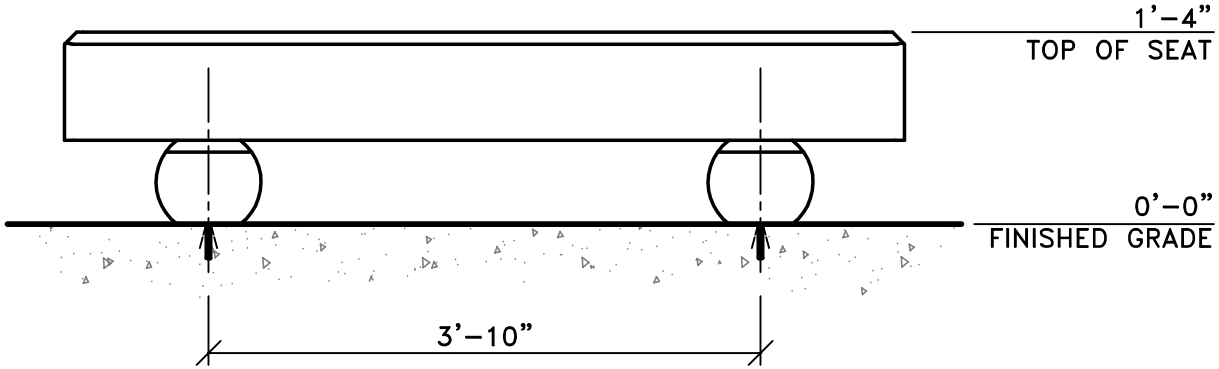
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Sheet: 1 of 1



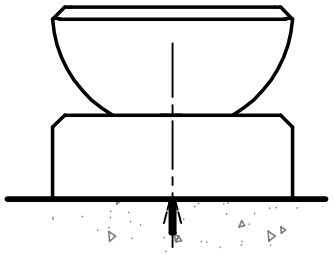
PLAN VIEW



ISOMETRIC VIEW



ELEVATION VIEW



END VIEW

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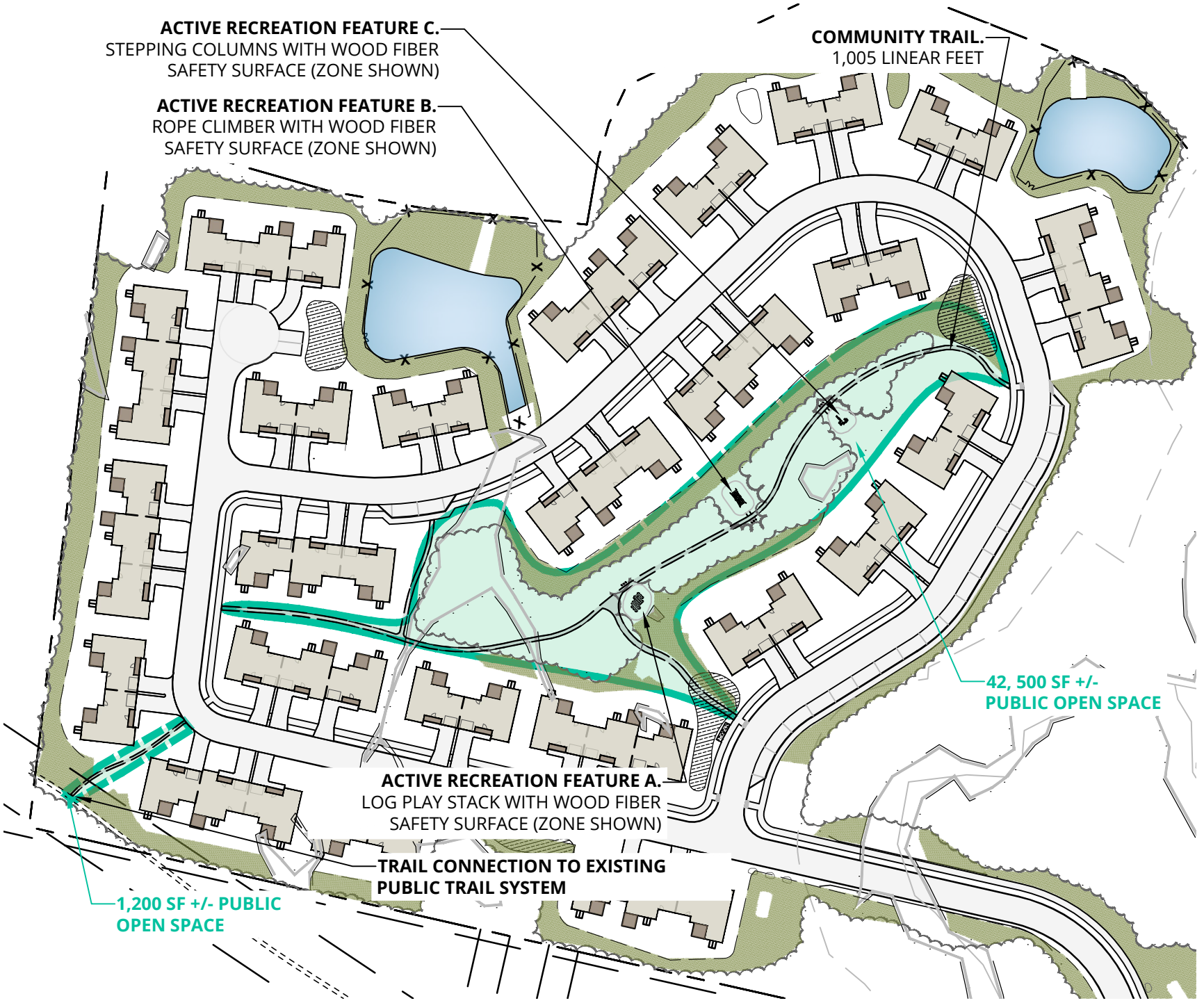
△

Scale	Drawn by: GH	04-19-19
NOTED	Ck'd by: JK	04-19-19

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Title:
TIMBERCRAFT
MODEL NO. 2215-6
HALF ROUND LOG SEAT

Drawing No.	Sheet
W-2215-6	1 of 1



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RS LEONARD Landscape Architecture

PROJECT & CLIENT
PRESUMPSCOT WOODS SUBDIVISION
1 Hope Ave., Portland, ME

SHEET TITLE:
PUBLIC OPEN SPACE AREA

SCALE:
AS NOTED

ISSUE DATE:
8/18/23

DSGN/DRWN
RSLLA

SHEET 1 OF 1
LA-B

Barton & Loguidice

Traffic Assessment

Date: September 29, 2022

To: **Greg Shinberg, Shinberg Consulting, LLC.**

From: Jacob Sirois
Engineer 1
Barton & Loguidice, LLC.

John Q. Adams, P.E., PTOE
Associate, Senior Transportation Engineer
Barton & Loguidice, LLC.

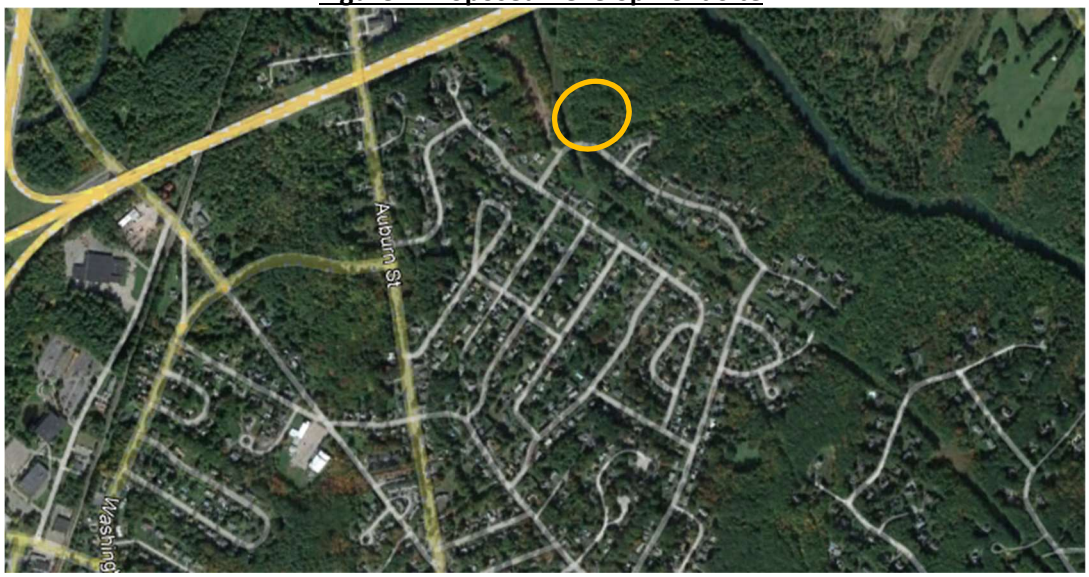
Re: **Hope Avenue Residential Subdivision**
Hope Avenue, Portland, Maine

Introduction

A 60-unit residential duplex subdivision is proposed on Hope Avenue in the City of Portland (refer to Figure 1 below for project location. The site will be accessed via a single 20-foot wide full-access entrance located on the northern side of Hope Avenue, approximately 150-feet north of the intersection of Hope Avenue and Alice Street. The residential units will be provided access via an internal 20-ft. wide circulating roadway that runs bi-directionally throughout the site.

The purpose of this traffic assessment is to evaluate and measure the level of impact on traffic operations and safety resulting with the development of the proposed project. Site generated trip projections are provided for "key" peak hour time periods throughout a typical week; road safety conditions were determined based upon a review of MaineDOT's latest road safety data and intersection sight distance was field reviewed and measured to ensure safe and acceptable sight distance is provided at the proposed intersection with Hope Lane.

Figure 1 Proposed Development Site



Site Trip Generation

Daily and peak hour trip generation was determined for the proposed development based upon trip tables presented in the 11th edition of the Institute of Transportation Engineers (ITE) "**TRIP GENERATION**

MANUAL". The ITE publication provides numerous land use categories and the average volume of trips generated by each category.

Site trip estimates for the Hope Avenue Residential Subdivision are based upon LUC #215 – Single-Family Attached Housing; which is described in the ITE publication as: *any single-family housing unit that shares a wall with an adjoining unit*. Calculation of the total number of trips generated per each corresponding time period are summarized below in Table 1.1.

Table 1.1
ITE Trip Generation Calculations

Land Use	Single-Family Attachedd Housing - LUC 215					
Time Period	Dwelling Units	Avg. Trip Generation Rate Trips/Dwelling Units	Trips Generated	Distribution Entering / Exiting	Enter	Exit
Weekday	60	7.20	432	50% / 50%	216	216
AM Weekday Peak Hour (Street)	60	0.48	29	31% / 69%	9	20
PM Weekday Peak Hour (Street)	60	0.57	35	57% / 43%	20	15
AM Weekday Peak Hour (Generator)	60	0.55	33	25% / 75%	8	25
PM Weekday Peak Hour (Generator)	60	0.61	37	62% / 38%	23	14

As presented in the preceding table, this development will generally be a low trip generator; generating a maximum of 33 Weekday AM peak hour trips and 37 Weekday PM peak hour trips during the sites peak hours. During the peak hour of the adjacent street, the trips generated by the proposed development are slightly lower, with 29 trips during the AM peak hour and 35 trips during the PM peak hour. During the typical weekday, there will be a total of 432 daily trips.

Vehicle Sight Distance

The City of Portland's Entrance and Driveway Rules require the following sight distances for roadways:

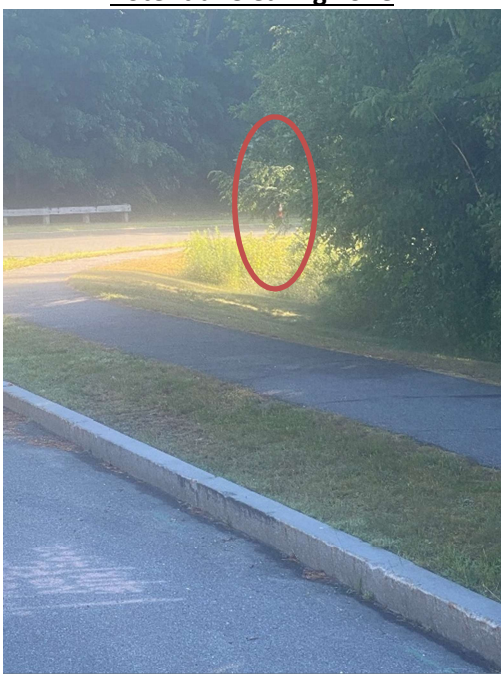
Sight Distance Standards

Speed Limit	Sight Distance
25 mph	**200 feet**
30 mph	250 feet
35 mph	305 feet
40 mph	360 feet
45 mph	425 feet
50 mph	495 feet

The section of Hope Avenue fronting the proposed residential development is presently unposted and assumed to be 25mph, which requires a sight distance of 200-feet. The City of Portland's Regulations require sight distance to be measured in accordance with the following procedures: *"Sight distance is measured to and from the point on the centerline of the proposed access that is located 10-feet from the edge of traveled way. The height of the hypothetical person's view is considered to be 3½ feet above the pavement and the height of the object being viewed is considered to be 4¼ feet above the pavement."* Our field measurements looking both left and right from the proposed site driveway entrance directionally onto Hope Avenue indicate existing sight distances are in excess of the requirements based on a posted speed limit of 25mph. Looking to the left from the site entrance we measured a sight distance of **240-feet**, and a measurement in excess of **300-feet** was recorded to right. An increase of sight distance, looking

to the right, can be achieved by minor clearing of trees on Lot# 448 B001, located on the southern side of Hope Avenue, and shown below in the following image which has the site driveway entrance circled.

Potential Clearing Zone



Existing Road Safety Conditions

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2019 through 2021) crash data for network of roadways between Hope Avenue and Auburn Street (refer to the map titled "*Hope Avenue, Portland*" for the roads included in the safety analysis). Their report is presented as follows:

2019 -2021 Traffic Accident Summary

Location	Total Crashes	Critical Rate Factor
1. Auburn Street @ Washington Avenue Extension	1	0.26
2. Auburn Street @ Clayton Street	2	0.54
3. Auburn Street @ Summit Street	2	0.61
4. Auburn Street @ Garsoe Drive	1	0.26
5. Summit Street @ Frost Hill Road and Jackson Street	1	0.92
6. Summit Street @ Hillside Road	1	1.03
7. Alice Street @ Garsoe Drive	1	-15.35
8. Auburn Street btw. Summit Park Avenue and Jackson Street	4	0.92
9. Auburn Street btw. Jackson Street and Clayton Street	2	0.42
10. Summit Street btw. Clayton Street and Hillside Road	1	0.67
11. Summit Street btw. Abby Lane and Carter Street	1	0.63
12. Curtis Street btw. Wendy Way and Summit Street	1	0.10
13. Longview Drive btw. Patricia Lane	1	2.94
14. Jackson Street btw. Summit Street and Kenneth Street	1	1.47

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents in a three-year period***
- ***A Critical Rate Factor greater than 1.00***

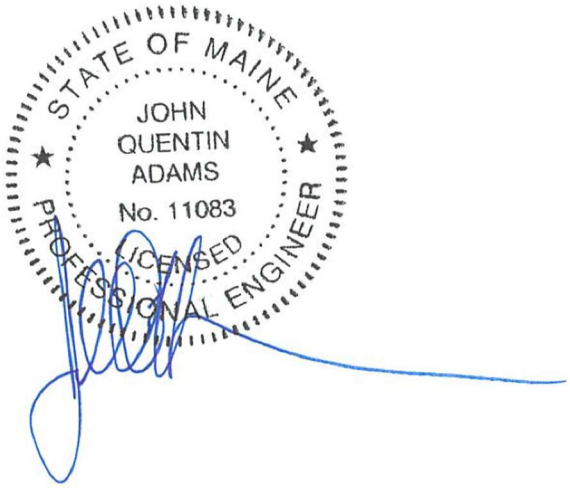
As the data presented in the chart shows, there are no identified high crash locations within the defined study area.

On-site Parking

The project is proposing 135 total parking spaces. The intent is for each of the 60 units to be provided with one space in their garage and one outdoor space in their driveway. In addition, the site will be provided with 15 on-street spaces for guests, see enclosed preliminary site plan. The required width for the on-street spaces will be designed in addition to the proposed roadway width of 20 feet so that parked vehicles on-street will not stop or restrict emergency vehicles from efficiently and safely accessing the site.

Summary

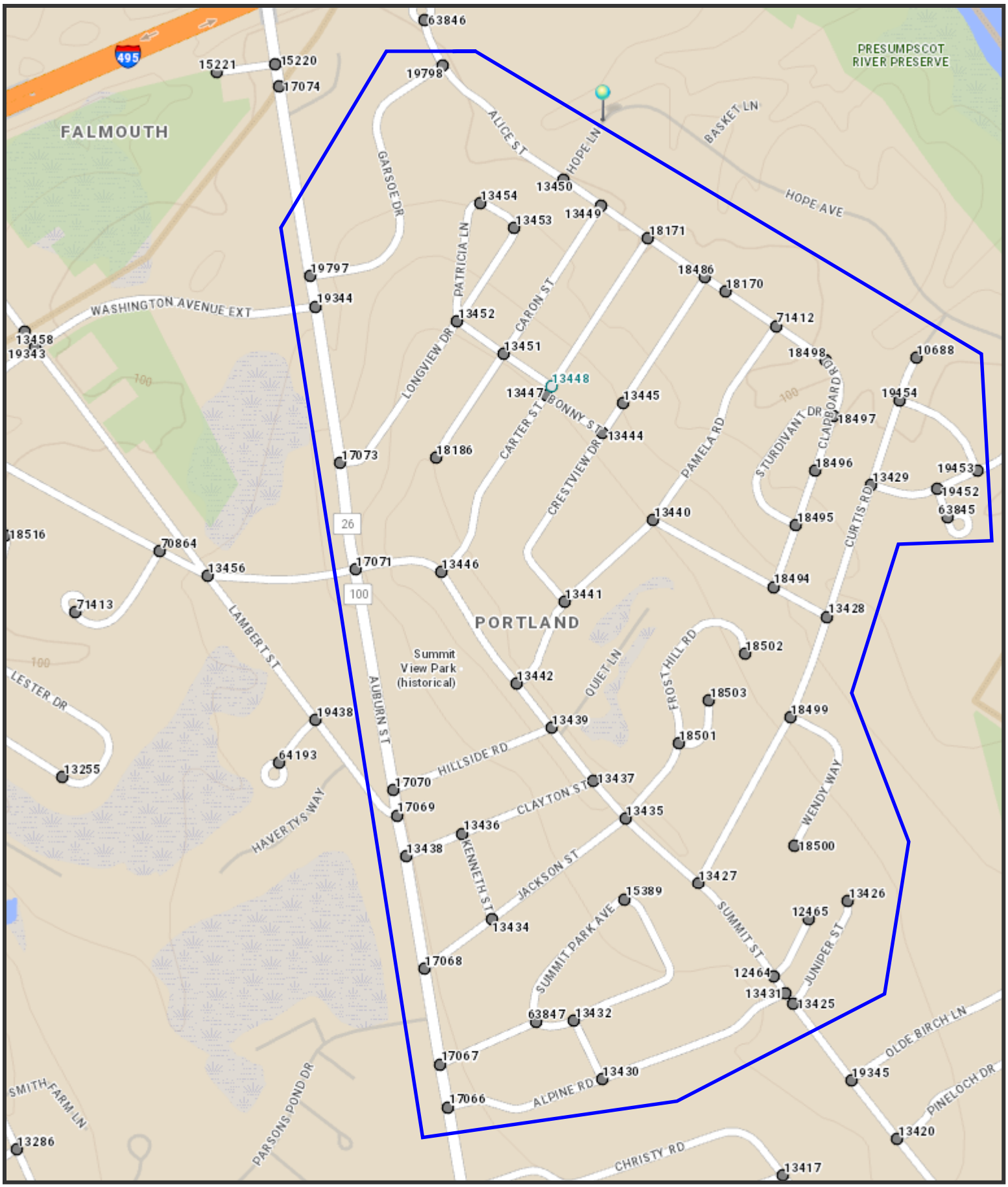
1. The expected trip generation for the proposed development is estimated to be 432 weekday daily trips. The project generates a total of 33 trips during the weekday AM peak hour and 37 trips during the weekday PM. Overall, the project will be a low volume trip generator and will be well below the minimum MaineDOT threshold of 100 new peak hour trips ends that would require a Traffic Movement Permit.
2. A review of MaineDOT crash data available for the latest 3-yeaar period (2019-2021) for the section of Hope Avenue at Alice Street, and the section of Curtis Road between Hope Avenue and Summit Street was reviewed. Our review indicated that there were no high crash locations within the defined study area.
3. Vehicle sight distance field measurements looking both left and right from the proposed site driveway entrance directionally onto Hope Avenue indicate existing sight distances are in excess of the requirements based on a posted speed of 25mph. Looking to the left from the site entrance, we measured a sight distance in excess of 300-feet, and a measurement of 240-feet was recorded to the right.



John Q. Adams, PE, PTOE, Date: 09/29/2022

APPENDIX

HOPE AVENUE, PORTLAND



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.1 Miles

1 inch = 0.14 miles

Date: 9/1/2022
Time: 3:45:14 PM

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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0026X**	Start Node: **17066**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **19797**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560689**	Start Node: **13425**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **17071**	End Offset: **0**	☑ **Exclude Last Node**
Route: **0560178**	Start Node: **13427**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **10688**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0560851**	Start Node: **18498**	Start Offset: **0**	☐ **Exclude First Node**
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Route: **0560819**	Start Node: **13428**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **13440**	End Offset: **0**	☐ **Exclude Last Node**
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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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

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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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0561217**	Start Node: **19452**	Start Offset: **0**	☑ **Exclude First Node**
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	End Node: **13437**	End Offset: **0**	☑ **Exclude Last Node**
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Route: **0560688**	Start Node: **17067**	Start Offset: **0**	☑ **Exclude First Node**
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Route: **0561120**	Start Node: **13430**	Start Offset: **0**	☑ **Exclude First Node**
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Route: **0561169**	Start Node: **18501**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18503**	End Offset: **0**	☐ **Exclude Last 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
Hope Ave. Area

REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

Route: **0561179**	Start Node: **18499**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18500**	End Offset: **0**	☐ **Exclude Last Node**
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	End Node: **13426**	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
17066	0026X - 4.16	Int of ALPINE RD, AUBURN ST	2	0	0	0	0	0	0	0.0	3.621	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17067	0026X - 4.20	Int of AUBURN ST SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	3.633	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17070	0026X - 4.43	Int of AUBURN ST HILLSIDE RD	2	0	0	0	0	0	0	0.0	2.708	0.00	0.37	0.00
												Statewide Crash Rate:	0.12	
19344	0026X - 4.83	Int of AUBURN ST WASHINGTON AV EXT	2	1	0	1	0	0	0	100.0	3.836	0.09	0.34	0.00
												Statewide Crash Rate:	0.12	
13438	0026X - 4.37	Int of AUBURN ST CLAYTON ST	2	2	0	0	0	0	2	0.0	3.588	0.19	0.35	0.00
												Statewide Crash Rate:	0.12	
17069	0026X - 4.41	Int of AUBURN ST LAMBERT ST	2	0	0	0	0	0	0	0.0	3.643	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
17071	0026X - 4.61	Int of AUBURN ST SUMMIT ST	2	2	0	0	1	1	0	100.0	3.006	0.22	0.36	0.00
												Statewide Crash Rate:	0.12	
19797	0026X - 4.86	Int of AUBURN ST GARSOE DR	2	1	0	0	1	0	0	100.0	3.764	0.09	0.34	0.00
												Statewide Crash Rate:	0.12	
17073	0026X - 4.70	Int of AUBURN ST LONGVIEW RD	2	0	0	0	0	0	0	0.0	2.993	0.00	0.36	0.00
												Statewide Crash Rate:	0.12	
17068	0026X - 4.28	Int of AUBURN ST JACKSON ST	2	0	0	0	0	0	0	0.0	3.627	0.00	0.34	0.00
												Statewide Crash Rate:	0.12	
13425	0560689 - 0.47	Int of JUNIPER ST SUMMIT ST	2	0	0	0	0	0	0	0.0	1.121	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
13431	0560689 - 0.48	0503845 POR,SUMMIT ST,ALPINE RD.	2	0	0	0	0	0	0	0.0	1.106	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
12464	0560689 - 0.50	0502876 POR,SUMMIT ST,TALBOT ST	2	0	0	0	0	0	0	0.0	1.150	0.00	0.46	0.00
												Statewide Crash Rate:	0.12	
13427	0560689 - 0.60	Int of CURTIS RD SUMMIT ST	2	0	0	0	0	0	0	0.0	1.161	0.00	0.45	0.00
												Statewide Crash Rate:	0.12	
13435	0560689 - 0.68	Int of FROST HILL RD JACKSON ST SUMMIT ST	2	1	0	0	0	0	1	0.0	0.718	0.46	0.50	0.00
												Statewide Crash Rate:	0.12	
13437	0560689 - 0.72	Int of CLAYTON ST SUMMIT ST	2	0	0	0	0	0	0	0.0	0.618	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13439	0560689 - 0.78	Int of HILLSIDE RD SUMMIT ST	2	1	0	0	0	1	0	100.0	0.646	0.52	0.50	1.03
												Statewide Crash Rate:	0.12	
13442	0560689 - 0.83	Int of ABBY LN SUMMIT ST	2	0	0	0	0	0	0	0.0	0.602	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13446	0560689 - 0.94	Int of CARTER ST SUMMIT ST	2	0	0	0	0	0	0	0.0	0.381	0.00	0.52	0.00
												Statewide Crash Rate:	0.12	
18499	0560178 - 0.16	Int of CURTIS RD WENDY WY	2	0	0	0	0	0	0	0.0	0.421	0.00	0.52	0.00
												Statewide Crash Rate:	0.12	
13428	0560178 - 0.25	Int of ABBY LN CURTIS RD	2	0	0	0	0	0	0	0.0	0.335	0.00	0.51	0.00
												Statewide Crash Rate:	0.12	
13429	0560178 - 0.36	Int of CURTIS RD OVERSET RD	2	0	0	0	0	0	0	0.0	0.200	0.00	0.44	0.00
												Statewide Crash Rate:	0.12	

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
19454	0560178 - 0.43	Int of CURTIS RD WHALE BOAT RD	2	0	0	0	0	0	0	0.0	0.110	0.00	0.16	0.00
												Statewide Crash Rate:	0.12	
10688	0560178 - 0.47	End of CURTIS RD	2	0	0	0	0	0	0	0.0	0.043	0.00	-1.30	0.00
												Statewide Crash Rate:	0.12	
18498	0560851 - 0	Int of ALICE ST CLAPBOARD RD	2	0	0	0	0	0	0	0.0	0.040	0.00	-1.45	0.00
												Statewide Crash Rate:	0.12	
71412	0560851 - 0.05	Int of ALICE ST PAMELA DR	2	0	0	0	0	0	0	0.0	0.054	0.00	-0.74	0.00
												Statewide Crash Rate:	0.12	
18170	0560851 - 0.10	Non Int ALICE ST	2	0	0	0	0	0	0	0.0	0.049	0.00	-0.97	0.00
												Statewide Crash Rate:	0.12	
18486	0560851 - 0.12	0508906 POR,ALICE ST,CRESTVIEW ST	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
18171	0560851 - 0.18	Int of ALICE ST CARTER ST	2	0	0	0	0	0	0	0.0	0.042	0.00	-1.34	0.00
												Statewide Crash Rate:	0.12	
13449	0560851 - 0.23	Int of ALICE ST CARON ST	2	0	0	0	0	0	0	0.0	0.039	0.00	-1.58	0.00
												Statewide Crash Rate:	0.12	
13450	0560851 - 0.27	Non Int ALICE ST	2	0	0	0	0	0	0	0.0	0.029	0.00	-2.57	0.00
												Statewide Crash Rate:	0.12	
19798	0560851 - 0.41	Int of ALICE CT ALICE ST GARSOE DR	2	1	0	0	0	0	1	0.0	0.070	4.76	-0.31	0.00
												Statewide Crash Rate:	0.12	
18494	0560819 - 0.05	0508914 POR,ABBY LA,CLAPBOARD RD.	2	0	0	0	0	0	0	0.0	0.145	0.00	0.32	0.00
												Statewide Crash Rate:	0.12	
13440	0560819 - 0.16	Int of ABBY LN PAMELA DR	2	0	0	0	0	0	0	0.0	0.073	0.00	-0.26	0.00
												Statewide Crash Rate:	0.12	
13441	0560819 - 0.26	Int of ABBY LN CRESTVIEW DR	2	0	0	0	0	0	0	0.0	0.228	0.00	0.47	0.00
												Statewide Crash Rate:	0.12	
18495	0561166 - 0.05	Int of CLAPBOARD RD STURDIVANT DR	2	0	0	0	0	0	0	0.0	0.110	0.00	0.16	0.00
												Statewide Crash Rate:	0.12	
18496	0561166 - 0.10	0508916 POR,CLAPBOARD RD,.10 BK.ABBY	2	0	0	0	0	0	0	0.0	0.047	0.00	-1.06	0.00
												Statewide Crash Rate:	0.12	
18497	0561166 - 0.15	Int of CLAPBOARD RD STURDIVANT DR	2	0	0	0	0	0	0	0.0	0.064	0.00	-0.45	0.00
												Statewide Crash Rate:	0.12	
13430	0560011 - 0.13	0503844 POR,ALPINE RD,UNN 62	2	0	0	0	0	0	0	0.0	0.081	0.00	-0.13	0.00
												Statewide Crash Rate:	0.12	
P13447	0560116 - 0.17	Int of BONNY ST CARTER ST	2	0	0	0	0	0	0	0.0	0.100	0.00	0.09	0.00
												Statewide Crash Rate:	0.12	
A13448	0560116 - 0.18	Int of CARTER ST PANORAMIC VIEW ST	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.12	
13444	0560172 - 0.17	Int of BONNY ST CRESTVIEW DR	2	0	0	0	0	0	0	0.0	0.124	0.00	0.24	0.00
												Statewide Crash Rate:	0.12	
13445	0560172 - 0.20	0503859 POR,CRESTVIEW DR,.12 AHD ALICE	2	0	0	0	0	0	0	0.0	0.080	0.00	-0.15	0.00
												Statewide Crash Rate:	0.12	
13451	0560114 - 0.15	Int of CARON ST PANORAMIC VIEW ST	2	0	0	0	0	0	0	0.0	0.069	0.00	-0.33	0.00
												Statewide Crash Rate:	0.12	

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
18186	0560114 - 0.25	0508605 POR,CARON ST,END	2	0	0	0	0	0	0	0.0	0.014	0.00	-7.52	0.00
												Statewide Crash Rate:	0.12	
13452	0560455 - 0.16	Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN	2	0	0	0	0	0	0	0.0	0.085	0.00	-0.07	0.00
												Statewide Crash Rate:	0.12	
13453	0560455 - 0.25	0503867 POR,PATRICIA LA,LONGVIEW RD.	2	0	0	0	0	0	0	0.0	0.019	0.00	-4.99	0.00
												Statewide Crash Rate:	0.12	
13454	0561114 - 0.10	0503868 POR,PATRICIA LA,.10 BK.60562	2	0	0	0	0	0	0	0.0	0.017	0.00	-5.58	0.00
												Statewide Crash Rate:	0.12	
19452	0561203 - 0.06	Int of OVERSET RD, WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
19453	0561203 - 0.10	Int of OVERSET RD WHALE BOAT RD	2	0	0	0	0	0	0	0.0	0.053	0.00	-0.80	0.00
												Statewide Crash Rate:	0.12	
63845	0561217 - 0.03	Loop of WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.030	0.00	-2.45	0.00
												Statewide Crash Rate:	0.12	
63845	0561217 - 0.08	Loop of WHITEHEAD CIR	2	0	0	0	0	0	0	0.0	0.030	0.00	-2.45	0.00
												Statewide Crash Rate:	0.12	
13436	0560138 - 0.05	Int of CLAYTON ST KENNETH ST	2	0	0	0	0	0	0	0.0	0.053	0.00	-0.77	0.00
												Statewide Crash Rate:	0.12	
13434	0560400 - 0.07	Int of JACKSON ST KENNETH ST	2	0	0	0	0	0	0	0.0	0.122	0.00	0.23	0.00
												Statewide Crash Rate:	0.12	
63847	0560688 - 0.09	Non Int SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	0.136	0.00	0.29	0.00
												Statewide Crash Rate:	0.12	
15389	0560688 - 0.22	Non Int SUMMIT PARK AV	2	0	0	0	0	0	0	0.0	0.052	0.00	-0.83	0.00
												Statewide Crash Rate:	0.12	
13432	0560688 - 0.38	Int of SUMMIT PARK AV UNNAMED 62	2	0	0	0	0	0	0	0.0	0.103	0.00	0.11	0.00
												Statewide Crash Rate:	0.12	
18501	0561167 - 0.08	Int of FROST HILL RD OLD BARN LN	2	0	0	0	0	0	0	0.0	0.075	0.00	-0.22	0.00
												Statewide Crash Rate:	0.12	
18502	0561167 - 0.24	0508922 POR,FROST HILL RD,END	2	0	0	0	0	0	0	0.0	0.026	0.00	-3.04	0.00
												Statewide Crash Rate:	0.12	
18503	0561169 - 0.05	0508923 POR,OLD BARN LA,END	2	0	0	0	0	0	0	0.0	0.007	0.00	-16.20	0.00
												Statewide Crash Rate:	0.12	
18500	0561179 - 0.14	End of WENDY WY	2	0	0	0	0	0	0	0.0	0.023	0.00	-3.82	0.00
												Statewide Crash Rate:	0.12	
12465	0560695 - 0.06	0502877 POR,TALBOT ST, END	2	0	0	0	0	0	0	0.0	0.012	0.00	-9.38	0.00
												Statewide Crash Rate:	0.12	
13426	0560409 - 0.10	End of JUNIPER ST	2	0	0	0	0	0	0	0.0	0.018	0.00	-5.27	0.00
												Statewide Crash Rate:	0.12	
Study Years:	3.00	**NODE TOTALS:**		9	0	1	2	2	4	55.6	45.500	0.07	0.19	0.34

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
17066	17067	3106528	0 - 0.04	0026X - 4.16	0.04	2	0	0	0	0	0	0	0.0	0.00143	0.00	608.38	0.00
Int of ALPINE RD, AUBURN ST				ST RTE 26											Statewide Crash Rate: 187.10		
17067	17068	3122276	0 - 0.08	0026X - 4.20	0.08	2	4	0	0	0	0	4	0.0	0.00286	466.46	509.30	0.00
Int of AUBURN ST SUMMIT PARK AV				ST RTE 26											Statewide Crash Rate: 187.10		
13438	17068	3130462	0 - 0.09	0026X - 4.28	0.09	2	2	0	0	0	1	1	50.0	0.00321	207.89	494.37	0.00
Int of AUBURN ST CLAYTON ST				ST RTE 26											Statewide Crash Rate: 187.10		
13438	17069	3106258	0 - 0.04	0026X - 4.37	0.04	2	0	0	0	0	0	0	0.0	0.00143	0.00	609.02	0.00
Int of AUBURN ST CLAYTON ST				ST RTE 26											Statewide Crash Rate: 187.10		
17069	17070	3123986	0 - 0.02	0026X - 4.41	0.02	2	0	0	0	0	0	0	0.0	0.00053	0.00	756.09	0.00
Int of AUBURN ST LAMBERT ST				ST RTE 26											Statewide Crash Rate: 187.10		
17070	17071	3130499	0 - 0.18	0026X - 4.43	0.18	2	0	0	0	0	0	0	0.0	0.00483	0.00	445.32	0.00
Int of AUBURN ST HILLSIDE RD				ST RTE 26											Statewide Crash Rate: 187.10		
17071	17073	3938275	0 - 0.09	0026X - 4.61	0.09	2	0	0	0	0	0	0	0.0	0.00263	0.00	520.33	0.00
Int of AUBURN ST SUMMIT ST				ST RTE 26											Statewide Crash Rate: 187.10		
17073	19344	192822	0 - 0.13	0026X - 4.70	0.13	2	0	0	0	0	0	0	0.0	0.00387	0.00	470.91	0.00
Int of AUBURN ST LONGVIEW RD				ST RTE 26											Statewide Crash Rate: 187.10		
19344	19797	3118714	0 - 0.03	0026X - 4.83	0.03	2	0	0	0	0	0	0	0.0	0.00110	0.00	648.88	0.00
Int of AUBURN ST WASHINGTON AV EXT				ST RTE 26											Statewide Crash Rate: 187.10		
13425	13431	188172	0 - 0.01	0560689 - 0.47	0.01	2	0	0	0	0	0	0	0.0	0.00011	0.00	1493.47	0.00
Int of JUNIPER ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
12464	13431	186821	0 - 0.02	0560689 - 0.48	0.02	2	0	0	0	0	0	0	0.0	0.00021	0.00	1480.08	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
12464	13427	186820	0 - 0.10	0560689 - 0.50	0.10	2	0	0	0	0	0	0	0.0	0.00122	0.00	1013.16	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13427	13435	188174	0 - 0.08	0560689 - 0.60	0.08	2	0	0	0	0	0	0	0.0	0.00053	0.00	1249.83	0.00
Int of CURTIS RD SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13435	13437	188190	0 - 0.04	0560689 - 0.68	0.04	2	0	0	0	0	0	0	0.0	0.00024	0.00	1459.76	0.00
Int of FROST HILL RD JACKSON ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13437	13439	188194	0 - 0.06	0560689 - 0.72	0.06	2	1	0	0	0	0	0	0.0	0.00037	910.87	1353.11	0.00
Int of CLAYTON ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13439	13442	5095097	0 - 0.05	0560689 - 0.78	0.05	2	0	0	0	0	0	0	0.0	0.00030	0.00	1404.28	0.00
Int of HILLSIDE RD SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13442	13446	188204	0 - 0.11	0560689 - 0.83	0.11	2	1	0	0	1	0	0	100.0	0.00040	832.72	1328.27	0.00
Int of ABBY LN SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13446	17071	5084411	0 - 0.07	0560689 - 0.94	0.07	2	0	0	0	0	0	0	0.0	0.00021	0.00	1478.21	0.00
Int of CARTER ST SUMMIT ST				RD INV 05 60689											Statewide Crash Rate: 351.32		
13427	18499	5080637	0 - 0.16	0560178 - 0	0.16	2	1	0	0	0	0	1	0.0	0.00071	467.08	1161.28	0.00
Int of CURTIS RD SUMMIT ST				RD INV 05 60178											Statewide Crash Rate: 351.32		
13428	18499	188178	0 - 0.09	0560178 - 0.16	0.09	2	0	0	0	0	0	0	0.0	0.00032	0.00	1392.58	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		

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
13428	13429	5084409	0 - 0.11	0560178 - 0.25	0.11	2	0	0	0	0	0	0	0.0	0.00024	0.00	1458.95	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
13429	19454	188180	0 - 0.07	0560178 - 0.36	0.07	2	0	0	0	0	0	0	0.0	0.00007	0.00	1336.05	0.00
Int of CURTIS RD OVERSET RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
10688	19454	5095093	0 - 0.04	0560178 - 0.43	0.04	2	0	0	0	0	0	0	0.0	0.00003	0.00	231.45	0.00
End of CURTIS RD				RD INV 05 60178											Statewide Crash Rate: 351.32		
71412	18498	5095160	0 - 0.05	0560851 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-950.49	0.00
Int of ALICE ST PAMELA DR				RD INV 05 60851											Statewide Crash Rate: 351.32		
18170	71412	5095159	0 - 0.05	0560851 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-856.95	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
18170	18486	193763	0 - 0.02	0560851 - 0.10	0.02	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7868.46	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
18171	18486	193765	0 - 0.06	0560851 - 0.12	0.06	2	0	0	0	0	0	0	0.0	0.00001	0.00	-4792.46	0.00
Int of ALICE ST CARTER ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13449	18171	5095153	0 - 0.05	0560851 - 0.18	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-10215.50	0.00
Int of ALICE ST CARON ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13449	13450	188213	0 - 0.04	0560851 - 0.23	0.04	2	0	0	0	0	0	0	0.0	0.00001	0.00	-8795.41	0.00
Int of ALICE ST CARON ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13450	19798	5087298	0 - 0.14	0560851 - 0.27	0.14	2	0	0	0	0	0	0	0.0	0.00005	0.00	962.43	0.00
Non Int ALICE ST				RD INV 05 60851											Statewide Crash Rate: 351.32		
13428	18494	188177	0 - 0.05	0560819 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00005	0.00	1021.10	0.00
Int of ABBY LN CURTIS RD				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	18494	188201	0 - 0.11	0560819 - 0.05	0.11	2	0	0	0	0	0	0	0.0	0.00006	0.00	1234.92	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	13441	188199	0 - 0.10	0560819 - 0.16	0.10	2	0	0	0	0	0	0	0.0	0.00008	0.00	1349.53	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13441	13442	188202	0 - 0.08	0560819 - 0.26	0.08	2	0	0	0	0	0	0	0.0	0.00019	0.00	1495.81	0.00
Int of ABBY LN CRESTVIEW DR				RD INV 05 60819											Statewide Crash Rate: 351.32		
13440	71412	5095156	0 - 0.19	0560838 - 0	0.19	2	0	0	0	0	0	0	0.0	0.00002	0.00	-976.30	0.00
Int of ABBY LN PAMELA DR				RD INV 05 60838											Statewide Crash Rate: 351.32		
18494	18495	194000	0 - 0.05	0561166 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00006	0.00	1217.38	0.00
0508914 POR,ABBY LA,CLAPBOARD RD.				RD INV 05 61166											Statewide Crash Rate: 351.32		
18495	18496	194001	0 - 0.05	0561166 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1015.72	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61166											Statewide Crash Rate: 351.32		
18496	18497	194003	0 - 0.05	0561166 - 0.10	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1015.72	0.00
0508916 POR,CLAPBOARD RD,.10 BK.ABBY				RD INV 05 61166											Statewide Crash Rate: 351.32		
18497	18498	5095094	0 - 0.05	0561166 - 0.15	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2843.86	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61166											Statewide Crash Rate: 351.32		
13430	17066	188183	0 - 0.13	0560011 - 0	0.13	2	0	0	0	0	0	0	0.0	0.00009	0.00	1455.01	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 60011											Statewide Crash Rate: 351.32		

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
13430	13431	188181	0 - 0.17	0560011 - 0.13	0.17	2	0	0	0	0	0	0	0.0	0.00010	0.00	1464.82	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 60011											Statewide Crash Rate: 351.32		
19797	19798	195401	0 - 0.26	0561241 - 0	0.26	2	0	0	0	0	0	0	0.0	0.00023	0.00	1462.68	0.00
Int of AUBURN ST GARSOE DR				RD INV 05 61241											Statewide Crash Rate: 351.32		
13446	13447	188208	0 - 0.17	0560116 - 0	0.17	2	0	0	0	0	0	0	0.0	0.00016	0.00	1514.73	0.00
Int of CARTER ST SUMMIT ST				RD INV 05 60116											Statewide Crash Rate: 351.32		
13447	13448	188210	0 - 0.01	0560116 - 0.17	0.01	2	0	0	0	0	0	0	0.0	0.00001	0.00	-	0.00
Int of BONNY ST CARTER ST				RD INV 05 60116											Statewide Crash Rate: 351.32	10785.99	
13448	18171	188212	0 - 0.15	0560116 - 0.18	0.15	2	0	0	0	0	0	0	0.0	0.00007	0.00	1291.62	0.00
Int of CARTER ST PANORAMIC VIEW ST				RD INV 05 60116											Statewide Crash Rate: 351.32		
13441	13444	5084404	0 - 0.17	0560172 - 0	0.17	2	0	0	0	0	0	0	0.0	0.00024	0.00	1454.05	0.00
Int of ABBY LN CRESTVIEW DR				RD INV 05 60172											Statewide Crash Rate: 351.32		
13444	13445	188205	0 - 0.03	0560172 - 0.17	0.03	2	0	0	0	0	0	0	0.0	0.00002	0.00	-925.05	0.00
Int of BONNY ST CRESTVIEW DR				RD INV 05 60172											Statewide Crash Rate: 351.32		
13445	18486	188207	0 - 0.12	0560172 - 0.20	0.12	2	0	0	0	0	0	0	0.0	0.00010	0.00	1458.63	0.00
0503859 POR,CRESTVIEW DR,.12 AHD ALICE				RD INV 05 60172											Statewide Crash Rate: 351.32		
13449	13451	188214	0 - 0.15	0560114 - 0	0.15	2	0	0	0	0	0	0	0.0	0.00006	0.00	1118.53	0.00
Int of ALICE ST CARON ST				RD INV 05 60114											Statewide Crash Rate: 351.32		
13451	18186	188218	0 - 0.10	0560114 - 0.15	0.10	2	0	0	0	0	0	0	0.0	0.00003	0.00	-364.08	0.00
Int of CARON ST PANORAMIC VIEW ST				RD INV 05 60114											Statewide Crash Rate: 351.32		
13452	17073	188221	0 - 0.16	0560455 - 0	0.16	2	0	0	0	0	0	0	0.0	0.00013	0.00	1514.30	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 60455											Statewide Crash Rate: 351.32		
13452	13453	188219	0 - 0.09	0560455 - 0.16	0.09	2	0	0	0	0	0	0	0.0	0.00003	0.00	-598.80	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 60455											Statewide Crash Rate: 351.32		
13452	13454	188220	0 - 0.10	0561114 - 0	0.10	2	0	0	0	0	0	0	0.0	0.00003	0.00	-603.99	0.00
Int of LONGVIEW RD PANORAMIC VIEW ST PATRICIA LN				RD INV 05 61114											Statewide Crash Rate: 351.32		
13453	13454	188222	0 - 0.04	0561114 - 0.10	0.04	2	1	0	0	0	0	0	0.0	0.00000	95129.38	-	0.00
0503867 POR,PATRICIA LA,LONGVIEW RD.				RD INV 05 61114											Statewide Crash Rate: 351.32	32321.31	
13448	13451	5084406	0 - 0.05	0560562 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2085.47	0.00
Int of CARTER ST PANORAMIC VIEW ST				RD INV 05 60562											Statewide Crash Rate: 351.32		
13451	13452	188217	0 - 0.05	0560562 - 0.05	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-2566.86	0.00
Int of CARON ST PANORAMIC VIEW ST				RD INV 05 60562											Statewide Crash Rate: 351.32		
13444	13447	5084405	0 - 0.06	0560066 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00002	0.00	-3507.00	0.00
Int of BONNY ST CRESTVIEW DR				RD INV 05 60066											Statewide Crash Rate: 351.32		
18495	18497	5084408	0 - 0.15	0561177 - 0	0.15	2	0	0	0	0	0	0	0.0	0.00007	0.00	1319.16	0.00
Int of CLAPBOARD RD STURDIVANT DR				RD INV 05 61177											Statewide Crash Rate: 351.32		
13429	19452	188179	0 - 0.06	0561203 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00005	0.00	901.52	0.00
Int of CURTIS RD OVERSET RD				RD INV 05 61203											Statewide Crash Rate: 351.32		

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
19452	19453	195141	0 - 0.04	0561203 - 0.06	0.04	2	0	0	0	0	0	0	0.0	0.00002	0.00	-1748.14	0.00
Int of OVERSET RD, WHITEHEAD CIR				RD INV 05 61203											Statewide Crash Rate: 351.32		
19453	19454	195143	0 - 0.09	0561215 - 0	0.09	2	0	0	0	0	0	0	0.0	0.00003	0.00	-422.78	0.00
Int of OVERSET RD WHALE BOAT RD				RD INV 05 61215											Statewide Crash Rate: 351.32		
19452	63845	2672710	0 - 0.03	0561217 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00001	0.00	-15963.47	0.00
Int of OVERSET RD, WHITEHEAD CIR				RD INV 05 61217											Statewide Crash Rate: 351.32		
63845	63845	2672712	0 - 0.05	0561217 - 0.03	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-7454.27	0.00
Loop of WHITEHEAD CIR				RD INV 05 61217											Statewide Crash Rate: 351.32		
13439	17070	5080633	0 - 0.14	0560372 - 0	0.14	2	0	0	0	0	0	0	0.0	0.00011	0.00	1496.36	0.00
Int of HILLSIDE RD SUMMIT ST				RD INV 05 60372											Statewide Crash Rate: 351.32		
13436	13438	5080634	0 - 0.05	0560138 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-768.23	0.00
Int of CLAYTON ST KENNETH ST				RD INV 05 60138											Statewide Crash Rate: 351.32		
13436	13437	5080632	0 - 0.12	0560138 - 0.05	0.12	2	0	0	0	0	0	0	0.0	0.00004	0.00	758.25	0.00
Int of CLAYTON ST KENNETH ST				RD INV 05 60138											Statewide Crash Rate: 351.32		
13434	17068	5080631	0 - 0.07	0560400 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00008	0.00	1397.33	0.00
Int of JACKSON ST KENNETH ST				RD INV 05 60400											Statewide Crash Rate: 351.32		
13434	13435	188187	0 - 0.14	0560400 - 0.07	0.14	2	1	0	0	0	0	1	0.0	0.00015	2233.96	1516.44	1.47
Int of JACKSON ST KENNETH ST				RD INV 05 60400											Statewide Crash Rate: 351.32		
13434	13436	188188	0 - 0.07	0560415 - 0	0.07	2	0	0	0	0	0	0	0.0	0.00001	0.00	-3788.09	0.00
Int of JACKSON ST KENNETH ST				RD INV 05 60415											Statewide Crash Rate: 351.32		
63847	17067	5080630	0 - 0.09	0560688 - 0	0.09	2	0	0	0	0	0	0	0.0	0.00010	0.00	1479.51	0.00
Non Int SUMMIT PARK AV				RD INV 05 60688											Statewide Crash Rate: 351.32		
63847	15389	2672735	0 - 0.13	0560688 - 0.09	0.13	2	0	0	0	0	0	0	0.0	0.00006	0.00	1127.42	0.00
Non Int SUMMIT PARK AV				RD INV 05 60688											Statewide Crash Rate: 351.32		
13432	15389	5080629	0 - 0.16	0560688 - 0.22	0.16	2	0	0	0	0	0	0	0.0	0.00010	0.00	1459.60	0.00
Int of SUMMIT PARK AV UNNAMED 62				RD INV 05 60688											Statewide Crash Rate: 351.32		
13430	13432	188182	0 - 0.05	0561120 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00002	0.00	-3231.28	0.00
0503844 POR,ALPINE RD,UNN 62				RD INV 05 61120											Statewide Crash Rate: 351.32		
13432	63847	2672733	0 - 0.03	0561120 - 0.05	0.03	2	0	0	0	0	0	0	0.0	0.00003	0.00	250.13	0.00
Int of SUMMIT PARK AV UNNAMED 62				RD INV 05 61120											Statewide Crash Rate: 351.32		
13435	18501	5080635	0 - 0.08	0561167 - 0	0.08	2	0	0	0	0	0	0	0.0	0.00007	0.00	1253.71	0.00
Int of FROST HILL RD JACKSON ST SUMMIT ST				RD INV 05 61167											Statewide Crash Rate: 351.32		
18501	18502	194006	0 - 0.16	0561167 - 0.08	0.16	2	0	0	0	0	0	0	0.0	0.00008	0.00	1409.29	0.00
Int of FROST HILL RD OLD BARN LN				RD INV 05 61167											Statewide Crash Rate: 351.32		
18501	18503	194007	0 - 0.05	0561169 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00001	0.00	-11731.96	0.00
Int of FROST HILL RD OLD BARN LN				RD INV 05 61169											Statewide Crash Rate: 351.32		
18499	18500	5080636	0 - 0.14	0561179 - 0	0.14	2	0	0	0	0	0	0	0.0	0.00006	0.00	1223.01	0.00
Int of CURTIS RD WENDY WY				RD INV 05 61179											Statewide Crash Rate: 351.32		

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
12464	12465	186819	0 - 0.06	0560695 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00001	0.00	-4093.82	0.00
0502876 POR,SUMMIT ST,TALBOT ST				RD INV 05 60695											Statewide Crash Rate: 351.32		
13425	13426	5080638	0 - 0.10	0560409 - 0	0.10	2	0	0	0	0	0	0	0.0	0.00004	0.00	376.37	0.00
Int of JUNIPER ST	SUMMIT ST			RD INV 05 60409											Statewide Crash Rate: 351.32		
Study Years:	3.00			**Section Totals:**	6.92		11	0	0	1	1	7	18.2	0.03004	122.05	356.73	0.34
				Grand Totals:	6.92		20	0	1	3	3	11	35.0	0.03004	221.91	471.25	0.47

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
17066	17067	3106528	0 - 0.04	0026X - 4.16	0	0	0	0	0	0				
17067	17068	3122276	0 - 0.08	0026X - 4.20	4	0	0	0	0	4	2019-1418	01/13/2019	4.24	PD
											2021-17141	07/06/2021	4.24	PD
											2021-24573	09/16/2021	4.25	PD
											2021-34736	12/10/2021	4.27	PD
13438	17068	3130462	0 - 0.09	0026X - 4.28	2	0	0	0	1	1	2019-50246	04/27/2019	4.29	C
											2021-25703	09/25/2021	4.32	PD
13438	17069	3106258	0 - 0.04	0026X - 4.37	0	0	0	0	0	0				
17069	17070	3123986	0 - 0.02	0026X - 4.41	0	0	0	0	0	0				
17070	17071	3130499	0 - 0.18	0026X - 4.43	0	0	0	0	0	0				
17071	17073	3938275	0 - 0.09	0026X - 4.61	0	0	0	0	0	0				
17073	19344	192822	0 - 0.13	0026X - 4.70	0	0	0	0	0	0				
19344	19797	3118714	0 - 0.03	0026X - 4.83	0	0	0	0	0	0				
13425	13431	188172	0 - 0.01	0560689 - 0.47	0	0	0	0	0	0				
12464	13431	186821	0 - 0.02	0560689 - 0.48	0	0	0	0	0	0				
12464	13427	186820	0 - 0.10	0560689 - 0.50	0	0	0	0	0	0				
13427	13435	188174	0 - 0.08	0560689 - 0.60	0	0	0	0	0	0				
13435	13437	188190	0 - 0.04	0560689 - 0.68	0	0	0	0	0	0				
13437	13439	188194	0 - 0.06	0560689 - 0.72	1	0	0	0	0	0	2021-26097	09/29/2021	0.73	
13439	13442	5095097	0 - 0.05	0560689 - 0.78	0	0	0	0	0	0				
13442	13446	188204	0 - 0.11	0560689 - 0.83	1	0	0	1	0	0	2021-13280	05/30/2021	0.85	B
13446	17071	5084411	0 - 0.07	0560689 - 0.94	0	0	0	0	0	0				
13427	18499	5080637	0 - 0.16	0560178 - 0	1	0	0	0	0	1	2019-3097	01/25/2019	0.05	PD
13428	18499	188178	0 - 0.09	0560178 - 0.16	0	0	0	0	0	0				
13428	13429	5084409	0 - 0.11	0560178 - 0.25	0	0	0	0	0	0				
13429	19454	188180	0 - 0.07	0560178 - 0.36	0	0	0	0	0	0				
10688	19454	5095093	0 - 0.04	0560178 - 0.43	0	0	0	0	0	0				
71412	18498	5095160	0 - 0.05	0560851 - 0	0	0	0	0	0	0				
18170	71412	5095159	0 - 0.05	0560851 - 0.05	0	0	0	0	0	0				
18170	18486	193763	0 - 0.02	0560851 - 0.10	0	0	0	0	0	0				
18171	18486	193765	0 - 0.06	0560851 - 0.12	0	0	0	0	0	0				
13449	18171	5095153	0 - 0.05	0560851 - 0.18	0	0	0	0	0	0				
13449	13450	188213	0 - 0.04	0560851 - 0.23	0	0	0	0	0	0				
13450	19798	5087298	0 - 0.14	0560851 - 0.27	0	0	0	0	0	0				
13428	18494	188177	0 - 0.05	0560819 - 0	0	0	0	0	0	0				
13440	18494	188201	0 - 0.11	0560819 - 0.05	0	0	0	0	0	0				
13440	13441	188199	0 - 0.10	0560819 - 0.16	0	0	0	0	0	0				
13441	13442	188202	0 - 0.08	0560819 - 0.26	0	0	0	0	0	0				
13440	71412	5095156	0 - 0.19	0560838 - 0	0	0	0	0	0	0				

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
18494	18495	194000	0 - 0.05	0561166 - 0	0	0	0	0	0	0				
18495	18496	194001	0 - 0.05	0561166 - 0.05	0	0	0	0	0	0				
18496	18497	194003	0 - 0.05	0561166 - 0.10	0	0	0	0	0	0				
18497	18498	5095094	0 - 0.05	0561166 - 0.15	0	0	0	0	0	0				
13430	17066	188183	0 - 0.13	0560011 - 0	0	0	0	0	0	0				
13430	13431	188181	0 - 0.17	0560011 - 0.13	0	0	0	0	0	0				
19797	19798	195401	0 - 0.26	0561241 - 0	0	0	0	0	0	0				
13446	13447	188208	0 - 0.17	0560116 - 0	0	0	0	0	0	0				
13447	13448	188210	0 - 0.01	0560116 - 0.17	0	0	0	0	0	0				
13448	18171	188212	0 - 0.15	0560116 - 0.18	0	0	0	0	0	0				
13441	13444	5084404	0 - 0.17	0560172 - 0	0	0	0	0	0	0				
13444	13445	188205	0 - 0.03	0560172 - 0.17	0	0	0	0	0	0				
13445	18486	188207	0 - 0.12	0560172 - 0.20	0	0	0	0	0	0				
13449	13451	188214	0 - 0.15	0560114 - 0	0	0	0	0	0	0				
13451	18186	188218	0 - 0.10	0560114 - 0.15	0	0	0	0	0	0				
13452	17073	188221	0 - 0.16	0560455 - 0	0	0	0	0	0	0				
13452	13453	188219	0 - 0.09	0560455 - 0.16	0	0	0	0	0	0				
13452	13454	188220	0 - 0.10	0561114 - 0	0	0	0	0	0	0				
13453	13454	188222	0 - 0.04	0561114 - 0.10	1	0	0	0	0	0	2020-30449	12/06/2020	0.13	
13448	13451	5084406	0 - 0.05	0560562 - 0	0	0	0	0	0	0				
13451	13452	188217	0 - 0.05	0560562 - 0.05	0	0	0	0	0	0				
13444	13447	5084405	0 - 0.06	0560066 - 0	0	0	0	0	0	0				
18495	18497	5084408	0 - 0.15	0561177 - 0	0	0	0	0	0	0				
13429	19452	188179	0 - 0.06	0561203 - 0	0	0	0	0	0	0				
19452	19453	195141	0 - 0.04	0561203 - 0.06	0	0	0	0	0	0				
19453	19454	195143	0 - 0.09	0561215 - 0	0	0	0	0	0	0				
19452	63845	2672710	0 - 0.03	0561217 - 0	0	0	0	0	0	0				
63845	63845	2672712	0 - 0.05	0561217 - 0.03	0	0	0	0	0	0				
13439	17070	5080633	0 - 0.14	0560372 - 0	0	0	0	0	0	0				
13436	13438	5080634	0 - 0.05	0560138 - 0	0	0	0	0	0	0				
13436	13437	5080632	0 - 0.12	0560138 - 0.05	0	0	0	0	0	0				
13434	17068	5080631	0 - 0.07	0560400 - 0	0	0	0	0	0	0				
13434	13435	188187	0 - 0.14	0560400 - 0.07	1	0	0	0	0	1	2021-16139	06/28/2021	0.14	PD
13434	13436	188188	0 - 0.07	0560415 - 0	0	0	0	0	0	0				
63847	17067	5080630	0 - 0.09	0560688 - 0	0	0	0	0	0	0				
63847	15389	2672735	0 - 0.13	0560688 - 0.09	0	0	0	0	0	0				
13432	15389	5080629	0 - 0.16	0560688 - 0.22	0	0	0	0	0	0				
13430	13432	188182	0 - 0.05	0561120 - 0	0	0	0	0	0	0				
13432	63847	2672733	0 - 0.03	0561120 - 0.05	0	0	0	0	0	0				
13435	18501	5080635	0 - 0.08	0561167 - 0	0	0	0	0	0	0				

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
18501	18502	194006	0 - 0.16	0561167 - 0.08	0	0	0	0	0	0				
18501	18503	194007	0 - 0.05	0561169 - 0	0	0	0	0	0	0				
18499	18500	5080636	0 - 0.14	0561179 - 0	0	0	0	0	0	0				
12464	12465	186819	0 - 0.06	0560695 - 0	0	0	0	0	0	0				
13425	13426	5080638	0 - 0.10	0560409 - 0	0	0	0	0	0	0				
				Totals:	11	0	0	1	1	7				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day	PM											
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	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	3
MONDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
THURSDAY	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	4
Totals	0	0	0	0	0	0	0	2	1	0	2	2	4	1	0	3	2	0	1	0	0	1	0	1	0	**20**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	19
2-(Sport) Utility Vehicle	6
3-Passenger Van	1
4-Cargo Van (10K lbs or Less)	0
5-Pickup	8
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	1
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)	2
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	2
25-Other	2
26-Construction	0
27-Farm Vehicle	0
Total	**41**

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	1	14	2	1	0	0	18
Ran Off Roadway	3	0	0	0	0	0	3
Failed to Yield Right-of-Way	6	0	0	0	0	0	6
Ran Red Light	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0
Improper Turn	2	0	0	0	0	0	2
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	3	0	0	0	0	0	3
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	2	0	0	0	0	0	2
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	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0
Total	**18**	**14**	**2**	**1**	**0**	**0**	**35**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	16	14	2	1	0	0	33
Physically Impaired	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	1	0	0	0	0	0	1
Other	1	0	0	0	0	0	1
Total	**18**	**14**	**2**	**1**	**0**	**0**	**35**

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	4	0	0	0	0	4
20-24	7	0	0	0	0	7
25-29	4	0	0	0	0	4
30-39	6	0	0	0	0	6
40-49	8	0	0	0	0	8
50-59	3	0	0	0	0	3
60-69	5	0	0	0	0	5
70-79	0	0	0	0	0	0
80-Over	0	0	0	0	0	0
Unknown	2	0	0	0	0	2
Total	**39**	**0**	**0**	**0**	**0**	**39**

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.)	2
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**37**
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	35		
14-Parked Motor Vehicle	0		
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	1	1
B	3	3
C	3	4
PD	11	0
Total	**18**	**8**

Road Character

Road Grade	Total
1-Level	16
2-On Grade	2
3-Top of Hill	1
4-Bottom of Hill	1
5-Other	0
Total	**20**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	1
5-Stop Signs - Other	5
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	0
13-None	13
14-Other	1
Total	**20**

Light

Light Condition	Total
1-Daylight	15
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	4
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**20**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2019	2020	2021	Total
JANUARY	3	0	1	4
FEBRUARY	0	1	0	1
MARCH	0	0	0	0
APRIL	2	0	0	2
MAY	0	1	1	2
JUNE	1	0	1	2
JULY	0	0	1	1
AUGUST	0	0	0	0
SEPTEMBER	0	0	3	3
OCTOBER	0	0	0	0
NOVEMBER	0	1	1	2
DECEMBER	1	1	1	3
Total	**7**	**4**	**9**	**20**

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	4	2	0	2	0	1	0	0	0	0	0	0	0	0	9
Head-on - Sideswipe	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Intersection Movement	0	0	5	0	0	1	0	0	0	0	0	0	0	0	6
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	1	0	1	1	0	1	0	0	0	0	0	0	0	0	4
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	**6**	**2**	**6**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**

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	2	0	0	0	0	0	0	0	0	0	0	2
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	6	1	0	0	0	0	0	0	0	0	2	9
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
Cloudy												
Dark - Lighted	1	0	0	0	0	0	0	0	0	0	0	1
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	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	2	2
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	1	1
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	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
TOTAL	**12**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**20**

Barton & Loguidice

Traffic Assessment –Speed Study

Date: 8/25/2023

To: Jon Whitten, Jr., P.E., Project Manager
Haley Ward

From: Jacob Sirois, E.I.
Engineer 1
Barton & Loguidice, LLC.

John Q. Adams, P.E., PTOE
Associate, Senior Transportation Engineer
Barton & Loguidice, LLC.

Re: **Speed Study, Hope Avenue Residential Multi-Family Subdivision**
Hope Avenue, Portland, Maine

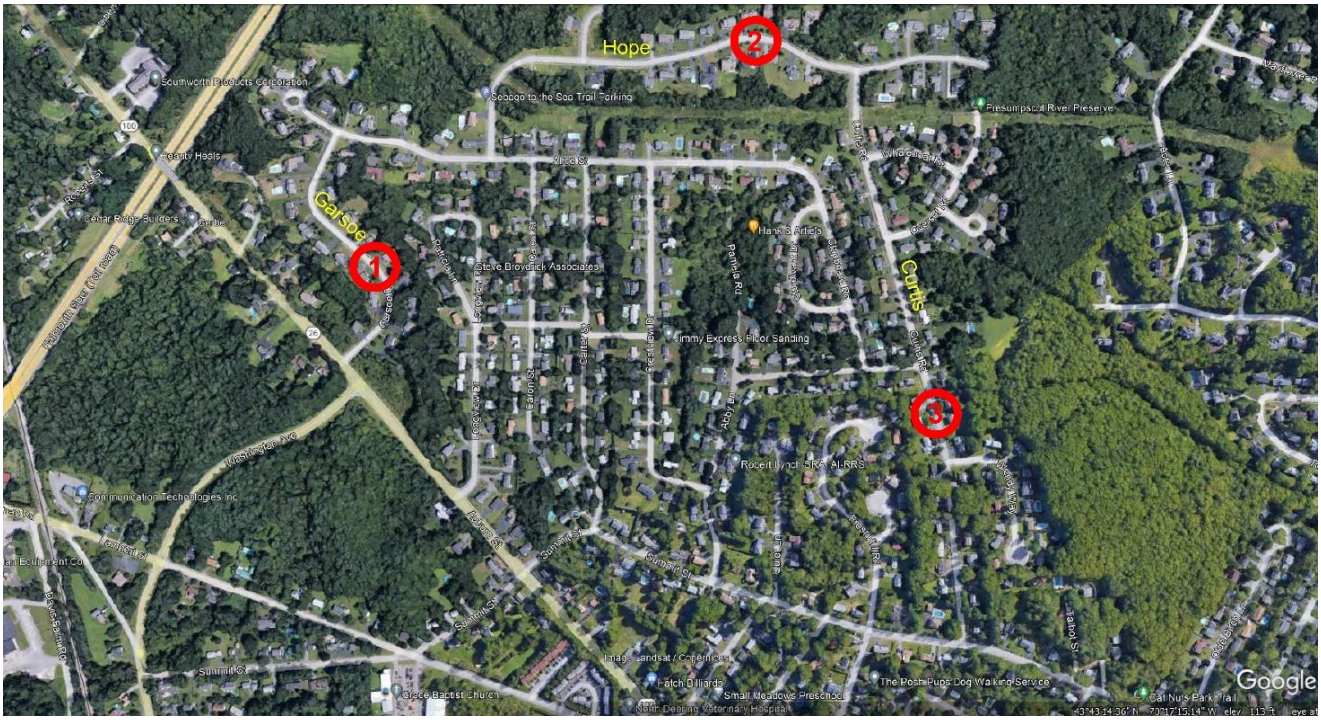
Introduction

The purpose of this memo is to respond to comments from the City of Portland staff and neighborhood citizens pertaining to potential concerns with traffic speeds along Garsoe Drive, Hope Avenue, and Curtis Street, and the potential need for traffic calming measures. To respond to these comments, we have reviewed the existing conditions for the subject roads and performed speed studies on each.

Speed Study

The speed study was completed on July 27, 2023 with speed data collected at the three locations shown below. These included; 1. Garsoe Drive, 2. Hope Avenue, and 3. Curtis Street. The data was completed in the afternoon generally within the weekday peak commuter hours so that more data could be collected. The speed study data and results were compiled by James Tasse, PhD, Assistant Director, Bicycle Coalition of Maine.

Figure 1 Proposed Development Site



Garsoe Drive

Garsoe Drive is a residential street with single family homes along both sides. The roadway is approximately 24 ft. wide, with a cross-section generally comprised of a curbed roadway, esplanades and sidewalk on both sides of the road with street lights and street trees. Based on our observations, the context of this roadway provides traffic calming and prevailing speeds were generally at or below the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 1 below.

Table 1 - Garsoe Drive Speed Data Results

Speed Limit	Northbound	Southbound
Average	17.7	21.0
85th Percentile	20.5	25.8

The data indicates that both the Average and 85th Percentile Speeds were generally at or below the posted speed limit of 25mph. In the northbound direction the average speed was 17.7 mph and 85th was 20.5 mph, and the southbound average speed was 21.0 mph and the 85th was 25.8 mph. Based on these results motorists were generally adhering to or driving below the posted speed limit.

Hope Avenue

Hope Avenue is a residential street with single family home along both sides. The roadway is approximately 24 ft. wide, with a cross-section generally comprised of a curbed roadway, esplanades and sidewalk on both sides of the road with street lights and street trees. The context of this roadway provides traffic calming and generally does not seem to encourage higher speeds above the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 2 below.

Table 2 - Hope Ave Speed Data Results

Speed Limit	Eastbound	Westbound
Average	17.5	22.0
85th Percentile	17.9	27.6

The data indicates that both the Average and 85th Percentile Speeds were generally near or below the posted speed limit of 25 mph. In the eastbound direction the average speed was 17.5 mph and the 85th was 17.9 mph, and the westbound average speed was 22.0 mph and the 85th was 27.6 mph. Based on these results motorists were generally adhering to or driving below the posted speed limit.

Curtis Street

Curtis Street is a residential street with single family homes along both sides and a posted speed of 25 mph. The roadway is wider than either Hope Avenue or Garsoe Drive, but does have on-street parking which takes up some of the roadway width. Based on our observations, the roadway has three different widths as you traverse from Summit Street northerly to Hope Avenue, a distance of about 2,800 ft. See descriptions below:

Southerly Section (Summit Street to Abby Street) - roadway approximately 28 ft. wide, no curbing, but esplanades, sidewalks, and street trees on both sides, with on-street parking. There is an all-way stop at the intersection of Abby Street and Curtis Street, which tends to slow traffic.

Middle Section (Abby Street to south of Overset Street) – roadway approximately 36-37 ft. wide, no curbing, but esplanades, sidewalks, and street trees, with on-street parking.

Northerly Section (Overset Street to Hope Ave) – roadway approximately 32 ft. wide, curbed roadway with esplanades, sidewalks, street trees, street lights on both sides of street, with on-street parking.

The context of this roadway provides some traffic calming and has prevailing speeds near the posted speed limit of 25 mph. The results of the speed data collected is shown in Table 2 below.

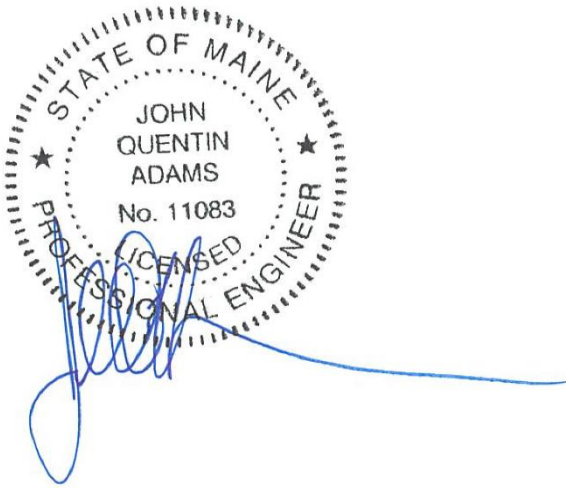
Table 3 – Curtis Street Speed Study Results

Speed Limit	Northbound	Southbound
Average	24.6	24.0
85th Percentile	27.0	28.5

The data indicates that both the Average and 85th Percentile Speeds were generally near or below the posted speed limit of 25mph. In the northbound direction the average speed was 24.6 mph and 85th was 27.0 mph, and in the southbound direction the average was 24.0 mph and 85th was 28.6 mph. Based on these results motorists were generally driving at or near the posted speed limit.

Summary

The speed data collected on Garsoe Drive, Hope Avenue and Curtis Street indicates that there does not seem to be a significant issue with motorists driving at excessive speeds. Generally, the average speeds recorded on the three roads were below the posted speed limit of 25 mph, and the recorded 85th percentile speeds were below or only 2 to 3 miles above the speed limit. It is typical of many speed studies to see average speeds that are 5 mph over the posted speed limit and 85th percentile speeds that are 10 to 15 mph over the speed limit. Based on the results of this speed study, it does not appear that additional traffic calming elements are required at this time.



John Q. Adams, PE, PTOE, Date: 08/25/2023

APPENDIX

Speed Study Data for Garsoe Dr, Hope Ave, and Curtis St

Study done by:	Street		Speed Limit	Location Description
JTasse	**Garsoe Dr,** on straight section		**25**	similar to Hope, narrow, 25' curved
DATE	between curves as marked on map			
7/27/23	NORTHBOUND	SOUTHBOUND		very few cars observed
Time	15	20		
5:30-6	20	15		4 Different residents mentioned a speed problem on Summit,
	13	25		
	18	18		
	15	27		
	25			
	18			

Study done by:	Street	City/Town	Speed Limit	Location Description
J Tasse	**Hope Ave**	**Portland**	**25**	
DATE				
7/27/23	East BOUND	West BOUND		very few vehicles observed on street
Time	17	14		much narrower street (25'?) curved
4:55-5:30	18	30		
		22		
				residents thanked me for doing speed study;

Study done by:	Street		Speed Limit	Location Description
JTasse	**Curtis St,** just north of Wendy Lane.		**25**	Wide residential street 30+ feet?
DATE				
7/27/23	NORTHBOUND	SOUTHBOUND		
Time	26	22		
4:15-4:50	29	23		
	21	24		
	24	23	3 residents thanked me for doing speed study; claimed	
	24	23		
	27	17		
	27	25		
	27	22		
	27	23		
	24	30		
	23	24		
	26	19		
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Jon Whitten, Jr.

From: Drew Olehowski
Sent: Friday, August 18, 2023 12:00 PM
To: Jon Whitten, Jr.
Subject: FW: Presumpscot Woods Development
Attachments: image003.jpg

Fyi.

Drew Olehowski, PE
Civil Engineer
t: 207.283.9151
This e-mail may be confidential and is intended solely for the use of the individual to whom it is addressed. Any views or opinions expressed are solely those of the author ar HaleyWard, Inc. If you are not the intended recipient (or responsible for delivery of the message to such person),you may not use, copy, distribute or deliver to anyone this action in reliance on it. In such case, you should delete this message, and notify us immediately at 207 989 4824 or by email bangor@haleyward.com.

From: Mike Tremblay <mtremblay@gpmetro.org>
Sent: Friday, August 18, 2023 11:58 AM
To: Drew Olehowski <dolehowski@haleyward.com>
Subject: Re: Presumpscot Woods Development

> You don't often get email from mtremblay@gpmetro.org. Learn why this is important

Good morning Drew,

Thank you for reaching out.

Auburn St. is served by Metro's Route 9, which, as of next Sunday, will run every 30 minutes Monday thru Saturday and every 60 minutes on Sunday. Auburn/Garsoe is part of a spur that serves West Falmouth, and is only served by select Route 9B trips, about once per hour (every trip on weekends) That joins up with the more regular service south of Washington St. Ext.

While transit will certainly be an option for residents of this development, it should be noted that the subdivision will be about 1/2 mile away from the closest bus stop. We typically consider a residence to be transit-accessible if it is within a 1/4 mile walk to a fixed transit route, though folks' individual mobility needs and choices would certainly make a walk to Auburn at Garsoe possible.

The stop that residents would most likely use to wait for the bus going inbound to Portland is Stop #675, which is on the opposite side of Auburn Street, with no crosswalk or accessible features at that stop. Improvements at this location would make transit use by residents of this area more feasible. Those elements, if pursued, would need to be designed in coordination with DPW.

Please let me know if you need anything else.

Thanks,
Mike

--

Mike Tremblay, P.E. *(he, him, his)*

Director of Transit Development

Greater Portland Metro

114 Valley Street | Portland, ME 04102

Office: 207.517.3023 | Mobile: 508.451.0208

e-mail: mtremblay@gpmetro.org | website: www.gpmetro.org



On Fri, Aug 18, 2023 at 9:53 AM 'Drew Olehowski' via Information Desk <info@gpmetro.org> wrote:

> Good morning,
>
> Haley Ward is currently assisting with the design of a new 60-unit subdivision to be located off Hope Avenue. As a part of the City's review process, they have requested we reach out to you for comment regarding potential improvements to the bus route to provide more consistent bus routes to this area. The nearest bus stops to this development are located at Auburn St/Garsoe Dr.
>
> Thank you,

HALEY WARD

AN EMPLOYEE-OWNED COMPANY

Drew Olehowski, PE
Civil Engineer
t: 207.283.9151 m: 207.576.6488
a: 120 Main Street, Suite 132, Saco, ME 04072



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Concerns Regarding Proposed Construction on Hope Ave, # PL-002454-2023

Subscribe

0 views



Kyle Russell <kyle.adam.russell@gmail.com> 11:17 AM (5 hours ago)

to planningboard@portlandmaine.gov, rrodriguez@portlandmaine.gov, afournier@portlandmaine.gov, pali@portlandmaine.gov, ksnyder@portlandmaine.gov, Charles Tetelman, mdion@portlandmaine.gov

Dear Members of the City Planning Board,

I am writing to express my strong opposition to the proposed residential development, # PL-002454-2023, which is currently under consideration. While I understand the need for urban growth and development, this current plan does very little to help solve the city's shortage of affordable and accommodating housing and I believe this particular project presents significant concerns that must be addressed.

First and foremost, I am deeply concerned about the potential increase in traffic that this development will inevitably bring to our community. Infrastructure adjacent to this development including entry and exit points from major thruways is already struggling to accommodate the current volume of vehicles on our roads. Introducing a large residential development without a comprehensive plan to alleviate these traffic concerns would undoubtedly exacerbate the situation, impacting the overall quality of life for residents.

Another pressing concern is the expected increase in noise levels that will accompany this development. Our neighborhood has already experienced increased noise from the Falmouth Spur following the recent deforestation and development of Brandy Lane from Hope Ave. The noise pollution generated by construction activities, as well as the continuous sound of increased traffic, will undoubtedly affect the well-being of our community.

Furthermore, I must address the strain this new development will place on our already overburdened school system, including Lyseth and Lyman schools. Our local schools are struggling to cope with the current number of students, resulting in overcrowded classrooms, a lack of resources, and a declining quality of education. Introducing more families into the area without adequately expanding our educational infrastructure is an unfair burden on our children's education and future. The Lambert Woods project that has already been approved will already stress resources further.

In light of these concerns, I urge the City Planning Board to reconsider the approval of # PL-002454-2023 in its current form. Before proceeding, I believe it is imperative that a comprehensive traffic impact assessment is conducted, including plans for improved transportation infrastructure. Additionally, measures should be taken to mitigate noise pollution and protect the peace and well-being of existing residents. Lastly, a plan for expanding educational facilities must be developed in tandem with the proposed development to ensure that our schools can handle the anticipated influx of students.

I implore the City Planning Board to prioritize the best interests of the existing community members who have invested in our neighborhood and its well-being. We must strive for balanced growth that enhances our quality of life rather than hinders it.

Thank you for your attention to these important concerns, and I trust that you will carefully consider the potential consequences of # PL-002454-2023 on our community before making a

final decision.

Sincerely,

Kyle A. Russell
105 Hope Ave.
Portland, ME 04103

Plan Number PL-002454-2023

0 views

Subscribe

Mark Prestes <mprestes@seafax.com>
to planningboard@portlandmaine.gov

12:19 PM (4 hours ago)

I oppose the proposed development at 1 Hope Avenue for a 60 unit development. This is vastly different than any other structures in the area and will create excessive highway road noise once the clear cutting happens. The noise has increased dramatically after the adjacent site was clear cut last year. This development is not being done in the interest of Portland residents and will forever alter the environment and building character of the area.

The immediate neighborhood is all zoned R2 but this was converted to R3. Records indicate this was amended in 2018 to specifically allow for a 27 unit **Age Restricted** development according to planning narrative filed Plan Number: ZN-000208-2018.

It appears the current proposal, if allowed , will give the developer the ability to maximize the units and profit at the expense of the existing neighborhood. This is not in keeping with the original intended purpose of the parcel and will certainly exceed the density limit as described in the Portland Comprehensive Plan for this section of the city.

Mark Prestes
89 Hope Ave 04103

PretiFlaherty

Portland, ME
Augusta, ME
Concord, NH
Boston, MA
Washington, DC

Kristin M. Collins
kcollins@preti.com
207.791.3292

September 11, 2023

BY EMAIL: planningboard@portlandmaine.gov
City of Portland Planning Board
389 Congress Street
Portland, ME 04101

RE: Major Site Plan and Conditional Use Review
1 Hope Avenue

Dear Planning Board:

I represent several neighbors within the greater Hope Avenue neighborhood, which is adjacent to the development being proposed by GenX Capital Partners. On behalf of these neighbors, I ask that the Planning Board take the following points into account during the application workshop scheduled for September 12, 2023. Please know these comments are preliminary and relate mostly to the adequacy of submissions included in the available record to date; my clients and I will be speaking in further detail at any public hearing(s) to be held.

1. The development has clearly been designed to maximize the number of units on a lot that is significantly constrained with steep slopes, a stream, and numerous wetlands. The proposed plan of course benefits the developer, but proposes features unusual to such a large development, including only one means of ingress/egress, on-street parking, low value open space areas, and lack of access to public transportation.

2. Parking requirements for this major site plan review are to be established through a competent parking study. Any study provided by the applicant should, at minimum, be subject to peer review by the City or, better still, evaluated by a full third-party review commissioned by the Planning Board. The applicant proposes a large number of parallel parking spaces on its private streets, which is unusual and cannot be used to meet any parking requirements because it is not "off-street." The Planning Board should also request more information as to how snow removal operations will affect these spaces, or vice-versa.

3. This development will be served through an older network of public streets that may not meet current public street standards. Any traffic study provided by the applicant should again be subject to peer review or a full independent analysis. The increased traffic, when considered alongside other recently approved development off Hope Avenue, could pose a significant burden and safety impact on Hope, Garsoe and other local streets. Traffic calming measures will be critically important, though there is question about whether the rights-of-way have sufficient width to accommodate necessary installations. The neighborhood is also concerned about the safety of having only one access point to

the development. Section 15.5.4 of the Land Use Code requires subdivisions to "promote multiple paths of travel to get to destinations within and between neighborhoods."

4. The location of retention ponds right at the property lines, and at the edge of steep slopes, is concerning. The Planning Board should scrutinize the location of these ponds, including but not limited to how the applicant would physically and legally access the far sides of the pond if needed for maintenance or repairs, and what will be done in the event of erosion (which appears likely). At a minimum, surety should be provided to protect the City against any effects that may occur on City land post-development.

5. The Land Use Code provides at Section 15.4.1.H that the development must "not have an undue adverse effect on the scenic or natural beauty of the area." This development abuts and important preservation land. The City should require a view impact assessment to determine whether the development will be visible from various vantage points within the preserved land. Preservation of trees is also highly important for this reason, and the neighbors support staff's suggestion for an evaluation of large trees on the parcel.

Neighbors ask that the Planning Board proceed with a high degree of scrutiny regarding this review, as the density of this development is out of character with the environmental conditions and public infrastructure of the area and the impacts could be severe.

Thank you for your attention to this submission and for your work on behalf of the City.

Sincerely



Kristin M. Collins

My name is Benjamin Haber and my family and I are residents of Hope Ave in Portland. I am writing to let you know that we are opposed to the proposed land development at 1 Hope Ave for the reasons below:

Zoning

This area is zoned R-3 which is low-density, single-family zoning. The proposed development is 60 rental units made up of duplex and triplex buildings. This does not adhere to the current zoning, however, there is a loop hole called PRUD (planned residential unit development) that the developer is hoping to use to circumvent the current zoning laws. This area is a beautiful wooded single-family neighborhood that abuts the Presumpscot River Preserve. These units just do not fit into the neighborhood and it would be a shame to scar this beautiful neighborhood with urban sprawl. It is clear that the developers are only here for a profit and could not care less about the neighborhood, can we let this happen to our city? We have zoning laws for a reason, we are all held to standards and forced to follow laws, why is this law allowed to be bypassed?

Traffic and Safety

Our neighborhood is quiet and safe which is the main reason we moved here. Our children can play outside with low traffic and relative safety. The addition of 60 units would amount to years of construction noise, countless large vehicles with little ability to stop for a child learning to ride their bike, kids riding or walking to school or chasing a ball in the street. All of this traffic would be forced to turn onto Hope Ave right at the current bus stop for Lyseth Elementary endangering dozens of kids daily. Being a residential neighborhood there is absolutely no useful public transportation so everyone living here needs a car to get anywhere. After these units are occupied, there would be at least 120 more cars which will only have one way out of the complex and will have to use one of only two exits out of the neighborhood. Along with this passenger vehicle traffic, with these being rental units, there will be moving trucks at least once a year for each unit (120 trucks) as many of these renters will be in the market for single family homes because that is why you live in Maine. Can our roads handle this? Another point to mention is Garsoe Dr is narrower than most streets in Portland. This road will be the MAIN throughfare for this development and the unfinished Brandy Lane development. Garsoe will become very dangerous for everyone including the half of the residents of this street which happen to be kids. I understand that there will be traffic studies and school availability studies along with wildlife and environmental studies but I have concerns about the validity of such studies. My concern with traffic studies at this time are multifactorial with these issues front and center: 1. Brandy Lane is not occupied yet thus traffic impacts are not yet known and would be hard to factor in. 2. There is a 160 unit complex proposed less then ½ mile from this proposed site on Lambert St. How can a traffic study or school availability study be accurate before either of these new developments are complete? We are not talking about the addition of 10 single family homes which may add 20 cars, this is 60 units on top of 160 units in a ½ mile radius. Portland is extremely family friendly but if parents begin to feel that their children are unsafe they will look elsewhere to live.

School Overcrowding

The one elementary school servicing this area is Lyseth Elementary and this school is already at capacity. The addition of Brandy Lane, the 160 units at Lambert St and this proposed development would add about 472 students to this area. Albeit not every child will be elementary school age but the writing is on the wall. Lyseth has 490 students now and these three developments within ½ mile of each other will double the student population, is that sustainable? Can a school accommodate twice as many students overnight? At that rate a new school would be necessary, is that a possibility? How will we bus all of these kids to school? We already have a school bus driver shortage as is, how do we get more bus drivers? How will the addition of more school buses add to traffic? The overcrowding that Lyseth already has is evident with its race to the bottom of the school grading system. Will doubling the enrollment help these children learn? We pay a very high tax rate and our children deserve the best education we can offer.

Environmental Impacts

As mentioned earlier this development cuts into the Presumpscot River Preserve. This area of trails is one of the most special places I have ever seen within a city's limits. This amazing area needs to be protected at all costs. This proposed development would lacerate the forest right up to the preserve boundaries. The addition of this development without a doubt would change the feeling of being out on the preserve trails as it will be visible from many areas of this beautiful place. Along with changing the physical area the beings that call this area home will be negatively affected as well. Countless animals, birds, reptiles, amphibians, fish, insects, and plants will be forced from this area. The trees and plants in help with drainage and erosion which will no doubt affect the surrounding dwellings, brooks, creeks and the river itself. I understand that the developer will do the absolute minimum environmental studies required by law but I feel that these will be wholly inadequate to understand the impact of this development will have on the environment surrounding my house.

This neighborhood is a sanctuary and I do not mind sharing it but 60 rental units in a single-family zone seems excessive. I know the city is desperate for more housing but if you were to come visit this property you will see that this land is not the place to house what is essentially a 60 unit apartment complex. It is your job to consider the lives of ALL citizens and I am asking for your consideration in the is matter and appreciate your help.

Informed citizen and voter

Benjamin Haber

Robert <rgbenak@gmail.com>
to Planningboard@portlandmaine.gov

Portland Planning Board

C/O Charles Tetelman

389 Congress St
4th Floor
Portland, ME 04101

I am writing to you on behalf of many North Deering, Portland Residents who live on the streets of Hope Lane, Hope Avenue, Basket Lane, Curtis Road, Alice Street, Alice Court, Avenue (PL-002454-2023). We want to respect your time, so rather than a lengthy letter noting all of our neighborhood's concerns about the proposal, we have outlined some ba this matter, and we ask for your response to each when you have time to do so. You have our sincere thanks in advance of your response. :)

- Concern: If approved, this proposed development represents an unreasonable increase in traffic on North Deering streets, some of which are even more narrow than woul vehicle access and timely response ability.
  - We strongly urge the city to require an independent traffic study be conducted to allow all stakeholders to understand from a party with expertise in this matter what
- Concern: If approved, this proposed development represents an unreasonable negative impact to the experience of using the Presumpscot Trail of the Portland Trails Syst Trail.
  - We strongly urge the city to require an independent view study be conducted to allow stakeholders to understand from a party with expertise in this matter what the
- Concern: If approved, this proposed development represents a dangerous environmental risk to the surrounding woodland and Presumpscot River which leads directly to the proposal parcel and the Preserve and waterway, the proposal poses a significant environmental risk.
  - We strongly urge the city to require an independent environmental impact study to be conducted to allow stakeholders to understand from a party with expertise in th

Thank you for your time and attention, and we look forward to your response and action in light of our noted concerns.

Robert Benak

North Deering

Reply all | Reply to author | Forward

Portland Planning Board
C/O Charles Tetelman
389 Congress St
4th Floor
Portland, ME 04101

RE: Hope Avenue PL-002454-2023

Dear Mr. Tetelman,

My family and I are residents of 110 Alice St. in Portland, approximately 800 feet from the entrance of the proposed development at 1 Hope Avenue (PL-002454-2023). I am writing to express my concern about this proposed major development and its impact on narrow roads with limited additional traffic capacity and its impact on one of Portland's most important, if not the most important, natural resources, the Presumpscot River Preserve. I ask that these and my other concerns expressed below be made part of the Public Record for this matter.

I am voicing these concerns not just as a resident directly impacted by the proposed development, but also as an experienced Civil & Environmental Engineer with 35 years of experience. I am currently the Town Engineer for Windham and am regularly asked to conduct technical reviews of commercial and residential developments such as the Hope Avenue development currently proposed. My concerns are listed below:

- **Stormwater We Pond "A":** The grade of the spillway for wet pond A is approximately 37% and 30% for Wet Pond B. Maine DEP Ch. 500 Appendix E says that "the maximum grade of the spillway's exit channel may not exceed 20% unless a non-flexible lining is used to control erosion within the channel. Vegetation, reinforced turf, riprap, and modular blocks are considered flexible linings. All linings must be evaluated for stability at the channel grade chosen." The design of the pond and/or spillway needs to be improved to meet this requirement

  Maine DEP Ch. 500 Appendix E also states that the "design must include an investigation of the subsurface conditions at the proposed embankment location to evaluate settlement potential, groundwater impacts, and the need for seepage controls. The Department will require the submittal of a geotechnical report from a geotechnical engineer for any embankment over 10 feet in effective height or which the Department determines poses a significant threat to downstream property or life." Based on the pond bottom elevation being 66 ft and top of the pond embankment elevation of 77.5 ft, the embankment height is 11.5 ft and therefore a geotechnical evaluation and report should be prepared. The subsurface soils along the Presumpscot River drainage are know to be composed of soft compressible clays prone to shear failure as evidenced by the landslide in Westbrook in 2020 that temporarily blocked the river.

  A stormwater management report should be completed by the Applicant and made available for independent review so that it can be determined whether the proposed design of the stormwater management is valid and protective of the site and surrounding properties and terrain.

- **Site Access:** The development includes only one access point to 60 housing units. If there is an emergency such as a fire and the one exit/entrance is blocked, then there would be no

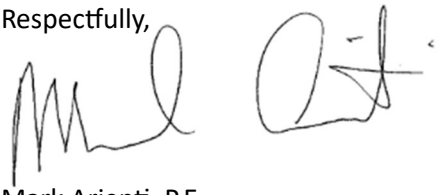
reasonable way to get in or out of the development. The Portland Fire Department should be consulted to determine if another access should be provided.

- **Wetlands and Vernal Pools:** Although the Site Plan for the project shows the location of wetlands on the site, backup documents should be made available to determine if the mapping is supported by thorough and compliant identification and assessment of environmental resources. This is very important considering the proposed development is adjacent to a resource protection zone with highly erodible, 30%+ slopes between it and the protected resource.

- **Traffic**: The proposed development includes 60 housing units in an isolated, medium density R-3 zone that will be exiting onto Hope Avenue and then Garsoe, Curtis or Alice Street, which are all part of an R-2 zone. The stated purpose of the R-2 zone per the City's Zoning Ordinance is "To provide for low-density residential development characterized by single-family homes on individual lots in outlying areas of the city and along traffic corridors with limited additional traffic capacity." A detailed traffic analysis should be conducted to determine the potential traffic impacts from the 60 units, particularly when these units have one exit onto streets with "limited additional traffic capacity"

Thank you for your considering my concerns.

Respectfully,



Mark Arienti, P.E.
110 Alice Street Portland, ME

Planning Board Report
Planning and Urban Development Department

58 Fore Street
Level III Site Plan | Subdivision | Inclusionary Zoning | Site Location of Development
PL-002202-2022
Portland Foreside Development Company, Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Charles Tetelman
Public Hearing Date:	September 12, 2023	**Date:**	September 8, 2023

I. INTRODUCTION

Portland Foreside Development Company has submitted a Level III Site Plan and Subdivision application as well as an Inclusionary Zoning Conditional Use application and Site Location of Development application to facilitate a mixed-use development at the former Portland Company property located at 58 Fore Street. In total, the proposed development would contain approximately 883,308 sq. ft. of floor area, 396 residential units, 81,558 sq. ft. of retail, service, and restaurant space, 128 hotel rooms, and 644 off-street parking spaces. The application before the Planning Board is Phase 2 of the 58 Fore Street Master Development Plan (MDP), which received Planning Board approval on December 20, 2016 and a Traffic Movement Permit in 2017 (Attachments A-E).



Figure 1: 58 Fore St. Proposed Phase II Development Rendering

Portions of the proposed building located within the boundaries of the Portland Company Historic District (HBR-002380-2023) and Munjoy Hill Historic District (HPBR-002391-2023) were reviewed by the Historic Preservation Board and received Certificate of Appropriateness (COA) approval during a public hearing held on August 2, 2023 (Attachments K + L).

The Planning and Urban Development Department mailed 276 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the September 2, 2023 and September 5, 2023 editions of the *Portland Press Herald*.

The Planning Board held three workshops on this application, which took place on January 10, 2023, July 11, 2023, and August 15, 2023. For a comprehensive overview of the previous workshops, please refer to the memorandums prepared for the first, second, and third workshops.

Applicant:	Portland Foreside Development Company
Applicant Representatives:	Woodard & Curran, Inc.; Michael Boucher Landscape Architecture (MBLA); Perkins & Will; Marvel Architects; Baskervill; Turner Construction; Gorill Palmer; VHB; Thornton Tomasetti; Allied Engineer, Inc.

II. REQUIRED REVIEWS | PROJECT DATA | WAIVER REQUESTS

Review	*Applicable Standards*
Level III Site Plan*	Section 14-526
Subdivision*	Section 14-497
Inclusionary Zoning*	Section 14-474 Section 14-487 Article 18.2.3 (Applicable to portion of building in R-6 zone)
Site Location of Development	Technical Manual Section 14
Design Review	Section 14 (iii) MDP Standards of Review Eastern Waterfront Master Plan City of Portland Design Manual (*g*) *EWPZ Eastern Waterfront Port Zone and B-6 Eastern Waterfront Mixed Use Zone*
*Approval of Master Development Plans confer pending proceeding status upon the development with the effect of maintaining the applicability of municipal regulations in effect at the time of approval for as long as the Master Development Plan approval remains valid, including permissible extensions.	

Waiver Requests	*Applicable Standards*
The applicant is requesting a waiver to modify City of Portland Technical Manual Section 1.10.2, which requires that a standard parking space is 9' wide by 18' long. The applicant is proposing parking spots that are 8'-5" wide and 18' long.	City of Portland Technical Manual Section 1.10.2: Standard parking space: 9' wide by 18' long, except that low turnover parking spaces, such as those used by residents or employees, may be designed with a width of 8'-5" and considered a standard parking space.

Project Data	
Existing Zoning	B-6 Eastern Waterfront Zone R-6 Residential EWPZ Eastern Waterfront Port Zone Shoreland Zone
Historic Districts	Portland Company Historic District (Block 4) Munjoy Hill Historic District (Block 6)
Property Size	438,900 sq. ft. (~10 acres)

Existing Use	Blocks 4 and 6: Vacant Block 5: Parking Lot
Proposed Use	Residential (396 units – 436,620 sq. ft.) Retail/Service/Restaurant (81,558 sq. ft.) Hotel (128 rooms – 128,309 sq. ft.) Parking (644 spaces – 236,821 sq. ft.)

III. BACKGROUND

This Phase 2 application before the Planning Board is preceded by previous efforts requiring significant review processes, involving the Planning Board, the Historic Preservation Board and the City Council. An application for zoning map and text amendments for this site was submitted in August 2014, with final changes adopted by the City Council in June 2015. The application included a map amendment to rezone the property from the Waterfront Special Use Zone to B-6 and Eastern Waterfront Port Zone, with accompanying text amendments to the Building Height Overlay map. Following the map and text amendments in February 2016, a lengthy designation process by the Historic Preservation Board and Planning Board, the Portland City Council voted to designate a portion of the 58 Fore Street property as a local historic district subject to the provisions of Portland's historic preservation ordinance. Both the designation of the historic district and the requirements of the B6/EWPZ/Height Overlay directly informed and shaped the site configuration of the approved MDP.

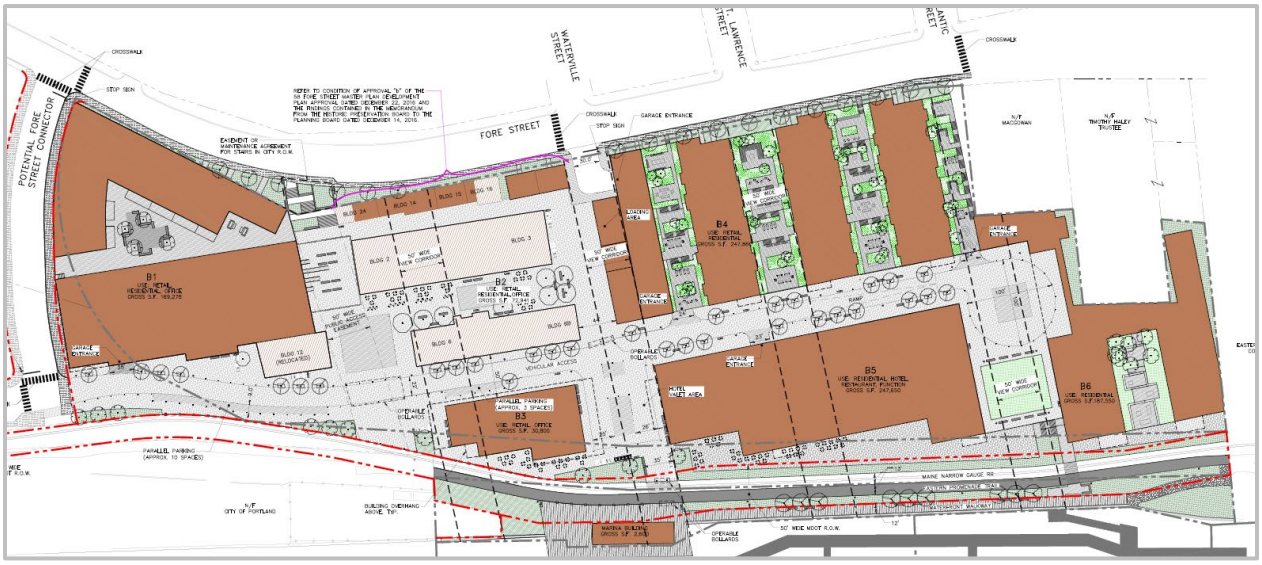


Figure 2: 2016 approved 58 Fore St. Master Development Plan

In December 2016, the Planning Board approved the Portland Foreside Master Development Plan (MDP) (Attachment A-C) which included a proposal to comprehensively redevelop the former Portland Company industrial site (approximately 10 acres of land area and 13.2 acres in submerged land lease). This approval would effectively create a new mixed-use neighborhood along Portland's eastern waterfront with nearly 1,000,000 square feet of new residential and commercial space as well as vehicle parking, marina access, public open space, and a new walking path along the water's edge. Following MDP approval the applicant received approval for a Traffic Movement Permit (TMP) from the City of Portland in May 2017 (Attachments D + E).

Approved MDP Program

Commercial + Residential Space	~1,000,000 sq. ft.
Total Residential Unit Count	638
Structured Parking Spaces	736
Marina	220 Slips 2,600 sq. ft. Marina Building
Other Amenities	Public Open Spaces Waterfront Walkways

Since the approval of the MDP and TMP, the applicant has received numerous approvals originally contemplated as part of the MDP including the expansion of the Fore Points Marina on Block 7 and for Phase I of the development, which included a mixed-use building with office, retail, and parking use and reconstruction of historic building #12 on Blocks 1, 2, and 4. The *Previous Approvals* section of the January 10, 2023 Planning Board Workshop memo provides a summary of the projects stemming from the MDP.

IV. PROPOSED DEVELOPMENT



Figure 3: 58 Fore St. Phase II Overall Site Plan (attachment)

Portland Foreside Development Company is proposing to develop an 883,308 sq. ft. mixed-use development comprised of one building that spans across Blocks 4, 5, and 6 of the approved Portland Foreside 58 Fore Street MDP and a separate building on Block 4 with two townhomes. In total, the proposed development would comprise 436,620 sq. ft. of residential floor area including 396 residential units; 128,309 sq. ft. of hotel floor area consisting of 128 rooms; 81,558 sq. ft. of floor area for retail, service, and restaurant space; and 236,821s sq. ft. to accommodate 644 parking spaces. The development includes a variety of residential units including studio, 1-bedroom, and 2-bedroom rental units as well as townhomes and condominiums. Additionally, the site will open up for public access by establishing new open spaces. The table below provides a breakdown of the overall programming for each Block:

Proposed Use	*Block 4*	*Block 5*	*Block 6*	*Total*
Residential	199 units 165,866 sq. ft.	43 units 74,094 sq. ft.	154 units 196,660 sq. ft.	396 units 436,620 sq. ft.
Retail / Service / Restaurant	29,742 sq. ft.	42,708 sq. ft.	9,108 sq. ft.	81,558 sq. ft.
Parking	443 spaces 155,601 sq. ft.	35 spaces 13,422 sq. ft.	166 spaces 67,798 sq. ft.	644 spaces 236,821 sq. ft.
Hotel	N/A	128 rooms 128,309 sq. ft.	N/A	128 rooms 128,309 sq. ft.

V. PREVIOUS WORKSHOPS

I. January 10, 2023

At the January 10, 2023 Planning Board Workshop, City Staff provided an overview of the Portland Foreside Master Development Plan approved in 2016, previous site plan approvals, and the proposed development associated with Blocks 4 and 6. The Planning Board discussed the scope of the MDP as it relates to the proposed site plan application. In response to questions from the public and planning board members, City Staff noted that MDP approval establishes general parameters to be adhered to for redevelopment of the site while providing an overall framework plan for the proposed development to be built out in phases reviewed over subsequent site plans that specify more detail. City Staff also confirmed that the MDP maintains the applicability of municipal regulations in effect at the time of the approval for as long as the MDP approval remains valid. City Staff provided a memo (Attachment C) from the Director of the Planning & Urban Development Department with a determination that the current Master Development Plan for 58 Fore Street is still valid and has not expired.

Following the first workshop, City Staff and Third-Party Reviewers reviewed the applicant's submission while providing feedback and direction with development review comment memos (Attachments G + H). City Staff and Third-Party Reviewers requested that the applicant provide additional clarity on the updated MDP programming, average grade calculations, maintenance of the Fore Street retaining wall, clarification on the parking plinth as a common unifying support structure, and the status of a future Block 5 submission. In April, the applicant updated their application to include Block 5 as part of this Level III Site Plan. This addition required the applicant to hold a second neighborhood meeting and required additional review from City Staff and Third-Party reviewers.

II. July 11, 2023

At the July 11, 2023 Planning Board Workshop, the applicant provided a detailed overview of the site plan focusing on the design, layout, and programming for the structure spanning Blocks 4, 5, and 6. In their review of the proposed development, the Planning Board asked for clarification on a variety of topics including outstanding items noted in the Staff Memo (zoning and site plan standards), interaction with the Eastern Promenade Trail and Narrow Gauge Railroad corridor, feasibility of a bike lane along Fore Street, Block 5 rooftop appurtenance design, and the unifying elements of the proposed single structure. The Board also expressed support for on-street parking along Fore Street as opposed to a bike only lane.

Following the second workshop, City Staff and Third-Party Reviewers provided a third round of comments (Attachment I) to the applicant team based off of their June 23, 2023 resubmissions. These comments incorporated feedback received at the July 11 Planning Board workshop. The comment letter outlined five priority items essential to the review: 1) plans that demonstrate a common foundation and unified

structure; 2) direction of the geotechnical review of the proposed development; 3) landscaping and transportation comments regarding the Fore Street frontage and ROW; 4) Construction Management and Phasing Plans; and 5) additional guidance related to the storage cart area proposed for a portion of the building located within Block 6. Following the July 11th workshop, the applicant submitted revised materials which addressed the priority items and they removed the storage cart area proposed within the Block 6 portion of the building.

III. August 15, 2023

At the August 15, 2023 Planning Board Workshop, the Planning Board focused on four critical components of the review: 1) Transportation; 2) Block 5 Rooftop Appurtenance and Zoning Conformance; 3) Geotechnical Study; and 4) Inclusionary Zoning requirements. City Staff discussed the final components of the traffic analysis to confirm that the proposed development conforms to the approved TMP and applicable standards of the site plan ordinance. City Staff noted that a striped ascending bike lane and on-street parking would be feasible within the Fore Street right-of-way. The Planning Board also discussed the updated Block 5 rooftop appurtenance design and height of the proposed screening. City Staff provided updates on the status of the applicant's Geotechnical Study and informed the Board that the City retained a third-party reviewer, SGH to review the study and was continuing to review the final inclusionary zoning calculations. Stemming from comments raised by the public related to conformance with zoning and shoreland zoning standards the Planning Board requested that the City's Zoning Administrator provide a memo that speaks to the applicable zoning standards as well as any shoreland zone requirements. Conformance with zoning is discussed in Section VIII of this report and a memo from the City's Zoning Administrator has been included in the Board's packet (Attachment M).

Since the third workshop, City Staff requested a traffic analysis for two intersections near the proposed development: 1) the garage entrance at Fore Street and Waterville Street and 2) at the intersection of Thames Street and Freedom Way. City Staff determined that the analysis should include traffic counts for weekday AM and PM peak hours, safety analysis, and sight distance documentation at both site entrances. For Block 5, City Staff requested a reduction in the Block 5 rooftop mechanical screening height from 12 ft. to the top of the tallest building operating equipment. The applicant submitted a full response to City Staff comments and provided updated documents and drawings (Attachments 15-17). The proposed developments zoning conformity, inclusionary zoning calculations, and scope of the geotechnical study are discussed below.

VI. RIGHT, TITLE, + INTEREST

The applicant has provided short form quitclaim deed with covenant as demonstration of Right, Title, and Interest (Attachment 5).

The applicant has also provided an existing easement between the City of Portland and formerly the Portland Company from 1876 which granted the City the right to build the Fore Street retaining wall and to access the retaining wall for maintenance (Attachments 9 + 10).

As shown the proposed building encroaches upon city land along Fore Street not at this time held by the applicant. The encroachment will require the applicant to receive an encroachment license from the City of Portland to place footings within the Fore Street right-of-way above the retaining wall. The applicant has provided a draft Revocable Encroachment License to be reviewed by Corporation Counsel, the Planning Authority, and the Department of Public Works (Attachments 8). Staff is suggesting a condition of approval that requires any licenses and easements associated with the encroachment into city owned land to be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation

Counsel prior to issuance of a building permit. Furthermore, the City must also ensure that access for retaining wall maintenance will not be hindered by any encroachment to place footings in the Fore Street right-of-way. If access for maintenance is impeded, the 1876 agreement between the Portland Company and City of Portland may require modifications.

On December 19, 2022, the Portland City Council passed Order 116-22/23 which approved the sixth amendment to a land exchange agreement between CPB2 Management LLC, the Maine Department of Transportation, and the City of Portland to modify the realignment of portions of the Eastern Promenade Trail and Narrow Gauge railroad track. The proposed development and supporting documents and drawings are designed around the boundaries established as part of this land swap. As a condition of approval, the applicant will be required to submit proof, in form and substance satisfactory to the Corporation Counsel, of the closing of the Exchange Agreement dated June 21, 2017 prior to applying for a building.

VII. FINANCIAL + TECHNICAL CAPACITY

The applicant has provided two letters demonstrating Financial Capacity. The first from Rockland Trust Company Senior Vice President Rose M. Buckley dated September 14, 2022 and the second from Middlesex Savings Bank Senior Vice Presidents Mary Ann Devlin and Robert F. Millerick dated September 16, 2022 (Attachment 5).

The applicant has included a summary of the engineering, landscape architecture, and architecture firms and partners who are completing various aspects of design (Attachment 5). The consultants include Woodard & Curran, MBLA, Perkins+Will, Baskervill, Marvel, Haley & Aldrich, VHB, Thornton Tomasetti, Allied Engineering, and Gorrill Palmer. The combined experiences and portfolios of all partners demonstrate technical capacity for the proposed project.

VIII. ZONING ANALYSIS

The proposed project is located predominantly in the B-6 Eastern Waterfront zone with a small fraction of the northeast corner (Block 6) in the R-6 Residential zone and the southern end of the lot in the Eastern

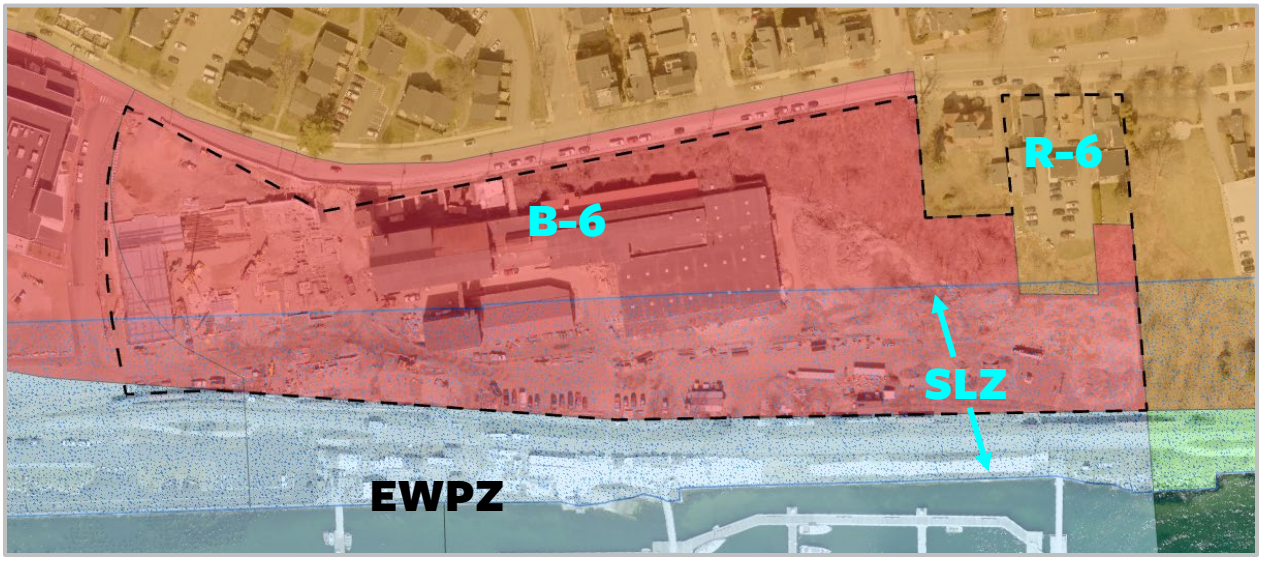


Figure 4: City of Portland Zoning Map – Applicant's upland parcels outlined in dotted black line

Waterfront Port zone (EWPZ) as shown in Figure 4. No part of the proposed building is located within the EWPZ. Portions of the property are also located in the Shoreland Zone.

B-6 Eastern Waterfront Zone

The B-6 Eastern Waterfront zone is a mixed-use zone specifically created to serve as a compatible zone for the upland portion of the Eastern Waterfront. The intent of the B-6 zone is to provide for a mixed-use neighborhood that, according to the zone's purpose statement, "*encourages this district to acquire a distinctly urban form through development that emphasizes a quality pedestrian experience, promotes public transit, and demonstrates exemplary urban design. The zone promotes a range of uses to achieve 24-hour urban vitality and shared use of parking infrastructure as recommended in the Eastern Waterfront Master Plan for redevelopment. The B-6 zone promotes a mixed-use development pattern envisioned for urban land on Portland's peninsula.*"

The B-6 zone permits a wide range of uses as specified in Section 14-269 of the Land Use Code, including those proposed for the Phase 2 development:

a) *Commercial*:
   1. Professional, business and general offices;
   2. Restaurants and other eating and drinking establishments. Bars or drinking establishments as defined in Section 14-47 are prohibited within 50 feet of Fore Street east of Waterville Street. Restaurants located within 50 feet of Fore Street east of Waterville Street are subject to the following requirements:
      i. The hours of operation shall be limited to between 5:00 a.m. and 11:00 p.m. each day; and
      ii. Food service and consumption are the primary function of the restaurant;
   3. Hotels and inns limited to no more than 150 rooms;
   4. Retail and retail service establishments, excluding those with gas pumps;

b) *Residential*:
   1. Attached dwelling including row houses, two-family and multifamily dwellings;
   2. Handicapped family units;
   3. Combined living/working spaces, including but not limited to artist residences with studio space;
   4. Mixed use residential and commercial structures.

Section 14-272 specifies dimensional requirements for the B-6 zone. The B-6 zone has no minimum lot area requirement and there is no lot area per dwelling unit requirement for residential uses. Moreover, there is no street frontage, maximum lot coverage or impervious surface ratio requirement to encourage a distinctly urban form of development. Building height is regulated by the B-6 Height Overlay Map (Attachment F). The B-6 Height Overlay Map controls for width, length, and height of buildings within the B-6 zone and establishes the location and requirements for view corridors. Additional significant elements of the height overlay are varying allowable heights within the zone arranged in blocks ranging from base heights of 35 to 65 feet throughout the site. Many of the blocks include base heights with allowable extensions of up to 10 or 20 feet above the base height. Further articulation of the permitted heights is stated in the height overlay notes, which sets parameters for height extensions, view corridors, and restrictions on height at Fore Street. The overlay notes include:

1. For buildings located East of Hancock Street, no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot-wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be setback 25 feet from any street.

2. In Defined View Corridors, no building allowed above the corresponding Fore Street elevation.
3. For buildings located east of the area indicated for the future Fore Street Connector Road, no building shall exceed 35 feet in height above the adjacent grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Site Plan review.

Three Defined View Corridors cross the site at Waterville Street, St. Lawrence Street, and Atlantic Street.

R-6 Residential Zone

A portion of the proposed building within Block 6 is located in the R-6 Residential zone. According to Section 14.3.2 of the Land Use Code the MDP option shall not apply in residential zones. Therefore, any reference to the portion of the building within the R-6 zone will utilize the current Land Use Code's Section references. According to the zone's purpose statement the R-6 zone is intended to encourage housing for areas on the peninsula, "*characterized primarily by multi-family dwellings at a high density providing a wide range of housing for differing types of households; to conserve the existing housing stock and residential character of neighborhoods by controlling the scale and external impacts of professional offices and other nonresidential uses; and to encourage new housing development consistent with the compact lot development pattern typically found on the peninsula.*"

According to Table 6-A, the R-6 zone permits residential uses including single-and two-family dwellings, and multifamily dwellings.

R-6 dimensional requirements are specified in Table 7-A. The R-6 zone requires a minimum lot area of 2,000 square feet for residential uses and limits residential density by requiring a minimum of 725 square feet of lot area per dwelling unit. Maximum height in the R-6 zone is 45 feet, with portions of buildings above 35 feet required to stepback 10 feet from side property lines and 15 feet from a rear property line. Minimum lot width is 20 feet and minimum front yard setback is five feet, or the average depths of adjacent front yards. Rear yards are required to setback a minimum of 10 feet or five feet for detached accessory buildings with ground coverage of 250 square feet or less. The minimum side yard setback is five feet, except that a side yard setback in the R-6 zone may be reduced to zero, provided that the cumulative side yards are not less than 10 feet. Furthermore, there is no minimum side yard setback on a side street. Maximum lot coverage is 60% and the minimum landscaped open space is 20%.

A review of the proposed project's conformance with the applicable zones is provided in the analysis and tables below. In addition to the analysis below, the City's Zoning Administrator has provided a memo (Attachment M) demonstrating the proposed project's conformance with zoning.

Proposed Development's Zoning Conformance

The applicant is proposing to develop a mixed-use building and two townhomes that are consistent with zoning, including individual zone purpose statements, uses and dimensional standards, and the B-6 Height Overlay map. Residential uses are permitted in the B-6 and R-6 zones. Commercial uses including restaurants, retail, and the proposed 128-room hotel, which is below the 150-room limit, are all permitted in the B-6 zone.

Allowable heights are calculated, city-wide unless otherwise specified, from average finished grade. Building height is defined in Chapter 14 (Section 14-47) as the *vertical measurement from grade, or the predevelopment grade on the islands, to the highest point of the roof beams in flat roofs; to the highest point of the roof beams or the highest point on the deck of mansard roofs; to a level midway between the level of the eaves and highest point of pitched roofs or hip roofs; or to a level two-thirds of the distance from the level of the eaves to the highest point of gambrel roofs. For this purpose, the level of the eaves shall be taken to mean the highest level where the plane of the roof intersects the plane of the outside wall on a side containing the eaves. "Pre-development grade"* is defined as "*grade as defined as average grade, existing on October 1, 2000, at the corners of the foundation of the proposed structure."*

The term "grade" is not defined in Chapter 14. Absent a standalone definition of "grade," but noting the distinction between measuring from predevelopment grade on the islands and from grade on the mainland, the City's longstanding practice for mainland projects is to calculate grade, for the purposes of measuring height, by averaging finished grade from various points around the building.

The average grade of the townhomes fronting Fore Street is 32' 3" as show on the applicant's submitted plan labeled "Permit Site Plan – Level 06 – MU-006" (Plan 6). The applicant is also proposing a single building that has a common foundation and pedestal parking at the base, with connected and architecturally varied portions above as demonstrated in the applicant's submitted plan labeled "Block 4, 5, & 6 Foundation Plan – SA-001" (Plan 6). Based on the applicant's foundation plan (SA-001) depicting one unified building that spans Blocks 4, 5 and 6, the average grade of the proposed building is 49'6" as shown on the applicant's submitted plan labeled "Permit Site Plan – Level 06 – MU-006" (Plan 6). The method used to determine the average grade for the building is consistent with the acceptable methods for establishing average grade laid out in the approved MDP. The methods specified for establishing average grade in the MDP, included: averaging the elevation of the proposed abutting ground surface at the building corners, or by averaging the elevation of the abutting ground surface at consistent intervals around the perimeter of the building. The maximum height requirements are outlined in the B-6 Height Overlay Map. Following is a summary of the building's various components:

Block 4 Tower

The maximum height for the west part of the tower within Block 4 is 45 feet with an extension up to 55-feet. The maximum height for the east part of the tower is 45 feet with a 20-foot extension to make a maximum height of 65-feet. Sheet A20-01 (Plan 14) shows that the building is not exceeding the maximum height. The extension up to 65-feet above the east part of the tower meets footnote #1 and the tower meets the criteria of footnotes #4 and #5.

Block 5 Tower

The maximum height for the west side of the tower (hotel), within Block 5 is 45 feet and the east side (condominiums), is 45-feet with 10-foot extension to make a maximum height of 55-feet. Sheet A-310 (Plan 20) demonstrates that the maximum height is not being exceeded. Plan A-109 (Plan 19) shows two stairways, two elevators and associated overruns and building operating equipment, including an enclosed telecom equipment area, an enclosed electrical area, and an enclosed elevator control room. It should be noted that none of these enclosed building equipment areas can be occupied, and are all considered permissible rooftop appurtenances, permitted above the maximum building height. The Block 5 tower is meeting all applicable B-6 height restrictions.

The east side of the Block 5 tower meets the 55-foot height, with 10-foot extension as permitted under footnote #1 of the B-6 Height Map. Sheet A-310 (plan 20) demonstrates that the maximum height is not

being exceeded. Plan A-110 (Plan 19) shows permissible rooftop appurtenances, including a stairway, one elevator overrun and elevator, an enclosed elevator control area, an enclosed mechanical area and enclosed emergency generator. None of these areas may be occupied. The view corridor height footnote #4 is also being met.

Block 6 Tower

The maximum height for the portion of the building within Block 6 is 45 feet with extensions of 10 feet up to 55 feet. The building's elevations (Plan 25) show that the maximum height is not being exceeded. The 55-foot extension above the tower meets footnote #1.

B-6 Zoning Analysis		
Dimensional Requirement	Required	Status
Maximum Front Setback from All Street Frontages	Chapter 14: *10 ft. (New structures shall build to the key building envelopes shown on the B-6 Building Height Overlay Map.)* B-6 Height Map: *...when a Building Envelope does not align with a view corridor or street extension, the boundary shall be the parcel boundary.*	Met
Maximum Structure Height	Chapter 14: *65 ft. or as otherwise governed by the B-6 Building Height Overlay Map.* B-6 Height Map: *-For buildings located East of Hancock Street... no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront...* *-For buildings located east of [Freedom Way], no building shall exceed 35 feet in height above the adjacent Fore street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.*	Met
View Corridors	B-6 Height Map: *-In defined View Corridors, no building allowed above the corresponding Fore Street elevation.* *-View corridor limits shall be drawn from an extension of the corresponding streets where these streets meet Fore street...*	Met
Building Break Line	B-6 Height Map: *Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified defined, and reviewed under a Master Development Plan or site Plan review.*	Met

Block 6 – R-6 Dimensional Requirements

Part of the northern end of the building located within Block 6 is in the R-6 Residential zone. MDP provisions are not applicable in residential zones. Therefore, the portion of the building within the R-6 zone is being reviewed under the R-6 Residential zone use and dimensional standards contained in the most recent version of the Land Use Code, amended on February 6, 2023. The applicant is proposing residential uses in the portion of the building within the R-6 zone. According to Table 6-A, a range of residential uses are permitted in the R-6 zone, including single-family, two-family, and multi-family. Residential units are limited by a minimum lot area per dwelling unit of 725 square feet, and the applicant is proposing 741 square feet of lot area per unit, which meets this requirement. The dimensional standards of the R-6 zone are outlined in Table 7-A. The maximum height in the R-6 zone is 45 feet. The part of the building within the R-6 zone meets the 45-foot maximum height. The applicant has provided a zoning memo for the portions of Block 6 within the R-6 Residential zone (Attachment 6).

Setbacks: The R-6 zone has a minimum five-foot front and side setback, and a 10-foot rear setback. The portion of the building within the R-6 zone is 16.25 feet from the property line at its closest point, where it abuts 45 Eastern Promenade. The R-6 zone also contains a stepback requirement, which requires that portions of buildings above 35 feet in height be located a minimum of 10 feet from a side property line and 15 feet from a rear property line. Since the closest property line to the portion of the building in the R-6 zone is 16.25 feet, the stepback requirements are being met.

R-6 Zoning Analysis			
Dimensional Requirement	Required	Proposed	Status
Minimum Lot Area	2,000 sq. ft.	20,000 sq. ft.	Met
Minimum Lot Area per Dwelling Unit	725 sq. ft. / DU	741 sq. ft. / DU	Met
Minimum Street Frontage	20 ft.	N/A	Met
Minimum Lot Width	20 ft.	100 ft.	Met
Minimum Front Setback	5 ft.	N/A	Met
Minimum Rear Setback	10 ft.	15 ft.	Met
Minimum Side Setback	5 ft.	18 ft.	Met
Minimum Stepbacks (above 35 ft. when property line abuts a residential zone)	10 ft. side 15 ft. rear	17 ft.	Met

Maximum Structure Height	45 ft.	45 ft.	Met
Maximum Lot Coverage	60%	55%	Met
Minimum Landscaped Open Space Ratio	20%	N/A	Met

Eastern Waterfront Port Zone

The portion of the site that falls within the EWPZ will not be directly impacted with improvements because no portion of the proposed building is located in the EWPZ. The only proposed work within this zone is utility connection.

Shoreland Zoning

The Shoreland Zone applies to all land areas, uses, structures, and land use activities within 250 feet, horizontal distance, of the normal high-water line of any river, coastal wetland edge, and freshwater wetland edge. Development activities within the Shoreland Zone are reviewed by the Zoning Administrator according to the use-specific land use standards found in Section 14-449.

Division 26 of Chapter 14 addresses the criteria for building within the Shoreland Zone. Section 14-449(a)(1) requires that the building be located beyond the 75-foot setback from the highest annual tide in the B-6 zone, but in the EWPZ the 75-foot setback does not apply. Section 14-449(c) addresses the standards for the clearing of vegetation both within the 75-foot setback and the shoreland zone more broadly. Subsection 4(a)(3) allows legally existing cleared openings to be maintained. Since the area of the proposed development within the Shoreland zone had been cleared under the previous tenants, this standard is being met. The relevant shoreland zone requirements are included below:

SLZ Zoning Analysis		
Requirement	Required	Status
Minimum Setback	*All principal and accessory structures shall be set back at least seventy-five (75) feet horizontal distance, from the normal high water line of water bodies, the upland edge of a wetland or associated tributary streams within a shoreland zone...*	Met
Clearing or Removal of Vegetation	Clearing or removal of vegetation standards are not applicable in the B-6 or EWPZ zones.	Not Applicable

Erosion and Sedimentation Control	All activities which involve filling, grading, excavation, or other similar activities which result in unstablilized soil conditions are reviewed by the permitting authority post approval.	Not Applicable

A question about the proposed project's compliance with the City's Shoreland Overlay Zone, the State's Mandatory Shoreland Act (38 M.R.S. Section 435 et. Seq.) ("Act") and minimum Shoreland Zoning guidelines ("Chapter 1000") was raised by a member of the public for consideration. The City has reviewed the public comment and maintains that the maximum height of the proposed development is governed by the City's B-6 Height Overlay Map, Section 14-272, or Table 7-A for the portion of the building in the R-6 zone.

The Act requires municipalities to adopt local ordinances for all land within Shoreland areas, including within 250 feet of coastal wetlands and tidal waters. The Act also directed the Maine Board of Environmental Protection to create guidelines to aid municipalities in creating local ordinances. Those guidelines took the form of a model ordinance which municipalities were not required to adopt verbatim, but could use as guidance. All ordinances governing Shoreland areas must be submitted to the Commissioner of Maine Department of Environmental Protection for approval. Division 26 of Chapter 14 of the City Code was approved by the Maine Department of Environmental Protection in 2011. It did not include any specific height restrictions within the Shoreland Zone.

Furthermore, although "height" is defined in the Act, the definition in the statute applies only to its use in the Act, and relates mainly to permissible expansions of existing nonconforming structures. It is not more general guidance on how municipalities must define height for all Shoreland areas. Lastly, although Chapter 1000 includes a provision which caps maximum height at thirty-five feet, that restriction only applies to the Resource Protection, Limited Residential, Limited Commercial and Stream Protection zones as described in the model ordinances, and is not otherwise applicable to the City's B-6, R-6 zones or the EWPZ.

Section 14-659(o) of the Land Use Code requires that site plans located within the shoreland zone meet the Shoreland Zone General Site Plan Features as listed below:

1. *The proposal will maintain safe and healthful conditions*
   Staff Finding: The proposed development minimizes impact to the water and coastline while providing safe, accessible routes for pedestrians through and around the site.

2. *The proposal will not result in water pollution, erosion, or sedimentation to surface waters*
   Staff Finding: Met. The proposed development incorporates Best Management Practice (BMPs) for Stormwater Management and Erosion and Sedimentation Control. The site is further subject to Maine DEP Chapter 500 Stormwater Standards and the Site Location of Development standards, which are discussed later in this report.

3. *The proposal will adequately provide for the disposal of all wastewater*
   Staff Finding: The applicants have received an ability to serve confirmation from Portland Water District demonstrating that the proposed development can adequately provide for all disposal of wastewater (Attachment 31).

4. The proposal will not have an adverse impact on spawning grounds, fish, aquatic life, bird or other wildlife habitat

Staff Finding: The proposed development will not have an adverse impact on any existing wildlife or habitat areas in or surrounding the site.

5. The proposal will conserve shore cover and visual, as well as actual, points of access to inland coastal waters

Staff Finding: The proposed development is setback away from the shore and meets the relevant View Corridor dimensional standards of the B-6 Eastern Waterfront zone. The proposed development provides visual access to the coastal waters and establishes new connections to the Eastern Promenade Trail.

6. The proposal will protect archaeological and historic resources

Staff Finding: The applicant received Certificates of Appropriateness from the Historic Preservation Board for portions of the proposed development within the Portland Company Historic District and the Munjoy Hill Historic District. There are no documented archaeological sites within the vicinity of the proposed development.

7. The proposal will not adversely affect existing commercial fishing or maritime activities

Staff Finding: The proposed development will not interfere or adversely affect existing commercial fishing or maritime activities.

8. The proposal will avoid problems associated with flood plain development and use. The proposal is in conformance with the standards set forth in Section 14-449.

Staff Finding: The applicant is in conformance with Section 14-449 and will be constructed to avoid problems associated with flood plain development and use. Furthermore, the portion of the site to be developed as Part of Phase II is not within a FEMA identified flood zone.

Flood Plain Management

Section 14-450 of the Land Use Code applies to all land areas, use, structures, and land use activities lying in the special flood hazard areas as identified by the Federal Emergency Management Agency (FEMA) and noted on the FEMA Floodplain maps. The applicant has provided a LOMA Determination from FEMA which determines that a portion of the parcel at 58 Fore Street had been removed from Flood Zone AE. The proposed development is not within a FEMA identified flood zone.

IX. SITE PLAN REVIEW STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of the City of Portland's Site Plan Ordinance, Section 14-526. City Staff and Third-Party review comments are below:

a) Transportation Standards

1. Impact on surrounding street systems

As a condition of approval of the MDP, the applicant was required to receive approval for a Traffic Movement Permit (Attachments D + E) which was approved by the Planning Board on April 25, 2017. The TMP approval (Attachment D) and MDP requires the applicant to provide updated trip numbers alongside each site plan application. City Staff requested that the applicant provide updated trip generation numbers based off of the most current *11th Edition ITE Trip Generation Manual*. In addition, City Staff requested a traffic analysis for two intersections near the proposed

development: 1) the garage entrance at Fore Street and Waterville Street and 2) at the intersection of Thames Street and Freedom Way. City Staff determined that the analysis should include traffic counts for weekday AM and PM peak hours, as well as a safety analysis, and sight distance documentation at both site entrances. The applicant provided updated traffic numbers and analysis as part of their recent submission (Attachments 19-21).

Staff Finding: Based on the applicant's submitted materials and traffic analysis city Staff and third-party traffic engineer have determined that the anticipated traffic impact is consistent with the trip generation numbers and associated analysis included in the 2017 TMP.

The proposed development maintains site access along the Thames Street extension ending at a parking podium between Blocks 4, 5, and 6. Additionally, the applicant is proposing to connect Fore Street to the Block 4 parking garage. Internally, the parking plinth connects the parking areas across Blocks 4, 5, and 6. The streets internal to the development are not designed to be accepted by the City of Portland and are to be maintained privately by the property owner. The applicant is providing continuous paving, sidewalks, curbing, and planting along the roads and pedestrian ways.

City Staff confirmed that the entrances to the proposed development will not create unsafe entrances near the Fore Street Garage and Thames Street and Freedom Way intersection based on the traffic analysis submitted by the applicant and performed by Randy Dunton, PE with Gorrill Palmer.

Along Fore Street, the applicant will be maintaining crosswalks proposed as part of the MDP layout. The most recent submission included a redesigned Fore Street with the townhomes and retail spaces out of the Fore Street right-of-way. The applicant is proposing a separate landing for the building to provide ADA accessible landings for each unit.

Additionally, City Staff have determined that a striped ascending bike lane and on-street parking is feasible within the Fore Street ROW. A condition of approval has been included to submit finalized civil plans, including updated cross sections and site plans showing the restriping of Fore Street with an ascending bike lane along the project's frontage on Fore Street and Eastern Promenade. The Department of Public Works notes that the applicant will be responsible for the striping of Fore Street adjacent to 58 Fore Street, 21 Eastern Promenade, and 19 Eastern Promenade.

2. Access and circulation

Overall access and circulation for the 58 Fore Street site were contemplated and reviewed as part of the MDP approval. Generally, the applicant envisioned entrances at the intersection of Thames Street and the Fore Street Connector (now constructed as Freedom Way) as well as an entrance to the parking garage at the intersection of Fore Street and Waterville Street. As part of this site plan application, City Staff reviewed the proposed development for consistency with the MDP. The applicant proposes to continue extending Thames Street as a private way, through the site terminating at the northern end of the site within Block 6. Although the Eastern Promenade trail and rail corridor realignment are part of a separate site plan amendment application, the proposed development does abut and include elements that would enhance and maintain trail access. Overall the proposed development increases connectivity to the surrounding street system at Fore Street and Thames Street. Additionally, pedestrian mobility through the site is greatly enhanced, with an improved sidewalk and pedestrian network proposed throughout the site, and defined crossings at the Eastern Promenade Trail.

The proposed development also includes improvements and changes to the parking area off Fore Street behind 19 and 21 Eastern Promenade (near Block 6). These spaces will be used for pick-up and drop-off activity for 58 Fore Residents as the residents of 19 and 21 Eastern Promenade will be offered spaces in the 58 Fore Street parking garage

The applicant originally submitted a waiver request to modify City of Portland Technical Manual Section 1.7.3, which requires that a driveway apron ramp up to the grade of the sidewalk, where feasible. The applicant indicated that the existing slope of Fore Street would not allow a driveway to meet these design guidelines. Upon review, City Staff recommended an alternative garage driveway layout that allows for better vehicle sightlines leaving the parking garage while creating a safer pedestrian crossing across the driveway and across Fore Street. This alternative garage driveway would no longer require a waiver request. City Staff have included a condition of approval to submit finalized civil plans depicting the new driveway design for review and approval by the Planning Authority and the Department of Public Works.

Staff Finding: City Staff find the proposed phase of development is consistent with the access and circulation contemplated as part of the MDP approval. The site layout includes a variety of safety features to create a safe pedestrian experience along the Eastern Promenade Trail and within the interior of the site.

The proposed development includes improvements and changes to the parking area off Fore Street behind 19 and 21 Eastern Promenade (near Block 6). These spaces will be used for pick-up and drop-off activity for 58 Fore Residents as the residents of 19 and 21 Eastern Promenade will be offered spaces in the 58 Fore Street parking garage. City Staff are recommending that the two driveways to the parking area be designated as one-way entry and exit driveways (consistent with the one-way circulation around the parking area). City Staff further suggest more information on how parking spaces will be managed and routed and strategies for providing safe pedestrian connections between the site and Fore Street and Eastern Promenade. City Staff are also requesting a turning template analysis to confirm circulation into and out of this portion of the site. This has been included as a condition of approval.

3. Public Transit Access

This standard is not applicable because the development's frontage is not proposed along an existing public transit route.

4. Parking

The proposed off-street parking is consistent with the parking numbers contemplated at the time of MDP approval. The proposed building includes a parking structure located under Blocks 4, 5, and 6 that will contain 644 total parking spaces, 69 of which will include EV charging stations.

The applicant is requesting a waiver of the City of Portland's Technical Manual Section 1.10.2 to reduce the standard parking space width from the required 9 feet wide by 18 feet long to 8.6 feet wide by 18 feet long.

The applicant is required to provide 218 bicycle parking spaces and will be providing 243 bicycle parking spaces, which exceeds the minimum amount required.

Staff Finding: The proposed parking is consistent with the parking count proposed in the MDP. City Staff find the proposed number of vehicle and bicycle parking spaces adequate for the proposed programming and function of the site.

City Staff and third-party traffic engineer are supportive of a waiver for the City of Portland's Technical Manual Section 1.10.2 to reduce the standard parking space width from the required 9 feet down to 8.5 feet because spaces will be primarily used by residents or employees of the proposed development. Additionally, any parking lot with five or more spaces may contain compact spaces which allow a minimum width of 8 feet.

5. Transportation Demand Management (TDM)

The applicant is required to provide an updated Transportation Demand Management (TDM) plan and has submitted a revised TDM for Phase II of the development prepared by VHB (Attachment 23). The applicant has included measures for trip and parking reduction strategies aimed at discouraging automobile trips and promoting alternative modes of transportation. The applicant is promoting bicycle activity by supporting participation in the City Bikeshare program and by providing a bicycle repair area in the residential buildings. The applicant would also provide showers and lockers intended for commuters to the site along with ample bicycle parking in excess of what is required. The applicant will explore the possibility of providing a transit subsidy for employees to be managed by the Transportation Coordinator. The hotel will utilize hotel shuttle services to promote travel to and from the hotel for guests. Additionally, the applicant has included vehicle reduction strategies including carshare membership and parking areas, unbundled residential parking, parking price increases, and ample Level 2 and Level 3 electric vehicle charging stations.

Staff Finding: The City's Transportation Program Manager reviewed the proposed TDM. City Staff provided comments that were focused on ensuring that the plan conformed with the most recent TDM Plan requirements. Staff specifically requested that the TDM be updated to clarify roles and responsibilities for fulfilling the annual TDM reporting requirements for the multi-tenant, mixed-use development site, and strengthen the language in the proposed TDM strategies so as to be more objective and measurable. The attached TDM incorporates all of these comments. The revised TDM submitted by the applicant satisfactorily responds to City Staff comments and this standard is considered met.

b) Environmental Quality Standards

1. Preservation of significant natural features

The site has been previously developed and was the former site of the Portland Company. There are no known significant natural features, including unusual natural areas, rare or endangered botanical features, areas of significant wildlife habitat, or wetlands according to the applicant's submitted materials.

Staff Finding: Met. There are no known significant natural features on site as the site has been previously developed.

2. Landscaping and Landscape preservation

The applicant notes that the proposed development satisfies the landscape preservation standards. The applicant has located a variety of plantings along the Fore Street frontage of Block 4 and located throughout the courtyards. The landscaping is respectful to the view corridors between the residential towers and plant species selected accordingly. These plantings contain a mix of shrubs

and groundcover plants that provide separation between units and the Fore Street sidewalk. The applicant has included a series of raised planters adjacent to the trail/rail corridor along Block 5. Pedestrians will be able to walk through the Block 4 portion of the site through a courtyard connecting Fore Street (across from Atlantic) to the Thames Street extension. The courtyard includes a paved walkway, planters, and seating areas.

Staff Finding: As most of the site was previously developed as part of the Portland Company, there is limited vegetation on site. Clearing will be limited and most of the vegetation to be removed will be replaced. The applicant has submitted a Landscape Plan and Details (Plan 7). Plantings are proposed along the Thames Street extension, in front of the Fore Street townhomes and retail spaces, in the Block 4 courtyards, and in the Block 6 interior courtyard and exterior plaza.

Based on the applicant's submitted materials City Staff finds that the proposed plantings meet the site landscaping and buffering standards.

The requirement for street trees is based off of the proposed uses on site. For residential uses, applicants are required to plant 1 tree per unit planted in the public right-of-way and/or along private roadways unless otherwise approved and spaced 25 ft. to 35 ft. apart. Based on the current proposed development, the applicant would be responsible for 396 total street trees. The applicant is proposing 19 street trees along the Thames Street extension and the Eastern Promenade Trail. The applicant will be required to contribute to the City's street tree fund for the remaining 377 street trees ($400 x 377 - $148,800). This has been included as a condition of approval.

3. Water Quality, Stormwater Management, and Erosion Control

The proposed development is subject to the MaineDEP Chapter 500 Stormwater Standards and the Site Location of Development permit. City Staff and Third-Party consultants reviewed the proposed propriety stormwater treatment systems and connections into City infrastructure. The applicant has included a Stormwater Management Report and Site Location of Development Report (Attachment 37).

As part of the 2016 Master Development Plan approval, the Planning Board waived the Technical Standard for flooding stormwater as provided in City of Portland Technical Manual Section 5: Stormwater Management Standards Maine DEP Chapter 500 Stormwater Management Section IV. Therefore, a new waiver request for this standard is not necessary.

Staff Finding: City Staff and Third-Party reviewers find the proposed Stormwater Management Plan consistent with the City of Portland's Technical Manual and MaineDEP Chapter 500 Stormwater Standards. The applicant will need to provide confirmation that the proposed Jellyfish 2 meets the requirements outlined in the Maine DEP proprietary BMP approval letter. The applicant will also need to submit a Stormwater Maintenance Agreement for review by the Planning Authority, DPW, and Corporation Counsel. These are being recommended as separate conditions of approval.

c) Public Infrastructure and Community Safety Standards

1. Consistency with City Master Plans

The site falls within the scope of the Eastern Waterfront Master Plan, as well as the Design Guidelines for the Eastern Waterfront, and The Eastern Waterfront Building Height Study. These documents informed the vision for the area and the zoning that governs sites within the area.

Staff Finding: The proposed development would facilitate the construction of Phase II of the approved MDP for the former Portland Company site. The proposed project was informed and is governed by both the B-6 Eastern Waterfront and Eastern Waterfront Port zones. Thus, the proposed project is meeting the underlying zoning requirements and is therefore, by extension, also broadly consistent with the Comprehensive Plan and City Master Plans for the area. In addition, to the Eastern Waterfront Master Plan, the Comprehensive Plan gives an overview of the years of waterfront planning efforts of the City, and addresses redevelopment of the Eastern Waterfront specifically.

Design Guidelines for the Eastern Waterfront touch on many aspects of the built environment – including but not limited to street design, open spaces, utilities, bicycle safety, parking, and building composition. The guidelines emphasize new development that respects surrounding neighborhoods while allowing for new design that furthers the creation of a new neighborhood. These guidelines are the primary basis for the Design Review of the proposed project and are addressed in the Staff Design Review memo, which finds that the proposed project satisfactorily addresses the relevant design standards. (Attachment J).

The Eastern Waterfront Building Height Study outlines the process and principles that informed the study's recommendations for implementation. The document gives an overview of the process used in the study and the principles that guided it, including considerations of scale, topography, massing, the impact on adjacent neighborhoods to inform eventual recommendations on view corridors, heights, parking structure orientation and design, setbacks, road alignments, alleyways, visual focal points, civic spaces, and others. Implementation of the Eastern Waterfront Building Height Study resulted in the adoption of the original B-6 Height Overlay, as well as the amendment of that map to include the 58 Fore Street property in 2015. The proposed project is meeting the zoning and B-6 Height Overlay Map regulations and therefore is consistent with vision for this area.

A Master Plan for Redevelopment of the Eastern Waterfront is the parent document to which the Design and Height studies were later appended, and it established the vision for this area of the City. It was intended to form the basis for rezoning of the Eastern Waterfront (pg. 3: *The Master Plan will provide the policy basis for future zoning amendments necessary to implement the plan*) to facilitate redevelopment of vacant and under utilized land (pg. 6 *The area is blessed with water views, proximity to urban amenities, reasonable vehicular access, excellent port access, and integration into the City trail system. Given its location and proximate attractions, significant potential for redevelopment exists within the Eastern Waterfront*….). Specific Mention of the Portland Company Complex is included on page 8 of the Eastern Waterfront Master Plan and the approved MDP and subsequent site plan applications have supported the vision outlined in this document.

In addition, to the Eastern Waterfront policy documents specific goals listed in *Portland's Plan 2030* addressed by this Phase II application include:

- Promote historic preservation as a key economic, sustainability, and community development strategy (pg. 27).
- Stabilize and enhance historic areas of the city by ensuring quality investment in existing structures and compatible infill development (pg. 27).
- Ensure an appropriate balance of continuity and changes as Portland grows and evolves (pg. 27).

- Create economic prosperity by growing Portland's tax and employment base (pg. 43).
- Reinforce the waterfront as a key component of Portland's economic health, balancing traditional and emerging industries with tourism and recreation (pg. 43).
- Respect that our unique quality of place is key to our current and future economic success (pg. 43).
- Increase, preserve, and modify the overall supply of housing city-wide to meet the needs, preferences and financial capabilities of all Portland residents (pg. 50)
- Encourage quality, sustainable design in new housing development (pg. 50)

2. Public Safety and Fire Prevention

The applicant notes that the site has been designed to promote site visibility, access, and security. City Staff reviewed public safety and fire prevention standards at the time of MDP approval. The applicant is also proposing to utilize a private water system for fire protection and domestic water services to be connected into the public water main on Fore Street.

City Staff determined that the proposed development would require a third-party geotechnical review as the project is proposed on top of the existing Fore Street retaining wall. Built in 1873 and repaired in 1896, the Fore Street retaining wall is approximately 380 ft. long and up to 30 ft. tall. Portions of Block 4 are proposed on top of the retaining wall and includes construction of soil nail slope stabilization and a foundation wall abutting the existing retaining wall. The City has retained Simpson, Gumpertz, & Heger (SGH) for the review of the wall. SGH has recommended a condition assessment of the existing stone retaining wall which would serve as the basis for an assessment of potential risks that new construction could pose to the retaining wall. SGH further recommends an assessment of the long-term serviceability and integrity of the existing stone retaining wall.

Staff Finding: City Staff have determined that the site provides adequate space and access for public safety and fire prevention vehicles. Life Safety provided guidance on the location of bollards and vehicle access points for the Eastern Promenade Trail as mentioned in the landscaping section, therefore this standard is considered met.

City Staff have included a condition of approval that would require a complete third-party review of the Fore Street retaining wall to determine the existing condition of the structure, potential impacts of new development upon the structure, and the viability of future access for maintenance upon completion of this project as well an assessment of the long-term serviceability and integrity of the wall and any potential mitigation measures the applicant would be required to address. This condition would be required to be satisfied prior to the applicant applying for any building permits.

3. Availability and Adequate Capacity of Public Utilities

The proposed development will be serviced by public water, sewer, gas and electric utilities. The submitted civil set includes the utility layout across the site. The applicant has submitted ability to serve approval letters from CMP (Attachment 28), Unitil (Attachment 29), and Portland Water District (Attachments 30 + 31) demonstrating that the applicant has capacity of public utilities for the proposed development.

Staff Finding: City Staff noted that the placement of grease traps associated with Block 6 and oil water separator designs should be confirmed. The applicant responded to these comments saying that the sizing, location, and configuration of these utility elements could potentially change

depending on the tenant. City Staff have included a condition of approval for a final utility plan approved by the Department of Public Works and the Planning Authority.

d) Site Design Standards

1. Massing, Ventilation, and Wind Impact

The proposed development has been designed within a context of similarly scaled new and existing buildings. Mechanical equipment has been located on the roof behind appropriate screening or housed fully within the building; the mechanical equipment has been located to minimize disruption to abutting properties. HVAC equipment is directed away from adjacent public areas.

Staff Finding: The bulk, location, or height of the proposed building will not result in health or safety problems because the proposed building's massing has been designed to incorporate variations in building shape and form through the use of balconies, terraces, and the use of building stepbacks applied at upper stories of the structure. These building elements together help to break down the overall scale of the building. Furthermore, the applicant is proposing to locate all mechanical equipment, HVAC systems, and elevator overruns within the building or on the rooftop and fully screen such equipment to minimize their visual impact.

2. Shadows

Staff Finding: The proposed development will not result in adverse impacts of shadows cast by new buildings on publicly accessible open space. According to the City's Land Use Code and Technical Manual, development within the B-3, B-5, B-6, and B-7 zones is not required to conduct a shadow study. The majority of the proposed development is located within the B-6 zone therefore a study is not applicable. Additionally, the portion of the proposed development within the R-6 zone does not immediately abut a publicly accessible open space. Furthermore, the portion of the building within the R-6 zone has been designed to minimize impacts of shadows on open space by utilizing a variation in the building height between the R-6 and B-6 portions of the building and by incorporating several stepbacks along the eastern elevation where the property abuts other private development.

3. Snow and Ice Loading

The applicant will be moving all snow off site and has not provided any snow storage areas on site. The buildings have been designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

Staff Finding: The applicant has met this requirement as the proposed buildings are designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways and by removing snow off site. Furthermore, the portion of the building fronting along Fore Street is setback from the public right-of-way and the portion of the building facing the Eastern Promenade Trail is significantly setback from the public-right-of-way as shown in the applicant's submitted site plan.

4. View Corridors

The site falls within the B-6 Eastern Waterfront zone which incorporates view corridors as a dimensional standard. View corridors are 50 ft. wide and extend through the site from Fore Street; these corridors extend from the ends of Waterville Street, St. Lawrence Street, and Atlantic Street. According to the B-6 Height Map (attachment), no building can be allowed above the corresponding Fore Street elevation. The Planning Board had requested renderings showing the view corridors and

the applicant has provided new illustrative renderings to demonstrate compliance with the view corridor provisions (Plan 11).

Staff Finding: The elevations for Block 4 (Plan 14), Block 5 (Plan 20), and Block 6 (Plan 25) demonstrate that there are no proposed structures within the view corridors. City Staff find that the proposed development will not impact the view corridors because the applicant has demonstrated conformance with the required height overlay requirements.

5. Historic Resources

Portions of Block 4 are within the boundaries of the Portland Company Historic District. These elements include the two westernmost townhouses, the west wrapper, and the driveway podium structure. The Historic Preservation Board approved a Certificate of Appropriateness (COA) for these portions of Block 4 (HBR-002380-2023) (Attachment K).

Portions of Block 6 are within the boundaries of the Munjoy Hill Historic Preservation District. These elements include only the north elevation as the inner courtyard will only be accessible from within the building, and therefore do not have significant public visibility. The Historic Preservation Board approved a COA for these portions of Block 6 (HBR-002391-2023) (Attachment L).

When any part of a proposed development is within 100 feet of any designated landmark, historic district or historic landscape district, such development shall be generally compatible with the major character-defining elements of the portion of the district in the immediate vicinity of the proposed development. For the purposes of this provision, "compatible" design is defined as design which respects the established building patterns and visual characteristics that exist in a given setting and, at the same time, is a distinct product of its own time. To aid the planning board in its deliberations, historic preservation staff shall provide a written analysis of the proposed development's immediate context, identifying the major character-defining elements.

As part of the design review for the proposed project, Historic Preservation Program Manager, Evan Schueckler has provided a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context to aid in the Board's review and findings of the proposed project (Attachment J).

6. Exterior Lighting

The applicant submitted lighting details and a photometric plan (Attachments 34 +35, Plan 10).

Staff Finding: This standard is met because the proposed exterior lighting as shown in the photometric plan shows full cutoff lights that will not emit light above the horizontal plane or spill onto adjacent properties. The photometric plan and related details meet the applicable standards of the *Technical Manual*.

7. Noise and Vibration

The applicant notes that the proposed development minimizes noise impacts and does not expect excessive noise nor anticipate noise to negatively impact the adjacent properties. The applicant states that construction activities will be limited to the hours allowed by the City. HVAC and building operating equipment have been located at the top of the proposed building, and would be housed either inside of a mechanical penthouse, or appropriately screened.

Staff Finding: All heating and air conditioning equipment, air handling units, and generators are proposed to be located on the rooftop of or housed within the building. Rooftop equipment will be screen or included within enclosures to minimize noise impacts to adjacent properties. Staff consider this site plan standard to be met.

8. Signage and Wayfinding

Staff Finding: The signage and wayfinding standards are not applicable to the proposed development. Any signage will be reviewed alongside the building permit.

9. Zoning Related Design Standards

The City's Urban Designer, alongside the Historic Preservation Manager and the lead Planner on the project, submitted a design review memo (Attachment J). The application is subject to the design elements of:

i. the 58 Fore Street Master Development Plan;
ii. the *Design Guidelines for Portland's Eastern Waterfront* in the Eastern Waterfront Master Plan; and
iii. City of Portland Design Manual sections (g) *EWPZ Eastern Waterfront Port Zone and B-6 Eastern Waterfront Mixed Use Zone and* (i) *Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters*.

In addition, as mentioned in the Historic Resources section, to satisfy the 100-foot advisory historic preservation staff review, Historic Preservation Program Manager, Evan Schueckler has provided a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context. Staff's final design review memo, which includes an advisory review from Historic Preservation program Manager, finds that the proposed development meets the relevant standards as detailed in Attachment J.

X. SUBDIVISION REVIEW STANDARDS (Section 14-496)

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

1. Will Not Result in Undue Water and Air Pollution (Section 14-497.a.1), and will not result in undue soil erosion (Section 14-497.a.4)

The stormwater for the site flows into the City's stormwater infrastructure and ultimately into Casco Bay. The development is required to meet permitting requirements as part of the Site Location of Development permit and Maine DEP Chapter 500 stormwater standards. The applicant has provided a Stormwater Management Plan (Attachment 25) and two Civil Grading and Drainage Plans (Plan 5). The applicant notes that the site has been "designed to minimize the impact of stormwater leaving the site" (Attachment 24).

Staff Finding: City Staff find that the proposed development will not result in undue water and air pollution and will not result in undue soil erosion. As is typical, further erosion and sedimentation controls will be finalized post-approval upon final review of the Construction Management Plan (Attachments 38 + 39).

2. Has sufficient water available (Sections 14-497.a.2,3)

The applicant is proposing to utilize a private water system for fire protection and domestic water services to be connected into the public water main on Fore Street. The proposed development will be serviced by public water and sewer. The submitted civil set includes the utility layout across the site. The applicant has submitted ability to serve approval letter from Portland Water District (Attachment 30) demonstrating that the applicant has sufficient water available for the proposed development.

Staff Finding: The proposed development has sufficient water available and has provided an ability to serve letter from the Portland Water District to document sufficient capacity.

3. Will not cause unreasonable traffic congestion (Section 14-497.a.5)

The City of Portland approved a Traffic Movement Permit in April 2017 following the approval of the Master Development Plan. The applicant has provided updated traffic analysis as discussed above. Thames Street Extension runs through the interior of the site as a private way. Block 4 will be built along Fore Street with an entrance to the parking garage across from Waterville Street.

Staff Finding: Based on the approved TMP and the updated traffic analysis submitted by the applicant (Attachments D + E, 18-21) the project is not expected to impede traffic or create unsafe conditions on public or private ways.

4. Will provide for adequate sanitary sewer and stormwater disposal (Section 14-497.a.6) and will not cause an unreasonable burden on municipal solid waste and sewage (Section 14-497.a.7)

The applicant is proposing a private system on site that includes combination of gravity sewer and a force main with a pump station to discharge into the sewer on the Thames Street Extension.

Staff Finding: The proposed stormwater and sewer systems will provide for adequate sanitary sewer and stormwater disposal and will not cause an unreasonable burden on municipal solid waste and sewage.

5. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat (Section 14-497.a.8)

As a former industrial site with many of the previous buildings demolished, the site contains limited landscape features and wildlife elements. The site abuts the Eastern Promenade trail and is adjacent to the waterfront. Additionally, the B-6 Eastern Waterfront zone includes three 50-foot view corridors, which are intended to permit pedestrians on Fore Street the ability to see down to the water through the development site. Moreover, a portion of the site was designated as the Portland Company Historic District. Any development within the Portland Company Historic District will be subject to the City's Historic Preservation Ordinance.

Staff Finding: The proposed development will not result in an unreasonable adverse impact on the scenic or natural beauty of the area, aesthetics, historic sites, or significant wildlife habitat. The proposed project is being developed on a former industrial site. The zoning that governs the site includes dimensional standards with both established view corridors and maximum height constraints along Fore Street to ensure that future development is compatible with the surrounding area.

6. Is in conformance with the Comprehensive Plan (Section 14-497.a.9)

The B-6 Eastern Waterfront Zone was established and developed to align with the policy goals and objectives of the Eastern Waterfront Master Plan, which was later incorporated into Portland's Plan 2030.

Staff Finding: Met. An analysis of conformance with the Comprehensive Plan can be found in Section IX(C)(1) of this report.

7. Adequate financial and technical capacity (Section 14-497.a.10)
   Staff Finding: Met. See section VI of this report. The applicant has demonstrated adequate financial and technical capacity.

8. Whenever situated, in whole or in part, within the watershed of any pond or lake or within 250 feet of any wetland, great pond, or river, will not adversely affect the quality of such body of water or unreasonably affect the shoreline of such body of water (Section 14-497.a.11)
   Staff Finding: The site is not located with 250 feet of a wetland, great pond, or river.

9. Will not, adversely affect the quality and quantity of groundwater (Section 14-497.a.12)
   The applicant does not anticipate any risk of groundwater contamination during or after construction.

   Staff Finding: The proposed development is not anticipated to adversely affect the quality and quantity of groundwater.

10. Is or is not in a flood-prone area (Section 14-497.a.13)
    Portions of the overall site are located within a designated FEMA floodplain area. However, all portions of the Phase II development site are located outside of the floodplain as a result of a Letter of Map Amendment (LOMA) (Attachment 2) determination issued by the Federal Emergency Management Agency (FEMA), which removed a portion of the parcel at 58 Fore Street from Flood Zone AE.

    Staff Finding: Based on the Federal Emergency Management Agency's Flood Boundary and Floodway maps, and Flood Insurance Rate Maps, and other information presented as part of this application, staff have confirmed that portions of land within the subdivision do fall within the 100-year flood elevation (Flood Zone AE) and flood hazard boundaries. Per Section 14-497.a.13 of the Land Use Code, since portions of land are in such area, the proposed subdivision plan must include a condition of approval requiring that principal structures in the subdivision be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation. This condition has been added to the Planning Board's motions.

11. Wetlands identified on maps (Section 14-497.a.14). Any river, stream, or brook within or abutting the proposed subdivision shall be identified on maps (Section 14-497.a.15)
    Staff Finding: The site is not located near any wetlands, rivers, streams, or brooks.

XI. SITE LOCATION OF DEVELOPMENT

The proposed development is required to receive approval for a Site Location of Development (Site Law) Permit Application. The City of Portland has delegated review authority from the Maine Department of Environmental Protection for Site Law permits. The applicant has provided an updated Site Law Report

(Attachment) based off of City Staff and Third-Party Consultant review comments. The standards for Site Law review are listed in the City of Portland's *Technical Manual* Section 14.3 and are listed below:

1. Financial and Technical Capacity

Staff Finding: See section VI of this report. The applicant has demonstrated adequate financial and technical capacity.

2. Traffic Movement

The City of Portland approved a Traffic Movement Permit in April 2017 following the approval of the Master Development Plan. The applicant has provided an updated traffic analysis as discussed above in Section IX(a). Thames Street Extension runs through the interior of the site as a private way. Block 4 will be built along Fore Street with an entrance to the parking garage across from Waterville Street.

Staff Finding: The project is not expected to result in unreasonable congestion or unsafe conditions on any streets in the vicinity of the proposed development.

3. No Adverse Effect on the Natural Environment

As a former industrial site with many of the previous buildings demolished, the site contains limited landscape features or natural areas.

Staff Finding: The proposed development is not anticipated to adversely impact the surrounding environment.

4. Soil Types

The applicant included a soil survey for the site included in the Site Law Report.

Staff Finding: Based on the information submitted by the applicant the site contains soils that are suitable to develop and construct the proposed development.

5. Ground Water

The applicant does not anticipate any risk of groundwater contamination during or after construction.

Staff Finding: City Staff have determined that the site will not adversely affect the quality and quantity of groundwater.

6. Infrastructure

Staff Finding: As noted elsewhere in this report, the applicant has provided adequate provisions for utilities including water supplies, sewerage facilities, solid waste disposal, and roadways that are required for the proposed development and associated programming.

7. Flooding

Portions of the overall site are within a designated FEMA floodplain area. As discussed above, the proposed development associated with Phase 2 on Blocks 4, 5, and 6 is outside of the floodplain, however portions of the subdivision application are located within the designated FEMA floodplains.

Staff Finding: The proposed development will not unreasonably cause or increase the flood of the alteration area or adjacent properties.

8. Storm Water Management and Erosion and Sedimentation Control

The applicants has submitted a Stormwater Management Plan in accordance with the Maine DEP Chapter 500 and the Site Law requirements.

Staff Finding: The proposed development meets the standards for stormwater management and the standards for erosion and sedimentation control.

XII. INCLUSIONARY ZONING

The proposed development includes 396 residential units and therefore is subject to the City's inclusionary zoning requirements. The 2016 approval conferred pending proceeding status onto future proposed development and at the time of approval, the inclusionary zoning requirements required that at least 10% (rounded down to the nearest whole number) of the residential units in a proposed development of ten or more units meet the definition of a workforce housing unit for sale or for rent (with the option of paying a fee-in-lieu of providing a workforce housing unit).

As MDPs cannot include any residential zones, the portions of Block 6 that fall within the R-6 Residential zone are subject to the code at the time of application (November 2022). The current inclusionary zoning requirements require that at least 25% of the units in the proposed development meet the definition of workforce housing unit for sale or for rent as defined in Chapter 14 Article 3 (with the option of paying a partial fee-in-lieu or providing an additional unit on-site for any fractional value). Any unit that falls partially or entirely within the R-6 Residential zone will be subject to the 25% inclusionary zoning requirements. The Block 6 floor plans (Plan 24) show the residential units that fall within the R-6 residential zone.

The table below shows the inclusionary zoning breakdown for the proposed development:

Inclusionary Zoning Calculations			
Residential Unit Zone	Number of Units	% Workforce Housing	Units Required
R-6 Residential	27	25%	6.75
B-6 Eastern Waterfront	369	10% (rounded down to nearest whole number)	36
Total:	396	-	44.25

The applicant proposes 363 total residential units within the MDP Boundary. Therefore, the applicant is required 10% of the units as workforce housing. The applicant will be providing 25 units on-site and will pay a fee-in-lieu for the remaining 11 units.

The applicant proposes 27 total units partially or entirely within the R-6 zone. Therefore, the applicant is required 25% of the units as workforce housing. The applicant is proposing to pay a fee-in-lieu for these units.

City Staff have included three standard conditions of approval regarding inclusionary zoning: 1) the applicant shall enter into an affordable housing agreement with the City, 2) the applicant shall file the Affordable Housing Agreement as a covenant to the property's deed with the Cumberland County Registry of Deeds, and 3)The applicant shall pay an agreed upon fee-in-lieu into the City's Housing Trust Fund prior to issuance of the certificate of occupancy.

XIII. NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant is required to hold a Neighborhood Meeting as part of this application process. The applicant hosted the first neighborhood meeting on December 20, 2022 and the second neighborhood meeting was held on January 11, 2023. With the inclusion of Block 5, the Planning Department determined that the applicant would be required to host an additional neighborhood meeting to account for the inclusion of Block 5. The applicant hosted the third neighborhood meeting on May 2, 2023 (Attachments 40-42).

The Planning & Urban Development Department has received 27 Public Comments (PC1-27). Since the August 15, 2023 Planning Board Workshop, two public comments have been submitted and received. Many of the public comments share concerns regarding the proposed scale of the proposed development and the related Master Development Plan. Some of the public comment discussed the treatment of Fore Street and inquired about a possible bike lane on the southern side of Fore Street. Other public comments shared concerns about the height and massing of the structure.

XIV. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff recommends to the Planning Board that PL-002202-2022 to develop Phase II of the Portland Foreside MDP at 58 Fore Street meets the applicable standards of Portland's Land Use Code.

XV. PROPOSED MOTIONS

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 September 12, 2023 for application PL-002202-2022 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. The Planning Board [finds/does not find], based upon City Staff and the Third-Party Traffic Engineer's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the City of Portland's *Technical Manual* Section 1.10.2 which requires standard parking spaces to be 9 ft. wide by 18 ft. long. The Planning Board [waives/does not waive] the Technical Manual Standard to permit parking stall dimensions of 8.5 feet by 18 feet.

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 September 12, 2023 for application PL-002202-2022 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. The applicant shall provide a final geotechnical report prepared and signed by a licensed Geotechnical Engineer that assesses the existing Fore Street Retaining Wall conditions as outlined in the Recommended Investigation Scope of Work document provided by SGH on September 1, 2023 and shall provide sufficient documentation that post-construction conditions and the long-term serviceability and integrity of the existing retaining wall will not adversely impact the structural integrity of the retaining wall, public right-of-way, property or surrounding properties or

impede access to the retaining wall for potential future maintenance. Final geotechnical findings and mitigation recommendations shall be submitted for review and approval by the Planning Authority, Department of Public Works, Corporation Counsel, and third-party geotechnical engineer retained by the City. The applicant will be responsible for implementation of all mitigation measures recommended by a licensed Geotechnical Engineer without expense to the City to ensure the long-term stability of the retaining wall, applicant's site, public land, and surrounding properties.

2. The applicant shall obtain the required license agreement(s) and any other rights necessary to permit any proposed encroachments into the City right of way and shall execute an agreement that documents the applicant's mitigation and maintenance responsibilities, financial and otherwise, regarding the Fore Street Retaining Wall, which agreement will provide the City with sufficient access to, and give the City satisfactory assurance that, the existing Fore Street Retaining Wall will be maintained long-term. All such agreements shall be in form and substance satisfactory to the Corporation Counsel and will be subject to approval by the Planning Authority, the Department of Public Works, the Finance Director, the City Manager, and/or the City Council, as applicable.

3. The applicant shall submit proof, in form and substance satisfactory to the Corporation Counsel, of the closing of the Exchange Agreement dated June 21, 2017, as amended, between CPB2 LLC, the City, and the State of Maine Department of Transportation, including, without limitation, copies of all fully executed and, where appropriate, recorded, agreements, deeds, and other documents required under the Exchange Agreement.

PRIOR TO ISSUANCE OF A BUILDING PERMIT

1. The applicant shall submit finalized civil plans that include updated driveway designs and the striping of an ascending bike lane along Fore Street. All drawings shall be finalized and approved to the satisfaction of the Planning Authority and the Department of Public Works.

2. The applicant shall submit a turning template analysis and finalized civil plans for the driveway and parking area located in the R-6 Residential portion of the site that includes one-way entry and exit driveways and pedestrian routing strategies. All drawings and documents shall be finalized and approved to the satisfaction of the Planning Authority and the Department of Public Works

3. The applicant shall submit and record a Stormwater Maintenance Agreement to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel.

4. The applicant shall finalized the construction management plan to be reviewed and approved by the Planning Authority and the Department of Public Works.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

1. The applicant shall contribute to the City's tree fund in the amount of $400 per tree for 377 trees for a total of $148,800.

POST APPROVAL

1. The applicant shall retain a geotechnical engineering consultant to prepare and submit an annual report that contains an assessment of the retaining walls' conditions and integrity. The annual report shall be submitted to the Planning Authority and the Department of Public Works on the

first of the year following the issuance of a Building Permit unless otherwise superseded by any recorded agreements between the City and the applicant.

C. SUBDIVISION 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 September 12, 2023 for application PL-002202-2022 relevant to the subdivision 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 subdivision standards of the Land Use Code subject to the following conditions of approval:

PRIOR TO THE SUBMISSION OF THE PLAT FOR PLANNING BOARD SIGNATURE

1. The subdivision plat shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel.

2. The applicant shall add a note to the Plat that any principal structures in the subdivision located in a FEMA flood zone shall be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation.

D. INCLUSIONARY ZONING CONDITIONAL USE

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 September 12, 2023 for application PL-002202-2022 at 58 Fore Street relevant to Portland's Inclusionary Zoning Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing, the Planning Board, [finds/does not find] the proposed conditional use for workforce housing meets the standards of Sections 14-474 and 14-487 for portions of the proposed development within the MDP Boundary and Article 18.2.3 for portions of the proposed development within the R-6 Residential zone with the following conditions:

PRIOR TO ISSUANCE OF A BUILDING PERMIT

1. That the Applicant and the City enter into an agreed upon Affordable Housing Agreement (AHA) for workforce housing units as described in the Planning Board report dated September 12, 2023 or as an alternative to providing workforce housing units, the project may pay a fee-in-lieu for some or all of the required units.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

2. That the Affordable Housing Agreement (AHA) be filed as a covenant to the 58 Fore Street property's deed with the Cumberland County Registry of Deeds.

3. The applicant shall pay an agreed upon fee-in-lieu into the City's Jill C. Duson Housing Trust Fund for the 17.75 units not provided. The Inclusionary Zoning Fee-in-Lieu for 2023 is $172,485 per unit.

E. SITE LOCATION OF DEVELOPMENT

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 September 12, 2023 for application PL-002202-2022 at 58 Fore Street 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 Location of Development Act standards.

XVI. ATTACHMENTS

STAFF ATTACHMENTS

A. MDP Report PL-2016-224
B. MDP Final Approved Plan
C. Pending Proceeding Memo – PUD Director
D. TMP Report April 2017
E. TMP Approcal
F. B-6 Eastern Waterfront Height Map
G. City Staff + Third-Party Comments Round I
H. City Staff + Third-Party Comments Round II
I. City Staff + Third-Party Comments Round III
J. Final Design Review Member – Urban Designer
K. Block 4 Certificate of Appropriateness
L. Block 6 Certificate of Appropriateness
M. Zoning Administrator Memo

APPLICANT SUBMITTAL

1. Project Summary and Description
2. Level III Site Plan Checklist
3. Level III Zoning Analysis Table
4. Waiver Table
5. Permitting, Zoning, RTI, Fin-Tech Capacity
6. Block 6 R-6 Zoning Memo
7. RTI Overview
8. Draft License Agreement with City for footings in ROW
9. Fore Street Historic Retaining Wall Drawings
10. Fore Street Retaining Wall Existing Maintenance Agreement
11. PFDC Block 4 Geotechnical Data Report
12. PFDC Block 4 Geotechnical Design Memo
13. Applicant Response to Comments I
14. Applicant Response to Comments II
15. Applicant Response to Comments III
16. Applicant Response to Comments IV
17. Applicant Response to Comments V
18. Transportation Standards
19. Block 5 Supplemental Traffic Study
20. Traffic Analysis Response I
21. Traffic Analysis Response II
22. Parking Analysis
23. 58 Fore TDM
24. Environmental Quality Standards
25. Stormwater Management Report
26. Stormwater O+M Manual
27. Infrastructure + Safety Standards
28. CMP Ability to Serve
29. Unitil Ability to Serve
30. PWD Water Ability to Serve
31. PWD Wastewater Capacity Approval

32. Site Design Standards
33. Applicant Design Review Memo Response
34. Block 5 Lighting
35. Block 6 Lighting
36. Comprehensive Plan Consistency
37. SLOD Report
38. CM Plan Logistics
39. CM Plan + Narrative
40. Neighborhood Meeting I
41. Neighborhood Meeting II
42. Neighborhood Meeting III

PLANS

Plan 1. Boundary Survey 58 Fore
Plan 2. Eastern Promenade Alta Survey
Plan 3. Subdivision Plat Amendment Draft
Plan 4. Overall Site Plan
Plan 5. Civil Plans and Details
Plan 6. Average Grade + Unified Floor Plans
Plan 7. Landscape Plans and Details
Plan 8. Fore Street Seawall Section
Plan 9. Fore Street Plans
Plan 10. Photometrics
Plan 11. View Corridor Renderings
Plan 12. Block 4 Renderings
Plan 13. Block 4 Floor Plans
Plan 14. Block 4 Elevations
Plan 15. Block 4 Code Plans
Plan 16. Block 4 Fore Street Materials
Plan 17. Block 4 Parking Plans
Plan 18. Block 5 Renderings
Plan 19. Block 5 Floor Plans
Plan 20. Block 5 Elevations
Plan 21. Block 5 Code Plan
Plan 22. Block 5 Materials
Plan 23. Block 6 Renderings
Plan 24. Block 6 Floor Plans
Plan 25. Block 6 Elevations
Plan 26. Block 6 Code Plans
Plan 27. Block 5+6 Parking Plan

PUBLIC COMMENT

PC 1. J2 Portland Me
PC 2. Denise Preisser
PC 3. Susan Green
PC 4. Sandra Guay 1
PC 5. Jeremy Wintersteen
PC 6. PBPAC

PC 7. Kellie Whiteston
PC 8. Paul Fuller
PC 9. Zack Barowitz
PC 10. John Clark
PC 11. Winston Lumpkis
PC 12. Nat Jordan
PC 13. Karen Snyder
PC 14. Nat Jordan
PC 15. John Russel
PC 16. Sandra Guay 2
PC 17. Kelly Walker
PC 18. Martica Douglas
PC 19. Sandra Guay 3
PC 20. Lisa Martorella
PC 21. Barbara Vestal
PC 22. Barbara Vestal
PC 23. Roger Trettel
PC 24. Roger Trettel
PC 25. Sandra Guay
PC 26. Kelly Walker
PC 27. Portland Condo House Assoc
PC 28. Barabara Vestal

PLANNING BOARD REPORT
PORTLAND, MAINE

58 Fore Street
Master Development Plan
Project #: 2016-224
CPB2

Submitted to: Portland Planning Board Public Hearing Date: December 20, 2016 CBLs: 018 A001, 018 A002, 018 A003	Prepared by: Christine Grimando, Senior Planner Date: December 16, 2016

I. INTRODUCTION

CPB2 LLC has submitted for review a Master Development Plan (MDP) for the (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail, which will continue to traverse the site. In addition to the approximately10 acres, the property includes a 13.2 acre submerged land lease, currently containing a marina. There are currently a variety of the uses on the developed site, including storage, office, a marina, event space and the Maine Narrow Gauge Railroad Museum.

The application is being reviewed under the MDP review standards (Section 14-524.a.3.ciii). Development proposals for the site are also subject to review under the B-6 Eastern Waterfront Mixed Use Zone, the Eastern Waterfront Port Zone, the Shoreland Zone, and flood plain standards. The following workshops have taken place to date on this application: October 12th, Planning Board and Historic Preservation Board joint workshop, October 18th, Planning Board held a site walk that included reconvening in Council Chambers for follow-up public comment and discussion. On November 15th the Planning Board held a third workshop which emphasized traffic, site layout and landscaping, stormwater management and infrastructure. The November 22nd workshop emphasized design considerations for the site.

A Master Development Plan is a regulatory option, at the discretion at the applicant, for sites with one acre or more in cumulative lot area that's 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). An approved MDP establishes parameters to be adhered to for the full development, including total residential units, types of uses, lot coverage, open space, stormwater management, infrastructure, traffic, parking, site layout and circulation. It is a regulatory option, at the discretion of the applicant, with the intent of establishing a cohesive program for a site, while allowing the site to be built out over an extended time frame. MDPs may be developed concurrently with site plans and/or subdivisions, or independently. Approval does not constitute an authorization for development, but it does maintain the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (six years, with possible extensions up to a cumulative maximum ten years). Master Development Plan submission requirements are deliberately 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 that 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.

All Level III site plans for each phase shall be in general conformance with the Master Development Plan.

This development is being referred to the planning board for compliance with the Master Development Standards standards of the land use code. A total of 352 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on December 12th and December 13th.

A Neighborhood Meeting was held on October 4th, 2016 which was attended by approximately 140 people.

Applicant: CPB2 LLC, c/o Jim Brady

Consultants: David Senus/Mary McCrann, Woodard & Curran; Owen Haskell, Surveyor; Perkins+Will, Architect; Mary Costigan, Bernstein Shur

II. REQUIRED REVIEWS

Waiver Requests	***Applicable Standards***
Flooding Stormwater Standard	Technical Manual, 14.3.7

Review	***Applicable Standards***
Master Development Plan	*14-527.a.3.c*

III. PROJECT DATA

Existing Zoning	B-6 & Eastern Waterfront Port Zone, w/Shoreland & Floodplain overlays. Historic District on a portion of the site.
Existing Use	Mixed use, including full service marina, parking, warehouses, boat storage, a blacksmith facility and office space.
Proposed Use	Mixed use (including commercial, residential, office, marina)
Proposed Development Program	958,679 sf of mixed residential and commercial uses, 435,200 sf parking (736 spaces), and 638 residential units.
Property Size	+/- 10 acres

	Existing	*Proposed*	*Net Change*
Building Footprint	111,822 sf	215,306 sf	103,484
Building Floor Area	167,500 sf	958,679 sf	791,179
Impervious Surface Area	335,000 sf	409,000 sf	74,000
Parking Spaces (on site)	+/-105	736	631
Bicycle Parking Spaces	0	38 racks/78 spaces	78
Estimated Cost of Project	TBD		

IV. EXISTING CONDITIONS & SITE CONTEXT

The project is adjacent to Portland Harbor to the southeast and Fore Street to the northwest. The Eastern Promenade is adjacent to the east; bounded by the harbor on the southeast and by Fore Street on the northwest.

The property is contiguous with active waterfront uses to the west, bordered by the Ocean Gateway Terminal, and near the Maine State Pier, both serving deep water dependent large vessels, including cruise ships. To the east is the Eastern Promenade. The neighborhood to the immediate north is residential, with Waterville, St. Lawrence and Atlantic Streets perpendicular to the Fore Street-side boundary of the property, and abutted by Munjoy South apartments. Also to the north but immediately west of this residential area is the India Street neighborhood, which contains residential uses and a diverse mix of commercial uses – Shipyard Brewery, parking garages, the shops of India Street, a Marriot Residence Inn, and the Eastern Cemetery.

The majority of the site is located within the B-6 Eastern Waterfront Mixed Zone. The Eastern Waterfront Port Zone (EWPZ) has a depth of 75 feet, and encompasses approximately 1,000 feet of waterfront frontage. In addition to the two base zones, there are multiple other overlays on the property - a portion of the site is in the Shoreland Zone; a small area is partially in the A2 flood zone; and the B-6 portion of the site is included in the Building Height Overlay & Building Envelopes map. The property is a local historic district (as shown on Attachment P39). The immediately adjacent zones to 58 Fore Street are the R-6 residential zone to the east and north, ROS (Recreation and Open Space) to the east, B-6 to the west, and EWPZ to the west and south. As mentioned above, a portion of the property is a local historic district and is subject to review under Article X, Historic Preservation, in the City's Land Use Code.

58 Fore Street had been in continuous use since 1846, when it was established as the Portland Company for the manufacture of railroad equipment. An industrial site at its inception, it continued as one well into the 20th century, continuing to manufacture steel until 1978. It's now occupied by multiple tenants and uses, including a marina with associated parking and laydown areas, the Narrow Gauge Railroad, office, and storage. A 50' wide strip of Maine Department of Transportation (MDOT) land that encompasses both the Maine Narrow Gauge Railway and a public, multi-use trail that is an extension of the Eastern Promenade, maintained by Portland Trails and the City of Portland, bisect the site. Two easements run with the MDOT land.

There are significant grade changes across the site, both north to south towards the waterfront and west to east up Fore Street. Retaining walls mark much of the Fore Street edge of the property. Access is currently through a steep Fore Street drive to the west on the site.

The applicant has performed a Phase I environmental assessment of the site in 2013, and will need to meet the requirements of the Maine DEP Voluntary Response Action Program (VRAP) during redevelopment.

V. MASTER DEVELOPMENT PLAN PROGRAM

The application proposes a mixed use center that includes a marina, retail, office, restaurant, and residential space. At +/-10 acres it would constitute a new mixed-use neighborhood for the city. It includes open spaces in the forms of plazas, a public access easement, a waterfront walkway as well as integration of the existing, public mixed-use trail. Buildings include a mixture of repurposed, existing, historic structures and new construction. The application frames the development program into seven blocks, B1-B7. The majority of parking will be enclosed in a common parking pedestal that connects B4, B5, and B6.

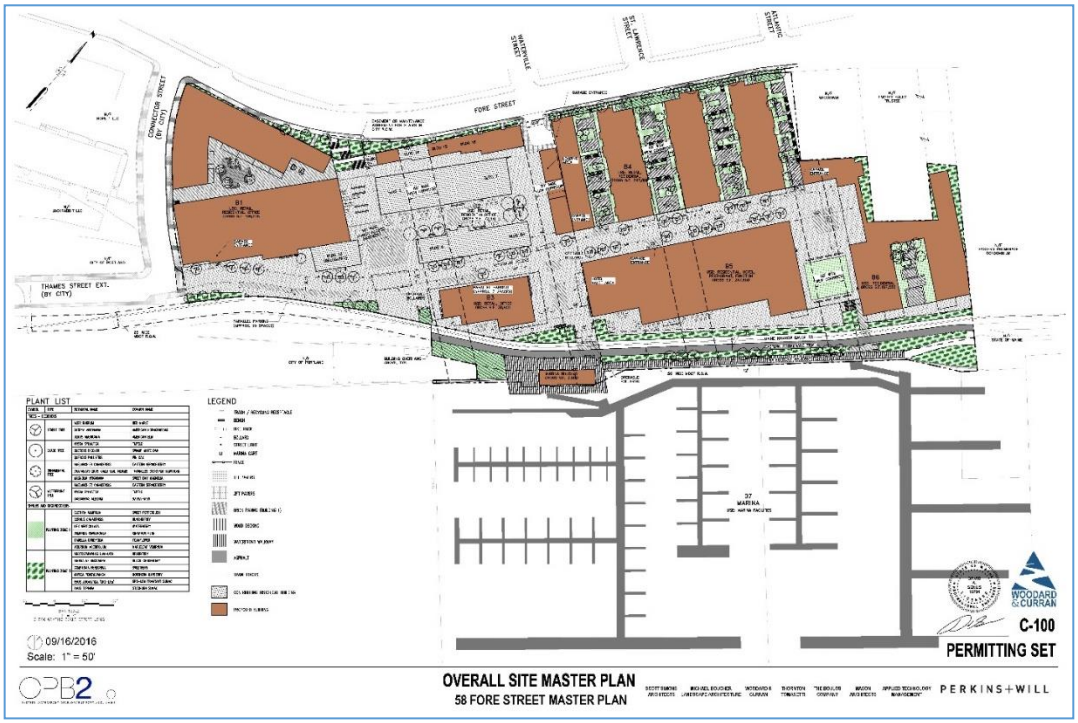


Figure 1, Revised Site Master Plan

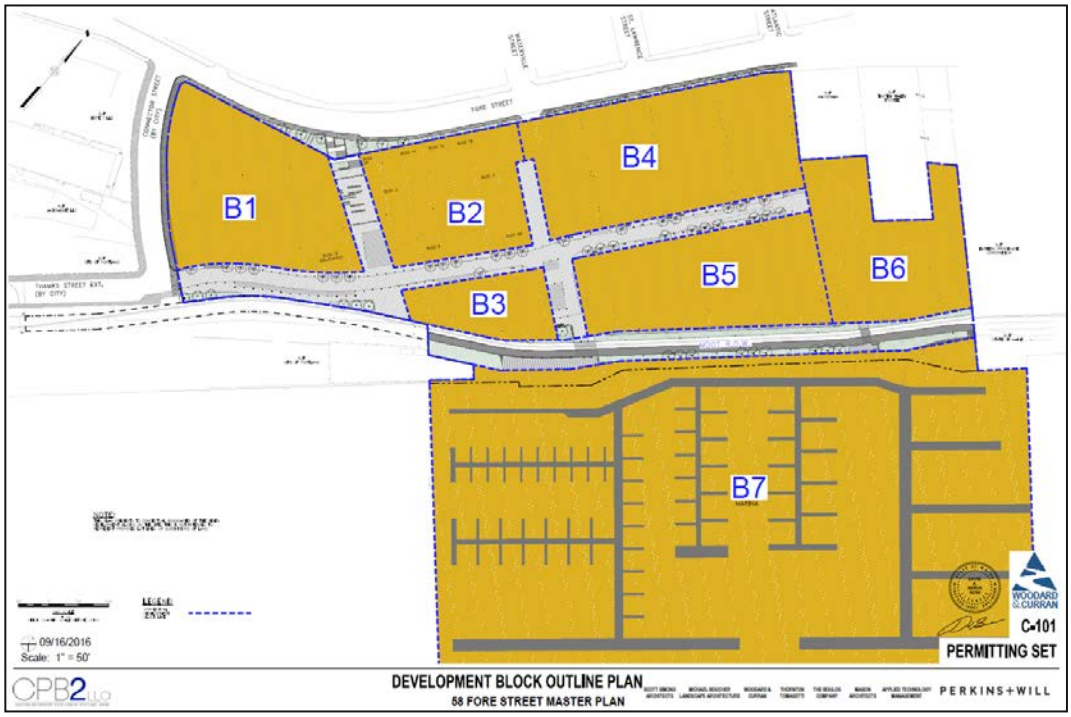


Figure 2, Development Blocks

The development program includes:

- 958,679 sf of mixed residential and commercial uses

- 435,200 sf parking to hold 736 spaces
- 638 residential units
- A marina for 220 slip spaces for seasonal and transient vessels, and a 2,600 sf building for marina facilities.
- Waterfront access that includes the Eastern Promenade Trail as well as a pedestrian walkway that runs for the length of the property. The property connects to the city-owned Amethyst lot, currently being discussed as eventual a newly designed public open space.
- Vehicular access to the site, currently from an access drive from Fore Street, will eventually be from an extension of the public Thames Street to the site, as well as a further extension of the same to Fore Street. A garage entrance to the structured parking is proposed along Fore Street. Pedestrian and bicycle access is from Fore Street, Thames Street extension, as well as via the Eastern Promenade trail.
- The project includes a proposed public access easement that runs from Fore Street to the water, on the southerly boundary of the property. The provision for the easement was made as part of the historic district designation, and final configuration will need to be determined over the course of review.
- The project includes view corridors, in accordance with the B6 Building Height & Building Envelope overlay. The view corridors, which require that no building occur above the grade of Fore Street, are 50 feet wide, and are aligned with Kellogg, Waterville, St. Lawrence, and Atlantic Streets.

The application includes a table of detailed specifications for each development block in Appendix C, Project Description.

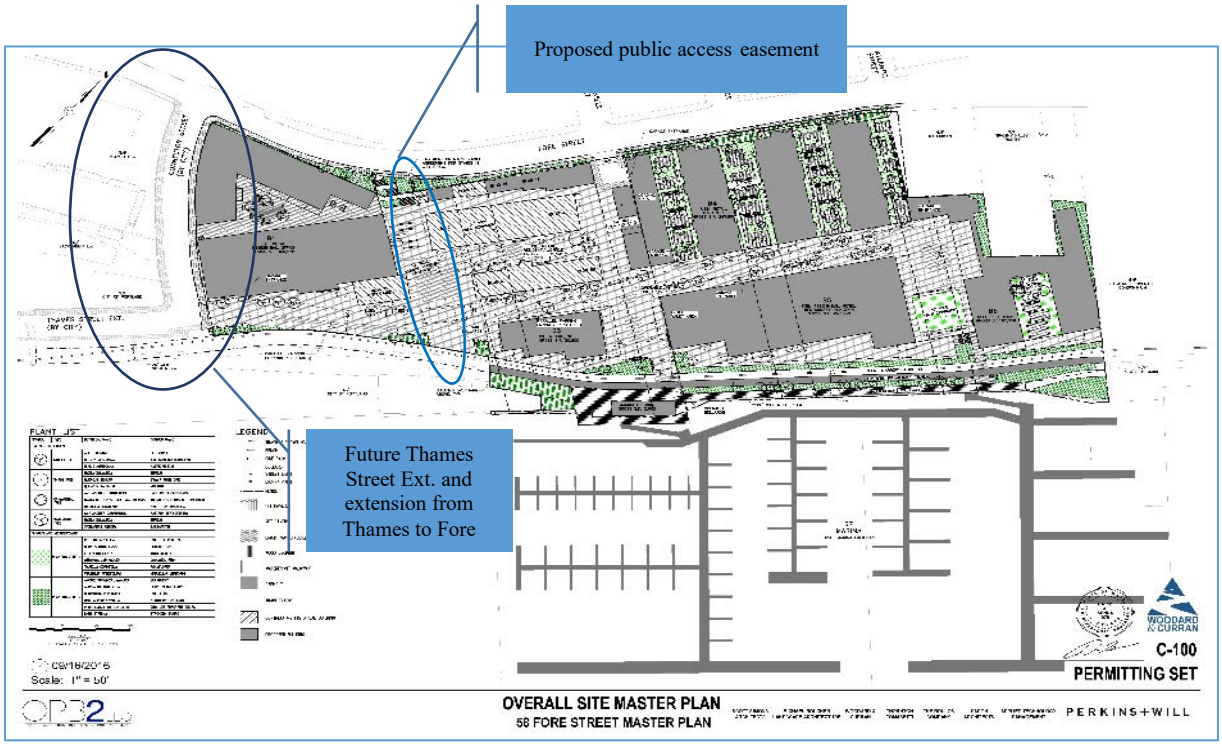


Figure 3, Overall Site Master Plan

VI. PREVIOUS REVIEWS

This MDP application is preceded in the previous three years by two significant review processes, involving the Planning Board, the Historic Preservation Board and the City Council. In February 2016, following a lengthy designation process by the Historic Preservation Board and Planning Board, the Portland City Council voted to designate a portion of the 58 Fore Street property as a local historic district subject to the provisions of Portland's historic preservation ordinance. The Portland Company Historic District as approved by the Council ensured the preservation of seven of the sixteen Portland Company structures on site. Figure 4 is a visual of the historic core of the site and the current historic district in the context of the overall site master plan.

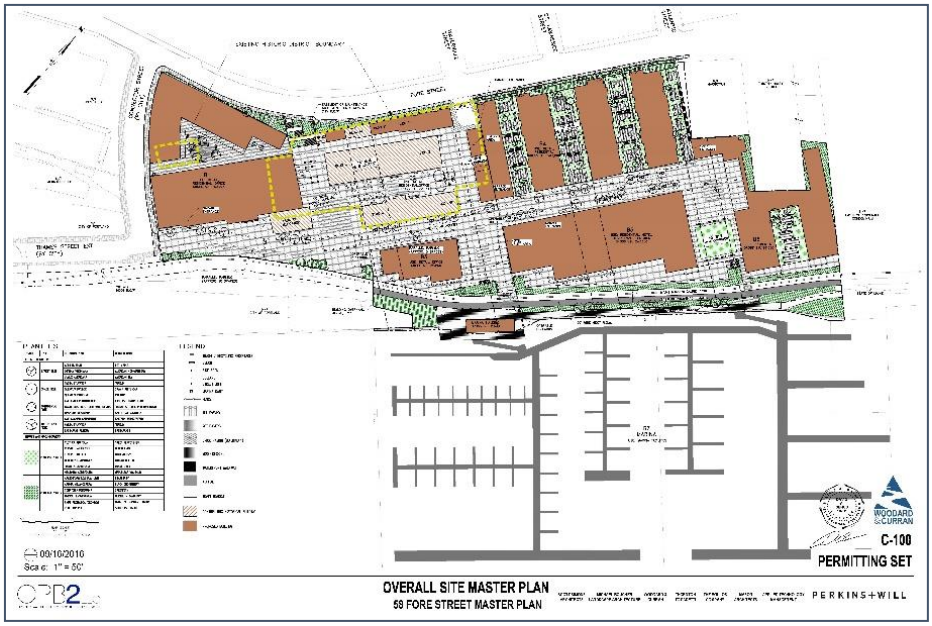


Figure 4, Historic District Boundary identified with dashed yellow line

An application for zoning map and text amendments for this site was submitted in August 2014, with the final changes adopted by the City Council on June 1, 2015. The application included a map amendment to rezone the property from the Waterfront Special Use Zone to B-6 and Eastern Waterfront Port Zone, with accompanying text amendments and amendments to the existing Building Height Overlay & Building Envelopes overlay (Figure 6). There was an extensive, detailed review of the application in 2014 and 2015 leading to a Planning Board recommendation to the City Council on February 24, 2015, and the approval of the application in June 2015.

Below is a chronology of the map and text amendments:

- August 22, 2014. Application submitted to Department of Planning & Urban Development
- September 17, 2014. Applicant's Neighborhood Meeting
- October 21, 2014. Planning Board Workshop
- November 18, 2014. Planning Board Workshop and Site Walk
- January 8, 2015. Staff-Lead Neighborhood Meeting
- February 10, 201.5 Planning Board Workshop
- February 24, 2015. Planning Board Public Hearing
- February 9, 2015, City Council Workshop
- March 30, 2015, City Council Workshop/1st Reading
- June 1, 2015, City Council Public Hearing

The property was rezoned from the now non-existent WSUZ to a combination of B-6 and EWPZ in June 2015. The rezoning application included text, map, and B-6 height overlay amendments. All three of these zoning elements were created to serve the specific needs of the Eastern Waterfront and were a direct result of the recommendations of the Eastern Waterfront Masterplan. The Eastern Waterfront Masterplan includes recommendations for zoning, height, and associated design for the entire Eastern Waterfront, including the 58 Fore Street site. The 2015 rezoning extended the existing height overlay, B-6 and EWPZ zones eastward to encompass 58 Fore Street. Previous to the rezoning of 58 Fore Street, these zones were in place on the land

immediately adjacent to the southwest, of 58 Fore Street, and in 2015 were extended eastward to encompass the property. The WSUZ was eliminated altogether.

The overlay amendment established view corridors, building envelopes with maximum heights, a massing break line, and specific restrictions on heights above Fore Street over the course of the 9-month review.

Details of the final, approved rezoning underwent numerous changes over the course of the extensive review, based on staff, Board, and public feedback on the application. The appropriate zone boundary of the EWPZ (75' in depth) to protect water dependent and maritime resources, as well as uses and dimensional standards within the zone were modified over the course of the review. Uses in the B-6 were also modified from the original proposal to insure sensitivity to the residential neighborhood on Fore Street and waterfront use compatibility within the site. Site plan standards regarding massing and permeability were included for these zones, as well, consistent with the content of the Eastern Waterfront Design Guidelines.

Both the designation of the historic district and the requirements of the B6/EWPZ/Height Overlay have directly shaped the site configuration of the current MDP proposal.

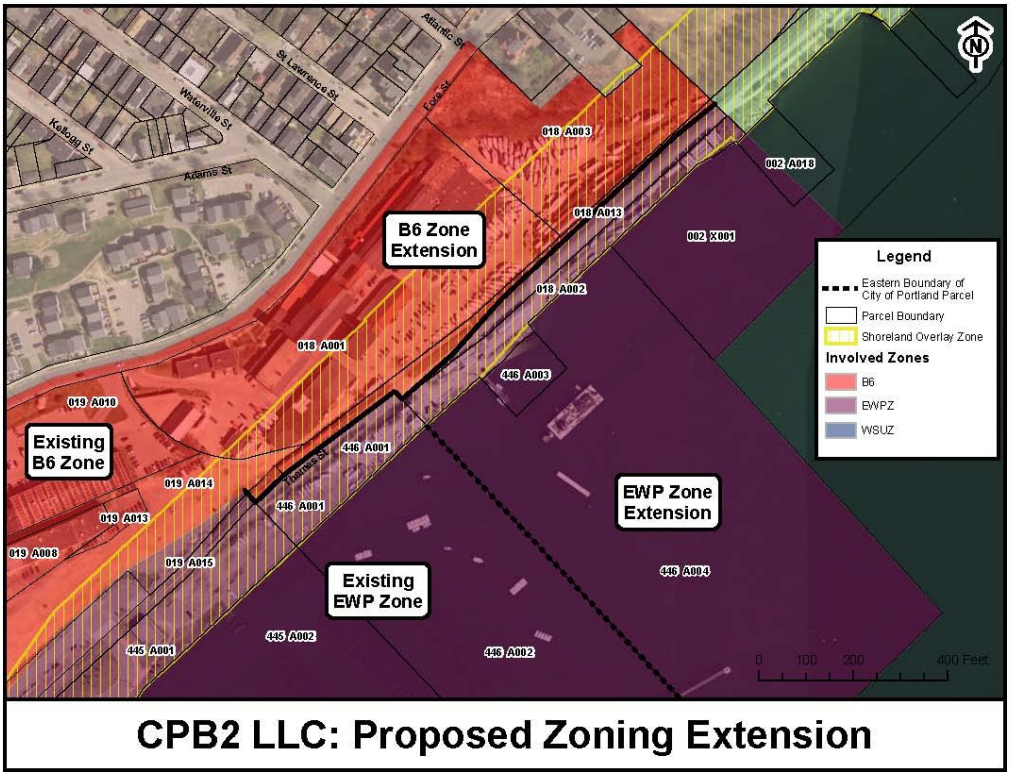


Figure 5, Area of Zoning Extensions, from Map Amendment Application

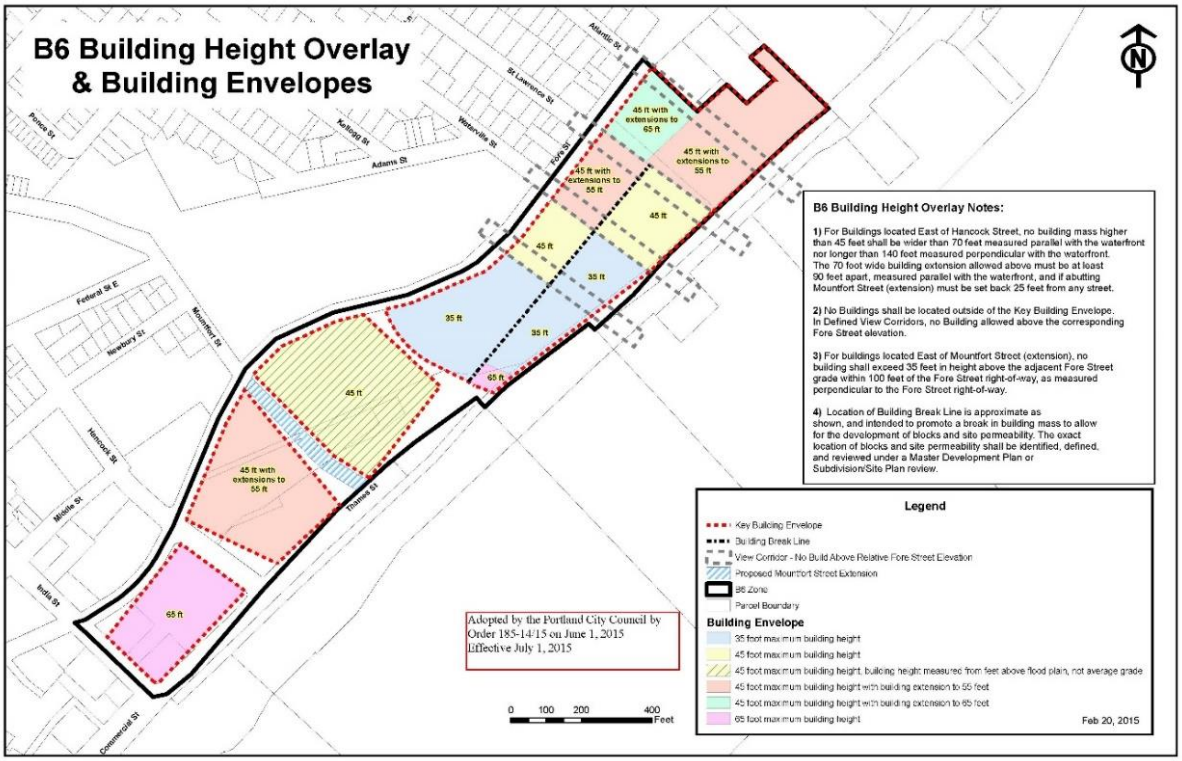


Figure 6, B-6 Building Height Overlay & Building Envelopes

VII. PUBLIC COMMENT

All public comment submitted via email has been included as attachments 1-14. These and comments made over the course of the workshops have touched on such items as the implications of the area being susceptible to flooding, height measurement methodology (addressed in section IX, below), adequacy of parking and parking management, scale and massing of the development, sensitivity of new construction to the historic core, wind impacts, questions regarding the MDP review process and scope, questions regarding road alignment, view impacts and traffic impacts. Though many of these questions have been answered during the course of the meetings, the applicant has submitted a written response to outstanding items (Attachments XXII). Other items raised for consideration were provisions to ensure that local businesses occupy the retail and commercial spaces, as well as concern for the impact of the project on overall housing affordability for the surrounding area. Many of these items will be addressed in much greater detail in the course of Level III reviews. Some, such the issue of local business tenants is not in the scope of Planning Board review to mandate. Another category of questions raised during public comment has had to do with construction management, such as how monitoring of parking, excavation, and construction-related vibrations will be managed; each of these will be specifically addressed in a required construction management plan in association with a Level III review.

A question about the Fore Street retaining wall has been raised several times – the applicant addressed ownership in their November 2, 2016 memo (Attachment I). The memo states: *The Board inquired*

about the existence of information regarding the Fore Street retaining wall. The City has a 4' wide easement along the full length of the retaining wall, which was built along the property line. The City is responsible for maintaining the wall and the purpose of the easement is for the City to be able to go onto the property in order to repair the wall if necessary. Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system. Future Level III Site Plans will identify the construction solutions for this area.

VIII. RIGHT, TITLE, & INTEREST

Evidence of Right, Title & Interest is included in Attachment E. Attachment E includes deeds, a Submerged Lands Lease and a Memorandum of Understanding with MaineDOT which establishes the ability to alter the current alignment of Maine DOTs right of way across the site. Attachment XXI includes the Purchase and Sale Agreement for the real estate transaction recently approved by the Council. This land transaction allows for site access/connectivity to the City street network through extension and connection of Thames Street. It also establishes a first phase of road extension that will be concluded by the further extension of the street network from Thames Street to Fore Street.

The Master Development Plan shows the proposed connector road to Fore Street and a building with frontage along this potential street. As shown the building encroaches upon land not at this time held by the developers. The applicant will need to confirm ownership or permission of the current landowner to proceed when a site plan application is brought forward. Suggested MDP approval conditions asks for this area to be visually clarified on the final plans, and specifies that any application for development approvals in this area require clear of Right, Title and Interest prior to review.

VIII. FINANCIAL & TECHNICAL CAPACITY

Evidence of Financial & Technical Capacity is included in Attachment J. This includes an overview of other development projects successfully completed as well as a description of the consulting design team to address technical capacity, and a letter from Holliday Fenoglio Fowler, L.P. attesting to CPB2 LLC's financial and technical capacity for the proposed project.

IX. ZONING ASSESSMENT (Sec. 14-527.c.6)

The project is encompassed by the B-6 Eastern Waterfront Mixed Zone, the Eastern Waterfront Port Zone, the B-6 height overlay, and is partially located in both a Shoreland zone and in a flood zone. The site also contains the Portland Company Historic District. As mentioned above, the zoning for this site is the result of a recent and extensive rezoning process initiated by the applicant. The Master Development Plan is consistent with zoning, including individual zone purposes, uses and dimensional standards, and the B-6 Height Overlay. The proposal is also consistent with allowed activity in the shoreland flood plain standards. Each site plan and subdivision (if applicable) will be evaluated for conformance with zoning, site plan, and subdivision standards, shoreland and flood plain requirements as well as undergoing Historic Preservation reviews for Certificates of Appropriateness.

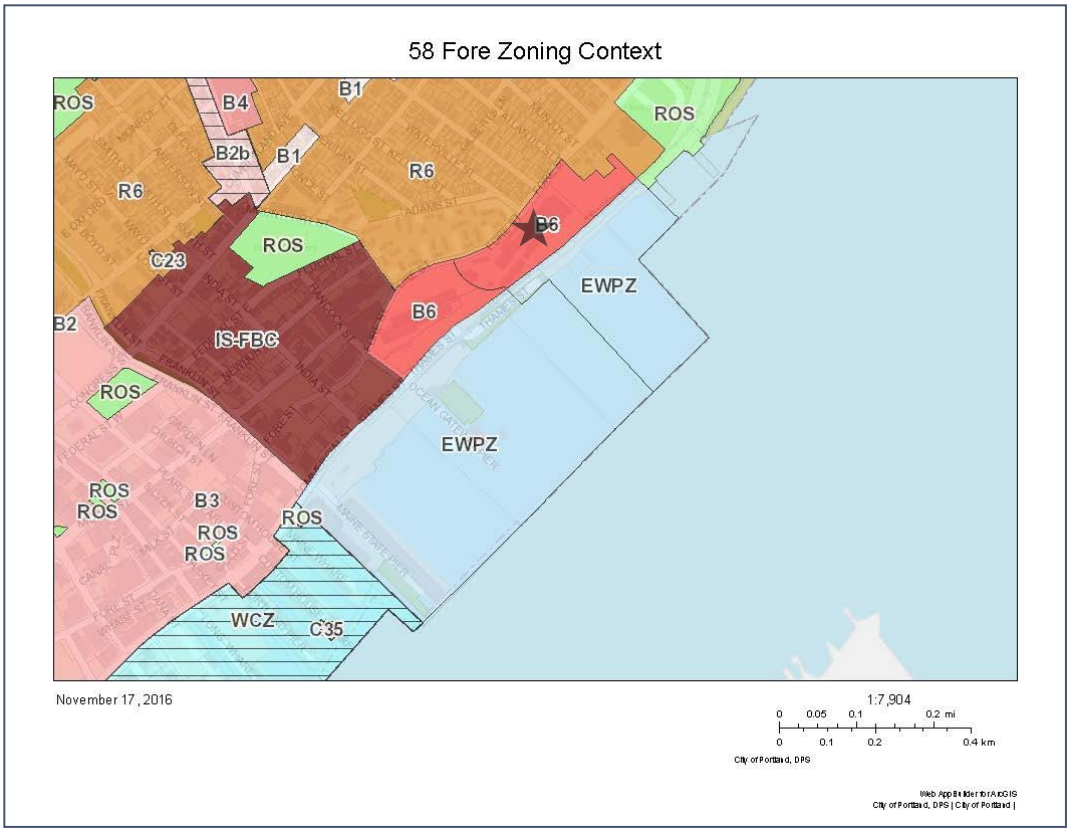


Figure 7, Zoning Context

The B-6 zone was specifically created to serve as a compatible zone for the upland portion of the Eastern Waterfront. The intent of the zoning standards for the B-6 is to provide for a mixed-use neighborhood that, according to the zone's purposes statement, *emphasizes a quality pedestrian experience, promotes public transit, and demonstrates exemplary urban design. The zone promotes a range of uses to achieve twenty-four urban vitality and shared use of parking infrastructure as recommended in the eastern waterfront master plan for redevelopment.*

The purpose of the EWPZ is to nurture a wide range of deepwater-dependent industry and commerce, particularly the marine passenger industry and upland support for the marine passenger industry. Piers, uplands, and circulation patterns consistent with the transportation needs of marine facilities are included in the purpose of the zone, as well as the encouragement of non-marine uses that support deepwater activities, provided that they do not conflict or compete for limited space with existing or anticipated deepwater-dependent needs. It's primary emphasis, however, is on the berthing and support of large vessels. A second priority is for shallow water-dependent uses. Consistent with the hierarchy of the City's other waterfront zones, specified, non-marine dependent uses are permitted provided they do not interfere with and are not incompatible with higher priority uses.

Full purposes statements for both zones are included in Attachment VI.

The B-6 zone includes a wide range of permitted uses, including each of the uses mentioned for inclusion in the MDP:

The following uses are permitted in the B-6 zone (Sec. 14-269):

(a) *Commercial:*
1. Professional, business and general offices;
2. Restaurants and other eating and drinking establishments, except that no drinking establishments as defined in section 14-47 that are located east of Waterville Street shall be permitted within fifty feet (50') of Fore Street, and provided that restaurants that are located east of Waterville Street and within fifty feet (50') of Fore Street must meet the following requirements:
   a. The hours of operation shall be limited to between 5:00 a.m. and 11:00 p.m. each day; and
   b. Food service and consumption are the primary function of the restaurant;
3. Hotels and inns limited to no more than 150 rooms;

…

5. Retail and retail service establishments, excluding those with gas pumps;

Other permitted commercial uses include but are not limited to carpentry shops; theaters; brew pubs; marine supplies and services; bakeries, coffee roasters and commercial kitchens; combined living/working spaces, including but not limited to artist residences with studio space; mixed use residential and commercial structures; studios for artists, photographers and craftspeople including but not limited to, painters, sculptors, dancers, graphic artists and musicians; health clubs; museums and art galleries; educational facilities.

(b) *Residential:*
1. Attached dwellings including row houses, two-family and multifamily dwellings;
2. Handicapped family units;
3. Combined living/working spaces, including but not limited to artist residences with studio space;
4. Mixed use residential and commercial structures.

The B-6 zone includes standards for parking that allow for surface parking while encouraging a site to ultimately incorporate mixed-use, structured parking, as this application does.

Allowed uses in the EWPZ zone are prefaced with language that no use in the zone may have an adverse impact on marine uses (Sec. 14-300.1). Permitted uses (Sec.14-301) allow for a host of marine uses, including marine passenger facilities, transient and long-term commercial berthing; boat and marine equipment storage; marine supplies and services such as fueling and bunkering of vessels; public, non-profit, or commercial marine transportation and excursion services, including captained charter services, sport fishing and water taxis. Residential is not allowed.

Pedestrian and multi-use trails are permitted in both zones.

The application also includes a zoning assessment, including allowed uses and dimensional requirements, in Attachment G.

Allowable heights are calculated, city-wide unless otherwise specified, from average finished grade. Building height is defined in Chapter 14 (Sec. 14-47) as the *vertical measurement from grade, or the predevelopment grade on the islands, to the highest point of the roof beams in flat roofs; to the highest point of the roof beams or the highest point on the deck of mansard roofs; to a level midway between the level of the eaves and highest point of pitched roofs or hip roofs; or to a level two-thirds of the distance from the level of the eaves to the highest point of*

gambrel roofs. For this purpose, the level of the eaves shall be taken to mean the highest level where the plane of the roof intersects the plane of the outside wall on a side containing the eaves.

Ann Machado, the City's Zoning Administrator has confirmed that there are two acceptable methods for establishing average grade (Attachment XIV): averaging the elevation of the proposed abutting ground surface at the building corners, or by averaging the elevation of the abutting ground surface at consistent intervals around the perimeter of the building. The applicant is proposing a single building on the eastern portion of the site that has pedestal parking at the base, with connected and architecturally varied residential uses above. Attachment G includes the applicant's calculations of average grade for each building proposed, which the Zoning Administrator has confirmed. She also states that if the parking base is built in phases, the average grade for each phase each phase will need to be evaluated for consistency with the B-6 Height Overlay. There are no final building designs in a MDP plan application, so this review addresses the feasibility of the site design concept as proposed.

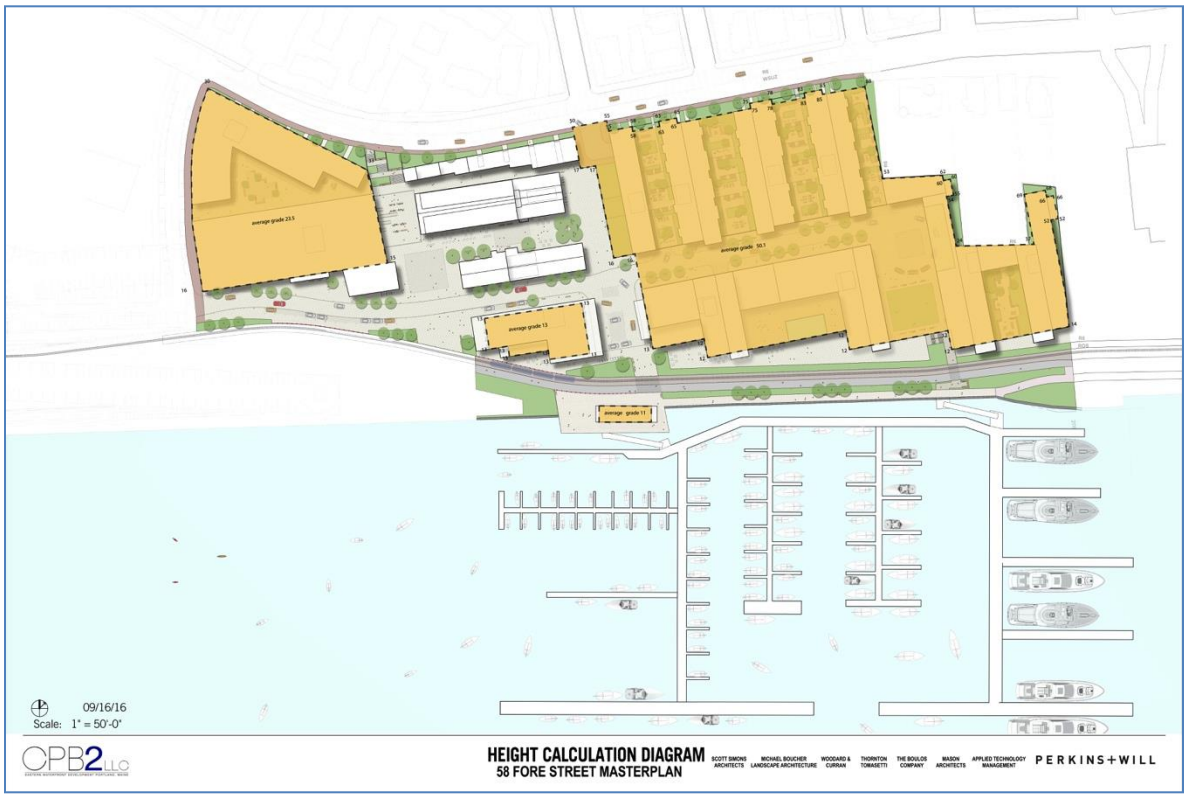


Figure 8, Average Grade Calculations

The MDP site layout and building heights have been proposed in accordance with the B-6 Height Overlay (Figure 6, and included in Attachment G), which not only determines allowable heights, but establishes the location and requirements for view corridors. Additional significant elements of the height overlay are varying allowable heights within the zone arranged in blocks ranging from base heights of 35 to 65 feet throughout the site. Many of the blocks include base heights with allowable extensions 10-20 feet above the base height. Further articulation of the permitted heights is stated in the overlay notes which set parameters for the height extensions, the view corridors, and restrictions on height at Fore Street. The overlay notes also include an explanation of the dashed building break line running east-west across the property:

1. For Buildings located East of Hancock Street, no building mass higher than 45 feet shall be wider than 70

feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70 foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be set back 25 feet from any street.

2. No Buildings shall be located outside of the Key Building Envelope. In Defined View Corridors, no Building allowed above the corresponding Fore Street elevation.
3. For buildings located East of Mountfort Street (extension), no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. Location of Building Break Line is approximate as shown, and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Subdivision/Site Plan review.

The plan as shown in the Overall Site Masterplan and in the Height Calculation Diagram (Figures 1 & 8) is consistent with the definition of building height in Chapter 14, the allowed heights in the B6 Height Overlay, and established methodology. View corridors and the break in massing have been adhered to. All final building designs will be reviewed for compliance with the Height Overlay and other applicable sections of Chapter 14 over the course of Site Plan Review.

X. MASTER PLAN SUBMISSION REQUIREMENTS (*Section 14-527(e)*)

Section 14-527 of the city's site plan ordinance outlines master development plan submittal requirements. The applicant has met these requirements.

XI. REVIEW OF MASTER DEVELOPMENT PLAN STANDARDS (*Section 14-524(a)3.c(iii)*)

An approved MDP establishes parameters to be adhered to for the full development, including total residential units, types of uses, lot coverage, open space, stormwater management, infrastructure, traffic, parking, site layout and circulation. It is a regulatory option at the discretion of the applicant for sites of one acre or more, with the intent of establishing a cohesive program for a site, while allowing a site to be built out over an extended time frame. MDPs may be developed concurrently with site plans and/or subdivisions, or independently. Approval does not constitute an authorization for development, but it does maintain the applicability of regulations in effect at the time of the approval for as long as the MDP approval remains valid (six years, with possible extensions). All Level III site plans and subdivisions for each phase are required to be in general conformance with the approved MDP.

MDP review criteria (§14-524.a.3.C.III.) establishes standards under which MDP applications must be reviewed. Per this section, MDPs shall adhere to the following general requirements and features:

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

The property, a (+/-) 10 acre site, meets this standard.

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

The applicant has submitted a master plan for 58 Fore Street which incorporates all major aspects of the site, including site layout, stormwater, utilities, parking, traffic, architecture and landscape design, in a comprehensive manner.

c. ***Consistent with the objectives of this ordinance.***

The application and development plan are generally consistent with the objectives of the city's ordinance, including the purposes of the B-6 and EWPZ. The B-6 exists as a mixed-use zone for the upland portion of the eastern waterfront which *…encourages a distinctly urban form through development that emphasizes a quality pedestrian experience, promotes public transit, and demonstrates exemplary urban design.*

The EWPZ exists primarily to nurture deepwater dependent activity within the context of the established waterfront, shallow water-dependent and other marine uses, and other uses that are not incompatible with either. Each of the city's waterfront zones contain this hierarchy of water dependent, marine related, and compatible non-marine uses, across the respective purposes of the eastern, central and western waterfronts. The EWPZ is also the zone for Ocean Gateway and Maine State Pier and supports passenger ships, recreational boating, and other compatible uses.

d. ***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).***

Section 14-524.A.3.c.III.d requires that when reviewing a Master Development Plan application, the Planning find that the:

> *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.*

Over the course of review of the rezoning application for this site, there was an extensive review of the map and text amendments for consistency with the Comprehensive Plan. The rezoning request was required to be consistent with the Comprehensive Plan in order for the zoning amendments to be approved. Any MDP application that complies with zoning that has been found consistent with the Comprehensive Plan is therefore, by extension, also broadly consistent with the Comprehensive Plan, particularly the sections that had direct application to the rezoning. With that as a starting place the role of the board in reviewing a MDP Application is to examine the Comprehensive Plan, and thus Eastern Waterfront Masterplan (EWMP) in relation to the particular MDP application before it, including elements not addressed in the zoning ordinance. The following is an overview of how the details of the MDP align with the varied goals of the EWDP.

In addition to the EWMP, Volume 1 of the Comp Plan gives an overview of the years of waterfront planning efforts of the City, and addresses redevelopment of the Eastern Waterfront specifically. It outlines four redevelopment principles for development in this area (these four principles are restated in the EWMP): Character and Impact of Development, with particular emphasis on compatibility with surrounding areas – residential, maritime, and natural environment; Mixed-use as a component of an active, vibrant urban area; maintaining Maritime Resources; and Economically Responsible Development that benefits the city and the region.
The EWMP consists of three component parts that establish a vision for an area that includes the 58 Fore Street site (the entire Eastern Waterfront Masterplan in its 3 components can be accessed directly here: http://www.portlandmaine.gov/DocumentCenter/Home/View/3391). The three components of the document, adopted in 2002 and 2004, are *A Master Plan for Redevelopment of the Eastern Waterfront, Design Guidelines for the Eastern Waterfront, and Eastern Waterfront Building Height Study*.

Design Guidelines for the Eastern Waterfront touch on many aspects of the built environment – including but not limited to street design, open spaces, utilities, bicycle safety, parking, and building composition. The guidelines emphasize new development that respects surrounding neighborhoods while allowing for new design that furthers

the creation of a new neighborhood. These guidelines are the primary basis for the Design Review of the MDP and are addressed in Attachment XVI and XVII.

The *Eastern Waterfront Building Height Study* outlines the process and principles that informed the study's recommendations for implementation, as summarized by that study's *Illustration 33*. The document gives an overview of the process used in the study and the principles that guided it, including considerations of scale, topography, massing, the impact on adjacent neighborhoods to inform the eventual recommendations on view corridors, heights, parking structure orientation and design, setbacks, road alignments, alleyways, visual focal points, civic spaces, and others. Implementation of the Eastern Waterfront Building Height Study resulted in the adoption of the original B-6 Height Overlay, as well as the amendment of that map to include the 58 Fore Street property (Figure 6) over a 9 month public process outlined in section VI, above.

A Master Plan for Redevelopment of the Eastern Waterfront is the parent document to which the Design and Height studies were later appended, and establishes the vision for the area. It is intended to form the basis for rezoning of the Eastern Waterfront (pg. 3: *The Master Plan will provide the policy basis for future zoning amendments necessary to implement the plan)* to facilitate the *r*edevelopment of vacant and underutilized land (*pg. 6. The area is blessed with water views, proximity to urban amenities, reasonable vehicular access, excellent port access, and integration into the City trail system. Given its location and proximate attractions, significant potential for redevelopment exists within the Eastern Waterfront…..*).

Specific mention of the Portland Company Complex includes:

> *The Portland Company complex, a mid-nineteenth century manufacturing facility, occupies the easterly end of the Eastern Waterfront. As an early manufacturing center, the site is home to several large brick and granite industrial buildings of architectural significance with potential for adaptive reuse. The Portland Company property is currently designated as eligible for inclusion in the National Register of Historic Places.*
>
> *The property is highly developed, but in need of significant structural and cosmetic repair. Importantly, the complex is the only private property in the study area with direct water access. Currently, the Portland Company houses a variety of commercial uses, including a marina, boatyard, boat repair, general office, exhibition space, and the Narrow Gauge Railroad Museum.*
>
> *Future parking enhancements and better vehicular and pedestrian access to the central redevelopment area will better integrate the Portland Company complex with the Eastern Waterfront and the Commercial Street business district, spurring the adaptive reuse and restoration of the historic structures.*
>
> *<u>Development Considerations</u>*
> - *Historic 19th Century industrial complex.*
> - *Promote the continuation of boat yard and yacht support services.*
> - *Encourage the adaptive reuse and sensitive rehabilitation of historic structures.*
> - *Increase connections to Commercial Street and promote shared parking with abutting uses.*
> - *Expand recreational boating and active public use of the water.*

Objectives for the Eastern Waterfront are grouped according to four overarching themes: Character and impact of development, Mixed Use, Maritime Resources, and Economically Responsible Development. Specific objectives addressed by this MDP application:

- *Encourage compatible architecture.*

Overall site design is being addressed in Design Review comments, and final building designs will be further reviewed with submission of site plans.

- *Encourage historic preservation and adaptive reuse of historic structures.*

A portion of the site was designated a local historic district, insuring preservation of designated buildings and review of the district under the Historic Preservation Ordinance in perpetuity.

- *Establish a new street and pedestrian network that integrates with the surrounding street and trail network.*

There are no public streets within the site, but public street extensions of Thames and the connector to Fore are proposed in conjunction with buildout of this project. Overall the site increases connectivity to the surrounding street system at Fore Street, at Thames Street, as well as maintaining trail access. Additional public access will be provided through a public easement across the site, from Fore Street to the water. Private entrances to residences and rooftops along Fore Street will connect residents to Fore Street, as well. Access to the site is also increased from the water through the expanded marina. The interior of the site includes plazas and courtyards, not publicly owned, but intended for public access to the shopping, dining, working and otherwise utilizing the new commercial and residential space.

Overall this standard has been well met, though connections are stronger on the western end of the site than the eastern. The question of adequate permeability through the site was raised at a Planning Board meeting, drawing particular attention to the ability for pedestrians to move through the site along the eastern end, particularly in regard to access from Fore Street along block 4. There are topographical challenges to the eastern end that don't exist to the same extent at the western end of the property that will require alternative solutions for enhancing connections.

- *Preserve significant public view corridors to and from water and along the waterfront.*

The view corridors recommended by the plan were implemented into the B-6 Height Overlay. View impacts from the water, and from Fore Street are still being assessed, and the applicant has responded with renderings from various vantage points to address these questions (additional renderings are included in Attachment XII).

- *Manage traffic, noise, and air and water emissions to minimize the impacts on the surrounding community and users.*

Management of traffic impacts, transportation demand management, and parking are currently being reviewed. The stormwater plan for the site promises to significantly improve water quality leaving the site. The Master Development Plan calls for an overview to the approach for managing traffic and other impacts, and future site plans will be required to address these items in full detail.

- *Improve and protect the value and quality of natural resources.*

As noted above, the stormwater plan for the site will yield water quality benefits, as there is no treatment on site currently, and the application shows water quality treatment of approximately 6 acres of land.

- *Provide opportunity for mixed-use and non-marine development and activities in locations and in ways that are compatible with the use of maritime resources.*

The recent rezoning of the property directly allows the waterfront to be developed as a marina and the upland area to be a mixed use development consisting residential, office and commercial uses. Thus the MDP addresses this goal.

- *Increase public use of the water, waterfront and shore through public access and green space development.*

Public Access to the water will be improved through trail re-alignment, an additional waterfront walkway, and the public access easement.

- *Maintain and enhance recreational trail access.*

The trail will be maintained and realigned. The MDP's proposed realignment of the trail to the water's edge is specifically supported (*The Eastern Promenade Trail and the Narrow Gauge Railroad, with their linear orientation parallel to the shore, have a tendency to divide the uplands from the water's edge. Some relocation and redesign of both of these corridors will be needed in order for the Master Plan to take advantage of the amenities provided by these features while retaining connectivity with the uplands and the functional utility of marine uses).*

- *Preserve and encourage long-term enhancement of emerging and traditional maritime and water dependent uses.*
- *Utilize the harbor's deep-water resources to serve deep draft vessels.*
- *Encourage small boat berthing where water depth does not permit deep-water berthing.*

This area is supported in the zoning for recreational boating. The area of the EWPZ to the west of 58 Fore serves deep draft vessels – provisions were made in the course of the rezoning to insure no interference with this primary purpose of the zone.

- *Encourage public physical and visual access to the water where appropriate.*

This goal is met through required view protection, increased connectivity of the site to surrounding neighborhoods, and through the proposed public easement.

- *Allow non-marine mixed uses when compatible with water dependent and marine uses.*

The B-6 is written to be compatible with the EWPZ, allowing marine support uses in the mixed use zone.

- *Encourage a positive economic return.*
- *Sustain and strengthen water-related tourism.*
- *Enhance the economic viability of the eastern waterfront's property and facilities.*
- *Assure that the public investment and development benefit the residents of the greater Portland community.*
- *Provide adaptable, flexible infrastructure that will allow the city to adjust to future technological trends.*
- *Enhance multi-modal transportation opportunities.*

Reinvestment in this site allows for retention and rehabilitation of historic resources, greater access to the water and expanded water-related tourism opportunities, and expanded economic activity.

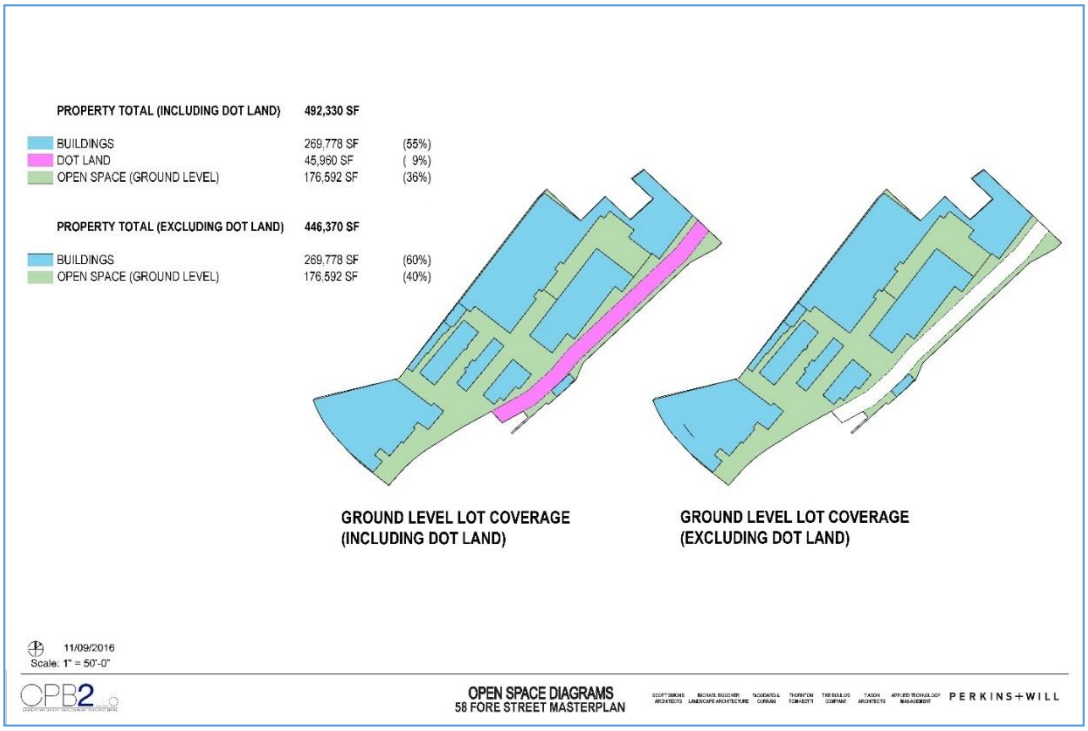
The Eastern Waterfront Masterplan is a vision for the eastern waterfront's transformation into a walkable, mixed use, connected part of the city that also supports an active waterfront. That process is underway in the eastern waterfront, and the rezoning of 58 Fore Street, and now this application, are a part of that vision. The EWMP places considerable emphasis on connectivity of the area to the water, to the trail, and to the surrounding neighborhoods, all of which are achieved by this proposal. The EWMP also places significant emphasis on minimizing negative impacts on existing and future residential neighborhoods, which is addressed through a thorough review of urban design, traffic impacts, stormwater and other performance standards required by the Land Use Code. These areas are under review for the MDP, and will continue to be scrutinized as greater levels of detail arrive with future applications. Staff analysis finds that the proposed development program advances the goals of the EWMP particularly successfully. Areas for further discussion and refinement are discussed in Ms. Cameron's design review memos and in the review of site design and optimizing connectivity of the site to surrounding areas. Accordingly, the MDP application is generally and specifically consistent the EWMP.

e. ***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.***

The eastern end of the property currently includes some inaccessible vegetated area in the steepest areas of the property, but the remainder of the site has long been developed. The site is currently bisected by the Eastern Promenade trail, offering off-road travel across the property and visual access to the water. Significant natural features as defined by the site plan standards (14-526.b.1) include such things as endangered trees, plants or animals, high value bird habitat, wetlands and vernal pools. The standards also mention flood plains and the shoreland zone, portions of which are on this property – any new construction in either of these zones will be reviewed for consistency with these standards; there are no activities proposed on the MDP that would be prohibited in these overlay zones. There's an opportunity for stormwater quality improvements on the site with the inclusion of green infrastructure and Low Impact Development techniques mentioned in the Stormwater Management narrative (Attachment L).

The application proposes to formalize a significant amount more open space, public and private, than is currently on this developed, industrial site. The submission materials dated November 2nd (Attachment I) include several plan sheets that help visualize this component, with distinctions between ground level and rooftop, hardscape and planted areas. Hardscape includes plazas and courtyards for gathering spaces, as well as shared use streets that will accommodate pedestrian and vehicular circulation. The application calculates the open space for the site at 60% of total property area, including ground level hardscape and planted areas, and occupy-able roof terraces. The application estimates that 75% of that space will be accessible to the public.

In addition to ground level/rooftop, hardscape/planted, there are other categories the open space worth considering in assessing consistency with this standard. Waterfront access, for instance, is addressed in the form of the existing trail and an additional pedestrian walkway across the site, the expanded marina, and through the public easement option to the site. The trail continues to travel across the site (connecting the Eastern Promenade with the Amethyst Lot parcel), re-aligned from its current location for greater proximity to the water's edge, as well as a proposed extended walkway along the water. The proposed marina will increase transient berthing slips, offering additional possibility for accessing the site from Casco Bay. The 50' public easement option, exact location and configuration required at site plan review, includes provisions for physical and visual access across the site and to the water. Visual access is further provided through the four required view corridors in the Building Height Overlay.



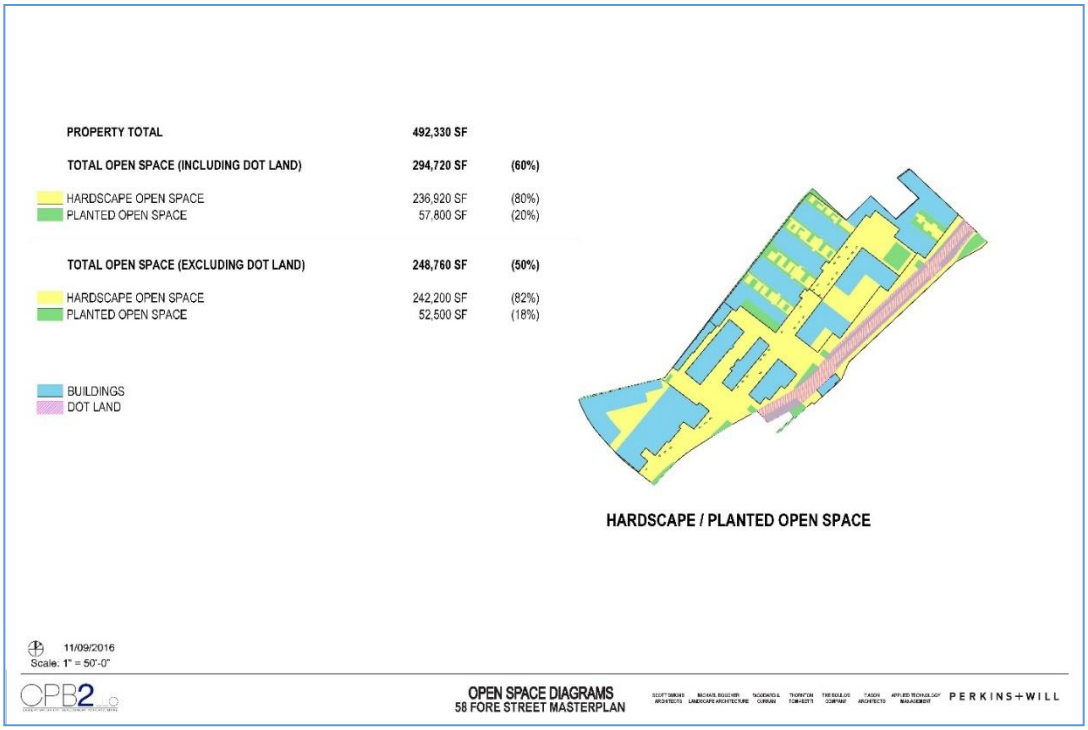


Figure 9, Open Space Diagrams

f. ***Developed so as to be in conformance with Portland's Historic Preservation 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.

Historic Preservation review of this aspect of the MDP criteria occurred concurrently with Planning Board review. Following the joint Historic Preservation and Planning Board workshop on October 12, the Historic Preservation Board reviewed the application at a workshop on November 16th and held a public hearing on December 7th. At the December 7th hearing the Historic Preservation Board made a determination of the MDP's consistency with this standard, determining visual compatibility of the proposal with the Portland Company Historic District Designation Report and consistency with the standards of the Historic Preservation Ordinance.

The Historic District's recommendation is included in Attachment XVIII. It contains a thorough overview of the review process, issues raised, input for future reviews, and the Board's formal finding.

The Historic Preservation Board found that the Master Development Plan is in conformance with Portland's Historic Preservation Ordinance standards, subject to the removal of the proposed rooftop addition above Building 16, the reduction in scale of proposed infill construction on the footprint on Buildings 14 and 15 to a height not to exceed existing building heights, and the provision of an offset separating Building 16 and new townhouses to the east. In addition, the Board found that the proposed development adjacent to or within one hundred feet of the Portland Company Historic District will 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.

Accordingly, a condition of approval has been recommended that any approval of the Master Development Plan include final revised plans that reflect the Historic Preservation Board's findings, so that the Planning Board can then affirm that the MDP application is consistent with review criteria **f**.

The Historic Preservation Board also detailed numerous input for future reviews (section IV, General Input for Future Reviews in Attachment XVIII), feedback that will impact future design of the site. These did not form the formal finding of the Board, but have been recorded as a record of Historic Preservation Board direction on future submissions (when new construction, additions or modifications are proposed that fall within the Historic Preservation Ordinance's purview, the applicant will be required to apply for a Certificate of Appropriateness, distinct from the advisory opinion required for the Master Development Plan).

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

The significant natural feature of the site is the water's edge. A currently developed waterfront parcel, it has been zoned to maintain 75 feet of waterfront zoning (EWPZ) along the water's edge to maintain water dependent, marine dependent, and limited compatible other uses. All construction within shoreland and floodplains will be reviewed for conformity with those sections. The site modifies the steep elevation changes of the site to allow for safe vehicular and pedestrian entrance, and also works with topography to the extent that view corridors from Fore Street to the water have been preserved (as required by the B-6 Height Overlay) so that no new construction breaks the elevation of Fore Street.



Figure 10, Rendering, Fore Street pedestrian entrance

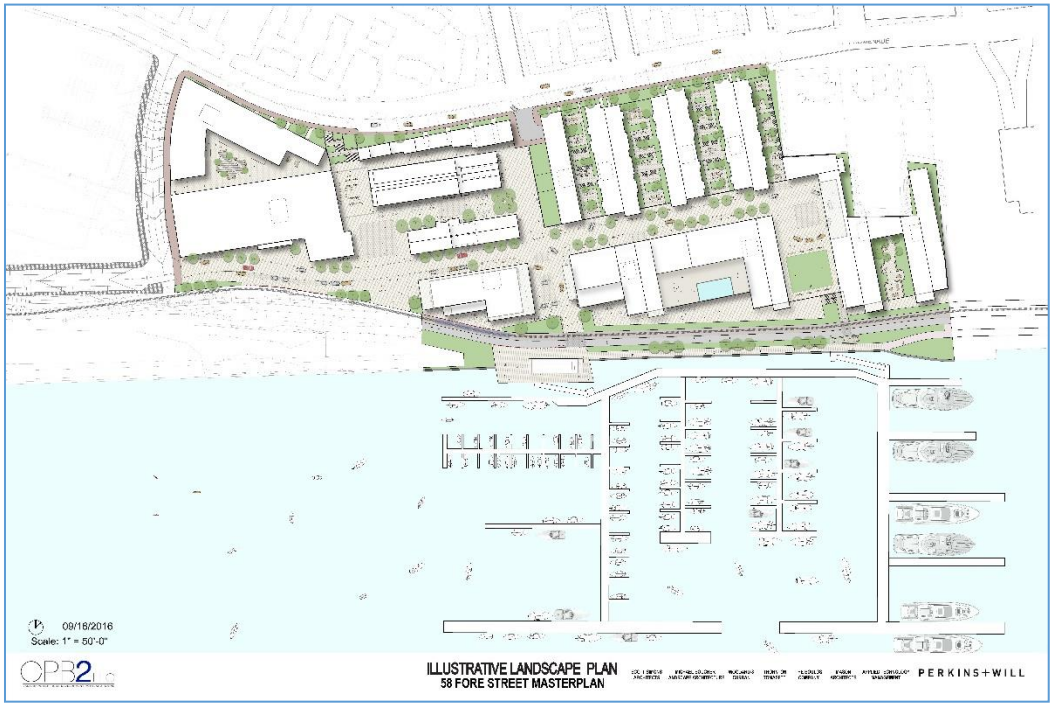


Figure 11, Illustrative Landscape Plan

The applicant has provided a conceptual drainage plan (Attachments L, P9 Stormwater) to address stormwater for the site, including water quality treatment areas, drainage infrastructure and a description of stormwater management measures. A waiver has been requested from the Flooding Standard, due to the fact that the project will discharge directly into the ocean – the stormwater review conducted by Stephen Bushey finds this waiver request justified (Attachment II). The conceptual plan indicates that existing drainage patterns will be largely maintained, with runoff from the development collected or directed to stormwater treatment systems located throughout the site. The project also proposes Best Management Practices such as tree box filters, rain gardens, green roofs, and related Low Impact Development (LID) measures.

Mr. Bushey's stormwater review found the conceptual plan to be sound in its strategy. He emphasized that the site's stormwater management will benefit from LID measures for water quality, aesthetics and visual appeal. Applicant presentations on stormwater techniques for the site indicate robust and creative inclusion of these techniques – the site at build out promises to be a gain over existing conditions for water quality leaving the site.

Mr. Bushey's review also suggested that the site design take into consideration recent research on storm surges for Maine's coast, attaching two the Maine Geological Survey Sea Lake and Overland Surges from Hurricanes (SLOSH) maps showing potential impact and inundation areas, included in Attachment II. These maps can inform discussion of site and building design – he includes such parameters as floor grades, exterior grades, waterproofing and related aspects for consideration. The maps he includes are informative for this review, but are not regulatory maps for the purposes of review and approval of the application. The application is in a flood zone (aerial w/flood overlay included below), an AE zone and a velocity zone, and this will impact design and construction in this area, but does not extend to an extensive deep into the site. Marine-related construction will need to meet the particular construction requirements for any building or structure in these zones.



Figure 12, Flood Zones Layer Over Existing Conditions

Jeff Tarling, City Arborist, has commented that landscaping for the site should incorporate native plantings, particularly those suitable to salt water environments and potential storm inundations. This is an item that will receive more specific review when Level III site plans are brought forward.

Lastly, Mr. Bushey's review noted the need for additional information regarding stormwater infrastructure phasing. The MDP does not include a phasing requirement, but each subsequent application for development will need to address how the increment relates to the whole, whether it be stormwater management, utilities, or traffic generation.

h. ***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.***

The MDP proposes to retain existing buildings within the historic core of the site, adaptively reusing existing buildings and maintaining historic patterns of open space between buildings. It also proposes redesigning areas outside of the district, incorporating new construction and design. The proposal follows recommendations of the Eastern Waterfront Masterplan for redevelopment, including re-use of historic resources, new construction, a mix of uses, infrastructure improvements and additional connections to the surrounding neighborhood. Vehicular and circulation plans have been submitted, as well as supplemental pedestrian circulation materials that were included in November.

Overall, site connectivity both benefits from existing conditions, including the presence of the Eastern Promenade trail, connection to the water, the adjacency to surrounding neighborhoods, abutting open space to the east and future open space in the form of the Amethyst Lot to the west. The proposal will also improve connectivity for the site, and for the surrounding neighborhoods. Vehicular access to the site will eventually come from an extension of Thames Street, as well as plans for an eventual, further extension of the street network from Thames to Fore Street. A garage entrance to the structured parking is proposed along Fore Street. Pedestrian and bicycle access is from Fore Street, Thames Street extension, as well as via the Eastern Promenade trail.

Areas where connectivity and circulation have been identified either for improvement or further articulation are marina pick-up and drop off areas, building entrances and building relationships to the street as they impact the pedestrian experience (addressed in Attachment XVII), and the ability of pedestrians to circulate on the eastern portion of the site where grade changes make pedestrian movement, particularly from Fore Street towards the water. Future reviews will evaluate vehicular, bicycle, and pedestrian circulation in greater detail as development proposals are brought forward. As phases of development emerge, each proposal will need to be evaluated for successful circulation and safety at interim phases, prior to the full site circulation plan being realized.

The Amethyst Lot, a City-owned parcel abutting 58 Fore Street and the waterfront on the western and southern edge of the site, is slated to be designed into a newly conceived public open space. The public access easement option from Fore Street connects with the Amethyst Lot, as well, creating another interface between 58 Fore Street and this public space. Design of both 58 Fore Street and the Amethyst Lot impact each other, with implications for the particulars of trail and waterfront access across both sites. Coordination between the City and the applicant on the interaction of these properties will be important, as each project unfolds, to optimize pedestrian and bicycle connections through the city, as well as to the water.

i. ***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.***

The applicant has provided the required utilities analysis (Attachment N, Utility Plans P7 & P8). An engineering review from Stephen Bushey, consulting civil engineer is attached (Attachment II). Mr. Bushey found that the application demonstrates it can be served by sufficient infrastructure, including wastewater, water, drainage, power, natural gas, and communications. He notes that more detail and coordination will be necessary when a development proposal is brought forward:

> *Ultimately it will be necessary for the developer's design team to complete significant coordination with all utility providers to verify that adequate capacity is in place and what, if any, improvements to these systems are necessary. However, as part of the Master Plan we see no particular issues with the utilities, except that the City of Portland and Portland Water District must address the project's potential impacts on their Combined Sewer Overflow Abatement plans and the capacity of the conveyance systems.*

The Department of Public Works has provided initial feedback on the need to mitigate impacts of any input of wastewater into the City's system. A condition has been added identifying several potential strategies to address this, with final determination of the most appropriate measures to be made by Portland's Department of Public Works.

As noted above, the site's current, relative disconnection from its surrounding context will be improved by this proposal through its additional vehicular and pedestrian access points along Fore and Thames Streets. In the new uses on the site it will also create new connections, with residential uses predominating along Fore Street, mirroring the surrounding neighborhood, and mixed commercial uses predominating below Fore Street.

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

In November there was a discussion of the still in-process traffic review. Initially the applicant submitted materials for a Traffic Movement Permit for the entire site to address traffic analysis for the project. A Traffic Movement Permit is required for developments that trigger 100 or more passenger car trips per hour, but is not required for a Master Development Plan application. For a project of this scope, there was extensive discussion and review of data and methodology for the TMP, and it became clear after the November 15th workshop that the full TMP review and approval would extend beyond the timeframe of the MDP review. Therefore, the TMP has been decoupled from the MDP, and will come before the Planning Board as a separate item in the future. The applicant was requested by staff to submit a revised traffic analysis that spoke directly to the traffic-related submission requirements for the MDP (14-527.e.xii), which read: *A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies, including current traffic counts for streets surrounding the project, analysis of the existing capacity of those streets, projections of the amount of traffic that will be generated by the proposed development, and the ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level – said level to be determined by the Planning Authority in concert with the Department of Public Works. In cases where the Master Development Plan is subject to a Traffic Movement Permit (TMP) for all phases, the TMP submissions and review shall supersede these requirements.*

The final traffic review conducted by staff, with the aid of Tom Errico, consulting traffic engineer, is for the MDP standard, with the understanding that a TMP, and an associated Traffic Demand Management plan, will be brought forward in full prior to any Level IIII Site Plan and/or Subdivision Plan reviews that would trigger TMP thresholds.

Tom Errico provided the following review comments:

A traffic analysis and recommendations prepared by a registered professional engineer qualified to conduct such studies.

The traffic study and analysis was performed by Randy Dunton, PE, PTOE and accordingly this requirement is met.

Current traffic counts for streets surrounding the project.

The applicant has collected traffic counts in the vicinity of the project and the methods and adjustments meet professional engineering methods. This requirement is met as part of the MDP, but revisions may be required as part of the Traffic Movement Permit.

Analysis of the existing capacity of those streets.

The applicant developed SimTraffic models for both the immediate study area and along Franklin Street between Commercial Street and I-295. The models are reasonably constructed for traffic mobility conclusions for the purposes of the MDP approval process. Refinement of the model and resulting existing conditions and future conditions analysis and reporting of that analysis will be required during the TMP process to account for pedestrian interaction with vehicles, calibrating the model to existing conditions (such as vehicle queue lengths, roadway geometry and traffic signal equipment) and other modeling and analysis details.

Projections of the amount of traffic that will be generated by the proposed development.

The applicant has conducted a trip generation estimate for the proposed project generally from data provided by the Institute of Transportation Engineers. Without any adjustments, the project would be expected to generate 733 AM peak hour trips and 885 PM peak hour trips. The applicant incorporated "shared use" adjustments to the ITE estimate to account for the interaction of trip activity between land uses. From national sources, the proposed project would be expected to have shared trip activity of between 12% and 18% (e.g. a resident shopping and working at 58 Fore Street). In addition, the project assumes 'other modes reductions': that 35.8% of the residential uses and 18% of the non-residential uses will be non-automobile trips and reductions. These reductions are based upon available information from American Community Survey data. Following these adjustments, the project is expected to generate 506 trips during the AM peak hour and 585 trips during the PM peak hour. City staff has reviewed the methods used to estimate traffic from the project and finds the methods to be reasonable.

I would note that a key assumption is the reduction of vehicle trips from the site due to non-motorized modes of transportation. Accordingly, the implementation and monitoring of a TDM plan and other potential mitigation that has achievable strategies linked to these assumed vehicle trip reductions of these magnitudes is critical and as such will be an important element of the TMP and Site Plan approvals.

The ability of the street system to absorb the increased traffic without decreasing the level of service below an acceptable level.

- *The MDP traffic study documents that many localized intersections/roadways will operate at acceptable levels of service with the primary exception of Franklin Street from Commercial Street to I-295/Marginal Way. Accordingly, mitigation requirements may be required along Franklin Street and those will be determined through the TMP permitting and site plan approval process.*
- *Other locations including the Commercial Street/High Street intersection and the Congress Street/Washington Avenue/India Street area will need further evaluation during the TMP and Site Plan approval process which may include additional traffic analyses and identification of potential mitigation strategies.*

MaineDOT Traffic Movement Permit

It is recommended that a phased TMP for this project be required given the location of the project in an area that is experiencing significant growth and that the project will likely be constructed over many years and with that the transportation context and infrastructure should be evaluated at a time when future conditions are better known when site-generated traffic is being added to the system.

To Mr. Errico's final two subjects on mitigation and phasing, a condition of approval is proposed to require the TMP to be phased. Regarding off-site mitigation of any impacts related to this site, in order to guide mitigation, a menu of potential traffic-related public improvements will be developed for known areas of impact, to be evaluated as development proposals are brought forward. The final list may be altered based on the phased TMP review, and supplemented according to Site Plan Review transportation standards. Based on traffic analysis to date, Planning staff has identified the following focus areas:

- The design and construction of the Fore Street Connector;
- Franklin Street, particularly at the intersections of Franklin with Marginal Way/Fox/Somerset;
- The Commercial Street Corridor, particularly at the intersection of High and Commercial;
- The development of a robust Traffic Demand Management Plan to identify trip reduction targets and implementation strategies for reducing single occupant vehicle trips to this site.

It is anticipated that if new generators of traffic or significantly different circulation patterns emerge as subsequent phases are submitted, the menu and responses will be revisited. As a rubric for evaluating traffic impacts over the course of a full multi-year buildout of the site, this allows for flexibility and proportionate implementation. This menu of items has not yet been finalized, as it may be expanded or altered in the course of the Traffic Movement Permit review, but is listed here to establish expectations for future application phases.

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

Due to historic development patterns, as well as topography, Eastern Waterfront policy direction, and the historic district, the internal circulation plan does not propose a traditional street grid. However, it does create multiple new connections to the adjacent street system. The internal, private street system both adheres to existing patterns on the site in the historic district by maintaining the linear presence and pattern of alleyways there, and connects to the street system at Fore Street and through pedestrian and vehicular entrances where currently there are none. The view corridors also align with the streets that intersect with Fore Street. These view corridors run perpendicular to the linear rhythm of the historic buildings and the spaces between them. The Eastern Waterfront masterplan anticipated this to allow for respect of the historic fabric while also allowing for greater connectivity to the surrounding residential neighborhood on the eastern portion of the property. The site also extends the existing street network from the west through the connection with Thames Street. Internally, the project proposes streets designed as shared spaces for vehicles and pedestrians.



Figure 13, Supplemental Circulation Plan

l. ***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.***

Caitlin Cameron, Urban Designer, addresses this standard in her initial memo for the November 22nd workshop (Attachment XVI), and an updated memo for the December 20th Public Hearing (Attachment XVII). These final comments are central to the overall review of the Master Development Plan, respond to the Comprehensive Plan and adopted Design Guidelines, and also to comments received over the course of the review of the application. A recommended condition is for the design review comments to serve as guidance for future submissions for this site.

m. ***Inclusive of provisions for the ownership and maintenance of usable open space as appropriate.***

As part of the Historic District designation, the City Council accepted a public easement option from CPB2 LLC to allow public visual and physical access across the site. The option is for a 50' wide easement, with final location and configuration to be determined over the course of site plan review, with the agreement of the applicant and approval by the Planning Board and Corporation Counsel. This application precedes site plan review, the easement details are not required to be finalized at this stage, but the MDP review offers an opportunity to envision the easement's role (as shown on Appendix P4, Overall Site Master Plan) in the context of the entire site.

The layout of the Eastern Promenade trail shifts towards to water's edge, but public access to this public resource is unchanged.

The master development plan shows courtyards, plazas, landscaped areas, all with potential to serve as gathering spaces for residents, customers, and visitors. At this stage, the application narrative has indicated that the applicant anticipates definition of open space ownership, access and maintenance to be determined over the course of Subdivision review for the site.

n. ***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.***

Phasing is not required at this stage. As site plans and/or subdivision applications are submitted, this standard will be applied to all increments of development for the site.

XIV. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the master development plan for 58 Fore Street.

XV. PROPOSED MOTIONS – MASTER DEVELOPMENT PLAN

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 December 20, 2016 for application #2016-224 relevant to the master development plan regulations; and the testimony presented at the Planning Board hearing:

a. The Planning Board (**waives/does not waive**) the Technical Standard for flooding as provided Technical Manual III. 4. E.(2) Waiver of the flooding standard due to direct discharge into the ocean, a great pond, or major river segment.

b. The Planning Board finds that the plan **is/is not** in conformance with the master development plan standards of the land use code, subject to the following conditions of approval, which must be met prior to the submission of a Level III application unless otherwise stated.

c. The design review contained in Attachment XVII, shall serve as design guidance for this approval, and all future Site Plan submissions shall be responsive to the Areas of Focus and *Design Parameters* outlined in that December 15, 2016 document.

d. Consistent with the December 7, 2016 finding and recommendation of the Historic Preservation Board, the applicant shall provide revised plans reflecting the change to the Fore Street townhouses identified as needing to be removed from the Master Development Plan in order to have the plan be consistent with Portland's Historic Preservation Ordinance. Future design proposals or substantive changes to the Master Development Plan may be considered for additional review provided they can demonstrate consistency with the Historic Preservation Ordinance and that they do not materially diminish the visibility and integrity of the historic district.

e. The final revised Master Development Plan plan set shall label the street extension from Thames Street Extension to Fore Street as *Potential Fore Street Connector,* and strike the current label of *Connector Street (By City)*.

f. The final revised Master Development Plan plan set shall clearly label current property lines, and indicate any areas of encroachment on abutting property lines.

g. All documentation of Right, Title and Interest on property pending acquisition shall be included with application materials prior to any review of Level III Site Plan and/or Subdivision plan applications.

h. Prior to review of any Level III Site Plan and/or Subdivision Plan applications, the terms of the December 5, 2016 Purchase and Sale Agreement for the Thames Street Extension, particularly with regard to section 10, *City Conditional Commitment to Construct Thames Street Extension,* shall be met.

i. The applicant shall pursue a phased Traffic Movement Permit, the approval of which is required for any qualifying Level III Site Plan and/or Subdivision Plan application.

j. The applicant shall coordinate with City regarding the design of the public access easement area and its transition to and integration with the adjacent City-owned waterfront parcel, to assure a well designed public space that enhances the public access to and the enjoyment of the waterfront.

k. Transportation review of Level III Site Plan applications to implement phases of this MDP will follow guidance provided in this document regarding specific focus areas.

l. As part of future Site Plan approvals for the site, the applicant shall do one or a combination of the following to insure the input of wastewater into the City's system from the 58 Fore Street site is offset or mitigated to avoid additional contribution to combined sewer overflows (CSO's) at the India Street CSO:

- Collect and store wastewater onsite, and regulate discharge to the City's combined sewer system during active wet-weather CSO conditions.
- Perform offsite mitigation of stormwater input into the City's combined sewer system in proportion to the estimated amount of wastewater generated for that phase.
- Make a financial contribution to a City project within the India Street CSO collection area that mitigates stormwater input into the City's combined sewer system in proportion to the estimated amount of wastewater generated for that phase.

Final wastewater impact mitigation strategies shall be approved by the City of Portland’s Department of Public Works.

XVI. ATTACHMENTS

MATERIALS ADDED SINCE OCTOBER WORKSHOPS

I. Applicant Response
II. Engineering Review
III. Fire Comments
IV. Revised TIS
V. TDMF

MATERIALS ADDED SINCE NOV.15 WORKSHOP

VI. B6EWMP Purpose Statements
VII. 11/10 Letter to HP Board
VIII. 11/17 Applicant response Letter

IX. 10/28 CMP Ability to Serve Letter
X. 11/2 Unitil Ability to Serve Letter
XI. 11/17 PWD Ability to Serve Letter
XII. 11/17 Additional Renderings
XIII. 11/15 Presentation Slides
XIV. 10/11 Email from Zoning Administrator
XV. DAndrews 11_9 Memo
XVI. Design Review

MATERIALS ADDED SINCE NOV.22 WORKSHOP

XVII. Design Review 12_15
XVIII. Historic Preservation Board Findings 12_15
XIX. Wastewater Capacity Memo 12_7
XX. Traffic Review Comments
XXI. Purchase & Sale Agreement
XXII. Applicant's Public Comment Response 12_14
XXIII. Applicant's Additional Information Letter 12_2
XXIV. Applicant's Traffic Submittal 12_7

PUBLIC COMMENTS

1. Lowell 10_3
2. Sawin 10_4
3. Vestal 11_15
4. GPL 12_6
5. Millard 12_9
6. GPL 12_15
7. Adams 12_15
8. Hamill 12_15
9. Haley 12_15
10. Vestal 12_15
11. Oldham 12_16
12. Stevens 12_15
13. Murray 12_16
14. Snyder 12_16

APPLICANT'S SUBMITTAL

A. Cover letter, TOC, Application Form
B. Application Fees
C. Project Description
D. Master Development Plan Review
E. Evidence of Right, Title and Interest
F. Evidence of State, Federal Approvals
G. Assessment of Zoning

PLANS

P1. Cover Sheet
P2 Existing Conditions Plan
P3 Overall Existing Conditions Plan
P4 Overall Site Master Plan
P5 Concept Dev. Block Plan
P6 Conceptual Grading Plan
P7 Utility Plan 1
P8 Utility Plan 2
P9 Concept. SW Treat. Plan
P10 Vehicle Circulation Plan
P11 Land Transfer Proposal Plan
P12 Boundary Survey
P13 Pedestrian Circulation
P14 Illustrative Landscape
P15 Level 15
P16 Level 25
P17 Level 55
P18 Level 85
P19 Section Fore Street
P20 Section Along Waterfront
P21 Section Through Dev Block 4
P22 Section Through Dev Block 1
P23 Section Through Project Site
P24 Fore Street Section Aerial

H. Easements and Other Burdens
I. Waiver Requests
J. Evidence of Financial and Technical Capacity
K. Conceptual Site Plan
L. Stormwater Management
M. Traffic Analysis
N. Utilities Analysis
O. Boundary Survey
P. Site Law Determination Letter
Q. Neighborhood Meeting Invitation
R. Trip Generation – Bay House Supplement

Plan
P25 Rendering View Key
P26 Rendering 1
P27 Rendering 2
P28 Rendering 3
P29 Rendering 4
P30 Rendering 5
P31 Rendering 6
P32 Rendering 7
P33 Rendering 8
P34 Rendering 9
P35 Rendering 10
P36 Rendering 11
P37 Fore Street Marina
P38 Average Grade Calculations Diagram
P39 Historic District Boundary



PLANT LIST

SYMBOL	TYPE	BOTANICAL NAME	COMMON NAME
TREES – DECIDUOUS			
	STREET TREE	ACER RUBRUM	RED MAPLE
		OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM
		ULMUS AMERICANA	AMERICAN ELM
	SHADE TREE	NYSSA SYLVATICA	TUPELO
		QUERCUS BICOLOR	SWAMP WHITE OAK
		QUERCUS PALUSTRIS	PIN OAK
	ORNAMENTAL TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		CRATAEGUS CRUS–GALLI VAR. INERMIS	THORNLESS COCKSPUR HAWTHORN
		MAGNOLIA VIRGINIANA	SWEET BAY MAGNOLIA
	WATERFRONT TREE	AMELANCHIER CANADENSIS	EASTERN SERVICEBERRY
		NYSSA SYLVATICA	TUPELO
		SASSAFRAS ALBIDUM	SASSAFRASS
SHRUBS AND GROUNDCOVERS			
	PLANTING ZONE 1	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH
		CORNUS CANADENSIS	BUNCHBERRY
		ILEX VERTICILLATA	WINTERBERRY
		OSMUNDA CINNAMOMEA	CINNAMON FERN
		TIARELLA CORDIFOLIA	FOAMFLOWER
		VIBURNUM ACERIFOLIUM	MAPLELEAF VIBURNUM
	PLANTING ZONE 2	ARCTOSTAPHYLOS UVA–URSI	BEARBERRY
		ARONIA MELANOCARPA	BLACK CHOKEBERRY
		COMPTONIA PEREGRINA	SWEETFERN
		MYRICA PENSYLVANICA	NORTHERN BAYBERRY
		RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC
		RHUS TYPHINA	STAGHORN SUMAC

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

LEGEND

- TRASH / RECYCLING RECEPTACLE
- BENCH
- BIKE RACK
- BOLLARD
- STREET LIGHT
- MARINA CART
- FENCE
- 1FT PAVERS
- 2FT PAVERS
- BRICK PAVING (BUILDING 1)
- WOOD DECKING
- WATERFRONT WALKWAY
- ASPHALT
- TRAIN TRACKS
- CONTRIBUTING HISTORICAL BUILDING
- PROPOSED BUILDING

PROPERTY LINE LEGEND

- EXISTING OFFSITE PROPERTY LINE
- EXISTING 58 FORE STREET PROPERTY LINE
- PROPOSED PROPERTY LINE

09/16/2016 (REVISED 05/25/2017)

Scale: 1" = 50'

STATE OF MAINE
DAVID A. SENUS 10791
LICENSED PROFESSIONAL ENGINEER

WOODARD & CURRAN

C-100

PERMITTING SET

CPB2 LLC
EASTERN WATERFRONT DEVELOPMENT PORTLAND, MAINE

OVERALL SITE MASTER PLAN

58 FORE STREET MASTER PLAN

SCOTT SIMONS ARCHITECTS | MICHAEL BOUCHER LANDSCAPE ARCHITECTURE | WOODARD & CURRAN | THORNTON TOMASETTI | THE BOULOS COMPANY | MASON ARCHITECTS | APPLIED TECHNOLOGY MANAGEMENT | PERKINS+WILL

Planning & Urban Development
Christine Grimando, AICP
Director

To: Brandon Mazer, Chair, and members of the Planning Board

From: Christine Grimando, Planning & Urban Development Director

Date: June 30, 2023

RE: Master Development Plan Pending Proceeding

A question was raised in the course of the review of recent site plan applications for Portland Foreside/58 Fore Street, regarding whether a Master Development Plan (MDP) approved under a previous iteration of the Land Use Code (Code) was subject to the expiration provisions of the current Code, or whether the section in the Code in place at the time of MDP approval (for 58 Fore Street, December 2016, but the question extends to all MDPs) would apply. The Planning & Urban Development Department has determined the current Code's expiration section applies to this and other previously approved MDPs. Discussion of prior and current expiration sections, how pending proceeding is determined, and how the applicable Code standard is determined follows below.

MDP Expiration Under 2016 & 2023 Versions Of The Land Use Code
The current Code states:

> *Master development plans approved under this article shall expire six years from the date of approval if no site work or building construction has commenced.* (sec. 14.12.2) and *Master development plan approvals may be extended by the Planning Authority up to two times, for up to two years from the date of expiration of the original master development plan approval.* (sec. 14.13.4).

The Code in effect in December 2016 states:

> *Master Development Plan approval may be sought separately or currently with the Phase I Final Level III site plan approval, and shall have an initial approval period of six (6) years, with potential extension periods as provided for in section 14-532(d). (14-524(f)(i))*
>
> *Prior to the expiration of the Master Development Plan, an applicant may submit a written request to the Planning Authority for an extension of a Master Development Plan approval and associated waivers. Only two (2) such extensions may be granted by the Planning Authority, and*

each such extension shall be limited to two (2) years from the date of expiration of the Master Development Plan. (14-532(d))

The expiration language currently in effect means that once site work has commenced, the MDP won't expire, whereas the 2016 MDP expiration language included a finite 10 year end, assuming two two-year extensions were granted. Under the current and 2016 versions of the Code, Individual Site Plan approvals, including those that are part of an MDP, expire in one year, with possible extensions up to a maximum of three years. Lapses in construction for a period in excess of 12 months will also result in a site plan expiration. (2016 14-532(c)(1), 2023 14.12.1; 14.13.3)

Pending Proceeding

Pending proceeding is a term that, in context of development applications, indicates that substantive review has begun, which, in turn, determines which set of regulations an application is reviewed under. For the purposes of applications that are within the jurisdiction of a land use (Historic or Planning) Board, pending proceeding status is conferred when the Board holds its first review, whether that is a workshop or public hearing. For the purposes of administrative/staff reviewed applications, this occurs when the first substantive comments are provided. For applications in-review when the City adopts, through Council action or referendum, amendments to the City Code, it is important to understand whether an application is pending in order to determine what standards they are held to. A submitted application, accepted for the purposes of beginning review, does not have pending proceeding status, but a development application that has been before the Board for an initial workshop does, and may continue in the review and approval process under the Code in effect at the time of the first workshop.

Determining when an application has pending proceeding status is not outlined in the Land Use Code, but there are two references to the term in the Land Use Code: 1) Section 14.5.1 states that voluntary, non-binding pre-application meetings do not confer pending proceeding status; and 2) Section 14.3.2 (formerly 2016 Section 14.524(f)(iv)) states MDP a*pproval 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*.

Sec. 14.3.2 is the reason a subsequent site plan application (or subdivision application where applicable) that is a component of an MDP is still reviewed under the regulations in effect at the time of the MDP approval, even if standards of the Code are amended over time. Pending proceeding status is one of the benefits of an MDP approval, and it offers a degree of regulatory predictability for both property developers and the City for these large multi-year phased projects. Without pending proceeding status, it would be difficult to predict all of the potential regulatory changes that could impact a project that is expected to be built out over years. For instance, if maximum heights were reduced, or minimum parking standards increased (to name a few examples of standards that could change over time in the City's Code), site plans that are phases of previously approved MDPs are not held to more stringent or restrictive standards that were adopted during a valid MDP approval period.

Though an MDP and its associated applications have pending proceeding status for the life of the MDP's approval, nothing *prohibits* an applicant of an MDP approved under a previous version of the Code from seeking review under the current version of the Code. Becoming more conforming with the adopted Land Use Code is generally something the standards encourage; a previous approval may proceed under the Code it was reviewed under, but it is not compelled to remain non-compliant with current standards.

In the event an applicant proposes to develop a site to meet current regulations that differ from the regulations in effect at the time of MDP approval, they may do so. However, substantive changes to an approved MDP would require an amendment, and substantive amendments related to areas of the Code that have been changed since the application was originally approved would be reviewed under the current Code. An applicant with an approved site plan who wishes to make use of a new provision in the Land Use Code is also free to apply for an amendment, and this also could subject them to new sections of the current Code if the amendment broaches sections that have since been amended. For example, a proposed change to the total housing units would be reviewed for consistency not only with residential density standards, but with other applicable Code requirements such as inclusionary zoning; or, as previously mentioned, if maximum heights were lowered since an approval was granted, and an amendment to a prior approval was submitted to alter heights of buildings, the new standards would apply.

Att. D

PLANNING BOARD REPORT
PORTLAND, MAINE

58 Fore Street
Traffic Movement Permit
Project #: 2016-224
CPB2

Submitted to: Portland Planning Board Public Hearing Date: April 25, 2017 CBLs: 018 A001, 018 A002, 018 A003	Prepared by: Christine Grimando, Senior Planner Date: April 20, 2017

I. INTRODUCTION

CPB2 LLC submitted a Traffic Movement Permit (TMP) simultaneously with a Master Development Plan (MDP) application in September 2016, initially reviewed by the Planning Board beginning in October 2016. The MDP was approved on December 20, 2016. Over the course of the MDP review the TMP was given a separate timeline, as it necessitated additional review and analysis and was not a requirement of the MDP. The TMP is for a (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail, which will continue to traverse the site. In addition to the approximately10 acres, the property includes a 13.2 acre submerged land lease, currently containing a marina. There are currently a variety of the uses on the developed site, including storage, office, a marina, event space and the Maine Narrow Gauge Railroad Museum.

There have been two primary prongs of review of the TMP for 58 Fore Street: traffic analysis, and developing a framework for mitigation of the project's anticipated offsite traffic impacts. For a project of this scale, anticipated to be developed over several phases, with traffic impacts diffused over a relatively large study area, determining appropriate mitigation presented distinct challenges and opportunities. City staff and the applicant agreed to pursue a pilot impact fee methodology to account for the phased impacts of this particular site. The process of developing impact fee methodology for 58 Fore Street has the additional advantage of aiding the City's eventual implementation of a new impact fee system.

Key documents from the September submission are included as attachments, supplements through December, and updates to traffic analysis and mitigation since this was last before the Planning Board.

This development is being referred to the Planning Board for compliance with Traffic Movement Permit requirements. A total of 354 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on April 17th and April 18th.

Applicant: CPB2 LLC, c/o Jim Brady

Consultants: David Senus/Mary McCrann, Woodard & Curran; Randy Dunton, Gorrill Palmer; Mary Costigan, Bernstein Shur; Owen Haskell, Surveyor; Perkins+Will, Architect

II. REQUIRED REVIEWS

Review	Applicable Standards
Traffic Movement Permit	14-527(e)(xii), 23 MRSA 704-A, Chapter 305 Rules and Regulations

III. PROJECT DATA

Existing Zoning	B-6 & Eastern Waterfront Port Zone, w/Shoreland & Floodplain overlays. Historic District on a portion of the site.		
Existing Use	Mixed use, including full service marina, parking, warehouses, boat storage, office, event space, blacksmithing.		
Proposed Use	Mixed use (including commercial, residential, office, marina)		
Proposed Development Program	958,679 sf of mixed residential and commercial uses, 435,200 sf parking (736 spaces), and 638 residential units.		
Property Size	+/- 10 acres		
	Existing	*Proposed*	*Net Change*
Building Footprint	111,822 sf	215,306 sf	103,484
Building Floor Area	167,500 sf	958,679 sf	791,179
Impervious Surface Area	335,000 sf	409,000 sf	74,000
Parking Spaces (on site)	+/-105	736	631
Bicycle Parking Spaces	0	38 racks/78 spaces	78
Estimated Cost of Project	TBD		

IV. EXISTING CONDITIONS & SITE CONTEXT

The project is adjacent to Portland Harbor to the southeast and Fore Street to the northwest. The Eastern Promenade is adjacent to the east; bounded by the harbor and by Fore Street. The property is contiguous with active waterfront uses, bordered by the Ocean Gateway Terminal and near the Maine State Pier, both serving deep water dependent large vessels, including cruise ships. The neighborhood to the immediate north is residential, with Waterville, St. Lawrence and Atlantic Streets perpendicular to the Fore Street-side boundary of the property, and abutted by Munjoy South apartments. Also to the north but immediately west of this residential area is the India Street neighborhood, which contains residential uses and a diverse mix of commercial uses – Shipyard Brewery, parking garages, the shops and restaurants of India Street, hotels, and the Eastern Cemetery.

The majority of the site is located within the B-6 Eastern Waterfront Mixed Zone. The Eastern Waterfront Port Zone (EWPZ) has a depth of 75 feet, and encompasses approximately 1,000 feet of waterfront frontage. In addition to the two base zones, there are multiple other overlays on the property - a portion of the site is in the Shoreland Zone; a small area is partially in the A2 flood zone; and the B-6 portion of the site is included in the Building Height Overlay & Building Envelopes map. The property is a local historic district (as shown on Attachment P39). The immediately adjacent zones to 58 Fore Street are the R-6 residential zone to the east and north, ROS (Recreation and Open Space) to the east, B-6 to the west, and EWPZ to the west and south. A portion of the property is a local historic district.

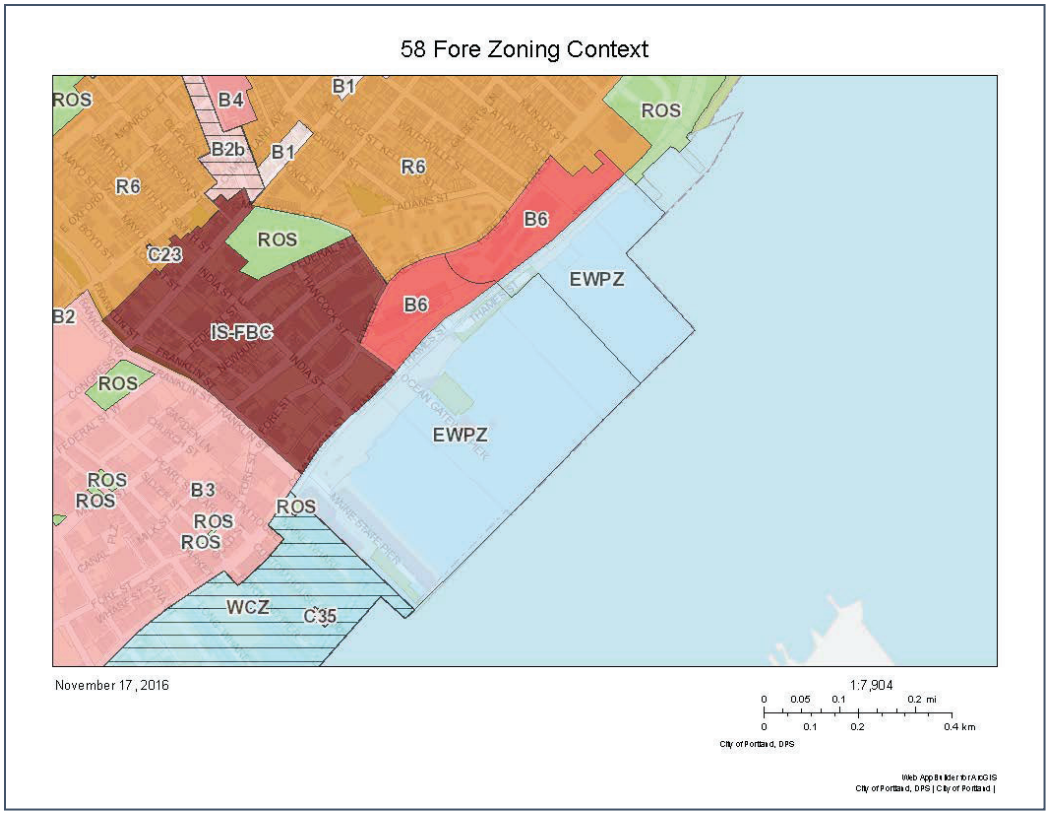


Figure 1, Zoning Context

58 Fore Street had been in continuous use since 1846, when it was established as the Portland Company for the manufacture of railroad equipment. An industrial site at its inception, it continued as one well into the 20th century, continuing to manufacture steel until 1978. It's now occupied by multiple tenants and uses, including a marina with associated parking and laydown areas, the Narrow Gauge Railroad, office, and storage. A 50' wide strip of Maine Department of Transportation (MDOT) land that encompasses both the Maine Narrow Gauge Railway and a public, shared use pathway that is an extension of the Eastern Promenade, maintained by Portland Trails and the City of Portland, bisect the site. Two easements run with the MDOT land.

V. PREVIOUS REVIEWS

A Master Development Plan was approved for the site on December 20, 2016, following three workshops and site walk. The MDP application included the initial TMP and traffic review. The MDP review process incorporated recommendations of the Historic Preservation Board.

This MDP application was preceded in the previous three years by three significant review processes, involving the Planning Board, the Historic Preservation Board and the City Council. In February 2016, following an extensive designation process by the Historic Preservation Board and Planning Board, the Portland City Council voted to designate a portion of the 58 Fore Street property as a local historic district subject to the provisions of Portland's historic preservation ordinance. The Portland Company Historic District as approved by the Council ensured the preservation of seven of the sixteen Portland Company structures on site. Figure 4 is a visual of the historic core of the site and the current historic district in the context of the overall site master plan.

An application for zoning map and text amendments for this site was submitted in August 2014, with the final changes adopted by the City Council on June 1, 2015. The application included a map amendment to rezone the property from the Waterfront Special Use Zone to B-6 and Eastern Waterfront Port Zone, with accompanying text

amendments and amendments to the existing Building Height Overlay & Building Envelopes overlay (Figure 6). There was an extensive, detailed review of the application in 2014 and 2015 leading to a Planning Board recommendation to the City Council on February 24, 2015, and the approval of the application in June 2015.

Below is a chronology of the map and text amendments:

- August 22, 2014. Application submitted to Department of Planning & Urban Development
- September 17, 2014. Applicant's Neighborhood Meeting
- October 21, 2014. Planning Board Workshop
- November 18, 2014. Planning Board Workshop and Site Walk
- January 8, 2015. Staff-Lead Neighborhood Meeting
- February 10, 201.5 Planning Board Workshop
- February 24, 2015. Planning Board Public Hearing
- February 9, 2015, City Council Workshop
- March 30, 2015, City Council Workshop/1st Reading
- June 1, 2015, City Council Public Hearing

The property was rezoned from the now non-existent WSUZ to a combination of B-6 and EWPZ in June 2015. The rezoning application included text, map, and B-6 height overlay amendments. All three of these zoning elements were created to serve the specific needs of the Eastern Waterfront and were a direct result of the recommendations of the Eastern Waterfront Masterplan. The 2015 rezoning extended the existing height overlay, B-6 and EWPZ zones eastward to encompass 58 Fore Street. Previous to the rezoning of 58 Fore Street, these zones were in place on the land immediately adjacent to the southwest, of 58 Fore Street, and in 2015 were extended eastward to encompass the property. The WSUZ was eliminated altogether.

VI. PUBLIC COMMENT

Attached is public comment regarding particular concerns with traffic conditions and impacts at the India Street and Middle Street intersection. Additional public comment regarding traffic impacts arose during the course of the MDP review. Only new comments have been included as attachments but all comments regarding traffic that were submitted when the Traffic Movement Permit was originally submitted can be viewed with the MDP Report here: http://portlandmaine.gov/AgendaCenter/ViewFile/Agenda/_12202016-1888?html=true

VII. TRAFFIC MOVEMENT PERMIT SUBMISSION REQUIREMENTS

The applicant has made submissions regarding traffic analysis and mitigation according to the requirements of 23 MRSA 704-A and Chapter 305 Rules and Regulations. Attached are pertinent items submitted in the course of the MDP review, and items submitted since the MDP approval.

a. Traffic Movement Permit (TMP) Application with Master Development Plan (MDP) – September 16, 2016. (**Attachment A**)
b. Traffic Impact Study (TIS), and Parking Study – September 16, 2016. (**Attachment B**)
c. Bay House Trip Generation and Parking Demands Memo – October 5, 2016. This was requested to help evaluate the appropriateness of the parking ratios used for the project, at the City's request. (**Attachment C**)
d. Revised TIS and Transportation Demand Management (TDM) Plan – October 31, 2016; This includes analysis updates, including revisiting the PACTS model data, trip assignment, expanding trip assignment to include additional intersections, and comparing 58 Fore trip generation with Franklin Street trip generation**. (Attachment D)**
e. Traffic Analysis and Recommendations Memo – December 6, 2016. This addresses point by point the traffic requirements of the Master Development Plan. This information was requested when the TMP

application was moved to a different timeline, so that the MDP application would include sufficient traffic analysis to meet the requirements of the Land Use Code under 14-527(e)(xii), until the TMP could be concluded. **(Attachment E)**

f. Impact Fee/Mitigation Memo – April 20, 2017. This summarizes a methodology and associated results of an impact fee calculation completed for the project. An impact fee methodology was requested by the City to identify a potential contribution as mitigation for the proposed impacts in the study area, with particular attention to short term improvements on Franklin. **(Attachment F)**

g. Supplemental Traffic Analysis Memo – April 20, 2017; This memo addresses comments to the applicant by the City in January. The key items of this memo included revised study area, revised capacity analysis, and a discussion on the Transportation Demand Management (TDM) plan. It also identifies and responds to the mitigation as required by the City. **(Attachment G)**

VIII. REVIEW OF TRAFFIC MOVEMENT PERMIT

Off-Site Mitigation

City staff has communicated extensively with the applicant over recent months to advance the traffic analysis for the project, as well as approaches to TMP-related mitigation of anticipated off-site traffic impacts. The application proposes a new model for mitigation for the City in the form of a pilot impact fee system. The fee system brought forward with this application (see Attachment F, 4-20-2017 summary memo from Gorrill Palmer) is a PM Peak Hour cost per-trip end fee ($650), for each of 585 total PM Peak Hour trip ends (approximately $380,000), to be paid as phases of the project are brought forward for consideration. This approach allows mitigation for short term improvements to proportionally and accurately track the development as it unfolds rather than a lump sum payment based on anticipated buildout and anticipated impacts. It also keeps impact fees predictable for the applicant and the City. Anticipated improvements to the Franklin Street corridor, based on Preliminary Design Report data, formed the basis of the analysis, as financial contributions to this corridor would produce significant traffic benefits for the study area. Though the analysis focused on Franklin Street, the City would have the discretion to apply impact fee contributions to other critical locations in the study area, depending on needs and priorities at the time of each phase of construction. In addition to offering an acceptable system for mitigation of traffic impacts for this particular, phased project, it also creates a helpful template as the City explores implementation of impact fee systems city-wide.

The impact fee system described in Attachment F would account for the project's off-site mitigation for the purpose of fulfilling the requirements of the Traffic Movement Permit. There may be other, related impacts the applicant would be obligated to over the course of site plan review related to sidewalk improvements, access and circulation, and associated site plan standards that are not encompassed by the TMP. TMP mitigation also does not include any costs that may be associated with the design and construction of the Fore Street Connector, as depicted in the 58 Fore Street Master Development Plan.

Transportation Demand Management

This TMP assumes robust trip reductions based on various factors, one of which is an aggressive and successful Transportation Demand Management plan for each phase. This applicant has included comments on the future TDM plan in Attachment F, and had previously supplied a narrative on TDM in October 2016. They have asked to bring forward specific TDM actions as part of each Level III Site Plan applicant, in the context of the overall framework outlined.

The proposal to develop the details of the TDM plan at such time as actual development proposals comes forward is reasonable. However, it's important that the Planning Board, applicant, and others understand what is likely to be expected in each TDM phase:

- Each Level III Site Plan will need to include a specific and realistic TDM plan that builds on the plans of earlier phases.
- The first Level III Site Plan will need to have the most details, and explain how the TDM plan is scalable to future phases.
- It is likely that financial, in-kind, and/or other contributions to METRO and other trip reduction activities will be required to achieve the anticipated trip reduction levels. Applicant will consult with METRO as part of each TDM effort.
- The proposed TDM plan for each phase will be evaluated by City staff and/or third parties with specialized experience in TDM implementation as part of the Level III Site Plan review process.
- If it does not appear that the TDM plan will achieve the anticipated trip reductions, the applicant will make adjustments to that TDM plan to improve its planned effectiveness, or the applicant will pay a per-trip impact fee based on the higher trip generation expected.
- Conversely, if the applicant's TDM plan is expected to achieve trip reductions higher than anticipated, the applicant will be eligible for a reduction in the expected trips for that phase and the resultant impact fee cost. However, it should be noted that the current trip reduction levels are already very optimistic and it may be difficult to achieve higher reductions.
- The TDM effort will include annual monitoring at the applicant's expense to determine effectiveness and inform TDM plans for subsequent phases.

Consulting Traffic Engineer Review
Thomas Errico, P.E., consulting Traffic Engineer for the City, has submitted the following comments (included as Attachment 1), based on his initial review of the September submission materials. Each item is now followed by his determination, based on the applicant's subsequent analysis and updated submittals, of resolution in the **Status** section, finding that the application meets TMP requirements.

- *The proposed project is expected to generate 424 new AM peak hour trips and 474 new PM Peak hour trips during a weekday. This level of trip generation requires a Traffic Movement Permit. The applicant submitted a Traffic Movement Permit Application and a Scoping Meeting was held on October 17, 2016. Given that the proposed project is expected to be phased over many years (market driven) and that the eastern waterfront area is experiencing significant growth, I would suggest that the Traffic Movement Permit be structured for an initial development phase. At the October 17th scoping meeting it was requested that a development phasing plan be provided and that information has not been provided. The applicant should provide details on a phasing plan with an initial phase for Traffic Movement Permit considerations.*
  Status: The applicant has provided a likely phasing plan for the project. The Traffic Movement Permit is being issued for the full build project with mitigation/monetary contributions tied to build-out phasing. The trip generation noted above has been updated to reflect staff comments. I have no further comment.

- *I have reviewed the existing base line traffic volumes and I find it to be reasonable.*
  Status: I have no further comment.

- *Based upon information provided by the Planning Department, the applicant has estimated background traffic volumes from other approved and unbuilt developments and I find the estimate to be reasonable.*
  Status: I have no further comment.

- *The applicant estimated trip generation volumes for the project according to trip generation rates from the Institute of Transportation Engineers (ITE). I find the methods used to be reasonable.*
  Status: I have no further comment.

- *The applicant incorporated adjustments to ITE traffic volumes according to inter-captured or shared trip usage and that given the location of the project, mode share adjustment is warranted. According to national research methods, the project can expect a reduction in trips levels – due shared use – of between 12 and 18% entering and exiting the site during the AM and PM peak hours. I find this estimate to be reasonable. For Mode Share adjustment (walk/bike/transit), the applicant is estimating a reduction of 35.8% for most project uses (the hotel reduction was assumed to be 10%). When considered in combination with the fact that the project is not taking credit for existing site traffic, I find the modal reduction assumption to be reasonable.*
  Status: As noted I find the adjustments to be reasonable, but would note that the reductions will be directly related to the effectiveness of the TDM plan. Accordingly, the details, monitoring and adjustment of TDM strategies will be an important part of ensuring the assumed mode share percentages are realized.

- *At the TMP Scoping meeting the applicant was requested to review information from the PACTS regional travel demand model in estimating the assignment of project traffic to the roadway network. The applicant has provided revised assignment percentages based upon conversations with the staff person managing the PACTS model. No backup information or explanation is provided and thus approval of the assumptions is outstanding. I would note the following:*
  - *No traffic is being assigned to Fore Street to the east and along Eastern Promenade. I do expect some traffic to travel in this direction.*
  - *It appears that 24% of the PM peak hour site traffic is destined to I295 southbound. Of this amount 8% appears to be via Franklin Street and 16% via Veterans Memorial Bridge. My knowledge of local traffic patterns does not support this assignment assumption.*
  - *It is not clear regarding the assumptions used to assigning I295 northbound traffic to Washington Avenue and Franklin Street.*
  - *A significant amount of traffic (17%) is destined to Preble Street during the PM peak hour. It is unclear of the routing to Preble Street Extension.*

  Status: The applicant has provided additional supporting information and based upon guidance from City staff the applicant has revised the trip generation assignment. Final capacity analyses of conditions account for these revisions and accordingly I have no further comment.

- *The general study area for assessing traffic impacts seems reasonable. I would note that at the TMP Scoping meeting, it was requested that the assignment continue to I-295 on Franklin Street and Washington Avenue. This is outstanding.*
  Status: As noted in the previous comment, the applicant has addressed this comment and I have no further comment.

- *The applicant has conducted a traffic analysis using the Synchro/SimTraffic model and I do not find the results to be acceptable. The applicant shall update the model according to the following:*
  - *The results of the capacity analysis indicate intersections currently operate at excellent levels of service. My field observations do not support this conclusion. The applicant shall create a base existing model that is calibrated to existing conditions from a delay and vehicle queue perspective.*
  - *The study area includes some of the most active pedestrian areas of the City and pedestrian movements directly impact traffic operations. The model shall be revised to include pedestrian movements and specific pedestrian signal phasing and timing.*
  - *The study shall document proposed vehicle queue lengths and the adequacy of existing turn lanes to provide adequate storage.*

  Status: The applicant has conducted a refinement of the SimTraffic model and I generally find the results to be reasonable and acceptable.

- *The applicant conducted a safety analysis and the results indicated that two locations within the study area are classified as a High Crash Location, the Franklin Street/Middle Street intersection and Fore Street between India Street and Montfort Street. The applicant has reviewed crash data and has noted winter maintenance enhancements at the Franklin Street/Middle Street intersection is suggested. In general, crash experience is somewhat low in the study area (outside of Franklin Street intersections). There are other non-High Crash Locations that I continue to review with City staff. I will continue to review crash information and suggested mitigation improvement strategies.*
  Status: The applicant has conducted a detailed review of crash reports and their analyses concluded that patterns did not warrant mitigation improvements. I find their conclusions to be reasonable and I have no further comment.

- *The traffic study* (dated October 6, 2016) *does not identify the need for off-site transportation mitigation strategies to address system infrastructure deficiencies and project impacts. I will continue to review information but would note the following:*
  - *As noted previously, the analysis needs to be updated and accordingly conclusions on transportation system adequacy may change.*
  - *The applicant should note any deficiencies in existing traffic control, including traffic signal equipment, coordination, phasing and timing adjustments.*
  - *Given that the applicant is assuming a significant portion of project trips are non-auto trips, inventory and identification of pedestrian, bicycle and transit infrastructure should be provided and discussion on system needs is suggested.*
  - *The study conducts analyses with and without future Franklin Street improvements. Given the uncertainty of implementation, an interim improvement plan may be warranted. For longer-term needs, financial contributions towards the implementation of adopted Franklin Street improvements may be a consideration.*

  Status: At the request of the City, the applicant developed a cost-sharing method associated with implementation of improvements along Franklin Street between Commercial Street and I-295. From that method a monetary contribution amount has been identified and I find this contribution to reflect project mitigation responsibilities associated with the Traffic Movement Permit.

IX. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed Traffic Movement Permit for 58 Fore Street.

X. PROPOSED MOTIONS – TRAFFIC MOVEMENT PERMIT

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 April 25, 2017 for application #2016-224 relevant to the Traffic Movement Permit; and the testimony presented at the Planning Board hearing, the Planning Board finds that the proposed plan **is/is not** in conformance with 23 MRSA 704-A and Chapter 305 Rules and Regulations pertaining to Traffic Movement Permits, subject to the following condition of approval, which must be met prior to the issuance of a building permit:

1. The applicant shall provide Traffic Movement Permit-related off-site mitigation in the form of per PM peak hour trip impact fees for each phase of development, as detailed in the April 20, 2017 Gorrill Palmer memo, *Impact Fee Calculation – 58 Fore Street Mixed Use Development*.

XI. ATTACHMENTS

Planning Board Report Attachments

1. Traffic Engineer Review (memo from Thomas Errico, 4/21/2017)

Public Comment

PC1. Shafer 4_15

Applicant's Submittal

A. Cover letter, Application Form 9-16-2016
B. Traffic Impact Study 9-16-2016
C. Trip Generation – Bay House Supplement 10-5-2016
D. Revised TIS 10-31-2016
E. MDP Traffic Analysis 12-6-2016
F. Impact Fee/Mitigation Memo 4-20-2017
G. Revised Traffic Analysis 4-20-2017

Portland, Maine Yes. Life's good here.

Jeff Levine, AICP
Director, Planning & Urban Development Department

Applicant:	CPB2 LLC c/o Jim Brady PO Box 7987 Portland, ME 04112
Project Location:	58 Fore Street, Portland, ME 04101 CBLs: 018 A001, 018 A002, 018 A003
Project:	58 Fore Street Master Development Plan Traffic Movement Permit
Identification #:	2016-224
Permit Category:	200 Plus PCE
Traffic Engineer:	Gorrill-Palmer Consulting Engineers, Inc. Attn: Randy Dunton, P.E., P.T.O.E. 707 Sable Oaks Drive, #30 South Portland, ME 04106

Pursuant to the provision 23 M.R.S.A Section 704-A and Chapter 305 of the MaineDOT's Regulations, the City of Portland (through its delegated review authority from the MaineDOT) has considered the application of CPB2, LLC, with supportive data, agency review and other related materials on file.

PROJECT DESCRIPTION

The project consists of a (+/-) 10 acre site at 58 Fore Street known as the Portland Company Complex. The proposed development includes retail, office, residential, hotel, restaurant, function space, a marina, and residential units. The site also contains a linear parcel owned by the Maine Department of Transportation that includes the Maine Rail/Trail corridor and the Eastern Promenade Trail/shared use pathway, which will continue to traverse and provide bicyclist and pedestrian access to the site.

Primary access is provided to the site via Thames Street, which will be extended to the project site, and via Fore Street. In addition, a new connector road between Fore Street and Thames Street may be built as a part of a future development phase, but is not required as part of this Traffic Movement Permit. The project is expected to generate 506 trip ends during the typical AM peak hour period and 585 trip ends during the typical PM

peak hour at full build-out. The project is anticipated to be phased and take up to 10 years to achieve full build-out.

The trip generation is based upon the following full build-out development program: 958,679 sf of mixed residential and commercial uses; 435,200 sf parking (736 spaces); and 638 residential units. To achieve these trip end permitted targets, the analysis makes use of trip reductions based upon Shared Use/Internal Capture and Other Modes trip reduction factors. The achievement of these permitted trip levels will rely on a Transportation Demand Management (TDM) Plan to be developed, implemented and monitored as each phase of the development program progresses to meet Site Plan Review Standards though that process.

In the event the development program results in trip levels that exceed the estimated trip generation by 100 trips, a modified Traffic Movement Permit shall be required.

FINDINGS

Based on a review of the files and related information, the City of Portland approves the Traffic Movement Permit Application of CPB2, LLC subject to the following conditions:

MITIGATION

The off-site mitigation attributable to the requested Traffic Movement Permit is intended to ascribe a 'fair share' traffic impact fee to the 58 Fore Street Master Development Plan as detailed in the April 20, 2017 Gorrill-Palmer memo, Impact Fee Calculation – 58 Fore Street Mixed Use Development.

A per PM peak hour trip impact fee of $650 per trip is assigned which must be met prior to the issuance of a building permit based upon each phase's approved traffic analysis and approved TDM plan as part of Site Plan Review by the Planning Board. The fee may be used by the City of Portland for any transportation mitigation or improvement related to addressing the transportation impacts of the project.

By: 

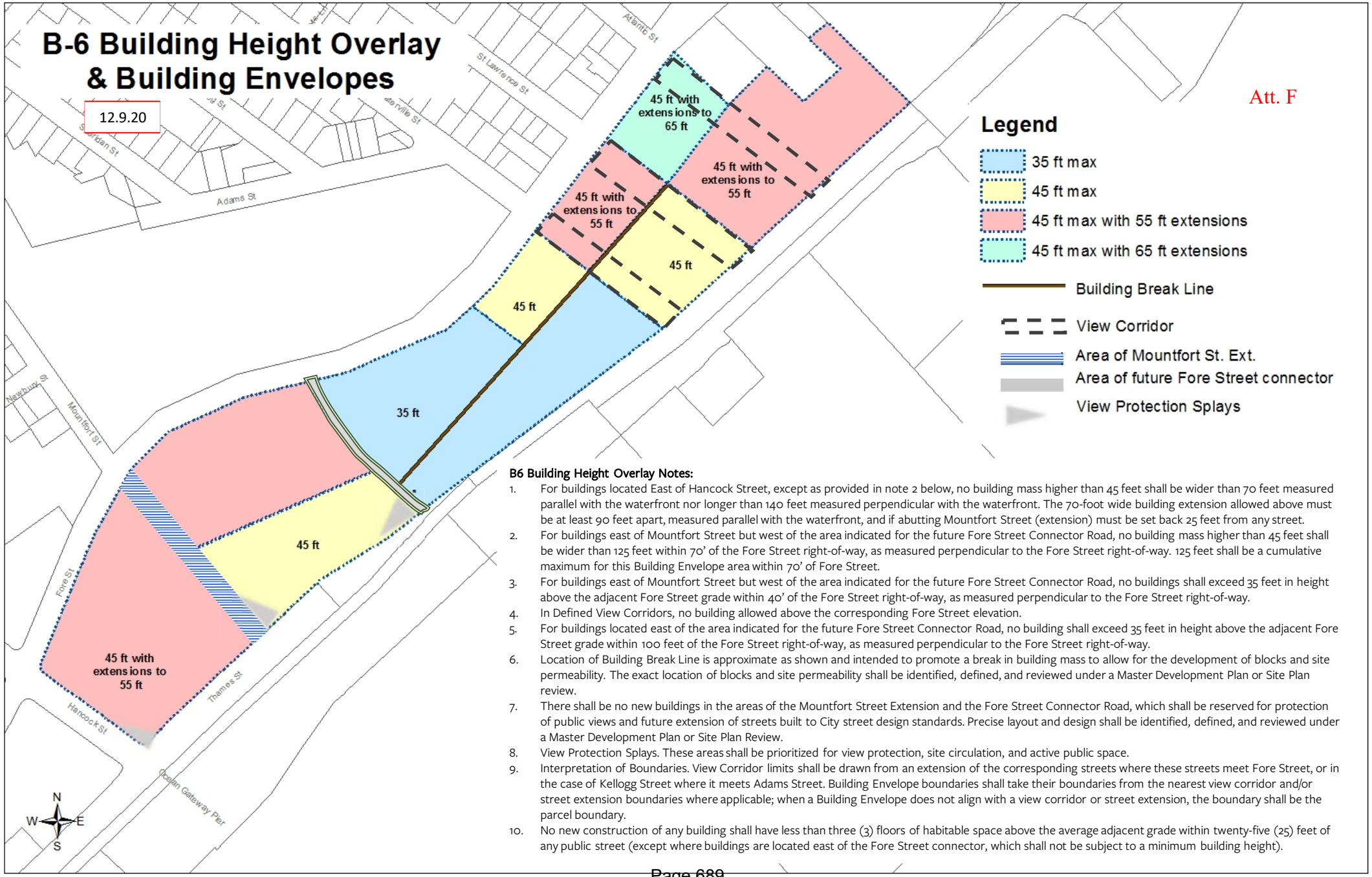
Jeff Levine
Planning & Urban Development Director

Date: 5/26/17

B-6 Building Height Overlay & Building Envelopes

12.9.20

Att. F



B6 Building Height Overlay Notes:

1. For buildings located East of Hancock Street, except as provided in note 2 below, no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be set back 25 feet from any street.
2. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no building mass higher than 45 feet shall be wider than 125 feet within 70' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way. 125 feet shall be a cumulative maximum for this Building Envelope area within 70' of Fore Street.
3. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no buildings shall exceed 35 feet in height above the adjacent Fore Street grade within 40' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. In Defined View Corridors, no building allowed above the corresponding Fore Street elevation.
5. For buildings located east of the area indicated for the future Fore Street Connector Road, no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
6. Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Site Plan review.
7. There shall be no new buildings in the areas of the Mountfort Street Extension and the Fore Street Connector Road, which shall be reserved for protection of public views and future extension of streets built to City street design standards. Precise layout and design shall be identified, defined, and reviewed under a Master Development Plan or Site Plan Review.
8. View Protection Splays. These areas shall be prioritized for view protection, site circulation, and active public space.
9. Interpretation of Boundaries. View Corridor limits shall be drawn from an extension of the corresponding streets where these streets meet Fore Street, or in the case of Kellogg Street where it meets Adams Street. Building Envelope boundaries shall take their boundaries from the nearest view corridor and/or street extension boundaries where applicable; when a Building Envelope does not align with a view corridor or street extension, the boundary shall be the parcel boundary.
10. No new construction of any building shall have less than three (3) floors of habitable space above the average adjacent grade within twenty-five (25) feet of any public street (except where buildings are located east of the Fore Street connector, which shall not be subject to a minimum building height).

City Staff Comments | sent 02.08.23 | PL-002202-2022 | 58 Fore Street
Planner: Charles Tetelman (ctetelman@portlandmaine.gov)

Please provide a comment response document detailing the applicant's response to the City Staff comments provided below. Please be sure to upload the response document and new/updated documents and drawings to the project folder (PL-002202-2022) on ProjectDox (aka ePlan).

Review Criteria:

- *Reviewed under pending proceeding conferred alongside the approval of the Master Development Plan in December 2016 (Level III Site Plan)*
- *Portions of the Block 6 building will be reviewed against the current R-6 Residential site plan and design standards (Major Site Plan)*
- *Historic Preservation Certificate of Appropriateness (Munjoy Hill Historic District + Portland Company Historic District), Historic Preservation Advisory Review*
- *State Delegated Review Traffic Movement Permits*
- *State Delegated Review Site Location of Development*

GENERAL

- The applicant states that state or federal permits can be provided to the City. Please submit copies of the permits.
- A preliminary shadow analysis is required for Major Site Plan applications outside B-3, B-5, B-6, and B-7 zones. Please submit a shadow analysis as portions of the site extend into the R-6 zone.
- Please provide a description of measures taken to prevent snow and ice from falling on adjacent properties, internal streets, and accessible public areas. Include design measures taken to prevent snow and ice from loading or falling onto adjacent areas or public ways.
- Block 6 outdoor areas deviate from approved MDP. Please clarify how Block 6 and outdoor areas will interface with the rail corridor. Will the site be separated from the railroad right of way with a railing / fence?
- Overall Site Plan – Please show the limit of work as part of Phase II development and what structures are associated with other approvals (Phase 1 / Marina structures).
- Overall Site Plan – Please provide a secondary overall site plan that removes notes and references and depicts building footprints overlaid with historic district boundaries, view corridors, and other similar elements.
- Interim Conditions Plan – Will the Block 5 parking lot be operating as a pay-to-park lot?
- Subdivision Plat – Lot "Remaining Land By Developer" still needs to be a numbered lot even with Note 8 explaining intention.
- Elevations – Separate elevations for Block 4 building, and Block 6 building are required. Additionally, if Block 4 and Block 6 building are considered one building per the MDP an elevation including both buildings is required.
- If Block 4, Block 5 (currently not under review or submitted), and Block 6 are going to be considered one building, please provide City Staff with a narrative explaining the design, construction, and function of the building and three structures.
- Floor Plans – City Staff would like to work with applicant to develop a Floor Plan labeling scheme that is consistent between Block 4 and Block 6. Ideally this system would reflect the elevation of each floor rather than the floor specific to each building.

- Construction Management and Phasing Plan – Please submit a Phasing Plan that shows the extent of work completed associated with the 58 Fore Master Development Plan (including Phase 1 and the Marina), work to be completed as part of Block 4 and work to be completed as part of Block 6, work to be completed as part of other applications currently under review or recently approved, and future work on site (ex: Block 5). Please include anticipated timelines and expected length of construction (estimates are fine).

ZONING

- Please provide how height will be calculated as part of this phase of development. Height calculations and average grade points shall be provided.
- The portion of the Block 6 building within the R-6 zoned area is required to meet R-6 dimensional standards. Maximum height in the R-6 zone is 45 feet, with stepback requirements. Height calculations and average grade points taking within the R-6 portion of the building are required to be provided.

TRANSPORTATION

- Maine Department of Transportation and Third-Party Traffic Consultant noted that the applicant has until May of 2024 to complete the project associated with the previously approved Traffic Movement Permit.

  "Automatic Permit Expiration" *A permit will be considered automatically expired if construction of the project has not begun within a 5-year period or completed within a 7-year period of the date of issuance. The applicant must reapply for and receive approval prior to continuing construction or opening a facility.*

  If the construction schedule does not meet the May 2024 deadline the applicant will need to apply and receive approval for a new Traffic Movement Permit.

- The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer.
- Trip reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions.
- The applicant must submit a snow removal plan or show snow storage areas on the site plan. Applicant noted that a third-party will be contracted to manage snow removal and storage.
- Please confirm that proposed compact parking spaces for the entire site will consist of no more than 20% of the total spaces.
- Section 1 Summary notes that the Block 4 parking structure has been reduced 198 spaces (652 to 454). Please provide additional information on how the development of Block 4 and Block 6 will maintain overall parking requirements as laid out in the MDP.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- If construction is anticipated to occur between November 1 to April 15 for this phase of the project, consider adding winter construction guidelines to the Stormwater Management Plan for disturbed areas as required in Appendix A Section 7 of Maine DEP Chapter 500.
- Section 5.4 of the Major Site Plan Application notes that the site will have "adequate sanitary disposal of sewage as further described in Section 5 of this Report." The Applicant should provide an Ability to Serve Letter from Portland Water District or note previous arrangements in the narrative.
- Per Section 3 of the City of Portland's Technical Standards, elevators must be designed to fit an 84-inch x 24-inch stretcher inside. City Staff recommend verifying and noting elevator dimensions in the Life Safety Plan to conform to the City of Portland's Technical Standards.
- Per Section 3 of the City of Portland's Technical Standards, hydrants must have 6 feet of clearance around the circumference. Please verify this clear space is met for all hydrants shown on Sheet C-102 for Block 4.
- On Sheet C-100 there is a callout for an SOE retaining wall with reference to geotechnical plans. However, geotechnical plans were not submitted as part of this application. Please submit geotechnical plans for review.
- On Sheet C-102 for Block 4 and Block 6, there is a callout for conduits for electrical and communications with reference to MEP plans. However, MEP plans were not submitted as part of this application. Please submit MEP plans for review.
- Sheet L-1.1 for Block 4 references an architectural plan. However, architectural plans were not submitted as part of this application. Please submit architectural plans for review.
- For Block 4, the civil plans (Sheet C-100) directs the reviewer to the geotechnical plans for retaining wall details, whereas the landscape plans (Sheet L-1.1) directs reviewer to the structural plans for retaining wall details. Additionally, a Segmented Retaining Wall Detail is provided on the civil plans (Sheet C-202). Please keep the location of detail consistent and revising other references as applicable.
- Please provide Landscape Details that are referenced on Landscape Plans for Block 4.
- Sheet C-100 for Block 4 notes a detail for safety railing can be found on the Landscaping Plans, which then notes a detail for the safety railing can be found on the Architectural Plans. City Staff recommend adding a safety railing detail to the Landscaping Plans or changing the note on Sheet C-100 to direct the viewer to the Architectural Plans.
- On Block 6 Landscaping Plans, many detail callouts are missing reference numbers. Please provide callout reference numbers on the plan set.
- Overhead utilities exist on the south side of Fore Street, will those remain? The Applicant should verify that there is at least 10 feet between the proposed buildings and existing utilities.
- Coordinate location of water meters with Portland Water District (PWD).
- Show anticipated pavement restoration areas within Fore Street due to utility connections, sidewalk reconstruction and construction damage.
- Will the SOE retaining wall on the east side of Block 4 remain permanently?
- Permanent elements within the Fore Street right of way may require approval of a license with the City.
- Plans need to show and label existing and proposed curb.

- Will the applicant be reusing the existing granite curb or installing new granite curb? The applicant shall verify the condition of the existing granite curb and the plans need to be labeled to indicate what will be installed.
- The sidewalk, driveway, curb and street need to be dimensioned on the plans.
- There are existing utilities that conflict with the proposed driveway off Fore Street across from Waterville Street. None of the plan sheets show how or where they will be relocated or adjusted.
- Grading Sheets: Spot grades and slopes shall be added to plans at proposed driveways, egress locations, pedestrian ramps, accessible crossings, sidewalks and steps. The finish floor elevation for all buildings shall be shown on the plans (along Fore Street).
- Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.
- Profile: A portion of the proposed street has a 0% slope. Any proposed street shall be designed to have a minimum grade for the centerline of the street that shall not be less than 0.5 percent.
- The block 4 grading and drainage plan indicates that Jellyfish-2 will be "as-built" prior to this project commencing. It's unclear what phase the Jellyfish unit will be installed in. The concurrent waterfront and utility enabling work phase (PL-00253-2022) calls out a future location of Jellyfish Filter, but does not indicate it will be installed as part of that project. Please clarify when Jellyfish 2 will be installed.
- The applicant should clarify how sanitary facilities associated with the Marina property will be permanently connected to the new sewer system being constructed as part of the block 4 and 6 development. The applicant should clarify the time frame for the removal of temporary sewer holding tanks on marina site. The Interim Marina Site Plan (PL-00289-2022) shows sanitary facilities connecting to an existing Eone pump station on the southside of the railroad tracks. The plan indicates that a force main routes northerly underneath the railroad tracks. It's unclear how this system will be permanently connected to the new sanitary facilities being installed as part of the block 4 and 6 development. Any temporary above ground sewage holding tanks should be eliminated as part of this next phase of development.
- An Erosion and Sedimentation Control (ESC) plan shall be added to the plan set, specific to this project, depicting compliance with all City and State ESC regulations.
- The applicant shall submit a wastewater capacity application for review and approval to the Water Resources division of DPW for this next phase of development.
- The intent of the utility extensions along the limit of block 6 work is unclear.
- The applicant is not showing any external grease traps for any of the proposed development in blocks 4 and 6. The applicant shall confirm that external grease traps are not required for any of the proposed development in these phases. If grease traps are required per City of Portland sewer use regulations, then the plans should be updated to show the configuration and location of each unit. Will grease traps be required for any of the proposed future connections associated with building 3 and 6B? If so, the applicant should show the proposed locations and configurations on the utility plans.
- DPW continues to note that Fore Street will be surface paved, curb to curb, in the early summer months of 2023 as part of final work associated with the Fore Street/Eastern Promenade Sewer Separation project.

- The stormwater management report indicates that 2 Filterra units will be installed to provide treatment for an interim parking lot as required during this phase of development. These Filterra units appear to have been factored into the required treatment for the entire redevelopment project. DPW assumes there is a plan in place to provide permanent stormwater treatment for block 5, and subsequent development to replace the Filterra units when they are removed during future phases of development. Please clarify.
- As part of the recent sewer separation project in Fore Street, the City of Portland completed a curb extension at the NE corner of the Waterville Street/Fore Street intersection. The City installed flush curbing at this location in anticipation of a crosswalk being installed as part of the next phase of the 58 Fore Street project. The City did not complete the ramp work due to safety concerns of implementing a crosswalk ramp without the receiving ramp being in place on the southerly side of the street. The developer should include the work to finish the sidewalk ramp at the NE corner of Waterville and Fore Street in order to establish a new crosswalk at this location as shown on the proposed plans.

City Staff Comments | June 2, 2023 | PL-002202-2022 | 58 Fore Street
Planner: Charles Tetelman (ctetelman@portlandmaine.gov)

The Planning & Urban Development Department and peer reviewers have completed the latest review of the 58 Fore Street Blocks 4, 5, and 6 Major Site Plan application, which was received on April 19, 2023 with revised and new documents submitted on May 26, 2023. Our comments are provided below.

Once all revisions are made please submit a written response to the comments below and upload the response, revised submissions, and new material to Project Dox (make sure all submissions maintain the same file naming format to allow for versioning). Once uploaded, please send an email to ctetelman@portlandmaine.gov notifying the planner of the resubmission. Please ensure that all submitted materials are submitted in a complete and consistent manner. If revised materials are received in an incorrect and inaccurate format they will be determined fatally flawed and you will be asked to resubmit before staff begins to review.

Be advised that additional comments may be forthcoming and other changes may still be required if the comments are not addressed adequately. If you have any questions, please do not hesitate to ask.

Updated 6.6.23 to include Landscaping and Preservation Comments

CRITICAL PATH ITEMS:

- ***Phase 2 Average Grade Calculation***: Point D and Point E are not acceptable for determining the average grade as currently shown. As currently proposed, the applicant is not measuring the grade from the post development grade but instead from elevated patios/walkways, sidewalks, and other artificial features, projecting from the building facades and to be constructed on top of a retaining wall, with no fill between the building and the retaining wall, leaving a void, and bearing no relation to the structural functionality of the building in these locations. As previously stated, points can be taken at regular intervals or at prominent building corners. Measurement is required to be taken where the building foundation meets the post development earth grade.
- ***Fore Street Retaining Wall + Maintenance***: The applicant shall assess the current condition of the Fore Street retaining wall and confirm whether footings or other structural elements being proposed pose a risk to the structural integrity of this retaining wall. This study is required to be completed by a qualified professional and will need to address the following questions: *1) Can the applicant provide past and current elevation data of the Fore Street Retaining Wall for comparison; 2) Who will ultimately be responsible for maintenance once the structure is occupied; 3) How will the wall be accessed for maintenance and/or replacement once the structure/building is erected; and 4) What is the estimated lifespan of the wall?*
- ***Townhome Height (35 ft.)***: Dimensional Standards require that buildings along Fore Street do not exceed the grade of Fore Street by more than 35 feet within 100 feet of the Fore Street ROW. This height restriction is required to be met. The applicant needs to provide updated elevations demonstrating consistency with this dimensional standard.
- ***Geotechnical Study***: The applicant needs to provide a Geotechnical Study from a qualified professional demonstrating the proposed development is structurally sound and must demonstrate that all structures (pins, retaining walls, etc.) provide adequate support for the proposed development. From the MDP: *"Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system."*

- ***Fore Street Public Right-of-Way:*** The applicant is currently proposing a sidewalk, retaining wall, and footings associated with Block 4 and the townhomes encroaching into the City ROW along Fore Street. In order to encroach into the City ROW, a license agreement is required, which the City has not granted to the applicant at this time. The City reiterates that all privatized developed areas, including any necessary retaining walls, pathways, and patios, fronting Fore Street should be shifted outside of the public ROW and onto the property of the applicant. Any building components, except footings, that extend into the ROW are not supported by the City. The City will continue to coordinate with the applicant team to explore the possibility of entering into a license agreement to allow Block 4's footings to encroach into the City ROW, below grade, that is supported by a geotechnical study.

GENERAL

- Please provide snow storage areas on site or provide a management plan for removing snow from site.

ZONING

- Zoning will review building height and other dimensional requirements once a revised average grade based on the above comments is submitted.

TRANSPORTATION

- DPW and Planning provided a suggested cross-section for Fore Street along the proposed project frontage. City Staff understand that the final design of both the private and public elements of the project's Fore Street frontage are contingent upon the outcome of ongoing conversations between the applicant and City around the Fore Street retaining wall and required structural elements of Block 4. While the City notes that the siting of certain structural elements of Block 4 within the public ROW may be unavoidable, the City reiterates its previous comment that all privatized developed areas, including any necessary retaining walls, should be shifted outside of the public ROW and onto the applicant's property. Impacts to the right-of-way should be minimized to the greatest extent possible to allow for robust inclusion of active transportation space in order to maximize street activation and human safety.
- City staff will provide a final determination on the need for a modified or new MaineDOT Traffic Movement Permit.
- The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.
- The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.
- All submitted plans depicting parking shall provide dimensions according to the City of Portland Technical Manual.

- The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changes to methods used in the traffic study noted above.
- The proposed details are not compliant with City's standards (for example VERTICAL GRANITE CURB, BRICK SIDEWALK and CAST IRON MANHOLE COVER AND FRAME). City Staff recommends that the applicant review and revise all the proposed Site, Sewer, Storm Drain and Landscape details to meet the requirements of the technical manual. They should also state the location of the details in the installation note.
- A Driveway Apron detail was not included in the submitted plan set and should be added. The proposed driveway apron is required to be designed per the City's Technical Manual Section 1 and the City's Sidewalk and Driveway Apron Material Policy.
- According to DPW there is an existing utility valve that appears to be within the limits of the proposed driveway.



- The applicant has noted that the existing Granite Curb will be reset. The applicant will be responsible for ensuring that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation / during construction.
- DPW understands that the applicant is coordinating the relocation of the overhead utilities and poles with Central Maine Power. The applicant is responsible for ensuring that the design / location of the proposed building maintains the required offset from existing overhead utilities if the building is constructed prior to the utility relocation. Be aware that the curb line shall not be extended into the existing pavement to accommodate future utility pole relocations if the coordination is not completed before the building is constructed. Additionally, DPW is requesting all overhead utilities and related infrastructure to be shown on all plans and elevations.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- DPW's project manager for the Fore/Eastern Promenade Sewer Separation project is available to meet onsite to discuss coordination of the two projects including the proposed crosswalk at Waterville and Fore.
- The applicant shall clarify how the marina sanitary sewer force main will connect to the new sewage pump station being installed as part of the Phase 2 (block 4-6) work. This may require final approval for the minor site plan amendment PL-002252-2022. Applicant shall finalize plans associated with PL-002252-2022 before receiving approval for this site plan.
- The applicant shall update the project's wastewater capacity application, previously sent to DPW water resources engineering to include projected flows from block 5. The application on file does not include this information.
- The applicant had previously noted that placement of grease traps associated with block 6 were still being determined and they would appear on subsequent utility plans. This updated plan set still does not include any grease traps. Similarly, if any grease traps are required for the recently added block 5 work they should be added to the utility plan. All sizing and configurations of grease traps shall be in accordance with section 2 of the technical manual.
- An oil water separator has been designed to treat flows coming from an internal parking garage as part of the block 4 work. The applicant shall confirm oil water separators are not required for any internal parking areas associated with blocks 5 and 6.
- Several sewer service pipes are shown with a slope less than 1/8 in/ft. Based on the City of Portland Technical Manual it is stated that, "All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed." We recommend the slopes for sewer service pipes be revised to meet City standards or a waiver is requested if this is not achievable due to existing infrastructure grades.
- Phase 2 Civil Plans and Details Sheet C-102: There are catch basins with a rim elevation at the same elevation as adjacent spot grades provided (AD11, CB7, CB8). We would recommend additional spot grading or adjustment of adjacent grades or rim elevations to promote positive drainage towards the catch basins.
- Phase 2 Civil Plans and Details Sheet C-102: AD12 has a rim elevation of 14.80' based on Sheet C107 – Civil Pipe & Structure Tables. The linework for SMH-14 is covering the adjacent spot grade, but it appears that the adjacent spot grade is 14.7'. If this is in fact the case, we would recommend grading be revised in this area to promote positive drainage to AD12.
- Phase 2 Civil Plans and Details Sheet C-102: It is unclear how the podium area on the east side of Block 4 will drain. The provided spot grades around the podium are 23.89' with adjacent spot grades all being higher than these points making this area a low point. We would recommend considering the need for drainage infrastructure or revising proposed spot grades to drain to proposed storm drainage infrastructure.
- Phase 2 Civil Plans and Details Sheet C-104: Pipes S16, S14, S15, and S33, are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter shall not be connected into a sanitary manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.
- Phase 2 Civil Plans and Details Sheet C-104: the label for SMH 14 is covering the label for the sewer pipe. It is unclear which sewer pipe in the pipe table (Sheet C-107) is between SMH 14 and SMH 6.

- Phase 2 Civil Plans and Details Sheet C-107: Several storm drain pipes are shown as having slopes less than 0.005 ft/ft with some drain pipes shown as being placed flat. We would recommend providing a minimum of 0.005 ft/ft slope for all storm drain pipe to ensure positive drainage. Phase 2 Civil Plans and Details Sheet C-203: There are several area drains on sheet C-107 that are proposed to be 1' diameter. We would recommend a detail be provided for the type of grate to be used for these structures.
- Phase 2 Civil Plans and Details Sheet C-204: The applicant is proposing to install a tree over the top of proposed subsurface R-Tank #2. Based on available literature of R-Tank systems, it is not recommended to place large trees over these systems. We would recommend the applicant confirm that this is acceptable with the manufacturer or remove the proposed tree.
- CB 27, SD123, CB28, SD124, CB21, and SD57 on Sheet C-102 are not seen on the Pipe & Structure Table (Sheet C-107).
- CB13 has a rim elevation of 14.40 based Sheet C-107 – Civil Pipe & Structure Tables. Sheet C-102 shows a spot elevation of 14.55 on CB13. Please confirm the correct elevation and revise as necessary.
- The Major Site Plan PFDC Phase 2 Checklist notes that "directional flows of all proposed sewer and stormwater infrastructure" are required on utility plans. Please provide flow direction arrows for all proposed sewer and stormwater infrastructure in accordance with this requirement.
- Please provide a detail showing storm drain pipe connections. For instance, SD39 is shown to connect into SD40 on Sheet C-102, with no catch basin or drain manhole.
- Several area drains on Sheet C-107 are listed with a diameter of 1' and a pipe of 10". The applicant has also provided a detail of the area drains on Sheet C-203. There is a note on the proposed detail which states that the diameter of the hole should be 3" larger than the inside diameter of flexible pipe or the outside diameter of rigid pipe. Based on the detail provided, and the proposed sizes of the area drain and storm drain pipe, it is unclear how there will be sufficient room to accommodate the pipe within these structures.
- SW Management Plan Comments:
    - Section 1.3 – Proposed Development: The Applicant indicates that Jellyfish Filter 2 will be relocated and invert elevations adjusted as part of this project. However, it is not clear on the plans where the filter will be relocated or what the adjusted elevations of the inverts are. We would recommend the Applicant clearly show where the filter is to be relocated and provide updated invert information for the filter.
    - Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates that they will continue to coordinate with MaineDEP to obtain approval for reduced water quality volume. It is recommended that the applicant provide documentation stating that a reduction in required water quality volume is accepted by MaineDEP prior to final approval.
    - Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant states that the Jellyfish Filters are sized to meet flow from 1-inch of runoff. It is recommended that the applicant include a 1-inch storm in the HydroCAD model to ensure the Jellyfish sizing meets the flow requirements outlined in the MaineDEP proprietary BMP approval letter.

- Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates they are coordinating with the manufacturer on approval of the Jellyfish Filter design and can provide a manufacturer letter of approval. Please provide approval letter once received.
- HydroCAD – Pond 12P – Jellyfish 2: It appears that the applicant is modeling the bypass weir as device #3. If this is the case, the invert elevation used in HydroCAD does not match the elevation shown for the Peak Diversion Jellyfish Filter #2 Detail on Sheet C-206. Please confirm which elevation is correct and revise the other as appropriate.

LANDSCAPING & ENVIRONMENTAL QUALITY (*updated 6.6.23*)

- Ensure that a safe, ADA compliant alternative trail route is available during construction
- Existing conditions and demolition 1&2 - Show tree protection extents around existing vegetation being preserved on site, include note directing contractors to comply with section 4.3 of the technical manual for vegetation preservation and figure IV in chapter 4 of the technical manual standards for Landscaping and Landscape preservation.
- Existing conditions and demolition 1 - please ensure locations of all fuel lines, water lines and other buried utilities that are noted to be confirmed in field by contractor have their final verified locations documented in As-Built plans for city records. (Thank you)
- Existing conditions and demolition 2 - Please show existing esc protection around existing soil stockpile area, or update drawing with note to indicate MDEP compliant stockpile coverage / protection measures exist in place (and are to be maintained / not disturbed when possible)
- Existing conditions and demolition 1 - Show existing bollards in trail on existing conditions / demo plans. Clarify removals of any old, preexisting trail bollards within the project area with notes / call outs in plans.
- L.10 Sheet notes: Note 4 and other notes should be revised to reflect Maine certified arborists or other professionals involved in site construction / landscape approvals / acceptance. Note refers to California certified arborist.
- L1.0 Planting area - provide planting information on species types and locations. All proposed species should meet section 4.5.1 site landscaping design standards from chapter 4 of City technical manual. Plants with proven salt tolerance for any locations along streets, shore areas or heavily used walkways that will receive deicing salts in winter should be prioritized.
- L1.0 Planting areas - Do not plant any species with unkempt habit, or that would create site line issues for trail users between pathway types, including rail edges at any intersections in high traffic areas. Certain species that have spreading and naturalizing tendencies, such as Rhus aromatic 'gro-low' can over reach beds and require more maintenance if in pedestrian environments. Consider alternate species, like myrica gale or aronia melanocarpa ,comptonia, Gaylussacia baccata, Vacciniums or other similar species that are more contained in beds where pedestrian activity is anticipated. Other species for consideration could include. Rhus aromatica is appropriate for massing or naturalized conditions where less containment and maintenance is required.
- L 1.0 Eastern Trail Shade tree concern - The allocation of space from the trail and rail realignment with various fuel lines /other utilities along the marina edge do not create any opportunities for shade trees along the trail. This would be unfortunate for trail users and future residents alike. Would any possibility for some shade tree locations exist within the Marina enclosure, further away

from underground utilities? Assuming this is possible, shade tree locations at a consistent interval would be ideal. With overhead lines removed, larger canopy species might be a possibility. There could include swamp white oak,red oak, pitch pine, white cedar, which are some example species for coastal maine natives that could be appropriate for this application.

- L 1.0 Eastern Trail - No detail is provided for seawall in this submission. Landscape plan references "civil plan" for additional detail on wall / edge condition between proposed stonedust pathway and marina property line. Civil plans in this submission then references a note 3 as seawall plans submitted under separate cover in a different amendment submission. Include any detail or plan references on any sheet within same submittal set and ensure all discipline drawings are accurate and cross referenced appropriately.
- L1.0 Sea Wall - Ensure any walls and fences comply with 4.5.7 of chapter 4 in technical manual. Provide section and detail drawing information on bollard and chain, sea wall, and other seawall related elements.

City Staff Comments | July 26, 2023 | PL-002202-2022 | 58 Fore Street
Planner: Charles Tetelman (ctetelman@portlandmaine.gov)

The Planning & Urban Development Department and peer reviewers have completed the latest review of the 58 Fore Street Blocks 4, 5, and 6 Major Site Plan application based on revised documents and drawings submitted June 23, 2023.

Once all revisions are made please submit a written response to the comments below and upload the response, revised submissions, and new material to Project Dox (make sure all submissions maintain the same file naming format to allow for versioning). Once uploaded, please send an email to ctetelman@portlandmaine.gov notifying the planner of the resubmission. Please ensure that all submitted materials are submitted in a complete and consistent manner.

Be advised that additional comments may be forthcoming and other changes may still be required if the comments are not addressed adequately. If you have any questions, please do not hesitate to ask.

PRIORITY ITEMS:

- ***Foundation Plan, Overall Site Plans, and Unified Floor Plans***: The following drawings and supporting documents are still needed:
    - Full Foundation Plan. This plan should clearly demonstrate that the project consists of one building with a common foundation and three separate towers. Additional information has been submitted since the initial application showing the location of the plinth, but the full extent of the foundation, and how it relates to/differs from the common base is still not discernable in the materials.
    - Overall Site Plan that includes the extent of work being proposed as part of the Phase 2 Development on a single sheet. This has been previously requested and still is outstanding.
    - Unified and Complete Floor Plans that include Block 4, Block 5, and Block 6 structures. The application treats these blocks separately while requesting they be reviewed as one building, but the application materials will need to consistently show how the blocks physically relate to each other in order for the review to be completed.
- ***Geotechnical Study***: The applicant has provided documents and reports regarding Geotechnical elements of the proposed development. City Staff and Third-Party reviewers will provide review comments at a later date. City Staff and Corporation Counsel continue to review the existing easements and proposed easements associated with maintenance of the retaining wall.
- ***Fore Street Public Right-of-Way***: The most recent submission addresses encroachment concerns into the City ROW along Fore Street. The City will continue to coordinate with the applicant team regarding a license agreement to allow Block 4's footings (proposed to be located above the Fore Street retaining wall) to encroach into the City ROW.
- ***Construction Management and Phasing Plan***: Please submit an updated Site Development Phasing Plan and a supporting Phased Construction Management Plan. The Construction Management Plan will need to be consistent with the submitted drawings and documents and include all work proposed on site including PL-002252-2023, PL-002253-2023, and PL-002202-2022.
- ***Block 6 Storage Cart***: City Staff have determined that the storage cart room is a Warehousing and Storage use, which is a conditional use in the B-6 Zone. Section 6.4.11(A) states in the B-6 Zone that Marine Uses should include marine procucts, wholesaling, and retailing, harbor, and marine supplies and services. Marine supplies and services are associated directly with the operation of the vessel; the storage and golf cart room cannot be considered accessory to the marina because it is not located on the marina lot.

- L1.1 - Sheet appears to show a vehicle parking area by stairs in building six under "Level 1" label. Please clarify vehicle storage and provide vehicular use path diagram and brief management narrative for how vehicle and its function to the property operation will work. Eastern Trail and narrow-gauge circulation patterns take priority and all pedestrian and passenger safety must be ensured. Any vehicle's use of trail must be more detailed and closer coordinated with the Parks Department. Keeping vehicles off of Eastern Promenade trail and high pedestrian use areas is a priority, and mitigation of impacts to the trail will be a critical element of the review.

GENERAL

- Inclusionary Zoning calculations will be completed following applicant's next resubmittal.
- Please be sure to update any of the programming changes in the cover letter as the proposed programming relates to the original proposed programming at the time of MDP approval.
- The applicant should provide additional information regarding the use, proposed means of access, and legal rights to access the small paved parking area at the rear of 21 Eastern Promenade.
- City Staff are still reviewing the proposed Subdivision Plat amendment and may require additional draft easements or edits.
- The applicant will be required to provide all final documentation regarding the land swap between Portland Foreside, MaineDOT, and the City of Portland once the land swaps have been finalized. The applicant will need to provide any final easements or agreements at that time.
- The applicant should submit all existing easements located on site including easements with or from Central Maine Power and Portland Water District.
- The applicant should provide draft Condo Association documents and clarification regarding which units are rental, which are ownership units.

ZONING

- City Staff continue to review the submitted Average Grade Plan. The full foundation plan (see above) will help clarify whether any additional points are needed or any need to be adjusted before a final determination on this key zoning compliance issue can be made.
- In the July 7, 2023 Planning Board Workshop Memo, City Staff identified elements of the proposed development that are not zoning compliant. City Staff have met with the applicant team and provided further guidance. City Staff have requested updated drawings with relevant zoning dimensional requirements included and properly dimension on the plans:
  - Block 4 related to the B-6 Eastern Waterfront zone dimensional requirements;
  - Block 5 City Staff have determined that certain elements of the proposed roof plan for Block 5 do not serve as appurtenances (e.g. Telecom and Electrical rooms). Additionally, City Staff have determined that an elevator can service the rooftop amenity deck but the elevator will be required to open out directly to the rooftop. Elevator overrun and supporting screening should be minimized to the fullest extent possible. The Design Review memo includes language and guidance to the screening on Block 5. City Staff have also requested that the applicant reduce the total number of elevators accessing the top floor.
  - Block 6 Please provide updated drawings that show relevant R-6 zoning dimensional requirements.

- City Staff require additional information regarding the operation and use of the proposed cart storage area located along the waterfront-side of Block 6, particularly in regard to trail impacts and site circulation.

TRANSPORTATION

- The trip generation estimate was updated to reflect data contained in the 11th Edition of the Trip Generation Manual. All back-up calculations will need to be provided (similar to what was provided for the 7th Edition).
- The number of vehicle trips estimated under the full build-out of the site as compared to the estimate utilized in the original TMP is summarized as follows:
    - Unadjusted Trips
        - AM Peak Hour
            - 2017 TMP: 769 trips
            - 2023: 609 trips
        - PM Peak Hour
            - 2017 TMP: 921 trips
            - 2023: 1074 trips
    - Adjusted Trips (with Internal Capture Only)
        - AM Peak Hour
            - 2017 TMP: 667 trips
            - 2023: 463 trips
        - PM Peak Hour
            - 2017 TMP: 771 trips
            - 2023: 724 trips
    - Adjusted Trips (with Internal Capture and Mode Share)
        - AM Peak Hour
            - 2017 TMP: 506 trips
            - 2023: 370 trips
        - PM Peak Hour
            - 2017 TMP: 585 trips
            - 2023: 579 trips

  The trip generation estimates, when adjusted, are in compliance with the approved TMP. City Staff and Third-Party Reviewers are seeking clarification from MaineDOT to determine whether unadjusted estimates need to be part of the comparison for TMP compliance.
- The Traffic Assessment only includes an assessment of trip and parking generation. Given that the Master Development Plan approval included a requirement that a phased Traffic Movement Permit be required, please provide a traffic study that assesses traffic mobility and safety as part of this site plan application.
- City Staff and Third-Party Reviewers reviewed the parking demand estimate and are requesting additional information as noted below:
    - Multi-Family 1.21 spaces per unit – The applicant should provide back-up information for time-of-day and parking generation assumptions.

  - Specialty Retail 1.95 spaces per 1,000SF – The applicant should provide back-up information.
  - Hotel 1.1 spaces per room – The applicant should provide back-up data for the parking generation rate.
  - Spa 4.3 spaces per 1,000SF - The applicant should provide back-up data for the parking generation rate.
  - The applicant should confirm that the trip generation and parking generation assumptions for ITE land use codes are the same or different.
- The applicant should create a 20-scale plan (on 24" x 36" Sheet) depicting and labeling all improvements and existing conditions within the ROW (Fore Street).
- Improvements and existing conditions (such as the Fore Street ROW, lanes, sidewalk, esplanade, and driveways) should be clearly dimensioned on the plan view sheets at various locations, and should include both typical widths and any pinch points.
- The applicant should provide a detail in the plan set that depicts how the existing Fore St. retaining wall, the proposed sidewalk and the proposed building landings will interface.
- The plans need to clearly identify areas of both existing and proposed curb, and should identify, if applicable, whether any curbing will be reset during construction. The applicant has noted in the past that the existing Granite Curb will be reset along Fore Street. This work should be noted on the plans and reference where the details to be followed can be found. The applicant should ensure (at the time of construction) that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation / during construction.
- The finish floor elevation in relation to the sidewalk along Fore Street for all buildings should be shown on the plans.
- The existing retaining wall along Fore Street should be clearly identified and labeled on the plans when relevant.
- Grading Sheets: Spot grades and slopes should be added to plans (within the ROW) at proposed driveways, pedestrian ramps, accessible crossings, sidewalks, egress locations and steps.
- The applicant should design the proposed driveway off of Fore Street using the current City standard Residential Driveway Apron I-9A eliminating the proposed tipdowns.
- The proposed accessible ramp adjacent to the driveway should be redesigned and constructed separate from the driveway apron using the sidewalk as the landing. See example below.



- Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.
- City staff and the City's consulting traffic engineer have confirmed that both on-street parking and a bike travel lane can comfortably fit on Fore, and therefore a bike lane can be included and shown striped between the travel lane and the parking lane, on the ascending side of Fore Street.
- TDM Comments:
    - Page 7: Please describe the types of racks per the COP Technical Manual bike rack inventory types and the capacity of each rack and total capacity outside.
    - Page 8: Update City Bike Share information to include Monthly '*and Annual*' Memberships.
    - Page 10: Please see the expanded transit access plan from GP Metro. Changes will impact Husky Line, Routes 2 +4.
    - Page 11: Clarify if SunLife Parking (68 spaces) is employee or SunLife paid parking?
    - Page 11: What will be the parking policy for the hotel operation?
    - Page 12: Please describe the ownership/management structure of the various properties to identify who will be responsible for the annual monitoring and reporting. For example, would this be the responsibility of each individual tenant or Portland Foreside?
    - Page 15: The November 2022 Technical Manual updates eliminated the TDM requirements for parking and trip reduction monitoring unless otherwise required by some other mechanism such as the TMP and/or other conditions of approval by the Planning Board. The new single metric City Staff requires establishes mode share targets and reporting on progress toward achieving set targets. The tenant mix may be conducive to establishing and surveying for multiple targets (for instance residential all travel; office commute mode share; etc.). SunLife could be governed by the prior TDM Plan until 1 year following the Certificate of Occupancy for Phase II of development.
    - Page 17: Please fix formatting for charts
    - Page 17, Short-Term Box: Provide more definitive numbers on memberships.
    - Page 17: User/Group Residents: How and by what means?
    - Page 19: Please provide information on employee parking out of pocket costs in narrative.
    - Page 19: Are the employee counts for all tenants and Portland Foreside, who specifically?

- Page 22: Once Phase II development is active (or sooner at applicant discretion), the parking and trip monitoring may be useful for establishing and report on mode share targets and actual mode share but are not otherwise required (unless by a TMP or other condition of approval).

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- Previous Comment: *The applicant had previously noted that placement of grease traps associated with block 6 were still being determined and they would appear on subsequent utility plans. This updated plan set still does not include any grease traps. Similarly, if any grease traps are required for the recently added block 5 work, they should be added to the utility plan. All sizing and configurations of grease traps should be in accordance with section 2 of the technical manual.*
  - *Response: The proposed retail spaces are core and shell only, and the use of the space is to be determined as it is contingent on future tenants. Internal grease traps will be provided for restaurant/kitchen uses. We anticipate internal grease trap applicability, configuration, and sizing will be addressed as part future building permit processes for individual space fit-outs as tenants are identified.*
  - Updated Comment: A condition of approval should be added to the project to ensure the applicant's utility plan is ultimately updated to depict the sizing, location and configuration for any required external grease traps to ensure compliance with City of Portland technical standards. This updated plan should be sent to DPW for review and approval prior to the issuance of a building permit.
- Previous Comment: *An oil water separator has been designed to treat flows coming from an internal parking garage as part of the block 4 work. The applicant should confirm O/W separators are not required for any internal parking areas associated with blocks 5 and 6.*
  - Response: *An oil/water separator will be provided in the Block 6 building and will be plumbed to sewer. We anticipate this will be reviewed as part of the building permit process.*
  - Updated Comment: At a minimum, a condition of approval should be added to the project to ensure the applicant's utility plan is ultimately updated to depict the location and configuration for any required oil/water separators to ensure compliance with City of Portland technical standards. This updated plan should be sent to DPW for review and approval prior to the insurance of a building permit. The project oil/water separator detail should be updated to match the detail found in section # 2 of the technical manual.
- DPW Water Resources has determined that the service laterals outside of the City ROW are not exempt from the City Technical Manual:
  - All building sewer laterals should have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed. According to international plumbing code, 4" and 6" building sewer laterals should have a minimum slope of 1/8" per foot.
  - Phase 2 Civil Plans and Details Sheet C-104: Pipes S16, S14, S15, and S33, are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter should not be connected into a sanitary

manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.

- The applicant should provide documentation of approval from both manufacturers of the Structural Root Containment System proposed for additional protection against root penetration.
- The applicant will need to provide final confirmation from utility providers that they have adequate capacity to service the proposed development.
- The directional flow arrows are not shown on following pipes or flow arrow is covered by a different layer: SD47, SD40, SD116, and SD 113.
- The applicant responded to details showing storm drain pipe connections (SD39 to SD40 on C-102) with no catch basin or drain manhole. The applicant responded, "Our intent is to use our standard wye connection, which is represented in a detail on sheet C-201. The title of the detail has been revised so that it is not specific for sewer." The plan view of the Typical Later WYE Connection Detail provided on Sheet C-201 calls out "Main Sewer." It is recommended to revise this callout to include storm drain.
- Phase 2 Civil Plans and Details Sheet C-203: The Field Inlet Grate detail is shaded out. It is recommended to include the detail in the plans.
- Section 2.9.10 of the City of Portland Technical Manual states, "Field inlets or Type-F catch basins may be used when outside of city street right of ways within lawn areas, with Department of Public Works approval." Although the three field inlets (FI11, FI12, and FI13) appear to be located within the Paver Plaza Area, DPW will need to approve the prove the field inlets.
- Phase 2 Civil Plans and Details Sheet C-102: Grades for CB-27 and CB-28 are provided on Sheet C-107. There is a spot grade to the west of the R-Tank but due to the site being relatively flat, it's recommended to provide additional spot grading to promote positive drainage towards the catch basins and drainage infrastructure.
- Stormwater Management Plan:
    - Section 1.4: General & Redevelopment Standards (Stormwater Quality): Based on requirements outlined in the Maine DEP proprietary BMP approval letter, it does not appear that Jellyfish 2 can handle the inflow from the 1-inch storm. Please confirm that the proposed Jellyfish 2 meets the requirements of Maine DEP or revise as appropriate.
    - The applicant has provided manufacturer inspection and maintenance guides for the Jellyfish Filters. The inspection frequency states a minimum of quarterly inspections during the first year of operations but that a minimum inspection frequency of yearly in subsequent years. We would recommend the applicant provide a narrative to have the filter inspected a minimum of every six months and the filters maintained yearly per the Maine DEP approval letter dated January 21, 2015.

LANDSCAPING & ENVIRONMENTAL QUALITY

- All layout plan sheets - in plans with project area adjacent to existing narrow-gauge railroad and / or eastern trail, show rail and trail infrastructure edge, R.O.W and label accordingly.
- Phase 2 Civil Plans - C201 and Phase 2 Landscape Plans and Details LD 1.0 - Civil details and Landscape details (curbing) do not correspond to one another. Ensure appropriate detail selected is consistent between documents. Include note or call outs in civil layout plans for paving, curbing and other hardscape or street furnishing details that are being managed by other disciplines.

Ensure hatching on civil plans for hardscape material layouts correctly correspond with hardscape discipline lead documents (assuming this is the landscape architectural layout set as leading material layout document)

- C103 - Include general note or callout on plans referring reader to landscape plans for spaces with signature planting or typical planting condition elements or furnishings.
- Landscape plans - please provide section and details on edge condition / transition condition between Narrow Gauge R.O.W, tracks and project work areas. If condition character or typology changes along the boundary of property and Narrow-Gauge R.O.W (e.g. pedestrian hardscape condition, vs vegetation bed.) Ensure that some discernible boundary element, even if something as simple as a raised curb, is utilized to prevent uncontrolled crossings into narrow gauge tracks.
- Street Trees:
    - Street Tree Calculation:
        - Residential Requirement: 1 tree per unit planted in ROW and/or along private roadways unless otherwise approved and spaced 25' to 35' apart.
          Based on the current proposed development, the applicant would be responsible for 444 street trees. Section 14.6.2 of the Land Use Code covers street tree alternatives that will be applicable to this site. Final street tree calculations will be included as part of the final planning board report.
        - City Staff will need to update the Phase 1 approval and potentially account for any required street trees. A partial CoO was granted for the SunLife building and focused on the street tree requirement.
    - Street Tree Guidance:
        - City Staff support establishing a robust and long-lived urban forest canopy to the extent possible. Applicants and design team should strongly consider working with city departments to establish street tree infrastructure that exceeds city standards and ensures a healthy /lasting urban canopy in the project areas with regard for incorporating stormwater management infiltration capacity to a linked street tree corridor or other street tree / stormwater infiltration design approach.
        - The applicant is encouraged to find opportunities to create, continuous / connected, unified soil volumes along linear blocks of street tree plantings where possible, or individual tree planting conditions that support a mature and healthy street tree.
        - Street tree well design is encouraged to create a continuous, connected series of tree wells along blocks / or corridors. Street tree and street tree support infrastructure should provide consideration and accommodation for:
            - Sufficient soil volume
            - Trunk flare and adequate space / capacity for trunk and trunk flare growth over time
            - Water into soil (very important part of success)
            - Water out of soil
            - Sufficient room for canopy growth of tree
            - Specifications to ensure quality of nursery stock

- Fore Street Trees: As part of the updated streetscape, City Staff would like the applicant to consider adding small street trees along Fore Street if the underlying utility infrastructure will allow for tree roots.
- LD 401 - Detail 4 - Tree grate openings, if grates are selected to be used, should be a minimum of 48" in diameter. Square cobbles around trunk and trunk flare zones are encouraged in lieu of restrictive metal grating in pedestrian circumstances. Stone dust between joints for better uniformity to the walking surface is preferred. Root balls of trees should be set directly undergraduate, not below grate.
- LD 401 - Detail 4 - Tree well systems are strongly encouraged to have integrated infiltration capacity to accommodate stormwater to the extent possible. A passive irrigation system with first flush capabilities for tree well systems / interconnected infrastructure is encouraged to help mitigate seasonal salt impacts and distribute salts to dilute their effect on soil and root systems. For additional passive water inflow and outflow design, consideration of allocation of impact fees into cost sharing of street tree elements that would accommodate these combined plantain / stormwater recommendations will be possible in coordination with city planning and parks department.
- LD 401 - Detail 4 - provide more information on typical soil profile proposed for tree well systems. Street tree wells or other tree planting areas should provide a minimum volume of 600 cubic feet of soil material per tree. Preferred volumes are as follows:
  - Large Trees: 1,500 cubic feet of soil within a 27-foot radius.
  - Medium Trees: 1,000 cubic feet of soil within a 22-foot radius.
  - Small Trees: 600 cubic feet of soil within a 16-foot radius.
  - Where soil volumes within the maximum allowable radii for adjacent trees overlap, up to 25% of the required soil volume per tree may be shared.
  - For trees that are designed to have a covered soil volume which connects to an open area (for example behind the sidewalk), the open area can be considered as part of the required soil volume.
  - For existing trees to remain, the root structure of existing tree should be protected to the extent feasible and provided with additional soil volumes to meet the above requirements.
  - Soil Volume Calculation should be calculated as:
    - Area of Open Soil x Depth of Soil) plus (Area of Covered Soil x Depth of Soil)
    - All soil types are calculated at full volume.
    - There may be multiple soil volume areas included in the calculation depending on design.
- LD 401 Detail 4 - provide minimum dimensions for tree cell to ensure adequate soil volumes are achieved per tree. Consider inclusion of a typical plan enlargement drawing to provide confirmation of a typical dimensional area of tree soil spaces for street trees.
- L100 - Indicate approximate size of tree species proposed for street tree locations, if proposed trees are to be uniformly sized, indicate whether that tree type is to be a large, medium or small tree species. Large and Medium street trees should have between 30' to 40' spacing at minimum between trunks, if overhead utilities or other complications are

present that will impact tree type and mature height, spacings between 20-25' will be considered with Parks Department approval. For street tree plantings proposing larger tree species along streets that are narrower than 30', recommend applicant stagger tree locations to provide less canopy growth competition from plantings across street.
    - LG 201, LG 202 - Indicate species of street tree at locations of trees in plan.
- L1.4 - label for "area to be designed in future phase of work". This area, if accessible in or with proposed phasing elements (buildings 4,5,6) should be detailed and included in this phase of site plan review before approvals can be given or the project can proceed.

Design Review – Final
Planning and Urban Development Department

Subject:	58 Fore Street
Zone:	B6, R6
Date of Review:	Thursday, September 5, 2023
Reviewer(s):	Sean King (Urban Designer), Charles Tetelman (Planner), Evan Schueckler (Historic Preservation Program Manager)
Project ID:	PL-002202-2022

I. DESIGN REVIEW CRITERIA

The development project at 58 Fore Street is subject to the policies and design standards listed below:

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

B. Eastern Waterfront Master Plan - *Design Guidelines for Portland's Eastern Waterfront*

C. City of Portland Design Manual –
- (*g*) *EWPZ Eastern Waterfront Port Zone and B6 Eastern Waterfront Mixed Use Zone*
- (*i*) *Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.*

II. HISTORIC PRESERVATION ADVISORY REVIEW

Article 14-521(d)1.5.a
According to Article 14-521(d)1.5.a, when developments affect designated landmarks or lie within designated historic districts, such development shall be required to obtain a Certificate of Appropriateness under Article IX. A portion of the building is within the Portland Company historic district and another portion of the building is located within the Munjoy Hill historic district. Both portions of the building located within designated historic districts are subject to Historic Preservation Board review and applicable design standards.

On August 2, 2023, the Historic Preservation Board approved a Certificate of Appropriateness for a portion of the building located partially within the Portland Company Historic District (HPBR-002380-2023). Also, on August 2, 2023, the Historic Preservation Board approved a Certificate of Appropriateness for a portion of the building located partially within the Munjoy Hill Historic District (HPBR-002391-2023).

Article 14-521(d)1.5.b
According to Article 14-521(d)1.5.b when any part of a proposed development is within 100 feet of any designated landmark, historic district or historic landscape district, historic preservation staff shall provide an advisory design review that incorporates a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context. As the entire development is within 100 feet of a historic district, those portions not within a historic district shall be generally compatible with the major character-defining elements of the portions of the historic districts in the immediate vicinity of the proposed development. Character-defining elements of landmarks and historic districts are identified in the historic resources inventory and respective

historic district designation reports. For the purposes of this provision, "compatible" design shall be defined as design which respects the established building patterns and visual characteristics that exist in a given setting and, at the same time, is a distinct product of its own time. Historic Preservation staff has provided a written analysis of the proposed development's immediate context, identifying the major character-defining elements and any established building patterns that characterize the context.

Munjoy Hill and the Block 4 Townhouses & Block 6:

Munjoy Hill has a long history of development and features highly varied architectural expressions across buildings. Many buildings also feature historical alterations, creating varied and dynamic layers of history. Regardless, there are several unifying features within the district. Construction is primarily of wood frame over masonry foundations, with only a handful of primarily brick structures. Buildings are typically independent, but constructed densely, with tight driveways and side yards. Front yards are typically shallow. Projecting bay windows or entry porches are often used to create variety along the sidewalk. Windows are predominantly vertically oriented with regular placement on front facades and more variation on sides. The immediate vicinity of the proposed development is eclectic, reflecting the overall diversity of the district's architecture, including examples of high-style grand houses, Queen Anne multi-family buildings typical of those found throughout the district, and a few Greek Revival structures, one of which (at the corner of Atlantic and Fore Streets) is among the rare brick houses in the district.

While the Munjoy Hill Historic District is primarily composed of residential structures, a small number of commercial storefronts can be found along Congress Street. These are typically at the first floor of larger multi-unit buildings, either being original to the design or historic alterations to early buildings. They typically feature larger plate glass windows and doorways with significantly more transparency than the residential portions of the buildings. These storefronts sprung up to provide space for corner grocers and small neighborhood businesses serves nearby residents and streetcar passengers.



A typical street showing examples of triple-deckers and Italianate duplexes in the Munjoy Hill Historic District (82, 84, 86, & 88 Beckett).

The proposed Block 4 will be a large multi-unit building, but the town houses fronting onto Fore Street are being studied for compatibility with a much smaller scale residential district. Most buildings are two to

three stories in height, with narrow facades on tight urban lots. The proposed townhouses will be a very compatible three-stories at the north elevation, but the continuous street wall does not have a precedent in the historic context. The applicant is proposing to break-up that width by introducing the townhouse as a unit for dividing the mass, with depth and relief provided by the required viewsheds at Atlantic, St. Lawrence, and Waterville Streets. The new area of reduced height and commercial storefront to the east of the Saint Lawrence Street view corridor helps further break up the Fore Street Elevation.

The proposed design character of the Block 4 Townhouses is somewhat traditionally, utilizing brick veneer construction with traditional architectural elements such as masonry sills and headers, strong cornices, and mansard roofs. The proposed masonry character of these townhouses is not overly in keeping with the predominantly frame-construction character of the Historic District. However, the applicant is proposing to utilize a modern gray brick and casement windows which will all speak to the contemporary nature of the development.

Given the great architectural variety found in the Munjoy Hill Historic District, one of the challenges in producing a compatible design for the Block 4 Townhouses is striking a balance between that architectural variety and the consistency needed for the proposed development to be a comprehensive project. In the current version, the applicant has introduced two forms which are alternated to introduce some variety. The proposed one-story commercial storefront along Fore Street provides additional variety.

Block 6 should also be compatible with the Munjoy Hill Historic District; however, the north elevation is located in the district and subject to Historic Preservation review. The other three elevations will have minimal visibility from and impact on the Munjoy Hill Historic District given the location of the block primarily below Fore Street and behind a number of contributing buildings.

The Portland Company Historic District and Blocks 4 & 5

The visual character of the Historic District is that of a rambling industrial complex containing a variety of structures fulfilling specific programmatic needs. These ranged from foundries and boilers, to drafting rooms, machine shops, blacksmiths, and halls for the assembly of machinery. While all unique, the contributing buildings generally share a visual language typical of late nineteenth- or early twentieth-century industrial architecture. The structures are predominantly low-lying with long, horizontal elevations of brick on stone foundations, with only two vertically oriented structures punctuating the campus (the drawing vault at Building 24 and the stair tower at Building 6a). Roof forms include flat, gabled, and shed forms. Wood is used in a limited capacity, and metal is concentrated around structural elements at roofs or openings, and in some lean-to additions. Exteriors have little to no ornament. Building 2 is the most ornate with granite window headers and sills, and a substantial classically-inspired brick cornice and pediment. Windows and doors are typically regularly spaced with a vertical orientation and multi-light glazing.

The site is also characterized by the arrangement of buildings. The structures were located close to one another, speaking to their interrelated functions. However, spaces were left between many structures creating a modest internal network of streets and alleys that allowed for movement of staff, materials, and products. In a few locations, second-story bridges or walkways create connections between buildings and over that network of streets. In several instances, important structures such as the pattern warehouse (Building 12) were located away from the working portions of the site to protect them from the potential for fire within the complex.



2022 view of the Buildings 2 & 24. Block 1, at left, was nearing completion with sitework being completed in the foreground.

Blocks 4 and 5 are located closest to the Portland Company Historic District and therefore have the strongest visual relationship. Generally, the two blocks appear to be meeting the standard of being distinctly contemporary in their design. Block 4 incorporates two long brick facades along the Thames Street frontage, forming the base of the whole block. At four stories, this base will be somewhat taller than the adjacent one- to three-story heights of the historic structures, but is expected to have good visual compatibility. Block 5 is proposed to have a two-story base of granite cladding, with primarily GFRC and glazing above, creating a similar character to the Sun Life Building at 110 Thames Street.

III. DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, **red** text denotes standards not met to require a condition of approval.

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

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

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

h. 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, . . .

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

l. 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; . . .

Staff comment: **The site plan application for Block 6 deviates from the approved master plan development plan to expand the building footprint into an adjacent parcel located in the R-6 zone, staff has reviewed the Block 6 building footprint expansion beyond the approved MDP per City of Portland Design Manual, (i) Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters. The applicant has provided building designs that preserve view corridors, orientation towards streets and internal open space that staff finds is generally consistent with the overall master plan development. In addition, the resubmitted plans indicate a sufficient buffer through planters and vertical granite curbing along the railroad right-of-way with public points of access from the Eastern Promenade trail into the development that staff finds meets the design intent of the approved master plan development plan.**

B. Eastern Waterfront Master Plan - *Design Guidelines for Portland's Eastern Waterfront*

Introduction: *Development will serve to integrate the working waterfront, commercial business areas, and the Munjoy Hill neighborhood. For integration to be successful, thoughtful, high quality design for all aspects of construction is imperative. With care and attention paid to details and quality, the design of streets, buildings, open space, parking, and changes to the water's edge will contribute to the value of public and private property and the quality of life for Portland residents. . . . that the Eastern Waterfront become a benefit to City residents. The Master Plan, along with these Guidelines, promotes development that will be an asset, not a liability, to the surrounding neighborhoods and community at large.*

Streets: *The retention and expansion of pedestrian-scaled street grid...*

1. **Public Streets:** The applicant proposes to maintain vehicular and pedestrian access along Fore Street, the applicant has provided curb ramps and crosswalks at Waterville Street and Atlantic Street.

2. **Appropriate Street Design:** Fore Street is a primary street that accommodates vehicles and pedestrians, the applicant continues to provide on-street parking as a buffer between pedestrians and moving traffic. The new private Thames Street extension parallels the water and expands the street network outlined in the Eastern Waterfront master plan for internal alleys that relate to or continue the historic Portland Company pattern established through the site. The new private Thames Street extension includes a pedestrian-oriented streetscape with basalt pavers with pattern variation bordered by stone curbing, street trees and scaled exterior lighting that staff finds appropriate.

3. **Sidewalks**: The applicant proposes brick sidewalks and at driveway crossings per city standards within the right of way along Fore Street. The applicant has provided resubmitted plans that setback the Block 4 townhouse to allow for circulation to each building entry with stone stairs and transition challenging grade changes with curbed planters that staff finds appropriate.

4. View corridors: Staff finds the development to preserve defined view corridors at Waterville Street, St. Lawrence Street and Atlantic Street where no building is allowed above the corresponding Fore Street elevation meets this design guideline.

5. Railroad Right of way: **The applicant has resubmitted plans to indicate a sufficient buffer through planters and vertical granite curbing along the railroad right-of-way into the development that staff finds is appropriate for vertical separation at development and consolidates safe pedestrian access points from the Eastern Promenade trail.**

6. Underground Utilities: Staff supports the underground utilities proposed within the development and observes the existing overhead electrical lines and utility poles to remain along Fore Street.

7. Marine Passenger Terminal Circulation: Not applicable, the proposed development is not serving the proposed marine passenger terminal.

Buildings and Architecture: *Architecture that enhances the development of a mixed-use and marine inter-modal transportation center, and is compatible with the surrounding neighborhood…*

1. Contextual Design: Staff recognizes, as does the *Eastern Waterfront Master Plan*, that the 58 Fore Street site is anomalous in its location, topography, former uses, and past development pattern compared with its surrounding context. The site mediates between the residential Munjoy Hill neighborhood defined by single-family, two-family, and multi-family residential buildings, with a small, pedestrian-scale street grid that creates a neighborhood scale block pattern.

   The Eastern Waterfront context includes a mix of transportation, industrial, tourism uses and building typologies. Staff finds the proposed Block 4,5 & 6 buildings recognize the existing development pattern and characteristics with a strong organization that parallels the waterfront and Fore Street to allow for site permeability with the defined view corridors and public pedestrian access. Notable hierarchy of building typologies include the Block 4 Townhouses to reflect the height of residential buildings in the Munjoy Hill neighborhood; a cohesive building design along the Thames Street extension that identifies a strong architectural masonry base and contemporary arrangement of fenestrations and building materials; and arrangement of building elements that correspond to the primary retail uses and façade elements along the waterfront that staff finds appropriate.

2. Building Composition:
   a. Placement: Block 4,5 & 6 buildings include primary entrances oriented towards the street and continue a strong street wall that staff finds appropriate.

   b. Height: The building heights for the Block 4 Townhouses on Fore Street are compatible with the residential building of 3-4 stories located within a two-block radius. The proposed development creates a building break line between Block 4 and Block 5 to break the building mass into distinct buildings of various heights. Block 6 is located at the easternmost portion of the development with the tallest building heights.

The Applicant has revised Block 5 plans and elevations to reduce the height of screening walls for the rooftop equipment to 12 feet that staff finds to properly screen and minimize the collection of rooftop equipment.

c. Massing: The buildings on the western half of the Foreside development site have a long and low massing consistent with the historic industrial complex and working waterfront building typologies. Staff finds the Block 4 building appropriately responds to the prevailing massing along Fore Street with the proposed Townhouses to create a defined street wall that is compatible with the residential buildings of 3-4 stories within the neighborhood. In addition, Block 4 creates building height extensions perpendicular to Fore Street into the development site that allow for view corridors towards the water to appropriately break up the massing of the large building footprint and height transitions at the Block 4 West Wrapper that step up towards the west of the development that staff finds to create a strong relationship with Buildings 3 and 6B.

Staff finds the Block 5 building creates massing variation through lower level building projections that articulate major entrances, and building height extensions that preserve the St. Lawrence view corridor. The Applicant has provided a stepback of upper floors to further delineate the lower level floors at the southwest elevation facing the Portland Company historic district that staff finds appropriate as an architectural transitional element.

The Block 6 building is sculpted by many volumetric planes highlighted with changes in the material that staff finds to reduce the building massing.

d. Proportion: The Block 4,5 & 6 buildings share a similar horizontal orientation with ample window openings unique to each building. The facades along the Thames Street extension include storefront windows to create pedestrian-scaled proportions. Staff finds the waterfront facades are pedestrian-scaled and respond to the intended retail use.

The Applicant has provided revised Block 6 plans that include additional door fenestrations and a planter to screen the building façade where the pool mechanical equipment is located that staff finds appropriate.

e. Articulation: The Block 4,5 & 6 buildings relate with similar proportions with a clear masonry base that varies in materiality for each building that staff finds is appropriate. The organization of horizontal patterns through window and material arrangement is clearly articulated at the upper floors of each building. Block 4 & 6 building tops terminate with a simple parapet, while Block 5 encapsulates the elevator overrun and mechanical penthouse with a metal screen with numerous angles that staff finds appropriate.

f. Materials: Materials shall reflect the historic character of Portland's waterfront. Each building employs a variety of exterior materials and rhythms to complement a contemporary architectural style.

Block 4 Townhouses along Fore Street: The exterior material context of the surrounding neighborhood includes the use of brick, natural stone, and clapboard siding. Based on the architectural renderings, the brick façade, framed windows and roofline articulation separates the Block 4 Townhouse from the internal Block 4 building design. **The applicant has provided exterior material selection on elevations that staff finds appropriate to be compatible with the surrounding neighborhood.**

Block 4: The Applicant provided physical samples and indicated on the plans the proposed exterior material that include the use of brick, GRFC panels, metal cladding that staff finds to be of high quality and compliments the contemporary building style.

Block 5: The Applicant provided a Block 5 Material Palette document entitled "Part I.1: Façade design intent, materials & imagery" to represent the proposed exterior material includes the use of granite, GFRC panels, metal and thermally treated wood cladding that staff finds to be of high quality and compliments the contemporary building style. The Applicant has provided material imagery of the reflective infill panel that staff finds to reduce glare as the primary concern noted in previous design memos.

Block 6: The Applicant provided physical samples and indicated on the plans the proposed exterior materials that include the use of natural stone cladding, GRFC panels and rainscreen panel material above a stone cladded base that staff finds to be of high quality and compliments the contemporary building style.

3. Pedestrian Environment: Staff finds the Block 4,5 & 6 development generally fosters a walkable pedestrian environment through a unified streetscape at the Thames Street extension with unique surface paving, street trees and lighting.

4. Primary Entrances and Service Entrances: Staff supports the clearly articulated primary entrances expressed with distinct materiality at each building as a unifying building component throughout the development. Service entrances appear to be internal to the site with shared infrastructure. **The applicant has resubmitted plans to articulate the building entry south of the Block 4 garage entry at the west elevation with a change in exterior material, canopy and surface material as a designated plaza for public use that staff finds appropriate.**

5. Parking Structures: The proposed parking structures are mostly concealed in the developed with minimal vehicular access points that staff finds appropriate.

6. Infill and Small Scale Development: The proposed development along Fore Street of Block 4 creates a new street wall and maintains view corridors that staff finds are compatible with the existing residential scale of the surrounding neighborhood.

7. Historic Structures: A portion of the Block 4 development is within the Portland Company historic district and a portion of the Block 6 development is within the Munjoy Hill historic

district, both are subject to Historic Preservation Board review and applicable design standards.

8. Civic Structures: Not applicable, the proposed development does not include any civic buildings

9. Marine Development: **The Applicant has indicated that the cart storage has been eliminated from Block 6 development that was located adjacent to the bottom of the grand stair. The Applicant has revised Block 6 Elevation – South with additional fenestration details that support the adjacent retail use at the water's edge.**

Open Space and the Public Realm: *The character of public streets and sidewalks is the primary determinant of the quality of the public realm…is further defined and enhanced by the incorporation of quality open spaces…*

1. Public Open Space and Plazas: Public open spaces are oriented toward the water and accessible from adjacent streets, sidewalks and the Eastern Promenade trail. Plazas within the development include durable materials and scaled outdoor amenities such as trees, plantings and furnishings. Staff supports the pedestrian access points from Fore Street at the St. Lawrence Street and Waterville Street view corridors to allow pedestrians to transition through the development by publicly accessible courtyards, exterior staircases and elevators located at Block 4.

2. Private Open Space and Plazas: Private open spaces at Block 4,5 & 6 are internal at each building through shared courtyards, rooftop terraces and private balconies for residents that staff finds appropriate.

3. Historic Sites: The applicant shall observe the Portland Company historic district previous interpretive historic program for Block 2 to inform potential opportunities to engage signage, artwork, and/or industrial heritage of the historic site.

4. Public Art: Staff observes mural artwork in Block 4 to enhance the vitality of the development, the applicant shall investigate additional opportunities to incorporate public art into the development with an emphasis on key focal points (e.g. view corridors, streets and plazas).

5. View Protection: The Block 4,5 &6 buildings maintain view corridors through the site and identify focal point areas with public open space and plazas.

Surface Parking and Vehicle Queuing: *The areas devoted to surface parking and vehicle queuing should be minimized as much as possible and visual impact of such areas should be mitigated through buffering and landscaping…*

1. Limit impact: The project predominantly uses structured parking and does not include vehicle queuing. A small number of surface parallel parking spaces are proposed at the Thames Street extension with lighting and bollards that staff finds appropriate.

2. Shared Use and Partnerships: The proposed development allows for public and private parking to access uses within the development site.

Water's Edge: *The interaction of land activities with harbor activities creates the essential value and character of the Eastern Waterfront district…The successful accommodation of a diverse mixture of people and activity through quality design will best maximize the value of the water's edge.*

1. Intermodal Transportation: Staff finds the proposed development promotes a wide range of transportation modes.

2. Berthing and Upland Development: Not applicable, the proposed development is not directly associated with small or large vessel berthing and activities.

3. Public Access to Water: The applicant has provided resubmitted plans that indicate clearly indicate railroad crossing for pedestrians to access the development site that staff finds appropriate.

4. Non-Automotive Travel Opportunities: Not applicable, the proposed development site is not associated with the Ocean Gateway.

5. Recreation and Excursion Integration: Not applicable, the proposed development site is not programmed for recreation and excursion access to the eastern waterfront area.

6. Amenity Design: Staff finds the development provides appropriate site amenities with a relationship to the water's edge.

7. Lighting: The Applicant has provided lighting plans and fixture information for the overall site and Block 4,5 & 6 buildings that staff finds appropriate.

8. Visual Access: Not applicable, the proposed development does not include any fencing adjacent to the water's edge.

9. View Protection: Staff finds the development preserves views towards the water sufficiently with building massing, organization of public open space and public access points from the Eastern Promenade Trail.

10. Parking: All parking is internal to the development site and not located along the water's edge.

C. City of Portland Design Manual

(g) EWPZ Eastern Waterfront Port Zone and B6 Eastern Waterfront Mixed Use Zone: *Eastern Waterfront design standards: All major and minor development viewed under the provisions of the eastern waterfront zones shall be designed to support the development of this urban neighborhood as a dense, mixed-use, pedestrian friendly neighborhood.*

Staff comment: Staff finds the development generally supports a dense mixed-use development that creates a pedestrian-friendly neighborhood through the internal streetscape design, relationship of buildings to each other and integration of publicly accessible pedestrian plazas.

(i) Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.

a. Proposed structures and related site improvements shall meet the following standards:

1. *The exterior design of the proposed structure, shall be designed to complement and enhance the nearest residential neighborhood.*

Staff comment: Staff finds the development relates to the existing residential character along Fore Street and establishes a new architectural character with a relationship to the Portland Company site and the waterfront.

2. *The proposed development shall respect the existing relationship of buildings to public streets.*

Staff comment: Staff finds the development creates a strong relationship of buildings to public and private streets.

3. *Open space on the site for all multiple-family development shall be integrated into the development site.*

Staff comment: Staff finds the development of Block 4, 5 & 6 integrates open space within the building through shared courtyards, balconies and roof terraces. Staff observes a green roof in the view corridor of Block 5 along with rooftop amenities specific to the upper condo units.

4. *The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas.*

Staff comment: Staff finds the Block 4,5 & 6 buildings include ample windows at each residential unit to meet this design standard.

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscape to properly screen vehicles from adjacent properties and streets.*

Staff comment: Not applicable, no surface parking areas are proposed in the development site.

6. *Multiple-family dwellings shall not be converted to lodging houses unless all units in building have been vacant for at least one (1) year.*

Staff comment: Not applicable, the proposed development is not a conversion to lodging house.

Planning and Urban Development
Historic Preservation Program

August 3, 2023

Owner: Mary McCrann
Portland Foreside Development Co.
110 Thames Street, Suite 200
Portland, ME 04101

Applicant: Lauren Swett
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Re: 58 Fore Street, Block 4 – New Construction HPBR-002380-2023

Mary McCrann and Lauren Swett,

The Historic Preservation Board has approved your application for a Certificate of Appropriateness for new construction at 58 Fore Street, Block 4. Approval was based on the application materials submitted for the public hearing held on August 2, 2023, and stamped for approval on August 3, 2023.

All improvements shall be carried out as shown on the materials submitted for the hearing on August 2, 2023, and stamped for approval on August 3, 2023. Changes to the approved plans or specifications, and any additional work that may be undertaken must be reviewed and approved by this office prior to construction, alteration, or demolition. If, during the course of completing the approved work, conditions are encountered which prevent completing the approved work, or which require additional or alternative work, you must apply for and receive a Certificate of Appropriateness or Non-Applicability PRIOR to undertaking additional or alternative work.

This Certificate is granted upon condition that the work authorized herein is commenced within twelve (12) months after the date of issuance. If the work authorized by this Certificate is not commenced within twelve (12) months after the date of issuance or if such work is suspended in significant part for a period of one year after the time the work is commenced, such Certificate shall expire and be of no further effect; provided that, for cause, one or more extensions of time for periods not exceeding ninety (90) days each may be allowed in writing by the Department.

Sincerely,

Evan R. Schueckler
Historic Preservation Program Manager

Planning and Urban Development
Historic Preservation Program

August 3, 2023

Owner: Mary McCrann
Portland Foreside Development Co.
110 Thames Street, Suite 200
Portland, ME 04101

Applicant: Lauren Swett
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Re: 58 Fore Street, Block 6 – New Construction HPBR-002391-2023

Mary McCrann and Lauren Swett,

The Historic Preservation Board has approved your application for a Certificate of Appropriateness for new construction at 58 Fore Street, Block 6. Approval was based on the application materials submitted for the public hearing held on August 2, 2023, and stamped for approval on August 3, 2023.

All improvements shall be carried out as shown on the materials submitted for the hearing on August 2, 2023, and stamped for approval on August 3, 2023. Changes to the approved plans or specifications, and any additional work that may be undertaken must be reviewed and approved by this office prior to construction, alteration, or demolition. If, during the course of completing the approved work, conditions are encountered which prevent completing the approved work, or which require additional or alternative work, you must apply for and receive a Certificate of Appropriateness or Non-Applicability PRIOR to undertaking additional or alternative work.

This Certificate is granted upon condition that the work authorized herein is commenced within twelve (12) months after the date of issuance. If the work authorized by this Certificate is not commenced within twelve (12) months after the date of issuance or if such work is suspended in significant part for a period of one year after the time the work is commenced, such Certificate shall expire and be of no further effect; provided that, for cause, one or more extensions of time for periods not exceeding ninety (90) days each may be allowed in writing by the Department.

Sincerely,

Evan R. Schueckler
Historic Preservation Program Manager

City of Portland | Permitting and Inspections
Ann Machado, Zoning Administrator

TO: **Planning Board Chair and Members**

FROM: **Ann Machado, Zoning Administrator**

SUBJECT: **58 Fore Street**

DATE: **September 8, 2023**

RE: **Site Plan - PL-002289-2022**

Location:

The property is located predominantly in the B-6 Mixed Use Zone with a small fraction of the southern end of the lot in the Eastern Waterfront Port Zone and the northeast corner in the R-6 Residential zone. No part of the proposed building is located within the Eastern Waterfront Port Zone.

The property is also located in the Shoreland Zone. Division 26 of Chapter 14 addresses the criteria for building within the Shoreland Zone. Section 14-449(a)(1) requires that the building be located beyond the 75' setback from the highest annual tide in the B-6 zone. The revised PFDC Site Plans -PH2 show the buildings located beyond the 75' setback line. Under section 14-449(a)(1)(b), the 75' setback does not apply in the EWPZ. Section 14-449(c) addresses the standards for the clearing of vegetation both within the 75' setback and the 250' setback. Subsection 4(a)(3) allows legally existing cleared openings to be maintained. Since the area within the Shoreland zone had been previously cleared under a previous owner, this standard is being met.

The property is located outside of the floodplain. There was a Letter of Map Amendment (LOMA) issued on 11/20/20 that removed a small strip of land at the southeast corner of the property from the A2 flood zone.

Height:

The average grade for the building is 49.6' (MU-003). The method used to determine the average grade for the building is consistent with the method laid out in the approved Master Development Plan

B-6 Zone

The maximum height requirements are outlined in the B-6 Building Height Overlay Map.

Block 4 Tower

The maximum height for the west part of the tower is 45' with a 10' extension for a total of 55'. The maximum height for the east part of the tower is 45' with a 20' extension for a total of 65'. Sheet A20-01 shows that the maximum height is not being exceeded for the tower. The 65' extension above the east part of the tower meets footnote #1 and the tower meets the criteria of footnotes #4 and # 5.

Block 5 Tower:

The maximum height for the west part of the building is 45' and the east side is 45' with a 55' extension. The west part of the tower (hotel) is meeting the 45' maximum height. Section 7.5.1(G) outlines specific rooftop appurtenances that are exempt from the maximum height. Appurtenances that are exempt include the housing of elevators, stairways and other building operating equipment. Plan A-109 shows two stairways, two elevators, two elevator overruns and building operating equipment including enclosed areas for telecom equipment, electrical equipment and elevator control equipment. None of these enclosed building equipment areas can be occupied.

The east side of the tower (condos) meets the 55' height extension under footnote #1. Section 7.5.1(G) outlines specific rooftop appurtenances that can exceed the maximum height. Appurtenances that are exempt include the housing of elevators, stairways and other building operating equipment. Plan A-110 shows a stairway, one elevator overrun, one elevator, and enclosed building operating equipment including elevator control equipment, mechanical equipment and emergency equipment. None of these enclosed areas can be occupied. The view corridor height under footnote #4 is also being met.

Block 6:

The maximum height for the tower is 45' with extensions to 55'. The proposed
The elevations (sheet A200 and A-201) show that the maximum height is not being exceeded for the tower. The 55' extension above the tower meets footnote #1.

Shoreland Zone:

Division 26 of Chapter 14 was last approved by the Maine Department of Environmental Protection after the May 1, 2006 update to Chapter 1000. The update went into effect on 6-15-09 under Council order No. 296-08/09. It did not include any height restrictions. The maximum height of the proposed towers is restricted by the B6 Height Overlay Map and Table 7-A.

Block 6 - R-6 Dimensional Requirements

Height: Part of the northern end of the tower is located in the R-6 zone. The dimensional requirements of the R-6 zone are outlined in section Table 7-A. The maximum height in the R-6 zone is 45’. The part of the building within the R-6 zone meets the 45’ maximum height.

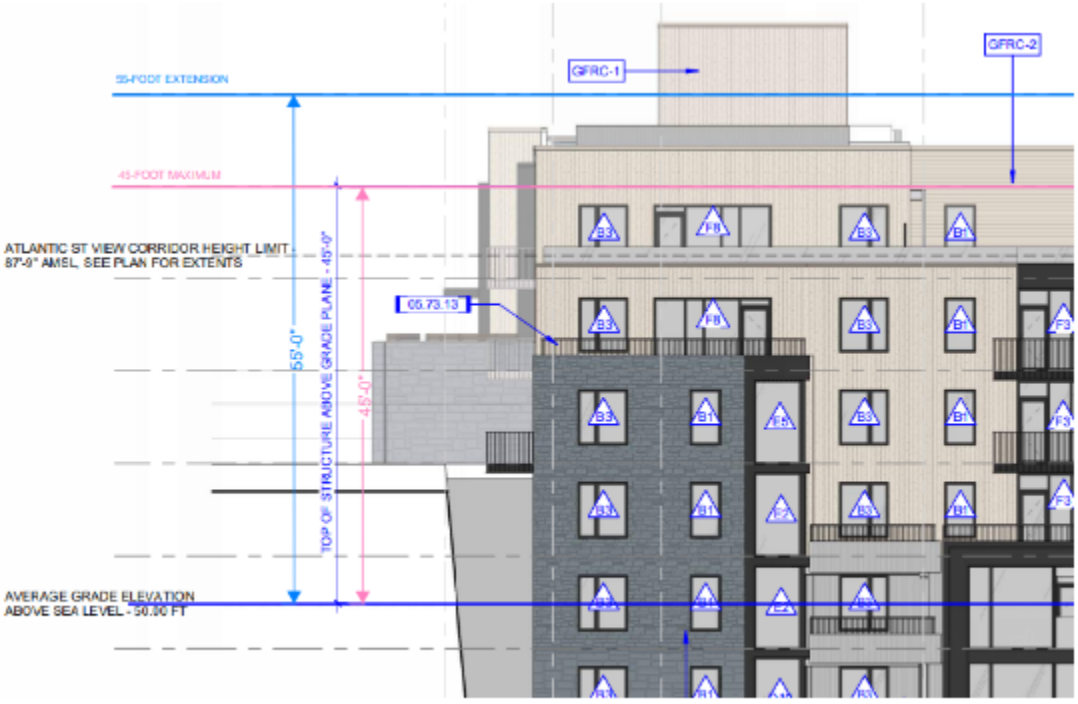


Figure 1. Block 6 Setback Measurements

Setbacks: The majority of the building within Block 6 is in the B-6 zone. Under section 14-272(c) the B-6 zone has no minimum front, side or rear setbacks. So no front, side or rear yards were established for the building. The most restrictive setback in the R-6 zone is the rear setback of 10’. The front and side setbacks are 5’. The closest setback to the part of the building in the R-6 zone is 17’ on the part of the property that abuts 45 Eastern Prom.This also applies to the stepback dimensional requirement that requires the part of the building above 35’ to be located a minimum of 10’ from a side property line and 15’ from a rear property line. Since the closest property line is 17’, the stepbacks are being met so the maximum height is 45’ for the part of the building in the R-6 zone

Figure 1. Block 6 Setback Measurements



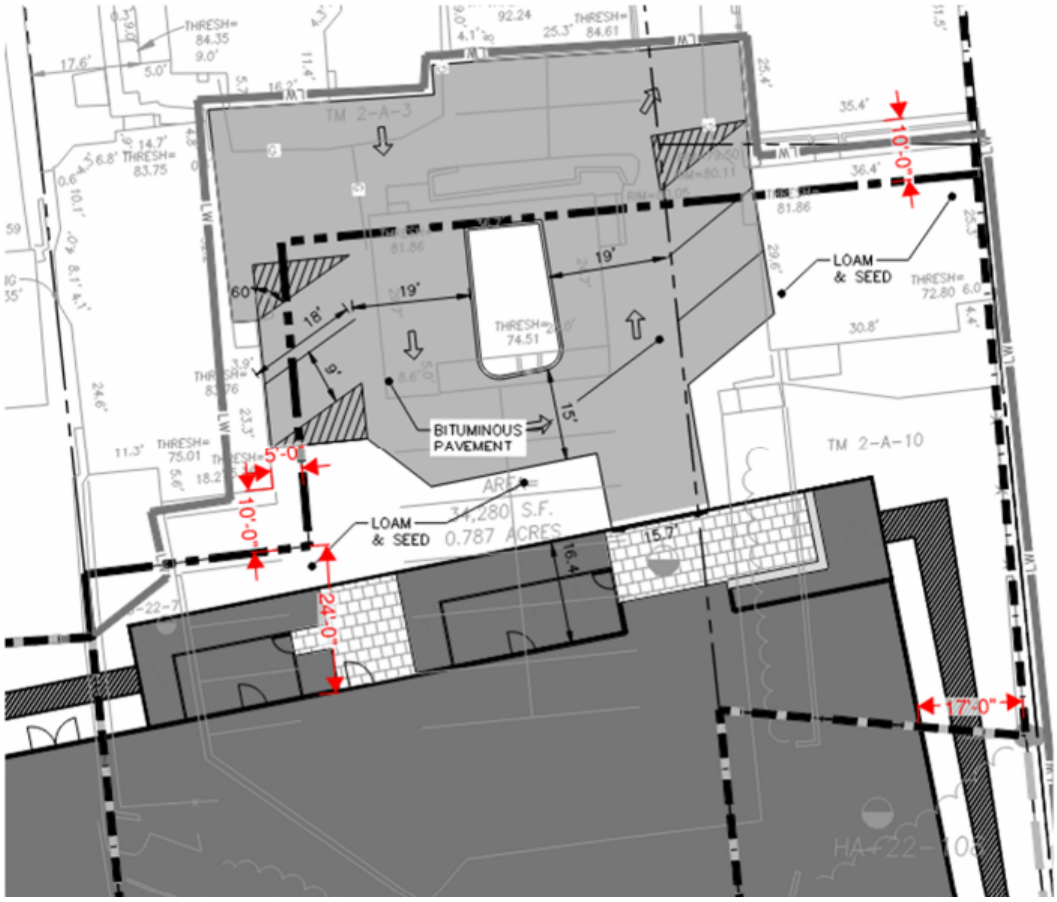
19 Eastern Prom

The size of the lot at 19 Eastern Prom (002 A003) has been reduced. The lot is now 10,275 sf. It meets the minimum lot size of 2,000 sf. The three remaining buildings contain 4 dwelling units total and therefore meet the 725 sf lot area per dwelling unit requirement. The required side setback of the remaining rear building (#13) of 5' is being met as is the 10' rear setback. The rear setback for Building #19 (front left side building) meets the 10' rear setback since it scales at 25'.

21 Eastern Prom

The size of the lot at 21 Eastern Prom (002 A004) is now 3994 sf which meets the minimum lot size of 2,000 sf. The required rear setback of 10' is being met. The other setbacks are not being impacted by the change to the lot size.

Figure 1. Block 6 Setback Measurements *(updated 9/5/2023)*



1. PROJECT SUMMARY

On behalf of Portland Foreside Development Company (Applicant), Woodard & Curran is pleased to submit this Major Site Plan Application to develop Blocks 4, 5 and 6 of the Portland Foreside Master Development Plan ("Phase 2"). A letter authorizing Woodard & Curran to act as the agent on behalf of the Applicant is attached to this Section.

Woodard & Curran previously submitted materials for this Major Site Plan Application that included only Block 4 and Block 6. We have updated the Major Site Plan Application to now also include Block 5.

The transformation of the former 58 Fore Street Portland Company Complex property is underway as it emerges into a new urban neighborhood that is a welcoming place to live, work and visit, while staying connected to its authentic and important past. The development is known as Portland Foreside, and this next phase of implementing the Master Development Plan will continue the redevelopment of this 10.7-acre property into an accessible, connected, public neighborhood along the City's eastern waterfront.

The continued redevelopment of the 58 Fore Street property into a resilient, mixed-used waterfront neighborhood will be a tremendous benefit to the City. This next phase of development is arranged around the following framework:

- Support the City in its goal for housing production by providing 440+ housing units which will help meet critical demand in the market;
- Support the City's goal of providing a variety of housing types by introducing rental apartments, townhouses and condominiums to the market that are located along the waterfront in a densely developed area of the City with access to a variety of transportation options;
- Improve public connections from the eastern waterfront to the rest of the City through meaningful open spaces, plaza spaces and pedestrian/bicycle connections;
- Reinforce the eastern waterfront as key to the City's overall health and vibrancy;
- Consider resiliency and sustainability measures that are important to the City such as redevelopment and reuse, provisioning for EV charging stations and renewed focus on pedestrians and bicycles;
- Introduce additional housing, retail, office, hotel, and restaurant spaces that all contribute to the City's tax and employment bases; and
- Continue utility and infrastructure improvements that will serve the development and provide added benefits to the surrounding area such as improved drainage and stormwater quality.

As one of the largest redevelopment projects in the City, this next phase of the Portland Foreside redevelopment work will continue to turn this underutilized waterfront area into a space for residents, employees, and visitors to enjoy. With thoughtful connections to existing and new open space, the new housing and economic opportunities will bring to life many of the ideas that were envisioned by the Eastern Waterfront Master Plan and Portland's Plan 2030.

1.1 Completed Development Phases

The redevelopment planning for the former Portland Company Complex Site began with a Master Development Plan that was approved by the City of Portland Planning Board in 2016. The Master Development Plan includes seven development "blocks" consisting of new buildings, renovated historic buildings, open space plazas, public access easements, view corridors to the waterfront, a marina, and a private roadway that provides shared access for both vehicular and pedestrian traffic through the Site. Figure 1-1 below shows the block layout as it was approved as part of the Master Development Plan.

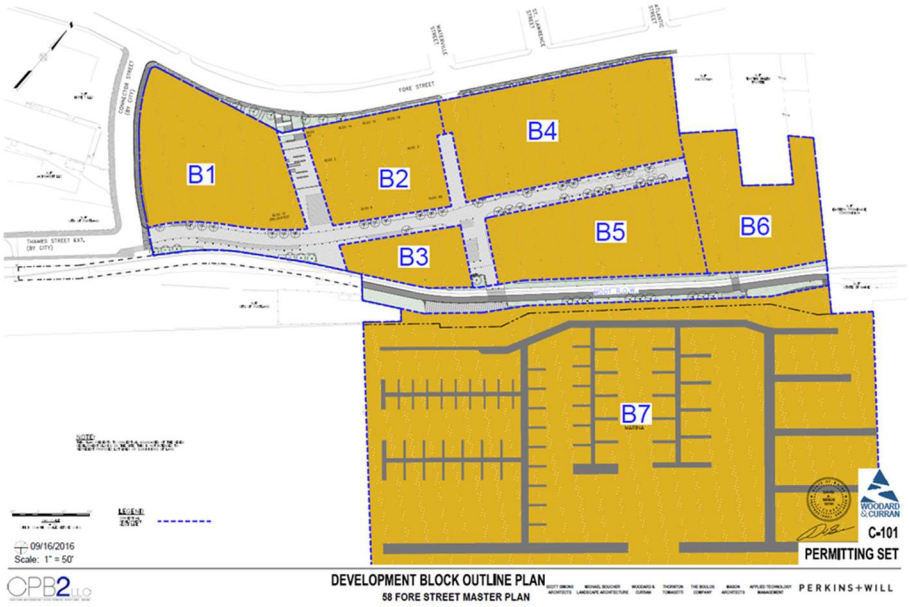


Figure 1-1 Master Development Plan Blocks B1-B7

The site has previously received a number of permits from the City of Portland, as described later in this report. The work that has been completed to date includes the construction of the Fore Points Marina on Block 7, Buildings 1A and 12 on Block 1, the extension of utility infrastructure within the site to support both the constructed and future blocks, the extension of Thames Street as a private roadway into the site, and site and landscaping improvements supporting the site. These site improvements include the construction of the Grand Stair and pedestrian plaza space between Blocks 1 and 2 that provides access from Fore Street within the public access easement on the site.

1.2 Proposed Project Description – Phase 2

The proposed development continues the implementation of the overall vision for the site which is to create a mixed-use neighborhood. The three development blocks in Phase 2 (Block 4, Block 5, and Block 6) include residential, hotel, parking, retail, restaurant, and public open space uses. The proposed uses are consistent with the original Master Development Plan.

For this Major Site Plan application, we have broken all proposed development areas for Block 4, Block 5, and Block 6 into four categories – residential, hotel, retail/service/restaurant, and parking. These categories are consistent with other blocks of development on the site.

Block 4

Development of a portion of Block 4 was previously submitted and approved as part of a Phase 1 Level III Site Plan Application that was approved by the Planning Board in January 2020 (PL-000924-2019). Block 4 previously included a structured parking garage that would allow for future buildout of residential (above), ground-floor retail (south elevation) and expansion of the parking garage into other development blocks during a future phase. A small number of residential units, storage and retail were proposed on the west elevation. After the project received Planning Board approval for the Level III Site Plan, construction advanced on a portion of Phase 1; however, Block 4 construction was not completed. A Level III Site Plan amendment will be submitted under separate cover to remove Block 4 from the Phase 1 Site Plan.

The current proposed development work now includes the full build-out of Block 4, with some revisions to what was previously planned during Phase 1. This work will include the construction of a four-level structured parking garage with overlying rental apartment units and plaza space, three-story townhouses along Fore Street, and ground-level retail on the north and south elevations. Table 1-1 summarizes the uses and square footage amounts associated with Block 4 and provides a comparison to the previously approved Phase 1 version of the block.

Table 1-1 Block 4 Building Use Breakdown

Use	Previously Approved Phase 1 Block 4 (January 2020)	Proposed Phase 2 Block 4 (Current Application)
	Area (SF)	*Area (SF)*
Residential	12,900 (12 units)	200,866 (247 units)
Hotel	N/A	N/A
Retail/Service/Restaurant	1,100	47,035
Parking	221,800 (652 spaces)	168,374 (443 spaces)
Total	**234,700 SF**	**416,275 SF**

The parking garage within Block 4 has been reduced in size from what was previously approved. The garage will connect below-grade to Blocks 5 and 6, providing a continuous parking area that will serve all blocks. Below-grade parking on Blocks 4, 5 and 6 will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.

Block 5

Block 5 includes development of an eight-story building comprised of a hotel, residential condominiums ground-level retail and restaurant, and below-grade parking. Building amenities include function space, a fitness center and spa, pools, social club space, and rooftop garden. The table below summarizes the uses and square footage amounts associated with Block 5. These categories are consistent with other blocks of development on the site.

Table 1-2: Block 5 Building Use Breakdown

Use	Proposed

	Area (SF)
Residential	74,094 (43 units)
Hotel	128,309 (128 units)
Retail/Service/Restaurant	42,708
Parking	13,422 (35 spaces)
Total	**258,533 SF**

Block 6

Block 6 includes development of residential condominiums, an interior courtyard area, ground-level retail, and below-grade parking. The residential condominiums will be built throughout with amenities that include a café/library, coworking space, fitness center and spa, pool, community room, and rooftop garden. The table below summarizes the uses and square footage amounts associated with Block 6.

Table 1-3: Block 6 Building Use Breakdown

Use	**Proposed**
	Area (SF)
Residential	196,660 (154 units)
Hotel	N/A
Retail/Service/Restaurant	9,108
Parking	67,798 (166 spaces)
Total	**291,836 SF**

Infrastructure, Utilities & Access Improvements

Shared street infrastructure and utilities will be installed throughout the site in the common spaces between the development parcels with reciprocal easements granted throughout. The private roadway into the site is an extension of Thames Street and carries the primary utilities to serve the buildings of Blocks 4, 5 and 6. This is a continuation of infrastructure installation that began with Phase 1 of the project.

Interim Conditions

In order to create a complete, functional site following construction of Phase 2, interim conditions are proposed in Block 2, which will not see its finished condition as part of this project. Minor surface improvements, grading, and utility work are required within Parcel 2B and 2C to enable the surrounding work for Phase 2.

CITY OF PORTLAND
Planning & Urban Development Department

MAJOR SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

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

At the time of application submission, please contact the Department of Public Works regarding E-911 addressing for your project.

GENERAL APPLICATION DOCUMENTS	
Yes NA	**Project Description** ● Cover letter with detailed project description
Yes NA	**Completed Checklist** (this document)
Yes NA	**Evidence of 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** (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
Yes NA	**Site Plan Standards Assessment** (see Section 14.6 of the land use code) • Summary of project compliance with site plan standards of the land use code
Yes NA	**Summary of Existing and/or Proposed Easements or Covenants, applicable.** ● Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way
Yes NA	**Waiver Requests** (see Waiver Table) ● Written request for waiver describing request and compliance with applicable waiver standards
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

MAJOR 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**	**Impact on Surrounding Street Systems (14-14.6.1(A))** ● Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes **NA**	**Access and Circulation (14-14.6.1(B))** Identify and describe the following: ● Site access and internal circulation, including ADA access ● Drive-up features, if applicable ● Loading and servicing needs, routes, and geometry, providing turning templates for delivery vehicles, if applicable ● Sidewalks and condition along street frontages and internal walkways ● Engineered details for ADA ramps and public sidewalks, meeting sidewalk material policy and construction requirements (Technical Manual, Section 1)
Yes **NA**	**Public Transit (14-14.6.1(C)), if applicable** Identify and describe the following: ● Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter
Yes **NA**	**Off-Street Parking (14-14.6.1(D)), if applicable** Identify and describe the following: ● Proposed vehicular and bicycle parking supply (including ADA-compliant parking) in relation to applicable parking requirements in Article 19 of the land use code ● Curb cut separation and parking layout (Technical Manual, Section 1) ● Construction details for bicycle racks ● Management plan for snow storage and removal
Yes **NA**	**Transportation Demand Management (TDM) (14-14.6.1(E)), if applicable** ● Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements

ENVIRONMENTAL	
Yes NA	**Preservation of Significant Natural Features (14-14.6.2(A)), if applicable** Identify and describe the following: ● High and moderate value waterfowl and wading habitat ● Aquifers (for Casco Bay Islands) ● Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) ● Proposed preservation areas and protection measures ● Documentation from environmental compliance consultants and determinations from applicable state and federal agencies
Yes NA	**Landscape Preservation (14-14.6.2(B))** Identify and describe the following: ● Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4) ● Measures to protect existing vegetation during construction
Yes NA	**Site Landscaping and Buffers (14-14.6.2(C))** Identify and describe the following: ● Overall landscaping approach and consistency with standards ● The use of screening and buffering of service areas and between non-residential and residential uses ● Existing Heritage or Feature Trees on site and measures to preserve ● Compliance with street tree requirements
Yes NA	**Water Quality, Stormwater Management, and Erosion Control (14-14.6.2(D))** Identify and describe the following: ● Erosion and sedimentation control plan and measures ● Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater law, as applicable ● Subsurface sanitary sewage disposal and groundwater protection measures

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY		
Yes	NA	**Consistency with City Master Plans (14-14.6.3(A))** ● Describe proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes	NA	**Public Safety and Fire Prevention (14-14.6.3(B))** Identify and describe the following: ● Compliance with Crime Prevention through Environmental Design (CPTED) requirements (Technical Manual, Section 3) ● Emergency vehicle access ● Consistency with public safety standards (Technical Manual, Section 3)
Yes	NA	**Availability and Adequacy of Public Utilities (14-14.6.3(C)) (Technical Manual, Sections 2 & 9)** Identify and describe the following: ● Electrical services, including providing underground services ● Existing and proposed connections for public utilities and required public utility upgrades ● Sewer line connections
SITE DESIGN		
Yes	NA	**Massing, Ventilations and Wind Impact (14-14.6.4(A))** Identify and describe the following: ● Wind and ventilation impacts on adjoining structures and/or adjacent public spaces, including wind study, if applicable ● Bulk, location, or height impacts on adjoining structures
Yes	NA	**Shadows (14-14.6.4(B)), if applicable** ● Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes	NA	**Snow and Ice Loading (14-14.6.4(C))** ● Describe building design measures to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes	NA	**View Corridors (14-14.6.4(D)), if applicable** ● Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes	NA	**Historic Resources (14-14.6.4(E)), if applicable** Identify and describe the following: ● The site's status as a designated landmark, within a historic district or historic landscape district, or within 100 feet of any designated landmark, historic district, or historic landscape district ● Compliance with standards for preservation and documentation of archaeological resources

Yes	NA	**Exterior Lighting (14-14.6.4(F))** ● Describe how the proposed site lighting will adhere to photometrics requirements as it relates to light trespass and full cutoff fixture design, pursuant to Technical Manual Section 12
Yes	NA	**Noise and Vibration (14-14.6.4(G))** ● Provide data on noise levels for HVAC and other mechanical equipment, such as design specifications, to demonstrate consistency with state and federal noise emissions requirements as well as City code
Yes	NA	**Signage and Wayfinding (14-14.6.4(H)), if applicable** ● Provide signage plan showing the location, dimensions, height and setback of all existing and proposed signs ● Provide drawings of all commercial and directional signage on site
Yes	NA	**Zone-Related Design Standards (14-14.6.4(I))** ● Address any applicable design review standards by zone, including compliance with Design Manual

MAJOR SITE PLAN
DRAWINGS CHECKLIST

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

All drawings must be submitted in a 24 x 36 sheet size.

BOUNDARY SURVEY (stamped by a Maine Licensed Surveyor and drawn as per Technical Manual Sec. 13)

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

All sheets – Include a title block with project title and the following information:

- Project street address
- Name and address of property owner & applicant
- Licensed design professional, incl firm that produced plans
- North arrow
- Date of preparation and revision history block
- Tax parcel (chart, block, and lot) number

Existing Conditions Plan with the following:

- Existing structures, with distance from primary building façade(s) to the property line
- Approximate location of structures on abutting properties
- All streets and intersections adjacent to the site
- Existing driveways, pedestrian ways, and bicycle infrastructure, including dimensions and materials
- Existing public transit infrastructure
- Existing vehicle & bicycle parking areas
- Existing utilities on site and within adjacent rights-of-way
- Existing grades (two-foot contours preferred)
- Location of water courses, wetlands, and vegetation, or other significant natural features
- Existing soil conditions and location of test pits and borings
- Zoning boundary lines, including overlays
- Location of all existing easements and rights-of-way

Proposed Site Plan with the following:

- Proposed structures, including distance from primary building façade(s) to property lines
- Ground floor area, and finished floor elevations for all buildings
- Any proposed geometric modifications to streets and intersections adjacent to site
- Location, dimensions and materials of all proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas, including turning templates
- Proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications
- Location of all snow storage areas
- Exterior lighting (please see Technical Manual Sec. 12 for photometrics requirements)

- Location of fire hydrants
- Location of solid waste management receptacles
- Location of all proposed HVAC and mechanical equipment, including proposed screening, where applicable
- Location of proposed easements and rights-of-way, including dimensions
- Please utilize color-coding and/or hatches and shading to delineate changes between the pre and post development condition as needed

UTILITY PLAN including:

- Proposed electrical infrastructure
- Location, sizing and directional flows of all proposed sewer and stormwater infrastructure
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- Proposed grades
- Proposed stormwater management measures meeting Technical Manual (Section 5) standards
- Any proposed alteration of a watercourse or wetlands
- Any groundwater protection measures
- Proposed buffers and preservation measures for wetlands or significant natural features

LANDSCAPE PLAN including:

- Existing vegetation to be preserved and preservation measures
- Proposed landscaping, screening, and street trees, including caliper widths for trees
- Planting schedule, including street trees

ARCHITECTURAL PLANS AND RENDERINGS including:

- Exterior building elevations, color renderings, illustrations of all sides
- Axonometric and street-level views for structures greater than three stories in height
- Provide context drawings, if applicable (Design Manual, page 1)
- Floor plans

CONSTRUCTION MANAGEMENT PLAN including:

- Specifics on traffic control, sidewalk sheds, and pedestrian rerouting
- Include a drawing and written narrative

OTHER

- Details and cross-sections, as necessary

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) B6 - Blocks 4, 5 and 6

All Projects:

	Required	Proposed
Lot Size	10,000 SF	438,900 SF
Area Per Dwelling Unit	N/A	N/A
Minimum Street Frontage	N/A	N/A
Front Yard Minimum (Setback)	N/A	N/A
Front Yard Maximum (Setback)	10'	10'
Rear Yard (Setback)	N/A	N/A
Yard Right (Setback)	N/A	N/A
Yard Left (Setback)	N/A	N/A
Side Street Setback	N/A	N/A
Step Back	N/A	N/A
Maximum Lot Coverage	N/A	N/A
Minimum Lot Coverage	N/A	N/A
Maximum Height	45/55/65/Fore St	Varied
Open Space	N/A	N/A
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	See parking study	See parking study
Loading Bays	1	3
Other 1 Length of building wall at maximum setback (min)	N/A	N/A
Other 2		
Other 3		

See Average Grade Figure for more detail on locations of varied height requirements and Building Elevations for corresponding heights.

For 5,000-40,000 SF retail; loading area provided for each, Blocks 4, 5 and 6 The project is located east of the Fore Street Connector.

ZONING ANALYSIS Relevant Zone(s) R6 - Block 6

All Projects:

	Required	Proposed
Lot Size	2000 SF	20,000 SF
Area Per Dwelling Unit	725 SF	741 SF
Minimum Street Frontage	20'	N/A
Front Yard Minimum (Setback)	5'	N/A
Front Yard Maximum (Setback)	N/A	N/A
Rear Yard (Setback)	10'	15'
Yard Right (Setback)	None	18'-6"
Yard Left (Setback)	None	N/A
Side Street Setback	None	N/A
Step Back	10' side/15' rear	> min
Maximum Lot Coverage	60%	55%
Minimum Lot Coverage	N/A	55%
Maximum Height	45'	45'
Open Space	20%	45%
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	See parking study	See parking study
Loading Bays	N/A	N/A
Other 1 Lot Width	20'	100'
Other 2		
Other 3		

A total of 27 units fall in part or in whole within the R6 portion of the property.

The portion of the lot in the R6 zone does not front on a public street

The portion of the structure in the R6 zone does not have a front yard, or a yard left (west) as it is is integral with the remainder of the building that extends into the B6 zone.

The portion of the building in the R6 zone will be located such that it will exceed minimum setbacks and in turn minimum step backs as required.

ZONING ANALYSIS Relevant Zone(s) R6 -Remaining Fore St Property

Note, no new building construction is proposed; two buildings will be demolished; only dimensional items that have changed are noted.

All Projects:

	Required	Proposed
Lot Size	2000 SF	14,260 SF
Area Per Dwelling Unit	725 SF	1,100 SF
Minimum Street Frontage	20'	No change
Front Yard Minimum	5'	No change
Front Yard Maximum	N/A	N/A
Rear Yard	10'	10'
Yard Right	5'	No change
Yard Left	5'	No change
Side Street Setback	None	N/A
Step Back	10' side/15' rear	No change
Maximum Lot Coverage	60%	43%
Minimum Lot Coverage	N/A	N/A
Maximum Height	45'	No change
Open Space	20%	20%
Maximum Impervious Area	N/A	N/A
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	13	13
Loading Bays	N/A	N/A
Other 1		
Other 2		
Other 3		

13 dwelling units remaining; parking spaces to be provided within the Block 4/6 parking garage

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):			

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.
Current Department of Public Works Requirements for Driveway Aprons	Per discussions with City DPW staff, driveways should be continuously graded without pedestrian ramps.	Driveway apron at the Fore Street garage to be graded with pedestrian ramps on both sides.	The steepness of the existing Fore Street slope does not allow for a continuously graded driveway apron.
City of Portland Technical Manual Section 1 - Transportation Systems - subsection 1.10 Parking Lot and Parking Space Design	Parking spaces shall meet the following dimensional requirements: Standard parking space: 9 feet wide by 18 feet long, except that low turnover parking spaces, such as those used by residents or employees, may be designed with a width of 8'-6" and considered a	Request approval of spaces within the parking garage as dimensioned on the plans.	The parking garage has been designed in accordance with industry standards for parking space and drive aisle dimensions, and includes valet operated stacking systems. The parking lot dimensions prescribed in the Technical Standards are not efficient
City of Portland Technical Manual Section 5 - Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management Section IV.	...provide the following submission items...Flooding Standard: Subcatchment plans with flow paths, full hydrology computations/model output of pre- and post-development conditions, summary of pre- and post-development	The project site received a waiver of the Flooding Standard as part of the Master Development Plan. This waiver will continue to remain in place for the current phase of work.	As described in our Stormwater Management report, our site discharges directly to Casco Bay, part of a tidal body of water, via the outfall discharge.

2. PERMITTING & ZONING

For the proposed Phase 2 development work, a Major Site Plan Application is required along with a number of associated permit applications and updates. This section documents prior permits, proposed permits, and a number of conditions required for the project's permits.

2.1 Prior Permitting

The Portland Foreside redevelopment project has received a number of prior permit approvals from the City of Portland for the overall project and for work that has been completed to date on the site.

Master Development Plan

The 58 Fore Street Master Development Plan was unanimously approved by the Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acre former Portland Company Complex into a mixed-use development. The 2016 Master Development Plan approval established the general parameters for the overall development including development program, massing, open space, and infrastructure. The proposed development of Blocks 4, 5 and 6 is consistent with the Master Development Plan.

Traffic Movement Permit

The project received a Traffic Movement Permit (TMP) from the City of Portland under its delegated review authority on May 26, 2017. This permit was approved in association with the Master Development Plan, and the site's phased projects have, and will continue to address the requirements of this permit. No updates to this permit have been required, and the current proposed development work will continue to fall within the thresholds established by the TMP.

Phase 1 Level III Site Plan (PL-000924-2019)

On January 28, 2020, the project received approval of a Level III Site Plan, Site Location of Development Permit (under delegated review authority) and Subdivision from the Portland Planning Board for Phase I of the development. Phase I included portions of Block 1 (office building on Parcel 1A and reconstruction of Building 12 on Parcel 1C), Block 2 (renovation of historic core buildings on Parcels 2A, 2B and 2C), a portion of Block 4 (parking garage on Parcel 4), construction of site infrastructure around these buildings, and improvements along the waterfront. This approved waterfront work included the relocation of the MaineDOT-owned corridor that includes the Maine Narrow Gauge Railroad and the Eastern Promenade Trail closer to the water. The first part of the work approved as part of the Level III Site Plan, including construction of Building 1A, Building 12, and associated site and utility infrastructure is largely complete.

Waterfront Level II Site Plan (PL-00906-2019)

On April 17, 2020, Level II Site Plan approval was granted by the Planning Authority for work associated with Fore Points Marina, which included modifications to the seawall and site utilities, as well as two stormwater outfalls to convey runoff from the upgradient Portland Foreside Development. Shortly after receiving approval for the project, a short section of the seawall failed adjacent to the eastern outfall. As a result, the work associated with this approval was only partially constructed in 2020. The western stormwater outfall and some of the proposed utility work has been completed. This Level II Site Plan approval also

permitted up to 13 temporary buildings totaling no more than 3,200 square feet within the Marina Operations Area.

Minor Site Plan (PL-001656-2021) and Master Development Interim Conditions (PL-001654-2021)

As the planned final condition for Fore Points Marina is dependent on the completion of other work on the site, it was identified that there is a varying interim condition in the marina space. On November 23, 2021, the Planning Board approved an amendment to the Master Development Plan approval to add an interim condition plan for Fore Points Marina. This MDP Interim Conditions plan permitted up to 13 temporary buildings totaling no more than 3,200 square feet within the Marina Operations Area. Subsequently, on January 13, 2022, the Planning Authority approved a Minor Site Plan amendment application for interim conditions on the Fore Points Marina property.

Minor Site Plan Amendment (PL-001656-2021): This amendment application included relocation of the Fore Points Marina temporary buildings within current property boundaries. This application was approved by City Staff on January 30, 2023.

Waterfront Enablement Site Plan Amendments

On July 29, 2022, an amendment application was initially submitted for waterfront and utility enablement work. Per discussions with City Planning staff, we have separated the review materials and resubmitted them as part of three separate application packages to distinguish the different amendments. The applications include the following:

- *Phase I Level III Site Plan Amendment (PL-000924-2019):* Submitted to the City on October 25, 2022. This amendment application included modification to the Maine DOT corridor, relocation of the Maine Narrow Gauge Railroad rail lines, relocation and widening of the Eastern Promenade Trail, modifications to waterfront improvements and modifications to utility infrastructure within the land swap boundaries shown on the approved Level III site plan application. This application will be revised to include removal of Block 4 from the Site Plans.

- *Waterfront Level II Site Plan Amendment (PL-00906-2019)*: Submitted to the City on October 25, 2022. This amendment application included relocation of a stormwater outfall and modification to seawall reconstruction.

We are working with the City on these applications, and they will be reviewed and approved separately.

2.2 New Permits Required

The proposed Phase 2 development work will require approval by the Planning Board for multiple permit applications.

Major Site Plan

The project's size and scale qualify it for a Major Site Plan that will require review and approval by the Planning Board.

Site Location of Development (SLOD) Amendment

The project is subject to the Maine Department of Environmental Protection (DEP) regulations for a Site Location of Development Act (SLOD) or Site Law Permit. It is our understanding that the project will be reviewed as an amendment to the prior approved SLOD by the City of Portland under their Delegated Review Authority. A separate SLOD permit application has been provided with this Site Plan Application, and 3 paper copies will be provided for the City to give to the Maine DEP.

Subdivision Plan Amendment

This application requires modifications to the previously approved 58 Fore Street Subdivision Plan, which divides property into ten development parcels with utility and access space held in common with reciprocal easements granted to the proposed parcels. Specifically, the plan is being amended to subdivide Parcel 5 into Parcels 5 and 6, and to include adjacent land area acquired by the Applicant since the last subdivision plan was approved.

A draft of the revised subdivision plan prepared by Owen Haskell, Inc. is included with the project drawings.

2.3 Master Development Plan Consistency

The 2016 Master Development Plan for 58 Fore Street approved a proposed mixed-use neighborhood that intertwines a historic core with new development along the eastern waterfront. The total development square footage of 1,393,879 that was approved was broken down into the following categories:

- 958,679 SF of mixed residential and commercial uses
    - Including 638 residential units
- 435,200 SF of parking
    - Including 736 spaces

The proposed Phase 2 development is consistent with the Master Development Plan. The design intent of each phase of development is to remain true to the Master Development Plan, providing for the planned uses generally within the planned footprints. As noted, Phase 1 included Buildings 1A and 12 of Block 1, the historic core of Block 2, and a portion of Block 4. Buildings 1A and 12 have been constructed. Phase 2 includes Block 4 in its entirety, Block 5, and Block 6.

2.3.1 Residential Unit Comparison

The table below compares the number of residential units proposed during the 2016 Master Development Plan process with Phase 1 of the project that has been constructed and the currently proposed Phase 2. The total number of residential units proposed in the MDP was 638 dwelling units (D.U.). With the application for Blocks 4, 5, and 6, 444 dwelling units are proposed. Together with an anticipated future phase 1B residential building of 89 units, a total of 533 D.U. on the site is estimated, or a decrease of 105 units from the MDP. The decrease is primarily a result of refinement of the design beyond master plan level. In other words, gross square footage estimates are made during master planning based on an assumed floor area efficiency, and these can be on the conservative side. As design has advanced and adjustments are made to comply with zoning and building constraints, the total number of dwelling units has decreased.

Table 2-1 Residential Unit Comparison

Development Block	Residential Units Proposed During Master Development Plan	Residential Units Constructed to Date	Residential Units Proposed (Not Constructed Yet)	Notes
Block 1	91 units	2 units	89 units	The remainder of these units would be associated with Block 1B when it is developed if it includes a residential component.
Block 2	19 units	0	None	Residential units will not be constructed as part of Block 2.
Block 3	0	0	0	
Block 4	275 units	0	247 units	Reduction of 28 units on this block.
Block 5 – Residential Units	108 units	0	43 units	Reduction of 65 units on this block.
Block 6 - Condos	131 units	0	154 units	Increase of 23 residential units
Block 6 – Apartments	14 units	0	0	No apartment units are being proposed for this block.
Block 7	0	0	0	
TOTAL	638	2	533	This is a reduction of 105 units from the MDP phase.

2.3.2 Hotel Unit Comparison

The development program for Block 5 is a mix of hotel rooms and residential housing units. The residential housing units have been accounted above. For hotel use, the MDP originally proposed 132 rooms, while the proposed Block 5 hotel will include 128 rooms. This represents a slight reduction of 4 rooms but remains within the original intent for hotel scale.

2.3.3 Parking Comparison

The table below compares the parking totals proposed in the MDP, with the total parking constructed to date and planned for Blocks 4, 5 and 6. The MDP contemplated 736 parking spaces, and the current proposals together with the 68 spaces that have been constructed (in Phase 1) will provide 712 spaces, or 24 less spaces more than estimated at MDP.

Table 2-2 Parking Totals By Block

Block	Proposed in Master Development Plan	Actual (Constructed to Date)	Proposed (Yet to be Constructed)
B1		68 spaces	N/A
B2		N/A	N/A
B3		N/A	N/A
B4		N/A	443 spaces
B5		N/A	35 spaces
B6		N/A	166 spaces
B7		N/A	N/A
Totals	**736 Spaces**	**68 Spaces**	**644 Spaces**
		712 spaces	

2.3.4 Overall Master Development Plan Area Comparison

The following table outlines the square footage of each of the proposed Blocks to date showing progress towards the total areas defined in the Master Development Plan. In addition to the information below, the proposed development of Blocks 4, 5 and 6 is consistent with the general layout of the site on the Master Development Plan. There have been some adjustments made, as necessary. For example, with the addition of new property, the Block 6 footprint has changed. In addition, we are planning to use "stackers" for some of the structured parking areas, which allows for more efficient use of space for parking. As noted in the table, with the proposed development work in Phase 2, the site will be brought to approximately 83% of the original planned square footage for the Master Development Plan.

Table 2-3 Master Development Plan Area Comparison

Development Phase	Block/Building	Use	Area	% of Total Master Development Plan Area
Overall Master Development Plan		Mixed Residential & Commercial	958,679 SF (includes 638 residential units)	68.8%
		Parking	435,200 SF (includes 736 spaces)	31.2%
TOTAL	1,393,879 SF Total			100%
Phase 1	Block 1 - Building 1A	Office, retail	104,400 SF	7.5%
		Parking	26,500 SF (includes 68 spaces)	1.9%
Phase 1	Block 1 - Building 12	Restaurant, office, residential	9,600 SF (includes 2 residential units)	0.7%
Phase 1	Block 2	Retail, restaurant	66,200 SF	4.7%
Phase 2	Block 4	Residential, retail, restaurant	247,901 SF (includes 247 residential units)	17.8%
		Parking	168,374 SF (includes 443 spaces)	12.1%
	Block 5	Residential, retail, restaurant	97,105 SF (includes 43 residential units)	7.0%
		Hotel	148,006 SF (includes 128 rooms)	10.6%
		Parking	13,422 SF (includes 35 spaces)	1.0%
Phase 2	Block 6	Residential, retail	205,768 SF (includes 154 residential units)	14.8%
		Parking	67,798 SF (includes 166 spaces)	4.9%
TOTAL	1,155,074 SF Total 730,974 SF Mixed Residential & Commercial (446 residential units) 148,006 Hotel (128 Rooms) 276,094 SF Parking (712 parking spaces)			82.9%

2.4 Zoning

The second phase of development is associated with multiple Zoning Districts including:

- B-6 Eastern Waterfront Mixed Zone (B6),
- R-6 Residential Zone (R6), and
- Eastern Waterfront Port Zone (EWPZ).

Portions of the work will also be within the Shoreland Overlay Zone, the Portland Company Historic District, and the Munjoy Hill Historic District.

Since the time of the Master Development Plan approval, Portland Foreside has acquired the property located at 21 Eastern Promenade. The addresses associated within this property are 13, 17, 19, 21A and 21-23 Eastern Promenade. 21 Eastern Promenade is located in the R6 Zoning District. The Table below summarizes the Zoning Districts associated with Block 4, Block 5, Block 6 and the Infrastructure, Utility and Access Improvements that are being proposed.

Table 2-4 Project Zones

Development Block	Zone
Block 4	B6
Block 5	B6, EWPZ, Shoreland Overlay Zone
Block 6	B6, R6, Shoreland Overlay Zone, Munjoy Hill Historic District
Infrastructure, Utilities & Access Improvements	B6, EWPZ, and Shoreland Overlay Zone

2.4.1 B6 Zone

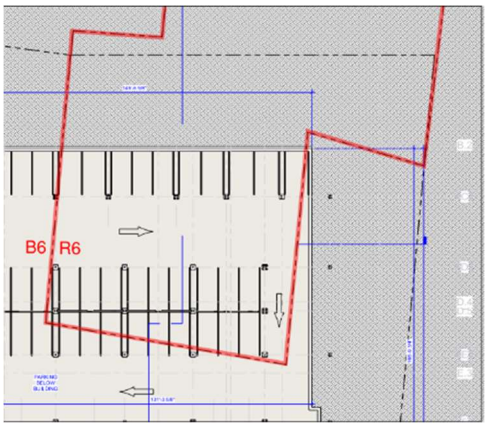
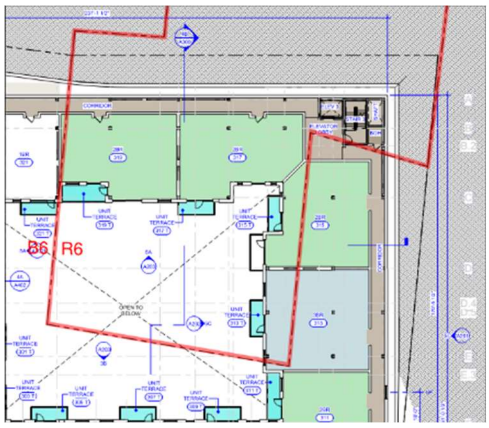
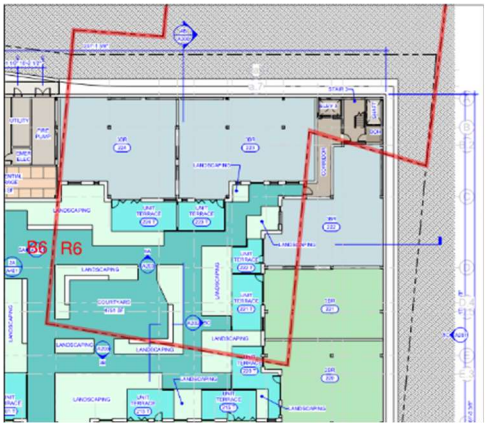
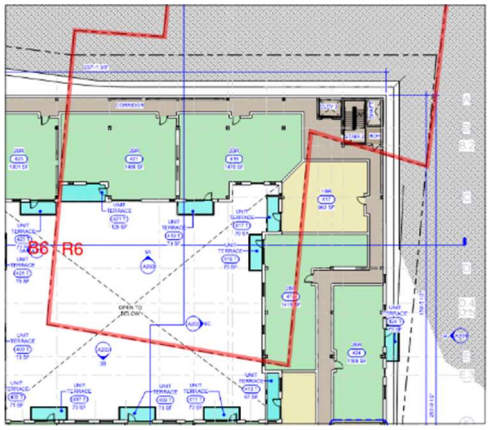
Uses associated with Blocks 4, 5 and 6 within the B6 Zone include residential, hotel, parking, and retail. Residential, hotel, and retail are permitted uses in the B6 zone. Structured parking is a permitted conditional use in B6, given that first floor retail space is provided on the street frontages. The proposed parking structure includes a first-floor retail wrap along the frontage of the new private roadway.

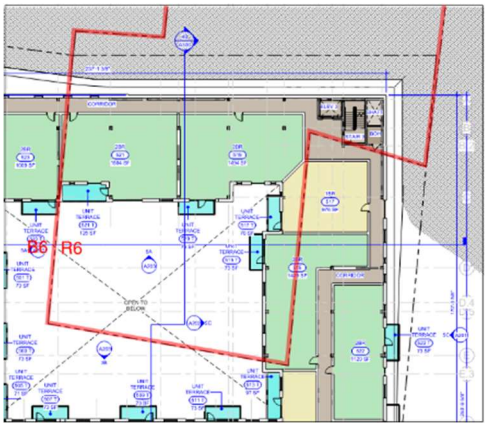
The attached Zoning Assessment Table shows that the project complies with dimensional requirements specified in the City's Land Use Ordinance. For the B6 zone, most standard zoning analysis values are not applicable. The property exceeds the required lot size. The Block 4 building has been designed to meet the maximum front yard setback and building wall length requirements. Height is addressed later in this report.

2.4.2 R6 Zone

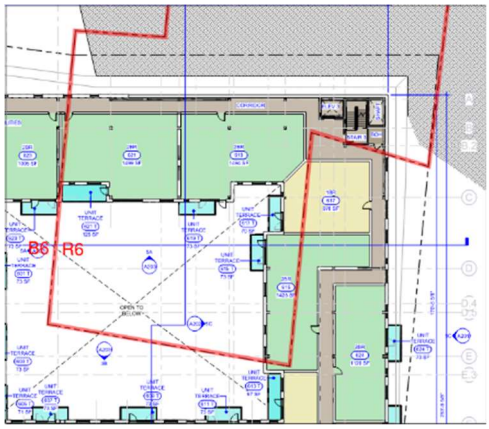
A portion of Block 6 will be located within the R6 Zone. The zone boundary crosses through the building, passing through parking on the first floor and residential units on the second through eighth floors. Screenshots of the R6 area on each of the floors are provided in the following table just for general reference and with notes on the specific uses within each floor. The zone boundary line is shown on the civil drawings as well as on the architectural floor plans where more detail can be viewed. In total, the R6 zone area includes 4 complete residential units, and 23 partial units that are split in some way by the zone boundary.

Table 2-5 R6 Zone Boundary for B6 Floors

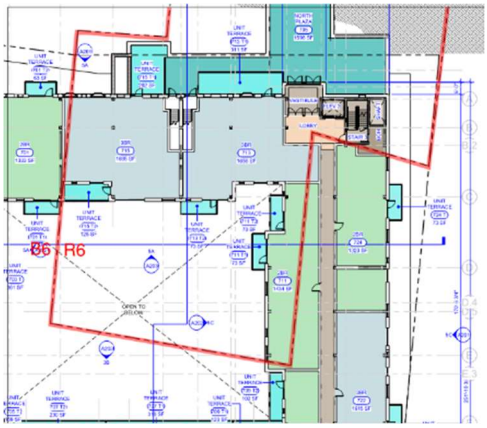
 Floor 1 – Structured Parking	 Floor 2 – 5 Partial Residential Units
 Floor 3 – 1 Complete, and 3 Partial Residential Units	 Floor 4 – 1 Complete, and 3 Partial Residential Units



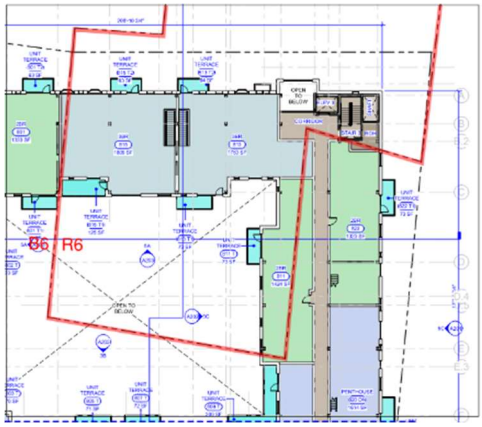
Floor 5 – 1 Complete and 3 Partial Residential Units



Floor 6 – 1 Complete and 3 Partial Residential Units



Floor 7 – 3 Partial Residential Units



Floor 8 – 3 Partial Residential Units

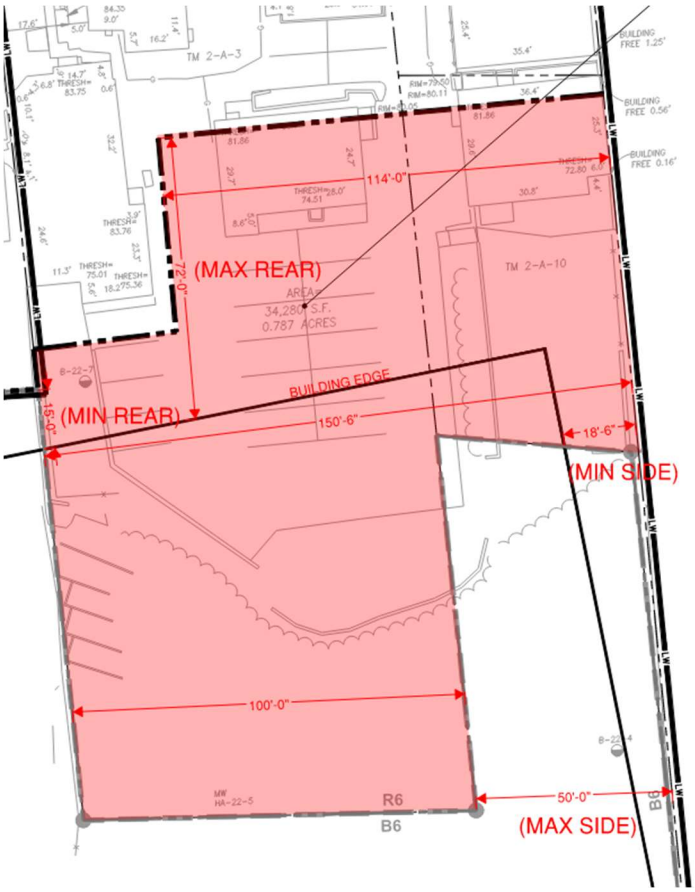


Figure 2-1 R6 Zone portion of Block 6 Development Work

The Zoning Assessment Table submitted with the application shows that this portion of the project complies with dimensional requirements specified in the City's Land Use Ordinance for the R6 zone. The size of the lot located within the R6 zone exceeds the minimum required and considering the 27 residential units located at least partially within the zone, the minimum land area per dwelling unit is accomplished. This portion of the project does not include any street frontage but is attached to the remainder of Blocks 4 and 6 that include frontage in the B6 zone. This portion of the site meets the lot dimension and coverage requirements associated with the R6 zone, and the figure above shows some general dimensional values for the portion of the site. Building height is addressed later in this section of the report.

2.4.3 Eastern Waterfront Port Zone

The portion of the site that falls within the Eastern Waterfront Port Zone is primarily not planned for direct impact due to this project. The only planned work within this zone is utility connection. Disturbance in this zone due to work on the marina and on the Eastern Promenade Trail and Narrow Gauge Railroad is covered under separate permits.

2.4.4 Building Height Evaluation

The Phase 2 buildings have been designed in compliance with the B6 Height Overlay Map and the Master Development Plan. In addition, the portion of the site that is located in the R6 Zone will comply with the height requirements of that zone.

Per the City of Portland's Land Use Code, allowable heights are calculated from average finished grade. The Master Development Plan considered the proposed parking podium structure that spans Block 4, Block 5, and Block 6 as one single structure, with an average grade measured at 50.1'. This average grade was calculated by evaluating the grade at each corner of the overall building structure. The Master Development Plan identified that Blocks 4, 5, and 6 may be constructed in phases, and noted that at each phase conformance with average grade/height regulations should be confirmed. With the inclusion of all three blocks in this revised site plan application, we have evaluated the entire building for average grade, and the included height figure shows that the average grade is calculated as 50.

The building designs take into consideration the height requirements of the B6 Height Overlay Map and the R6 Zone where applicable. The B6 map identifies areas with different height restrictions within the B6 Zone, including a number of view corridors that are defined by the streets that intersect with Fore Street. Buildings may be located within the view corridors, but the height of structures within the view corridors must be lower than the grade of Fore Street. Block 4 is located entirely within the B6 Zone in an area with a maximum height of 45', with sections that allow for 55' and 65' height extensions. The Waterville Street and St. Lawrence Street view corridors both cross the Block 4 building. Block 6 is located partially within the B6 Zone in an area with a maximum height of 45' and an allowance for 55' height extensions, and partially in the R6 zone which allows a maximum height of 45'. The Atlantic Street view corridor is located along the western edge of Block 6.

2.4.5 Housing Preservation & Replacement

During Block 6 construction, two buildings on the acquired Eastern Promenade property will be demolished. The five units in these two buildings are four, 2 bedroom/1 bath units and one, 1 bedroom/1 bath units. These buildings are non-contributing to the Munjoy Hill Historic District (see February 17, 2022 email from Deb Andrews). There are 154 condominiums that will be built as a part of the condominium project on this development block resulting in a net increase of 149 units for Block 6.

2.4.6 Inclusionary Zoning

The project is required to comply with the City of Portland's Inclusionary Zoning requirements that were in effect at the time the site received its Master Development Plan in December 2016. These Inclusionary Zoning requirements will apply to each phase of development. The Planning and Housing and Economic Development departments confirmed in September and October 2022 that these are the appropriate thresholds to consider. The project plans to meet the inclusionary zoning requirements for each block as follows:

- Block 4: This development block will include a total of 247 housing units. A total of 25 units, 10%, will be provided as market rate apartments at 100% Area Median Income (AMI).
- Block 5: This development block will include a total of 43 condominium units and 128 hotel rooms. The Applicant will be paying the fee-in-lieu for these housing units. The Applicant does not have

to comply with the hotel inclusionary zoning requirements – these were put into place after the Master Development Plan was approved in 2016.

- Block 6: This development block will include a total of 154 condominium units. The Applicant will be paying the fee-in-lieu for these units.

We have reached out to the Housing and Economic Development department to confirm what the current adjusted fee will be.

2.5 Floodplain

Portland Foreside has submitted and received approval of two Letters of Map Amendment (LOMA), removing the site's developed area from the floodplain. As a result, a Flood Hazard Permit is not required as part of this project's permit review. A copy of the LOMA documentation is attached.

2.6 Waiver Requests

We are requesting the following waivers as a part of the Site Plan process.

- Driveway Apron Grading – The steepness of the existing Fore Street slope does not allow for the creation of a continuously graded driveway apron without pedestrian ramps, per the current requirements of the Department of Public Works. We are requesting a waiver of this requirement.
- Electric Vehicle Charging – Section 1.17 Electric Vehicle Infrastructure within Section 1 – Transportation Systems of the City of Portland Technical Manual requires new structured parking facilities of five or more spaces to include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces (rounded down to the nearest whole number). Applying that formula to the Phase 2 parking garage would require a total of 129 charging stations. The applicant is currently proposing sixty nine (69) electric vehicle charging station parking spaces within the garage, as follows:

Table 2-6 Phase 2 Electric Vehicle Charging Quantities

Charger Level	EV Charging Spaces	
	Proposed	Future (Additional)
Level 2	61	62
Level 3	8	4
TOTALS	69	66

These stations will meet the projected demand for the residents and visitors to the site. The proposed 69 parking spaces represent 10% of the proposed Phase 2 parking spaces. The applicant is committed to meeting EV charging demand as it grows and will increase the number of EV charging stations within the garage, over time, up to 20%. Given the pace of change in EV charging technology and equipment, it is not advisable to install EV charging stations or other infrastructure beyond the 69 charging station spaces as described above, as the excess will largely go unused until more electrical vehicles are on the road, at which time the technology will have advanced and underutilized charging stations will need to be replaced. The current electrical infrastructure will be sized to accommodate growth (i.e., providing additional space for panels within electrical rooms

and sizing transformers to account for future electrical load). By monitoring and installing in response to demand, the applicant will remain up to date with the rapidly improving technology.

The applicant requests a Waiver from paragraph 1.17 Electric Vehicle Infrastructure within Section 1 – Transportation Systems outlined in the City of Portland Technical Manual.

- Stormwater Flooding Standard – The project site received a waiver of the Flooding Standard as part of the Master Development Plan. This waiver will continue to remain in place for the current phase of work. As described in our Stormwater Management report, our site discharges directly to Casco Bay, part of a tidal body of water, via the outfall discharge.

2.7 Evidence of State and/or Federal Approvals

The following state and federal permits will be required for the proposed work:

- MaineDEP Site Location of Development Act Permit (reviewed by City of Portland under Delegated Review Authority);
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

Copies of these permit approvals can be provided to the City of Portland.

2.8 Evidence of Financial Capability

We have included copies of two letters verifying the Applicant's financial capacity to undertake the project.

2.9 Evidence of Technical Capacity

The project team includes the following partners completing various engineering, landscape architecture, and architecture components of the project work. The project team is also supported by a number of other professional firms providing support with survey, structural design, geotechnical design, mechanical/electrical/plumbing design, and other disciplines. Copies of resumes and information on other members of the project team can be provided upon request.

- **Woodard & Curran (W&C)**, an over 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater, and construction management services. W&C has completed projects for colleges, universities, and healthcare institutions that build strong, sustainable infrastructure and environmental programs serving both their business needs and the communities that make them so vibrant. With extensive experience in design and permitting for site development projects, W&C has completed many projects within the City of Portland and for the University of Maine System.

- **MBLA** is a professional design firm located in Freeport, Maine. MBLA practices nationally and internationally, and over the past twenty-eight years, the office has collaborated on diverse and notable projects, located in a wide range of settings and climates and across the state of Maine. MBLA projects range in scale and complexity including plazas, courtyards, university building projects, private school facilities, master plans, museums, churches, resorts, parks, and residential

landscape projects. Many of MBLA's design projects have focused on creating places for people to gather while addressing issues of circulation, security, and programming.

- **Perkins+Will** architects is a firm consisting of twenty-four domestic and international offices with a depth of technical and management skill employed to execute projects of great complexity. Perkins+Will maintains a full-time QA/QC leader in each office to provide ongoing quality assurance for projects. These experts are guided by a national project delivery system that has resulted from the best practices from around the firm.

- **MARVEL** is a design firm with over 20 years of experience working at the intersection of public and private space, creating intentionally timeless design solutions that integrate nature and context. Their portfolio spans affordable housing, commercial, cultural institutions, schools and higher education, civic and public works, hospitality, high-end residential, recreational projects, workspaces, and parks and public spaces.

- **Baskervill**, founded in 1897, is one of the nation's oldest continually operating architectural firms. With five offices along the east coast of the United States, and internationally, Baskervill is a multi-disciplinary design firms with a mix of services from architecture and interior design to MEP engineering and sustainable design.

2.10 Attachments

- Agent Letter
- Location Map
- Tax Map
- FEMA Map and LOMA Documentation
- Financial Capacity Letter

2.11 Construction Management Plan (uploaded to Construction Management Plan folder in Eplan)

A draft Construction Management Plan has been prepared for the proposed development. The Contractor will be required to provide adequate safety fencing and signage directing pedestrians safely around the construction area. It should be noted that the constructability of future phases of development has been considered. The proposed development has been designed such that it will not prevent the construction of future phases of the site's Master Development Plan.

2.12 Forms (uploaded separately to Documents folder in Eplan)

- Application Checklist
- Zoning Assessment Table
- Waiver Table

2.13 Drawings (uploaded separately to Drawings folder in Eplan)

- Boundary & Topographic Surveys, prepared by Owen Haskell, Inc.
- Civil, Landscape, & Architecture Design Plans
- Subdivision Plan

FORESIDE
PORTLAND, MAINE
254 Commercial Street, Suite 118, Portland, Maine 04101

July 21, 2022

RE: Agent Authorization

To Whom It May Concern:

Woodard & Curran will be acting as the agent on behalf of PF Marina LLC and PF Land LLC for all local, state, and federal permitting associated with the projects located on or adjacent to the properties at 58 Fore Street / 110 Thames Street / 115 Thames Street / 1 Marina Way in Portland, Maine.

Please contact me if you have any questions, 207.517.1102.

Sincerely,

David Senus

Director of Planning and Design

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

PORTLAND EAST QUADRANGLE
MAINE - CUMBERLAND COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 19T

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, July 2015 - November 2015	
Roads	U.S. Census Bureau,	2017
Names	GNIS, 1980 -	2017
Hydrography	National Hydrography Dataset, 2003 -	2016
Contours	National Elevation Dataset, 2005 -	2012
Boundaries	Multiple sources; see metadata file 2014 -	2016
Wetlands	FWS National Wetlands Inventory 2001 -	2004

MN GN
15°23′
273 MILS
0°49′
15 MILS
UTM GRID AND 2017 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
00
CJ DJ
Grid Zone Designation
19T

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18



QUADRANGLE LOCATION

1	2	3
4		5
6	7	

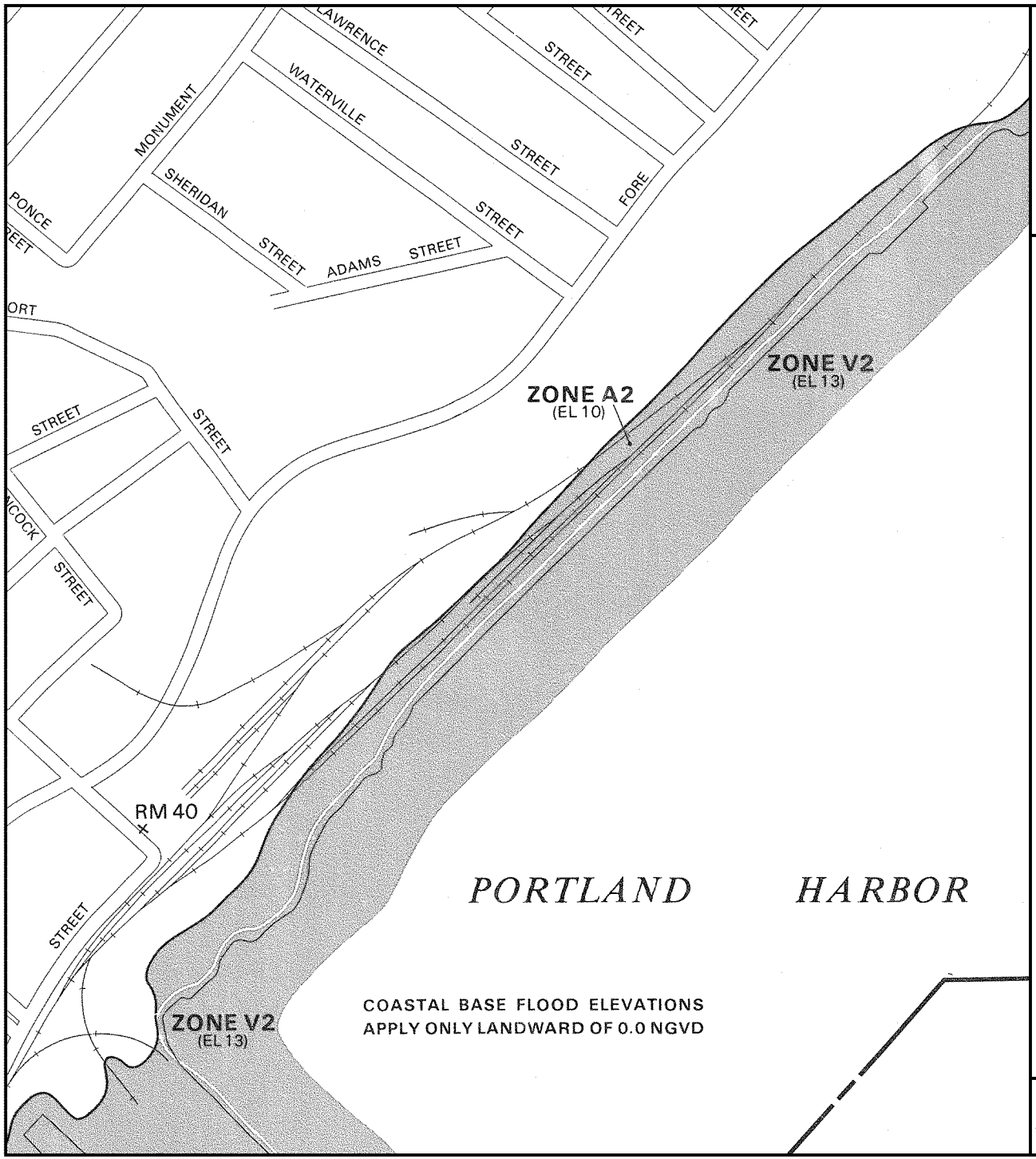
ADJOINING QUADRANGLES
1 Cumberland Center
2 Yarmouth
3 Freeport
4 Portland West
5 South Harpswell
6 Prouts Neck
7 Cape Elizabeth

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORTLAND EAST, ME
2018

76430163704O9
NSN.
NGA REF NO. USGSX24K36119


018 A003
125,017 Sq. Ft
018 A001
269,182 Sq. Ft
018 A004
46,597 Sq. Ft
018 A007
19,068 Sq. Ft
018 A002
018 A005
6,668 Sq. Ft
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40,432 Sq. Ft
446 A004
304,290 Sq. Ft
446 A002
374,692 Sq. Ft
445 A001
233,010 Sq. Ft
445 A002
1,084,465 Sq. Ft
446 A003
18,699 Sq. Ft
002 A007
113,006 Sq. Ft
002 A014
82,604 Sq. Ft
002 A004
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002 A010
4,508 Sq. Ft
002 A003
23,559 Sq. Ft
002 A002
16,309 Sq. Ft
002 A016
46,567 Sq. Ft
002 A017
8,830 Sq. Ft
002 A020
9,370 Sq. Ft
002 A022
2,575 Sq. Ft
002 A019
11,440 Sq. Ft
002 X001
276,003 Sq. Ft
002 A016
20,608 Sq. Ft
001 C002
27,091 Sq. Ft
001 C003
89,779 Sq. Ft
001 C005
68,445 Sq. Ft
001 C004
129,630 Sq.
016 C017
016 C009
016 C018
016 C010
016 C019
016 C012
016 C020
016 C013
016 C021
1,948 Sq. Ft
016 C022
3,960 Sq. Ft
016 C023
8,837 Sq. Ft
003 O013
003 O012
003 O014
8,000 Sq. Ft
003 O007
6,720 Sq. Ft
016 F001
10,017 Sq. Ft
016 F002
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016 J023
016 J021
016 J020
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3,204 Sq. Ft
016 J006
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4,770 Sq. Ft
016 J065
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016 J033
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016 E022
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016 F015
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016 F017
016 F018
017 E001
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017 E002
017 E003
017 E004
017 E005
6,400 Sq. Ft
017 E006
017 E009
017 E010
017 E011
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017 E012
017 E013
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017 E034
017 E035
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017 E038
017 E042
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017 E031
017 E030
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4,000 Sq. Ft
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2,400 Sq. Ft
017 E027
017 E026
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017 E017
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017 F001
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017 F006
017 F007
017 F008
017 F009
017 F010
017 F011
017 F012
017 F013
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017 F029
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017 F021
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017 G033
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017 G015
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017 G009
017 G007
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019 A016
019 A017
019 A003
019 A013
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019 A002
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019 A015
019 A008
64,226 Sq. Ft
4,800 Sq. Ft
019 A014
2,953 Sq. Ft
C009
Amethyst Park
MUNJOY SOUTH
ADAMS ST
FORE ST
THAMES ST
JOHN POOR XING
RAIL YARD PLZ
BRASS KEY
BOILER PSGE
EASTERN PROM TRAIL
FREEDOM WAY
KELLY ST
WATERVILLE ST
SHERBROOKE ST
ST LAWRENCE ST
MUNJOY ST
EASTERN PROM
FORT ALLEN PARK
MONUMENT ST
COUNTFORT ST



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 14 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0014 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



CASCO BAY / FORE RIVER

SCALE : 1" = 50'

0' 25' 50' 100'

Area to be Removed from Flood Zone AE

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°33'49" W ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49" W CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET TO THE NORTHERLY LIMIT OF FLOOD ZONE A2 (EL 10) AS SCALED FROM FEMA FLOOD INSURANCE RATE MAP NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG THE NORTHERLY LIMIT OF SAID FLOOD ZONE A2:

N 18°22'51" E A DISTANCE OF 26.60 FEET;
N 48°05'42" E A DISTANCE OF 204.67 FEET;
N 50°41'38" E A DISTANCE OF 184.50 FEET;
N 45°09'56" E A DISTANCE OF 136.93 FEET;
N 47°53'09" E A DISTANCE OF 144.17 FEET;
N 39°47'45" E A DISTANCE OF 121.02 FEET;
N 60°27'17" E A DISTANCE OF 116.02 FEET;
N 44°32'44" E A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM;

THENCE, S 47°03'07" E ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING, CONTAINING 28,157 S.F. OR 0.65 ACRES, MORE OR LESS.

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.

Plan References

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *AMENDED SUBDIVISION PLAN, OCEAN GATEWAY, COMMERCIAL STREET, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD CITY OF PORTLAND JULY 17, 2019 BY OWEN HASKELL.*

7. *SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC, BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN PLAN BOOK 220, PAGE 65.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMUM FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

General Notes

1. OWNER OF RECORD: CPB2 I LLC, C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75, BOOK 35264, PAGE 286. SEE AFFIDAVIT RECORDED IN BOOK 34737 PAGE 327 FOR NAME CHANGE & CPB2 I LLC BOOK 35576 PAGE 153

2. PARCEL IS MADE UP OF LOTS A3, A1, PART OF A2 & PART OF A13 ON TAX MAP 18 AND LOT A3 & A16 ON TAX MAP 19 AS SHOWN ON THE OFFICIAL CITY OF PORTLAND TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

EXISTING CONDITIONS SURVEY

58 Fore Street
Portland, Cumberland County, Maine
Made For
PF One Devco LLC & PF Land LLC

Surveyor's 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 CURRENT STANDARDS OF PRACTICE.

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: NOVEMBER 5, 2020
REVISED THROUGH: NOVEMBER 17, 2020

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
Tel. (207) 774-0424 www.owenhaskell.com rloubier@owenhaskell.com

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-013 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. # LOMA	

Federal Emergency Management Agency
Washington, D.C. 20472

MR. RANDY LOUBIER
OWEN HASKELL
390 U.S. ROUTE 1 UNIT 10
FALMOUTH, ME 04105

CASE NO.: 21-01-0177A
COMMUNITY: CITY OF PORTLAND,
CUMBERLAND COUNTY, MAINE
COMMUNITY NO.: 230051

DEAR MR. LOUBIER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Quitclaim Deed with Covenant recorded as Document No. 13675 in Book 31425, Pages 267, 268, and 269; and in the Trustee's Deed recorded as Document No. 45157 in Book 30879, Pages 75 through 79; both deeds in the Office of the Register of Deeds, Cumberland County, Maine
	COMMUNITY NO: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	The portion of property is more particularly described by the following metes and bounds:
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.662943, -70.242677 SOURCE OF LAT & LONG: GPS DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	58 Fore Street	Portion of Property	C	--	--	12.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA/FLOODWAY
eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50; THENCE S47°33'49"W, ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET; THENCE S52°46'49"W, CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE N18°22'51"E, A DISTANCE OF 26.60 FEET; THENCE N48°05'42"E, A DISTANCE OF 204.67 FEET; THENCE N50°41'38"E, A DISTANCE OF 184.50 FEET; THENCE N45°09'56"E, A DISTANCE OF 136.93 FEET; THENCE N47°53'09"E, A DISTANCE OF 144.17 FEET; THENCE N39°47'45"E, A DISTANCE OF 121.02 FEET; THENCE N60°27'17"E, A DISTANCE OF 116.02 FEET; THENCE N44°32'44"E, A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM; THENCE S47°03'07"E, ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Portion of Property Removal:

The following considerations may or may not apply to the determination for your Portion of Property:

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA and/or FLOODWAY - Portions of this property, but not the subject of the Determination document, may remain in the Special Flood Hazard Area (SFHA) and/or the regulatory floodway for the flooding source indicated on the Determination Document. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at https://www.fema.gov/regional-contact-information

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. If a new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - Based upon information provided to FEMA by the U.S. Fish and Wildlife Service (USFWS), the subject property may be within a System Unit or an Otherwise Protected Area (OPA) of the John H. Chafee Coastal Barrier Resource System (CBRS). Federal flood insurance is generally not available within the CBRS for new construction or substantial improvements occurring after the flood insurance prohibition date (which is generally tied to the date that the area was first established as either a System Unit or OPA, but may differ in some cases). Other federal expenditures and financial assistance (including certain types of disaster assistance) are also restricted within System Units of the CBRS. The USFWS is the authoritative source for information regarding the CBRS. Additional information, including the CBRS Mapper, can be found on the USFWS website at: https://www.fws.gov/cbra.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

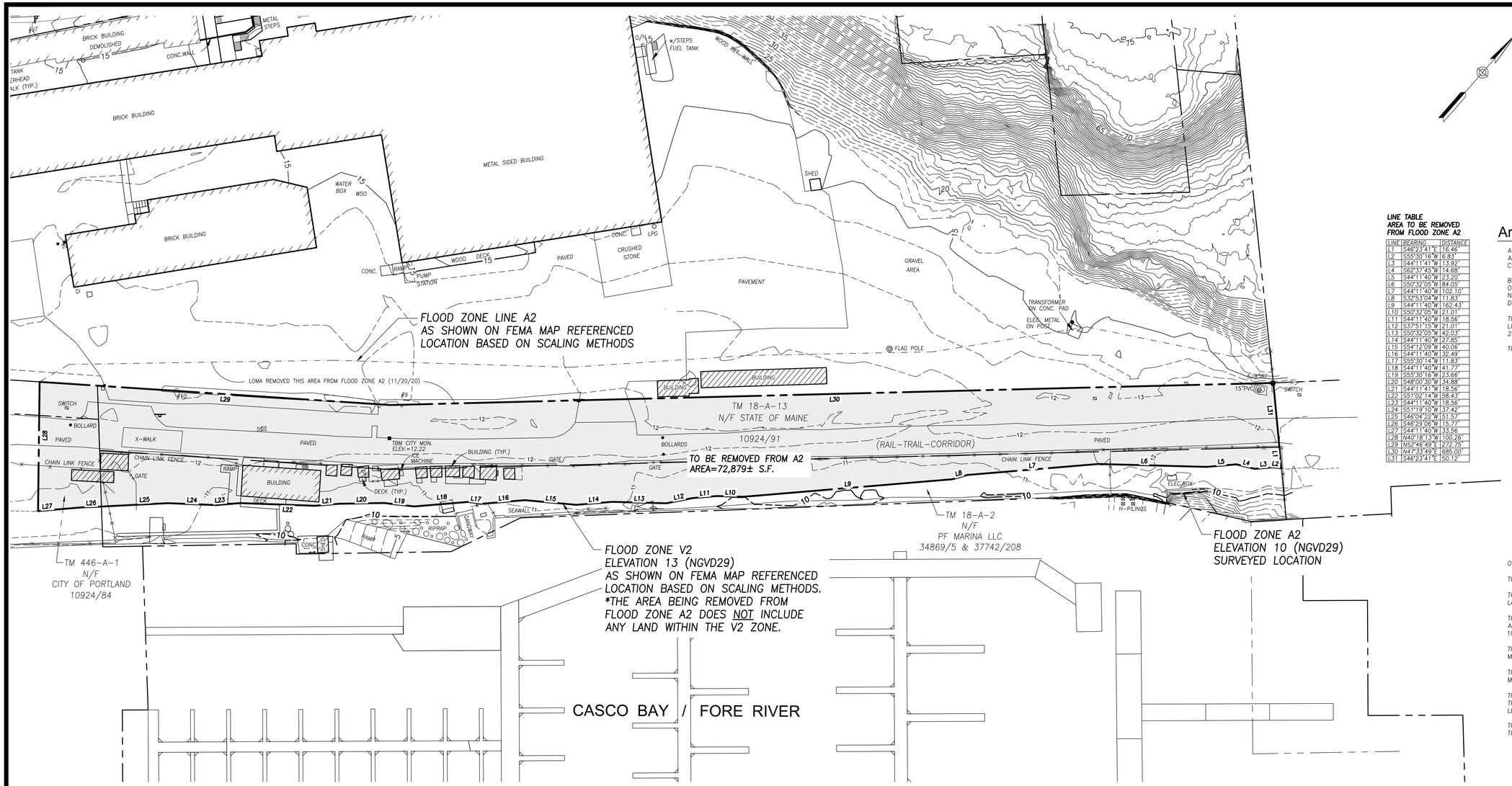
The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

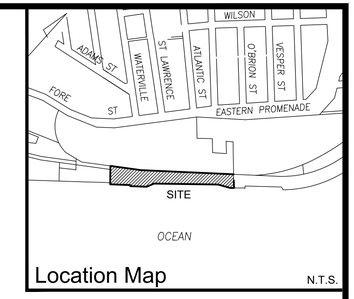
FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.





LINE TABLE
AREA TO BE REMOVED FROM FLOOD ZONE A2

LINE	BEARING	DISTANCE
L1	S46°23'41"E	16.46'
L2	S55°30'16"W	6.83'
L3	S44°11'41"W	13.92'
L4	S62°37'45"W	14.68'
L5	S44°11'40"W	23.20'
L6	S50°32'05"W	84.05'
L7	S44°11'40"W	102.10'
L8	S32°53'04"W	11.83'
L9	S44°11'40"W	162.43'
L10	S50°32'05"W	21.01'
L11	S44°11'40"W	18.56'
L12	S37°51'15"W	21.01'
L13	S50°32'05"W	42.03'
L14	S44°11'40"W	27.85'
L15	S54°12'09"W	40.06'
L16	S44°11'40"W	32.49'
L17	S55°30'14"W	11.83'
L18	S44°11'40"W	41.77'
L19	S55°30'16"W	23.66'
L20	S48°00'30"W	34.88'
L21	S44°11'41"W	18.56'
L22	S51°02'14"W	58.43'
L23	S44°11'40"W	18.56'
L24	S51°19'10"W	37.42'
L25	S46°04'22"W	51.57'
L26	S46°29'06"W	15.77'
L27	S44°11'40"W	33.56'
L28	N40°18'13"W	100.26'
L29	N52°46'49"E	272.75'
L30	N47°33'49"E	685.00'
L31	S46°23'41"E	50.12'

Area to be Removed from Flood Zone A2

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208;

THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE:

S 55°30'16" W A DISTANCE OF 6.83 FEET;
S 44°11'41" W A DISTANCE OF 13.92 FEET;
S 62°37'45" W A DISTANCE OF 14.68 FEET;
S 44°11'40" W A DISTANCE OF 23.20 FEET;
S 50°32'05" W A DISTANCE OF 84.05 FEET;
S 44°11'40" W A DISTANCE OF 102.10 FEET;
S 32°53'04" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 162.43 FEET;
S 50°32'05" W A DISTANCE OF 21.01 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 37°51'15" W A DISTANCE OF 21.01 FEET;
S 50°32'05" W A DISTANCE OF 42.03 FEET;
S 44°11'40" W A DISTANCE OF 27.85 FEET;
S 54°12'09" W A DISTANCE OF 40.06 FEET;
S 44°11'40" W A DISTANCE OF 32.49 FEET;
S 55°30'14" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 41.77 FEET;
S 55°30'16" W A DISTANCE OF 23.66 FEET;
S 48°00'30" W A DISTANCE OF 34.88 FEET;
S 44°11'41" W A DISTANCE OF 18.56 FEET;
S 51°02'14" W A DISTANCE OF 58.43 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 51°19'10" W A DISTANCE OF 37.42 FEET;
S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET;

THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF CITY OF PORTLAND A DISTANCE OF 33.56 FEET;

THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE;

THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET;

THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET;

THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING, CONTAINING 72,879 S.F. OR 1.67 ACRES MORE OR LESS.

THE LAND DESCRIBED ABOVE DOES NOT INTEND TO INCLUDE ANY LAND WITHIN THE V2 ZONE.

SCALE : 1" = 50'
0' 25' 50' 100'

General Notes

1. *OWNERS OF RECORD: PF MARINA LLC C.C.R.D. BOOK 34869 PAGE 50 BOOK 37742, PAGE 208*
2. *PARCEL IS SHOWN AS LOT 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.*
3. *BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.*
4. *BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.*

Plan References

1. *"ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, MAINE MADE FOR PF MARINA, LLC" BY OWEN HASKELL, INC. DATED JANUARY 26, 2021 REVISED THROUGH MARCH 18, 2021.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE A2 ELEV. 10, AREAS OF 100-YEAR FLOOD AND PARTIALLY LOCATED IN FLOOD ZONE V2 ELEV. 13, AREAS OF 100-YEAR COASTAL FLOOD WITH VELOCITY ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

Existing Conditions Survey

1 Marina Way
Portland, Cumberland County, Maine
Made For
PF MARINA, LLC
1 Marina Way, Portland, Maine

Surveyor's 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 CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 19, 2021

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-031 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	MARINA-ALTA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Deeds recorded as Document Nos. 23925 and 55154, both in the Office of the Register of Deeds, Cumberland County, Maine The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:43.662774, -70.242547 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	1 Marina Way	Portion of Property	C	--	--	10.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
ZONE V
PORTIONS REMAIN IN THE SFHA
SUPERSEDES PREVIOUS DETERMINATION
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208; THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B; THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE: S 55°30'16" W A DISTANCE OF 6.83 FEET; S 44°11'41" W A DISTANCE OF 13.92 FEET; S 62°37'45" W A DISTANCE OF 14.68 FEET; S 44°11'40" W A DISTANCE OF 23.20 FEET; S 50°32'05" W A DISTANCE OF 84.05 FEET; S 44°11'40" W A DISTANCE OF 102.10 FEET; S 32°53'04" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 162.43 FEET; S 50°32'05" W A DISTANCE OF 21.01 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 37°51'15" W A DISTANCE OF 21.01 FEET; S 50°32'05" W A DISTANCE OF 42.03 FEET; S 44°11'40" W A DISTANCE OF 27.85 FEET; S 54°12'09" W A DISTANCE OF 40.06 FEET; S 44°11'40" W A DISTANCE OF 32.49 FEET; S 55°30'14" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 41.77 FEET; S 55°30'16" W A DISTANCE OF 23.66 FEET; S 48°00'30" W A DISTANCE OF 34.88 FEET; S 44°11'41" W A DISTANCE OF 18.56 FEET; S 51°02'14" W A DISTANCE OF 58.43 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 51°19'10" W A DISTANCE OF 37.42 FEET; S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMELRY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84; THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET; THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OFCITY OF PORTLAND A DISTANCE OF 33.56 FEET; THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE; THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET; THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING

ZONE V (This Additional Consideration applies to the preceding 1 Property.)

A portion of this property, but not the subject of the Determination/Comment Document, is located within a Coastal High Hazard Area (Zone V, VE or V1-30). Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. No construction using fill for structural support or that may increase flood damage to other property may take place in these areas.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

SUPERSEDES OUR PREVIOUS DETERMINATION (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This Determination Document supersedes our previous determination dated 7/16/2021, for the subject property.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.

Your property has been reclassified as moderate-to-low flood risk. Your flood risk has been reduced but not removed.

You may now qualify for a Preferred Risk Flood Insurance Policy with annual rates starting as low as $325. Keep your home—and everything inside of it—covered for less money. Contact your insurance agent to secure a lower-cost policy today.

Protect the life you've built.

Call **800-427-4661** or visit www.FloodSmart.gov



FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Flooding 101: Did you know?

- Flooding is the most common and costly disaster in the United States. Just 1 inch of flood water can cause $25,000 of damage to your home.
- People outside of high-risk flood areas file more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.
- Most homeowners and renters insurance doesn't cover flood damage. Only flood insurance provides financial protection from costly flooding.

Stay covered. Save money. Talk to an agent today.
For more information visit FloodSmart.gov.

September 14, 2022

PF One Devco, LLC
Portland Foreside Development Company
Casey Prentice
Kevin Costello
254 Commercial Street,
Portland, ME 02101

To: City of Portland

From: Rose M. Buckley, Senior Vice President
Rockland Trust Company

Rockland Trust Company has and will provide funding for the construction at 58 Fore Street, Portland ME. Rockland Trust is funding the construction of the Sun Life Building and has provided funding for Building 12 occupied by Twelve Restaurant.

Rockland Trust looks forward to working with Portland Foreside Development Company in the future.

Please contact me at 781-982-6165 with any questions.

Best regards,
ROCKLAND TRUST COMPANY

By: Rose M. Buckley
Rose M. Buckley, Senior Vice President

Member FDIC

EQUAL HOUSING LENDER

Mary Ann Devlin
Director & Senior Vice President
Commercial Real Estate
Middlesex Savings Bank
301 Edgewater Place
Wakefield, MA 01880

Robert F. Millerick
Senior Vice President
Commercial Real Estate
Middlesex Savings Bank
301 Edgewater Place
Wakefield, MA 01880

September 16, 2022

Ms. Christine Grimando, AICP
Planning Director
Planning & Urban Development
Department
389 Congress Street 4th Floor
Portland, ME 04101

RE: 58 Fore Street Development, Portland, ME

Dear Ms. Grimando,

It is with pleasure that we provide this letter confirming our association with Portland Foreside Development Company (PFDC) and its managing partners Casey Prentice and Kevin Costello. My colleague and I have worked directly with the principals for the past three years having provided a $65.0 million construction loan facility in 2020 to finance the first of several phases of an approved Master Development Plan located at 58 Fore Street in downtown Portland, ME.

Loan proceeds were used to conduct Phase I site work, relocate and renovate a historical building and conduct vertical construction of an approximately 144,000 SF office/retail building including underground parking that will when complete be the home to the consolidated Maine offices of Sun Life of Canada. Additionally some preliminary earthwork was performed on the remaining adjacent phases. Phase I of the project is now nearing completion. It has been our experience that all stages of the Phase I development from the planning, to the design, engineering and implementation were carried out as represented, on time and on budget.

We value our affiliation with PFDC and its principals, Casey and Kevin. Their vision for 58 Fore Street continues to impress as they help to transform the waterfront along the Eastern Promenade into a uniquely beautiful destination for all to enjoy. The principals have continuously demonstrated their determination, resilience, maneuverability and resourcefulness in making Fore Street a reality. It is our hope that we will continue our association with Casey and Kevin and their vision, and take an active financing role in the next phase or phases of development at Fore Street.

Very truly yours,

Mary Ann Devlin
Director, Senior Vice President

Robert F. Millerick
Senior Vice President

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Att. 6

MEMORANDUM

TO: Charles Tetelman, Planner

CC: Ann Machado, Zoning Administrator

FROM: Lauren Swett

DATE: July 25, 2023 *(Revised 9/5/2023)*

RE: PL-002202-2022 Portland Foreside Phase 2 – Block 6 Zoning

---

Woodard & Curran is providing this memo to address Block 6 zoning clarifications that have been identified in a meeting with City staff on July 6, 2023 and in the report prepared for the Planning Board workshop on July 11, 2023. *On September 5, 2023 we have submitted a revised version of this mems, with updated figures to address some questions from the City requesting some additional dimensions and to reflect some minor revisions to the area.*

B-6 Eastern Waterfront Dimensional Standards

- Provide dimensions to confirm Block 6's conformance with Note 1 on the B-6 Eastern Waterfront height map:

  The Block 6 building has been designed in conformance with the B-6 Eastern Waterfront Dimensional Standards. The Level 9 Floor Plan and elevation drawings attached with this memo include dimensions to confirm that the portions above 45 feet in height are sized a maximum of 70 feet parallel with the waterfront and 140 feet perpendicular with the waterfront and that these sections are 90 feet or greater apart from each other.

- Clarify the use of the stairwell providing access to the Public Space Rooftop Units:

  The term "Public Space Rooftop Units (RTUs)" is a label designation used for HVAC equipment that is heating/cooling public spaces located elsewhere in the building. The stairwell and elevator shown on the Block 6 rooftop provides access to the building's Public Space RTUs.

R-6 Dimensional Standards

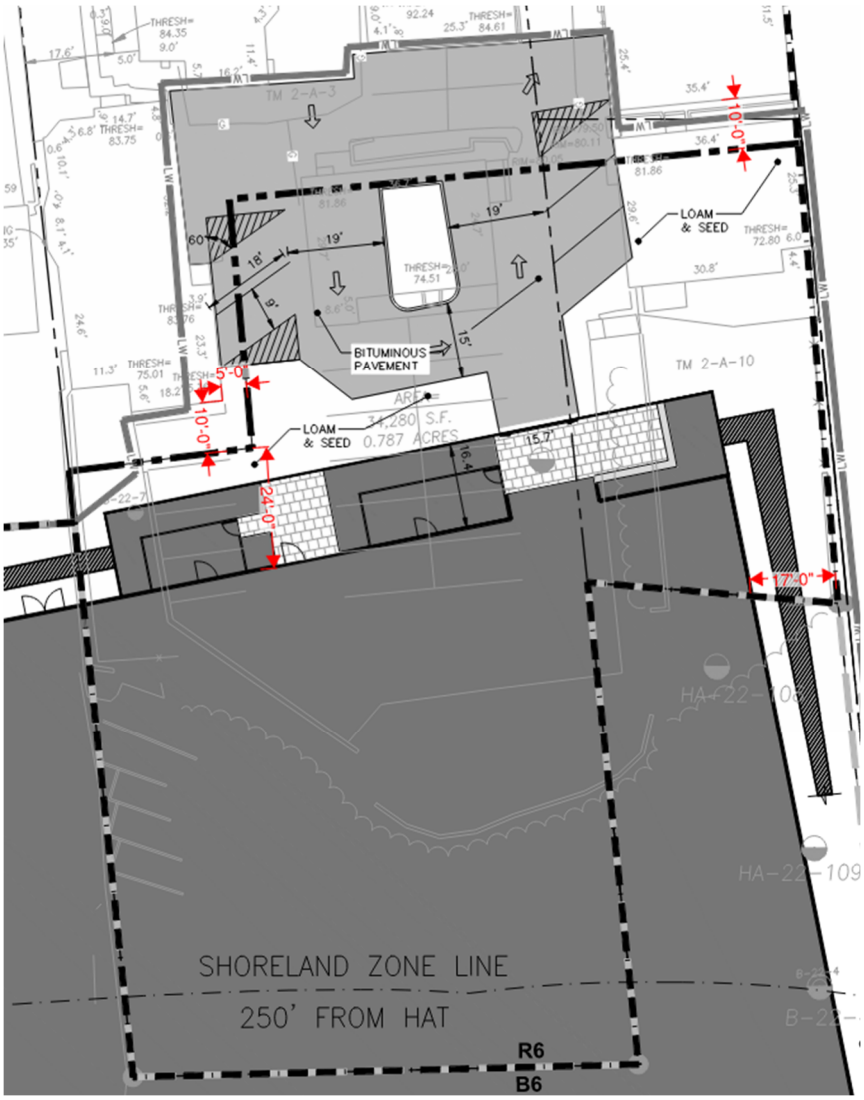
- Provide dimensional confirmation of meeting the dimensional requirements for minimum rear setback, minimum side setback, minimum stepbacks, and minimum landscaped open space ratio for the portion of Block 6 located in the R-6 Zone.

  Stepbacks: The minimum stepbacks above 35' height are 10' for sides, and 15' for rear. Within the R-6 Zone portion of the site, the building at its closest is 17' from the property line on the eastern side of the building (see Figure 1 on the next page for dimensions). The building is located far enough from the property line to meet the side stepback requirements. There is no western wall abutting a property line within the R-6 zone portion of the building. Considering the northern side of the building to be the front of Block 6, there is no rear wall abutting a property line within the R-6 zone. While

the zoning does not specifically require it, evaluating the northern side of the building finds the smallest setback from the property line to be 24'. Adequate separation exists to not warrant additional stepbacks.

Setbacks: The setback requirements in the R-6 Zone are 5' front, 10' rear, and 5' side. Considering the northern Block 6 entry as the front of the building, there is no rear wall abutting a property line within the R-6 Zone. The minimum setback along the northern property line is 24', which is greater than the required 5'. The minimum east side setback is 17' which is greater than the required 5'. *September 5, 2023 addition: the existing building located on the western side of 21 Eastern Promenade property will also remain in conformance with a rear setback of 10' and a side setback of 5'. The existing building on the eastern side of the property will also have a 10' rear setback. All other setbacks with the new property line are greater than 10'*. The figure below shows dimensions for the R-6 area of the site.

Figure 1. Block 6 Setback Measurements *(updated 9/5/2023)*



Landscaped Open Space Ratio: The minimum landscaped open space ratio in the R-6 Zone is 20%. *September 5, 2023 revision: The area of the property within the R-6 Zone is 20,011 SF (confirmed per survey). The revised amount of landscaped area, as shown in the figure below is 4,135 SF, which provides for 20.7%.* Not included in this landscaped area calculation is additional landscaped patio and rooftop areas. An updated site plan will be provided that reflects the proposed updated site layout with parking and landscaped spaces as shown in the figure below.

Figure 2. Block 6 R-6 Zone Landscaped Areas (shown in green) *(updated 9/5/2023)*



R-6 Inclusionary Zoning

We understand that the City is currently in the process of calculating the requirements for Inclusionary Zoning for the portion of Block 6 located within the R-6 Zone. In the initial application materials, in the "Section 2 Permitting & Zoning" file uploaded to documents, Section 2.4.2 provides a breakdown of the number of units included in the R-6 Zone. A total of 4 complete residential units and 23 partial units are located within the zone. If there is any additional information required to support the Inclusionary Zoning calculation, please let us know.

Att. 7

3. EVIDENCE OF RIGHT, TITLE & INTEREST

3.1 Right, Title & Interest

The Project will occur on a parcel of land identified by the City as Lot 18-A-01 and owned by PF Land LLC. The deed for PF Land is attached. PF Land LLC subsequently conveyed approximately 482 square feet to PF One Devco LLC. The deed from PF Land LLC to PF One Devco LLC is also attached, modifying the original parcel into PF Land.

The Project area also includes a portion of an adjacent lot purchased by 21 Eastern Prom LLC, which is an entity affiliated with PF Land LLC. That lot is identified by the City as Lot 2-A-4 and is located at 21 Eastern Promenade. 21 Eastern Prom will convey said portion of Lot 2-A-4 to PF Land LLC prior to obtaining a building permit for the work occurring on that portion of the property.

3.2 Easements & Other Burdens

Depending on which method of support for excavation is utilized, project construction could require installation of tiebacks into property on adjacent land, including City land. This would be similar to the tiebacks into the City's Fore Street right-of-way for the Block 4 garage as previously approved in the Phase 1 Site Plan. In addition to the potential need for tiebacks, there will be encroachments into the City right-of-way with structural elements that will span over the top of the existing seawall, creating a connection from the Block 4 Townhouses to the Fore Street sidewalk. The Phase 1 Site Plan approval contained the following condition to address the situation: "Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel."

The Applicant requests a similar condition to address possible encroachments onto the City right-of-way for Phase 2. In addition, to the extent the project design results in encroachments onto adjacent private property, the Applicant requests the following condition: "Prior to application for building permits, the applicant shall provide written agreements with adjacent landowners necessary to permit encroachments onto adjacent property."

The attached memo from the project's geotechnical engineer, Haley & Aldrich, documents two options for support of excavation – one that will require tiebacks, and one that will not. Both options were deemed technically feasible by the engineers. The Applicant will make a determination on construction type prior to application for a building permit and will provide all easement documentation if necessary.

Small portions of the Project located along the Maine DOT corridor are subject to the Land Exchange Agreement between the City, Maine DOT, and PF Land. The land swap will occur prior to obtaining building permits for work occurring on that southern edge of the property.

3.3 Attachments

- Property Deeds
- Geotechnical Design Memo

TRUSTEE'S DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **TIMOTHY HALEY, of Stuart, Florida, SOLE TRUSTEE OF THE TIMOTHY HALEY LIVING TRUST, dated June 3, 2005** ("Grantor"), for consideration paid, grants to **21 EASTERN PROM LLC**, a Maine limited liability company with a mailing address of 254 Commercial Street, Portland, Maine 04101 ("Grantee"), the following described real estate situated at 13-23 Eastern Promenade, in the City of Portland, Cumberland County, State of Maine as more particularly described in Exhibit A attached hereto and made a part hereof

See Attached Exhibit A

MAINE REAL ESTATE TAX PAID

Meaning and intending to convey the premises conveyed by virtue of Quitclaim Deed without Covenant from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007, and recorded in the Cumberland County Registry of Deeds in Book 24759, Page 67, by Quitclaim Deed without Covenants from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007 and recorded at Cumberland County Registry of Deeds in Book 24759, Page 069 and by Quitclaim Deed without Covenants from Timothy J. Haley and Julia A. Haley, successor Trustees, under the Haley Family Living Trust dated February 6, 1997, dated December 4, 2008 and recorded at Cumberland County Registry of Deeds in Book 26503, Page 224 to Timothy Haley, sole Trustee or his successors in trust, under the Timothy Haley Living Trust, dated June 3, 2005.

I hereby covenant that I am Trustee pursuant to said Trust; that said Trust is still in full force and effect; that I have the power thereunder to convey as aforesaid; and that, in the making this conveyance, I have, in all respects, acted pursuant to the authority vested in and granted to me there.

WITNESS my hand and seal, this 08 day of December, 2021.

WITNESS:

Cecilia Merrill

Timothy Haley, Sole Trustee of The Timothy Haley Living Trust, dated June 3, 2005

STATE OF FLORIDA
COUNTY OF MARTIN, ss.

December 28, 2021

Then personally appeared the above-named Timothy Haley, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

LANA ELAINE BAILEY
Commission # GG 329959
Expires August 31, 2023
Bonded Thru Troy Fain Insurance 800-385-7019

Before me,

Attorney at Law/Notary Public
Print Name: Elaine Bailey
My Commission Expires: 8-31-23

Exhibit A

Certain lots or parcels of land, together with any building and improvement thereon, situated on the southeasterly side of Eastern Promenade, in the City of Portland, Cumberland County, State of Maine, bounded and described as follows:

PARCEL ONE:

A certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of the Eastern Promenade in said Portland, and bounded and described as follows, viz: Beginning on said side of said Eastern Promenade at the northeasterly corner of land now or formerly of Henry F. Merrill, and running thence southeasterly by said Merrill land and land of Portland Company two hundred fifty-five (255) feet, more or less, to land conveyed by John G. Munroe and others to the Portland Company by deed dated January 5, 1904, and recorded in Cumberland County Registry of Deeds, Book 765, Page 307; thence northeasterly by said land conveyed to said Portland Company as aforesaid one hundred (100) feet to other land now or formerly of Henry F. Merrill; thence northwesterly on a line parallel with the first described course two hundred fifty-five (255) feet, more or less, to said Eastern Promenade; thence southwesterly by said Eastern Promenade one hundred (100) feet to the place of beginning.

PARCEL TWO:

Beginning at a point on the southeasterly side of said Eastern Promenade at the northwesterly corner of land of Walter W. Duffett and thirty-six (36) feet southwesterly from the dividing line between the land now or formerly of Walter W. Duffett and the land now or formerly of William Curtis; thence southwesterly by said Eastern Promenade, forty-nine (49) feet, more or less, to land formerly belonging to one Monroe; thence southeasterly by said Monroe's land seventy (70) feet, more or less, to land now or formerly of Cyrus Cole; thence northeasterly by said Cole's land, forty-nine (49) feet, more or less, to said Duffett's land; thence northwesterly by said Duffett's land, seventy (70) feet, more or less, to the point begun at.

PARCEL THREE:

Beginning at a point in a southeasterly direction from the Eastern Promenade in the northeasterly side line of land now or formerly owned by heirs of J. Monroe, and distant one hundred and sixty-two (162) feet from the point of intersection of said side line of the Monroe land with the southeasterly side line of said Eastern Promenade, and from this point extending in a northeasterly direction about fifty (50) feet along the northwesterly side line of land sold to Henry Merrill et als. by deed dated June 29, 1898, recorded in Cumberland Registry of Deeds in Book 661, Page 176, and to the southwesterly side of land sold to Walter W. Duffett by deed dated June 29, 1898, recorded in said Registry of Deeds in Book 661, Page 175; thence by said southwesterly side line of the land so conveyed to Walter W. Duffett and by land now or

formerly of Mary Duffett to the southeasterly side line of land now or formerly of one Clark: thence by the said southeasterly side line of land now or formerly of said Clark, and by said line extended, to the said northeasterly side line of said Monroe land; thence by said Monroe land, in a southeasterly direction to the point of beginning.

Received
Recorded Register of Deeds
Dec 30,2021 03:33:48P
Cumberland County
Jessica M. Spaulding

SHORT FORM QUITCLAIM DEED WITH COVENANT
DLN: 1002040119134

CPB2 I LLC (formerly known as **CPB2 LLC**), a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF LAND LLC**, a Maine limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof (the "Property").

Being a portion of the property described in the following deeds: (i) Quitclaim Deed with Covenant from 100 Fore Street, LLC dated April 10, 2019 and recorded in the Cumberland County Registry of Deeds in Book 35576, Page 153; (ii) Quitclaim Deed with Covenant from the City of Portland to CPB2 I LLC dated November 2, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35264, Page 286; (iii) Quitclaim Deed with Covenant from The Portland Company to CPB2 LLC dated April 1, 2014 and recorded in the Cumberland County Registry of Deeds in Book 31425, Page 267; and (iv) Trustee's Deed from Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of the Buena Vista Trust, to CPB2 LLC dated July 19, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30879, Page 75.

IN WITNESS WHEREOF, CPB2 I LLC has caused this instrument to be executed by Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, thereunto duly authorized, as of this 4th day of November 2020.

WITNESS:

Richard D Prentice

Name: Richard D Prentice

CPB2 I LLC
By: CPB2 Management LLC, Manager

By: _____
Casey W. Prentice, Manager

13531538.3
12481681.4.4.3.3.2

State of Maine
County of Cumberland, ss. November 3, 2020

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability companies.

Before me,

Notary ~~Public~~/Attorney at Law
Print Name: Tom S. Hanson
Commission Expires: N/A

13531538.3
12481681.4.4.3.3.2

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY CORNER OF LAND NOW OR FORMERLY OF 100 FORE STREET LLC AS DESCRIBED IN DEED BOOK 33748, PAGE 1 ON THE SOUTHEASTERLY SIDELINE OF FORE STREET AT AN IRON ROD FOUND;

THENCE, N 76°17'54"E ALONG THE SOUTHEASTERLY SIDELINE OF SAID FORE STREET 287.55 FEET;

THENCE, N 37°34'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 734.45 FEET;

THENCE, N 45°16'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 43.36 FEET TO THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF KENNETH & CAROLL MACGOWAN AS DESCRIBED IN DEED BOOK 15773, PAGE 153;

THENCE, S 47°03'11"E ALONG THE SOUTHERLY LINE OF SAID MACGOWEN 150.00 FEET;

THENCE, N 45°16'49"E ALONG THE EASTERLY LINE OF LAND OF MACGOWEN 112.00 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF TIMOTHY HALEY, TRUSTEE AS DESCRIBED IN DEED BOOK 24759, PAGE 67 & 69;

THENCE, ALONG THE LAND OF SAID HALEY THE FOLLOWING COURSES AND DISTANCES:

S 47°03'11"E A DISTANCE OF 110.28 FEET;

N 47°33'49"E A DISTANCE OF 100.00 FEET;

N 47°03'11"W A DISTANCE OF 95.88 FEET;

N 53°46'39"E A DISTANCE OF 49.73 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°03'07"E ALONG THE SOUTHERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM 240.48 FEET TO THE NORTHWESTERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE KNOWN AS THE RAIL-TRAIL CORRIDOR AT AN IRON ROD FOUND;

13531538.3
12481681.4.4.3.3.2

THENCE, S 47°33'49"W ALONG THE NORTHWESTERLY LINE OF LAND OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49"W CONTINUING ALONG THE NORTHWESTERLY LINE OF LAND OF STATE OF MAINE 442.91 FEET TO THE LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 57°47'32" W ALONG LAND OF SAID CITY OF PORTLAND 11.22 FEET TO A POINT OF CURVATURE;

THENCE, SOUTHWESTERLY CONTINUING ALONG LAND OF SAID CITY OF PORTLAND ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 133.12 FEET, CHORD BEARING OF S 49°37'02" W AND CHORD LENGTH OF 132.67 FEET;

THENCE, S 41°26'32" W CONTINUING ALONG LAND OF THE CITY OF PORTLAND 17.92 FEET TO THE LAND NOW OR FORMERLY OF SAID STATE OF MAINE;

THENCE, S 46°01'18" W ALONG LAND OF STATE OF MAINE 31.95 FEET TO THE LAND OF CITY OF PORTLAND;

THENCE, N 52°05'24" W ALONG LAND OF CITY OF PORTLAND 97.53 FEET TO A POINT OF CURVATURE;

THENCE, NORTHWESTERLY ALONG LAND OF CITY OF PORTLAND ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 47.73 FEET, CHORD BEARING OF N 48°23'40" W AND CHORD LENGTH OF 47.70 FEET TO THE SOUTHERLY LINE OF LAND OF SAID 100 FORE STREET LLC;

THENCE, NORTHWESTERLY ALONG THE EASTERLY LINE OF SAID 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 13.77 FEET, CHORD BEARING OF N 43°37'59" W AND CHORD LENGTH OF 13.77 FEET;

THENCE, N 42°34'01" W CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET LLC 68.76 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.24 FEET, AN ARC LENGTH OF 134.07 FEET, CHORD BEARING OF N 32°11'34" W AND CHORD LENGTH OF 133.34 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 274.33 FEET, AN ARC LENGTH OF 13.01 FEET, CHORD BEARING OF N 20°51'48" W AND CHORD LENGTH OF 13.01 FEET TO THE SOUTHERLY SIDELINE OF SAID FORE STREET AT THE POINT OF BEGINNING.

13531538.3
12481681.4.4.3.3.2

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL, THE LAND CONVEYED BY CBP2 1 LLC TO PF ONE DEVCO LLC BY DEED OF EVEN DATE TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS CONTEMPORANEOUSLY WITH THIS DEED

REFERENCE IS MADE TO THAT CERTAIN PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE, MADE FOR PF ONE DEVCO LLC & PF LAND LLC", DATED MARCH 4, 2020 AND REVISED THOUGH NOVEMBER 2, 2020, PREPARED BY OWEN HASKELL, INC., JOB NO. 2019-013P.

THE PROPERTY IS CONVEYED SUBJECT TO AND WITH THE BENEFIT OF CERTAIN INTERESTS, RIGHTS, EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS AND ENCUMBRANCES AS MORE FULLY SET FORTH IN THAT CERTAIN DECLARATION OF RESTRICTIONS, EASEMENTS AND AGREEMENTS BY CPB2 I LLC OF NEAR OR EVEN DATE HEREWITH, AND TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BEFORE THE RECORDING OF THIS DEED.

THE PROPERTY IS CONVEYED TOGETHER WITH THAT CERTAINREVOCABLE ACCESS LICENSE BY AND BETWEEN THE CITY OF PORTLAND, PF ONE DEVCO LLC, PF LAND LLC AND PF MARINA LLC OF NEAR OR EVEN DATE HEREWITH, TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS AT OR NEAR THE DATE OF THIS DEED.

THIS CONVEYANCE IS ALSO MADE SUBJECT TO ALL OTHER EASEMENTS, CONDITIONS, COVENANTS AND RESTRICTIONS OF RECORD.

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT
DLN: 1002140132239

PF LAND LLC, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF ONE DEVCO LLC**, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof.

Being a portion of the property conveyed to Grantor by deed from CPB2 I LLC dated November 4, 2020 and recorded in the Cumberland County Registry of Deeds in Book 37397, Page 78.

IN WITNESS WHEREOF, PF Land LLC has caused this instrument to be executed by Casey W. Prentice, Manager, thereunto duly authorized, this 11th day of February, 2021.
as of

WITNESS:

Richard D. Grantee
Name:

PF LAND LLC

By: _____
Casey W. Prentice, Manager

State of Maine
County of Cumberland, ss.

February 9, 2021

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of PF Land LLC, and acknowledged that the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

_____
~~Notary Public~~/Attorney at Law
Print Name: William M. Welch
Commission Expires:

13531538.3
12722943.2

DOC :11203 BK:37821 PG:161
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
02/17/2021, 10:57:49A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND SITUATED ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHERLY CORNER OF LAND OF PARCEL 1C AS SHOWN ON PLAN TITLED "SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC" BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65;

THENCE, S 57°47'32" W A DISTANCE OF 10.19 FEET;

THENCE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 1.10 FEET, A CHORD BEARING OF S 57°43'29" W AND CHORD DISTANCE OF 1.10 FEET;

THENCE, N 49°28'50" W THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 19.41 FEET;

THENCE, N 40°31'10" E CONTINUING THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 38.71 FEET TO SAID PARCEL 1C;

THENCE, S 53°28'50" E ALONG PARCEL 1C A DISTANCE OF 9.05 FEET;

THENCE, S 40°31'10" W ALONG PARCEL 1C A DISTANCE OF 28.56 FEET;

THENCE, S 49°28'50" E ALONG PARCEL 1C A DISTANCE OF 13.73 FEET TO THE POINT OF BEGINNING, CONTAINING 482 S.F. MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

MEMORANDUM

6 March 2023
File No. 39486-881/882

TO: Portland Foreside Development Company
David A. Senus, P.E.
Director of Planning and Design

C: Woodard & Curran
Darrin B. Stairs, P.E.
Project Manager/Associate Principal

FROM: Haley & Aldrich, Inc.
Wayne A. Chadbourne, P.E.
Principal/Geotechnical Engineer

SUBJECT: Support of Excavation System Options
Proposed Block Four and Block Six Buildings
PFDC Harbor Hill/Foreside Development
Fore Street, Portland, Maine

Per your request and our recent discussions, this memorandum summarizes permanent support of excavation (SOE) system options that would be needed to allow construction of the proposed buildings for the Block Four and Block Six projects. The project team has evaluated two SOE system options for the projects. Both options are presented below, and we consider both to be technically feasible based on the soil and rock conditions present at the site.

The first option is an "externally braced" system which includes installation of below grade soil nails and tieback anchors into the retained soil. These elements are needed to provide lateral support for the system. This option will require easements on adjacent properties to allow installation of the soil nails and tieback anchors, some of which would extend over the property line. Please refer to Figure 1 for a typical cross section of the externally braced SOE system option.

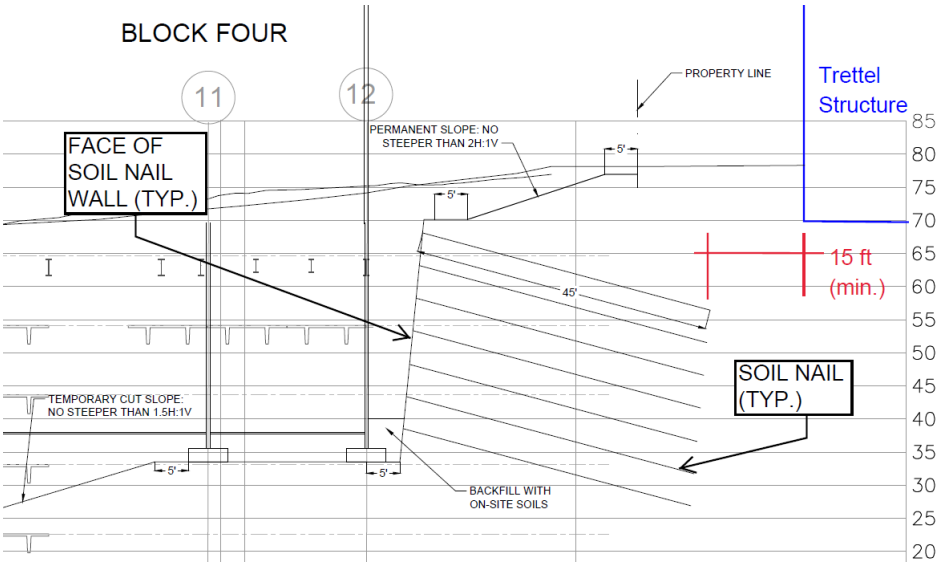


Figure 1 – Typical cross section, externally braced SOE system; easements would be required.

The second SOE system option is an "internally braced" system which uses steel walers and steel raker bracing located inside the limits of the excavation to provide lateral support for the system. This option will not require easements on adjacent properties as the entire system can be constructed within the limits of the site. Please refer to Figure 2 for a typical cross section of the internally braced SOE system option.

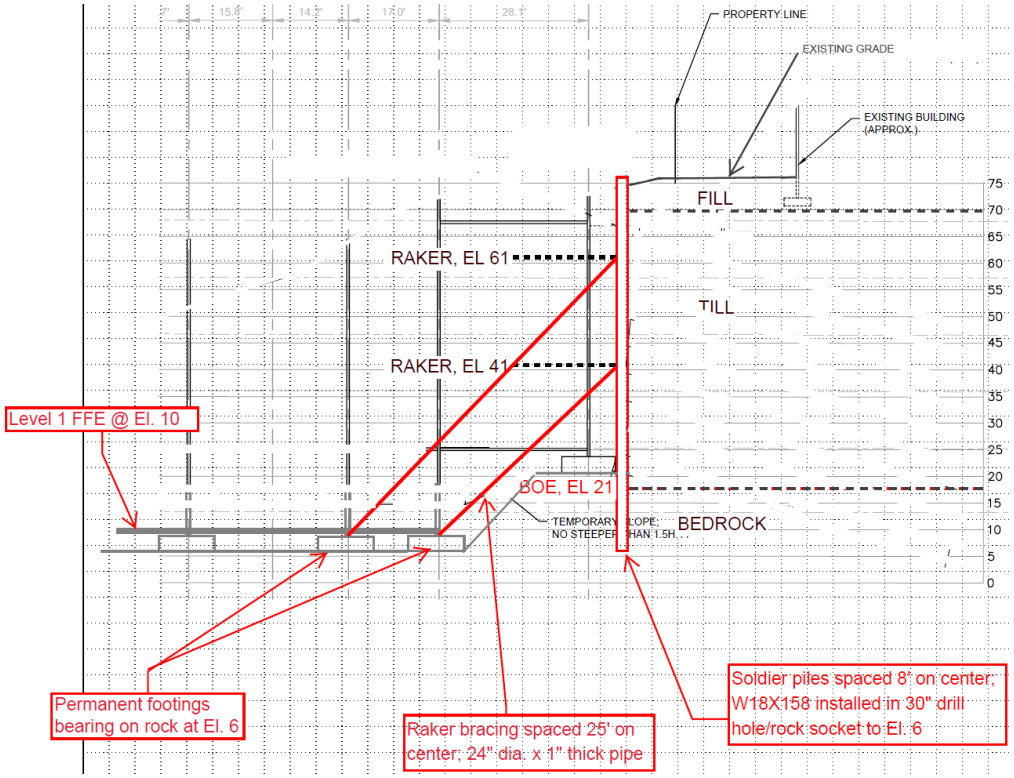


Figure 2 – Typical cross section, internally braced SOE system; easements not required.

We appreciate the opportunity to provide support to the team on this aspect of the project. We would be happy to meet with you or the City of Portland to discuss the information provided in this memorandum. Please do not hesitate to contact us if you have any questions or comments.

\\haleyaldrich.com\share\CF\Projects\39486\881 - Block 4 Schematic Design\SOE adjust for no nails on Trettle\2022-0306-HAI-no easement SOE memo-f3.docx

REVOCABLE ENCROACHMENT LICENSE

This Revocable Encroachment License (hereinafter "License") is made and entered into by and between the City of Portland (hereinafter, "City"), a Maine body corporate and politic, with a mailing address of 389 Congress Street, Portland, Maine 04101 and PF Land LLC, a Maine corporation with a mailing address of 110 Thames Street, Portland Maine (hereinafter, "Licensee"), owner of the real property located at 58 Fore Street, Portland, Maine 04101 by virtue of a deed recorded in the Cumberland County Registry of Deeds at Book 37297, Page 78 (the "Property").

RECITALS

WHEREAS, Licensee is the owner of the Property, which is more particularly described in the legal description attached as Exhibit A, hereto; and

WHEREAS, Licensee desires to construct/place and maintain certain improvements consisting of building foundation footings (the "Encroachment") which will encroach into/over real property owned by the City, as depicted on the plan entitled "_____ _____", dated _____, 2023, a copy of which is attached hereto as Exhibit B and incorporated herein by reference (the "Plan"); and

WHEREAS, the Encroachment design was approved by the Planning Board in a Major Site Plan approved on _____, 2023, a copy of which is attached hereto as Exhibit C and incorporated herein by reference (the "Site Plan"); and

WHEREAS, the area occupied by said Encroachment is referred to herein as the "Licensed Area"; and

WHEREAS, the City will allow the Encroachment to encroach into the Licensed Area under the terms and conditions set forth in this License.

NOW, THEREFORE, the City and Licensee agree as follows:

1. Licensee is hereby permitted to bring upon the Licensed Area and areas adjacent thereto workers, materials and machinery necessary to install and maintain the Encroachment over the Licensed Area as shown on the Plan.

2. Licensee is hereby permitted to occupy the Licensed Area only for the purpose of carrying out the installation and maintenance of the Encroachment pursuant to the terms of this License and in accordance with the Plan. Such work shall not substantially interfere with the City's use and maintenance of the Licensed Area.

3. All work performed upon and use of the Licensed Area for the purposes set forth herein shall be at Licensee's sole cost and expense (unless otherwise agreed in writing), the parties acknowledging that there may be temporary interruptions in enjoyment of the City's

property adjacent to the Licensed Areas related to the conduct of any work related to this License. Licensee agrees at its sole expense to restore any portion of the Licensed Areas and adjacent City property affected by work conducted by Licensee under this License to substantially the same condition that it was in prior to such work or as close to that condition as is reasonably practicable. To the extent said adjacent City property is to be reconstructed in accordance with the Approved Site Plan, the adjacent property shall be restored consistent with the Site Plan. Licensee, its successors and assigns, shall defend, indemnify and hold the City, its officers, agents, and employees harmless from any and all claims, including but not limited to claims for damage to City property and reasonable attorney's fees, which arise out of Licensee's use, or the use of Licensee's contractors, of the City's property as described above during the term of the License. The Licensee's obligation to defend, indemnify and hold the City harmless shall survive termination or revocation of this License.

4. Licensee shall be responsible for the proper maintenance of the Encroachment. In the event of damage to the Encroachment and/or the Licensed Area, Licensee shall promptly repair/restore the same. Prior to such repair/restoration, Licensee shall notify the City (in writing and by telephone) at least forty-eight hours before it plans to conduct such repair or restoration and shall work with City staff on the closure, if needed, of any City streets in the vicinity of the property in order to conduct such repair/restoration.

5. Upon prior written notice to Licensee, except in the case of an emergency, Licensee agrees that City may enter and utilize the Licensed Area at any time for the purpose of installing, repairing, replacing, or maintaining improvements to its public facilities or utilities necessary for the health, safety and welfare of the public or for any other public purpose. City shall bear no responsibility or liability for any damage or disruption or other adverse consequences resulting from the Encroachment installed by Licensee, but City will make reasonable efforts to minimize such damage. In the event that any installation, reinstallation, relocation or repair of any existing or future utility or improvements owned by, constructed by or on behalf of the public or at public expense is made costlier by virtue of the construction, maintenance or existence of the Encroachment and use, Licensee shall pay to City an amount equal to such additional cost as reasonably determined by the Director of Public Works or said Director's duly authorized representatives.

6. Licensee agrees, binds and obligates itself, its successors and assigns to procure and maintain throughout the term of this License automobile and comprehensive general liability insurance in the minimum amount of Four Hundred Thousand Dollars ($400,000) (or the amount stated in the Maine Tort Claims Act, as may be amended from time to time) per occurrence for bodily injury, death, or property damage covering its activities hereunder and naming the City as an additional insured thereon. In addition, Licensee shall provide evidence of Workers' Compensation insurance in the statutory amount to the extent it may be required by law. Certificates evidencing such policies shall be delivered to the City and shall provide the City with no less than thirty (30) days prior notice of cancellation or non-renewal. All insurance coverage required herein shall include coverage of all Licensees' contractors and subcontractors.

7. Licensee, by execution of this License, hereby agrees to assume and hereby does assume responsibility for any and all claims and/or damage to persons or property arising out of or in any way related to Licensee's exercise of the rights granted by this License, and does hereby forever waive, release, relinquish, remise, indemnify and discharge the City, its agents, employees, successors and assigns from and against any and all losses, costs or expenses (including reasonable attorneys' fees), damages, demands, liabilities, claims, actions, causes of action, suits, or judgments (collectively, "Claims") whatsoever of every name and nature, in law and in equity, including without limitation those related in any manner to any accident or injury to, or death of, any person, or any damage to property occurring on, in or in the vicinity of the area covered by this License, arising out of the presence in and use by the Licensee of the area covered by this License.

8. This License is assignable to any subsequent owners of the property depicted on the Plan, and in the event of such assignment, Licensee shall notify the City of such assignment no fewer than 10 days prior to the effective date of such assignment.

9. This License, and all of the rights and obligations herein, shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

10. The City may revoke this License six (6) months after receipt by the Licensee of written notice that an Event of Revocation (as defined below) has occurred, identifying such Event of Revocation, provided that such Event of Revocation is not cured within six (6) months after Licensee's receipt of such notice, except as set forth in subsection (d) below. "Event of Revocation" shall mean:

    a) Licensee's non-compliance with any of the terms of this Agreement;

    b) the building shown on the Plan fails to be constructed substantially in accordance with the Plan or any amendments thereto;

    c) the building as shown on the Plan is destroyed, removed or otherwise thereafter ceases to exist on Licensee's property and construction to rebuild said building has not begun within twelve (12) months of said destruction or removal, or

    d) failure to maintain insurance as required under Section 6 above, and such failure is not remedied within thirty (30) days after written notice thereof.

11. Any notice of an Event of Revocation delivered pursuant to Section 10 of this License must be sent by certified mail, return receipt requested to the Licensee at the address first set forth above, or at such other address as the Licensee may provide to the City in writing from time to time.

12. Notwithstanding any other provision herein, in the event that a notice of an Event of Revocation is delivered to Licensee, any mortgagee of Licensee's property shall be entitled to cure the matter set forth in such notice within the time frames set forth in Section 10

hereof, and the City agrees to accept such performance by any such mortgagee of Licensee's obligations hereunder.

IN WITNESS WHEREOF, the City of Portland has caused this License to be executed by Brendan O'Connell, its Finance Director thereunto duly authorized, and PF Land LLC has caused this License to be executed by Casey Prentice, its Manager thereunto duly authorized, as of the day and year first written above.

CITY OF PORTLAND

_____
By: Brendan O'Connell
Its Finance Director

PF Land LLC

_____
By: Casey Prentice
Its Manager

STATE OF MAINE
CUMBERLAND, ss.

_____, 2023

Then personally appeared the above-named Brendan O'Connell, Finance Director of the City of Portland, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said City of Portland.

Before me,

_____
Notary Public/Attorney at Law

STATE OF MAINE
CUMBERLAND, ss.

_____, 2020

Then personally appeared the above-named Casey Prentice, Manager of PF Land LLC, as aforesaid, and acknowledged the foregoing to be his free act and deed in his said capacity, and the free act and deed of said limited liability company.

Before me,

_____
Attorney-at-Law/Notary Public

EXHIBIT A

(Legal Description of Licensee's Property)

EXHIBIT B

(Plan Depicting the Licensed Area and Encroachment)

EXHIBIT C

(Site Plan)

WATERVILLE ST.

FORE ST.

ST. LAWRENCE ST.

ATLANTIC ST.

MUNJOY ST.

PROMENADE

CISTERN

PORTLAND COMPANY WORKS

POND

PLAN
OF
FORE ST.
ADJOINING
PORTLAND CO'S WORKS

Survey and Plan made under the direction of
Wm. A. Goodwin, C.C.E. by Wm. S. Edwards, 1st Asst.

Scale 30 ft. to 1 inch *November, 1873*

Wm. A. Goodwin.
C. C. Engr.

Drawer F

FORE ST.

OPPOSITE PORTLAND CO WORKS.

(Signed) Wm Alexander
C.E. Engr.
Nov. 1873.

Sta. 0

Sta. 0+50

Sta. 1

Sta. 1+50

Sta. 2

Sta. 2+50

Sta. 3

Sta. 3+50

Elev. of Terrace

E. Line

St line

To be filled with earth.

Ridge of Bank in Street

Wall Ends at 3+70

Scale of Feet

Face of Wall at Top to be on Street line
Base of Wall to be ½ height in thickness
Top " " " 5 feet "

Base to be 3 feet beneath surface at St line
Batter 1 in ½ to 1 foot.

Grade of Street and Top of Wall

Top of Terrace 1st

Slope of Terrace

Top of Terrace 2nd

End of Wall

Beginning of Wall

End of Building

W. Line of Waterville St.

E. Line Waterville St.

W. Line St Lawrence St.

E. Line St Lawrence St.

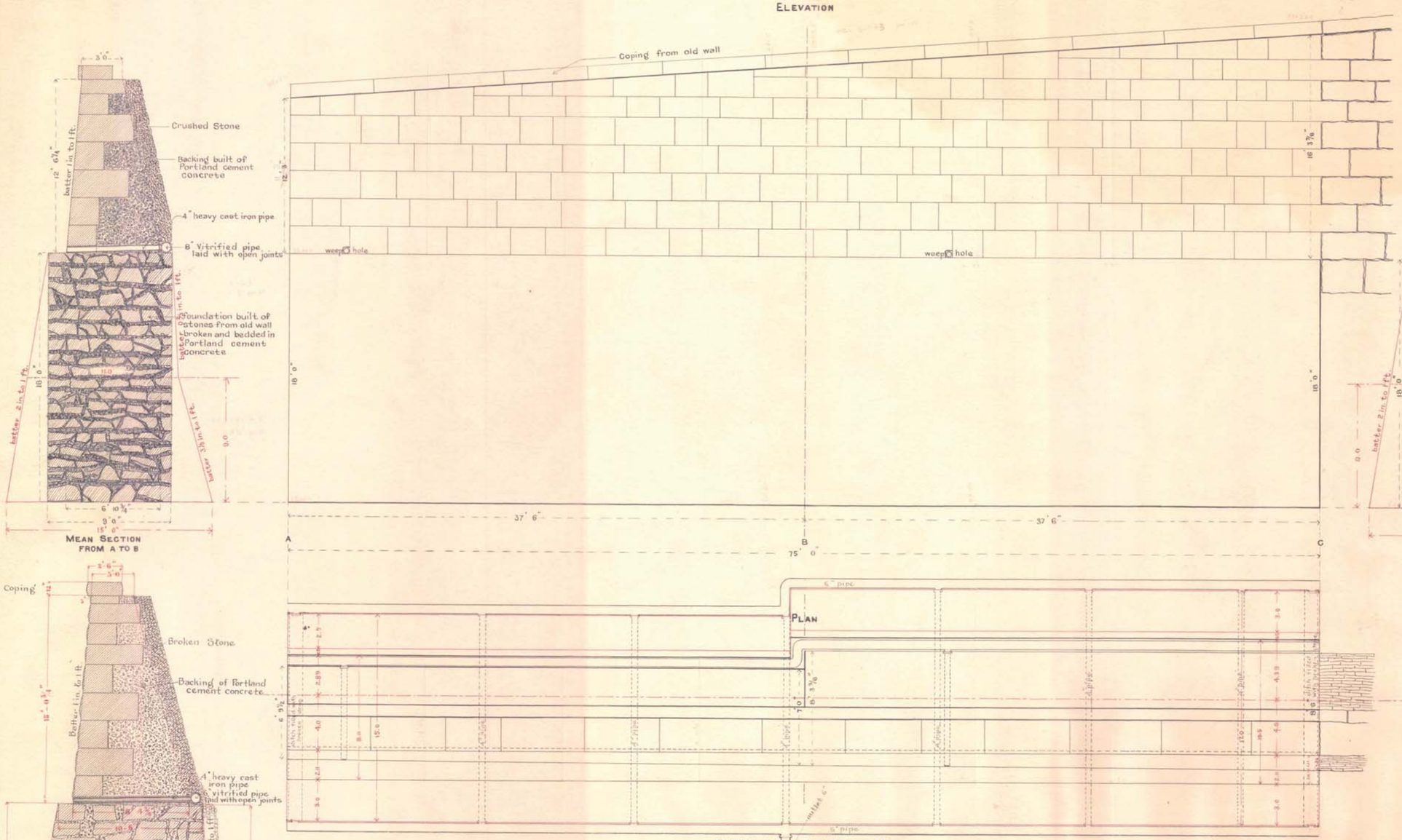
Angle

Scale of Feet

K5b
270592

377/6

ELEVATION



CITY OF PORTLAND

PLAN FOR REBUILDING

FORE ST. RETAINING WALL

SCALE 1/4 INCH TO 1 FOOT

APRIL 1896

Geo. N. Fenwald

CITY ENGINEER

Foundation of wall built as shown by red lines

Underdrains of 6" pipe with 4" laterals. Outlet of 6" pipe discharging into Portland Co's reservoir

377/16

Att. 10

C I T Y O F P O R T L A N D, G R A N T E E.

Portland Company — 434 - 368

to — Agreement

City of Portland

These articles of agreement entered into by and between the City of Portland and the Portland Comp'y a corporation duly existing under the laws of the State of Maine, this ninth day of November A. D. 1876.

Witness:

1st. That in consideration of the agreement in the 2d. article following, said Portland Company hereby gives, grants, bargains and sells to the City the right to put upon the land of said Company to an extent not exceeding four feet in width at the base throughout its entire length, the wall now in process of erection on the line between Fore street in said City and the real estate of said Comp'y and to maintain the same forever, with right of entry upon the lands of said Comp'y for purposes of repair.

And said Comp'y further agrees that the embankment which will sustain said wall shall not in any way or under any pretense be disturbed dug away, removed or the slope diminished except under the restrictions following, viz:

If the said Comp'y or its successors or assigns, owners of said land shall desire to disturb, dig away or remove said embankment, or diminish said slope, it, its successors and assigns, shall substitute without expense to the City a complete and sufficient permanent support for said wall.

2d. Said City in consideration of the foregoing hereby gives, grants, bargains and sells to said Comp'y the right to put upon said wall within the line of said Comp'y'y land, any wall of brick or stone which said Comp'y desire or may desire put thereon consistent with the safety and stability of said wall.

Nov. 9, 1876 — Portland Company

Nov. 10, 1876 — by E. K. Davis, Prest.

Nov. 10, 1876 — Countersigned by Geo. F. Morse, Treas.

HALEY ALDRICH

www.haleyaldrich.com

GEOTECHNICAL DATA REPORT
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

by
Haley & Aldrich, Inc.
Portland, Maine

for
PF Four Devco, LLC.
Portland, Maine

File No. 39486-881
October 2022

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

19 October 2022
File No. 39486-881

PF Four Devco, LLC.
Merrill's Wharf
254 Commercial Street, Suite 118
Portland, Maine 04101

Attention: David Senus, P.E.
Director of Planning and Design

Subject: Geotechnical Data Report
Foreside Block Four Development
58 Fore Street
Portland, Maine

Ladies and Gentlemen:

Haley & Aldrich, Inc. (Haley & Aldrich) is pleased to submit this Geotechnical Data Report (GDR) to PF Four Devco, LLC., which presents the results of previous and recent subsurface exploration and laboratory testing programs that were completed in support of the subject project. This GDR has been prepared to provide planning and design level geotechnical information to the project team for use during the design development (DD) and construction document (CD) preparation phases of the project. We have coordinated our work with the following project team members:

- PF Four Devco, LLC. (PFDC) — Owner
- Consigli Construction Company, Inc. (Consigli) — Construction Manager
- Perkins & Will (P&W) — Architect
- Thornton Tomasetti (TT) — Structural Engineer
- Woodard & Curran (W&C) — Civil & Environmental Engineer

This work was undertaken at your request in accordance with our subconsultant agreement dated 4 August 2022, which was authorized by you on 7 September 2022.

Please note that some of the information presented herein has also been included in documents that were previously prepared and issued by Haley & Aldrich for different portions of the Foreside Development project. The intent of this GDR is to compile all known subsurface data that has been collected within and near the Block Four building footprint into a single document that can be referenced by the project team. Memoranda and/or reports that summarize foundation support and geotechnical design recommendations needed to complete the final design and CD preparation phases of the project will be provided separately.

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to tidal datum at the site as follows:

MHHW = El. 5.4 PCD
MLLW = El. -4.5 PCD

Please note that this tidal information is not site-specific and is taken from National Oceanic Atmospheric Administration (NOAA) tidal station No. 8418150 located on the Maine State Pier, Portland, Maine. This is the NOAA tidal station closest to the site. Actual tidal datum elevations at the site may vary slightly from those shown.

Site Location, Existing Site Conditions and Historic Site Development

The Portland Company complex (site) is located at 58 Fore Street, in the northeastern part of the Portland waterfront and at/near the base of Munjoy Hill as shown in Figure 1, Project Locus. Based on our review of the existing conditions base plan prepared by Owen Haskell, Inc., dated 7 July 2016, we understand that the entire site is approximately 10-acres, which has been subdivided into six development "blocks", each of which will contain existing and/or proposed buildings of varying size. The subject project (Block Four) is located in the eastern portion of the site and is bound by Fore Street to the north, private property (Trettel) to the east, Block Five to the south and Block Two to the west.

The western and southern portions of the site are generally flat with site grades ranging between approximately El. 15 and El. 17. The ground surface in the eastern and northern portions of the site slopes steeply upwards toward Fore Street and Munjoy Hill to approximately El. 75 to El. 85. An existing, approximate 350-ft long granite block retaining wall (wall) is present along a portion of the northern boundary of Block Four, which provides grade separation between the site and Fore Street.

Based on our review of historic drawings that were obtained from the City of Portland (City; see Appendix D), it is our understanding that the wall was originally constructed in 1873 and ranged in height from approximately 0 to 30 ft. The historic drawings also indicate that the base of the wall was founded on soils within approximately 5 ft of the "pre-construction" ground surface. An additional historic drawing also suggests that a 75-ft long portion of the wall was reconstructed in 1896 for unknown reasons. The reconstructed portion of the wall is generally located near the western edge of the Block Four footprint (see Figure 2 for approximate location). The reconstructed wall typically consists of a mortared granite block lower section and a dry-laid granite block upper section with regularly spaced weep pipes to drain water from behind the wall.

Multiple buildings ranging in height from one to three stories formerly occupied the site. It is our understanding that Building 5 was recently demolished as part of sitework that was completed to prepare for the Block Four development. It is unknown whether any of the demolished buildings (including Building 5) contained below-grade (basement) space, but we anticipate that most of the buildings had at grade, soil-supported slabs-on-grade as the lowest level floor slab. In general, it is our

understanding that the finished floor slab elevations (FFEs) of the buildings were generally within a few feet of the existing exterior ground surface adjacent to the buildings.

Numerous existing overhead (electric) and underground (gas, stormwater, water and sanitary sewer) utilities are present on the site and existing gas and sewer lines are located within Fore Street. Based on our review of as-built drawings included in Appendix D, we understand that the existing Fore Street sewer consists of a 36-in. diameter brick pipe that ranges in invert elevation from approximately El. 12 near the site entrance from Fore Street to approximately El. 19 near the western edge of Building 24. At that point, the sewer transitions to a 24-in. diameter vitrified clay pipe, that ranges in invert elevation up to approximately El. 76 near Atlantic Street. It is unknown when the sewer was originally constructed however a portion west of Waterville Street was re-constructed in 1936.

It is also our understanding that the City recently completed construction of a replacement storm drain along Fore Street adjacent to the northern portion of the Block Four building. The new, 3 to 4 ft diameter storm drain runs roughly parallel to, and approximately 25 ft from the northern site property line, a depth of approximately 8 to 9 ft below Fore Street roadway grade (to invert of pipe). Several new 6-ft diameter manholes were also installed along the new storm line alignment with bottom of structure approximately 10 ft below roadway grade. Several new catch basin structures were also installed along the southern curb line of Fore Street (approximately 10 ft from the northern site property line) with bottom of structure approximately 4 to 6 ft below roadway grade. Civil site plans for the recent storm drain replacement project are included in Appendix D.

Based on our review of historical Sanborn maps of the site that are also provided in Appendix D, it appears that the site has been generally unchanged since 1886 except for the wall reconstruction work that was completed in 1896.

Existing site conditions are shown in Figure 2, Site and Subsurface Exploration Location Plan.

Proposed Development

Based on our review of the DD set of drawings, prepared by P&W, dated 16 September 2022, it is our understanding that PFDC is proceeding with the design and permitting associated with the Block Four Development, which will generally include the following key elements:

- An approximate 2,000 square foot (sf), six-story Townhouse, which includes ground floor retail space and five above-grade levels of residential units.
- An approximate 84,000 sf, eight to nine-story Parking/Residential structure, which includes four to five levels of residential units on top of four levels of structured parking.

Please refer to Figure 2 for the location of the Townhouse and Parking/Residential structure footprints. The following FFEs for the Townhouse and Parking/Residential structures have been established by the project team, were developed for the DD submission, and were provided to us by P&W in an email received on 22 September 2022:

Level	Proposed Finish Floor Elevation	
	Townhouse	Parking/Residential Structure
1	El. 16	El. 15 to El. 16*
2	El. 27.5	
3	El. 38.0	
4	El. 48.5	
5	El. 60.8	
6	El. 71.5	
7	NA	El. 82.4
8	NA	El. 93.2
9	NA	El. 104.0

* Note that FFE is at El. 10 at connection into the space below the podium at column line L-10/L-11.

In addition to the key elements described above, ancillary site improvements will include stormwater management, site roadways and parking areas, and utility infrastructure (i.e., water, sewer, natural gas, electricity) needed to service the proposed development.

Subsurface Exploration Programs

Multiple subsurface exploration programs have been completed at the site. Test boring explorations were drilled at the site by others in 2007 to support preliminary geotechnical evaluations for a development previously considered by a former site owner. In late 2016/early 2017, early to mid-2019, and early and late 2022 Haley & Aldrich completed subsurface investigation programs in support of the subject project.

A Haley & Aldrich geologist or geotechnical engineer was present on site to monitor the explorations and to document the soil, rock, and groundwater conditions encountered, and prepare exploration logs. Soil and rock samples collected from the subsurface explorations completed under the direction of Haley & Aldrich were preserved in glass jars and wooden boxes and are currently being stored in our laboratory facility in Portland and are available for review upon request.

Each exploration program is discussed in detail in the following sections of this GDR. The plan locations of the explorations are shown graphically on Figure 2 and exploration logs are provided in Appendix A.

2022 HALEY & ALDRICH EXPLORATION PROGRAM

Subsurface exploration programs were completed at the site in March/April 2022 and again in September 2022 in support of the Block Six and Block Four developments, respectively.

The March/April 2022 Block Six program consisted of eleven test borings, designated HA22-1(OW) through HA22-11, that were drilled by New England Boring Contractors (NEBC) of Hermon, Maine. Only test borings HA22-1(OW) and HA22-9 was drilled near Block Four and are discussed herein.

The September 2022 program consisted of 12 test borings, designated HA22-101 through HA22-112, that were drilled by Northern Test Borings, Inc. (NTB) of Gorham, Maine. Only test borings HA22-101 through HA22-104 and HA22-112 were drilled within or near Block Four and are discussed herein. Please note that test borings HA22-105 through HA22-107 could not be completed because the proposed locations were inaccessible. These areas will require earthwork to re-grade existing stockpiled material so that the locations can be safely accessed. These three test borings as well as test pits needed to determine the bottom of the existing, lower cast-in-place (CIP) concrete retaining wall present within the limits of proposed Townhouse footprint will be completed at a later date.

Test borings were advanced using cased-wash drilling methods through overburden soils and were terminated in bedrock at depths ranging from approximately 12 to 45 ft below ground surface (BGS) using a Mobile Drill B-53 track-mounted (March and April 2022 exploration program) and Diedrich D-50 track-mounted (September 2022) drill rigs and 4-in. outside diameter (OD) steel casing.

Soil samples were collected continuously through man-placed fill soils and at standard, 5-ft intervals thereafter (i.e., in naturally-deposited soils present below the fill) 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 W&C personnel during the March/April 2022 program to screen select soil samples (primarily fill samples) that were recovered from some of the test borings to determine the presence of volatile organic compounds (VOCs).

All test borings were advanced approximately 5 to 6 ft into bedrock using a roller cone and/or a 2.0-in. (NW-size) ID diamond-tipped core barrel.

2019 HALEY & ALDRICH EXPLORATION PROGRAM

Test Borings

A site-wide subsurface exploration program was completed in January 2019 and from May to July 2019. In total, the programs consisted of 28 test borings, designated HA19-1 through HA19-30. Please note that test borings HA19-6 and HA19-7 were not drilled due to property access issues. Only test borings HA19-4, HA19-5, HA19-9 through HA19-11, and HA19-14 through HA19-21 were drilled within or near Block Four and are discussed herein.

Test borings were drilled by NEBC, advanced using cased-wash drilling methods through overburden soils and terminated in bedrock at depths ranging from approximately 12 to 64 ft BGS. Borings were drilled using a combination of a Mobile Drill B-52 track-mounted drill rig, a Simco 2400 track-mounted drill rig or a Mobile Drill B-52 truck-mounted drill rig, and 3-in. OD and/or 4-in. OD steel casing.

Soil samples were collected using similar means and methods to those collected during the 2022 subsurface exploration program, which are described in the previous section of this GDR. Similar to the 2022 subsurface exploration program described above, a PID was used by Haley & Aldrich in the field to screen for the presence of VOCs in the recovered man-placed fill soil samples. PID readings are shown on the test boring logs provided in Appendix A.

All test borings were advanced approximately 5 to 13 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

Observation wells were installed in completed boreholes HA19-10(OW) and HA19-15(OW) to provide information on the static groundwater level at the site. The observation wells consisted of 2-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below the protective covering. The annular space between the slotted PVC and the borehole was backfilled with filter sand. To protect the well from damage, the observation wells were outfitted with a flush-mounted steel roadway box. The observation well installation and groundwater monitoring reports are provided in Appendix B.

Test Pits

Four test pits, designated HA19-TP1 through HA19-TP4, were excavated on 10 December 2019 along the base of the eastern end of the existing granite block retaining wall that provides grade separation between Fore Street and the Block Four site (see Figure 2 for approximate locations). The test pits were excavated to observe the condition of the below grade portion of the wall, determine the depth (and elevation) of the bottom of the wall, and document the soil and groundwater conditions encountered within the limits of the excavations. Please note that proposed bottom of wall level is shown on the historic drawings provided in Appendix D.

The test pits were hand-excavated by PFDC on 10 December 2019 to depths ranging from approximately 1 to 3.5 ft BGS.

A Haley & Aldrich geotechnical engineer was on-site to observe and document the conditions encountered, which are summarized in subsequent sections of this GDR. Test pit photographs are also provided in Appendix A.

2016/2017 HALEY & ALDRICH EXPLORATION PROGRAM

A subsurface exploration program consisting of ten test borings, designated HA16-1(OW) through HA16-10, and two test pits, designated HA16-TP1 and HA16-TP2 was completed under the direction of Haley & Aldrich in December 2016 and January 2017. Only test borings HA16-1(OW), HA16-2, HA16-9, and HA16-10 were drilled within or near Block Four and are discussed herein.

Test borings were drilled by NEBC, advanced using cased-wash drilling methods through overburden soils, and terminated in bedrock at depths ranging from approximately 12 to 74 ft BGS using a Mobile Drill B-53 track-mounted drill rig and 3-in. OD and/or 4-in. OD steel casing.

Soil samples were generally collected using similar means and methods to those collected during the design phase subsurface exploration program, which are described in the previous section of this GDR.

A PID was also used in the field by Haley & Aldrich to screen for the presence of VOCs in the recovered man-placed fill soil samples. Elevated PID readings, if detected, were recorded, and are shown on individual test boring logs provided in Appendix A.

The test borings were advanced approximately 5 to 10 ft into bedrock using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

One observation well was installed in completed borehole HA16-1(OW) to provide information on the static groundwater level at the site. The observation well consisted of 2-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below the protective covering. The annular space between the slotted PVC and the borehole was backfilled with filter sand. To protect the well from damage, the observation well was outfitted with a steel guardpipe. The observation well installation and groundwater monitoring reports are provided in Appendix B.

2007 EXPLORATION PROGRAM BY OTHERS

As previously discussed, a subsurface exploration program was completed by others in support of a development previously considered by a former site owner. The program generally consisted of the following:

- Eight test borings, designated B-1 through B-8, and two auger probes, designated P-1 and P-2. Only test boring B-4 and auger probe P-1 were completed within or near Block Four and are discussed herein.
- The test borings and auger probes were drilled by Great Works Test Boring, Inc. of Rollingsford, New Hampshire during the period 24 to 26 September 2007 under the direction of S.W. Cole Engineering, Inc. (SWC).
- The test boring and auger probe were drilled through overburden soils and were terminated on refusal surfaces at depths ranging from approximately 11 to 13 ft BGS using cased-wash drilling methods and 4-in. OD steel casing or “probe augers”. Soil samples were generally collected at standard 5-ft intervals using similar methodology to that summarized in the previous section of this GDR. No information was provided on the boring/probe logs regarding drill rig type or the OD of the “probe augers”.

Subsurface Conditions

The subsurface conditions encountered at the site generally consist of man-placed fill soils overlying naturally-deposited marine and glacial till soils and bedrock. A general description of soil, bedrock and groundwater conditions encountered in the test borings is provided below. Additional details are provided on the individual test boring logs, in rock core photographs and in observation well installation and groundwater monitoring reports provided in Appendices A and B, respectively. In addition, a summary of the soil units and strata thicknesses encountered within each test boring that was

completed at the project site is provided in Table I. Estimated ground surface elevation, fill thickness and marine deposit thickness information is also shown graphically next to each test boring symbol on Figure 2. Please refer to the interpretive subsurface profiles shown on Figure 3 for a simplified, graphical representation of the subsurface conditions across portions of the site.

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 will vary from those described herein, shown in Table I and shown on Figures 2 and 3.

SOIL CONDITIONS

A summary of the soil unit thicknesses and conditions encountered in the test borings drilled within the Block Four development area under the direction of Haley & Aldrich are summarized below.

Geologic Unit		Approximate Encountered Thickness (ft)	Generalized Description
Fill		2 to 21	very loose to very dense silty SAND (SM) with varying amounts of gravel; poorly-graded SAND (SP ,SP-SM) with varying amounts of gravel and silt; well graded SAND (SW-SM, SW) with varying amounts of silt and gravel; well graded GRAVEL (GW) with varying amounts of silt and sand; silty gravel (GM); medium dense sandy SILT (ML); portions of the layer in some test borings contained cobbles, roots, wood, coal fragments, ash, iron slag, brick fragments, mortar, and concrete. Substantial ASH with sand was encountered in test boring HA19-17. *(encountered in each test boring; generally thicker in Fore Street and in borings drilled closer to the water)*
Marine Deposit	Granular	3 to 16	very loose to medium dense clayey SAND (SC) with varying amounts of gravel; silty SAND (SM) with varying amounts of gravel; poorly-graded SAND (SP, SP-SM) with varying amounts of silt and gravel; well graded SAND (SW) (t*ypically encountered in test borings drilled in the southwestern portion of the Block Four footprint; see Figure 2)*
	Cohesive	4 to 20	very soft to stiff sandy SILT (ML) with varying amounts of gravel *(only encountered in test borings HA19-4, HA19-14)*
Glacial Till		1 to 60	medium stiff to hard SILT (ML) with varying amounts of sand and gravel; very loose to very dense silty SAND (SM) with varying amounts of gravel; well graded GRAVEL (GW) with sand; poorly graded GRAVEL (GP) with sand; well graded SAND (SW-SM) with gravel and silt; portions of the deposit in some test borings contained frequent cobbles and boulders (*encountered in each test boring except HA16-9, HA19-11 HA19-18, HA19-21, HA22-1(OW), and HA22-101)*
Bedrock		top of bedrock surface encountered between 5 and 64 ft BGS (approx. El. 18 and El. -27) *(bedrock was sampled/cored in each test boring)*	

BEDROCK CONDITIONS

As stated previously, approximately 5 to 13 ft of bedrock was sampled in each test boring. Where encountered and as shown in Table I the top of bedrock surface varied between approximately 5 ft and 64 ft BGS (El. 18 and El. -27) and generally slopes down from north to south and from west to east. The elevation of the top of weathered bedrock or competent bedrock surface, whichever is shallower, is shown graphically next to each test boring symbol on Figure 2 and is also shown on the interpretive subsurface profiles on Figure 3.

The sampled and recovered bedrock generally consists of moderately hard to very hard, fresh to moderately weathered PHYLLITE, SCHIST and/or QUARTZITE.

Rock quality designation (RQD) is a common parameter that is used to help assess the competency of sampled bedrock. RQD is defined as the sum of pieces of recovered bedrock greater than 4 in. in length divided by the total length of the recovered bedrock core run. RQD values for bedrock encountered at the site range from 0 to 100 percent (average RQD approximately 47 percent).

More detailed information on the sampled and recovered bedrock is provided on the test boring logs in Appendix A. Photographs of the sampled and recovered bedrock referenced herein are also provided for reference in Appendix A.

GROUNDWATER CONDITIONS

As discussed in previous sections of this GDR, observation wells were installed in several boreholes that were completed in 2016 and 2019 under the direction of Haley & Aldrich. The observation wells were installed to provide information on the static groundwater levels at the site. After installation, each observation well was “developed”, which included removal of all water present within the well casing in an effort to eliminate the potential effects that drilling means/methods may have had on the previously (prior to development) measured water levels. Measured water levels prior to and after development of each observation well are summarized in the table below. Please note that water level measurements in observation wells installed during the 2016/2017 and 2019 subsurface explorations were collected only during the periods noted. Observation well installation and groundwater monitoring reports for the wells are provided in Appendix B.

Observation Well No.[1]	Approximate Ground Surface Elevation	Approximate Range in Measured Water Levels (ft)				Data Collection Period
		Pre-Development		Post-Development		
		Depth BGS	Elevation	Depth BGS	Elevation	
HA16-1(OW)	75.0	11.4 to 13.3	61.8 to 63.6	8.8 to 15.1	59.9 to 66.2	12/23/2016 to 2/3/2017; 4/5/2022 to 10/17/2022
HA19-10(OW)	17.0	1.5	15.5	1.7	15.3	6/28/2019
HA19-15(OW)	16.0	2.9	13.1	2.5 to 5.1	10.9 to 13.5	6/28/2019 to 11/8/2019
HA22-1(OW)	12.8	8.7 to 8.9	3.9 to 4.1	3.4 to 4.1	8.7 to 9.4	3/30/2022 to 5/5/2022; 9/7/2022 to 10/17/2022

Notes:
[1] – Observation wells HA19-10(OW) and HA19-15(OW) were destroyed during Building 5 demolition.

In general, water levels may fluctuate with season, precipitation, local soil/bedrock conditions, excavation means and methods, temperature, and tidal conditions. Therefore, actual water levels encountered during construction may vary from those summarized above, provided on the testing boring logs included in Appendix A and shown on the groundwater monitoring reports in Appendix B.

Geotechnical Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative soil samples collected during the 2016/2017 and 2022 subsurface exploration programs to aid in soil classification, determination of engineering properties and evaluation of soil reuse potential. A total of 16 grain size analyses were performed on soil samples collected from test borings drilled within or near Block Four and are discussed herein. Laboratory testing was performed in accordance with applicable American Society for Testing Materials (ASTM) testing procedures by GeoTesting Express of Acton, Massachusetts (2016/2017 borings) and R.W. Gillespie & Associates, Inc. of Biddeford, Maine (2022 borings). Laboratory test results are summarized below and complete results are provided in Appendix C.

Laboratory Test	ASTM Test Designation	Soil Unit	No. of Tests	Range in Test Results
Grain Size	ASTM D 422	Fill	8	AASHTO Classification: A-1-b, A-2-4 USCS Classification: SM, SP
		Glacial Till	8	AASHTO Classification: A-1-b, A-2-4, A-4 USCS Classification: SM

In addition to the laboratory test results summarized above, one soil sample obtained from test boring B-4, which was drilled by SWC in 2007, was submitted for grain size analysis. The analysis report is provided for reference in Appendix C.

Existing Retaining Wall Conditions

As previously mentioned, several hand-excavated test pits were conducted along the base of the eastern portion of the existing granite block retaining wall. The test pits were completed to observe the condition of the below grade portion of the wall, determine the wall depth (and elevation) of the bottom of the wall, and document the soil and groundwater conditions encountered within the limits of the excavations. This information will be important when determining the design and construction requirements for the permanent support of excavation (SOE) system that will need to be installed near the eastern end of the existing granite block wall to facilitate construction of the Block Four building. A summary of the test pit excavations is provided below.

Test Pit No.[1]	Closest Structural Column Line	Observations[2]
HA19-TP1	6.3	• Existing ground surface approximately 22.3 ft below top of wall. • Test pit dimensions approximately 2 ft x 2.5 ft x 3.5 ft. • Bottom of wall approximately 3 ft BGS; approx. El. 44 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP2	6.7	• Existing ground surface approximately 19.9 ft below top of wall. • Test pit dimensions approximately 2 ft x 1 ft x 3 ft. • Bottom of wall approximately 2.3 ft BGS; approx. El. 49.7 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP3	6.9	• Existing ground surface approximately 13.4 ft below top of wall. • Test pit dimensions approximately 1.5 ft x 1.5 ft x 2 ft. • Bottom of wall approximately 1.3 ft BGS; approx. El. 57.7 • Glacial till soils observed below bottom of wall; no water observed.
HA19-TP4	8	• Existing ground surface approximately 2 to 2.5 ft below top of wall. • Test pit dimensions approximately 2 ft x 2.5 ft x 1.5 ft. • Bottom of wall approximately 0.5 to 1 ft BGS; approx. El. 72 • Glacial till soils observed below bottom of wall; no water observed.

Notes:
[1] – Approximate test pit locations are shown on Figure 2.
[2] – Approximate bottom of wall elevations determined by subtracting the approximate bottom of wall depth from the existing ground surface elevation at each test pit location, which was estimated by interpolating between ground surface elevation contours shown on Figure 2 and rounded down to the nearest foot.

Test pit photographs are provided for reference in Appendix A.

Limitations

This GDR has been prepared for the exclusive use of PFDC for the Foreside Block Four Development in Portland, Maine. There are no intended beneficiaries other than PFDC. Use of this GDR by any person or entity other than of PFDC for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from PFDC and from Haley & Aldrich. Use of this GDR by such other person or entity without the written authorization PFDC 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 GDR by any person or entity, including by PFDC, for a purpose other than relative to the Foreside Block Four Development in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the GDR is adequate for such other use.

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 information presented in this GDR and/or geotechnical recommendations for the proposed improvements.

Closure

We appreciate the opportunity to provide geotechnical engineering services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

Tucker Jones, P.E.
Geotechnical Engineer

Bryan C. Steinert, P.E.
Senior Project Manager





Wayne A. Chadbourne, P.E.
Principal

Enclosures:

Figure 1 – Project Locus
Figure 2 – Site and Subsurface Exploration Location Plan
Figure 3 –Subsurface Profile A-A and B-B
Appendix A – Test Boring Logs and Rock Core Photographs
Appendix B – Observation Well Installation and Groundwater Monitoring Reports
Appendix C – Laboratory Test Results
Appendix D – Historic Drawings and Sanborn Maps

References

1. Report entitled, “Geotechnical Data Report, Foreside Block 6 Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 18 May 2022.

2. Memorandum entitled, “Preliminary Geotechnical Design Memorandum, Foreside Block Four Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 30 December 2019.

3. Report entitled, “Geotechnical Data Report, Foreside Development, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 20 December 2019.

4. Report entitled, “Preliminary Geotechnical Design Report, Portland Company Redevelopment, 58 Fore Street, Portland, Maine,” prepared by Haley & Aldrich, Inc., dated 4 May 2017.

5. Report entitled, “Preliminary Geotechnical Investigation, Proposed Development, Portland Yacht Services Property, 58 Fore Street, Portland, Maine,” prepared by S.W. Cole Engineering, Inc. for Portland Yacht Company, dated 6 November 2007.

TABLE I
Subsurface Exploration Stratigraphic Data
Foreside Block Four Development
58 Fore Street
Portland, Maine

Haley & Aldrich, Inc. File No.: 39486-881

Test Boring No.[1]	Approx. Ground Surface Elevation[2,3] (ft)	Stratigraphic Data[3,4]													Approximate Depth of Bottom of Exploration (ft)	Approximate Elevation of Bottom of Exploration[2,3]
		Bituminous Concrete/Topsoil/Fill			Marine Deposit			Glacial Till Deposit			Weathered Bedrock			Bedrock		
		Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	Thickness (ft)	Depth to Top (ft)	Elev. of Top (ft)	
HA16-1(OW)	75.0	0.0	75.0	4.0	NE	NE	NE	4.0	71.0	59.8	NE	NE	NE	63.8	11.2	74.2	0.8
HA16-2	14.5	0.0	14.5	4.6	NE	NE	NE	4.6	9.9	12.8	NE	NE	NE	17.4	-2.9	22.4	-7.9
HA16-9	14.5	0.0	14.5	5.6	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.6	8.9	11.5	3.0
HA16-10	13.5	0.0	13.5	4.5	NE	NE	NE	4.5	9.0	30.9	NE	NE	NE	35.4	-21.9	40.5	-27.0
HA19-4	53.5	0.0	53.5	11.9	11.9	41.6	28.6	40.5	13.0	3.9	NE	NE	NE	44.4	9.1	55.0	-1.5
HA19-5	74.5	0.0	74.5	10.0	NE	NE	NE	10.0	64.5	49.2	NE	NE	NE	59.2	15.3	64.3	10.2
HA19-9	15.5	0.0	15.5	2.0	NE	NE	NE	2.0	13.5	13.0	15.0	0.5	3.0	18.0	-2.5	28.0	-12.5
HA19-10(OW)	17.0	0.0	17.0	3.5	3.5	13.5	5.0	8.5	8.5	5.2	NE	NE	NE	13.7	3.3	23.0	-6.0
HA19-11	17.0	0.0	17.0	2.0	2.0	15.0	5.3	NE	NE	NE	NE	NE	NE	7.3	9.7	12.5	4.5
HA19-14	13.5	0.0	13.5	2.7	2.7	10.8	3.8	6.5	7.0	6.9	NE	NE	NE	13.4	0.1	18.4	-4.9
HA19-15(OW)	16.0	0.0	16.0	1.5	NE	NE	NE	1.5	14.5	11.0	NE	NE	NE	12.5	3.5	18.5	-2.5
HA19-16	15.0	0.0	15.0	11.0	11.0	4.0	3.0	14.0	1.0	3.4	NE	NE	NE	17.4	-2.4	23.0	-8.0
HA19-17	15.5	0.0	15.5	17.5	NE	NE	NE	17.5	-2.0	1.4	18.9	-3.4	1.4	20.3	-4.8	25.3	-9.8
HA19-18	15.5	0.0	15.5	8.5	8.5	7.0	7.8	NE	NE	NE	NE	NE	NE	16.3	-0.8	21.3	-5.8
HA19-19	16.0	0.0	16.0	1.5	NE	NE	NE	1.5	14.5	3.7	NE	NE	NE	5.2	10.8	11.7	4.3
HA19-20	13.5	0.0	13.5	8.0	8.0	5.5	16.0	24.0	-10.5	16.0	NE	NE	NE	40.0	-26.5	45.5	-32.0
HA19-21	13.5	0.0	13.5	9.0	9.0	4.5	7.5	NE	NE	NE	NE	NE	NE	16.5	-3.0	23.9	-10.4
HA22-1(OW)	12.8	0.0	12.8	20.5	20.5	-7.7	18.6	NE	NE	NE	NE	NE	NE	39.1	-26.3	45.0	-32.2
HA22-9	32.2	0.0	32.2	12.0	NE	NE	NE	12.0	20.2	2.0	NE	NE	NE	14.0	18.2	19.0	13.2
HA22-101	15.7	0.0	15.7	2.0	2.0	13.7	4.6	NE	NE	NE	NE	NE	NE	6.6	9.1	12.0	3.7
HA22-102	15.1	0.0	15.1	14.0	NE	NE	NE	14.0	1.1	0.8	NE	NE	NE	14.8	0.3	20.5	-5.4
HA22-103	15.5	0.0	15.5	6.5	NE	NE	NE	6.5	9.0	3.2	NE	NE	NE	9.7	5.8	15.6	-0.1
HA22-104	14.7	0.0	14.7	11.3	NE	NE	NE	11.3	3.4	2.8	NE	NE	NE	14.1	0.6	19.5	-4.8
HA22-112	33.0	0.0	33.0	6.0	NE	NE	NE	6.0	27.0	11.2	NE	NE	NE	17.2	15.8	22.5	10.5

Notes:

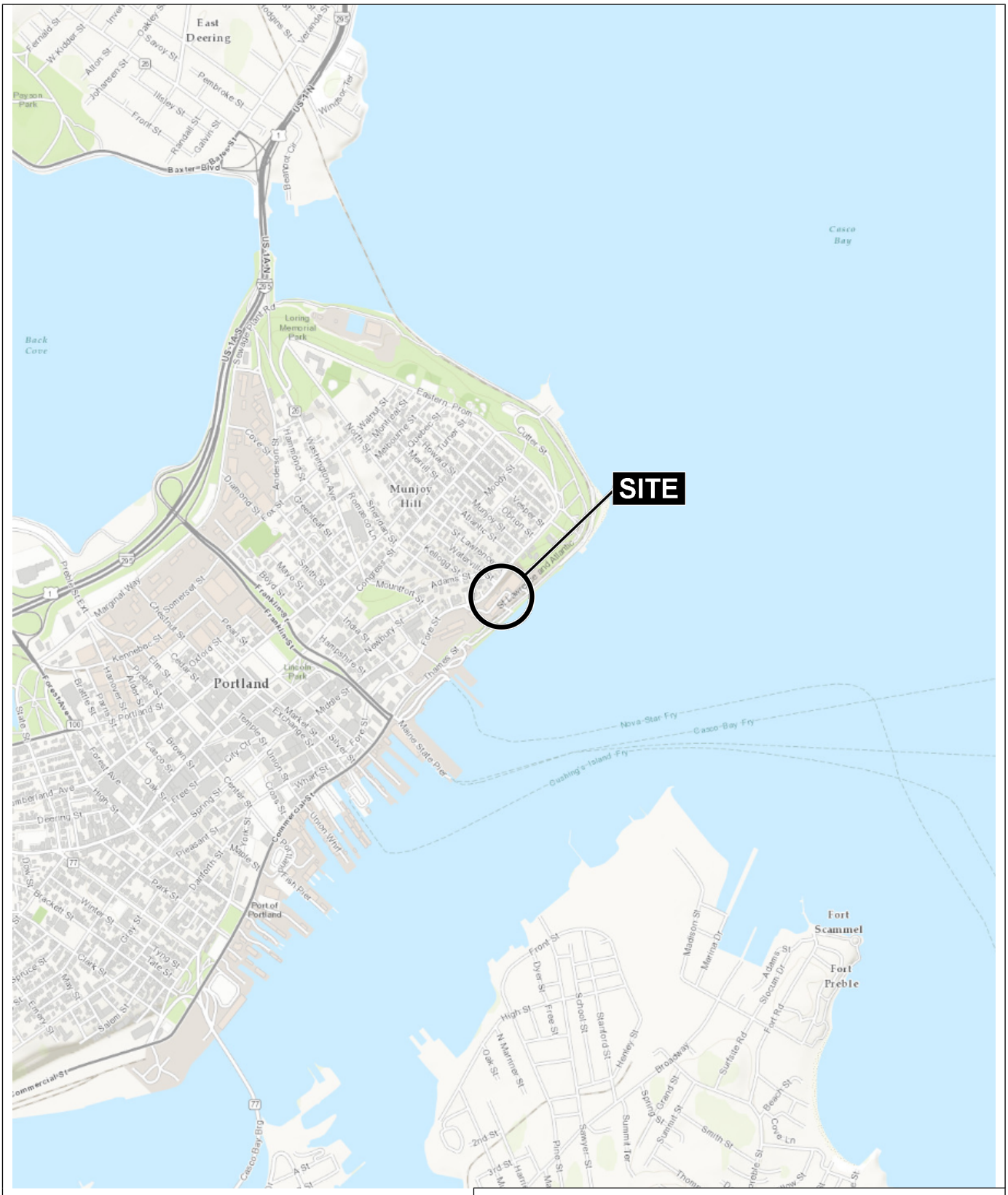
[1] - Test boring locations are shown on Figure 2, Site and Subsurface Exploration Location Plan.

[2] - Ground surface elevations at HA16 and HA19-series test boring locations were estimated by Haley & Aldrich, Inc. by interpolating between ground surface elevation contours provided at the time the test borings were completed (2016 and 2019), have been rounded to the nearest 0.5 ft and are considered approximate. Ground surface elevations at HA22-series test boring locations were determined by Owen Haskell, Inc. upon the completion of drilling using GPS survey equip.

[3] - Elevations are measured in feet and reference the Portland City Datum (PCD).

[4] - "NE" indicates stratum was not encountered in test boring.

	Individual	Date
Prepared By:	TPJ	10/3/2022
Checked By:	BCS	10/6/2022
Reviewed By:	WAC	10/12/2022



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'46"N, 70°14'38"W





HALEY ALDRICH

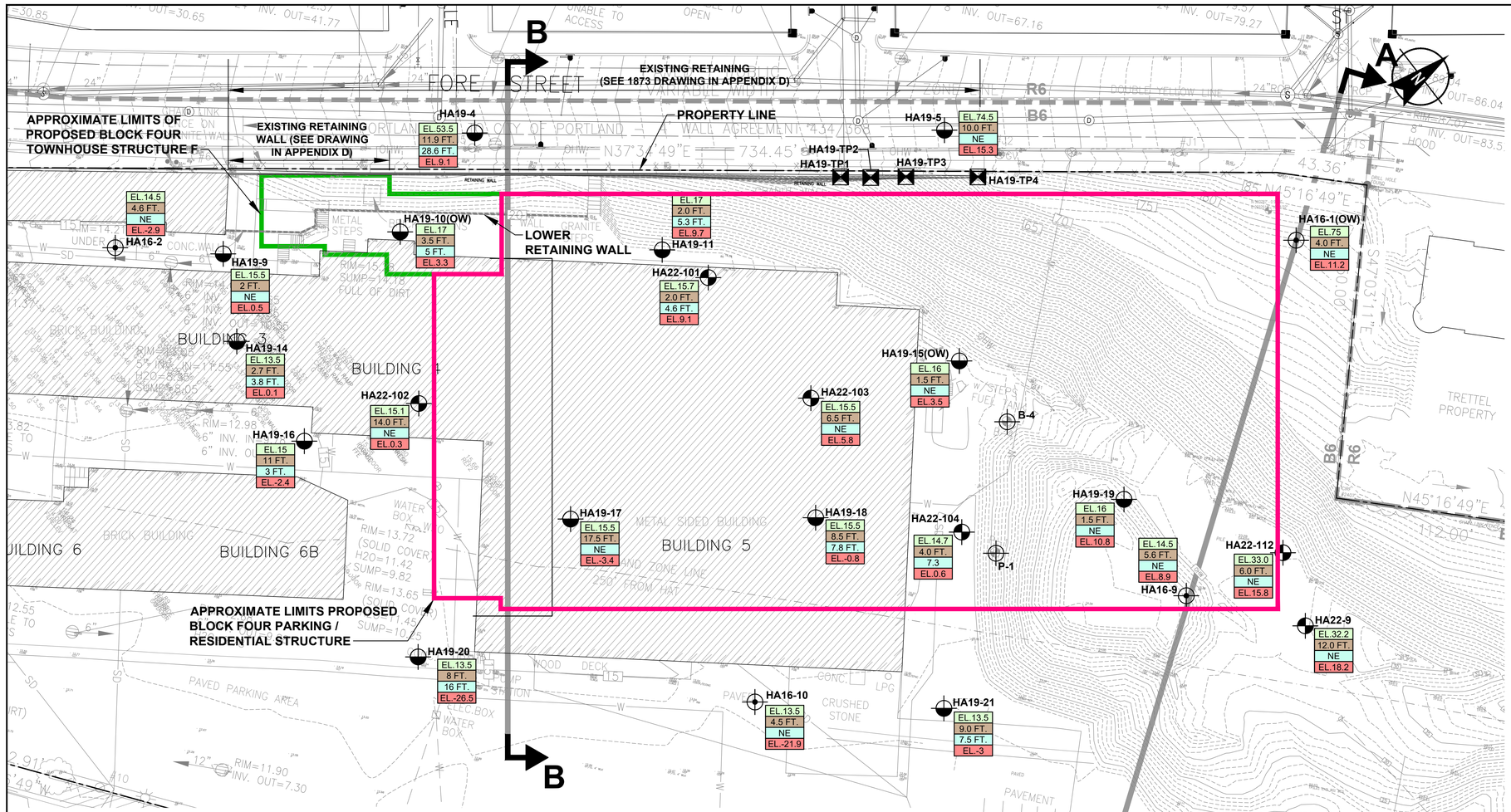
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1

39486-872_1_LOCUS.PDF



LEGEND

HA22-1 / HA22-101 — DESIGNATION AND LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE (HA22-1 SERIES) AND NORTHERN TEST BORINGS, INC. OF GORHAM, MAINE (HA22-100 SERIES) UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN MARCH AND APRIL 2022 (HA22-1 SERIES) AND SEPTEMBER 2022 (HA22-100 SERIES)

HA19-TP1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT HAND-EXCAVATED BY PORTLAND FORESIDE DEVELOPMENT COMPANY AND OBSERVED BY HALEY & ALDRICH, INC. ON 10 DECEMBER 2019

HA19-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH IN JANUARY AND FROM MAY TO JULY 2019

HA16-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH DURING THE PERIOD 13 DECEMBER 2016 TO 5 JANUARY 2017

B-3 / P-1 — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING AND AUGER PROBE DRILLED BY GREAT WORKS TEST BORING, INC. OF ROLLINGSFORD, NEW HAMPSHIRE UNDER THE DIRECTION OF S.W. COLE ENGINEERING INC. DURING THE PERIOD 24 TO 26 SEPTEMBER 2007

(OW) — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

EXPLORATION DATA BOX
- EL.75 — APPROXIMATE GROUND SURFACE ELEVATION
- 4.0 FT. — APPROXIMATE FILL THICKNESS
- NE — APPROXIMATE MARINE DEPOSIT THICKNESS
- EL.11.2 — APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
  "NE" DENOTES STRATUM NOT ENCOUNTERED

A A — DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE, SEE FIGURE 3

0 30 60 90 120
SCALE IN FEET

NOTES

1. BASE PLAN CREATED BY HALEY & ALDRICH, INC. USING THE FOLLOWING REFERENCES:
   a. EXISTING GROUND SURFACE ELEVATION CONTOURS AND THE LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE CAD FILE ENTITLED "XR_EX BASE 2022 (COMPILED).DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 MAY 2022.
   b. LOCATION AND ORIENTATION OF THE EXISTING FORE STREET RETAINING WALL TAKEN FROM THE CAD FILE ENTITLED "XR_0232341 EXBASE.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 30 OCTOBER 2019.
   c. LOCATION AND ORIENTATION OF EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY ARE TAKEN FROM THE CAD FILE ENTITLED "PFDC MASTER SITE PLAN V3.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 29 MARCH 2022.
   d. LOCATION OF "B-4" AND "P-1" EXPLORATIONS COMPLETED UNDER THE DIRECTION OF S.W. COLE ENGINEERING, INC. IN SEPTEMBER 2007 ARE TAKEN FROM THE CAD FILE ENTITLED "XR_227007.03-X00C.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 AUGUST 2016.
   e. PROPOSED BUILDING LAYOUT, IS TAKEN FROM THE CAD FILES ENTITLED "BLOCK 4-SHEET- S1-1-LEVEL 1-FOUNDATION PLAN.DWG", "BLOCK 4-SHEET-S1-2-LEVEL 2 FRAMING PLAN.DWG", "BLOCK 4-SHEET-S1-3-LEVEL 3 FRAMING PLAN.DWG" AND "BLOCK 4-SHEET-S1-4-LEVEL 4 FRAMING PLAN.DWG" PROVIDED BY THORNTON TOMASETTI OF PORTLAND, MAINE ON 29 SEPTEMBER 2022.
2. THE PLAN LOCATION AND ORIENTATION OF THE EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY WERE DETERMINED BY SCALING AND ROTATING REFERENCE DRAWING 1C USING EXISTING PROPERTY LINE INFORMATION AND IS CONSIDERED APPROXIMATE.
3. THE PROPOSED BUILDING LAYOUT, WAS DETERMINED BY SCALING AND ROTATING REFERENCE DRAWINGS 1E USING THE EXISTING LOWER RETAINING WALL INFORMATION THAT IS PRESENT IN THE VICINITY OF THE TOWNHOUSE AND IS CONSIDERED APPROXIMATE.
4. THE LOCATION OF GAS AND SANITARY AND STORM SEWERS IN FORE STREET ARE TAKEN FROM THE CAD FILE ENTITLED "XR_FORE AS BUILT.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 4 OCTOBER 2022."
5. THE PLAN LOCATIONS OF "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY TAPING DISTANCES TO/FROM EXISTING SITE FEATURES AND ARE CONSIDERED APPROXIMATE. THE PLAN LOCATIONS OF "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
6. GROUND SURFACE ELEVATIONS AT "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY HALEY & ALDRICH, INC. BY INTERPOLATING BETWEEN EXISTING GROUND SURFACE TOPOGRAPHIC CONTOUR INFORMATION AVAILABLE AT THE TIME THE TEST BORINGS WERE COMPLETED AND ARE CONSIDERED APPROXIMATE.
7. GROUND SURFACE ELEVATIONS AT "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
8. ELEVATIONS ARE FEET AND REFERENCE PORTLAND CITY DATUM.
9. REFER TO APPENDIX A FOR TEST BORING AND TEST PIT LOGS AND ROCK CORE PHOTOGRAPHS, APPENDIX B FOR OBSERVATION WELL INSTALLATION AND GROUNDWATER MONITORING REPORTS, APPENDIX C FOR LABORATORY TEST RESULTS, AND APPENDIX D FOR HISTORIC DRAWINGS.

HALEY ALDRICH

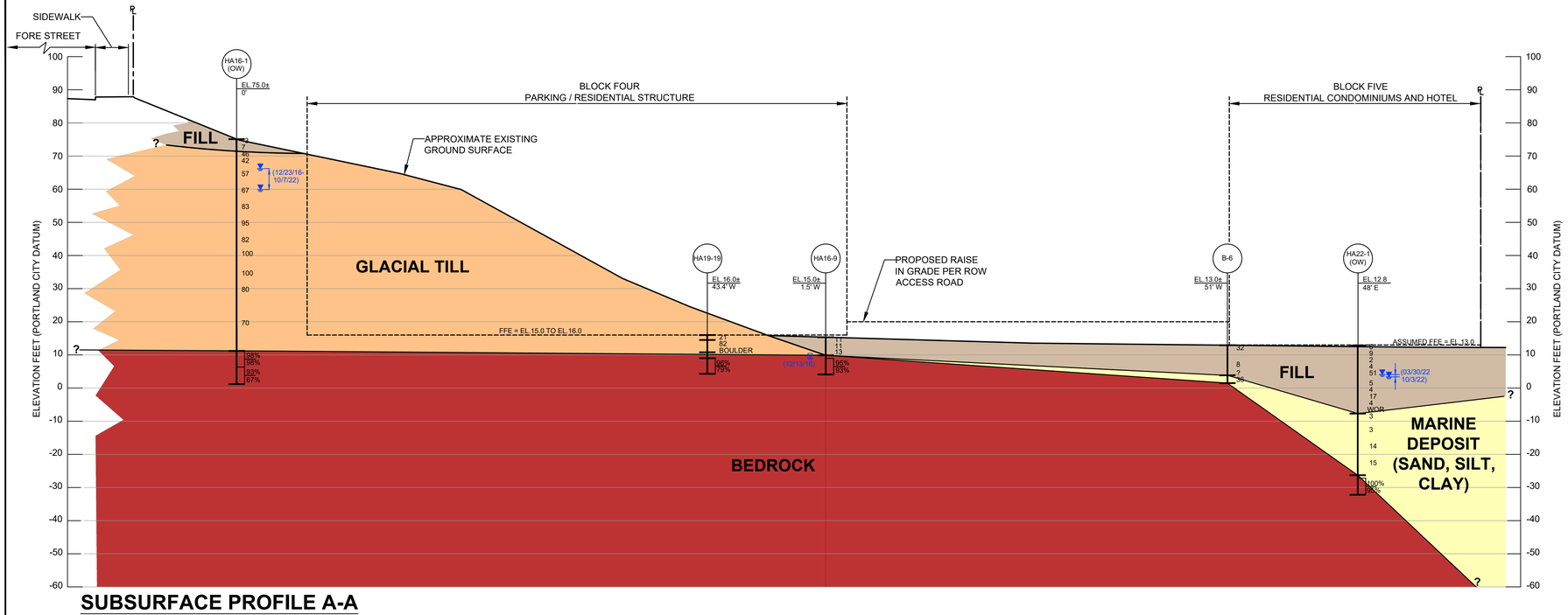
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN

SCALE: AS SHOWN
OCTOBER 2022

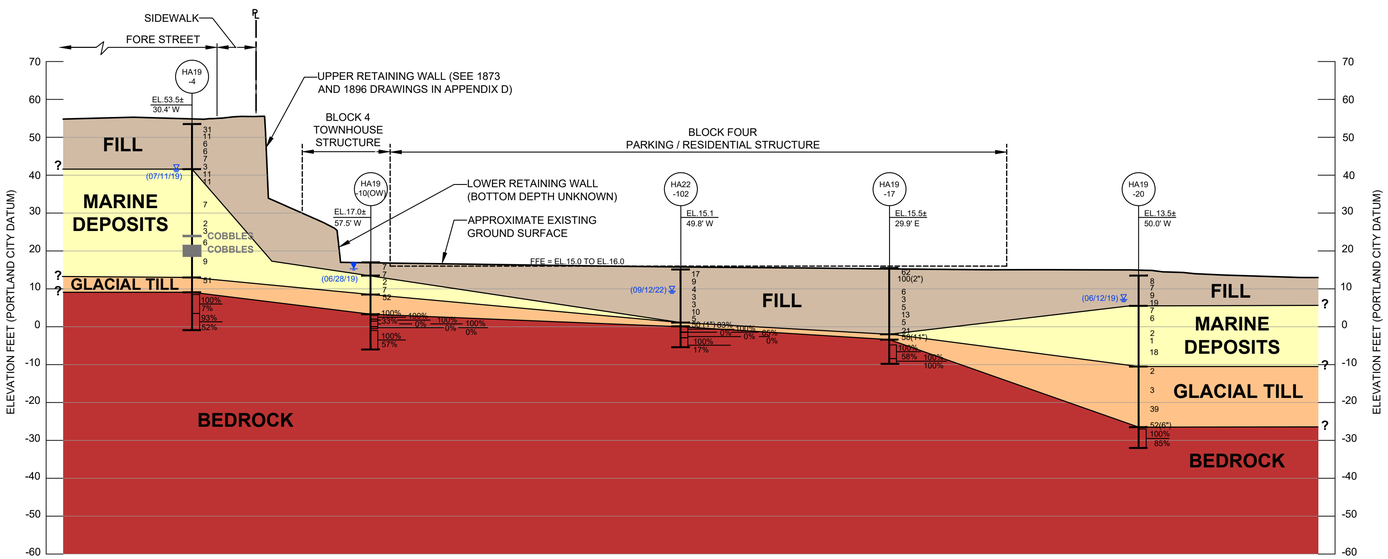
FIGURE 2

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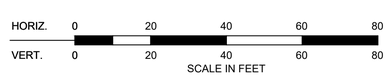
SUBSURFACE PROFILE A-A

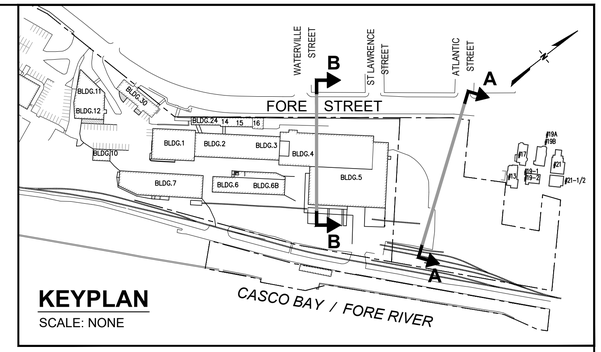
SCALE: AS SHOWN



SUBSURFACE PROFILE B-B

SCALE: AS SHOWN





KEYPLAN

SCALE: NONE

LEGEND

HA16-1 (OW) — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING. "OW" INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

EL.23.5± — APPROXIMATE GROUND SURFACE ELEVATION AT TEST BORING LOCATION

9' S — APPROXIMATE PERPENDICULAR OFFSET DISTANCE AND DIRECTION MEASURED FROM THE SUBSURFACE PROFILE LINE

29 — SAMPLE OBTAINED BY DRIVING A 1-3/8-INCH I.D. SPLIT SPOON SAMPLER WITH A 140-LB HAMMER. NUMBER INDICATES STANDARD PENETRATION RESISTANCE, "N", UNLESS NOTED OTHERWISE

100/5" = 100 BLOWS, 5 INCHES OF PENETRATION

INTERPRETED GEOLOGIC STRATUM, DASHED WHERE INFERRED

100% / 57% — PERCENT RECOVERY / PERCENT ROCK QUALITY DESIGNATION (RQD)

BOTTOM OF EXPLORATION

(DEC. 2016 - FEB. 2017) — GROUNDWATER LEVEL MEASURED IN OBSERVATION WELL ON DATE SPECIFIED

(06/12/19) — WATER LEVEL MEASURED IN BOREHOLE DURING AND/OR AFTER DRILLING ON DATE SPECIFIED

NOTES

1. SEE FIGURE 2 FOR PLAN LOCATION OF EXPLORATIONS SHOWN AND FOR ORIENTATION AND LOCATION OF SUBSURFACE PROFILES.
2. SITE FEATURES, GROUND SURFACE ELEVATIONS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM THE ELECTRONIC FILE TITLED, " 58 FORE STREET HA.DWG." PROVIDED TO HALEY & ALDRICH BY WOODARD & CURRAN, DATED 5 JANUARY 2017.
3. SUBSURFACE PROFILES DEPICT THE GENERAL GEOLOGIC CONDITIONS AT THE SITE AND ARE BASED ON INTERPRETATION OF DATA ENCOUNTERED IN THE EXPLORATIONS. LINES REPRESENTING INTERFACES BETWEEN STRATA ON THE PROFILE ARE BASED UPON INTERPOLATION BETWEEN ADJACENT EXPLORATIONS. THIS FIGURE SHOWS THE ACTUAL SEQUENCE OF STRATA ENCOUNTERED AT EACH EXPLORATION LOCATION. ACTUAL SOIL CONDITIONS AND INTERFACES BETWEEN SUBSURFACE EXPLORATIONS MAY VARY SIGNIFICANTLY FROM THOSE INDICATED ON THE PROFILES.
4. MATERIAL DESCRIPTIONS ARE GENERALIZED AND INDICATE SAMPLES WITH A NATURAL DEGREE OF VARIATION. REFER TO THE TEST BORING LOGS IN APPENDIX A FOR INDIVIDUAL SAMPLE DESCRIPTIONS.
5. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
6. REFER TO APPENDIX A FOR TEST BORING LOGS AND ROCK CORE PHOTOGRAPHS, APPENDIX B OBSERVATION WELL INSTALLATION AND GROUNDWATER MONITORING REPORTS, APPENDIX C FOR LABORATORY TEST RESULTS, AND APPENDIX D FOR HISTORIC DRAWINGS.

HALEY ALDRICH

FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

SUBSURFACE PROFILE A-A AND B-B

SCALE: AS SHOWN
OCTOBER 2022

FIGURE 3

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APPENDIX A

Test Boring Logs and Rock Core Photographs

2022 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA22-1(OW)

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors

File No.	39486-882
Sheet No.	1 of 3
Start	23 March 2022
Finish	23 March 2022
Driller	T. Schaefer
H&A Rep.	T. Jones
Elevation	12.8
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B53 Bombardier #19
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW to 39.1 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	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 2 3 13	S1 5	0.0 2.0	HW Wash Ahead to 20 ft			SW	Loose dark brown well-graded SAND with gravel, mps 0.75 in., no odor, dry		15	20	35	25	5				
								-FILL-										
	7 6 3 3	S2 21	2.0 4.0				SW	Loose black well-graded SAND with gravel (SW), mps 0.75 in., no odor, dry		15	15	20	50					
						8.8												
	3 1 1 2	S3 7	4.0 6.0			4.0	SM	Very loose dark brown to brown silty SAND (SM), mps 0.5 in., slightly bonded, no odor, moist		5	10	15	40	30				
5								-FILL-										
	2 1 3 1	S4A/B 13	6.0 8.0				SM	Similar to S3		10	10	15	35	30				
						6.2												
						6.6	GP	Very loose black poorly-graded GRAVEL with sand (GP), mps 0.75 in., no odor, moist		60	20	10	10					
								-FILL-										
						4.8												
	2 1 50 50/3"	S5 15	8.0 10.0			8.0	SM	Very loose to very dense black silty SAND with gravel (SM), mps 1.25 in., slight odor, wet, wood in tip	20	10	10	5	40	15				
10								-FILL-										
								Note: Wood observed in wash water.										
	2 2 3 1	S6 NR	11.0 13.0															
						-0.2												
	2 1 3 9	S7 9	13.0 15.0			13.0	GP-GM	Loose black poorly-graded GRAVEL with silt and sand (GP-GM), mps 1 in., no odor, wet	10	40	15	10	15	10				
								-FILL-										
15	7 7 10 9	S8 13	15.0 17.0				GP	Medium dense black poorly-graded GRAVEL with sand (GP), mps 1 in., no odor, wet, trace wood, fine sand layer	10	40	10	5	30	5				
	6 3 1 1	S9 8	17.0 19.0				GP-GM	Very loose black poorly-graded GRAVEL with silt and sand (GP-GM), mps 1 in., no odor, wet, iron fragment	10	40	5	15	20	10				
20	2 WOR	S10A/B 15	19.0 21.0				GM	Very loose black silty GRAVEL with sand (GM), mps 1 in., no odor, wet	15	35	10	10	10	20				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

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)	39.1
Rock Cored (ft)	5.0
Samples	14S, 1C

Boring No. HA22-1(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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-1(OW)
File No. 39486-882
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per ft	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	WOR WOR			23		-7.7 20.5 -8.2	ML	Very soft dark gray SILT with organics (ML), mps 0.425 mm, no odor, wet, trace wood					10	90				
	4 1 2 2	S11 16	21.0 23.0	39 32		21.0	SM	Very loose gray silty SAND with gravel (SM), mps 1 in., no odor, wet, wood in tip -MARINE DEPOSIT-		24	9	14	38	15				
				36 33														
25						-12.2												
	2 1 2 1	S12 10	25.0 27.0	32 40		25.0	SP-SM	Very loose gray poorly-graded SAND with silt and gravel (SP-SM), mps 0.75 in., no odor, wet -MARINE DEPOSIT-	18	6	7	12	47	10				
				46 59 68														
30	6 7 7 7	S13 11	30.0 32.0	44 50			SP	Medium dense gray poorly-graded SAND with gravel (SP), mps 1.25 in., no odor, wet	15	15	5	20	40	5				
				42 61 47														
35	4 7 8 7	S14A/B 13	35.0 37.0	41 63		-22.2 35.0 -23.2 36.0	SM ML	Medium dense gray-brown silty SAND with gravel (SM), mps 0.25 in., no odor, wet -MARINE DEPOSIT- Very stiff gray-brown SILT with sand (ML), mps 1 mm, no odor, wet -MARINE DEPOSIT-		15 10	10 10	30 5	25 10	20 65				
				87 96 14/2"		-26.3 39.1		Note: Top of bedrock at 39.1 ft below ground surface. Note: Advance rollerbit to 40.0 ft. Begin NQ rock core at 40.0 ft.										
40						-27.2 40.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA22-1(OW)

H&A-TEST BORING-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-1(OW)
File No. 39486-882
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Well Dia-gram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
40	2:47	C1	40.0	60	100	Fresh			Hard, fresh, gray, aphanitic to fine-grained PHYLLITE. Primary joints dipping at horizontal to moderate angles, very close to moderately spaced, planar, rough, tight to open.
	1:58		45.0	57	95				
	1:48								
	2:00								
	1:15								
45								-32.2	
								45.0	BOTTOM OF EXPLORATION 45.0 FT
50									
55									
60									
65									
70									
75									

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-9

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B53 Bombardier #19
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW to 14.0 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-882
Sheet No.	1 of 2
Start	24 March 2022
Finish	24 March 2022
Driller	T. Schaefer
H&A Rep.	T. Jones
Elevation	32.2
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	2 5 7 8	S1 15	0.0 2.0	HW Push to 8 ft		SM	Medium dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, dry, trace wood		34	7	21	23	15				
							-FILL-										
	5 11 12 5	S2 17	2.0 4.0			SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.5 in., no odor, moist, trace brick, grading brown to gray last 6 in.		34	7	21	23	15				
5	3 1 1 2	S3 11	4.0 6.0			SM	Very loose dark gray silty SAND with gravel (SM), mps 1 in., no odor, moist, trace brick		32	9	21	23	5				
	2 2 2 2	S4 7	6.0 8.0			SM	Similar to S3, trace wood, no brick		32	9	21	23	15				
					24.2												
	4 2 2 2	S5 3	8.0 10.0	11 7	8.0	SM	Very loose dark brown silty SAND with gravel (SM), mps 0.5 in., no odor, wet, trace brick		15	10	20	40	15				
							-FILL-										
10					22.2												
	4 3 4 6	S6 7	10.0 12.0	14 12	10.0	ML	Medium stiff dark gray sandy SILT (ML), mps 0.5 in., no odor, wet, trace roots, probable reworked glacial till		10	5	5	30	50				
							-FILL-										
					20.2												
	8 14 20 25/4"	S7A/B 14	12.0 14.0	40 25/5"	12.0	SM	Dense brown silty SAND with gravel (SM), mps 1 in., no odor, wet	5	10	10	15	25	35				
					19.6		-GLACIAL TILL-										
					12.6	SM	Dense brown silty SAND (SM), mps 0.5 in., no odor, wet		10	10	20	30	30				
							-GLACIAL TILL-										
					18.2		Note: Used 300-lb hammer for S7.										
					14.0		Note: Top of bedrock at 14.0 ft below ground surface.										
15							SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
3/28/22	1130	0	14.0	19.0	8.7

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)	14.0
Rock Cored (ft)	5.0
Samples	7S, 1C

Boring No. HA22-9

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-9
File No. 39486-882
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	2:57 3:19 2:50 3:47 4:17	C1	14.0 19.0	59 36	98 60	Fresh to Slight		Hard, fresh to slightly weathered, gray/white, fine-grained to aphanitic SCHIST. Joints dipping at low to moderate angles, very close to close, planar to undulating/stepped, rough, tight to open. Oxidation on some joint surfaces, slight weathering. Secondary high angle joints parallel to foliation, frequent quartz veins throughout core stem, quartz intrusion from approximately 17.8 to 19.0 ft.
							13.2 19.0	BOTTOM OF EXPLORATION 19.0 FT
20								
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_TEST BORINGS.GPJ 12 May 22

TEST BORING REPORT

Boring No. HA22-101

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

File No.	39486-881
Sheet No.	1 of 2
Start	13 September 2022
Finish	13 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.7
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 4.0 ft/HW to 6.6 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	8 6 4 9	S1 10	0.0 2.0			SW-SM	Loose black and brown well-graded SAND with silt (SP-SM), mps 0.5 in., no odor, dry		5	30	30	25	10				
							-FILL-										
					13.7												
	7 4 5 7	S2 9	2.0 4.0		2.0	SP-SM	Loose brown poorly-graded SAND with silt (SP-SM), mps 5 mm, no odor, moist			10	30	50	10				
							-MARINE DEPOSIT-										
					11.7												
5	9 8 7 12	S3 14	4.0 6.0	26	4.0	SW	Medium dense light brown well-graded SAND (SW), mps 0.75 in., no odor, wet		5	25	40	25	5				
							-MARINE DEPOSIT-										
	50/5"	S4 6	6.0 6.5	51 61/6"		SW	Similar to S3		5	30	35	25	5				
					9.1		Note: Top of bedrock at 6.6 ft.										
					6.6 8.7		Note: Advanced rollerbit to 7.0 ft. Begin NQ core at 7.0 ft.										
					7.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
10																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/13/22	0900	0.25	N/A	5.5	1.5

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)	6.5
Rock Cored (ft)	5.0
Samples	4S, 3C

Boring No. HA22-101

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-101
File No. 39486-881
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
	2:39	C1	7.0 8.3	15 13	96 83	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal, moderately spaced, planar, rough, open.
	0:33 1:15	C2	8.3 10.3	22 9	92 38	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal and high angles, closely spaced, planar and stepped, smooth to rough, tight to open.
10	1:38 1:25 1:13	C3	10.3 12.0	18 13	88 64	Fresh		Similar to C2.
	2:23						3.7 12.0	BOTTOM OF EXPLORATION 12.0 FT
15								
20								
25								
30								
35								
40								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-102

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 10.0 ft/HW to 14.8 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.1
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	11 10 7 10	S1 16	0.0 2.0	Push		SW	Medium dense black-brown well-graded SAND with gravel (SW), mps 0.5 in., no odor, dry		15	15	30	35	5				
							-FILL-										
	15 5 4 4	S2 7	2.0 4.0			SW	Similar to S1, except loose		5	15	35	40	5				
					11.1												
	4 2 2 2	S3 12	4.0 6.0		4.0	SM	Very loose brown-gray silty SAND (SM), mps 0.5 in., no odor, moist, mottled		10	10	20	30	30				
5						SM	Similar to S3, except wet		5	10	20	35	30				
							-FILL-										
	5 1 2 1	S4A/B 24	6.0 8.0			SM	Very loose gray silty SAND (SM), mps 5 mm, well bonded, no odor, wet			10	20	35	35				
	1 2 1 8	S5 8	8.0 10.0			SM	Very loose gray-brown silty SAND with gravel (SM), mps 1 in., well bonded, no odor, wet	5	25	10	15	20	25				
10	6 4 6 8	S6A/B 19	10.0 12.0		4.6	SM	Medium dense gray-brown silty SAND (SM), mps 0.5 in.,		10	10	20	30	30				
					10.5	SP	moderately bonded, no odor, wet		5	10	40	35	10				
				39			Loose light brown poorly-graded SAND (SP), mps 5 mm, no odor, wet, trace brick (1.5-in. dia. piece)										
							-FILL-										
	6 3 2 3	S7 22	12.0 14.0	51 50		SP	Similar to 5B, except mps 1.0 in.	5	5	10	35	40	5				
					1.1												
	3 50/1"	S8 6	14.0 14.6	24/10"	14.0	SM	Loose, gray, silty SAND (SM), mps 1.0 in., well bonded, no odor, wet	5	5	15	15	25	35				
15					0.3 14.8		-GLACIAL TILL-										
					0.1 15.0		Note: Top of bedrock at 14.8 ft										
							Note: Advanced rollerbit to 15.0 ft. Begin NQ 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
9/12/22	1215	0	14.0	8.9	6.5
9/12/22	1350	0.25	N/A	14.7	5.7

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)	14.8
Rock Cored (ft)	5.5
Samples	8S, 4C

Boring No. HA22-102

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-102
File No. 39486-881
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	1:18	C1	15.0	15	83	Fresh		Hard, fresh, aphanitic PHYLLITE. Primary joints horizontal to vertical angles, very close to close, planar, smooth, tight to open.
			16.5	0	0			
	1:03							
	2:27	C2	16.5	2	100	Fresh		Similar to C1.
	4:00	C3	16.6	0	0	Fresh		Similar to C1.
	2:00		16.6	11	65			
	1:40	C4	18.0	0	0	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joint horizontal to high angles, very close to close, planar to stepped, smooth, tight, occasional calcite stringers and quartz vein approximately 1-in. thick.
			18.0	30	100			
	2:17		20.5	5	17			
20	2:14						-5.4	
							20.5	BOTTOM OF EXPLORATION 20.5 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-103

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 8.0 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	15.5
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	12 12 9 6	S1 15	0.0 2.0	Push	15.1 0.4	SW	-BITUMINOUS CONCRETE- Medium dense black and brown well-graded SAND (SW), mps 0.75 in., no odor, dry		10	10	35	40	5				
					13.5		-FILL-										
	6 7 8 9	S2 13	2.0 4.0		2.0	SW-SM	Medium dense light brown well graded SAND with silt (SW-SM), mps 5 mm, no odor, moist			20	30	40	10				
							-FILL-										
	13 15 14 19	S3 10	4.0 6.0			SW-SM	Medium dense light brown well-graded SAND with silt and gravel (SW-SM), mps 0.5 in., no odor, moist		15	20	25	30	10				
5	21 20 36 23	S4A/B 18	6.0 8.0	45 5	9.0 6.5	SW-SM ML	Similar to S3 Hard gray sandy SILT (ML), mps 1 in., well bonded, no odor, moist		15 10	20 10	25 10	30 15	10 55				
							-GLACIAL TILL-										
	15 17 50/4"	S5 15	8.0 9.3	64 49/8"		ML	Similar to S4B		10	10	10	20	50				
					5.8		Note: Top of bedrock at 9.7 ft.										
10					9.7 5.5 10.0		Note: Advanced rollerbit to 10.0 ft. Begin NQ core at 10.0 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
9/12/22	1130	0.25	N/A	10.0	2.0

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)	9.7
Rock Cored (ft)	5.5
Samples	5S, 2C

Boring No. HA22-103

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-103
File No. 39486-881
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
10	1:58	C1	10.0	41	111	Fresh		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints dipping at horizontal to high angles, very close to closely spaced, planar and stepped, smooth to rough, tight to open, occasional calcite veins.
	1:36		13.1	8	22	to Slight		
	1:38							
	0:20	C2	13.1	29	97	Fresh		Similar to C1, except close to moderately spaced. Primary joints dipping at horizontal to low angles.
	1:46		15.6	17	57	to Slight		
	1:37							
15	0:45						-0.1	
							15.6	BOTTOM OF EXPLORATION 15.6 FT
20								
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-104

Project	Foreside Block 4 Development, 58 Fore Street, Portland, Maine
Client	PF FOUR DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 10.0 ft/ HW to 14.1 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-881
Sheet No.	1 of 2
Start	12 September 2022
Finish	12 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	14.7
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	8 7 8 8	S1 15	0.0 2.0	Push	14.3 0.4		-BITUMINOUS CONCRETE-		20	5	20	30	20				
						SW	Medium dense light brown well-graded SAND (SW), mps 5 mm, no odor, dry			25	25	45	5				
							-FILL-										
	6 5 4 4	S2 13	2.0 4.0			SW	Loose light brown well-graded SAND (SW), mps 0.25 in., no odor, dry		10	15	30	40	5				
					10.7 4.0	SM	No Recovery			10	25	50	15				
5	6 1 1 1	S3 NR	4.0 6.0				Note: Pushed spoon from 4.0 to 8.0 ft after driving S3 and S4. Recovered 22 in. gray silty SAND (SM), mps 5 mm, no odor, wet, brick pieces.										
							-FILL-										
	1 1 1/12"	S4 NR	6.0 8.0				No Recovery			10	25	50	15				
	2 1 1 3	S5 18	8.0 10.0			SP-SM	Very loose brown poorly-graded SAND with silt (SP-SM), mps 5 mm, no odor, wet, contains brick			10	25	55	10				
							-FILL-										
10	3 3 1 6	S6A/B 16	10.0 12.0			SP-SM	Very loose brown poorly-graded SAND with silt (SP-SM), mps 0.75 in., no odor, wet, trace brick fragments		5	10	40	35	10				
					3.4 11.3	SM	Very loose gray silty SAND (SM), mps 5 mm, well bonded, no odor, wet			10	20	40	30				
	12 6 3 50/5"	S7 12	12.0 13.9	13.6		SM	-GLACIAL TILL- Similar to 6B, except loose, mps 0.25 in.			10	20	40	30				
				10/5"	0.6 14.1		Note: Top of bedrock at 14.1 ft. Note: Advanced rollerbit to 14.5 ft. Begin NQ core at 14.5 ft.										
15					0.2 14.5		SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
9/12/22	1550	0.25	N/A	15.6	4.3

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)	14.1
Rock Cored (ft)	5.0
Samples	7S, 3C

Boring No. HA22-104

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-104
File No. 39486-881
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	1:40	C1	14.5 16.7	22 0	85 0	Slight to Moderate		Hard, slightly to moderately weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints horizontal to high angles, closely spaced, planar, rough, open, frequent calcite and quartzite intrusions.
	2:01							
	0:53	C2	16.7 18.5	24 14	109 64	Slight		Hard, slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints horizontal to low angles, close spacing, planar and undulating, rough, tight to open, frequent calcite and quartz intrusions.
	3:00							
	2:42							
	3:09	C3	18.5 19.5	12 12	100 100	Fresh to Slight	-4.8 19.5	Hard, fresh to slightly weathered, gray, aphanitic to fine-grained PHYLLITE. Primary joints moderately dipping, close spacing, planar, rough, tight, frequent calcite and quartzite intrusions.
20								BOTTOM OF EXPLORATION 19.5 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-881_BLOCK 4_2022_TEST BORINGS.GPJ 11 Oct 22

TEST BORING REPORT

Boring No. HA22-112

Project	Foreside Block 6 Development, 58 Fore Street, Portland, Maine
Client	PF SIX DEVCO, LLC.
Contractor	Northern Test Boring, Inc.

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Track: Diedrich #377
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	140	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: Auger to 8.0 ft/HW Drive to 17.2 ft
				Hoist/Hammer: Winch Automatic Hammer
				PID Make & Model:

File No.	39486-882
Sheet No.	1 of 2
Start	13 September 2022
Finish	13 September 2022
Driller	M. Nadeau
H&A Rep.	T. Jones
Elevation	33.0
Datum	Portland City Datum
Location	See Plan
	N 4
	E 0

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows per 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	3 3 4 2	S1 9	0.0 2.0	Push		SW	Loose black-gray well-graded SAND with gravel (SW), mps 0.75 in., no odor, dry		15	15	15	50	5				
							-FILL-										
	3 4 7 11	S2 8	2.0 4.0			SW	Medium dense black-gray well-graded SAND with gravel (SW), mps 1.5 in., no odor, dry, trace glass	5	10	20	20	40	5				
					29.0												
	4 2 3 6	S3 11	4.0 6.0		4.0	SM	Loose brown silty SAND (SM), mps 0.5 in., no odor, moist, trace roots, trace brick, trace glass		5	10	15	50	20				
5							-FILL-										
					27.0												
	5 6 9 12	S4 7	6.0 8.0		6.0	SM	Medium dense gray-brown silty SAND (SM), mps 0.5 in., well bonded, no odor, moist		5	15	20	40	20				
							-GLACIAL TILL-										
	16 16 17 39	S5 13	8.0 10.0	90 126		SM	Dense dark gray silty SAND (SM), mps 0.5 in., well bonded, no odor, moist		5	15	20	40	20				
10	10 18 36 49	S6 16	10.1 12.1			SM	Similar to S5, except very dense, well bonded, no odor, wet		5	15	20	40	20				
15	28 50/5"	S7 10	15.0 17.0			SM	Similar to S6, except mps 0.5 in., well bonded, no odor, wet		10	15	20	45	10				
							-GLACIAL TILL-										
					15.8		Note: Top of bedrock at 17.2 ft.										
					17.2		Note: Advanced rollerbit to 17.5 ft. Begin NQ core at 17.5 ft.										
					15.5 17.5		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
9/13/22	0945	0	9.0	7.0	N/A
9/13/22	1230	1	NA	15.5	2.6
12/19/22	1330	144	N/A	6.2	4.8

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)	17.2
Rock Cored (ft)	5.0
Samples	7S, 1C

Boring No. HA22-112

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 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-09 REV ME CASING BLOWS 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_BLOCK 6_2022_TEST BORINGS - COPY.GPJ 11 Oct 22

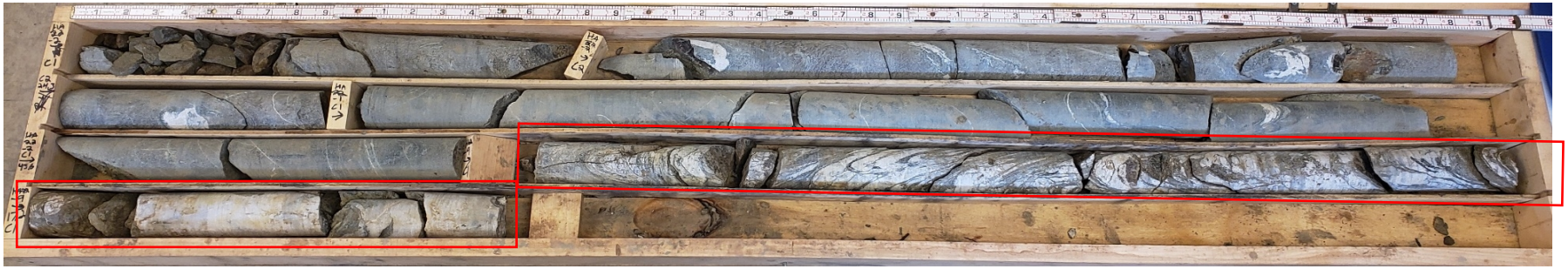
HALEY ALDRICH

CORE BORING REPORT

Boring No. HA22-112
File No. 39486-882
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
20	1:35 2:11 2:44 2:25 2:39	C1	17.5 22.5	60 44	100 73	Fresh		Hard, fresh, gray, aphanitic PHYLLITE. Primary joints horizontal to moderate angles, very close to moderately close, planar, smooth to rough, tight to open, quartz intrusion from 18.5 to 20.0 ft.
							10.5 22.5	BOTTOM OF EXPLORATION 22.5 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-882_BLOCK 6_2022_TEST BORINGS - COPY.GPJ 11 Oct 22



Top Row: HA22-2, Core No. C1, 19.5 ft (left) to 21.5 ft (middle left), Core No. C2, 21.5 ft (middle left) to 25.5 ft (right); Top Middle Row: HA22-2, Core No. C2, 21.5 ft (left) to 25.5 ft (middle left), HA22-1, Core No. C1, 40.0 ft (middle left) to 45.0 ft (right); Bottom Middle Row: HA22-1, Core No. C1, 40.0 ft (left) to 45.0 ft (middle left), HA22-9,Core No. C1. 14.0 ft (middle left) to 19.0 ft (right); Bottom Row: HA22-9, Core No. C1, 14.0 ft (left) to 19.0 ft (middle left)



Top Row: HA22-5, Core No. C3, 28.7 ft (left) to 29.5 ft (middle left), Core no. C4, 29.5 ft (middle left) to 34.0 ft (right); Top Middle Row: HA22-5, Core No. C4, 29.5ft (left) to 34.0 ft (middle left), HA22-3, Core No. C1, 41.0 ft (middle left) to 41.7 ft (middle), Core No. C2, 41.7 ft (middle) to 46.0 ft (right); Bottom Middle Row: HA22-3, Core No. C2, 41.7 ft (left) to 46.0 ft (middle left), Core No. C3, 46.0 ft (middle left) to 51.0 ft (right); Bottom Row: HA22-3, Core No. C3, 46.0 ft (left) to 51.0 ft (middle)



Top Row: HA22-103, Core No. C1, 10.0 ft (left) to 13.1 ft (middle right), Core No. C2, 13.1 ft (middle right) to 14.1 ft (right); Top Middle Row: HA22-103, Core No. C2, 14.1 ft (left) to 15.6 ft (middle left), HA22-102, Core No. C1, 15.0 ft (middle left) to 16.5 ft (middle right), Core No. C2, 16.5 ft (middle right) to 16.6 ft (middle right), Core No. C3, 16.6 ft (middle right) to 18.0 ft (right); Bottom Middle Row: HA22-102, Core No. C4, 18.0 ft (left) to 20.5 ft (middle), HA22-104, Core No. C1. 14.5 ft (middle) to 16.7 ft (right); Bottom Row: HA22-104, Core No. C2, 16.7 ft (left) to 18.5 ft (middle left), Core No. C3, 18.5 ft (middle left) to 19.5 ft (middle right)



Top Row: HA22-110, Core No. C1, 54.0 ft (left) to 59.0 ft (right); Top Middle Row: HA22-110, Core No. C2, 59.0 ft (left) to 64.0 ft (right); Bottom Middle Row: HA22-108, Core No. C1, 54.0 ft (left) to 59.0 ft (right); Bottom Row: HA22-108, Core No. C2, 59.0 ft (left) to 64.0 ft (right)



Top Row: HA22-111, Core No. C1, 58.0 ft (left) to 61.5 ft (middle right); Top Middle Row: HA22-111, Core No. C1, 61.5 ft (left) to 63.0 ft (middle), Core No. C2, 63.0 ft (middle) to 65.2 ft (right); Bottom Middle Row: HA22-111, Core No. C2, 65.2 ft (left) to 67.1 ft (middle)



Top Row: HA22-101, Core No. C1, 7.0 ft (left) to 8.3 ft (middle left), Core No. C2, 8.3 ft (middle left) to 10.3 ft (middle right), Core No. C3, 10.3 ft (middle right) to 12.0 ft (right); Top Middle Row: HA22-112, Core No. C1, 17.5 ft (left) to 22.5 ft (right); Bottom Middle Row: HA22-109, Core No. C1, 25.0 ft (left) to 30.0 ft (right)

2019 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA19-4

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Truck
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 44.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 3
Start	09 July 2019
Finish	11 July 2019
Driller	T. Schaefer/ E. Baron
H&A Rep.	N. Klausmeyer
Elevation	53.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push		0.5		-BITUMINOUS CONCRETE-										
	16 16 15	S1 11	0.5 2.0	Push	0.0		SW	Dense yellow-brown to tan well graded SAND with gravel (SW), mps 1 in., no structure, no odor, dry	10	15	15	20	35	5				
								-FILL-										
	7 6 5 4	S2 4	2.0 4.0	Push	0.3		SW	Medium dense yellow-brown to tan well graded SAND with gravel (SW), mps 0.75 in., no structure, no odor, dry	5	10	20	25	35	5				
				Push														
5	4 3 3 3	S3 20	4.0 6.0	Push	3.5		SM	Loose brown to dark brown and black silty SAND with gravel (SM), mps 1 in., loosely bonded, musty odor, dry to moist, contains coal and ash	5	10	10	25	30	20				
				Push		5.9												
	3 3 3 4	S4 13	6.0 8.0	Push	0.7		SM	Loose brown to gray-brown silty SAND with gravel (SM), mps 0.75 in., loosely bonded, musty odor, moist, contains coal, ash and brick, probable reworked naturally-deposited soil	5	10	15	20	30	20				
				Push				-FILL-										
	3 4 3 4	S5 5	8.0 10.0	8	0.6		SM	Loose brown to gray-brown silty SAND with gravel (SM), mps 0.75 in., loosely bonded, musty odor, wet, contains coal and ash, probable reworked naturally-deposited soil	5	10	15	20	30	20				
				8														
10	3 2 1 1	S6 8	10.0 12.0	8	0.0		SM	Very loose brown to red-brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, wet, noticeable layering at bottom of sample, probable reworked naturally-deposited soil	5	5	10	15	50	15				
				9		11.9												
	1 5 6 6	S7 0	12.0 14.0	7				No Recovery										
				16														
15	4 5 6 6	S8 6	14.0 16.0	16	0.1		SM	Medium dense light brown silty SAND with gravel (SM), mps 0.5 in., loosely bonded, no odor, wet	5	10	10	15	40	20				
				22														
				29				-MARINE DEPOSIT-										
				38														
				36														
20				28														

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/11/19	09:30	36	40.0	42.0	12.0
7/11/19	13:45	40	44.4	55.0	--

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	44.4
Rock Cored (ft)	10.0
Samples	14S, 2C

Boring No. HA19-4

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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA19-4
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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	4 3 4 4	S9 23	20.0 22.0	25 28	0.0	20.1	ML	Medium stiff gray-brown sandy SILT with gravel (ML), trace clay, mps 1.25 in., moderately bonded, no odor, wet	5	10	5	10	15	55				
				39				-MARINE DEPOSIT-										
				35														
				32														
25	1 1 1 1	S10 20	25.0 27.0	26 30	0.0		ML	Very soft gray-brown sandy SILT (ML), trace clay, mps 0.25 in., loosely bonded, no odor, wet	5	5	5	10	20	55				
	2 1 2 2	S11 17	27.0 29.0	22 31	0.0		ML	Soft gray-brown sandy SILT (ML), trace clay, mps 0.25 in., loosely bonded, no odor, wet	-	5	5	10	25	55				
				38		29.3												
						29.8		Note: Cobble encountered from approximately 29.3 to 29.8 ft. -COBBLES-										
30	3 3 3 7	S12 2	30.0 32.0	46 33	0.2		ML	Medium stiff gray-brown sandy SILT (ML), trace clay, mps 0.25 in., moderately bonded, no odor, wet	-	5	10	10	15	60				
				33		32.0		Note: Cobbles encountered from approximately 32.0 to 35.0 ft.										
				36				-COBBLES										
				66														
35	4 4 5 4	S13 19	35.0 37.0	41 38	0.0	35.0	ML	Stiff gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, wet, fine sand seams	5	5	5	5	20	60				
				45				-MARINE DEPOSIT-										
				45														
				41														
40	7 23 28 30	S14 15	40.0 42.0	50 134	0.0	40.5	ML	Hard yellow-brown to gray-brown and light brown sandy SILT with gravel (ML), mps 1.25 in., well bonded, contains trace weathered rock	10	10	5	10	20	45				
				141				-GLACIAL TILL-										
				106														
				103/5"		44.4		Note: Drill action and wash water indicate top of bedrock at approximately 44.4 ft.										
45						45.0		Note: Advanced roller bit to 45.0 ft. Began NQ rock core at 45.0 ft. 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. HA19-4

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-4
File No. 39486-877
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
45	2:02	C1	45.0 50.0	58 4	100 7	Fresh to High		Hard, fresh to highly weathered, gray, aphanitic PHYLLITE. Joints dipping at low to vertical angles, very close to close, tight to open, smooth to rough, undulating. Oxidation on joint surfaces, fine-grained coatings on joint surfaces, occasional quartz/calcite stringers throughout core stem.
	6:22							
	2:39							
	4:07							
	7:15							Note: Approximately 150 gallons of water loss while coring C1.
50	2:40	C2	50.0 55.0	56 31	93 52	Fresh to Moderate		Hard, fresh to moderately weathered, gray, aphanitic PHYLLITE. Joints dipping at horizontal to high angles, very close to close, smooth to rough, undulating. Slight discoloration and calcite coatings on joint surfaces, slight pitting observed.
	3:17							
	4:04							
	4:24							
	2:37							Note: Approximately 250 gallons of water loss while coring C2.
55							55.0	BOTTOM OF EXPLORATION 55.0 FT
60								
65								
70								
75								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-5

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Truck
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 34.5 ft; NW drive to 60.0 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 4
Start	11 July 2019
Finish	15 July 2019
Driller	E. Baron
H&A Rep.	N. Klausmeyer
Elevation	74.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push	0.0	0.4	SW	-BITUMINOUS CONCRETE-										
	16 13 13	S1 14	0.5 2.0	Push				Medium dense yellow-brown to tan well graded SAND with gravel (SW), mps 0.5 in., no structure, no odor, dry	10	15	20	20	30	5				
						2.0		-FILL-										
	7 10 6 6	S2 13	2.0 4.0	Push	0.0		SM	Medium dense brown to dark brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	10	45	30				
				Push				-FILL-										
	3 4 10 13	S3 7	4.0 6.0	Push	0.0		SM	Medium dense brown grading to gray-brown silty SAND (SM), mps 0.5 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	10	40	35				
5				Push														
	8 9 11 12	S4 18	6.0 8.0	Push	0.0		SM	Medium dense light brown to gray-brown silty SAND (SM), mps 0.25 in., loosely bonded, no odor, damp, probable reworked naturally-deposited soil	-	5	10	15	35	35				
				Push														
	13 12 14 18	S5 24	8.0 10.0	Push	0.0		SM	Medium dense light brown to red-brown and gray-brown silty SAND (SM), mps 0.5 in., loose grading to moderately bonded, no odor, damp, probable reworked naturally-deposited soil	5	5	10	20	30	30				
				Push		10.0												
10	15 12 19 17	S6 19	10.0 12.0	Push	0.0		SM	Dense light brown to gray-brown silty SAND with gravel (SM), mps 1.25 in., moderately bonded, no odor, damp	10	10	10	15	25	30				
				79				-GLACIAL TILL-										
	18 100/1"	S7 5	12.0 12.6/	164	0.1	12.6	SM	Dense to medium dense light brown to gray-brown silty SAND with gravel (SM), mps 1 in., moderately bonded, no odor, wet	10	5	10	15	25	35				
				130		13.5		Note: Cobble encountered from approximately 12.6 to 13.5 ft.										
15	5 8 7 7	S8 7	14.0 16.0	152			SM	Medium dense light brown to gray-brown silty SAND (SM), mps 0.25 in., moderately bonded, no odor, wet	-	10	15	15	30	30				
				64				-GLACIAL TILL-										
	8 14 10 16	S9 12	16.0 18.0	51			SM	Medium dense light brown to gray-brown silty SAND with gravel (SM), mps 1 in., moderately bonded, no odor, wet	10	5	10	15	30	30				
				56														
	12 14 22 25	S10 17	18.0 20.0	53	0.0		SM	Dense light brown to gray-brown grading to yellow-brown silty SAND with gravel (SM), mps 0.75 in., well bonded grading to moderately bonded, no odor, wet	5	10	15	15	30	25				
20				36														

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
7/12/19	09:00	~18	11.0	12.0	8.5
7/12/19	16:40	~26	44.6	57.0	--
7/15/19	09:50	~4 days	34.5	57.0	36.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	59.2
Rock Cored (ft)	5.0
Samples	19S, 1C

Boring No. HA19-5

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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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	6 11 22 26	S11 16	20.0 22.0	54 48	0.0		SM	Dense light brown to gray-brown silty SAND with gravel (SM), mps 1.25 in., moderately bonded, no odor, wet, noticeable layering in bottom 2 in. of recovery -GLACIAL TILL-	5	10	10	15	35	25				
				42		22.5		Note: Cobble encountered from approximately 22.5 to 23.1 ft.										
				141		23.1												
				70														
25	42 55 66 87	S12 17	25.0 27.0	181 57	0.0		SM	Very dense yellow-brown to light brown silty SAND with gravel (SM), mps 1.25 in., layered, well bonded, no odor, moist -GLACIAL TILL-	10	10	10	15	30	25				
				68														
				83		28.4		Note: Cobble encountered from approximately 28.4 to 29.2 ft.										
				92		29.2												
30	36 72 113 100/3"	S13 16	30.0 31.8	212 113	0.0		SM	Very dense yellow-brown to light brown silty SAND with gravel (SM), mps 1.25 in., well bonded, no odor, wet, contains weathered rock -GLACIAL TILL-	15	10	5	10	30	30				
				135														
				147		33.5		Note: Boulder encountered from 33.5 to 34.5 ft.										
				150/0.5"		34.6												
35	35 118 91 88	S14 18	35.0 37.0		0.0		ML	Hard gray-brown to yellow-brown sandy SILT with gravel (ML), mps 1.25 in., layered, noticeable staining, well bonded, no odor, wet -GLACIAL TILL-	10	10	5	10	20	45				
						38.5												
40	33 50 51 48	S15 12	40.0 42.0		0.0		ML	Hard gray sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, wet	5	10	5	10	15	55				
45	54 90 147 253	S16 0	45.0 47.0					No Recovery										
	21 62 51 70	S17 22	47.0 49.0		0.0		ML	Hard gray sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, wet -GLACIAL TILL-	5	10	5	10	15	55				

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-5
File No. 39486-877
Sheet No. 3 of 4

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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
50	50/4"	S18 4	50.0 50.4		0.0		ML	Hard gray SILT with sand (ML), mps 0.25 in., well bonded, no odor, wet	-	5	5	5	15	70				
								-GLACIAL TILL-										
55	31 33 43 70	S19 24	55.0 57.0		0.0		ML	Hard gray SILT with sand (ML), well bonded, no odor, wet	-	5	5	5	15	70				
				44														
				34														
				23/2"		59.2		Note: Washed ahead of casing from 55.0 to 59.2 ft. Casing refusal on top of bedrock at approximately 59.2 ft.										
60						60.0		Note: Advanced roller bit to 60.0 ft. Begin NQ rock core at 60.0 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
65																		
70																		
75																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-5

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-5
File No. 39486-877
Sheet No. 4 of 4

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
60	3:29 2:39 2:39 4:10	C1	60.0 64.3	52 33	100 63	Fresh to Moderate		Hard, fresh to moderately weathered, gray, aphanitic to fine-grained QUARTZITE. Joints dipping at low to moderate angles, very close to close, undulating, rough, slightly to moderately weathered, tight to open. Oxidation on most joint surfaces, one silt infilled joint (0.125-in. thick) at approximately 63.0 ft. Frequent quartz veins from 60.0 to 60.8 ft, occasional quartz veins from 60.8 to 64.3 ft, chlorite mineralization with depth. Secondary high angle joints, slightly weathered, undulating, rough.
							64.3	BOTTOM OF EXPLORATION 64.3 FT
65								
70								
75								
80								
85								
90								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-9

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

File No.	39486-877
Sheet No.	1 of 2
Start	18 June 2019
Finish	19 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer/ H. Hollauer
Elevation	15.5+/-
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW/NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0/3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 8.4 ft; NW drive to 18.0 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push		0.5		-BITUMINOUS CONCRETE-										
	5 6 5	S1 6	0.5 2.0	Push	0.2		SM	Medium dense dark brown to red-brown silty SAND with gravel (SM), mps 1 in., loosely bonded, slight musty odor, wet, contains brick and cinders	10	10	15	20	25	20				
						2.0		-FILL-										
	3 4 4 8	S2 18	2.0 4.0	Push	0.0		ML	Medium stiff light brown grading to gray-brown sandy SILT with gravel (ML), mps 0.5 in., loosely bonded, no odor, wet	5	10	5	10	15	55				
				Push				-GLACIAL TILL-										
	6 6 9 13	S3 14	4.0 6.0	9	0.1		ML	Stiff gray-brown sandy SILT with gravel (ML), mps 0.75 in., moderately bonded, no odor, wet	5	10	5	10	20	50				
5				24														
	11 11 9 16	S4 20	6.0 8.0	39	0.0		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 1 in., moderately bonded grading to well bonded, no odor, wet	10	5	5	10	20	50				
				71/0.5		7.6		Note: Cobbles encountered from approximately 7.6 to 8.6 ft.										
						8.6		-COBBLES-										
	11 35 86 49	S5 10	8.6 10.6		0.0		SM	Dense red-brown silty SAND with gravel (SM), mps 0.75 in., well bonded, no odor, wet	10	10	10	20	30	20				
						9.6		-GLACIAL TILL-										
10					0.0		GP	Very dense gray poorly-graded GRAVEL with sand (GP), mps 1.25 in., no odor, wet	60	20	5	5	5	5				
	90+	S6 3	10.6 11.1		0.0	11.1	GP	Very dense gray poorly-graded GRAVEL with sand (GP), mps 1 in., no odor, wet	60	20	5	5	5	5				
								Note: Boulder encountered from approximately 11.1 to 13.0 ft. Advanced roller bit and casing to 14.0 ft.										
								-BOULDER-										
						14.0												
	30 38 73 50/1"	S7 10	14.0 15.6				SM	Very dense gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, moist	-	-	15	20	40	25				
15						15.0		-GLACIAL TILL-										
								Note: Top of bedrock at approximately 15.0 ft.										
								-WEATHERED BEDROCK-										
	35 50/2"	S8 6	16.0 16.7					Note: Advanced casing and roller bit to 18.0 ft. Begin NQ rock core at 18.0 ft.										
						18.0		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

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	9.6
Rock Cored (ft)	10.0
Samples	8S, 2C

Boring No. HA19-9

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 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.

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CORE BORING REPORT

Boring No. HA19-9
File No. 39486-877
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
	6	C1	18.0	57	95	Slight		Hard to moderately hard, slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, very close to close, undulating and stepped, rough to smooth, tight to open. Few quartzite bands. Secondary joints dipping at moderate to high angles, iron oxide staining on few joint surfaces, calcite coating on few joint surfaces.
	15		23.0	32	53			
20	20							
	20							
	20							
	5:15	C2	23.0	55	92	Slight		Hard to moderately hard, slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, close, undulating to planar, smooth, tight to open. Secondary joints dipping at moderate to high angles, very close to close, undulating, planar, smooth,tight to open. Calcite and slight oxidation on few joint surfaces.
	6:00		28.0	34	57			
25	6:30							
	6:00							
	8:30							
							28.0	BOTTOM OF EXPLORATION 28.0 FT
30								
35								
40								
45								

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TEST BORING REPORT

Boring No. HA19-10

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 14.0 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	19 June 2019
Finish	20 June 2019
Driller	B. Cross
H&A Rep.	H. Hollauer
Elevation	17.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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	3 3 4 7	S1 14	0.0 2.0		0.5	0.3	SM	-TOPSOIL AND ROOT MAT- Loose dark brown silty SAND (SM), mps 1 mm, no structure, no odor, moist, trace organics (leaves)	-	-	-	15	65	20				
	8 4 3 3	S2 12	2.0 4.0		0.7	3.5	SM	-FILL- Loose dark brown silty SAND (SM), mps 1 mm, no structure, no odor, moist, trace organics (leaves), brick and wood	-	-	-	15	65	20				
5	1 1 1 1	S3 14	4.0 6.0		0.6		SC	Very loose gray clayey SAND (SC), mps 0.5 in., no structure, no odor, wet -MARINE DEPOSIT-	-	5	5	10	40	40				
	2 3 4 5	S4 24	6.0 8.0		0.7		SC	Loose gray clayey SAND (SC), mps 0.5 in., no structure, no odor, wet	-	5	5	10	40	40				
	5 23 29 28	S5 12	8.0 10.0			8.5	SM	Very dense brown silty SAND (SM), mps 0.5 in., no structure, no odor, moist, broken rock pieces in split spoon shoe -GLACIAL TILL- Note: Gravelly from approximately 9.9 to 13.7 ft based on drilling action.	-	5	5	5	60	25				
10						13.7		Note: Top of bedrock at approximately 13.7 ft.										
						14.0		Note: Advanced roller bit to 14.0 ft. Begin NQ rock core at 14.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	13.7
Rock Cored (ft)	9.0
Samples	5S, 5C

Boring No. HA19-10

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 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.

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CORE BORING REPORT

Boring No. HA19-10
File No. 39486-877
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	15:00	C1	14.0 15.0	12 4	100 33	Fresh to High		Hard, fresh, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, rough to smooth, tight to open. Secondary joints dipping at high angles to vertical angles.
	18:00	C2	15.0	6	100	Fresh to High		
		C3	15.5	0	0			Note: C1 to C3 highly fractured.
	25:00		15.5 17.0	18 0	100 0	Fresh to High		
	15:00	C4	17.0	6	100	Fresh to High		
			17.5	0	0			Note: Apparent void from approximately 17.5 to 18.0 ft.
20		C5	18.0 23.0	60 34	100 57	Fresh to Moderate		Hard, fresh to moderately weathered, aphanitic to fine grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, rough, tight to open. Secondary joints high angle to vertical, moderately close to close. Occasional calcite/quarts veins 0.25 to 0.50-in. thick. Quartzite zone from approximately 18.0 to 20.0 ft, contains vugs.
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								

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TEST BORING REPORT

Boring No. HA19-11

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: HW drive to 7.5 ft
				Hoist/Hammer: Winch/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	21 June 2019
Finish	21 June 2019
Driller	B. Cross
H&A Rep.	H. Hollauer
Elevation	17.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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	4 4 6 4	S1 5	0.0 2.0		0.2		SM	Loose olive-brown silty SAND (SM), trace ash, coal fragments, trace roots, mps 0.25 in, no structure, no odor, wet	-	5	5	15	55	20				
								-FILL-										
						2.0												
	1 3 9 27	S2 12	2.0 4.0		0.6		SP-SM	Medium dense brown to yellow-brown poorly-graded SAND (SP-SM), mps 1.0 in, no structure, no odor, wet	5	-	-	-	85	10				
						3.0		-MARINE DEPOSIT-										
						4.0		Note: Advanced roller bit through boulder from approximately 3.0 to 4.2 ft and could not advance casing. Moved boring location approximately 3.0 ft and continued sampling at 4.0 ft.										
	5 5 19 9	S3 12	4.0 6.0		0.4		SP	-BOULDER-	-	5	10	20	60	5				
5								Medium dense brown poorly-graded SAND (SP), mps 0.5 in, no structure, no odor, wet										
	6 11 50/4"	S4 16	6.0 7.3		0.2		SP	-MARINE DEPOSIT-	-	5	10	20	60	5				
								Medium dense brown poorly-graded SAND (SP), mps 0.5 in, no structure, no odor, wet										
						7.3		Note: Top of bedrock at approximately 7.3 ft.										
						7.5		Note: Advance roller bit to 7.5 ft. Begin NQ rock core at 7.5 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
10																		
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	7.3
Rock Cored (ft)	5.0
Samples	4S, 1C

Boring No. HA19-11

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 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.

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CORE BORING REPORT

Boring No. HA19-11
File No. 39486-877
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
	5:00	C1	7.5	58	97	Fresh		Hard, fresh to slightly weathered aphanitic to fine-grained SCHIST. Primary joints dipping at horizontal to low angles, very close to moderately close, planar, smooth, tight to open. Secondary joints dipping at moderate to high angles. Joints have occasional calcite coatings and oxidation. Few calcite infilled healed joints.
	6:30		12.5	38	63			
	5:30							
10	5:30							
	4:30							
							12.5	BOTTOM OF EXPLORATION 12.5 FT
15								
20								
25								
30								
35								

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TEST BORING REPORT

Boring No. HA19-14

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
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 12.9 ft
				Hoist/Hammer: Cat-Head/ Doughnut Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	23 May 2019
Finish	23 May 2019
Driller	C. DuPuis
H&A Rep.	J. Collins
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				4		0.5		-PORTLAND CEMENT CONCRETE-										
	3 3 1 2	S1 11	0.5 2.5	6	0.0	0.8	SP	Loose light brown poorly-graded SAND with gravel (SP), mps 1 in., no structure, no odor, moist	-	10	15	25	30	20				
							SP-SM	Loose dark brown poorly-graded SAND with silt and gravel (SP-SM), mps 1 in., no structure, no odor, moist	20	5	5	10	50	10				
				9		2.7		-FILL-										
	2 2 2 1	S2 12	2.5 4.5	9	0.0 0.0		ML/SC	Soft gray sandy SILT (ML), trace clay to sandy CLAY (SC), mps 0.25 in., no structure, no odor, moist	-	5	5	10	30	50				
				15				-MARINE DEPOSIT-										
5	2 4 5 4	S3 2	4.5 6.5		0.0		ML/SC	Soft gray sandy SILT (ML), trace clay to sandy CLAY (SC), mps 0.25 in., no structure, no odor, moist	-	5	5	10	30	50				
						6.5												
	5 8 10 10	S4 24	6.5 8.5		0.0		SM	Medium dense gray silty SAND with gravel (SM), trace clay, mps 0.25 in., no structure, no odor, moist	-	15	10	10	25	40				
								-GLACIAL TILL-										
	8 9 7 9	S5 8	8.5 10.5		0.0		SM	Similar to above	-	15	10	10	25	40				
10						10.5		Note: Advanced roller bit through boulder from approximately 10.5 to 12.0 ft.										
								-BOULDER-										
		S6 2	12.0 12.9			12.0	SM	Gray silty SAND with gravel, cobble (sample collected from core barrel)	5	10	10	10	25	40				
						13.4		Note: Top of Bedrock at approximately 13.4 ft. Advanced roller bit and casing 13.4 ft. Begin NQ rock core at 13.4 ft.										
15								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

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	12.9
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA19-14

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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-14
File No. 39486-877
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	3:00 4:10 4:45 3:40 5:50	C1	13.4 18.4	58 52	97 87	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained SCHIST with veins of quartz. Primary joints are planar, smooth to rough with low-dipping angles, close to moderate spacing. Secondary joints are planar to undulating, rough, moderately spaced with high to vertical angles. Calcite coating on joints.
							18.4	BOTTOM OF EXPLORATION 18.4 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No HA19-15(OW)

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 12.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	13 June 2019
Finish	13 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	16.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push		0.5		-BITUMINOUS CONCRETE-										
	4 5 12	S1 6	0.5 2.0	Push	0.2	1.5	SW	Loose light brown to gray-brown well graded SAND with gravel (SW), mps 0.5 in., no structure, no odor, moist	5	10	15	25	40	5				
					0.2		ML	-FILL-	-	10	10	15	15	50				
	9 9 7 8	S2 9	2.0 4.0	Push	0.2		ML	Very stiff gray-brown sandy SILT (ML), mps 0.25 in., well bonded, no odor, moist	5	10	10	10	15	50				
				Push			ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 1 in., well bonded, no odor, moist										
								-GLACIAL TILL-										
5	3 6 11 9	S3 3	4.0 6.0	7	0.2		ML	Very stiff gray-brown sandy SILT (ML), mps 0.75 in., well bonded, no odor, moist	5	5	10	10	20	50				
				10														
	4 12 16 13	S4 15	6.0 8.0	11	0.3		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, moist	5	10	10	10	20	45				
				7														
	4 7 10 16	S5 17	8.0 10.0	5	0.2		ML	Very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, moist	5	5	10	10	20	50				
				23				-GLACIAL TILL-										
10	15 26 30 27	S6 24	10.0 12.0	17	0.2		ML	Hard gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, moist	5	5	10	10	20	50				
				21				-GLACIAL TILL-										
				14/0.5		12.5		Note: Drill action and wash indicate top of bedrock at approximately 12.5 ft.										
						13.5		Note: Advanced roller bit to 13.5 ft. Began NQ rock core at 13.5 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/13/19	15:45	--	12.5	18.5	NE

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	12.5
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA19-15(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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

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CORE BORING REPORT

Boring No. HA19-15
File No. 39486-877
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	5:50 3:55 4:09 8:49 5:11	C1	13.5 18.5	54 38	90 63	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Joints dipping at low to high angles, tight to open, undulating, smooth to rough, very close to close, occasional silt and calcite coatings on joint surfaces, pitting observed.
							18.5	BOTTOM OF EXPLORATION 18.5 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-16

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
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: HW drive to 17.4 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	10 June 2019
Finish	11 June 2019
Driller	B. Cross
H&A Rep.	J. Collins/N. Klausmeyer
Elevation	15.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				20	1.5	0.4		-BITUMINOUS CONCRETE-										
	2 11 22 11	S1 26	0.5 2.5	46			SP	Dense dark brown poorly-graded SAND with gravel (SP), mps 0.25 in., no structure, no odor, dry	20	10	40	20	5	5				
				50/0.5'				-FILL-										
				7														
5	45 30 19 17	S2 18	4.0 6.0		72.6		SP-SM	Dense dark brown to reddish-brown poorly-graded SAND with silt and gravel (SP-SM), mps 4 in., no structure, slight tar-like odor, wet, contains coal Note: Noticeable sheen on drill wash water.	10	15	30	25	10	10				
				1				-FILL-										
				1														
				3														
10	3 3 2 3	S3 1	9.0 11.0	2	0.0			Note: Recovered gravel piece.	100									
				14		11.0												
	2 6 8 9	S4 12	11.0 13.0	9	0.0		SM	Medium dense brown silty SAND with gravel (SM), mps 1 in., slight oxidation, loosely bonded, no odor, wet	10	10	10	20	35	15				
				29														
				25		14.0		-MARINE DEPOSIT-										
15	1 1 1 1	S5 24	14.0 16.0	5	0.0		SM	Very loose gray silty SAND with gravel (SM), mps 0.75 in., moderately bonded, no odor, wet	15	10	5	15	25	30				
				2				-GLACIAL TILL-										
				2														
				50/0.4'		17.4		Note: Drill action and wash indicate top of bedrock at approximately 17.4 ft.										
						18.0		Note: Advanced roller bit into bedrock to 18.0 ft. Began NQ rock core at 18.0 ft.										
20								SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/11/19	10:45	--	17.4	23.0	4.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.4
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA19-16

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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-16
File No. 39486-877
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
20	9:50 7:18 2:58 3:16 3:54	C1	18.0 23.0	60 24	100 40	Fresh to Slight		Very hard to hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Primary joints dipping at low to horizontal angles, very close to close, planar to undulating, smooth to rough, tight to open. Secondary joints dipping at high to near-vertical angles, moderately close, smooth to rough, tight to open, occasional fine-grained silt coatings on joint surfaces, quartz veins up to 2-in. thick, slight pitting on quartz veins.
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-17

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

File No. 39486-877
Sheet No. 1 of 3
Start 16 May 2019
Finish 17 May 2019
Driller C. DuPuis
H&A Rep. H. Hollauer/ J. Collins
Elevation 15.5+/-
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	30	30	-	Casing: NW drive to 20.3 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				35		0.5		-PORTLAND CEMENT CONCRETE-										
	11 17 45 33	S1 12	0.5 2.5		0.1	1.3	SP	Very dense brown poorly-graded SAND with gravel (SP), mps 0.25 in., no structure, no odor, slightly moist	5	10	20	40	20	5				
							SP-SM	-FILL-	5	5	10	20	50	10				
	100/2"	S2 2	2.5 2.7		0.0	2.5 2.7	SM	Very dense black to dark brown poorly-graded SAND with silt (SP-SM), mps 1.5 in., no structure, no odor, slightly moist, trace brick fragments	5	10	5	35	10	15				
								-FILL-										
5						5.1	SM	Very dense dark brown to black silty SAND with gravel (SM), mps 0.25 in., no structure, no odor, slightly moist, contains ash, brick and coal fragments										
	10 5 11 1	S3 6	5.1 7.1		0.2			-FILL-	-	5	10	15	60	10				
								Note: Drilled through brick, concrete, metal, cobbles and boulders (old foundation wall) from 2.7 to 5.1 ft.										
						7.1		Loose brown to dark brown poorly-graded SAND (SP), mps 0.25 in., no structure, no odor, wet										
	6 2 1 1	S4 9	7.1 9.1		0.0		SP	-FILL-	-	60	10	5	10	15				
								Very loose black ASH (70%) and black silty SAND (SM), mps 0.25 in., no structure, no odor, wet										
10	12 3 2 1	S5 2	9.1 11.1	4 4	0.2		SP	Similar to S4	-	60	10	5	10	15				
	5 4 9 8	S6 0	11.1 13.1	4 8				Note: S6 No Recovery, possibly pushed cobble.										
	8 3 2 3	S7 0	13.1 15.1					No Recovery, possibly soil saturated with water from spun casing, used softest basket in split-spoon to improve recovery										
15																		
	10 11 10 47	S8 24	15.5 17.5	61 27	0.0		SP	Medium dense black poorly-graded ASH AND SAND (SP), mps 2.0 mm, no structure, no odor, very moist, 4-in. thick silt layer with trace clay, contains trace coal	-	-	5	10	80	5				
								-FILL-										
	15 8 50/5"	S9 5	17.5 18.9		0.2	17.5	SP-SM	Very dense gray-brown poorly-graded SAND with silt (SP-SM), mps 0.50 in., moderately bonded, no odor, wet	-	10	10	10	60	10				
						18.9		-GLACIAL TILL-										
								Note: Top of bedrock at approximately 18.9 ft.										
20								-WEATHERED BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft) 18.9
Rock Cored (ft) 5.0
Samples 9S, 2C

Boring No. HA19-17

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 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 BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

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TEST BORING REPORT

Boring No. HA19-17
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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						20.3		Note: Advanced roller bit and casing from 18.9 to 20.3 ft. Begin NQ rock core at 20.3 ft.										
								SEE CORE BORING REPORT FOR ROCK DETAILS										
25																		
30																		
35																		
40																		
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-17

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA19-17
File No. 39486-877
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
	5:00 4:20 7:00 5:40	C1	20.3 23.9	43 25	100 58	Slight to Moderate		Hard, slightly to moderately weathered, medium gray, fine-grained to aphanitic SCHIST. Joints very close to close, tight to open, planar and smooth, fresh to slightly weathered. Primary joints dipping at moderate to high angles. Secondary joints dipping at low angles. Calcite on some joint surfaces.
	9:40	C2	23.9 25.3	17 17	100 100	Slight to Moderate		Similar to above
25							25.3	BOTTOM OF EXPLORATION 25.3 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-18

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors

File No.	39486-877
Sheet No.	1 of 2
Start	15 May 2019
Finish	15 May 2019
Driller	C. DuPuis
H&A Rep.	H. Hollauer
Elevation	15.5+/-
Datum	Portland City Datum
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Simco 2400
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 16.3 ft
				Hoist/Hammer: Cat-Head/ Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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						0.5		-CONCRETE-										
	35 100 52 37	S1 16	0.5 2.5	20 50	34.6	1.0	SP	Very dense brown poorly-graded SAND with gravel (SP), mps 0.5 in., no structure, moderately strong solvent-like odor, moist	5	10	20	40	20	5				
							SP-SM	-FILL- Very dense black poorly-graded SAND with silt (SP-SM), mps 0.5 in., no structure, moderately strong solvent-like odor, moist	5	5	10	20	50	10				
	25 30 22 19	S2 14	2.5 4.5	75 51	10.8	2.5	SM	-FILL-	-	5	10	20	50	15				
						3.2	SM	Very dense gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, slightly moist	-	5	10	20	50	15				
						4.5		-FILL-										
5	5 3 1 1	S3 12	4.5 6.5	38 30	3.7		SM	Similar to above, except brown to rust brown (iron oxide stain), mps 0.5 in., 0.5-in. thick layer of black ash	-	5	10	30	40	15				
						5.2	SM	-FILL-	-	5	5	5	55	30				
						6.3	SM	Dense gray-brown and brown silty SAND (SM), mps 0.25 in., trace ash, no structure, no odor, wet	-	-	10	20	40	30				
	5 1 1 1	S4 8	6.5 8.5	40 40	0.4			-FILL- Very loose gray-brown silty SAND (SM), mps 0.25 in., no structure, no odor, wet, trace brick particles										
						8.5		-FILL-										
	7 5 2 2	S5 5	8.5 10.5	15 19	0.6		SM	Very loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet, reworked naturally-deposited soil	-	-	10	20	40	30				
10								-FILL-										
	2 1 1 1	S6 12	10.5 12.5	13 14	0.4		SM	Loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet	-	-	10	20	40	30				
				13				-MARINE DEPOSIT- Very loose gray silty SAND (SM), mps 2.0 mm, no structure, no odor, wet										
				12														
15				11														
	8 50(5")	S7 10	15.5 16.3			16.3	SM	Similar to above, with rock in tip of spoon Note: Top of bedrock at approximately 16.3 ft.	-	-	10	20	40	30				
						16.5		Note: Advanced roller bit to 16.5 ft. Begin NQ rock core at 16.5 ft.										
20								SEE CORE BORING REPORT FOR ROCK DETAILS										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.8
Rock Cored (ft)	4.8
Samples	7S, 1C

Boring No. HA19-18

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 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 BOR WITH PERM PID+CASING 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-07-1.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

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CORE BORING REPORT

Boring No. HA19-18
File No. 39486-877
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
20	3:38 4:01 3:05 3:28 3:17	C1	16.5 21.3	58 29	100 50	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low angles, very close to close, planar and smooth, tight to open. Secondary joints vertical, very close to moderate, planar to stepped, smooth. Iron oxide staining and calcite coating on joint surfaces.
							21.3	BOTTOM OF EXPLORATION 21.3 FT
25								
30								
35								
40								
45								
50								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

TEST BORING REPORT

Boring No. HA19-19

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 5.2 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	13 June 2019
Finish	13 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	16.0+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push	0.0	0.5		-BITUMINOUS CONCRETE-										
	1 6 15	S1 17	0.5 2.0	Push	0.0	1.5	SM	Loose light brown grading to gray-brown silty SAND with gravel (SM), mps 1 in., no structure grading to moderately bonded, no odor, damp	15	5	10	20	30	20				
							ML	-FILL-	5	10	5	10	15	55				
	25 42 40 50/2"	S2 10	2.0 3.7	42 50/0.8'		3.7	ML	Stiff to very stiff gray-brown sandy SILT with gravel (ML), mps 0.5 in., well bonded, no odor, damp -GLACIAL TILL- Hard gray-brown sandy SILT (ML), mps 0.5 in., well bonded, no odor, moist	5	-	5	10	20	60				
5	27 50/3"	S3 10	4.5 5.2			4.5 5.2	ML	Note: Advanced roller bit through boulder from approximately 3.7 to 4.5 ft. -BOULDER- Very stiff to hard gray-brown sandy SILT with gravel (ML), mps 0.75 in., well bonded, no odor, moist, rock in spoon tip	5	10	10	10	20	45				
						7.0		-GLACIAL TILL- Note: Drill action and wash indicate top of bedrock at approximately 5.2 ft. Note: Advanced roller bit to 7.0 ft. Began NQ rock core at 7.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
10																		
15																		
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/13/19	11:45	--	3.8	11.7	NE

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	5.2
Rock Cored (ft)	4.7
Samples	3S, 1C

Boring No. HA19-19

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 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.

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CORE BORING REPORT

Boring No. HA19-19
File No. 39486-877
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
10	4:57 7:46 15:15 5:19 10:40/0.7'	C1	7.0 11.7	54 44	96 79	Fresh to Slight	11.7	Hard to very hard, fresh to slightly weathered, light gray, aphanitic PHYLLITE. Primary joints dipping at high angles, moderately close, open, smooth to rough, undulating. Secondary joints dipping at low angles, moderately close, open, smooth to rough, undulating, silt coatings on joint surfaces, oxidation on joint surfaces, quartz intrusions up to 5-in. thick throughout core stem.
								BOTTOM OF EXPLORATION 11.7 FT
15								
20								
25								
30								
35								
40								

H+A_CORE+WELL-09 39486_HA-LIB09-POR-2022.GLB HA-TB+CORE+WELL-09 W FENCE.GDT \\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GINT\39486-877_TEST BORINGS.GPJ 6 Oct 22

TEST BORING REPORT

Boring No. HA19-20

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 26.2 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 3
Start	11 June 2019
Finish	11 June 2019
Driller	B. Cross
H&A Rep.	N. Klausmeyer
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push		0.5		-BITUMINOUS CONCRETE-										
	2 4 4	S1 14	0.5 2.0	Push	0.9		SW	Loose dark brown well graded SAND with gravel (SW), mps 1.25 in., no structure, slight musty odor, damp, contains trace brick, ash, cinders	5	10	20	25	35	5				
								-FILL-										
	2 3 4 5	S2 10	2.0 4.0	Push 26	0.4		SW-SM	Loose dark brown to black well graded SAND with silt and gravel (SW-SM), mps 1 in., no structure, slight musty odor, wet, contains trace brick, ash, cinders	5	15	10	20	40	10				
						4.0												
5	3 5 4 3	S3 12	4.0 6.0	9 6	1.3		SM	Loose light brown silty SAND with gravel (SM), mps 1 in., loosely bonded, no odor, wet, slight oxidation	5	15	20	20	40	15				
								-FILL-										
	3 10 9 8	S4 10	6.0 8.0	16 23	0.3		SM	Medium dense light brown silty SAND with gravel (SM), mps 0.5 in., loosely bonded, no odor, wet, contains trace brick	5	10	10	20	40	15				
						8.0												
	7 4 3 4	S5 12	8.0 10.0	17 20	0.5		SM	Loose gray-brown silty SAND with gravel (SM), trace clay, mps 0.5 in., moderately bonded, no odor, wet	5	10	10	15	45	15				
								-MARINE DEPOSIT-										
10	4 4 2 3	S6 16	10.0 12.0	16 12	0.0		SM	Loose gray-brown silty SAND with gravel (SM), trace clay, mps 0.75 in., moderately bonded, no odor, wet	5	10	10	20	40	15				
				9 8														
15	1 1 1 1	S7 0	14.0 16.0	9 11				No Recovery										
	WOH WOH 1 1	S8 6	16.0 18.0	11 7	0.0		SM	Very loose gray-brown silty SAND with gravel (SM), mps 0.5 in., loosely to moderately bonded, slight organic odor, wet, contains weathered rock fragments, black organic pockets in split spoon tip	-	15	10	20	35	20				
								-MARINE DEPOSIT-										
				11		18.5												
20	7 11	S9 11	19.0 21.0	7	0.0		SW	Medium dense gray-brown grading to yellow-brown well graded SAND with gravel, mps 1 in., no structure, no odor, wet	5	10	15	20	45	5				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
6/12/19	11:00	--	40.5	45.5	6.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.2
Rock Cored (ft)	5.0
Samples	10S, 1C

Boring No. HA19-20

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 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.

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HALEY ALDRICH

TEST BORING REPORT

Boring No. HA19-20
File No. 39486-877
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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	7 8			2 20 9 23				-MARINE DEPOSIT-										
	2 1 1 4	S10 19	24.0 26.0	21 24 23 12 27	0.0	24.0	SM	Very loose gray-brown silty SAND with gravel (SM), mps 0.25 in., well bonded, no odor, wet -GLACIAL TILL- Note: Drill action and wash indicate gravel at approximately 26.2 ft.	-	15	15	15	30	25				
30	1 2 1 1	S11 6	29.0 31.0	17 19 16 16 17	0.0		SM	Very loose gray-brown silty SAND (SM), trace clay, mps 0.25 in., moderately bonded, no odor, wet	-	5	10	15	40	30				
35	7 30 9 7	S12 9	34.0 36.0	9 14 9 10 18	0.0		SM	Dense gray-brown silty SAND with gravel (SM), trace clay, mps 1 in., moderately bonded, no odor, wet -GLACIAL TILL-	10	15	5	10	30	30				
40	7 52	S13 12	39.0 40.0	20 50	0.0	40.0 40.5	SM	Very dense gray-brown silty SAND with gravel, mps 0.75 in., moderately bonded, no odor, wet Note: Drill action and casing refusal indicate top of bedrock at approximately 40.0 ft. Note: Advance roller bit to 40.5 ft. Began NQ rock core at 40.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS	5	15	15	20	30	15				
45																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA19-20

H&A-TEST BOR WITH PERM PID+CASING 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

CORE BORING REPORT

Boring No. HA19-20
File No. 39486-877
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
45	4:43 4:59 4:30 4:37 5:25	C1	40.5 45.5	60 51	100 85	Fresh to Slight		Hard, fresh to slightly weathered, gray, aphanitic PHYLLITE. Primary joints dipping at low angles, very close to moderate, tight to open, planar to undulating, smooth to rough. Secondary joints dipping at high angles, moderately close, planar to undulating, smooth to rough, slight silt coating on joint surfaces, one secondary joint from 43.9 to 44.5 ft, oxidized, several quartz stringers throughout core stem.
							45.5	BOTTOM OF EXPLORATION 45.5 FT
50								
55								
60								
65								
70								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19

TEST BORING REPORT

Boring No. HA19-21

Project	Foreside Block 2-6 Development, Portland, Maine
Client	Portland Foreside Development Company, LLC
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile Drill B52 Track
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: HW drive to 16.5 ft
				Hoist/Hammer: Winch/ Automatic Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

File No.	39486-877
Sheet No.	1 of 2
Start	10 June 2019
Finish	10 June 2019
Driller	B. Cross
H&A Rep.	J. Collins
Elevation	13.5+/-
Datum	Portland City Datum
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Casing Blows Per Ft.	PID Readings (ppm)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (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				Push	2.3	0.4	SP	-BITUMINOUS CONCRETE-										
	6 6 7 6	S1 17	0.4 2.4	Push				Medium dense poorly-graded SAND with gravel (SP), mps 0.75 in., no structure, no odor, dry, coal observed	15	20	25	25	10	5				
				Push				-FILL-										
				Push														
				Push		4.4	GM	Very loose dark gray silty GRAVEL (GM), mps 1 in., no structure, no odor, wet	40	30	-	5	5	20				
5	2 1 2 1	S2 4	4.4 6.4	Push	3.3			-FILL-										
				Push														
				Push														
				Push		9.0		Note: Drill action indicates strata change at approximately 9.0 ft.										
				22			SM/ML	Very loose gray to dark brown silty SAND with gravel (SM) to SILT with sand (ML), mps 4 in., no structure, slight organic odor, moist	- -	15 5	5 10	25 15	30 30	25 40				
10	1 1 2 1	S3 16	9.4 11.4	15	1.6			-MARINE DEPOSIT-										
				17														
				31														
				20														
				33			SP-SM	Medium dense dark gray poorly-graded SAND with silt and gravel (SP-SM), mps 0.75 in., few organic soil pockets, slight organic odor, moist	10	20	30	25	5	10				
15	12 12 18 5	S4 12	14.4 16.4	30	2.4													
				30/0.1'		16.5		Note: Top of bedrock at approximately 16.5 ft.										
								Note: Advanced roller bit to 18.4 ft. Began NQ rock core at 18.4 ft.										
						18.4		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

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Splitspoon Sample
G - Geoprobe

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	16.5
Rock Cored (ft)	5.5
Samples	4S, 2C

Boring No. HA19-21

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 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.

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CORE BORING REPORT

Boring No. HA19-21
File No. 39486-877
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
20	5:10 5:00 3:30	C1	18.4 20.9	13 0	43 0	Slight to Moderate		Hard, slightly to moderately weathered, gray, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar, smooth, tight to open, single quartz intrusion.
	11:00 3:30 2:30 3:00/0.5'	C2	20.9 23.9	33 9	92 25	Fresh to Moderate		Hard, fresh to moderately weathered, aphanitic to fine-grained SCHIST. Primary joints dipping at low to moderate angles, very close to close, planar to undulating, smooth to rough, open. Joint surfaces slightly to moderately weathered with frequent quartz intrusions from approximately 20.4 to 22.5 ft.
							23.9	BOTTOM OF EXPLORATION 23.9 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 39486-877_HA-LIB09-POR-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 17 Dec 19



TOP ROW (L to R): HA19-4: C1 (45.0' - 50.0')
MIDDLE ROW TOP (L to R): HA19-4: C2 (50.0' - 55.0')
MIDDLE ROW BOTTOM (L to R): HA19-5: C1 (60.0' - 64.3')
BOTTOM ROW (L to R): NA



TOP ROW (L to R): HA19-8: C1 (16.5' - 21.5')
MIDDLE ROW TOP (L to R): HA19-8: C2 (21.5' - 26.5')
MIDDLE ROW BOTTOM (L to R): HA19-9: C1 (18.0' - 23.0')
BOTTOM ROW (L to R): HA19-9: C2 (23.0' - 28.0')

J:\GRAPHICS\TEMP\MCELENEY-TI\FORMS\CALC PAPER\HA-11X17 CALC SHEETS 5X5 ENG.DWG

NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 1 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-10: C5 (18.0' - 23.0')
MIDDLE ROW TOP (L to R): HA19-11: C1 (7.5' - 12.5')
MIDDLE ROW BOTTOM (L to R): HA19-27: C1 (50.5' - 51.5'); C2 Top (51.5' - 56.9')
BOTTOM ROW (L to R): HA19-27: C2 Bottom (51.5' - 56.9')



TOP ROW (L to R): HA19-12: C2 (15.7' - 17.9')
MIDDLE ROW TOP (L to R): HA19-12: C3 (17.9' - 22.7')
MIDDLE ROW BOTTOM (L to R): HA19-13: Cobbles/Boulders; Cobbles/Boulders; C3 Top (15.5' - 20.0')
BOTTOM ROW (L to R): HA19-13: C3 Bottom (15.5' - 20.0')

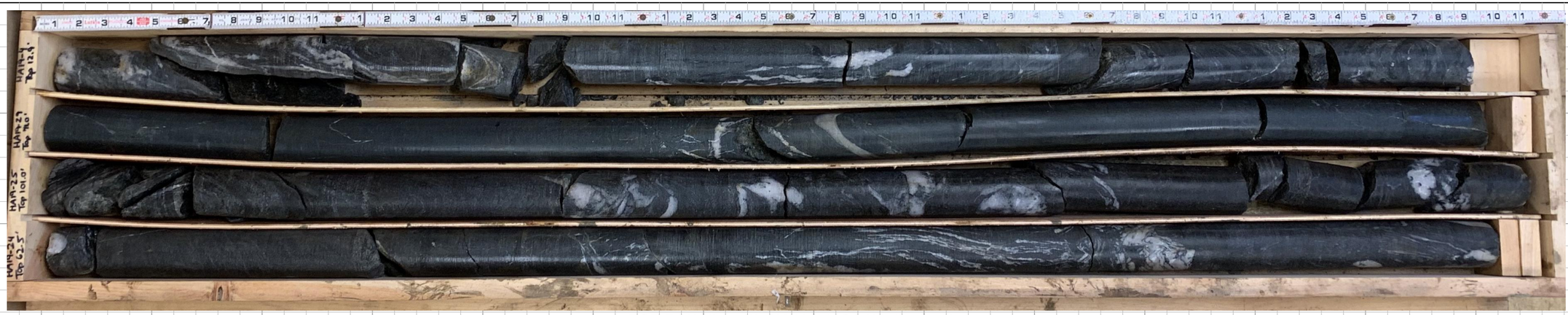
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NORTH

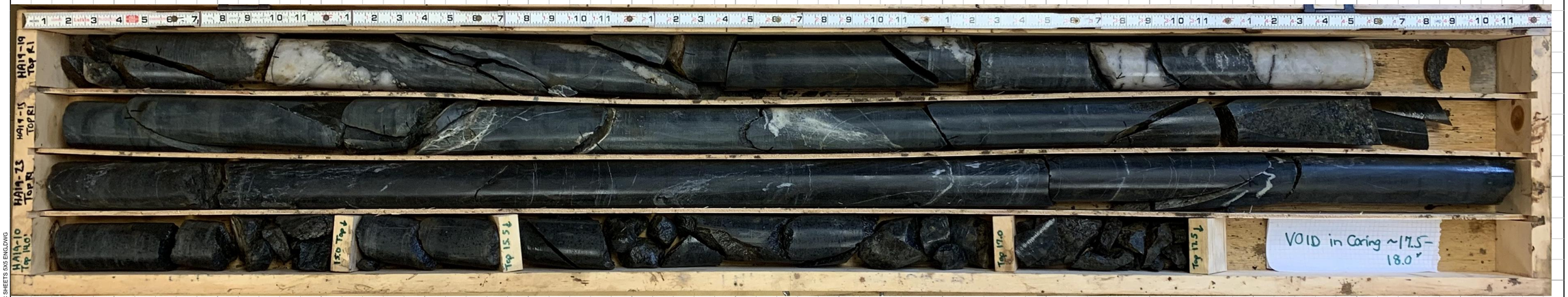
0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 2 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-14: C1 (13.4' - 18.4')
MIDDLE ROW TOP (L to R): HA19-29: C1 (71.0' - 76.0')
MIDDLE ROW BOTTOM (L to R): HA19-25: C2 (101.0' - 106.0')
BOTTOM ROW (L to R): HA19-24: C1 (62.5' - 67.5')



TOP ROW (L to R): HA19-19: C1 (7.0' - 11.7')
MIDDLE ROW TOP (L to R): HA19-15: C1 (13.5' - 18.5')
MIDDLE ROW BOTTOM (L to R): HA19-23: C1 (21.5' - 26.5')
BOTTOM ROW (L to R): HA19-10: C1 (14.0' - 15.0'); C2 (15.0' - 15.5'); C3 (15.5' - 17.0'); C4 (17.0' - 17.5')

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NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 3 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS



TOP ROW (L to R): HA19-22: C1 (4.5' - 9.5')
MIDDLE ROW TOP (L to R): HA19-18: C1 (16.5' - 21.3')
MIDDLE ROW BOTTOM (L to R): HA19-17: C1 (20.3' - 23.9'); C2 (23.9' - 25.3')
BOTTOM ROW (L to R): HA19-12: C1 (10.7' - 14.5'); C2 (15.7' - 17.9')



TOP ROW (L to R): HA19-26: C1 (81.0' - 86.0')
MIDDLE ROW TOP (L to R): HA19-21: C1 (18.4' - 20.9'); C2 (20.9' - 23.9')
MIDDLE ROW BOTTOM (L to R): HA19-16: C1 (18.0' - 23.0')
BOTTOM ROW (L to R): HA19-20: C1 (40.5' - 45.5')

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NORTH

0
SCALE IN FEET

CLIENT: PORTLAND FORESIDE DEVELOPMENT CO.
COMPUTED BY: BCS CHECKED BY:
SHEET 4 of 4

HALEY ALDRICH
FILE NO: 39486-877
DATE: 19 DECEMBER 2019
PROJECT: FORESIDE DEVELOPMENT
SUBJECT: ROCK CORE PHOTOGRAPHS

2019 Haley & Aldrich, Inc.
Test Pit Photographs



Photo 1: HA19-TP1 with bottom of wall visible.



Photo 2: HA19-TP2 with bottom of wall visible.



Photo 3: HA19-TP3 with step at bottom of wall visible.



Photo 4: HA19-TP4 with bottom of wall visible.

2016 Haley & Aldrich, Inc.
Test Boring Logs and
Rock Core Photographs

TEST BORING REPORT

Boring No. HA16-1(OW)

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 4
Start 19 December 2016
Finish 20 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 75.0 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW/NW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0/3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 55.5'; NW Drive to 64.2'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

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 2 1 2	S1 6	0.0 2.0	0.0		0.5		-TOPSOIL-										
							SM	Very loose brown silty SAND (SM), mps 0.5 in., no odor, moist, contains roots		5	10	20	45	20				
								-FILL-										
	1 4 3 5	S2 14	2.0 4.0	0.0			SM	Loose brown silty SAND with gravel (SM), mps 1 in., contains roots, no odor, dry, contains trace brick chips	5	10	10	20	35	20				
	10 26 20 19	S3 20	4.0 6.0			4.0	SM	Dense olive-brown silty SAND (SM), mps 1.25 in., loosely bonded, no odor, dry, contains occasional roots		8	3	14	31	44				
5								-GLACIAL TILL-										
	17 20 22 25	S4 18	6.0 8.0				SM	Dense olive-brown silty SAND with gravel (SM), mps 1.5 in., moderately bonded, no odor, moist	10	10	10	20	30	20				
								Note: Samples S4 and S5 were moist due to likely perched groundwater.										
10	20 27 30 33	S5 17	10.0 12.0				SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.25 in, well bonded, no odor, dry/moist	5	10	15	25	25	20				
								Note: Advanced rollerbit ahead of casing to 20 ft.										
15	18 25 42 48	S6 16	15.0 17.0				SM	Very dense olive-brown silty SAND (SM), mps 1 in., well bonded, no odor, dry		4	3	14	32	47				
								-GLACIAL TILL-										
								Note: Advanced rollerbit ahead of casing to 25 ft.										
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

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)	63.8
Rock Cored (ft)	10.0
Samples	13S, 2R

Boring No. HA16-1(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-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 2 of 4

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	24 41 42 60	S7 18	20.0 22.0				SM	Very dense olive-brown silty SAND (SM), mps 1.5 in., well bonded, no odor, dry -GLACIAL TILL- Note: Advanced rollerbit ahead of casing to 30 ft.	5	5	10	20	30	30				
25	31 42 53 52	S8 14	25.0 27.0				SM	Very dense olive-gray silty SAND (SM), mps 1.5 in., well bonded, no odor, dry Note: Advanced rollerbit ahead of casing to 35 ft.		4	5	14	29	48				
30	26 37 45 60	S9 20	30.0 32.0				SM	Very dense olive-gray silty SAND (SM), mps 0.75 in., well bonded, no odor, dry -GLACIAL TILL-		3	4	14	31	48				
35	50/5"	S10 5	35.0 35.4			35.4 35.8	SM	Very dense olive-gray silty SAND (SM), mps 0.75 in., well bonded, no odor, dry -COBBLE- -GLACIAL TILL- Note: Advanced rollerbit ahead of casing to 45 ft.		5	10	20	35	30				
40	38 70 88 90	S11 0	40.0 42.0					No recovery - probable rock stuck in spoon tip Note: Advanced rollerbit ahead of casing between 45 and 55 ft.										
45	20 33 47 49	S12 22	45.0 47.0				SM	Very dense olive-gray silty SAND (SM), mps 1 in., well bonded, no odor, dry -GLACIAL TILL-	6	6	5	15	27	41				

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1(OW)

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 3 of 4

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
50								Note: Advanced rollerbit ahead of casing between 55 and 60 ft.										
55	25 34 36 50/5"	S13 15	55.0 56.9				SM	Very dense olive-gray silty SAND (SM), mps 1 in., well bonded, no odor, dry		8	6	15	28	43				
								-GLACIAL TILL-										
60								Note: Advanced rollerbit to top of bedrock at 63.8 ft.										
						63.8		Note: Advanced rollerbit to 64.2 ft. Advanced NW casing to 64.2 ft, begin NQ rock core. See Core Boring Report for rock details.										
65																		
70																		

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1(OW)

H&A-TEST BORING-07-1 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-1(OW)
File No. 39486-872
Sheet No. 4 of 4

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Well Dia-gram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
65	2:07	C1	64.2 69.2	59 59	98 98	Fresh			Very hard, fresh, light gray to blue-gray, aphanitic PHYLLITE. Joints dipping at low to moderate angles, close to moderately close, tight. Joint surfaces planar, smooth with occasional chlorite on joint surfaces.
	1:46								
	1:46								
	2:03								-SPRING POINT FORMATION-
	2:02								
70	1:49	C2	69.2 74.2	56 40	93 67	Slight			Hard to moderately hard, slightly weathered, light gray to blue-gray, aphanitic to fine-grained PHYLLITE. Joints dipping at low to moderate angles, very close to close, planar, smooth, tight to open, occasional moderately weathered joints with silt coatings.
	1:30								
	1:35								
	1:35								
	2:47								
75								74.2	BOTTOM OF EXPLORATION 74.2 FT
80									
85									
90									

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-2

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 2
Start 22 December 2016
Finish 22 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 14.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 17.4'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

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						0.3		-BITUMINOUS CONCRETE-										
	3 5 5 4	S1 13	1.0 3.0	0.0			SM	Loose dark brown silty SAND with gravel (SM), mps 1 in., no structure, no odor, wet, contains iron slag and coal fragments	10	5	10	10	35	30				
								-FILL-										
	2 3 8 8	S2 14	3.0 5.0	0.0			SM	Medium dense olive-brown to brown silty SAND (SM), mps 1 in., no structure, no odor, wet, contains coal fragments	5	5	15	15	35	25				
						4.6												
5	7 9 6 6	S3 12	5.0 7.0	0.0			SM	Medium dense olive-gray silty SAND (SM), mps 1 in., loosely bonded, no odor, wet	2	7	5	17	33	36				
								-GLACIAL TILL-										
10	23 25 27 30	S4 14	10.0 12.0				SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.5 in., loosely bonded, no odor, wet	8	18	11	17	22	24				
								Note: Advanced rollerbit to hard surface at 13.8 ft. Drove casing to 15 ft. Very coarse material observed in wash water between 12 and 15 ft.										
						13.8												
15	52 50/2"	S5 6	15.0 15.7				GW	Very dense olive well graded GRAVEL with sand (GW), mps 1.5 in., loosely bonded, no odor, wet	25	30	20	10	10	5				
								-GLACIAL TILL-										
						17.4		Note: Advanced rollerbit to 17.4 ft. Advanced NW casing to 17.4 ft, begin NQ rock core. 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

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)	17.4
Rock Cored (ft)	5.0
Samples	5S, 2R

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 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-2
File No. 39486-872
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
	3:00	C1	17.4	23	87	Fresh		Very hard, fresh to slightly weathered, light gray to dark gray, aphanitic PHYLLITE. Primary joints high angle, secondary joints low angle, very close to close, tight to open, planar, smooth to rough surfaces. Oxidized weathered joint surfaces with calcite coatings, frequent silt/clay coatings. Single vertical joint surface from 19 to 19.6 ft.
	2:30		19.6	6	23	to Slight		
	2:15							-SPRING POINT FORMATION-
20		C2	19.6	31	92	Fresh		Very hard, fresh to slightly weathered, light gray to dark gray, aphanitic PHYLLITE. Joints low angle with single vertical joint from 19.6 to 20.6 ft. Joints very close to close, tight to partly open, planar, smooth. Oxidized weathered joint surfaces with occasional calcite coatings.
	2:30		22.4	15	45	to Slight		
	2:30							
							22.4	BOTTOM OF EXPLORATION 22.4 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-9

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 2
Start 13 December 2016
Finish 13 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 14.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 6.0'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

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 5 7 11	S1 12	0.0 2.0	0.2			SW	Medium dense black to dark brown well graded SAND (SW), mps 0.75 in., no structure, no odor, moist, contains coal fragments, wood, brick and mortar -FILL-		5	15	30	45	5				
	5 5 6 4	S2 13	2.0 4.0	0.5 1.0		2.5	SW	Loose black to dark brown well graded SAND (SW), mps 0.75 in., no structure, no odor, moist, contains coal fragments, wood, brick and mortar		5	15	30	45	5				
							GW	Loose light brown to red-brown well graded GRAVEL with sand (GW), mps 1.5 in., loosely bonded, no odor, moist, weathered rock pieces	25	25	20	15	10	5				
5 ▽	5 5 8 50/1"	S3 7	4.0 5.6	0.4			GW	-FILL-	25	25	20	15	10	5				
						5.6		Medium dense light brown to red-brown well graded GRAVEL with sand (GW), mps 1.5 in., moderately bonded, no odor, moist, weathered rock pieces (bottom 3 in. of soil recovered is wet) Note: Split-spoon refusal on top of bedrock at 5.6 ft.										
10								Note: Advanced solid-stem auger and casing to 6 ft. Advanced rollerbit to 6.5 ft, begin NQ rock core. See Core Boring Report for rock details.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
12/13/16	13:00	--	--	5.6	5.3

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)	5.6
Rock Cored (ft)	5.0
Samples	3S, 1R

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 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-9
File No. 39486-872
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
10	2:28 2:16 2:48 1:58 1:47	C1	6.5 11.5	57 56	95 93	Fresh to Slight		Moderately hard, fresh, light green, aphanitic PHYLLITE. Joints dipping at high angles, moderately close, open, planar to undulating, smooth to rough, joints slightly to moderately weathered with staining (oxidation) and silt coatings. -SPRING POINT FORMATION-
							11.5	BOTTOM OF EXPLORATION 11.5 FT
15								
20								
25								
30								
35								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-10

Project	Portland Company Redevelopment, 58 Fore Street, Portland, Maine
Client	CPB2 Management, LLC
Contractor	New England Boring Contractors

File No. 39486-872
Sheet No. 1 of 3
Start 13 December 2016
Finish 14 December 2016
Driller T. Schaefer
H&A Rep. K. Russ
Elevation 13.5 +/-
Datum Portland City
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NQ	Rig Make & Model: Mobile B-53
Inside Diameter (in.)	4.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	18	30	-	Casing: HW Drive to 35.4'
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000

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 5 7 5	S1 16	0.0 2.0	0.0			SM	Medium dense dark brown to light brown silty SAND with gravel (SM), mps 1 in., no structure, no odor, moist, contains coal fragments	9	14	8	28	26	15				
								-FILL-										
	4 3 3 9	S2 10	2.0 4.0	0.1			SM	Loose dark brown to black silty SAND (SM), mps 1 in., no structure, no odor, moist, contains coal fragments	9	14	8	28	26	15				
	6 6 5 4	S3 15	4.0 6.0	0.0		4.5	SP	Medium dense black poorly-graded SAND with gravel (SP), mps 1.5 in., no structure, no odor, moist, contains brick chips	25	5	5	10	50	5				
5							SM	Loose olive-brown silty SAND with gravel (SM), mps 1 in., loosely bonded, no odor, moist	8	7	6	17	28	34				
	3 3 4 4	S4 2	6.0 8.0				SW-SM	-GLACIAL TILL- Loose olive-brown well graded SAND with gravel and silt (SW-SM), mps 1 in., loosely bonded, no odor, moist, low recovery due to rock in tip of spoon	25	10	10	15	30	10				
10	6 3 2 2	S5 16	10.0 12.0			10.0	SM	Loose olive-gray silty SAND with gravel (SM), mps 1 in., loosely bonded, decomposed rock within sample, no odor, wet	3	17	7	16	28	29				
								-GLACIAL TILL-										
								Note: Drill wash water and drill action indicates coarser material with depth.										
15	4 5 10 6	S6 11	15.0 17.0				SM	Medium dense olive-brown silty SAND (SM), loosely bonded, decomposed rock within sample, no odor, wet	3	9	6	19	34	29				
20																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water

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)	35.4
Rock Cored (ft)	4.5
Samples	9S, 2R

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 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

TEST BORING REPORT

Boring No. HA16-10
File No. 39486-872
Sheet No. 2 of 3

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	50/1"	NR 0	20.0 20.1			20.1		Note: Split-spoon refusal on cobbles at 20.1 ft. Cored from 20.1 to 23 ft. -COBBLES-										
						23.0		Note: Advanced 4 in. rollerbit to 23 ft. Drove HW casing to 25 ft. Collected split spoon. Clay content increases with depth based on drill wash water contents.										
25	1 2 3 4	S7 10	25.0 27.0				SM	Loose olive-gray silty SAND (SM), mps 1.5 in., no structure, no odor, wet -GLACIAL TILL-	6	5	4	10	31	44				
						28.0		Note: Drove HW casing to 29 ft. Advanced rollerbit to 30 ft. Collected split spoon sample. Drove casing to 33 ft, refusal on boulder.										
30	5 18 4 5	S8 16	30.0 32.0				SM	Medium dense olive-gray silty SAND (SM), mps 1 in., loosely bonded, no odor, wet -GLACIAL TILL-		11	6	14	30	39				
						33.0		Note: Casing refusal on boulder at 33 ft. Advanced rollerbit to 35 ft. -COBBLE-										
						33.9		-GLACIAL TILL-										
35	50/5"	S9 5	35.0 35.4			35.4	GW	Very dense olive-brown well graded GRAVEL with sand (GW), mps 1.5 in., no structure, no odor, wet Note: Split-spoon refusal on top of bedrock at 35.4 ft. Note: Advanced rollerbit to 36 ft, begin NQ rock core. See Core Boring Report for rock details.	35	25	15	10	10	5				
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 PID HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-10
File No. 39486-872
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
	1:41	C1	36.0	35	65	Moderate to High		Moderately hard to soft, moderately to highly weathered, light gray, aphanitic PHYLLITE. Joints moderately dipping, extremely close to close, open, planar to undulating, smooth to rough, frequent silt coatings and oxidation, joints moderately to highly weathered, occasional to frequent calcite veins.
	1:23		40.5	6	11			
	3:07							-SPRING POINT FORMATION-
	3:07							
40	2:28/0.5						40.5	BOTTOM OF EXPLORATION 40.5 FT
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV_39486.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17



Top Row: HA16-9, Core No. R1, 6.5 ft (left) to 11.5 ft (right); Top Middle Row: HA16-10, Core No. R1, 36.0 ft (left) to 40.5 ft (right);
Bottom Middle Row: HA16-8, Core No. R1, 33.5 ft (left) to 38.5 ft (right); Bottom Row: HA16-7, Core No. R1, 30.8 ft (left) to 35.8 ft (right)



Top Row: HA16-1(OW), Core No. R1, 64.2 ft (left) to 69.2 ft (right); Top Middle Row: HA16-1(OW), Core No. R2, 69.2 ft (left) to 74.2 ft (right); Bottom Middle Row: HA16-3(OW), Core No. R1, 40.5 ft (left) to 42.5 ft (middle), Core No. R2 (42.5 ft (middle) to 45.5 ft (right); Bottom Row: HA16-2, Core No. R1, 17.4 ft (left) to 19.6 ft (middle), Core No. R2, 19.6 ft (middle) to 22.4 ft (right)

2007 S.W. Cole Engineering, Inc.
Test Boring and Auger Probe Logs

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: B-4
SHEET: 1 OF 1
PROJECT NO.: 07-0792
DATE START: 9/25/2007
DATE FINISH: 9/25/2007
ELEVATION: NOT AVAIL.
SWC REP.: PFK

PROJECT / CLIENT: PORTLAND YACHT SERVICES FACILITY / PORTLAND YACHT CO.
LOCATION: 58 FORE STREET, PORTLAND, MAINE
DRILLING CO. : GREAT WORKS TEST BORING
DRILLER: WAYNE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	300 LB	18"
SAMPLER:	SS	1 3/8"	140 LB	24"
CORE BARREL:				

WATER LEVEL INFORMATION
SOIL WET TO SATURATED AT 9' ±

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
										4" ± ASPHALT PAVEMENT
	1D	24"	20"	2.5'	12	18	18	24	1.2'	BROWN SAND, SOME GRAVEL, TRACE SILT (FILL) ~ MEDIUM DENSE~
										~MEDIUM DENSE~
										GRAY SAND AND SILT, SOME GRAVEL (TILL)
	2D	24"	10"	7.0'	20	14	11	10		w = 8.5%
									9.5'	
	3D	0"	0"	10.0'	50/0"				10.5'	PROBE AUGER 9.5' TO 10.5' PROBABLE BEDROCK
										BOTTOM OF EXPLORATION @ 10.5' WITH PROBE AUGER (PROBABLE BEDROCK)

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
[X] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

6

BORING NO.: B-4

S.W.COLE ENGINEERING, INC.

AUGER PROBE LOG

PROJECT/CLIENT: Portland Yacht Services Facility/Portland Yacht Company
LOCATION: 58 Fore Street Portland, Maine
DRILLING FIRM: Great Works Test Boring DRILLER: Wayne

PROJECT NO. 07-0792
AUGER PROBE SIZE O.D.

BORING NO. P-1
LINE AND STATION See sheet 1
OFFSET
GROUND ELEV. Not Avail.
DATE 9-25-07

DEPTH	STRATUM DESCRIPTION
	4" ± ASPHALT PAVEMENT
	2.0 ± SAND AND GRAVEL FILL
	PROBABLE TILL
11.5'	
13.0'	PROBE AUGER 11.5' TO 13.0' - PROBABLE BEDROCK
	BOTTOM OF EXPLORATION @ 13.0'

BORING NO. P-2
LINE AND STATION See sheet 1
OFFSET
GROUND ELEV.
DATE 9-26-07

DEPTH	STRATUM DESCRIPTION
	4" ± ASPHALT PAVEMENT
	APPEARS TO BE SIMILAR SOILS AS B-8
6.5	
	BOTTOM OF EXPLORATION @ 6.5' (ONLY 1" ± PENETRATION WITH PROBE AUGER)

DRILLER - VISUALLY
SOIL TECHNICIAN - VISUALLY
LABORATORY TESTS

11

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All 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. - based on laboratory unconfined compressive 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. based on 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. RQD is computed from recovered core samples.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

0 to 5% TRACE
5 to 12% SOME
12 to 35% "Y"
35+% AND

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 B

Observation Well Installation and Groundwater Monitoring Reports

2022 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

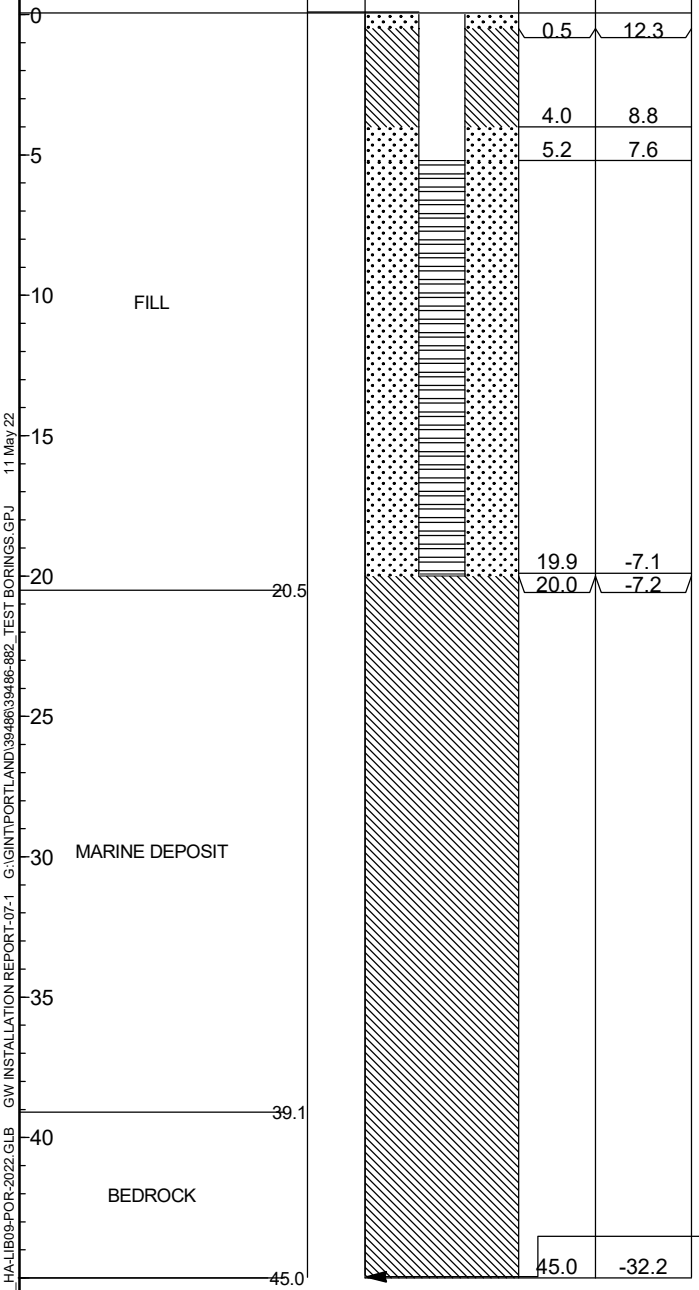
GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

Well No. HA22-1(OW)
Boring No. HA22-1(OW)

Project	Foreside Block 6 Development
Location	58 Fore Street, Portland, Maine
Client	PF Six Devco, LLC.
Contractor	New England Boring Contractors
Driller	T. Schaefer
Initial Water Level (depth bgs)	ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No.	39486-882
Date Installed	23 Mar 2022
H&A Rep.	T. Jones
Location	See Plan
Ground El.	12.8
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with Lock
Height of Steel Guardpipe above ground surface	2.6 ft
Height of top of riser above ground surface	2.4 ft
Type of protective casing	Steel Guardpipe
Length	5.3 ft
Inside diameter	3.0 in.
Depth of bottom of Steel Guardpipe	2.7 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.5 in.
Depth of bottom of riser pipe	5.2 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	0.5	3.5
-	-	-
-	-	-
-	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	5.2 ft
Type of screen	Machine Slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.5 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	19.9 ft
Bottom of silt trap	20.0 ft
Depth of bottom of borehole	45.0 ft

COMMENTS:

39486_HA-LIB09-POR-2022.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-882_TEST BORINGS.GPJ 11 May 22

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA22-1(OW)

PROJECT	Foreside Block 6 Development	**H&A FILE NO.**	39486-882
LOCATION	58 Fore Street, Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	PF Six Devco, LLC.	**FIELD REP.**	T. Jones
CONTRACTOR	New England Boring Contractors	**DATE**	3/23/2022

ELEVATION OF REFERENCE POINT 12.8 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
3/30/2022	15:09	7	8.9	3.9		TJ
3/31/2022	14:45	8	8.7	4.1	prior to purging	TJ
4/1/2022	7:46	9	8.9	3.9	after purging	TJ
4/4/2022	11:32	12	9.0	3.8		TJ
4/5/2022	8:37	13	9	3.8		TJ
4/5/2022	15:11	13	9.1	3.7		TJ
4/6/2022	9:22	14	9.1	3.7		TJ
4/6/2022	16:02	14	9.0	3.8		TJ
4/7/2022	10:19	15	9.0	3.8		TJ
4/7/2022	16:34	15	9.0	3.8		TJ
4/11/2022	14:10	19	9.0	3.8		HH
4/15/2022	11:30	23	8.9	3.9		HH
4/20/2022	12:30	28	8.7	4.1		HH
5/5/2022	14:30	43	9.3	3.5		JD
9/7/2022	14:00	168	9.1	3.7		TJ
10/3/2022	14:45	194	9.4	3.4		TJ
10/17/2022	8:50	208	9.2	3.6		TJ

2019 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

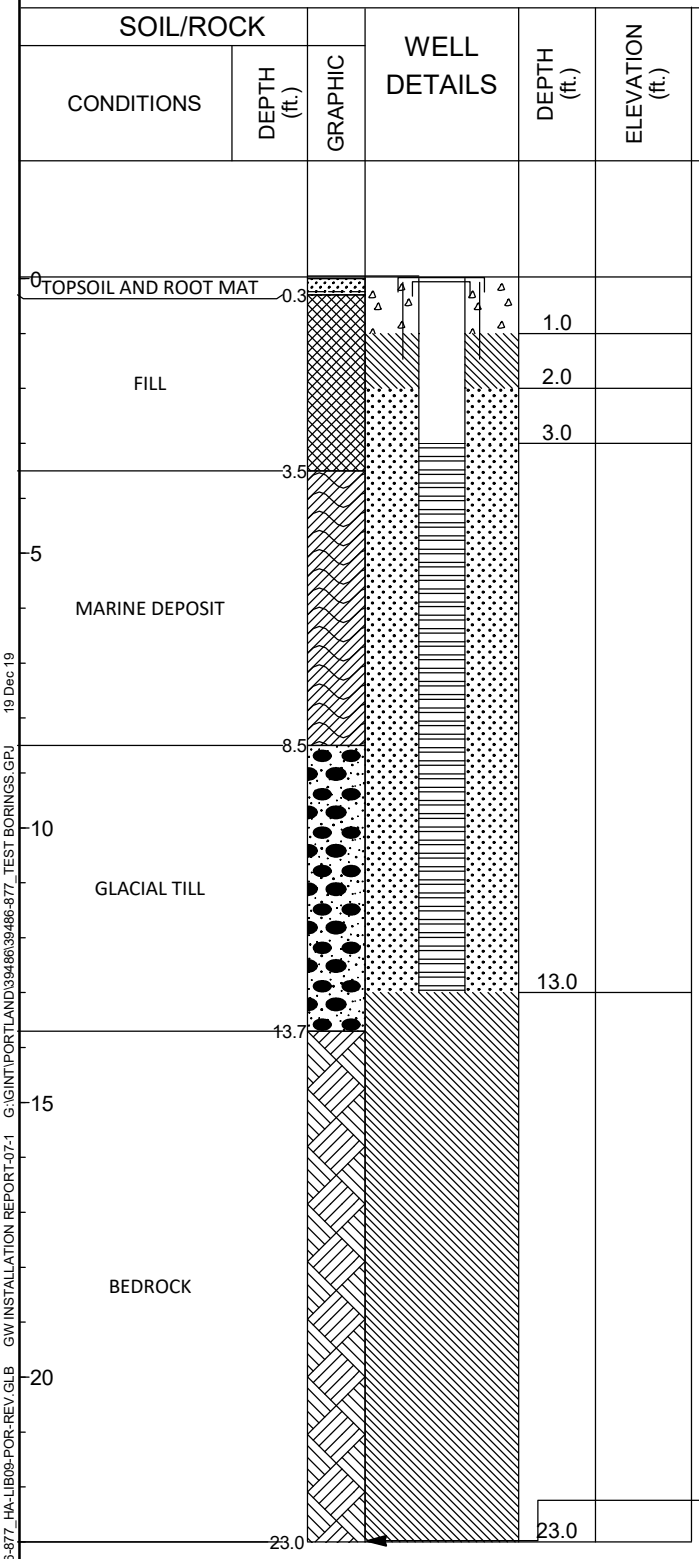
Well No.	**HA19-10**
Boring No.	**HA19-10**

Project	Foreside Block 2-6 Development
Location	Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors
Driller	B. Cross
Initial Water Level (depth bgs)	1.4 ft

Well Diagram

- Riser Pipe
- Screen
- Filter Sand
- Cuttings
- Grout
- Concrete
- Bentonite Seal

File No.	39486-877
Date Installed	20 Jun 2019
H&A Rep.	H. Hollauer
Location	See Plan
Ground El.	17.0+/-
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	5-Sided Center Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.7 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	2.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Bentonite Seal	1.0	1.0
-	-	-
-	-	-

Diameter of borehole	4.0 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	2.0 in.
Type of backfill around screen	Filter Sand
Depth to bottom of well screen	13.0 ft
Bottom of silt trap	13.0 ft
Depth of bottom of borehole	23.0 ft

COMMENTS:

39486-877_HA-LIB09-POR-REV.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 19 Dec 19

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA19-10(OW)

PROJECT	Foreside Development	**H&A FILE NO.**	39486-877
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Portland Foreside Development Company	**FIELD REP.**	N. Klausmeyer
CONTRACTOR	New England Boring Contractors	**DATE**	6/20/2019

ELEVATION OF REFERENCE POINT 17.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
6/28/2019	13:20	8	1.5	15.5	prior to purging	WC
6/28/2019	13:50	8	1.7	15.3	after purging	WC
11/8/2019					not accessible	JF

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

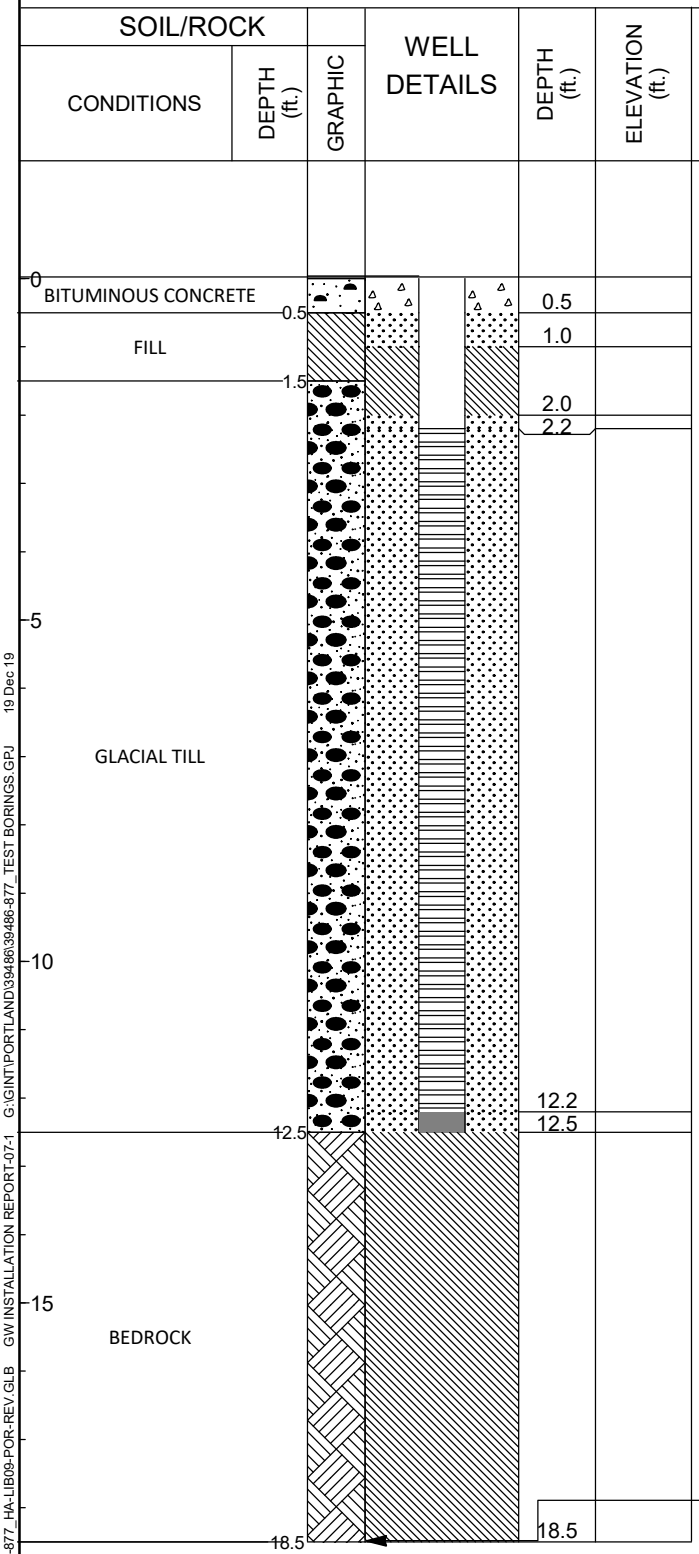
HALEY ALDRICH

Well No. HA19-15
Boring No. HA19-15(OW)

Project	Foreside Block 2-6 Development
Location	Portland, Maine
Client	Portland Foreside Development Company, LLC.
Contractor	New England Boring Contractors
Driller	B. Cross
Initial Water Level (depth bgs)	0.0 ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No.	39486-877
Date Installed	13 Jun 2019
H&A Rep.	N. Klausmeyer
Location	See Plan
Ground El.	16.0+/-
Datum	Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with 5/8" Bolt
Depth of Steel Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.3 ft
Type of protective casing	Steel Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Steel Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in.
Depth of bottom of riser pipe	2.2 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	0.5
Bentonite Seal	1.0	1.0
-	-	-
-	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	2.2 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	2.0 in.
Type of backfill around screen	#1S Holliston Filter Sand
Depth to bottom of well screen	12.2 ft
Bottom of silt trap	12.5 ft
Depth of bottom of borehole	18.5 ft

COMMENTS:

39486-877_HA-LIB09-POR-REV.GLB GW INSTALLATION REPORT-07-1 G:\GINT\PORTLAND\39486\39486-877_TEST BORINGS.GPJ 19 Dec 19

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER HA19-15(OW)

PROJECT	Foreside Development	**H&A FILE NO.**	39486-877
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Portland Foreside Development Company	**FIELD REP.**	N. Klausmeyer
CONTRACTOR	New England Boring Contractors	**DATE**	6/13/2019

ELEVATION OF REFERENCE POINT 16.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
6/28/2019	11:07	15	2.9	13.1	prior to purging	WC
6/28/2019	12:54	15	5.1	10.9	after purging	WC
11/8/2019	14:33	148	2.5	13.5		JF

2016/2017 Haley & Aldrich, Inc.
Observation Well Installation and
Groundwater Monitoring Reports

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. HA16-1(OW)
Boring No. HA16-1(OW)

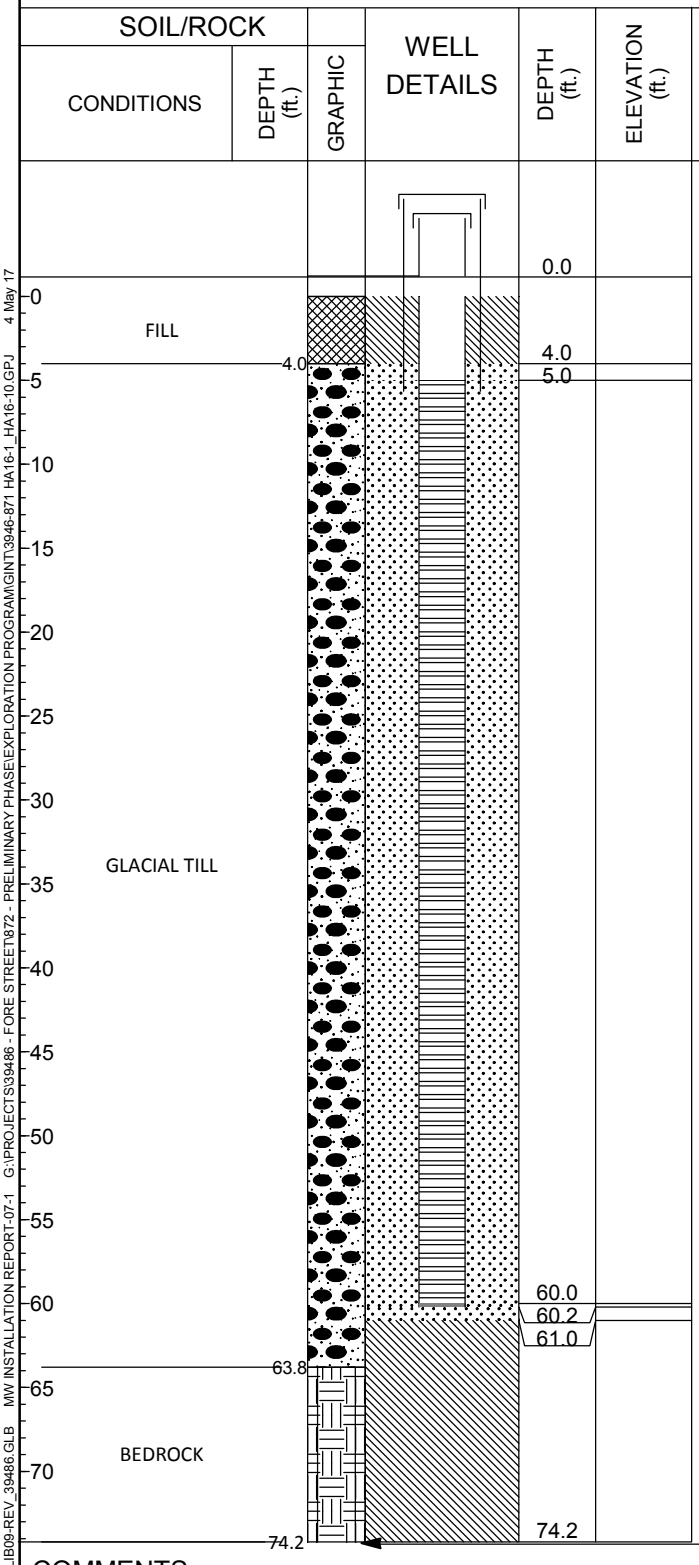
Project Portland Company Redevelopment, 58 Fore Street
Location Portland, Maine
Client CPB2 Management, LLC
Contractor New England Boring Contractors
Driller T. Schaeffer

Initial Water Level (depth bgs) ft

Well Diagram
- Riser Pipe
- Screen
- Filter Sand
- Cuttings
- Grout
- Concrete
- Bentonite Seal

File No. 39486-872
Date Installed 21 Dec 2016
H&A Rep. K. Russ
Location See Plan

Ground El. 75.0 +/-
Datum Portland City



WELL CONSTRUCTION DETAILS

Type of protective cover	Steel Cap with Lock
Height of Guard Pipe above ground surface	2.9 ft
Height of top of riser above ground surface	2.7 ft
Type of protective casing	Guard Pipe
Length	5.0 ft
Inside diameter	4.0 in.
Depth of bottom of Guard Pipe	2.1 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	2.0 in.
Depth of bottom of riser pipe	5.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	0.0	4.0
Bentonite	61.0	13.2
	-	-
	-	-
	-	-
	-	-

Diameter of borehole	4.0 in.
Depth to top of well screen	5.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	2.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	60.0 ft
Bottom of silt trap	60.2 ft
Depth of bottom of borehole	74.2 ft

COMMENTS:

HA-LIB09-REV_39486.GLB MW INSTALLATION REPORT-07-1 G:\PROJECTS\39486 - FORE STREET\872 - PRELIMINARY PHASE\EXPLORATION PROGRAM\GINT\3946-871 HA16-1_HA16-10.GPJ 4 May 17

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA16-1(OW)
Page 1 of 1

PROJECT	Portland Company Redevelopment	**H&A FILE NO.**	39486-872
LOCATION	58 Fore Street - Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	CPB2 Management, LLC.	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	12/23/2016

ELEVATION OF REFERENCE POINT 75.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

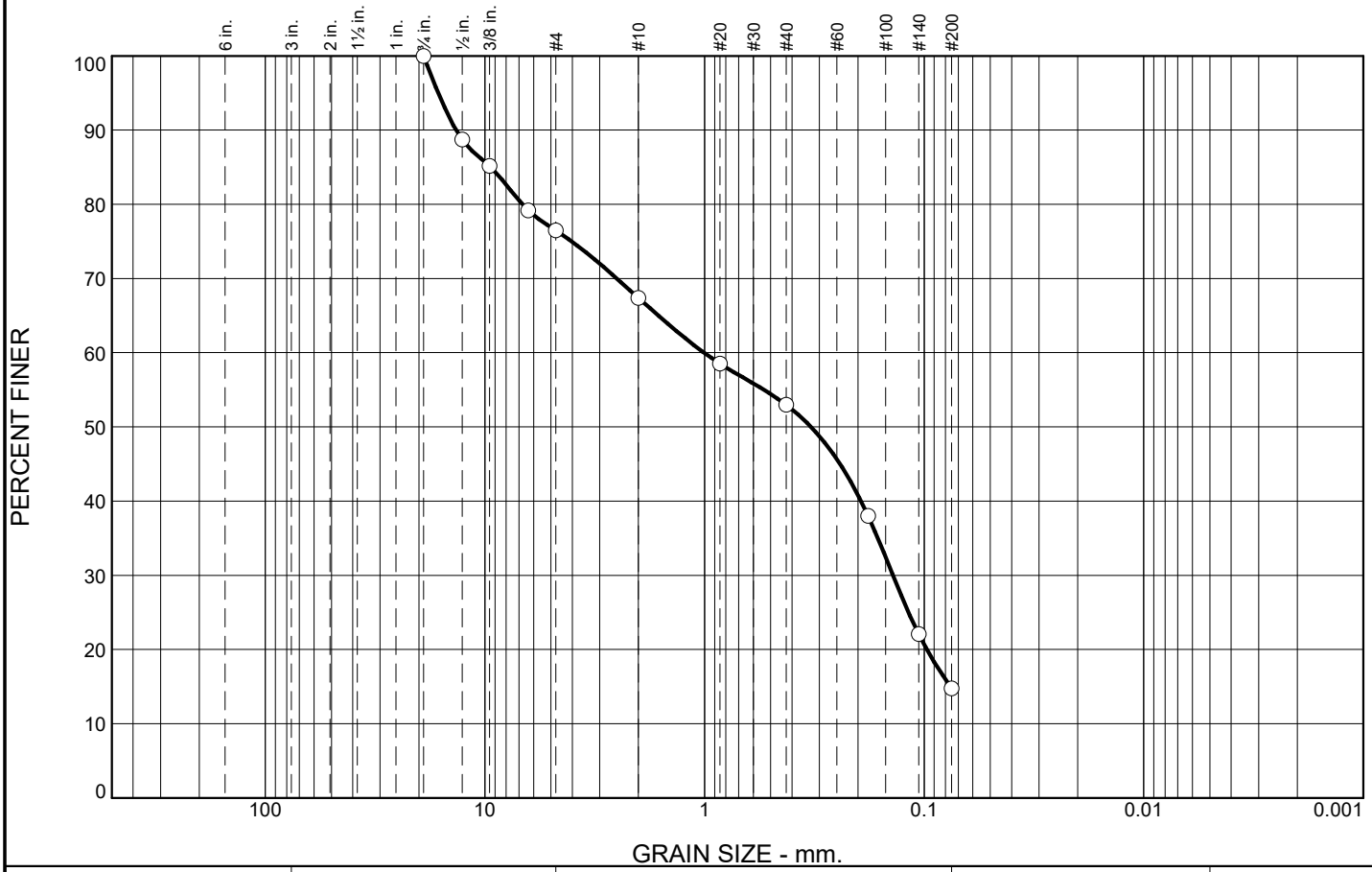
Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
12/23/2016	13:00	0	13.3	61.8	Initial reading after installation	KAR
1/4/2017	16:30	12	11.8	63.2	Reference Point = Top of guard pipe	KAR
1/5/2017	13:05	13	11.7	63.4		KAR
1/6/2017	8:20	14	11.4	63.6	1/6/17 before purge of well	KAR
1/6/2017	9:25	14	58.1	16.9	1/6/17 after purge of well	KAR
1/6/2017	10:50	14	51.5	23.5	1/6/17 recharging well	KAR
1/16/2017	12:35	24	9.8	65.2		KAR
1/26/2017	7:45	34	9.7	65.4		KAR
2/3/2017	14:45	42	8.8	66.2		KAR
4/5/2022	8:17	1929	9.3	65.7		TJ
4/6/2022	15:50	1930	9.3	65.7		TJ
4/7/2022	17:30	1931	9.5	65.5		TJ
9/7/2022	14:50	2084	15.1	59.9		TJ
10/3/2022	14:25	2110	13.9	61.1		TJ
10/7/2022	10:00	2114	14.0	61.0		TJ
10/17/2022	9:10	2124	13.9	61.1		TJ

APPENDIX C

Laboratory Test Results

2022 Haley & Aldrich, Inc.
Laboratory Test Results

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	23.5	61.7	14.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	88.7		
3/8"	85.2		
1/4"	79.2		
#4	76.5		
#10	67.4		
#20	58.5		
#40	53.0		
#80	38.0		
#140	22.1		
#200	14.8		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 13.5366 D_{85}= 9.4081 D_{60}= 1.0052
D_{50}= 0.3276 D_{30}= 0.1387 D_{15}= 0.0759
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Moisture Content: 25.1%

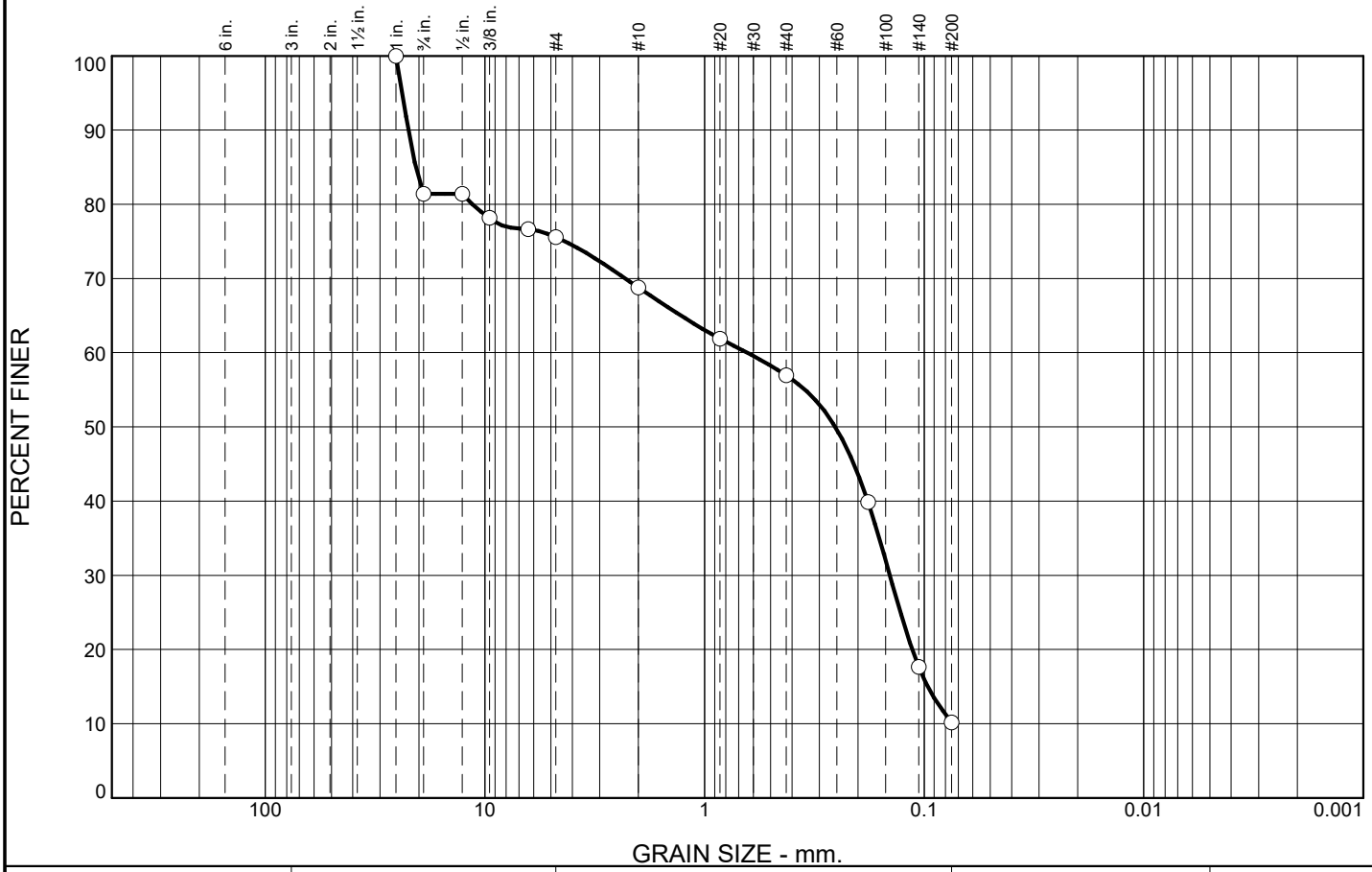
Location: HA22-1(OW)
Sample Number: S-11 **Depth:** 21'-23' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, mE
Project No: 0956-13BG08 **Lab No.** 16983-12

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	24.4	65.4	10.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	81.4		
1/2"	81.4		
3/8"	78.2		
1/4"	76.7		
#4	75.6		
#10	68.8		
#20	61.9		
#40	57.0		
#80	39.9		
#140	17.7		
#200	10.2		

* (no specification provided)

Soil Description

poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 22.3086 D_{85}= 20.6262 D_{60}= 0.6400
D_{50}= 0.2542 D_{30}= 0.1434 D_{15}= 0.0964
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-3

Remarks

Moisture Content: 18.4%

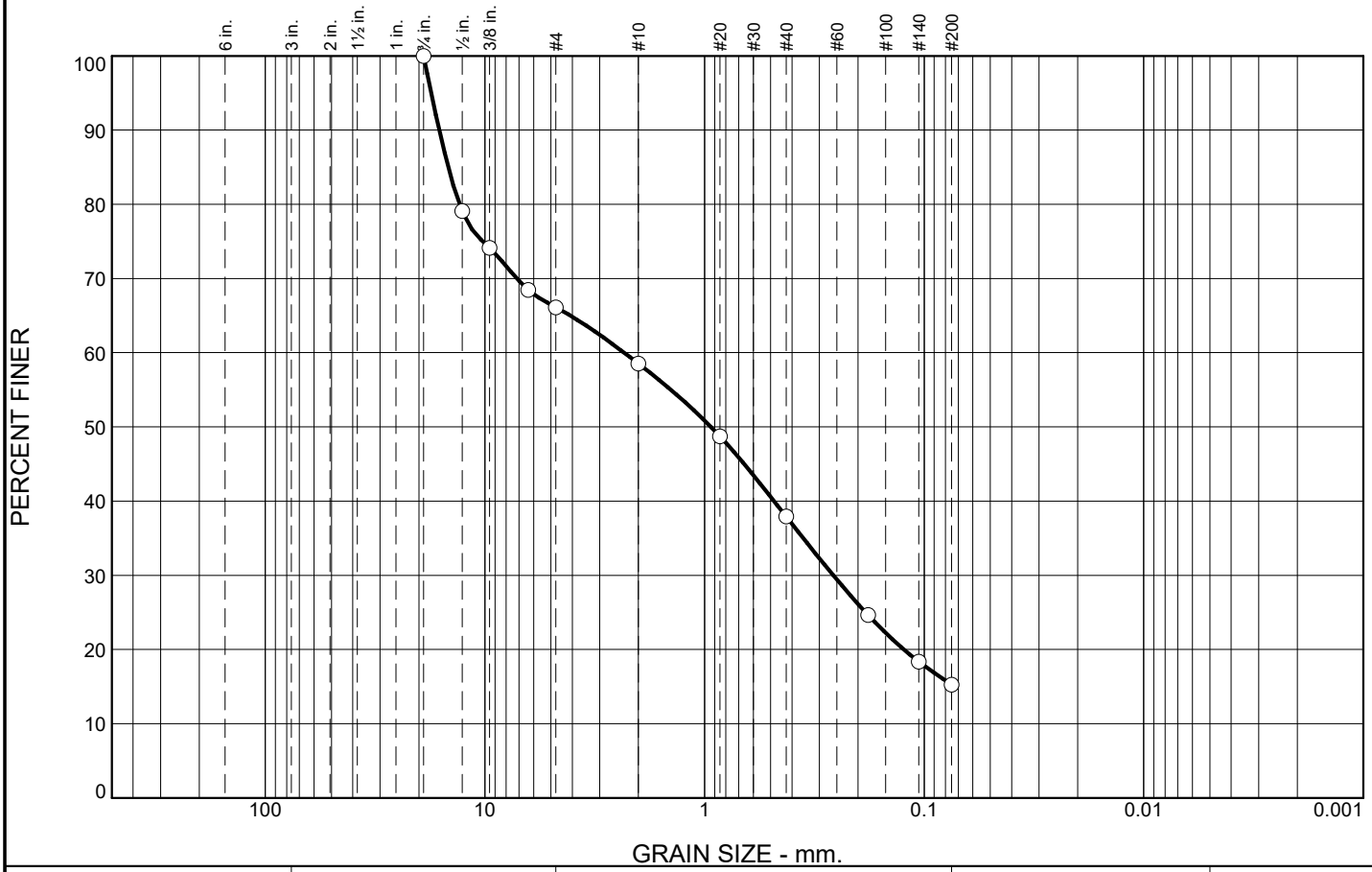
Location: HA22-1(OW)
Sample Number: S-12 **Depth:** 25'-27' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, mE
Project No: 0956-13BG08 **Lab No.** 16983-13

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	33.9	50.8	15.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	79.1		
3/8"	74.1		
1/4"	68.5		
#4	66.1		
#10	58.5		
#20	48.7		
#40	37.9		
#80	24.7		
#140	18.4		
#200	15.3		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.1343 D_{85}= 14.6865 D_{60}= 2.3232
D_{50}= 0.9356 D_{30}= 0.2594 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content: 7.0%

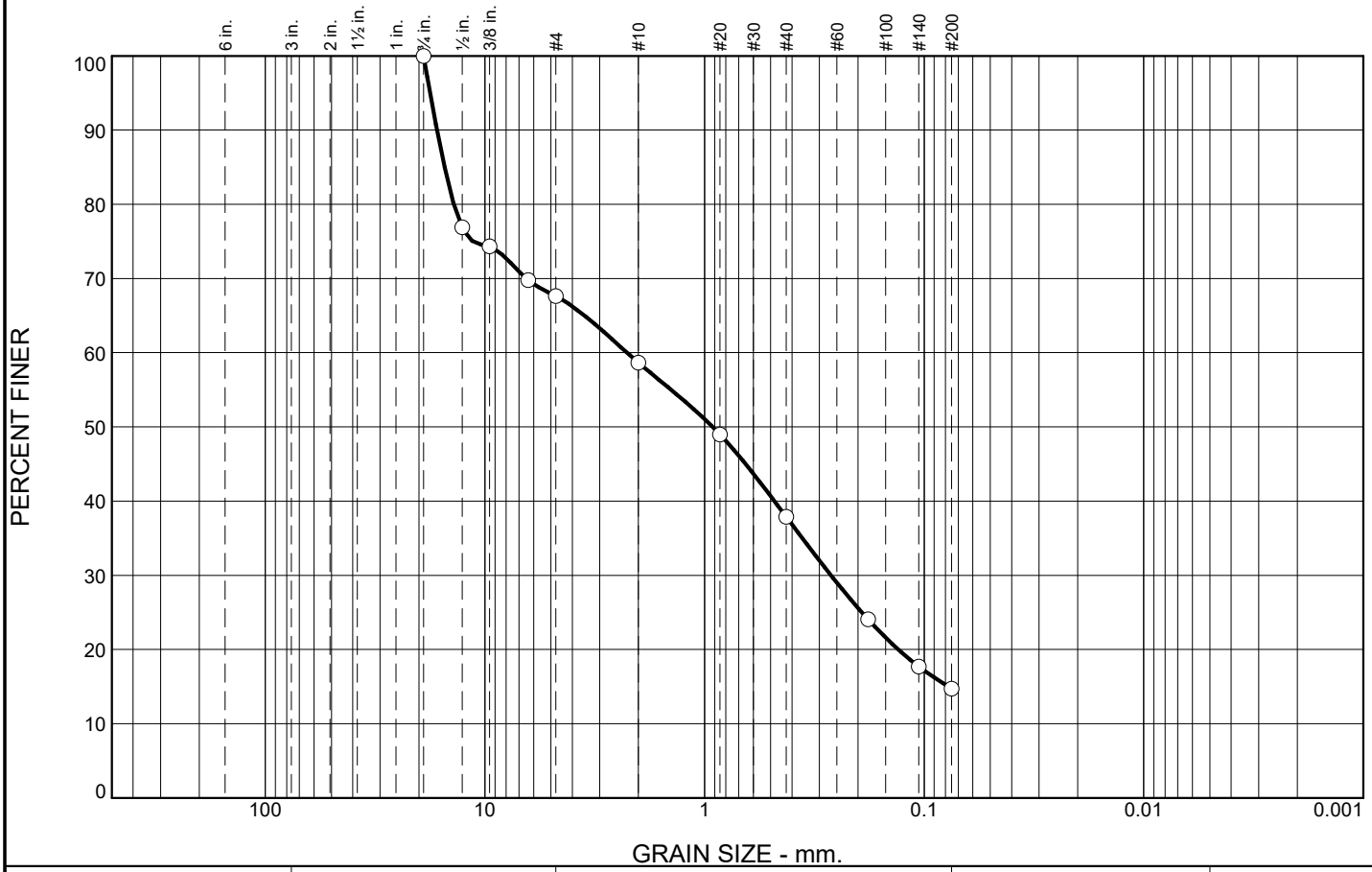
Location: HA22-9
Sample Number: S1+S2 **Depth:** 0'-4' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, ME
Project No: 0956-13BG08 **Lab No.** 16983-36

Tested By: JMT **Checked By:** MTG

Particle Size Distribution Report



% +3"	% Gravel	% Sand	% Silt	% Clay
0.0	32.4	52.9	14.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	76.9		
3/8"	74.3		
1/4"	69.8		
#4	67.6		
#10	58.7		
#20	49.0		
#40	37.9		
#80	24.1		
#140	17.7		
#200	14.7		

* (no specification provided)

Soil Description

silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.5207 D_{85}= 15.2563 D_{60}= 2.2528
D_{50}= 0.9184 D_{30}= 0.2658 D_{15}= 0.0776
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Moisture Content: 7.4%

Location: HA22-9
Sample Number: S3+S4 **Depth:** 4'-8' **Date:** 05/06/2022

R.W. Gillespie & Associates, Inc.
Biddeford, Maine

Client: Haley & Aldrich
Project: Foreside Block 6 Development #39486-882
Portland, ME
Project No: 0956-13BG08 **Lab No.** 16983-37

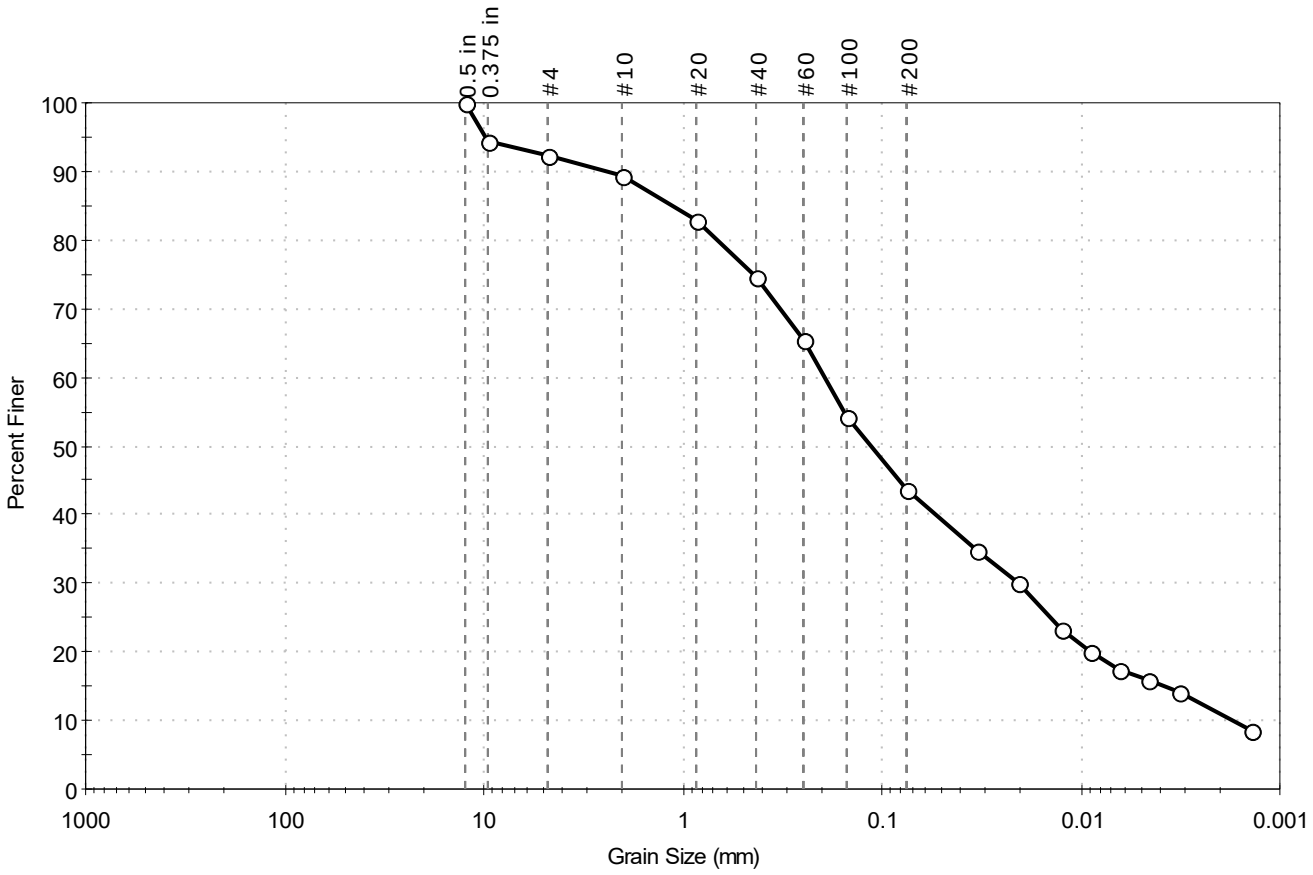
Tested By: JMT **Checked By:** MTG

2016/2017 Haley & Aldrich, Inc.
Laboratory Test Results

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S4	Test Date:	01/26/17	Checked By:	emm
Depth :	6-8 ft	Test Id:	402805		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty, clayey sand
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	7.7	48.7	43.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	95		
#4	4.75	92		
#10	2.00	89		
#20	0.85	83		
#40	0.42	75		
#60	0.25	66		
#100	0.15	54		
#200	0.075	44		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0333	35		
---	0.0208	30		
---	0.0127	23		
---	0.0091	20		
---	0.0064	18		
---	0.0046	16		
---	0.0033	14		
---	0.0014	9		

Coefficients

D_{85} = 1.1093 mm D_{30} = 0.0208 mm
D_{60} = 0.1939 mm D_{15} = 0.0038 mm
D_{50} = 0.1132 mm D_{10} = 0.0017 mm
C_u = 114.059 C_c = 1.313

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

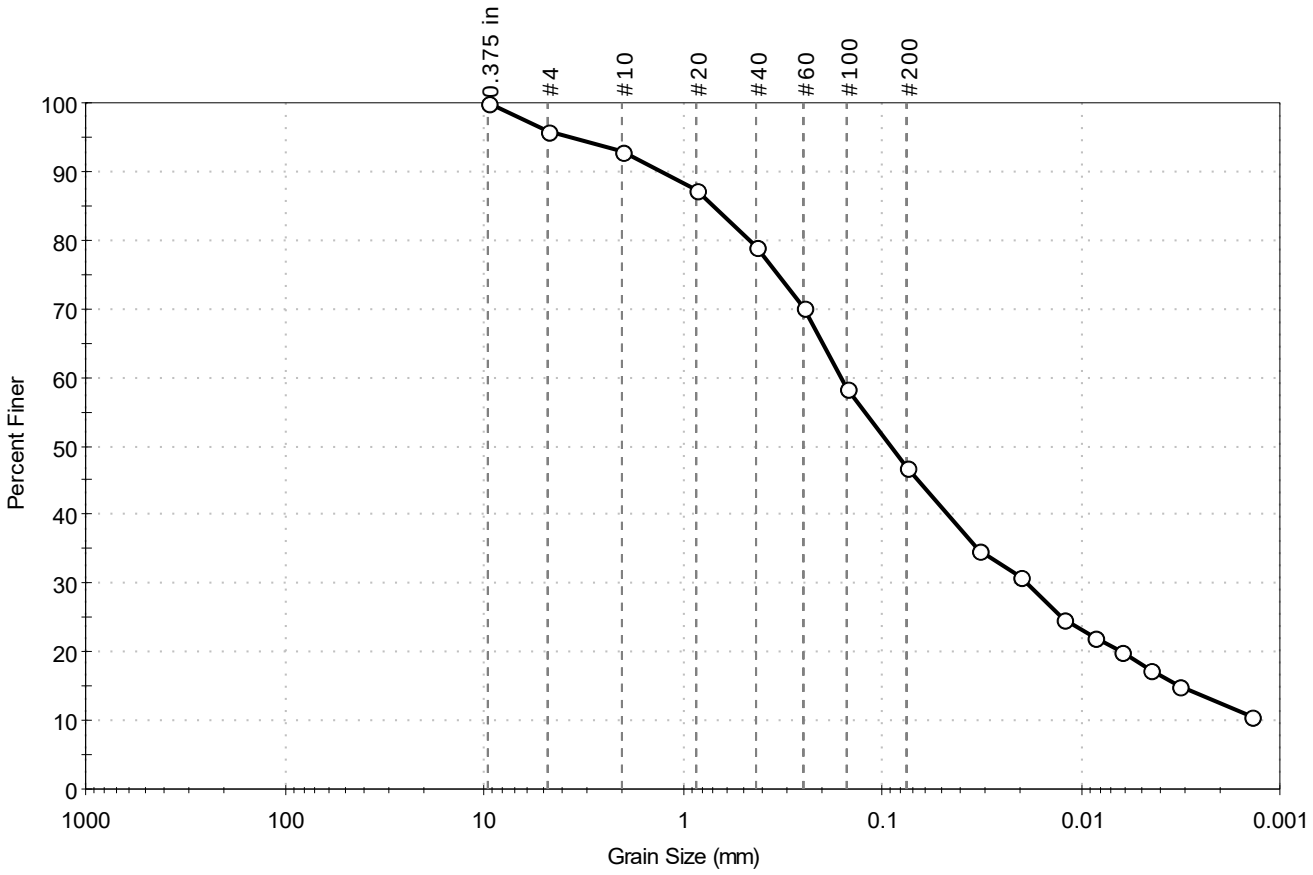
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S6	Test Date:	01/26/17	Checked By:	emm
Depth :	15-17 ft	Test Id:	402806		
Test Comment:	---				
Visual Description:	Moist, gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.2	49.0	46.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	96		
#10	2.00	93		
#20	0.85	87		
#40	0.42	79		
#60	0.25	70		
#100	0.15	59		
#200	0.075	47		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0323	35		
---	0.0203	31		
---	0.0123	25		
---	0.0086	22		
---	0.0062	20		
---	0.0045	18		
---	0.0032	15		
---	0.0014	11		

Coefficients

D_{85} = 0.6990 mm	D_{30} = 0.0187 mm
D_{60} = 0.1599 mm	D_{15} = 0.0032 mm
D_{50} = 0.0907 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

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

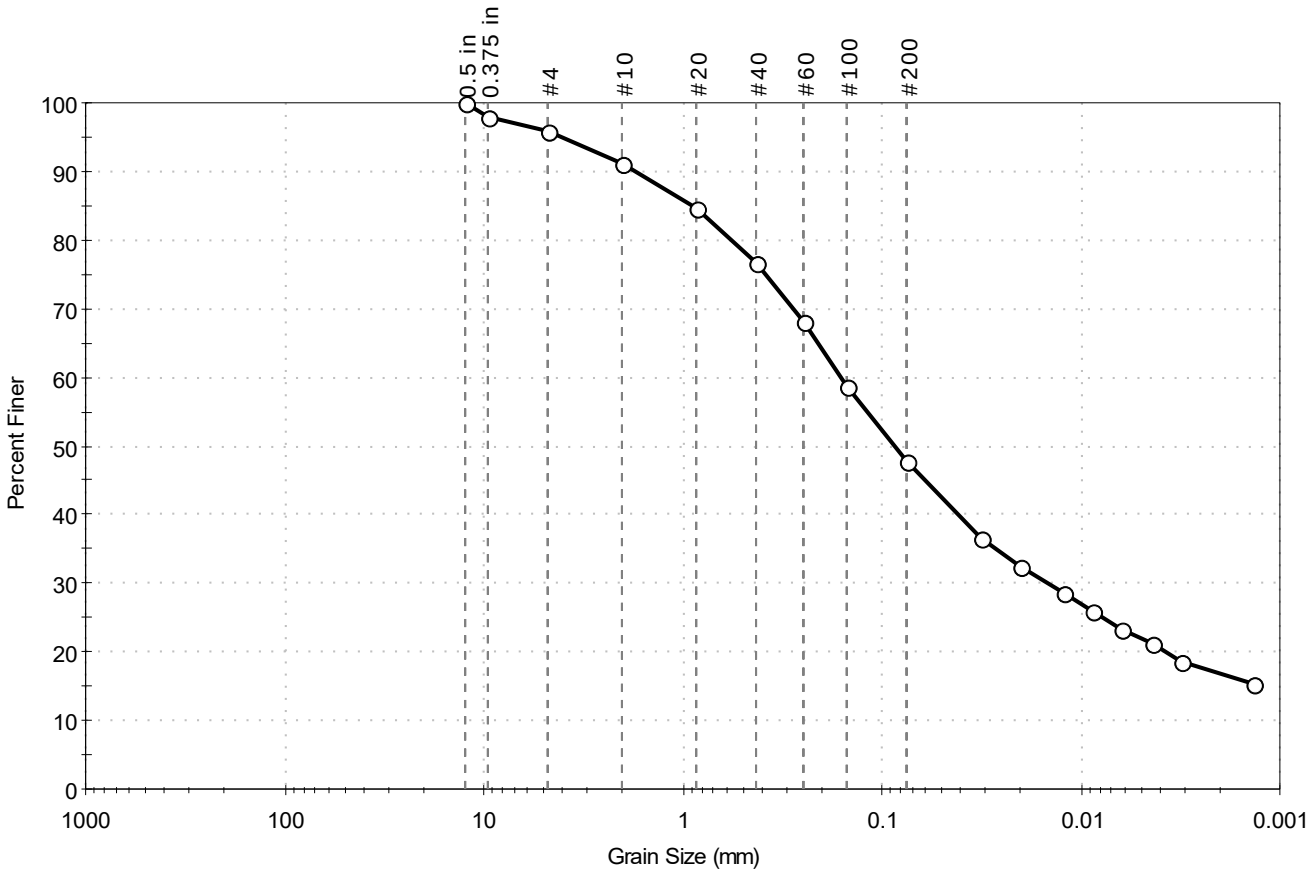
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S8	Test Date:	01/27/17	Checked By:	emm
Depth :	25-27 ft	Test Id:	402807		
Test Comment:	---				
Visual Description:	Moist, gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	4.1	48.2	47.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	98		
#4	4.75	96		
#10	2.00	91		
#20	0.85	85		
#40	0.42	77		
#60	0.25	68		
#100	0.15	59		
#200	0.075	48		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0315	37		
---	0.0204	33		
---	0.0121	29		
---	0.0087	26		
---	0.0062	23		
---	0.0044	21		
---	0.0032	19		
---	0.0014	15		

Coefficients

D_{85} = 0.8805 mm	D_{30} = 0.0147 mm
D_{60} = 0.1618 mm	D_{15} = N/A
D_{50} = 0.0870 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

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

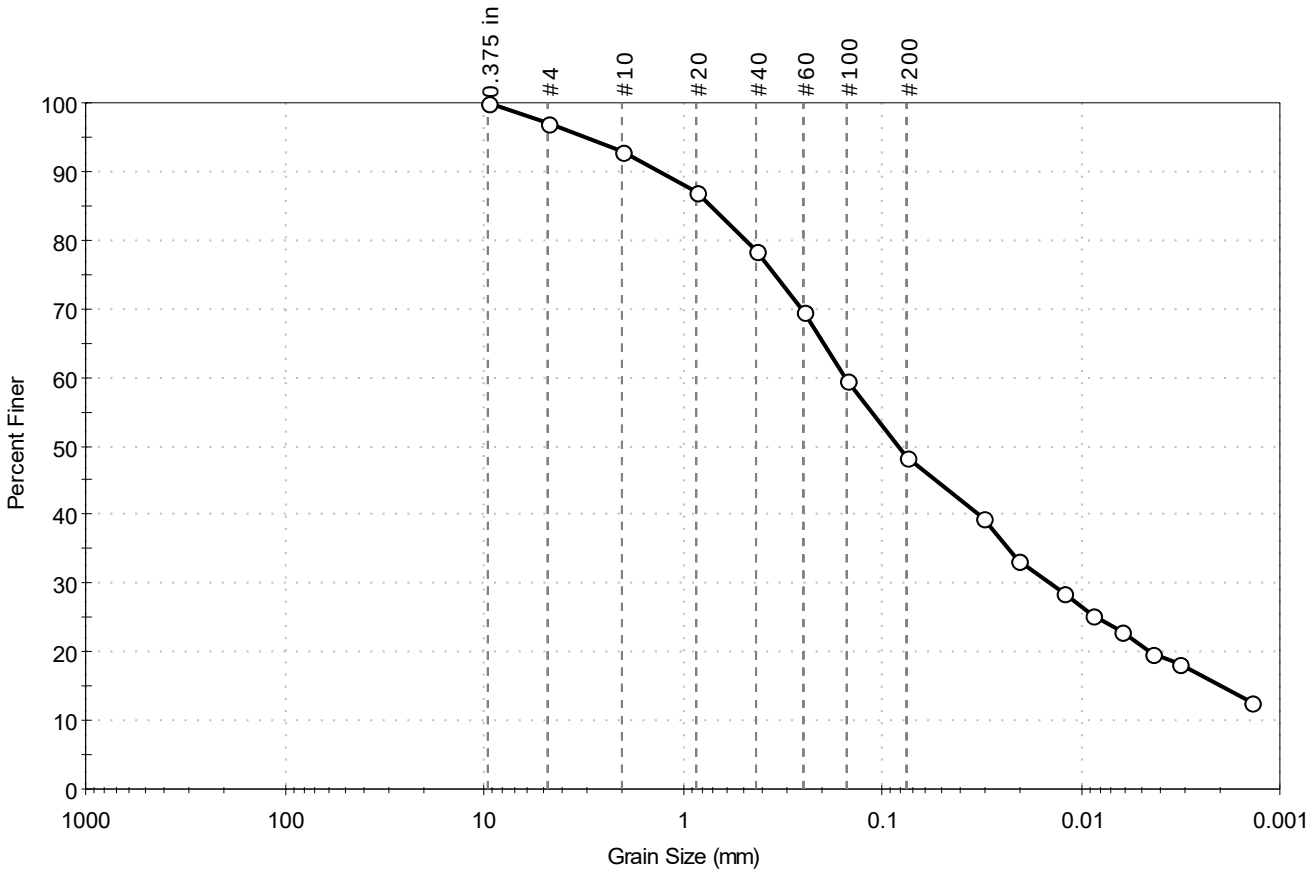
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S9	Test Date:	01/27/17	Checked By:	emm
Depth :	30-32 ft	Test Id:	402808		
Test Comment:	---				
Visual Description:	Moist, dark gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	3.1	48.7	48.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	97		
#10	2.00	93		
#20	0.85	87		
#40	0.42	79		
#60	0.25	70		
#100	0.15	60		
#200	0.075	48		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0308	39		
---	0.0206	33		
---	0.0123	28		
---	0.0088	25		
---	0.0063	23		
---	0.0044	20		
---	0.0032	18		
---	0.0014	13		

Coefficients

D_{85} = 0.7265 mm	D_{30} = 0.0145 mm
D_{60} = 0.1537 mm	D_{15} = 0.0019 mm
D_{50} = 0.0836 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

Dispersion Device : Apparatus A - Mech Mixer

Dispersion Period : 1 minute

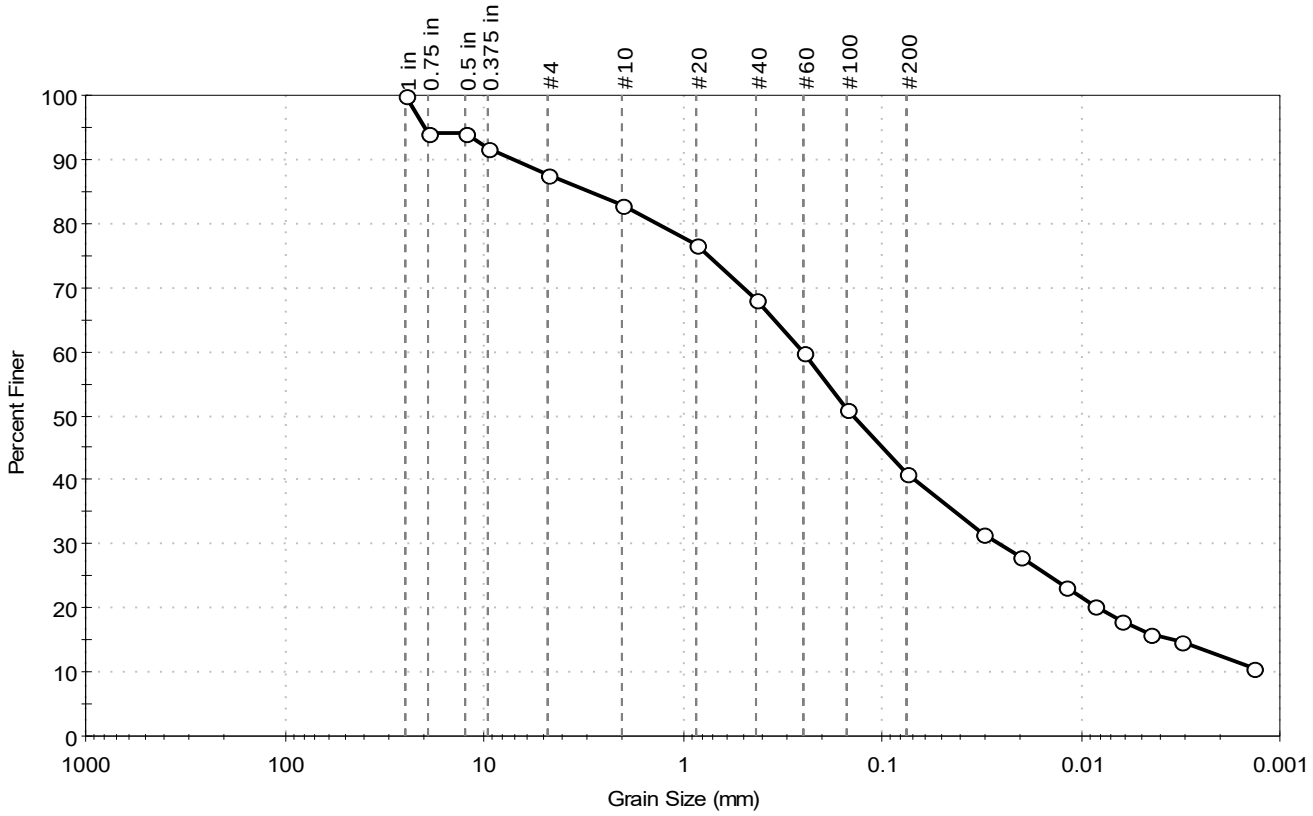
Specific Gravity : 2.65

Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S12	Test Date:	01/26/17	Checked By:	emm
Depth :	45-47 ft	Test Id:	402809		
Test Comment:	---				
Visual Description:	Moist, dark gray silty, clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	12.3	46.6	41.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	94		
0.375 in	9.50	92		
#4	4.75	88		
#10	2.00	83		
#20	0.85	77		
#40	0.42	68		
#60	0.25	60		
#100	0.15	51		
#200	0.075	41		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0313	32		
---	0.0200	28		
---	0.0120	23		
---	0.0086	20		
---	0.0062	18		
---	0.0045	16		
---	0.0032	15		
---	0.0014	11		

Coefficients

D_{85} = 2.8916 mm D_{30} = 0.0258 mm
D_{60} = 0.2514 mm D_{15} = 0.0035 mm
D_{50} = 0.1402 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

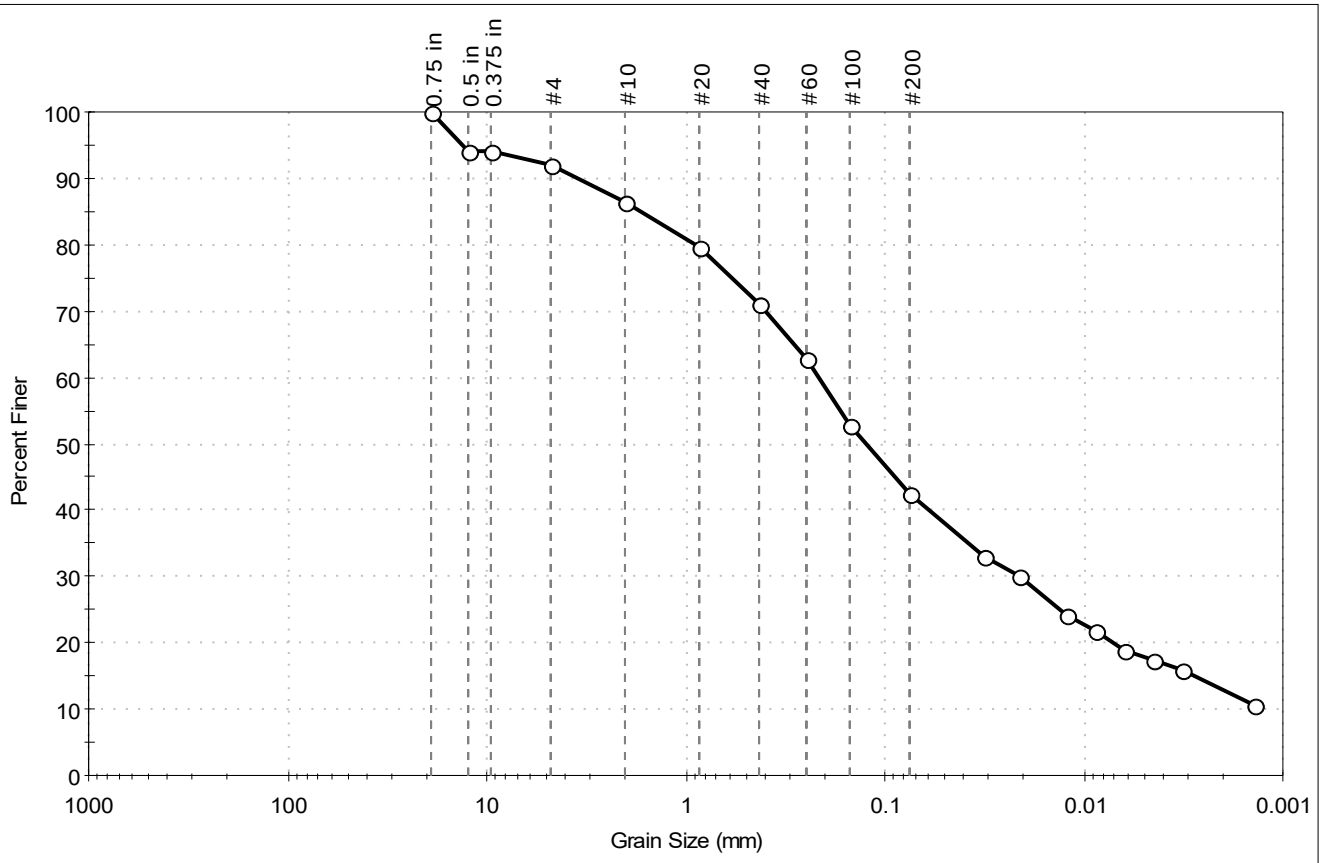
Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-1(OW)	Sample Type:	jar	Tested By:	jbr
Sample ID:	S13	Test Date:	01/26/17	Checked By:	emm
Depth :	55-56.9 ft	Test Id:	402810		

Test Comment: ---
Visual Description: Moist, dark gray silty, clayey sand
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	8.1	49.3	42.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	94		
0.375 in	9.50	94		
#4	4.75	92		
#10	2.00	86		
#20	0.85	80		
#40	0.42	71		
#60	0.25	63		
#100	0.15	53		
#200	0.075	43		
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0317	33		
---	0.0213	30		
---	0.0122	24		
---	0.0087	22		
---	0.0063	19		
---	0.0045	17		
---	0.0032	16		
---	0.0014	11		

Coefficients

D_{85} = 1.6816 mm D_{30} = 0.0210 mm
D_{60} = 0.2170 mm D_{15} = 0.0028 mm
D_{50} = 0.1243 mm D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

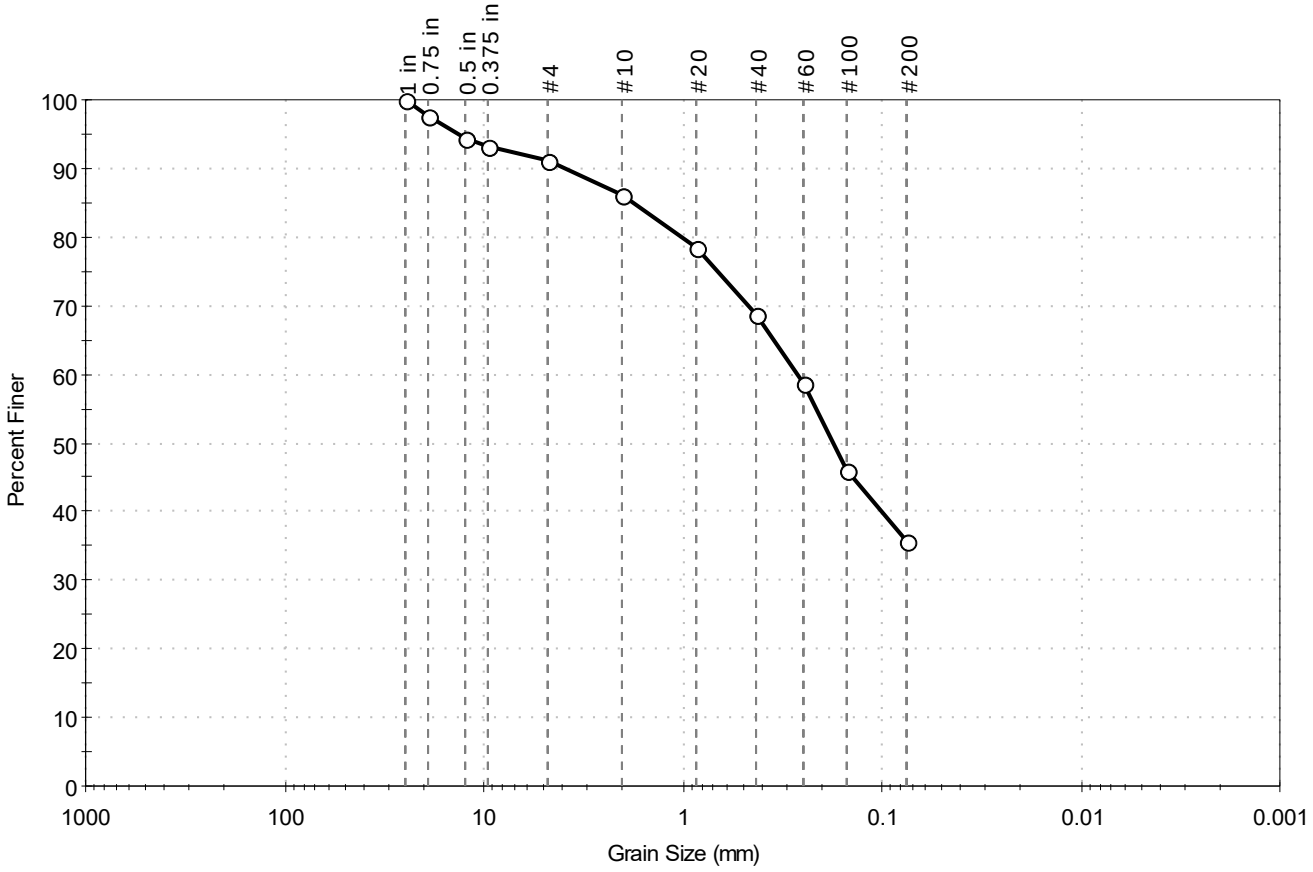
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD
Dispersion Device : Apparatus A - Mech Mixer
Dispersion Period : 1 minute
Specific Gravity : 2.65
Separation of Sample: #200 Sieve

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	jbr
Sample ID:	S3	Test Date:	01/26/17	Checked By:	emm
Depth :	5-7 ft	Test Id:	402817		
Test Comment:	---				
Visual Description:	Moist, gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	8.9	55.5	35.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	98		
0.5 in	12.50	94		
0.375 in	9.50	93		
#4	4.75	91		
#10	2.00	86		
#20	0.85	79		
#40	0.42	69		
#60	0.25	59		
#100	0.15	46		
#200	0.075	36		

Coefficients

D_{85} = 1.7775 mm D_{30} = N/A

D_{60} = 0.2667 mm D_{15} = N/A

D_{50} = 0.1757 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

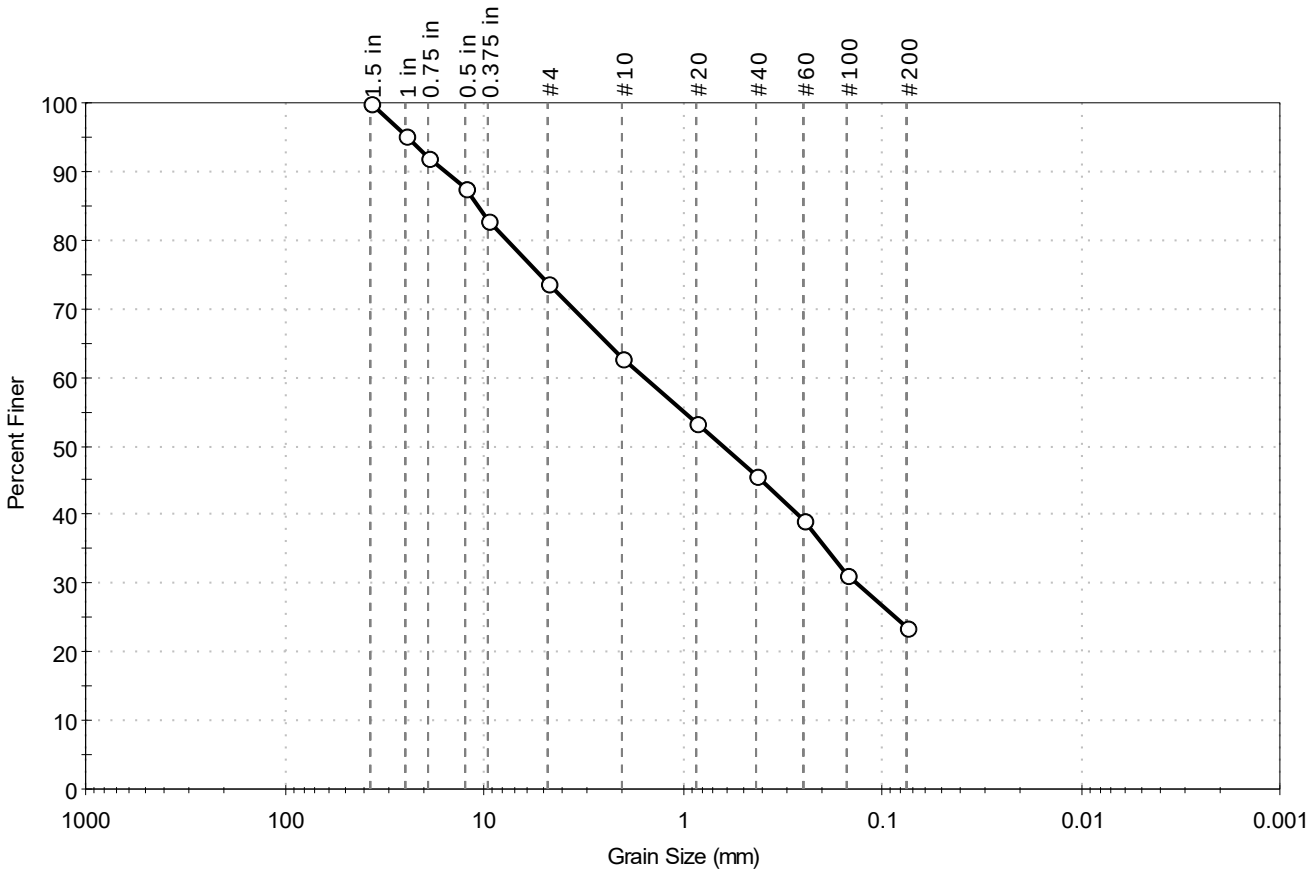
Sand/Gravel Hardness : HARD

printed 1/30/2017 12:49:50 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	jbr
Sample ID:	S4	Test Date:	01/26/17	Checked By:	emm
Depth :	10-12 ft	Test Id:	402818		

Test Comment: ---
Visual Description: Moist, dark grayish brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	26.2	50.1	23.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	95		
0.75 in	19.00	92		
0.5 in	12.50	88		
0.375 in	9.50	83		
#4	4.75	74		
#10	2.00	63		
#20	0.85	53		
#40	0.42	46		
#60	0.25	39		
#100	0.15	31		
#200	0.075	24		

Coefficients

D_{85} = 10.7832 mm	D_{30} = 0.1339 mm
D_{60} = 1.5628 mm	D_{15} = N/A
D_{50} = 0.6284 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

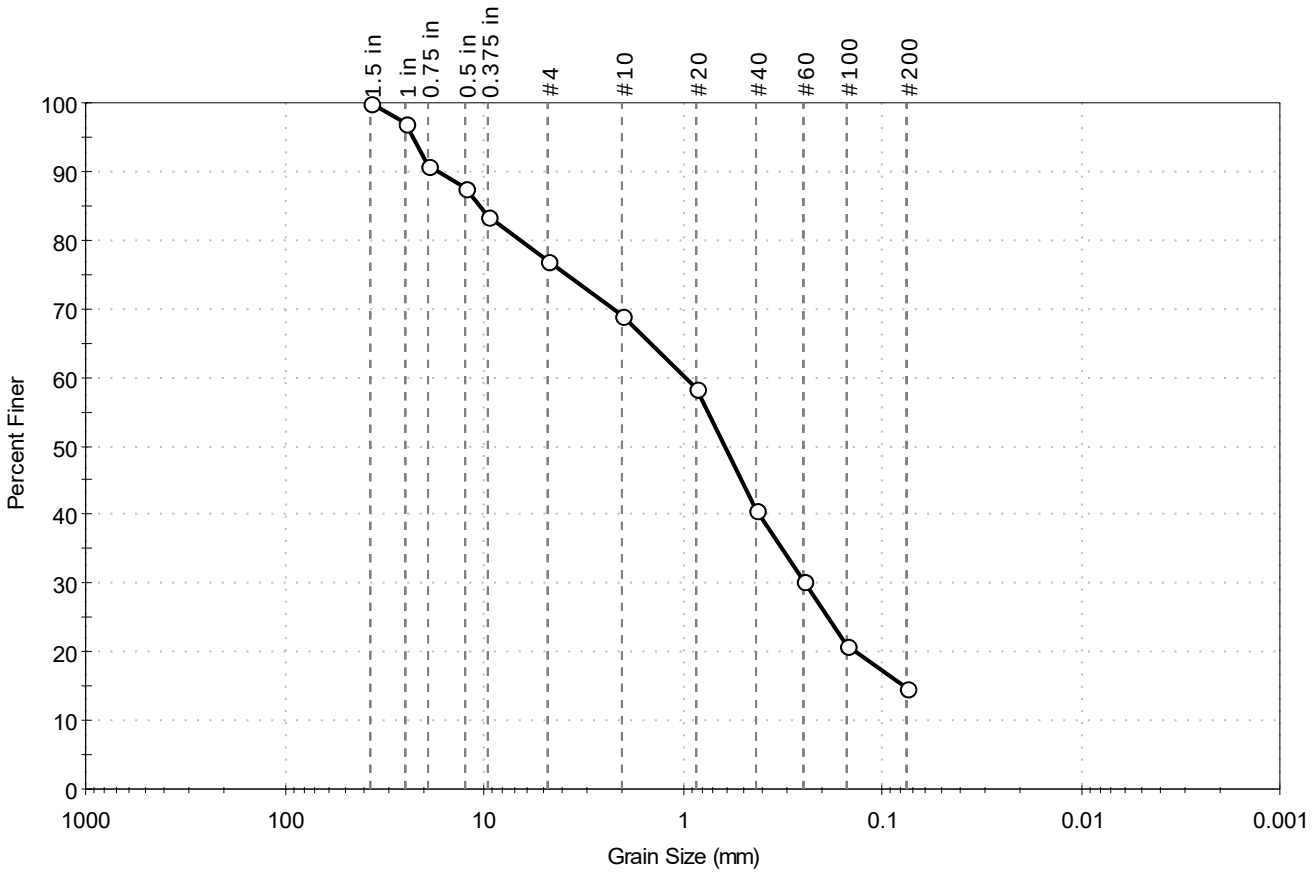
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:49:50 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S1+S2	Test Date:	01/26/17	Checked By:	emm
Depth :	0-4 ft	Test Id:	402831		
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
—	22.8	62.4	14.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	97		
0.75 in	19.00	91		
0.5 in	12.50	88		
0.375 in	9.50	83		
#4	4.75	77		
#10	2.00	69		
#20	0.85	58		
#40	0.42	41		
#60	0.25	31		
#100	0.15	21		
#200	0.075	15		

Coefficients

D_{85} = 10.5533 mm	D_{30} = 0.2430 mm
D_{60} = 0.9640 mm	D_{15} = 0.0771 mm
D_{50} = 0.6109 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

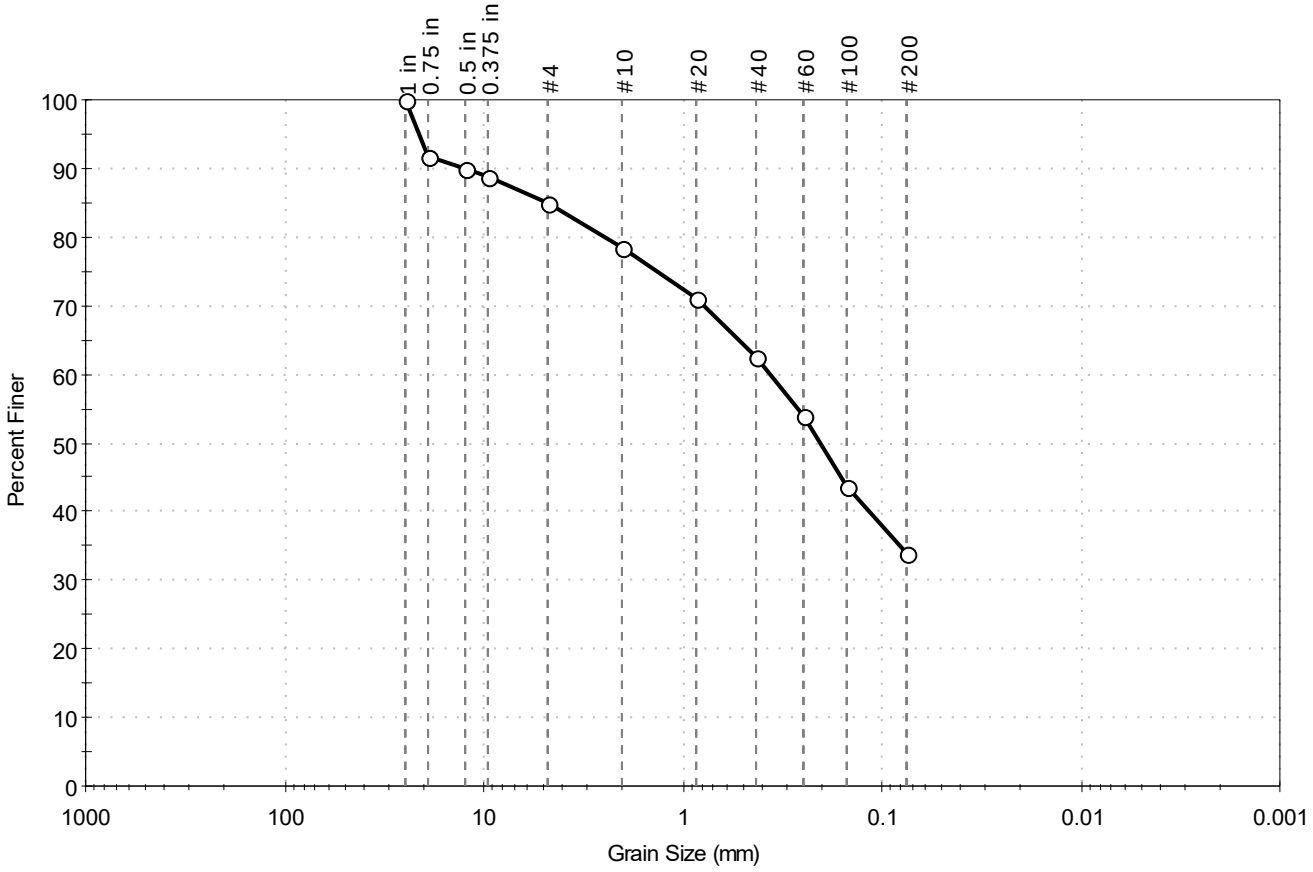
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:00 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S3A	Test Date:	01/26/17	Checked By:	emm
Depth :	4.5-6 ft	Test Id:	402832		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	14.9	51.3	33.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	90		
0.375 in	9.50	89		
#4	4.75	85		
#10	2.00	79		
#20	0.85	71		
#40	0.42	62		
#60	0.25	54		
#100	0.15	44		
#200	0.075	34		

Coefficients

D_{85} = 4.6875 mm D_{30} = N/A

D_{60} = 0.3643 mm D_{15} = N/A

D_{50} = 0.2054 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

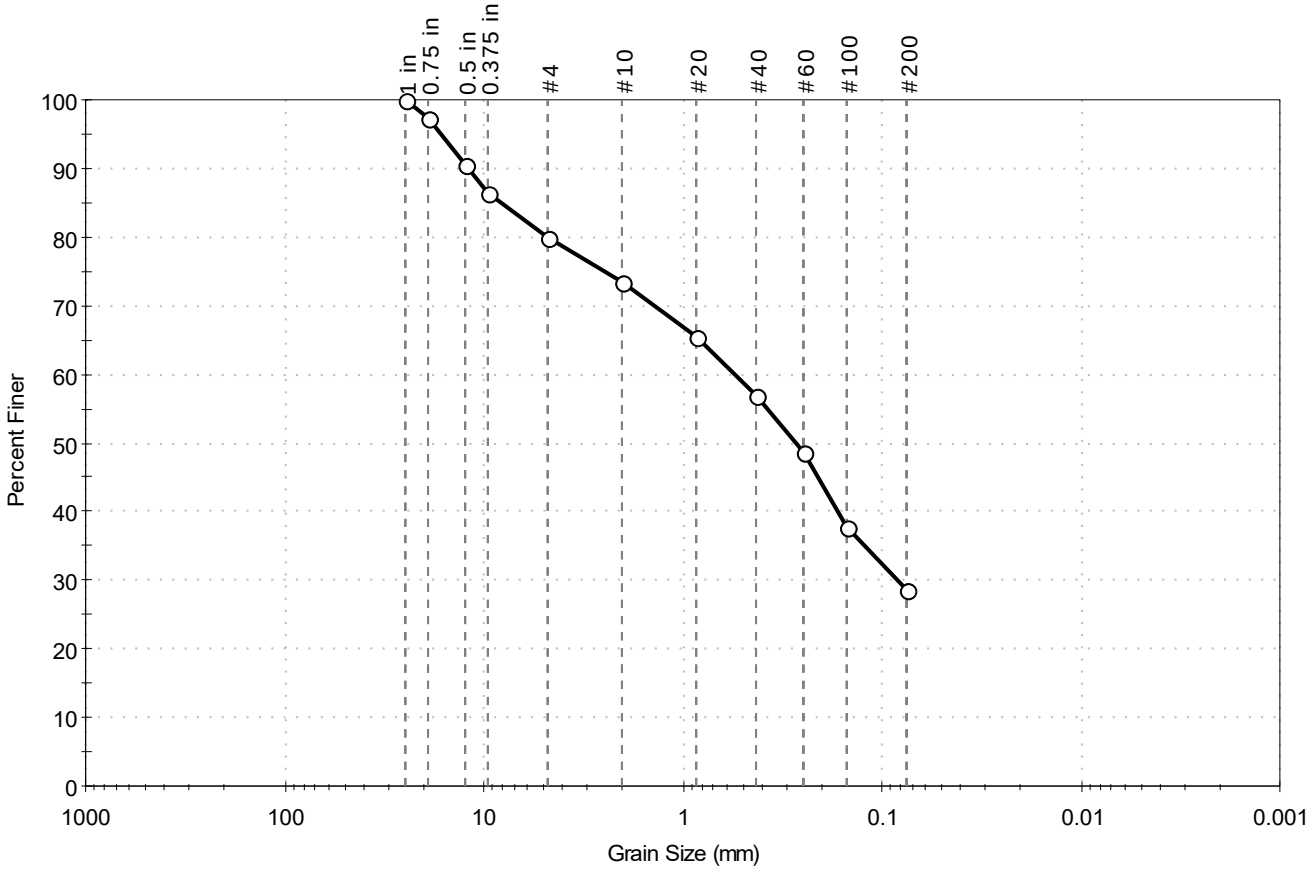
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:01 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S5	Test Date:	01/26/17	Checked By:	emm
Depth :	10-12 ft	Test Id:	402833		
Test Comment:	---				
Visual Description:	Moist, very dark grayish olive silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	20.1	51.4	28.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	90		
0.375 in	9.50	87		
#4	4.75	80		
#10	2.00	73		
#20	0.85	65		
#40	0.42	57		
#60	0.25	49		
#100	0.15	38		
#200	0.075	29		

Coefficients

D_{85} = 8.0823 mm	D_{30} = 0.0837 mm
D_{60} = 0.5425 mm	D_{15} = N/A
D_{50} = 0.2722 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

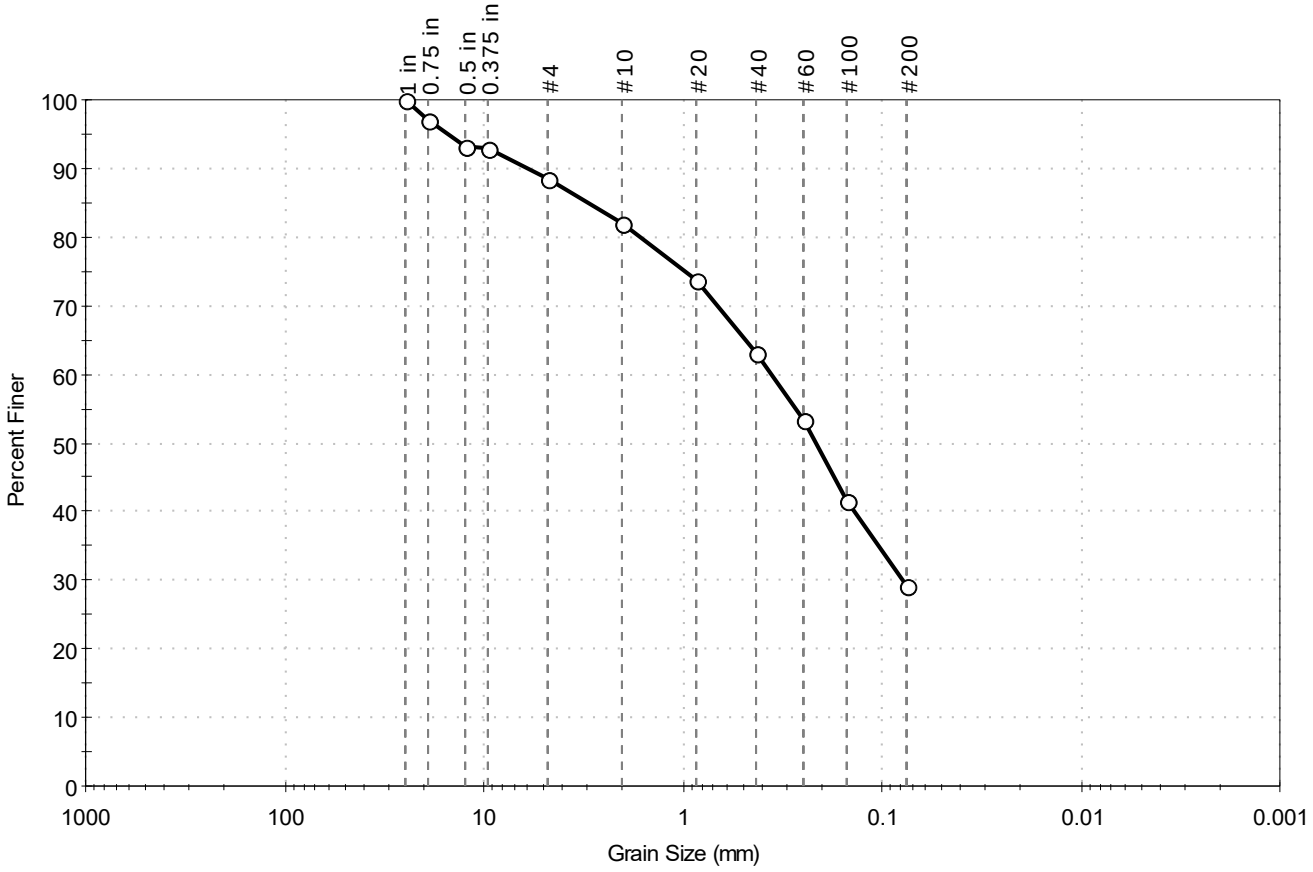
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:01 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S6	Test Date:	01/26/17	Checked By:	emm
Depth :	15-17 ft	Test Id:	402834		
Test Comment:	---				
Visual Description:	Moist, dark gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	11.5	59.4	29.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	97		
0.5 in	12.50	93		
0.375 in	9.50	93		
#4	4.75	88		
#10	2.00	82		
#20	0.85	74		
#40	0.42	63		
#60	0.25	53		
#100	0.15	41		
#200	0.075	29		

Coefficients

D_{85} = 2.9704 mm	D_{30} = 0.0789 mm
D_{60} = 0.3574 mm	D_{15} = N/A
D_{50} = 0.2163 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

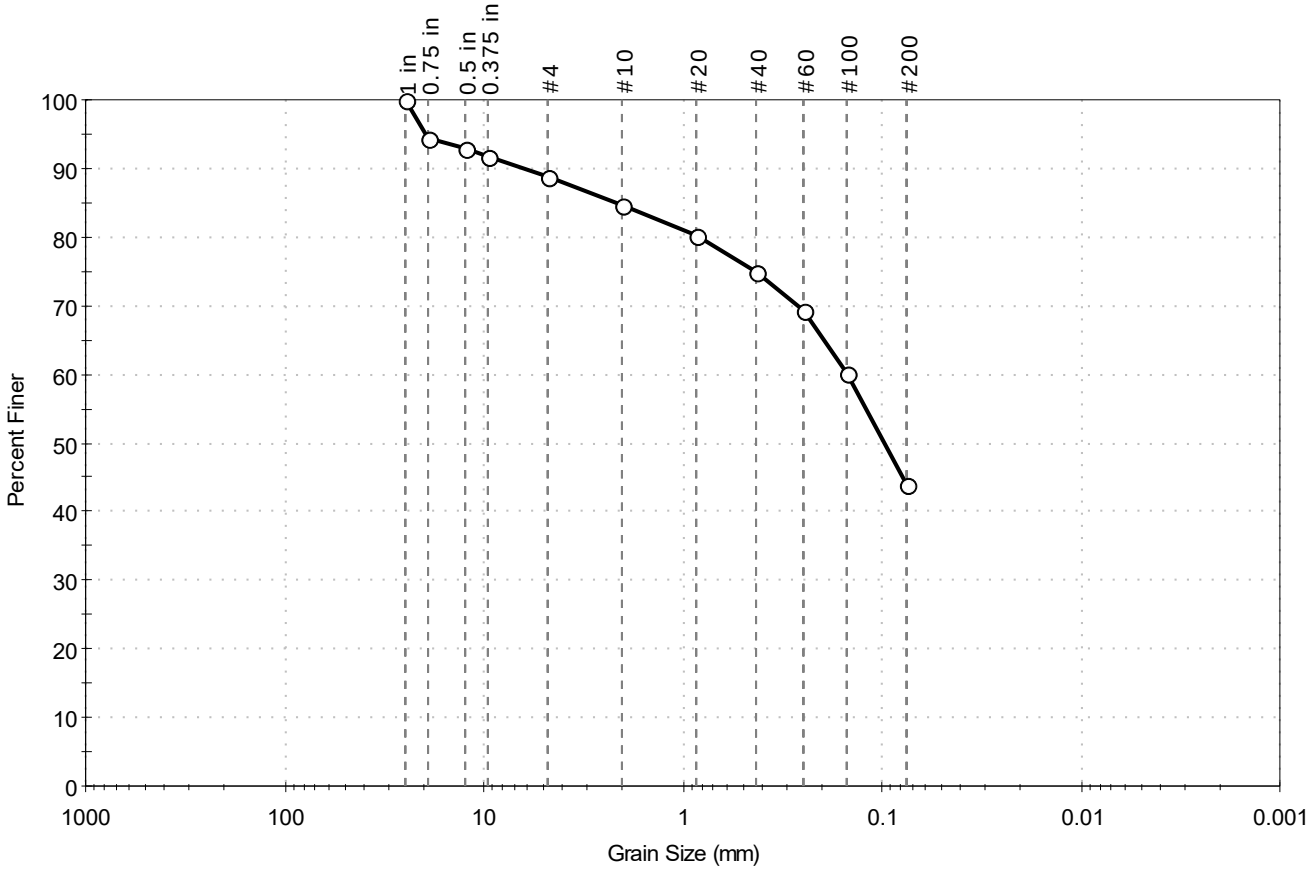
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:02 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S7	Test Date:	01/26/17	Checked By:	emm
Depth :	25-27 ft	Test Id:	402835		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	11.4	44.8	43.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	93		
0.375 in	9.50	92		
#4	4.75	89		
#10	2.00	85		
#20	0.85	80		
#40	0.42	75		
#60	0.25	69		
#100	0.15	60		
#200	0.075	44		

Coefficients

D_{85} = 2.1782 mm D_{30} = N/A

D_{60} = 0.1497 mm D_{15} = N/A

D_{50} = 0.0976 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

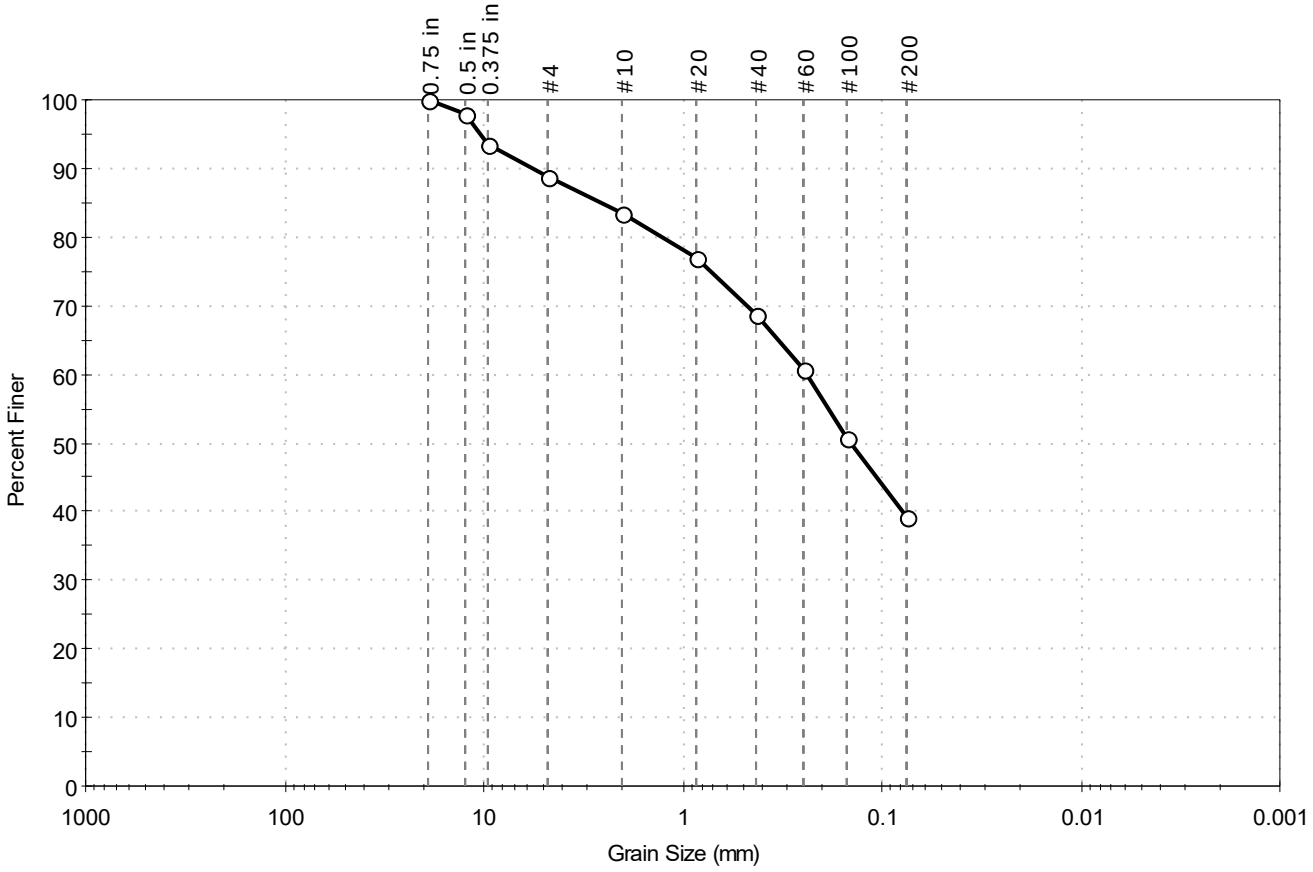
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

printed 1/30/2017 12:50:02 PM

Client:	Haley & Aldrich, Inc.				
Project:	Portland Co. Redevelopment				
Location:	Portland, ME			Project No:	GTX-305912
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	jbr
Sample ID:	S8	Test Date:	01/26/17	Checked By:	emm
Depth :	30-32.6 ft	Test Id:	402836		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	11.3	49.5	39.2

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	98		
0.375 in	9.50	94		
#4	4.75	89		
#10	2.00	83		
#20	0.85	77		
#40	0.42	69		
#60	0.25	61		
#100	0.15	51		
#200	0.075	39		

Coefficients

D_{85} = 2.5914 mm D_{30} = N/A

D_{60} = 0.2408 mm D_{15} = N/A

D_{50} = 0.1441 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

printed 1/30/2017 12:50:03 PM

2007 S.W. Cole Engineering, Inc.
Laboratory Test Results

S.W.COLE ENGINEERING, INC.

Report of Gradation

ASTM C-117 & C-136

Project Name: PORTLAND - PROPOSED DEVELOPMENT - PORTLAND YACHT SERVICES SITE - PRELIMINARY GEOTECHNICAL ENGINEERING

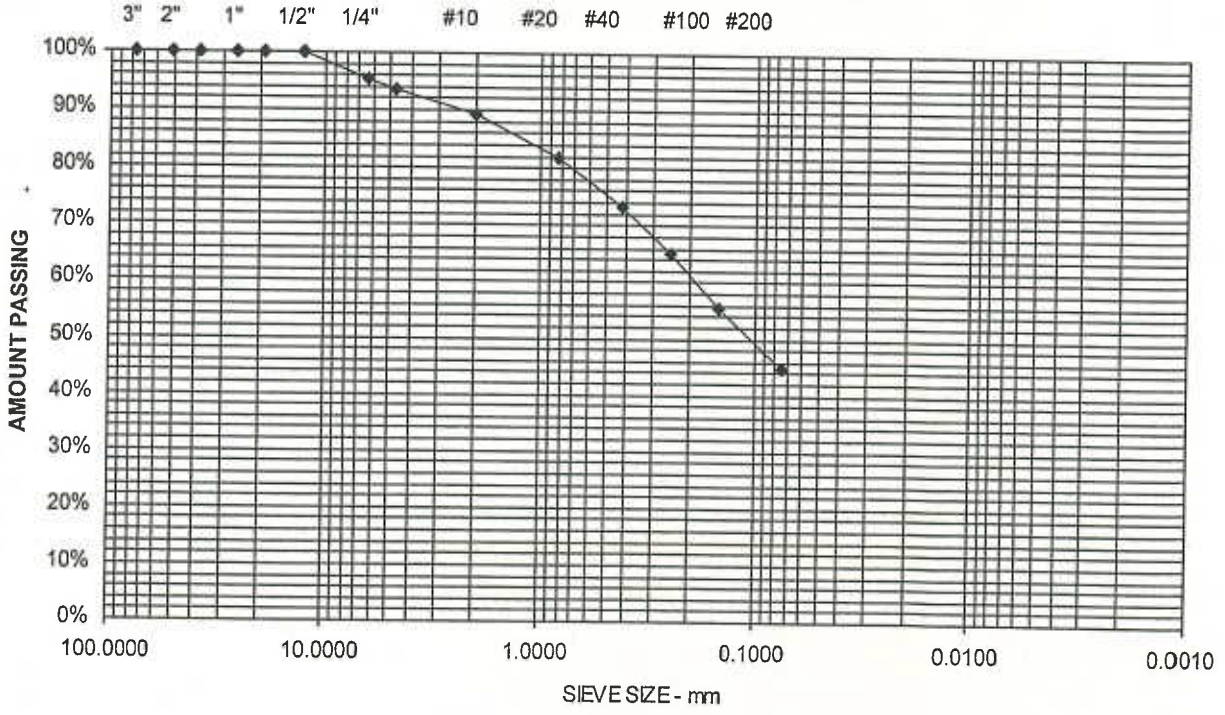
Client: PHINEAS SPRAGUE

Material Source: **B-4 S2 5-7**

Project Number: 07-0792
Lab ID: 7545G
Date Received: 9/28/2007
Date Complete: 10/2/2007
Tested By: JUSTIN BISSON

STANDARD DESIGNATION (mm/µm)	SIEVE SIZE	AMOUNT PASSING (%)	
150 mm	6"	100	
125 mm	5"	100	
100 mm	4"	100	
75 mm	3"	100	
50 mm	2"	100	
38.1 mm	1-1/2"	100	
25.0 mm	1"	100	
19.0 mm	3/4"	100	
12.5 mm	1/2"	100	
6.3 mm	1/4"	95	
4.75 mm	No. 4	94	6.4% Gravel
2.00 mm	No. 10	89	
850 um	No. 20	82	
425 um	No. 40	73	48.7% Sand
250 um	No. 60	65	
150 um	No. 100	56	
75 um	No. 200	44.8	44.8% Fines

SAND AND SILT, SOME GRAVEL



Comments: w = 8.5%

Sheet

APPENDIX D

Historic Drawings and Sanborn Maps

Sanborn Maps

58 Fore Street Portland, Maine

58 Fore Street

Portland, ME 04101

Inquiry Number: 4691431.1

August 04, 2016

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

08/04/16

Site Name:

58 Fore Street Portland, Maine
58 Fore Street
Portland, ME 04101
EDR Inquiry # 4691431.1

Client Name:

Haley & Aldrich, Inc.
75 Washington Ave.
Portland, ME 04101-2617
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:

Certification # 671C-4B65-A45B

PO # 39486-872

Project 39486-872

Maps Provided:

1988
1986
1980
1954
1949
1909
1896
1886

Sanborn® Library search results

Certification #: 671C-4B65-A45B

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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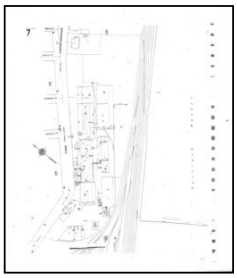
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1988 Source Sheets


Volume 1, Sheet 5
1988

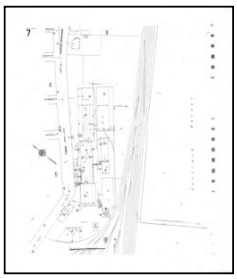

Volume 1, Sheet 6
1988


Volume 1, Sheet 7
1988

1986 Source Sheets


Volume 1, Sheet 5
1986


Volume 1, Sheet 6
1986


Volume 1, Sheet 7
1986

1980 Source Sheets


Volume 1, Sheet 5
1980

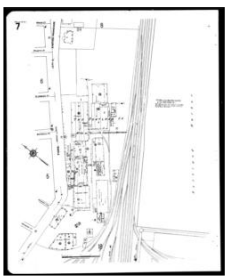

Volume 1, Sheet 6
1980


Volume 1, Sheet 7
1980

1954 Source Sheets


Volume 1, Sheet 5
1954


Volume 1, Sheet 6
1954


Volume 1, Sheet 7
1954

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

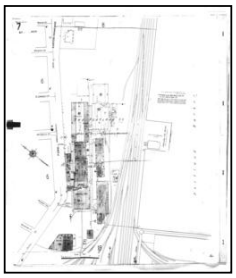
1949 Source Sheets



Volume 1, Sheet 5
1949

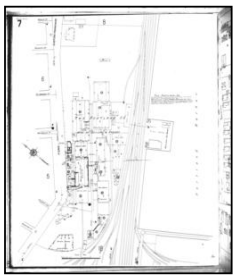


Volume 1, Sheet 6
1949



Volume 1, Sheet 7
1949

1909 Source Sheets



Volume 1, Sheet 7
1909

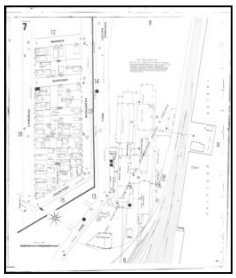


Volume 1, Sheet 5
1909



Volume 1, Sheet 6
1909

1896 Source Sheets



Volume 1, Sheet 7
1896



Volume 1, Sheet 13
1896

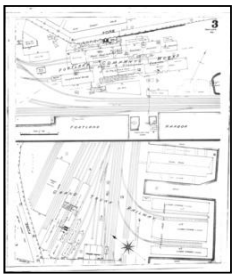


Volume 1, Sheet 14
1896

1886 Source Sheets



Volume 1, Sheet 2
1886



Volume 1, Sheet 3
1886



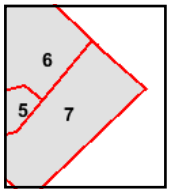
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Certification #671C-4B65-A45B

Site Name: 58 Fore Street Portland, Maine
Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1988

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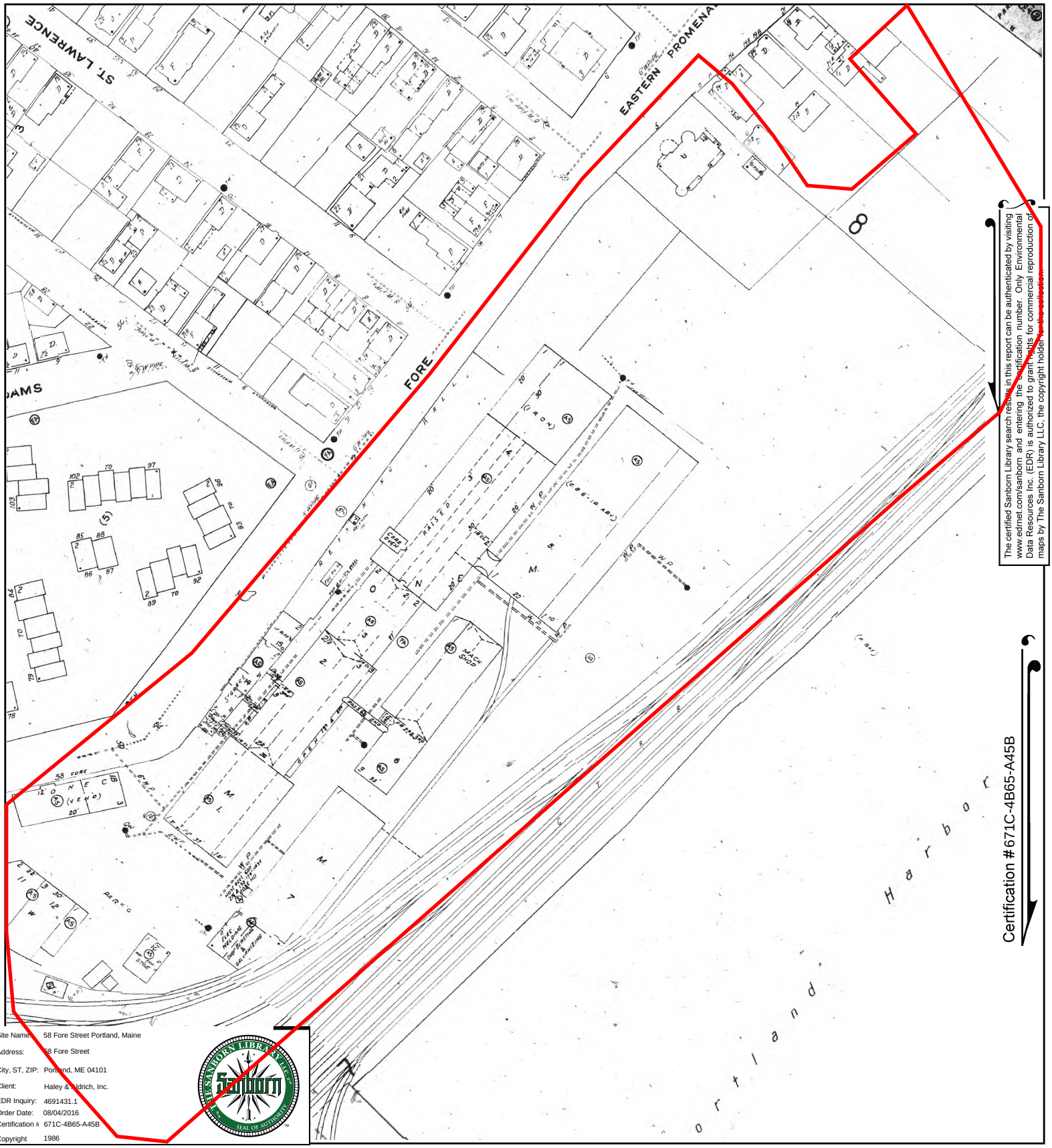




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

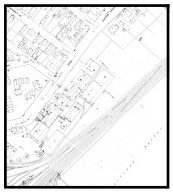
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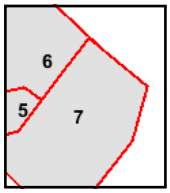


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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
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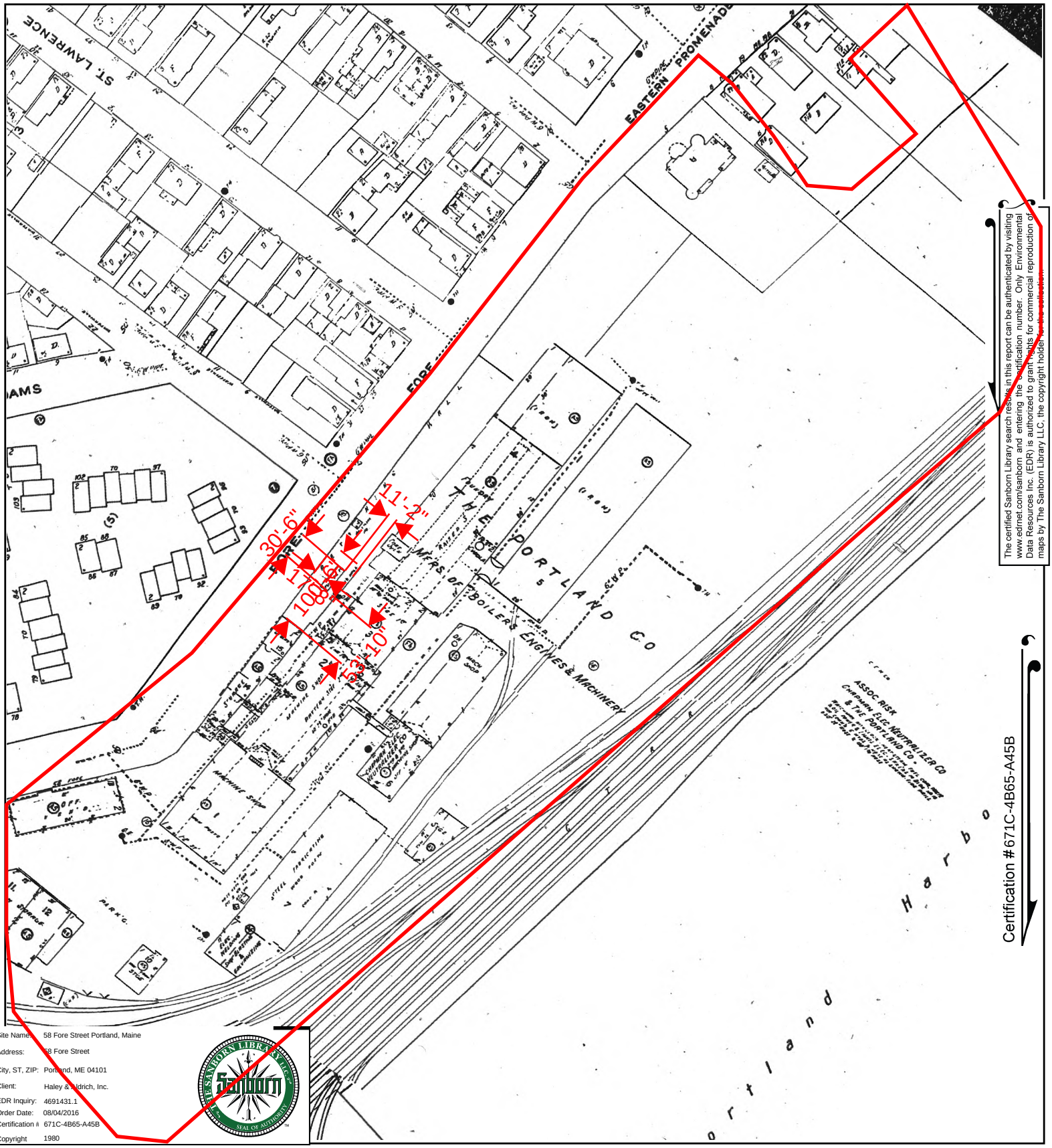




Volume 1, Sheet 7
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Volume 1, Sheet 5

0 Feet 150 300 600

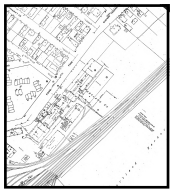
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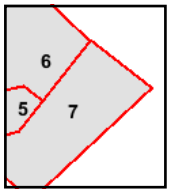


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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1980

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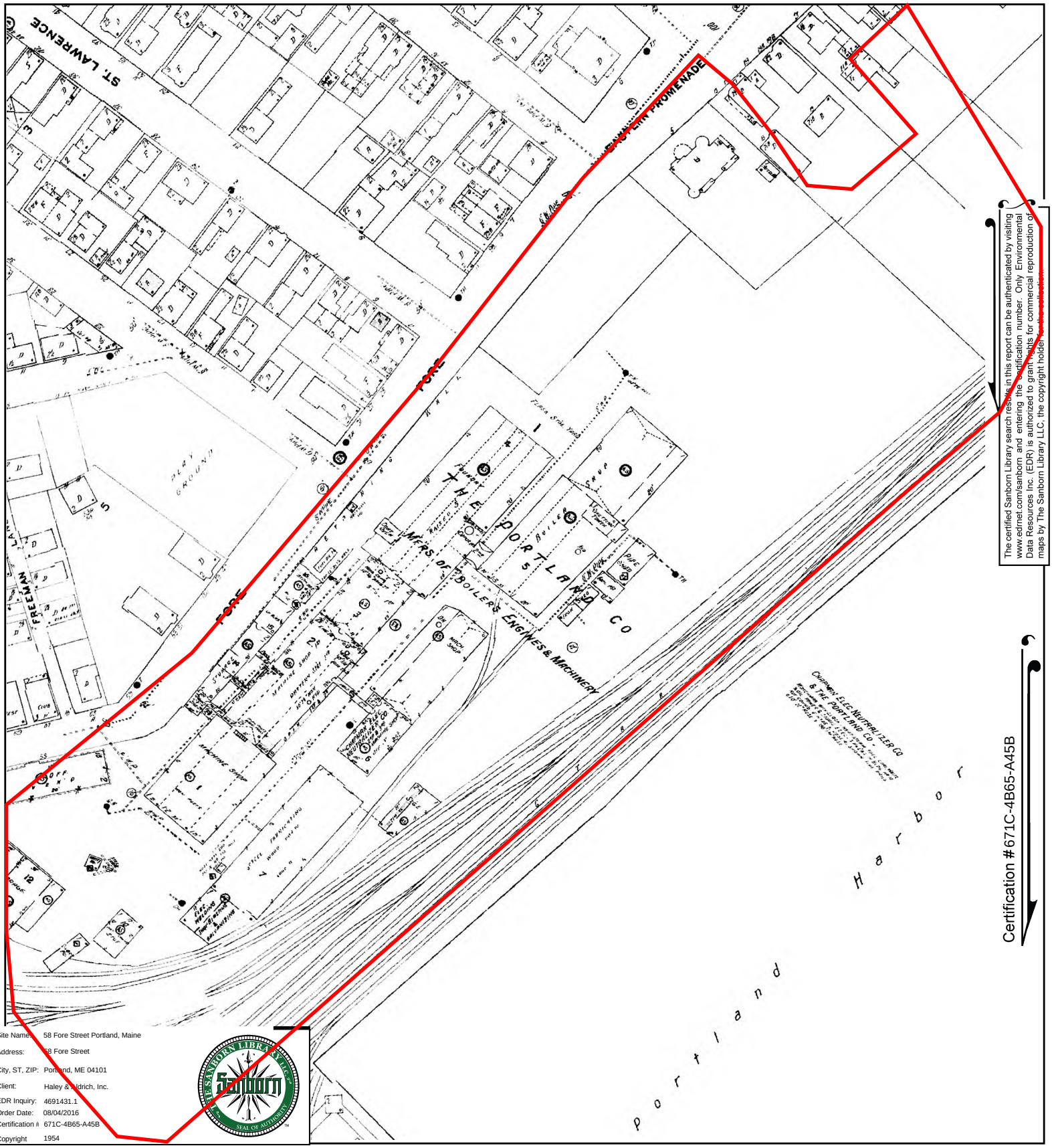




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

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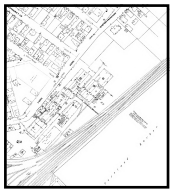


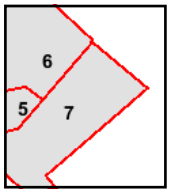
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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1954

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Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

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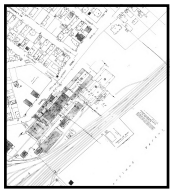


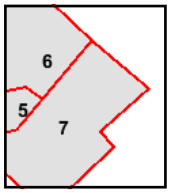
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City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1949

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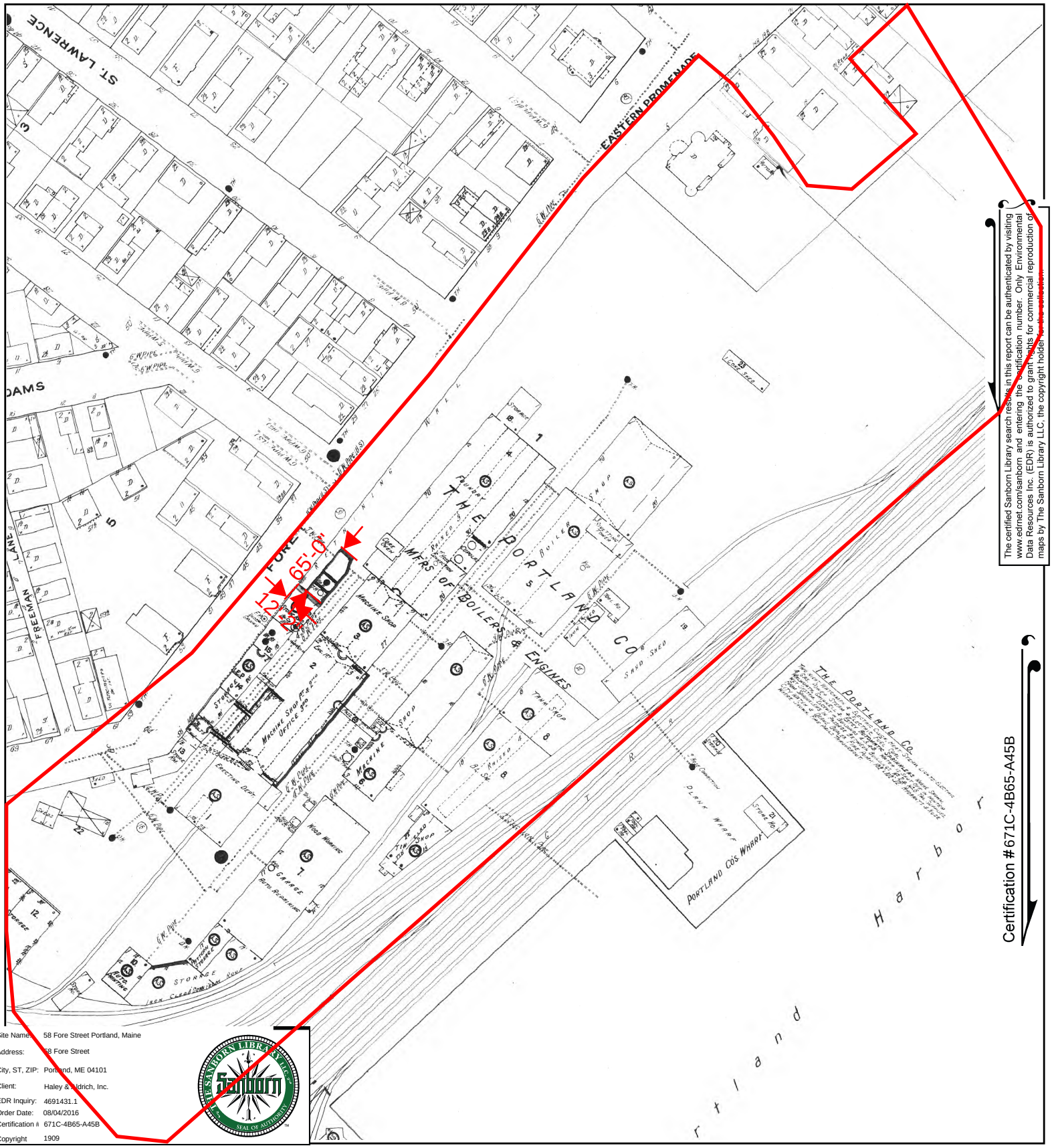




Volume 1, Sheet 7
Volume 1, Sheet 6
Volume 1, Sheet 5

0 Feet 150 300 600

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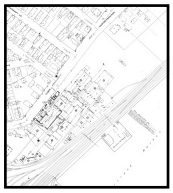


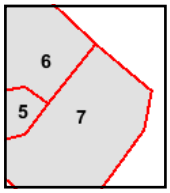
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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1909

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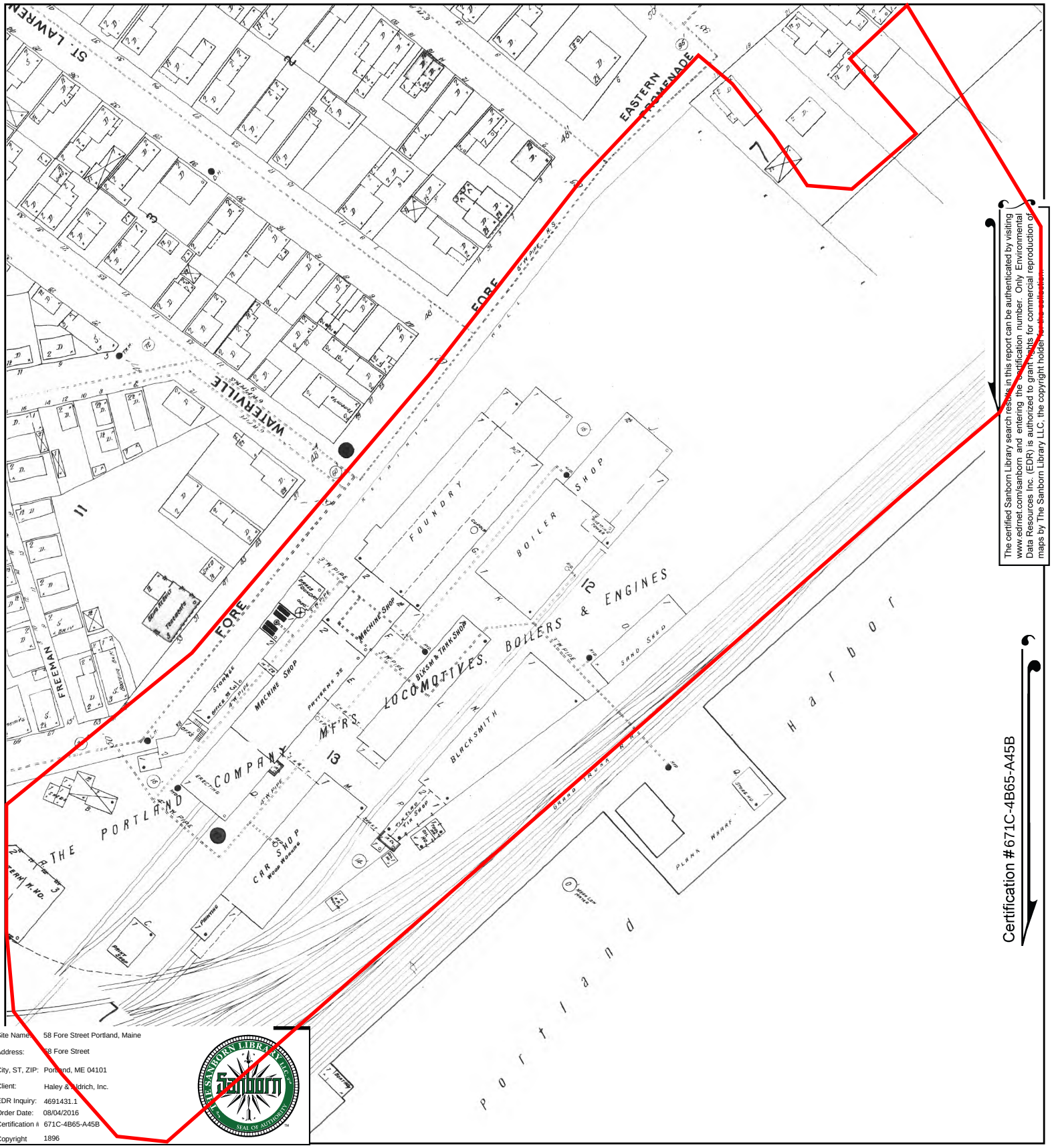




Volume 1, Sheet 6
Volume 1, Sheet 5
Volume 1, Sheet 7

0 Feet 150 300 600

N

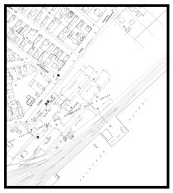


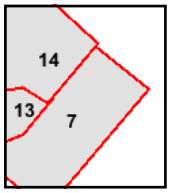
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Address: 58 Fore Street
City, ST, ZIP: Portland, ME 04101
Client: Haley & Aldrich, Inc.
EDR Inquiry: 4691431.1
Order Date: 08/04/2016
Certification #: 671C-4B65-A45B
Copyright: 1896

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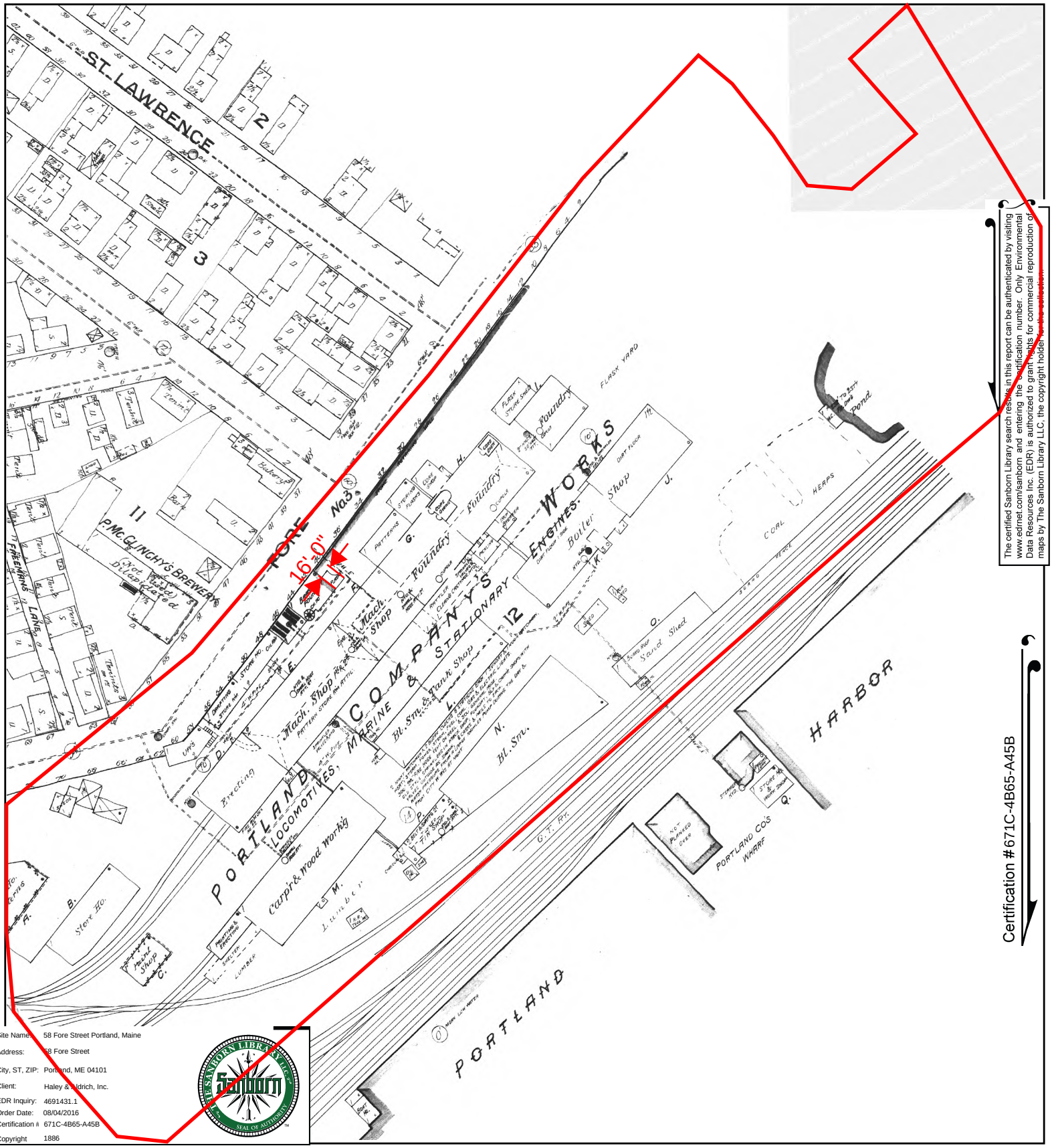




Volume 1, Sheet 14
Volume 1, Sheet 13
Volume 1, Sheet 7

0 Feet 150 300 600

N



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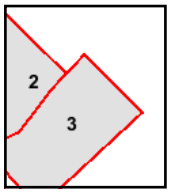
Certification #671C-4B65-A45B

Site Name:	58 Fore Street Portland, Maine
Address:	58 Fore Street
City, ST, ZIP:	Portland, ME 04101
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	4691431.1
Order Date:	08/04/2016
Certification #:	671C-4B65-A45B
Copyright	1886

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0 Feet 150 300 600





Volume 1, Sheet 3
Volume 1, Sheet 2

N

1873 Fore Street
Retaining Wall Drawings

WATERVILLE ST.

FORE ST.

ST. LAWRENCE ST.

ATLANTIC ST.

MUNJOY ST.

PROMENADE

CISTERN

PORTLAND COMPANY WORKS

POND

PLAN
OF
FORE ST.
ADJOINING
PORTLAND CO'S WORKS

Survey and Plan made under the direction of
Wm. A. Goodwin, C.C.E. by Wm. S. Edwards, 1st Asst.

Scale 30 ft. to 1 inch *November, 1873*

Wm. A. Goodwin.
C. C. Engr.

Drawer F

FORE ST.

OPPOSITE PORTLAND CO WORKS.

(Signed) Wm Alexander
C.E. Engr.
Nov. 1873.

Sta. 0

Sta. 0+50

Sta. 1

Sta. 1+50

Sta. 2

Sta. 2+50

Sta. 3

Sta. 3+50

Elev. of Terrace

E. Line

St line

To be filled with earth.

Ridge of Bank in Street

Wall Ends at 3+70

East Line

Scale of Feet

Face of Wall at Top to be on Street Line
Base of Wall to be ½ height in thickness
Top " " " 5 feet "

Base to be 3 feet beneath surface at St line
Batter 1 in ½ to 1 foot.

Grade of Street and Top of Wall

Top of Terrace 1st

Slope of Terrace

Top of Terrace 2nd

Beginning of Wall

End of Wall

End of Building

W. Line of Waterville St.

E. Line Waterville St.

W. Line St Lawrence St.

E. Line St Lawrence St.

Angle

Scale of Feet

1876 Fore Street
Retaining Wall Agreement

368
368

434 - 368

Portland Company to Portland City

Agreement.

These articles of agreement entered into by and between the City of Portland, and the Portland Company a corporation duly existing under the laws of the State of Maine, this ninth day of November A. D. 1876.

Witness:

1st That in consideration of the agreement in the 2d. article following, said Portland Company hereby gives grants, bargains and sells to the city the right to put upon the land of said company to an extent not exceeding four feet in width at the base throughout its entire length, the wall now in process of erection on the line between Fore street in said city and the real estate of said Compy and to maintain the same forever, with right of entry upon the lands of said Compy for purposes of repair.

And said Compy further agrees that the embankment which will sustain said wall shall not in any way or under any pretense be disturbed, dug away, removed or the slope diminished except under the restrictions following, viz:

If the said Compy or its successors or assigns, owners of said land shall desire to disturb, dig, away or remove said embankment or diminish said slope it its successors and assigns, shall substitute without expense to the city, a complete and sufficient permanent support for said wall.

2d. Said city in consideration of the foregoing, hereby gives, grants, bargains and sells to said Compy the right to put upon said wall within the line of said Company's land, any wall of brick or stone which said Compy desire or may desire put thereon, consistent with the safety and stability of said wall.

Witness to E. M. Davies
G. F. M.
Rufus D. Bean

Portland Company,
By E. M. Davies, Prest.
Countersigned by
Geo. F. Morrill, Treas.

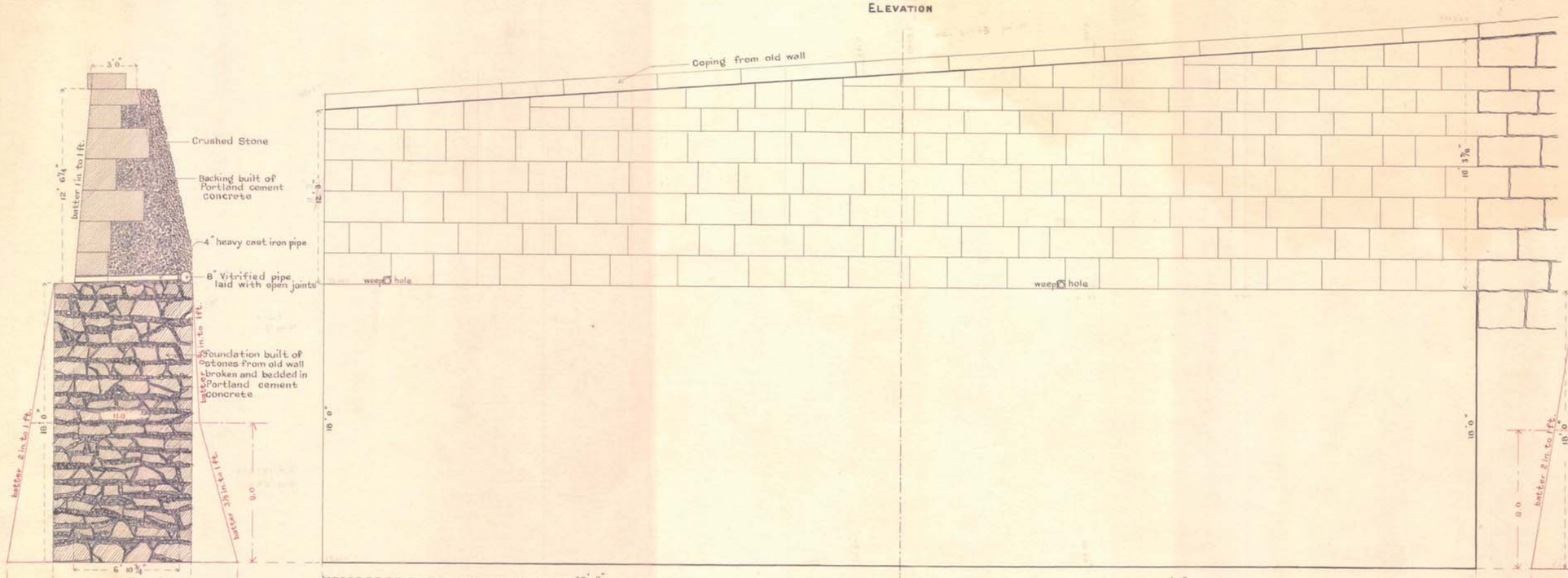
Witness:
M. S. Robinson
to F. H.
Francis Feldmeier
Mayor.

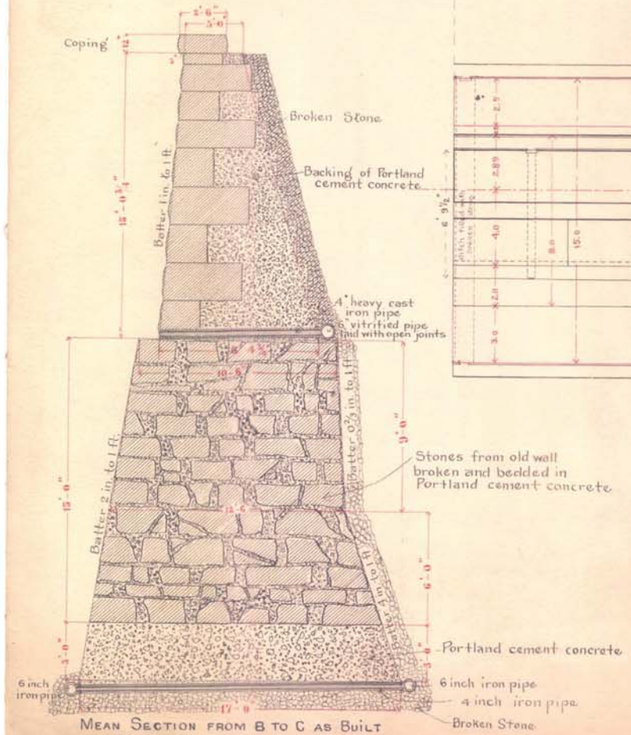
State of Maine, Cumberland, ss. November 10th 1876.
Personally appeared Edward M. Davies and acknowledged the foregoing instrument to be the free act and deed of the Portland Company,
Before me. M. S. Robinson, Justice of the Peace.
Received, Nov. 10, 1876, at 1 h. 2 m. P. M. and recorded according to the original,
Attest: Henry C. Houston. Register.

1896 Fore Street
Retaining Wall Drawing

377/6

ELEVATION





CITY OF PORTLAND

PLAN FOR REBUILDING

FORE ST. RETAINING WALL

SCALE 1/4 INCH TO 1 FOOT

APRIL 1896

Geo. Ferrald

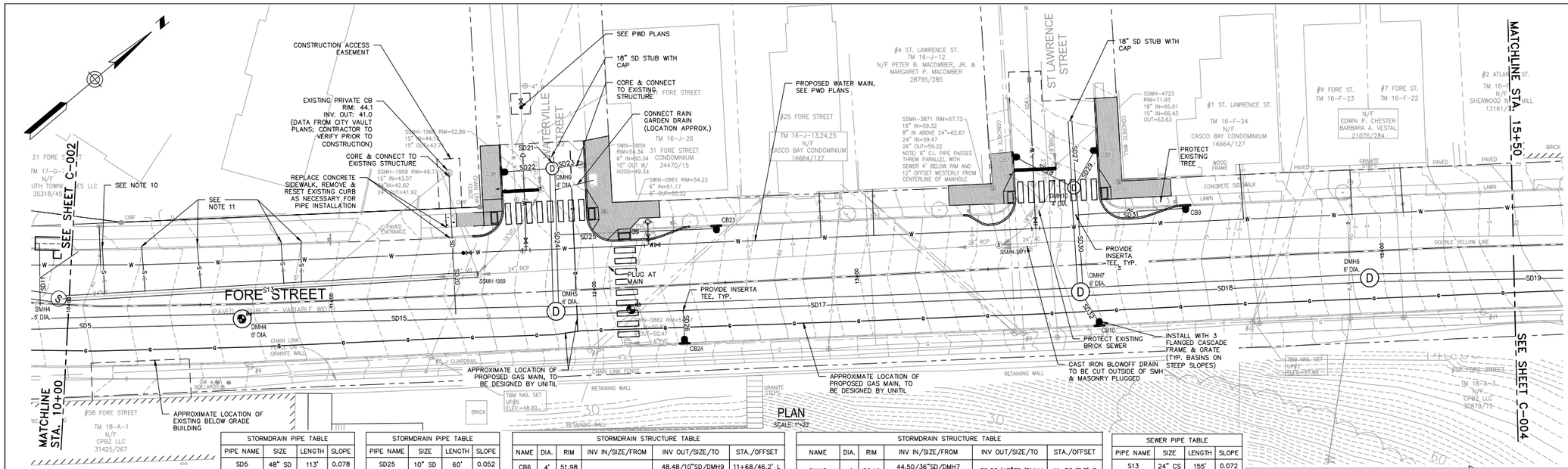
CITY ENGINEER

Foundation of wall built as shown by red lines

Underdrains of 6" pipe with 4" laterals. Outlet of 6" pipe discharging into Portland Co's reservoir

377/16

2022 Fore Street
Sewer Drawings



PLAN NOTES:

1. PROPOSED STORM DRAIN SHALL BE REINFORCED CONCRETE OR ADS HPPP (MIN. PS 46) UNLESS OTHERWISE NOTED.
2. PROPOSED SANITARY SEWER SHALL BE SCH40 PVC OR ADS SANITITE UNLESS OTHERWISE NOTED.
3. PROPOSED WATER MAIN TO BE DUCTILE IRON UNLESS OTHERWISE NOTED.
4. MILL & OVERLAY AREAS SHALL BE MILLED TO A DEPTH OF 1.5" AND OVERLAID WITH NEW PAVEMENT.
5. PROPOSED NATURAL GAS MAIN SHOWN FOR REFERENCE ONLY. DESIGN & CONSTRUCTION TO BE PERFORMED BY OTHERS..
6. REFER TO PWD PLANS FOR PROPOSED WATER MAIN NOTES & DETAILS.
7. PROPOSED SIDEWALK & CURB ON SOUTHEAST SIDE OF FORE STREET (STA. 7+95 TO STA. 16+55) TO BE COMPLETED BY OTHERS.
8. USE CASCADE FRAME & GRATE FOR ALL CATCH BASINS ON GRADES STEEPER THAN 5%
9. ALL SEWER LATERALS SHALL BE A MINIMUM OF 6" PVC SDR-35. IF A 4" LATERAL IS CONNECTED THE CONTRACTOR SHALL CONNECT THE NEW PIPE TO THE EXISTING PIPE WITH A 4"X6" FLEXIBLE COUPLING FITTING.
10. PRESUMED ACTIVE MUNJOY SOITH SEWER CONNECTION
11. PRESUMED ABANDONED LATERAL. CONTRACTOR TO FIELD VERIFY ABANDONMENT & COORDINATE WITH CITY. IF CONFIRMED, LATERAL SHALL NOT BE CONNECTED TO CITY SANITARY SEWER

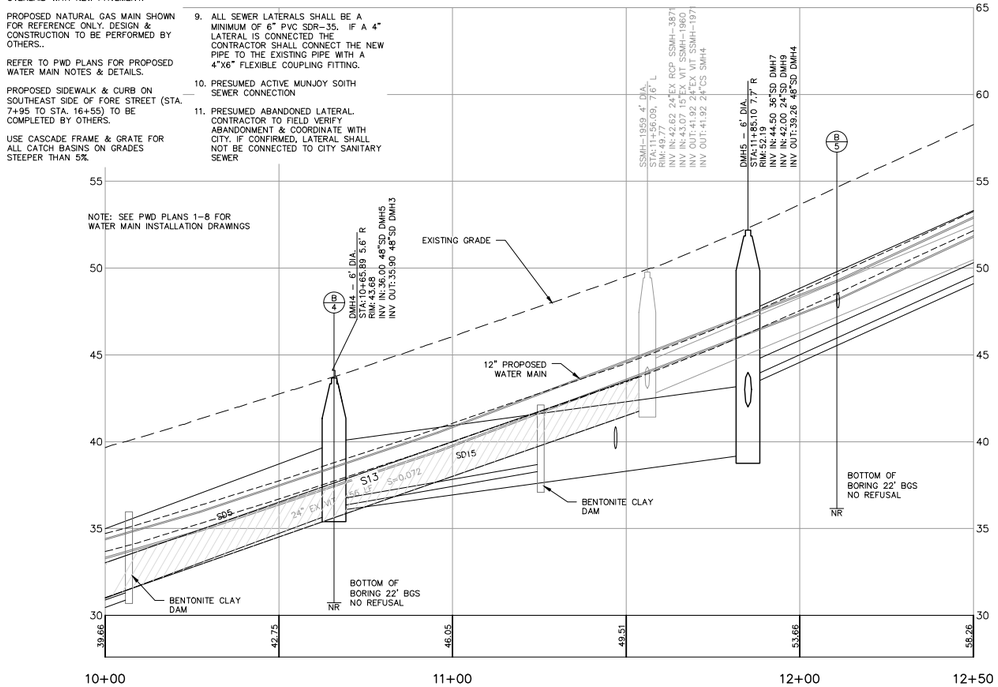
STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD5	48" SD	113'	0.078
SD15	48" SD	114'	0.029
SD17	36" SD	194'	0.092
SD18	36" SD	104'	0.096
SD19	36" SD	119'	0.029
SD20	15" SD	52'	0.010
SD21	18" PVC	3'	0.050
SD22	10" SD	15'	0.009
SD23	10" SD	7'	0.124
SD24	24" SD	49'	0.020

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD25	10" SD	60'	0.052
SD26	10" SD	9'	0.036
SD27	18" SD	24'	0.097
SD28	10" SD	21'	0.009
SD29	10" SD	12'	0.077
SD30	24" SD	35'	0.011
SD31	10" SD	40'	0.043
SD32	10" PVC	9'	0.295

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
CB6	4'	51.98		48.48/10"SD/DMH9	11+68/46.2' L
CB7	4'	70.98		67.09/10"SD/DMH10	13+62/42.1' L
CB8	4'	73.10		68.15/10"SD/DMH10	13+93/43.2' L
CB9	4'	74.18		67.91/10"SD/	14+26/19.5' L
CB10	4'	70.98		67.15/10"PVC/DMH7	13+91/22.5' R
CB23	4'	57.98	51.17/6"EX UD/	50.32/10"SD/	12+48/20.7' L
CB24	4'	56.70	50.82/6"EX UD/	50.47/10"SD/	12+33/21.2' R
DMH4	6'	43.68	36.00/48"SD/DMH5	35.90/48"SD/DMH3	10+66/5.6' R

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
DMH5	6'	52.19	44.50/36"SD/DMH7 42.00/24"SD/DMH9	39.26/48"SD/DMH4	11+85/7.7' R
DMH7	6'	70.52	62.48/36"SD/DMH8 65.10/24"SD/DMH10 64.50/10"PVC/CB10	62.38/36"SD/DMH5	13+85/10.3' R
DMH8	6'	80.54	72.65/36"SD/DMH11	72.55/36"SD/DMH7	14+95/10.2' R
DMH9	4'	53.84	48.35/10"SD/CB6 48.42/10"SD/SWN-0859 47.85/18"PVC/	43.00/24"SD/DMH5	11+86/46.7' L
DMH10	4'	71.32	66.89/10"SD/CB7 66.10/18"SD/ 67.20/10"SD/CB8	65.50/24"SD/DMH7	13+84/29.4' L
EX CB	4'	44.00	41.10/10"EX SD/	41.00/15"SD/	11+47/46.7' L
SWN-0859	4'	54.46	50.34/6"EX UD/	49.30/10"SD/DMH9	11+97/47.6' L

SEWER PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S13	24" CS	155'	0.072



PROFILE STA. 10+00 TO STA. 12+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

PROFILE STA. 12+50 TO STA. 15+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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Portland, Maine 04102
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COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

STATE OF MAINE — DARRIN B. SMITH — No. 15118 — REGISTERED PROFESSIONAL ENGINEER — 8/2/21

REV.	SUBMISSION	DATE
	ISSUED FOR CONSTRUCTION	8/2/21

PROJECT NAME:
FORE STREET/ EASTERN PROM. SEWER SEPARATION PROJECT

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS
212 CANCO ROAD, SUITE B, PORTLAND, MAINE 04103
PHONE (207) 874-8846 FAX (207) 874-8852

CITY OF PORTLAND RESURGAM

DESIGN BY:	KJT
DRAWN BY:	BCM
CHECKED BY:	DBS

SHEET NAME:
PLAN & PROFILE STA. 10+00 - 15+50

DATE: 04-2021

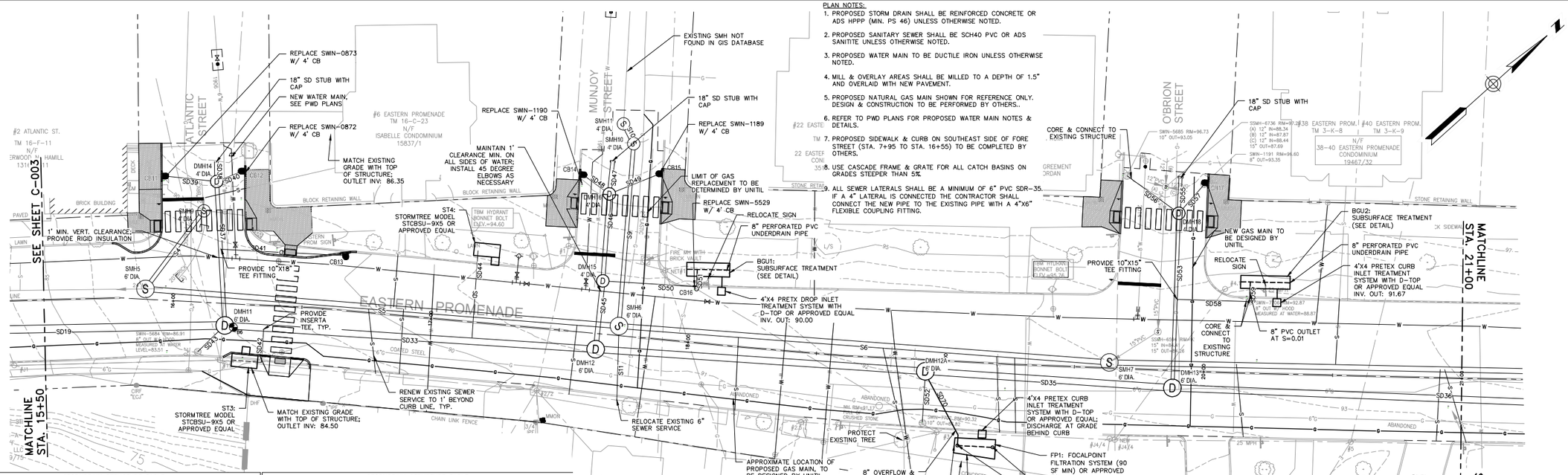
PAGE 9 OF 37

SHEET NO.: C-003 REV.:

VAULT #:

PLAN NOTES:

1. PROPOSED STORM DRAIN SHALL BE REINFORCED CONCRETE OR ADS HPPP (MIN. PS 46) UNLESS OTHERWISE NOTED.
2. PROPOSED SANITARY SEWER SHALL BE SCH40 PVC OR ADS SANITITE UNLESS OTHERWISE NOTED.
3. PROPOSED WATER MAIN TO BE DUCTILE IRON UNLESS OTHERWISE NOTED.
4. MILL & OVERLAY AREAS SHALL BE MILLED TO A DEPTH OF 1.5" AND OVERLAID WITH NEW PAVEMENT.
5. PROPOSED NATURAL GAS MAIN SHOWN FOR REFERENCE ONLY. DESIGN & CONSTRUCTION TO BE PERFORMED BY OTHERS..
6. REFER TO PWD PLANS FOR PROPOSED WATER MAIN NOTES & DETAILS.
7. PROPOSED SIDEWALK & CURB ON SOUTHEAST SIDE OF FORE STREET (STA. 7+95 TO STA. 16+55) TO BE COMPLETED BY OTHERS.
8. USE CASCADE FRAME & GRATE FOR ALL CATCH BASINS ON GRADES STEEPER THAN 5%.
9. ALL SEWER LATERALS SHALL BE A MINIMUM OF 6" PVC SDR-35. IF A 4" LATERAL IS CONNECTED THE CONTRACTOR SHALL CONNECT THE NEW PIPE TO THE EXISTING PIPE WITH A 4"X6" FLEXIBLE COUPLING FITTING.



PLAN
SCALE: 1"=20'

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
CB11	4'	89.88		85.60/10"SD/DMH14	15+94/48.0' L
CB12	4'	91.87		86.33/10"SD/DMH14	16+24/51.5' L
CB13	4'	89.99		86.18/10"SD/	16+65/21.2' L
CB14	4'	95.36		89.72/10"SD/DMH16	17+53/60.7' L
CB15	4'	95.60		90.43/10"SD/DMH16	17+85/63.9' L
CB16	4'	91.38	88.81/8"PVC/BGU1	86.90/10"SD/DMH15	18+01/21.6' L
CB17	4'	96.60		92.50/10"SD/DMH18	19+98/73.2' L
DMH11	6'	87.93	76.25/30"SD/DMH12 77.00/18"SD/DMH14 83.07/10"SD/SWN-5684	76.15/36"SD/DMH8	16+21/8.5' R
DMH12	6'	91.10	78.00/30"SD/DMH12A 83.00/21"SD/DMH15	77.90/30"SD/DMH11	17+65/6.1' R
DMH13	6'	92.83	79.54/30"SD/DMH19 87.93/15"SD/DMH18	79.44/30"SD/DMH12A	19+88/6.7' R
DMH14	4'	91.17	85.39/10"SD/CB11 85.40/10"SD/CB12 81.00/18"SD/	78.00/18"SD/DMH11	16+14/47.0' L

STORMDRAIN STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
DMH15	4'	91.82	86.00/18"SD/DMH16 86.32/10"SD/CB16	83.75/21"SD/DMH12	17+65/20.5' L
DMH16	4'	95.20	88.67/10"SD/CB14 88.67/10"SD/CB15 88.10/18"SD/	88.00/18"SD/DMH15	17+64/54.3' L
DMH18	4'	96.50	91.92/10"SD/SWN-5685 91.50/10"SD/CB17 91.35/15"SD/	91.25/15"SD/DMH13	19+88/60.9' L
SWN-5684	4'	86.91		83.51/10"SD/DMH11	16+11/19.3' R
SWN-5685	4'	96.73		93.05/10"SD/DMH18	19+68/74.7' L
SWN-7706	4'	92.87	90.39/8"PVC/BGU2	88.87/10"SD/	20+17/27.8' L
SWN-7707	4'	90.32		86.82/10"PVC/DMH12A	18+92/24.2' R

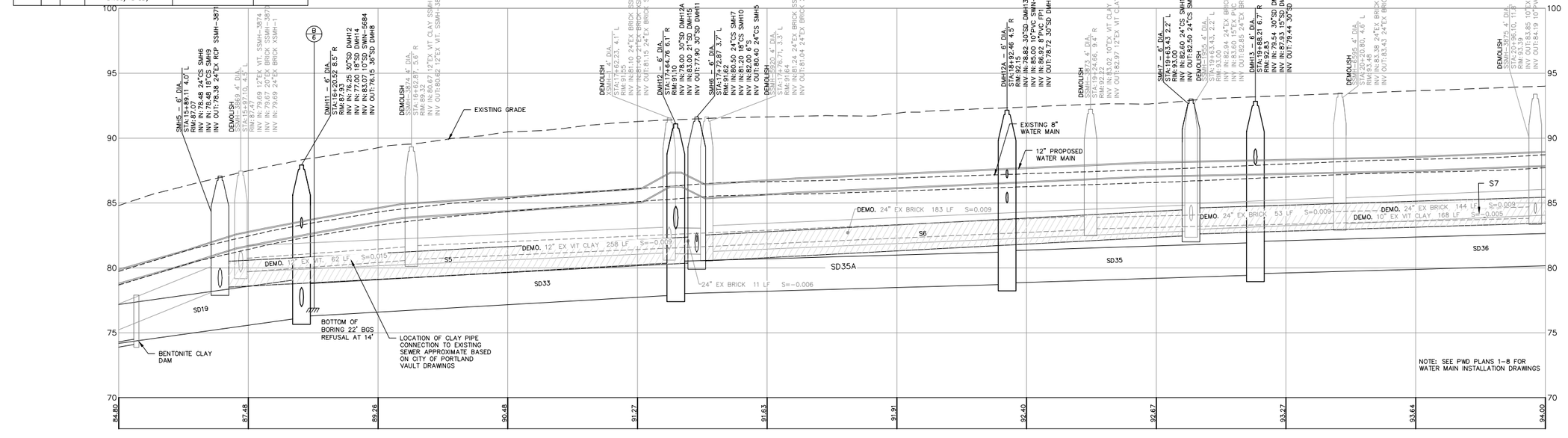
SEWER STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STA./OFFSET
SMH5	6'	87.07	78.48/24"CS/SMH6 78.48/18"CS/SMH9	78.38/24"EX RCP/SSMH-3871	15+89/4.0' L
SMH6	6'	91.62	80.50/24"CS/SMH7 81.20/18"CS/SMH10 82.00/6"S/	80.40/24"CS/SMH5	17+73/3.7' L
SMH7	6'	93.00	82.60/24"CS/SMH12	82.50/24"CS/SMH6	19+63/2.2' L
SMH9	4'	89.98	80.10/20"EX BRICK/	80.00/18"CS/SMH5	16+10/35.4' L
SMH10	4'	97.00	86.58/18"CS/SMH11	86.48/18"CS/SMH6	17+72/74.6' L
SMH11	4'	97.50	87.10/21"EX BRICK/	87.00/18"CS/SMH10	17+67/81.9' L

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD19	36" SD	119'	0.029
SD33	30" SD	138'	0.012
SD35	30" SD	90'	0.007
SD35A	30" SD	122'	0.006
SD36	30" SD	205'	0.006
SD39	10" SD	16'	0.013
SD40	10" SD	7'	0.136
SD41	10" SD	46'	0.027
SD42	8" PVC	13'	0.011

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD43	10" SD	10'	0.046
SD44	8" PVC	33'	0.010
SD45	21" SD	22'	0.035
SD46	18" SD	30'	0.067
SD47	18" SD	11'	0.123
SD48	10" SD	9'	0.120
SD49	10" SD	17'	0.103
SD50	10" SD	32'	0.018
SD51	8" PVC	1'	0.029

STORMDRAIN PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD52	10" PVC	15'	0.123
SD53	15" SD	63'	0.053
SD55	15" SD	12'	0.054
SD56	10" SD	21'	0.054
SD57	10" SD	12'	0.085
SD58	10" SD	26'	0.034
SD70	8" PVC	27'	0.020

SEWER PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S4	18" CS	33'	0.046
S5	24" CS	178'	0.011
S6	24" CS	184'	0.011
S7	24" CS	222'	0.006
S9	18" CS	66'	0.080
S10	18" CS	5'	0.090
S11	6" S	26'	0.011



PROFILE STA. 15+50 TO STA. 21+00

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

STATE OF MAINE — DARRIN B. BUSBY — No. 15118 — REGISTERED PROFESSIONAL ENGINEER
8/2/21

REV.	DATE	DESCRIPTION
	8/2/21	ISSUED FOR CONSTRUCTION
		SUBMISSION

PROJECT NAME:
FORE STREET/ EASTERN PROM. SEWER SEPARATION PROJECT

CITY OF PORTLAND, MAINE
DEPARTMENT OF PUBLIC WORKS

212 CANCO ROAD, SUITE B; PORTLAND, MAINE 04103
PHONE (207) 874-8846 FAX (207) 874-8852

CITY OF PORTLAND, MAINE — RESURGAM — CITY OF PORTLAND, MAINE

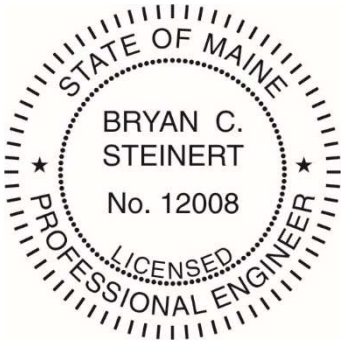
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DRAWN BY:	BCM
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SHEET NAME:	PLAN & PROFILE STA. 15+50 - 21+00
DATE:	04-2021
	PAGE 10 OF 37
SHEET NO.:	C-004
REV.:	
VAULT #:	

\\WOODARDCURRAN.NET\SHARED\PROJECTS\223341.00 PORTLAND, ME - FORE STR SEWER SEP\WIP\DRAWINGS\CIVIL\223341 C100 XDWG C-004 6/25/2019

HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

MEMORANDUM

23 November 2022
Revised 17 February 2023
File No. 39486-881



TO: PF Four Devco, LLC.
David Senus, P.E.

FROM: Haley & Aldrich, Inc.
Tucker P. Jones, P.E., Bryan C. Steinert, P.E., Wayne A. Chadbourne, P.E.

SUBJECT: Geotechnical Design Memorandum
Foreside Block Four Building
58 Fore Street
Portland, Maine

This geotechnical design memorandum (GDM) presents foundation support and geotechnical design recommendations for the subject project (see Figure 1, Project Locus). This GDM has been revised to update the column grid to reflect the change from a steel to a precast concrete parking garage superstructure. Our evaluations and recommendations are based on the proposed improvements shown in an updated and interim Block Four Design Development (DD) drawing set that was provided to Haley & Aldrich, Inc. (Haley & Aldrich) on 7 February 2023. Please note that some of the information and recommendations summarized herein have already been communicated to the project team during in-person meetings and/or via a series of electronic mail (email) messages. However, this GDM serves as the "official" documentation of the foundation support and geotechnical design recommendations for the Block Four building and supersedes the information and recommendations that were included in the original (23 November 2022) GDM. Please also note that this GDM provides geotechnical recommendations for the Block Four building only. Design requirements for the permanent Block Four support of excavation (SOE) system will be provided in a separate SOE drawing set, which is currently being advanced from schematic design (SD) level to DD level.

Please recall that a Geotechnical Data Report (GDR) for the Block Four development was issued on 19 October 2022. The GDR summarizes the subsurface conditions encountered in previous and recent subsurface explorations, and the results of previous and recent laboratory testing completed for the subject project.

This GDM is intended to be used by members of the project team responsible for the design of the proposed Block Four building. Please note that the foundation support and geotechnical design recommendations included herein were developed based on DD-level structural loading information available at the time the original (23 November 2022) memorandum was prepared. Updated structural

loading information reflective of a precast concrete parking garage superstructure type has not been provided. Because of this, we anticipate that the recommendations presented herein may need to be refined as the project advances through final design and development of Construction Documents (CDs). The information contained in the final CDs will take precedence over the information and recommendations provided in this revised GDM.

We have coordinated our work with the following project team members:

- PF Four Devco, LLC. (PFDC) — Owner
- Penobscot General Cont./Turner Const. Co. (PGC/TCCO) — Construction Manager
- Perkins & Will (PW) — Architect
- Thornton Tomasetti (TT) — Structural Engineer
- Woodard & Curran (W&C) — Civil & Environmental Engineer

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). Portland City Datum relates to tidal datum at the site as follows:

MHHW = El. 5.4 PCD
MLLW = El. -4.5 PCD

Please note that this tidal information is not site-specific and is taken from National Oceanic Atmospheric Administration (NOAA) tidal station No. 8418150 located on the Maine State Pier, Portland, Maine. This is the NOAA tidal station closest to the site. Actual tidal datum elevations at the site may vary from those shown.

Site Location and Proposed Development

The Portland Company complex (site) is located at 58 Fore Street, in the northeastern part of the Portland waterfront and at/near the base of Munjoy Hill as shown in Figure 1, Project Locus. Based on our review of the existing conditions base plan prepared by Owen Haskell, Inc., dated 7 July 2016, we understand that the entire site is approximately 10 acres, which has been subdivided into six development “blocks”, each of which will contain existing and/or proposed buildings of varying size. The subject project (Block Four) is located in the eastern portion of the site and is bound by Fore Street to the north, private property (Trettel) to the east, Block Five to the south and Block Two to the west.

PROPOSED SITE DEVELOPMENT

Based on our review of the original DD set of drawings, prepared by P&W, dated 16 September 2022, it is our understanding that PFDC is proceeding with the design and permitting associated with the Block Four Development, which will generally include the following key elements:

- An approximate 2,000 square foot (sf), six-story Townhouse, which includes ground floor retail space and five above-grade levels of residential units.
- An approximate 84,000 sf, eight to nine-story Parking/Residential structure, which includes four to five levels of residential units on top of four levels of structured parking.

The original DD set of drawings was based on a steel superstructure design for both the Townhouse and Parking/Residential structure. As stated above, an updated DD set of drawings are currently being developed to show the change from steel to precast concrete superstructure, which will be submitted on/about 24 February 2023.

Please refer to Figure 2, Anticipated Foundation Support Plan for the location of the Townhouse and Parking/Residential structure footprints. The following FFEs for the Townhouse and Parking/Residential structures have been established by the project team for the updated DD submission:

Level	Proposed Finish Floor Elevation	
	Townhouse	Parking/Residential Structure
1	El. 16	El. 15 to El. 16*
2	El. 27.5	
3	El. 38.0	
4	El. 48.5	
5	El. 60.7	
6	El. 71.5	
7	NA	El. 82.4
8	NA	El. 93.2
9	NA	El. 104.0

* Note that FFE is at El. 10 at connection into the space below the podium at column line L-10/L-11.

In addition to the key elements described above, ancillary site improvements will include stormwater management, site roadways and parking areas, and utility infrastructure (i.e., water, sewer, natural gas, electricity) needed to service the proposed development.

STRUCTURAL LOADING AND BUILDING PERFORMANCE CRITERIA

Axial compressive column loads for building columns within the Townhouse and Parking/Residential structures were not provided at the time this GDM was prepared. Based on our discussions with TT, it is our understanding that foundations (spread footings and micropile caps) shown on the original DD set of drawings were sized based on an allowable bearing pressure equal to 8 kips per square foot (ksf; for spread footings bearing on bedrock, glacial till or rigid inclusion ground improvement) and an allowable micropile compressive resistance equal to 100 kips per micropile.

Please also note that lateral base shear and uplift forces for the Block Four building were not provided at the time this GDM was prepared. General lateral (base shear) and uplift resistance recommendations are provided in subsequent sections of this memorandum.

Based on our discussions with TT, it is our understanding that post-construction total settlement and differential settlement between adjacent building columns should be limited to a maximum of 1 in. and ½-in. over 20 ft, respectively, over the design life of the buildings, which in our experience is typically on the order of 50 years.

Geotechnical Design Recommendations

GENERAL

This section provides geotechnical design recommendations, including foundation support requirements for the proposed Block Four building. Design and construction of the proposed improvements should be completed in accordance with the requirements of the 2015 International Building Code (IBC Code).

SEISMIC DESIGN CONSIDERATIONS

Seismic site class and seismic design parameters were determined in accordance with the requirements of Section 1613.3.2 of the IBC Code and are based on the subsurface conditions encountered in the test borings completed under the direction of Haley & Aldrich within and immediately adjacent to the proposed Block Four building footprint.

Due to the nature and thickness of the overburden soils that are present at the site, we recommend the site be considered "Site Class D". In addition, we recommend the following values be used by TT to determine the design spectral response acceleration parameters (S_{DS} and S_{D1}) and to calculate base shear for seismic design.

- Site Coefficient for Short Periods (F_a) = 1.600
- Site Coefficient for 1-sec Periods (F_v) = 2.400
- Mapped Spectral Response Acceleration at Short Periods (S_s) = 0.240
- Mapped Spectral Response Acceleration at 1-sec Periods (S_1) = 0.078

Please note that "g" refers to acceleration due to gravity. We do not consider the soils encountered at this site to be liquefaction susceptible.

BUILDING FOUNDATION TYPES

Conventional reinforced concrete spread footings with a soil-supported slab-on-grade for the lowest floor is the most economical foundation system for most low to medium-height buildings provided that a suitable, non-compressible, naturally-deposited inorganic soil or bedrock bearing stratum exists at shallow depth and predicted building settlements are within tolerable limits. In our opinion, the man-placed fill and marine deposit soils that are present within portions of Block Four are unsuitable as building foundation bearing strata. Because of this, foundations must transmit building loads below these soil units, or the soils must be improved to avoid the potential for undesirable post-construction settlements and/or foundation instabilities.

To determine the most suitable foundation support alternatives for the buildings, multiple foundation systems were evaluated with the project team during the SD and DD phases of the project. Factors including but not limited to technical feasibility, constructability, performance, and cost were considered in determining the most suitable foundation support alternatives for the structures. Based on our experience, the subsurface conditions present at the site and our current understanding of the proposed Block Four improvements, it is our opinion that multiple foundation support systems will be needed to support the proposed Block Four building, which include spread footings bearing on glacial till or bedrock, spread footings bearing on rigid inclusion (RI) ground improvement (GI) elements and a load transfer layer (LTL), and rock-socketed, drilled-in micropiles. Recommendations for each foundation support system are presented in the following sections of this GDM.

FOUNDATION DESIGN CRITERIA

Spread/Wall Footings on Glacial Till or Bedrock

Based on the proximity of naturally-deposited glacial till soils and/or bedrock to the anticipated foundation bearing levels shown in the DD set of drawings and the attached Table I, it is our opinion that spread/wall footings are a technically feasible and cost-effective way to support the columns shown in yellow and magenta shading on Figure 2. In general, these columns are located in the eastern and northern portions of the Block Four building footprint (see Table I for list of column locations). Spread footing foundation design recommendations are presented below.

- Conventional reinforced concrete spread and wall footings should bear on naturally-deposited glacial till soils or bedrock. Because of the variability in subsurface conditions present across the site, some minor, localized over-excavation below anticipated footing subgrade level is anticipated to be required to remove fill and/or marine deposit soils from within the zone of influence (ZOI) of the new footings (refer to Table I for more information). The ZOI is defined as the area below footings and below imaginary lines that extend 2 ft laterally beyond the footing outer bottom edges and down on a 1 horizontal to 1 vertical (1H:1V) slope to the top of the naturally-deposited glacial till soils.
- If bedrock is encountered at or above the anticipated footing bearing level, we recommend that bedrock be removed to 6 in. below the bearing level and CGF placed from top of rock to the bottom of footing. Crushed stone could be used in lieu of CGF provided that it is fully encapsulated in a geosynthetic separation fabric (e.g., Mirafi 160N). Placement of this crushed stone will allow for strain compatibility between the footings supported on rock and the footings supported on glacial till or RI GI elements and a LTL.
- Spread and wall footings should be sized based on an allowable bearing pressure equal to 8 ksf at the column locations shown on Figure 2 and summarized in Table I. Although higher bearing pressures are technically feasible in areas where the footings will bear directly on bedrock, we recommend that a uniform bearing pressure (8 ksf) be used for design regardless of bearing condition. We also recommend that all footings be at least 3 ft wide.
- Because the lowest levels of the garage will not be heated, spread and wall footings should bear a minimum of 4.5 ft below top of the lowest adjacent ground floor slab elevation. Spread

footings/mats located in the vicinity of elevator pits, sump pits or other localized depressions will bear at or below the bottom of the pits.

- Footings should also be designed to bear below a reference line drawn upward and outward on a 1.5 horizontal to 1 vertical (1.5H:1V) slope from the bottom of any adjacent utilities or other underground structures. If pressurized pipes are to pass beneath or within 5 ft of soil-bearing foundations, the configuration should be reviewed on a case-by-case basis to determine if special measures are needed to protect the foundations from undermining in the event of pipeline failure.

Spread/Wall Footings on Ground Improvement

To mitigate the risk of post-construction building settlement in areas where unsuitable soils (e.g., man-placed fill or marine deposit soils) are present below anticipated foundation bearing level and where the depth of over-excavation and replacement is considered by Haley & Aldrich to be excessive, we recommend that RI GI elements be installed to support the columns shown in blue shading on Figure 2. In general, these columns are located in the southern and western portions of the Block Four building footprint (see Table I for list of column locations). Installation of RI GI elements will improve the load carrying capacity of the in-situ soils and will aid in transferring structure loads to more competent soil/rock strata, which will allow the columns to be supported on conventional spread footings.

As stated above, multiple foundation systems will be needed to support the proposed structure, each having different stiffnesses, which if not designed appropriately could cause unacceptable amounts of differential post-construction settlement of adjacent building columns. Because of this, the nature of the marine soils at the site, and to more closely match the stiffness of building columns supported on spread footings bearing on glacial till/bedrock and on micropiles (see next section), we recommend that RI GI be used to support the building columns shown in Table I and on Figure 2. In our opinion, ungrouted and grouted stone column GI elements will not provide a stiff enough response to meet the total and differential settlement tolerance stated above.

RI GI elements should also be installed beneath elevators, the Thames Street ramp, and other heavy or settlement-sensitive structures (e.g., transformers, generators, grease traps, etc.), unless their base extends below the man-placed fill and/or marine deposit soils. The need for RI GI for other miscellaneous site features should be reviewed on a case-by-case basis prior to finalizing the CDs. Spread/wall footing, and RI GI design recommendations are presented below.

- Conventional reinforced concrete footings should bear directly on a LTL constructed over the tops of RI GI elements.
- Footings bearing on a LTL and RI GI elements should be sized based on an allowable bearing pressure equal to 6 ksf. This value should be confirmed as early as possible with the RI GI designer, working with Haley & Aldrich and TT.
- The RI GI should be designed to limit the magnitude of stress concentrations on the bottoms of the spread footings. We recommend that the RI GI designer coordinate with TT to ensure that

the RI GI has been designed to limit stress concentrations to within tolerable levels such that structural re-design of the footings is not required.

- RI GI elements should penetrate through the full thickness of the fill and marine deposit soils and bear in/on glacial till or bedrock. Based on available subsurface information, we anticipate that the RI GI elements will be relatively short and will range between 5 and 20-ft long.
- RI GI elements may need to be advanced through cobbles, boulders, and/or other materials that are present in the overburden soils present at the site (specifically the near-surface fill soils). Because of this, we recommend that monetary allowances be provided in the budget in the instance additional time and/or alternative means and methods are needed to penetrate these materials.
- A maximum lateral distance of 2 ft (in plan) should be provided between the center of the outermost RI GI elements and the footing outer edges.
- Footings should be sized and located vertically relative to the FFE, proposed exterior site grades and adjacent utilities or other underground structures in accordance with the recommendations for spread footings bearing on glacial till/bedrock (see previous section of this GDM).
- RI GI elements installed beneath footings will require the use of a LTL. We recommend that the LTL consist of an 8-in. thickness of a compacted blend of ¾-in and 3/8-in. crushed stone, encapsulated by a heavy geotextile. We also recommend that the LTL extend a minimum of 6 in. beyond the footing outer edges.
- The RI GI design should be developed to limit total building foundation settlements to a maximum 1-in., including both immediate settlements of the GI system (i.e., RI GI elements and LTL), and a maximum differential settlement of ½-in. over 20 ft. Load bearing and settlement calculations should be provided in the GI designer's design submittal. Contractor design submittal requirements will be included in the GI specification, which will be prepared by Haley & Aldrich).
- Regardless of the design of the RI GI system, full-scale load testing will be required. Because of this, we recommend that budget pricing include an allowance for one full-scale static load test on an array (e.g., nine; 3x3 grid) of sacrificial RI GI elements prior to production RI element installation to confirm that the design of the GI system (i.e., RI elements, LTL, spread footing) meets the required minimum load bearing and maximum settlement requirements.
- The RI GI designer should identify any concerns related to potential effects of planned nearby construction activities, and any restrictions or requirements on means and methods or construction sequencing that should be imposed to avoid risk to the performance of the RI GI system. We recommend that the overall requirements for RI GI be discussed between Haley & Aldrich, TT and the RI GI designer during the early stages of bidding.

Design and installation of RI GI elements are specific for each project based on the subsurface conditions present at the site, the means/methods of installing the elements, the minimum load bearing criteria and the post-construction settlement tolerance established for the proposed buildings. Furthermore, current industry standard dictates that the design and installation of these types of systems be delivered using a performance-based, design-build approach where the specialty RI GI subcontractor determines the details of the system (e.g., element spacing, element diameter, element configuration beneath the footings, LTL design, etc.) based on the load bearing and post-construction settlement requirements of

the proposed structures as provided by the geotechnical engineer-of-record (i.e., Haley & Aldrich). This approach is currently planned to be used to complete the RI GI design for this project.

Drilled-In Micropiles

Because of the proximity of the existing granite block wall to column line A, the existing site grades along the slope in front of the wall between column lines A and B (approximate), the FFE of the lowest floor slab between column lines A and B (i.e., El. 50.3), and the magnitude of "typical" axial compressive column load along column line A (i.e., 400 to 600 kips based on 100-kip resistance and micropile groups of four or six as shown on the original DD set of drawings), it is our opinion that drilled-in piles (i.e., micropiles) are the most technically feasible system to support the columns shown in green on Figure 2. In general, these columns are located in the northern and western portions of the Block Four building footprint along column line A (see Table I for list of column locations). The use of micropiles at these column locations will help to minimize potentially adverse construction impacts on the existing granite block wall, including undermining the wall which would be needed to install spread footing foundations. Micropile foundation support design recommendations are provided below.

- A micropile should consist of a small diameter (typically less than approximately 12 in.), drilled and grouted concrete element that is typically reinforced with a centralized steel bar and permanent steel casing. Micropiles are constructed by drilling a hole to a predetermined depth, placing reinforcement and tremie grouting the hole. Micropiles gain their load resistance through side friction between the grout and the adjacent soil or bedrock (grout-soil or grout-bedrock frictional resistance). Due to the relatively small pile diameter and due to the differences in vertical micropile deformation needed to mobilize side friction and end bearing resistance (i.e., sufficient vertical deformation must occur such that side frictional resistance is overcome and end bearing resistance is mobilized) the contribution of end-bearing resistance is typically neglected. Since the thickness of overburden soils at micropile column locations support is limited and based on the magnitude of the "typical" axial compressive column load provided by TT, we anticipate that rock sockets will be needed.
- The plan locations of the micropiles should be coordinated with the locations of soil nails that will be installed as part of the permanent support of excavation (SOE) system.
- Structural loads for the buildings should be resisted by 100-kip allowable capacity micropiles drilled and socketed into bedrock, which is based on an 8-in. (minimum) diameter, 10-ft long (minimum) rock socket and a grout-to-bedrock frictional resistance of 10 ksf.
- Micropiles should be drilled using 9-5/8-in. outside diameter (OD) permanent steel casing. The casing should have a minimum yield strength of 60 kips per square inch (ksi) and should extend from the top of the micropile to at least 12 in. into bedrock. The casing should be drilled in and should not be advanced using impact methods.
- Based on a bottom of micropile pile cap elevation between El. 25 and El. 41 (see Table I) and a top of bedrock elevation between El. 0 and El. 12, we anticipate that the micropiles will be approximately 35 to 40-ft long, which includes the 10-ft long rock socket. Accordingly, the permanent steel casing length will be approximately 25 to 30-ft long.

- Micropiles should be reinforced the full-length with a centralized deformed steel bar having a minimum yield strength of 75 ksi. Seismic reinforcement, if required, should be provided in accordance with the requirements of the IBC Code.
- Each micropile should be tremie grouted with grout having a minimum unconfined compressive strength equal to 5,000 pounds per square inch (psi).
- The Contractor will be required to confirm the minimum required ultimate micropile capacity in the field. Because of this, we recommend that budget pricing include an allowance for one full-scale static load test on a sacrificial micropile prior to production micropile installation to confirm the grout-to-bedrock frictional resistance used in design and to establish that the Contractor's means and methods that result in a micropile that meets the specified design and performance requirements.
- Micropiles may need to be advanced through cobbles, boulders, and/or other materials that are present in the fill and glacial till soils present at the site. Because of this, we recommend that monetary allowances be provided in the budget in the instance additional time and/or alternative means and methods are needed to penetrate these materials.

TRANSITIONS AND PROXIMITIES OF DIFFERENT FOUNDATION SYSTEMS

The building designs should incorporate transitions between varying foundation supports; that is between rock-socketed micropiles, spread footings bearing in/on glacial till or bedrock and spread footings bearing on RI GI elements and a LTL. The interfaces of the foundation systems (including framing, flooring, architectural features, utilities, and other facilities) should account for anticipated differential settlements. As the design is finalized, further discussions within the design team are recommended to understand implications of the relationships between the varying types of support and identify any necessary mitigating measures.

SUPPLEMENTAL SUBSURFACE EXPLORATIONS

Because of the differences between the SD and the original and updated set of DD foundation plans, specifically the plan locations and bottom depths of proposed foundations, and because of the variable subsurface conditions present at the site, we recommend that additional test borings and test pits be executed during the final design and CD development phases of the project to further refine the limits of the different foundation support systems. The test pits are needed to determine the bearing elevation of the existing cast-in-place concrete and granite block retaining walls, which is needed to confirm that closest adjacent footings (i.e., along column line A.6 and at A.2-0.2 and A.2-2) can be installed without undermining the existing wall. A summary of the proposed scope of the additional field investigation is provided in the below.

Building Column Location	Proposed Exploration	Approximate Range in Depth (ft)	Comments
A.5-0.6	HA22-TP1	< 5	Needed to determine bottom depth of existing retaining wall and whether foundations will be spread footings on glacial till or drilled-in micropiles
A.5-0.5	HA22-TP2		
A.2-0.2	HA22-TP3		
A.2-2	HA22-TP4		
B-5.6	HA22-203	5 to 10	Needed to determine whether foundation will be spread footing on glacial till or RI GI elements.
B-6.3	HA22-204	10 to 15	
D-4.7	HA22-205	10 to 15	Needed to determine whether foundations will be spread footings bearing on glacial till or RI GI elements
D-5.6	HA22-206	10 to 15	
F-4.7	HA22-208	10 to 15	
J.3-9	HA22-211	15 to 20	Needed to determine whether foundations will be spread footings bearing on bedrock or RI GI elements
L-9	HA22-212	15 to 20	

Please note that the number and location of the proposed test borings summarized above are based on the foundation locations shown on the interim DD foundation plan, which is being developed by TT based on a precast concrete parking garage superstructure. Based on our discussions with you on 17 February 2023, it is our understanding that the proposed test borings summarized above will be completed at the onset of construction by the Contractor or Haley & Aldrich (to be determined). It is also our understanding that the proposed test pits will be completed by Haley & Aldrich during the DD or CD phase of the project.

RESISTANCE OF UPLIFT LOADS

Information related to the location and magnitude of axial uplift (tension) loads were not available at the time this GDM was prepared. However, based on our discussions with TT, it is our understanding the uplift loads will be resisted by the dead weight of the structures and additional uplift load resistance measures (e.g., post-tensioned rock anchors) will not be required.

RESISTANCE OF LATERAL BUILDING LOADS

Information related to the location and magnitude of lateral building loads were not available at the time this GDM was prepared. However, we offer the following general recommendations relative to resistance of lateral base shear forces:

- Frictional resistance between the base of footings and the underlying bearing material should be computed using the ultimate base friction coefficients (tan δ) shown below.

Bearing Stratum	Ultimate Base Friction Coefficient (tan δ)
Glacial Till	0.31
Bedrock/Crushed Stone	0.60
RI GI and LTL	0.35

- If friction alone is not sufficient in resisting the lateral base shear forces, we recommended that consideration be given to the net passive resistance (passive minus active) provided by the in-situ fill surrounding the footings and below grade portions of foundation walls. We recommend that the passive resistance be calculated using an equivalent fluid weight (triangular distribution) of 300 pounds per cubic foot (pcf). The top of the assumed passive zone should be 1 ft below the ground surface unless it is confined by a slab. This value assumes that existing fill material present on site is free-draining and is placed and compacted in lifts during backfilling operations. Please note that the recommend passive resistance assumes that backfill used adjacent to shear wall footings is well-graded granular fill that is placed and compacted in lifts to 95 percent of its maximum dry density.
- A minimum factor of safety for sliding equal to 2.0 should be achieved for resistance of permanent lateral loads.
- We recommend that RI GI elements not be used to resist lateral base shear forces.

Based on our discussion with TT, it is our understanding that a combination of frictional resistance between the base of the footings and the underlying bearing material as well as the net passive resistance provided by the in-situ fill surrounding the footings and below grade portions of foundation walls should be sufficient in resisting lateral base shear forces and no additional lateral load resistance measures are required.

LATERAL EARTH PRESSURES ON BELOW-GRADE FOUNDATION WALLS

Based on our discussions with the project team, it is our understanding that environmentally-impacted fill soils will be generated during foundation excavation and will require either offsite disposal or onsite reuse. Because of this and because of the significant cost premium associated with offsite disposal, it is our understanding the excess fill soils will be used to backfill the space between the permanent SOE system and the lowest level of exterior building foundation wall (approximately 10 to 12 ft vertically).

We recommend that below-grade foundation walls retaining soil on one side and restrained at the top be designed to resist static lateral earth pressures based on an equivalent fluid unit weight of 63 pounds per cubic foot (pcf). Cantilever walls (i.e., walls that are free to rotate at the top) shall be designed using an equivalent fluid unit weight of 45 pcf. The fluid unit weights assume that existing fill materials generated from foundation excavation are placed in a controlled manner and are compacted in lifts adjacent to the walls. These pressures also assume a fully-drained condition exists behind the walls (i.e., perimeter foundation drainage system is installed as recommend below).

GROUND FLOOR SLAB

Based on our understanding of the proposed grading for the project as shown in the DD set of drawings, we recommend that the proposed lowest level ground floor slabs be designed as soil-supported reinforced concrete slabs-on-grade (for finished spaces) or bituminous concrete pavement sections (in parking areas). In our opinion, installation of RI GI elements and construction of a LTL are not needed to support the lowest level slabs-on-grade. Reinforced concrete slabs-on-grade should bear directly on a minimum of 12-in. thick layer of ¾-in. crushed stone or CGF overlying a prepared subgrade and should

be structurally independent of the superstructure (i.e., joint at slab/wall interface). Where bedrock is encountered within 6 in. of the slab bearing level, we recommend that the rock be over-excavated and replaced with crushed stone or CGF. All topsoil, debris and organic soils present at slab subgrade level within the slab footprint should be excavated and replaced with CGF.

The lowest level floor slab generally located between column lines A and B (Level 4) will need to be designed as a structural slab due to the FFE of the slab, the difference in bearing level of the foundations along column lines A and B and proximity to the permanent SOE system.
Based on conversations with the project team, we understand that a bituminous concrete surface is planned for the ground floor slab in the Level 1 parking area. We recommend that the bituminous concrete surface bear directly on subbase and base course materials placed on top of prepared in-situ fill or marine deposit (subgrade) soils. Please note that bituminous concrete placed within a partially enclosed space inside a building footprint could be considered a potential fire hazard and may not be allowed by the building code official.

FOUNDATION DRAINAGE

We recommend that a perimeter foundation and underslab drainage system be installed around and within portions of the proposed Block Four building where excavation is needed to reach the proposed ground floor level. The system will generally include the following:

- A network of 4-in. diameter (underslab drain) and 6-in. diameter (perimeter foundation drain), perforated PVC pipes.
- Drain pipes laid flat with perforations oriented down and embedded mid-depth in a 12-in. (underslab drain) or 18-in. (perimeter foundation drain) thick layer of ¾-in. crushed stone; stone layer fully encapsulated in a geosynthetic separation fabric (e.g., Mirafi 160N). The underslab drain pipes should be located below the proposed subgrade level (i.e., below the bottom of the proposed pavement section).
- Drain pipes should ideally drain by gravity and tie into the existing/proposed stormwater drainage system. The details of how the foundation drainage systems connect to site drainage systems will need to be coordinated with W&C prior to finalizing the CDs.

Haley & Aldrich has been retained to design the perimeter foundation and underslab drainage system and will coordinate with the project team to incorporate the design requirements into the CDs. We are currently in the process of developing the initial foundation drainage plans for the permanent SOE system submission.

In addition, surface runoff should be directed away from the buildings. In general, the finished ground surface immediately around the building should be sloped downward away from the structure. To limit surface water infiltration adjacent to the buildings, it is recommended that the upper 8 in. of backfill within 10 ft of the buildings, in unpaved areas, consist of topsoil or other soil having low permeability.

DAMPPROOFING/WATERPROOFING/VAPOR BARRIERS

In general, based on our review of the proposed site development, we recommend that all below grade foundation walls be dampproofed.

Based on the proposed buildings usage/occupancy as well as the man-placed nature of the near-surface, in-situ soils present at the site, we recommend that a vapor barrier be placed below the proposed floor slab in any finished (non-parking garage) space. We assume that the parking garage space will be well ventilated. The floor slab design and construction should be coordinated with the vapor barrier installer, as the barrier may impact concrete curing and curling.

Construction Considerations

The primary purpose of this section is to comment on items related to geotechnical aspects of the proposed construction. It is written primarily for the geotechnical engineer having responsibility for preparation of geotechnical related plans and specifications. Since it identifies potential construction problems related to foundations and earthwork, it will also aid personnel who monitor the construction activities. Prospective contractors for this project must evaluate the construction problems on the basis of their own knowledge and experience in the Portland, Maine area, and on the basis of similar projects in other localities, taking into account their proposed construction methods, procedures, equipment and personnel.

BEDROCK EXCAVATION

Based on the anticipated bearing level of the spread footings in the southeastern portion of the proposed Parking Garage/Residential building footprint we anticipate that up to approximately 10 ft of bedrock will need to be removed to construct the foundations. In general, rock removal will be required in the southeastern portion of the Block Four footprint. In addition, and as noted above, minor bedrock excavation (i.e., up to approximately 6 in.) will be required where bedrock is present at or above the proposed bottom of footing level. Please refer to Table I for additional information on column locations that will require rock removal.

Based on our review of the bedrock encountered in the subsurface explorations and our experience with similar bedrock types in the Portland area, we anticipate that the upper 2 to 3 ft (approximate) of bedrock could be excavated using conventional earth moving equipment, such as a large excavator outfitted with a hoe-ram. The remaining portion of the bedrock excavation will likely require the use of controlled drilling/blasting techniques.

Based on the depth of rock requiring removal and the plan location of the permanent SOE system, we anticipate that pre-splitting (line drilling) will be required in the southeastern portion of the Parking Garage/Residential building to minimize over-break beyond where the permanent SOE system will be located.

We recommend that a pre-construction survey of adjacent properties and nearby utilities be completed prior to the start of construction. The purpose of the survey is to inspect the site area and existing adjacent buildings to identify potentially vibration sensitive structures, equipment and/or utilities. The survey will also aid in determining limiting vibration criteria that should be established to protect the existing structures, equipment and/or utilities. The need for a geotechnical instrumentation program consisting of crack gages, vertical monitoring points and seismographs should be evaluated during CD development and after the pre-construction survey(s) have been completed. The geotechnical instrumentation program, if needed, should be designed, and implemented to monitor the existing structures, equipment and/or adjacent utilities during construction.

PREPARATION OF CONTRACT DOCUMENTS AND SUBMITTAL REVIEWS

The Contract Documents (plans and specifications) should be written so that the requirements of the documents are consistent with the design intent of the geotechnical recommendations outlined herein. Because of this Haley & Aldrich has been retained to prepare and/or assist the project team in the preparation of the CDs related to the following topics:

- Existing Subsurface Conditions
- Earthwork
- Blasting
- Temporary Dewatering
- Permanent Support of Excavation (soil nail wall)
- Foundation Drainage System
- Rigid Inclusion Ground Improvement

The CDs will require the Contractor and/or the Contractor's engineer to perform analyses and submit results to the designers for review (e.g., blasting, rigid inclusion ground improvement). The design team should be allowed to review the geotechnical-related submittals to ensure that the Contractor's analyses/submittals are in accordance with the intent of the design as outlined herein and ultimately in the CDs. This will enable us to observe compliance with the design concepts, assumptions and specifications, and to facilitate design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.

CONSTRUCTION MONITORING

The recommendations contained herein are based on the predictable behavior of a properly engineered and constructed foundation. Monitoring of the foundation construction is required to enable the geotechnical engineer-of-record to verify that the procedures and techniques used during construction are in accordance with the recommendations contained herein and the Contract Documents. Therefore, it is recommended that a geotechnical engineer or experienced technician be present during construction to:

- Install, initialize and monitor geotechnical instrumentation related to the permanent SOE system and blasting.

- Observe and document the construction of the permanent SOE system.
- Observe drilling and blasting and monitor with seismographs.
- Observe and document the installation of RI GI elements, excavation and subgrade preparation and LTL construction.
- Observe final excavation to subgrade and approve foundation and floor slab subgrade surfaces prior to fill placement/foundation construction.
- Observe installation of the foundation drainage system.

We recommend that Haley & Aldrich be retained to provide these services.

Limitations

This memorandum has been prepared for the exclusive use of PFDC relative to the Foreside Block Four Building in Portland, Maine. There are no intended beneficiaries other than PFDC. 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 PFDC for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from PFDC and from Haley & Aldrich. Use of this memorandum by such other person or entity without the written authorization PFDC 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 PFDC, for a purpose other than the Foreside Block Four Building 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.

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 design recommendations presented in this memorandum.

Attachments:

Table I – Recommended Building Foundation Support
Figure 1 - Project Locus
Figure 2 - Anticipated Foundation Support Plan

TABLE I
Recommended Building Foundation Support
Foreside Block Four Development
58 Fore Street
Portland-Maine

Haley & Aldrich-Inc. File No.: 39486-881

Column Location[1]	Lowest Finished Floor Elevation[2,6]	Recommended Bottom of Foundation Elevation[3,6]	Recommended Foundation Support Type[1,4]	Rock Removal Required[5] (Y/N [Approx. Depth])	Overexcavation Required[5] (Y/N [Approx. Depth])	Comments
A-0.5	31.0	24.0	Micropiles	N	N	Level 2 Townhouses
A-1	50.3	25.0	Micropiles	N	N	Level 4 Garage
A-2	50.3	25.0	Micropiles	N	N	Level 4 Garage
A-3	50.3	33.0	Micropiles	N	N	Level 4 Garage
A-T7	50.3	35.0	Micropiles	N	N	Level 4 Garage
A-4.5	50.3	35.0	Micropiles	N	N	Level 4 Garage
A-5	50.3	38.0	Micropiles	N	N	Level 4 Garage
A-T10	50.3	41.0	Micropiles	N	N	Level 4 Garage
A-6.5	50.3	41.0	Footings on Till	N	N	Level 4 Garage
A-7	50.3	42.0	Footings on Till	N	N	Level 4 Garage
A-8	50.3	44.0	Footings on Till	N	N	Level 4 Garage
A-8.7	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-9.5	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-10	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-10.7	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-11.5	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-12	50.3	45.0	Footing on Till	N	N	Level 4 Garage
A-13	50.3	45.0	Footing on Till	N	N	Level 4 Garage
WA.1-12	50.3	45.0	Footing on Till	N	N	Level 4 Garage
WB-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
A.5-0.5	15.0	8.0	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
WX-0.5	15.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
WX-1	15.0	7.0	Footing on Till	N	Y (3-4 ft)	Level 1 Garage
WX-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
B-2	15.0	7.5	Footing on Till	N	Y (3 ft)	Level 1 Garage
B-3	15.0	6.0	Footing on Rock	N	Y (4-5 ft)	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
B-5	16.5	9.0	Footing on Rock	N	Y (3 ft)	Level 1/Level 2 Garage Ramp
B-7.9	22.5	17.5	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
B-11	27.5	23.0	Footing on Till	N	N	Level 2 Garage
B-13	38.0	33.5	Footing on Till	N	N	Level 3 Garage
C-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
C-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
C-4	15.0	7.0	Footing on Rock	N	Y (3-4 ft)	Level 1 Garage
C-5	16.5	7.5	Footing on Rock	N	Y (4-5 ft)	Level 1/Level 2 Garage Ramp
C-6	18.5	13.5	Footing on GI	N	N	Level 1/Level 2 Garage Ramp
C-7	20.5	15.5	Footing on GI	N	N	Level 1/Level 2 Garage Ramp
C-7.9/8	22.5	17.5	Footing on Till or GI	N	N	Level 1/Level 2 Garage Ramp
C-9	24.5	19.5	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
C-10	27.0	22.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
C-11	27.5	23.0	Footing on Till	N	N	Level 2 Garage
C-13	38.0	33.5	Footing on Till	N	N	Level 3 Garage
WD-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WD-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WE-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
D-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
D-5	16.5	9.0	Footing on Till or GI	N	N	Level 1/Level 2 Garage Ramp
D-6	18.5	10.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
D-7	20.5	10.0	Footing on Till	N	N	Level 1/Level 2 Garage Ramp
D-7.9/8	22.5	7.5	Footing on Till	N	Y (2-3 ft)	Level 1/Level 2 Garage Ramp
D-9	24.5	7.0	Footing on Till	N	Y (2-3 ft)	Level 1/Level 2 Garage Ramp
D-10	27.0	7.0	Footing on Rock	N	N	Level 1/Level 2 Garage Ramp
D-11	27.5	9.0	Footing on Rock	N	N	Level 2 Garage
D-13	38.0	26.0	Footing on Till	N	N	Level 3 Garage
WF-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WF-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
E-5	13.5	9.0	Footing on Till or GI	N	N	Level 1 Garage
E-7.9	12.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
E-9	11.5	7.0	Footing on Till	N	N	Level 1 Garage
E-10	10.5	7.0	Footing on Rock	N	N	Level 1 Garage
E-11	10.5	7.0	Footing on Rock	Y (2-4 ft)	N	Level 1 Garage
E-12	27.5	17.0	Footing on Till	N	N	Level 2 Garage
E-13	26.3	22.0	Footing on Till	N	N	Level 2 Garage
WG-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
F-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
F-5	13.5	9.0	Footing on Till or GI	N	N	Level 1 Garage
F-6	13.0	8.5	Footing on Till or GI	N	N	Level 1 Garage
F-7	12.5	8.0	Footing on Till	N	N	Level 1 Garage
F-7.9/8	12.0	7.5	Footing on Till	N	Y (2-3 ft)	Level 1 Garage
F-9	11.5	7.0	Footing on Till	N	N	Level 1 Garage
F-10	11.0	7.0	Footing on Rock	N	N	Level 1 Garage
F-11	10.5	7.0	Footing on Rock	Y (2-4 ft)	N	Level 1 Garage
F-13	27.5	21.0	Footing on Till	N	N	Level 2 Garage
WH-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WK-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WK-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WJ-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WJ-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WL-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WL-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
G-4	15.0	10.5	Footing on GI	N	N	Level 1 Garage
G-5	13.5	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
G-6	13.0	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
G-7	12.5	8.0	Footing on Till	N	N	Level 1 Garage
G-7.9/8	12.0	7.5	Footing on GI	N	N	Level 1 Garage
G-9	11.5	7.0	Footing on GI	N	N	Level 1 Garage
G-10	10.5	6.0	Footing on Rock	N	N	Level 1 Garage
G-11	10.5	6.5	Footing on Rock	Y (5-6 ft)	N	Level 1 Garage
G-13	27.5	17.5	Footing on Till	N	N	Level 2 Garage
WM-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WM-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
H-11	10.5	6.5	Footing on Rock	Y (3-4 ft)	N	Level 1 Garage
H-13	27.5	17.0	Footing on Till	N	N	Level 2 Garage. Level 2 elevator pit footing
J-W2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
J-R1	15.0	10.5	Footing on GI	N	N	Level 1 Garage
J-5/R2	13.5	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
J-R3	13.0	3.5	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
J-7.2	17.75	13.0	Footing on GI	N	N	Level 1 Retail
J-7.9/8	17.75	10.0	Footing on GI	N	N	Level 1 Retail
J-R4	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail
J-9	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail

TABLE I
Recommended Building Foundation Support
Foreside Block Four Development
58 Fore Street
Portland-Maine

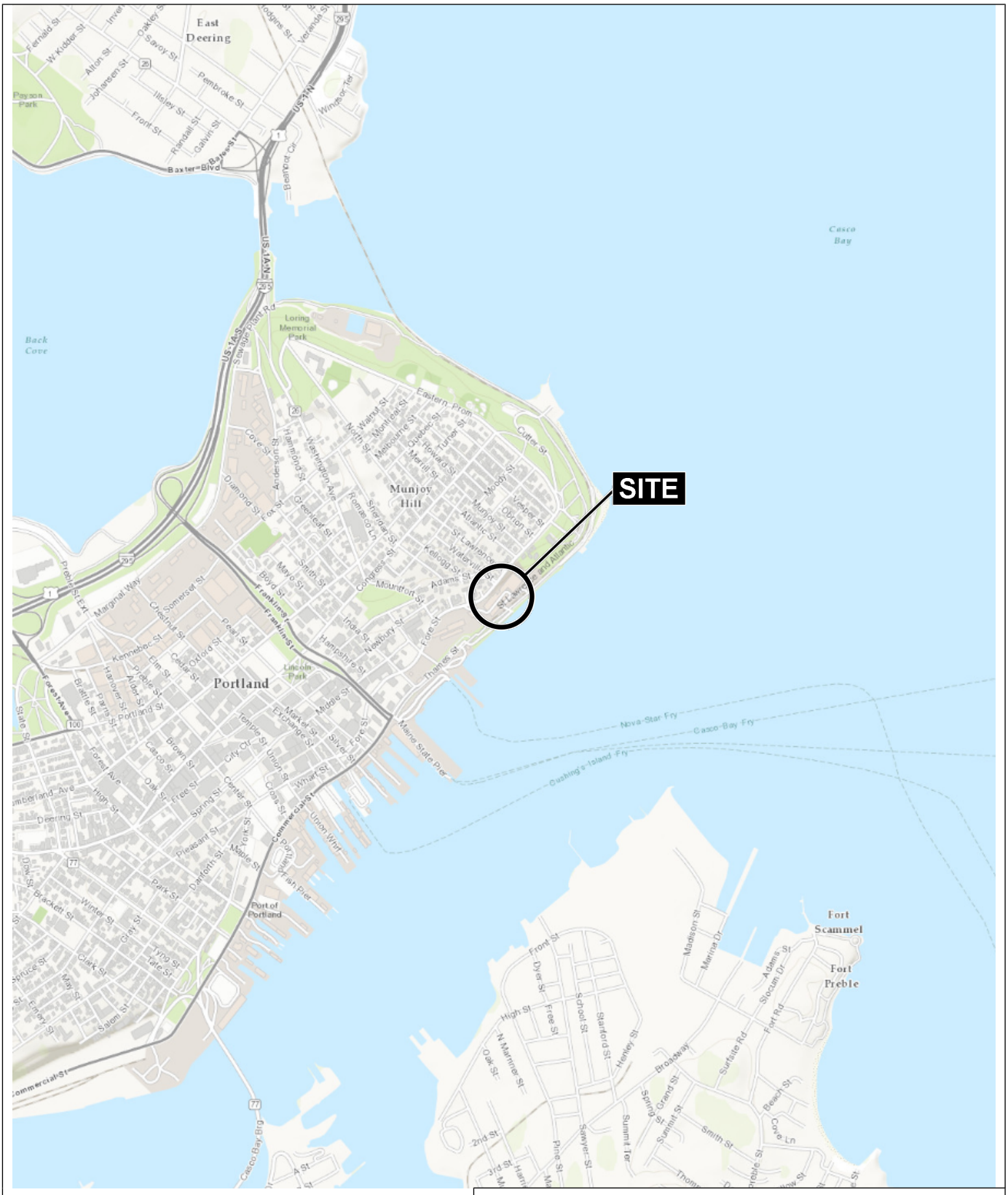
Haley & Aldrich-Inc. File No.: 39486-881

Column Location[1]	Lowest Finished Floor Elevation[2,6]	Recommended Bottom of Foundation Elevation[3,6]	Recommended Foundation Support Type[1,4]	Rock Removal Required[5] (Y/N [Approx. Depth])	Overexcavation Required[5] (Y/N [Approx. Depth])	Comments
J-R5	11.0	7.0	Footing on Till	N	N	Level 1 Garage
J-W8	10.5	6.5	Footing on Rock	Y (1-2 ft)	N	Level 1 Garage
J-11	10.5	6.5	Footing on Rock	Y (3-4 ft)	N	Level 1 Garage
J-13	27.5	17.0	Footing on Till	N	N	Level 2 Garage
WN-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WN-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WN-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WN-3	15.0	5.0	Footing on GI	N	N	Level 1 Garage. Adjacent to Level 1 Garage elevator pit footing
WN.5-W5	17.75	13.0	Footing on GI	N	N	Level 1 Retail
WP-1	15.0	10.0	Footing on GI	N	N	Exterior wall footing. Estimated exterior GS El 14.5. Level 1 Retail
WP-1.8	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-W3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
WP-R2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-R3	15.0	10.5	Footing on GI	N	N	Level 1 Retail
WP-6.5	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-W2	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-W3	15.0	10.5	Footing on GI	N	N	Level 1 Garage
K-5/W4	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-R2	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-R3	15.0	10.5	Footing on GI	N	N	Level 1 Retail
K-7.2	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-7.9/8	17.75	13.0	Footing on GI	N	N	Level 1 Retail
K-W6	21.0	13.0	Footing on GI	N	N	Level 1/Level 2 Retail
K-W7	21.0	10.0	Footing on Till or GI	N	N	Level 1/Level 2 Retail
K-11/R6	10.0	6.0	Footing on Rock	Y (1-2 ft)	N	Level 1 Podium Space
K-12	10.0	6.0	Footing on Rock	Y (4-6 ft)	N	Level 1 Podium Space
K-13	10.0	6.0	Footing on Rock	Y (8-10 ft)	N	Level 1 Podium Space

Notes:
[1] - Refer to Figure 2, Anticipated Foundation Support Plan, which graphically shows column locations and anticipated foundation support types. Column locations based on precast concrete garage superstructure.
[2] - Interpreted by Haley & Aldrich based on the interim Design Development drawings prepared by Perkins & Will and Thornton Tomasetti, dated 3 February 2023.
[3] - Interpreted by Haley & Aldrich based on the interim Design Development (DD) drawings prepared by Thornton Tomasetti, dated 3 February 2023. In some instances the bottom of foundation elevations shown on the interim DD drawings were raised or lowered by Haley & Aldrich, Inc. based on the lowest finished floor elevations shown and discussions with Thornton Tomasetti.
[4] - "GI" refers to rigid inclusion ground improvement elements and a load transfer layer. "Till" refers to naturally-deposited glacial till. Refer to design memorandum text for design recommendations.
[5] - Determined by Haley & Aldrich based on the assumed bottom of foundation elevations shown and the subsurface conditions present at specific column locations and should be considered approximate. Rock removal depths do not include the additional 6 in. that is recommended be removed from below the bottom of the footings as stated in the GDM.
[6] - Elevations are measured in feet and reference the Portland City Datum (PCD).

	Individual	Date
Prepared By:	TPJ	11/17/2022
Checked By:	WAC	11/17/2022
Reviewed By:	BCS	11/18/2022

REV TPJ/WAC 2/16/23



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'46"N, 70°14'38"W





HALEY ALDRICH

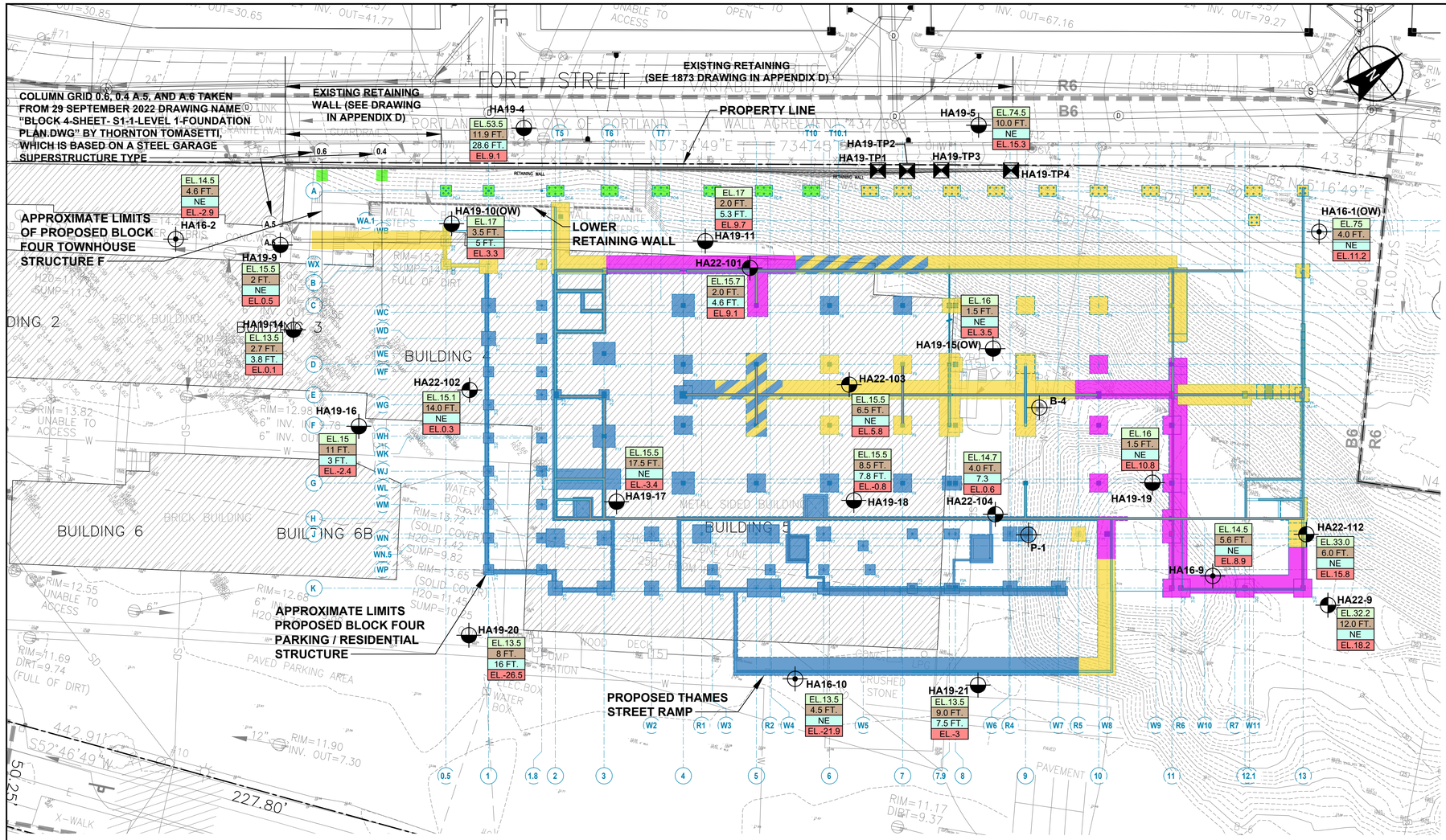
FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
OCTOBER 2022

FIGURE 1

39486-872_1_LOCUS.PDF



LEGEND

- **HA22-1 / HA22-101** — DESIGNATION AND LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE (HA22-1 SERIES) AND NORTHERN TEST BORINGS, INC. OF GORHAM, MAINE (HA22-100 SERIES) UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN MARCH AND APRIL 2022 (HA22-1 SERIES) AND SEPTEMBER 2022 (HA22-100 SERIES)
- **HA19-TP1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST PIT HAND-EXCAVATED BY PORTLAND FORESIDE DEVELOPMENT COMPANY AND OBSERVED BY HALEY & ALDRICH, INC. ON 10 DECEMBER 2019
- **HA19-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH IN JANUARY AND FROM MAY TO JULY 2019
- **HA16-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE UNDER THE DIRECTION OF HALEY & ALDRICH DURING THE PERIOD 13 DECEMBER 2016 TO 5 JANUARY 2017
- **B-3 / P-1** — DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING AND AUGER PROBE DRILLED BY GREAT WORKS TEST BORING, INC. OF ROLLINGSFORD, NEW HAMPSHIRE UNDER THE DIRECTION OF S.W. COLE ENGINEERING INC. DURING THE PERIOD 24 TO 26 SEPTEMBER 2007
- **(OW)** — INDICATES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

EXPLORATION DATA BOX

EL.75	APPROXIMATE GROUND SURFACE ELEVATION
4.0 FT.	APPROXIMATE FILL THICKNESS
NE	APPROXIMATE MARINE DEPOSIT THICKNESS
EL.11.2	APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER

"NE" DENOTES STRATUM NOT ENCOUNTERED

ANTICIPATED FOUNDATION SUPPORT LEGEND

- SPREAD FOOTINGS BEARING ON GLACIAL TILL
- SPREAD FOOTINGS BEARING ON ROCK / CRUSHED STONE PAD ON ROCK
- DRILLED-IN ROCK SOCKETED MICROPILES AND PILE CAP
- SPREAD FOOTINGS BEARING ON RIGID INCLUSION GROUND IMPROVEMENT ELEMENTS AND A LOAD TRANSFER LAYER

0 30 60 90 120
SCALE IN FEET

NOTES

1. BASE PLAN CREATED BY HALEY & ALDRICH, INC. USING THE FOLLOWING REFERENCES:
   a. EXISTING GROUND SURFACE ELEVATION CONTOURS AND THE LOCATION AND ORIENTATION OF EXISTING SITE FEATURES ARE TAKEN FROM THE CAD FILE ENTITLED "XR_EX BASE 2022 (COMPILED).DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 MAY 2022.
   b. LOCATION AND ORIENTATION OF THE EXISTING FORE STREET RETAINING WALL TAKEN FROM THE CAD FILE ENTITLED "XR_0232341 EXBASE.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 30 OCTOBER 2019.
   c. LOCATION AND ORIENTATION OF EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY ARE TAKEN FROM THE CAD FILE ENTITLED "PFDC MASTER SITE PLAN V3.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 29 MARCH 2022.
   d. LOCATION OF "B-4" AND "P-1" EXPLORATIONS COMPLETED UNDER THE DIRECTION OF S.W. COLE ENGINEERING, INC. IN SEPTEMBER 2007 ARE TAKEN FROM THE CAD FILE ENTITLED "XR_227007.03-X00C.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 2 AUGUST 2016.
   e. PROPOSED BUILDING LAYOUT, IS TAKEN FROM THE CAD FILES ENTITLED "BLOCK 4-SHEET- S1-1-LEVEL 1-FOUNDATION PLAN.DWG", "BLOCK 4-SHEET-S1-2-LEVEL 2 FRAMING PLAN.DWG", "BLOCK 4-SHEET-S1-3-LEVEL 3 FRAMING PLAN.DWG" AND "BLOCK 4-SHEET-S1-4-LEVEL 4 FRAMING PLAN.DWG" PROVIDED BY THORNTON TOMASETTI OF PORTLAND, MAINE ON 7 FEBRUARY 2023.
2. THE PLAN LOCATION AND ORIENTATION OF THE EXISTING STRUCTURES OCCUPYING THE TRETTEL PROPERTY WERE DETERMINED BY SCALING AND ROTATING REFERENCE DRAWING 1C USING EXISTING PROPERTY LINE INFORMATION AND IS CONSIDERED APPROXIMATE.
3. THE PROPOSED BUILDING LAYOUT WAS DETERMINED BY SCALING AND ROTATING REFERENCE DRAWINGS 1E USING THE EXISTING LOWER RETAINING WALL INFORMATION THAT IS PRESENT IN THE VICINITY OF THE TOWNHOUSE AND IS CONSIDERED APPROXIMATE.
4. THE LOCATION OF GAS, SANITARY AND STORM SEWERS IN FORE STREET ARE TAKEN FROM THE CAD FILE ENTITLED "XR_FORE AS BUILT.DWG" PROVIDED BY WOODARD & CURRAN OF PORTLAND, MAINE ON 4 OCTOBER 2022."
5. THE PLAN LOCATIONS OF "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY TAPING DISTANCES TO/FROM EXISTING SITE FEATURES AND ARE CONSIDERED APPROXIMATE. THE PLAN LOCATIONS OF "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
6. GROUND SURFACE ELEVATIONS AT "HA16" AND "HA19" SERIES TEST BORINGS WERE DETERMINED BY HALEY & ALDRICH, INC. BY INTERPOLATING BETWEEN EXISTING GROUND SURFACE TOPOGRAPHIC CONTOUR INFORMATION AVAILABLE AT THE TIME THE TEST BORINGS WERE COMPLETED AND ARE CONSIDERED APPROXIMATE.
7. GROUND SURFACE ELEVATIONS AT "HA22" SERIES TEST BORINGS WERE DETERMINED BY OWEN HASKELL, INC. USING GPS SURVEY EQUIPMENT UPON THE COMPLETION OF DRILLING.
8. ELEVATIONS ARE FEET AND REFERENCE PORTLAND CITY DATUM.
9. REFER TO TABLE I FOR ADDITIONAL FOUNDATION SUPPORT INFORMATION AND ASSUMPTIONS.
10. THIS PLAN HAS BEEN UPDATED TO INCLUDE A COLUMN GRID AND FOUNDATION PLAN REPRESENTATIVE OF THE PRECAST CONCRETE PARKING GARAGE SUPERSTRUCTURE PROVIDED BY THORNTON TOMASETTI (SEE NOTE 1e). THE COLUMN GRID AND FOUNDATION PLAN SHOWN WAS LOCATED BY HALEY & ALDRICH BY ASSUMING THAT THE PLAN LOCATION OF COLUMN LINE A AND COLUMN LINE 13 WERE UNCHANGED FROM WHAT WAS SHOWN PREVIOUSLY FOR THE STEEL PARKING GARAGE SUPERSTRUCTURE.

HALEY ALDRICH

FORESIDE BLOCK FOUR DEVELOPMENT
58 FORE STREET
PORTLAND, MAINE

ANTICIPATED FOUNDATION SUPPORT PLAN

SCALE: AS SHOWN
FEBRUARY 2023

FIGURE 2

Saved by: TAM
\\HALEYALDRICH.COM\SHARE\CF\PROJECTS\39486\GLOBAL CAD\39486-881-D027.DWG
Printed: 2/17/2023 3:47 PM
Sheet: D027

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Att. 13

Via Electronic Mail

March 2, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Portland Foreside Development Co. Blocks 4 & 6 – Major Site Plan Submittal Response to City Planning Staff Comments (PL-002202-2022)

Dear Charles:

Thank you for coordinating the review of the Major Site Plan Application for the proposed development of Phase 2 (Block 4 and Block 6) of the Portland Foreside Project located at 58 Fore Street in Portland. We received preliminary City of Portland staff comments from you via email on February 8, 2023, and provide the following response to these comments, which have been included below in *italics* for reference:

GENERAL

- *The applicant states that state or federal permits can be provided to the City. Please submit copies of the permits.*

  The MaineDEP Site Location of Development Act Permit application was submitted to the City for review under Delegated Review Authority. The other State and Federal permits required (Maine Construction General Permit Notice of Intent and FAA Notice of Proposed Construction), are construction permits and will be submitted as the project nears construction. Evidence of approval can be provided to the City upon receipt, and we would ask that this be a condition of approval as these permits will not be received until just prior to construction.

- *A preliminary shadow analysis is required for Major Site Plan applications outside B-3, B-5, B-6, and B-7 zones. Please submit a shadow analysis as portions of the site extend into the R-6 zone.*

  The portion of the Block 6 Building located within the R-6 zone will not rise greater than 45' above the adjacent site features located in that zone and will not be located in the vicinity of any "publicly accessible open space or other important natural features." It is our understanding of Section 11 of the Technical Manual that a shadow analysis is not applicable.

- *Please provide a description of measures taken to prevent snow and ice from falling on adjacent properties, internal streets, and accessible public areas. Include design measures taken to prevent snow and ice from loading or falling onto adjacent areas or public ways.*

  All roofs of the building, including both the Block 4 and Block 6 portions are flat or low slope, and the risk of falling snow and ice is minimal. All site snow will be managed internally to the Portland Foreside site as it currently is through the use of contracted snow management and removal.

- *Block 6 outdoor areas deviate from approved MDP. Please clarify how Block 6 and outdoor areas will interface with the rail corridor. Will the site be separated from the railroad right of way with a railing / fence?*

  The Site Plan is consistent with the Master Development Plan. Minor deviations from the MDP are inherent with the evolution of detailed site plans. No fencing or railings are planned for the area between Block 6 and the rail corridor.

- *Overall Site Plan – Please show the limit of work as part of Phase II development and what structures are associated with other approvals (Phase 1 / Marina structures).*

  The limit of work line depicted on the Overall Site Plan is for the Phase 2 Development. Structures outside of the limit of work are associated with other approvals and have been shown for context as existing conditions.

- *Overall Site Plan – Please provide a secondary overall site plan that removes notes and references and depicts building footprints overlaid with historic district boundaries, view corridors, and other similar elements.*

  A secondary overall site plan removing notes and references is included as part of this response to comments.

- *Interim Conditions Plan – Will the Block 5 parking lot be operating as a pay-to-park lot?*

  In the event that this interim lot is constructed on Block 5, it will be utilized as a pay-to-park lot, consistent with the current operations of the site. We do not anticipate that construction of this lot will actually occur as we will be submitting a Block 5 site plan application in the near future.

- *Subdivision Plat – Lot "Remaining Land By Developer" still needs to be a numbered lot even with Note 8 explaining intention.*

  The remaining "land by the developer" is not a lot in the subdivision and a lot number is not required per subdivision law. The nomenclature is consistent with previously recorded subdivision plats.

- *Elevations – Separate elevations for Block 4 building, and Block 6 building are required. Additionally, if Block 4 and Block 6 building are considered one building per the MDP an elevation including both buildings is required.*

  Separate elevation views were included in the initial site plan submission for Block 4 (plans entitled "Block 4 Elevation East & West" "Block 4 Elevation North", "Block 4 Elevation South", and "Block 4 Elevation Courtyard") and Block 6 (plans entitled "Block 6 Elevations East & North" and "Block 6 Elevations West & South"). Blocks 4 and 6 are one building due to their shared structural pedestal and we have provided an additional elevation drawing as part of this response to comments to show both Blocks.

- *If Block 4, Block 5 (currently not under review or submitted), and Block 6 are going to be considered one building, please provide City Staff with a narrative explaining the design, construction, and function of the building and three structures.*

  Block 4 and Block 6 are considered one building. The building has pedestal parking at the base, with connected and architecturally varied residential uses above. This approach was presented and agreed to in the MDP approval and was documented in the Staff memos to the Planning Board as part of that process. Block 5 will be a phased addition to this single building structure. We will address Block 5 as part of the site plan application to be submitted separately.

- *Floor Plans – City Staff would like to work with applicant to develop a Floor Plan labeling scheme that is consistent between Block 4 and Block 6. Ideally this system would reflect the elevation of each floor rather than the floor specific to each building.*

  To help with any confusion between the different Blocks, we propose adding an elevation coordination table to the drawings. The proposed table is included on the following page. This table will be updated as we add Block 5 to the Building. We are happy to work with you to review and determine if other adjustments can be made to alleviate confusion during review.

	Block 4 FFE	Block 6 FFE
Level 00: Sea Level	0′	0′
Level 0:		10′
Level 1:	16′	13.2′
Level 2:	27.5′	25.2′
Level 3:	38′	35.2′
Level 4:	48.5″	45.2′
Average Grade (MDP):	50.1′	
Level 5:	60.7′	55.2′
Level 6:	71.5′	65.2′
Level 7:	82.4′	75.2′
Level 8:	93.2′	85.2′
Level 9:	104.0′	95.2′
Level 10:	114.9′	105.2′

- *Construction Management and Phasing Plan – Please submit a Phasing Plan that shows the extent of work completed associated with the 58 Fore Master Development Plan (including Phase 1 and the Marina), work to be completed as part of Block 4 and work to be completed as part of Block 6, work to be completed as part of other applications currently under review or recently approved, and future work on site (ex: Block 5). Please include anticipated timelines and expected length of construction (estimates are fine).*

  A Phasing Plan is being developed that will include anticipated timelines and expected durations of construction. This will be provided separately.

ZONING

- *Please provide how height will be calculated as part of this phase of development. Height calculations and average grade points shall be provided.*

  A summary of the building height calculation was provided in Section 2.4.4 of the original Site Plan Application (page 8 of Section 2 Permitting and Zoning file in the

"Document" upload folder). Associated figures and calculations are provided on page 35 through 38 of this Section. The height calculations are consistent with the approach that was approved as part of the Master Development Plan.

- *The portion of the Block 6 building within the R-6 zoned area is required to meet R-6 dimensional standards. Maximum height in the R-6 zone is 45 feet, with stepback requirements. Height calculations and average grade points taken within the R-6 portion of the building are required to be provided.*

  The portion of the Block 6 building within the R-6 zoned area meets the R-6 dimensional standards as demonstrated in Section 2.4.2 of the original Site Plan Application (starting on page 5 of Section 2 Permitting and Zoning in the "Document" upload folder).

TRANSPORTATION

- *Maine Department of Transportation and Third-Party Traffic Consultant noted that the applicant has until May of 2024 to complete the project associated with the previously approved Traffic Movement Permit.*

  "Automatic Permit Expiration" A permit will be considered automatically expired if construction of the project has not begun within a 5-year period or completed within a 7-year period of the date of issuance. The applicant must reapply for and receive approval prior to continuing construction or opening a facility.

  If the construction schedule does not meet the May 2024 deadline the applicant will need to apply and receive approval for a new Traffic Movement Permit.

  The project received its Traffic Movement Permit in May of 2017, prior to the 2022 amendment to Chapter 305 that enacted the 7-year time limit. Our 2017 TMP was specifically designed around a ten-year development horizon and all actions taken to date are in reliance on the 10-year full buildout expected trip generation and association mitigation costs.

- *The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer.*

  The project's initial TMP and the associated traffic assessment was based on the 5th Edition of the ITE Trip Generation manual. Our understanding is that these standards

in place at the time of the initial TMP approval remain the standards for review on this project. This has been the experience with other projects with similar approvals.

- *Trip reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions.*

  There were two trip reductions applied in the Traffic Assessment for Blocks 4 & 6; "shared use" and "other modes". The "shared use" reduction was based on NCHRP 684 as required by MaineDOT, with the existing and currently proposed uses included. No credit was taken for future uses. This reduction would not be expected to change. The "other modes" reduction (18%) is based on a recommendation from Mr. Tom Errico in an email dated December 20, 2019. We would not expect that reduction to change. Both of these methodologies were accepted in previous submittals to the City.

- *The applicant must submit a snow removal plan or show snow storage areas on the site plan. Applicant noted that a third-party will be contracted to manage snow removal and storage.*

  Snow will be managed on the site as it currently is through a contracted management company that is responsible for the hauling and offsite disposal of snow from the site. There will also be snow-melt systems installed in various areas throughout the site to help reduce the need for management of snow. This project will include the installation of the snowmelt boiler system within Block 4 which will support these new snowmelt systems as well as previously installed snowmelt in other areas of the site.

- *Please confirm that proposed compact parking spaces for the entire site will consist of no more than 20% of the total spaces.*

  Considering all of the parking spaces previously provided in Block 1, and proposed in Blocks 4 and 6, the total number of compact spaces proposed is currently 62, which yields a total percentage of 8% of the parking on the site.

- *Section 1 Summary notes that the Block 4 parking structure has been reduced 198 spaces (652 to 454). Please provide additional information on how the development of Block 4 and Block 6 will maintain overall parking requirements as laid out in the MDP.*

  The amount of parking provided within the Block 4 section of the building has been adjusted to account for the increased amount of parking being provided within the Block 6 area through the use of parking "stackers". The site's total parking count of

764 is appropriate for the site, as documented in the transportation analysis provided in the original site plan application submission. This amount of parking is within the range that was assumed for the Master Development Plan and the Traffic Movement Permit which references 435,200 SF of parking or 736 spaces.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- *If construction is anticipated to occur between November 1 to April 15 for this phase of the project, consider adding winter construction guidelines to the Stormwater Management Plan for disturbed areas as required in Appendix A Section 7 of Maine DEP Chapter 500.*

  Winter construction notes and erosion control measures are located on plans entitled "Block 4 Civil Details 1" and "Block 6 Civil Details 1", which were included as part of the original submission.

- *Section 5.4 of the Major Site Plan Application notes that the site will have "adequate sanitary disposal of sewage as further described in Section 5 of this Report." The Applicant should provide an Ability to Serve Letter from Portland Water District or note previous arrangements in the narrative.*

  A copy of the ability to serve requests are included with this response to comments. An Ability to Serve Letter will be provided upon receipt.

- *Per Section 3 of the City of Portland's Technical Standards, elevators must be designed to fit an 84-inch x 24-inch stretcher inside. City Staff recommend verifying and noting elevator dimensions in the Life Safety Plan to conform to the City of Portland's Technical Standards.*

  All building elevators have been designed to accommodate stretchers per the City of Portland's Technical Standards.

- *Per Section 3 of the City of Portland's Technical Standards, hydrants must have 6 feet of clearance around the circumference. Please verify this clear space is met for all hydrants shown on Sheet C-102 for Block 4.*

  Adjustments have been made to the locations of the fire hydrants to ensure there is a 6-foot clearance provided.

- *On Sheet C-100 there is a callout for an SOE retaining wall with reference to geotechnical*

plans. However, geotechnical plans were not submitted as part of this application. Please submit geotechnical plans for review.

The design of the Support of Excavation (SOE) is ongoing. We will provide geotechnical plans with the building permit applications.

- *On Sheet C-102 for Block 4 and Block 6, there is a callout for conduits for electrical and communications with reference to MEP plans. However, MEP plans were not submitted as part of this application. Please submit MEP plans for review.*

  All required site utilities are shown on sheet C-102. The MEP drawings referenced include internal building mechanical, electrical, and plumbing designs. These are items that are typically reviewed during the building permit phase of permitting and are not provided as part of the site plan process. The provided drawings include all proposed site elements.

- *Sheet L-1.1 for Block 4 references an architectural plan. However, architectural plans were not submitted as part of this application. Please submit architectural plans for review.*

  Architectural plans were submitted with original the application. The architectural plan labels include "…Floor Plan…" or "…Elevation…".

- *For Block 4, the civil plans (Sheet C-100) directs the reviewer to the geotechnical plans for retaining wall details, whereas the landscape plans (Sheet L-1.1) directs reviewer to the structural plans for retaining wall details. Additionally, a Segmented Retaining Wall Detail is provided on the civil plans (Sheet C-202). Please keep the location of detail consistent and revising other references as applicable.*

  The segmented retaining wall detail will be removed from the plans, as it is not applicable.

- *Please provide Landscape Details that are referenced on Landscape Plans for Block 4.*

  The detail sheets have been uploaded separately to Eplan.

- *Sheet C-100 for Block 4 notes a detail for safety railing can be found on the Landscaping Plans, which then notes a detail for the safety railing can be found on the Architectural Plans. City Staff recommend adding a safety railing detail to the Landscaping Plans or changing the note on Sheet C-100 to direct the viewer to the Architectural Plans.*

Plan updates have been provided.

- *On Block 6 Landscaping Plans, many detail callouts are missing reference numbers. Please provide callout reference numbers on the plan set.*

  Plan updates have been provided.

- *Overhead utilities exist on the south side of Fore Street, will those remain? The Applicant should verify that there is at least 10 feet between the proposed buildings and existing utilities.*

  The overhead electrical utilities on the south side of Fore Street will be reinstalled. The site constraints are being coordinated with Central Maine Power who is completing the design, to ensure the utilities have adequate separation from the proposed buildings.

- *Coordinate location of water meters with Portland Water District (PWD).*

  Noted. The water meter will be located within the Block 4 building and is being coordinated with PWD.

- *Show anticipated pavement restoration areas within Fore Street due to utility connections, sidewalk reconstruction and construction damage.*

  Pavement restoration areas are shown with gray hatching on the Civil Drawings.

- *Will the SOE retaining wall on the east side of Block 4 remain permanently?*

  The SOE retaining wall will be permanent.

- *Permanent elements within the Fore Street right of way may require approval of a license with the City.*

  We understand that elements within Fore Street may require approval of a license with the City, and would request that this be made a condition of approval as was done for the Phase 1 approval. We will continue to work with the City on this and would anticipate meeting with the City in the near future to discuss resolving any license requirements.

- *Plans need to show and label existing and proposed curb.*

  We are resetting existing curb on Fore Street as shown on the plans.

- *Will the applicant be reusing the existing granite curb or installing new granite curb? The applicant shall verify the condition of the existing granite curb and the plans need to be labeled to indicate what will be installed.*

  We are resetting existing curb on Fore Street as shown on the plans.

- *The sidewalk, driveway, curb and street need to be dimensioned on the plans.*

  Dimensions have been added to the site plan.

- *There are existing utilities that conflict with the proposed driveway off Fore Street across from Waterville Street. None of the plan sheets show how or where they will be relocated or adjusted.*

  There is an existing utility pole located within the driveway – this will be relocated as part of the resetting of the overhead lines. As noted in a previous comment, this design is being coordinated with Central Maine Power. We do not anticipate that any other utilities would require relocation or changes as a result of the proposed driveway.

- *Grading Sheets: Spot grades and slopes shall be added to plans at proposed driveways, egress locations, pedestrian ramps, accessible crossings, sidewalks and steps. The finish floor elevation for all buildings shall be shown on the plans (along Fore Street).*

  We are currently working with the Landscape Architect and the Architects on some changes to the grading along both Fore Street and Thames Street. Once we have made these changes we will provide updated grading plans to show additional detail as requested.

- *Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.*

  The entirety of the road shown within the site is private. The profile has been

drawn along the road centerline, as shown by the stationing on the Block 4 Civil Site and Grading and Drainage Plans, and the elevations are provided along the vertical axis. The profile shows only the portion of the road to be constructed as part of Phase 2.

- *Profile: A portion of the proposed street has a 0% slope. Any proposed street shall be designed to have a minimum grade for the centerline of the street that shall not be less than 0.5 percent.*

  The drainage and grading is accounted for through the use of trench drains located at the center of the roadway. While the street itself has a slope of 0%, it has a cross slope draining to the center, the trench drains have a slope, and the discharge pipes beneath the drains are also sloped. As noted in a previous comment, we are currently working on adjustments to site grades – in particular grading changes are being made along the roadway to accommodate the design of the adjacent Block 5 building that will be submitted as part of a separate site plan application in the near future. We will provide additional spot grades for clarity when we resubmit an updated grading plan.

- *The block 4 grading and drainage plan indicates that Jellyfish-2 will be "as-built" prior to this project commencing. It's unclear what phase the Jellyfish unit will be installed in. The concurrent waterfront and utility enabling work phase (PL-00253-2022) calls out a future location of Jellyfish Filter, but does not indicate it will be installed as part of that project. Please clarify when Jellyfish 2 will be installed.*

  We are currently working with the project's Construction Manager to address project phasing between the Waterfront Enabling project and the Block 4/6 project. We will address where to include the Jellyfish filter and will include it on the appropriate project's plan and will resubmit.

- *The applicant should clarify how sanitary facilities associated with the Marina property will be permanently connected to the new sewer system being constructed as part of the block 4 and 6 development. The applicant should clarify the time frame for the removal of temporary sewer holding tanks on marina site. The Interim Marina Site Plan (PL-00289-2022) shows sanitary facilities connecting to an existing EOne pump station on the southside of the railroad tracks. The plan indicates that a force main routes northerly underneath the railroad tracks. It's unclear how this system will be permanently connected to the new sanitary facilities being installed as part of the block 4 and 6 development. Any temporary above ground sewage holding tanks should be eliminated as part of this next*

phase of development.

The Waterfront and Utility Enabling project (PL-00253-2022) will provide the infrastructure to allow for the connection of the marina into the site sewer utilities. When the site's pump station is brought online, we will be able to disconnect the marina's sewer holding tanks and start utilizing the site sewer for the marina. We are currently working with the site contractor on overall phasing and timing between the Waterfront and Utility Enabling project and the Blocks 4 and 6 project, but anticipate that the two sewer holding tanks will need to be utilized for the upcoming year, but with the pump station installation could be removed for the 2024 marina season. We will plan to meet with Public Works and Planning staff on the logistics of this work, and how we could potentially bring the site's pump station online before overall site construction has been completed.

- *An Erosion and Sedimentation Control (ESC) plan shall be added to the plan set, specific to this project, depicting compliance with all City and State ESC regulations.*

  Erosion and Sedimentation Control Plans are provided on "Block 4 Civil Details 1" and "Block 6 Civil Details 2", and associated measures are depicted on the "Civil Demolition" plans.

- *The applicant shall submit a wastewater capacity application for review and approval to the Water Resources division of DPW for this next phase of development.*

  Wastewater capacity applications have been DPW for each of the proposed Blocks and are attached to this application. Confirmation of ability to serve will be provided upon receipt.

- *The intent of the utility extensions along the limit of block 6 work is unclear.*

  Site utilities have been extended to the building structure. The "podium" area is part of the building structure that connects Blocks 4 and 6, and utilities will be run internally from the locations that have been identified on the Block 6 utility plan.

- *The applicant is not showing any external grease traps for any of the proposed development in blocks 4 and 6. The applicant shall confirm that external grease traps are not required for any of the proposed development in these phases. If grease traps are*

required per City of Portland sewer use regulations, then the plans should be updated to show the configuration and location of each unit. Will grease traps be required for any of the proposed future connections associated with building 3 and 6B? If so, the applicant should show the proposed locations and configurations on the utility plans.

The current core and shell design for Block 4 does not include any grease traps. We will work with he architect to determine if any may be required in the future, but would anticipate that these would be addressed through internal building fit-out. We are currently working with the Block 6 Architect to identify the potential location of a grease trap south of the buliding and will provide that on an updated utility plan.

The existing Buildings 3 and 6B were previously permitted with grease traps shown as part of Block 2 in the Phase 1 Site Plan approval. If changes to the previously approved grease trap layout are anticipated as part of the future Block 2 construction, we will provide that as an amendment to the Phase 1 approval.

- *DPW continues to note that Fore Street will be surface paved, curb to curb, in the early summer months of 2023 as part of final work associated with the Fore Street/Eastern Promenade Sewer Separation project.*

  Noted.

- *The stormwater management report indicates that 2 Filterra units will be installed to provide treatment for an interim parking lot as required during this phase of development. These Filterra units appear to have been factored into the required treatment for the entire redevelopment project. DPW assumes there is a plan in place to provide permanent stormwater treatment for block 5, and subsequent development to replace the Filterra units when they are removed during future phases of development. Please clarify.*

  This assumption is correct. Permanent stormwater treatment will be provided as part of Block 5.

- *As part of the recent sewer separation project in Fore Street, the City of Portland completed a curb extension at the NE corner of the Waterville Street/Fore Street intersection. The City installed flush curbing at this location in anticipation of a crosswalk being installed as part of the next phase of the 58 Fore Street project. The City did not complete the ramp work due to safety concerns of implementing a crosswalk ramp*

without the receiving ramp being in place on the southerly side of the street. The developer should include the work to finish the sidewalk ramp at the NE corner of Waterville and Fore Street in order to establish a new crosswalk at this location as shown on the proposed plans.

The plans account for additional work for the completion of the sidewalk ramps required for the Fore Street crossing. We are happy to review with DPW to ensure that adequate accessibility is being provided. As noted in a previous comment, we are currently working on some regrading design for the entrances to the buildings along Fore Street. Once that is complete, we can finalize detailed plan with spot grades that shows how this crossing will be constructed.

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
Technical Manager

Enclosures - the following files have been uploaded separately online and are noted here as new or updated.

- Architecture Plans
  - Block 4 & 6 Combined Elevation (New)
- Landscape Plans
  - Block 4 Landscape Layout and Materials Plan Courtyard (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 1 (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 2 (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 2 Courtyards (Updated)
  - Block 6 Landscape Layout and Materials Plan Level 7 Terrace (Updated)
  - Block 4 Landscape Site Details (New)
  - Block 4 Landscape Courtyard Details (New)
  - Block 4 Landscape Site Furnishings Details (New)
  - Block 4 Landscape Plantings Details (New)
- Civil Plans
  - Overall Site Plan 2 (New)
  - Block 4 Civil Utility Plan (Updated)

    - Block 4 Civil Details 3 (Updated)
- Documents
    - Utility Ability to Serve Requests (New)

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Att. 14

June 23, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to City Staff Comments – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Level III Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following City Staff review comments on the project through you, and provide the following response:

City Staff Comments | June 2, 2023 | PL-002202-2022

CRITICAL PATH ITEMS:

1. Phase 2 Average Grade Calculation: Point D and Point E are not acceptable for determining the average grade as currently shown. As currently proposed, the applicant is not measuring the grade from the post development grade but instead from elevated patios/walkways, sidewalks, and other artificial features, projecting from the building facades and to be constructed on top of a retaining wall, with no fill between the building and the retaining wall, leaving a void, and bearing no relation to the structural functionality of the building in these locations. As previously stated, points can be taken at regular intervals or at prominent building corners. Measurement is required to be taken where the building foundation meets the post development earth grade.

   Response: We have revised the points utilized for the average grade calculation. The attached average grade figure includes the selected points at the prominent building corners where the average of proposed grades calculates to 50 feet. We have also included an updated version of the supplemental architecture package that supports the average grade calculations.

2. Fore Street Retaining Wall + Maintenance: The applicant shall assess the current condition of the Fore Street retaining wall and confirm whether footings or other structural elements being proposed pose a risk to the structural integrity of this retaining wall. This study is required to be completed by a qualified professional and will need to address the following questions:

   1) Can the applicant provide past and current elevation data of the Fore Street Retaining Wall for comparison;
   2) Who will ultimately be responsible for maintenance once the structure is occupied;

3) How will the wall be accessed for maintenance and/or replacement once the structure/building is erected; and
4) What is the estimated lifespan of the wall?

Response: The project team's geotechnical engineer Haley & Aldrich has provided the following information with regards to the existing Fore Street wall. The existing Fore Street retaining wall was constructed in 1876 and a short length of the wall was rebuilt in 1896 for reasons unknown. We have visually observed the condition of visible portions of the wall, and it is our opinion that the wall is in good condition with no visible signs of distress, bulging or movement. We have not conducted any physical investigations to further explore the condition of the wall. As explained below, the proposed improvements will not change the stress condition of the wall. Because of that, we do not anticipate that the condition of the wall will change from its current condition once construction is complete.

The proposed building and support of excavation wall will be located south of the existing Fore Street retaining wall (on the water side). Neither structural system - the building foundation or support of excavation wall - will rely on any portion of the existing Fore Street retaining wall for support. Along the Fore Street/Eastern Promenade side of the proposed building, a slab will span over the existing wall from the proposed building to a foundation beneath the sidewalk. The slab will provide pedestrian access from Fore Street into the residential brownstone units. The slab will be structurally connected to and partially supported by the new building. The Fore Street end of the slab will be supported on a small footing or will bear directly on the ground beneath the sidewalk such that negligible additional load will be imparted onto the existing Fore Street retaining wall. The details of the slab and slab support will be finalized in the next phase of design prior to submission for a Building Permit.

- *Existing wall elevation data is provided on page 11 of the enclosed Geotechnical Data Report dated October 2022 prepared by Haley & Aldrich. Historic plans of the wall showing ground surface elevations prior to construction as well as the design wall elevations are also enclosed.*

- *The Applicant intends to take on maintenance responsibility for the existing retaining wall once the structure is occupied. The Fore Street retaining wall is the subject of an 1876 agreement between the City of Portland and the Portland Company. In the Agreement, the Portland Company gave the City permission to locate the wall on the Portland Company property and the City is responsible for maintaining the wall. The Applicant team will work with Corporation Counsel on an amendment to the Agreement which would transfer maintenance responsibility to the Applicant.*

- *As previously noted, the design intent is to span the wall and maintain the existing stress condition of the wall; therefore, maintenance of the wall is anticipated to continue to be minimal. In the unlikely event that wall maintenance is needed in the future, we will have the ability to observe the façade of the wall after the new buildings are constructed and access it through specific interventions along the wall span.*

- *As noted above, the existing wall was constructed in 1876. Historic plans are enclosed for your reference. We were not the designers of the wall and do not know what the design life of it is. We have visually observed the condition of visible portions of the wall, and it is our opinion that the wall is in good condition with no visible signs of distress, bulging or movement. As mentioned previously, the proposed improvements will not change the stress condition of the wall. Because of that, we do not anticipate that the condition of the wall will change from its current condition once construction is complete. Although not all the factors that could influence the stability and "lifespan" of the wall are controllable, and assuming nothing changes, it's reasonable to believe that the wall could continue to function as originally designed for a duration that is equal to or greater that the design life of the proposed structure.*

3. Townhome Height (35 ft.): Dimensional Standards require that buildings along Fore Street do not exceed the grade of Fore Street by more than 35 feet within 100 feet of the Fore Street ROW. This height restriction is required to be met. The applicant needs to provide updated elevations demonstrating consistency with this dimensional standard.

   Response: The height of the townhomes along Fore Street, both for Block 2 and Block 4, will not exceed the grade of Fore Street, measured at the Right of Way, by greater than 35 feet. The elevation drawings have been updated to provide notation that the buildings meet this dimensional requirement.

4. Geotechnical Study: The applicant needs to provide a Geotechnical Study from a qualified professional demonstrating the proposed development is structurally sound and must demonstrate that all structures (pins, retaining walls, etc.) provide adequate support for the proposed development. From the MDP: *"Preliminary geotechnical exploration will occur to inform the future design details related to the B2 and B4 development blocks, specifically how these foundation systems will interface with the retaining wall system."*

   Response: A Geotechnical Data Report (dated 19 October 2022) and Geotechnical Design Memorandum (dated 17 February 2023) prepared by Haley & Aldrich, Inc. for the proposed Block 4 development have been uploaded to ProjectDox for reference on this comment.

5. Fore Street Public Right-of-Way: The applicant is currently proposing a sidewalk, retaining wall, and footings associated with Block 4 and the townhomes encroaching into the City ROW along Fore Street. In order to encroach into the City ROW, a license agreement is required, which the City has not granted to the applicant at this time. The City reiterates that all privatized developed areas, including any necessary retaining walls, pathways, and patios, fronting Fore Street should be shifted outside of the public ROW and onto the property of the applicant. Any building components, except footings, that extend into the ROW are not supported by the City. The City will continue to coordinate with the applicant team to explore the possibility of entering into a license agreement to allow Block 4's footings to encroach into the City ROW, below grade, that is supported by a geotechnical study.

Response: The enclosed civil and landscape plans, floor plans, and elevations reflect modifications that have been made to the proposed Townhomes along Fore Street. All proposed private improvements that are above-surface have been shifted out of the right-of-way. Structural foundation elements will be required within the Right of Way and will be placed beneath the sidewalk. A draft license agreement for these foundations is attached for your reference. The Applicant will continue to coordinate with the City on these required license agreements.

GENERAL

- Please provide snow storage areas on site or provide a management plan for removing snow from site.

  Response: The Applicant is currently working with a private contractor for snow management on the Site, including the finished Phase 1 development area. Equipment is kept on site during the winter to move snow around as necessary, and the contract includes removal of snow from the site as required. During construction, the contractor will be responsible for snow management in the construction zone and the private contractor will continue to be responsible for the remaining areas on Site. After construction, the Applicant intends to expand the existing contract to cover the completed development areas. The intent is that following construction there will not be significant snow storage on site, and it will be managed through removal.

ZONING

- Zoning will review building height and other dimensional requirements once a revised average grade based on the above comments is submitted.

  Response: Noted.

TRANSPORTATION

1. The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.

   Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The Gorrill-Palmer memo does note that the trip generation estimate provided with this application was based on the 7th Edition of the ITE because that was in effect when the Master Development Plan was approved. Normal practice would be to review phases of that project using the edition in effect at the time of original approval, so that it is a consistent comparison. This comment asked us to provide estimates based upon the 11th Edition of the ITE. We have provided the estimates in Gorrill Palmer's memo as requested but note that this is no longer a direct comparison to what was evaluated and approved during the Master Development Plan.

2. The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.

Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The response to this comment was prepared based on a 20% non-auto trip factor per the direction of Tom Errico on June 22, 2023.

3. All submitted plans depicting parking shall provide dimensions according to the City of Portland Technical Manual.

   Response: The parking garage plans have been updated to include additional dimensions. The space widths are provided throughout the plans. Space lengths have been dimensioned on each row, and all spaces provided in the garage are 18' in length. Drive aisle widths have been dimensioned for each parking aisle. Revised plans have been added to the ProjectDox file.

4. The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changed to methods used in the traffic study noted above.

   Response: Please see the attached memo from Gorrill-Palmer that addresses this comment. The EXCEL file has been provided as a separate attachment.

5. The proposed details are not compliant with City's standards (for example VERTICAL GRANITE CURB, BRICK SIDEWALK and CAST IRON MANHOLE COVER AND FRAME). City Staff recommend that the applicant review and revise all the proposed Site, Sewer, Storm Drain and Landscape details to meet the requirements of the technical manual. State the location of the details in the installation note.

   Response: Applicable sidewalk, driveway apron, and curb details have been added to Civil Detail Sheet C-207 and callouts have been added to the site plans. No manholes are proposed in the City Right-of-Way. All proposed work in the City Right-of-Way will comply with the City's Technical Manual.

6. A Driveway Apron detail was not included in the submitted plan set and should be added. The proposed driveway apron is required to be designed per the City's Technical Manual Section 1 and the City's Sidewalk and Driveway Apron Material Policy.

   Response: We previously requested a waiver from driveway apron standard due to grading constraints. Figure I-9C and I-10A have been added to Civil Sheet C-207. The brick sidewalk on Fore Street will comply with the City's Sidewalk Material Policy.

7. According to DPW there is an existing utility valve that appears to be within the limits of the proposed driveway.



Response: This valve was previously part of the natural gas main. The gas main on Fore Street was relocated as part of the Fore Street Sewer Separation project, and the old main was abandoned in-place and the valves were demolished (see photo below).



8. The applicant has noted that the existing Granite Curb will be reset. The applicant will be responsible for ensuring that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation/during construction.

   Response: Noted.

9. DPW understands that the applicant is coordinating the relocation of the overhead utilities and poles with Central Maine Power. The applicant is responsible for ensuring that the design/location of the proposed building maintains the required offset from existing overhead utilities if the building is constructed prior to the utility relocation. Be aware that the curb line shall not be extended into the existing pavement to accommodate future utility pole relocations if the coordination is not completed

before the building is constructed. DPW is requesting all overhead utilities and related infrastructure to be shown on all plans and elevations.

Response: Proposed utility pole locations are shown on the Site Plans and Utility Plans. The Applicant is working with CMP to finalize the design of the electrical utility to be installed as part of this project. The utility design will provide adequate separation distance from proposed buildings. The overhead electric service has been added to the Utility Plans. Additionally, the utility poles and overhead utilities are shown on the Block 4 Renderings.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

1. DPW's project manager for the Fore/Eastern Promenade Sewer Separation project is available to meet onsite to discuss coordination of the two projects including the proposed crosswalk at Waterville and Fore.

   Response: Noted. We are happy to meet with DPW for further coordination.

2. The applicant shall clarify how the marina sanitary sewer force main will connect to the new sewage pump station being installed as part of the Phase 2 (block 4-6) work. This may require final approval for the minor site plan amendment PL-002252-2022. Applicant shall finalize plans associated with PL-002252-2022 before receiving approval for this site plan.

   Response: The force main will not become active/online until the pump station is installed. Once the pump station and force main are active, the temporary service will be abandoned in place.

3. The applicant shall update the project's wastewater capacity application, previously sent to DPW water resources engineering to include projected flows from block 5. The application on file does not include this information.

   Response: The updated Wastewater Capacity Application is enclosed.

4. The applicant had previously noted that placement of grease traps associated with block 6 were still being determined and they would appear on subsequent utility plans. This updated plan set still does not include any grease traps. Similarly, if any grease traps are required for the recently added block 5 work, they should be added to the utility plan. All sizing and configurations of grease traps shall be in accordance with section 2 of the technical manual.

   Response: The proposed retail spaces are core and shell only, and the use of the space is to be determined as it is contingent on future tenants. Internal grease traps will be provided for restaurant/kitchen uses. We anticipate internal grease trap applicability, configuration, and sizing will be addressed as part future building permit processes for individual space fit-outs as tenants are identified.

5. An oil water separator has been designed to treat flows coming from an internal parking garage as part of the block 4 work. The applicant shall confirm oil water

separators are not required for any internal parking areas associated with blocks 5 and 6.

Response: An oil/water separator will be provided in the Block 6 building and will be plumbed to sewer. We anticipate this will be reviewed as part of the building permit process.

6. Several sewer service pipes are shown with a slope less than 1/8 in/ft. Based on the City of Portland Technical Manual it is stated that, "All building sewer laterals shall have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed." We recommend the slopes for sewer pipes be revised to meet City standards or a waiver is requested if this is not achievable due to existing infrastructure grades.

   Response: The proposed sewer services within the project area are all private services that connect to the private main and pump station within the site that discharges to the gravity service lateral connection on Thames Street that was installed during Phase 1. It is our understanding that the City Technical Manual only applies to service laterals in the Right-of-Way; no new service laterals are proposed in the City Right-of-Way as part of this project.

7. Phase 2 Civil Plans and Details Sheet C-102: There are catch basins with a rim elevation at the same elevation as adjacent spot grades provided (AD11, CB7, CB8). We would recommend additional spot grading or adjustment of adjacent grades or rim elevations to promote positive drainage towards the catch basins.

   Response: Additional spot grades are provided on the Grading Plans at these locations.

8. Phase 2 Civil Plans and Details Sheet C-102: AD12 has a rim elevation of 14.80' based on Sheet C107 – Civil Pipe & Structure Tables. The linework for SMH-14 is covering the adjacent spot grade, but it appears that the adjacent spot grade is 14.7'. If this is in fact the case, we would recommend grading be revised in this area to promote positive drainage to AD12.

   Response: The spot grade has been updated accordingly.

9. Phase 2 Civil Plans and Details Sheet C-102: It is unclear how the podium area on the east side of Block 4 will drain. The provided spot grades around the podium are 23.89' with adjacent spot grades all being higher than these points making this area a low point. We would recommend considering the need for drainage infrastructure or revising proposed spot grades to drain to proposed storm drainage infrastructure.

   Response: The podium area, while connected to the driveway on the site, is actually part of the building structure constructed over the below-grade parking garage. Drainage from the podium, which acts like a building roof, is plumbed internally to Block 6, which exits the building along the southwest corner and discharges into DMH14.

10. Phase 2 Civil Plans and Details Sheet C-104: Pipes S16, S14, S15, and S33 are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter shall not be connected into

a sanitary manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.

Response: Sewer pipes S14 and S33 are trunk lines servicing Block 2, and S15 and S16 are building service laterals. As previously noted, the proposed sewer services are all private services that drain to the site's internal private main and pump station system the gravity service lateral connection on Thames Street that was installed during Phase 1. It is our understanding that the City Technical Manual only applies to service laterals in the Right-of-Way; no new service laterals are proposed in City Right-of-Way as part of this project.

11. Phase 2 Civil Plans and Details Sheet C-104: the label for SMH14 is covering the label for the sewer pipe. It is unclear which sewer pipe in the pipe table (Sheet C-107) is between SMH14 and SMH6.

    Response: The layering has been updated accordingly.

12. Phase 2 Civil Plans and Details Sheet C-107: Several storm drain pipes are shown as having slopes less than 0.005 ft/ft with some drain pipes shown as being placed flat. We would recommend providing a minimum of 0.005 ft/ft slope for all storm drain pipe to ensure positive drainage.

    Response: Noted. Storm drain slopes have been maximized to provide positive drainage to proposed stormwater treatment systems and outfalls. We are working within the constraints of a relatively flat site, and understand the challenges of low slopes on piping.

13. Phase 2 Civil Plans and Details Sheet C-203: There are several area drains on sheet C-107 that are proposed to be 1' diameter. We would recommend a detail be provided for the type of grate to be used for these structures.

    Response: An Area Drain Detail, which shows the proposed grate, is provided on Sheet C-201.

14. Phase 2 Civil Plans and Details Sheet C-204: The applicant is proposing to install a tree over the top of proposed subsurface R-Tank #2. Based on available literature of R-Tank systems, it is not recommended to place large trees over these systems. We would recommend the applicant confirm that this is acceptable with the manufacturer or remove the proposed tree.

    Response: As shown on the detail plan view on Sheet C-204, the proposed R-Tank modules are arranged in a donut shape around the tree, with no modules proposed under the tree. A structural root containment system is proposed for additional protection against root penetration. We are working with both manufacturers to ensure adequate protections are provided.

15. CB27, SD123, CB28, SD124, CB21, and SD57 on Sheet C-102 are not seen on the Pipe & Structure Table (Sheet C-107).

    Response: The referenced pipes and structures have been added to the tables.

16. CB13 has a rim elevation of 14.40 based on Sheet C-107 – Civil Pipe & Structure Tables. Sheet C-102 shows a spot elevation of 14.55 on CB13. Please confirm the correct elevation and revise as necessary.

    Response: The Structure Table was revised accordingly.

17. The Major Site Plan PFDC Phase 2 Checklist notes that "directional flows of all proposed sewer and stormwater infrastructure" are required on utility plans. Please provide flow direction arrows for all proposed sewer and stormwater infrastructure in accordance with this requirement.

    Response: Directional flow arrows have been added to the plans.

18. Please provide a detail showing storm drain pipe connections. For instance, SD39 is shown to connect into SD40 on Sheet C-102, with not catch basin or drain manhole.

    Response: Our intent is to use our standard wye connection, which is represented in a detail on sheet C-201. The title of the detail has been revised so that it is not specific for sewer.

19. Several area drains on Sheet C-107 are listed with a diameter of 1' and a pipe of 10". The applicant has also provided a detail of the area drains on Sheet C-203. There is a note on the proposed detail which states that the diameter of the hole should be 3" larger than the inside diameter of flexible pipe or the outside diameter of rigid pipe. Based on the detail provided, and the proposed sizes of the area drain and storm drain pipe, it is unclear how there will be sufficient room to accommodate the pipe within these structures.

    Response: The proposed area drain inner diameter is 15" and the structure table has been updated.

20. SW Management Plan Comments

    a. Section 1.3 – Proposed Development: The Applicant indicates that Jellyfish Filter 2 will be relocated and invert elevations adjusted as part of this project. However, it is not clear on the plans where the filter will be relocated or what the adjusted elevations of the inverts are. We would recommend the Applicant clearly show where the filter is to be relocated and provide updated invert information for the filter.

       Response: The design has advanced and the proposed Jellyfish Filter location is shown on the design drawings on the PF Marina property southwest of R-Tank System 2. The Jellyfish Filter has been added to the structure table and inverts have been confirmed.

    b. Section 1.4 – General & Redevelopment Standards (Stormwater Quality): The Applicant indicates that they will continue to coordinate with MaineDEP to obtain approval for reduced water quality volume. It is recommended that the applicant provide documentation stating that a reduction in required water quality volume is accepted by MaineDEP prior to final approval.

Response: Noted

c. Section 1.4 - General & Redevelopment Standards (Stormwater Quality): The Applicant states that the Jellyfish Filters are sized to meet flow from 1-inch of runoff. It is recommended that the applicant include a 1-inch storm in the HydroCAD model to ensure the Jellyfish sizing meets the flow requirements outlined in the MaineDEP proprietary BMP approval letter.

   Response: The HydroCAD report for the 1" storm is provided in the Stormwater Management Report uploaded to ProjectDox. Please note the only component of the Stormwater Management Report that was revised is Appendix C (HydroCAD Report); the other components remain the same as the previous submission.

d. Section 1.4 - General & Redevelopment Standards (Stormwater Quality): The Applicant indicated they are coordinating with the manufacturer on approval of the Jellyfish Filter design and can provide a manufacturer letter of approval. Please provide approval letter once received.

   Response: Noted.

e. HydroCAD – Pond 12P – Jellyfish 2: It appears that the applicant is modeling the bypass weir as device #3. If this is the case, the invert elevation used in HydroCAD does not match the elevation shown for the Peak Diversion Jellyfish Filter #2 Detail on Sheet C-206. Please confirm which elevation is correct and revise the other as appropriate.

   Response: The invert on the detail has been updated accordingly.

LANDSCAPING & ENVIRONMENTAL QUALITY

- Parks, Recreation, and Facilities Reviewers will be providing additional comments regarding landscaping and street trees.

  Response: Noted. We have received additional comments within this category; however, they are related to the work proposed as part of the Phase 1 Amendment project. We'll provide responses to those comments as part of the response provided for that project.

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
Technical Manager

The following supporting documents have been uploaded to ProjectDox, each is noted as a new upload or a revision to materials that have previously been uploaded:

- Average Grade Figure & Supplemental Architectural Plans (Revised)
- 2023.06.23 Traffic Summary Response Memo (New)
- 2023.06.23 Combined Shared Parking Demand 5th Edition – Protected (New)
- Block 4, 5, and 6 Parking Plans (Revised)
- Geotechnical Data Report (New)
- Geotechnical Design Memorandum (New)
- Fore Street Historic Retaining Wall Drawings (New)
- Civil Plans and Details (Revised)
- Block 4 Elevations (Revised)
- Block 4 Floor Plans (Revised)
- Draft Fore Street Foundation License Agreement (New)
- Stormwater Management Plan (Revised with updated HydroCAD model)
- Wastewater Capacity Application (Revised)

cc: Dave Senus, PFDC
Mary McCrann, PFDC
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Att. 15

August 7, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to City Staff Comments III – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Level III Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following City Staff review comments on the project through you, and provide the following responses:

City Staff Comments | July 26, 2023 | PL-002202-2022

PRIORITY ITEMS

1. *Foundation Plan, Overall Site Plans, and Unified Floor Plans*: The following drawings and supporting documents are still needed:

   - Full Foundation Plan. This plan should clearly demonstrate that the project consists of one building with a common foundation and three separate towers. Additional information has been submitted since the initial application showing the location of the plinth, but the full extent of the foundation, and how it relates to/differs from the Common base is still not discernable in the materials.

     Response: A Full Foundation Plan was uploaded to ProjectDox on August 4, 2023, as part of the file 2023.08.04 PFDC – One Building Plans & Average Grade.

   - Overall Site Plan that includes the extent of work being proposed as part of the Phase 2 Development on a single sheet. This has been previously requested and still is outstanding.

     Response: The Overall Site Plan is included with this response.

   - Unified and Complete Floor Plans that include Block 4, Block 5, and Block 6 structures. The application treats these blocks separately while requesting they be reviewed as one building, but the application materials will need to consistently show how the blocks physically relate to each other in order for the review to be completed.

     Response: Unified floor plans were uploaded to ProjectDox on August 4, 2023, as part of the file 2023.08.04 PFDC – One Building Plans & Average Grade.

2. *Geotechnical Study:* The applicant has provided documents and reports regarding Geotechnical elements of the proposed development. City Staff and Third-Party reviewers will provide review Comments at a later date. City Staff and Corporation Counsel continue

to review the existing easements and proposed easements associated with maintenance of the retaining wall.

Response: Noted. We respectfully request that the Geotechnical Third-Party review of the proposed SOE wall be made a condition of Site Plan approval for Phase 2, requiring completion of this review, and addressing of any comments prior to the issuance of the building permit required for the SOE wall.

3. *Fore Street Public Right-of-Way:* The most recent submission addresses encroachment concerns into the City ROW along Fore Street. The City will continue to coordinate with the applicant team regarding a license agreement to allow Block 4's footings (proposed to be located above the Fore Street retaining wall) to encroach into the City ROW.

   Response: Noted. We respectfully request the final license agreement for the Block 4 footings and soil nail wall along Fore Street be made a condition of approval for Phase 2, similar to what was included as a condition for Phase 1.

4. *Construction Management and Phasing Plan:* Please submit an updated Site Development Phasing Plan and a supporting Phased Construction Management Plan. The Construction Management Plan will need to be consistent with the submitted drawings and documents and include all work proposed on site including PL-002252-2023, PL-002253-2023, and PL-002202-2022.

   Response: A Construction Management Plan supplement that includes the waterfront work within project PL-002253-2022 has been uploaded to both project folders for reference. We have not received comments on the submitted construction management plans – we will address comments as they are received.

5. *Block 6 Cart Storage:* City Staff have determined that the storage cart room is a Warehousing and Storage use, which is a conditional use in the B-6 Zone. Section 6.4.11(A) states in the B-6 Zone that Marine Uses should include marine products, wholesaling, and retailing, harbor, and marine supplies and services. Marine supplies and services are associated directly with the operation of the vessel; the storage and golf cart room cannot be considered accessory to the marina because it is not located on the marina lot.

   - L1.1 - Sheet appears to show a vehicle parking area by stairs in building six under "Level 1" label. Please clarify vehicle storage and provide vehicular use path diagram and brief management narrative for how vehicle and its function to the property operation will work. Eastern Trail and narrow—gauge circulation patterns take priority and all pedestrian and passenger safety must be ensured. Any vehicle's use of trail must be more detailed and closer coordinated with the Parks Department. Keeping vehicles off of Eastern Promenade trail and high pedestrian use areas is a priority, and mitigation of impacts to the trail will be a critical element of the review.

   Response: The storage cart room has been eliminated from Block 6. Plans are being revised to reflect this change and will be provided after the August 15, 2023, Planning Board Workshop.

GENERAL

- Inclusionary Zoning calculations will be completed following applicant's next resubmittal.

  Response: Noted. As outlined in the next comment, the total unit count for Block 4 is now 199. Please let us know if additional information is required from the Applicant to complete the Inclusionary Zoning evaluation.

- Please be sure to update any of the programming changes in the cover letter as the proposed programming relates to the original proposed programming at the time of MDP approval.

  Response: The proposed Block 4 changes result in the following unit counts for the Block:
  - *Townhouses: 16*
  - *Studio Apartments: 114*
  - *1-Bedroom Apartments: 59*
  - *2-Bedroom Apartments: 10*
  - *Total Block 4 Unit Count: 199*

- The applicant should provide additional information regarding the use, proposed means of access, and legal rights to access the small paved parking area at the rear of 21 Eastern Promenade.

  Response: The 21 Eastern Promenade property is under common ownership with the 58 Fore Street property. In the future if this changes, updated easement access documents will be provided to the City.

- City Staff are still reviewing the proposed Subdivision Plat amendment and may require additional draft easements or edits.

  Response: Noted.

- The applicant will be required to provide all final documentation regarding the land swap between Portland Foreside, MaineDOT, and the City of Portland once the land swaps have been finalized. The applicant will need to provide any final easements or agreements at that time.

  Response: Noted.

- The applicant should submit all existing easements located on site including easements with or from Central Maine Power and Portland Water District.

  Response: Existing easements are reflected on the overall Subdivision Plan.

- The applicant should provide draft Condo Association documents and clarification regarding which units are rental, which are ownership units.

  Response: We respectfully request that the provision of condominium documents be made a condition of approval. These documents are currently under development. All residential units in Blocks 5 and 6 will be listed for sale. In Block 4, all townhome units will be listed for sale, and the remaining residential units will be listed for rent.

ZONING

- City Staff continue to review the submitted Average Grade Plan. The full foundation plan (see above) will help clarify whether any additional points are needed or any need to be adjusted before a final determination on this key zoning compliance issue can be made.

  Response: The Full Foundation Plan has been provided as noted in this response to comments. The submitted plans also show the proposed average grade points on the 6th Floor plan.

- In the July 7,2023 Planning Board Workshop Memo, City Staff identified elements of the proposed development that are not zoning compliant. City Staff have met with the applicant team and provided further guidance. City Staff have requested updated drawings with relevant zoning dimensional requirements included and properly dimension on the plans:

  - **Block 4** related to the B-6 Eastern Waterfront zone dimensional requirements.

  - **Block 5** City Staff have determined that certain elements of the proposed roof plan for Block 5 do not serve as appurtenances (e.g. Telecom and Electrical rooms). Additionally, City Staff have determined that an elevator can service the rooftop amenity deck but the elevator will be required to open out directly to the rooftop. Elevator overrun and supporting screening should be minimized to the fullest extent possible. The Design Review memo includes language and guidance to the screening on Block 5. City Staff have also requested that the applicant reduce the total number of elevators accessing the top floor.

  - **Block 6** Please provide updated drawings that show relevant R-6 zoning dimensional requirements.

  Response: Updated drawings were provided via email and uploaded to ProjectDox for Block 4 on August 4, 2023, and Block 6 on July 25, 2023. Updated drawings showing reduced design elements on the rooftop of Block 5 were also provided on August 4, 2023. These plans are continuing to be revised based on Zoning comments received and will be resubmitted soon under a separate cover.

- City Staff require additional information regarding the operation and use of the proposed CbFt storage area located along the waterfront—side of Block 6, particularly in regard to trail impacts and site circulation.

  Response: The storage cart room has been eliminated from Block 6. Plans are being revised to reflect this change and will be submitted following the August 15, 2023 Planning Board meeting.

TRANSPORTATION

- The trip generation estimate was updated to reflect data contained in the 11th Edition of the Trip Generation Manual. All back-up calculations will need to be provided (similar to what was provided for the 7th Edition).

  Response: There are ongoing discussions on transportation requirements for this project. This comment will be addressed under separate cover.

- The number of vehicle trips estimated under the full build-out of the site as compared to the estimate utilized in the original TMP is summarized as follows:
  - Unadjusted Trips
    - AM Peak Hour
      - 2017 TMP: 769 trips
      - 2023: 609 trips
    - PM Peak Hour
      - 2017 TMP: 921 trips
      - 2023: 1074 trips
  - Adjusted Trips (with Internal Capture Only)
    - AM Peak Hour
      - 2017 TMP: 667 trips
      - 2023: 463 trips
    - PM Peak Hour
      - 2017 TMP: 771 trips
      - 2023: 724 trips
  - Adjusted Trips (with Internal Capture and Mode Share)
    - AM Peak Hour
      - 2017 TMP: 506 trips
      - 2023: 370 trips
    - PM Peak Hour
      - 2017 TMP: 585 trips
      - 2023 579 trips

  The trip generation estimates, when adjusted, are in compliance with the approved TMP. City Staff and Third-Party Reviewers are seeking clarification from MaineDOT to determine whether unadjusted estimates need to be part of the comparison for TMP compliance.

  Response: There are ongoing discussions on transportation requirements for this project. This comment will be addressed under separate cover.

- The Traffic Assessment only includes an assessment of trip and parking generation. Given that the Master Development Plan approval included a requirement that a phased Traffic Movement Permit be required, please provide a traffic study that assesses traffic mobility and safety as part of this site plan application.

  Response: There are ongoing discussions on transportation requirements for this project. This comment will be addressed under separate cover.

- City Staff and Third-Party Reviewers reviewed the parking demand estimate and are requesting additional information as noted below:

  - Multi-Family 1.21 spaces per unit - The applicant should provide back-up information for time-of-day and parking generation assumptions.
  - Specialty Retail 1.95 spaces per 1,000SF - The applicant should provide back-up information.
  - Hotel 1.1 spaces per room - The applicant should provide back-up data for the parking generation rate.
  - Spa 4.3 spaces per 1,000SF - The applicant should provide back—up data for the parking generation rate.
  - The applicant should confirm that the trip generation and parking generation assumptions for ITE land use codes are the same or different.

  Response: There are ongoing discussions on transportation requirements for this project. Thi This comment will be addressed under separate cover.

- The applicant should create a 20-scale plan (on 24" X 36" Sheet) depicting and labeling all improvements and existing conditions within the ROW (Fore Street).

  Response: We are currently developing a plan to reflect all the proposed requests for Fore Street. We understand that there is further information that will be provided on this area by the City. We will coordinate with the City and will plan to provide additional updated drawings under separate cover.

- Improvements and existing conditions (such as the Fore Street ROW, lanes, sidewalk, esplanade, and driveways) should be clearly dimensioned on the plan view sheets at various locations and should include both typical widths and any pinch points.

  Response: We are currently developing a plan to reflect all the proposed requests for Fore Street. We understand that there is further information that will be provided on this area by the City. We will coordinate with the City and will plan to provide additional updated drawings under separate cover.

- The applicant should provide a detail in the plan set that depicts how the existing Fore St. retaining wall, the proposed sidewalk and the proposed building landings will interface.

  Response: This detail section is included with this response.

- The plans need to clearly identify areas of both existing and proposed curb, and should identify, if applicable, whether any curbing will be reset during construction. The applicant has noted in the past that the existing Granite Curb will be reset along Fore Street. This work should be noted on the plans and reference where the details to be followed can be found. The applicant should ensure (at the time of construction) that the existing granite is free of any defects such as but not limited to chipping and cracking. Be aware that Public Works may require the use of new granite curb upon inspection of the existing granite curb prior to installation/during construction.

  Response: Granite curb is proposed to be reset along the southern edge of Fore Street as shown on the plans as proposed curb, so long as it is free from defects and approved by Public Works. Notes have been added to the Demolition Plan (callout on Sheet C-002) and the Site Plans (General Note 3 on Sheet C-100 and C-101).

- The finish floor elevation in relation to the sidewalk along Fore Street for all buildings should be shown on the plans.

  Response: The finish floor elevations are shown as spot grades at the building entrances along Fore Street on the Grading Plans (Sheets C-102 and C-103).

- The existing retaining wall along Fore Street should be clearly identified and labeled on the plans when relevant.

  Response: The existing retaining wall has been delineated on the Existing Condition Plan (C-001) and Demolition Plan (C-002). A note was added to the Demolition Plan indicating the wall should be preserved and protected.

- Grading Sheets: Spot grades and slopes should be added to plans (within the ROW) at proposed driveways, pedestrian ramps, accessible crossings, sidewalks, egress locations and steps.

  Response: Spot grades and slopes are being updated and will be provided as part of the final Fore Street plan referenced in prior comments.

- The applicant should design the proposed driveway off of Fore Street using the current City standard Residential Driveway Apron I-9A eliminating the proposed tipdowns.

  Response: The steepness of the existing Fore Street slope does not allow for the creation of a continuously graded driveway apron without pedestrian ramps, per the current requirements of the Department of Public Works. In order to enable a driveway entrance to the parking garage from Fore Street, pedestrian ramps are required. We are respectfully requesting a waiver from the driveway apron standard as previously noted in the Site Plan Application narrative. This was included in the initial application materials, but please clarify if additional information is required.

- The proposed accessible ramp adjacent to the driveway should be redesigned and constructed separate from the driveway apron using the sidewalk as the landing. See example below.



Response: Due to the steepness of Fore Street, a raised entrance is not achievable for the proposed driveway entrance as previously noted. Likewise, a separated accessible curb ramp like the one shown below is not achievable due to the steepness of Fore Street.

- Profile: Label where City ROW ends and Private property begins. Show the centerline elevation of the road. The profile (notes and labels) needs to be updated to reflect the portion of the road that has been constructed so far.

  Response: The profile on Sheet C-106 is of Thames Street within the project site, which is entirely private along the section shown. A label has been added to the profile for clarification. Centerline elevations have been added as requested and a callout was added to indicate the portion of the road that was previously constructed.

- City staff and the City's Consulting traffic engineer have confirmed that both on-street parking and a bike travel lane can comfortably fit on Fore, and therefore a bike lane can be included and shown striped between the travel lane and the parking lane, on the ascending side of Fore Street.

  Response: We are currently developing a plan to reflect all the proposed requests for Fore Street. We understand that there is further information that will be provided on this area by the City. We will coordinate with the City and will plan to provide additional updated drawings under a separate cover.

- TDM Comments:
  - Page 7: Please describe the types of racks per the COP Technical Manual bike rack inventory types and the capacity of each rack and total capacity outside.
  - Page 8: Update City Bike Share information to include Monthly *'and Annual'* Memberships.
  - Page 10: Please see the expanded transit access plan from GP Metro. Changes will impact Husky Line, Routes 2 + 4.
  - Page 11: Clarify if SunLife Parking (68 spaces) is employee or SunLife paid parking?
  - Page 11: What will be the parking policy for the hotel operation?
  - Page 12: Please describe the ownership/management structure of the various properties to identify who will be responsible for the annual monitoring and reporting. For example, would this be the responsibility of each individual tenant or Portland Foreside?

- Page 15: The November 2022 Technical Manual updates eliminated the TDM requirements for parking and trip reduction monitoring unless otherwise required by some other mechanism such as the TMP and/or other conditions of approval by the Planning Board. The new single metric City Staff requires establishes mode share targets and reporting on progress toward achieving set targets. The tenant mix may be conducive to establishing and surveying for multiple targets (for instance residential all travel; office commute mode share; etc.). SunLife could be governed by the prior TDM Plan until 1 year following the Certificate of Occupancy for Phase II of development.
- Page 17: Please fix formatting for Charts.
- Page 17, Short-Term Box: Provide more definitive numbers on memberships.
- Page 17: User/Group Residents: How and by what means?
- Page 19: Please provide information on employee parking out of pocket costs in narrative.
- Page 19: Are the employee counts for all tenants and Portland Foreside, who specifically?
- Page 22: Once Phase II development is active (or sooner at applicant discretion), the parking and trip monitoring may be useful for establishing and report on mode share targets and actual mode share but are not otherwise required (unless by a TMP or other condition of approval).

  Response: Edits to the TDM Plan are currently in progress and will be provided under separate cover.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- A condition of approval should be added to the project to ensure the applicant's utility plan is ultimately updated to depict the sizing, location, and configuration for any required external grease traps to ensure compliance with City of Portland technical standards. This updated plan should be sent to DPW for review and approval prior to the issuance of a building permit.

  Response: Noted.

- At a minimum, a Condition of approval should be added to the project to ensure the applicant's utility plan is ultimately updated to depict the location and configuration for any required oil/water separators to ensure compliance with City of Portland technical standards. This updated plan should be sent to DPW for review and approval prior to the insurance of a building permit. The project oil/water separator detail should be updated to match the detail found in section #2 of the technical manual.

  Response: Noted. The oil/water separator detail has been updated accordingly.

- DPW Water Resources has determined that the service laterals outside of the City ROW are not exempt from the City Technical Manual:
  - All building sewer laterals should have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed. According to

international plumbing code, 4" and 6" building sewer laterals should have a minimum slope of 1/8" per foot.

Response: The building sewer laterals are currently being evaluated and will be updated and submitted under separate cover.

- Phase 2 Civil Plans and Details Sheet C-10 4: Pipes S16, S14. S15, and S33, are assumed to be sewer service laterals for future construction. Per the City of Portland's Technical Manual, sewer service pipes which are 4" or 6" in diameter should not be connected into a sanitary manhole and only into a sanitary sewer main. Please confirm the intent of these sewer pipes and revise as appropriate.

  Response: S16 is a sewer service lateral for the proposed Block 2 townhouses (included in Phase 2). S15 is a sewer service lateral for Block 2 Building 3 (future construction). Both building laterals have been adjusted to wye into the sewer main. Pipes S14 and S33 are sewer mains that will be extended to serve Block 2 in the future. Therefore, these sewer mains continue to outlet to sewer manholes.

- The applicant should provide documentation of approval from both manufacturers of the Structural Root Containment System proposed for additional protection against root penetration.

  Response: We are currently working with the manufacturer on the proposed design, and can provide confirmation of design under separate cover.

- The applicant will need to provide final confirmation from utility providers that they have adequate capacity to service the proposed development.

  Response: The Portland Water District ability to serve confirmation has previously been provided, as has the request for sewer ability to serve. The Central Maine Power ability to serve has been received and is provided with this response.

- The directional flow arrows are not shown on following pipes or flow arrow is covered by a different layer: SD47, SD40, SD116, and SD113.

  Response: The flow arrows have been adjusted for the listed pipes accordingly.

- The applicant responded to details showing storm drain pipe connections (SD39 to SD40 on C-102) with no catch basin or drain manhole. The applicant responded, "Our intent is to use our standard wye connection, which is represented in a detail on sheet C-201. The title of the detail has been revised so that it is not specific for sewer." The plan view of the Typical Later WYE Connection Detail provided on Sheet C-201 calls out "Main Sewer." It is recommended to revise this callout to include storm drain.

  Response: The callout has been revised accordingly.

- Phase 2 Civil Plans and Details Sheet C-203: The Field Inlet Grate detail is shaded out. It is recommended to include the detail in the plans.

  Response: The printing error has been resolved.

- Section 2.9.10 of the City of Portland Technical Manual states, "Field inlets or Type-F catch basins may be used when outside of city street right of ways within lawn areas, with Department of Public Works approval." Although the three field inlets (FI11, FI12, and FI13) appear to be located within the Paver Plaza Area, DPW will need to approve the field inlets.

  Response: Noted. These field inlets are located on private property.

- Phase 2 Civil Plans and Details Sheet C-102: Grades for CB-27 and CB-28 are provided on Sheet C-107. There is a spot grade to the west of the R-Tank but due to the site being relatively flat, it is recommended to provide additional spot grading to promote positive drainage towards the catch basins and drainage infrastructure.

  Response: Additional spot grades will be added in the plaza area west of Block 5 to clarify the grading intent. This will be provided on an updated grading plan to be submitted under separate cover.

- Stormwater Management Plan:
  - Section 1.4: General & Redevelopment Standards (Stormwater Quality): Based on requirements outlined in the Maine DEP proprietary BMP approval letter, it does not appear that Jellyfish 2 can handle the inflow from the 1-inch storm. Please confirm that the proposed Jellyfish 2 meets the requirements of Maine DEP or revise as appropriate.

    Response: We are currently working with the Jellyfish manufacturer on a design certificate that we will provide to the City under separate cover.

  - The applicant has provided manufacturer inspection and maintenance guides for the Jellyfish Filters. The inspection frequency states a minimum of quarterly inspections during the first year of operations but that a minimum inspection frequency of yearly in subsequent years. We would recommend the applicant provide a narrative to have the filter inspected a minimum of every six months and the filters maintained yearly per the Maine DEP approval letter dated January 21, 2015.

    Response: The Stormwater O&M Manual has been revised and is enclosed with this response to comments.

LANDSCAPING & ENVIRONMENTAL QUALITY

- All layout plan sheets - in plans with project area adjacent to existing narrow-gauge railroad and/or eastern trail, show rail and trail infrastructure edge, R.O.W and label accordingly.

  Response: We are coordinating the drawing revisions and will provide updated plans under separate cover.

- Phase 2 Civil Plans – C201 and Phase 2 Landscape Plans and Details LD 1.0 - Civil details and Landscape details (curbing) do not correspond to one another. Ensure appropriate detail selected is consistent between documents. Include note or call outs in civil layout plans for paving, curbing and other hardscape or street furnishing details that are being managed by other disciplines.

  Response: We are coordinating the drawing revisions and will provide updated plans under separate cover.

- Ensure hatching on civil plans for hardscape material layouts correctly correspond with hardscape discipline lead documents (assuming this is the landscape architectural layout set as leading material layout document).

  Response: We are coordinating the drawing revisions and will provide updated plans under separate cover.

- C103 - Include general note or callout on plans referring reader to landscape plans for spaces with signature planting or typical planting condition elements or furnishings.

  Response: General Note 1 on Sheets C-100 and C-101 have been updated to include the requested information.

- Landscape plans - please provide section and details on edge condition / transition condition between Narrow Gauge R.O.W, tracks and project work areas. If condition character or typology changes along the boundary of property and Narrow—Gauge R.O.W (e.g. pedestrian hardscape condition, vs vegetation bed.) Ensure that some discernible boundary element, even if something as simple as a raised curb, is utilized to prevent uncontrolled crossings into narrow gauge tracks.

  Response: We met with the City on August 3, 2023 to discuss landscaping elements along the Narrow Gauge Railroad and Eastern Promenade Trail. The drawings are being updated accordingly; updated plans will be provided under separate cover.

- Street Trees:
  - Street Tree Calculation:
    - Residential Requirement: 1 tree per unit planted in ROW and/or along private roadways unless otherwise approved and spaced 25' to 35' apart. Based on the current proposed development, the applicant would be responsible for 444 street trees. Section 14.6.2 of the Land Use Code covers street tree alternatives that will be applicable to this site. Final street tree calculations will be included as part of the final planning board report.

      Response: As noted during the Landscaping design review meeting with the City on August 3, 2023, existing conditions on Fore Street, in particular the existing Fore Street retaining wall and both underground and overhead utilities, preclude the viability of street trees along the project frontage. In order to activate Fore Street, a building footing spanning the existing Fore Street retaining wall is required. There is

not enough space between the Block 4 footing and curb to provide soil volumes to support viable street trees. Planter boxes proposed on the building structure in front of the Fore Street Townhouses will be robustly planted as soil volumes allow. The Applicant acknowledges that contribution to the City Street Tree Fund will be required for the project.

- City Staff will need to update the Phase 1 approval and potentially account for any required street trees. A partial CoO was granted for the SunLife building and focused on the street tree requirement.

  Response: Noted.

- Street Tree Guidance:
  - City Staff support establishing a robust and long—lived urban forest canopy to the extent possible. Applicants and design team should strongly consider working with city departments to establish street tree infrastructure that exceeds city standards and ensures a healthy / lasting urban canopy in the project areas with regard for incorporating stormwater management infiltration capacity to a linked street tree corridor or other street tree / stormwater infiltration design approach.

    Response: The Applicant and Design Team met with the City on August 3, 2023 to discuss street tree alternatives. As previously noted, street trees will not be provided on Fore Street due to existing constraints. The Landscaping Plans are being updated accordingly and will be provided under separate cover.

  - The applicant is encouraged to find opportunities to create, continuous / connected, unified soil volumes along linear blocks of street tree plantings where possible, or individual tree planting conditions that support a mature and healthy street tree.

    Response: As discussed in the August 3, 2023 meeting, there are many challenges impacting the landscaping design along Fore Street, including the existing steepness of Fore Street, the need to span over the existing Fore Street retaining wall with a building footing, and to provide access points from the sidewalk to the Townhouses and public plazas. Due to these site conditions, the proposed planters will have varying soil volumes, and will be planted as robustly as soil volumes allow.

  - Street tree well design is encouraged to create a continuous, connected series of tree wells along blocks / or corridors. Street tree and street tree support infrastructure should provide consideration and accommodation for:
    - Sufficient soil volume
    - Trunk flare and adequate space / capacity for trunk and trunk flare growth over time
    - Water into soil (very important part of success)
    - Water out of soil
    - Sufficient room for canopy growth of tree
    - Specifications to ensure quality of nursery stock

Response: As previously noted, street trees will not be provided along Fore Street.

- Fore Street Trees: As part of the updated streetscape, City Staff would like the applicant to consider adding small street trees along Fore Street if the underlying utility infrastructure will allow for tree roots.

  Response: As previously noted, street trees will not be provided along Fore Street.

- LD 401 - Detail 4 - Tree grate openings, if grates are selected to be used, should be a minimum of 48" in diameter. Square cobbles around trunk and trunk flare zones are encouraged in lieu of restrictive metal grating in pedestrian circumstances. Stone dust between joints for better uniformity to the walking surface is preferred. Root balls of trees should be set directly undergraduate, not below grate.

  Response: As previously noted, street trees will not be provided along Fore Street.

- LD 401 - Detail 4 - Tree well systems are strongly encouraged to have integrated infiltration capacity to accommodate stormwater to the extent possible. A passive irrigation system with first flush capabilities for tree well systems / interconnected infrastructure is encouraged to help mitigate seasonal salt impacts and distribute salts to dilute their effect on soil and root systems. For additional passive water inflow and outflow design, consideration of allocation of impact fees into cost sharing of street tree elements that would accommodate these combined plantain / stormwater recommendations will be possible in coordination with city planning and parks department.

  Response: As discussed during the August 3, 2023 meeting with the City of Portland, infiltration and passive irrigations systems are not feasible on this site.

- LD 401 - Detail 4 - Provide more information on typical soil profile proposed for tree well systems. Street tree wells or other tree planting areas should provide a minimum volume of 600 cubic feet of soil material per tree. Preferred volumes are as follows:
  - Large Trees: 1,500 cubic feet of soil within a 27-foot radius.
  - Medium Trees: 1,000 cubic feet of soil within a 22-foot radius.
  - Small Trees: 600 cubic feet of soil within a 16-foot radius.
  - Where soil volumes within the maximum allowable radii for adjacent trees overlap, up to 25% of the required soil volume per tree may be shared.
  - For trees that are designed to have a covered soil volume which connects to an open area (for example behind the sidewalk), the open area can be considered as part of the required soil volume.
  - For existing trees to remain, the root structure of existing tree should be protected to the extent feasible and provided with additional soil volumes to meet the above requirements.
  - Soil Volume Calculation should be calculated as:
    - Area of Open Soil x Depth of Soil) plus (Area of Covered Soil x Depth of Soil)
    - All soil types are calculated at full volume.

- There may be multiple soil volume areas included in the calculation depending on design.

Response: As previously noted, we are currently working with the manufacturer of the proposed structural root containment system on the proposed design and can provide confirmation of design once that coordination has been completed.

- LD 401 Detail 4 - Provide minimum dimensions for tree cell to ensure adequate soil volumes are achieved per tree. Consider inclusion of a typical plan enlargement drawing to provide confirmation of a typical dimensional area of tree soil spaces for street trees.

  Response: As previously noted, we are currently working with the manufacturer of the proposed structural root containment system on the proposed design and can provide confirmation of design once that coordination has been completed.

- L100 - Indicate approximate size of tree species proposed for street tree locations, if proposed trees are to be uniformly sized, indicate whether that tree type is to be a large, medium or small tree species. Large and medium street trees should have between 30' to 40' spacing at minimum between trunks, if overhead utilities or other complications are present that will impact tree type and mature height, spacings between 20-25' will be considered with Parks Department approval. For street tree plantings proposing larger tree species along streets that are narrower than 30', recommend applicant stagger tree locations to provide less canopy growth competition from plantings across street.

  Response: As previously noted, street trees will not be provided along Fore Street.

- LG 201, LG 202 - Indicate species of street tree at locations of trees in plan.

  Response: As previously noted, street trees will not be provided along Fore Street.

- L1.4 - label for "area to be designed in future phase of work". This area, if accessible in or with proposed phasing elements (buildings 4,5,6) should be detailed and included in this phase of site plan review before approvals can be given or the project can proceed.

  Response: The landscape drawings are currently being revised to show the proposed work within this area. The Civil drawings show the proposed layout of parking with a grassed island, and grass provided around the edges of the paved parking. The area is providing access to the Block 6 entrance at this location. In the future, if this space is to be modified associated with any other changes on the Eastern Promenade property, appropriate additional permit applications will be completed.

In addition to the comments provided above, we also received design review comments on July 26, 2023. In reviewing the provided comments, it was noted that some of the identified items had previously been addressed as part of the resubmission with the June 23, 2023 response to comments to the City:

- Block 5 has received some redesign to address comments with regards to stepdowns, and we understand that these changes addressed the City's prior comments.
- Block 5 material palette was provided.
- The photometrics plans include wall-mounted lighting.

Comments were provided with regards to the proposed wharf storage within Block 6. This area has been removed from Block 6. Comments were also provided about providing street trees on Fore Street. As noted previously, we met with City staff on August 3, 2023, to discuss the limitations of the site and the inability to provide street trees on Fore Street. The proposed landscaping design for this area takes this into consideration.

The design review identified two comments with regards to Fore Street that will be considered along with the other Fore Street comments included earlier in this letter. The design review comments noted that a crosswalk and curb ramps are recommended for St. Lawrence Street. The slope of Fore Street makes the installation of a curb ramp at this location challenging and may require a wider area of impact within the area of Fore Street that was recently reconstructed by the City. We will include this area as part of the Fore Street discussion with the Department of Public Works as referenced earlier in these comments. The design review also noted that accessible access points are recommended to connect to Fore Street in front of the Townhouses. The intent is to provide access points from Fore Street to the walkway in front of the Townhouses. The Fore Street plan referenced in these comments will include spot grades to show how this access will be provided.

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
Technical Manager

Enclosures (Uploaded separately to ProjectDox):
- Overall Site Plan
- Waterfront Construction Management Plan
- Wall Section
- Civil Plan Set
- CMP Ability to Serve
- Revised Stormwater O&M Manual

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Att. 16

August 24, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to City Staff Comments III – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Major Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following City Staff review comments on the project through you, and provide the following responses:

City Staff Comments | July 26, 2023 | PL-002202-2022

PRIORITY ITEMS

1. *Block 6 Cart Storage:* City Staff have determined that the storage cart room is a Warehousing and Storage use, which is a conditional use in the B-6 Zone. Section 6.4.11(A) states in the B-6 Zone that Marine Uses should include marine products, wholesaling, and retailing, harbor, and marine supplies and services. Marine supplies and services are associated directly with the operation of the vessel; the storage and golf cart room cannot be considered accessory to the marina because it is not located on the marina lot.

    - L1.1 - Sheet appears to show a vehicle parking area by stairs in building six under "Level 1" label. Please clarify vehicle storage and provide vehicular use path diagram and brief management narrative for how vehicle and its function to the property operation will work. Eastern Trail and narrow—gauge circulation patterns take priority and all pedestrian and passenger safety must be ensured. Any vehicle's use of trail must be more detailed and closer coordinated with the Parks Department. Keeping vehicles off of Eastern Promenade trail and high pedestrian use areas is a priority, and mitigation of impacts to the trail will be a critical element of the review.

    Response: The storage cart room has been eliminated from Block 6. Landscape Plan L1.1 was revised to reflect this change.

TRANSPORTATION

- The trip generation estimate was updated to reflect data contained in the 11th Edition of the Trip Generation Manual. All back-up calculations will need to be provided (similar to what was provided for the 7th Edition).

  Response: The requested backup calculations are enclosed.

- City Staff and Third-Party Reviewers reviewed the parking demand estimate and are requesting additional information as noted below:

    - Multi-Family 1.21 spaces per unit - The applicant should provide back-up information for time-of-day and parking generation assumptions.
    - Specialty Retail 1.95 spaces per 1,000SF - The applicant should provide back-up information.
    - Hotel 1.1 spaces per room - The applicant should provide back-up data for the parking generation rate.
    - Spa 4.3 spaces per 1,000SF - The applicant should provide back—up data for the parking generation rate.
    - The applicant should confirm that the trip generation and parking generation assumptions for ITE land use codes are the same or different.

    Response: The requested information will be provided with the traffic study to be submitted under separate cover.

- The applicant should create a 20-scale plan (on 24" X 36" Sheet) depicting and labeling all improvements and existing conditions within the ROW (Fore Street).

    Response: Existing and proposed Fore Street plans, entitled "Fore Street – Existing Conditions" and "Fore Street – Proposed Improvements" are provided as requested.

- Improvements and existing conditions (such as the Fore Street ROW, lanes, sidewalk, esplanade, and driveways) should be clearly dimensioned on the plan view sheets at various locations and should include both typical widths and any pinch points.

    Response: Requested right-of-way, driveway, road and sidewalk dimensions are provided on the Fore Street Existing Conditions and Proposed Improvements Plans. We are waiting for further guidance from Public Works on the Fore Street section. We will continue to coordinate with the City and provide additional materials or updates, if required, under separate cover.

- Grading Sheets: Spot grades and slopes should be added to plans (within the ROW) at proposed driveways, pedestrian ramps, accessible crossings, sidewalks, egress locations and steps.

    Response: Additional spot grades have been added to the Grading Plans (Sheets C-102 and C-103) at the requested locations.

- City staff and the City's Consulting traffic engineer have confirmed that both on-street parking and a bike travel lane can comfortably fit on Fore, and therefore a bike lane can be included and shown striped between the travel lane and the parking lane, on the ascending side of Fore Street.

    Response: The applicant is generally in agreement with including both on-street parking and a climbing bike lane on Fore Street if it is contained within the curb limits currently proposed on the plans. We understand that there is further information that will be

provided by Public Works regarding how this will be implemented. We will coordinate with the City and will plan to provide additional updated drawings under a separate cover, if required.

- TDM Comments:
  - Page 7: Please describe the types of racks per the COP Technical Manual bike rack inventory types and the capacity of each rack and total capacity outside.
  - Page 8: Update City Bike Share information to include Monthly *'and Annual'* Memberships.
  - Page 10: Please see the expanded transit access plan from GP Metro. Changes will impact Husky Line, Routes 2 + 4.
  - Page 11: Clarify if SunLife Parking (68 spaces) is employee or SunLife paid parking?
  - Page 11: What will be the parking policy for the hotel operation?
  - Page 12: Please describe the ownership/management structure of the various properties to identify who will be responsible for the annual monitoring and reporting. For example, would this be the responsibility of each individual tenant or Portland Foreside?
  - Page 15: The November 2022 Technical Manual updates eliminated the TDM requirements for parking and trip reduction monitoring unless otherwise required by some other mechanism such as the TMP and/or other conditions of approval by the Planning Board. The new single metric City Staff requires establishes mode share targets and reporting on progress toward achieving set targets. The tenant mix may be conducive to establishing and surveying for multiple targets (for instance residential all travel; office commute mode share; etc.). SunLife could be governed by the prior TDM Plan until 1 year following the Certificate of Occupancy for Phase II of development.
  - Page 17: Please fix formatting for Charts.
  - Page 17, Short-Term Box: Provide more definitive numbers on memberships.
  - Page 17: User/Group Residents: How and by what means?
  - Page 19: Please provide information on employee parking out of pocket costs in narrative.
  - Page 19: Are the employee counts for all tenants and Portland Foreside, who specifically?
  - Page 22: Once Phase II development is active (or sooner at applicant discretion), the parking and trip monitoring may be useful for establishing and report on mode share targets and actual mode share but are not otherwise required (unless by a TMP or other condition of approval).

    Response: The TDM Plan was revised accordingly and uploaded under separate cover to ProjectDox.

WATER QUALITY, STORMWATER, & INFRASTRUCTURE

- DPW Water Resources has determined that the service laterals outside of the City ROW are not exempt from the City Technical Manual:
  - All building sewer laterals should have a minimum diameter of four inch (4") and a minimum slope of one eight inch per foot (1/8 in/ft) installed. According to

international plumbing code, 4" and 6" building sewer laterals should have a minimum slope of 1/8" per foot.

Response: The building sewer laterals were revised accordingly.

- The applicant should provide documentation of approval from both manufacturers of the Structural Root Containment System proposed for additional protection against root penetration.

  Response: The design of the subsurface detention system (R-Tank) and root containment system (StrataVault) are coordinated to ensure tree viability and root penetration protection. Design certification from the R-Tank subsurface detention system manufacturer (Ferguson) is enclosed.

- Phase 2 Civil Plans and Details Sheet C-102: Grades for CB-27 and CB-28 are provided on Sheet C-107. There is a spot grade to the west of the R-Tank but due to the site being relatively flat, it is recommended to provide additional spot grading to promote positive drainage towards the catch basins and drainage infrastructure.

  Response: Additional spot grades are provided in the plaza area west of Block 5 to clarify the grading intent.

- Stormwater Management Plan:
  - Section 1.4: General & Redevelopment Standards (Stormwater Quality): Based on requirements outlined in the Maine DEP proprietary BMP approval letter, it does not appear that Jellyfish 2 can handle the inflow from the 1-inch storm. Please confirm that the proposed Jellyfish 2 meets the requirements of Maine DEP or revise as appropriate.

  Response: The proposed Jellyfish Filter #2 meets Maine DEP requirements; the manufacturer's design certificate for the proposed Jellyfish filter is enclosed.

LANDSCAPING & ENVIRONMENTAL QUALITY

- All layout plan sheets - in plans with project area adjacent to existing narrow-gauge railroad and/or eastern trail, show rail and trail infrastructure edge, R.O.W and label accordingly.

  Response: The proposed Phase 2 work will occur after the waterfront enablement work, which is currently under review by City staff as a separate project (Phase 1 Amendment; PL-002253-2022). The revised landscaping layout plans depict the waterfront enablement work outside of the Phase 2 limit of work to show how the projects tie together. The edge conditions at the Maine DOT right-of-way are depicted.

- Phase 2 Civil Plans – C201 and Phase 2 Landscape Plans and Details LD 1.0 - Civil details and Landscape details (curbing) do not correspond to one another. Ensure appropriate detail selected is consistent between documents. Include note or call outs in civil layout plans for paving, curbing and other hardscape or street furnishing details that are being managed by other disciplines.

Response: The civil and landscape plans were coordinated and revised accordingly.

- Ensure hatching on civil plans for hardscape material layouts correctly correspond with hardscape discipline lead documents (assuming this is the landscape architectural layout set as leading material layout document).

  Response: The civil and landscape plans were coordinated and revised accordingly.

- Landscape plans - please provide section and details on edge condition / transition condition between Narrow Gauge R.O.W, tracks and project work areas. If condition character or typology changes along the boundary of property and Narrow—Gauge R.O.W (e.g. pedestrian hardscape condition, vs vegetation bed.) Ensure that some discernible boundary element, even if something as simple as a raised curb, is utilized to prevent uncontrolled crossings into narrow gauge tracks.

  Response: We met with the City on August 3, 2023 to discuss landscaping elements along the Narrow Gauge Railroad and Eastern Promenade Trail. Stone curbing is proposed along the Maine DOT corridor as shown on LG-102. The drawings and details were revised accordingly.

- LD 401 Detail 4 - Provide minimum dimensions for tree cell to ensure adequate soil volumes are achieved per tree. Consider inclusion of a typical plan enlargement drawing to provide confirmation of a typical dimensional area of tree soil spaces for street trees.

  Response: A typical detail is provided for the tree cells on the Landscape Plans (Block 4 Sheet LD-4.0). Additionally, documentation of design review from the manufacturer is enclosed.

- L1.4 - label for "area to be designed in future phase of work". This area, if accessible in or with proposed phasing elements (buildings 4,5,6) should be detailed and included in this phase of site plan review before approvals can be given or the project can proceed.

  Response: The landscape drawings were revised to show the proposed Phase 2 work within this area, which provides access to the Block 6 entrance. In the future, if this space is to be modified in association with any other changes on the Eastern Promenade property, appropriate additional permit applications will be completed.

City Staff Comments | August 18, 2023 | PL-002202-2022

TRANSPORTATION

- The applicant shall conduct a traffic analysis at the Fore Street/Waterville Street/Garage entrance and Thames Street/Freedom Way/ Site Drive intersections. The analysis shall consist of the following:
  - The analysis shall be performed during the weekday AM and PM peak hours.
  - Traffic counts shall be conducted at the intersections from 7-9AM and 3-6PM. The count shall collect passenger cars, trucks, pedestrians, and bicycles.
  - The study shall include traffic from approved but unbuilt or occupied developments.

- Graphics shall be provided that depict, Existing Design Hour Volumes, Other Development Traffic, No-Build Volumes, Site Trip Generation, and Build Volumes
- A Synchro/SimTraffic analysis shall be conducted for existing, No-Build and Build conditions. Some field calibration shall be performed.
- The study shall report levels of service, vehicle delay and 95th% queue estimates.
- A safety analysis shall be performed at the two study intersections.
- Sight distance shall be documented at the two site entrances.

Response: The Applicant is completing a traffic analysis as requested by City Staff. This comment will be addressed under separate cover.

SUBDIVISION PLAN

- There is a typo on the right side above the title of the plan. The recorded plan this amended plan is meant to amend is CCRD Plan Book 220, Page 466 and not page 446.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- General Note 7 indicates incorrectly that the extension of Thames Street up to the entrance to the 58 Fore Street campus is still an unaccepted public way. The proposed roadway heading northwesterly up the hill to Fore Street, also known as Freedom Way, is still unaccepted. However, the extension of Thames Street labeled PROPOSED THAMES STREET EXTENSION (See Note7) up to the entrance into the 58 Fore Street campus area just south of Lot 1A was accepted in 2022 as a public way. Please remove the word NOT from General Note 7 and retitle the section labeled "PROPOSED THAMES STREET EXTENSION" to "THAMES STREET Paved-Public", as Fore Street is already labeled in a similar manner on the plan.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- The existing and built buildings on Parcels 1A, 1C, and 2C should be shown on the draft Second Amended Subdivision Plat as they have now been built for over a year or are long existing buildings. This is important to depict how they related to the public access easement among other reasons. The mapping exists as it has been shown on other plans before like the currently proposed civil plan set. This helps to show and depict the existing site being shown as a draft Second Amended Subdivision Plat in a fuller, current, and more complete manner.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- The metal shed building on Parcel 4 has been gone for almost a year if not longer, and should be removed from the draft Second Amended Subdivision Plat. Again this helps to show and depict the existing site being shown as a draft Second Amended Subdivision Plat closer to its current state.

Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- A significant amount of the travelled way or private roadway leading into the 58 Fore Street campus area (south of Parcel 1A) seems to be fairly well built out and complete now and should likely be added to the proposed amended subdivision plat to help show and depict the existing improvements to the site being shown as a draft Second Amended Subdivision Plat.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- Approved NG911 road names for the private ways within the 58 Fore Street complex should be added to all the plan sheets where possible. These agreed upon names are now several years old at this point. Please try to label the streets and ways as "private" if possible.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- The City's retaining wall agreement along Fore Street, the deed associated with it, and its location needs to be shown on the subdivision plan as it demonstrates the City' right, title, and interest in or adjacent to the subject property. As such the amended subdivision plan would be incomplete without it just as it would be if the subdivision plat was missing easements that ran through the subdivision and show others right, title, and interest in the subject property which is being developed. Proposed view corridors, if they are meant to be deeded to perhaps the City, need to be shown on the subdivision plan. If they are meant to be deeded to the City or another party, a note or notes need to state that and who the proposed grantee might be. The subdivision plan should show existing and proposed situations of right, title, and interest, such as proposed easements and ownership transfers especially when they are currently contemplated.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- Should the water side of the development be part of this amended subdivision plan as wasn't it part of the original subdivision of the land and site? Areas like that owned by PF Marina?

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

- A proposed transfer of a sliver of land from PF LAND to MDOT is not noted on the plan southeasterly of Parcel 1A that would alter the subdivision plan's southerly boundary line.

  Response: The surveyor is working on revisions to the Subdivision Plan. This comment will be addressed under separate cover.

CIVIL PLANS

- The wall or retaining wall structure running along the northerly side of Building 1A is not labeled as to what it is and the linetype seems to be missing from the legend. This should be made more clear.

  Response: The existing retaining wall by Building 1A is outside of the proposed limit of work. Labels have been added to the Existing Conditions and Demolition Plans.

- Approved NG911 road names for the private ways within the 58 Fore Street complex should be added to all the plan sheets where possible. These agreed upon names are now several years old at this point.

  Response: NG911 road names were added to the private ways on the civil plans as requested.

- The location of public access easement should be added to many of the civil plan sheets as other easements are also shown. The public access easement seems to be missing so it is hard to judge the impact of existing and proposed features on this existing public easement area.

  Response: The public access easement is outside of the limit of work the project, but has been added to the Existing Conditions and Demolition Plans.

- The Portland Company Historic District and Munjoy Hill Historic District boundaries are missing from the legend of the plan set.

  Response: These line types were added to the legend.

- It would be easier to review these plan sets if layer visibility control was made part of the PDF plan sheets' layer controls.

  Response: Due to the size of the file, we are unable to provide PDF layer control.

- The civil existing conditions sheet seems to be devoid of any general notes. Their absence seems odd and a possible omission of typical information. Was this intended?

  Response: General notes are provided on the General Notes, Legend & Abbreviations plan (Sheet G-001).

- The presence of the Fore Street retaining wall seems to be missing from the existing conditions plans and information shown on other sheets like the Civil Site Plan - 1. A review of the existing plans cannot currently depict the impact of proposed improvements on the retaining wall that is a significant and important existing condition of the site, if not a design constraint. This should be addressed and remedied on any and all revisions going forward. If it is shown it should be accentuated with text label(s) in addition as it may just not be that distinct on the current version of the drafted plans.

  Response: The existing Fore Street retaining wall is depicted on all civil plan sheets.

- If sidewalks and ramps are to be reconstructed as part of the proposed work on the northwest or inland side of Fore Street, then City right of monuments need to be shown and labelled with a note directing they be protected and addressed in the design of the new ramps and sidewalks. A detail will need to be added to the detail sheets if this work is part of the project as well as no such monument detail seems to present at this point. Also it appears some monuments are incorrect or missing. If however the sidewalks and ramps are not to be reconstructed as part of the proposed work on the northwest or inland side of Fore Street, then the depiction of this as a proposed condition on these plan sheets is wrong and needs to be revised perhaps.

  Response: A portion of the pedestrian ramp east of the Waterville Street intersection will be constructed as part of this project as depicted on the site plans. The proposed work is fully within the Fore Street right-of-way; therefore, we do not anticipate monuments to be impacted by the work. General Note 5 on Sheet G-001 indicates all property irons and monuments shall be protected.

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
Technical Manager

Enclosures:

- Drawings (Uploaded separately to ProjectDox)
  - Civil Plan Set
  - Overall Site Plan
  - Landscaping Plan Set
  - Fore Street Plans
- Trip Generation Back-up Calculations
- Subsurface Detention / Root Containment System Design Certification
- Contech Jellyfish Design Review Certification
- GreenBlue Urban Design Review Certification
- HydroCAD Model Output
- TDM Plan (Uploaded separately to ProjectDox)

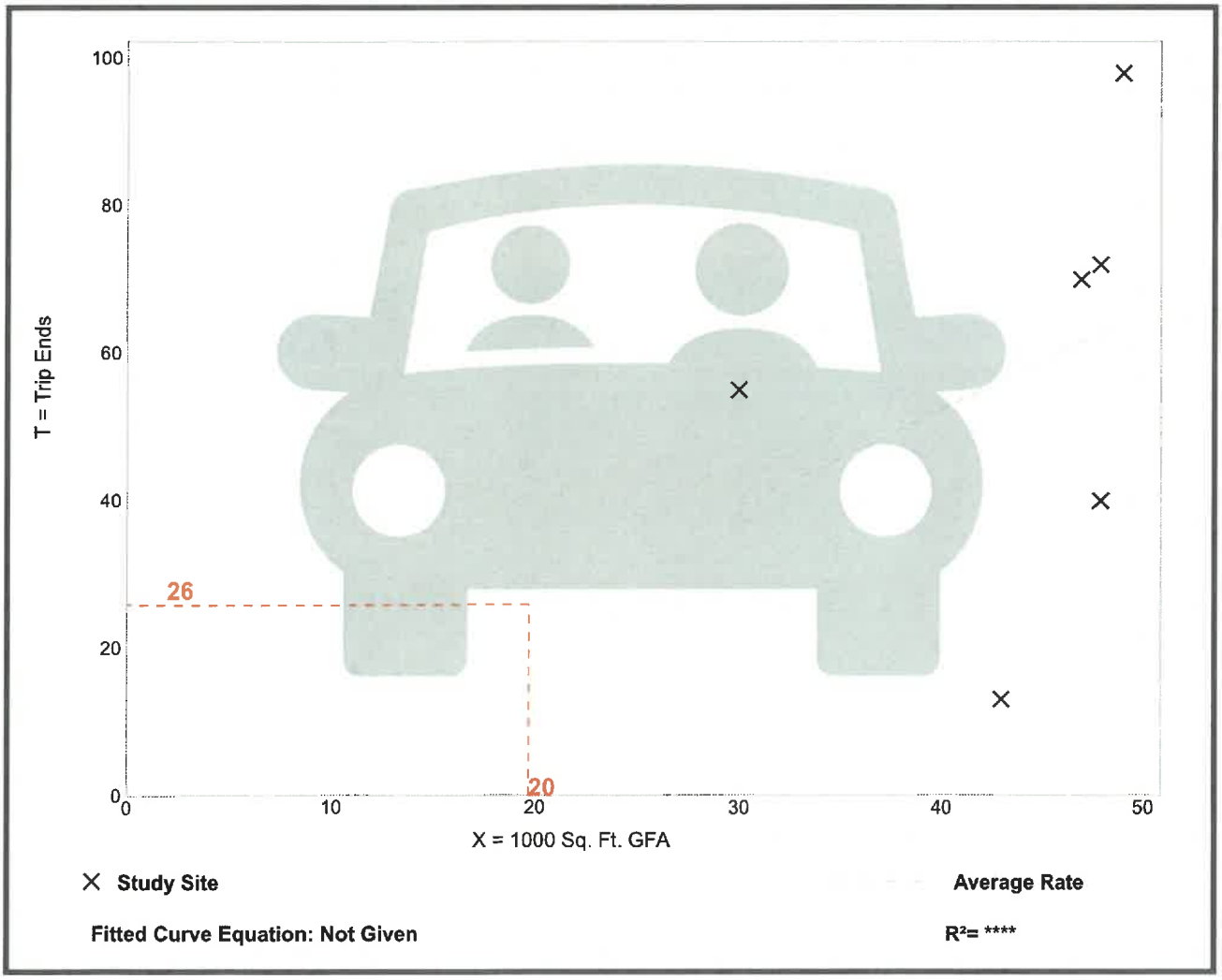
Health/Fitness Club
(492)

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:	6
Avg. 1000 Sq. Ft. GFA:	44
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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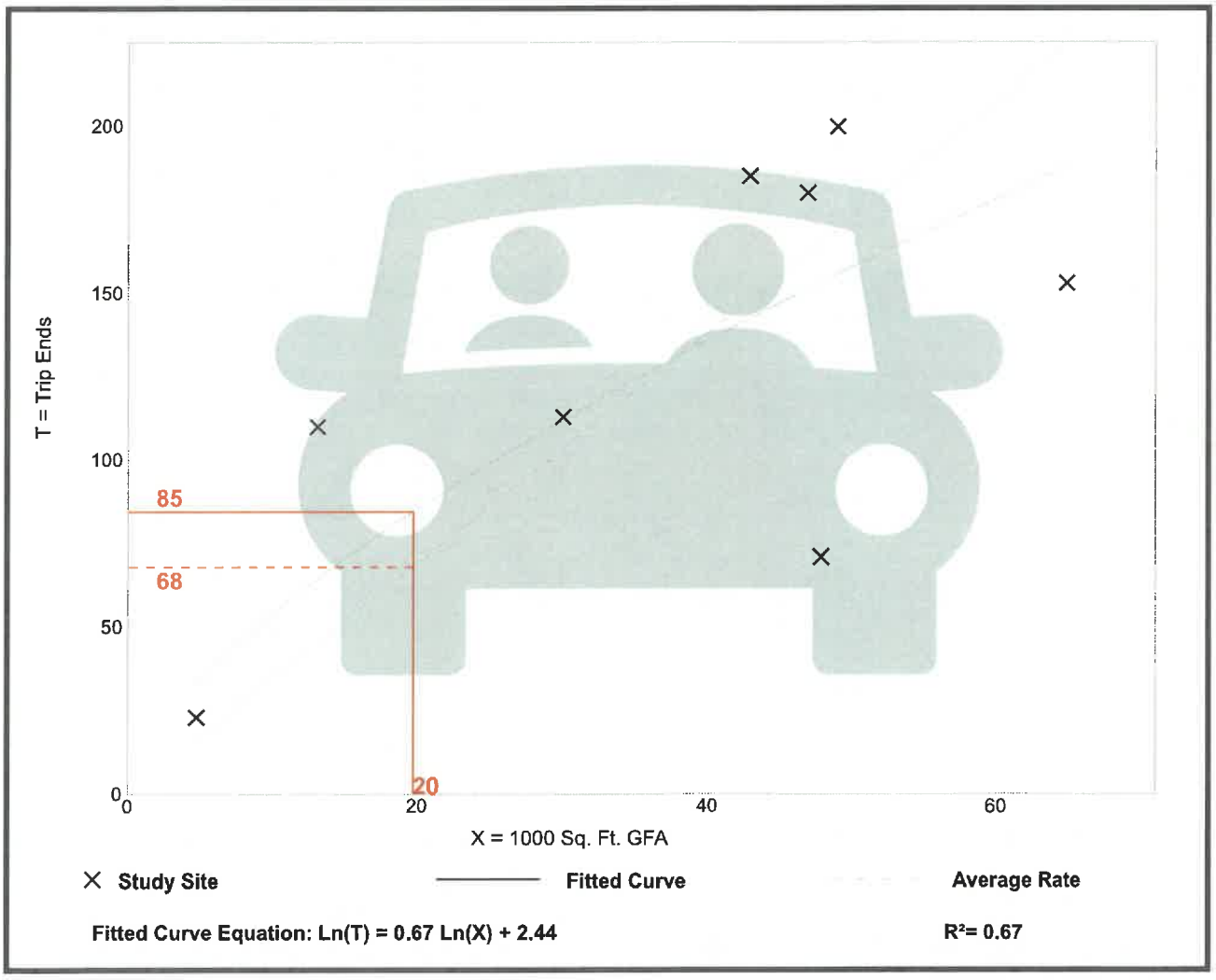
Health/Fitness Club
(492)

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: 8
Avg. 1000 Sq. Ft. GFA: 37
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



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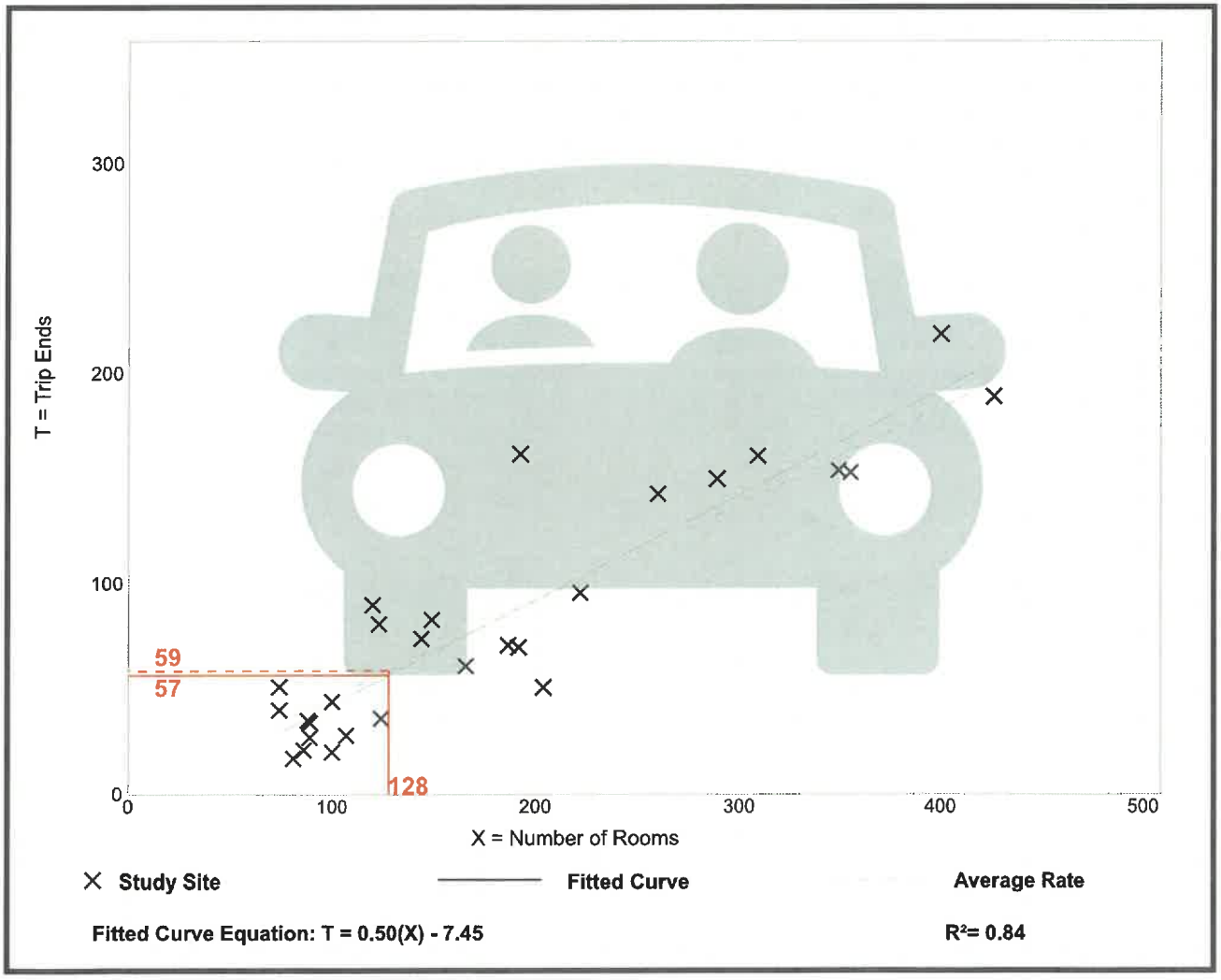
Hotel
(310)

Vehicle Trip Ends vs: **Rooms**
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: 28
Avg. Num. of Rooms: 182
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



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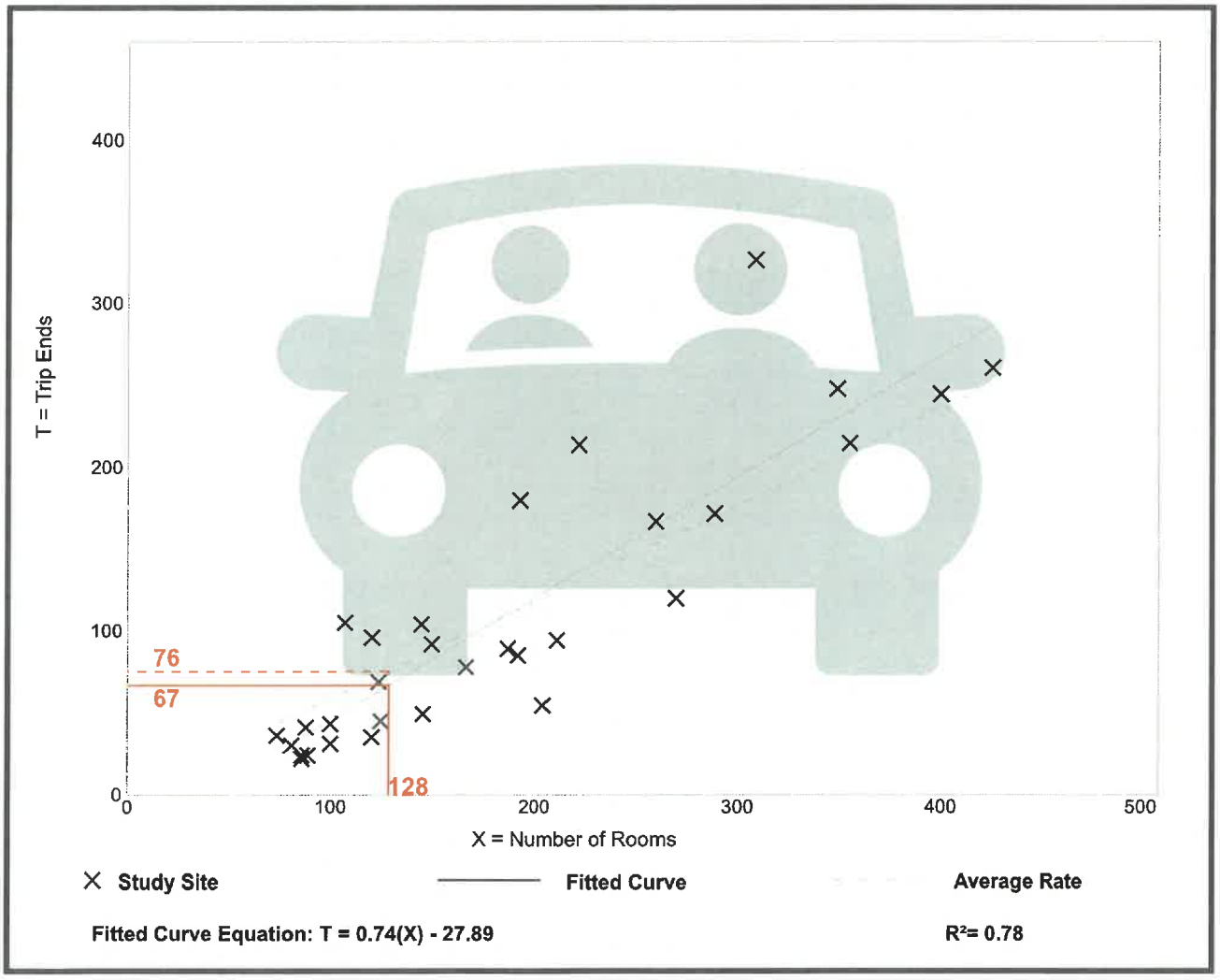
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
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:	31
Avg. Num. of Rooms:	186
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



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Apparel Store
(876)

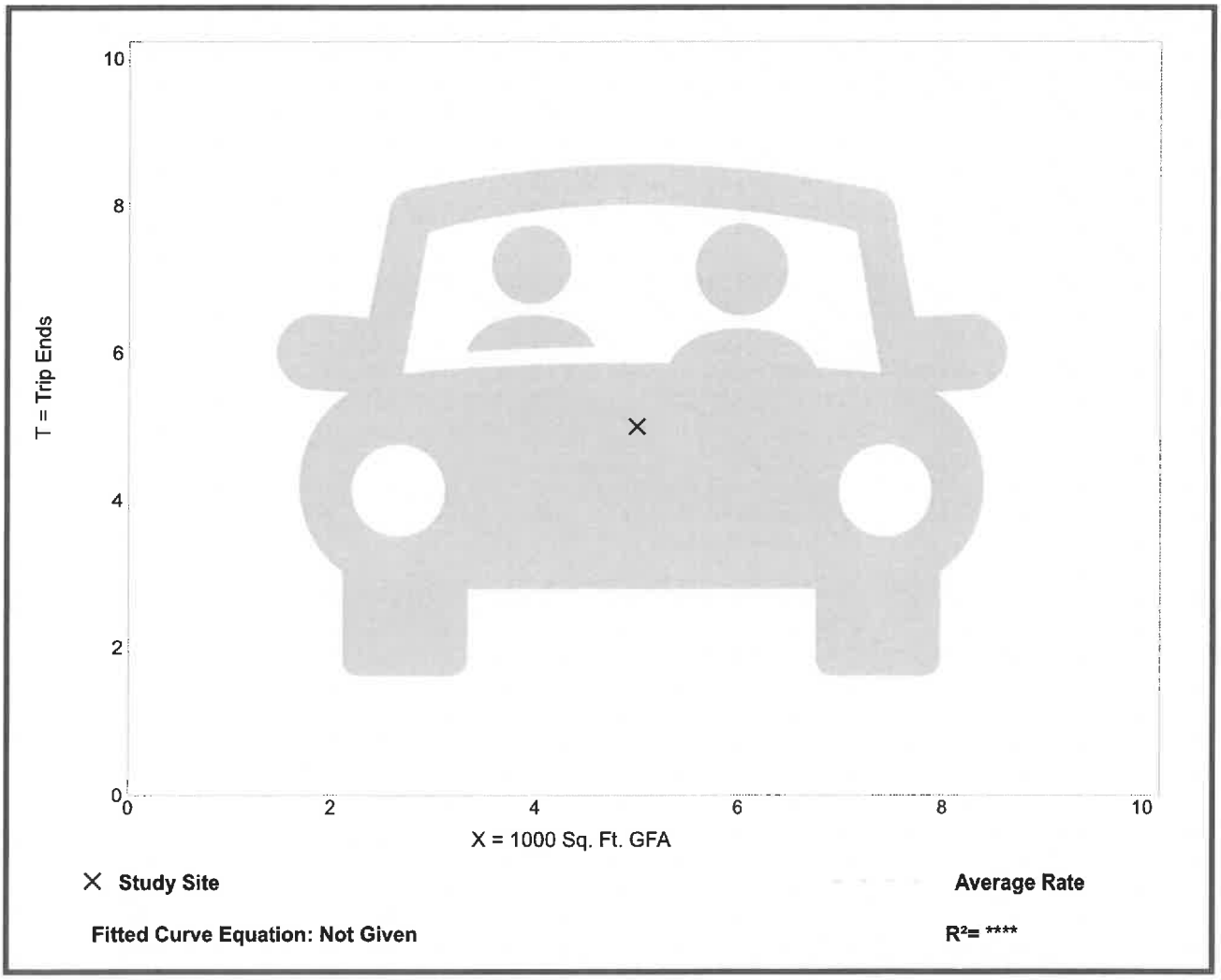
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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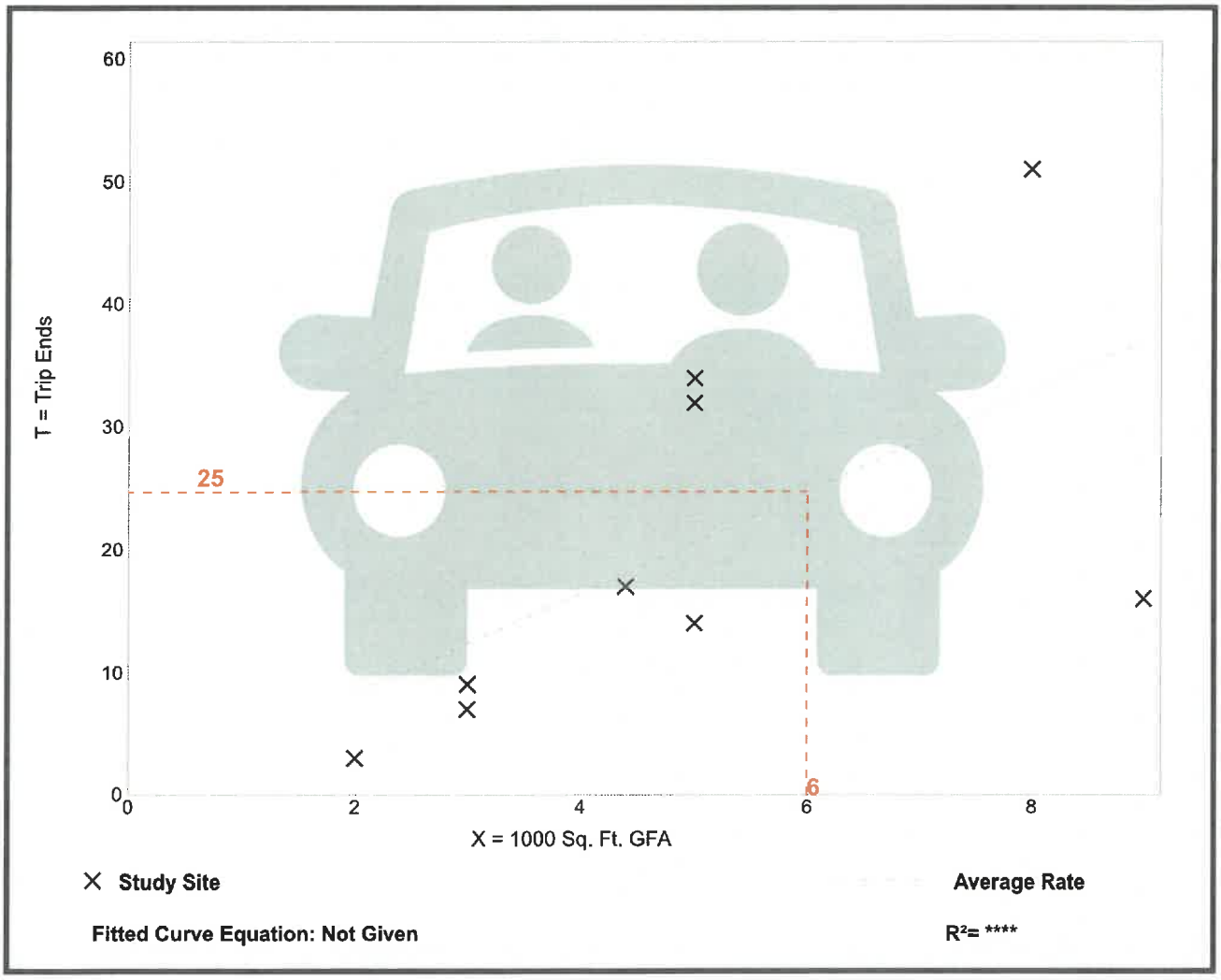
Apparel Store
(876)

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: 9
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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(876)

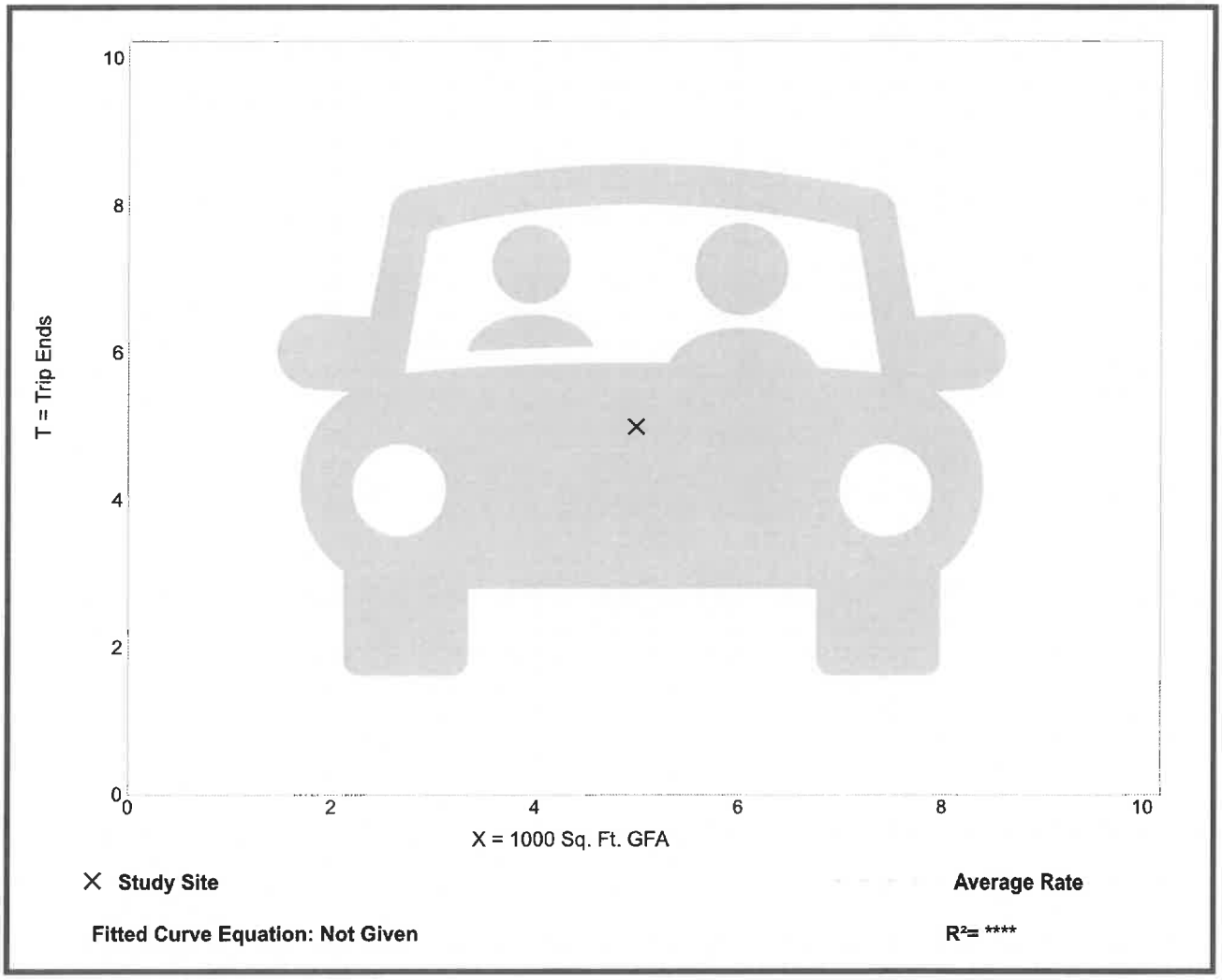
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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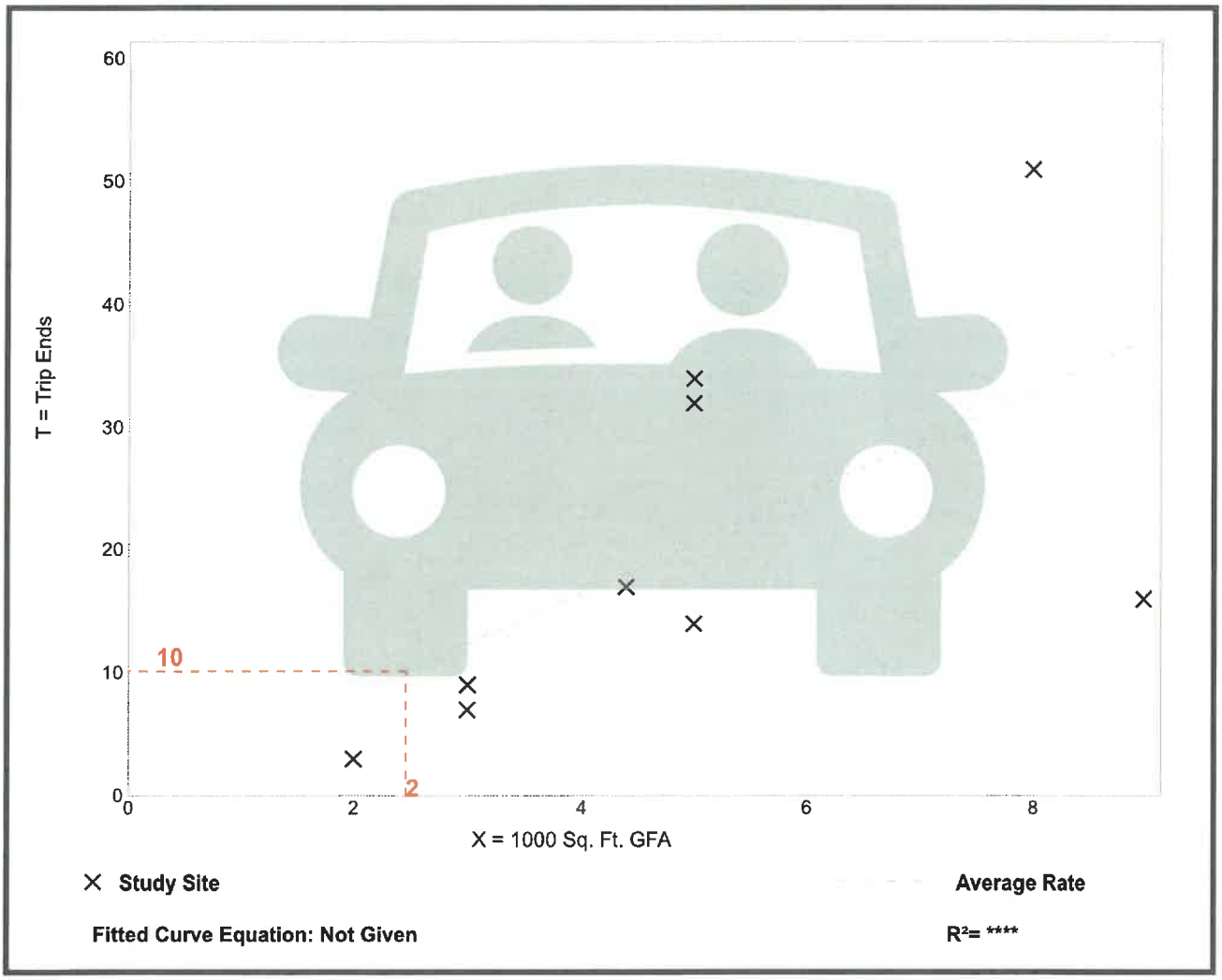
Apparel Store
(876)

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: 9
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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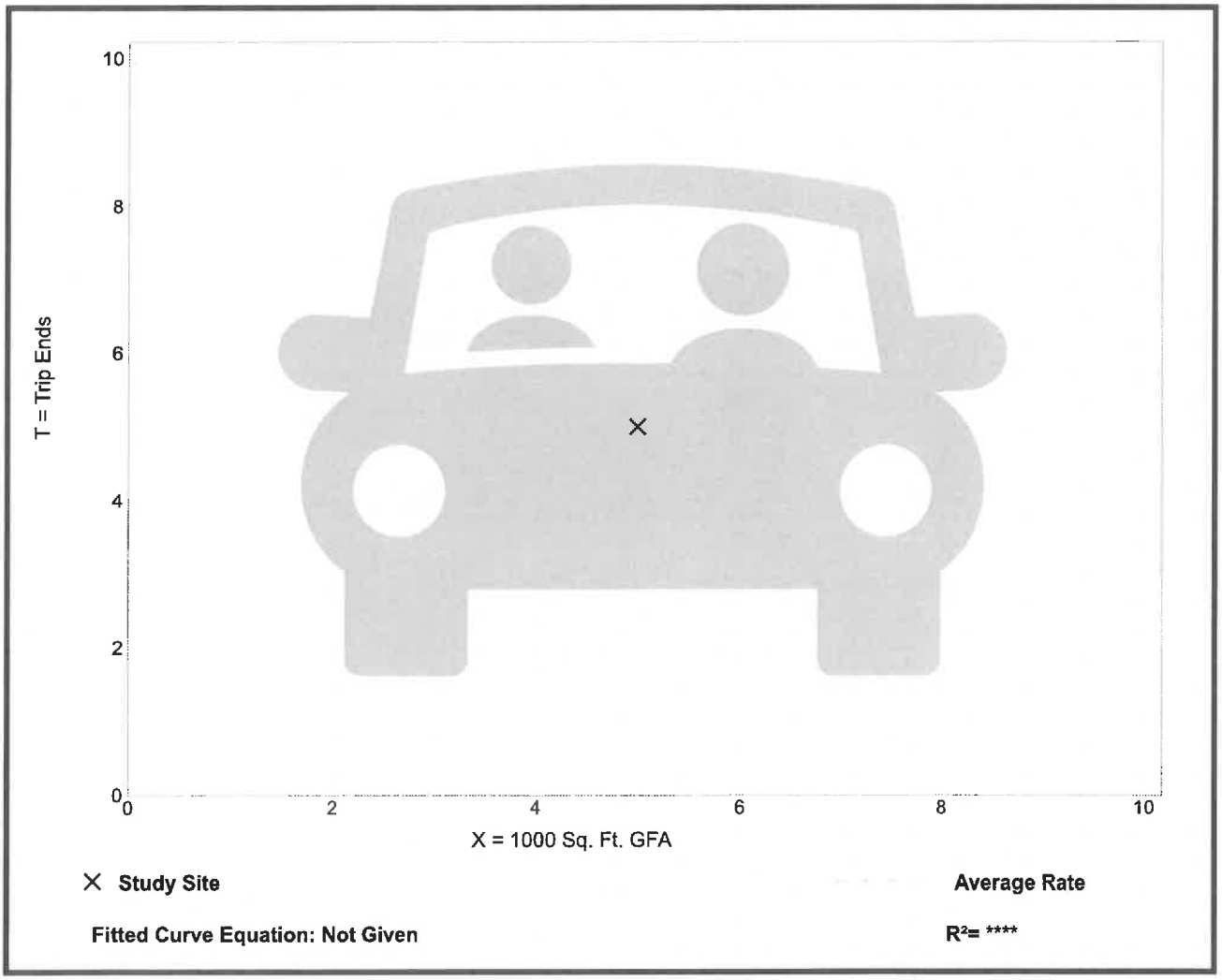
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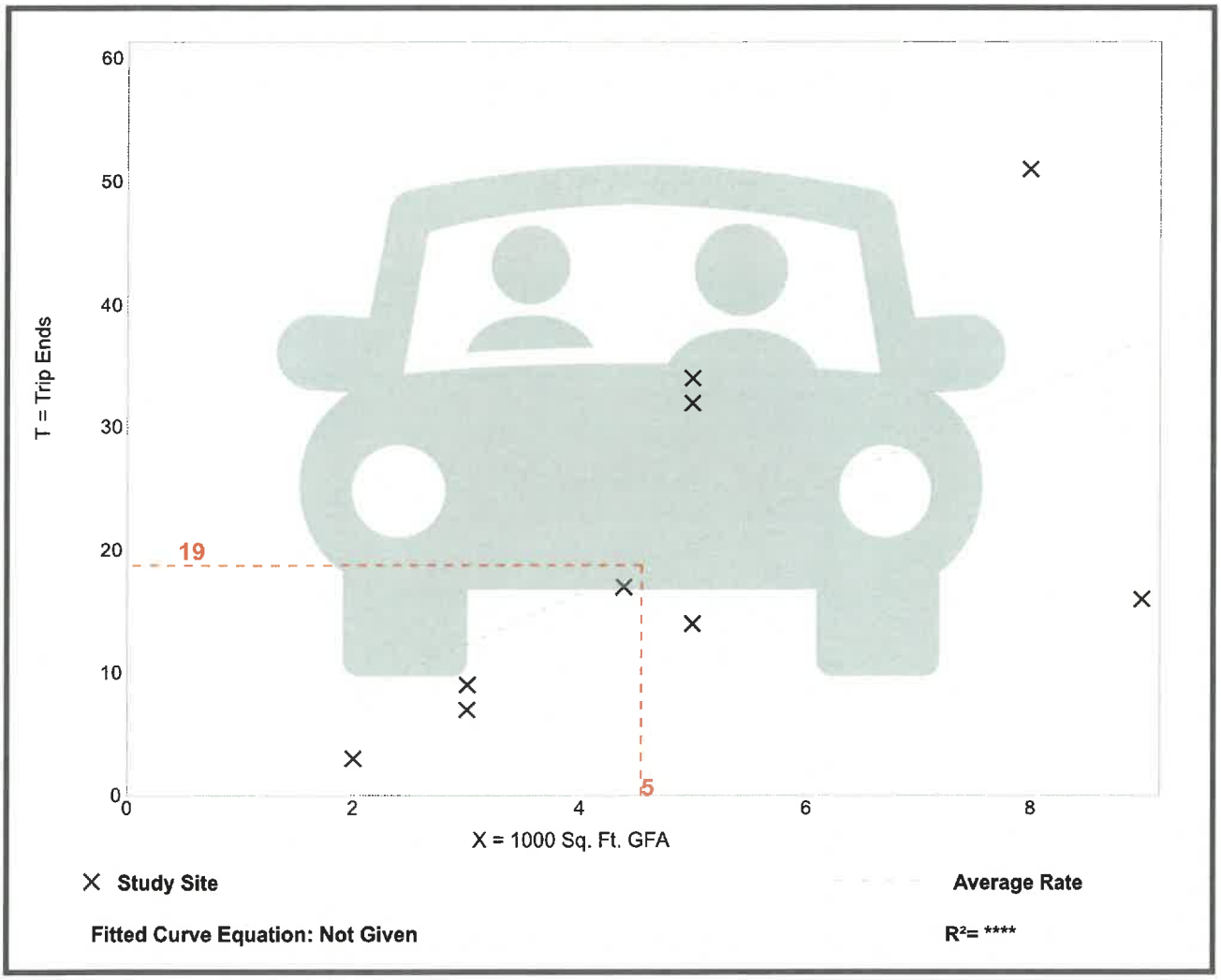
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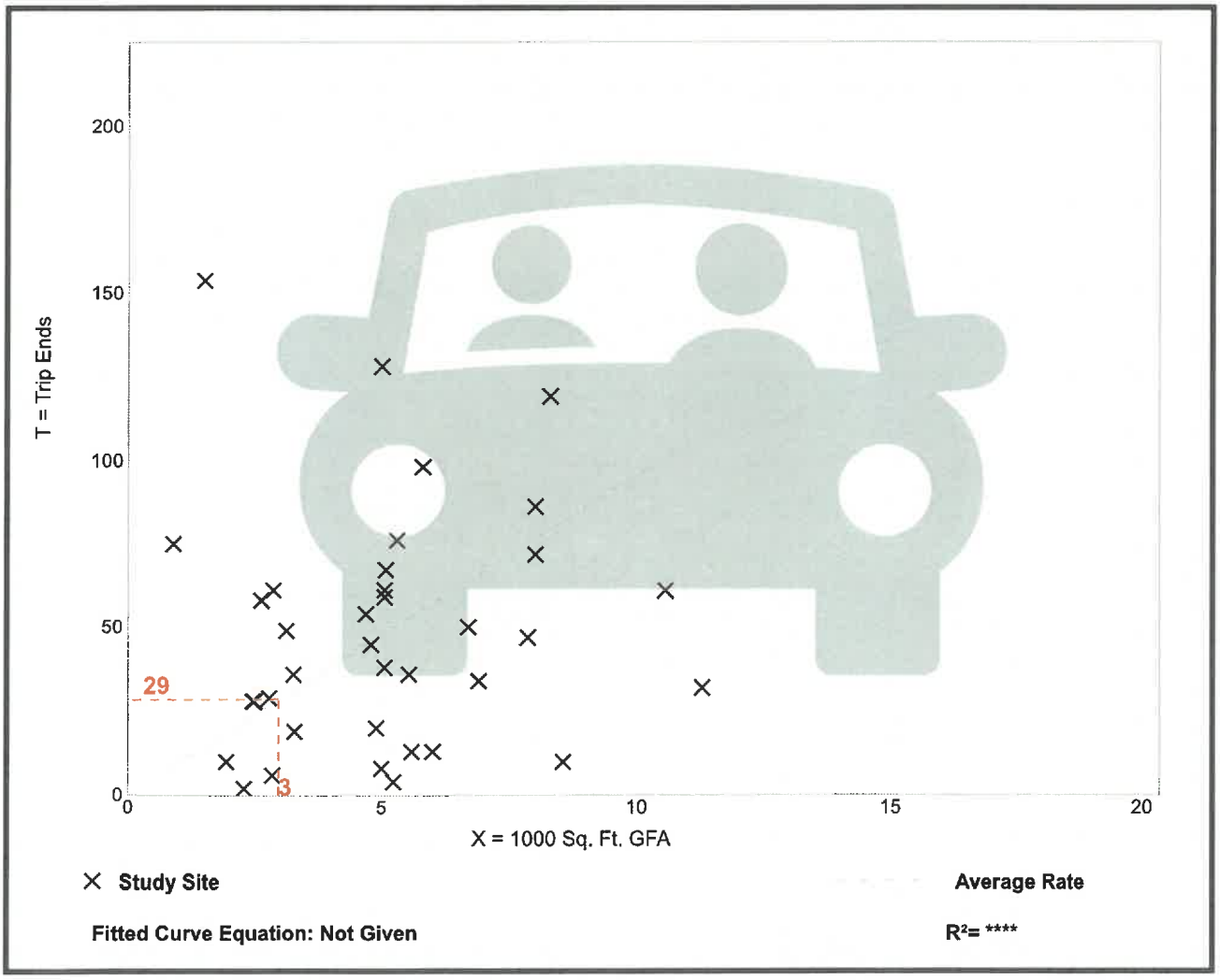
High-Turnover (Sit-Down) Restaurant
(932)

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: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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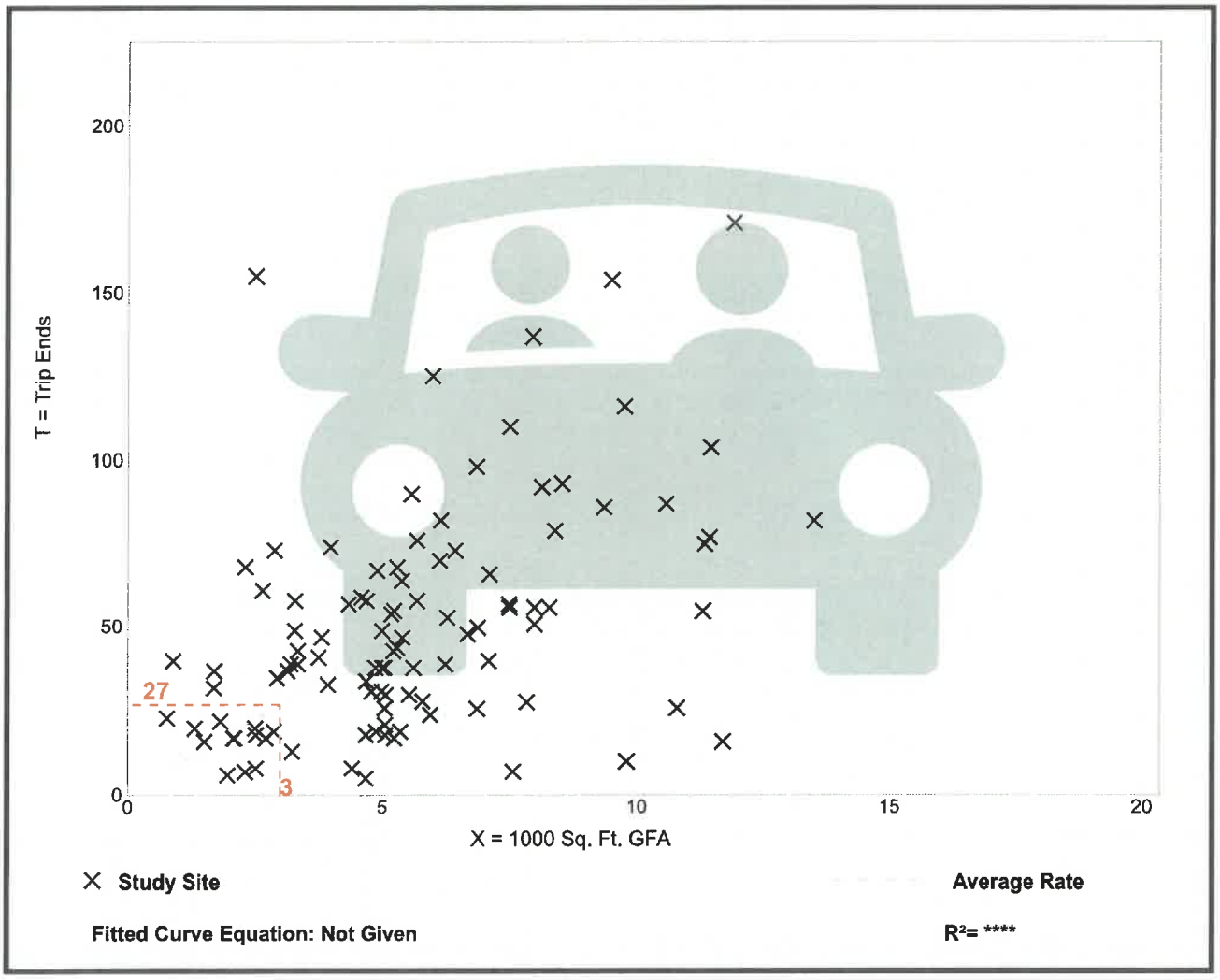
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Setting/Location: **General Urban/Suburban**
Number of Studies: 104
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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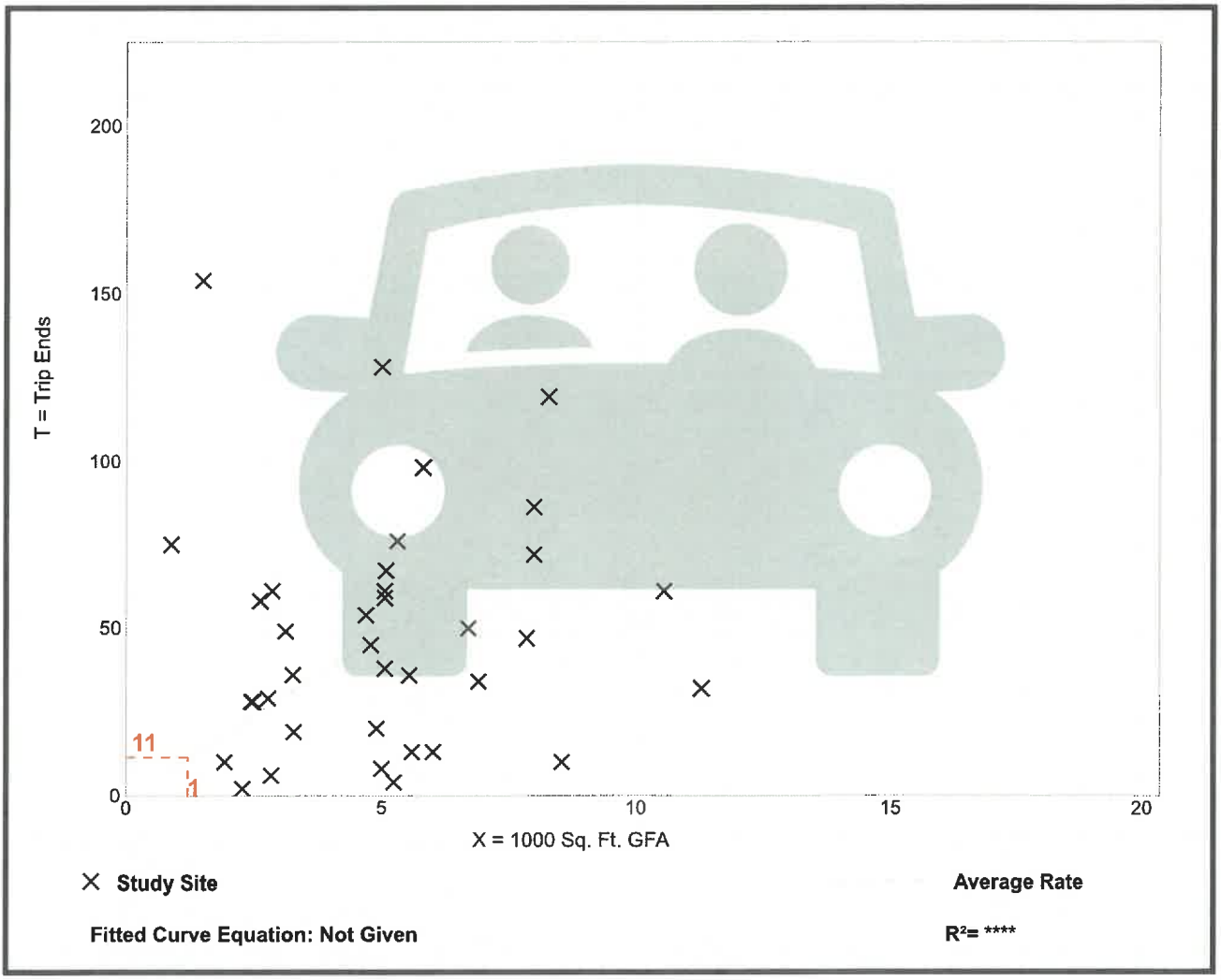
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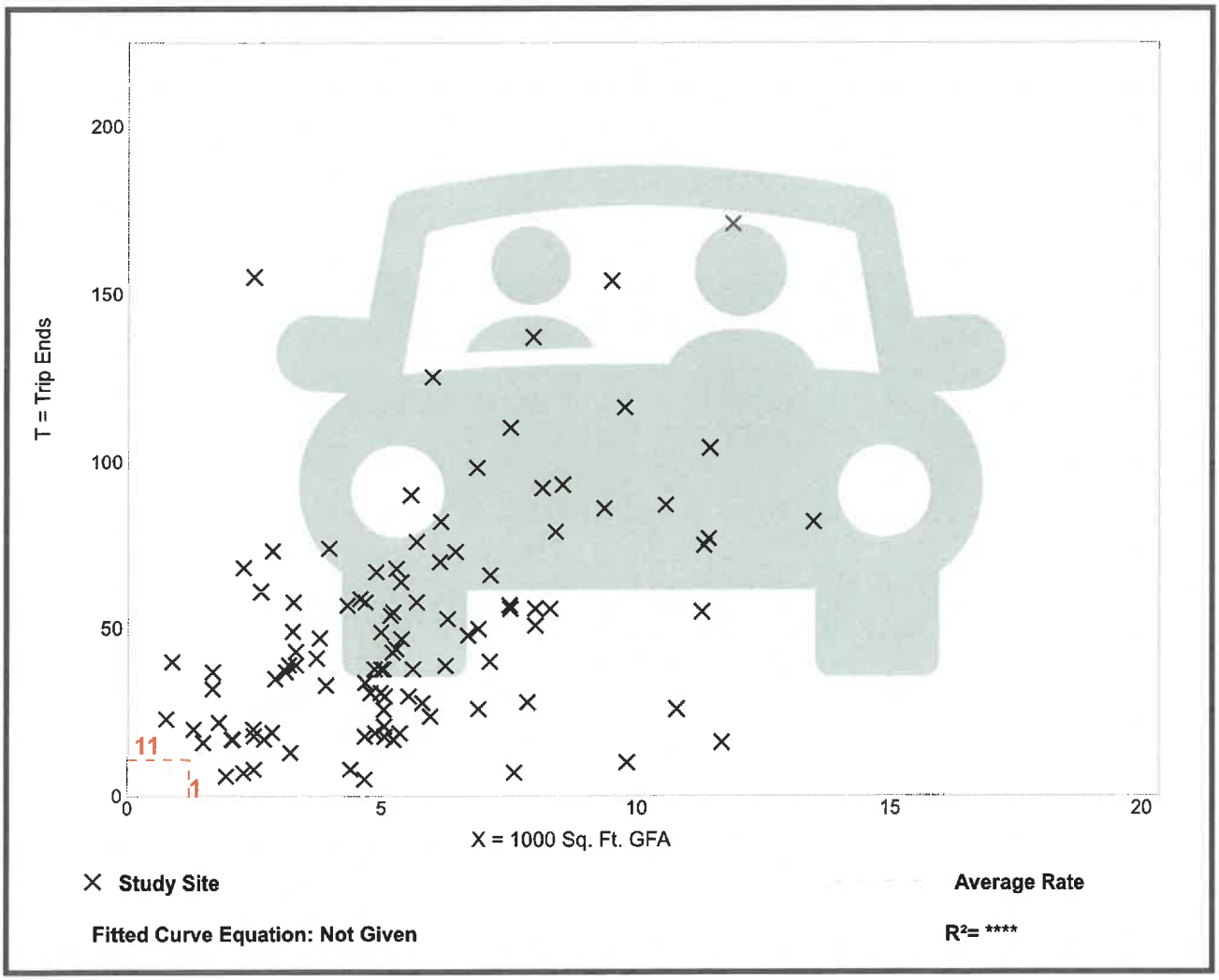
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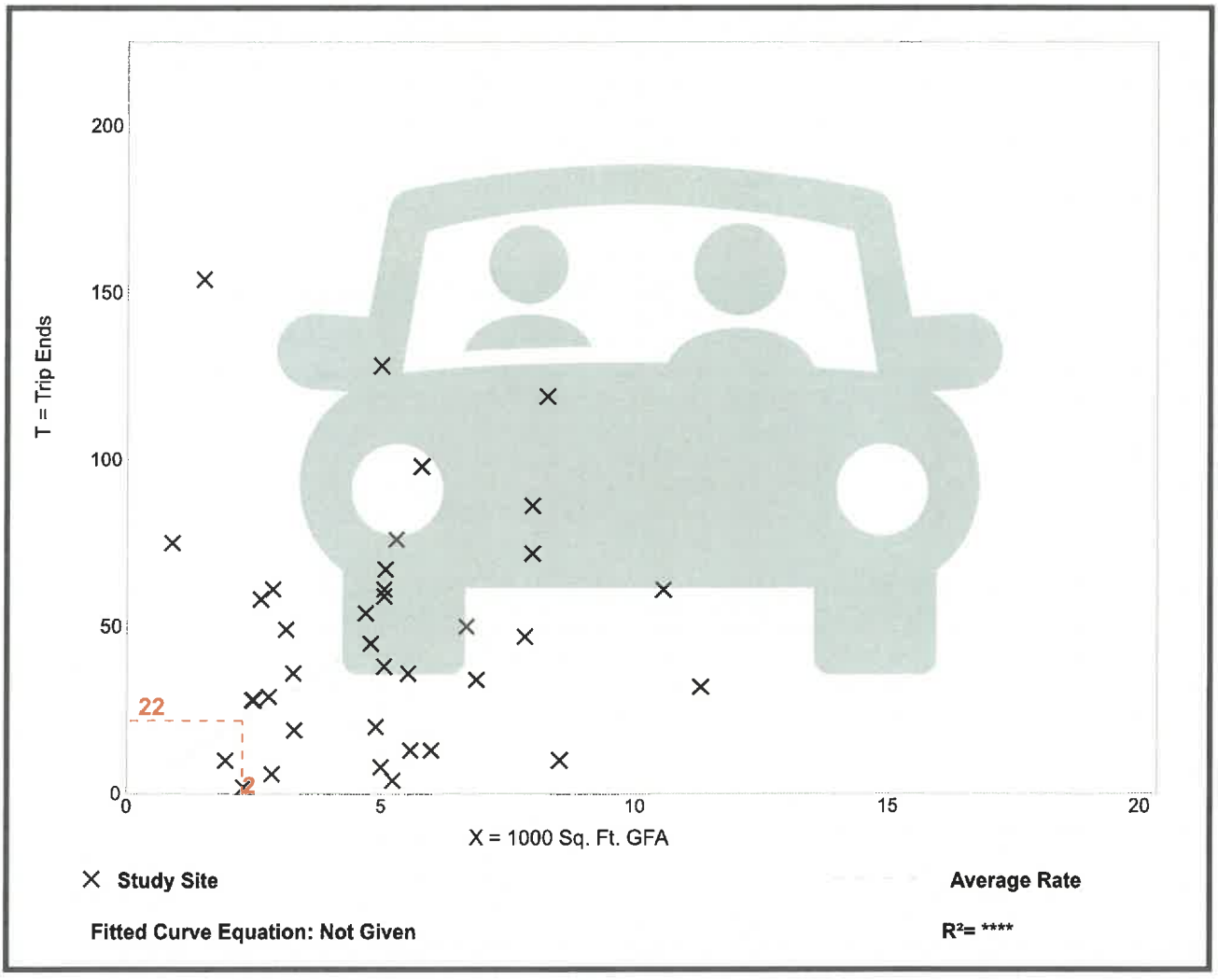
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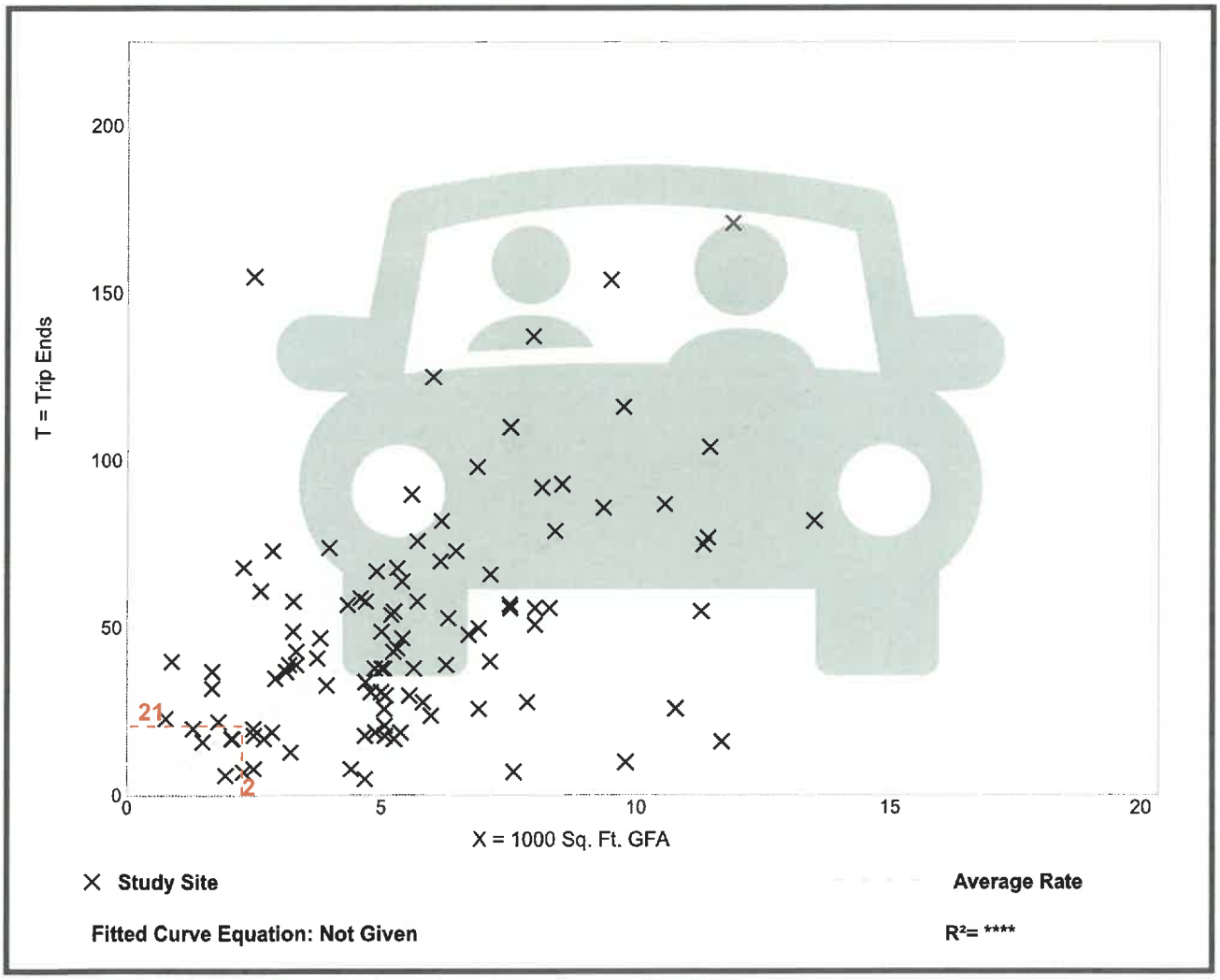
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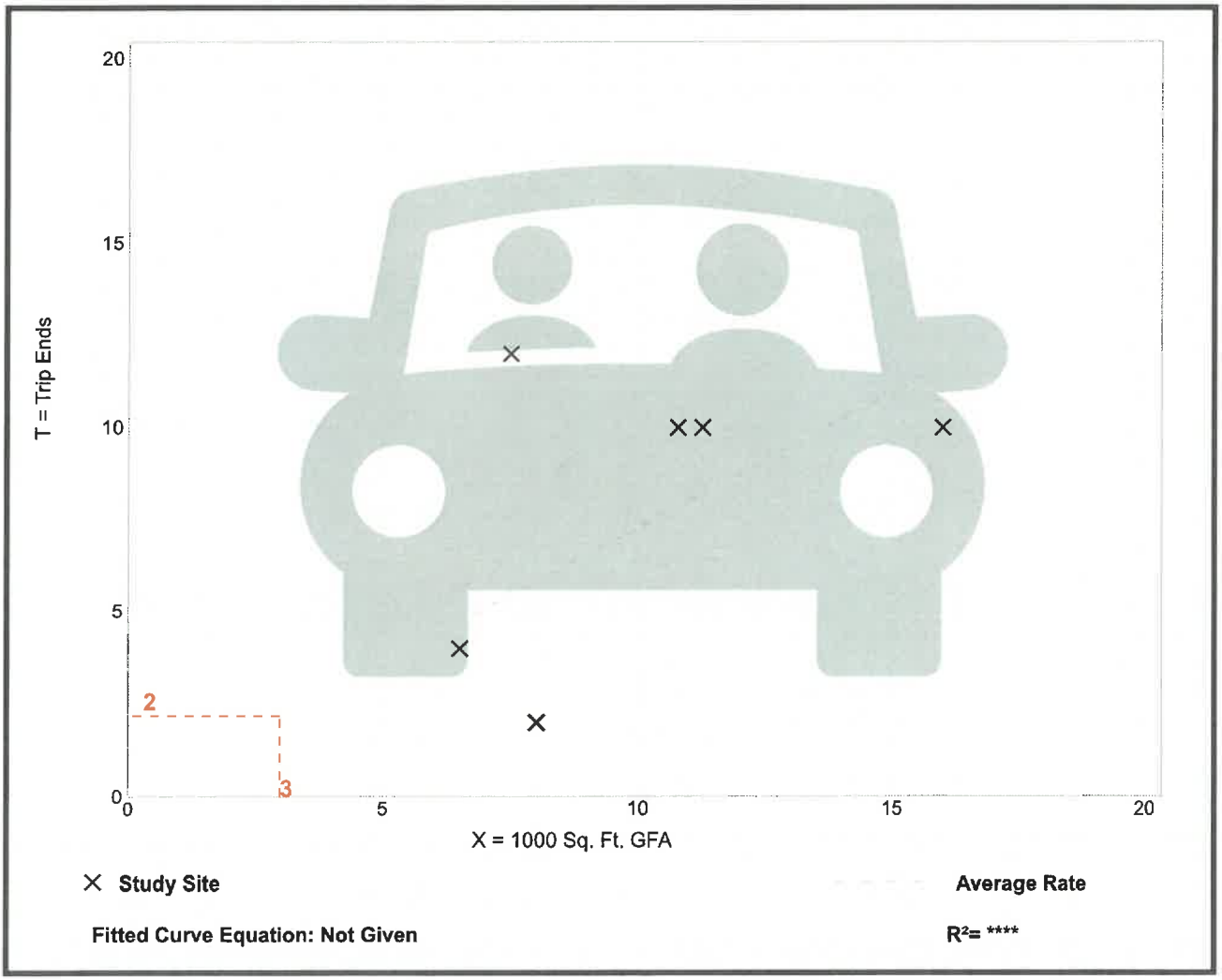
Fine Dining Restaurant
(931)

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Peak Hour of Adjacent Street Traffic,
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Setting/Location: **General Urban/Suburban**
Number of Studies: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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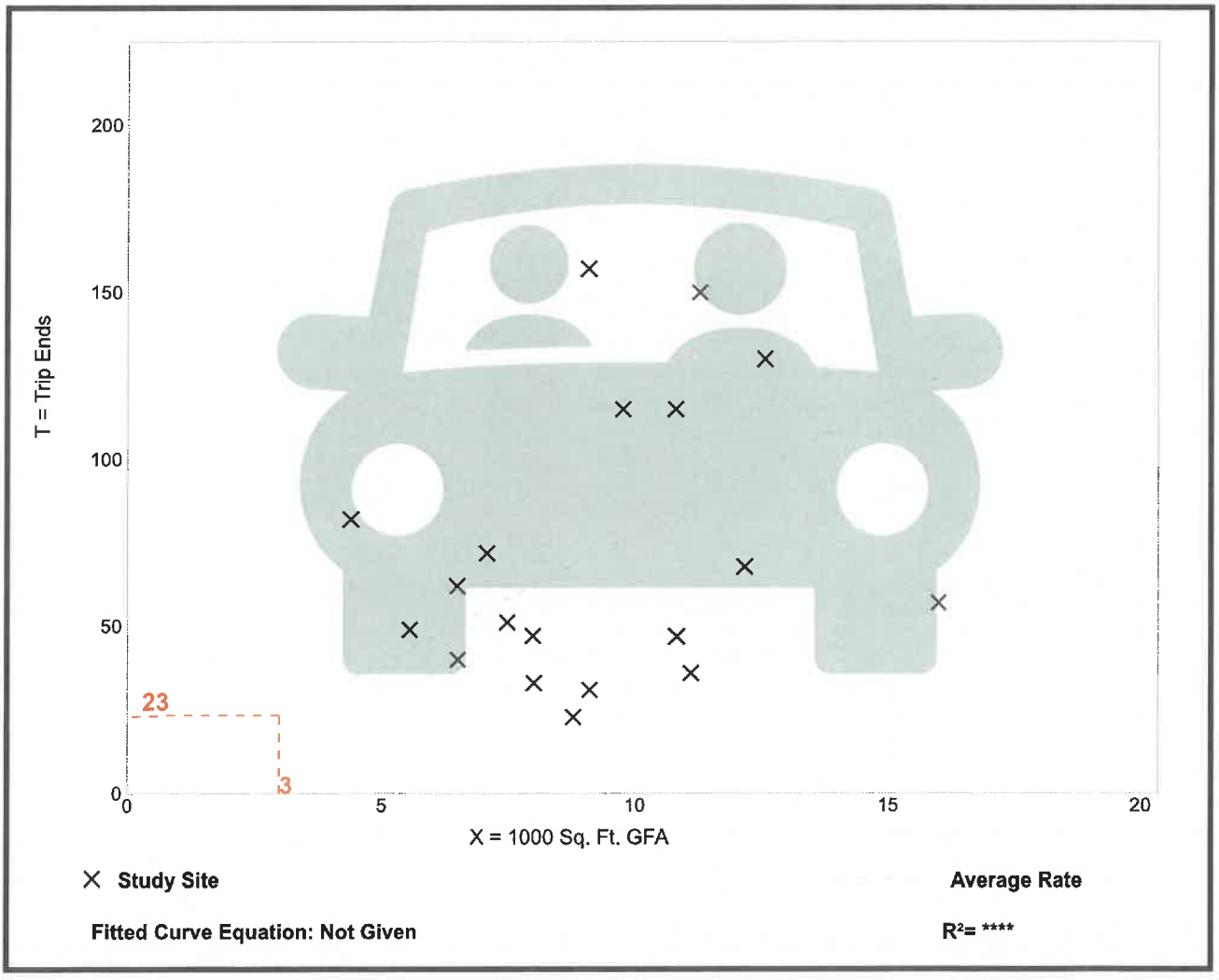
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Setting/Location: **General Urban/Suburban**
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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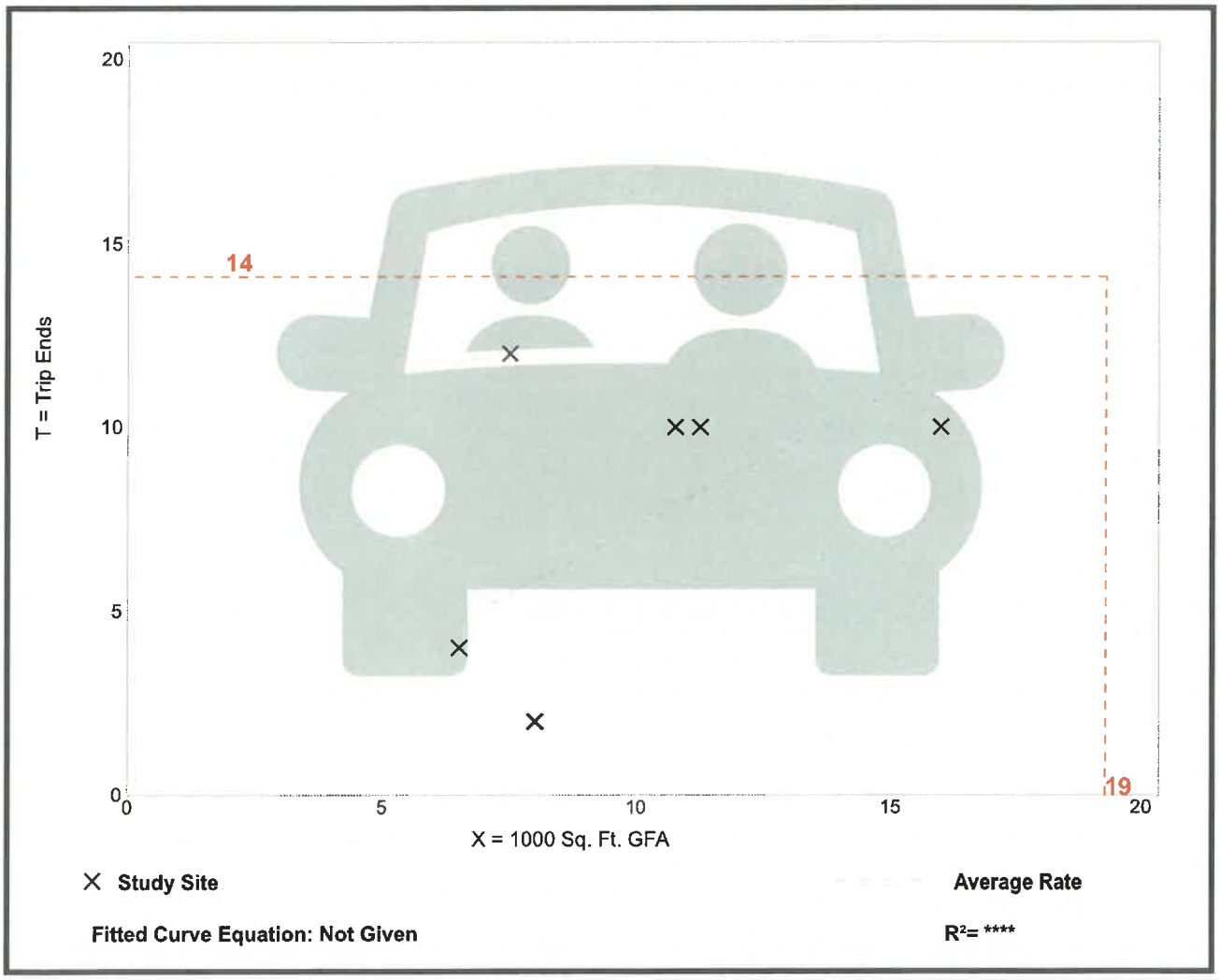
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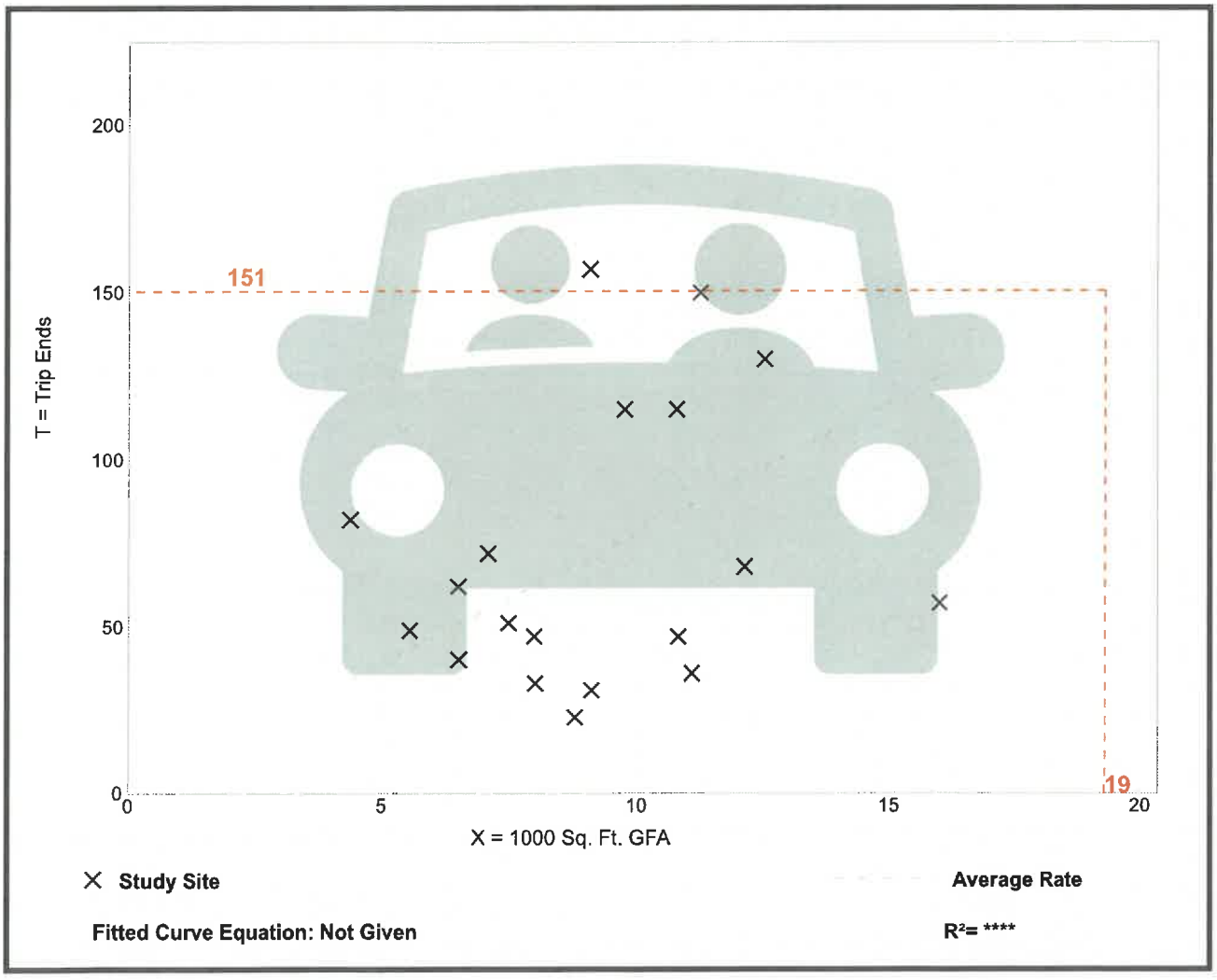
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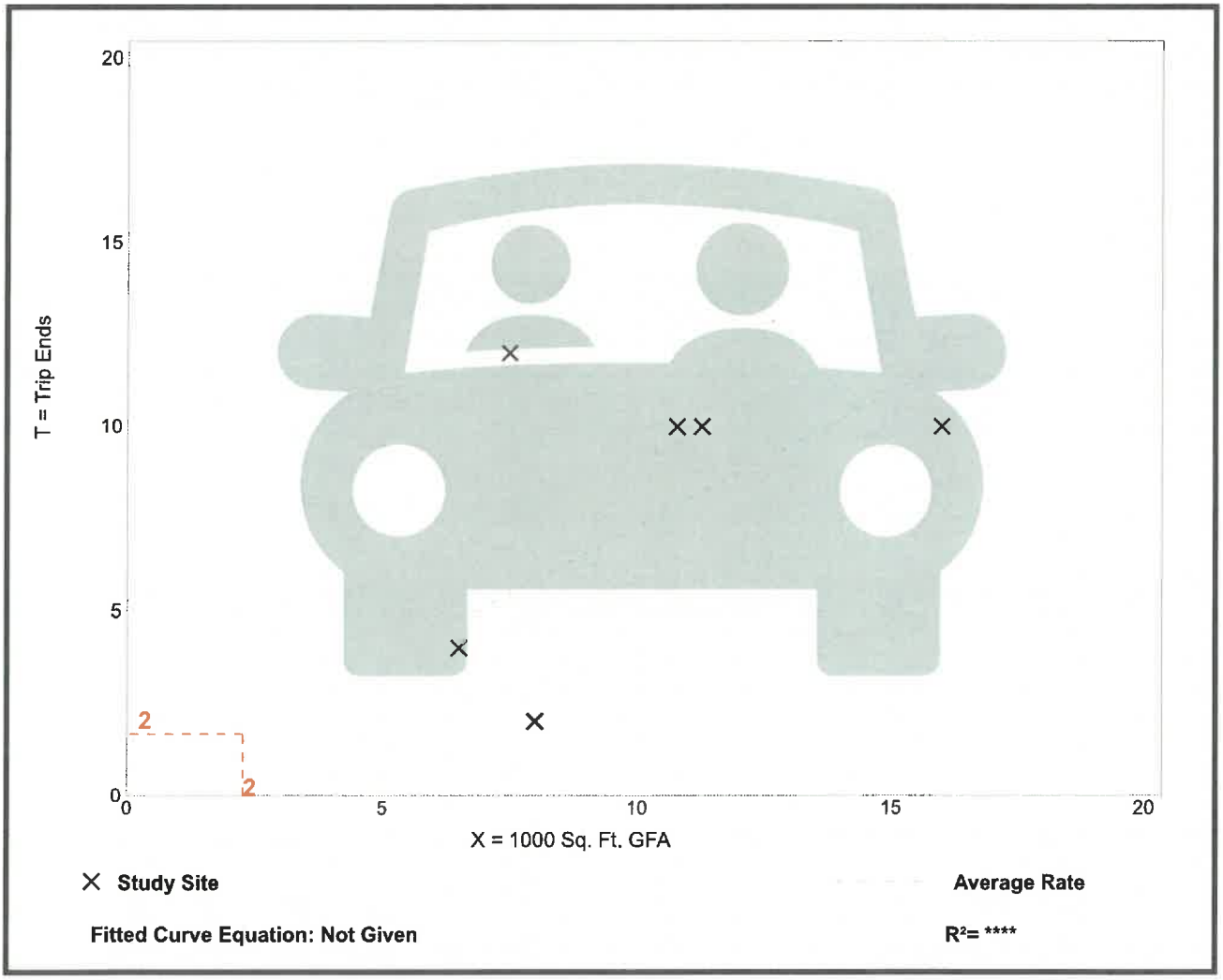
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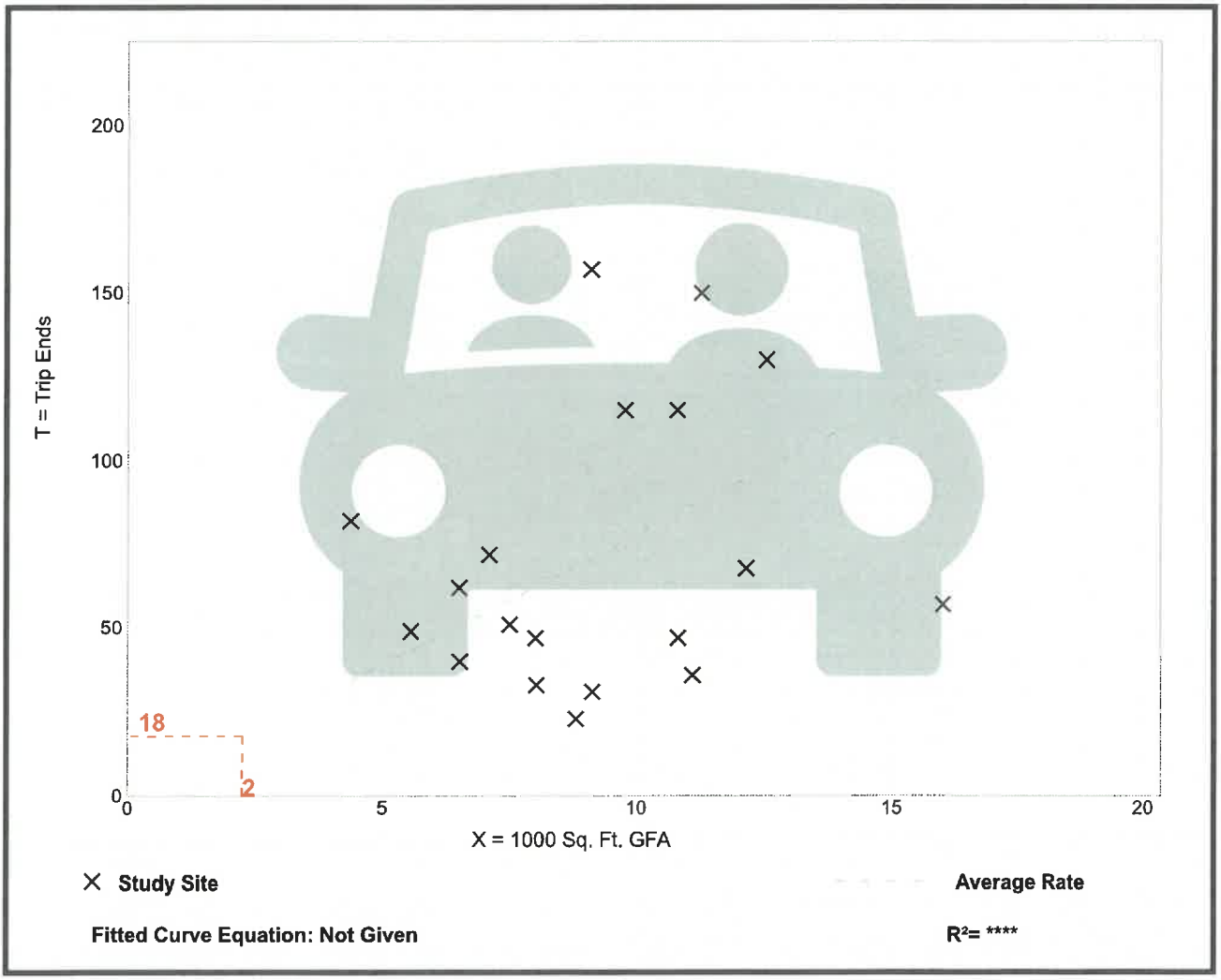
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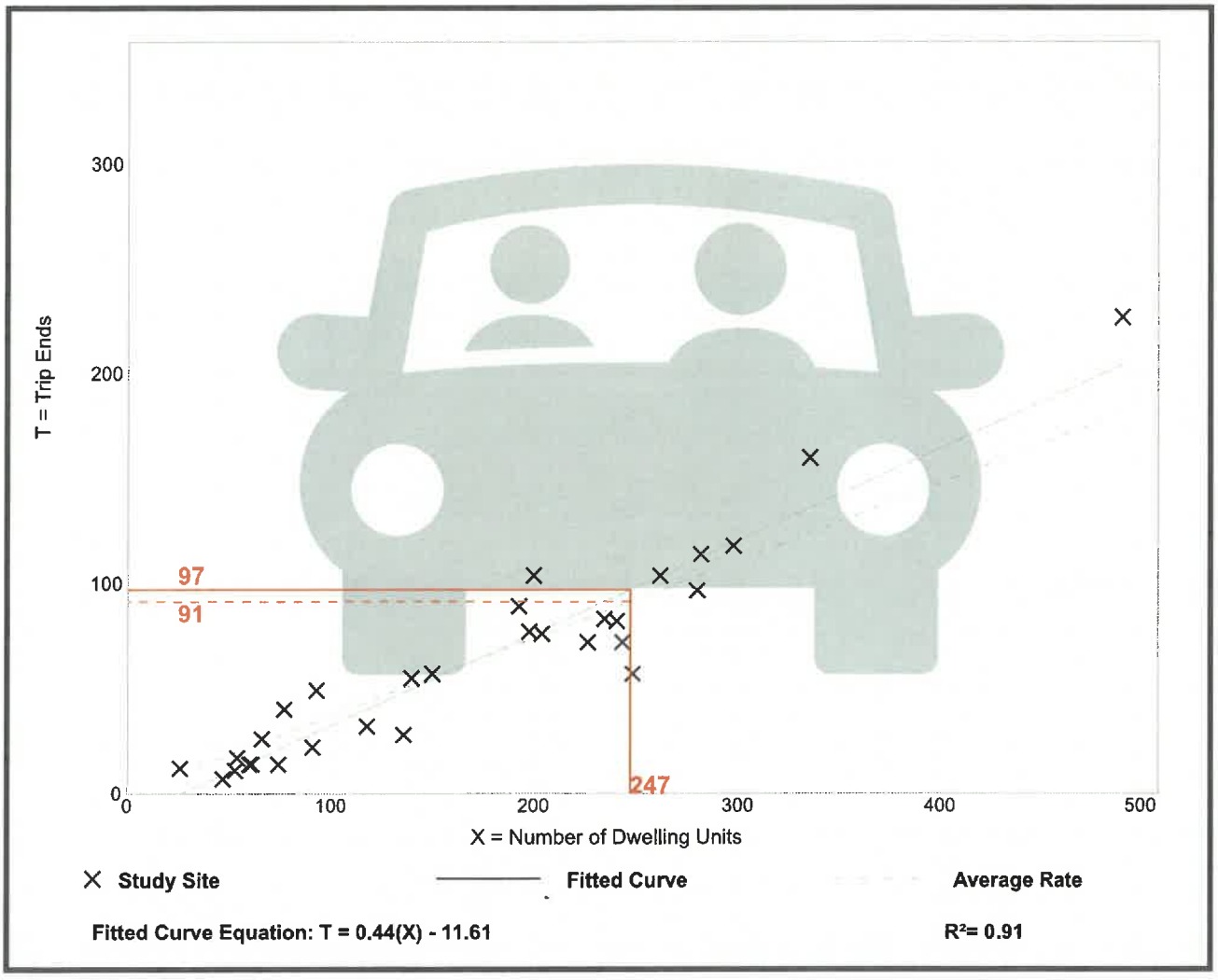
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
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Setting/Location:	**General Urban/Suburban**
Number of Studies:	30
Avg. Num. of Dwelling Units:	173
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



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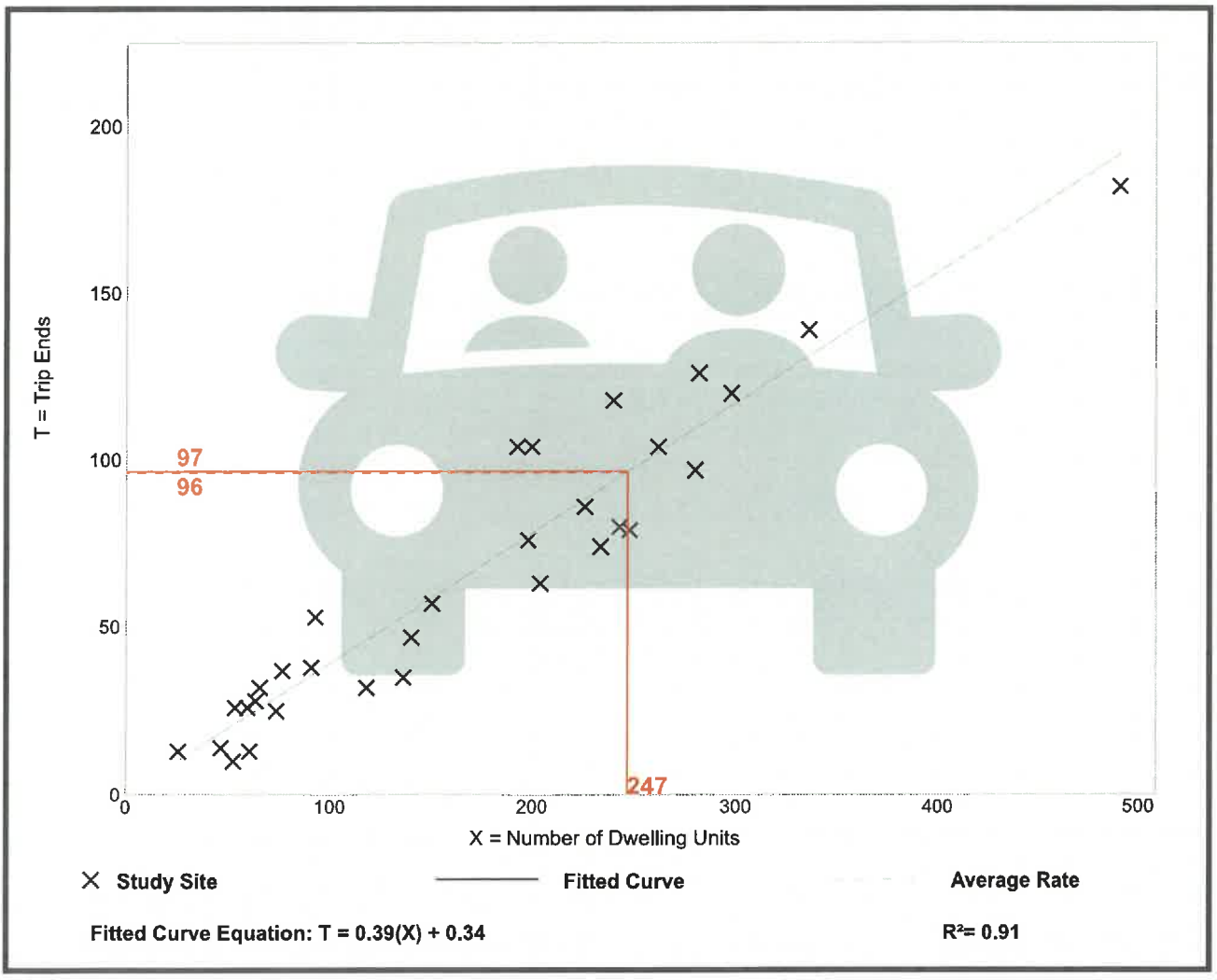
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Number of Studies: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
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Data Plot and Equation



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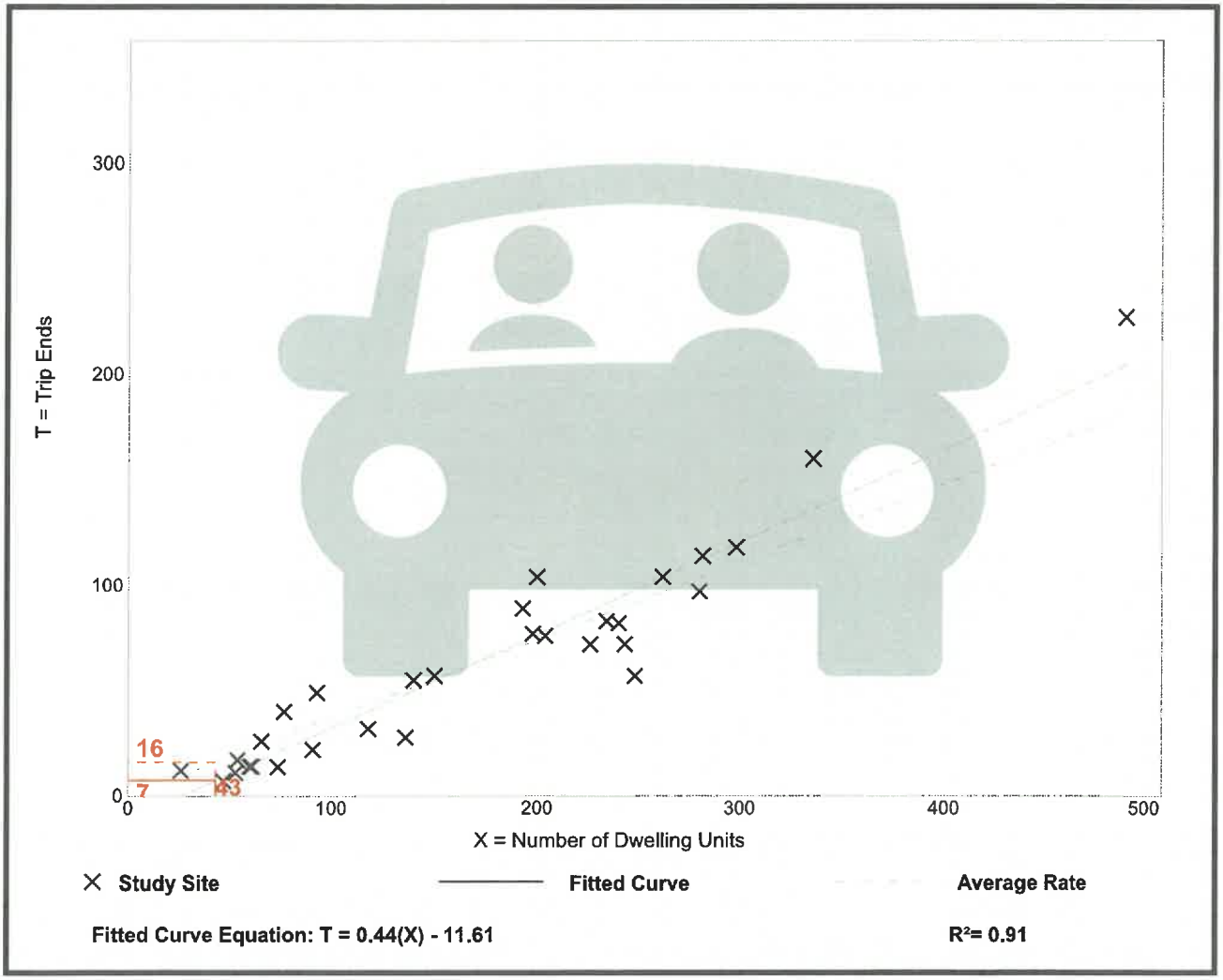
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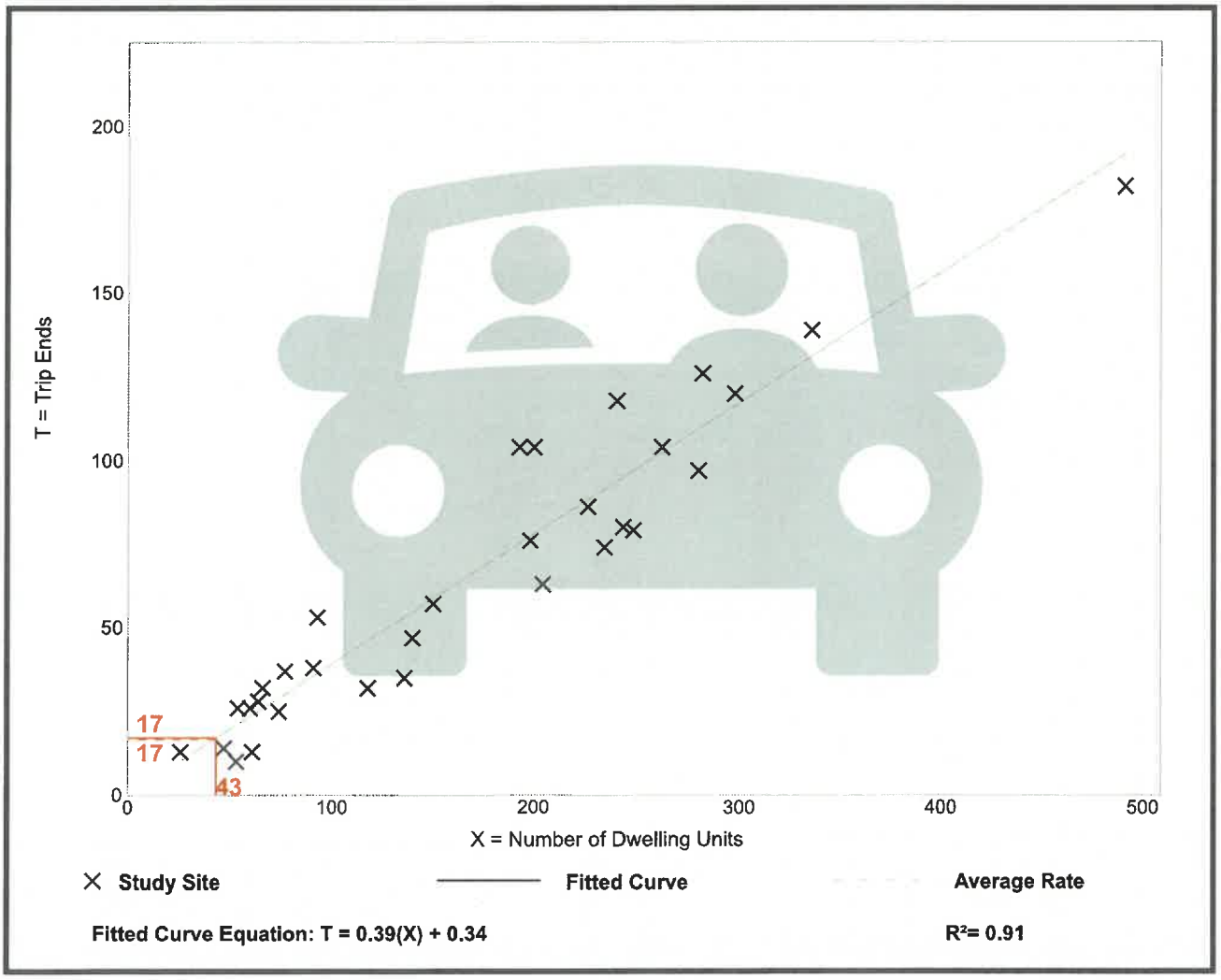
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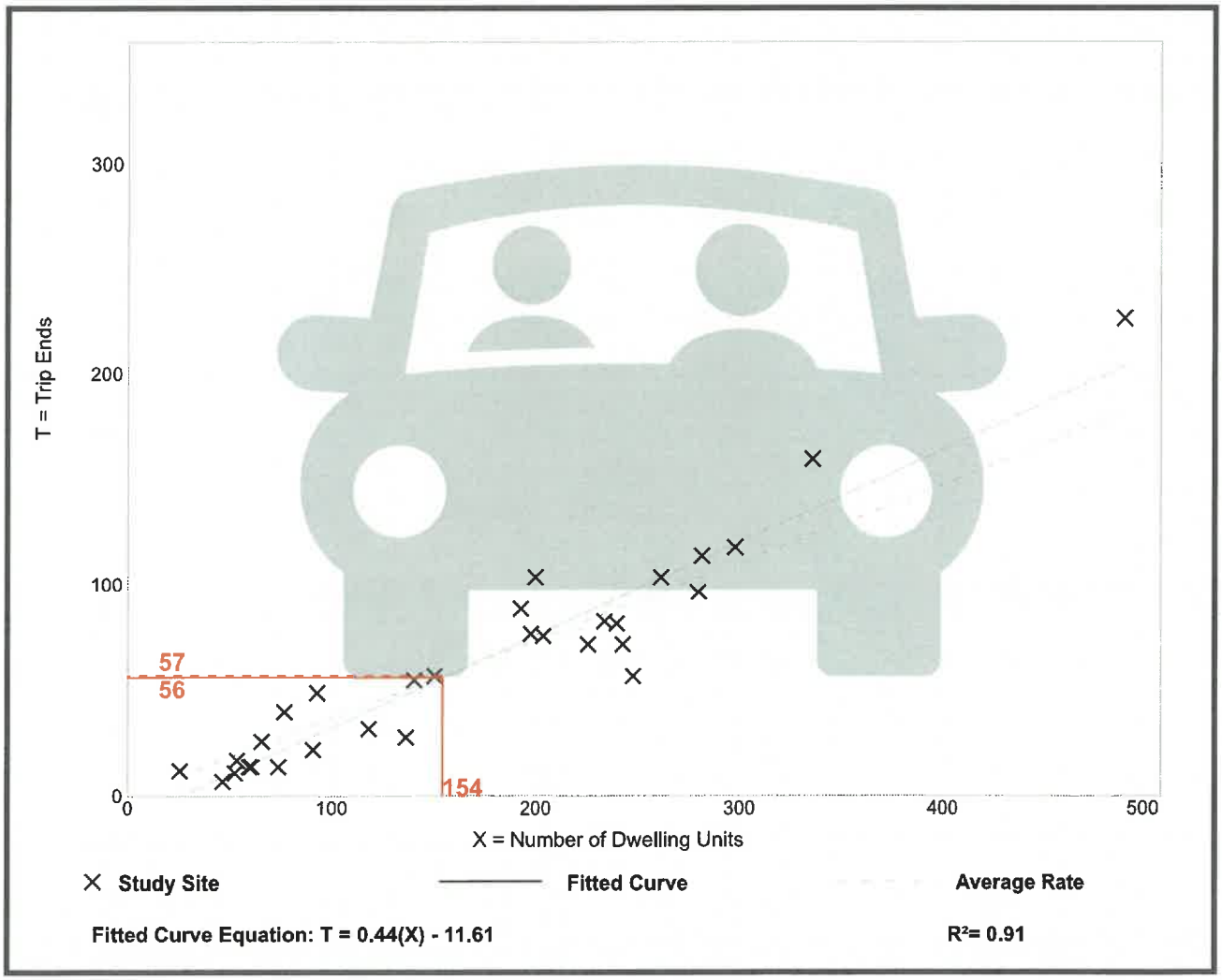
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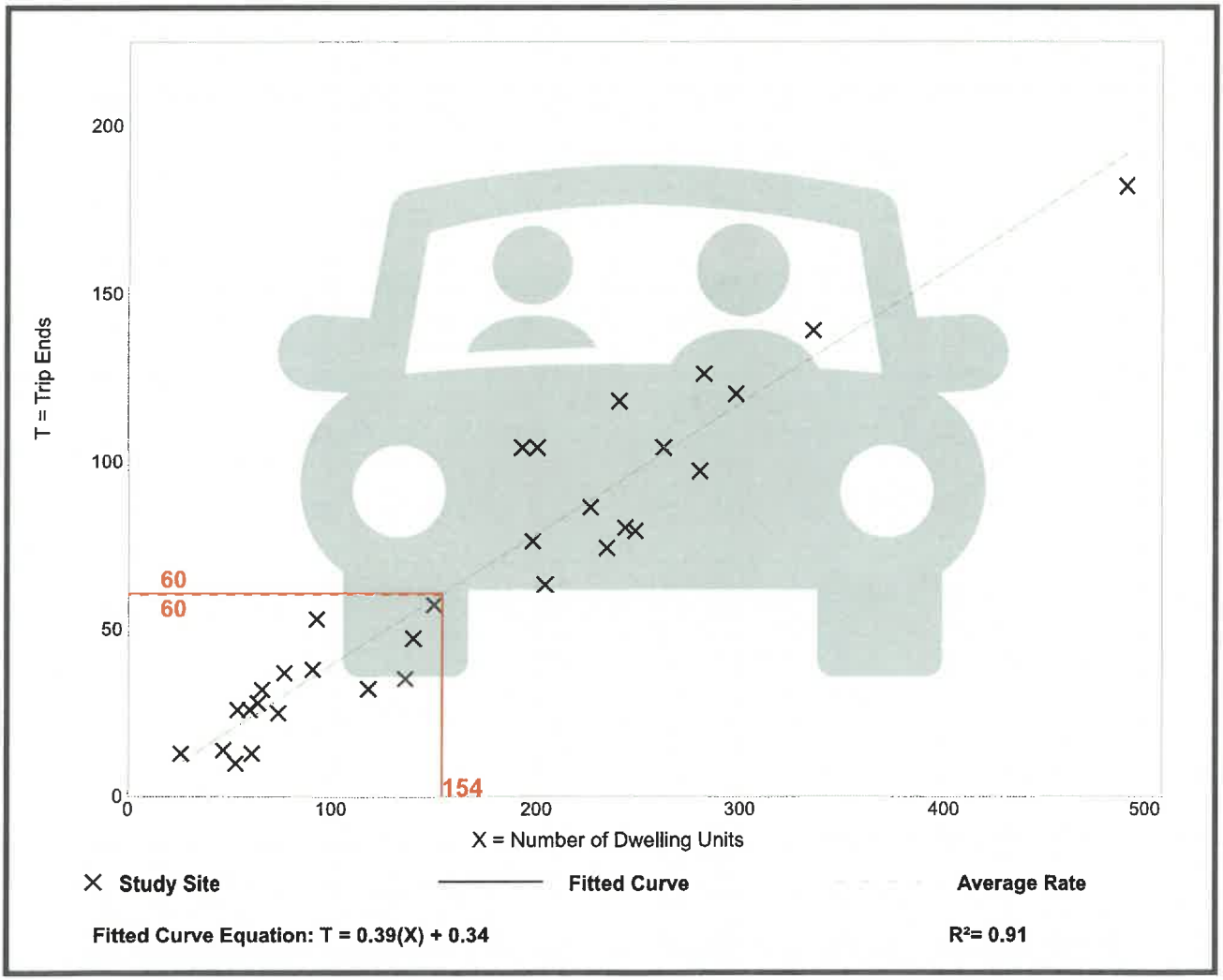
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Amy LeBel

From: rob.woodman@ferguson.com
Sent: Wednesday, August 23, 2023 4:26 PM
To: Amy LeBel
Cc: Maggie.Chase@ferguson.com
Subject: PFDC - Portland Maine - tree root system interface with stormwater system

Good afternoon Amy,

Based on recent project coordination meetings with the project team, Ferguson Warerworks is aware that the PFDC project will have a Citygreen Stratavault soil cell system within the footprint of the R-Tank Stormwater storage system.

The function of the soil cell system is to provide sufficient soil volume for the selected tree to thrive while the R-Tank will be utilized to meet the necessary Stormwater storage goals for the site. Both systems are traffic load rated.

While final coordination of the layout and details is being completed, Ferguson, as the designated distributor for both systems in New England, takes no exception to the proposed design and will ensure both systems are designed and installed in accordance with the specifications and that root control barrier is provided at the interface between the two systems to mitigate any potential for roots to enter the R-Tank modules.

Don't hesitate to reach out if you have any questions,

Thank you,

Rob

Rob Woodman PE, NGICP, CPESC
Director - Engineering & Green Stormwater Infrastructure
rob.woodman@ferguson.com
(207) 272 4431
www.fergusongss.com

Contech Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074
www.ContechES.com

August 22, 2023

Amy LeBel, PE
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

RE: Portland Foreside Phase 2, Portland, ME (Contech Reference No. 654839)
Review of Jellyfish Filter Design

Dear Ms. LeBel:

The purpose of this letter is to document review of the plans and the proposed application of the Jellyfish water quality unit for the Portland Foreside Phase 2, Portland, ME project.

Contech Engineered Solutions (Contech) has reviewed the Jellyfish Filter design for the project. We believe the Jellyfish Filter is an appropriate water quality solution for this site. The Jellyfish system is approved for use by MEDEP meeting the General Standards of the Stormwater Rules (Chapter 500) if designed, installed, and maintained in accordance with the provisions noted in the January 21, 2015 approval letter from the MEDEP.

Jellyfish 2: The engineer of record reports a drainage area of 3.59 acres (100% impervious). The Jellyfish is designed in accordance with the tested hydraulic loading rate of the 54-inch High Flow cartridges at 80 gpm and Drain Down cartridge at 40 gpm. The Jellyfish is designed to treat a WQv, as determined by the DEP, that will be detained and routed through the Jellyfish in accordance with the required emptying time of a minimum of 24-hours and a maximum of 48-hours. In order to adequately treat the runoff from this area, Contech recommends a Jellyfish model JFPD0808-10-3.

Our systems require periodic maintenance to continue operating properly. Given typical runoff pollutant loading rates, Contech recommends maintenance inspections on an annual basis. Maintenance should be performed when sediment depth reaches 12” of accumulation.

This system is expected to operate in accordance with Contech’s design intent. Please feel free to contact me if you have any questions or concerns.

Sincerely,



David Adams
Project Engineer
Contech Engineered Solutions LLC
(207) 885-6191
dave.adams@conteches.com

Jellyfish Design Calculation

CONTECH Stormwater Solutions Inc. Engineer: DRA
Date Prepared: **8/17/2023**

Site Information

Project Name	**Portland Foreside Ph 2**
Project State	**ME**
Project City	**Portland**
Site Designation:	**Jellyfish 2**

Total Drainage Area, Ad	**3.59**	ac
Post Development Impervious Area, Ai	**3.59**	ac
Pervious Area, Ap	**0.00**	ac
% Impervious	**100%**	
Runoff Coefficient, Rc	**0.95**	

Upstream Detention System

Detention pretreatment credit	**50%**	

Mass Loading Calculations

Mean Annual Rainfall, P	**51**	in
Agency Required % Removal	**80%**	
Percent Runoff Capture	**90%**	
Mean Annual Runoff, Vt	**570,824**	ft^3
Event Mean Concentration of Pollutant, EMC	**75**	mg/l
Annual Mass Load, M total	**2,671**	lbs

Filter System

Filtration Brand	**Jelly Fish**	
Cartridge Length	**54**	in

Jelly Fish Sizing

Mass removed by pretreatment system	**1,336**	lbs
Mass load to filters after pretreatment	**1,336**	lbs
Mass to be Captured by System	**1,068**	lbs
Water Quality Flow	**1.96**	cfs

Method to Use **FLOW BASED**

Summary			
Flow	Treatment Flow Rate	2.05	cfs
	Required Size	**JFPD0808-10-3**	

August 22, 2023

Attn: Alex DelVecchio
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, ME 04032

RE: Portland Development Project – Portland, ME

Hello Alex,

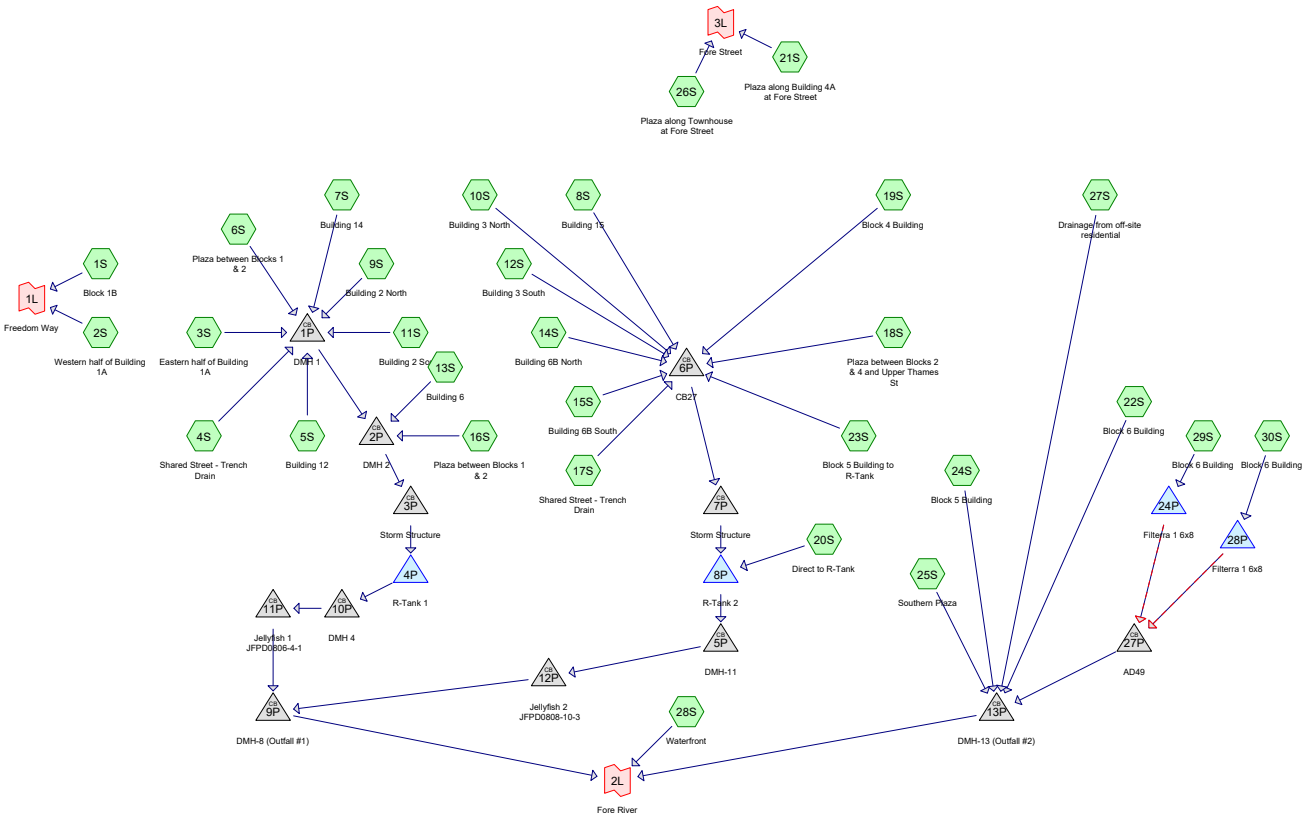
The following is in response to your question from the City of Portland regarding soil volume for the trees along Thames Street.

The soil volume in the soil cell system as shown on the plans provides >300ft^3 of shared usable soil volume per tree. This soil volume is adequately sized to allow these trees to reach their full species potential in an urban environment.

We look forward to working with you on this project. Please let me know if you have further questions.

Regards,





Subcat Reach Pond Link

Routing Diagram for PFDC 58 Fore St Model
Prepared by Woodard & Curran, Inc, Printed 8/21/2023
HydroCAD® 10.20-2g s/n 01204 © 2022 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1" Storm Event	Type III 24-hr		Default	24.00	1	1.00	2
2	2-Year Storm	Type III 24-hr		Default	24.00	1	3.10	2
3	10-Year Storm	Type III 24-hr		Default	24.00	1	4.60	2
4	25-Year Storm	Type III 24-hr		Default	24.00	1	5.80	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.914	80	>75% Grass cover, Good, HSG D (1S, 4S, 6S, 16S, 27S, 28S)
5.607	98	Impervious (1S, 4S, 6S, 16S, 17S, 18S, 20S, 21S, 23S, 24S, 25S, 26S, 27S, 28S)
5.399	98	Roof (2S, 3S, 5S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 19S, 22S, 29S, 30S)
12.919	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>0.08"
Tc=6.0 min CN=80 Runoff=0.02 cfs 0.003 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>0.56"
Tc=6.0 min CN=95 Runoff=0.39 cfs 0.028 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.34 cfs 0.025 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.007 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.006 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>0.50"
Tc=6.0 min CN=94 Runoff=0.05 cfs 0.004 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.58 cfs 0.044 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=1.73 cfs 0.131 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.072 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.046 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>0.25"
Tc=6.0 min CN=88 Runoff=0.29 cfs 0.024 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=93 Runoff=1.29 cfs 0.094 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Pond 1P: DMH 1 Peak Elev=10.40' Inflow=1.48 cfs 0.110 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=1.48 cfs 0.110 af

Pond 2P: DMH 2 Peak Elev=10.12' Inflow=1.60 cfs 0.119 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=1.60 cfs 0.119 af

Pond 3P: Storm Structure Peak Elev=8.81' Inflow=1.60 cfs 0.119 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=1.60 cfs 0.119 af

Pond 4P: R-Tank 1 Peak Elev=7.51' Storage=838 cf Inflow=1.60 cfs 0.119 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 5P: DMH-11 Peak Elev=8.54' Inflow=1.96 cfs 0.219 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=1.96 cfs 0.219 af

Pond 6P: CB27 Peak Elev=10.43' Inflow=2.98 cfs 0.226 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=2.98 cfs 0.226 af

Pond 7P: Storm Structure Peak Elev=9.03' Inflow=2.98 cfs 0.226 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=2.98 cfs 0.226 af

Pond 8P: R-Tank 2 Peak Elev=8.71' Storage=2,746 cf Inflow=3.12 cfs 0.237 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=1.96 cfs 0.219 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=7.42' Inflow=3.24 cfs 0.333 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=3.24 cfs 0.333 af

Pond 10P: DMH 4 Peak Elev=7.47' Inflow=1.30 cfs 0.114 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=9.73' Inflow=1.30 cfs 0.114 af
Outflow=1.30 cfs 0.114 af

Pond 12P: Jellyfish 2 JFPD0808-10-3 Peak Elev=9.17' Inflow=1.96 cfs 0.219 af
Outflow=1.96 cfs 0.219 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=7.44' Inflow=2.39 cfs 0.194 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=2.39 cfs 0.194 af

Pond 24P: Filterra 1 6x8 Peak Elev=17.32' Storage=0.001 af Inflow=0.24 cfs 0.018 af
Outflow=0.16 cfs 0.017 af

Pond 27P: AD49 Peak Elev=14.31' Inflow=0.31 cfs 0.035 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=0.31 cfs 0.035 af

Pond 28P: Filterra 1 6x8 Peak Elev=17.32' Storage=0.001 af Inflow=0.24 cfs 0.018 af
Outflow=0.16 cfs 0.017 af

Link 1L: Freedom Way Inflow=0.45 cfs 0.037 af
Primary=0.45 cfs 0.037 af

Link 2L: Fore River Inflow=6.52 cfs 0.621 af
Primary=6.52 cfs 0.621 af

Link 3L: Fore Street Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Total Runoff Area = 12.919 ac Runoff Volume = 0.686 af Average Runoff Depth = 0.64"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

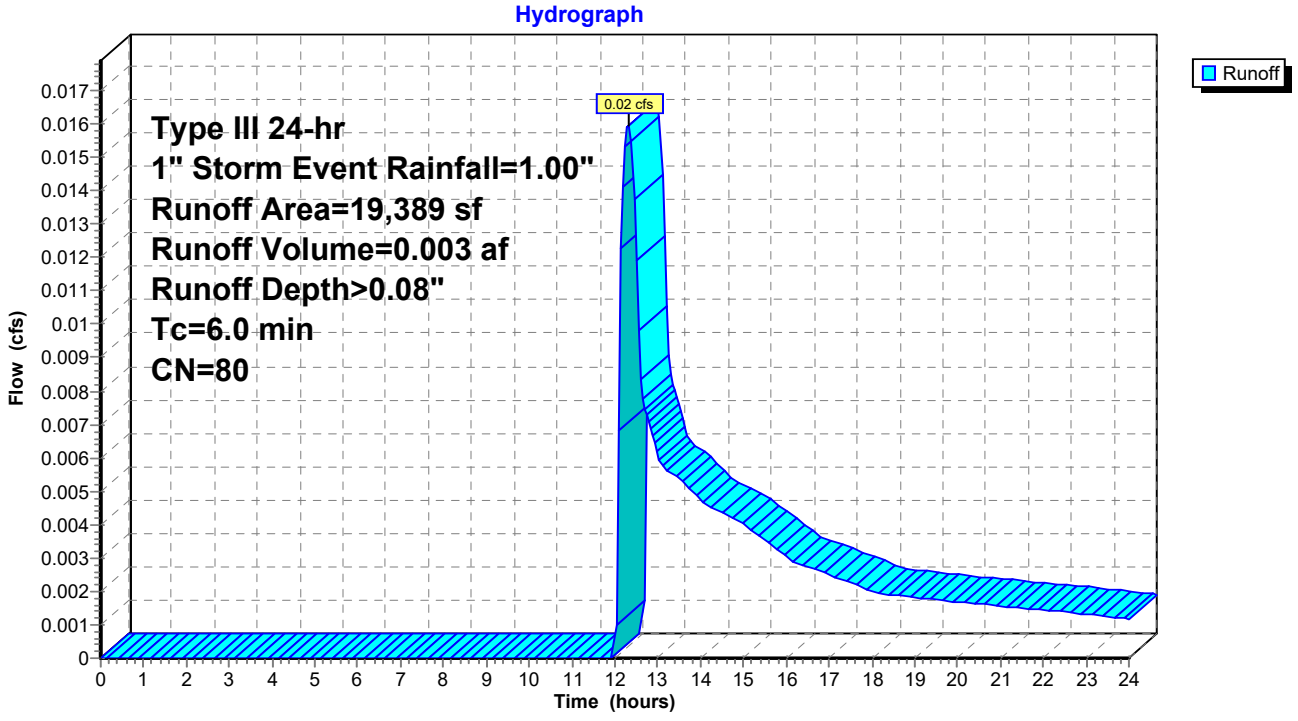
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth> 0.08"
Routed to Link 1L : Freedom Way

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

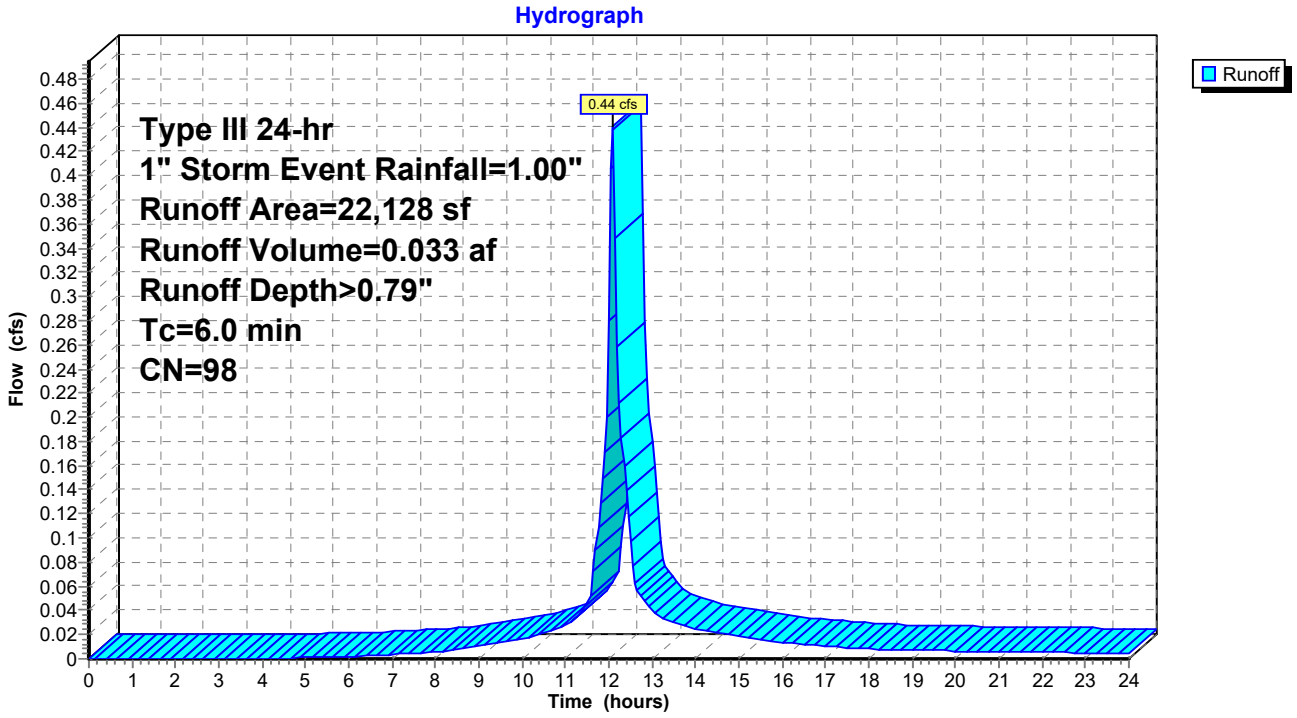
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Link 1L : Freedom Way

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

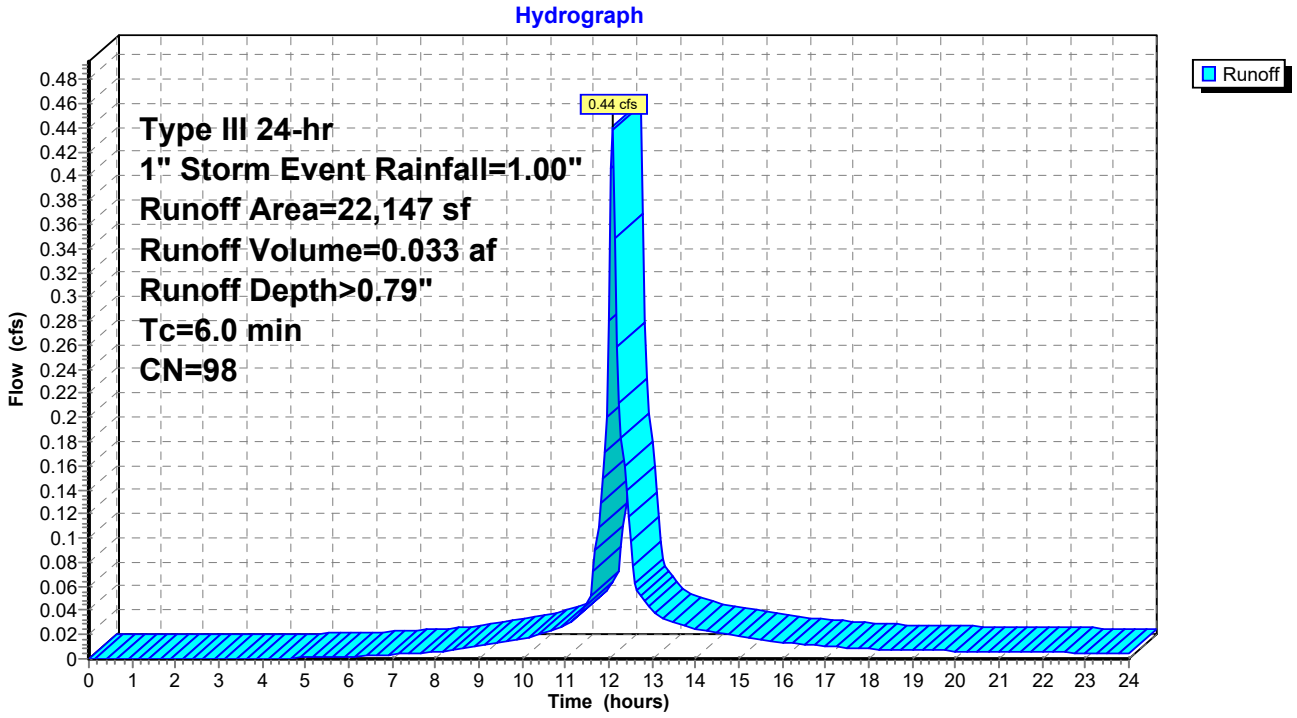
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

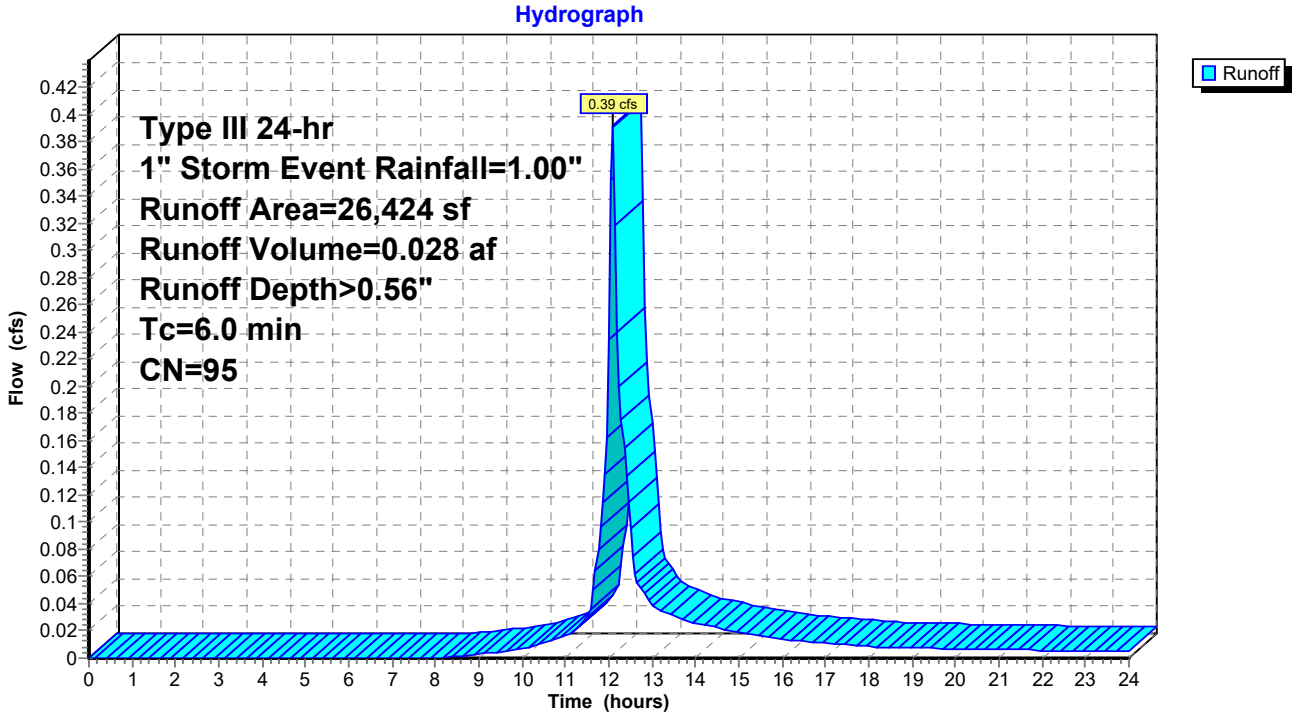
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 0.56"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

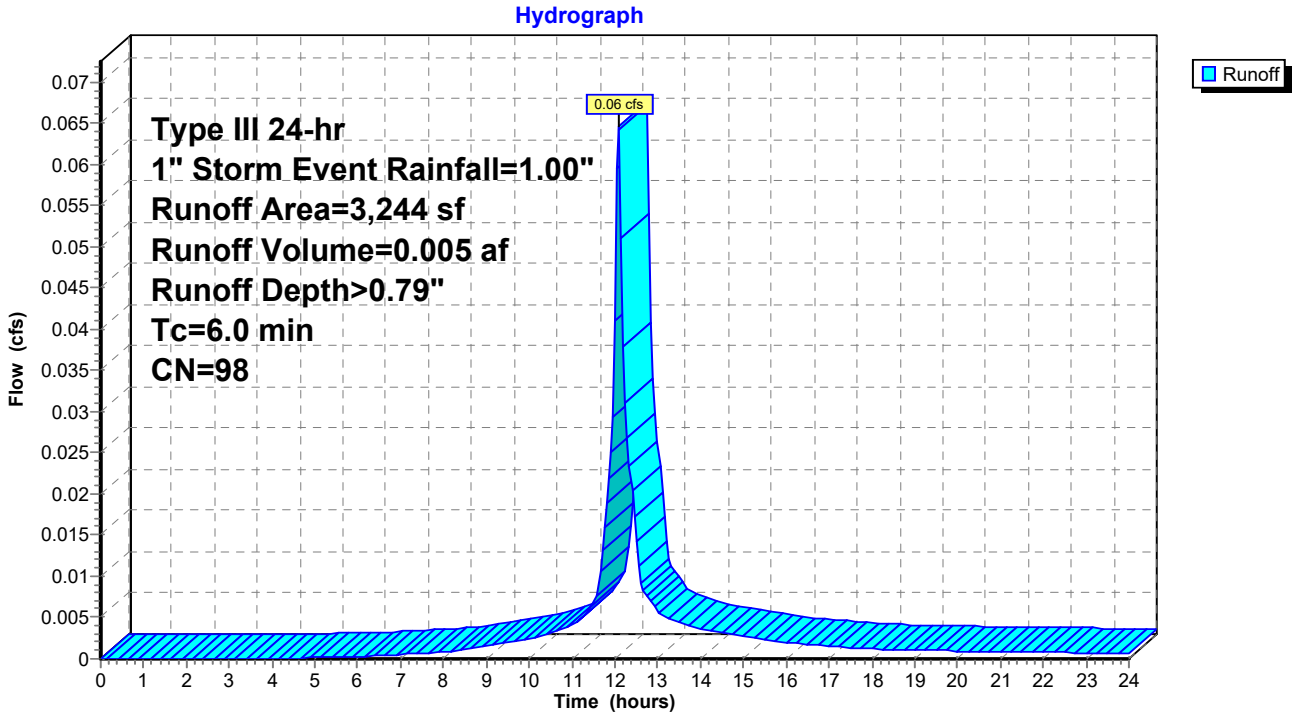
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

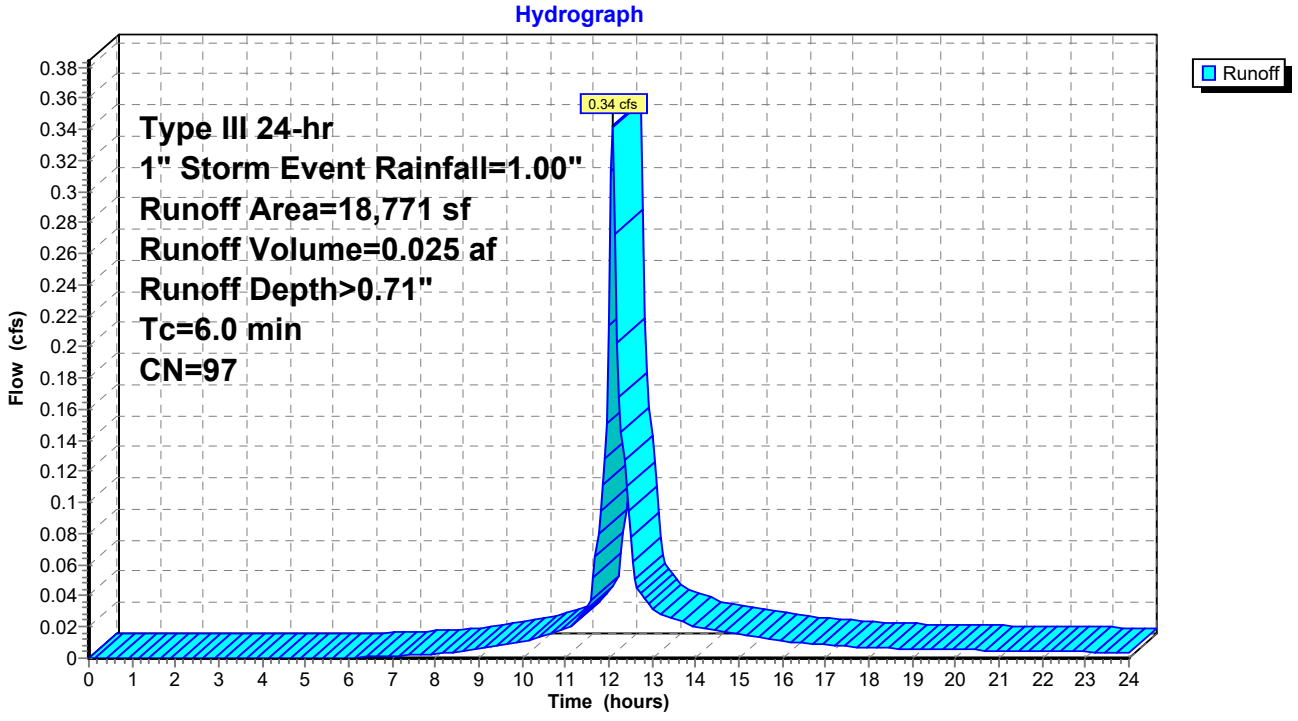
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 0.71"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

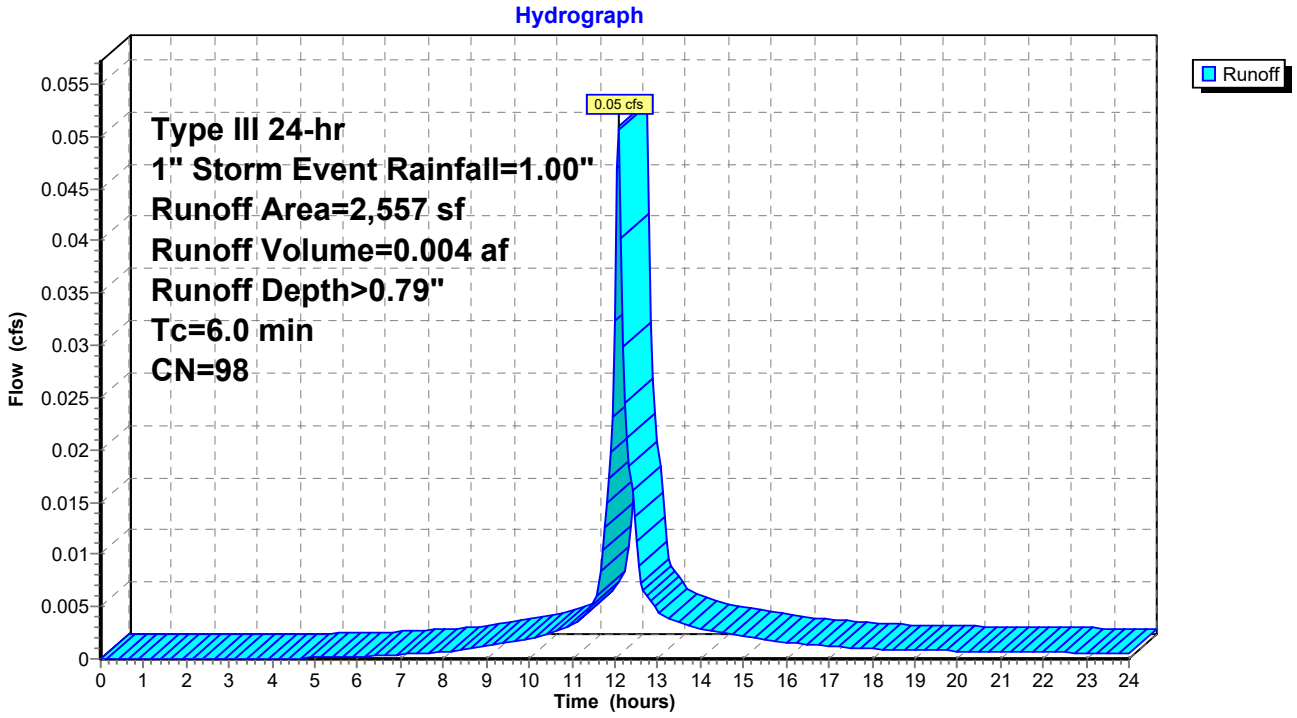
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

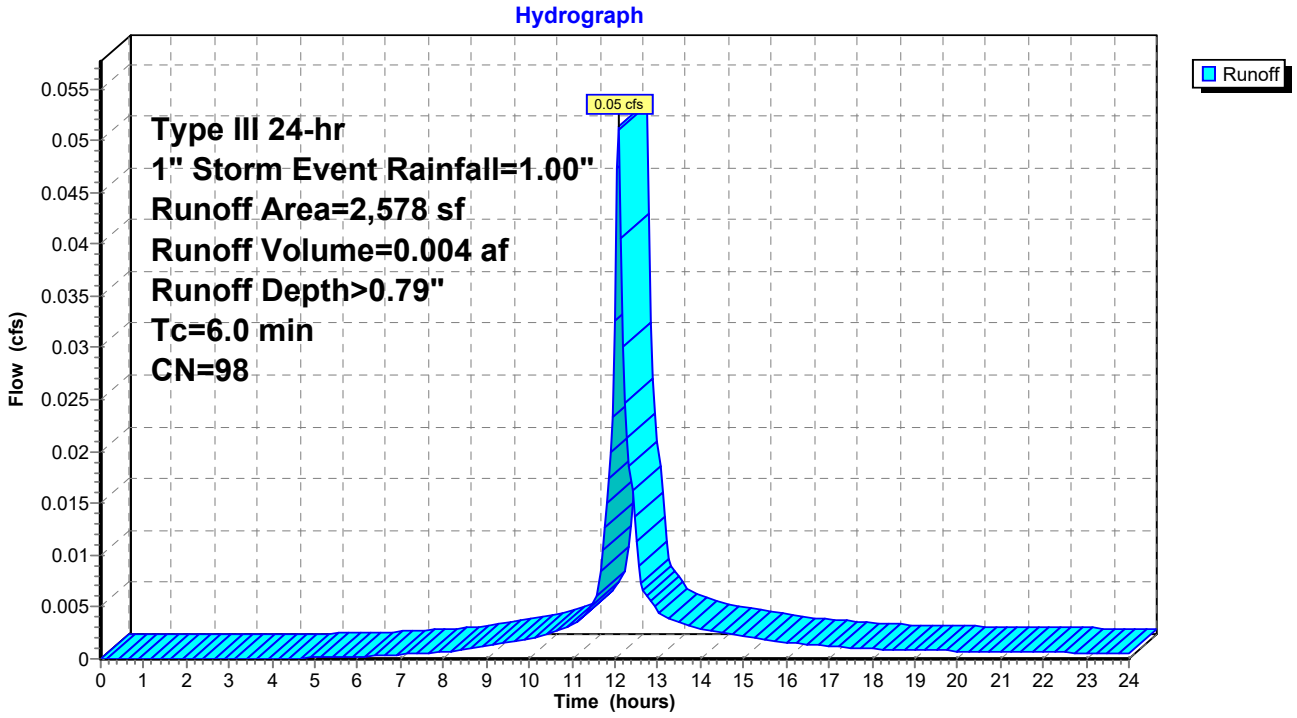
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

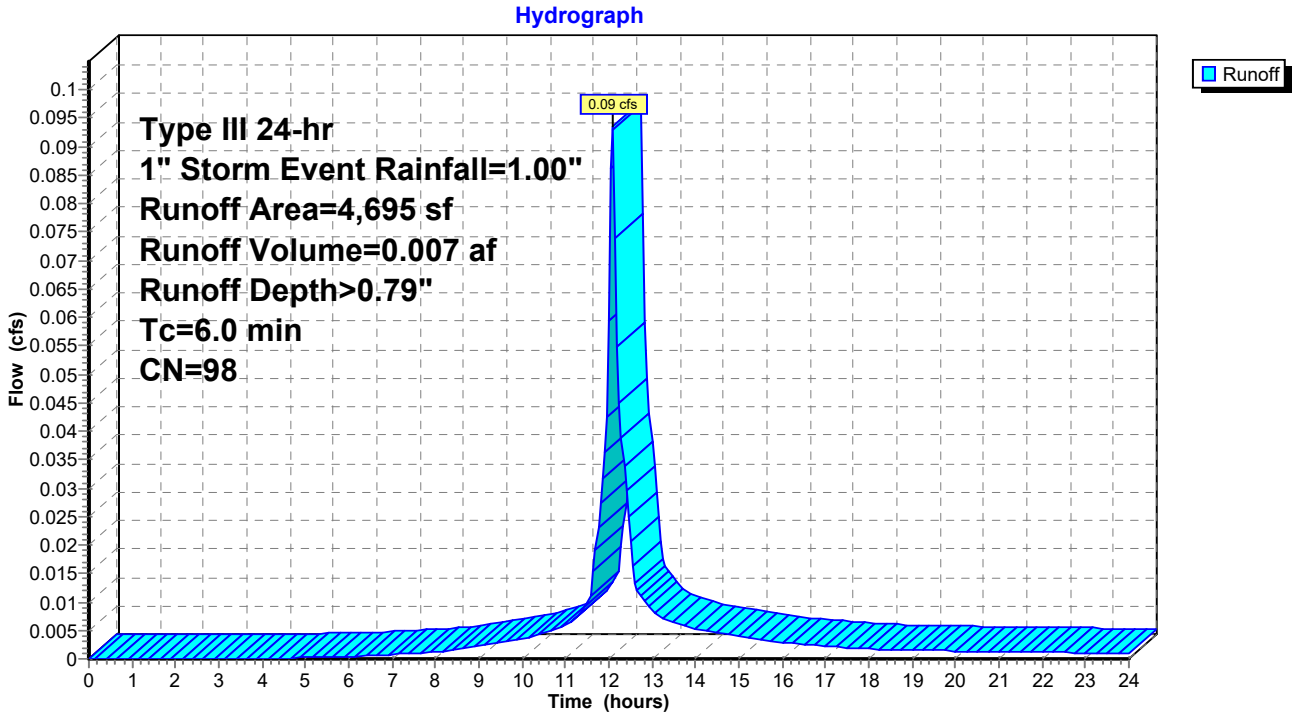
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

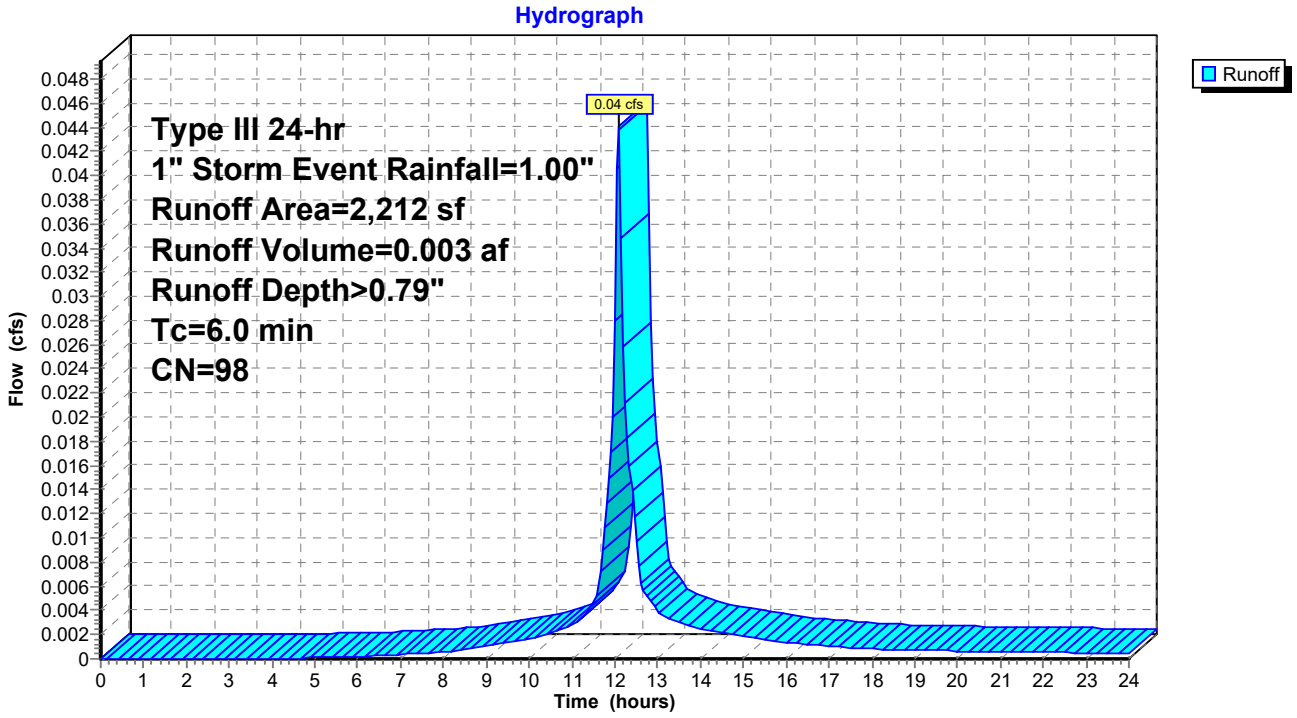
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

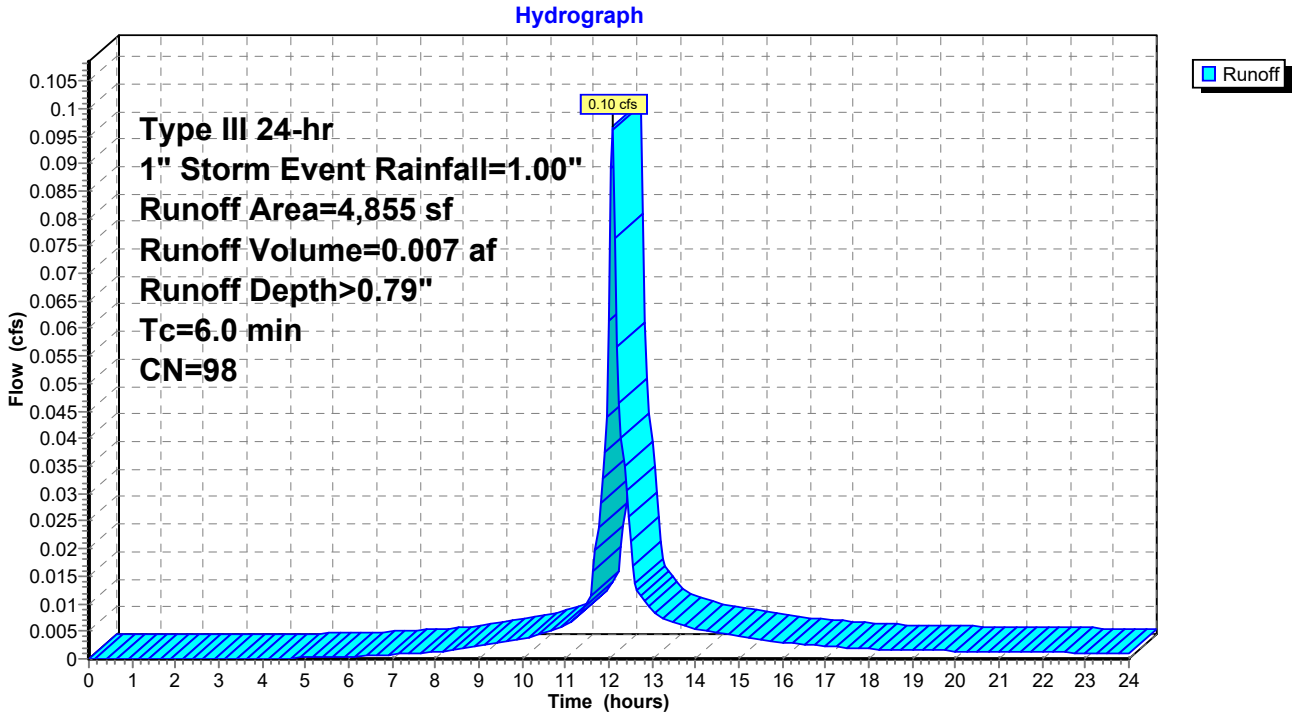
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

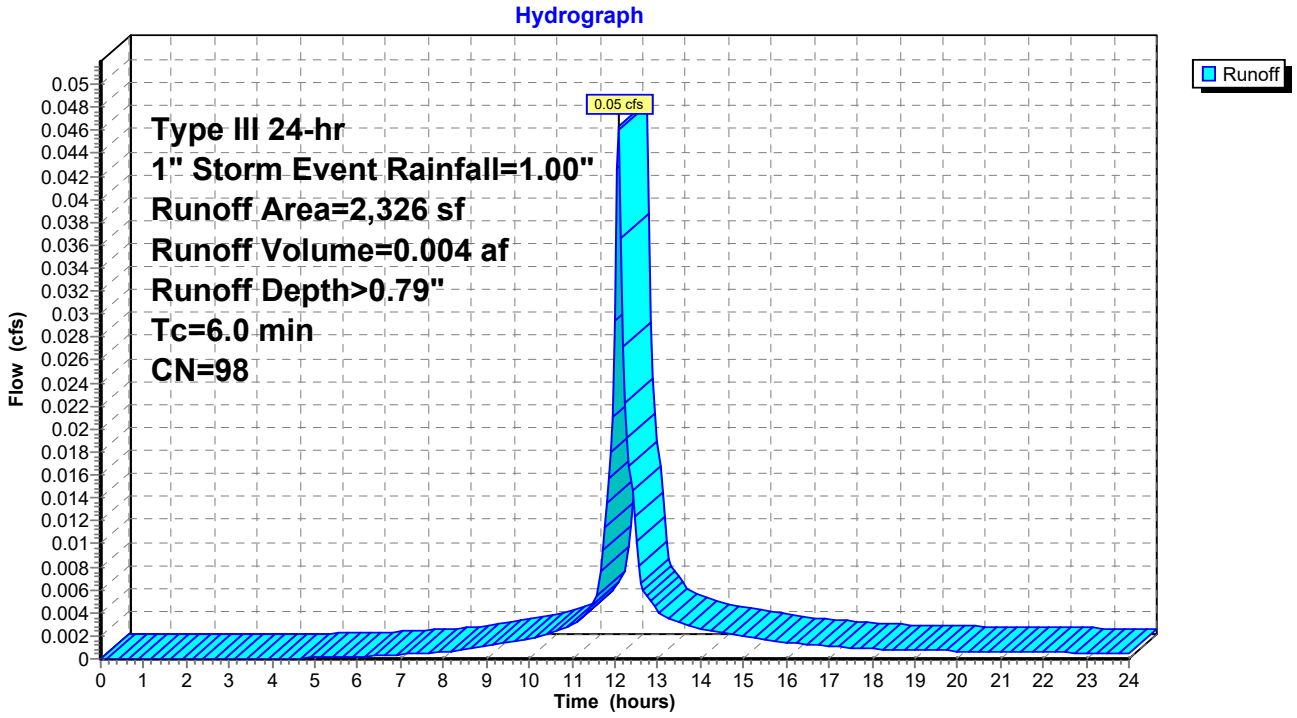
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

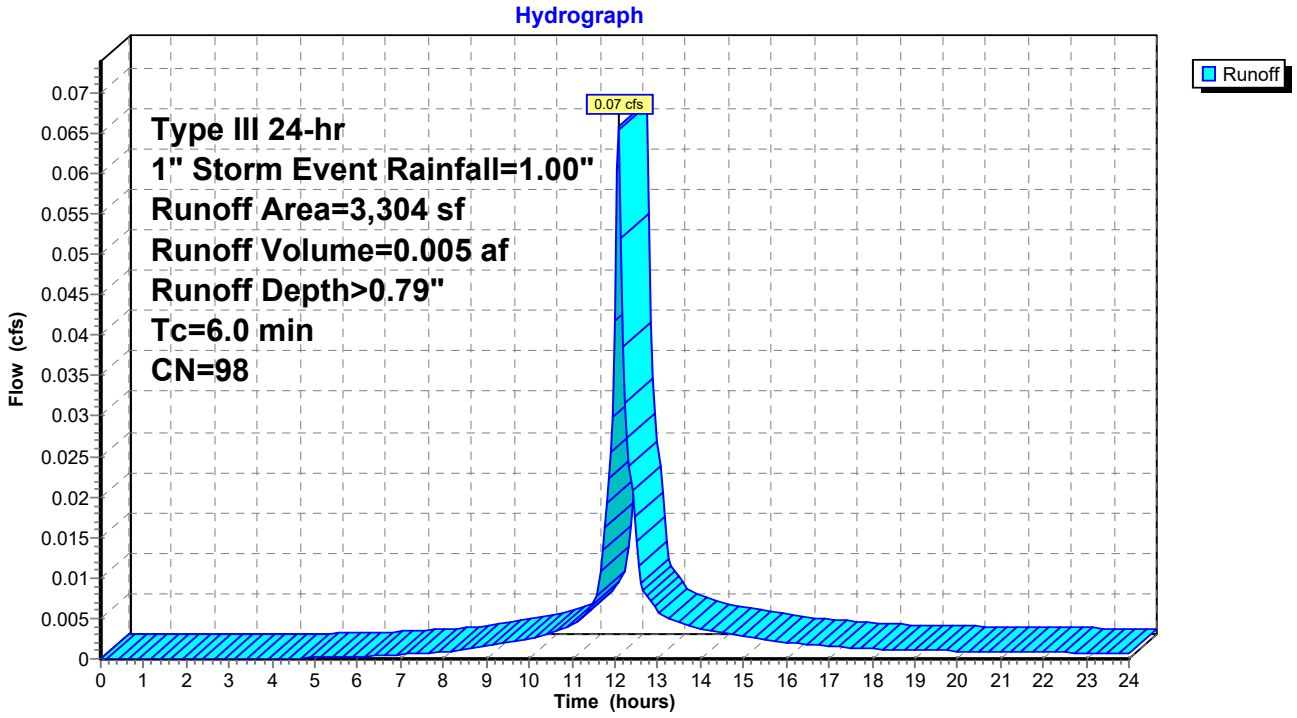
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 2P : DMH 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

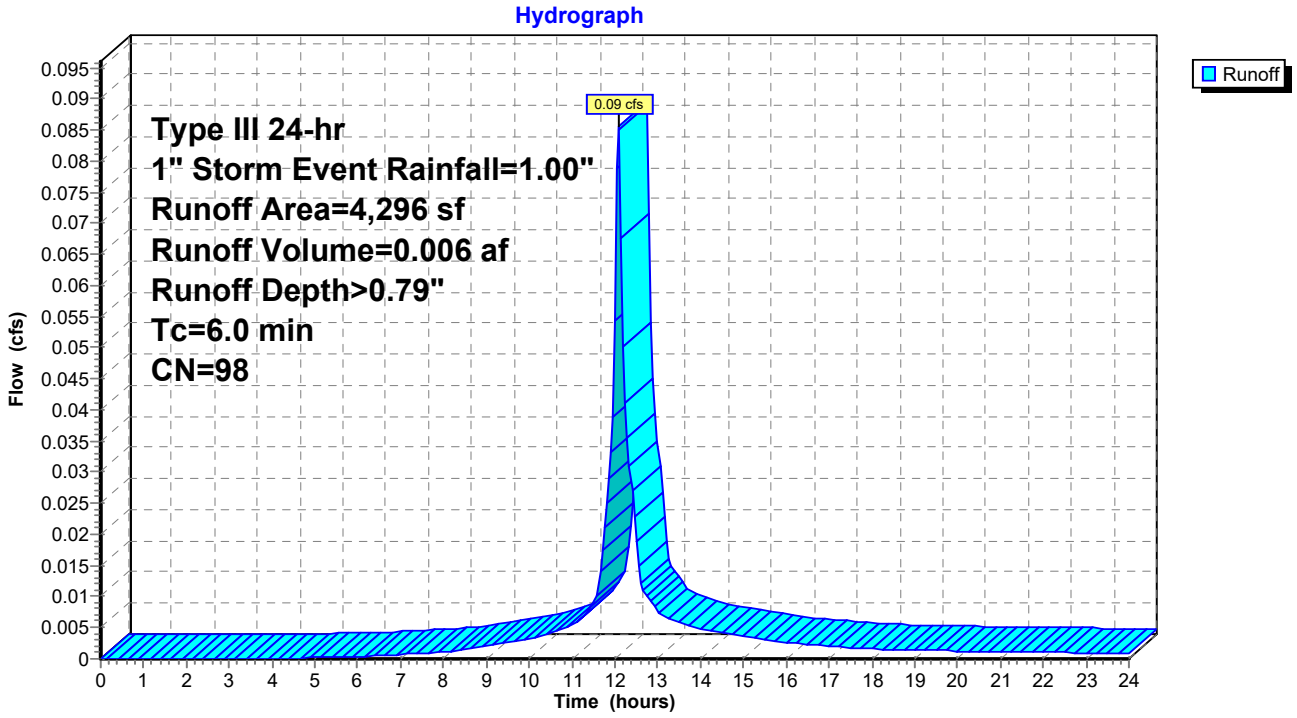
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

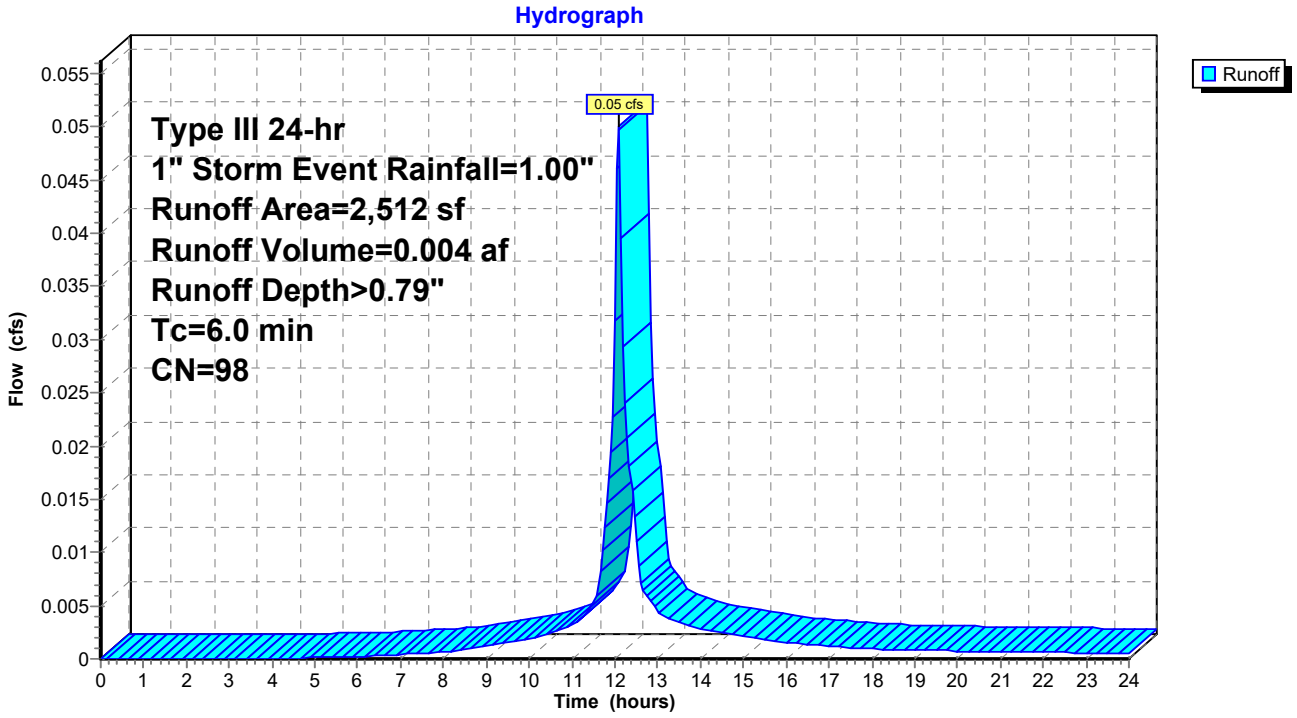
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

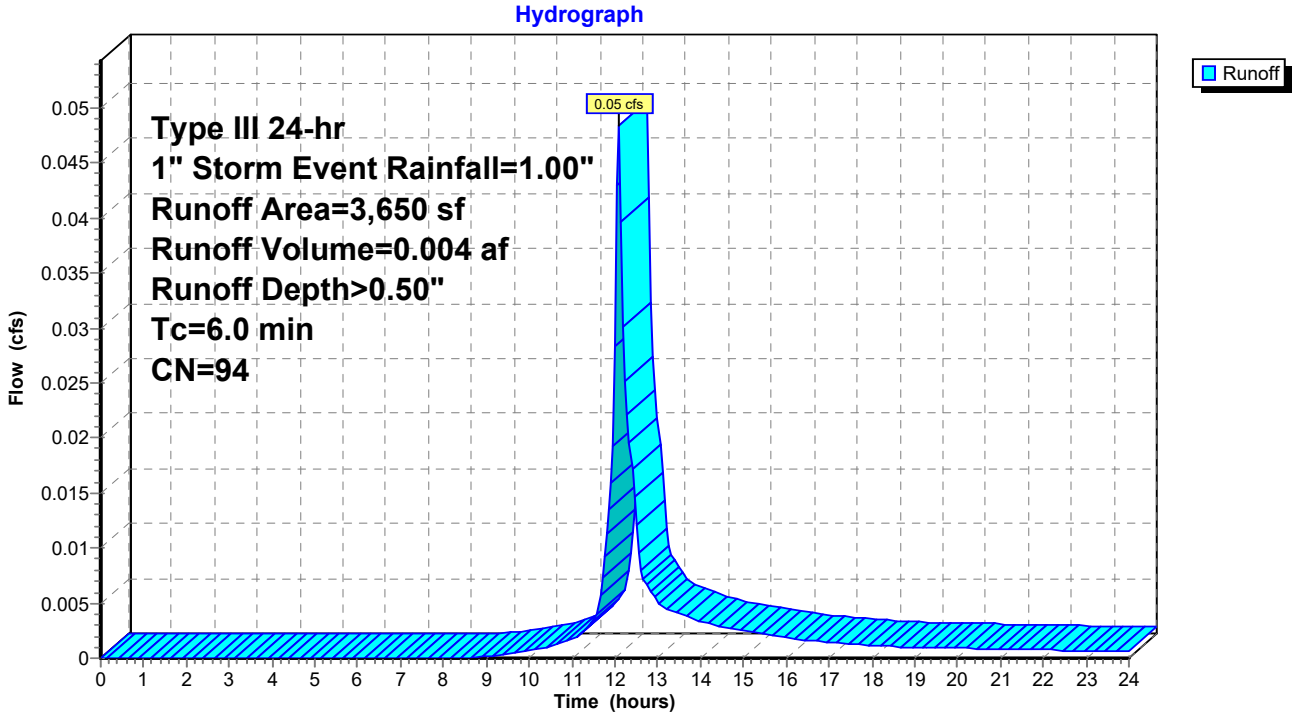
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.50"
Routed to Pond 2P : DMH 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

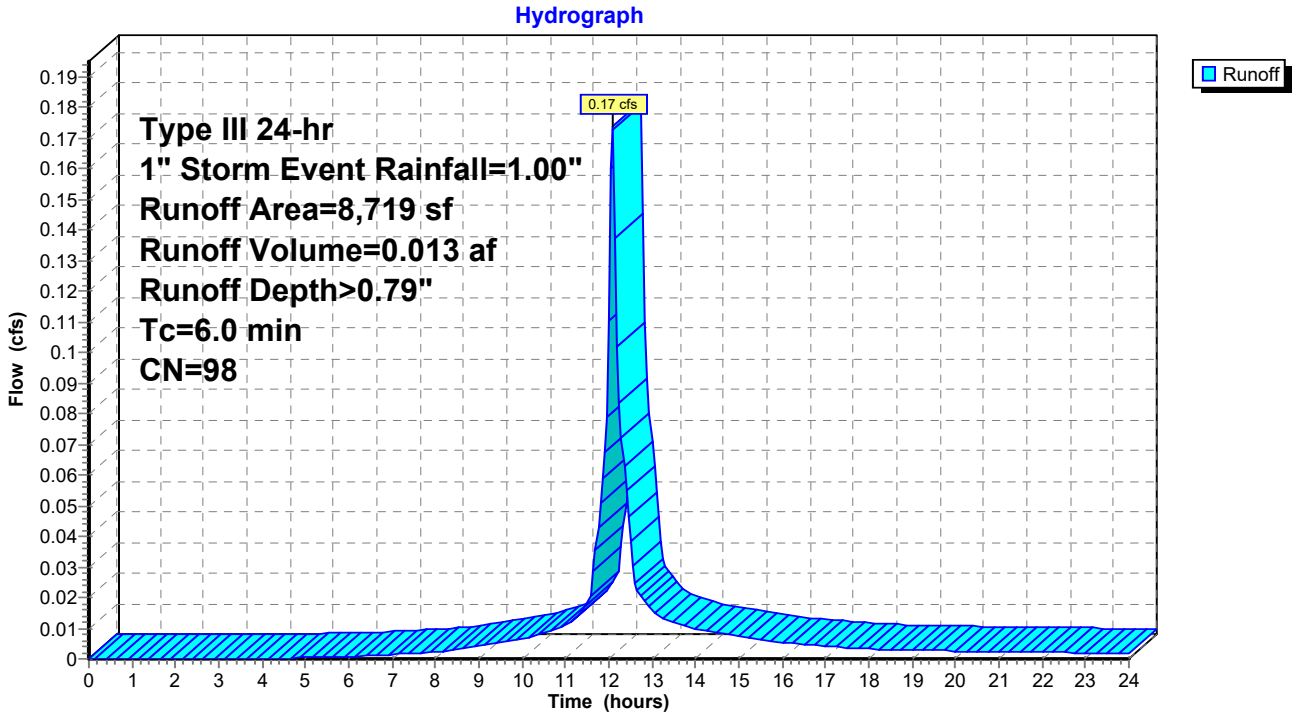
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

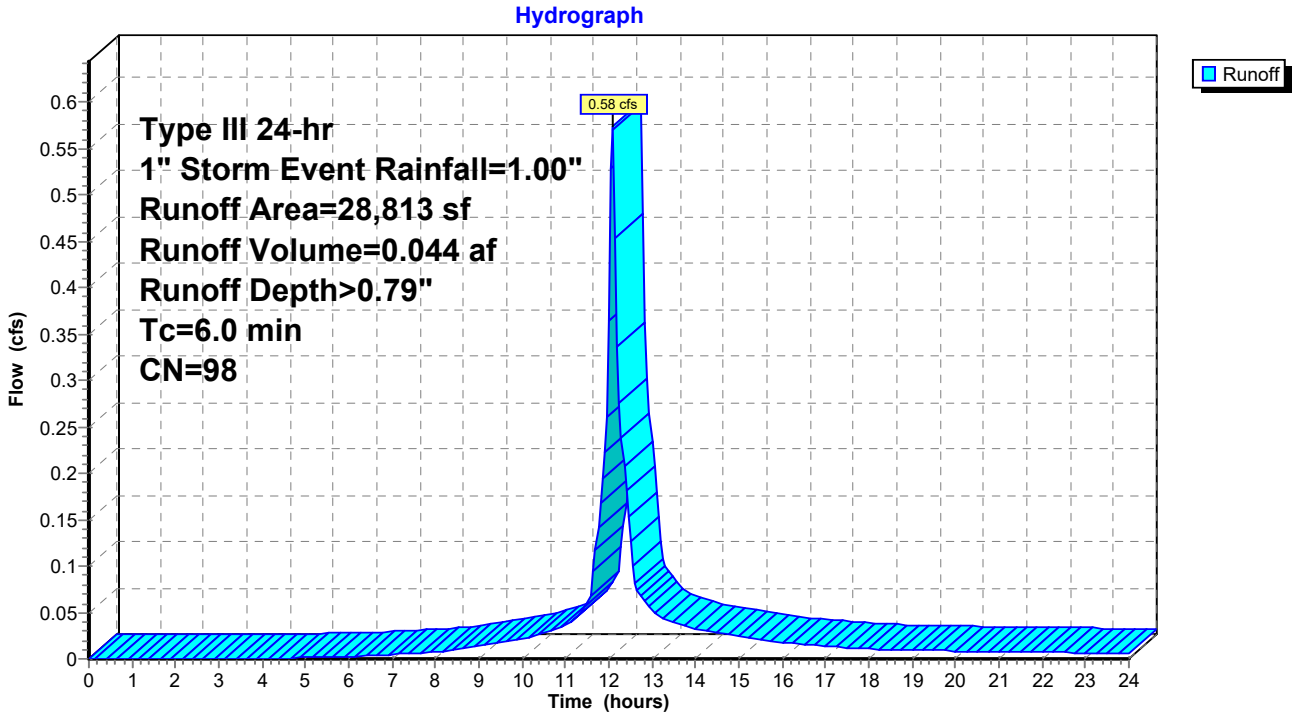
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

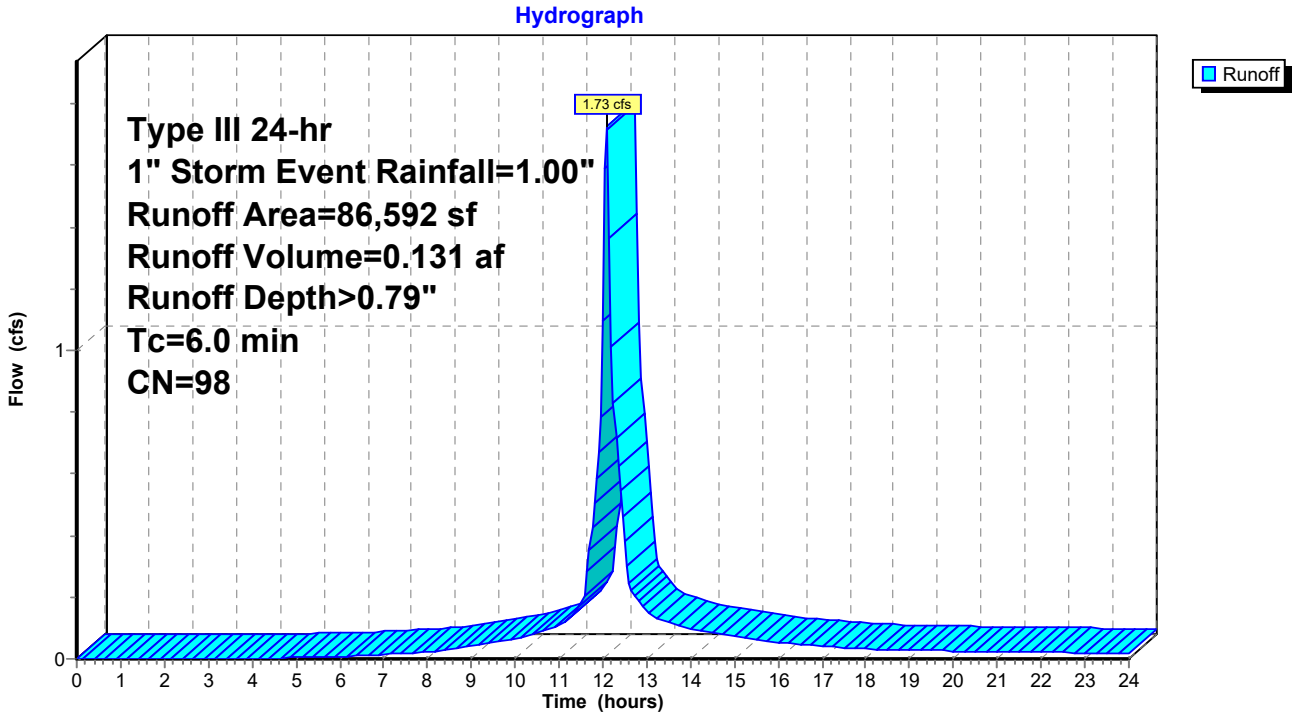
Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.131 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

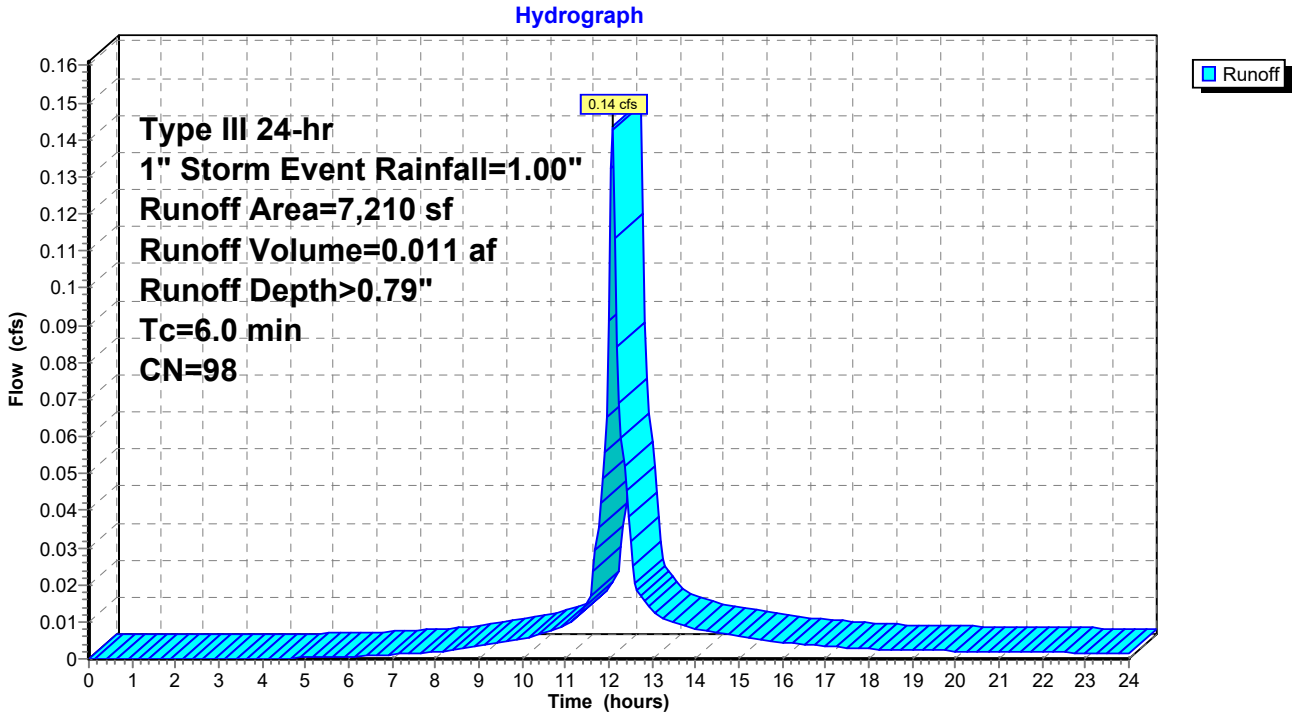
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 0.79"
Routed to Pond 8P : R-Tank 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

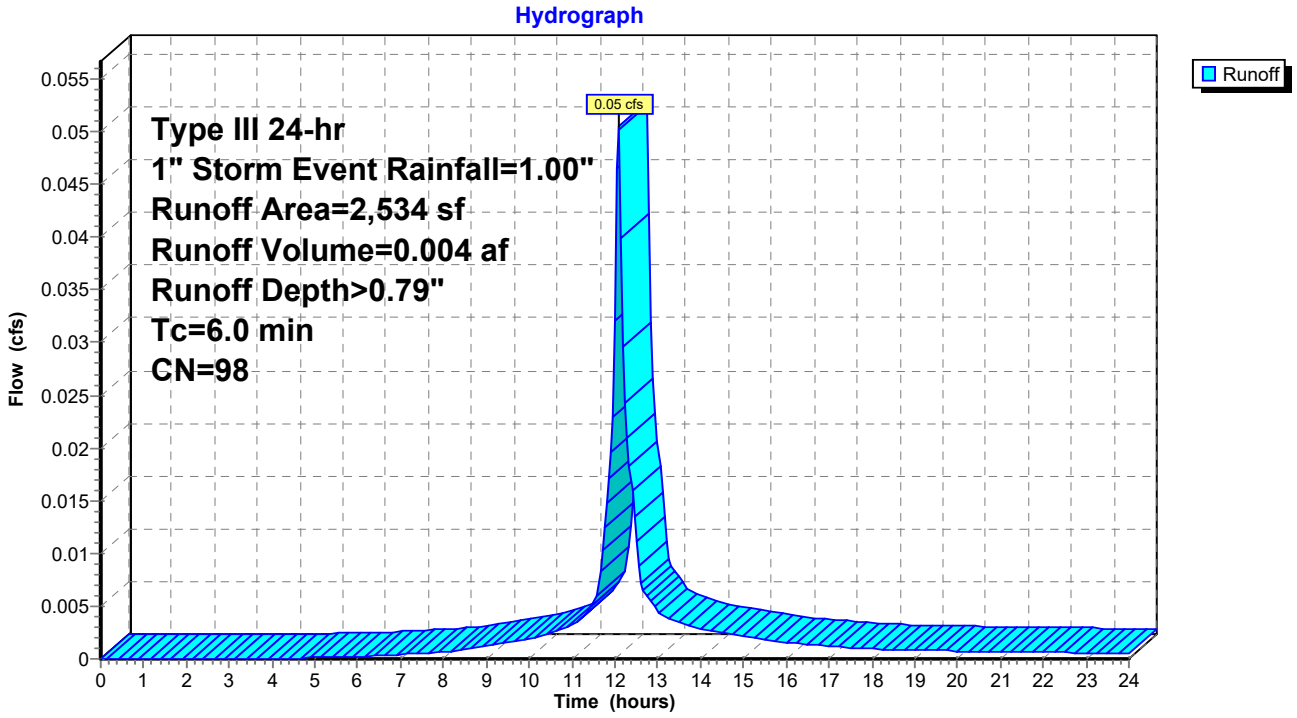
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Link 3L : Fore Street

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

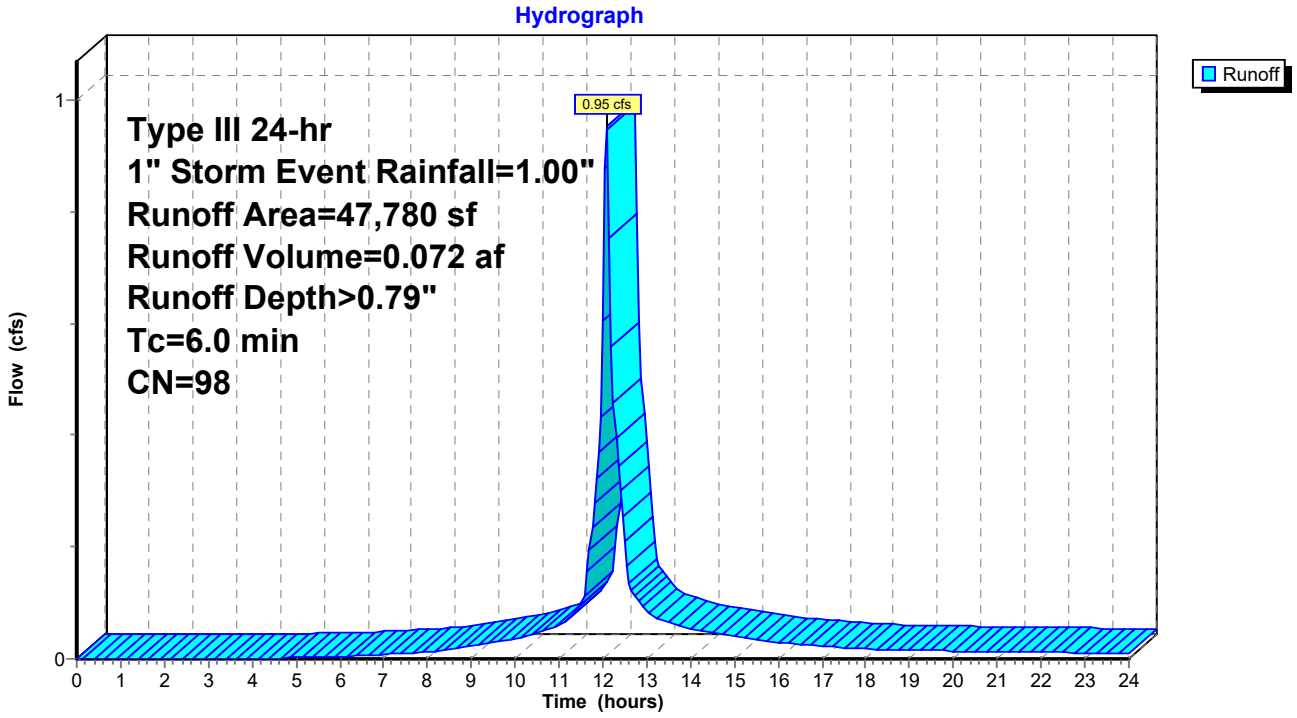
Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.072 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

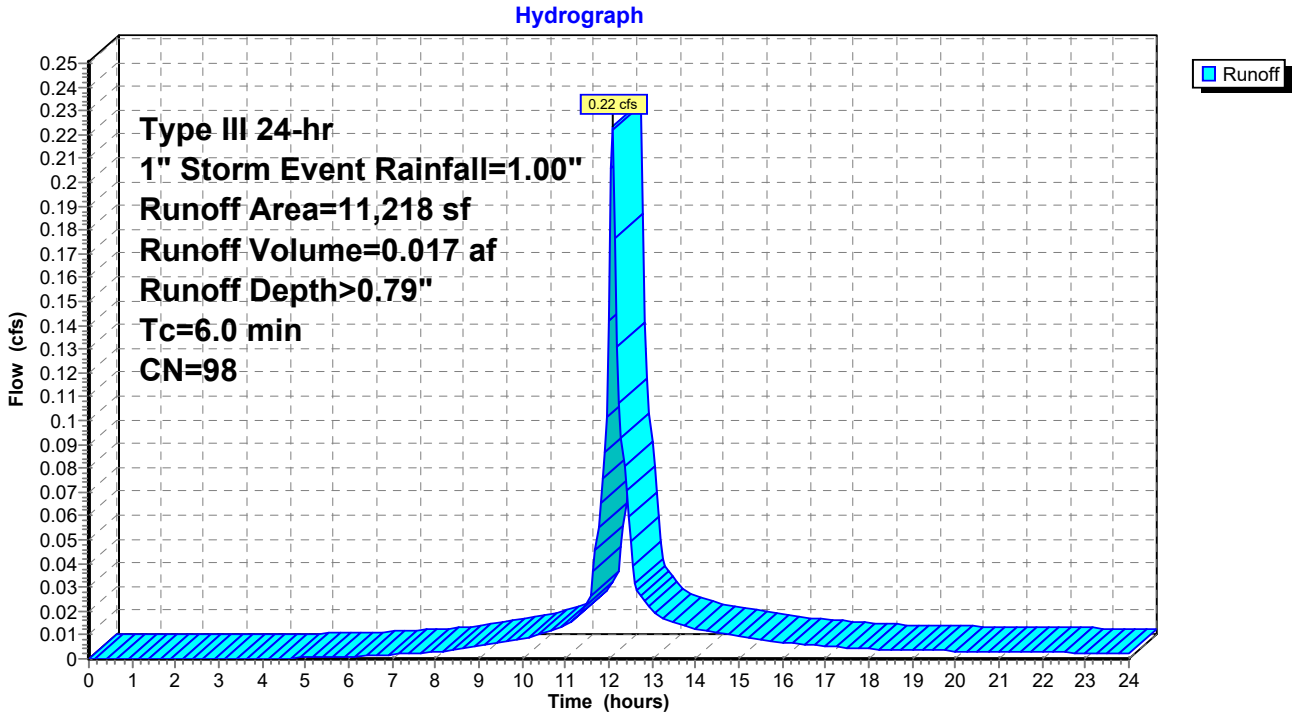
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

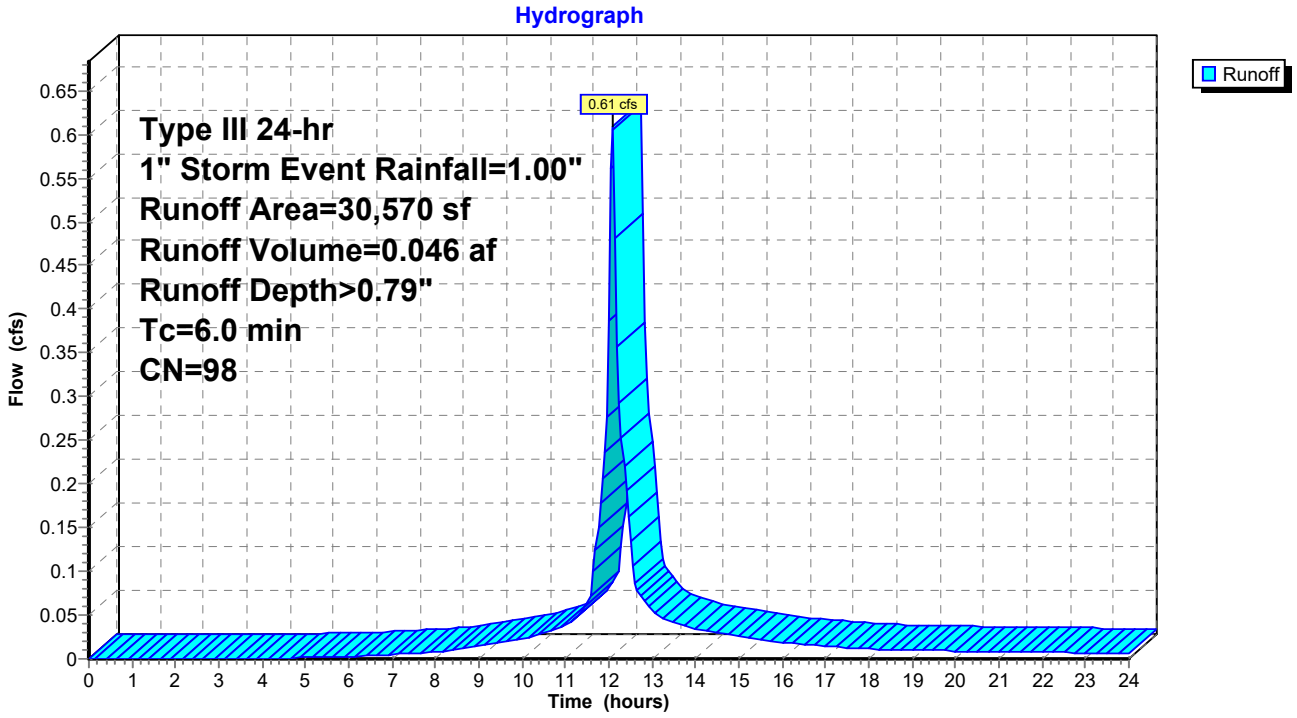
Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

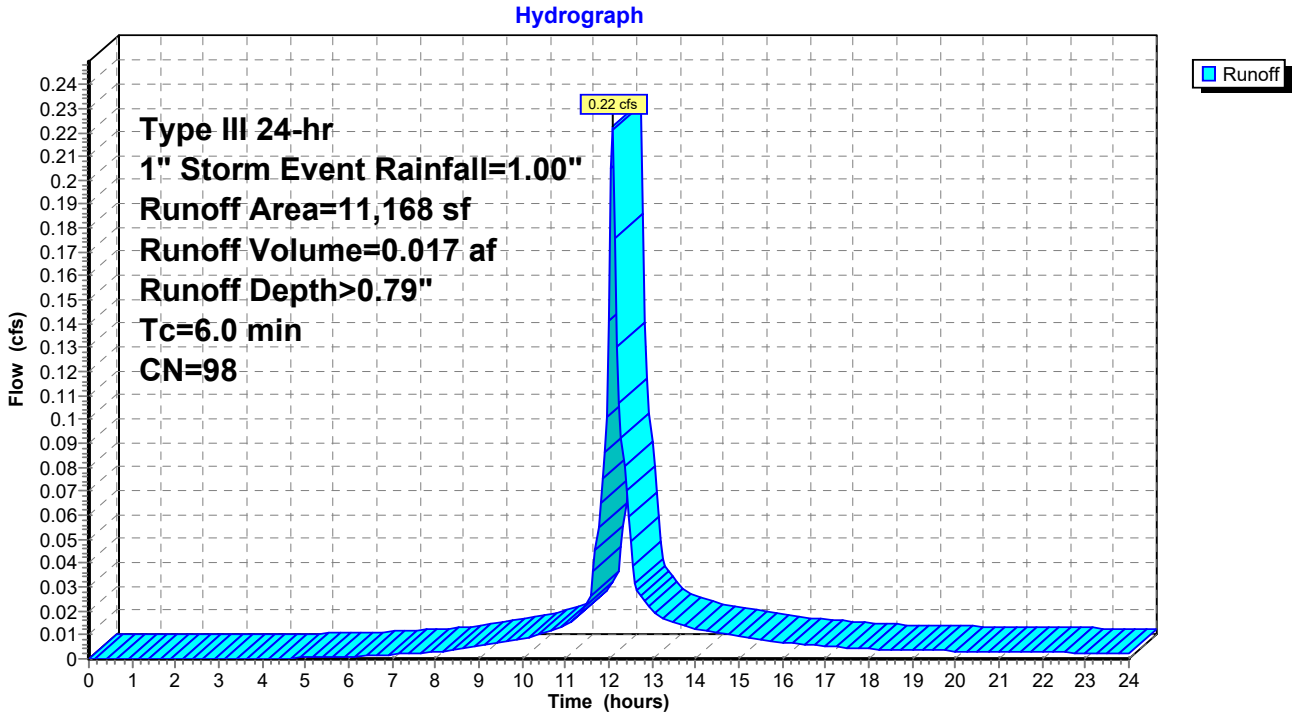
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

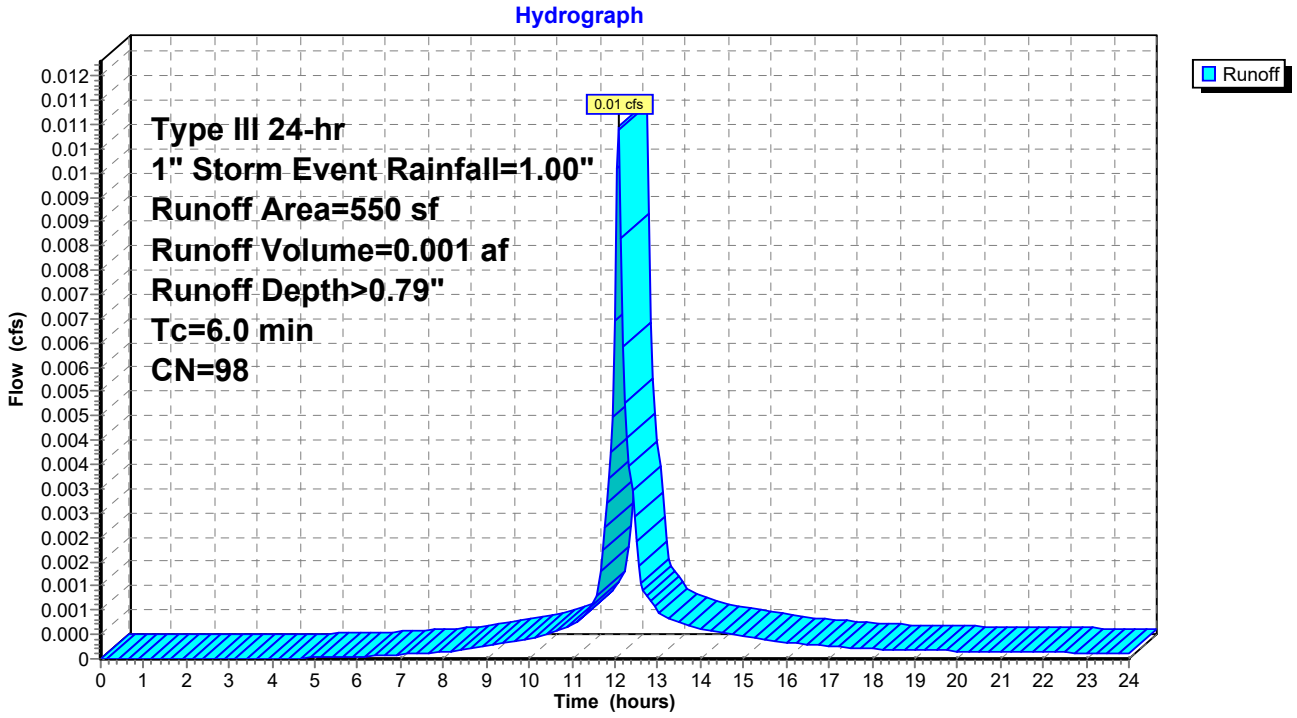
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 0.79"
Routed to Link 3L : Fore Street

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

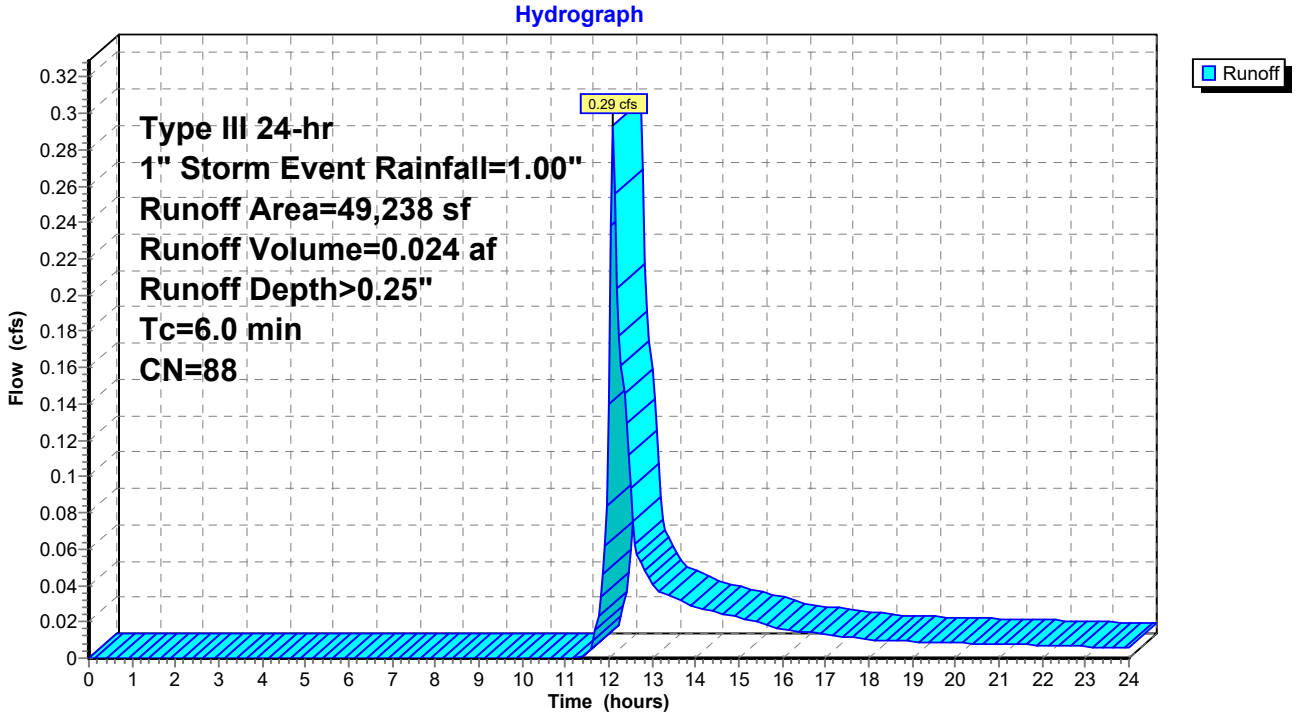
Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.25"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

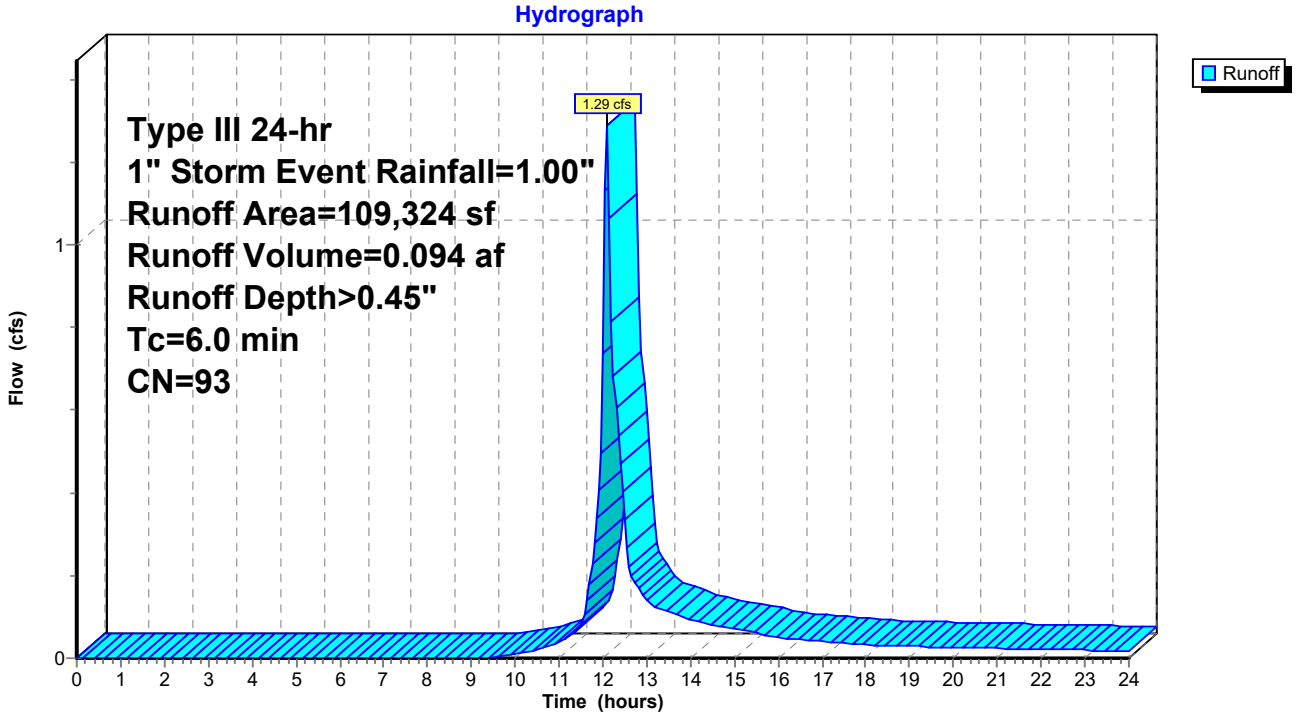
Runoff = 1.29 cfs @ 12.10 hrs, Volume= 0.094 af, Depth> 0.45"
Routed to Link 2L : Fore River

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

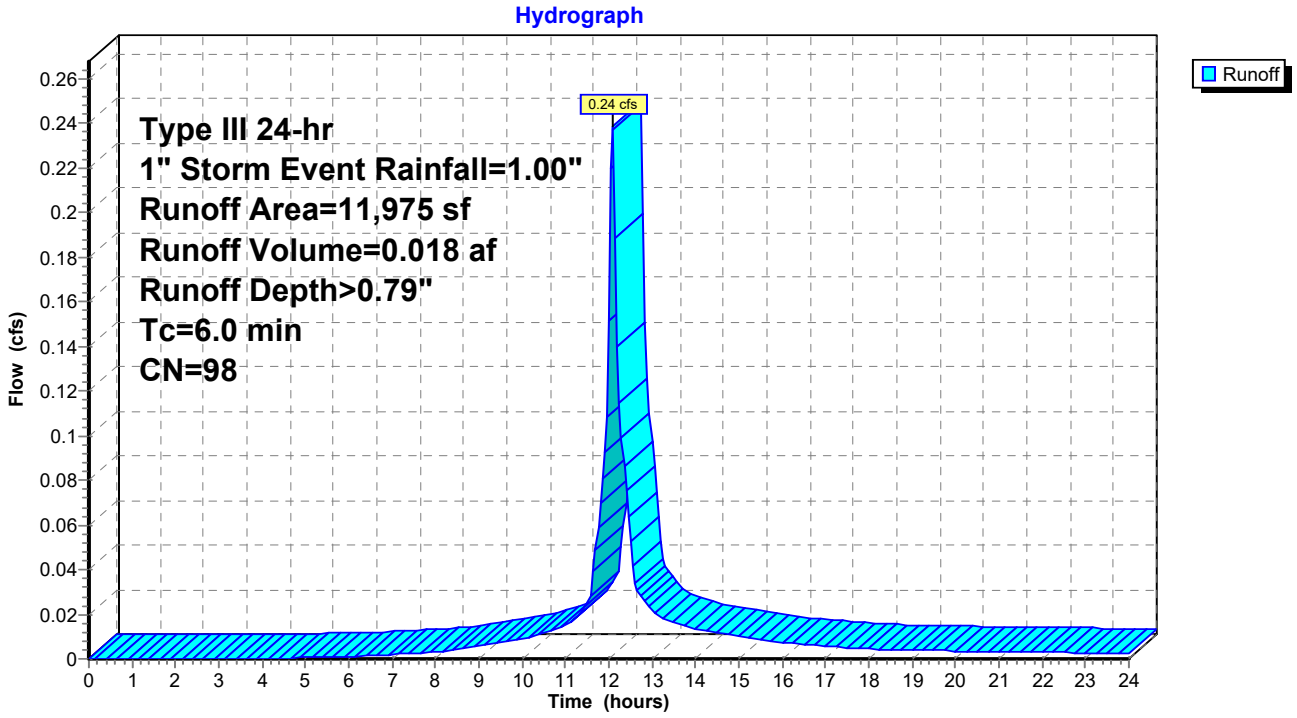
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 24P : Filterra 1 6x8

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

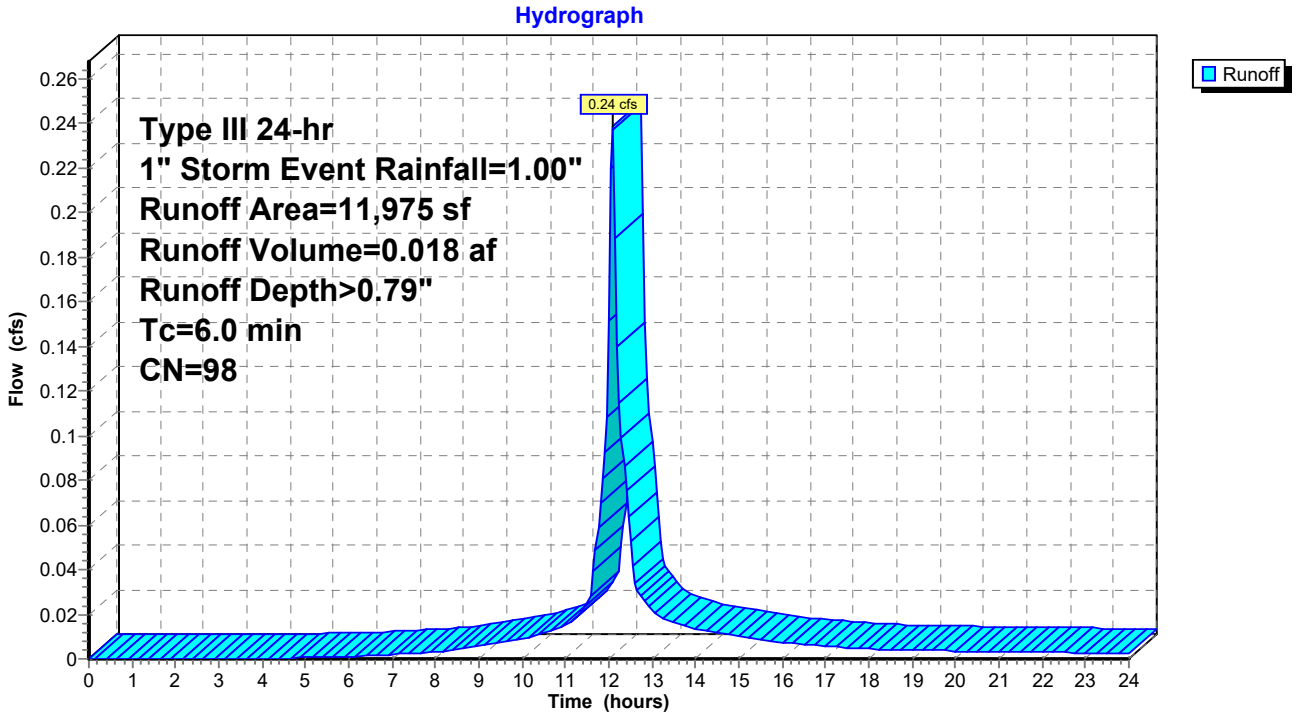
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 28P : Filterra 1 6x8

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

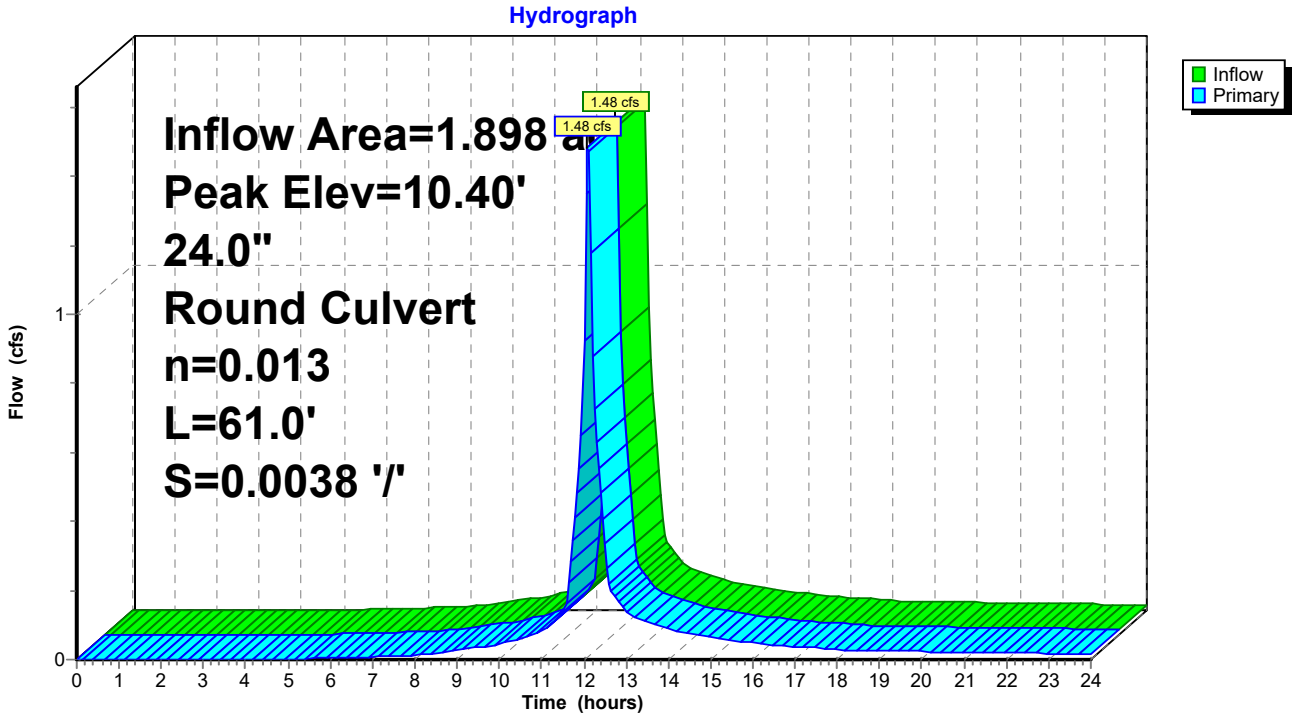
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 0.70" for 1" Storm Event event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.40' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=10.39' (Free Discharge)
1=Culvert (Barrel Controls 1.45 cfs @ 2.63 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

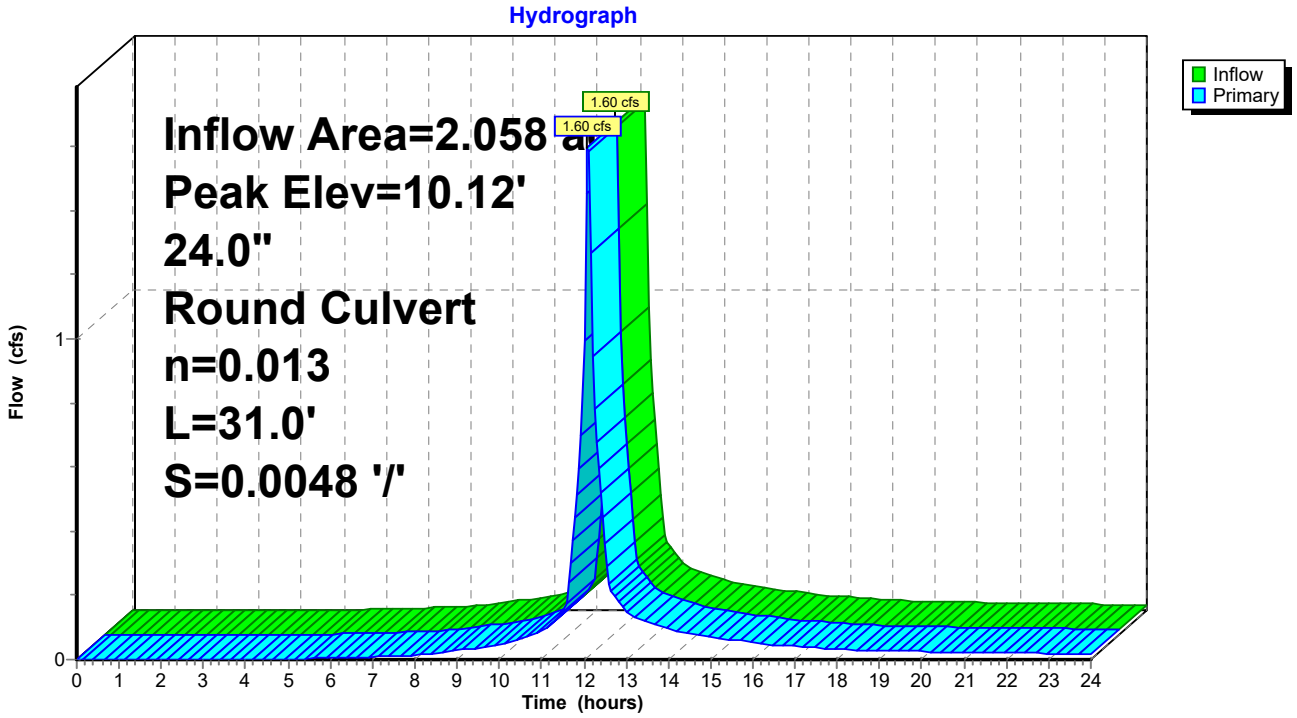
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.12' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=10.11' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 2.87 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

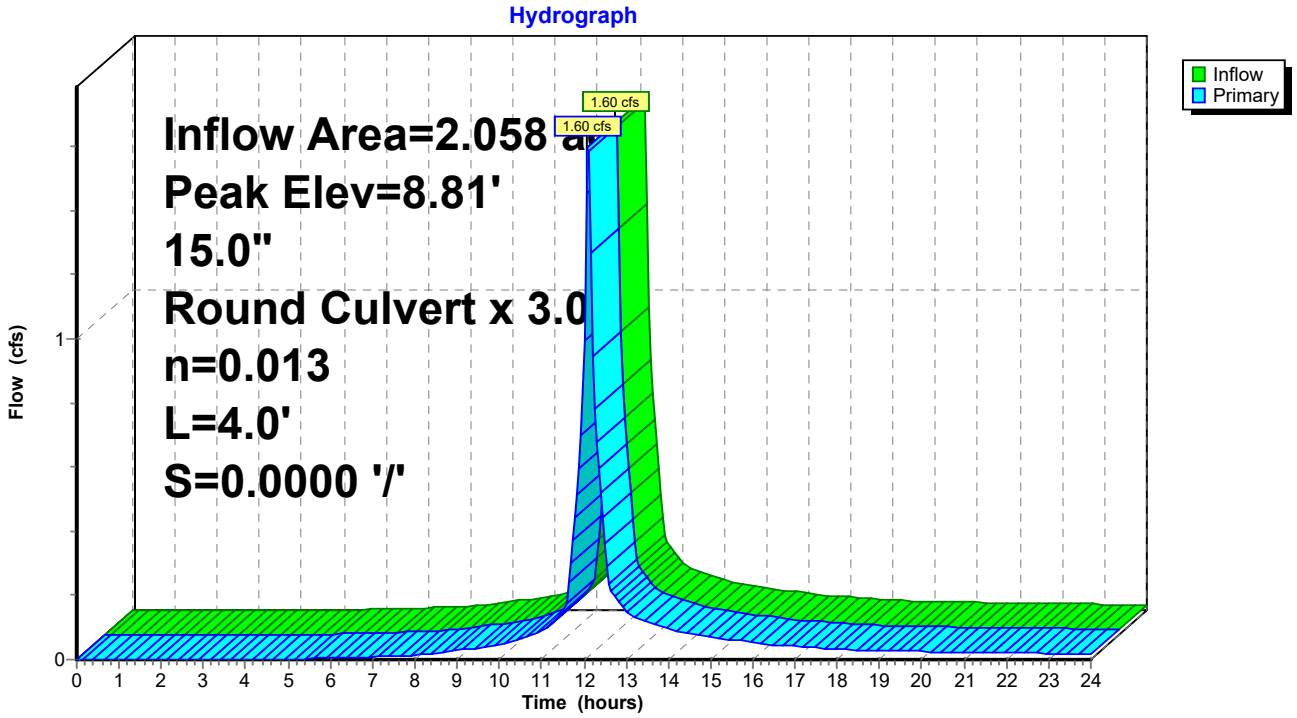
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=8.81' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 1.89 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 18%, Lag= 3.8 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.51' @ 12.15 hrs Surf.Area= 1,162 sf Storage= 838 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 52.4 min calculated for 0.113 af (95% of inflow)
Center-of-Mass det. time= 27.8 min (828.2 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

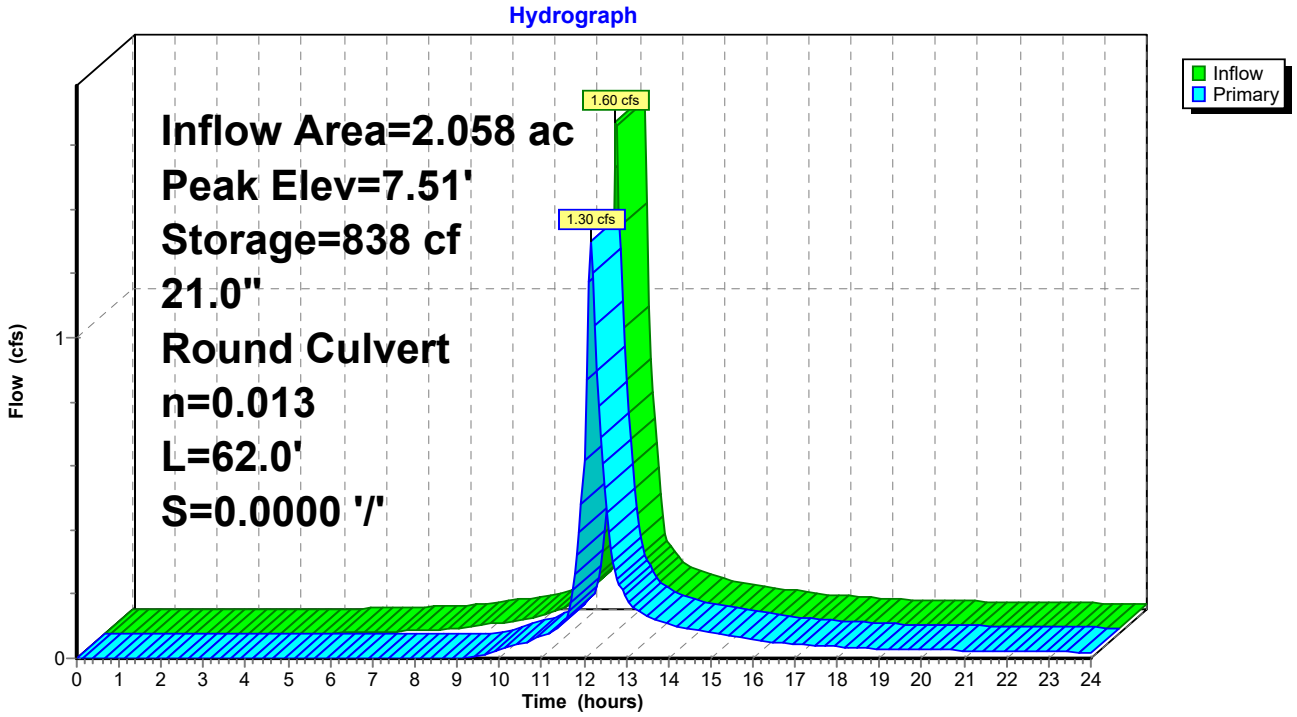
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.51' (Free Discharge)
1=Culvert to Filter (Barrel Controls 1.29 cfs @ 1.92 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

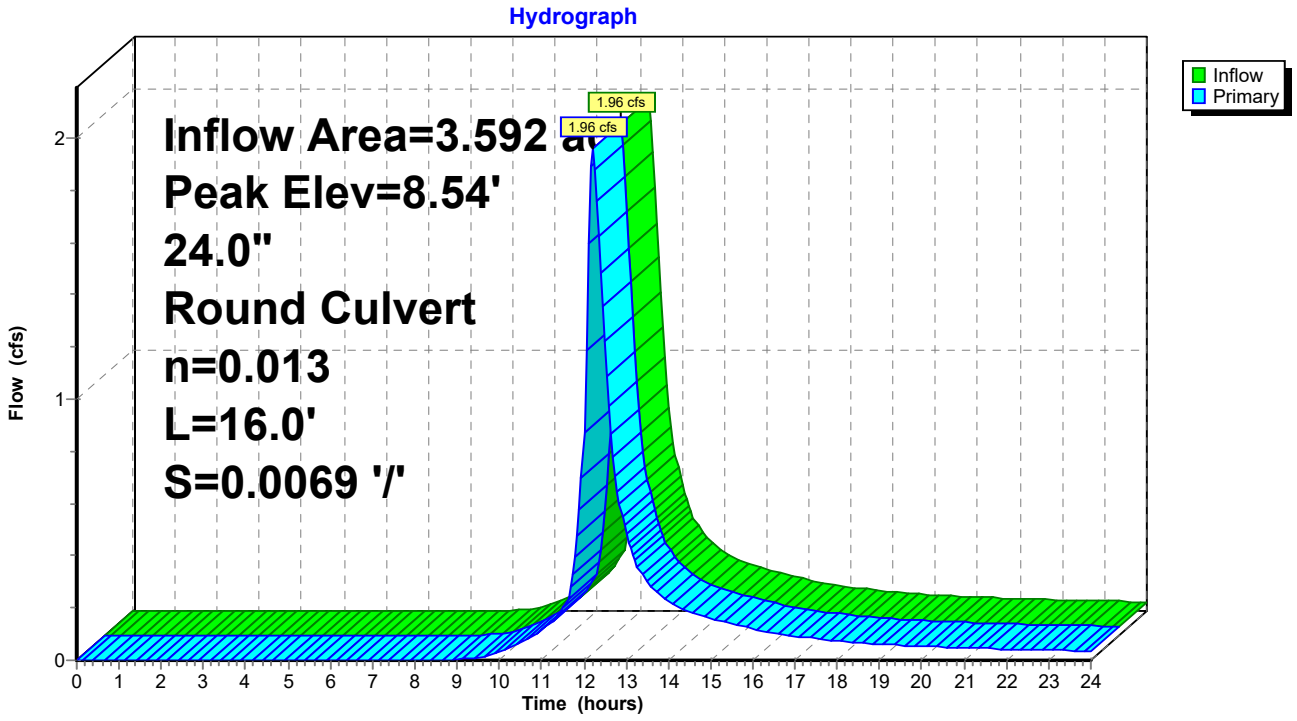
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 12P : Jellyfish 2 JFPD0808-10-3

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.54' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.54' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.87 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

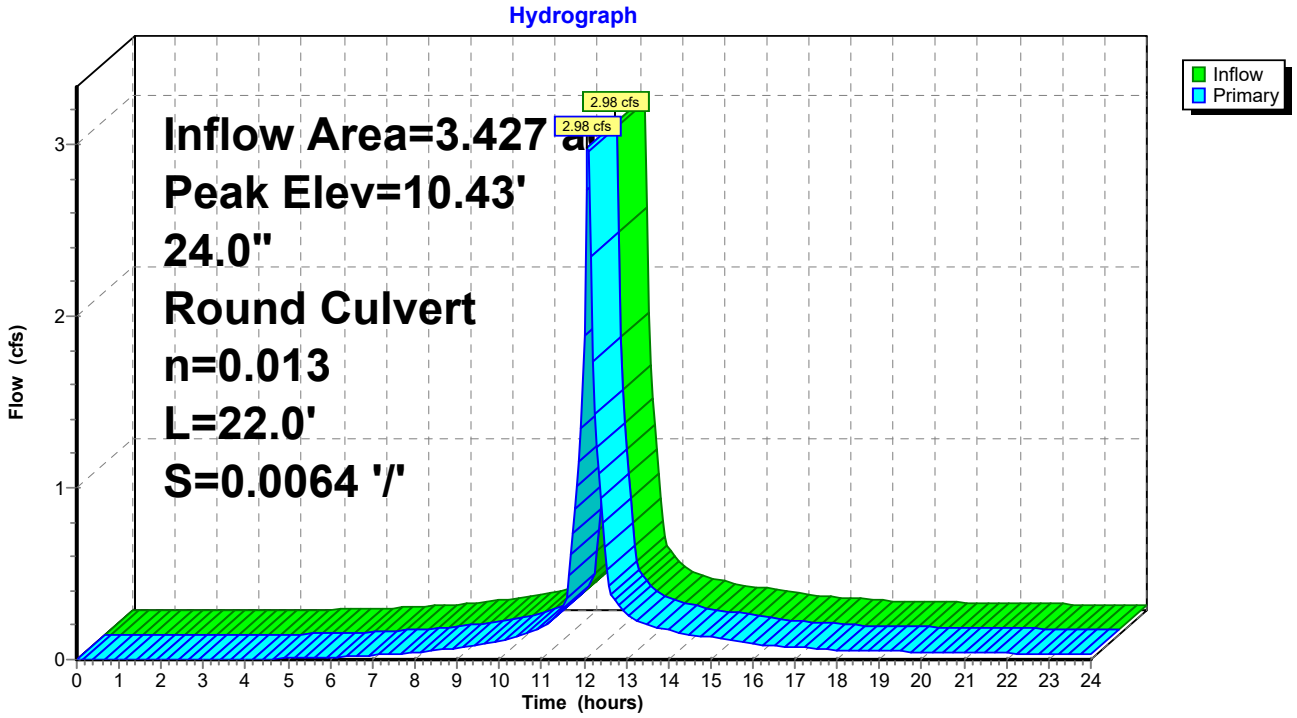
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=10.42' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 3.18 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

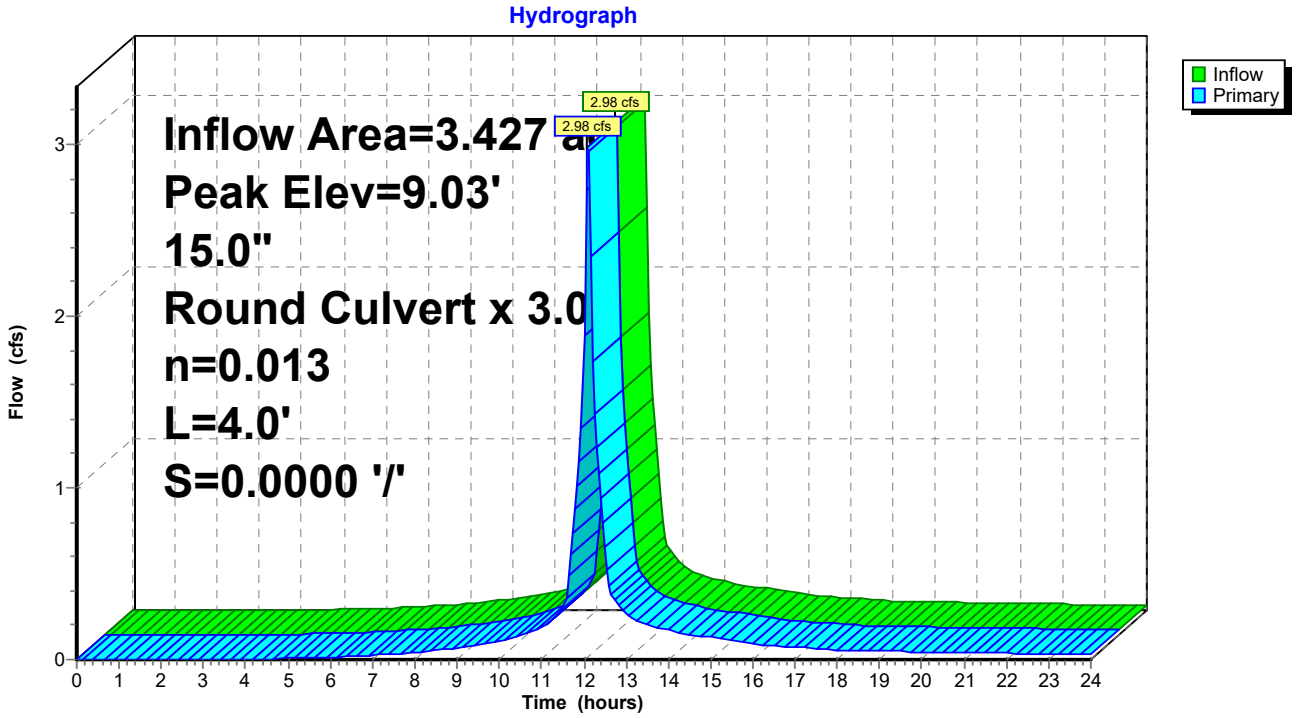
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.03' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=9.03' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 2.25 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 3.12 cfs @ 12.09 hrs, Volume= 0.237 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 37%, Lag= 6.6 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.71' @ 12.20 hrs Surf.Area= 3,128 sf Storage= 2,746 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 86.4 min calculated for 0.219 af (93% of inflow)
Center-of-Mass det. time= 48.7 min (836.1 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

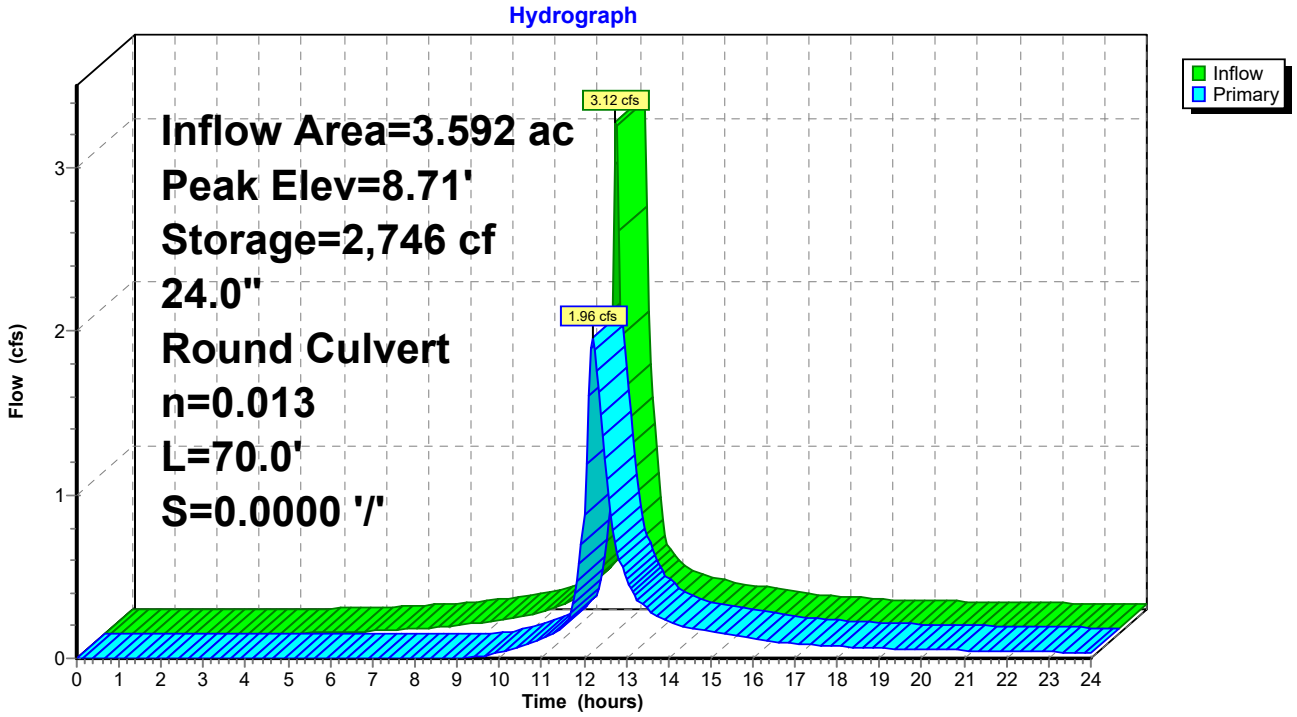
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.71' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.12 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

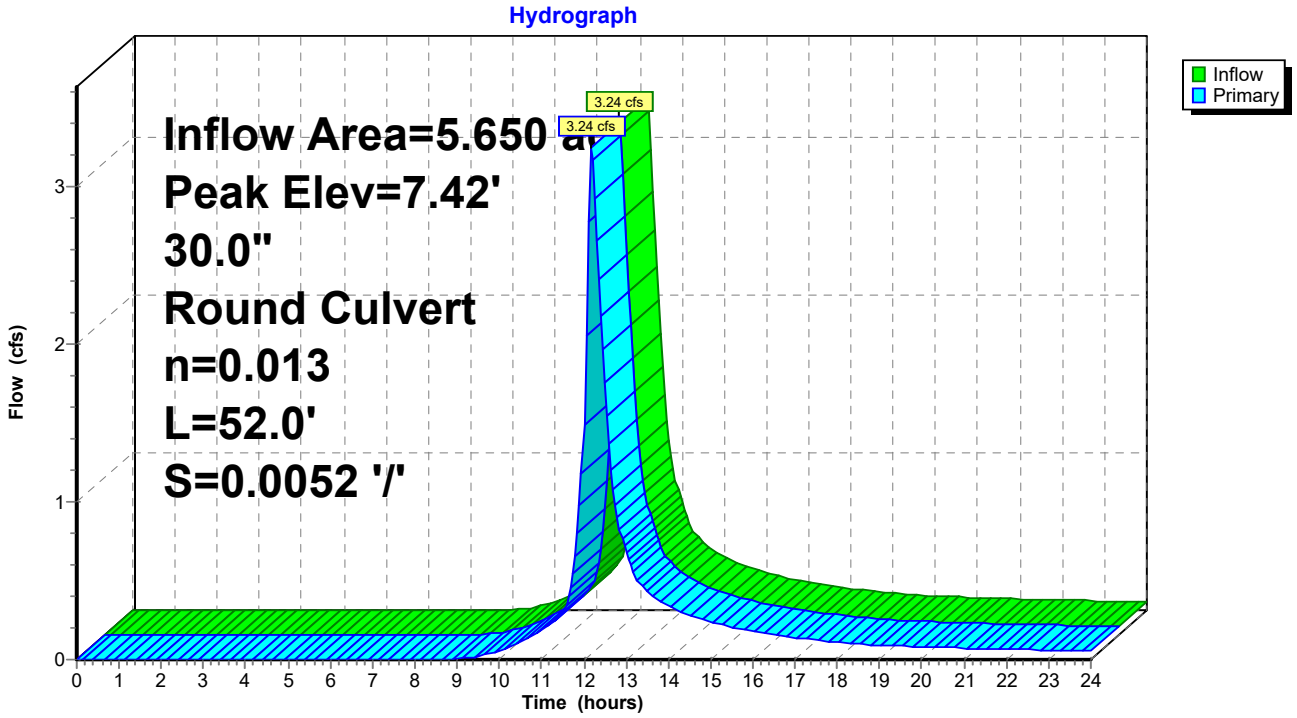
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 0.71" for 1" Storm Event event
Inflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Outflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.42' @ 12.17 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=3.18 cfs @ 12.17 hrs HW=7.41' (Free Discharge)
1=Culvert (Barrel Controls 3.18 cfs @ 3.28 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

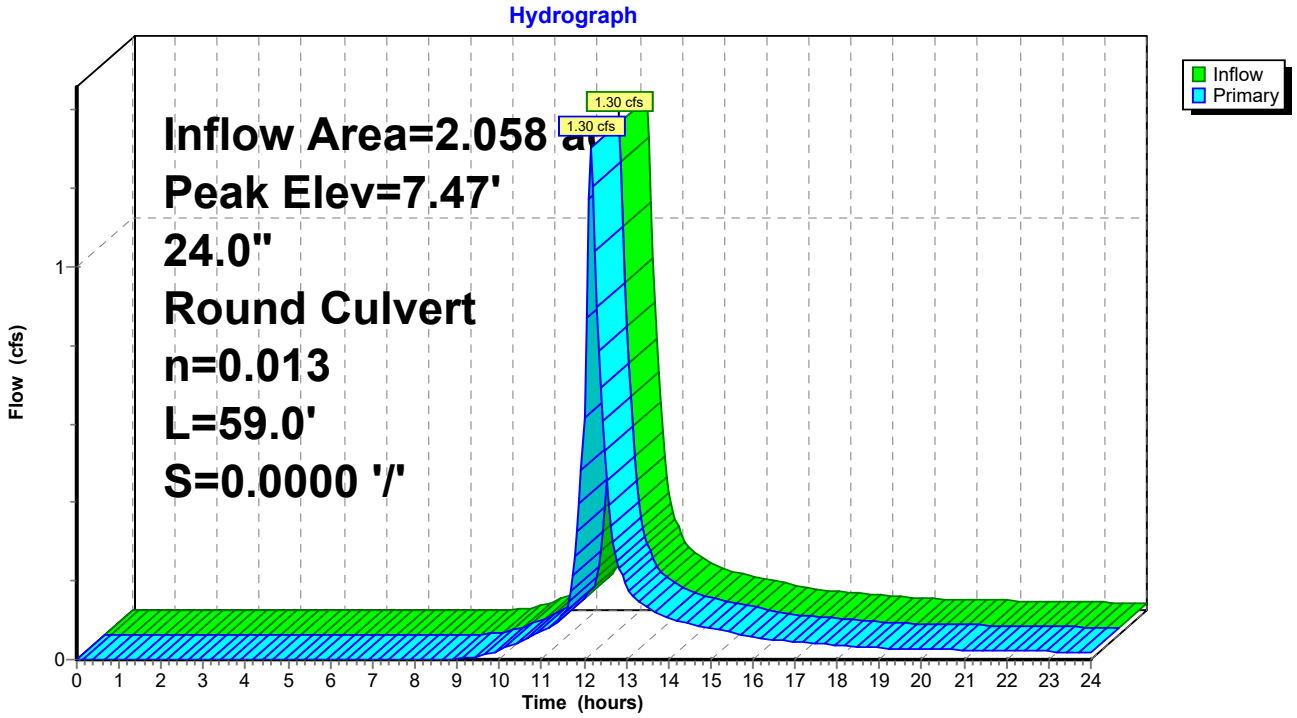
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.15 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.47' (Free Discharge)
1=Culvert (Barrel Controls 1.29 cfs @ 1.88 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

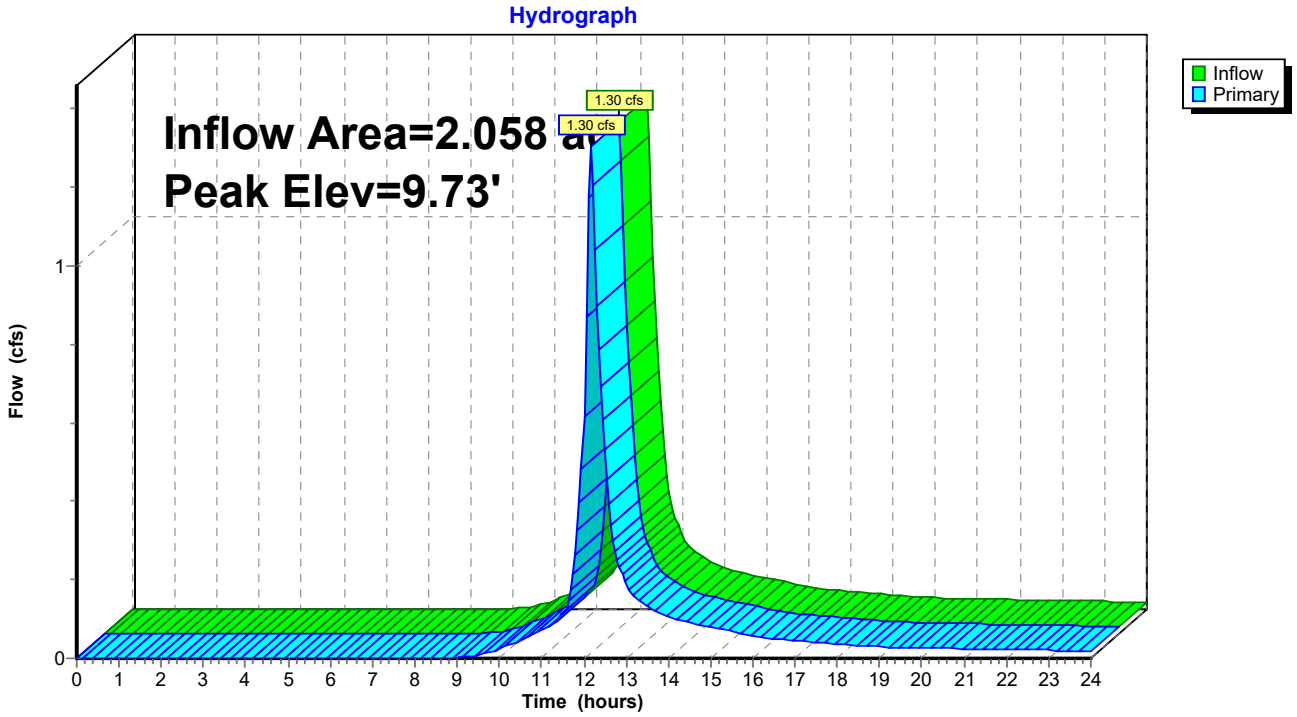
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.73' @ 12.15 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=1.29 cfs @ 12.15 hrs HW=9.73' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.29 cfs of 16.79 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 1.04 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0808-10-3

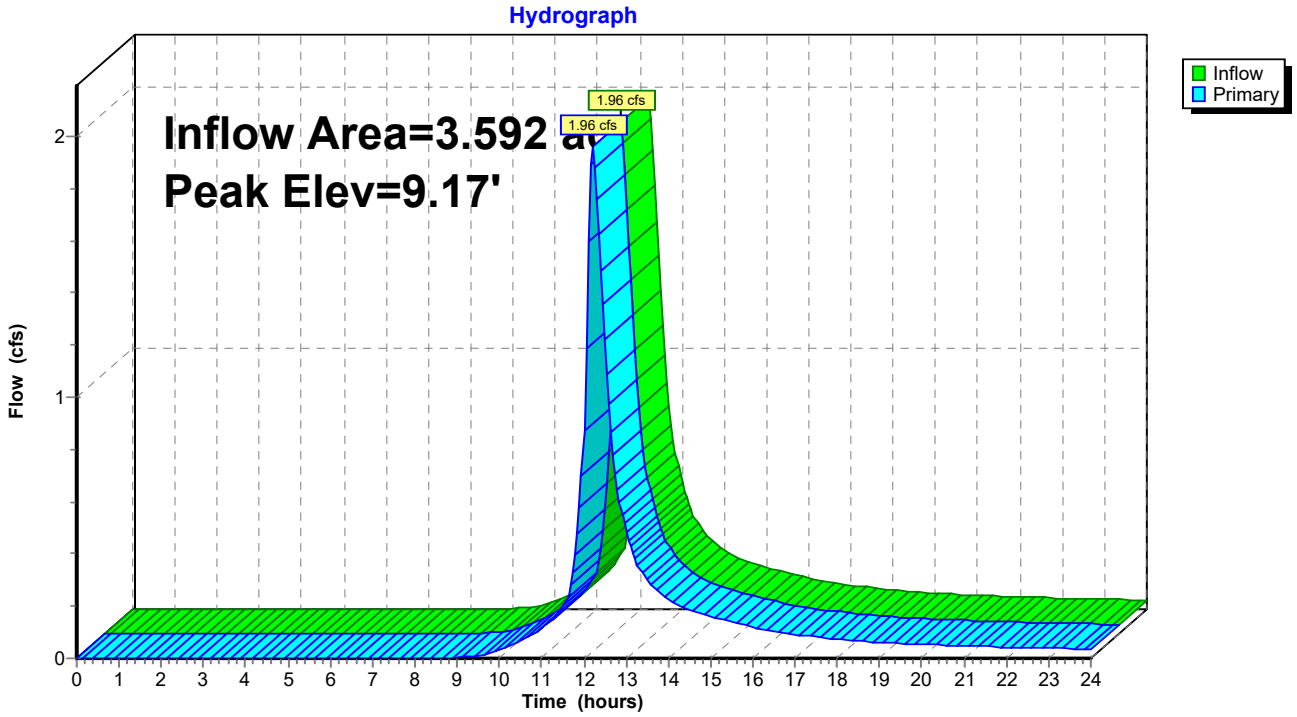
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.17' @ 12.20 hrs
Flood Elev= 11.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.015 0.030 0.045 0.059 0.074 0.089 0.253 0.416 0.579 0.743 0.906 1.069 1.233 1.396 1.560 1.723 1.886 2.050
#3	Device 1	9.84'	**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=1.96 cfs @ 12.20 hrs HW=9.16' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.96 cfs of 7.94 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.96 cfs)
  └**3=Broad-Crested Rectangular Weir**(Controls 0.00 cfs)

Pond 12P: Jellyfish 2 JFPD0808-10-3



Summary for Pond 13P: DMH-13 (Outfall #2)

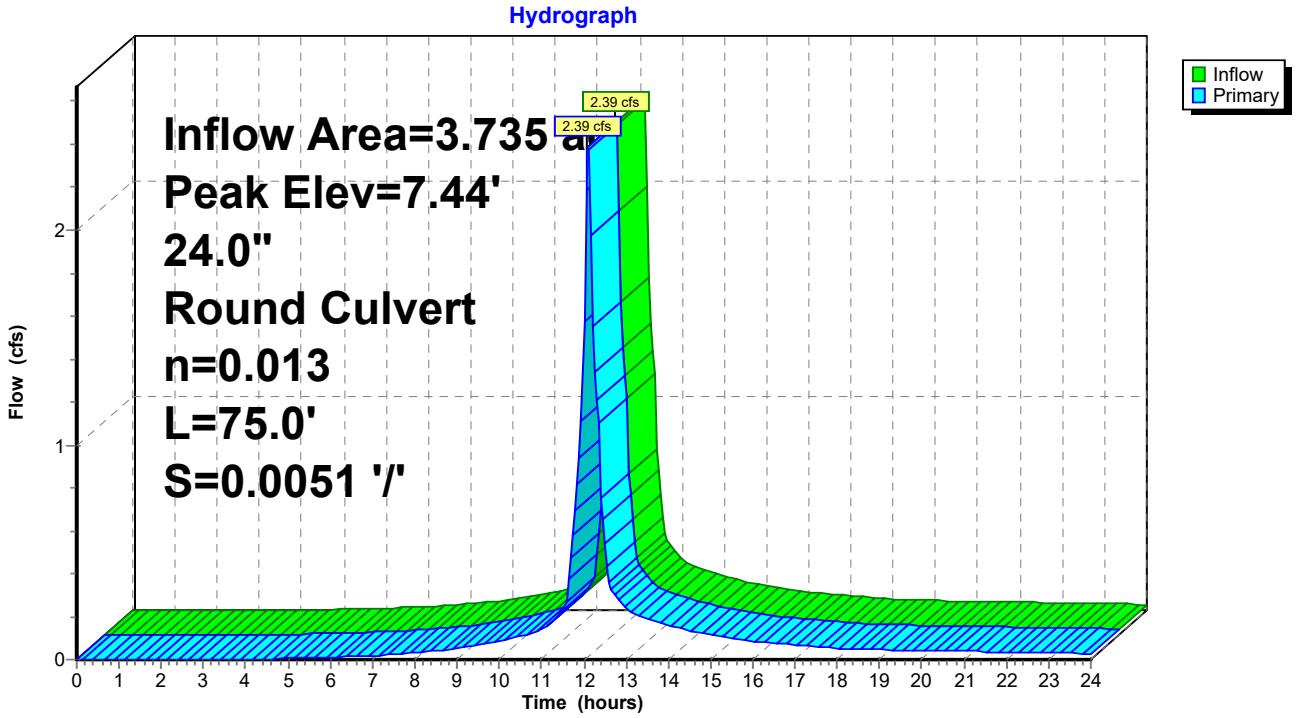
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 0.62" for 1" Storm Event event
Inflow = 2.39 cfs @ 12.09 hrs, Volume= 0.194 af
Outflow = 2.39 cfs @ 12.09 hrs, Volume= 0.194 af, Atten= 0%, Lag= 0.0 min
Primary = 2.39 cfs @ 12.09 hrs, Volume= 0.194 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.44' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.34 cfs @ 12.09 hrs HW=7.43' (Free Discharge)
1=Culvert (Barrel Controls 2.34 cfs @ 3.21 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.16 cfs @ 12.05 hrs, Volume= 0.017 af, Atten= 35%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.05 hrs, Volume= 0.017 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.32' @ 12.19 hrs Surf.Area= 0.001 ac Storage= 0.001 af

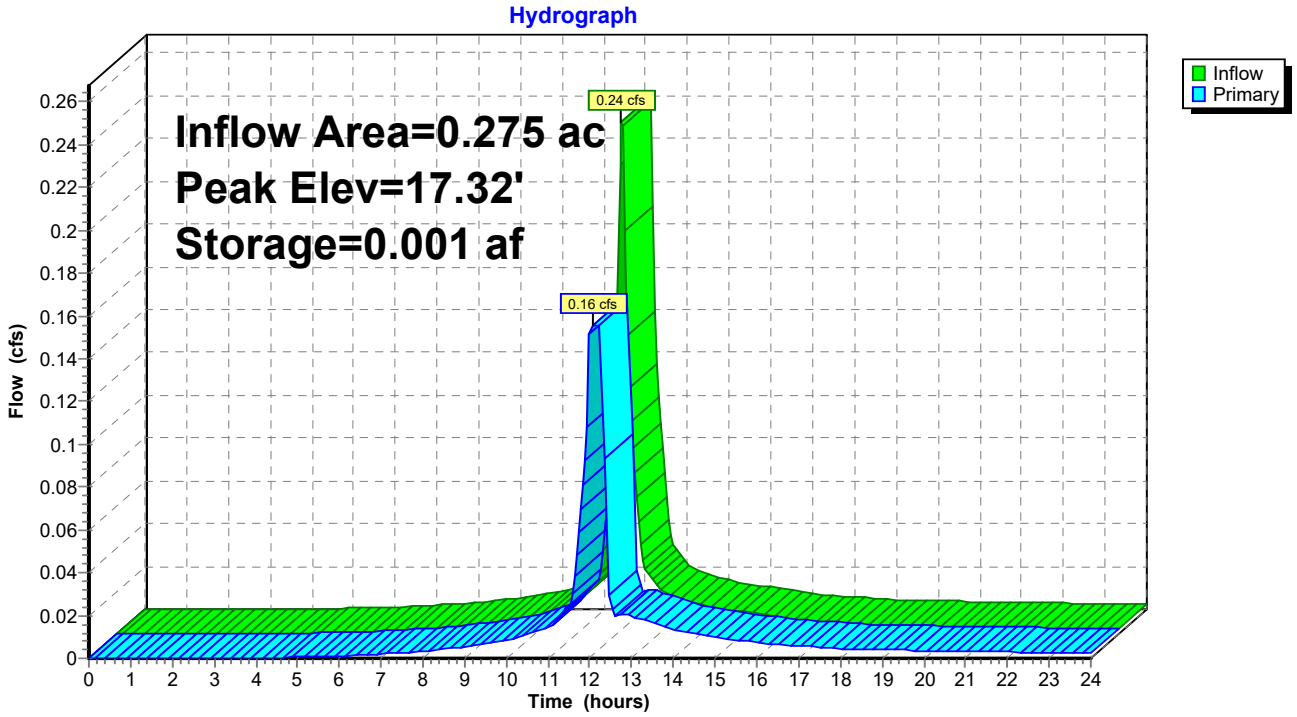
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.0 min (789.4 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.05 hrs HW=16.80' (Free Discharge)
└**3=Culvert** (Passes 0.16 cfs of 5.07 cfs potential flow)
  ├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
  └**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1 6x8



Summary for Pond 27P: AD49

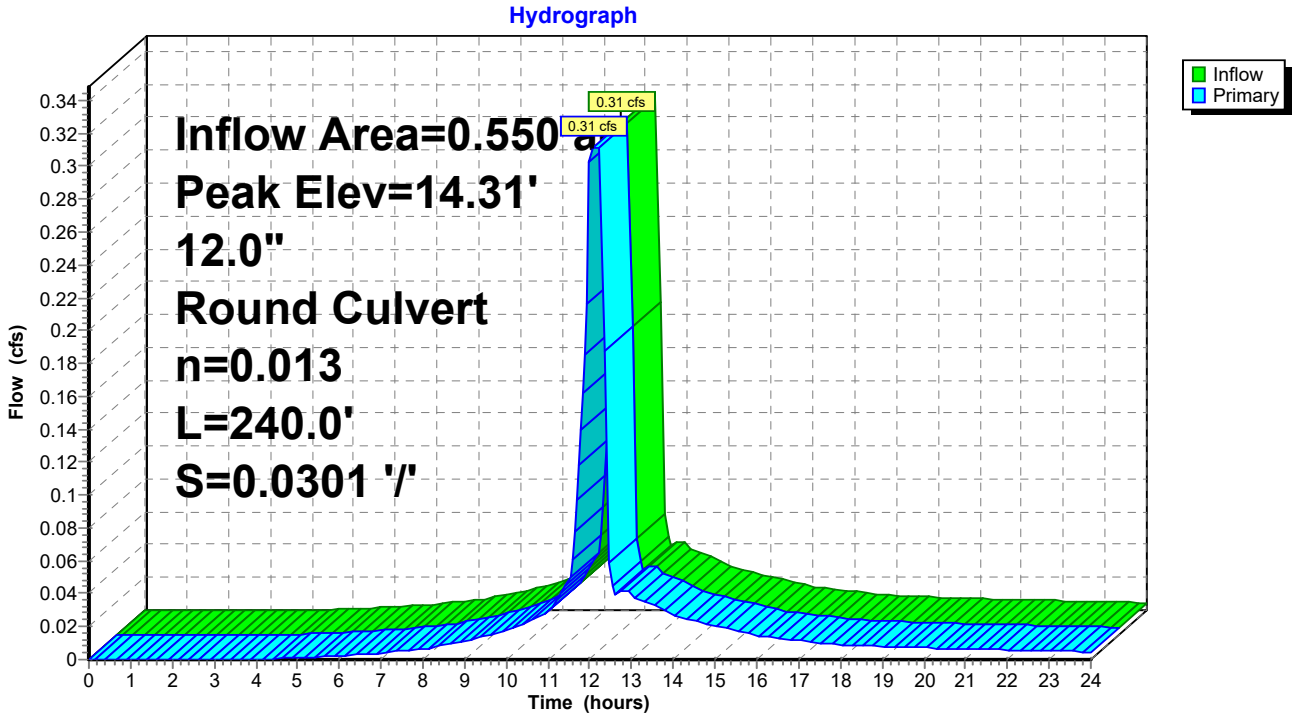
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 0.76" for 1" Storm Event event
Inflow = 0.31 cfs @ 12.05 hrs, Volume= 0.035 af
Outflow = 0.31 cfs @ 12.05 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.05 hrs, Volume= 0.035 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.31' @ 12.05 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 12.05 hrs HW=14.31' (Free Discharge)
1=Culvert (Inlet Controls 0.31 cfs @ 1.50 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.16 cfs @ 12.05 hrs, Volume= 0.017 af, Atten= 35%, Lag= 0.0 min
Primary = 0.16 cfs @ 12.05 hrs, Volume= 0.017 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.32' @ 12.19 hrs Surf.Area= 0.001 ac Storage= 0.001 af

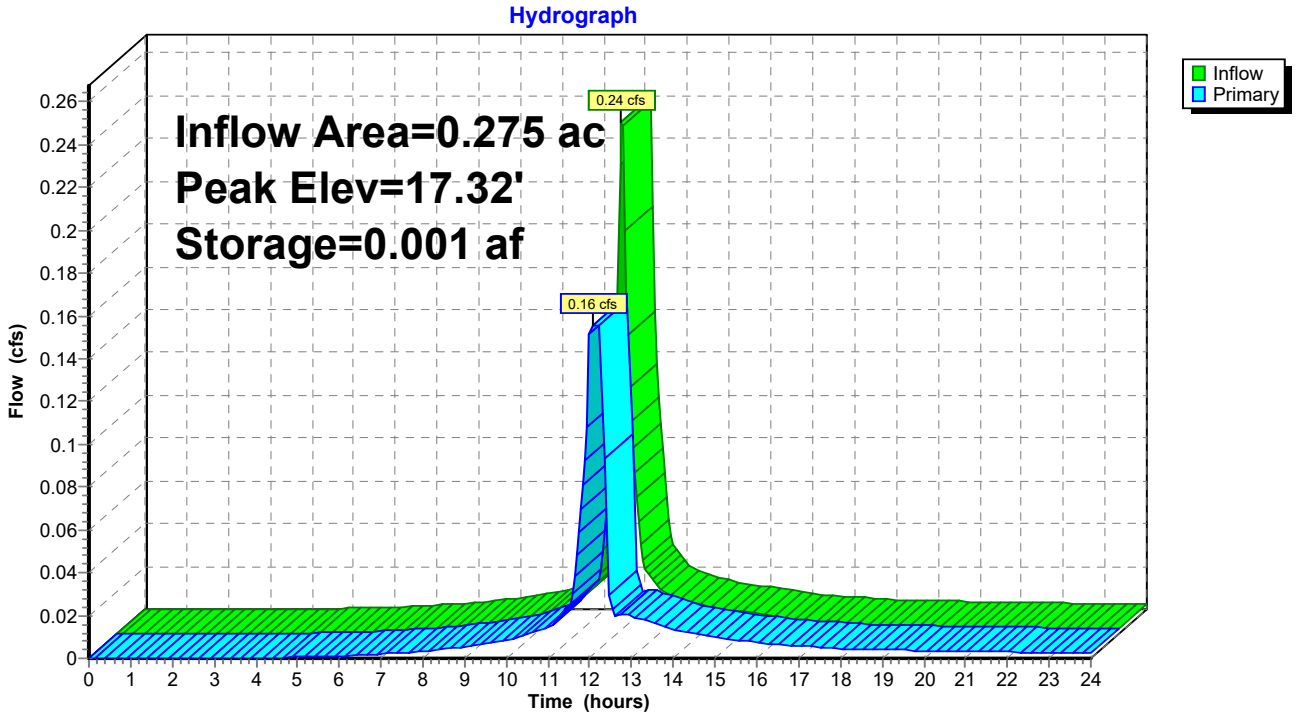
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.0 min (789.4 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.130, Flow Area= 0.79 sf

Primary OutFlow Max=0.16 cfs @ 12.05 hrs HW=16.80' (Free Discharge)
└**3=Culvert** (Passes 0.16 cfs of 1.94 cfs potential flow)
  ├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
  └**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 1 6x8

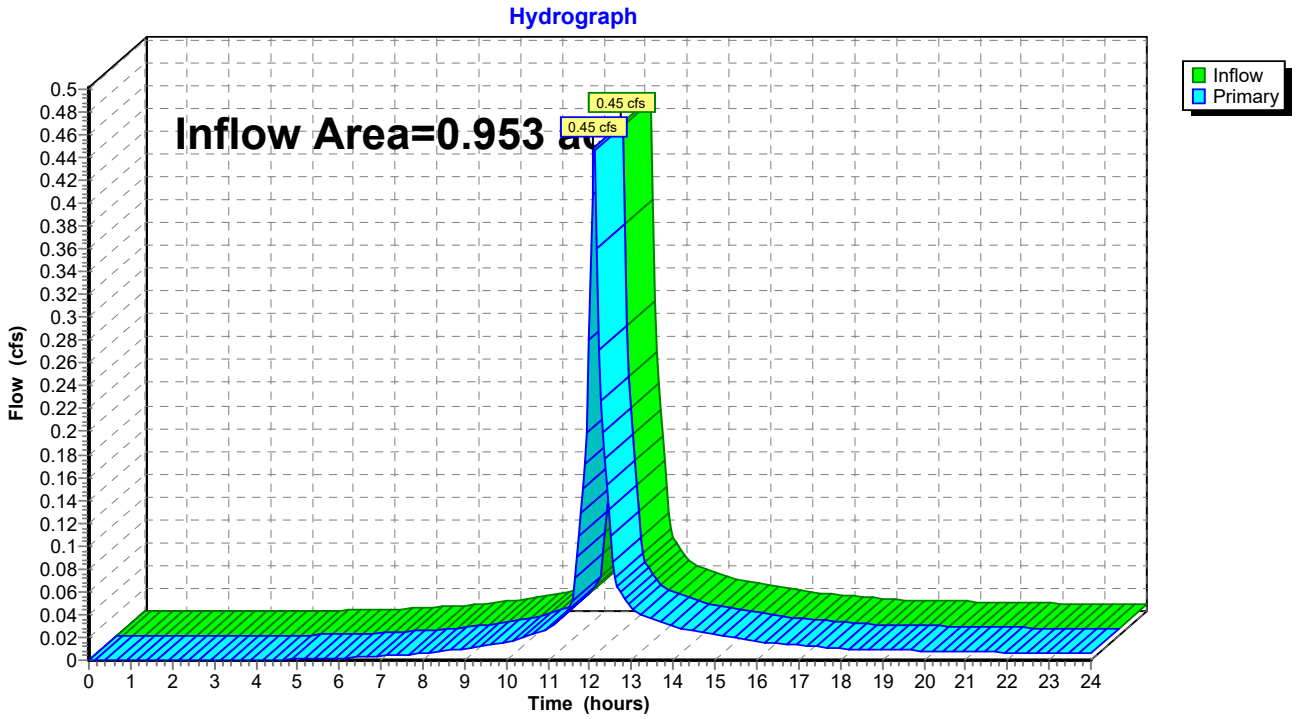


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 0.46" for 1" Storm Event event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

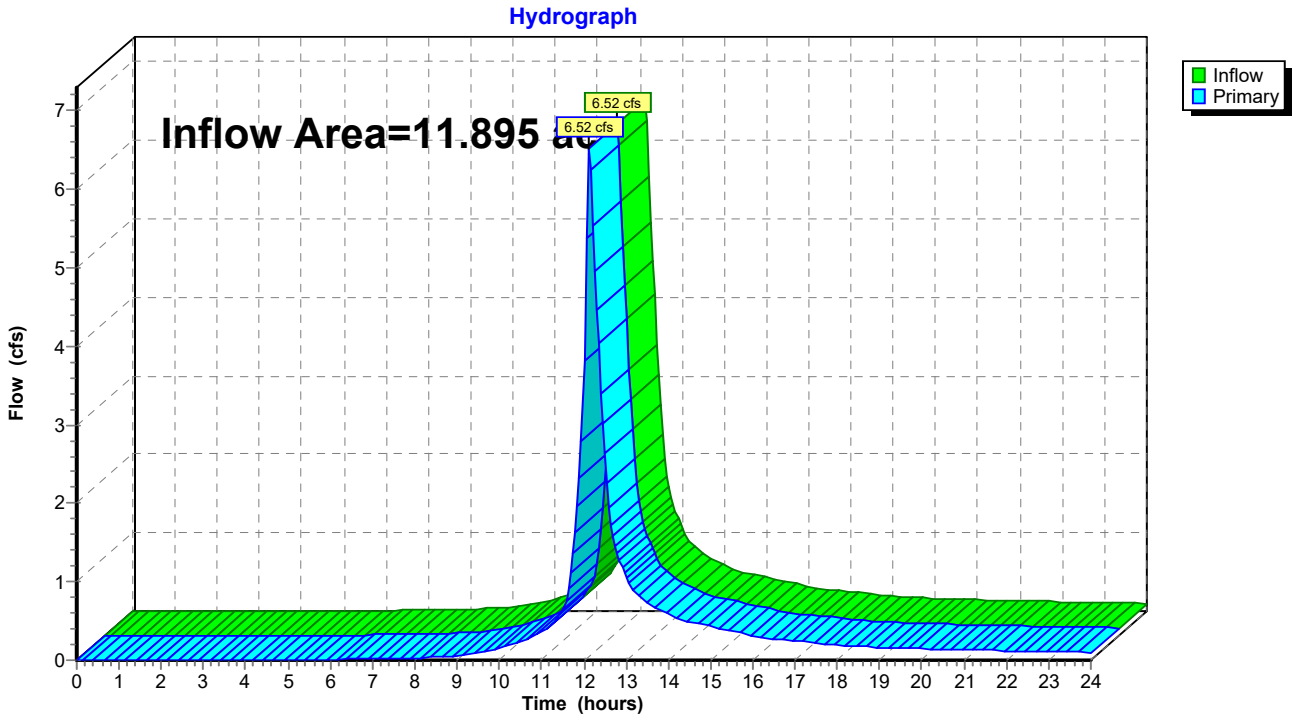


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 0.63" for 1" Storm Event event
Inflow = 6.52 cfs @ 12.12 hrs, Volume= 0.621 af
Primary = 6.52 cfs @ 12.12 hrs, Volume= 0.621 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

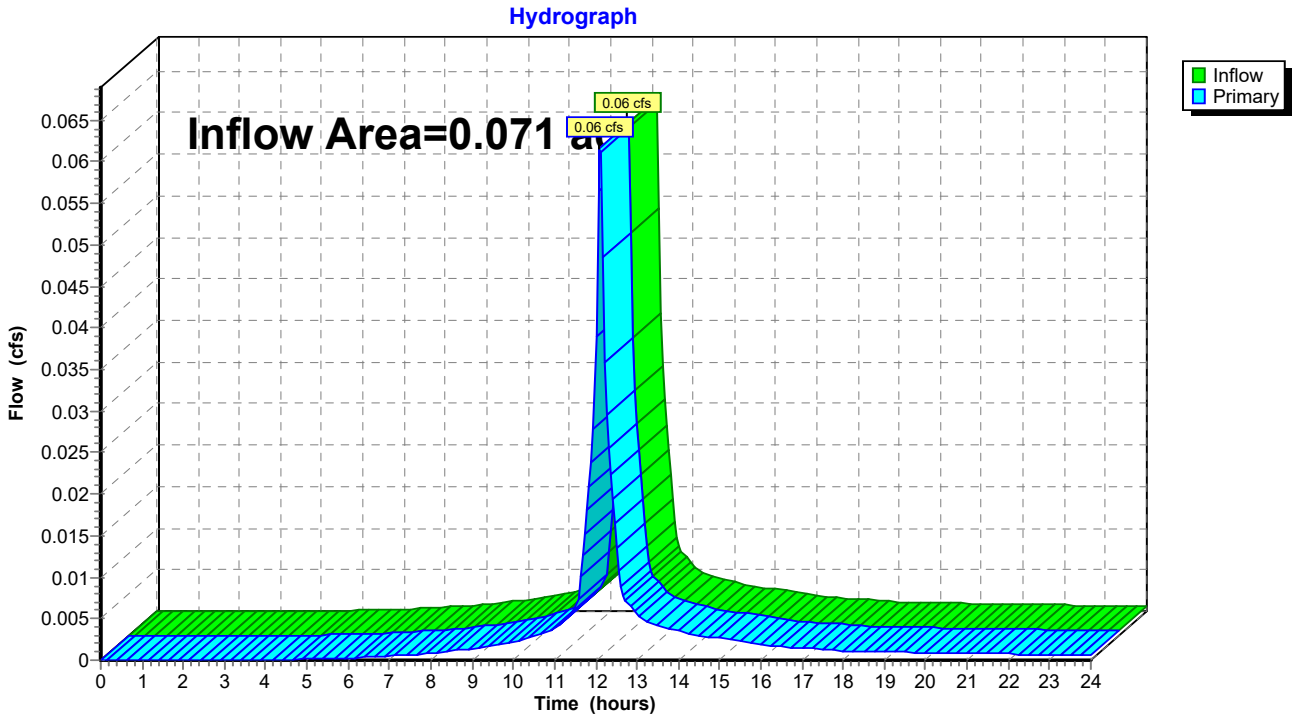


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>1.32"
Tc=6.0 min CN=80 Runoff=0.67 cfs 0.049 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=95 Runoff=1.68 cfs 0.129 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=97 Runoff=1.25 cfs 0.099 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.024 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=94 Runoff=0.23 cfs 0.017 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.048 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.94 cfs 0.158 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=5.84 cfs 0.475 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=3.22 cfs 0.262 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.76 cfs 0.062 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=2.06 cfs 0.168 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.061 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>1.91"
Tc=6.0 min CN=88 Runoff=2.47 cfs 0.180 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>2.35"
Tc=6.0 min CN=93 Runoff=6.56 cfs 0.491 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Pond 1P: DMH 1 Peak Elev=11.06' Inflow=5.45 cfs 0.433 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=5.45 cfs 0.433 af

Pond 2P: DMH 2 Peak Elev=10.77' Inflow=5.90 cfs 0.468 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=5.90 cfs 0.468 af

Pond 3P: Storm Structure Peak Elev=9.29' Inflow=5.90 cfs 0.468 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=5.90 cfs 0.468 af

Pond 4P: R-Tank 1 Peak Elev=8.32' Storage=1,608 cf Inflow=5.90 cfs 0.468 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 5P: DMH-11 Peak Elev=9.45' Inflow=8.11 cfs 0.835 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=8.11 cfs 0.835 af

Pond 6P: CB27 Peak Elev=11.39' Inflow=10.06 cfs 0.818 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=10.06 cfs 0.818 af

Pond 7P: Storm Structure Peak Elev=9.69' Inflow=10.06 cfs 0.818 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=10.06 cfs 0.818 af

Pond 8P: R-Tank 2 Peak Elev=9.70' Storage=5,443 cf Inflow=10.55 cfs 0.858 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=8.11 cfs 0.835 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=8.49' Inflow=13.31 cfs 1.297 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=13.31 cfs 1.297 af

Pond 10P: DMH 4 Peak Elev=8.21' Inflow=5.30 cfs 0.461 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.22' Inflow=5.30 cfs 0.461 af
Outflow=5.30 cfs 0.461 af

Pond 12P: Jellyfish 2 JFPD0808-10-3 Peak Elev=10.60' Inflow=8.11 cfs 0.835 af
Outflow=8.11 cfs 0.835 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=8.48' Inflow=10.10 cfs 0.802 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=10.10 cfs 0.802 af

Pond 24P: Filterra 1 6x8 Peak Elev=17.68' Storage=0.001 af Inflow=0.81 cfs 0.066 af
Outflow=0.80 cfs 0.066 af

Pond 27P: AD49 Peak Elev=14.79' Inflow=1.59 cfs 0.132 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=1.59 cfs 0.132 af

Pond 28P: Filterra 1 6x8 Peak Elev=17.68' Storage=0.001 af Inflow=0.81 cfs 0.066 af
Outflow=0.80 cfs 0.066 af

Link 1L: Freedom Way Inflow=2.16 cfs 0.170 af
Primary=2.16 cfs 0.170 af

Link 2L: Fore River Inflow=29.06 cfs 2.590 af
Primary=29.06 cfs 2.590 af

Link 3L: Fore Street Inflow=0.21 cfs 0.017 af
Primary=0.21 cfs 0.017 af

Total Runoff Area = 12.919 ac Runoff Volume = 2.806 af Average Runoff Depth = 2.61"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

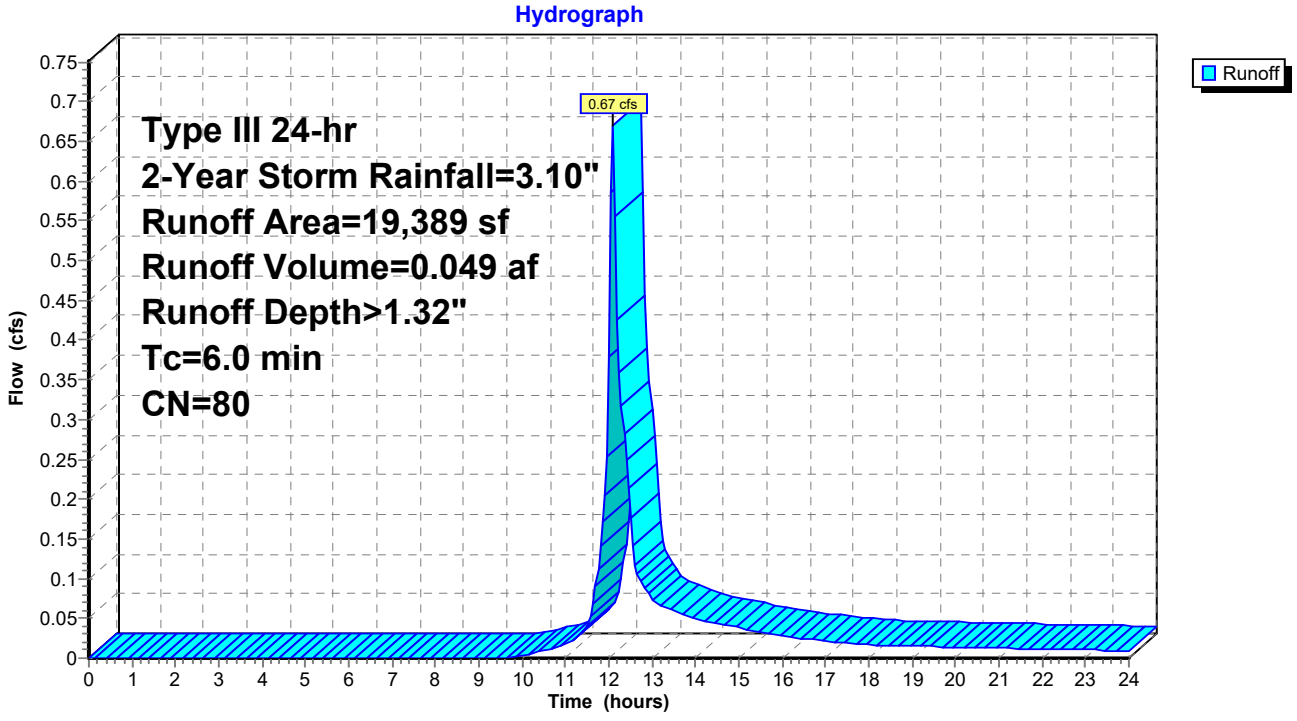
Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.049 af, Depth> 1.32"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

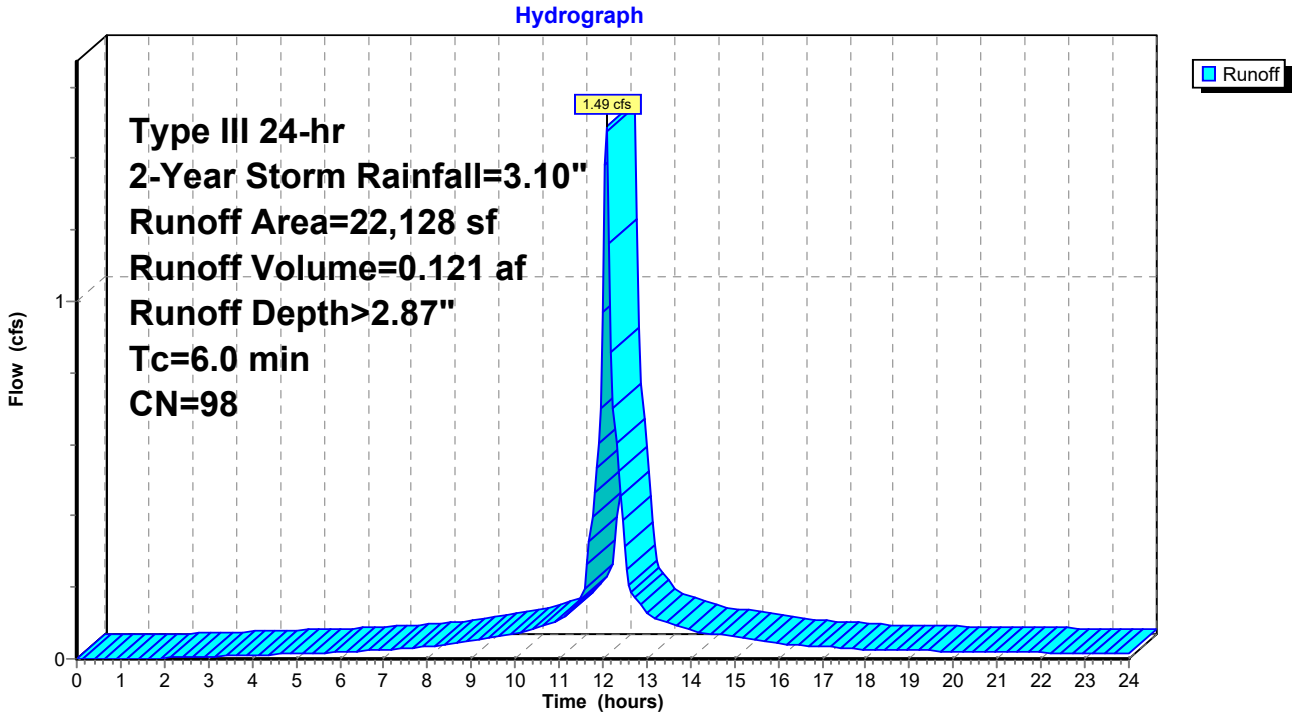
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

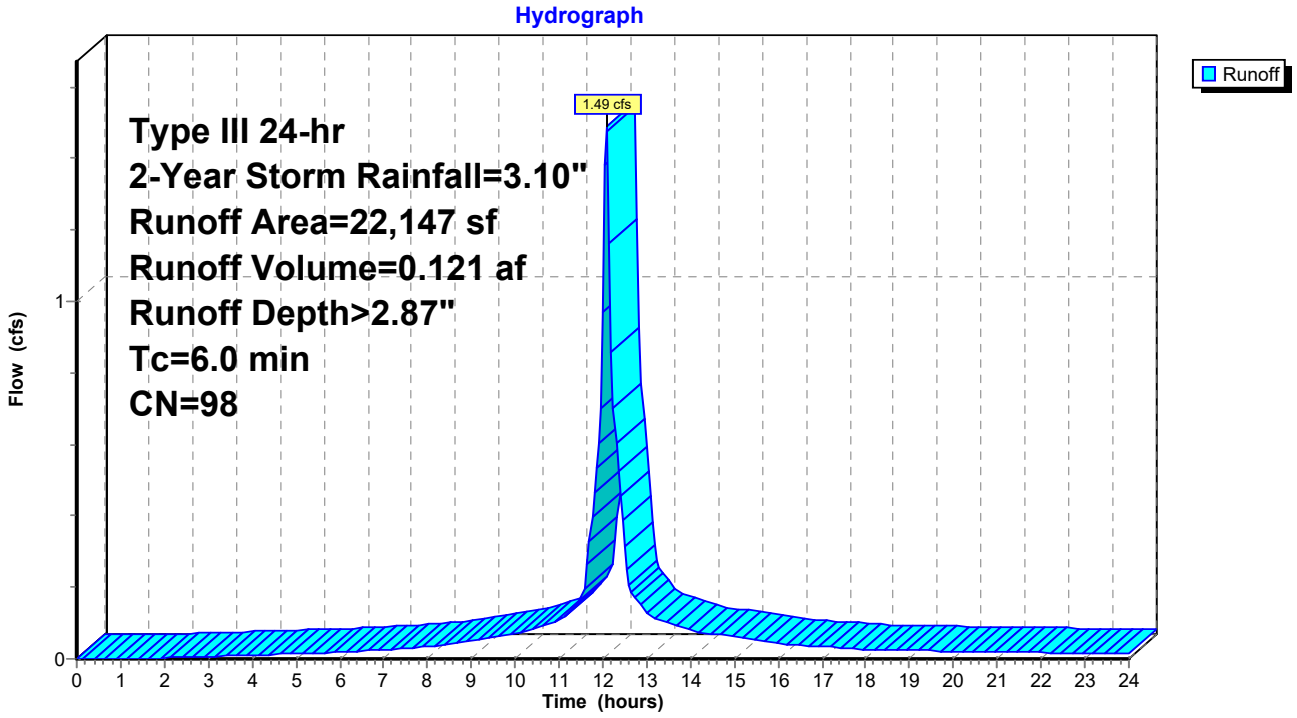
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

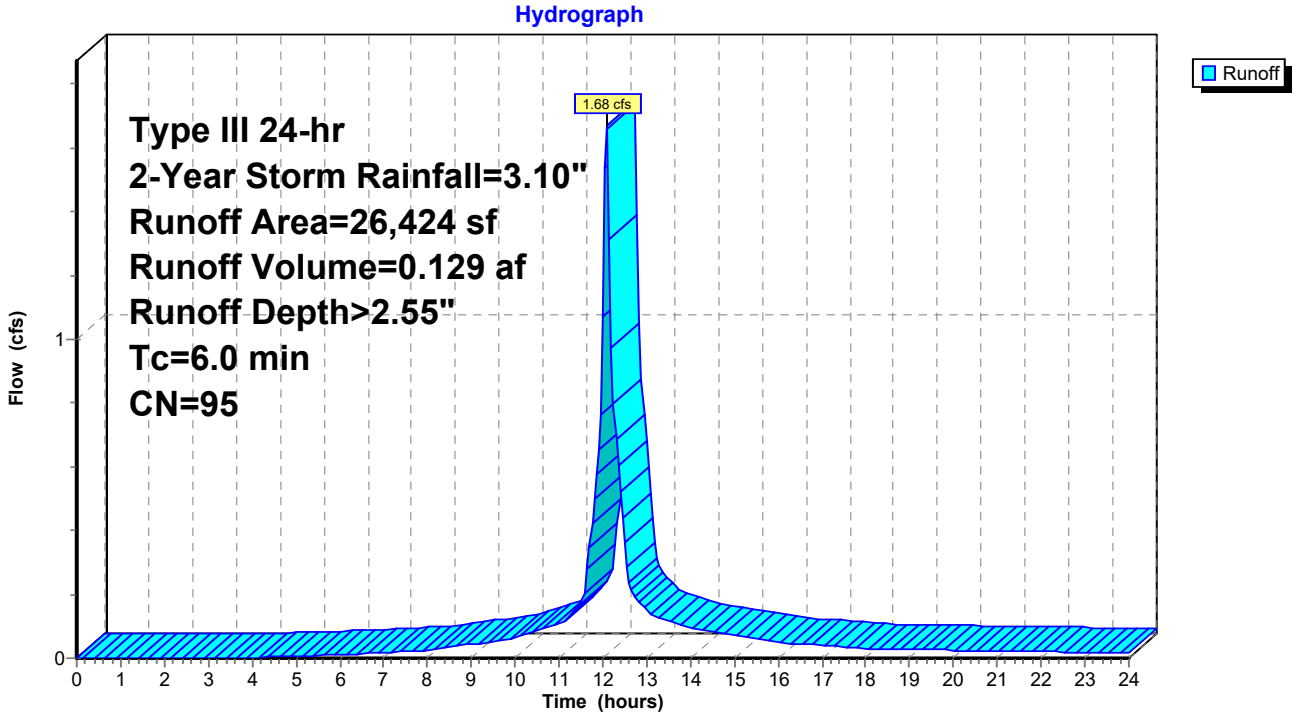
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 2.55"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

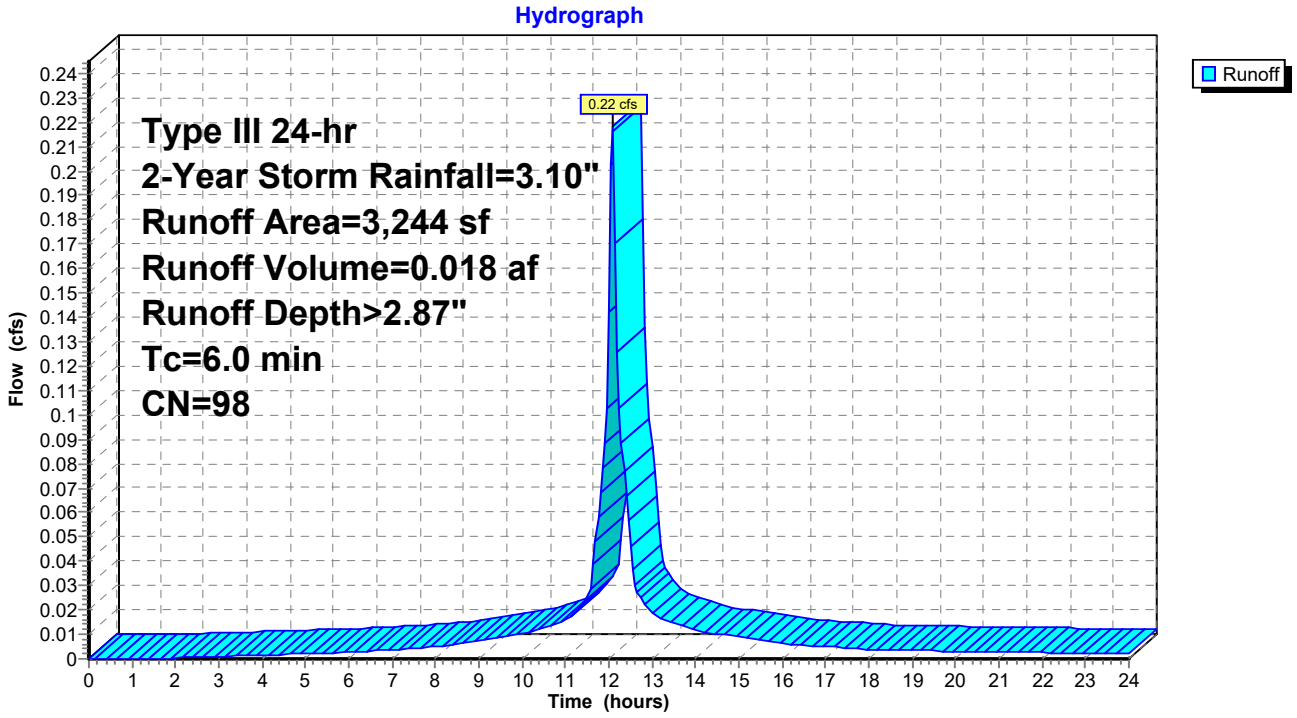
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

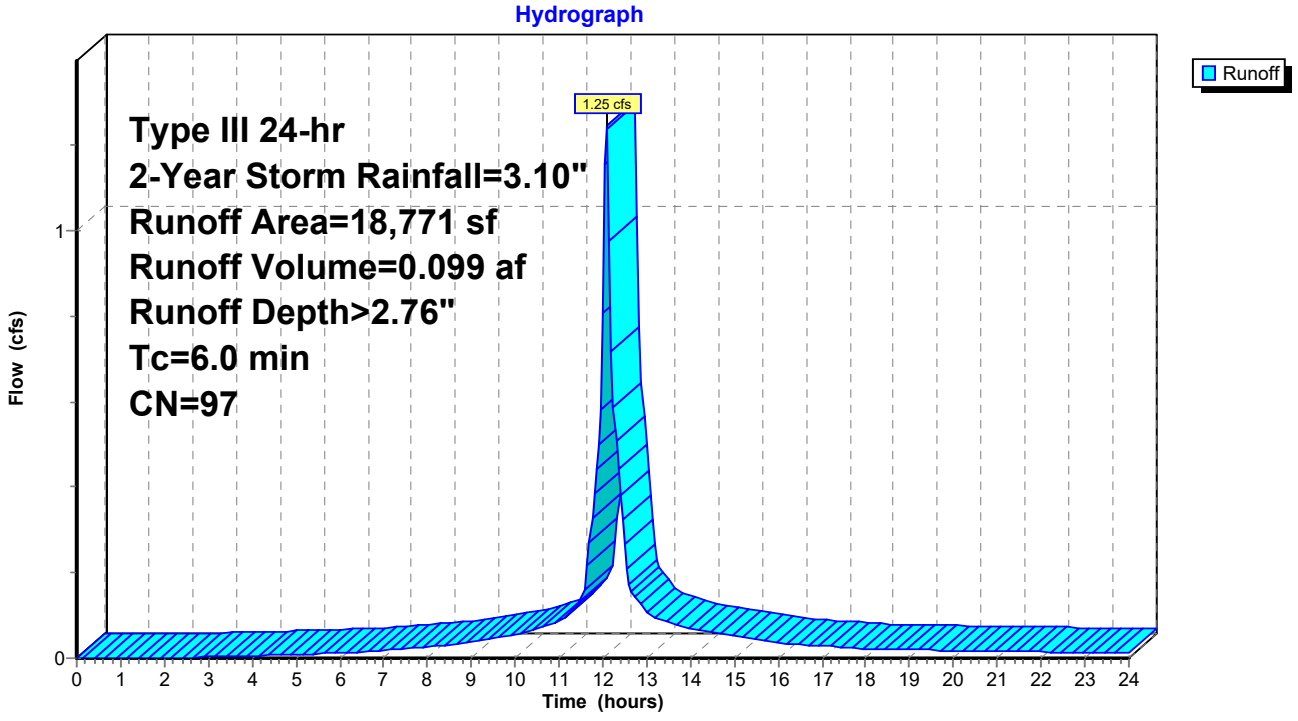
Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.76"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

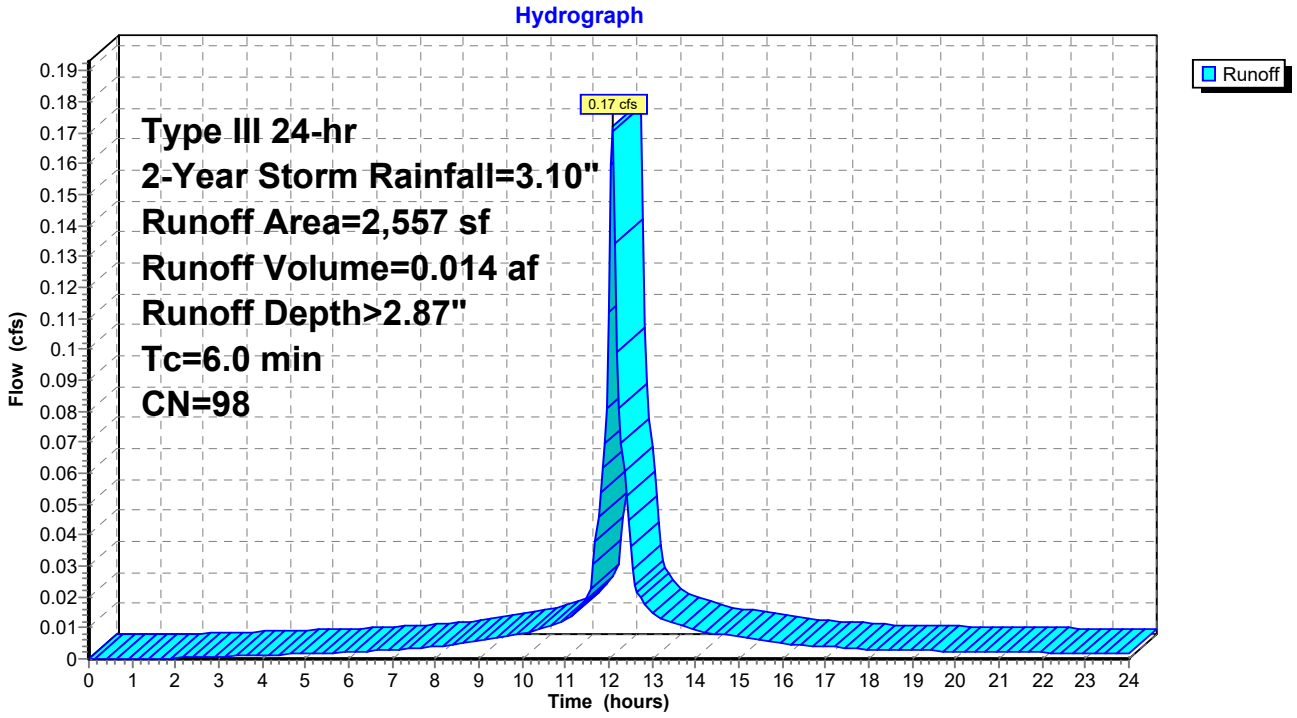
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

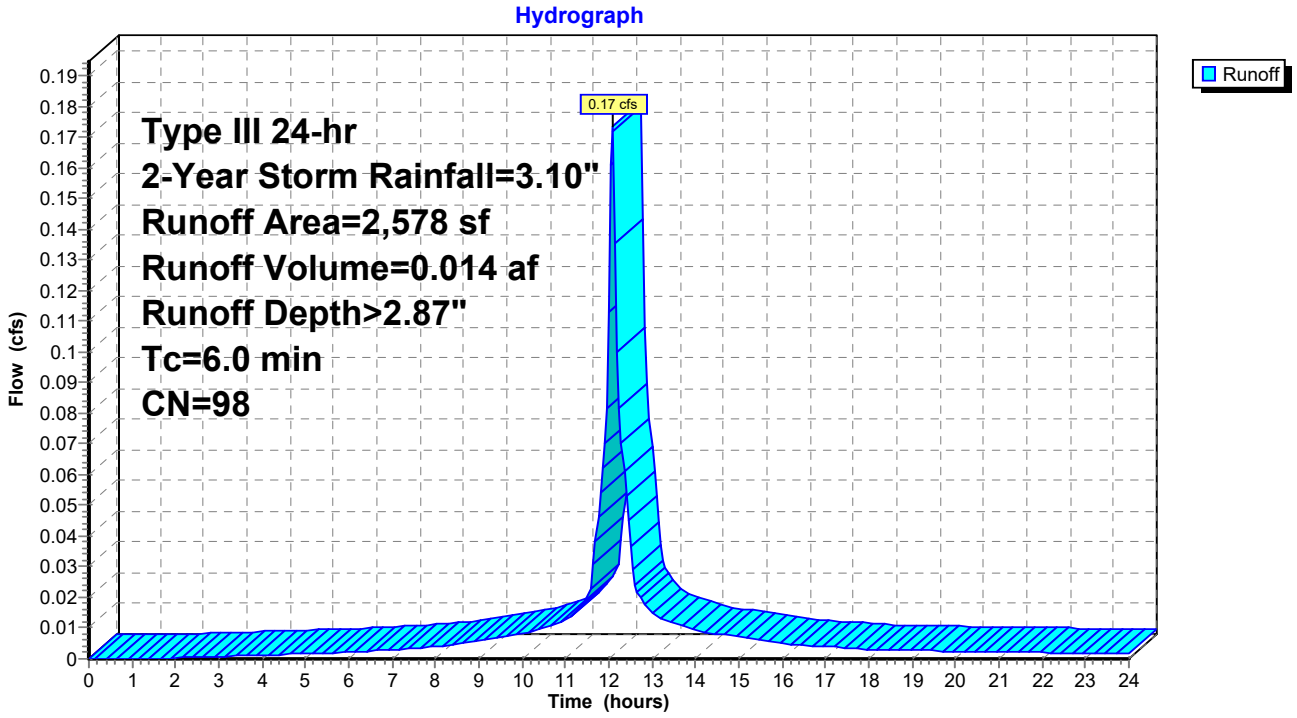
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

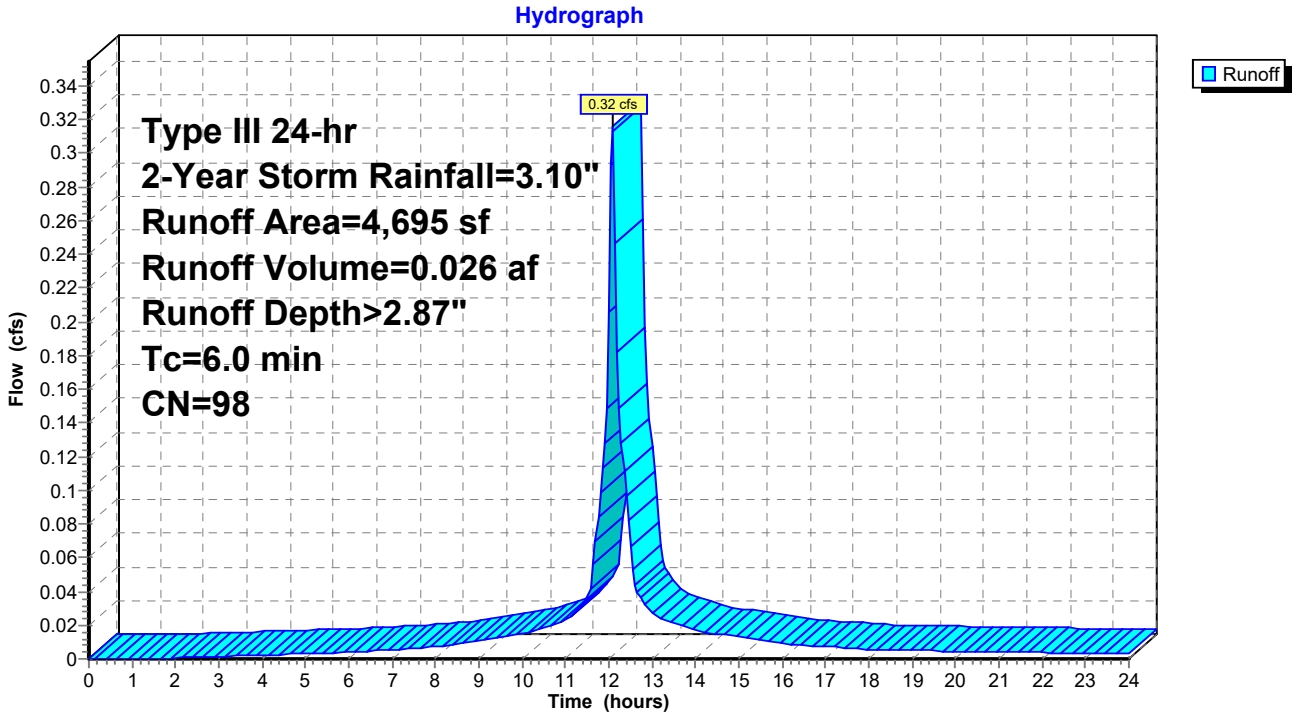
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

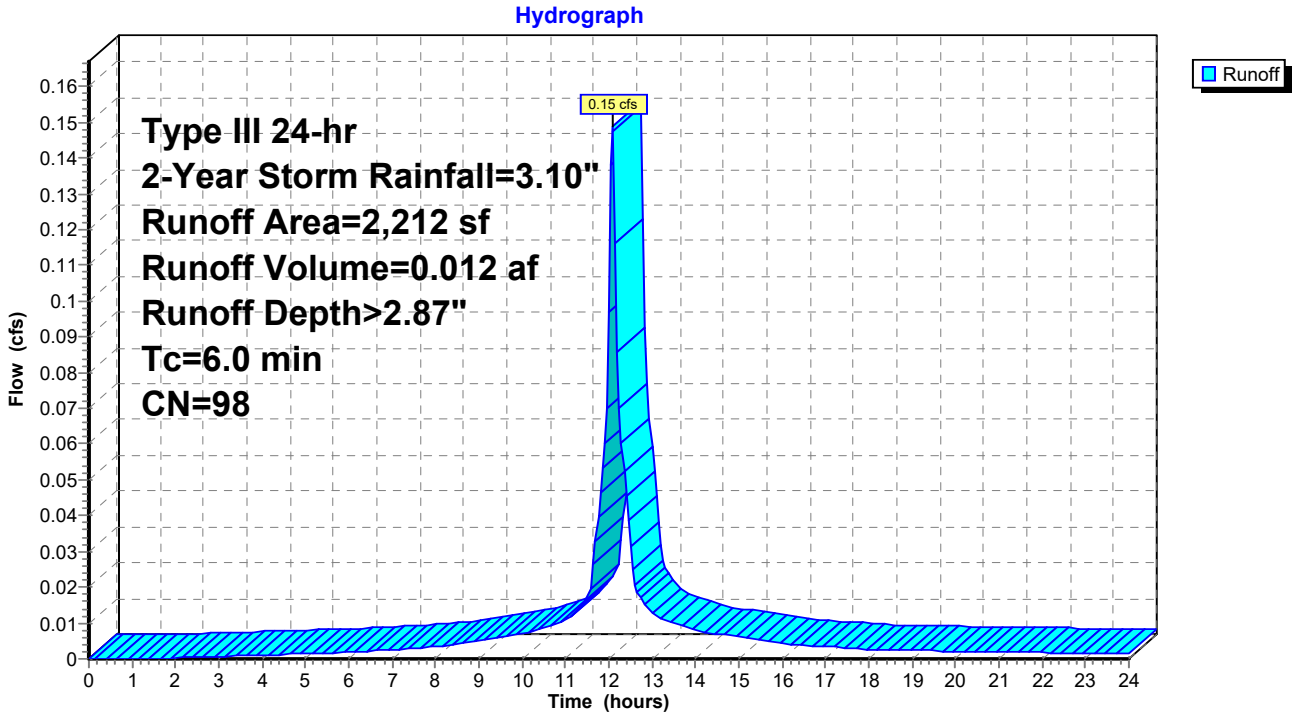
Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

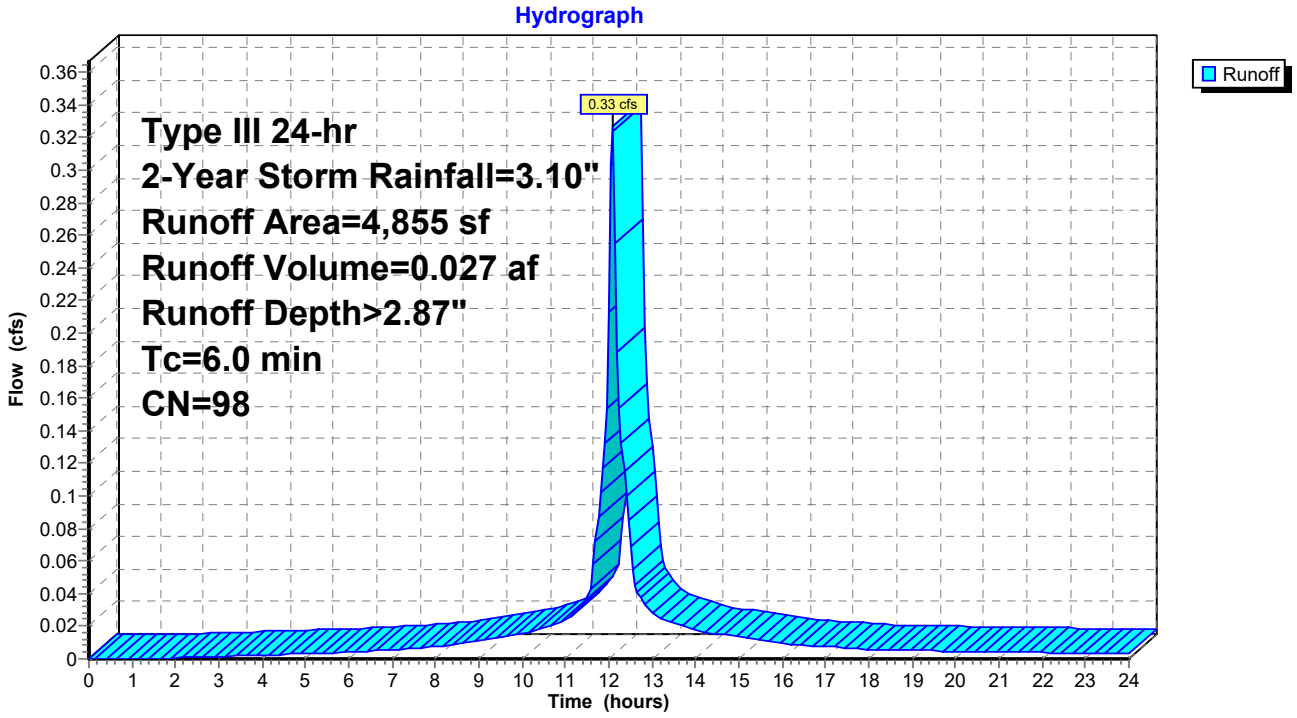
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

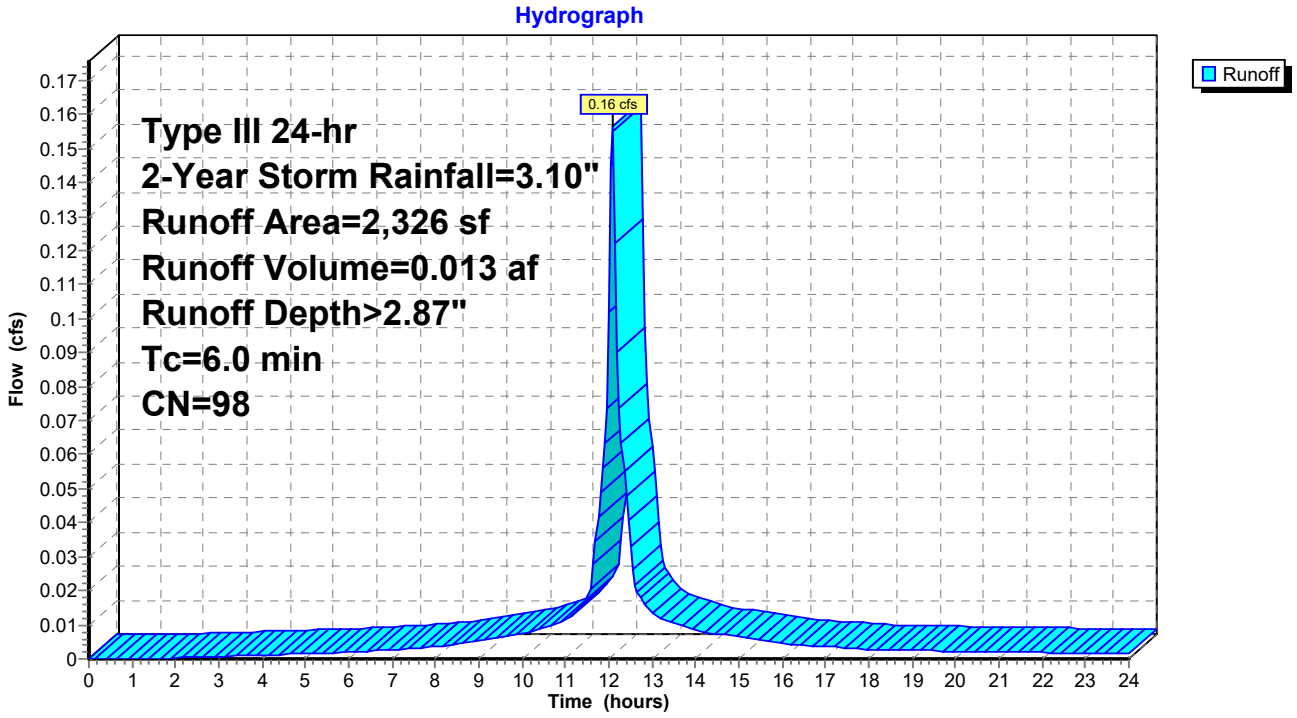
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

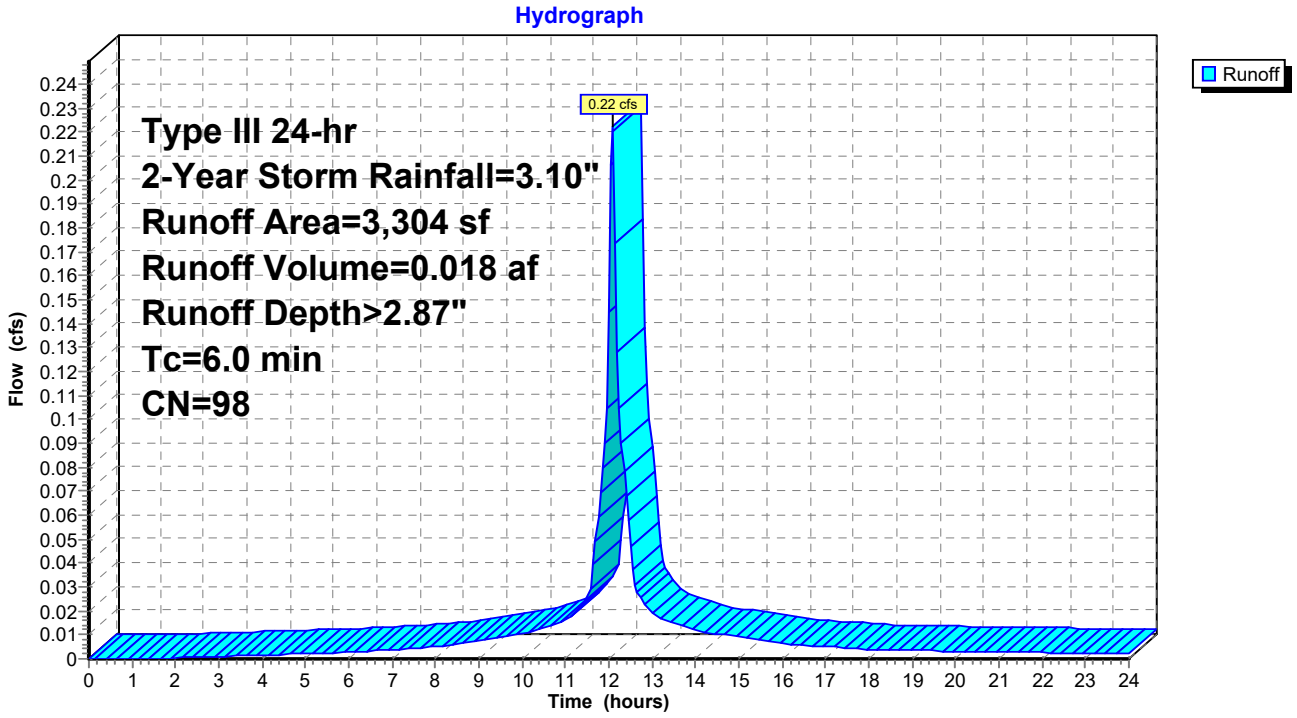
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

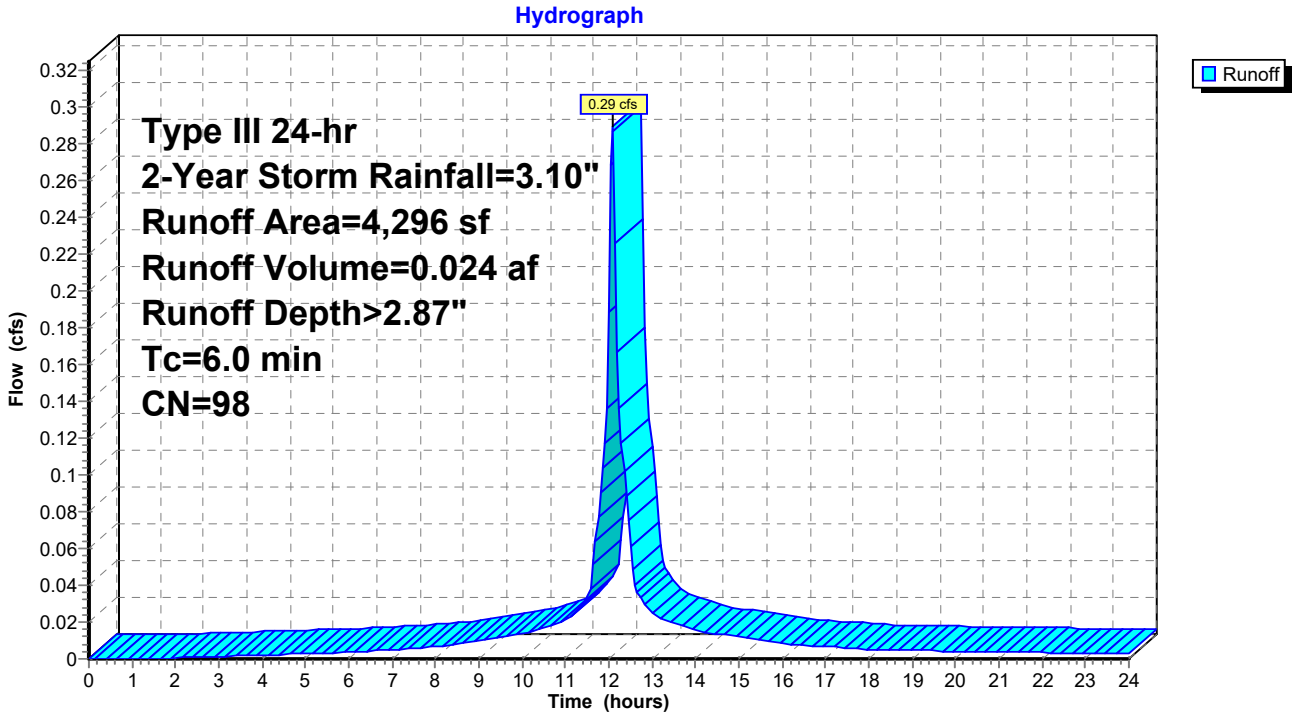
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

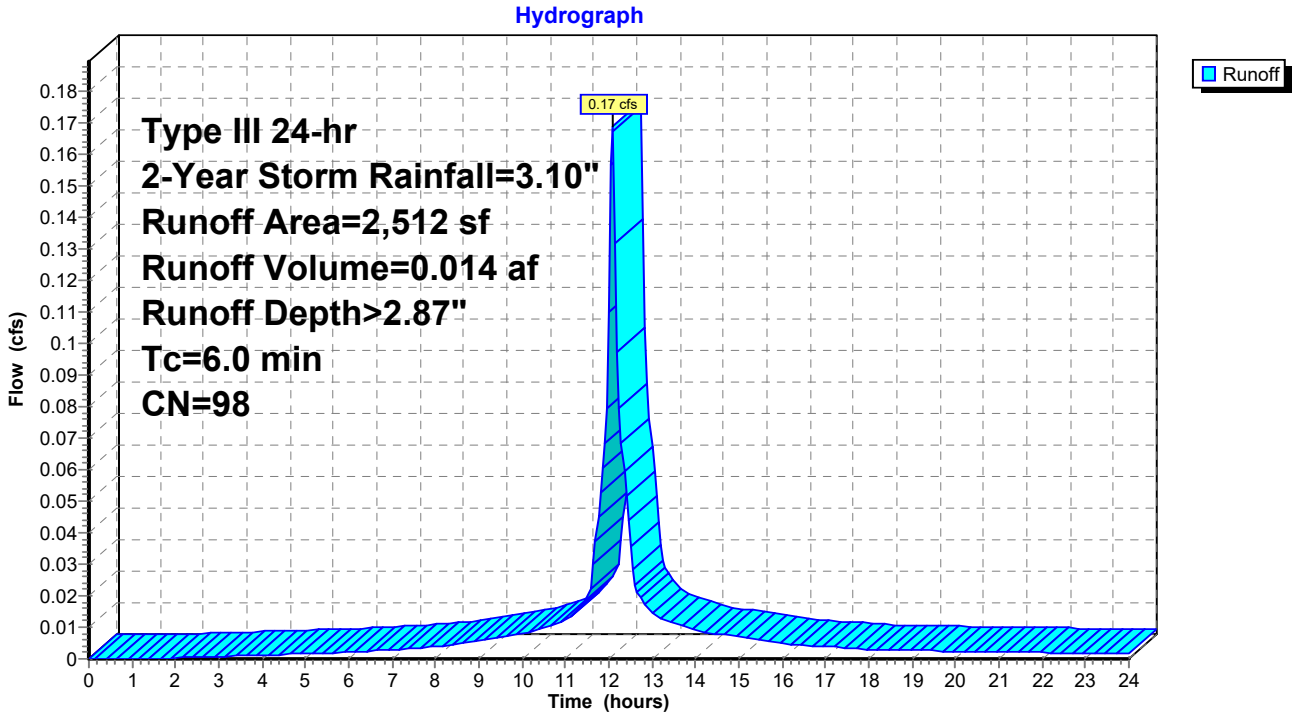
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

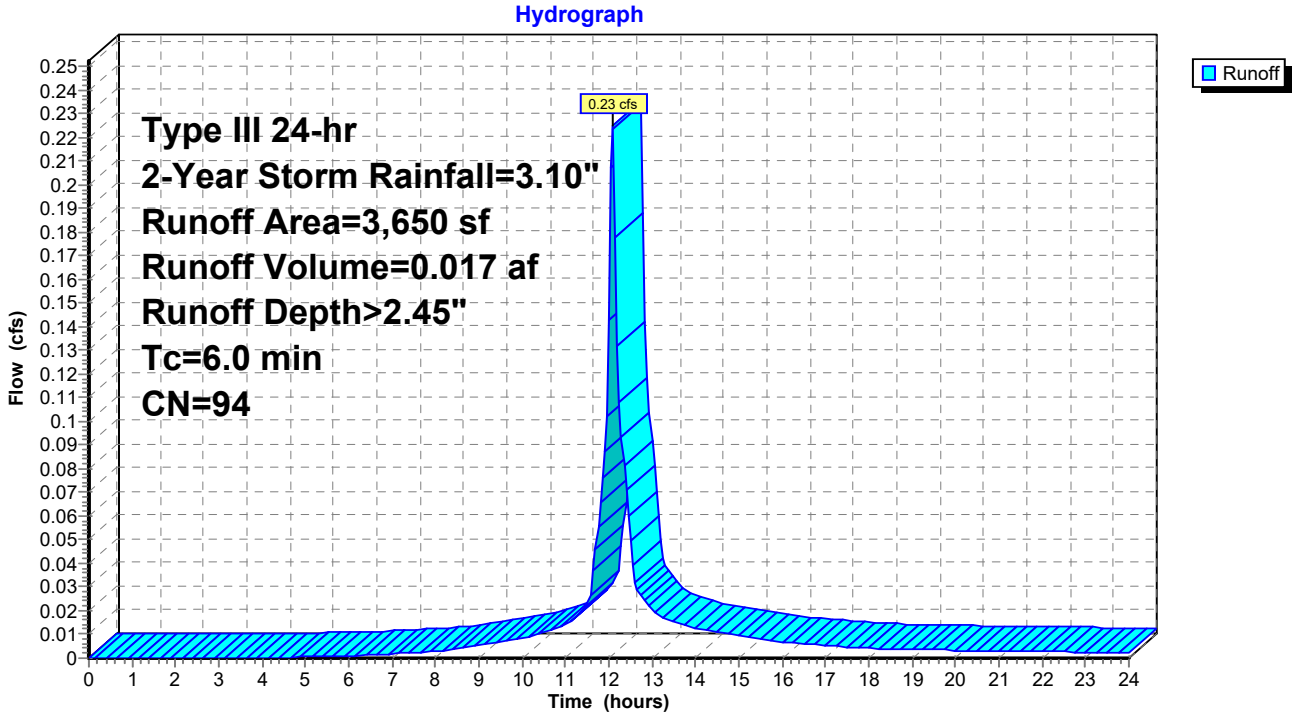
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 2.45"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

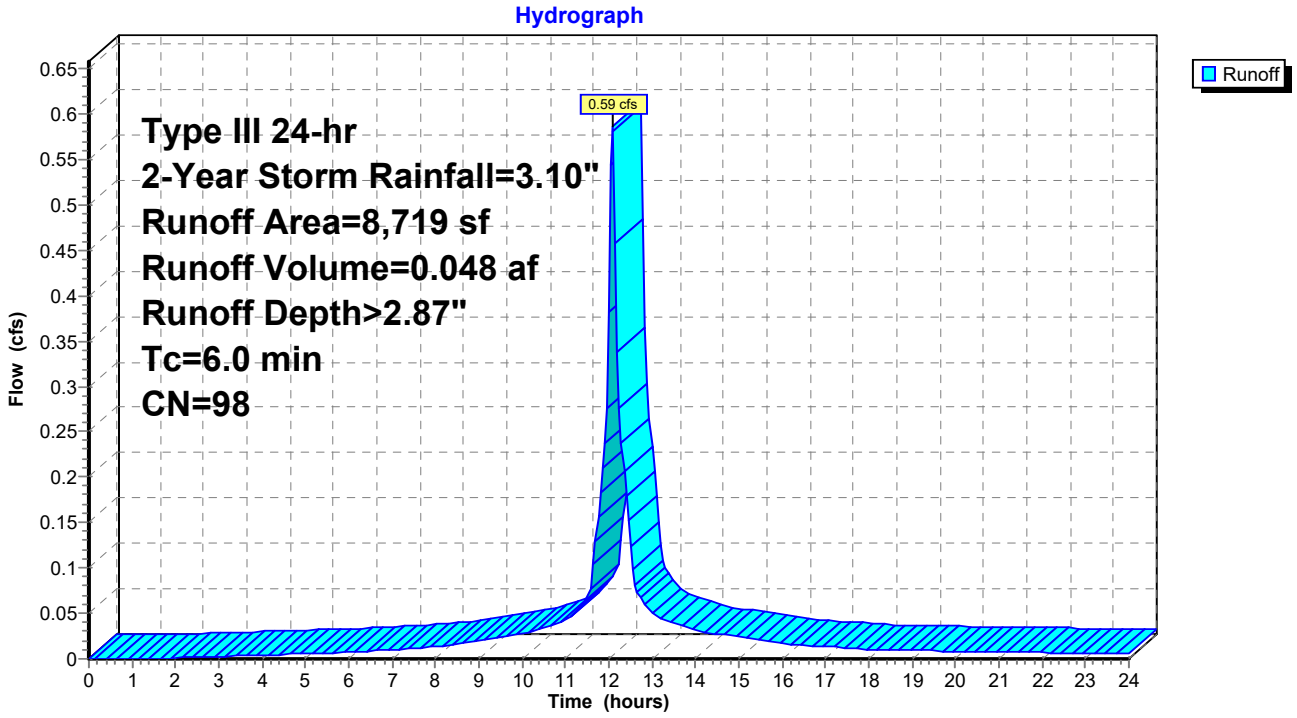
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.048 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

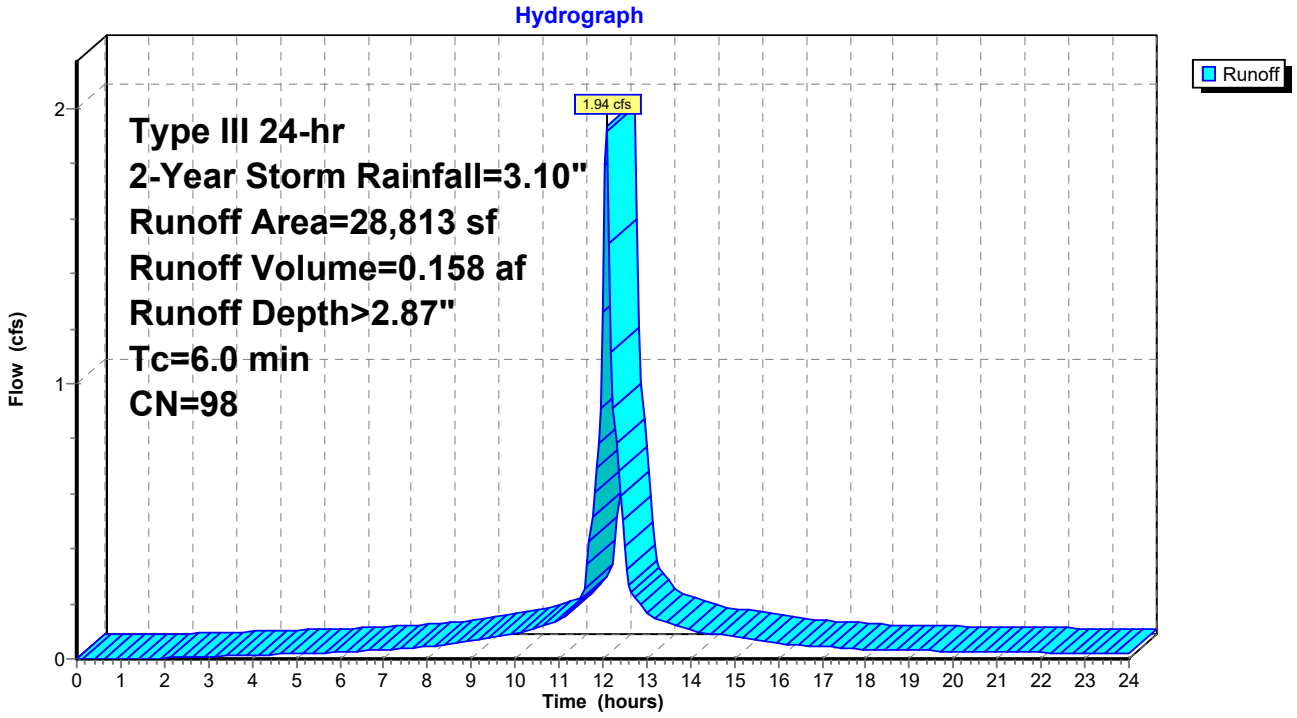
Runoff = 1.94 cfs @ 12.09 hrs, Volume= 0.158 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

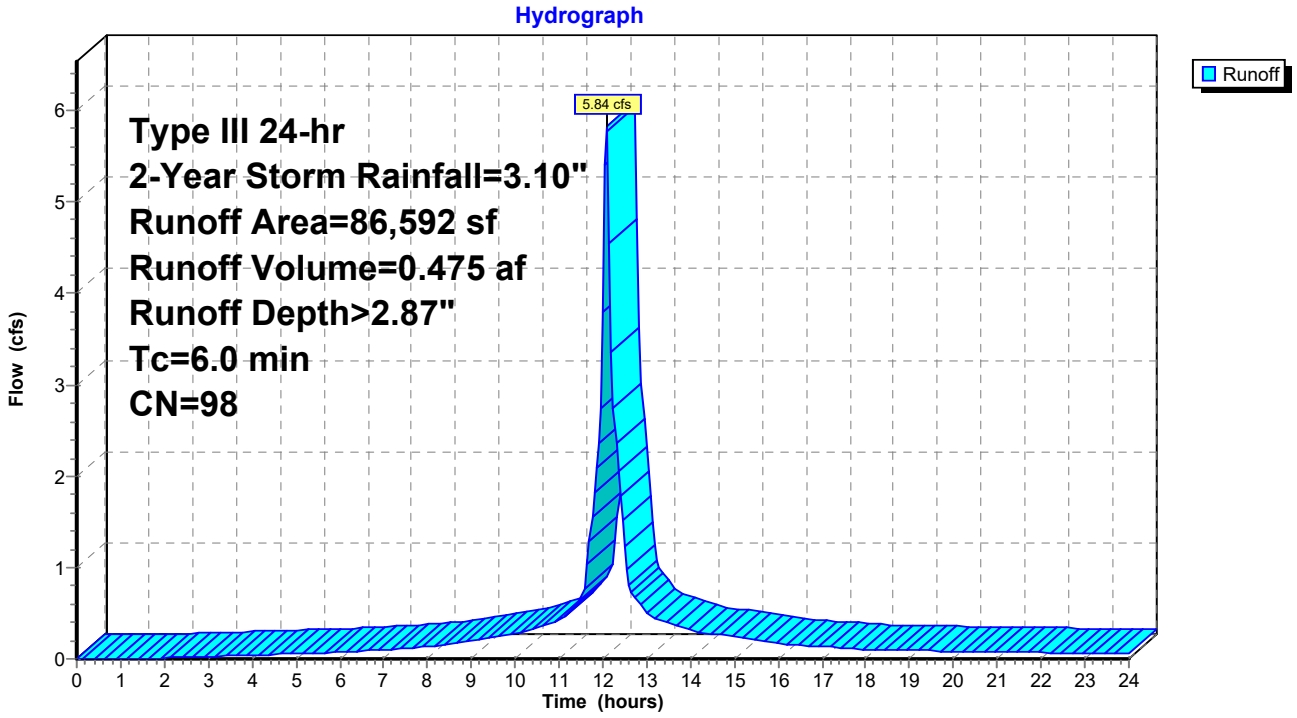
Runoff = 5.84 cfs @ 12.09 hrs, Volume= 0.475 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

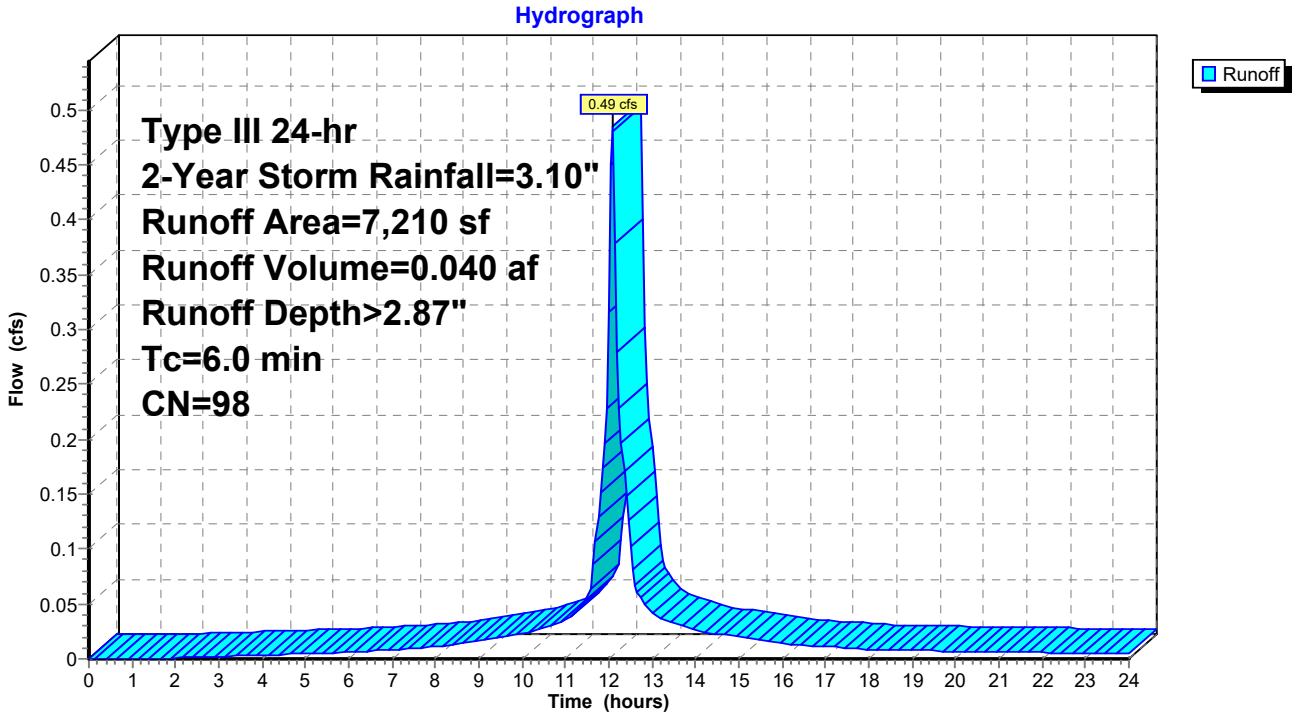
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.87"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

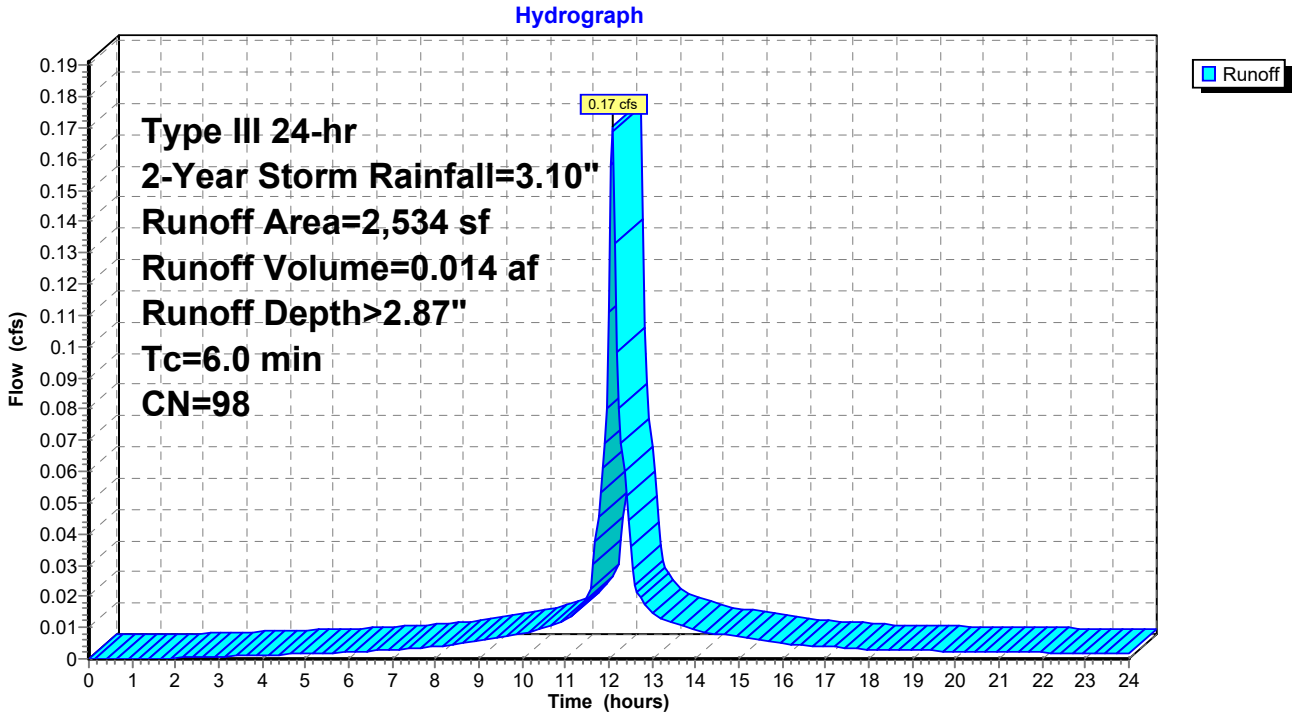
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Link 3L : Fore Street

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

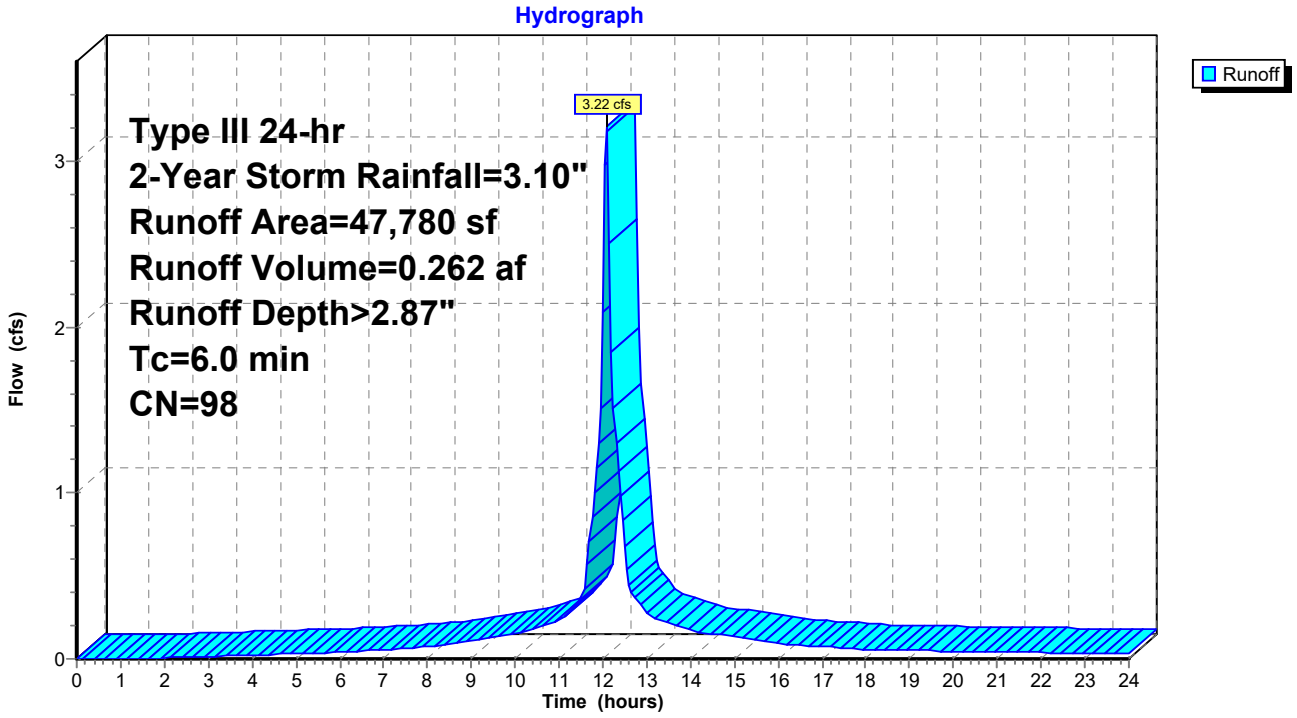
Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.262 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

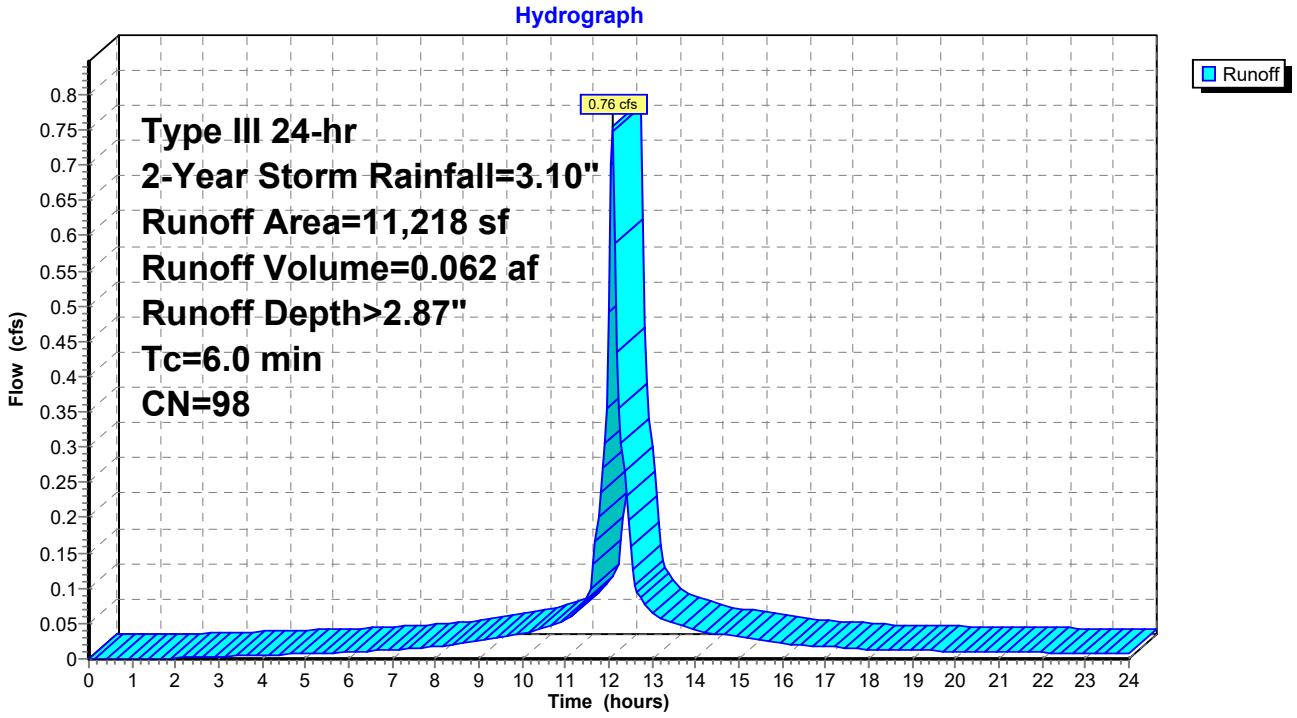
Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

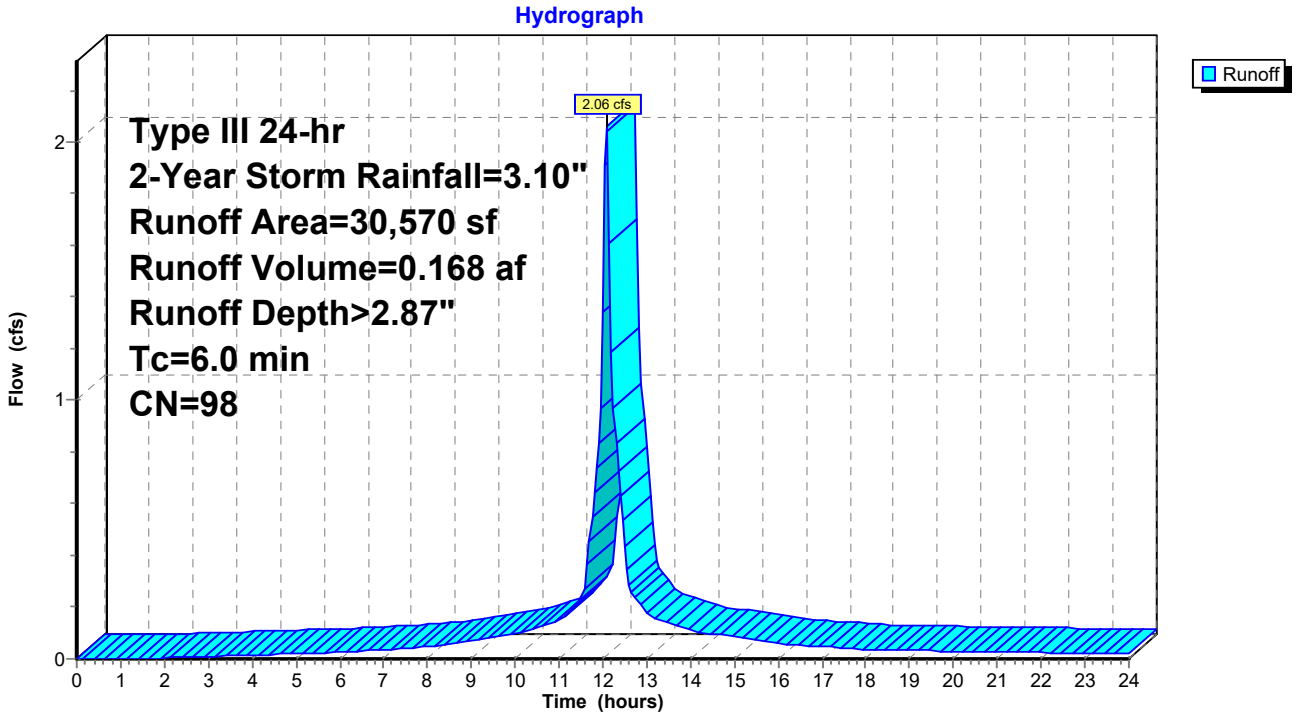
Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.168 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

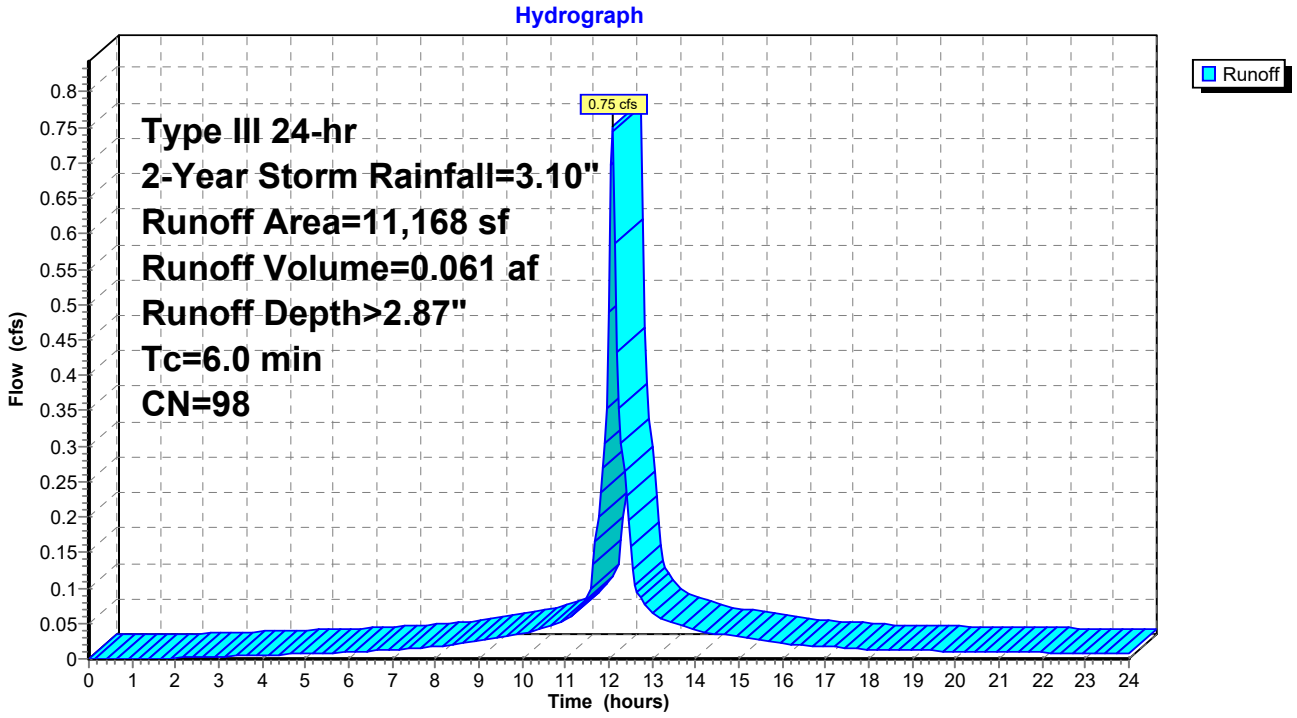
Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

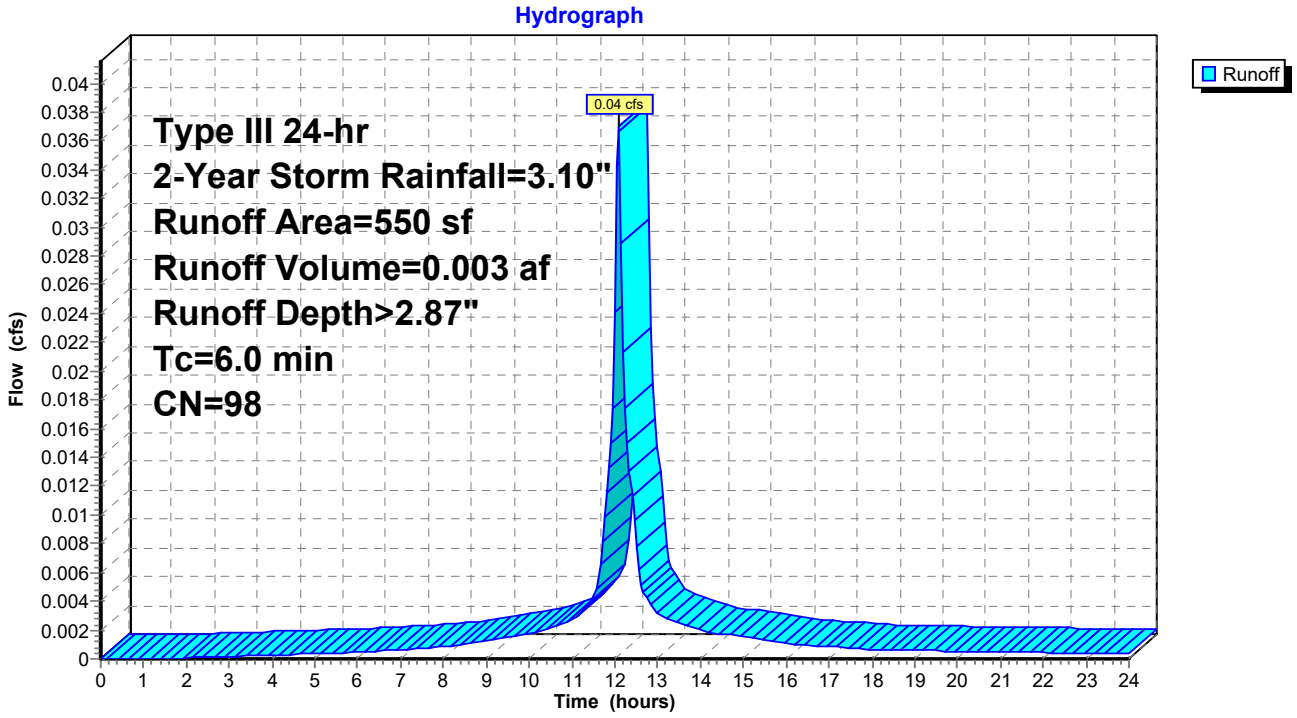
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"
Routed to Link 3L : Fore Street

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

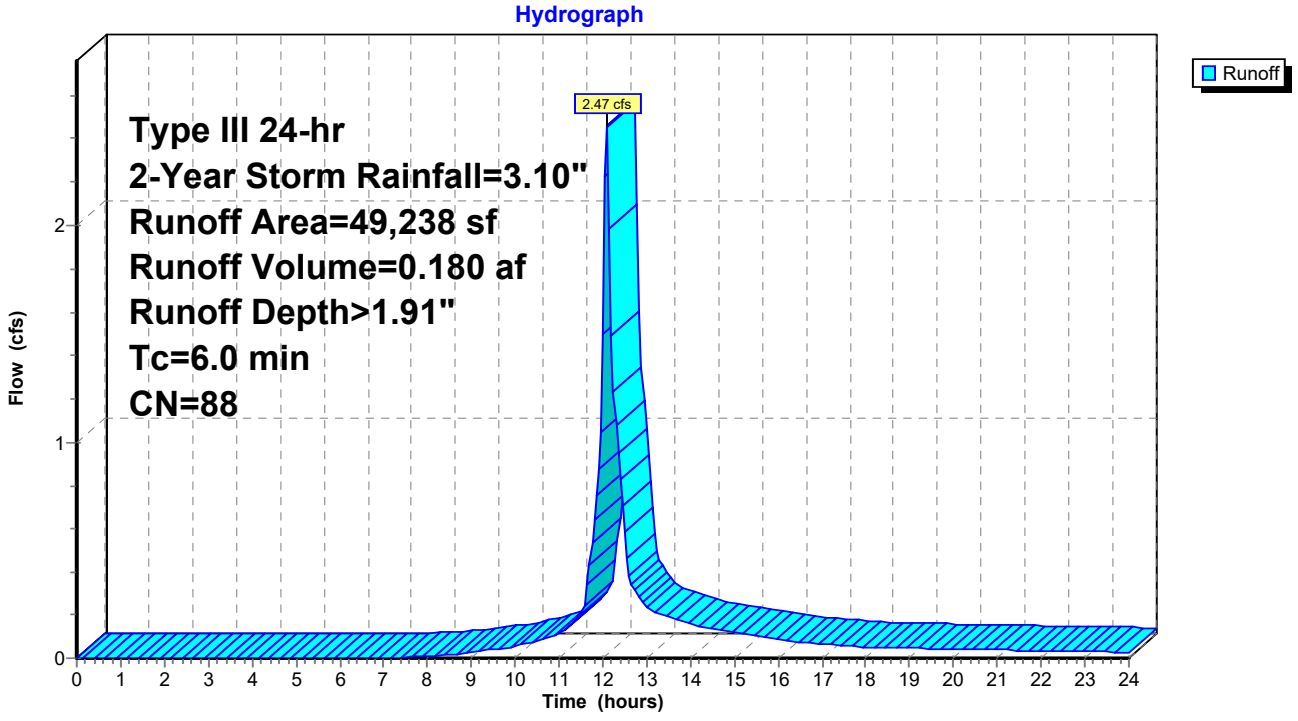
Runoff = 2.47 cfs @ 12.09 hrs, Volume= 0.180 af, Depth> 1.91"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

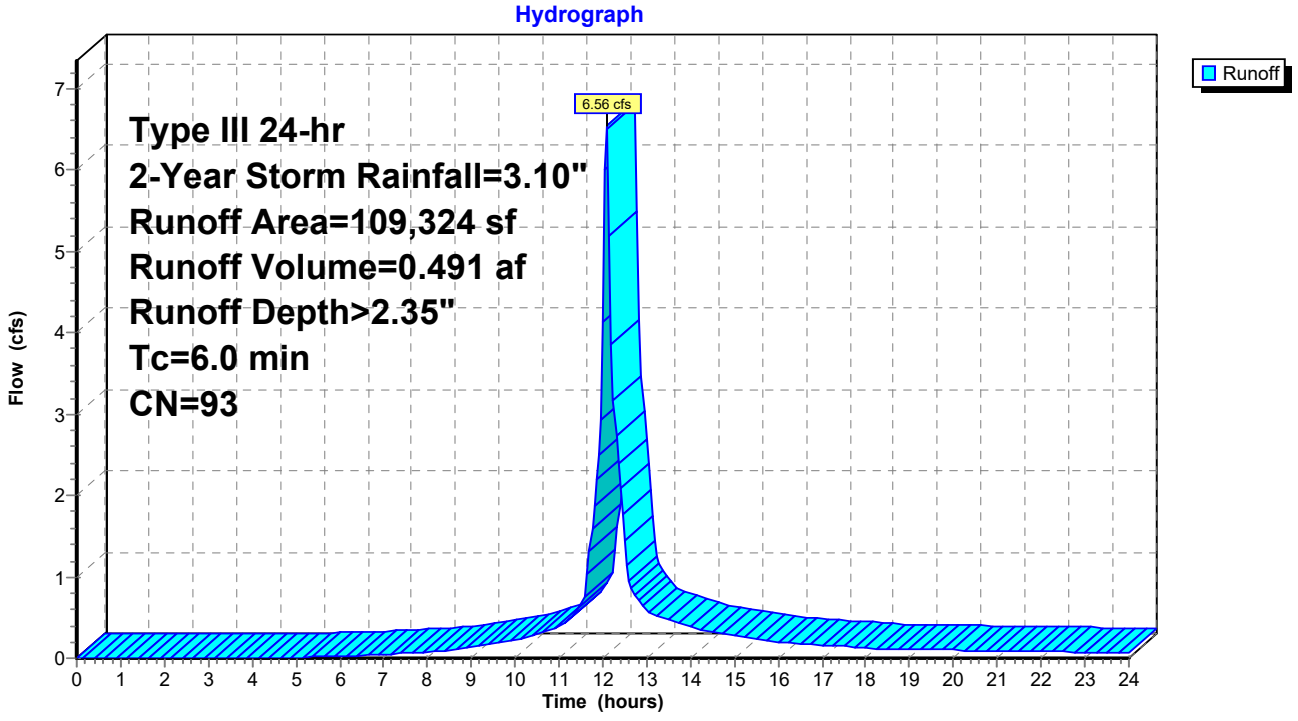
Runoff = 6.56 cfs @ 12.09 hrs, Volume= 0.491 af, Depth> 2.35"
Routed to Link 2L : Fore River

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

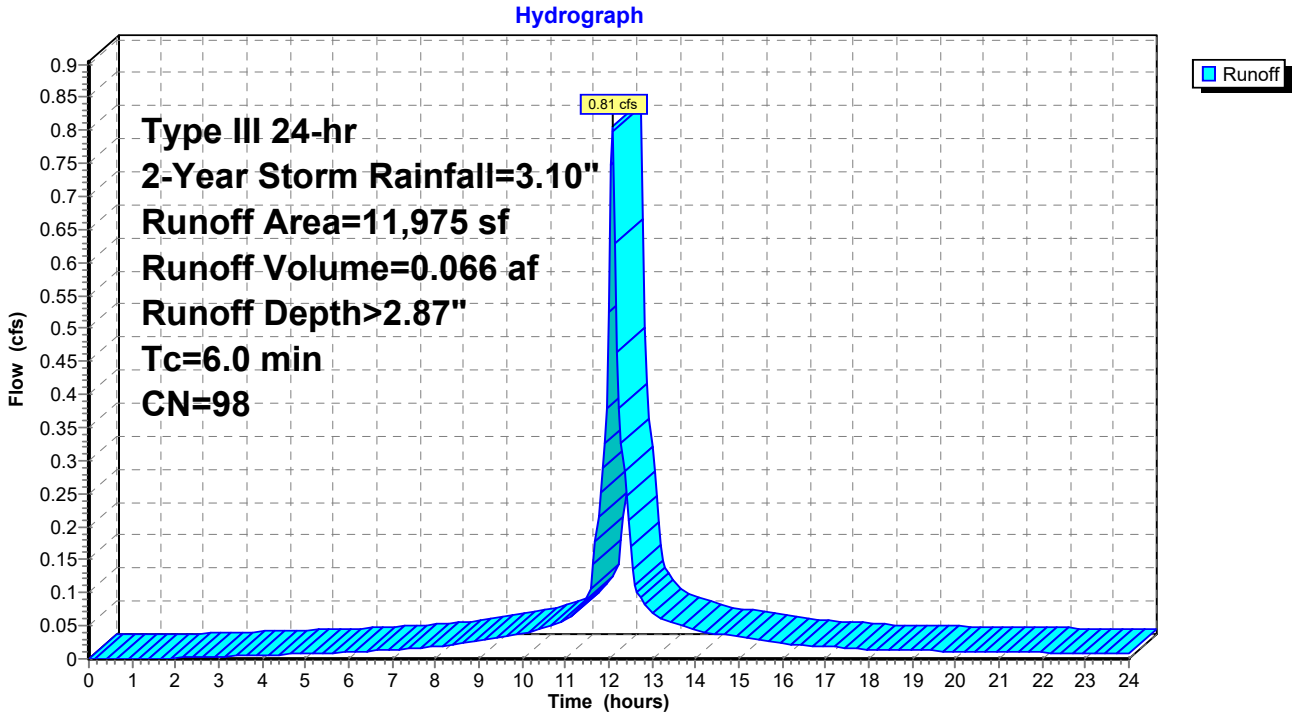
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 24P : Filterra 1 6x8

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

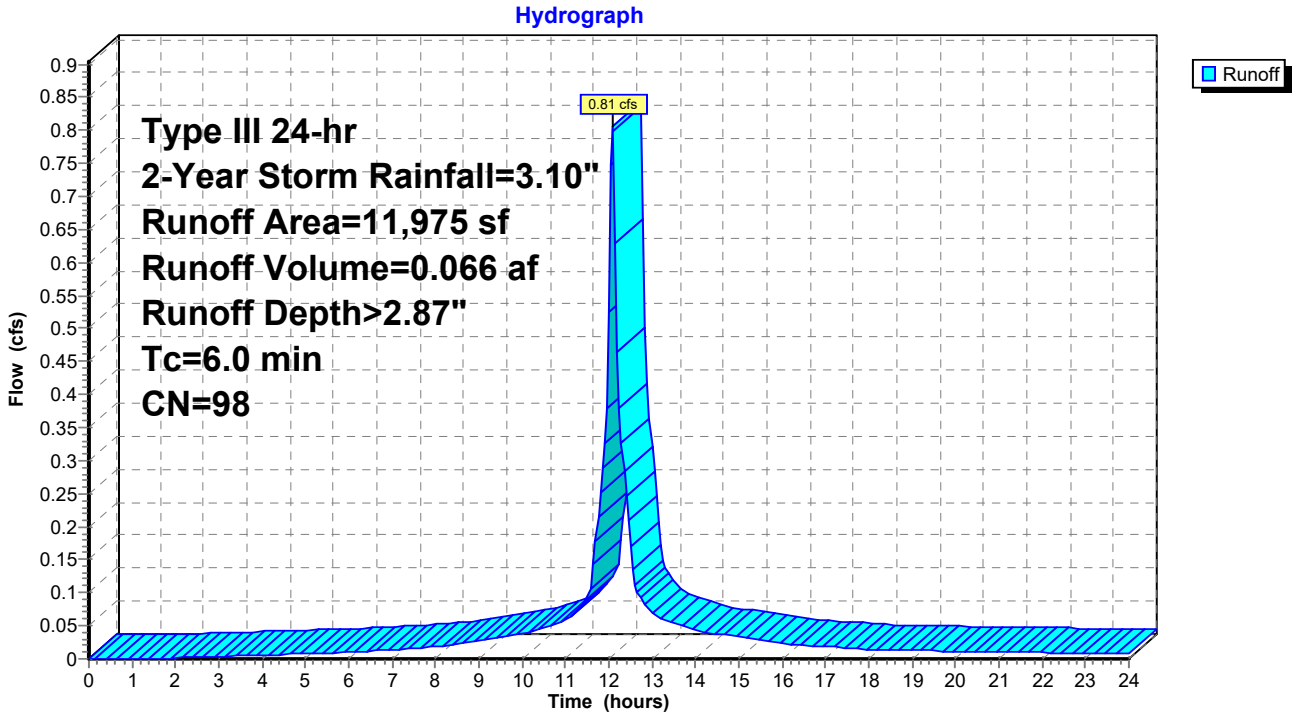
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 28P : Filterra 1 6x8

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

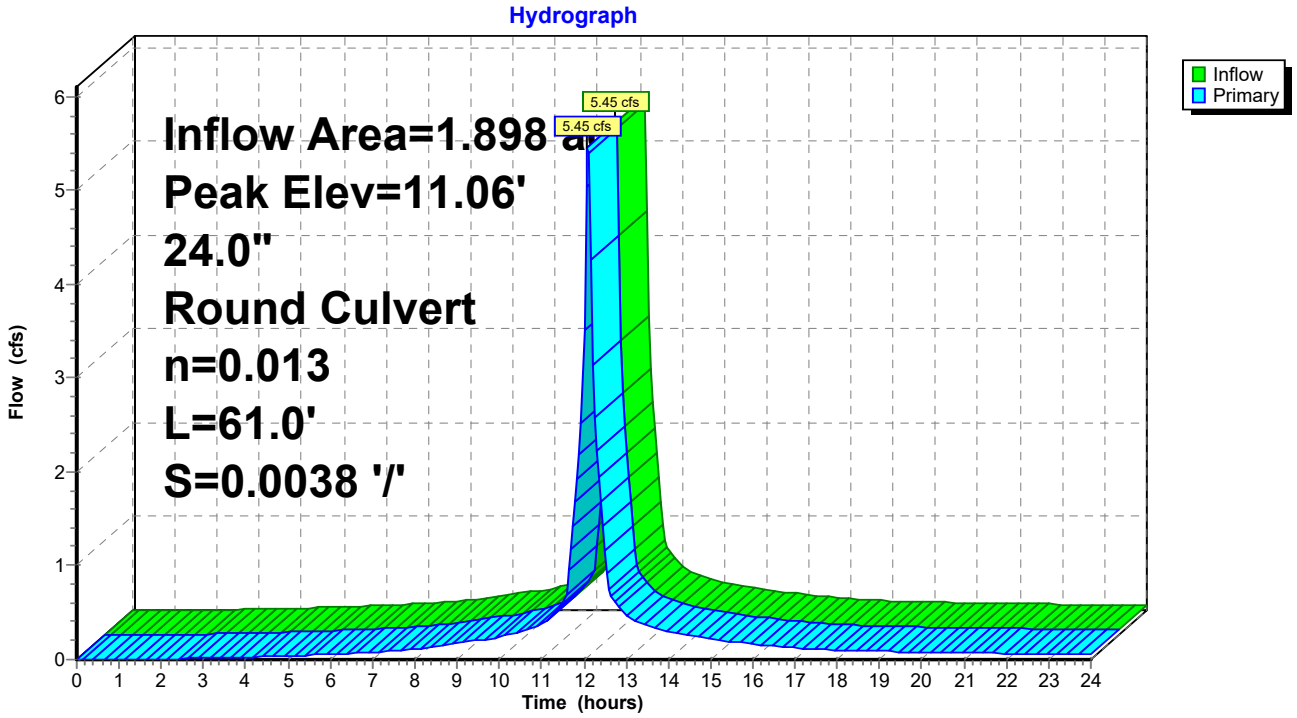
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 2.74" for 2-Year Storm event
Inflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Outflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.06' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.31 cfs @ 12.09 hrs HW=11.04' (Free Discharge)
1=Culvert (Barrel Controls 5.31 cfs @ 3.61 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

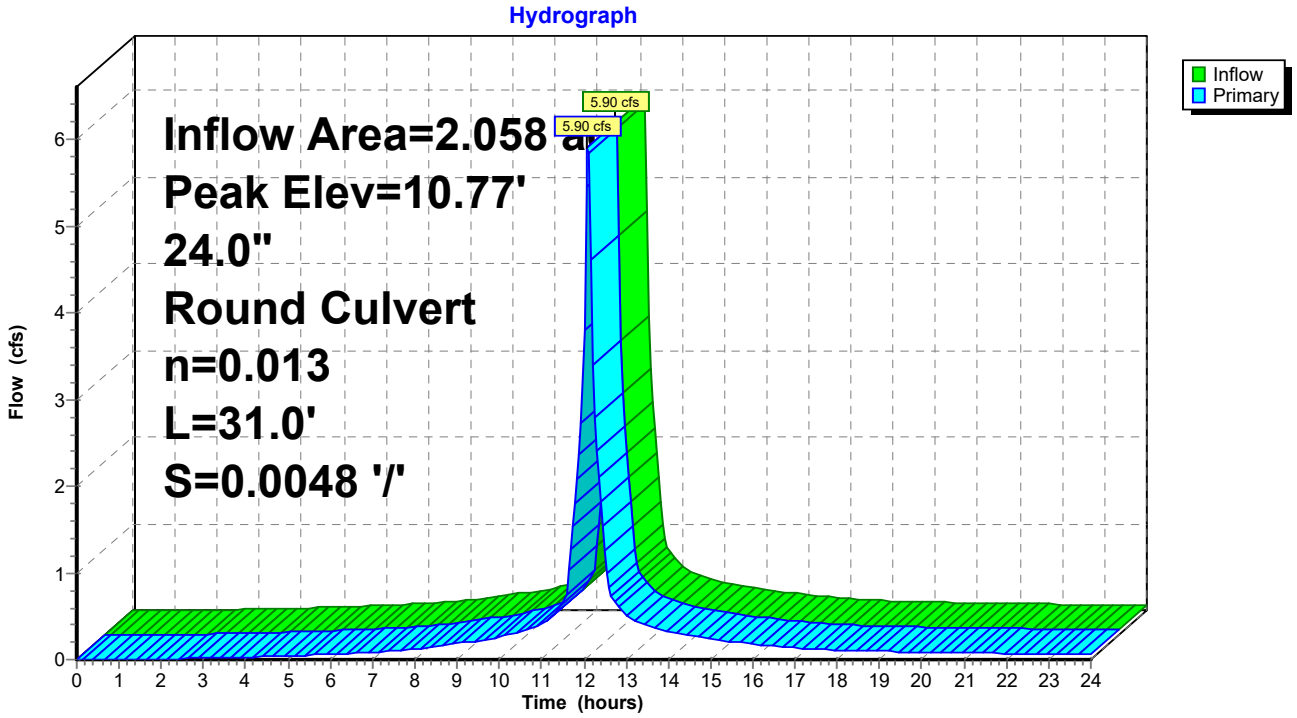
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.77' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=10.75' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 3.96 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

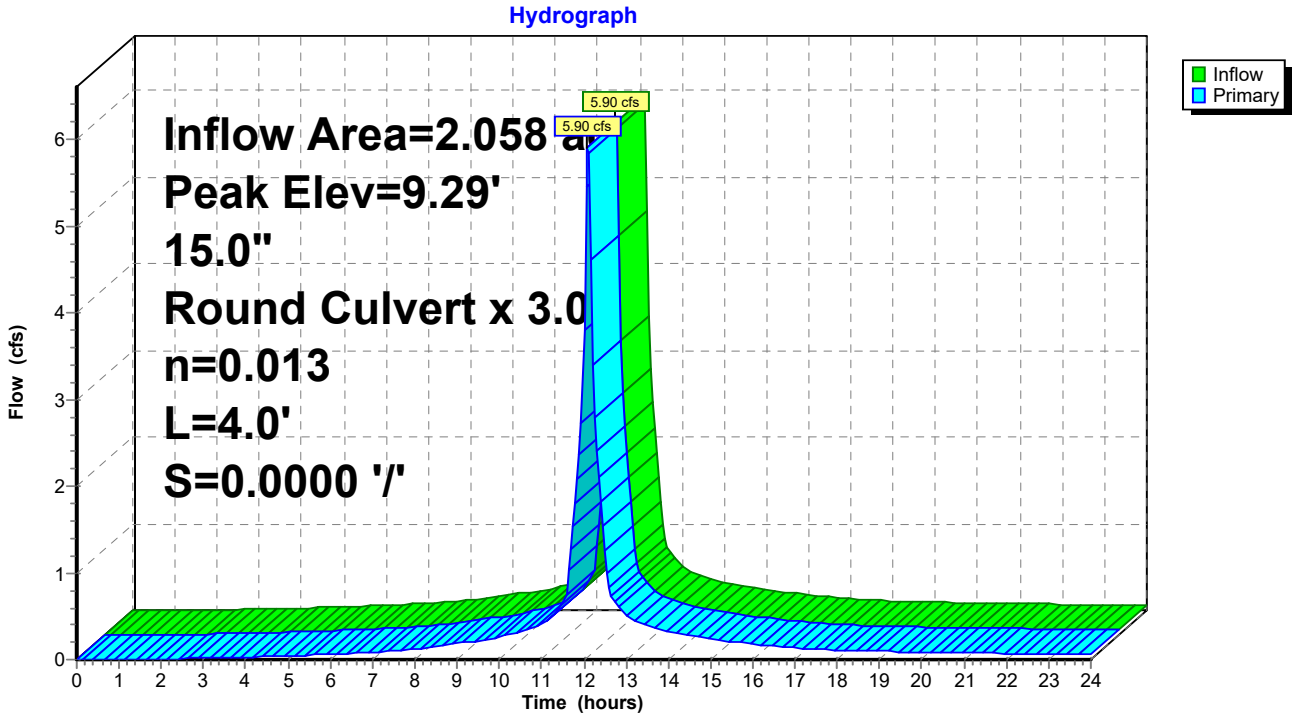
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.29' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=9.27' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 2.74 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 10%, Lag= 2.4 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.32' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 1,608 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 24.2 min calculated for 0.461 af (99% of inflow)
Center-of-Mass det. time= 14.9 min (781.5 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

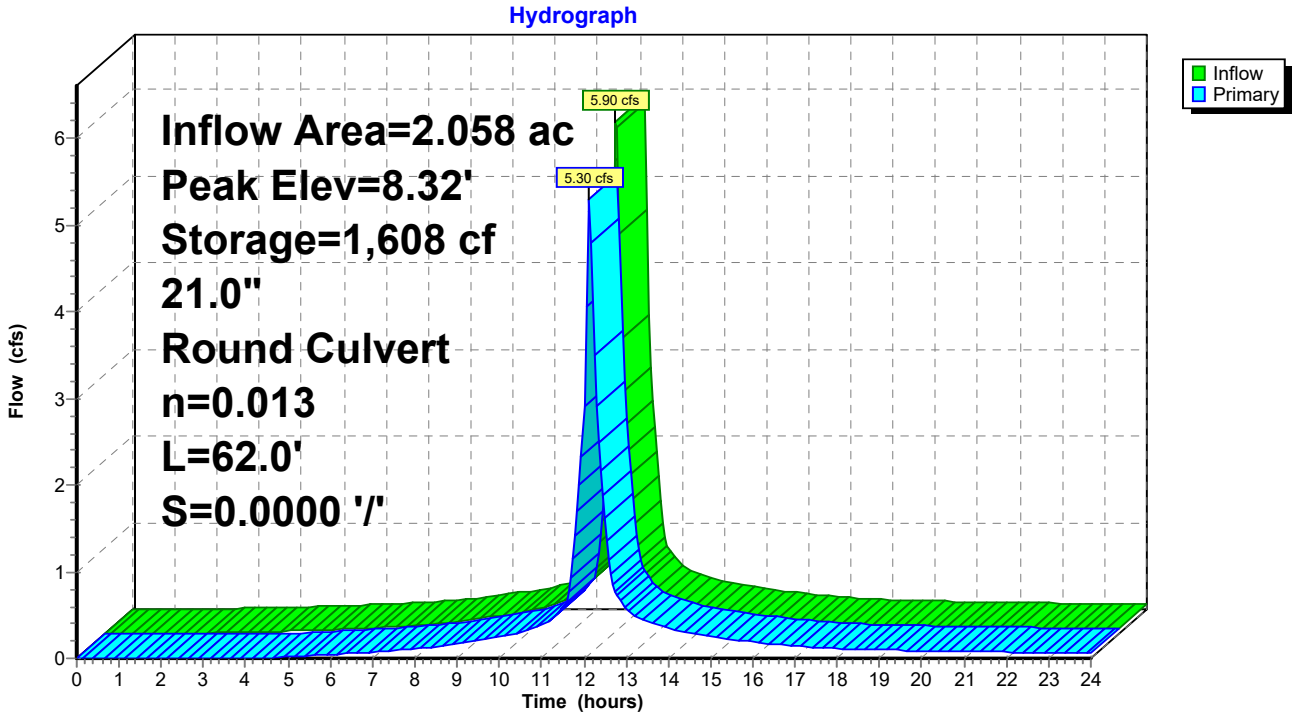
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.30' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 5.19 cfs @ 3.06 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

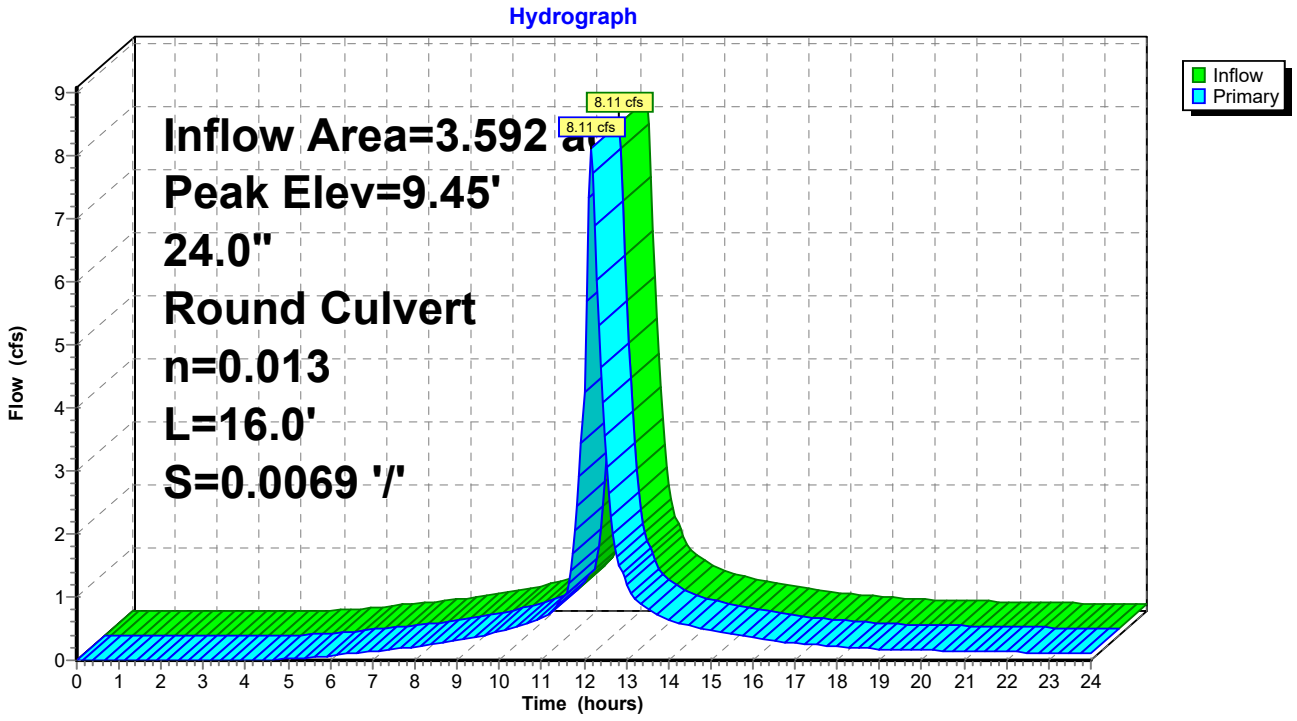
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 12P : Jellyfish 2 JFPD0808-10-3

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.45' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.44' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 4.01 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

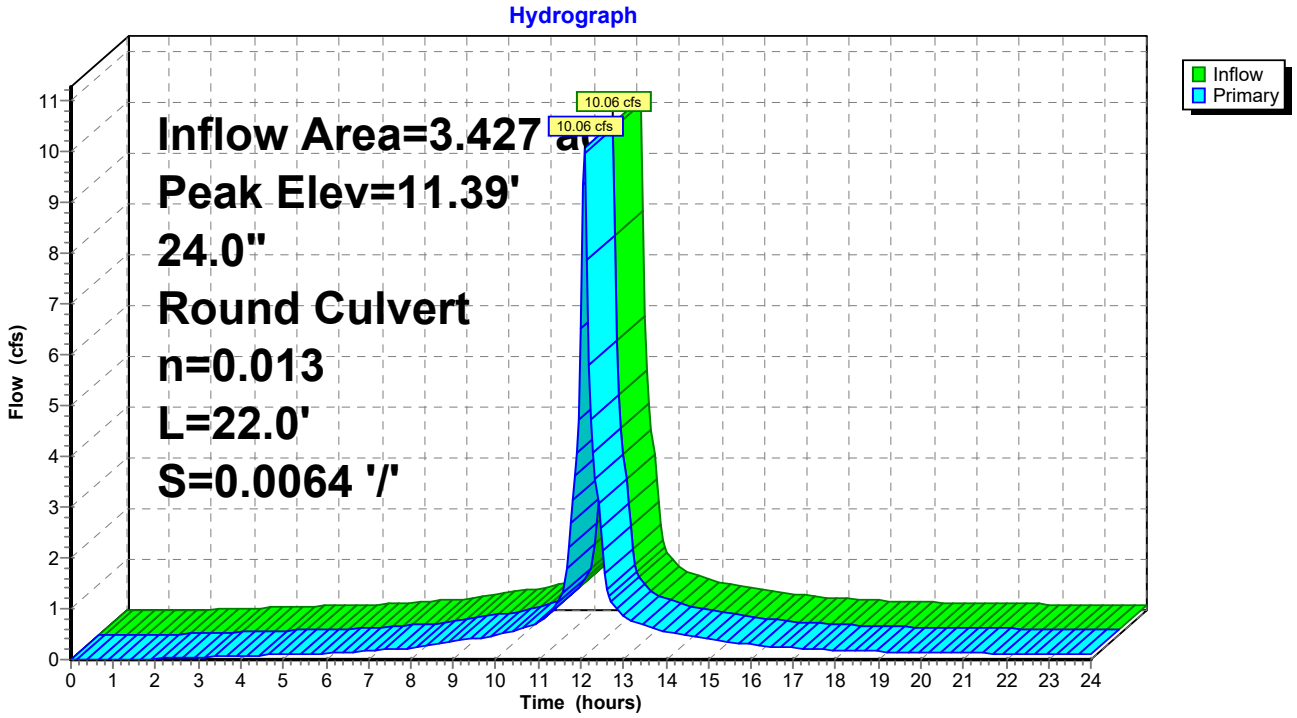
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.39' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=11.36' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 4.26 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

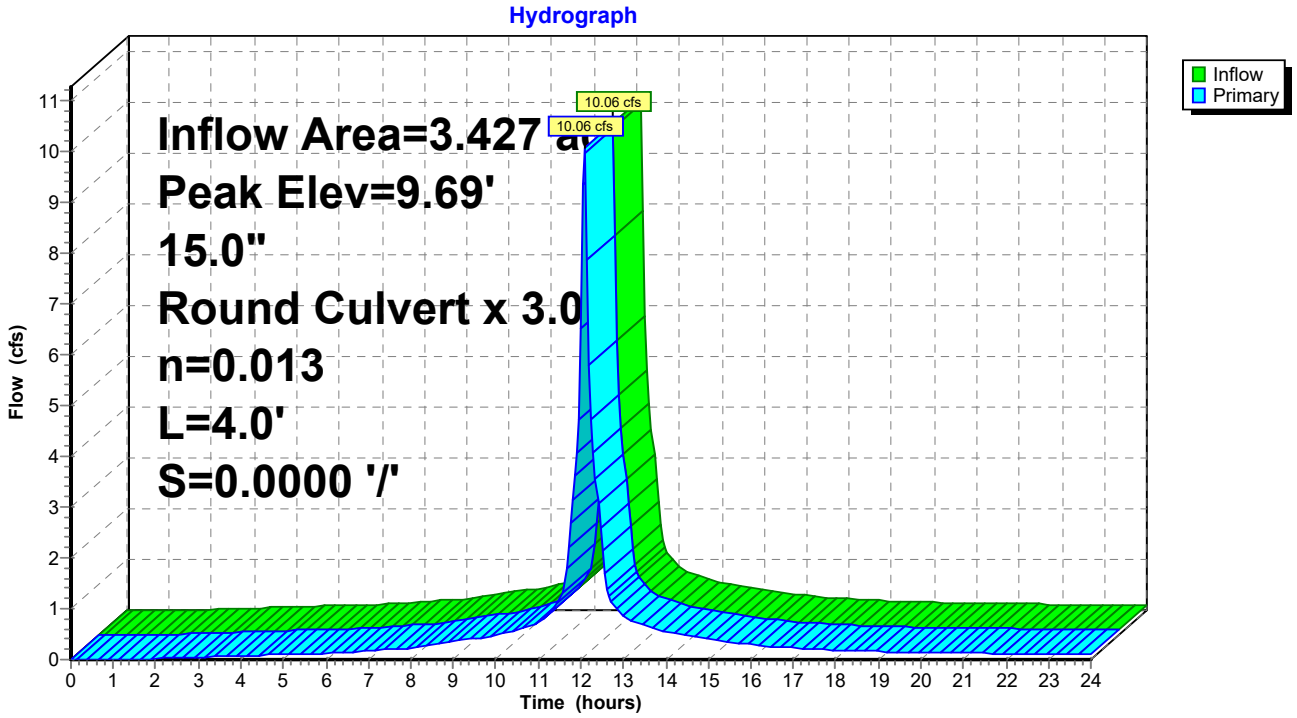
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.69' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=9.67' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 3.23 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.55 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 23%, Lag= 4.3 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.70' @ 12.16 hrs Surf.Area= 3,128 sf Storage= 5,443 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 44.5 min calculated for 0.835 af (97% of inflow)
Center-of-Mass det. time= 28.2 min (784.9 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

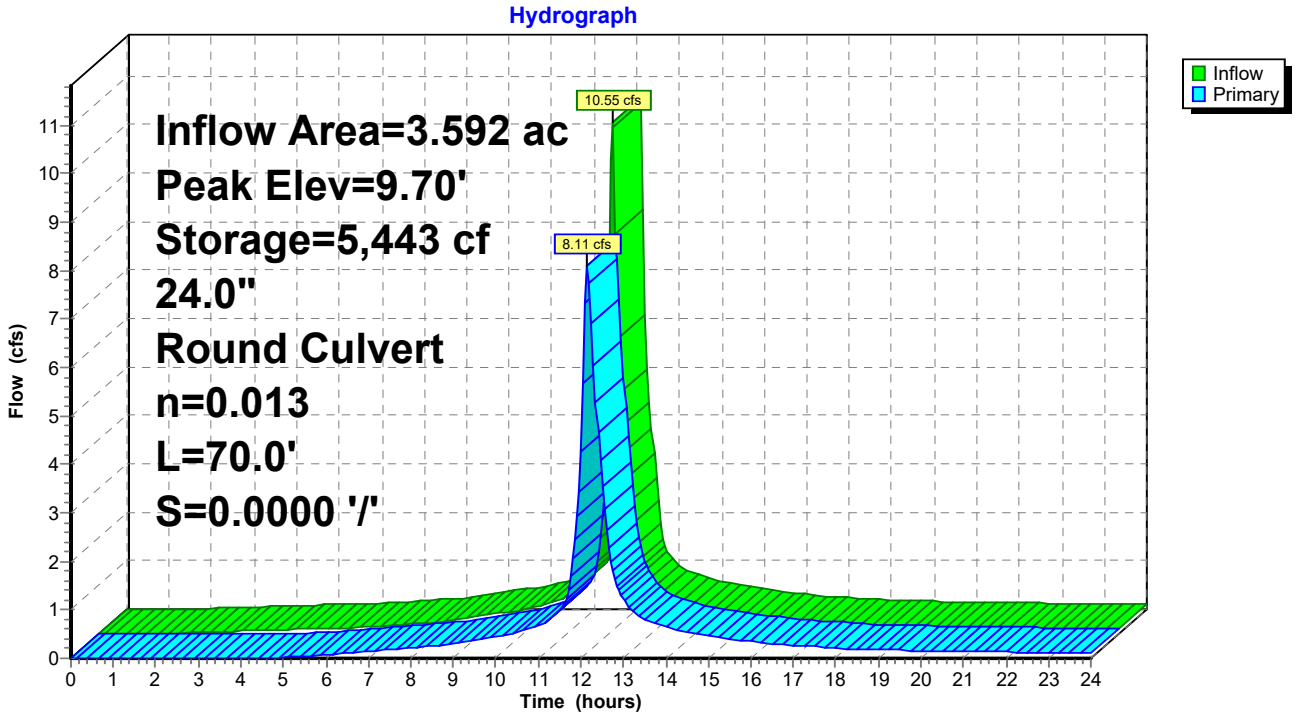
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.69' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 3.41 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

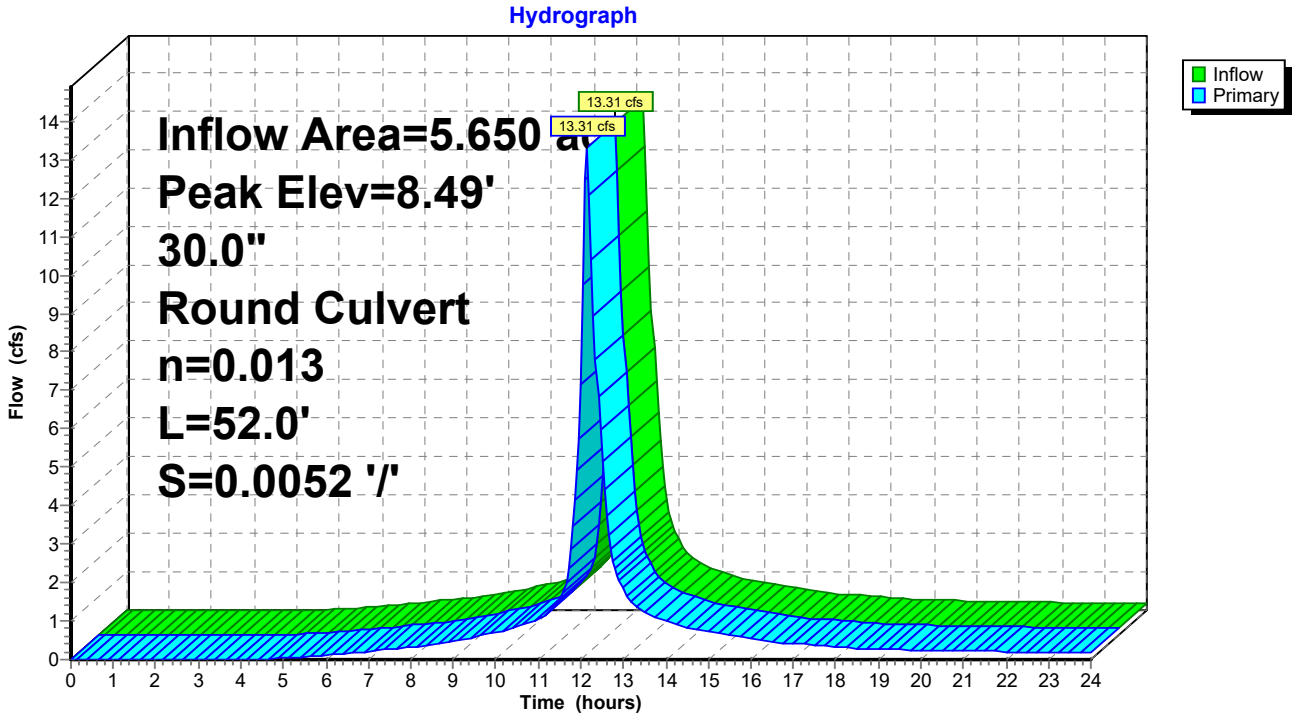
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 2.75" for 2-Year Storm event
Inflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Outflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af, Atten= 0%, Lag= 0.0 min
Primary = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.49' @ 12.15 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=13.22 cfs @ 12.15 hrs HW=8.48' (Free Discharge)
1=Culvert (Barrel Controls 13.22 cfs @ 4.54 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

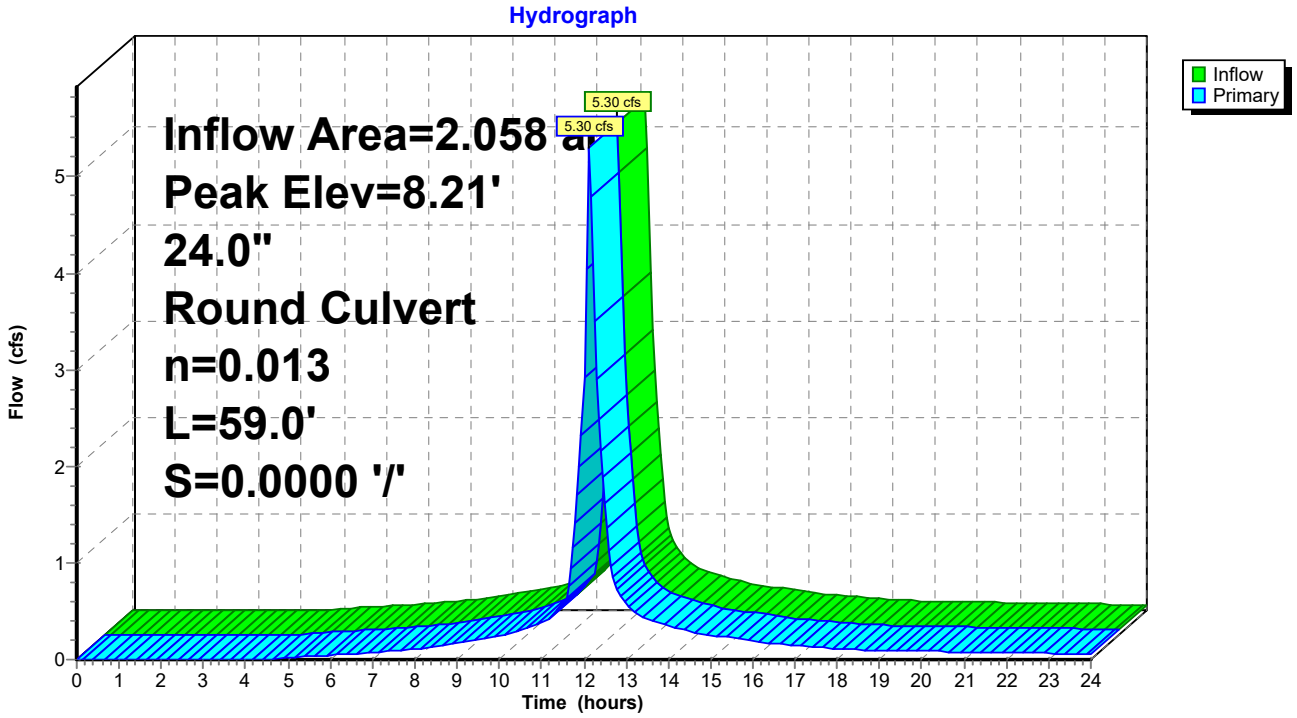
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.21' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.19' (Free Discharge)
1=Culvert (Barrel Controls 5.19 cfs @ 2.99 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

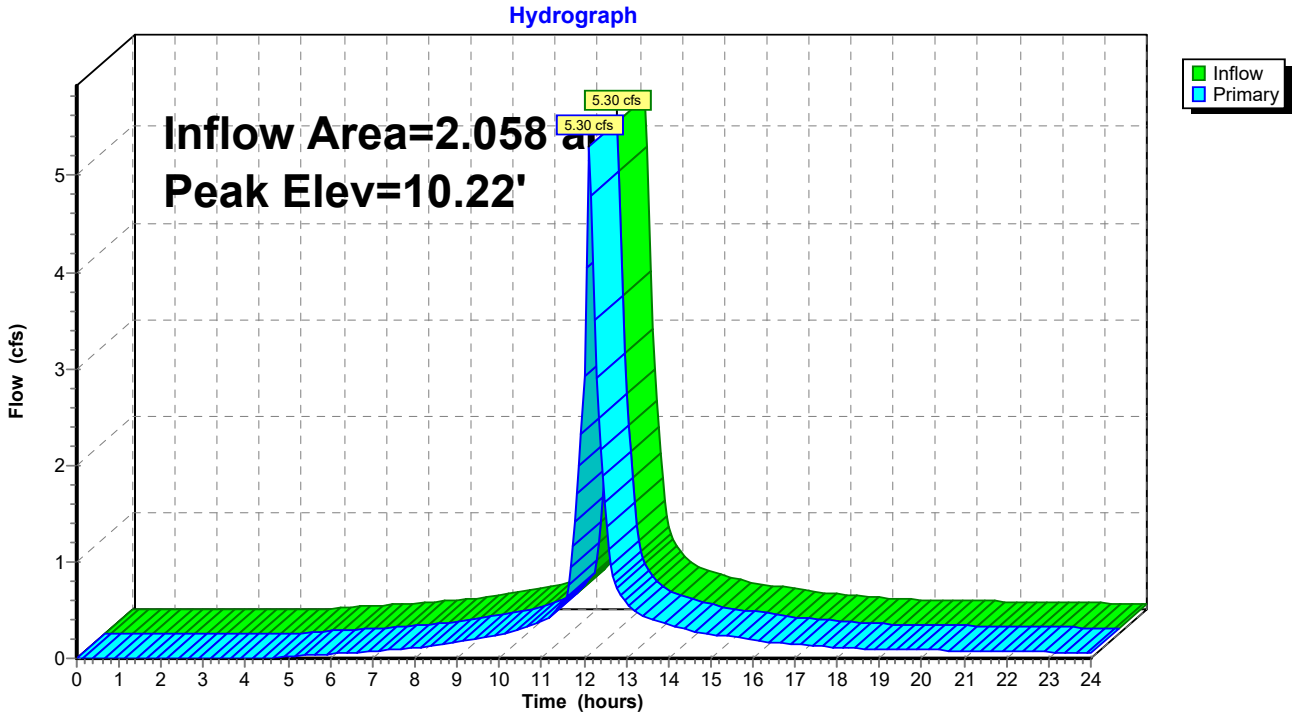
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.22' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=5.18 cfs @ 12.13 hrs HW=10.21' (Free Discharge)
└**1=Filter Culvert Out** (Passes 5.18 cfs of 18.75 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.29 cfs @ 2.45 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0808-10-3

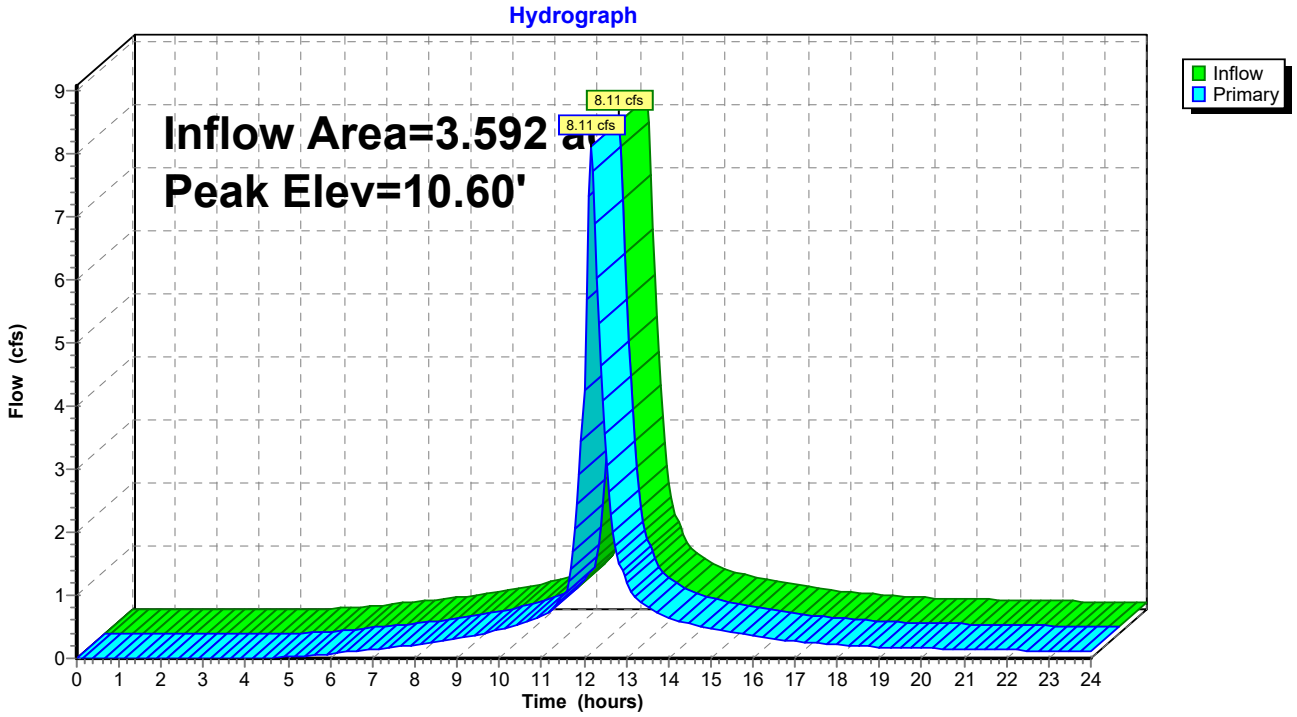
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.60' @ 12.16 hrs
Flood Elev= 11.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.015 0.030 0.045 0.059 0.074 0.089 0.253 0.416 0.579 0.743 0.906 1.069 1.233 1.396 1.560 1.723 1.886 2.050
#3	Device 1	9.84'	**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=8.02 cfs @ 12.16 hrs HW=10.59' (Free Discharge)
└**1=Filter Culvert Out** (Passes 8.02 cfs of 16.40 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 2.05 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 5.97 cfs @ 2.82 fps)

Pond 12P: Jellyfish 2 JFPD0808-10-3



Summary for Pond 13P: DMH-13 (Outfall #2)

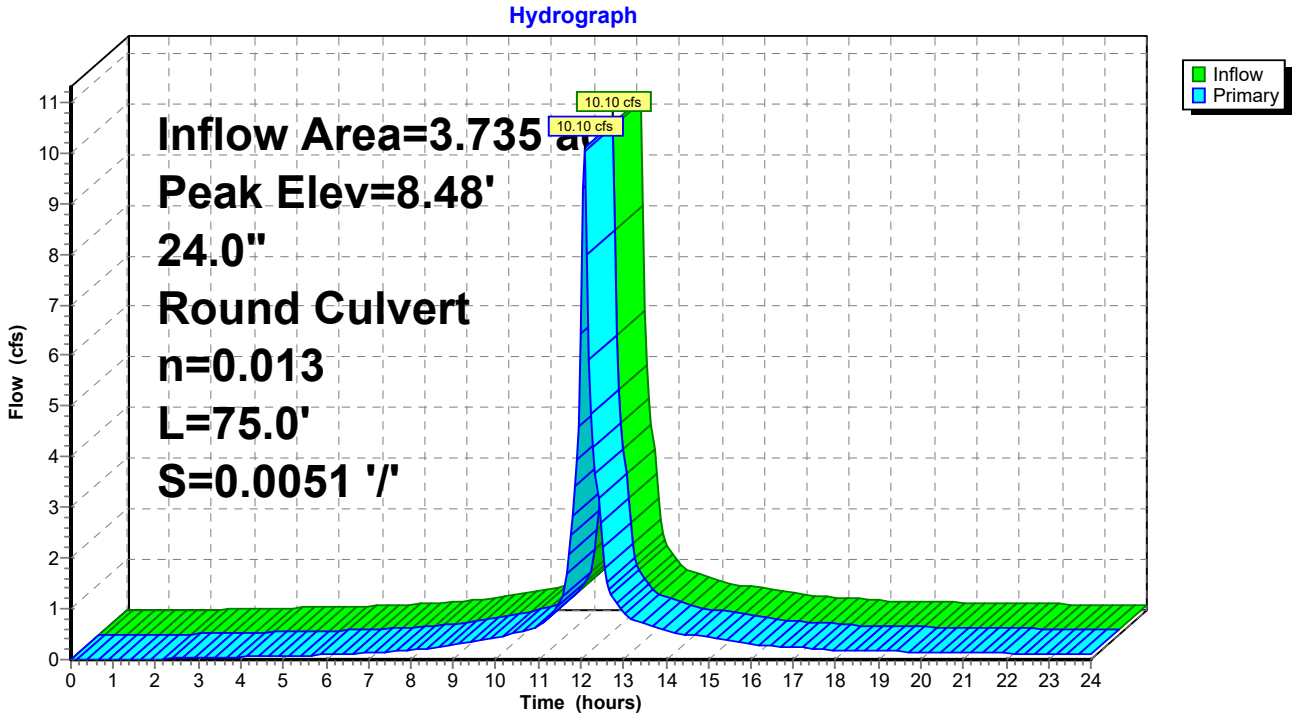
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 2.58" for 2-Year Storm event
Inflow = 10.10 cfs @ 12.09 hrs, Volume= 0.802 af
Outflow = 10.10 cfs @ 12.09 hrs, Volume= 0.802 af, Atten= 0%, Lag= 0.0 min
Primary = 10.10 cfs @ 12.09 hrs, Volume= 0.802 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.84 cfs @ 12.09 hrs HW=8.45' (Free Discharge)
1=Culvert (Barrel Controls 9.84 cfs @ 4.46 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 1%, Lag= 0.1 min
Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.68' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

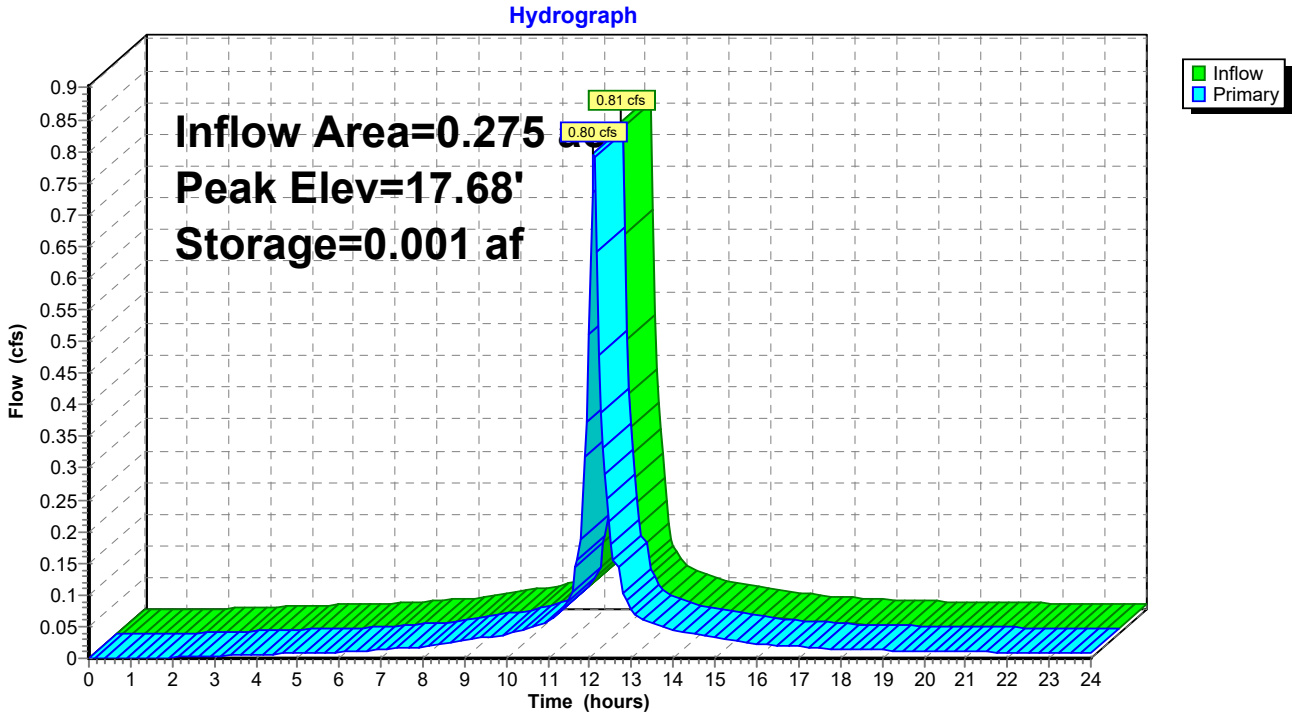
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (757.5 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=17.68' (Free Discharge)
└**3=Culvert** (Passes 0.78 cfs of 6.19 cfs potential flow)
  ├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 1.43 fps)

Pond 24P: Filterra 1 6x8



Summary for Pond 27P: AD49

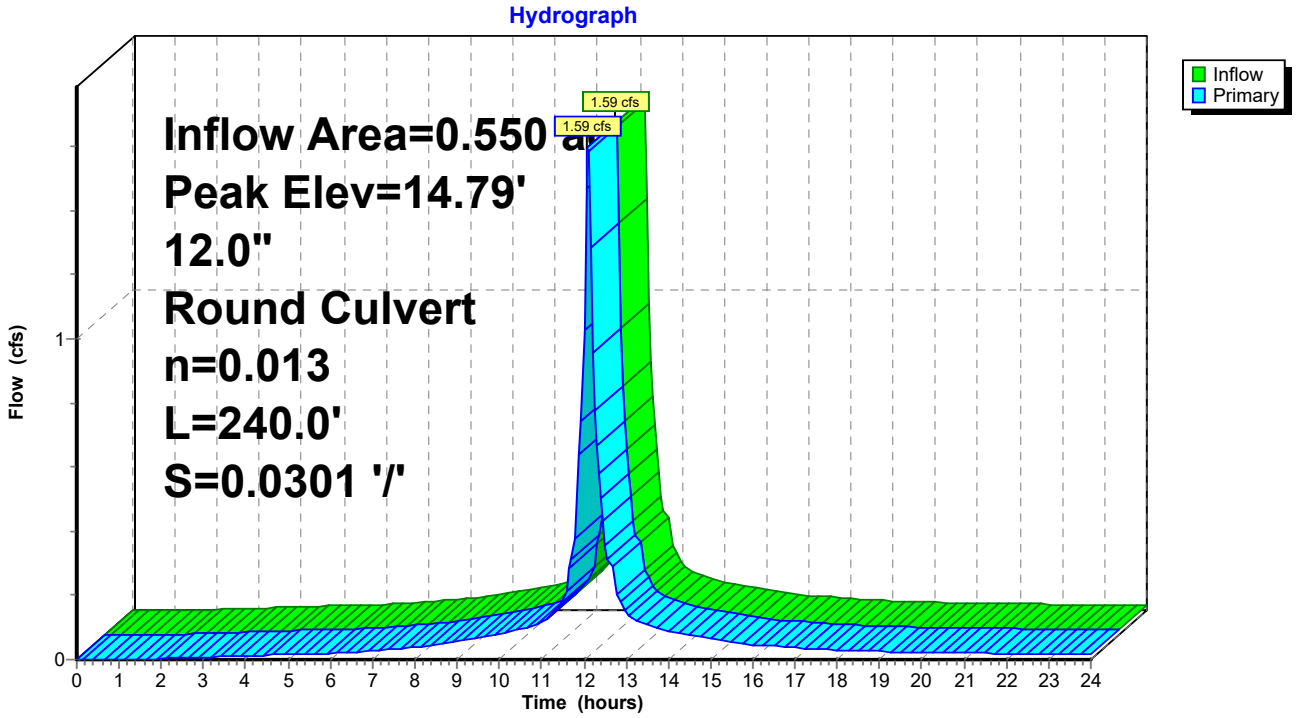
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 2.88" for 2-Year Storm event
Inflow = 1.59 cfs @ 12.09 hrs, Volume= 0.132 af
Outflow = 1.59 cfs @ 12.09 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 1.59 cfs @ 12.09 hrs, Volume= 0.132 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.79' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=14.78' (Free Discharge)
1=Culvert (Inlet Controls 1.56 cfs @ 2.37 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 1%, Lag= 0.1 min
Primary = 0.80 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.68' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

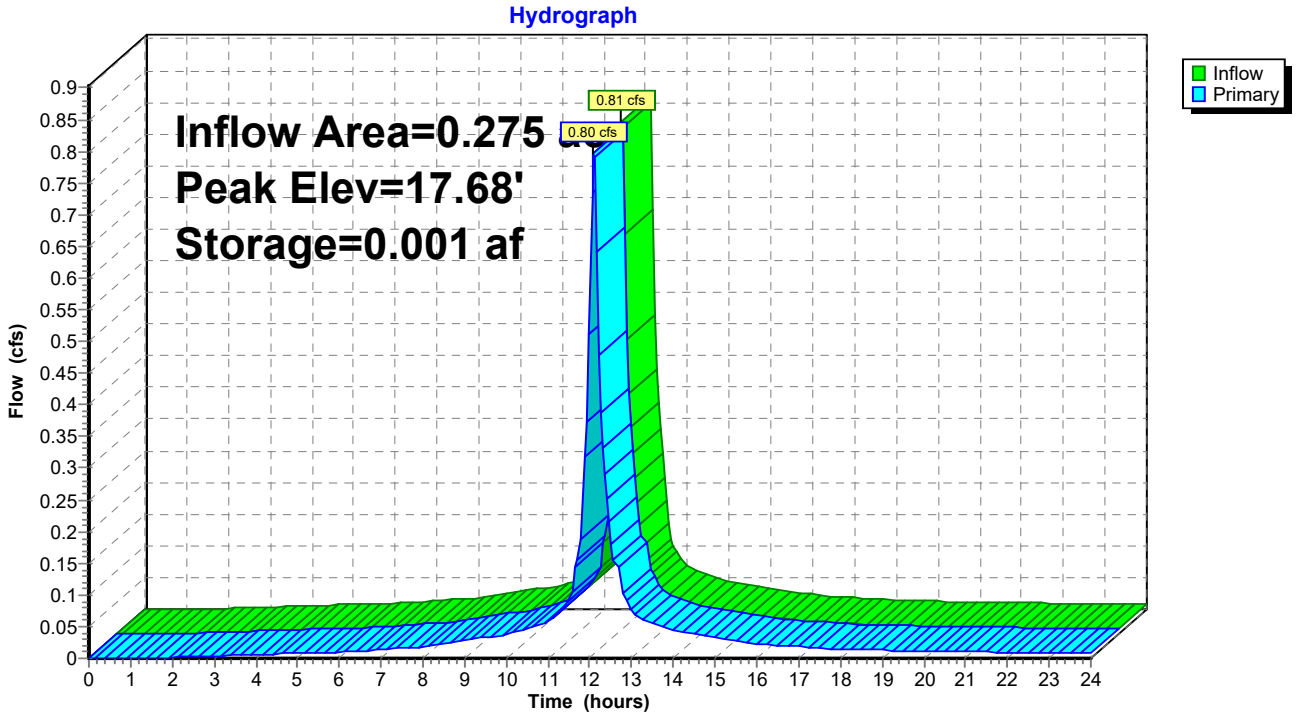
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.8 min (757.5 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.130, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=17.68' (Free Discharge)
└**3=Culvert** (Passes 0.78 cfs of 2.50 cfs potential flow)
├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 1.43 fps)

Pond 28P: Filterra 1 6x8

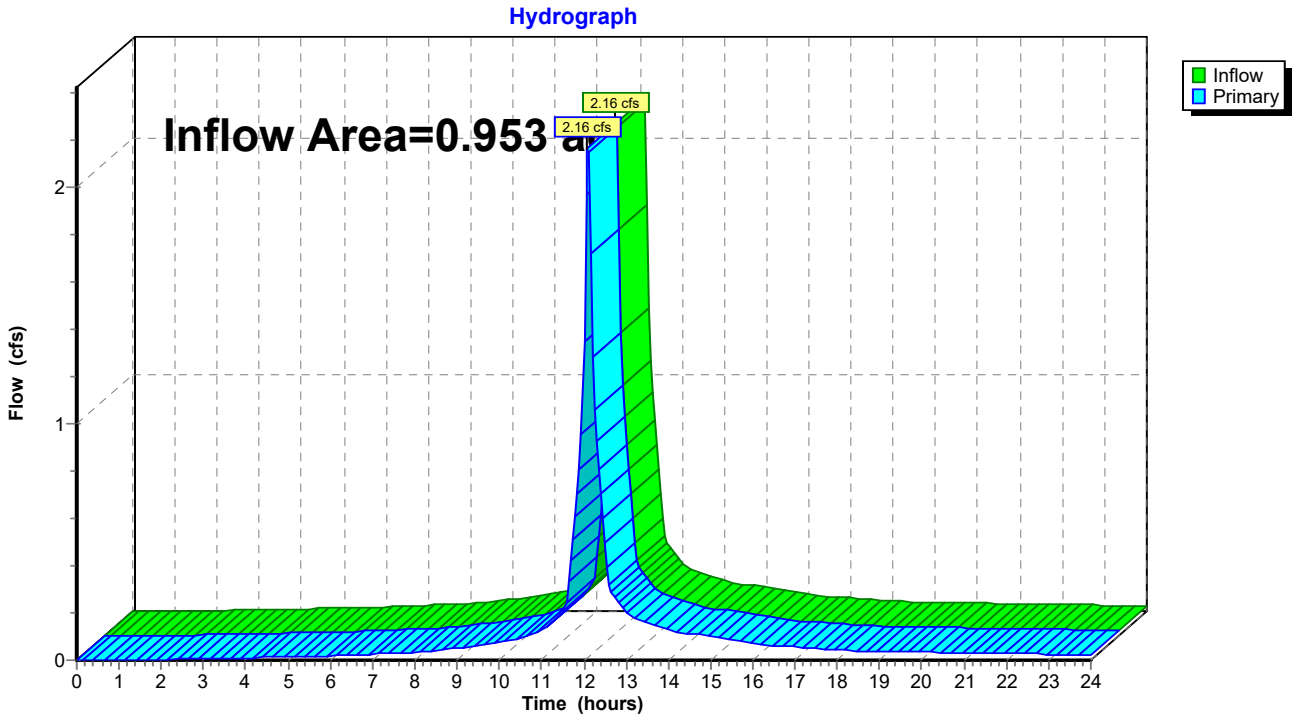


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 2.15" for 2-Year Storm event
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af
Primary = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

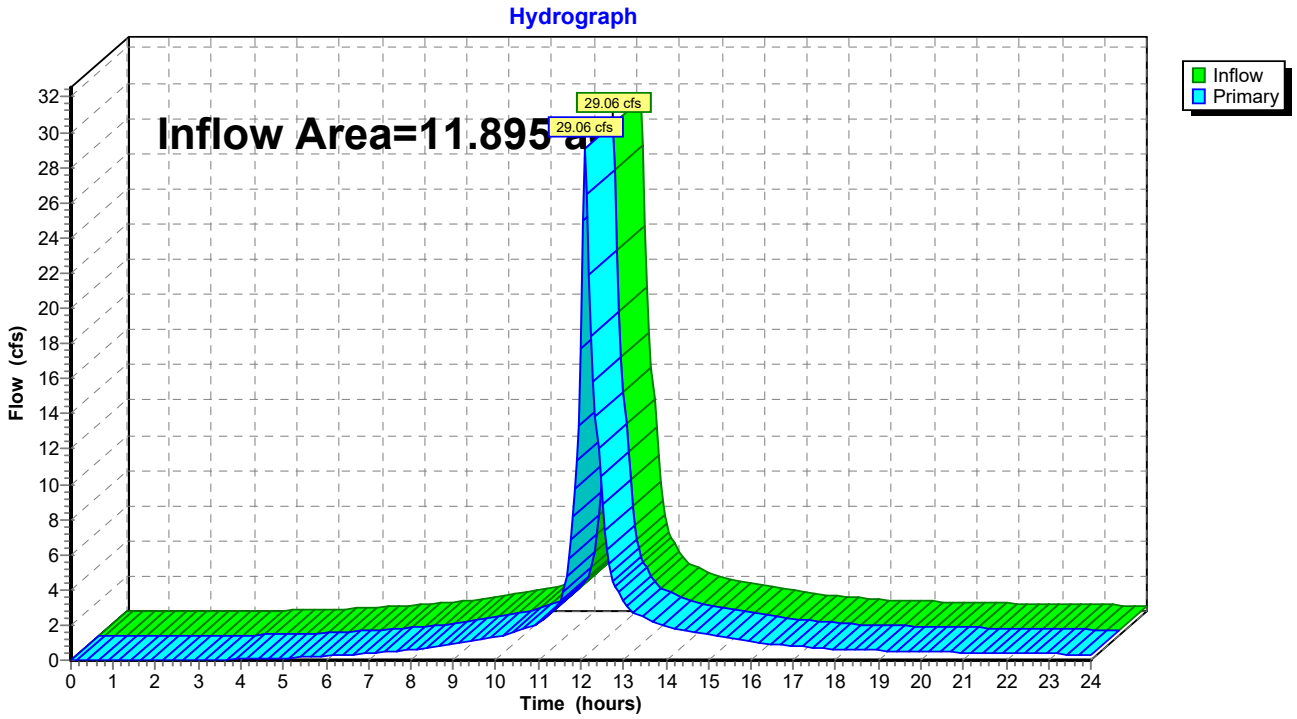


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 2.61" for 2-Year Storm event
Inflow = 29.06 cfs @ 12.11 hrs, Volume= 2.590 af
Primary = 29.06 cfs @ 12.11 hrs, Volume= 2.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

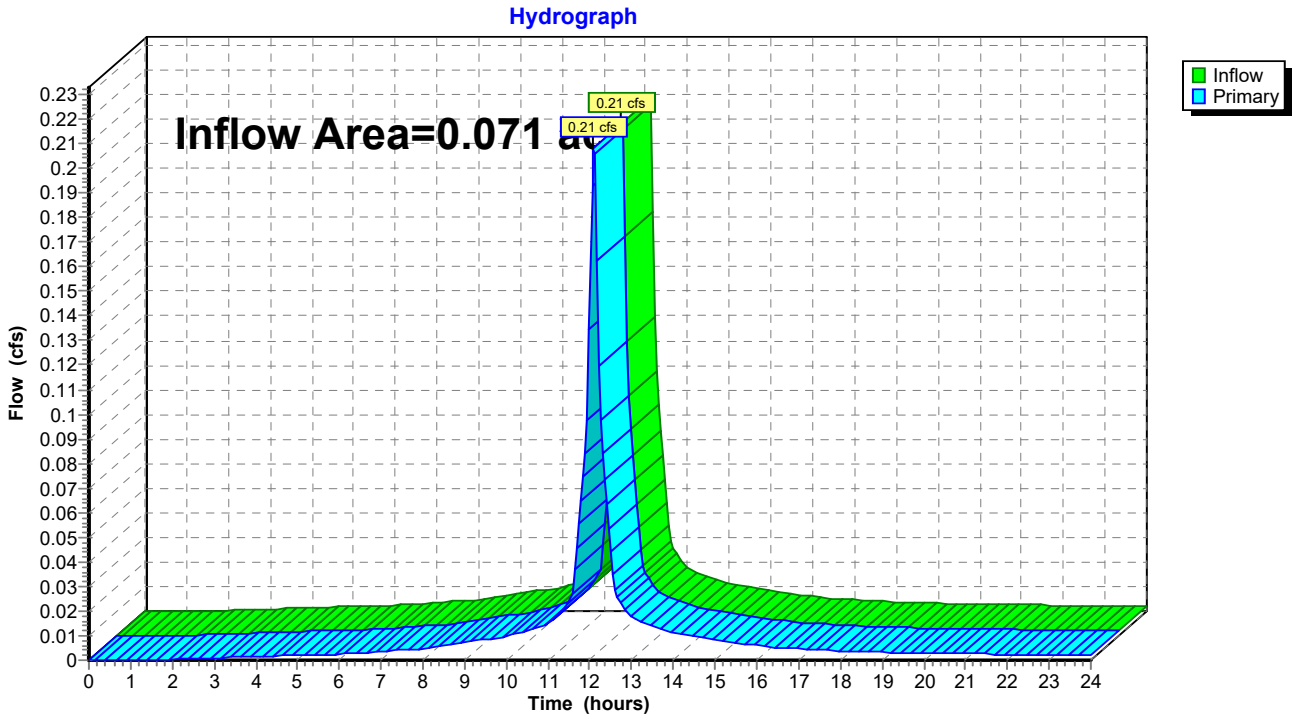


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=80 Runoff=1.30 cfs 0.094 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>4.02"
Tc=6.0 min CN=95 Runoff=2.58 cfs 0.203 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>4.25"
Tc=6.0 min CN=97 Runoff=1.88 cfs 0.152 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.019 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.028 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.036 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=94 Runoff=0.35 cfs 0.027 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.88 cfs 0.073 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.90 cfs 0.240 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=8.73 cfs 0.722 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=4.82 cfs 0.399 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.094 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=3.08 cfs 0.255 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.093 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>3.29"
Tc=6.0 min CN=88 Runoff=4.19 cfs 0.310 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>3.80"
Tc=6.0 min CN=93 Runoff=10.34 cfs 0.795 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Pond 1P: DMH 1 Peak Elev=11.42' Inflow=8.24 cfs 0.669 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=8.24 cfs 0.669 af

Pond 2P: DMH 2 Peak Elev=11.13' Inflow=8.92 cfs 0.723 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=8.92 cfs 0.723 af

Pond 3P: Storm Structure Peak Elev=9.55' Inflow=8.92 cfs 0.723 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=8.92 cfs 0.723 af

Pond 4P: R-Tank 1 Peak Elev=8.81' Storage=2,076 cf Inflow=8.92 cfs 0.723 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 5P: DMH-11 Peak Elev=10.03' Inflow=12.72 cfs 1.280 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=12.72 cfs 1.280 af

Pond 6P: CB27 Peak Elev=12.10' Inflow=15.04 cfs 1.245 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=15.04 cfs 1.245 af

Pond 7P: Storm Structure Peak Elev=10.17' Inflow=15.04 cfs 1.245 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=15.04 cfs 1.245 af

Pond 8P: R-Tank 2 Peak Elev=10.53' Storage=6,896 cf Inflow=15.77 cfs 1.306 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=12.72 cfs 1.280 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.14' Inflow=20.64 cfs 1.996 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=20.64 cfs 1.996 af

Pond 10P: DMH 4 Peak Elev=8.59' Inflow=8.00 cfs 0.716 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.43' Inflow=8.00 cfs 0.716 af
Outflow=8.00 cfs 0.716 af

Pond 12P: Jellyfish 2 JFPD0808-10-3 Peak Elev=10.94' Inflow=12.72 cfs 1.280 af
Outflow=12.72 cfs 1.280 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=9.38' Inflow=15.60 cfs 1.256 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=15.60 cfs 1.256 af

Pond 24P: Filterra 1 6x8 Peak Elev=17.78' Storage=0.001 af Inflow=1.21 cfs 0.100 af
Outflow=1.20 cfs 0.100 af

Pond 27P: AD49 Peak Elev=15.14' Inflow=2.40 cfs 0.199 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=2.40 cfs 0.199 af

Pond 28P: Filterra 1 6x8 Peak Elev=17.78' Storage=0.001 af Inflow=1.21 cfs 0.100 af
Outflow=1.20 cfs 0.100 af

Link 1L: Freedom Way Inflow=3.53 cfs 0.279 af
Primary=3.53 cfs 0.279 af

Link 2L: Fore River Inflow=45.41 cfs 4.047 af
Primary=45.41 cfs 4.047 af

Link 3L: Fore Street Inflow=0.31 cfs 0.026 af
Primary=0.31 cfs 0.026 af

Total Runoff Area = 12.919 ac Runoff Volume = 4.386 af Average Runoff Depth = 4.07"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

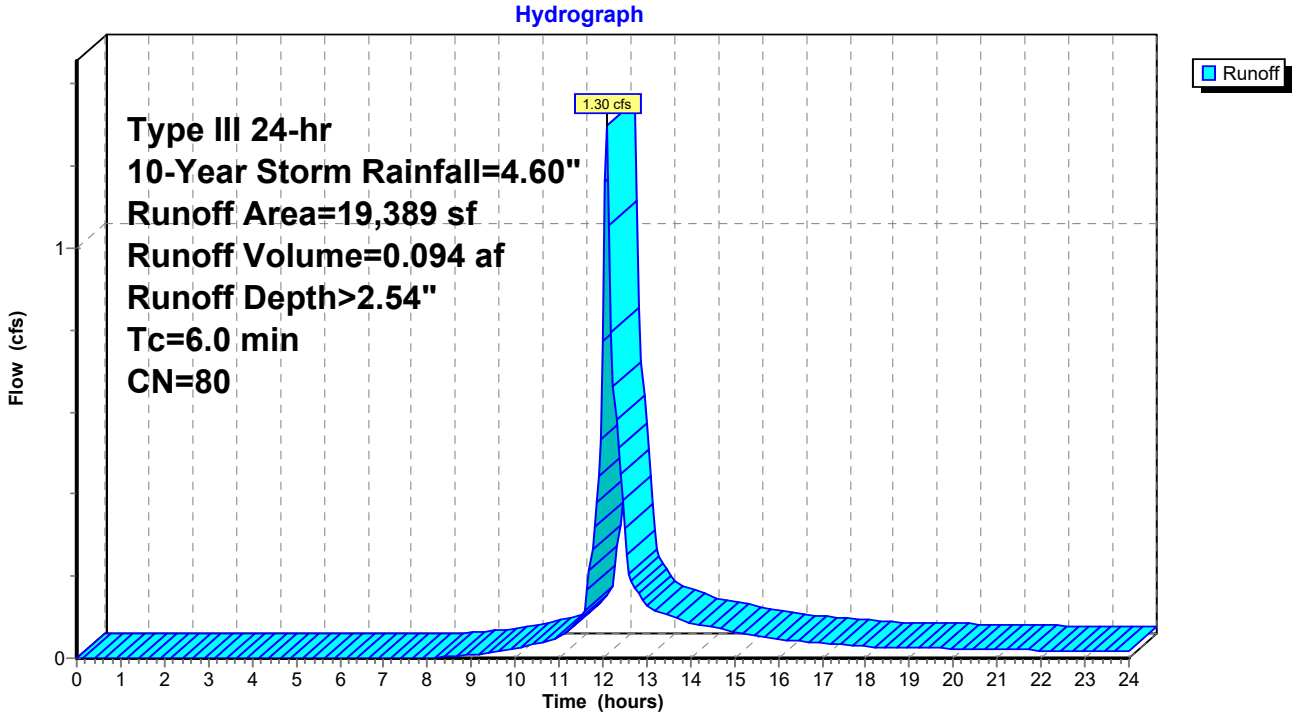
Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 2.54"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

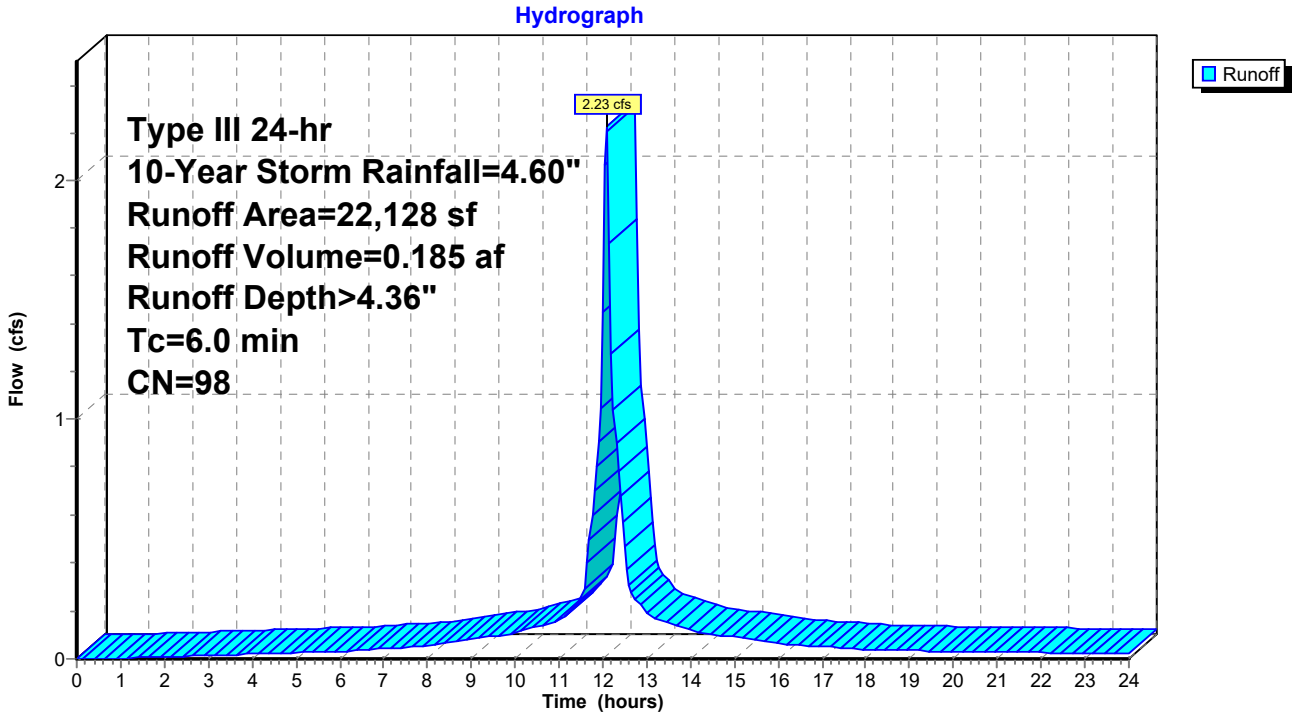
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

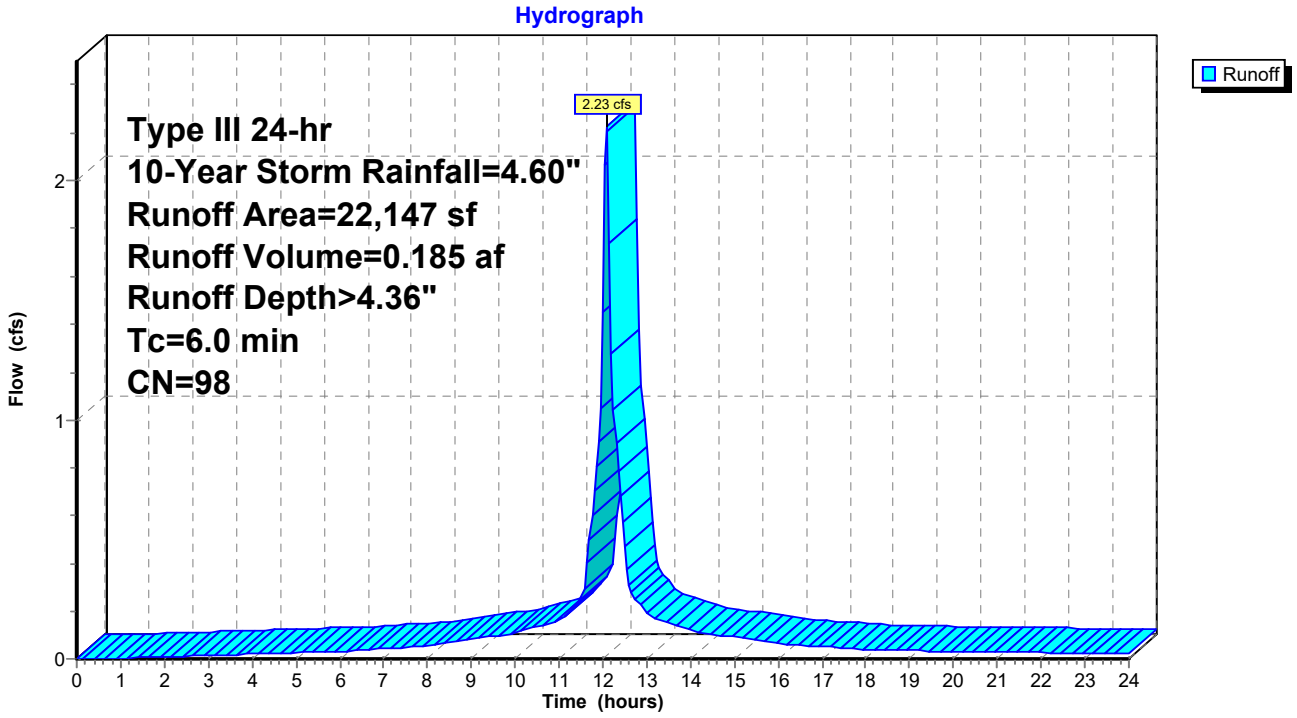
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

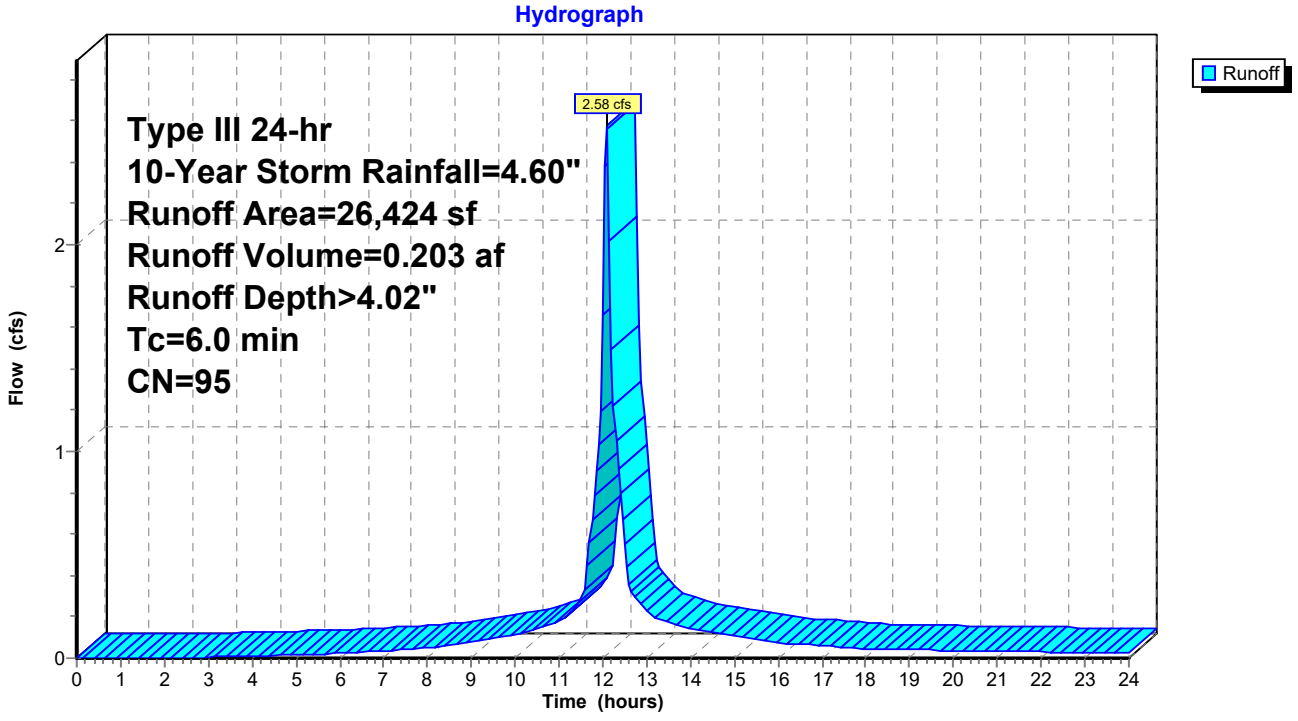
Runoff = 2.58 cfs @ 12.09 hrs, Volume= 0.203 af, Depth> 4.02"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

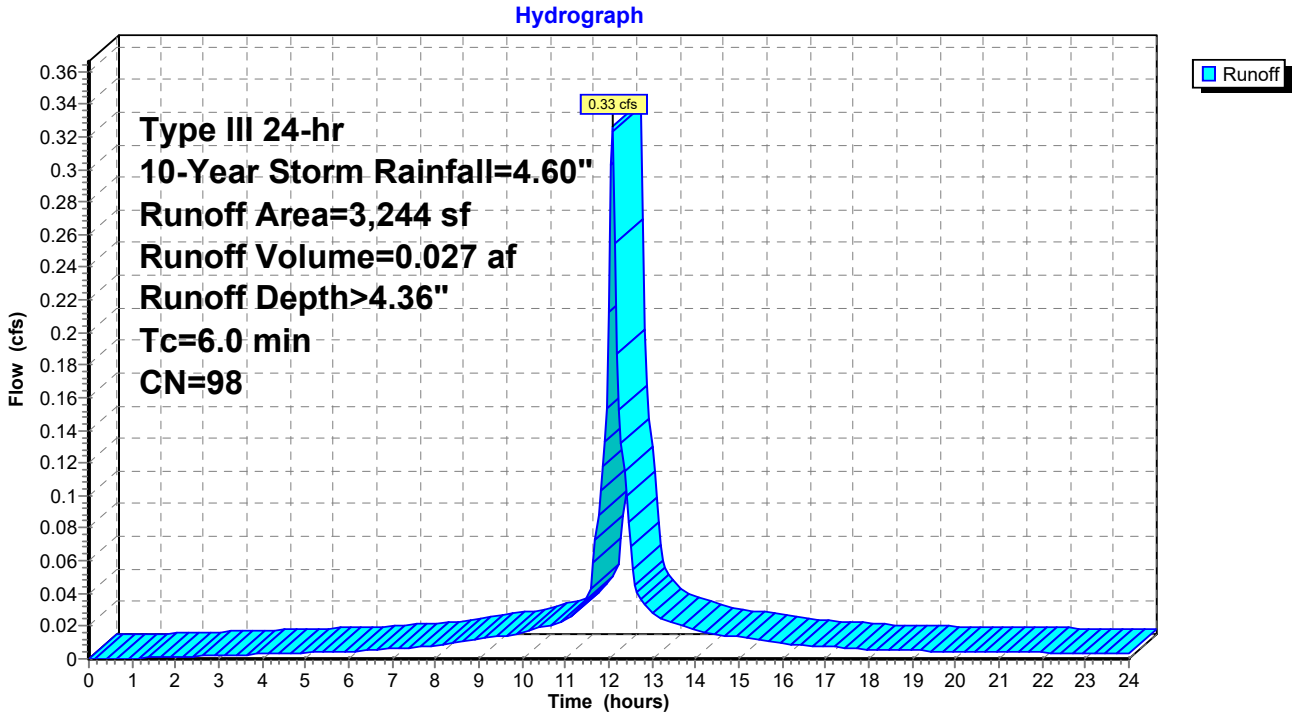
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

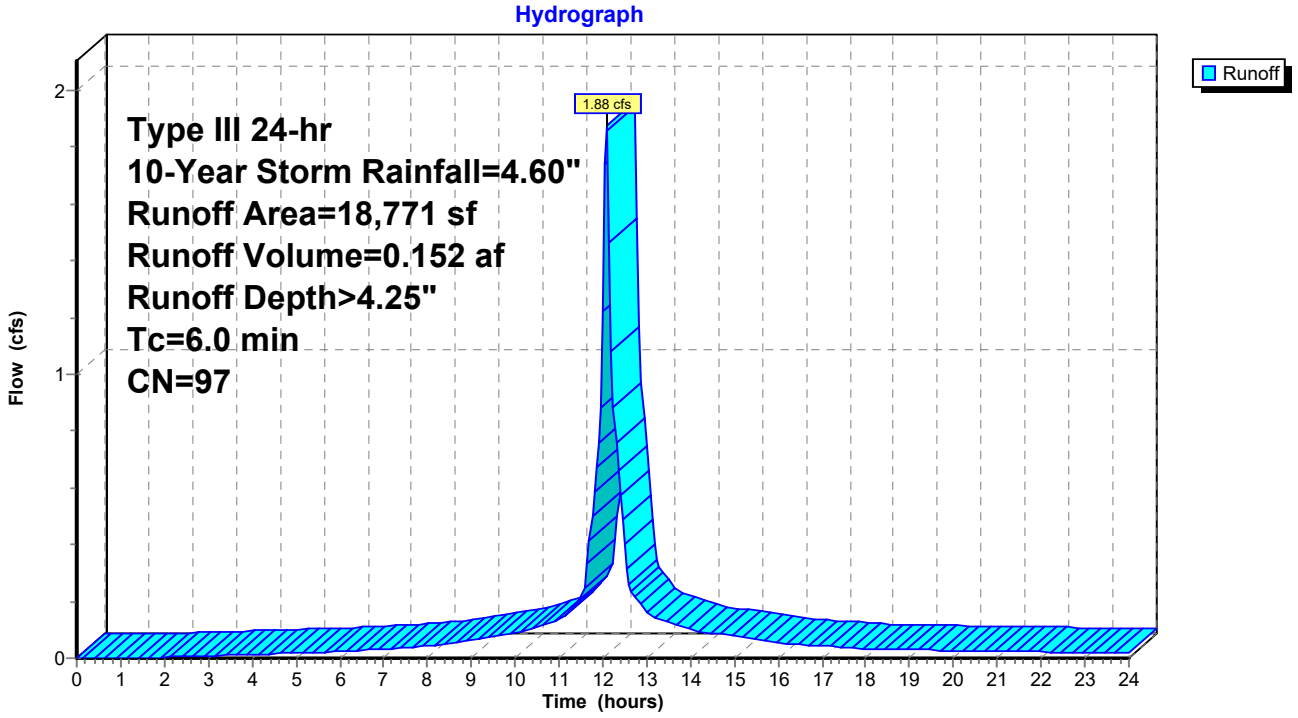
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 4.25"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

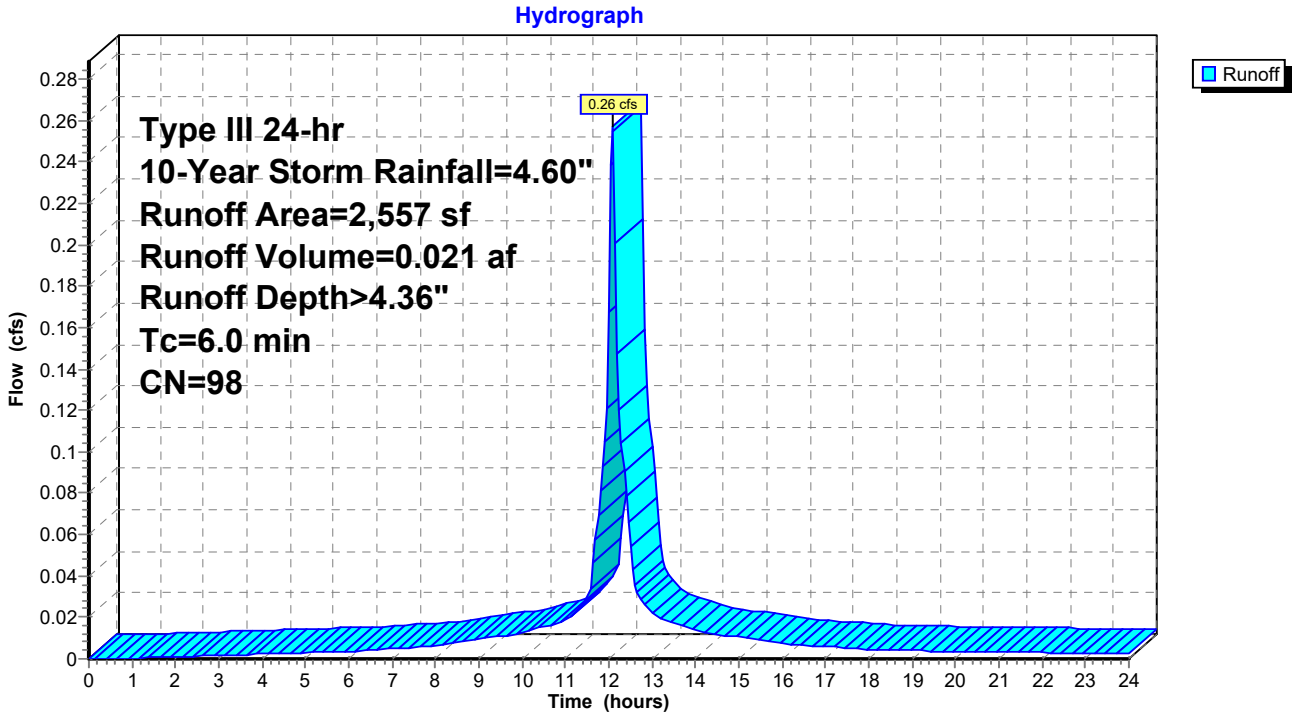
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

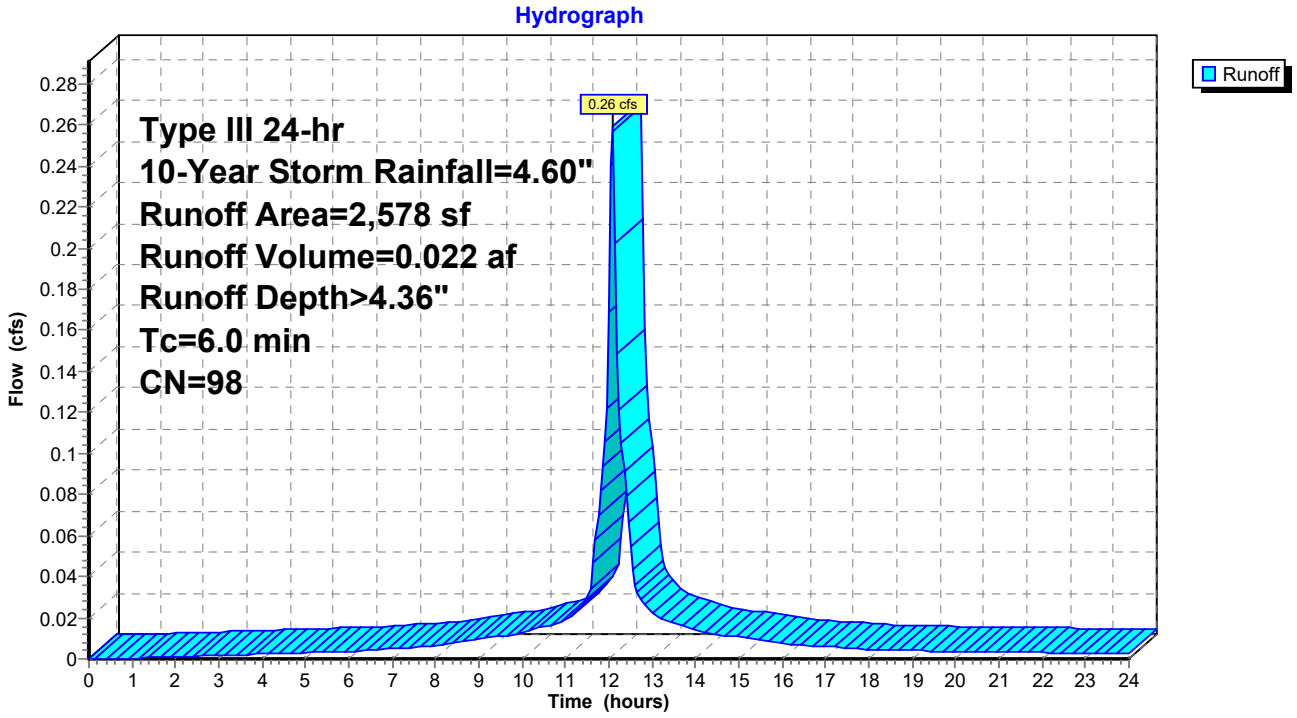
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

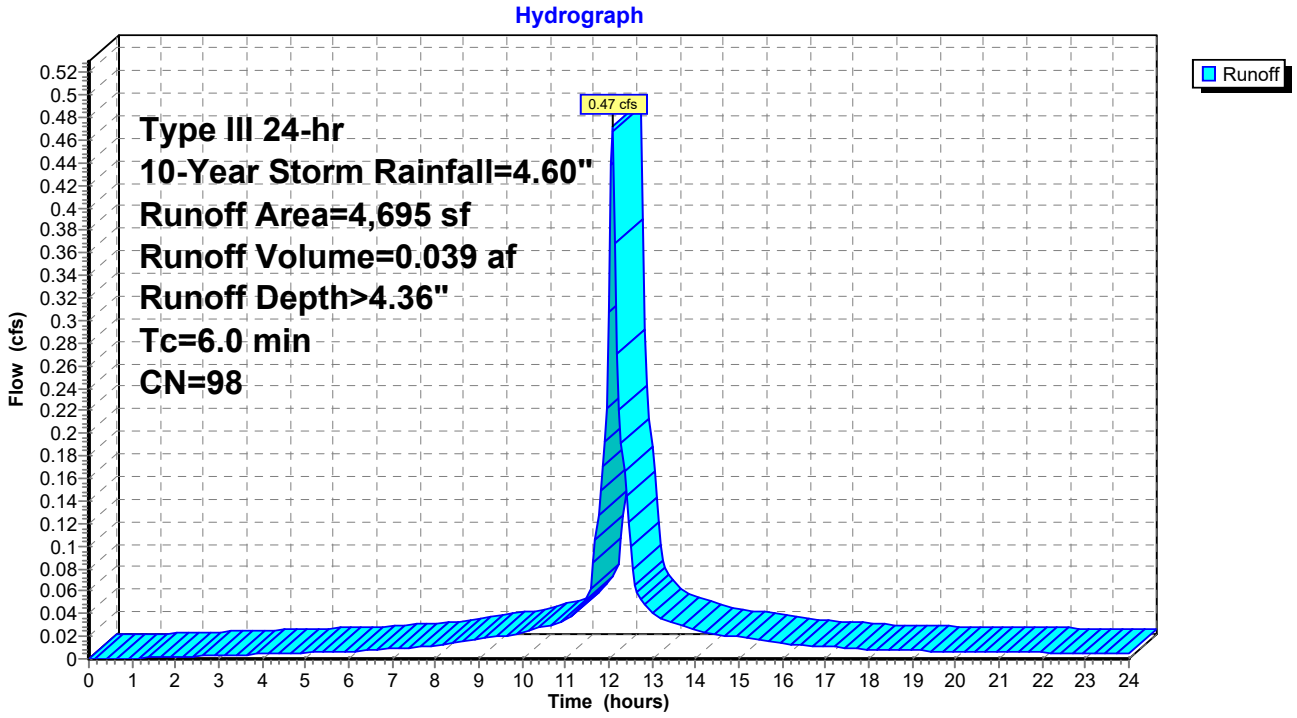
Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

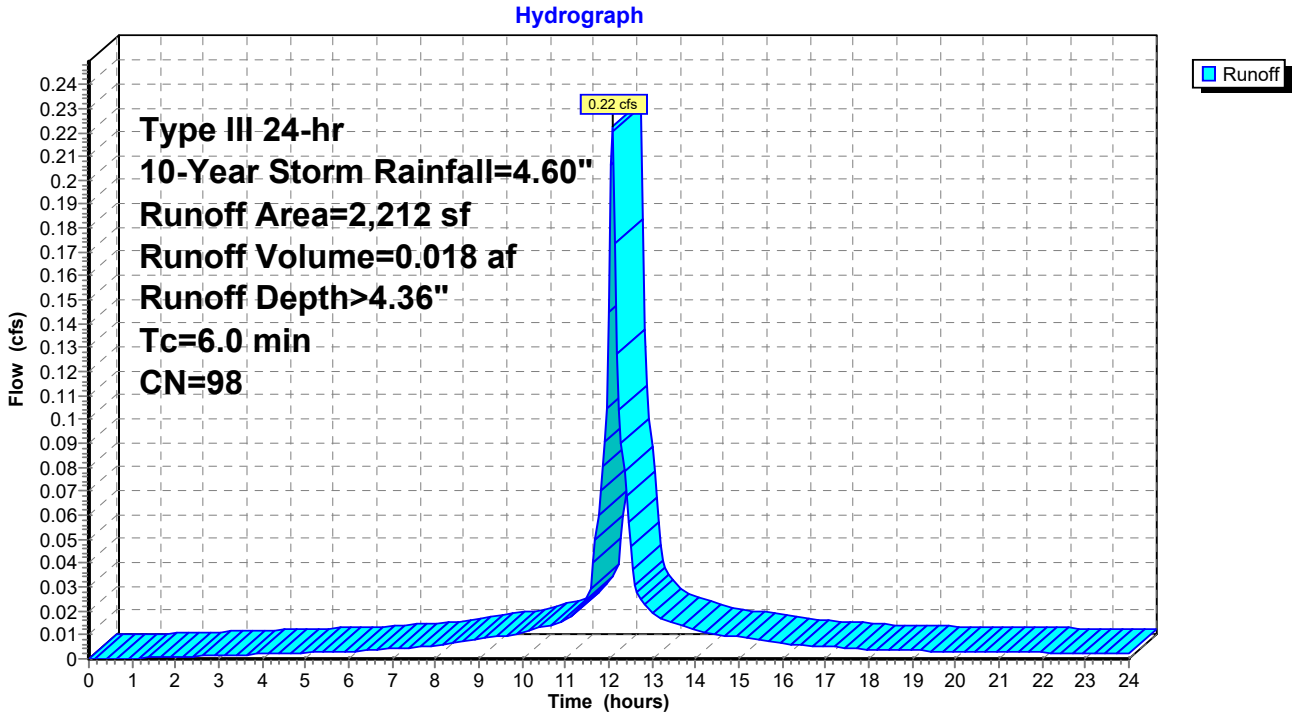
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

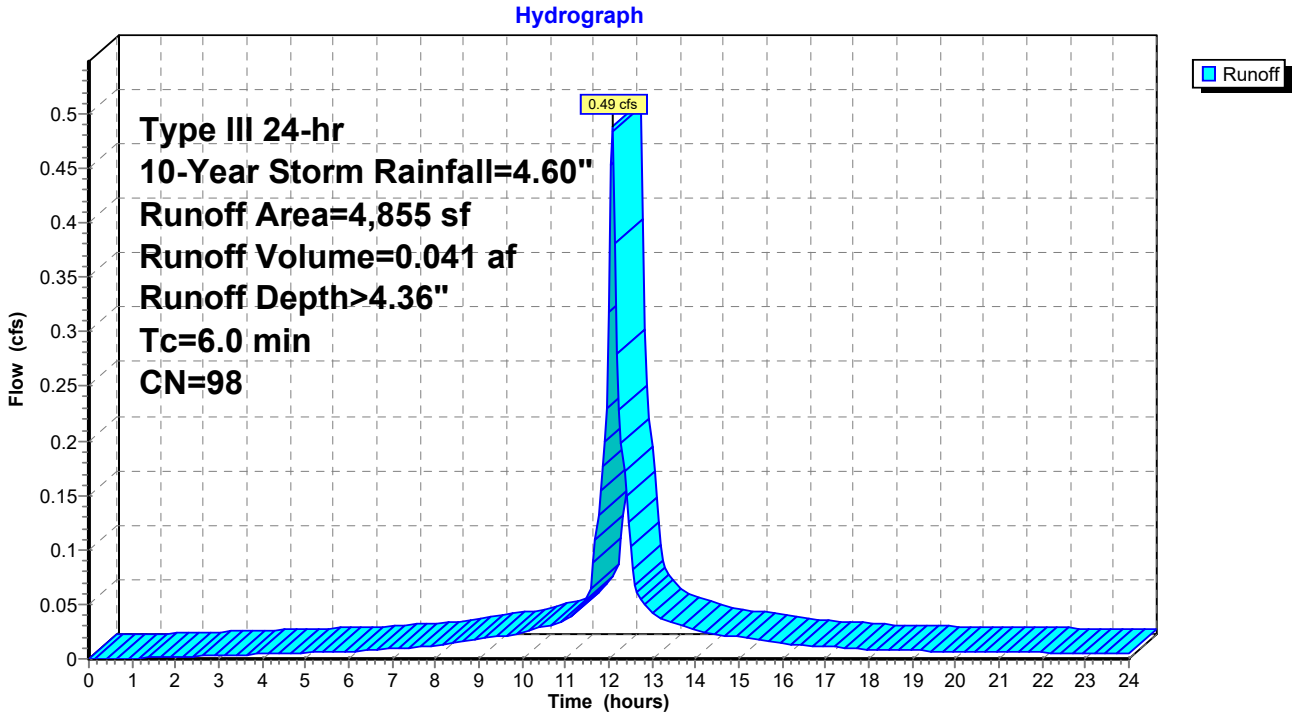
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

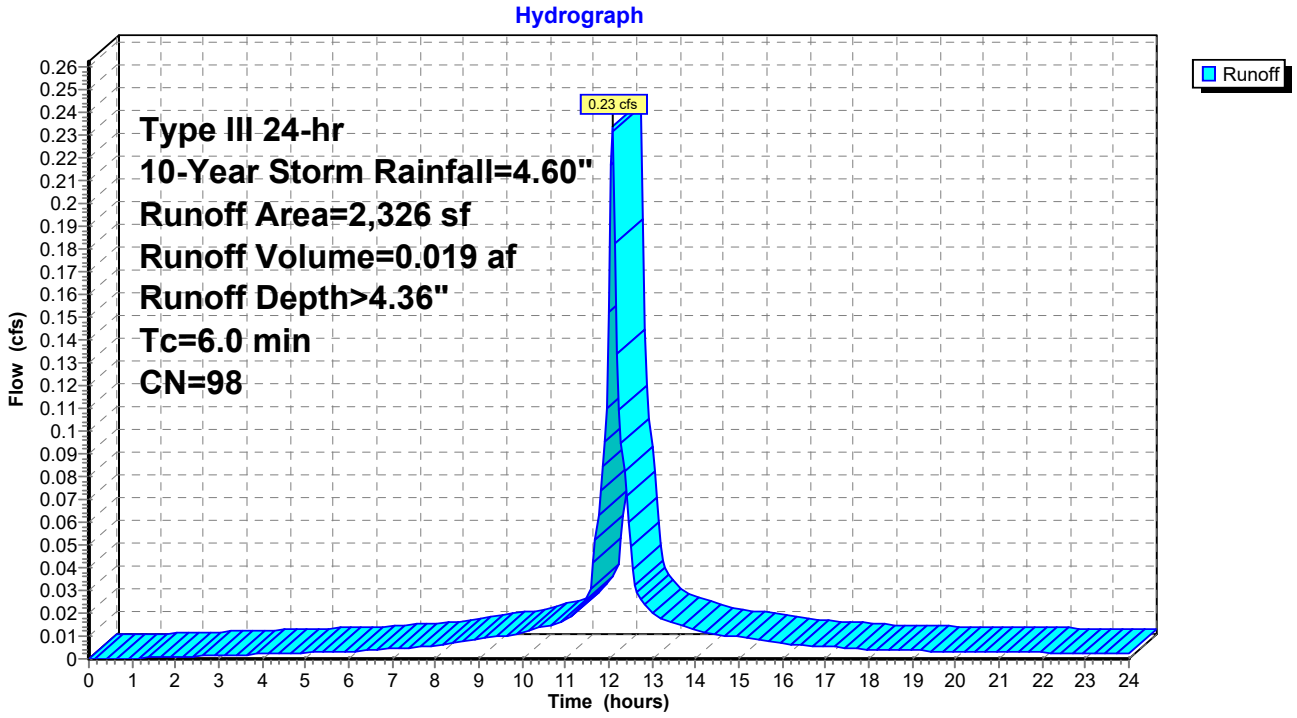
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

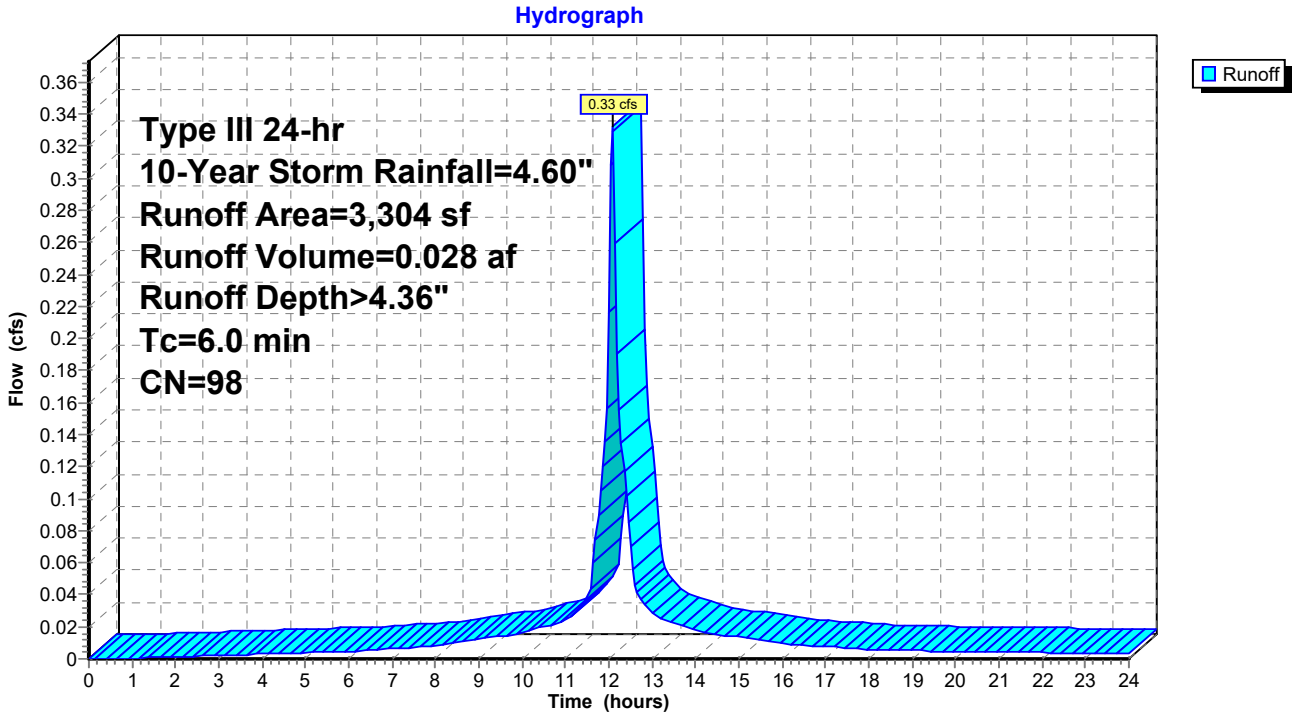
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 4.36"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

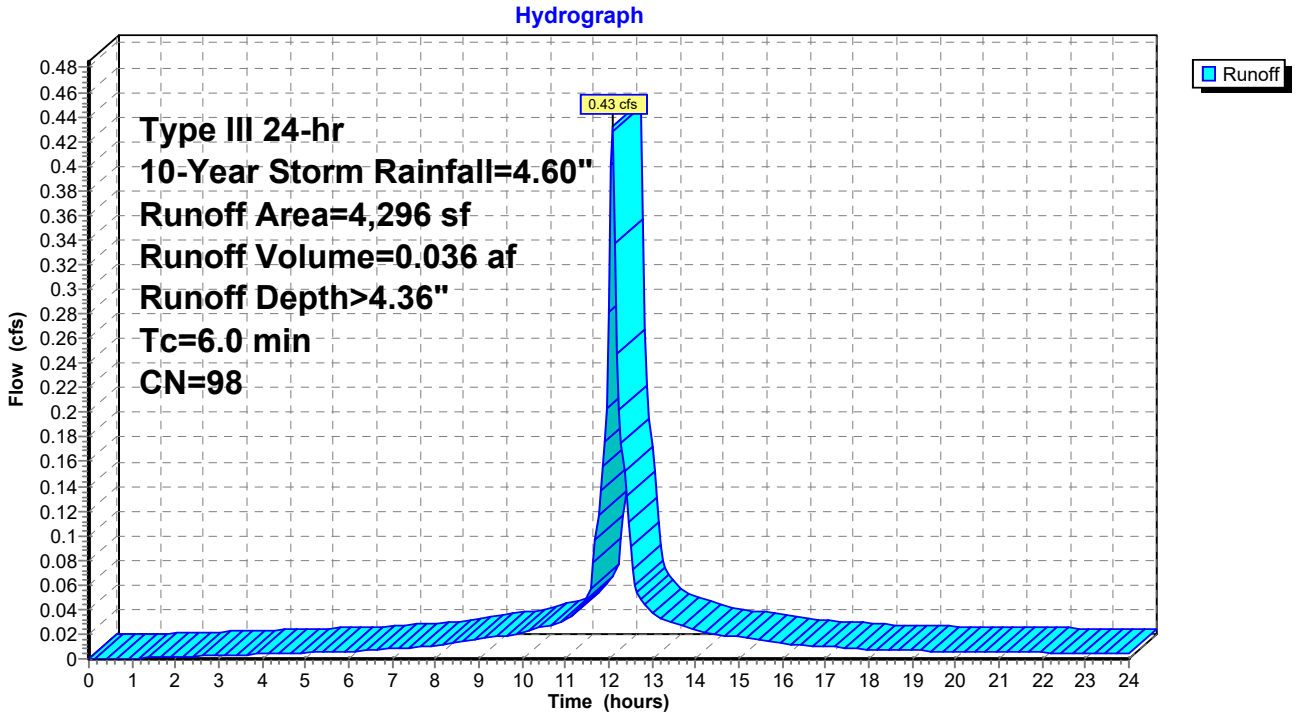
Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

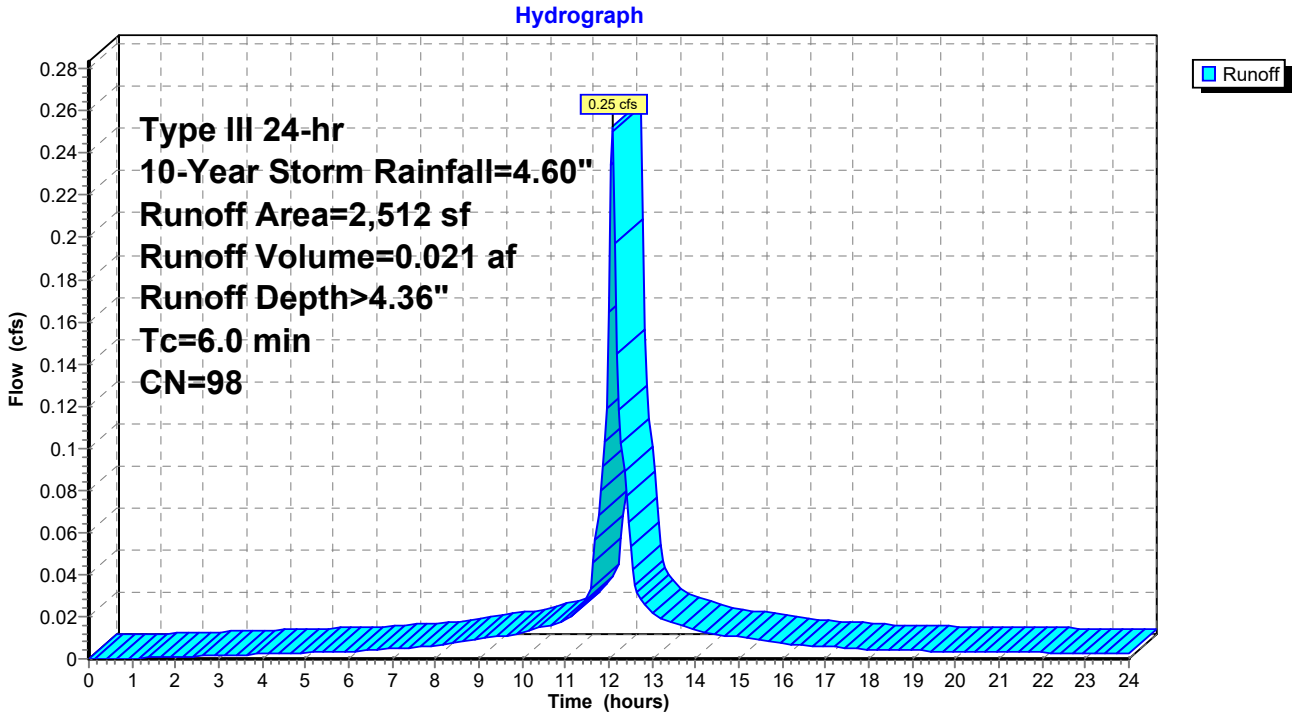
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

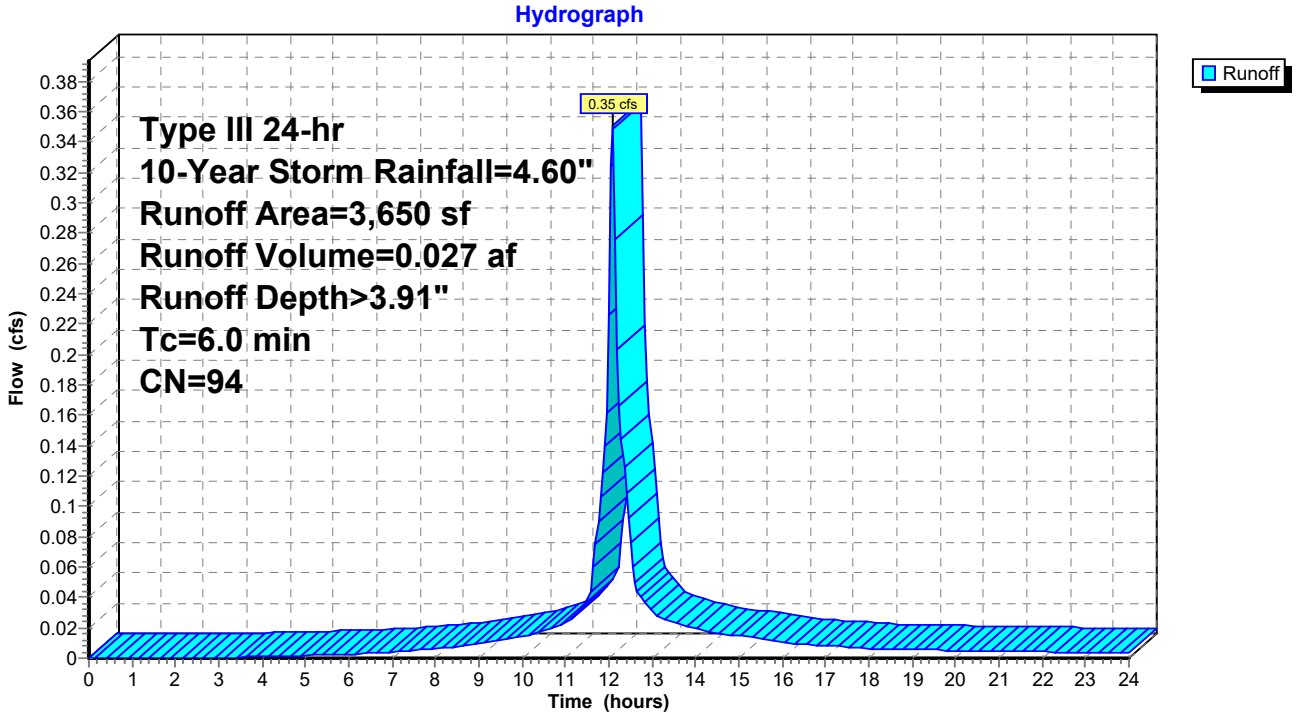
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 3.91"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

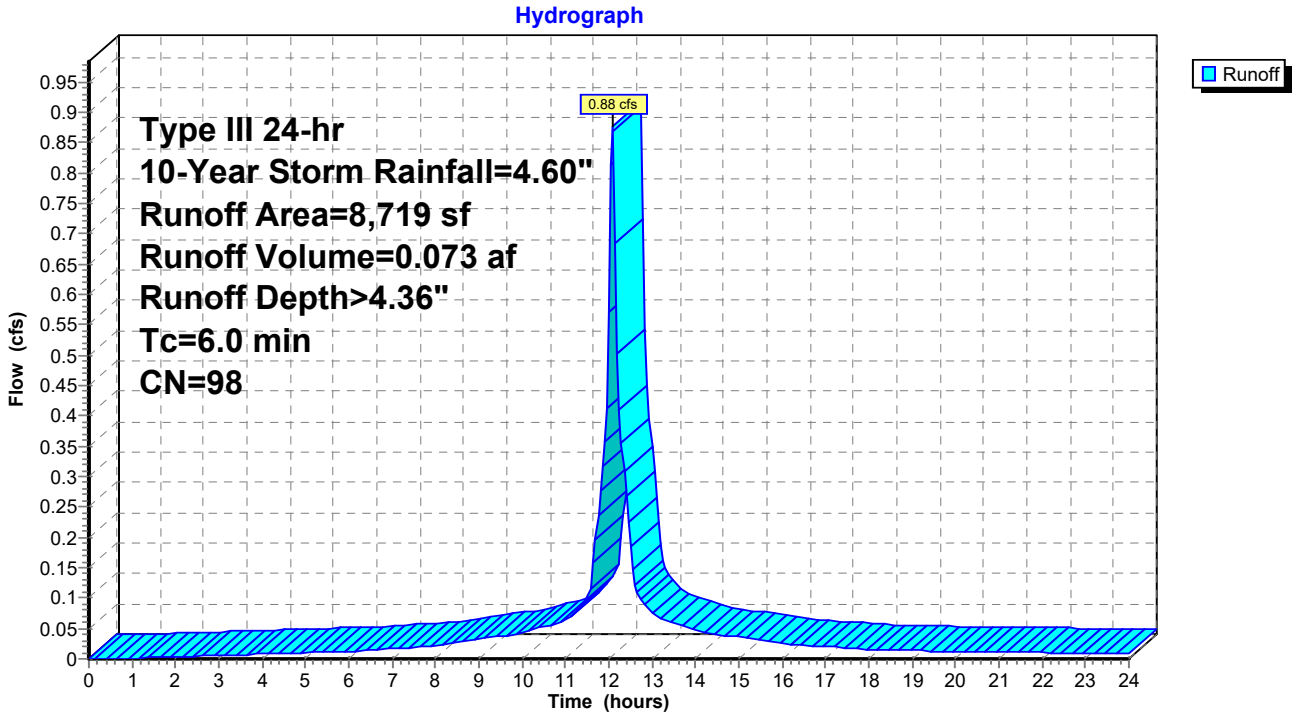
Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.073 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

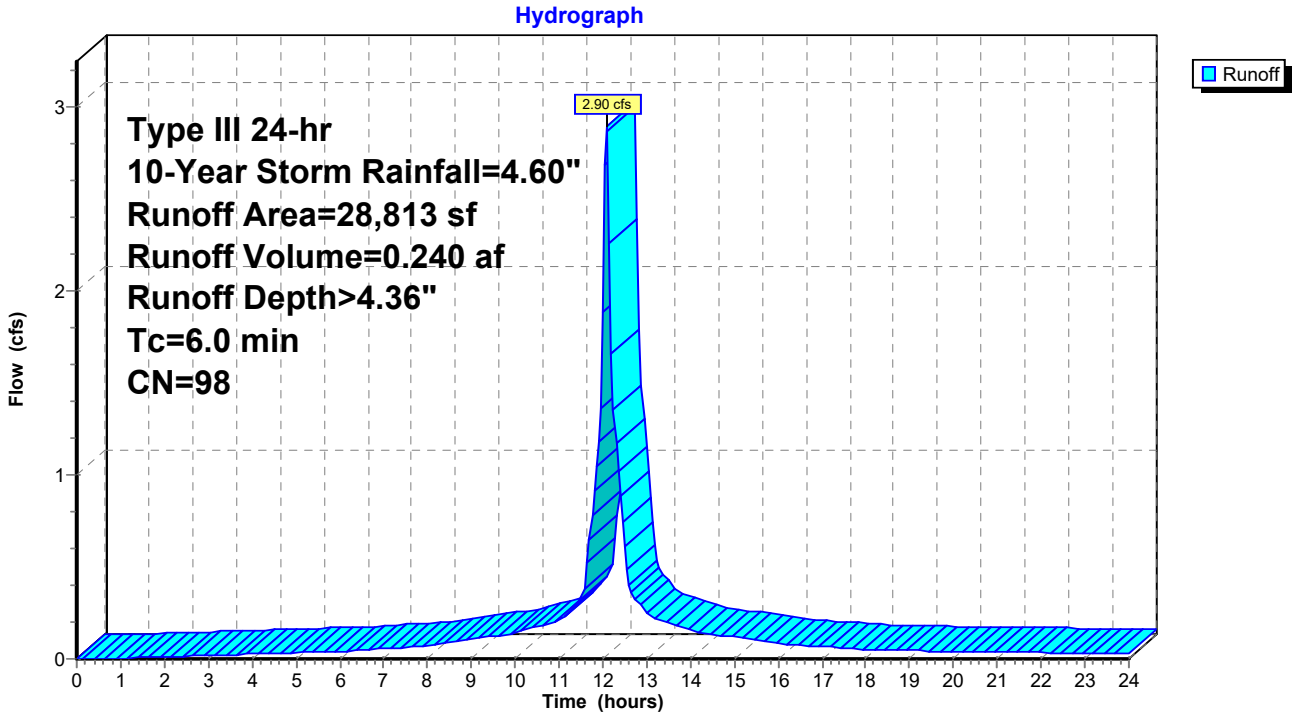
Runoff = 2.90 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

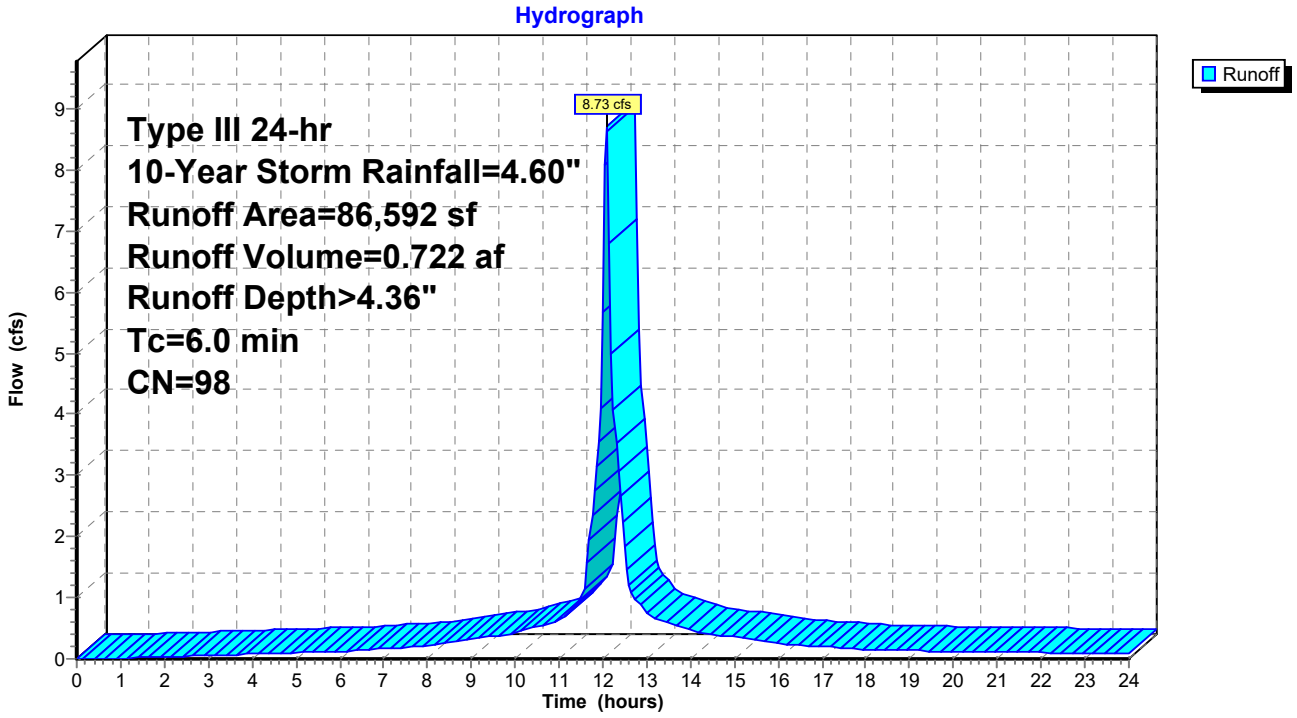
Runoff = 8.73 cfs @ 12.09 hrs, Volume= 0.722 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

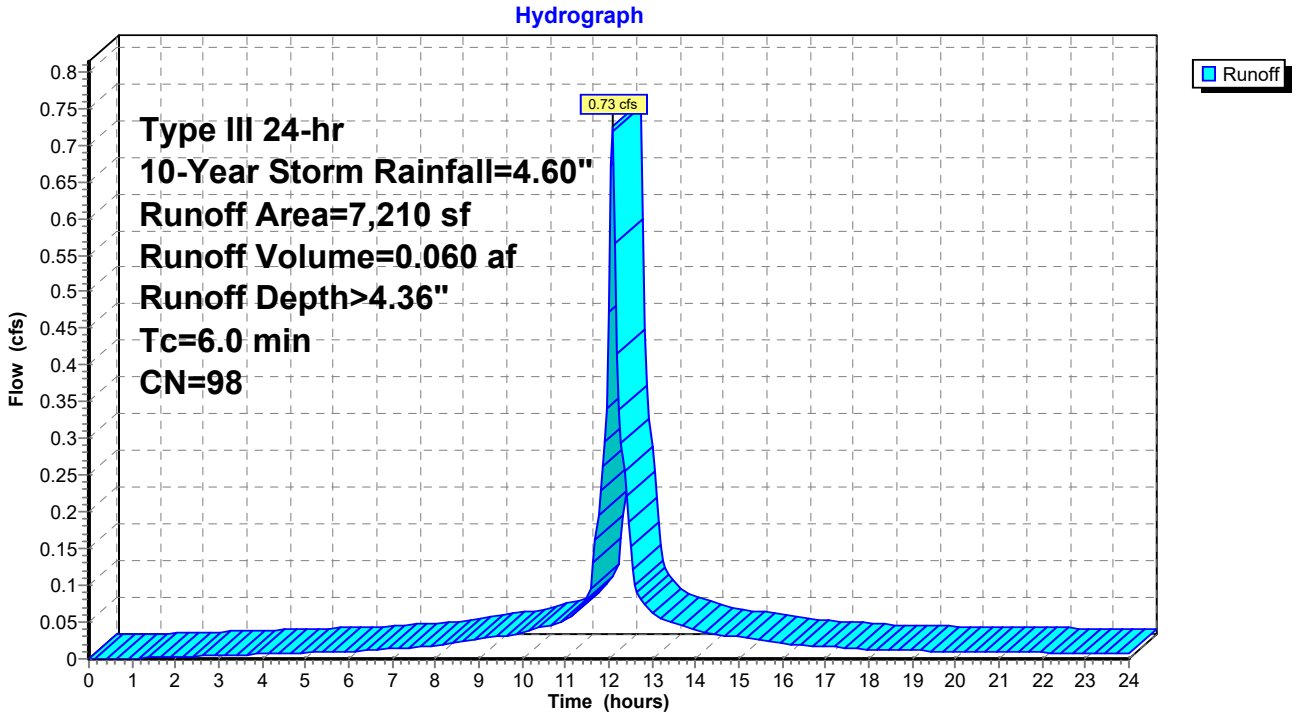
Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 4.36"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

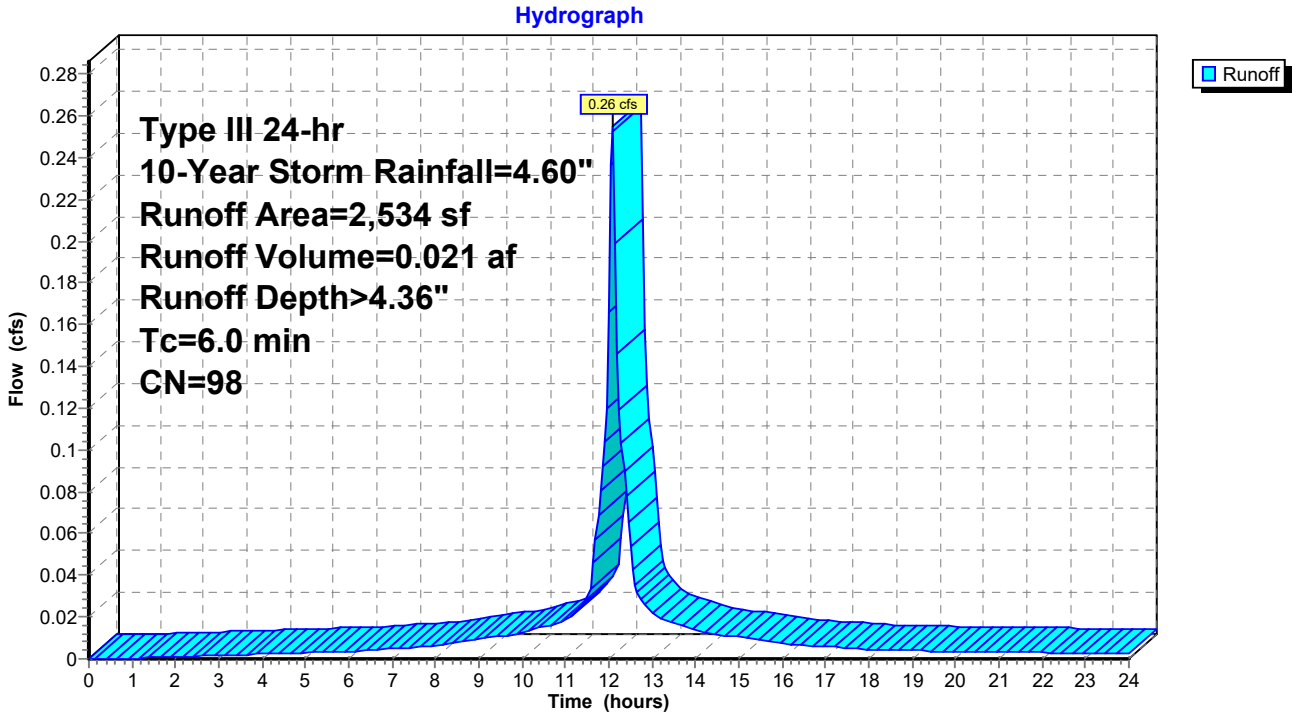
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Link 3L : Fore Street

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

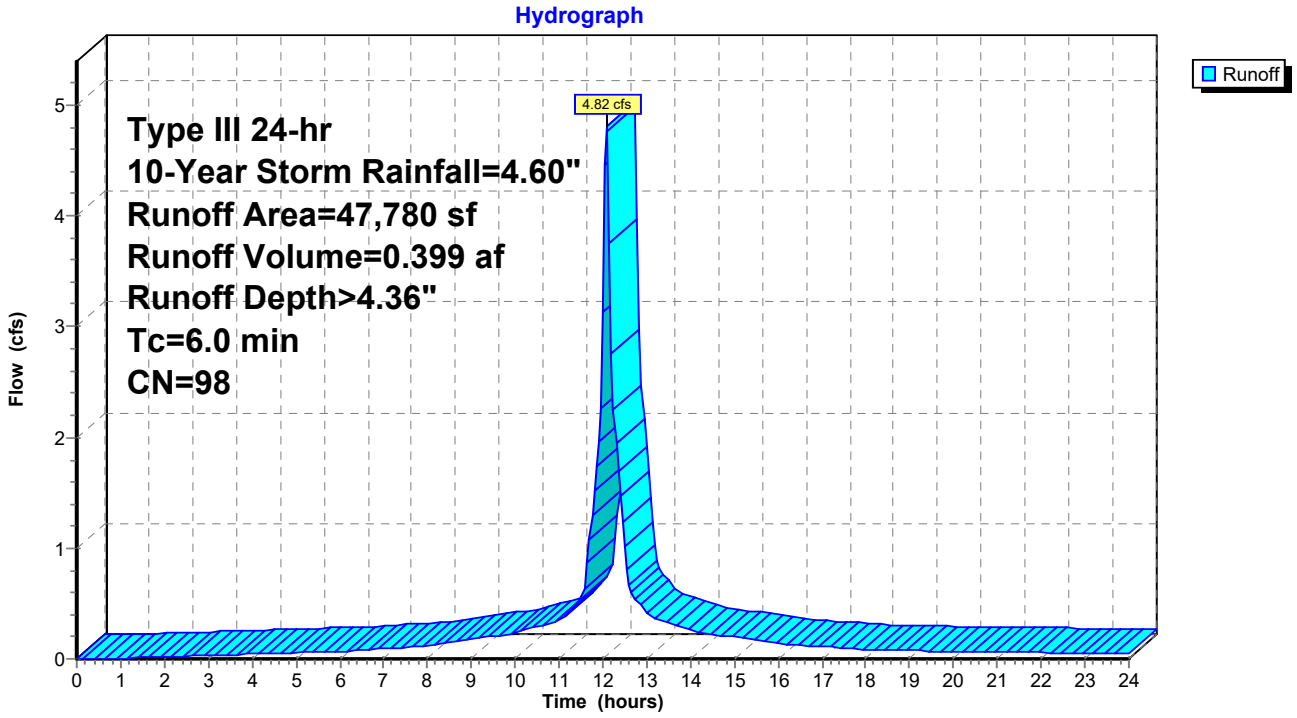
Runoff = 4.82 cfs @ 12.09 hrs, Volume= 0.399 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

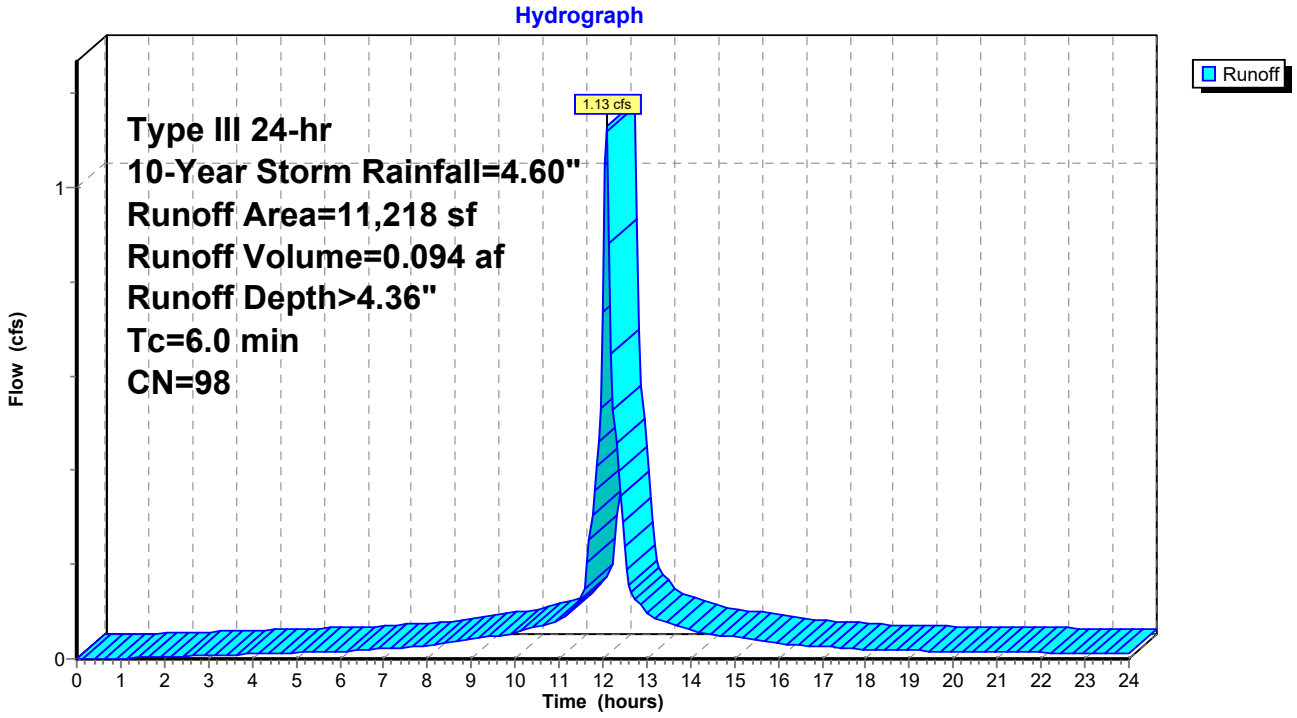
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

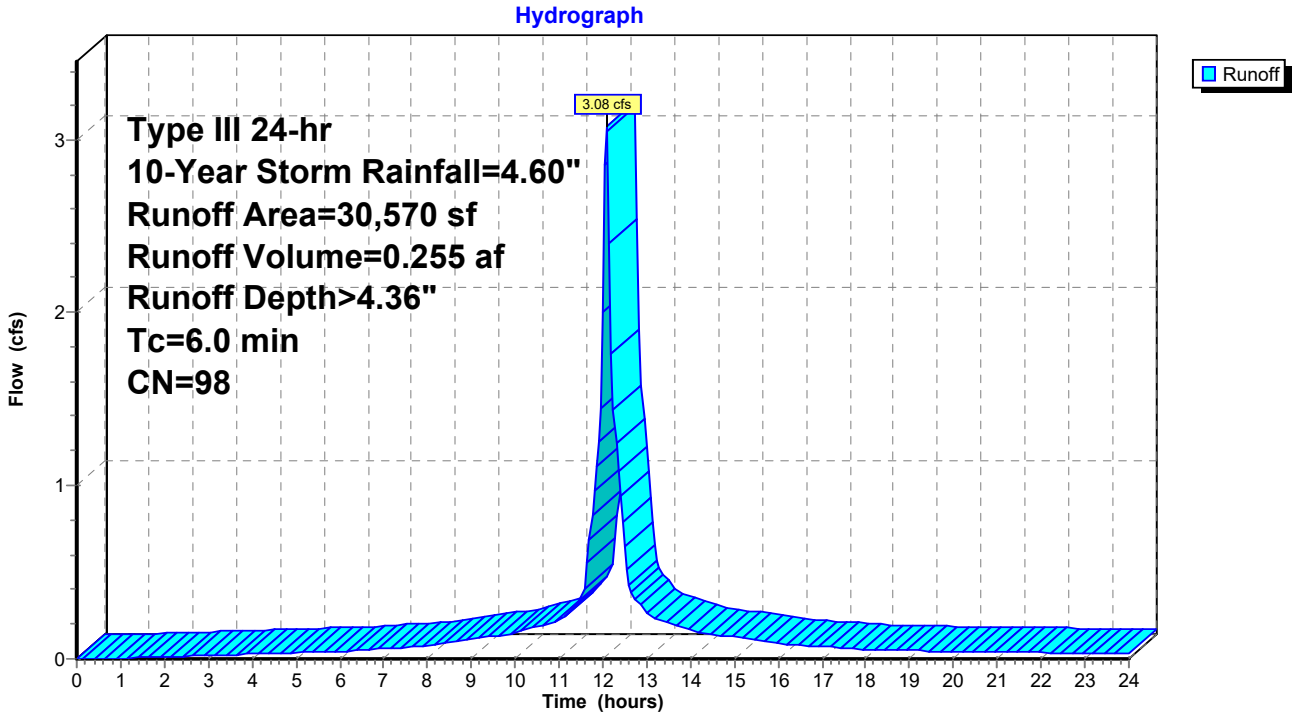
Runoff = 3.08 cfs @ 12.09 hrs, Volume= 0.255 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

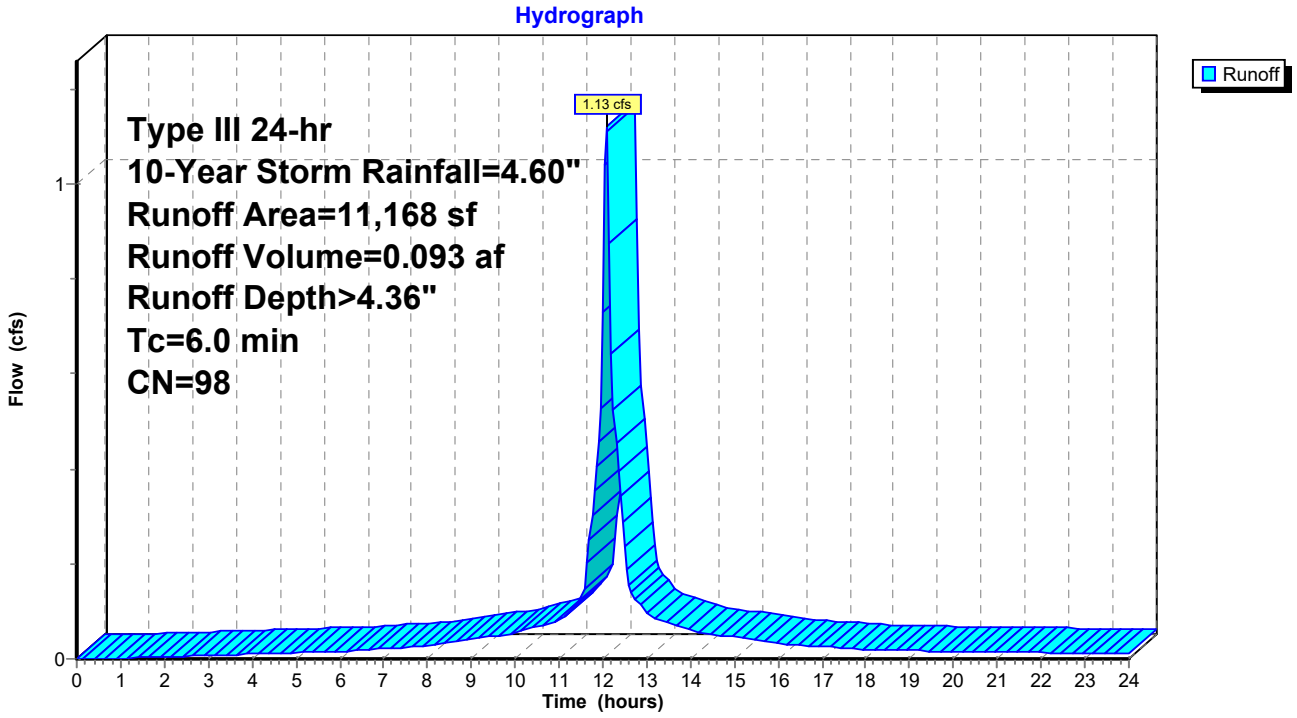
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

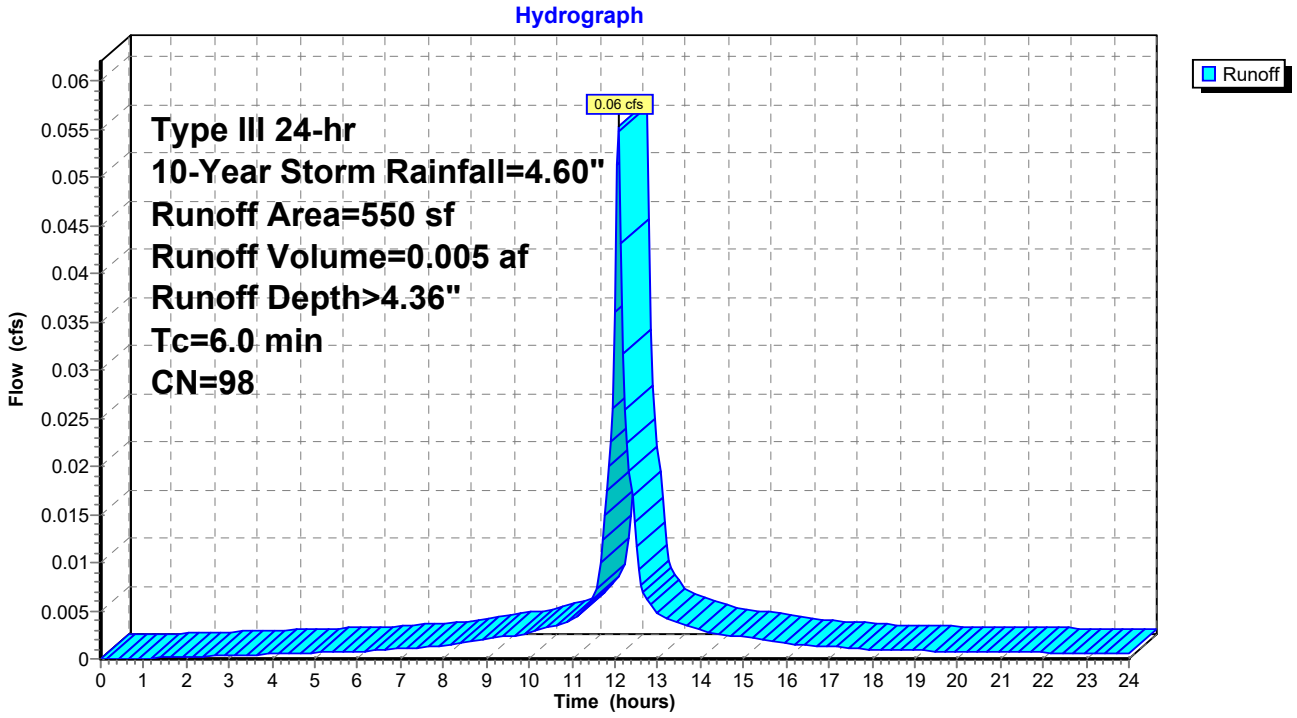
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.36"
Routed to Link 3L : Fore Street

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

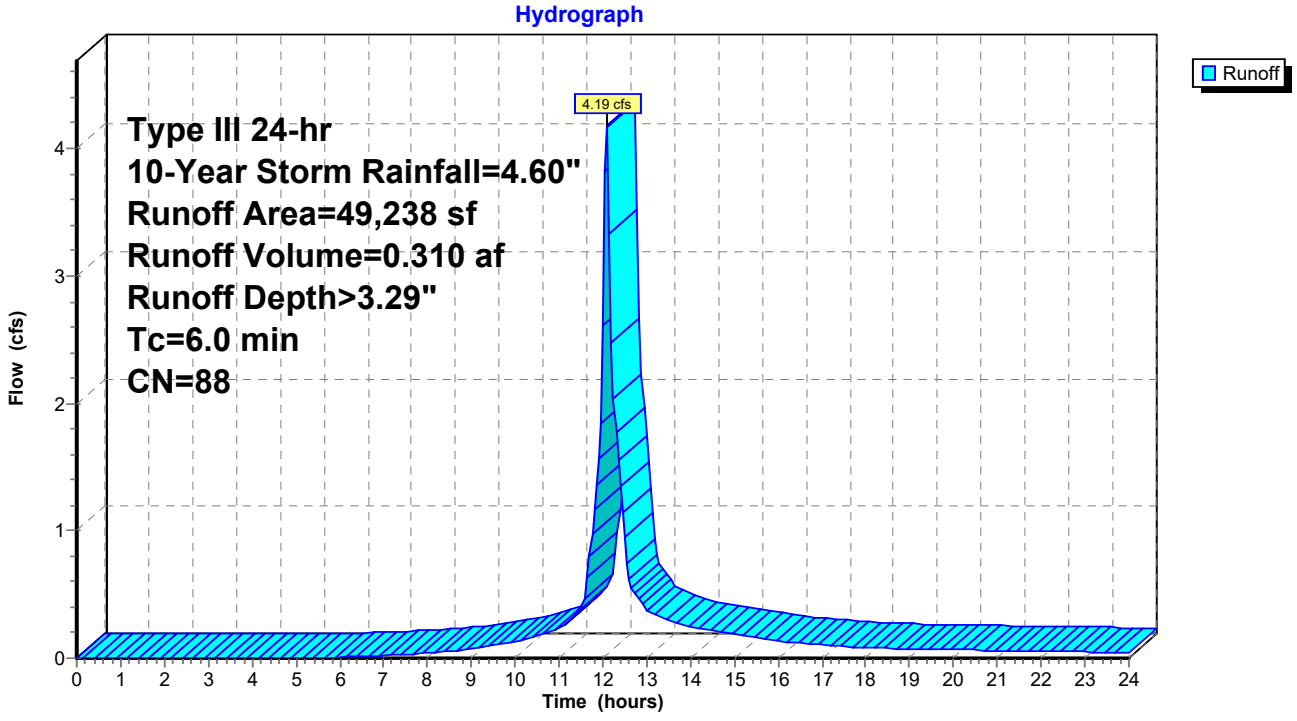
Runoff = 4.19 cfs @ 12.09 hrs, Volume= 0.310 af, Depth> 3.29"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

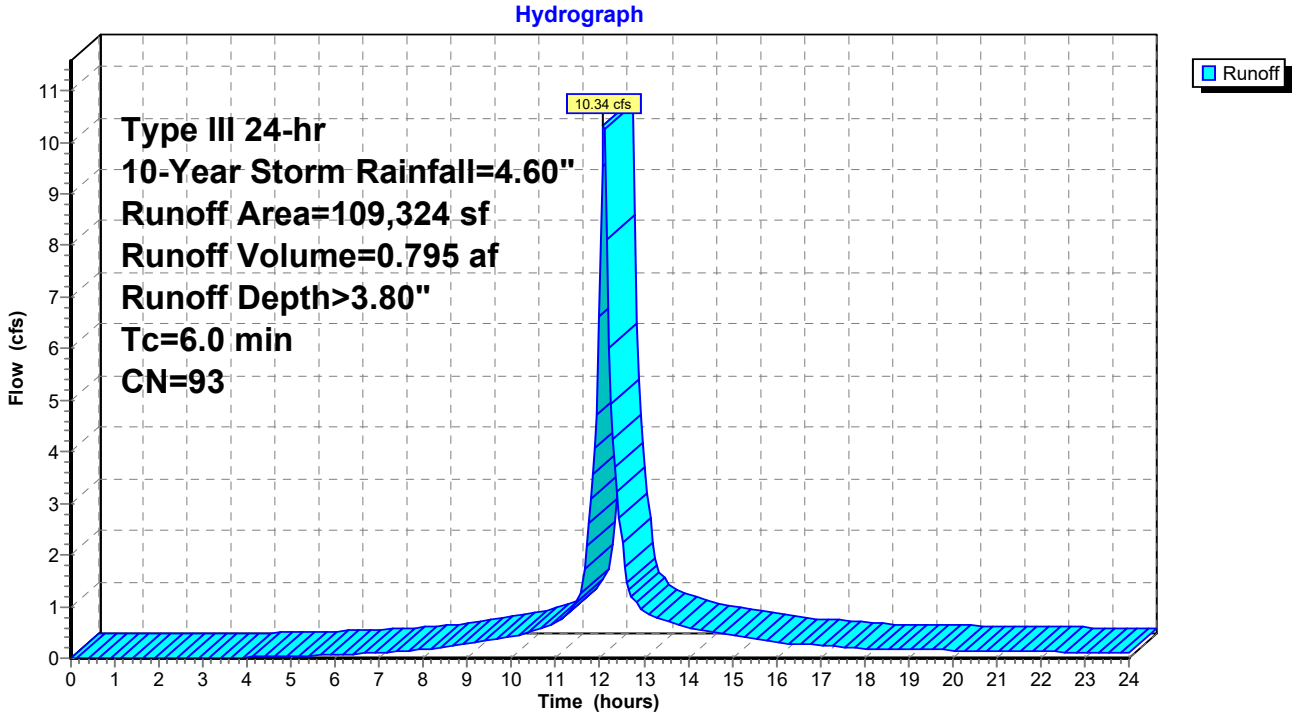
Runoff = 10.34 cfs @ 12.09 hrs, Volume= 0.795 af, Depth> 3.80"
Routed to Link 2L : Fore River

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

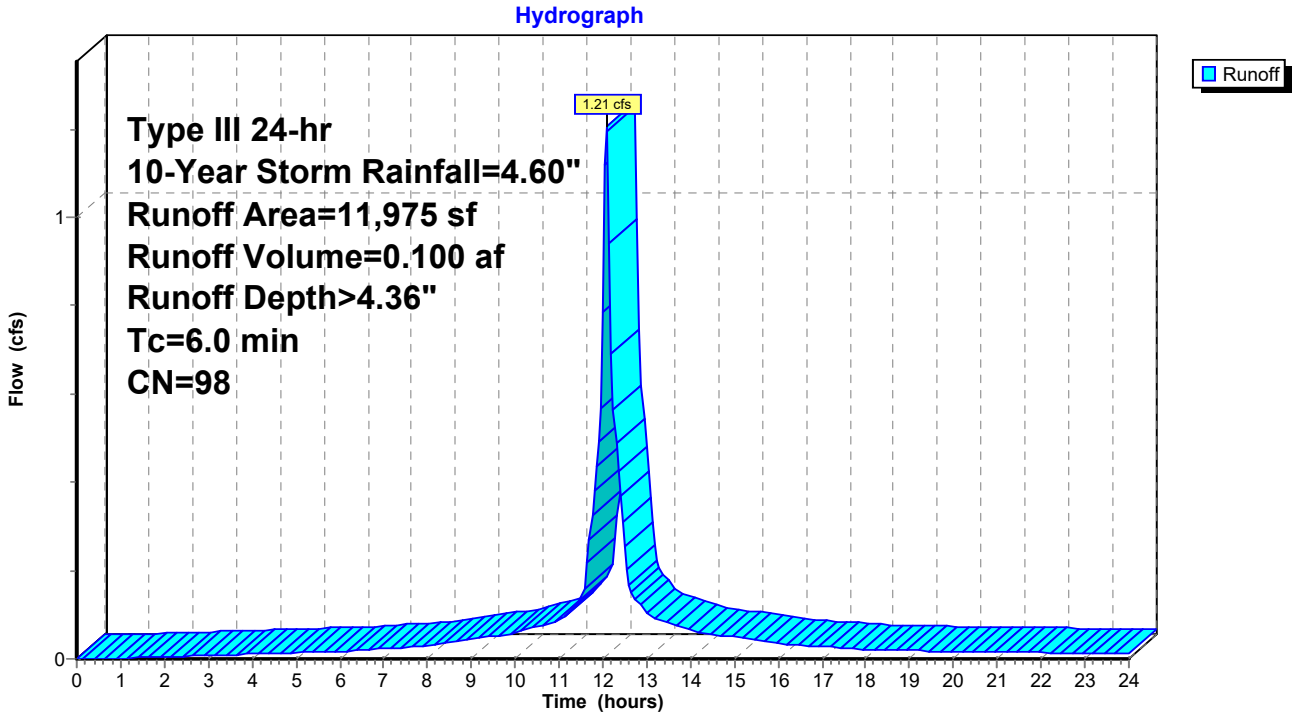
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 24P : Filterra 1 6x8

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

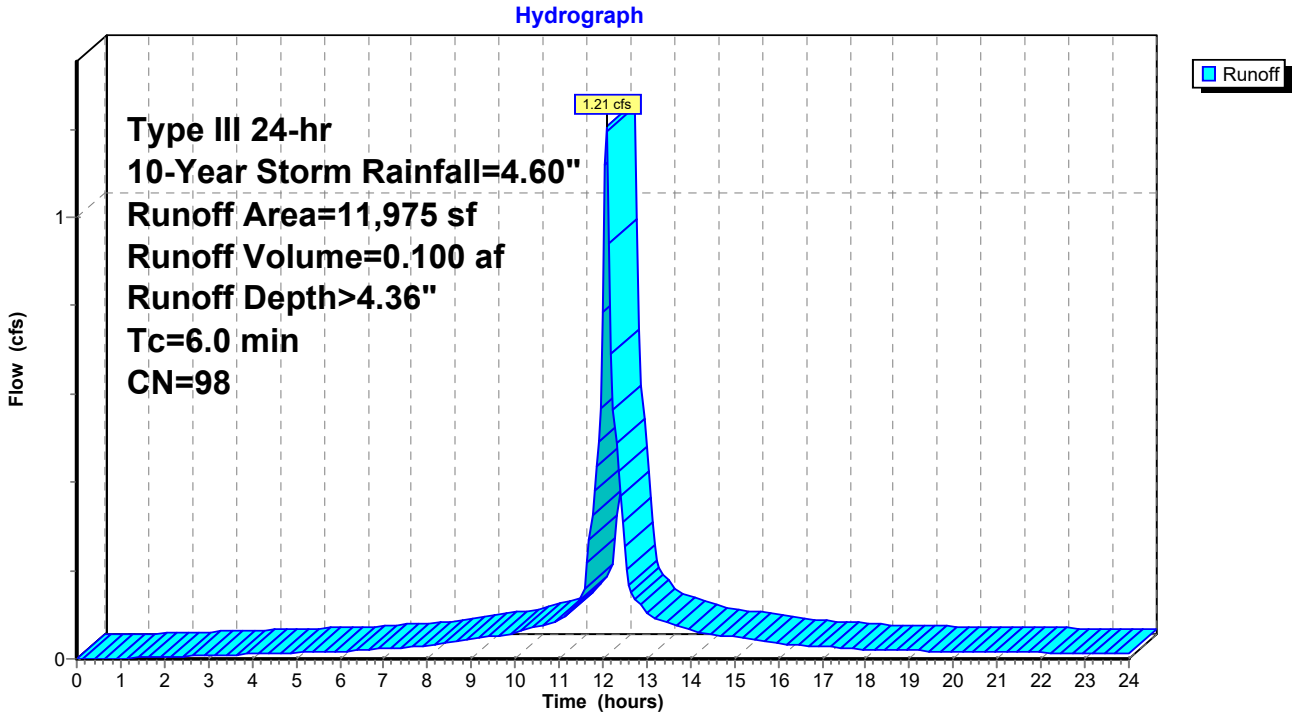
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 28P : Filterra 1 6x8

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

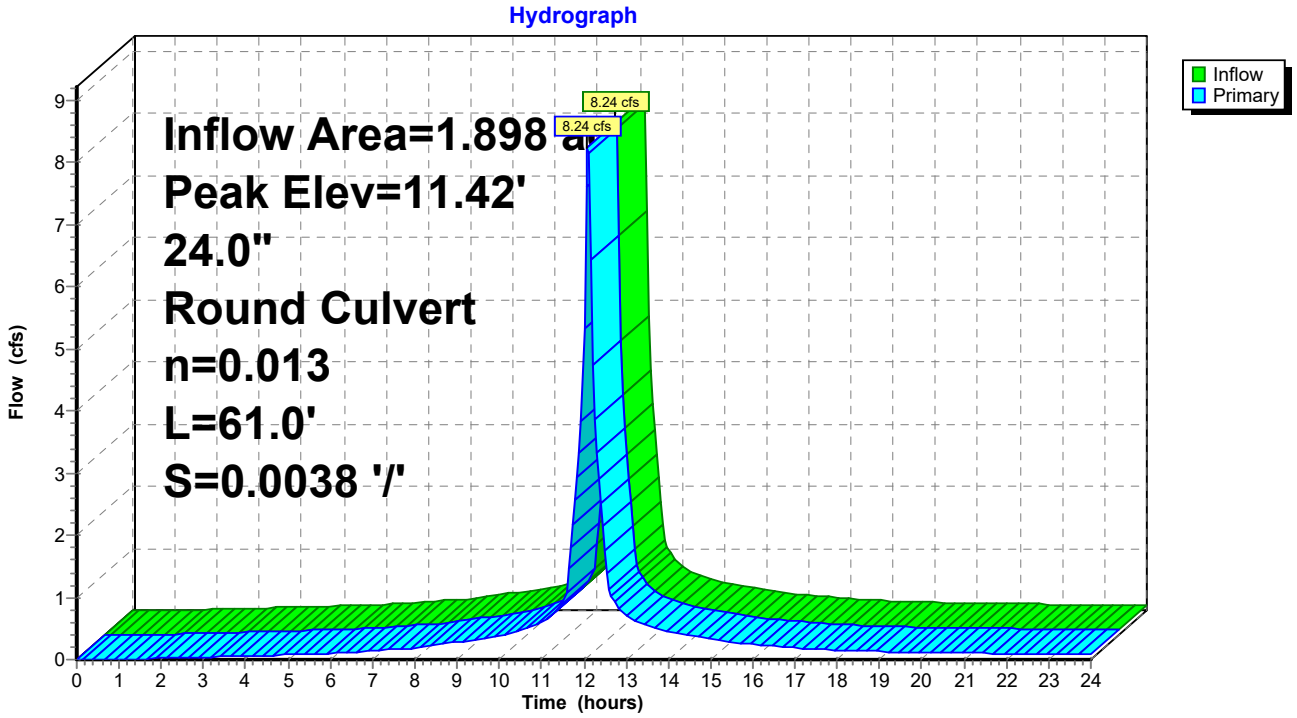
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 4.23" for 10-Year Storm event
Inflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Outflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Primary = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.42' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.01 cfs @ 12.09 hrs HW=11.39' (Free Discharge)
1=Culvert (Barrel Controls 8.01 cfs @ 4.00 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

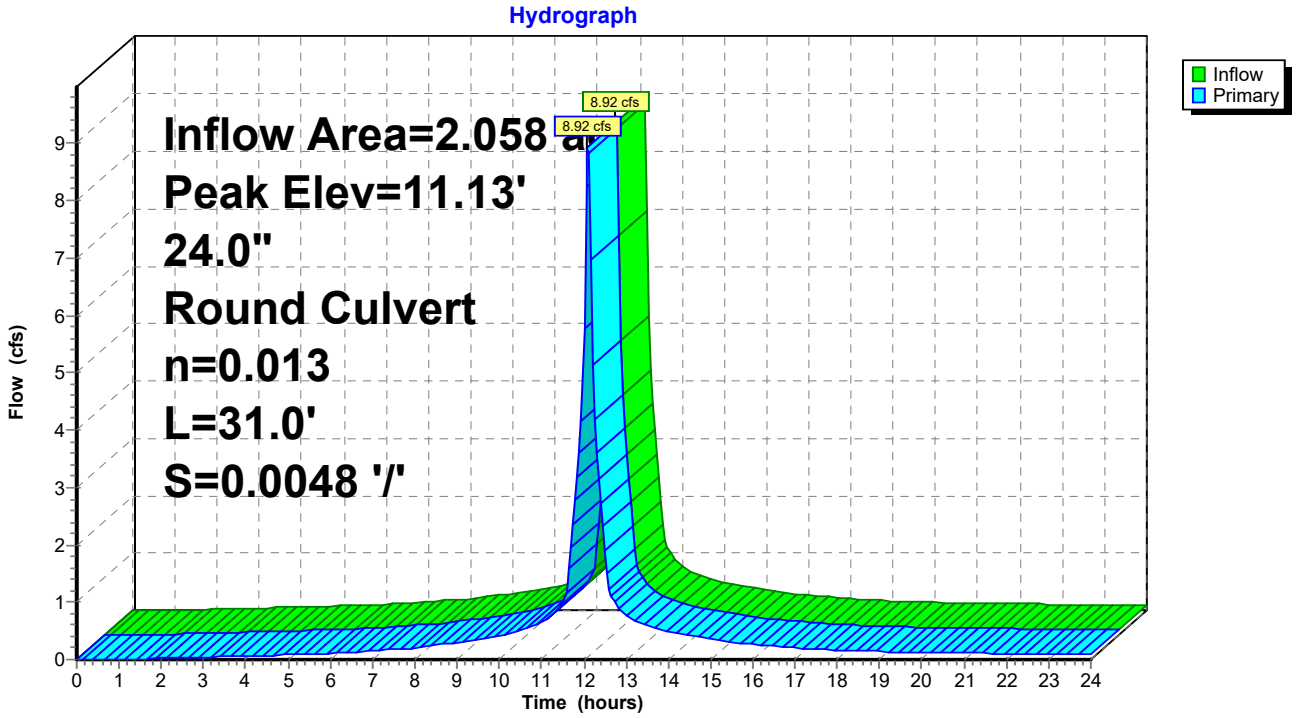
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=11.10' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 4.40 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

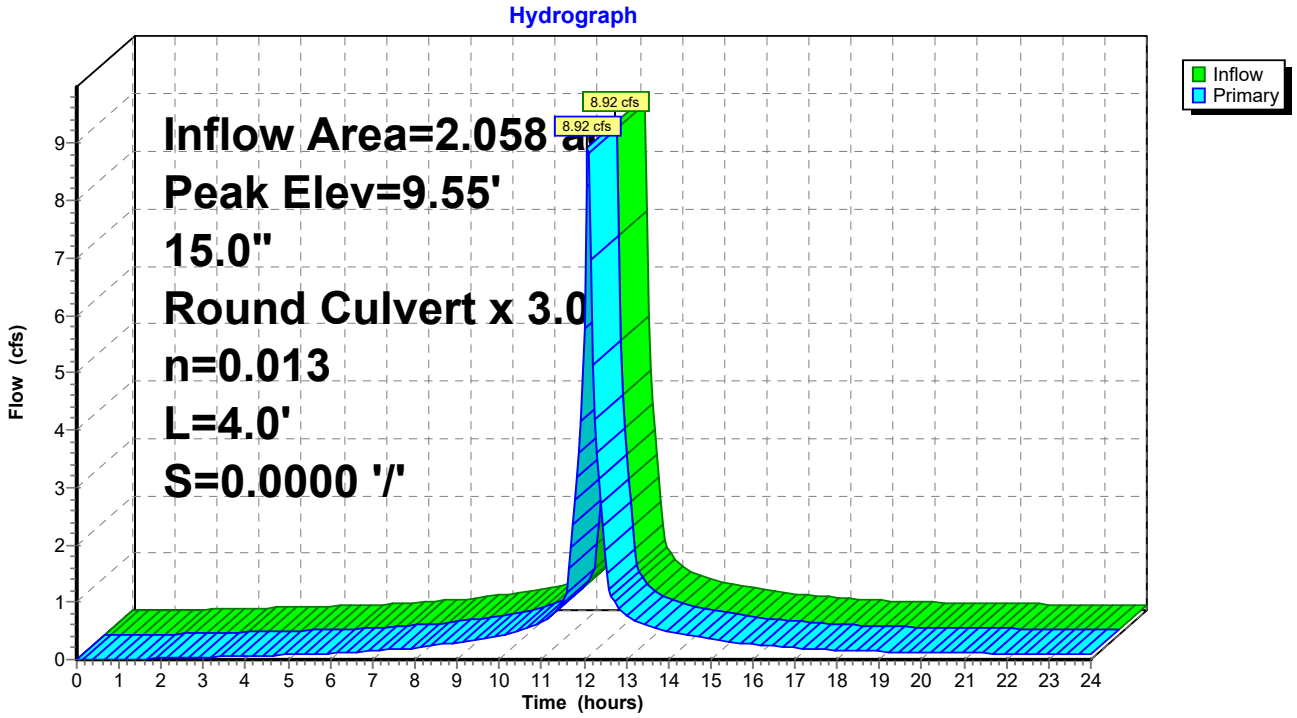
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=9.53' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 3.11 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 10%, Lag= 2.4 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,076 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 18.7 min calculated for 0.714 af (99% of inflow)
Center-of-Mass det. time= 12.0 min (769.6 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

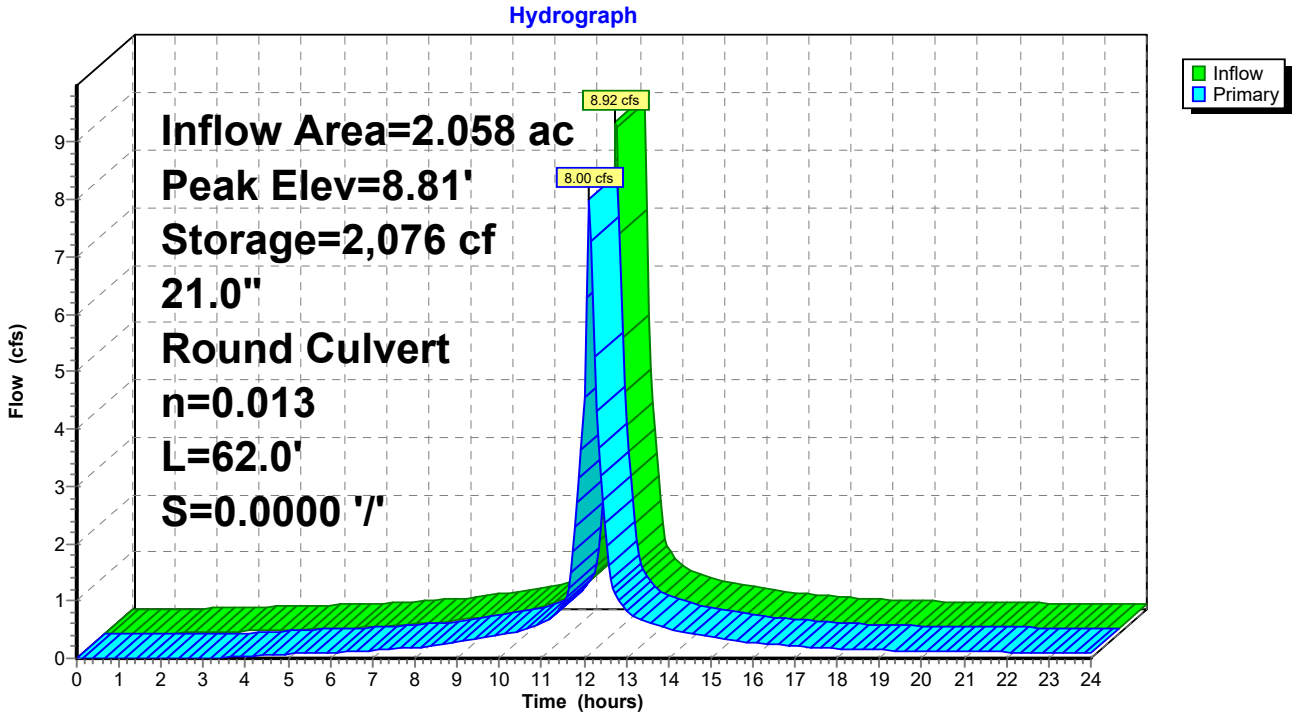
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.78' (Free Discharge)
1=Culvert to Filter (Barrel Controls 7.84 cfs @ 3.53 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

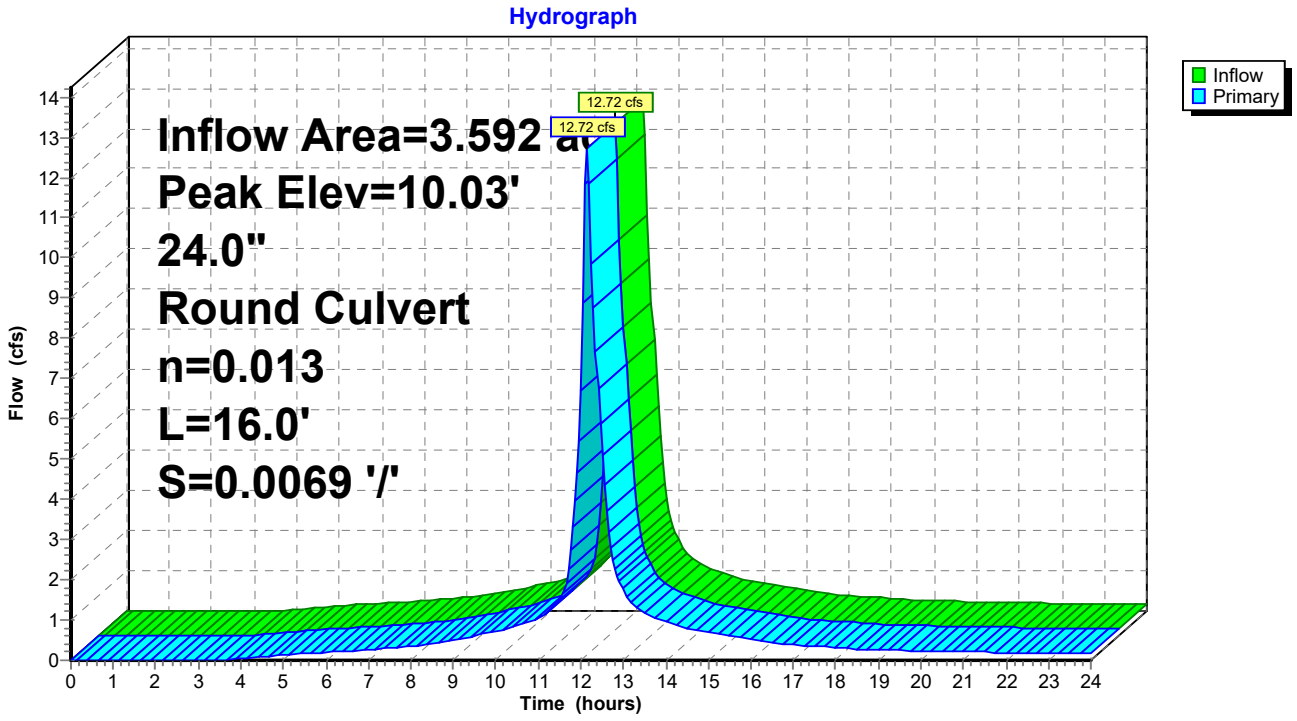
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 12P : Jellyfish 2 JFPD0808-10-3

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.03' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.71 cfs @ 12.15 hrs HW=10.03' (Free Discharge)
1=Culvert (Barrel Controls 12.71 cfs @ 4.56 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

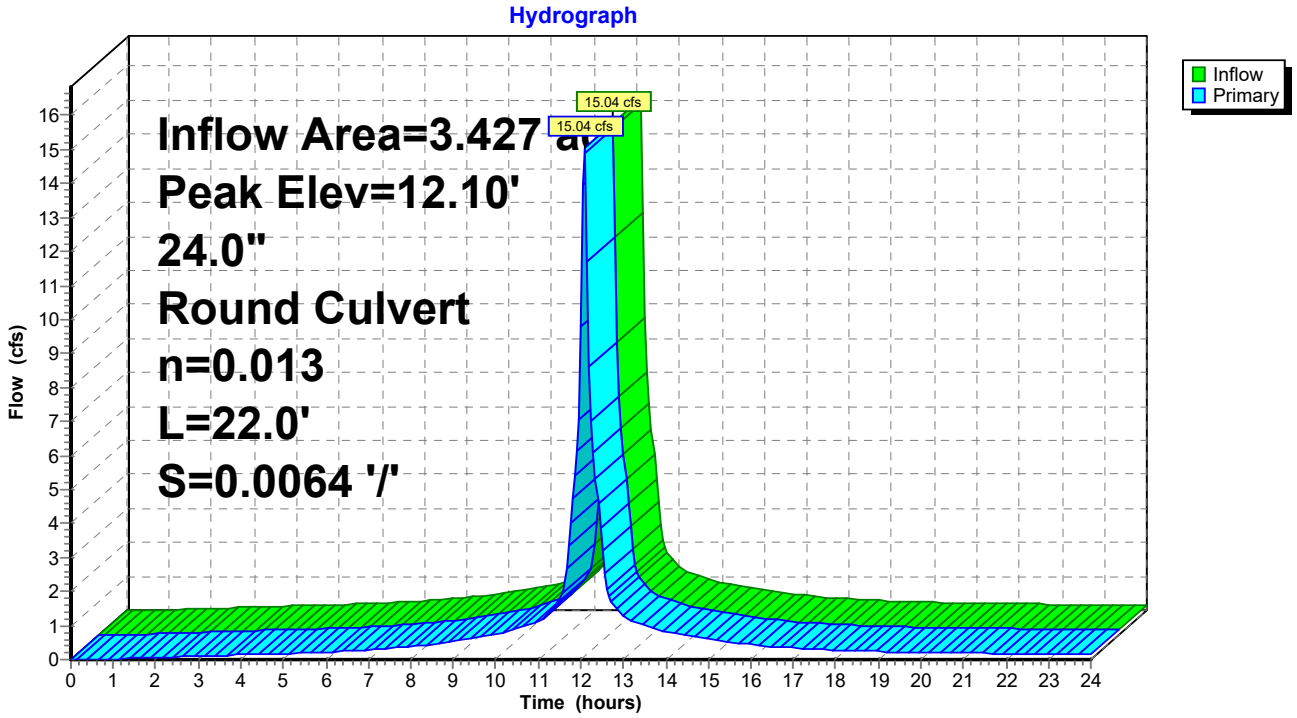
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.10' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=12.04' (Free Discharge)
1=Culvert (Inlet Controls 14.65 cfs @ 4.66 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

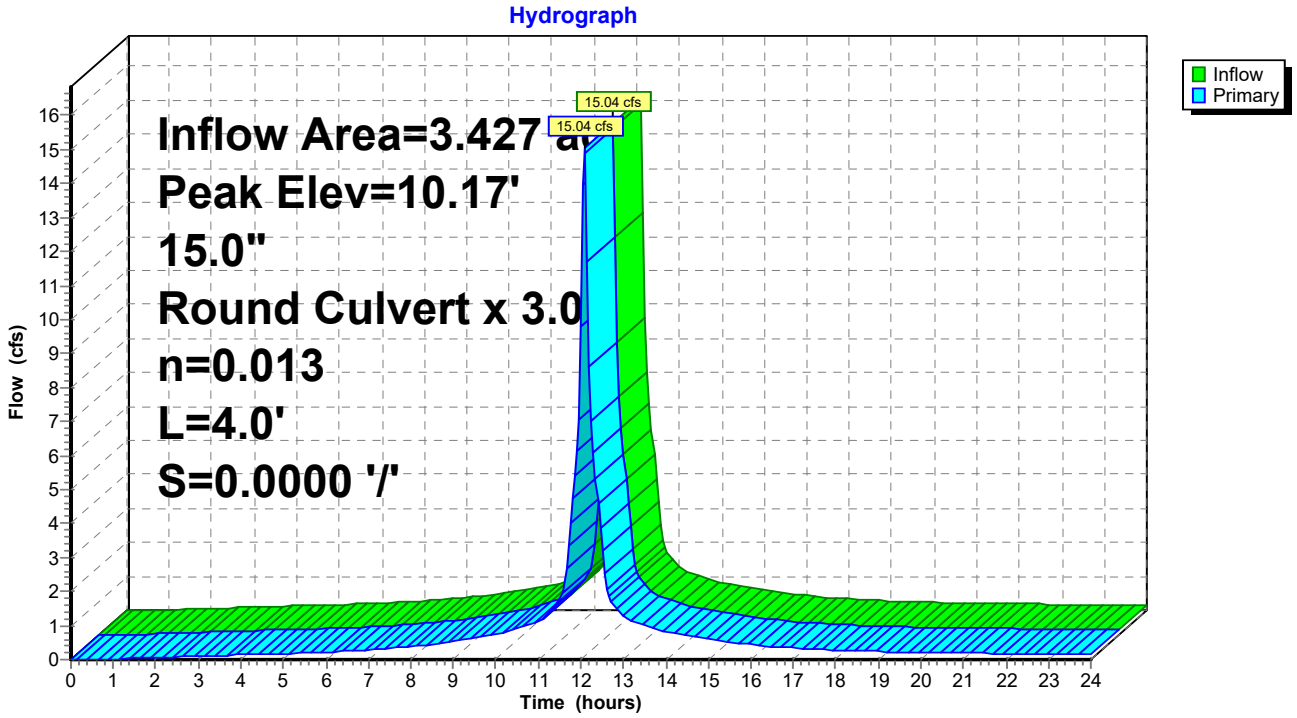
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.17' @ 12.08 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=10.13' (Free Discharge)
1=Culvert (Barrel Controls 14.65 cfs @ 3.98 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.77 cfs @ 12.09 hrs, Volume= 1.306 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 19%, Lag= 3.8 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.53' @ 12.15 hrs Surf.Area= 3,128 sf Storage= 6,896 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 35.4 min calculated for 1.280 af (98% of inflow)
Center-of-Mass det. time= 23.1 min (772.1 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

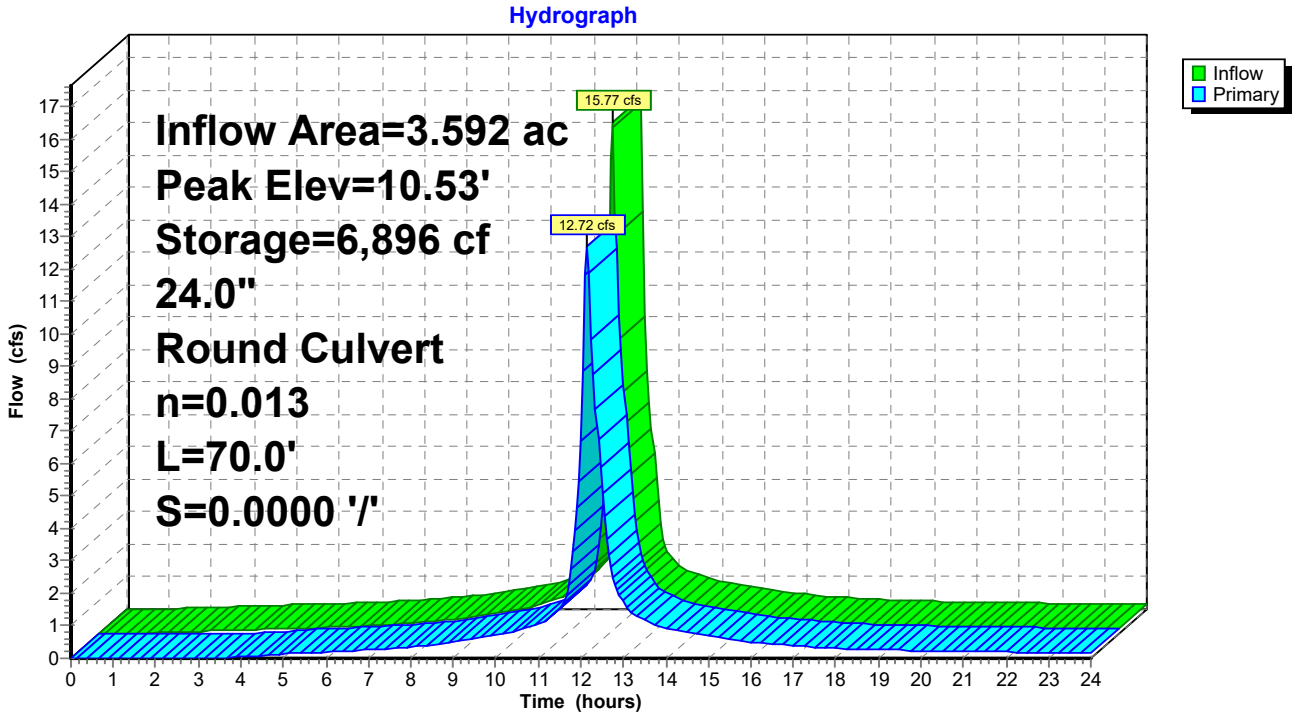
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.70 cfs @ 12.15 hrs HW=10.52' (Free Discharge)
1=Culvert (Barrel Controls 12.70 cfs @ 4.04 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

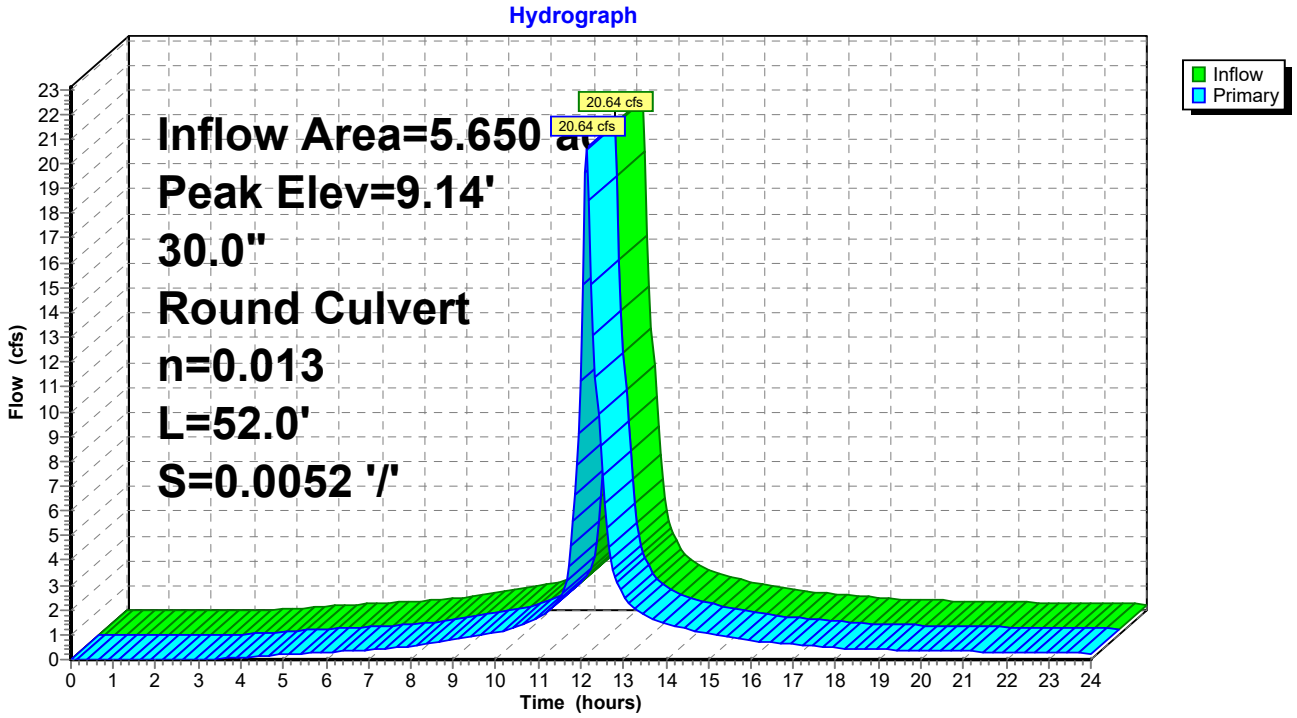
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 4.24" for 10-Year Storm event
Inflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Outflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af, Atten= 0%, Lag= 0.0 min
Primary = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.14' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=20.41 cfs @ 12.14 hrs HW=9.12' (Free Discharge)
1=Culvert (Barrel Controls 20.41 cfs @ 5.07 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

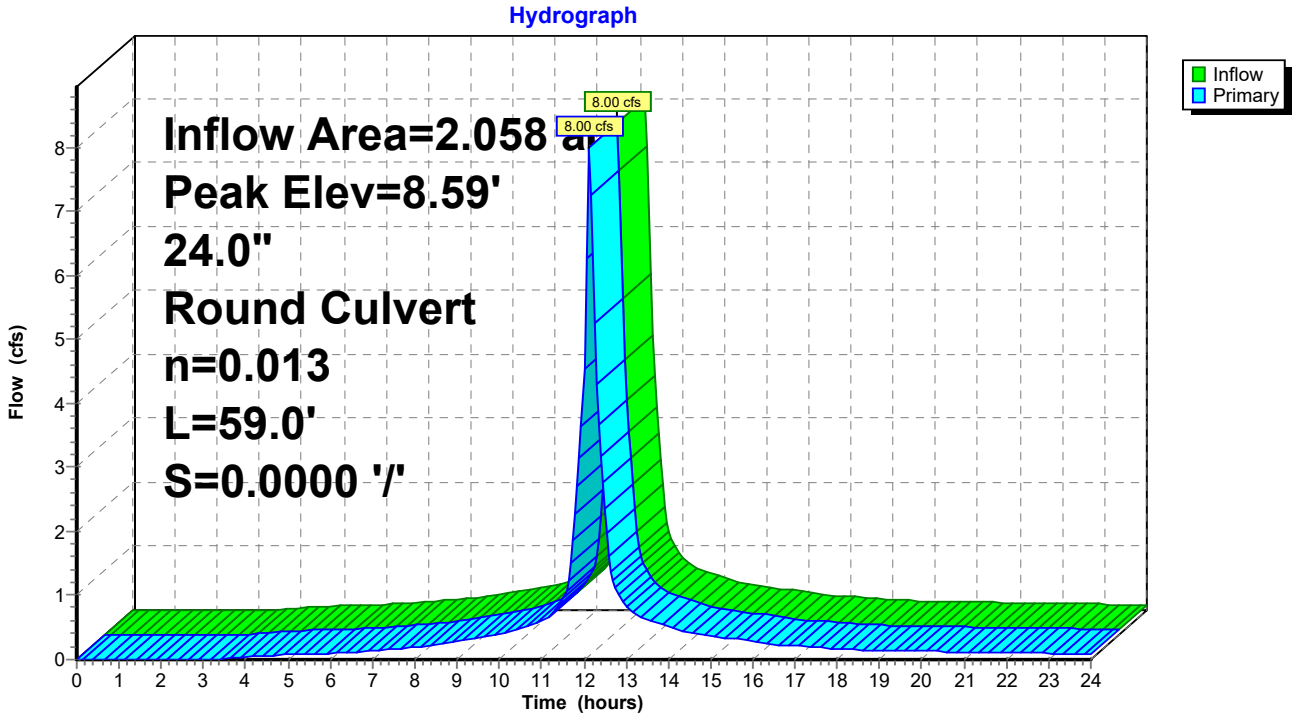
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.59' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.57' (Free Discharge)
1=Culvert (Barrel Controls 7.84 cfs @ 3.43 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

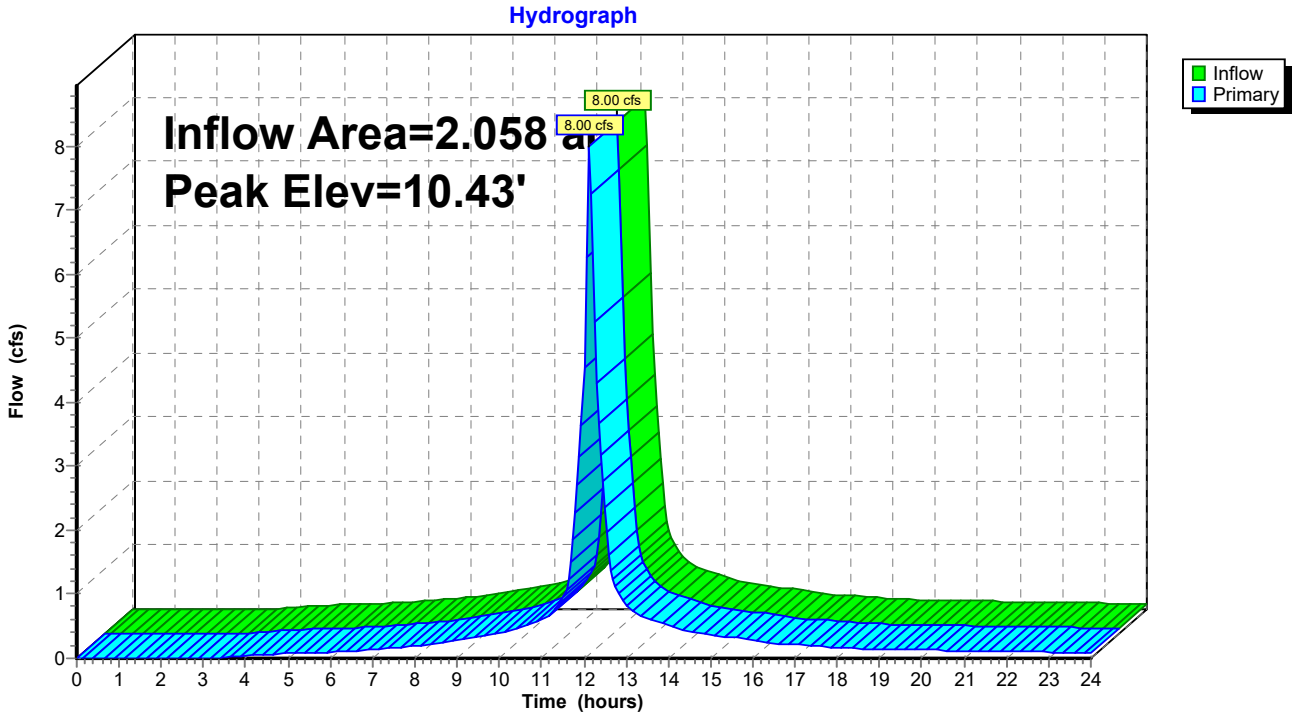
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=7.85 cfs @ 12.13 hrs HW=10.42' (Free Discharge)
└**1=Filter Culvert Out** (Passes 7.85 cfs of 19.50 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.96 cfs @ 3.00 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0808-10-3

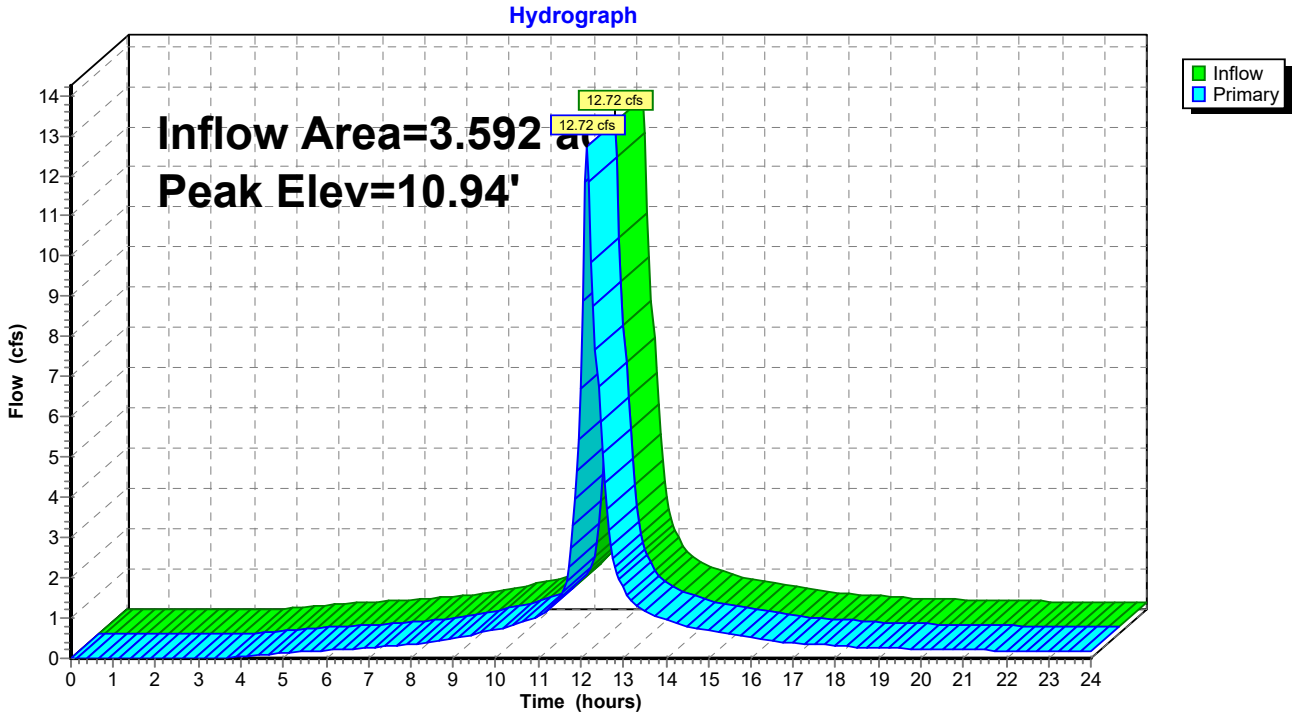
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.94' @ 12.15 hrs
Flood Elev= 11.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.015 0.030 0.045 0.059 0.074 0.089 0.253 0.416 0.579 0.743 0.906 1.069 1.233 1.396 1.560 1.723 1.886 2.050
#3	Device 1	9.84'	**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=12.71 cfs @ 12.15 hrs HW=10.94' (Free Discharge)
└**1=Filter Culvert Out** (Passes 12.71 cfs of 17.82 cfs potential flow)
├**2=JF Filter-2 CSV File** (Custom Controls 2.05 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 10.66 cfs @ 3.48 fps)

Pond 12P: Jellyfish 2 JFPD0808-10-3



Summary for Pond 13P: DMH-13 (Outfall #2)

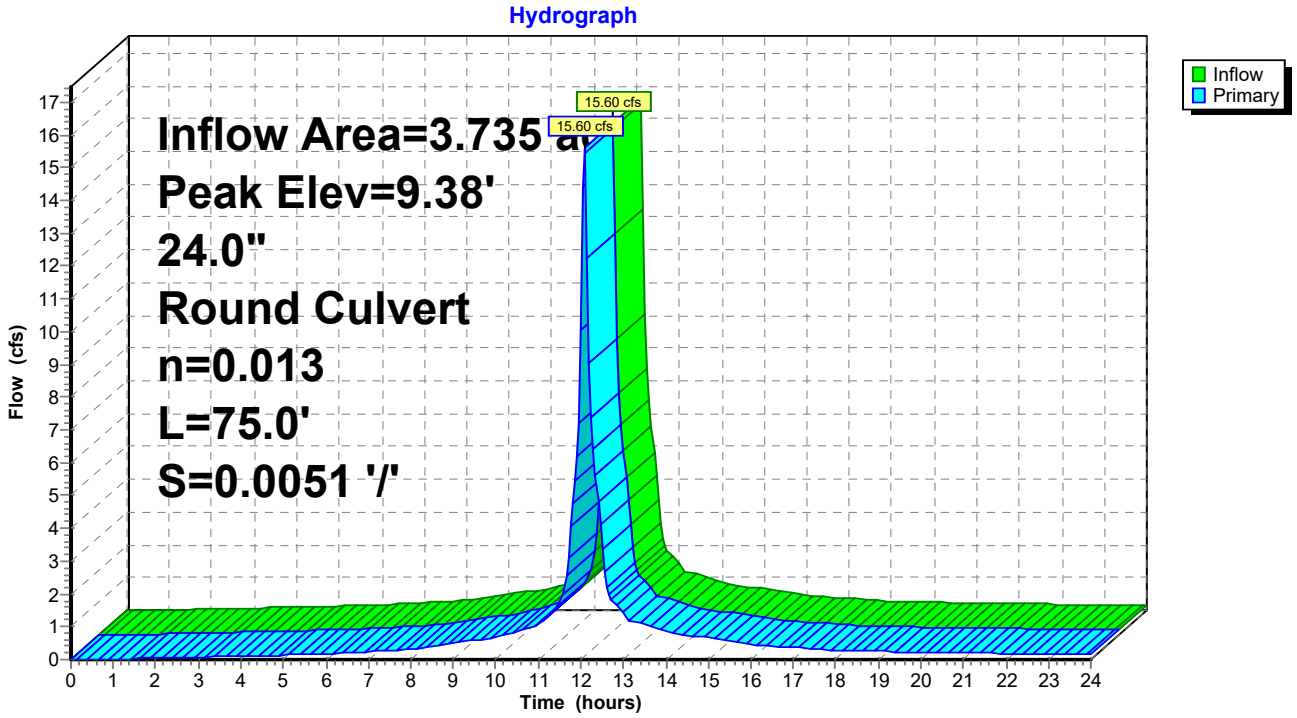
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 4.03" for 10-Year Storm event
Inflow = 15.60 cfs @ 12.09 hrs, Volume= 1.256 af
Outflow = 15.60 cfs @ 12.09 hrs, Volume= 1.256 af, Atten= 0%, Lag= 0.0 min
Primary = 15.60 cfs @ 12.09 hrs, Volume= 1.256 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.38' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.20 cfs @ 12.09 hrs HW=9.30' (Free Discharge)
1=Culvert (Inlet Controls 15.20 cfs @ 4.84 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.20 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 1%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.78' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

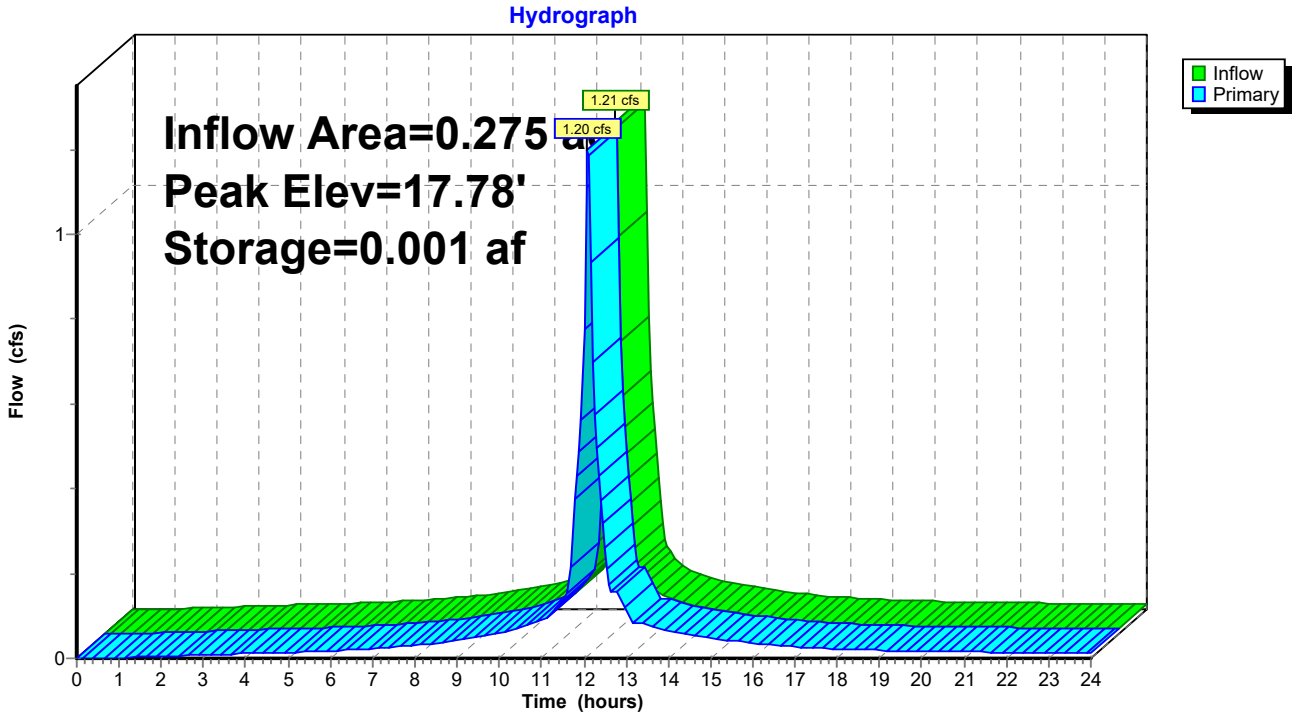
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (749.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=17.77' (Free Discharge)
└**3=Culvert** (Passes 1.17 cfs of 6.29 cfs potential flow)
├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.01 cfs @ 1.71 fps)

Pond 24P: Filterra 1 6x8



Summary for Pond 27P: AD49

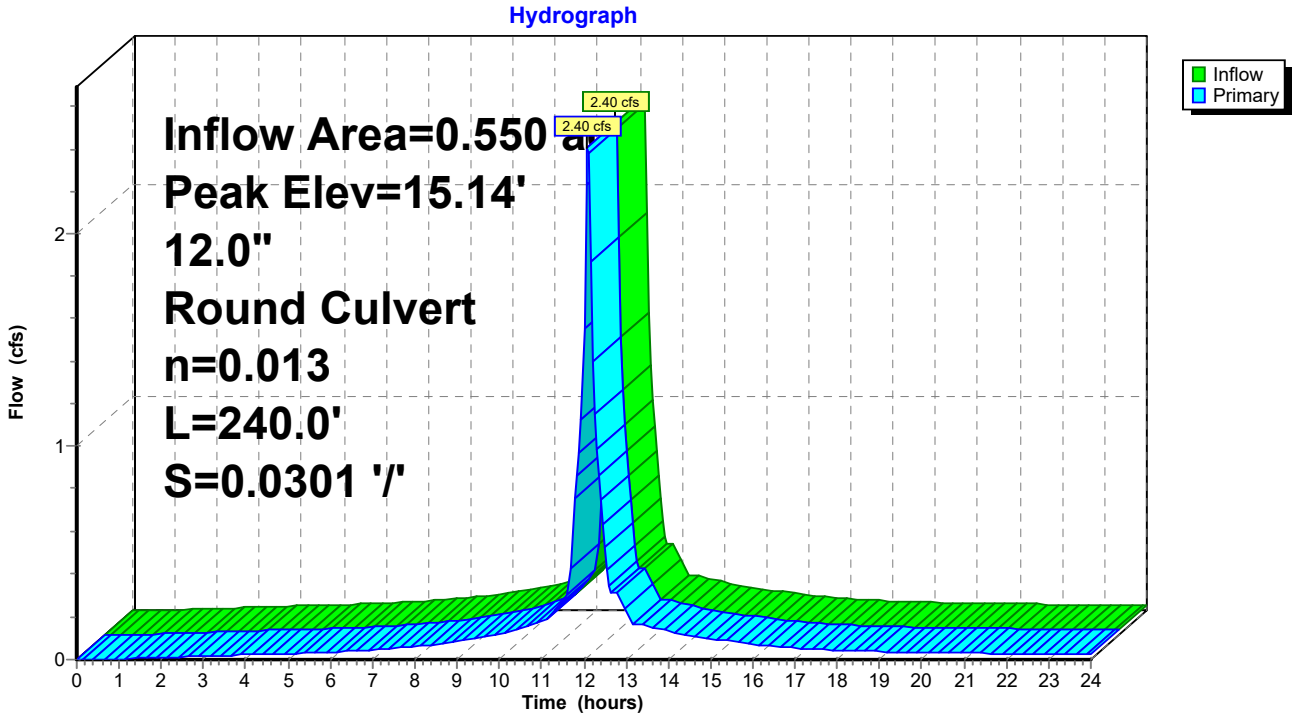
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 4.35" for 10-Year Storm event
Inflow = 2.40 cfs @ 12.09 hrs, Volume= 0.199 af
Outflow = 2.40 cfs @ 12.09 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Primary = 2.40 cfs @ 12.09 hrs, Volume= 0.199 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.14' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.09 hrs HW=15.11' (Free Discharge)
1=Culvert (Inlet Controls 2.33 cfs @ 2.97 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.20 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 1%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.78' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

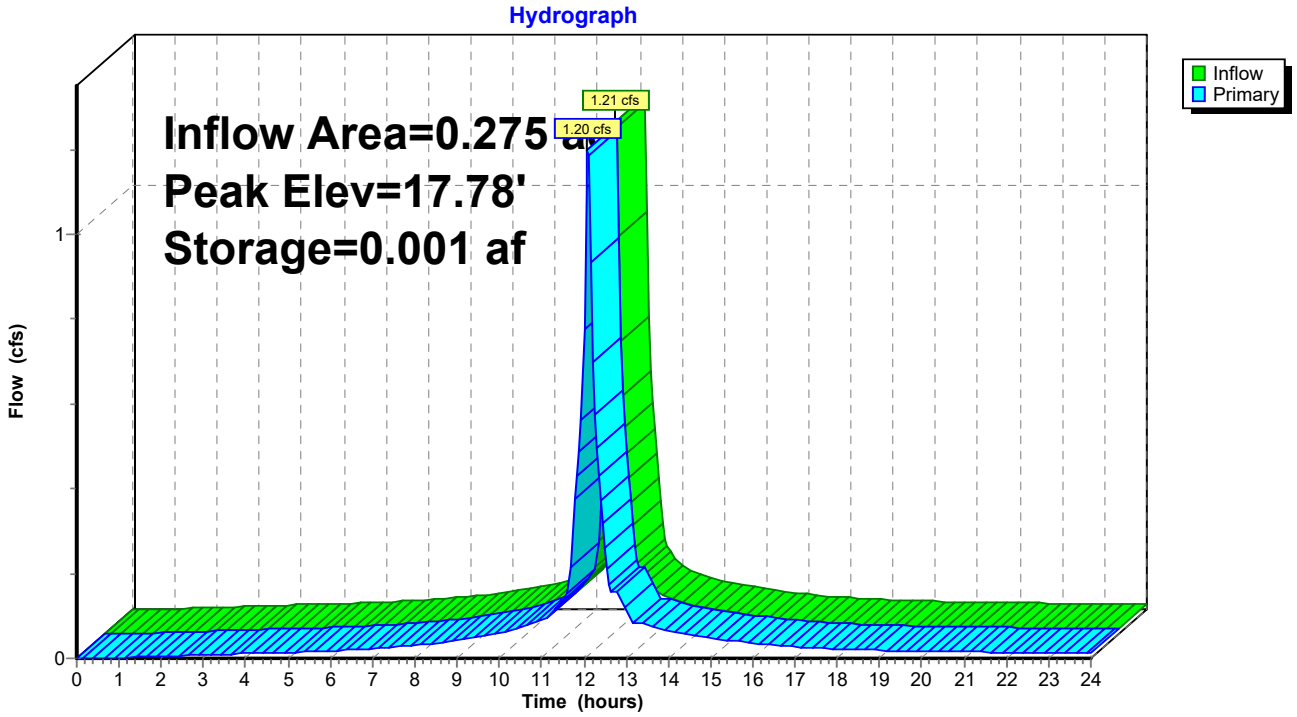
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (749.5 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.130, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=17.77' (Free Discharge)
└**3=Culvert** (Passes 1.17 cfs of 2.55 cfs potential flow)
  ├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
  └**2=Broad-Crested Rectangular Weir** (Weir Controls 1.01 cfs @ 1.71 fps)

Pond 28P: Filterra 1 6x8

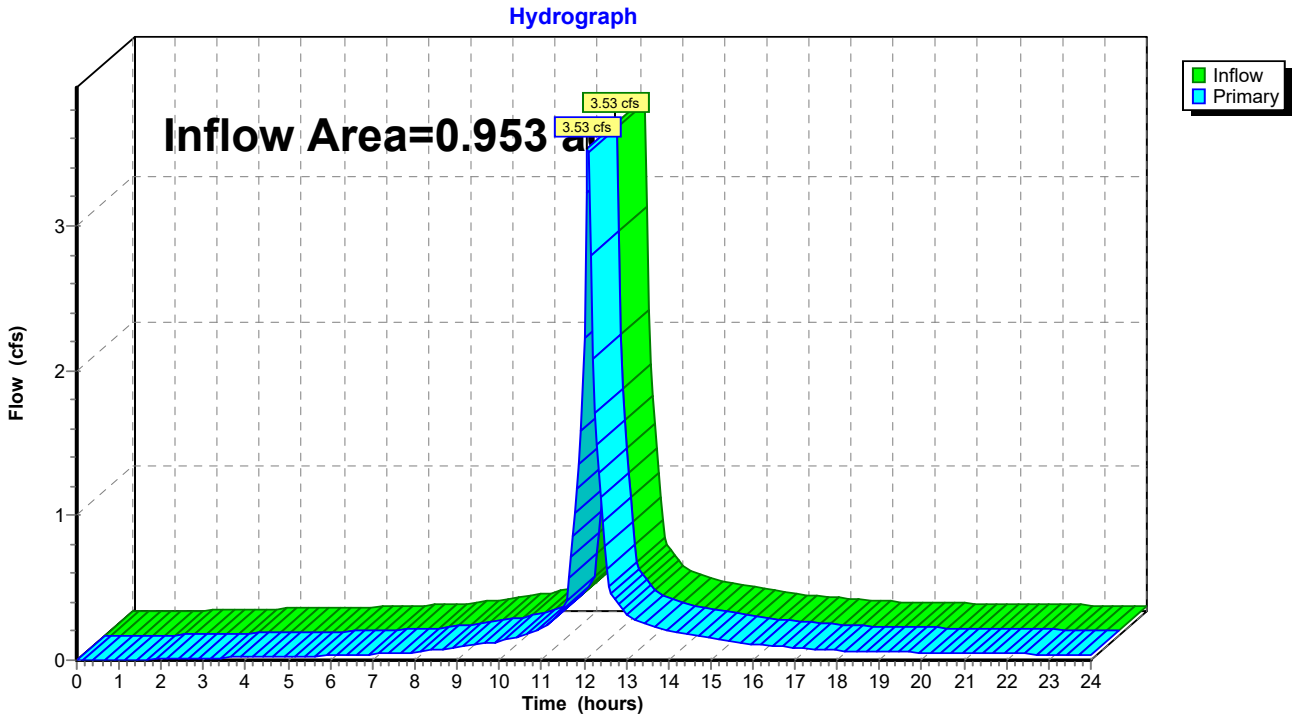


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 3.51" for 10-Year Storm event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af
Primary = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

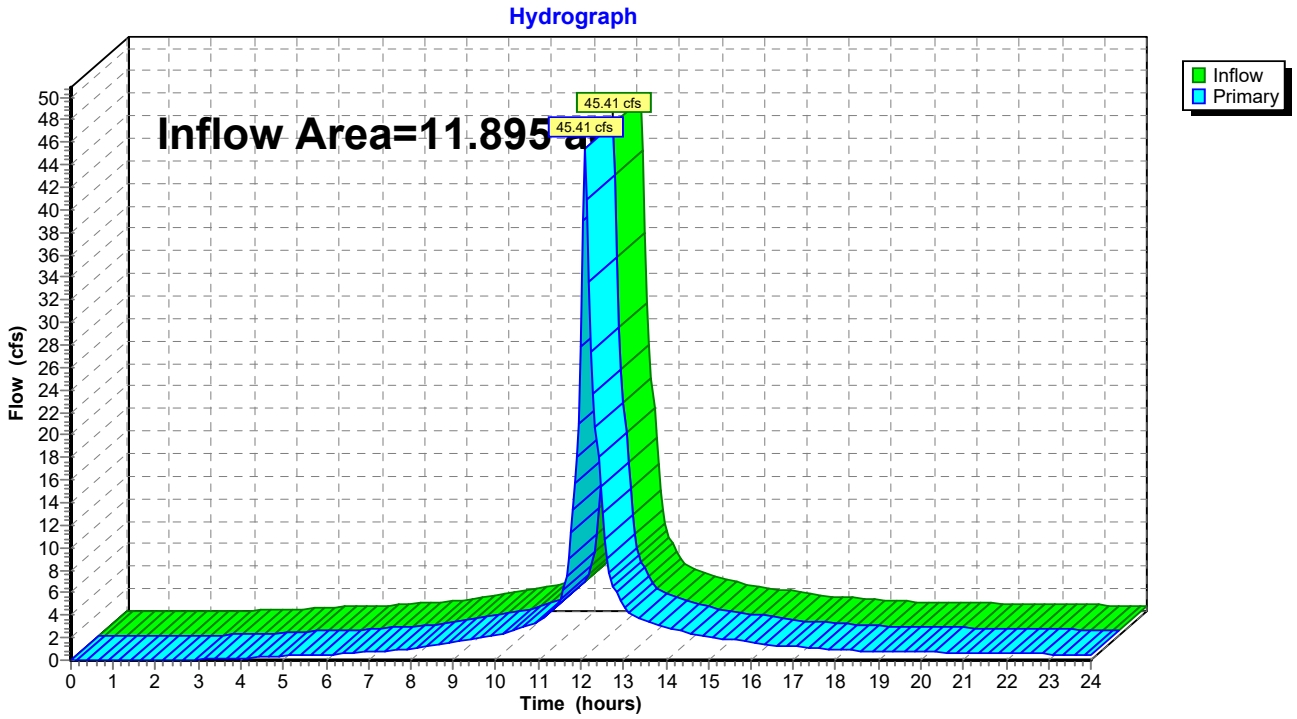


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 4.08" for 10-Year Storm event
Inflow = 45.41 cfs @ 12.10 hrs, Volume= 4.047 af
Primary = 45.41 cfs @ 12.10 hrs, Volume= 4.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

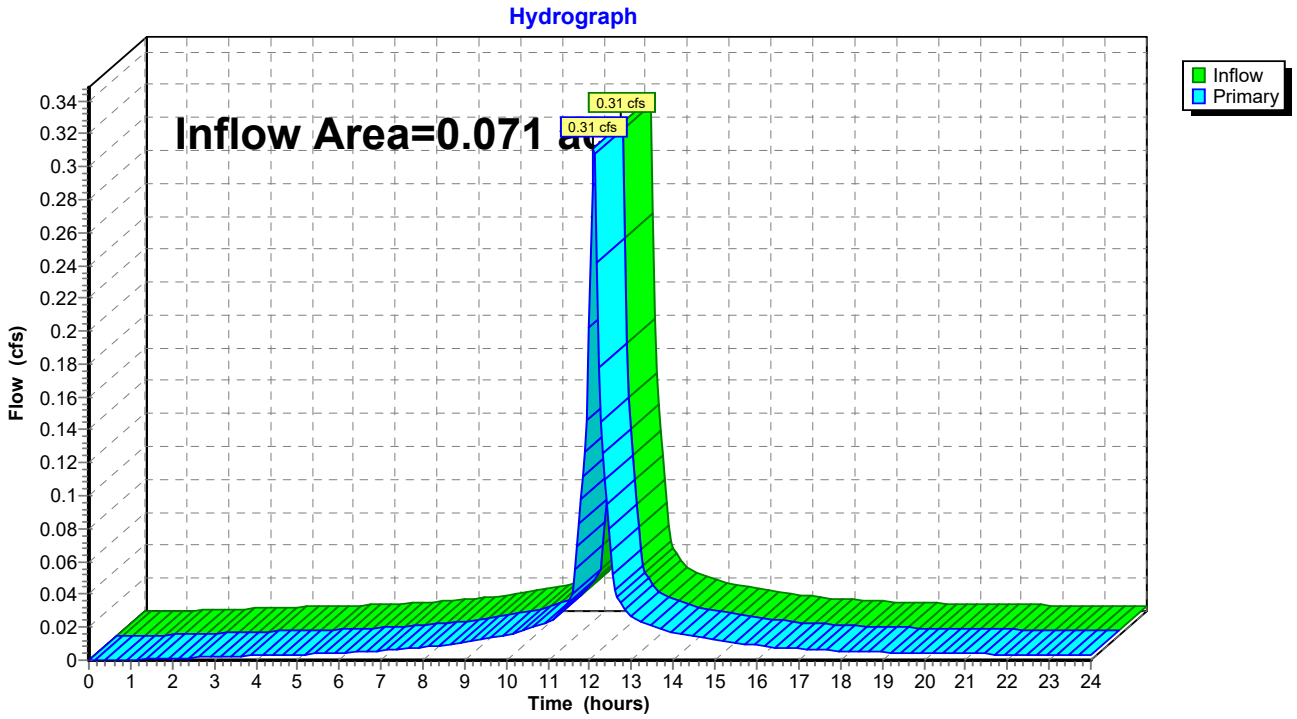


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af
Primary = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>3.60"
Tc=6.0 min CN=80 Runoff=1.83 cfs 0.133 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.235 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.236 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>5.21"
Tc=6.0 min CN=95 Runoff=3.30 cfs 0.263 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=97 Runoff=2.38 cfs 0.195 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.60 cfs 0.050 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.62 cfs 0.052 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.025 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.046 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=94 Runoff=0.45 cfs 0.036 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.11 cfs 0.093 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.67 cfs 0.306 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=11.03 cfs 0.921 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.077 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=6.09 cfs 0.508 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.43 cfs 0.119 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.89 cfs 0.325 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.42 cfs 0.119 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=88 Runoff=5.56 cfs 0.417 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=93 Runoff=13.34 cfs 1.042 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Pond 1P: DMH 1 Peak Elev=11.70' Inflow=10.45 cfs 0.858 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=10.45 cfs 0.858 af

Pond 2P: DMH 2 Peak Elev=11.40' Inflow=11.32 cfs 0.928 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=11.32 cfs 0.928 af

Pond 3P: Storm Structure Peak Elev=9.76' Inflow=11.32 cfs 0.928 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=11.32 cfs 0.928 af

Pond 4P: R-Tank 1 Peak Elev=9.27' Storage=2,513 cf Inflow=11.32 cfs 0.928 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 5P: DMH-11 Peak Elev=10.93' Inflow=17.37 cfs 1.637 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=17.37 cfs 1.637 af

Pond 6P: CB27 Peak Elev=13.06' Inflow=19.01 cfs 1.587 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=19.01 cfs 1.587 af

Pond 7P: Storm Structure Peak Elev=10.85' Inflow=19.01 cfs 1.587 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=19.01 cfs 1.587 af

Pond 8P: R-Tank 2 Peak Elev=11.13' Storage=7,657 cf Inflow=19.93 cfs 1.664 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=17.37 cfs 1.637 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.97' Inflow=27.37 cfs 2.557 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=27.37 cfs 2.557 af

Pond 10P: DMH 4 Peak Elev=8.87' Inflow=10.00 cfs 0.920 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.58' Inflow=10.00 cfs 0.920 af
Outflow=10.00 cfs 0.920 af

Pond 12P: Jellyfish 2 JFPD0808-10-3 Peak Elev=11.24' Inflow=17.37 cfs 1.637 af
Outflow=17.37 cfs 1.637 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=10.48' Inflow=20.03 cfs 1.624 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=20.03 cfs 1.624 af

Pond 24P: Filterra 1 6x8 Peak Elev=17.84' Storage=0.001 af Inflow=1.53 cfs 0.127 af
Outflow=1.53 cfs 0.127 af

Pond 27P: AD49 Peak Elev=15.55' Inflow=3.06 cfs 0.255 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=3.06 cfs 0.255 af

Pond 28P: Filterra 1 6x8 Peak Elev=17.84' Storage=0.001 af Inflow=1.53 cfs 0.127 af
Outflow=1.53 cfs 0.127 af

Link 1L: Freedom Way Inflow=4.65 cfs 0.369 af
Primary=4.65 cfs 0.369 af

Link 2L: Fore River Inflow=59.20 cfs 5.223 af
Primary=59.20 cfs 5.223 af

Link 3L: Fore Street Inflow=0.39 cfs 0.033 af
Primary=0.39 cfs 0.033 af

Total Runoff Area = 12.919 ac Runoff Volume = 5.660 af Average Runoff Depth = 5.26"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

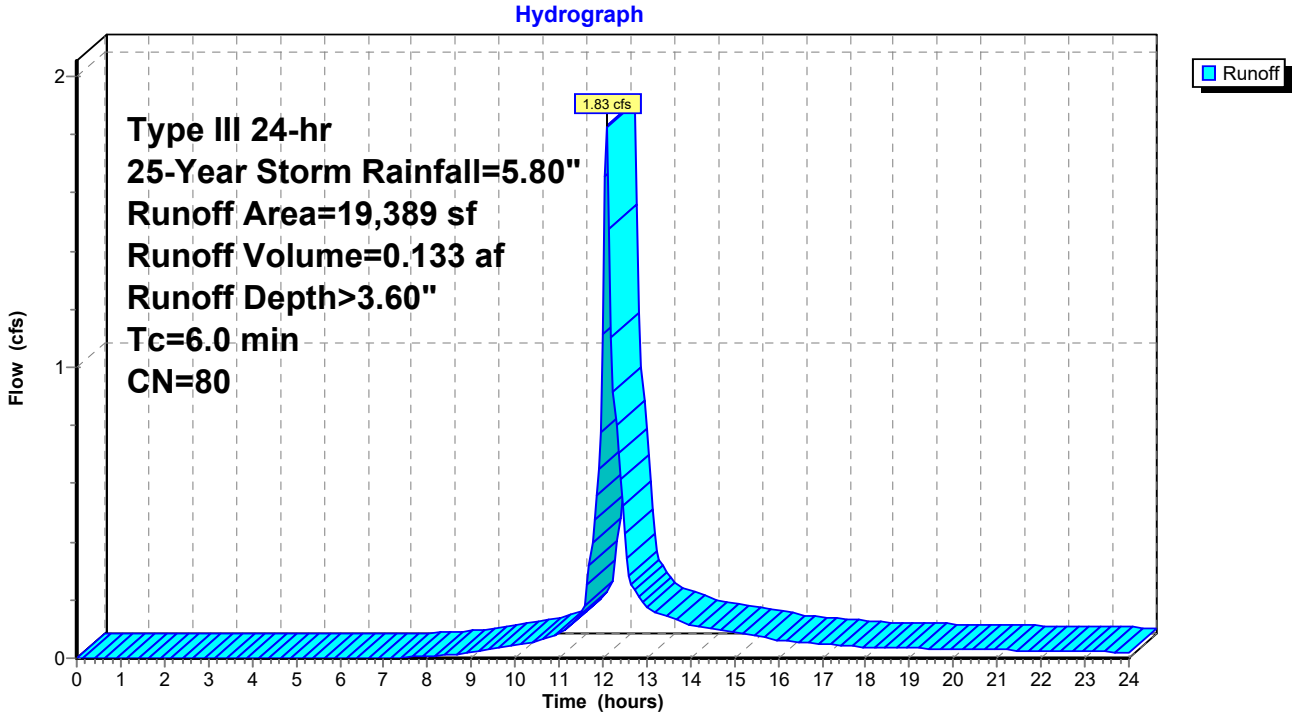
Runoff = 1.83 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 3.60"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

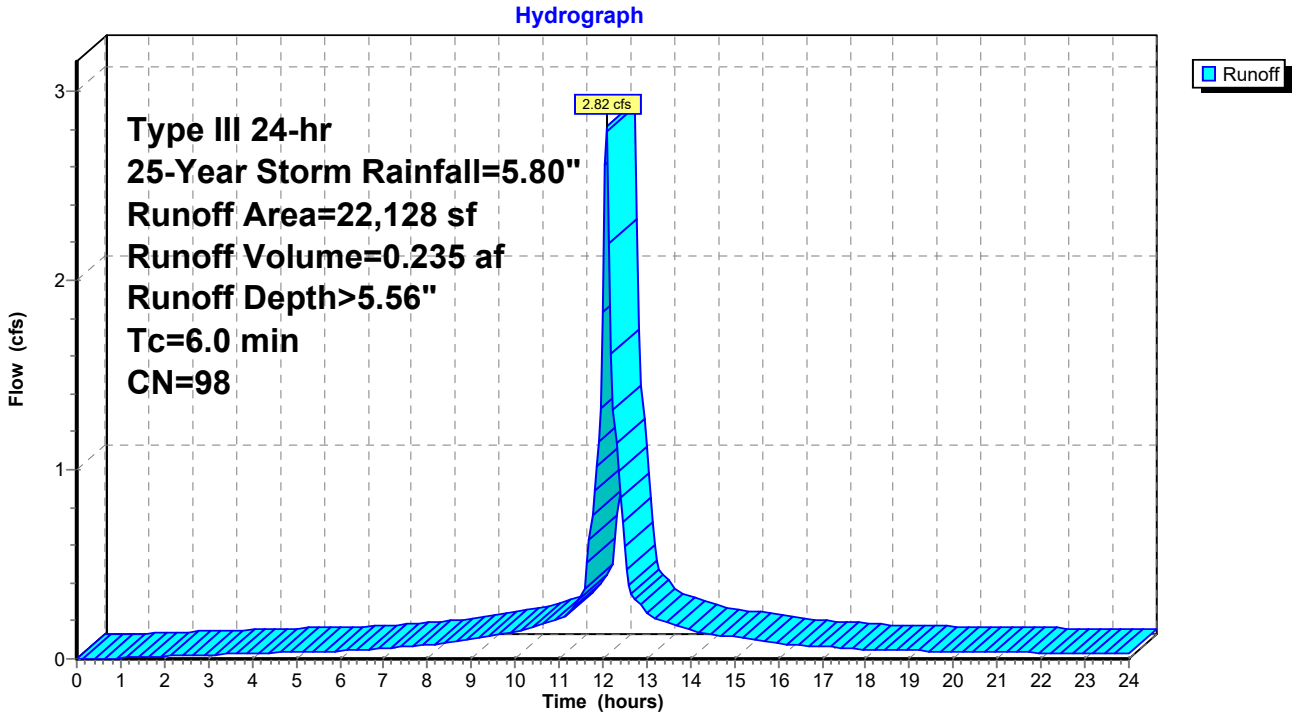
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.235 af, Depth> 5.56"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

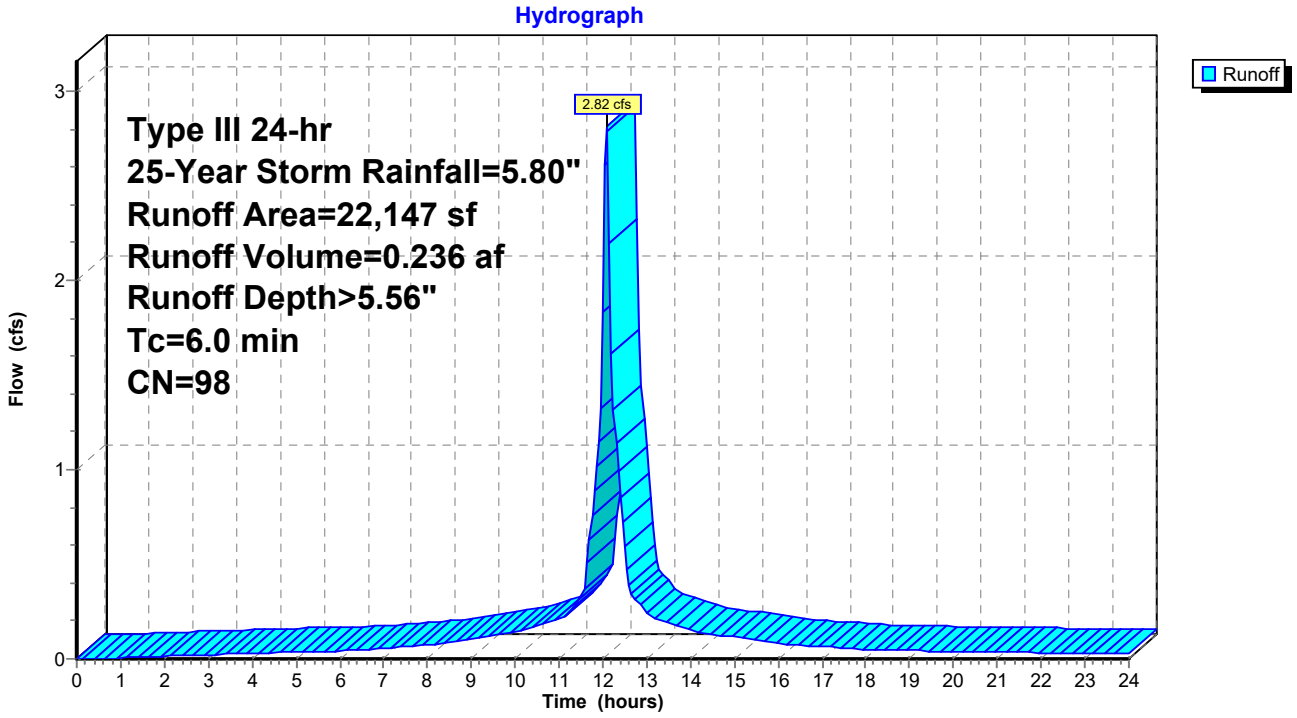
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.236 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

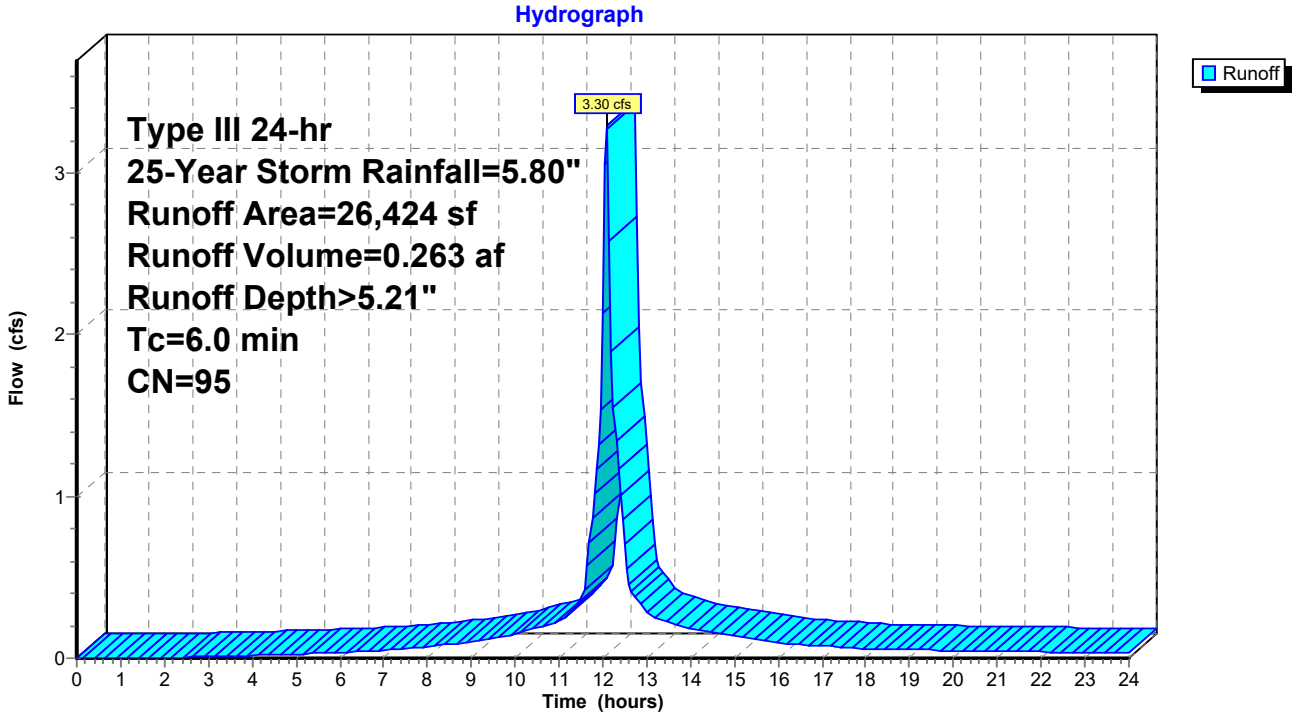
Runoff = 3.30 cfs @ 12.09 hrs, Volume= 0.263 af, Depth> 5.21"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

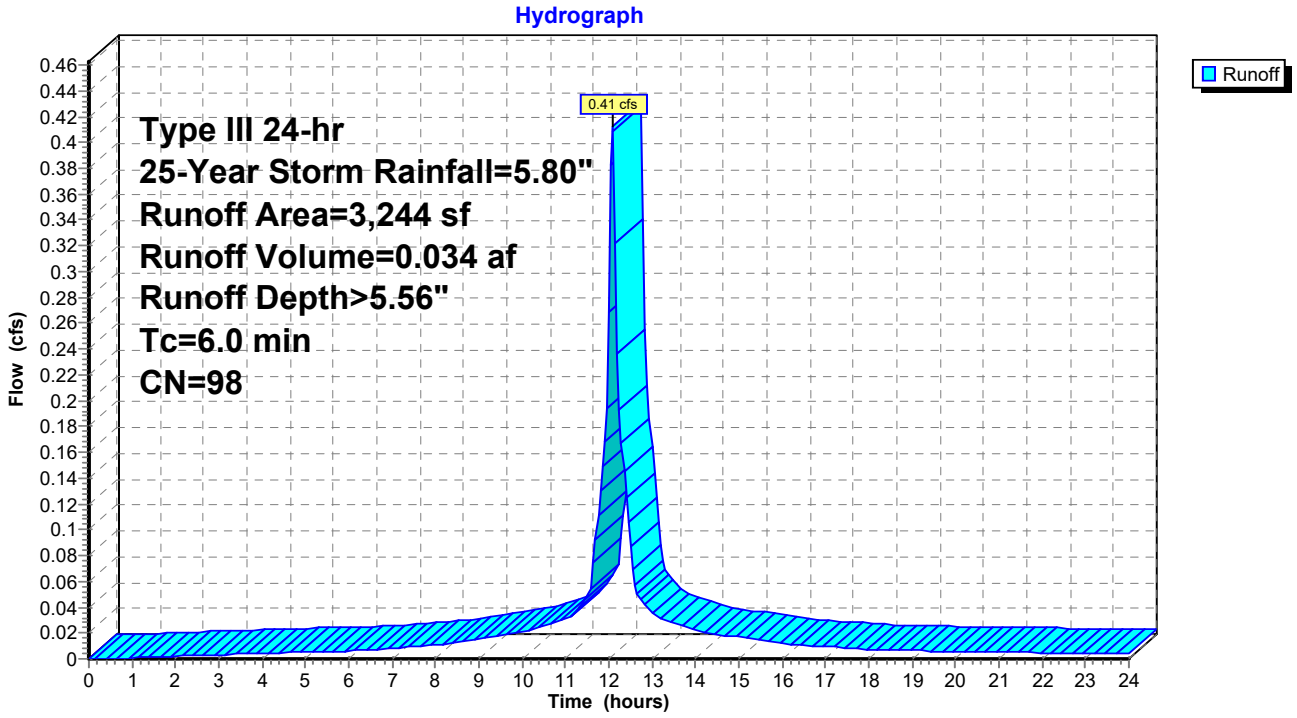
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

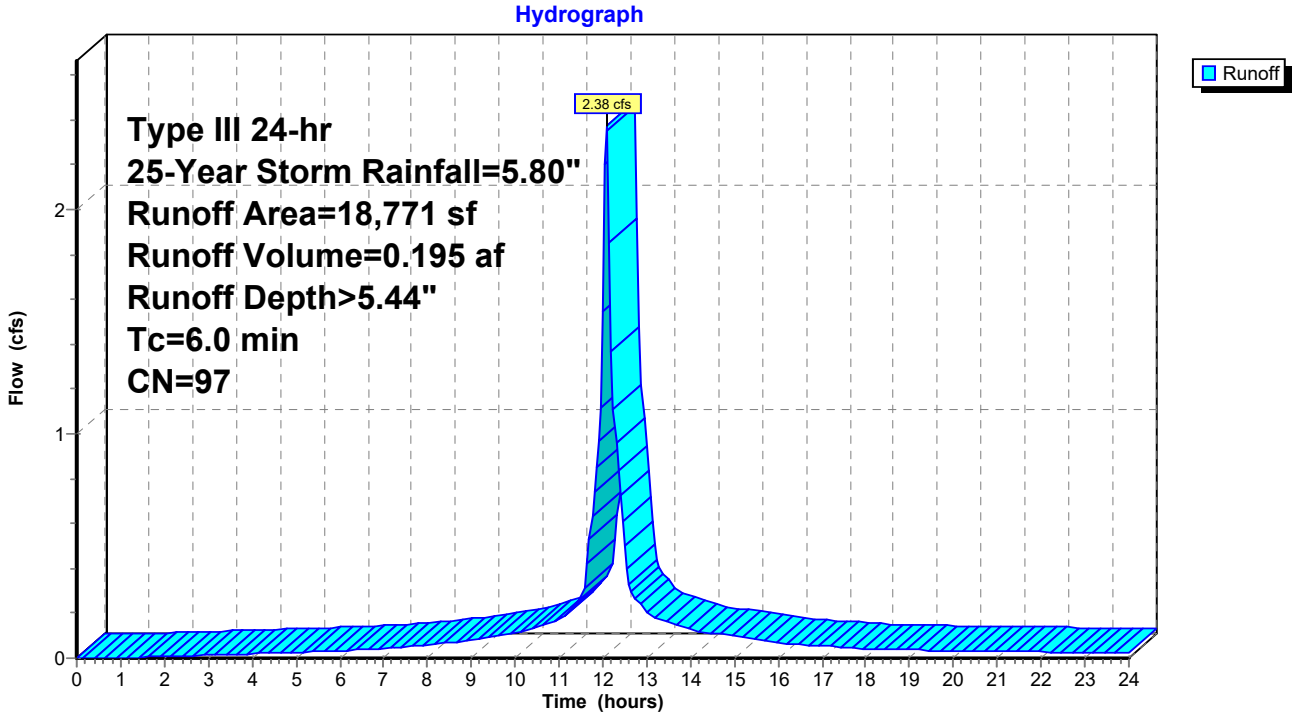
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.195 af, Depth> 5.44"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

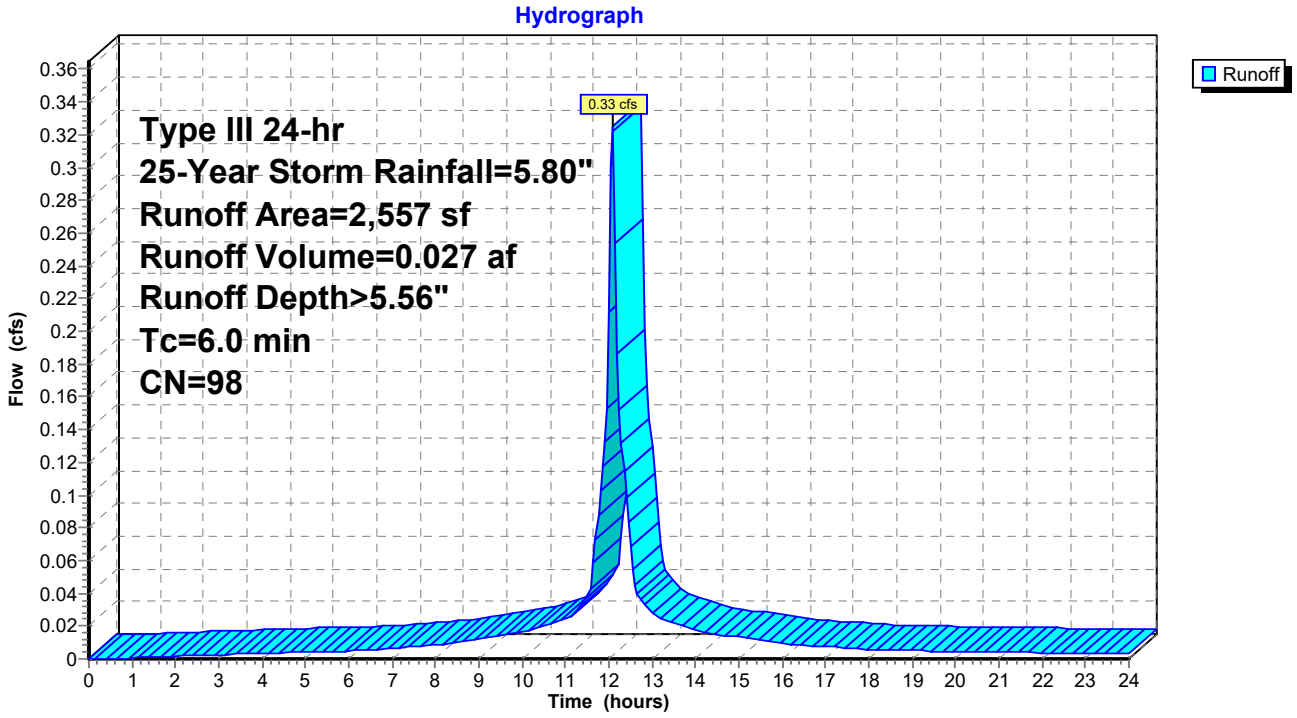
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

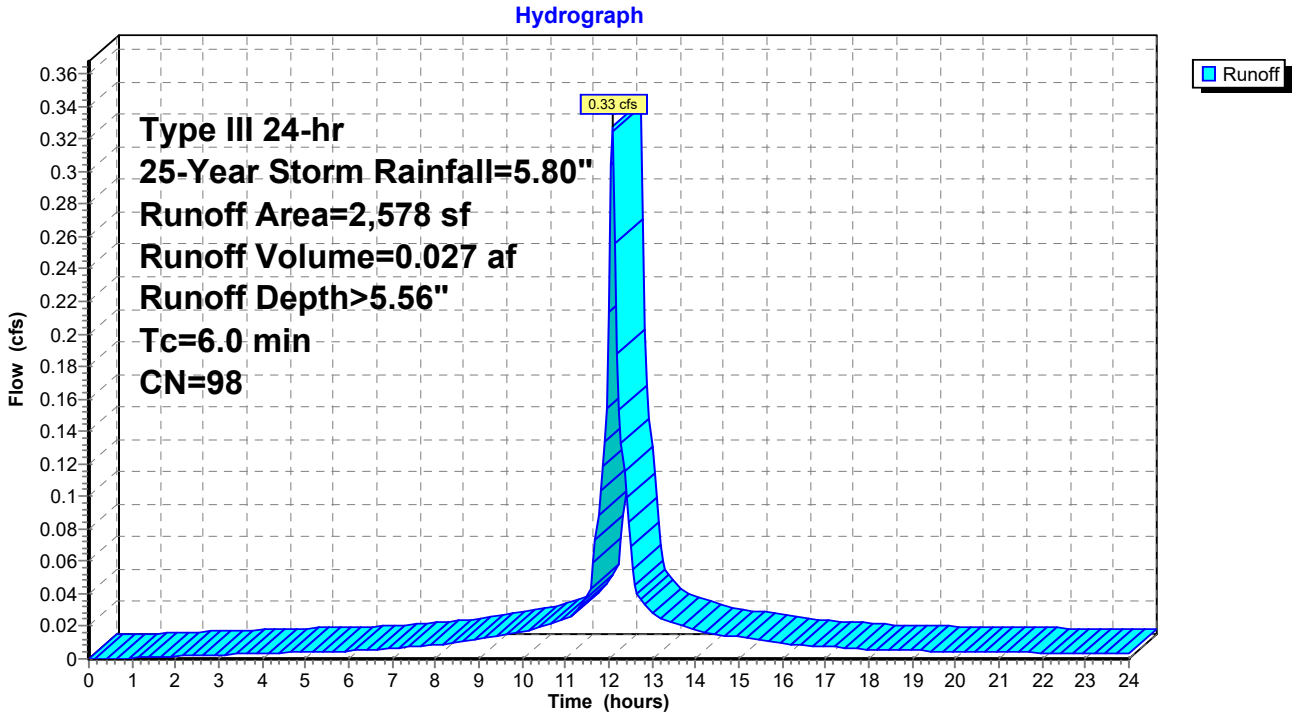
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

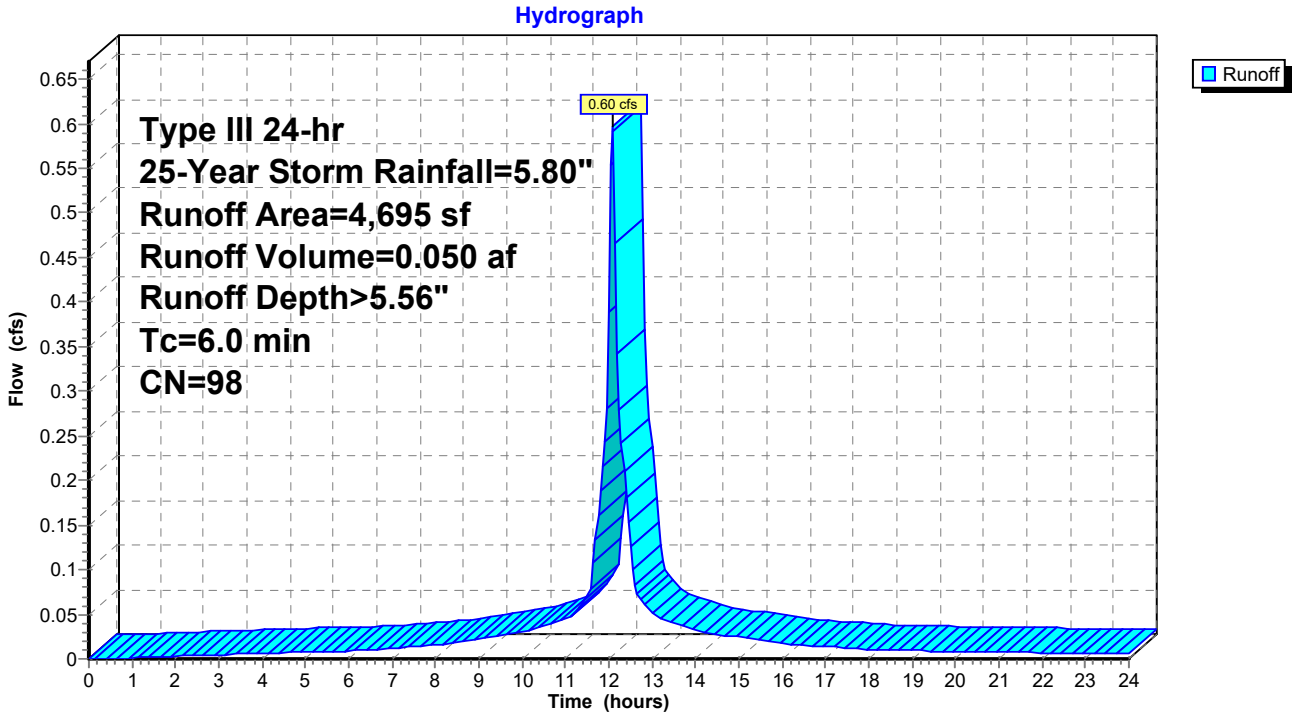
Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

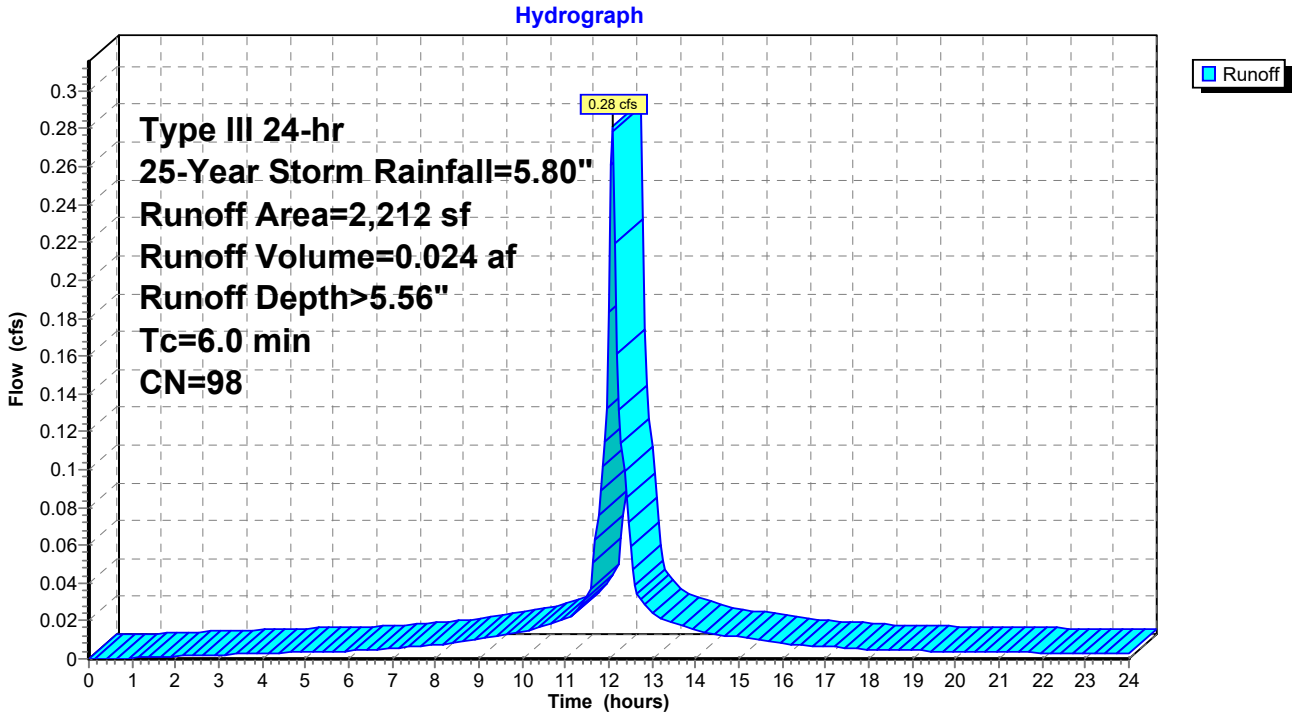
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

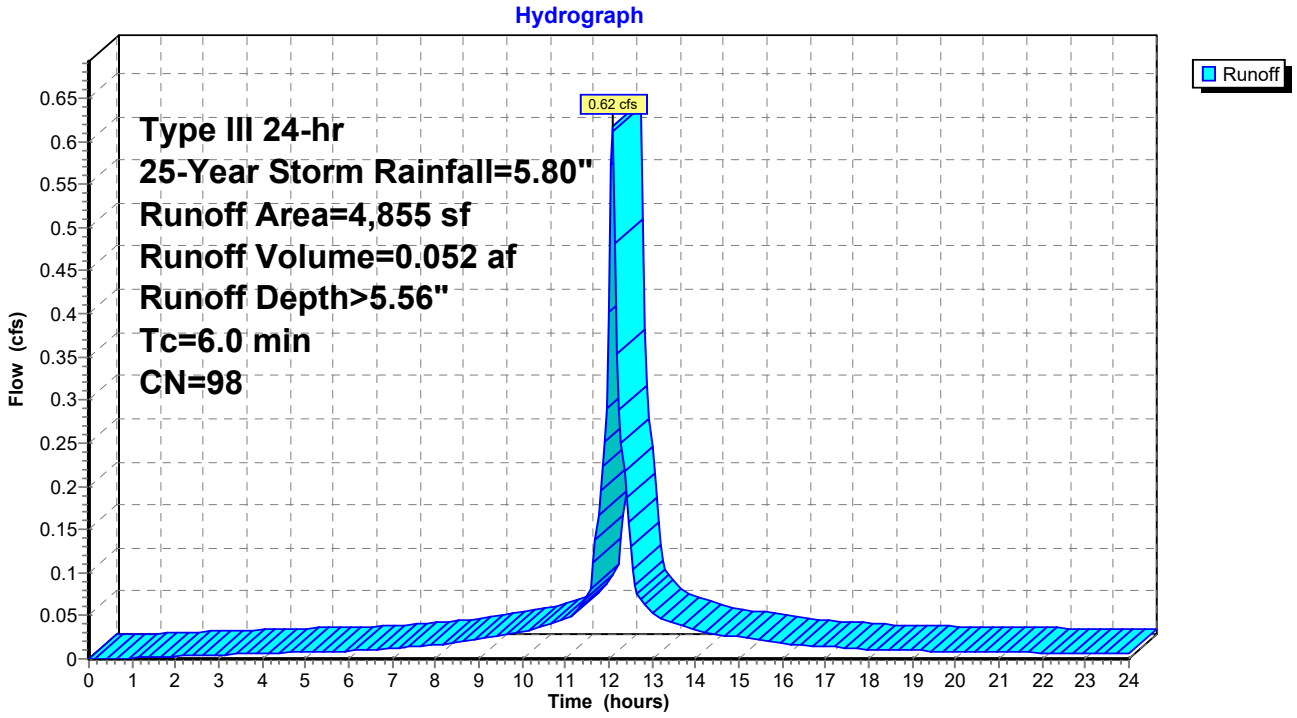
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

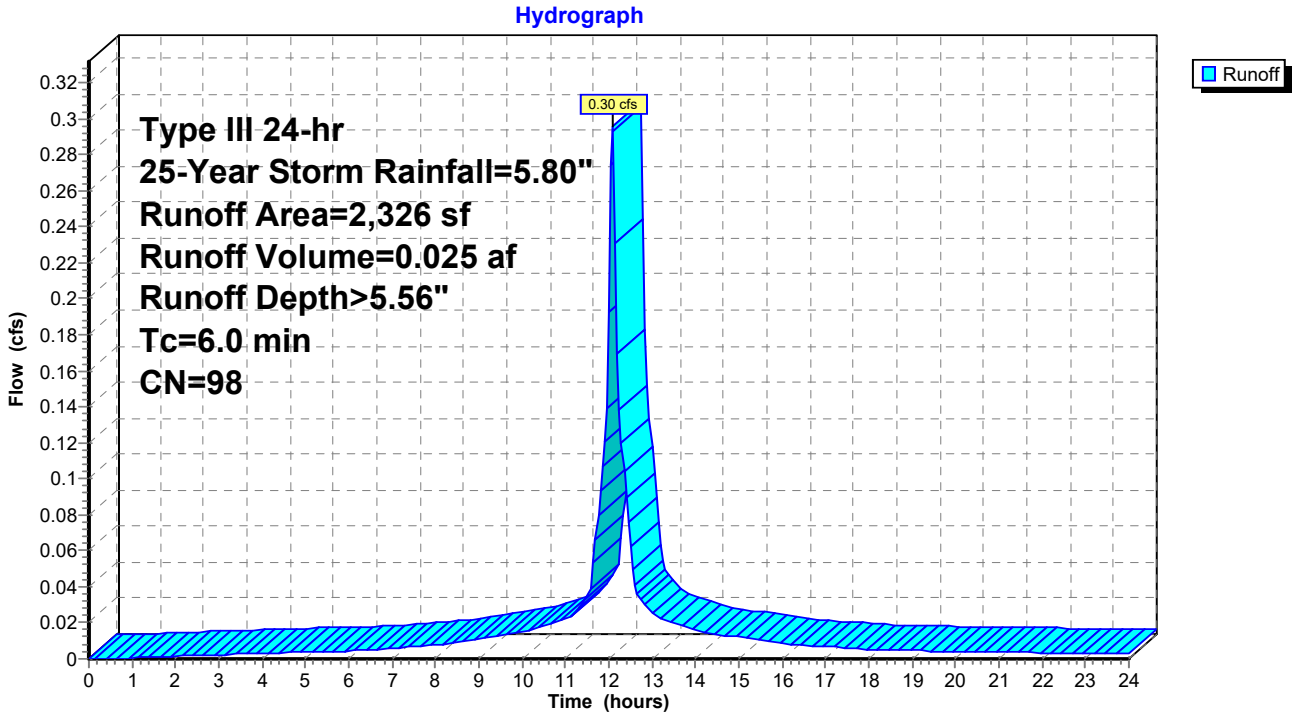
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

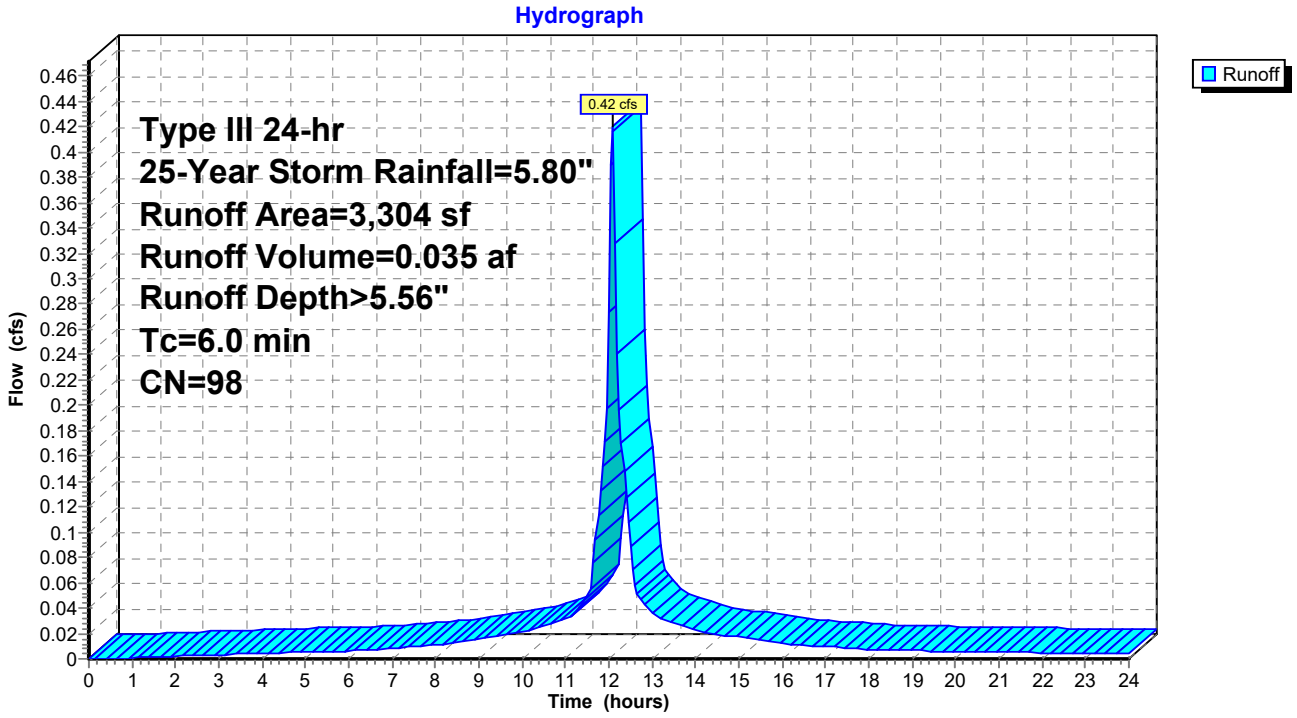
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.56"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

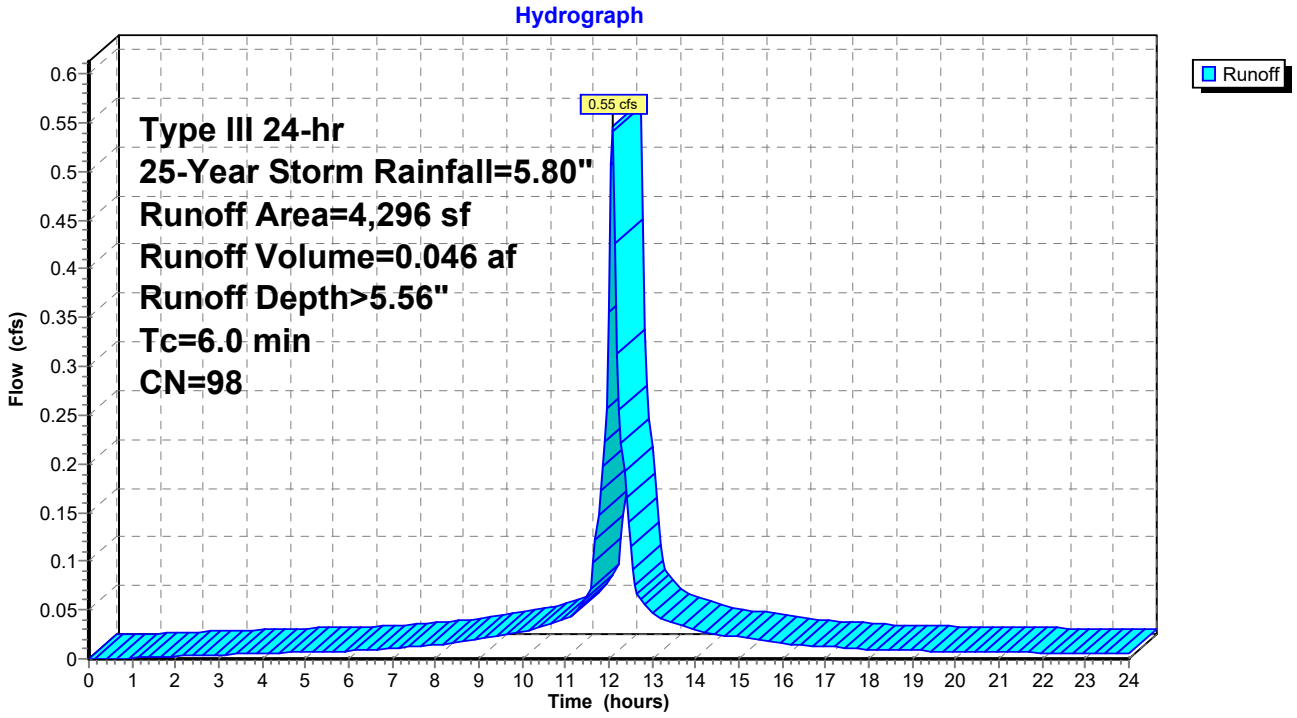
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

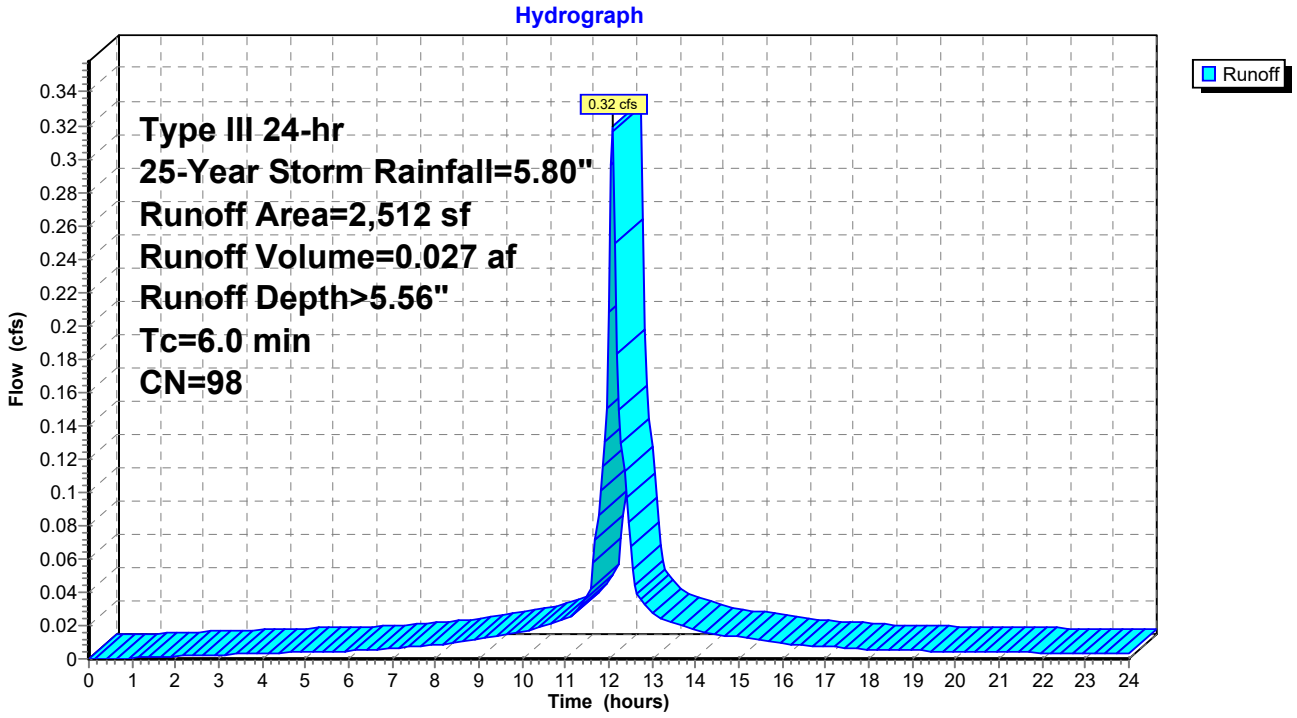
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

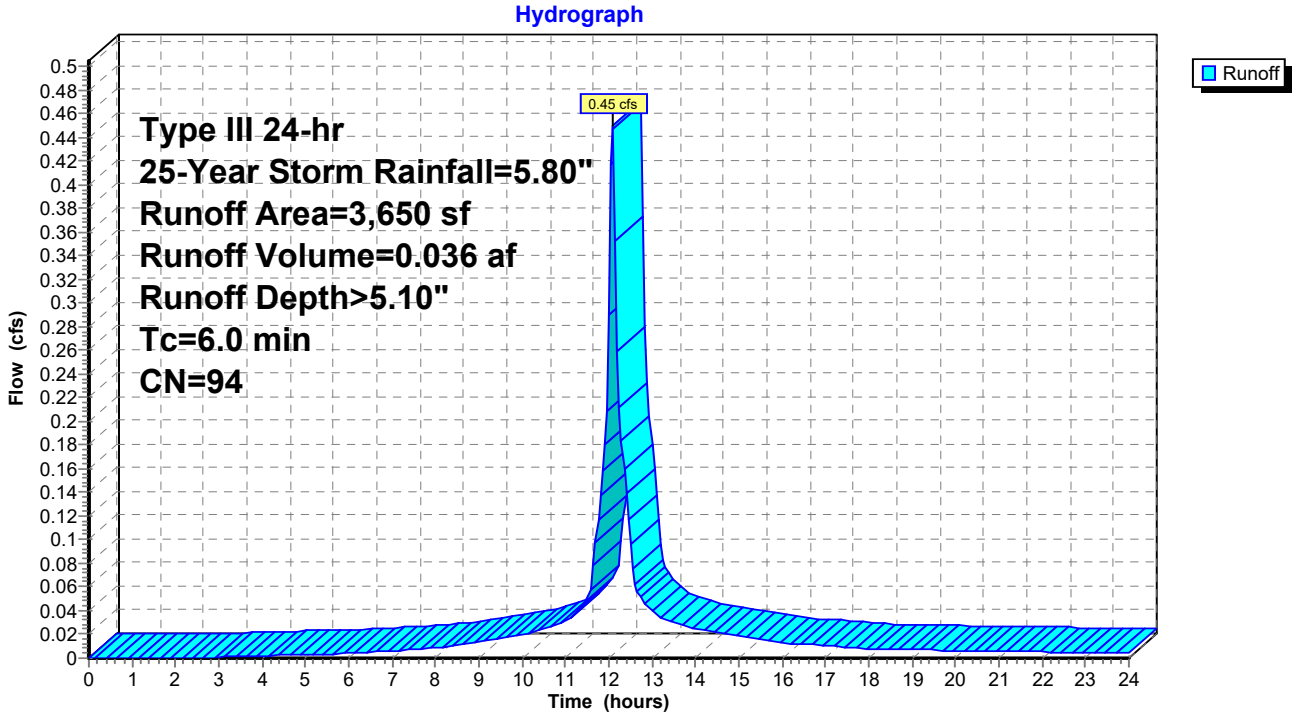
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.10"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

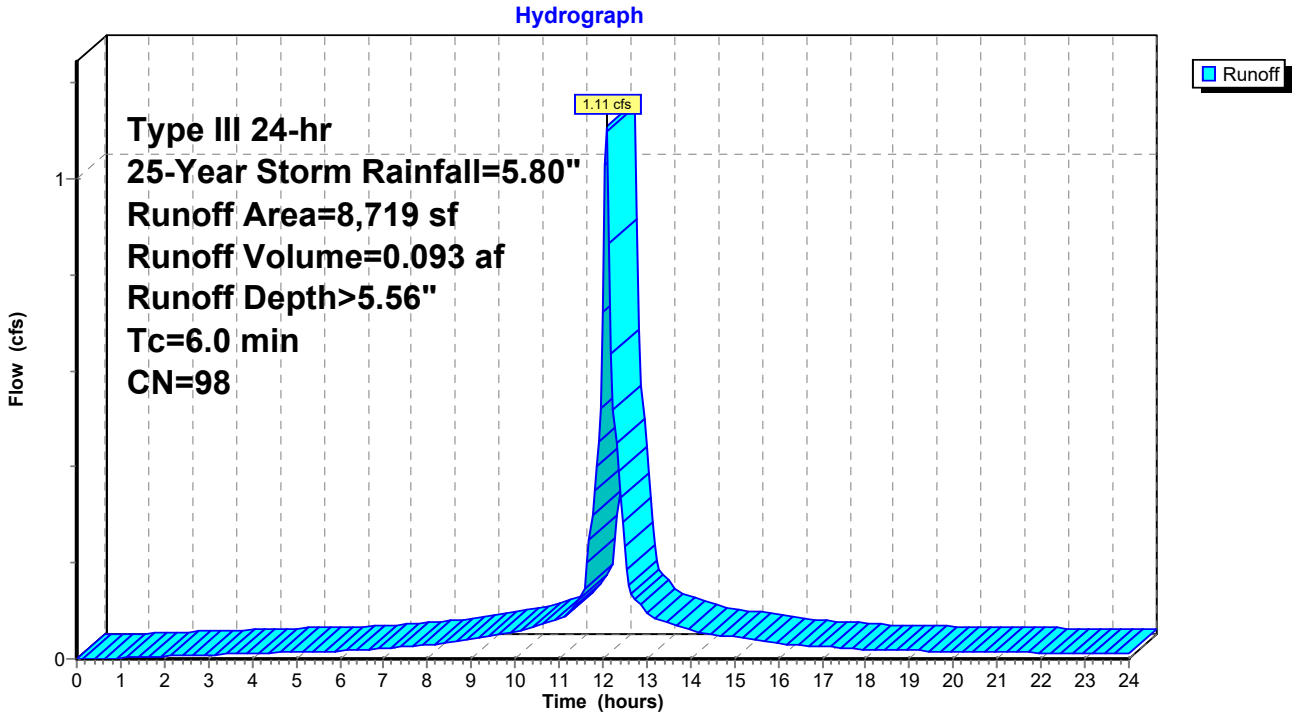
Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

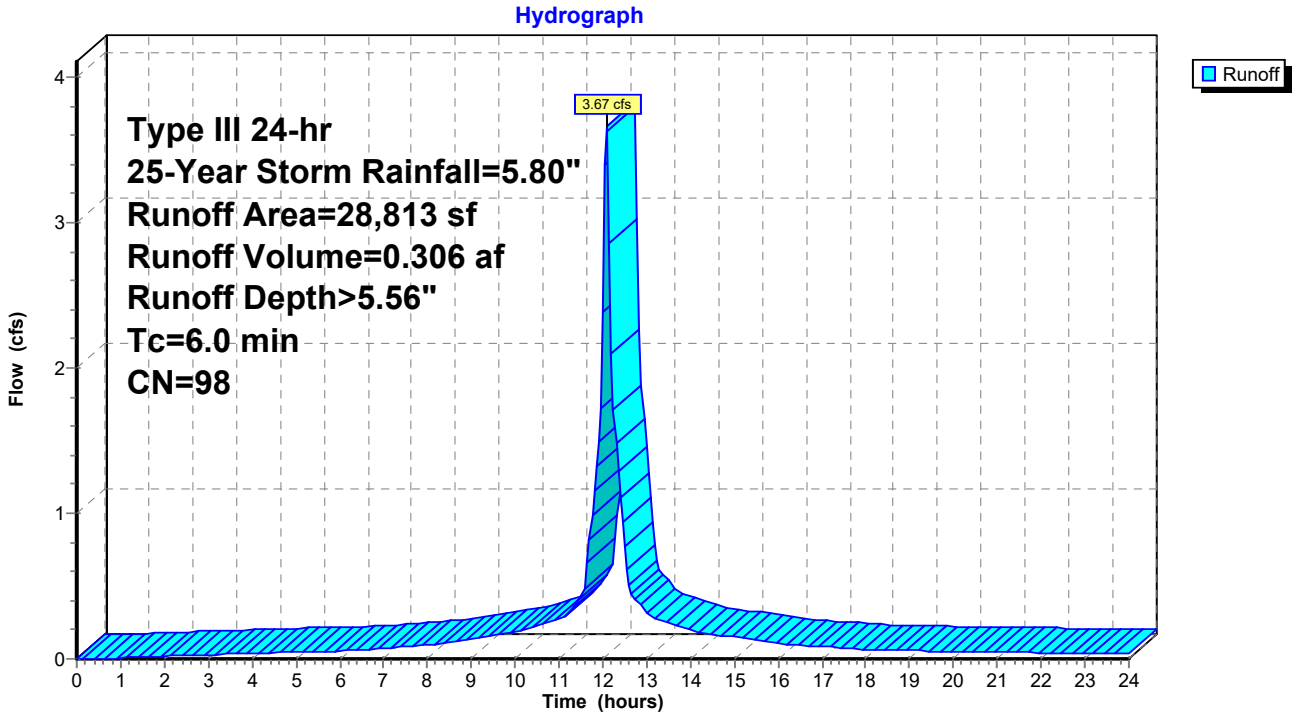
Runoff = 3.67 cfs @ 12.09 hrs, Volume= 0.306 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

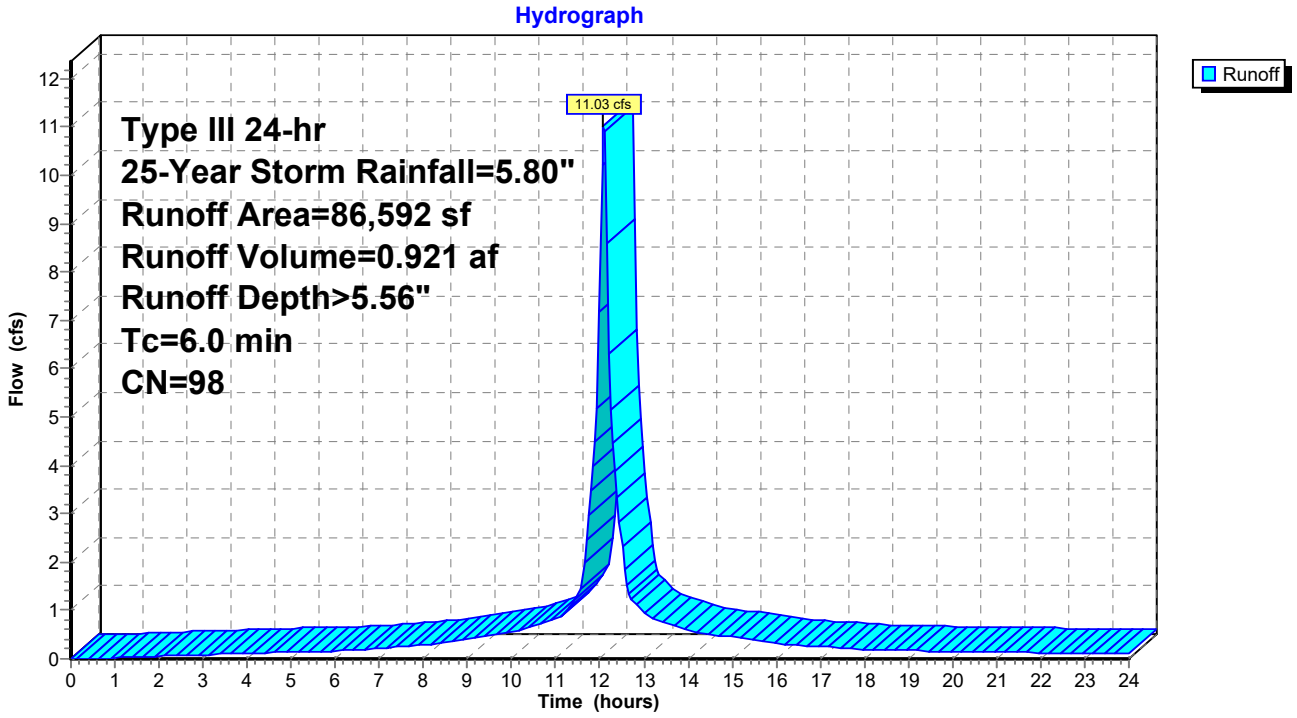
Runoff = 11.03 cfs @ 12.09 hrs, Volume= 0.921 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

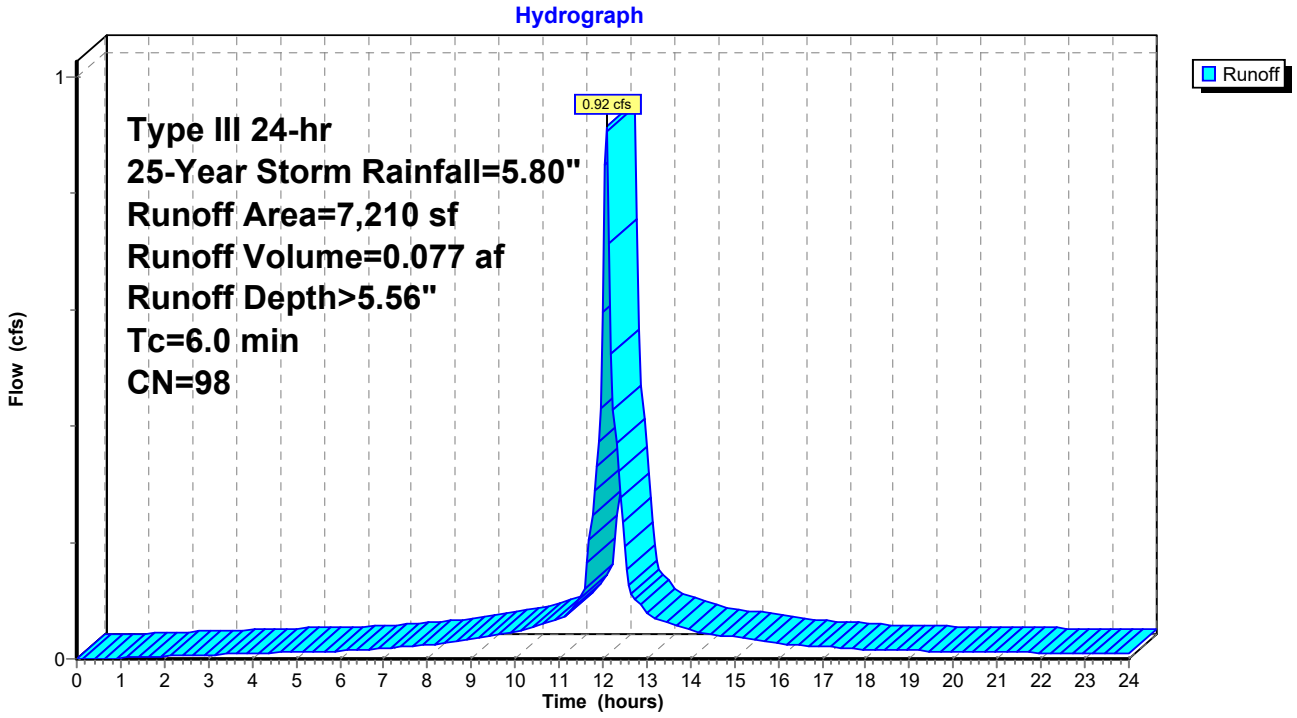
Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 5.56"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

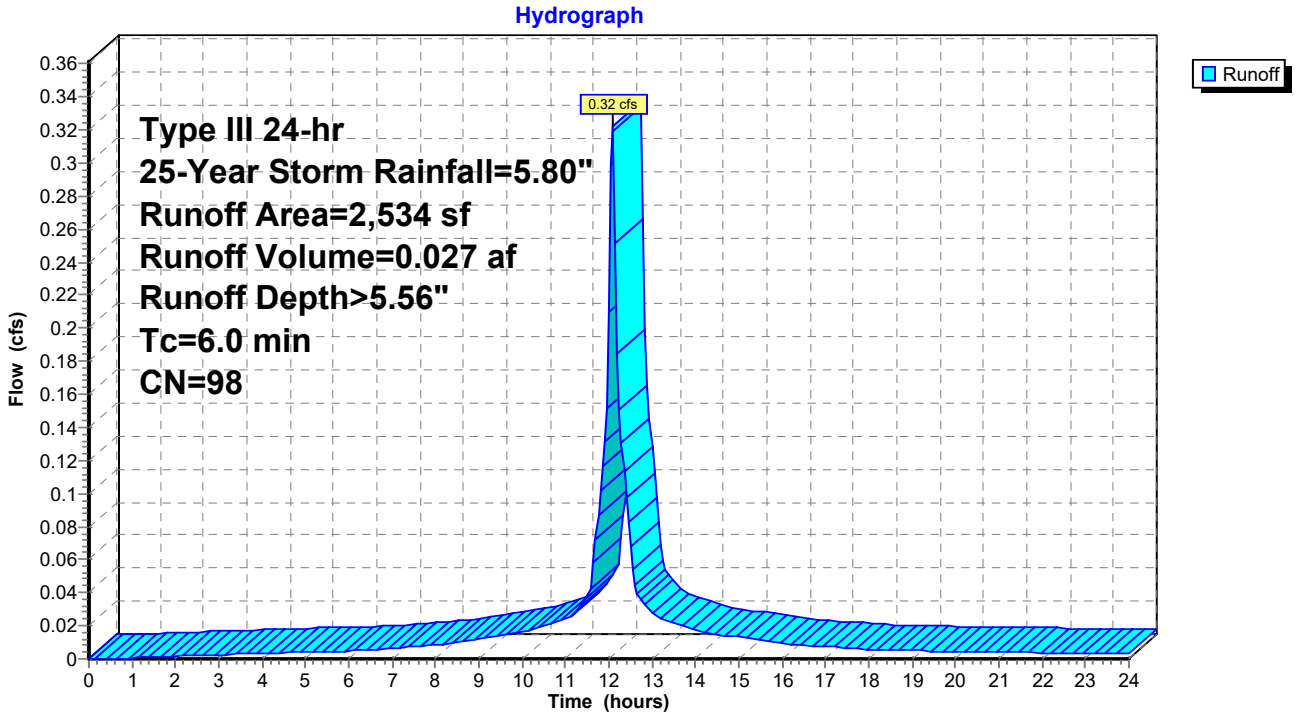
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Link 3L : Fore Street

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

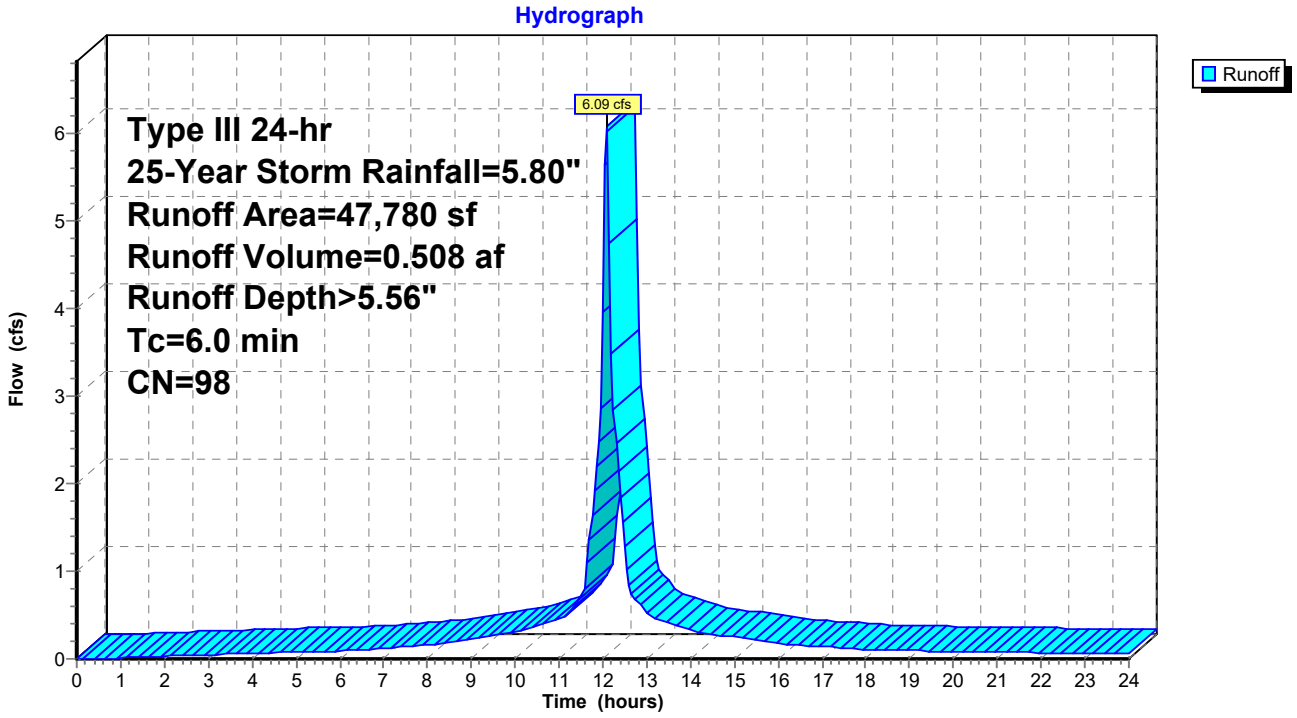
Runoff = 6.09 cfs @ 12.09 hrs, Volume= 0.508 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

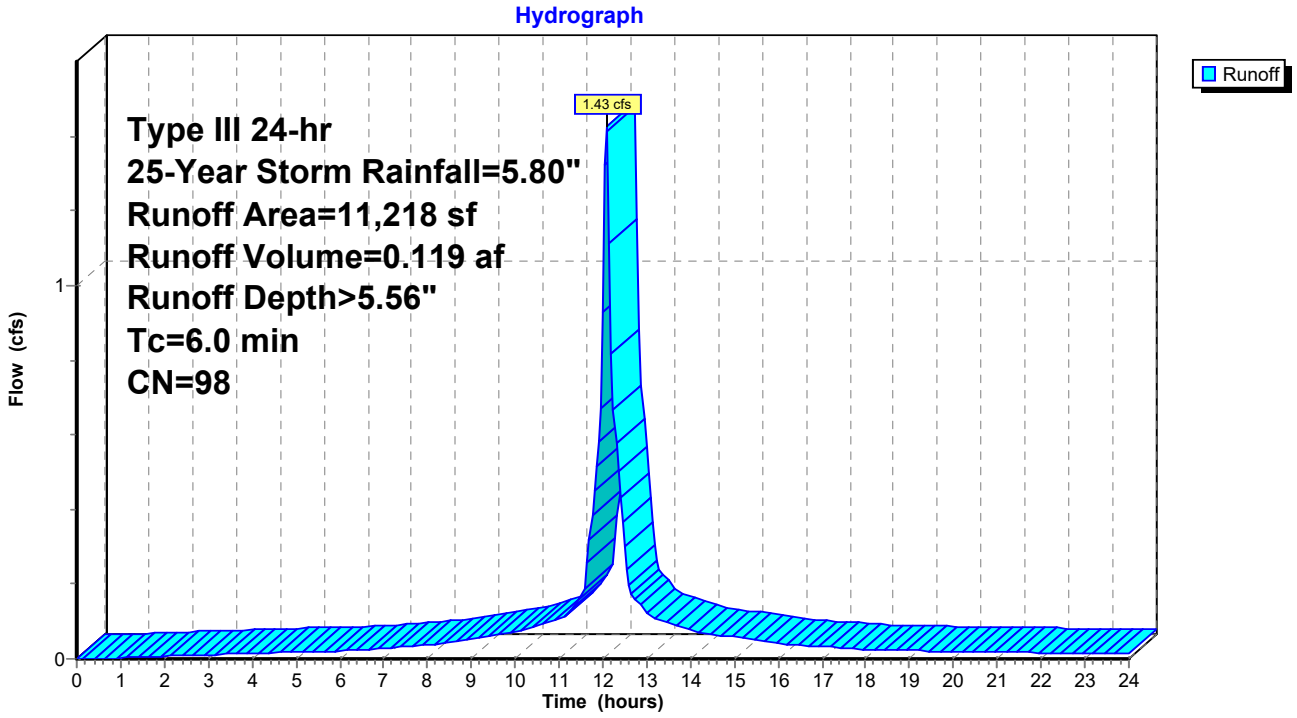
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

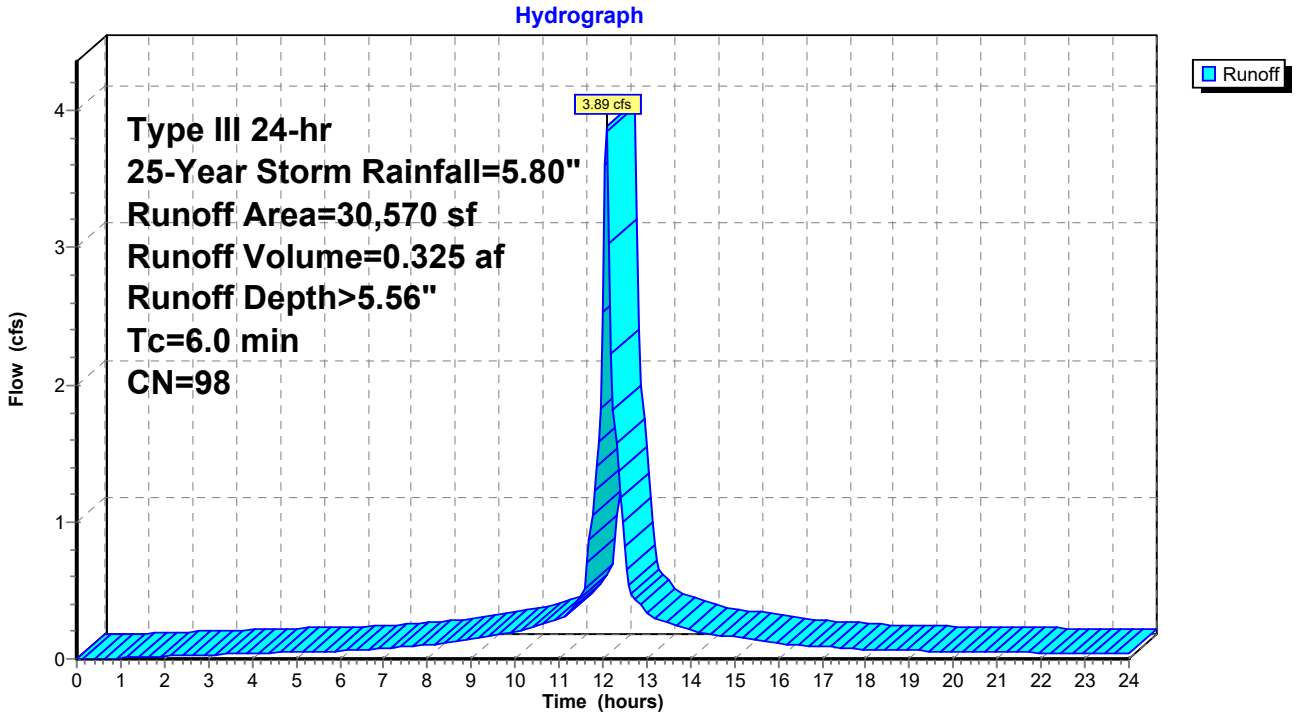
Runoff = 3.89 cfs @ 12.09 hrs, Volume= 0.325 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

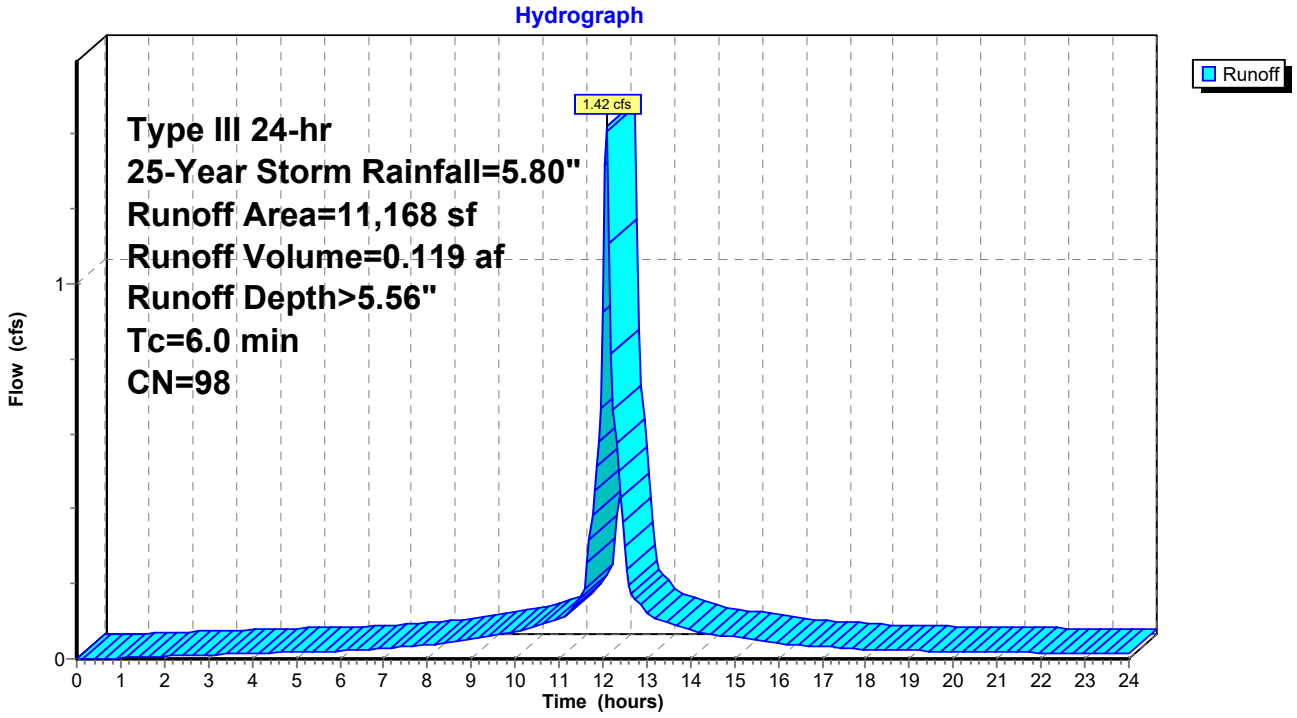
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

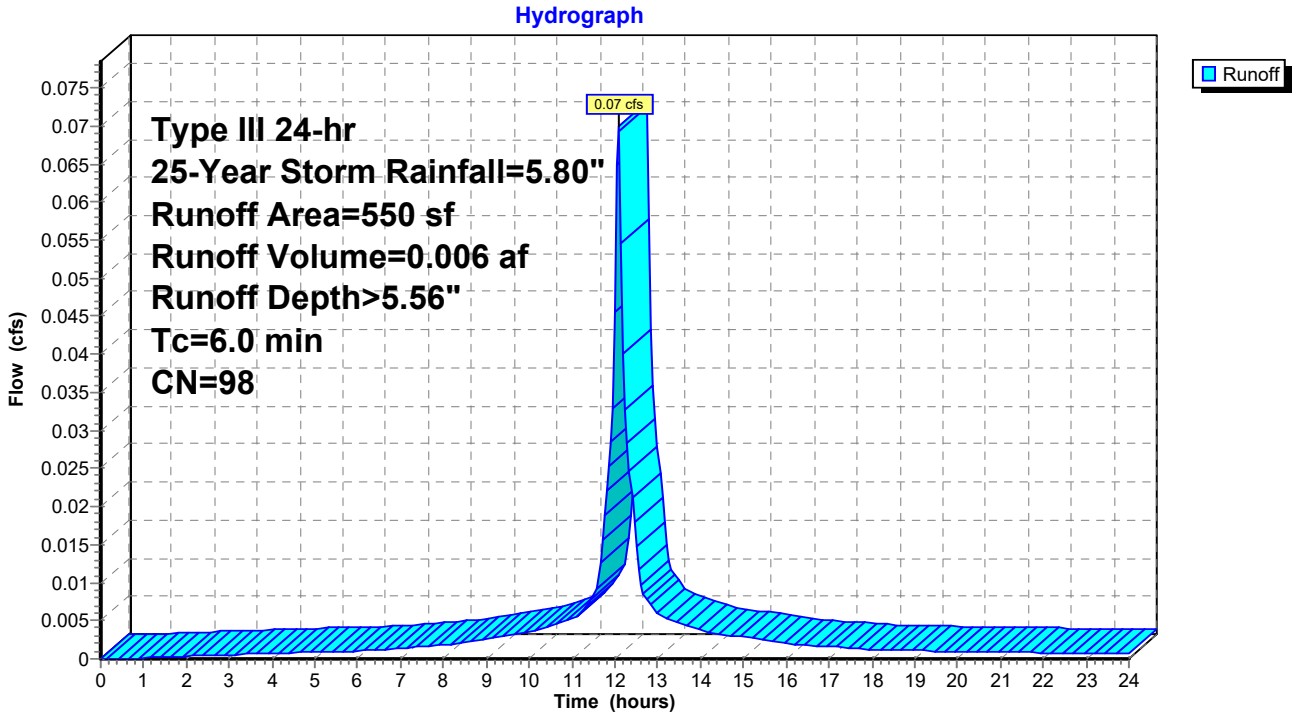
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 5.56"
Routed to Link 3L : Fore Street

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

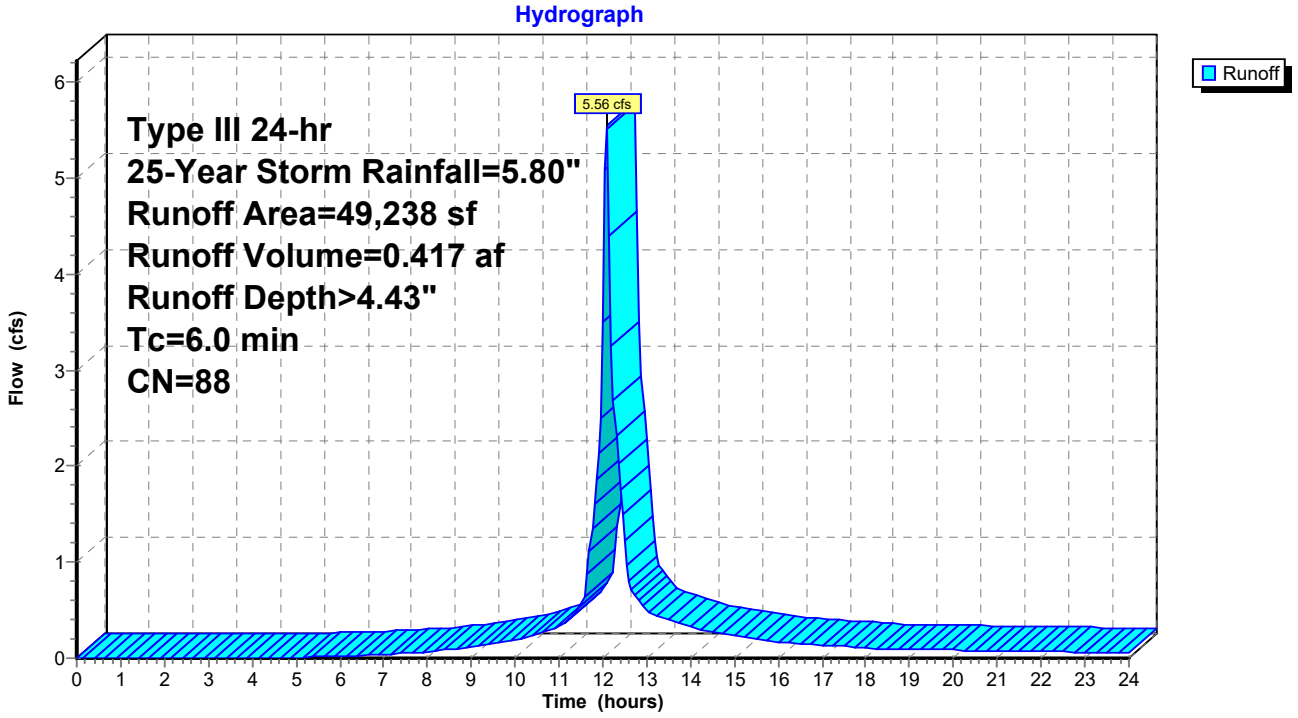
Runoff = 5.56 cfs @ 12.09 hrs, Volume= 0.417 af, Depth> 4.43"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

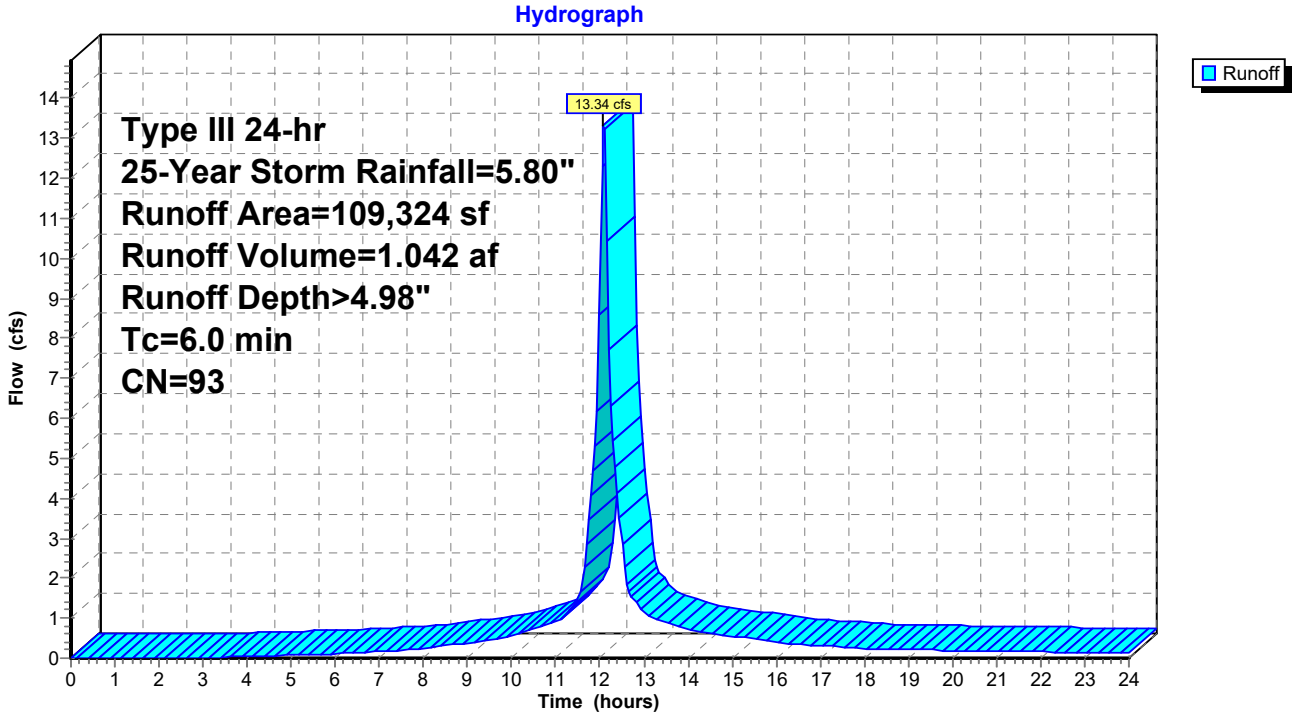
Runoff = 13.34 cfs @ 12.09 hrs, Volume= 1.042 af, Depth> 4.98"
Routed to Link 2L : Fore River

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

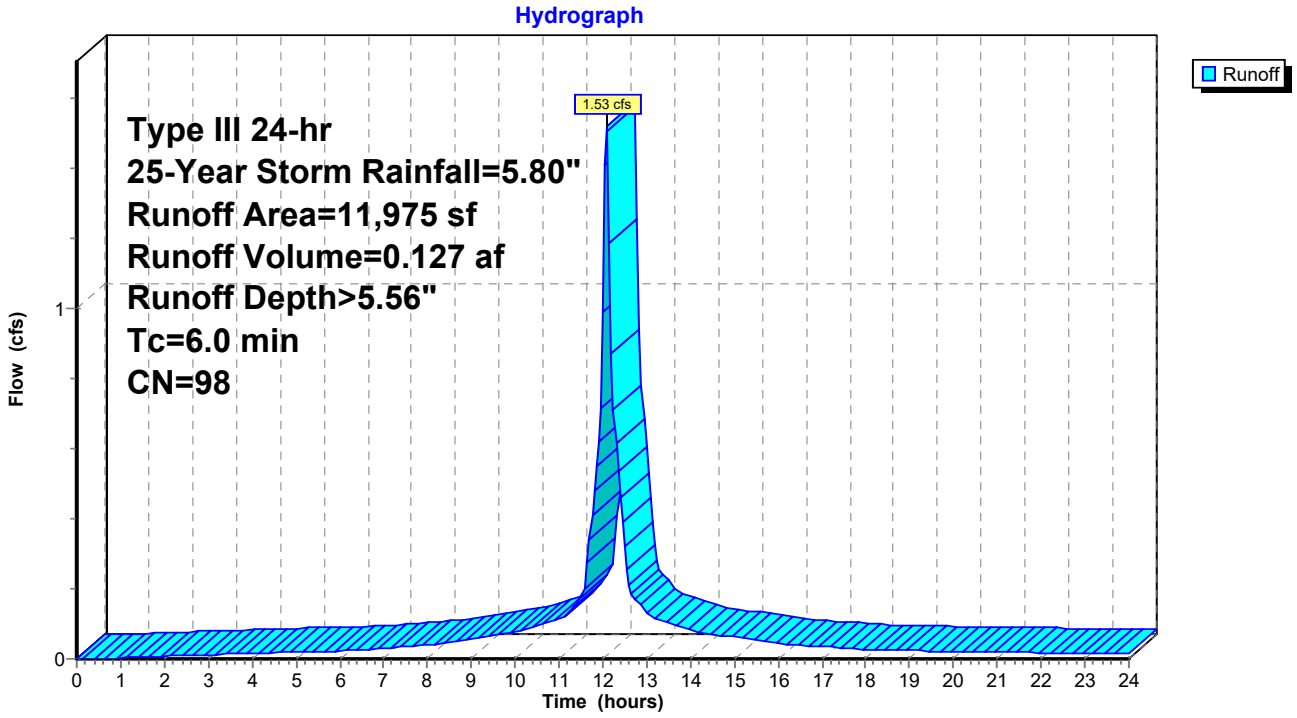
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 24P : Filterra 1 6x8

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

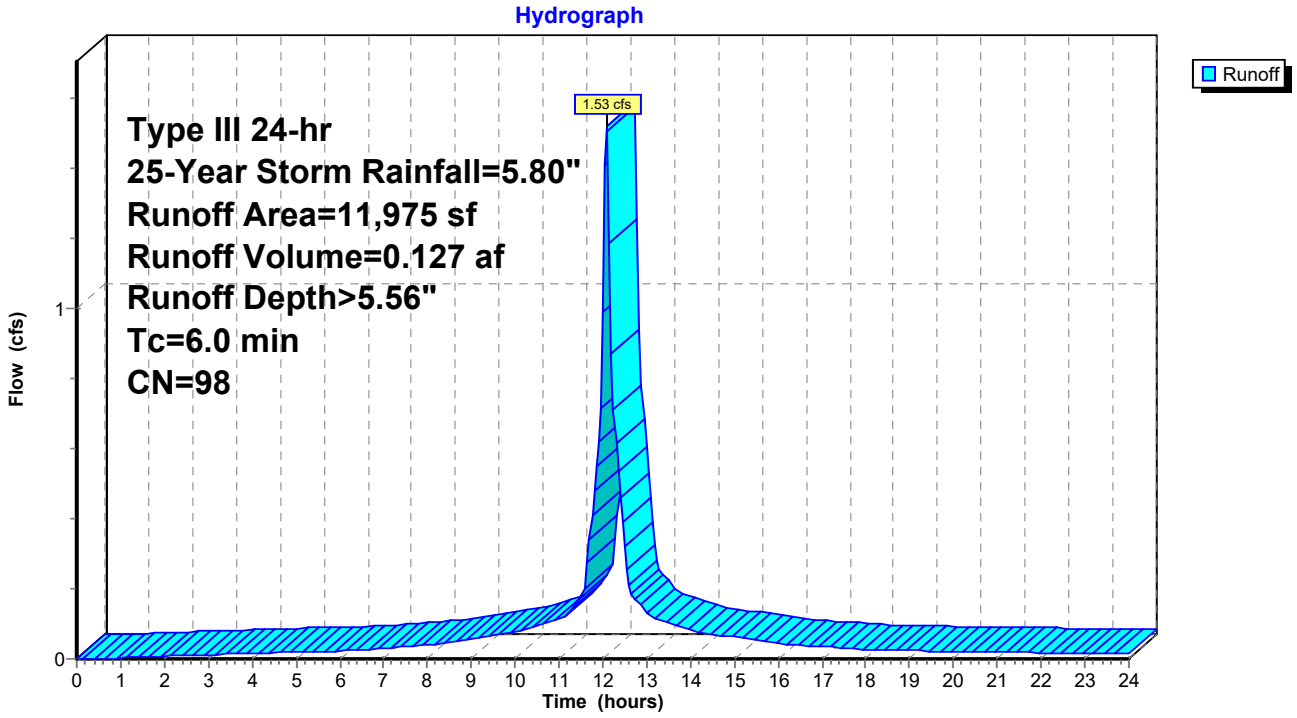
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 28P : Filterra 1 6x8

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

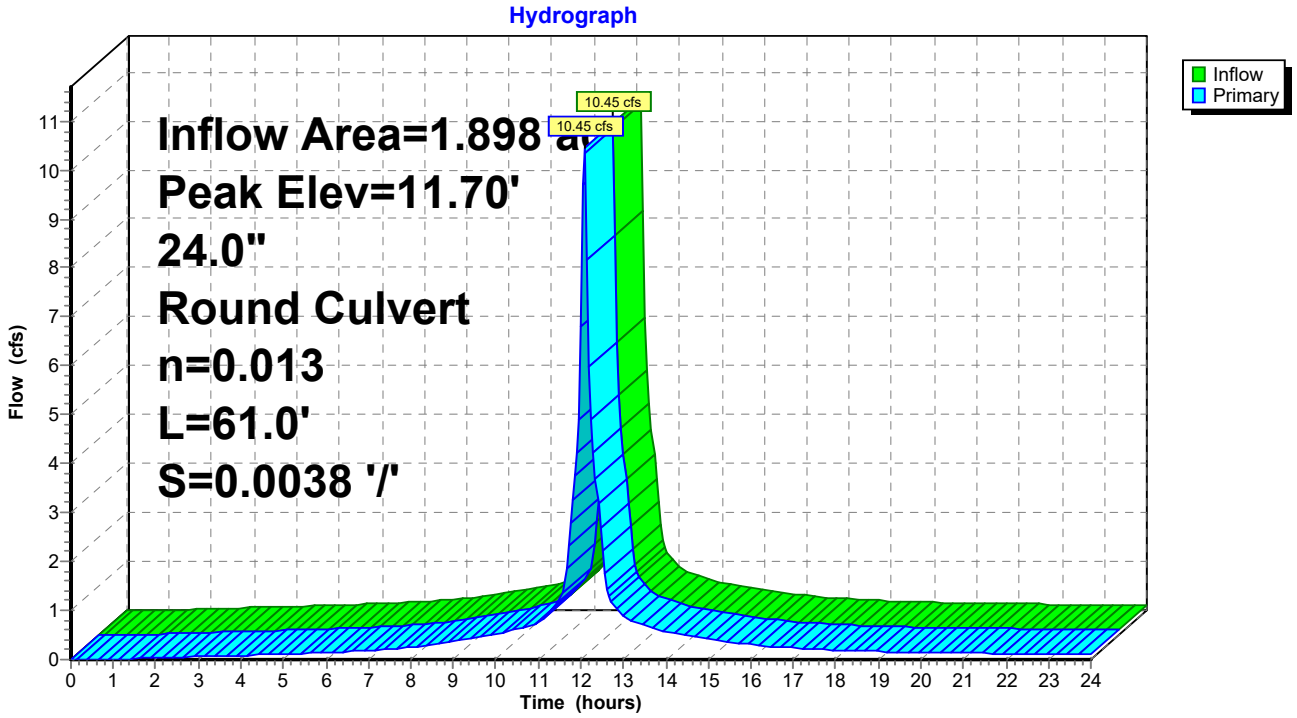
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 5.42" for 25-Year Storm event
Inflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af, Atten= 0%, Lag= 0.0 min
Primary = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.70' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.17 cfs @ 12.09 hrs HW=11.67' (Free Discharge)
1=Culvert (Barrel Controls 10.17 cfs @ 4.26 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

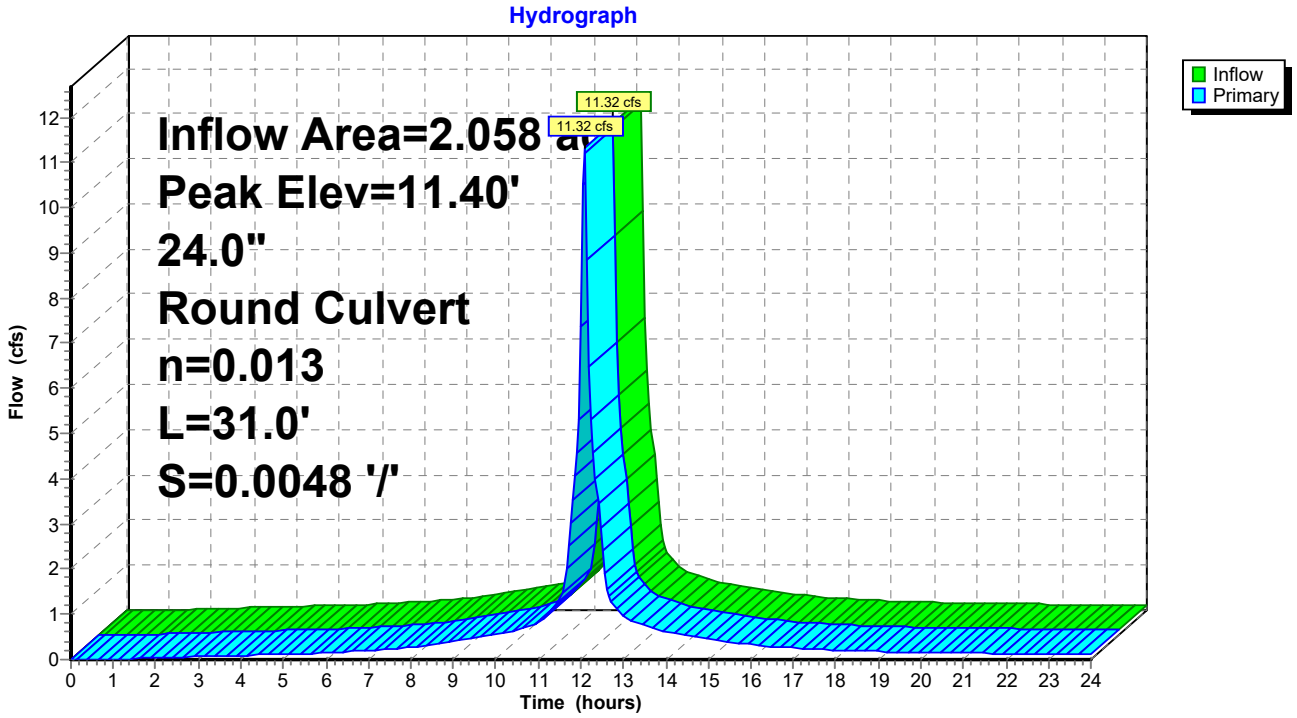
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.40' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=11.37' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 4.69 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

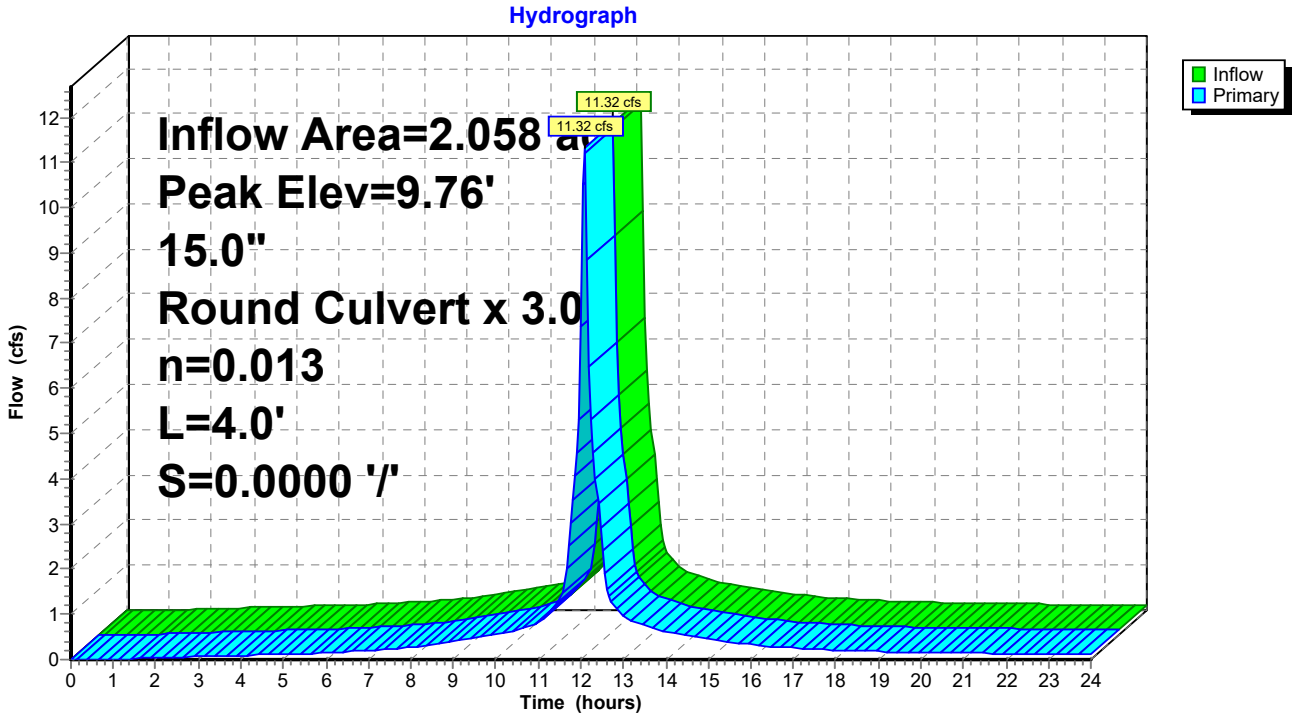
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.76' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=9.74' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 3.37 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 12%, Lag= 2.9 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.27' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,513 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 16.3 min calculated for 0.920 af (99% of inflow)
Center-of-Mass det. time= 10.6 min (763.5 - 753.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

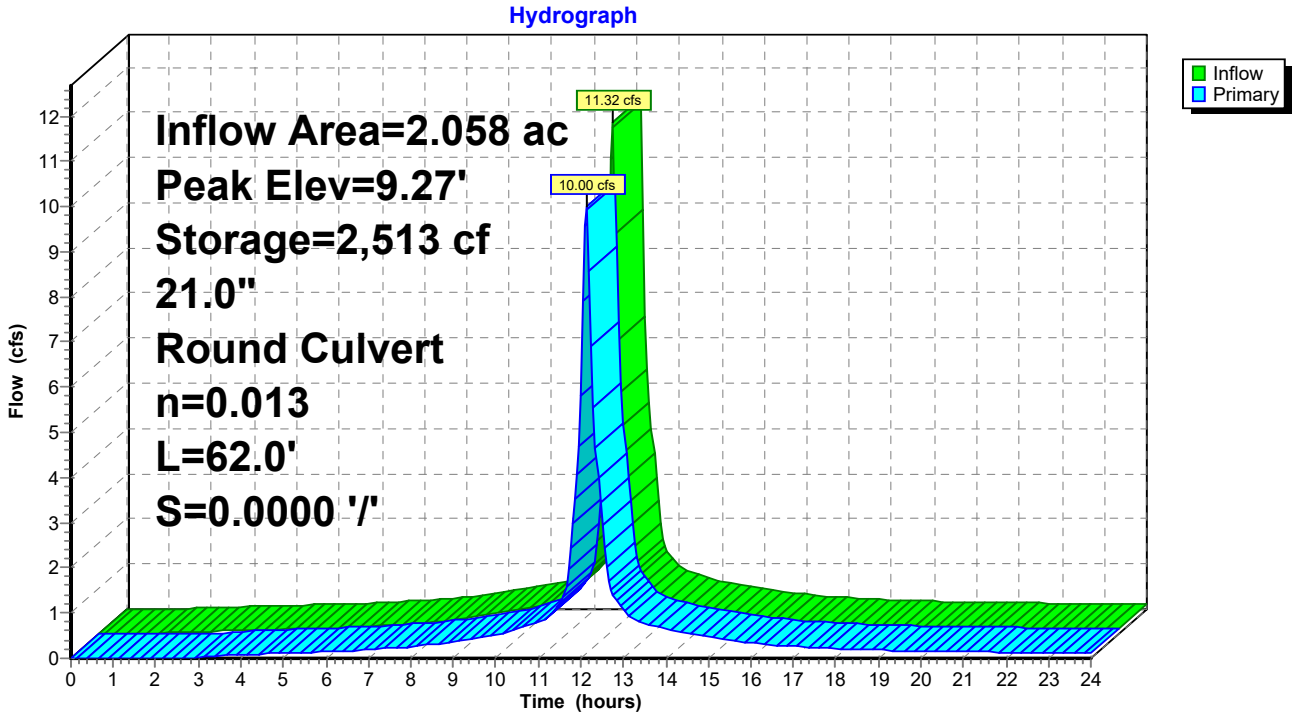
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=9.23' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 9.82 cfs @ 4.08 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

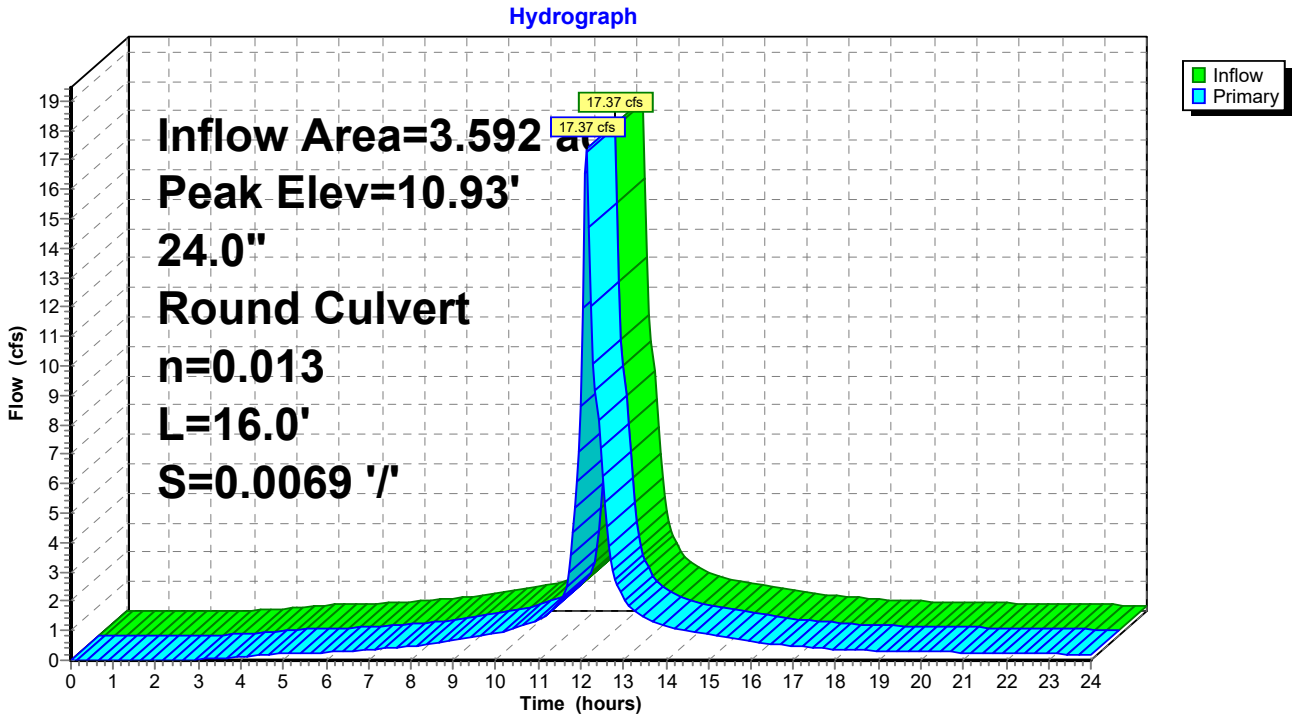
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 12P : Jellyfish 2 JFPD0808-10-3

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.93' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=10.86' (Free Discharge)
1=Culvert (Inlet Controls 17.04 cfs @ 5.43 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

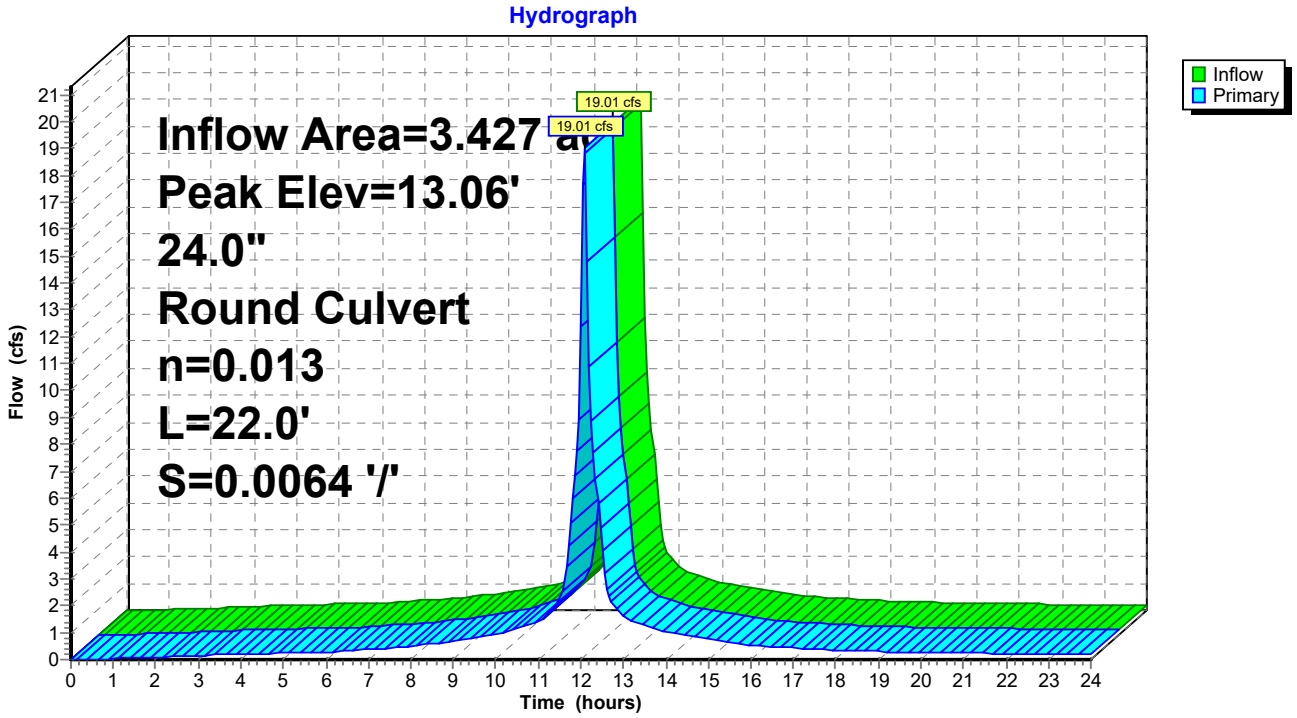
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 13.06' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=12.93' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.89 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

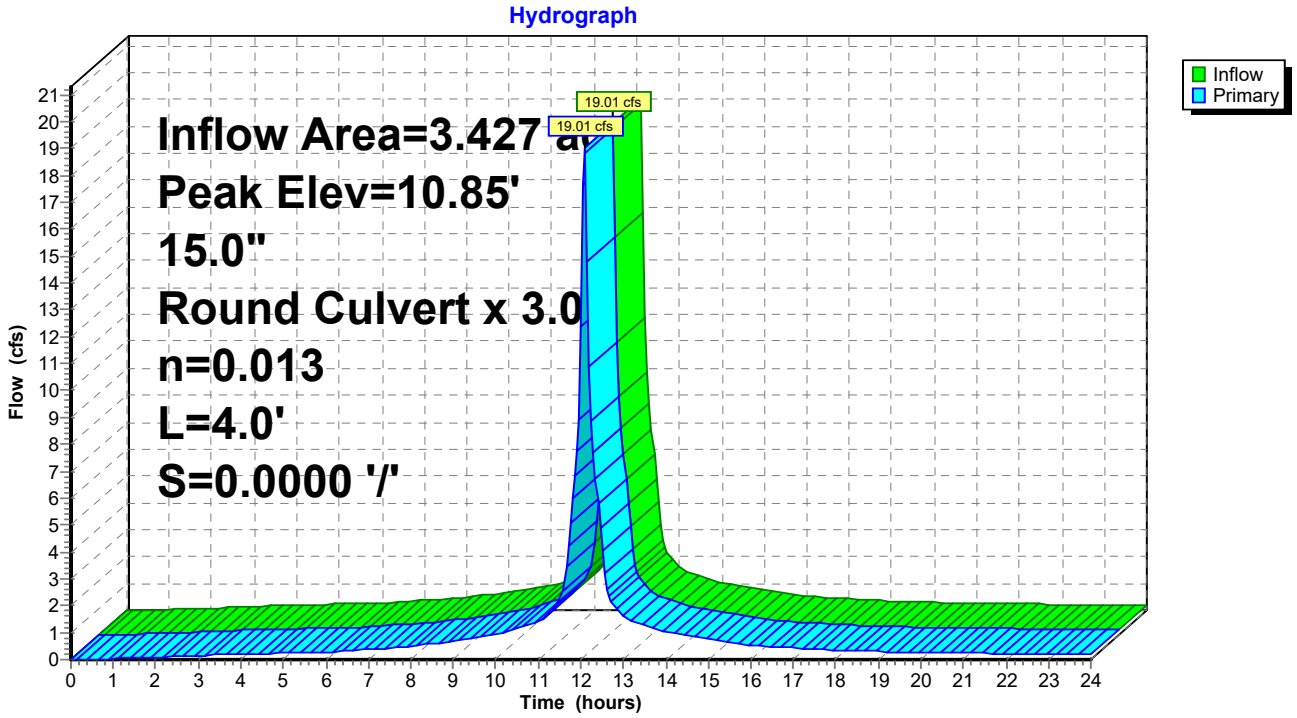
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.85' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=10.76' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.03 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.93 cfs @ 12.09 hrs, Volume= 1.664 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 13%, Lag= 3.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.14 hrs Surf.Area= 3,128 sf Storage= 7,657 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 30.8 min calculated for 1.634 af (98% of inflow)
Center-of-Mass det. time= 20.4 min (765.7 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

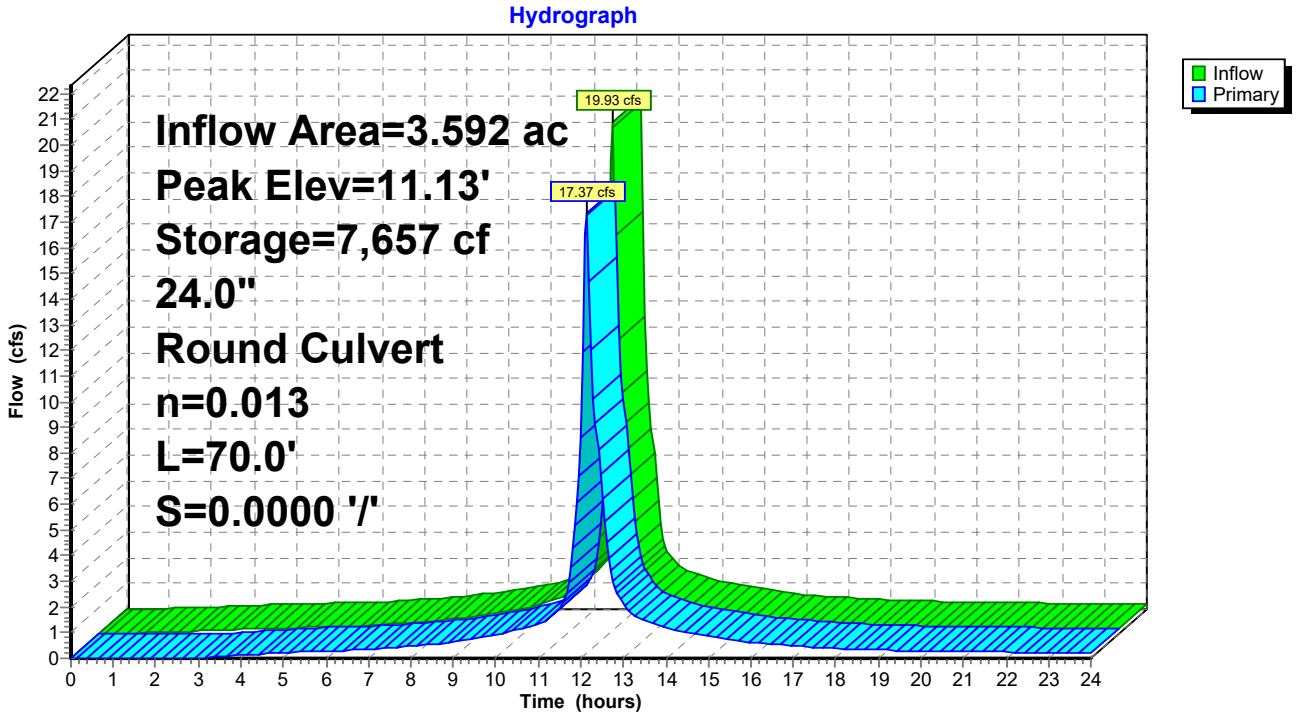
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=11.09' (Free Discharge)
1=Culvert (Barrel Controls 17.04 cfs @ 5.43 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

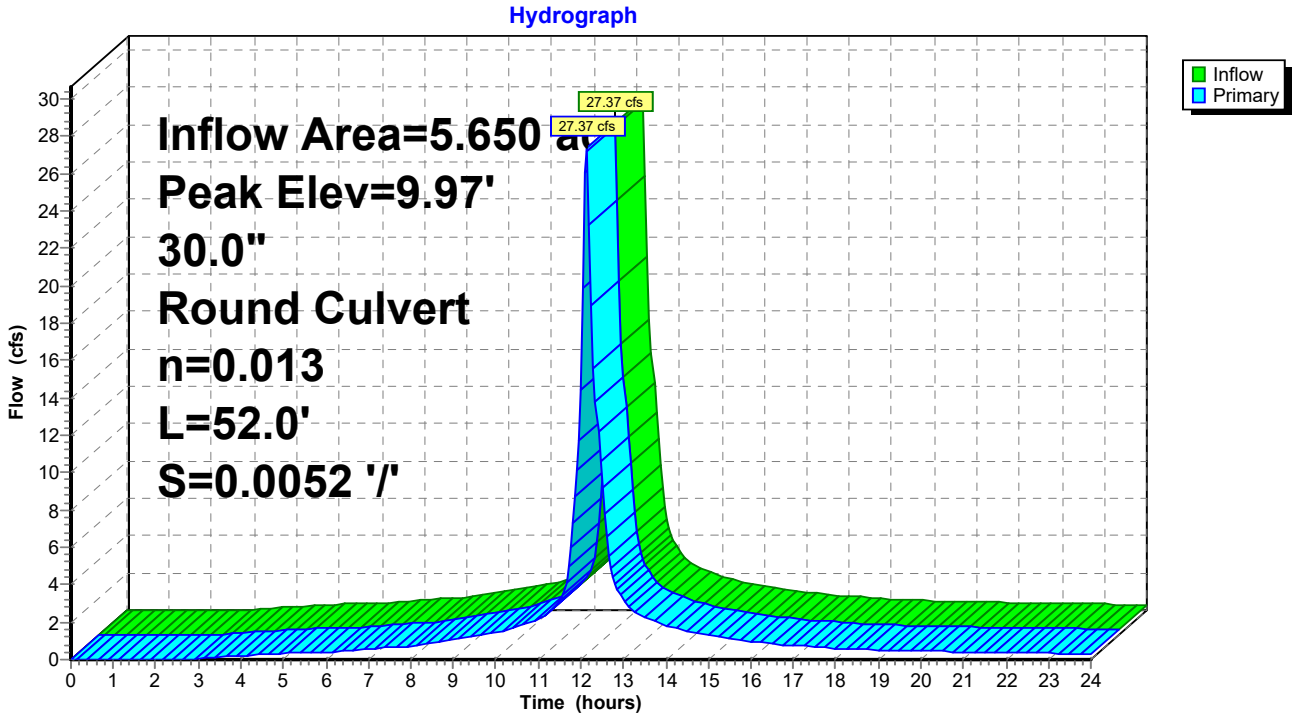
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 5.43" for 25-Year Storm event
Inflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Outflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af, Atten= 0%, Lag= 0.0 min
Primary = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.97' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=26.88 cfs @ 12.14 hrs HW=9.90' (Free Discharge)
1=Culvert (Inlet Controls 26.88 cfs @ 5.48 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

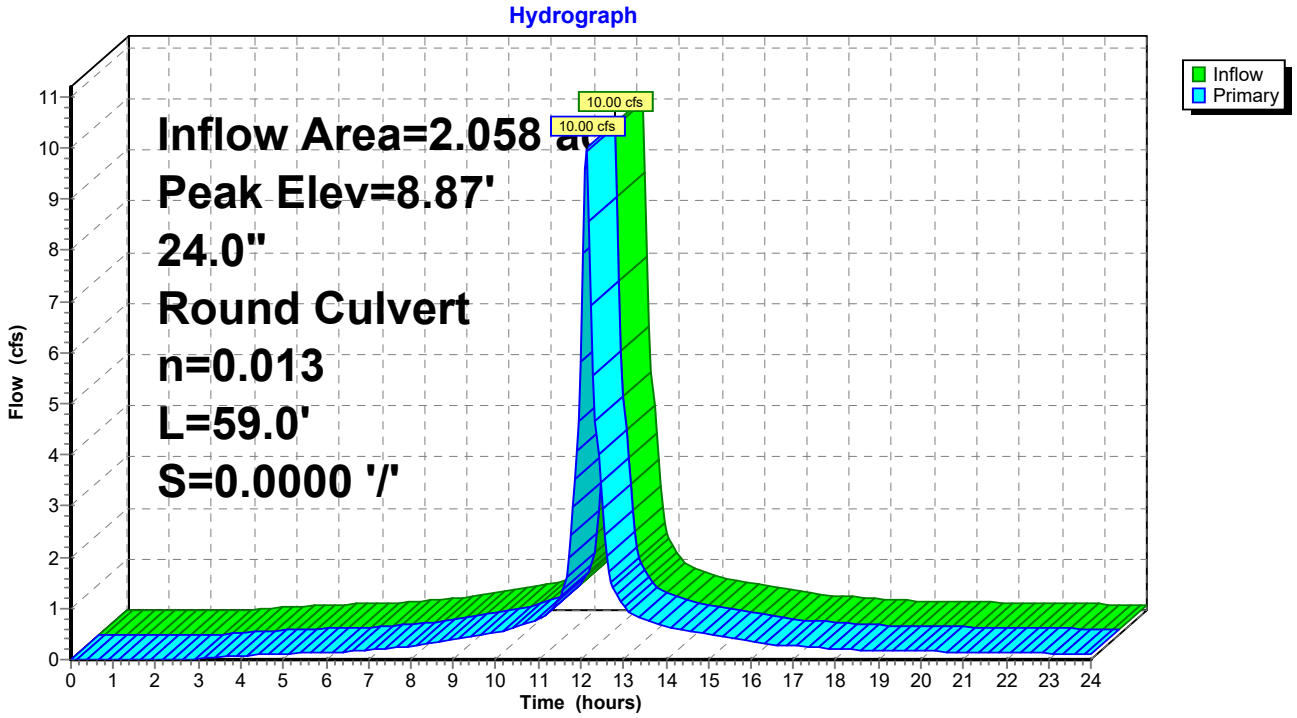
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.87' @ 12.14 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=8.85' (Free Discharge)
1=Culvert (Barrel Controls 9.82 cfs @ 3.70 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

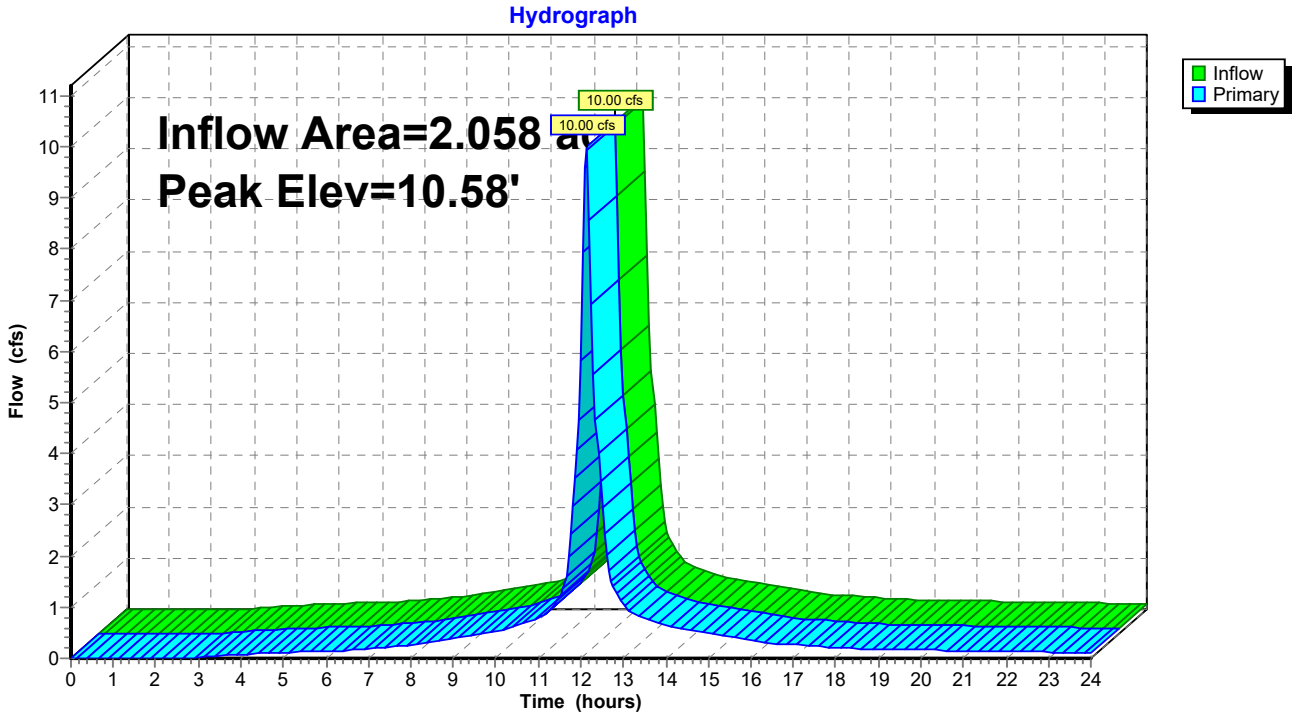
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.58' @ 12.14 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=9.82 cfs @ 12.14 hrs HW=10.56' (Free Discharge)
└**1=Filter Culvert Out** (Passes 9.82 cfs of 20.03 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 8.92 cfs @ 3.27 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0808-10-3

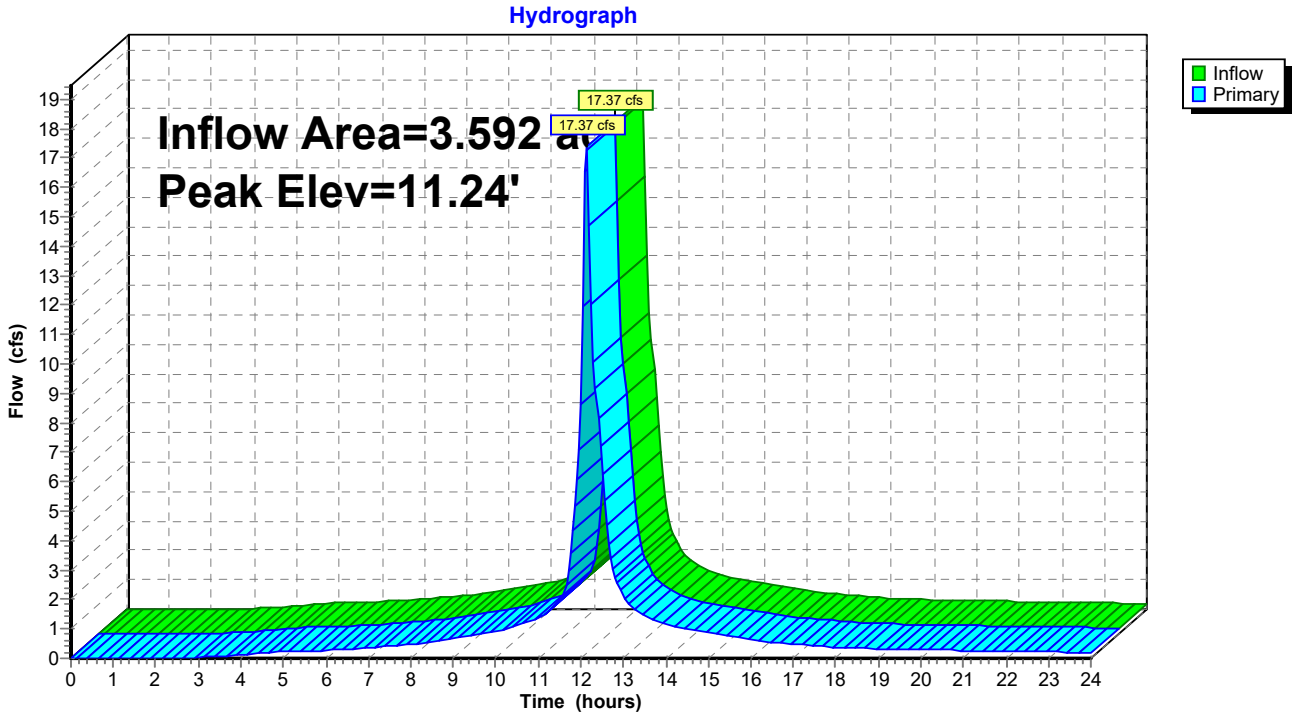
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.24' @ 12.14 hrs
Flood Elev= 11.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.015 0.030 0.045 0.059 0.074 0.089 0.253 0.416 0.579 0.743 0.906 1.069 1.233 1.396 1.560 1.723 1.886 2.050
#3	Device 1	9.84'	**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=17.04 cfs @ 12.14 hrs HW=11.22' (Free Discharge)
└**1=Filter Culvert Out** (Passes 17.04 cfs of 18.90 cfs potential flow)
├**2=JF Filter-2 CSV File** (Custom Controls 2.05 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 14.99 cfs @ 3.89 fps)

Pond 12P: Jellyfish 2 JFPD0808-10-3



Summary for Pond 13P: DMH-13 (Outfall #2)

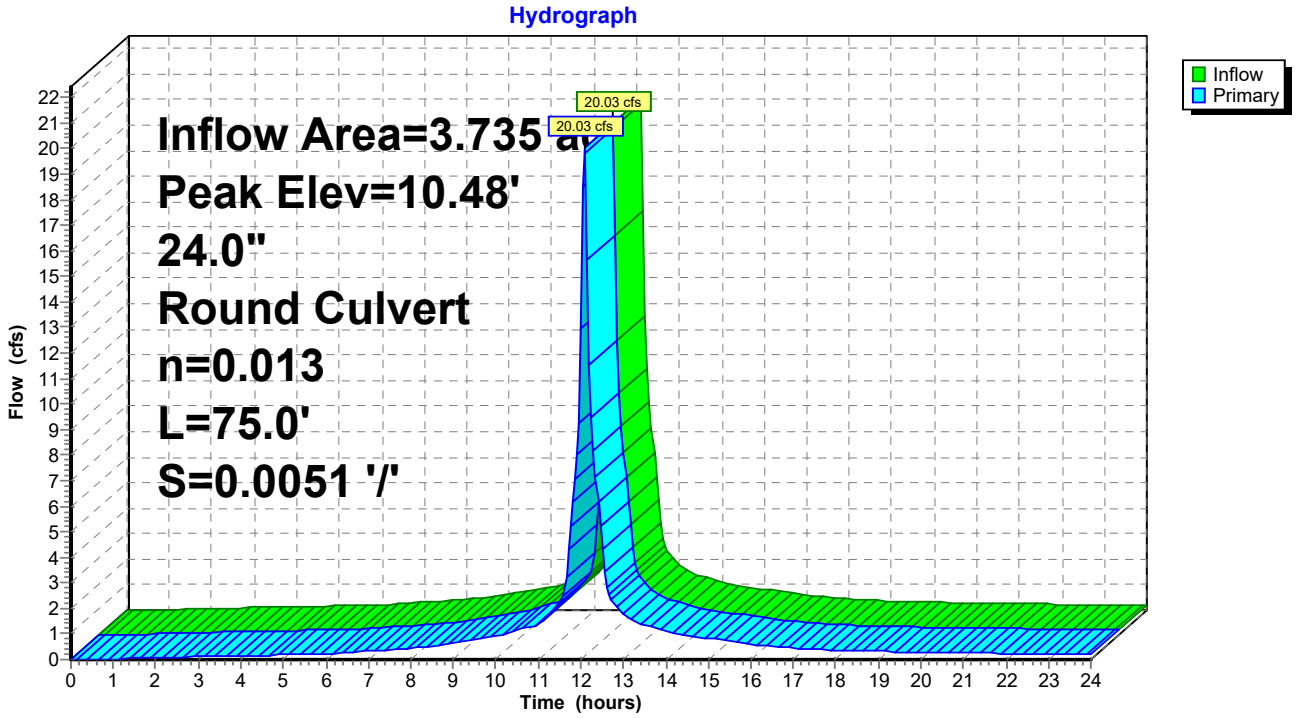
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 5.22" for 25-Year Storm event
Inflow = 20.03 cfs @ 12.09 hrs, Volume= 1.624 af
Outflow = 20.03 cfs @ 12.09 hrs, Volume= 1.624 af, Atten= 0%, Lag= 0.0 min
Primary = 20.03 cfs @ 12.09 hrs, Volume= 1.624 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.51 cfs @ 12.09 hrs HW=10.35' (Free Discharge)
1=Culvert (Inlet Controls 19.51 cfs @ 6.21 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.84' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

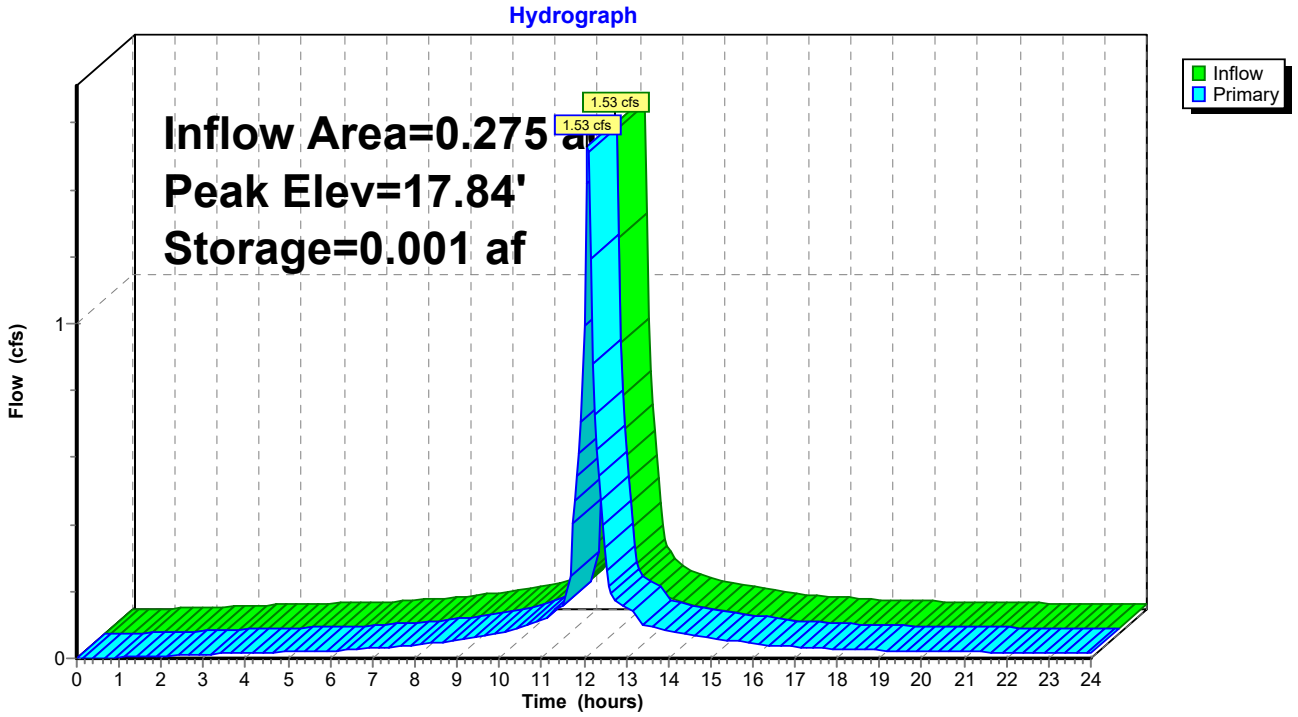
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (745.8 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=1.49 cfs @ 12.09 hrs HW=17.84' (Free Discharge)
└**3=Culvert** (Passes 1.49 cfs of 6.37 cfs potential flow)
├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.34 cfs @ 1.89 fps)

Pond 24P: Filterra 1 6x8



Summary for Pond 27P: AD49

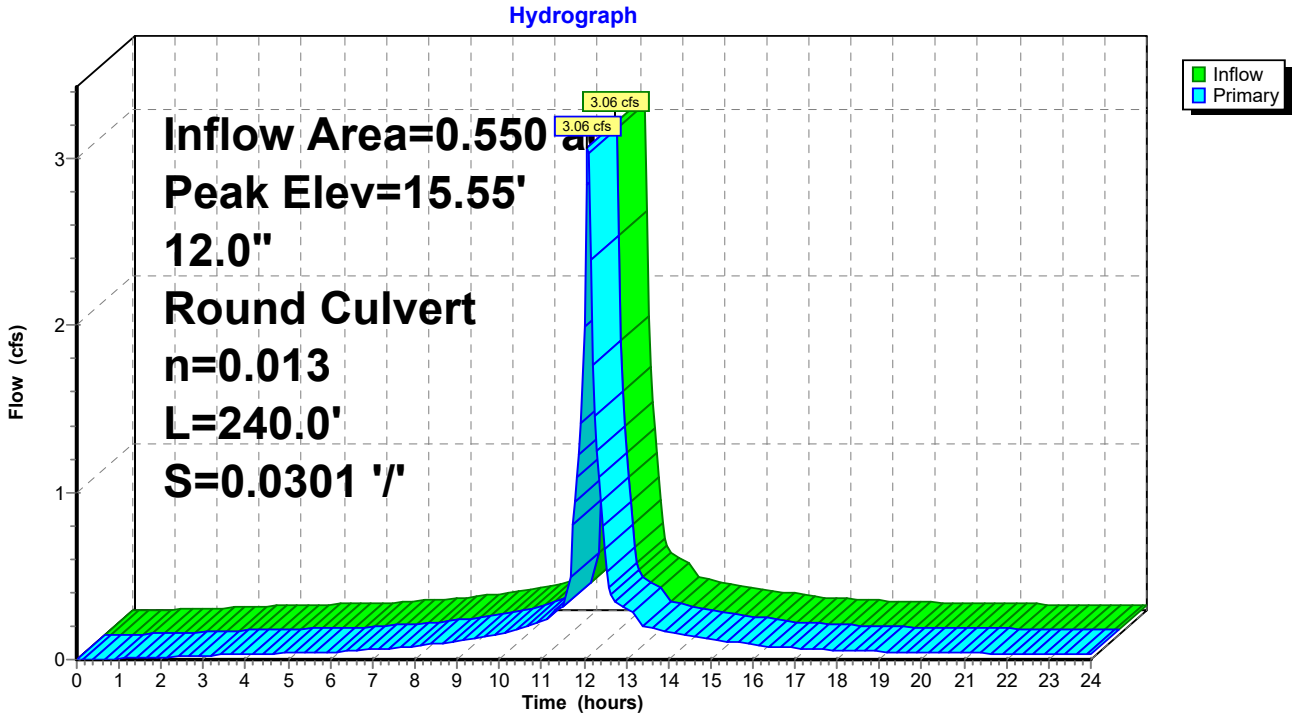
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 3.06 cfs @ 12.09 hrs, Volume= 0.255 af
Outflow = 3.06 cfs @ 12.09 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.09 hrs, Volume= 0.255 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.55' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.98 cfs @ 12.09 hrs HW=15.50' (Free Discharge)
1=Culvert (Inlet Controls 2.98 cfs @ 3.80 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 1 6x8

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 17.84' @ 12.09 hrs Surf.Area= 0.001 ac Storage= 0.001 af

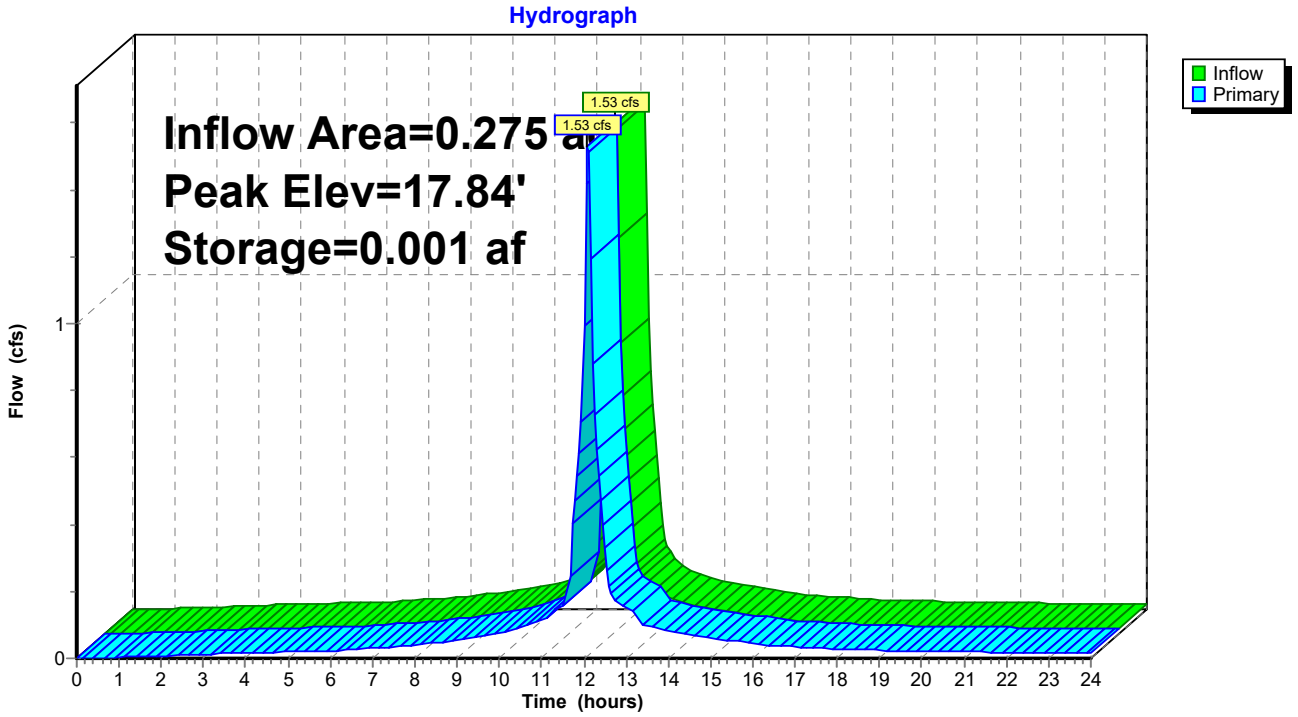
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.6 min (745.8 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	16.67'	0.001 af	**6.00'W x 8.00'L x 1.00'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Device 3	16.67'	**140.000 in/hr Filterra Media Infiltration over Surface area**
#2	Device 3	17.42'	**1.7' 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
#3	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.130, Flow Area= 0.79 sf

Primary OutFlow Max=1.49 cfs @ 12.09 hrs HW=17.84' (Free Discharge)
└**3=Culvert** (Passes 1.49 cfs of 2.59 cfs potential flow)
├**1=Filterra Media Infiltration** (Exfiltration Controls 0.16 cfs)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.34 cfs @ 1.89 fps)

Pond 28P: Filterra 1 6x8

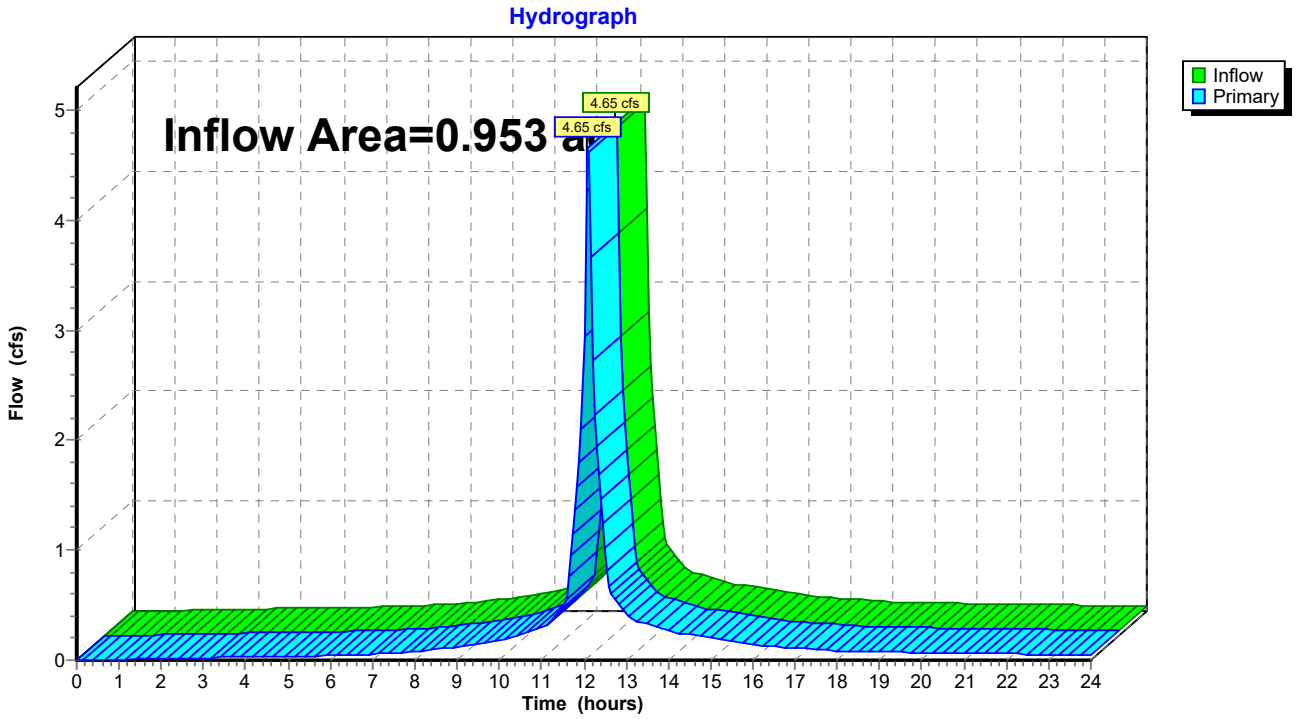


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 4.64" for 25-Year Storm event
Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af
Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

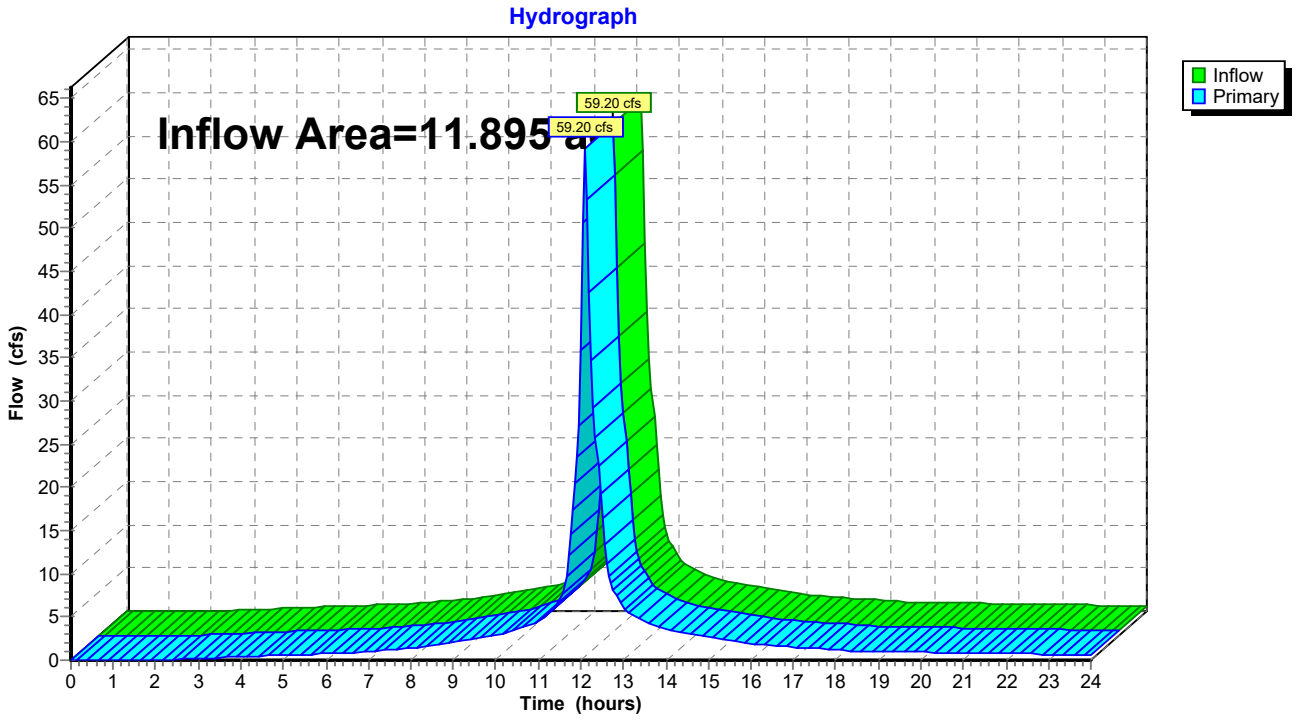


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 5.27" for 25-Year Storm event
Inflow = 59.20 cfs @ 12.10 hrs, Volume= 5.223 af
Primary = 59.20 cfs @ 12.10 hrs, Volume= 5.223 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

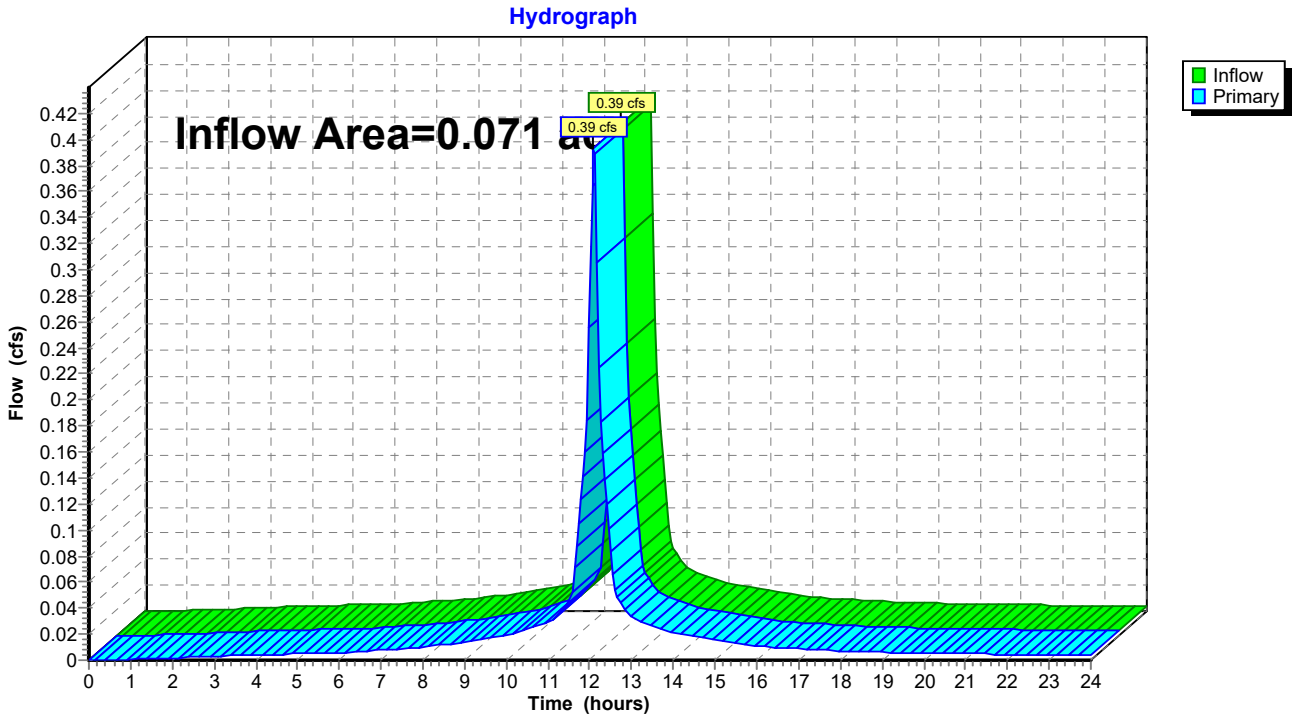


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af
Primary = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



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Att. 17

September 5, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to City Staff Comments – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Major Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following City Staff review comments on the project through you, and provide the following responses:

City Staff Comments | July 26, 2023 | PL-002202-2022

TRANSPORTATION

- The trip generation estimate was updated to reflect data contained in the 11th Edition of the Trip Generation Manual. All back-up calculations will need to be provided (similar to what was provided for the 7th Edition).

  Response: The requested information will be provided with the new traffic study which is included with this response.

- City Staff and Third-Party Reviewers reviewed the parking demand estimate and are requesting additional information as noted below:

  - Multi-Family 1.21 spaces per unit - The applicant should provide back-up information for time-of-day and parking generation assumptions.
  - Specialty Retail 1.95 spaces per 1,000SF - The applicant should provide back-up information.
  - Hotel 1.1 spaces per room - The applicant should provide back-up data for the parking generation rate.
  - Spa 4.3 spaces per 1,000SF - The applicant should provide back—up data for the parking generation rate.
  - The applicant should confirm that the trip generation and parking generation assumptions for ITE land use codes are the same or different.

  Response: The requested information will be provided in a separate memo which will be submitted to the City later this week.

City Staff Comments | August 18, 2023 | PL-002202-2022

TRANSPORTATION

- The applicant shall conduct a traffic analysis at the Fore Street/Waterville Street/Garage entrance and Thames Street/Freedom Way/ Site Drive intersections. The analysis shall consist of the following:
    - The analysis shall be performed during the weekday AM and PM peak hours.
    - Traffic counts shall be conducted at the intersections from 7-9AM and 3-6PM. The count shall collect passenger cars, trucks, pedestrians, and bicycles.
    - The study shall include traffic from approved but unbuilt or occupied developments.
    - Graphics shall be provided that depict, Existing Design Hour Volumes, Other Development Traffic, No-Build Volumes, Site Trip Generation, and Build Volumes
    - A Synchro/SimTraffic analysis shall be conducted for existing, No-Build and Build conditions. Some field calibration shall be performed.
    - The study shall report levels of service, vehicle delay and 95th% queue estimates.
    - A safety analysis shall be performed at the two study intersections.
    - Sight distance shall be documented at the two site entrances.

  Response: The requested traffic study has been completed, and is provided with this letter and uploaded to ProjectDox.

SUBDIVISION PLAN

- There is a typo on the right side above the title of the plan. The recorded plan this amended plan is meant to amend is CCRD Plan Book 220, Page 466 and not page 446.

  Response: The Subdivision Plan was revised accordingly and has been uploaded to ProjectDox.

- General Note 7 indicates incorrectly that the extension of Thames Street up to the entrance to the 58 Fore Street campus is still an unaccepted public way. The proposed roadway heading northwesterly up the hill to Fore Street, also known as Freedom Way, is still unaccepted. However, the extension of Thames Street labeled PROPOSED THAMES STREET EXTENSION (See Note7) up to the entrance into the 58 Fore Street campus area just south of Lot 1A was accepted in 2022 as a public way. Please remove the word NOT from General Note 7 and retitle the section labeled "PROPOSED THAMES STREET EXTENSION" to "THAMES STREET Paved-Public", as Fore Street is already labeled in a similar manner on the plan.

  Response: The Subdivision Plan was revised accordingly and has been uploaded to ProjectDox.

- The existing and built buildings on Parcels 1A, 1C, and 2C should be shown on the draft Second Amended Subdivision Plat as they have now been built for over a year or are long existing buildings. This is important to depict how they related to the public access

easement among other reasons. The mapping exists as it has been shown on other plans before like the currently proposed civil plan set. This helps to show and depict the existing site being shown as a draft Second Amended Subdivision Plat in a fuller, current, and more complete manner.

Response: The Subdivision Plan was revised accordingly and has been uploaded to ProjectDox.

- The metal shed building on Parcel 4 has been gone for almost a year if not longer, and should be removed from the draft Second Amended Subdivision Plat. Again this helps to show and depict the existing site being shown as a draft Second Amended Subdivision Plat closer to its current state.

  Response: The Subdivision Plan was revised accordingly and has been uploaded to ProjectDox.

- A significant amount of the travelled way or private roadway leading into the 58 Fore Street campus area (south of Parcel 1A) seems to be fairly well built out and complete now and should likely be added to the proposed amended subdivision plat to help show and depict the existing improvements to the site being shown as a draft Second Amended Subdivision Plat.

  Response: The Subdivision Plan was revised accordingly and has been uploaded to ProjectDox.

- Approved NG911 road names for the private ways within the 58 Fore Street complex should be added to all the plan sheets where possible. These agreed upon names are now several years old at this point. Please try to label the streets and ways as "private" if possible.

  Response: The Subdivision Plan was revised to include NG911 road names.

- The City's retaining wall agreement along Fore Street, the deed associated with it, and its location needs to be shown on the subdivision plan as it demonstrates the City' right, title, and interest in or adjacent to the subject property. As such the amended subdivision plan would be incomplete without it just as it would be if the subdivision plat was missing easements that ran through the subdivision and show others right, title, and interest in the subject property which is being developed. Proposed view corridors, if they are meant to be deeded to perhaps the City, need to be shown on the subdivision plan. If they are meant to be deeded to the City or another party, a note or notes need to state that and who the proposed grantee might be. The subdivision plan should show existing and proposed situations of right, title, and interest, such as proposed easements and ownership transfers especially when they are currently contemplated.

  Response: The Fore Street retaining wall and associated agreement are depicted on the Subdivision Plan (uploaded to ProjectDox under separate cover). View corridors are zoning dimensional standards and are not deeded easements or rights granted to others, and therefore would not be identified on the Subdivision Plan.

- Should the water side of the development be part of this amended subdivision plan as wasn't it part of the original subdivision of the land and site? Areas like that owned by PF Marina?

  Response: The water side of the development is under separate ownership (PF Marina) and was not part of the original subdivision. Therefore, this area continues to be excluded from the subdivision plan.

- A proposed transfer of a sliver of land from PF LAND to MDOT is not noted on the plan southeasterly of Parcel 1A that would alter the subdivision plan's southerly boundary line.

  Response: The proposed land swap boundaries are accurately depicted on the Subdivision Plan.

City Staff Design Review Comments | August 24, 2023 | PL-002202-2022

- Block 6 Elevation - South continues to show a roll-up garage door and metal door that indicates the facade as a storage cart room, Staff is recommending the Applicant propose an articulated facade that promotes an activated pedestrian plaza.

  Response: The area has been reprogrammed as indoor/outdoor space serving adjacent retail space, and the façade has been redesigned accordingly, as shown on the updated Block 6 Elevations uploaded to ProjectDox.

- Staff is requesting updated facade materials to be indicated on the Block 4 Overall elevation - North to reflect the proposed 2023.08.04 View Corridor Renderings, which show retail building articulation of brick between the storefront windows, brick soldier course at the cornice line, and brick trim detail. In addition, the Applicant to clarify the materiality of the metal roofs at the Fore Street Townhouses.

  Response: The façade materials have been revised accordingly and clarified on the Block 4 Fore Street Materials plan uploaded to ProjectDox.

- Staff is requesting a reduction in Block 5 rooftop mechanical screening height of 12'-0" to the top of the tallest building operating equipment.

  Response: The three (3) largest pieces of exterior rooftop equipment being screened with screening walls are the Cooling Towers, Air Handling Units (AHU)'s, and Generator. The Cooling Towers are 11'-6" high (not inclusive of top railings) and will sit on 4' high dunnage for a total height of 15'-6" above the roof. The AHU's are 11' high and will sit on 4' high dunnage for a total height of 15' above the roof. The Generator will sit on curbs and have an overall height of 12'. As designed and presented, the equipment screen is universally set at 12' high above the roof.

  The proposed equipment screen height of 12' matches or is lower than the highest equipment. The 12' height will provide adequate visual screening for sightlines from the street level, but we do not recommend reducing the height of these screens to lower than 12' as proposed.

- The Applicant should resubmit Block 4 floor plans with to include Overall Level 07 plan.

  Response: The updated Block 4 floor plans will be submitted to the City later this week to include Level 7.

City Staff Comments | August 31, 2023 | PL-002202-2022

- CM Plan to be finalized for approval of PL-002253-2022 and must be updated following the approval of PL-002202-2022.

  Response: Noted.

- Please submit a plan that clearly shows the zoning boundaries (B-6, R-6, EWPZ) and the shoreland zoning (75 ft. and 250 ft.). Please include floodplain boundaries, building footprints, and parcel boundaries.

  Response: The shoreland zoning boundaries were added to the civil drawings, which also depict the zoning boundaries. Revised civil drawings have been uploaded to ProjectDox.

- Please provide an updated subdivision plat based off of comments from City Surveyor.

  Response: The Subdivision Plan has been revised accordingly and uploaded to ProjectDox.

- Please submit draft Condo Association Documents.

  Response: We respectfully request that the provision of condominium documents be made a condition of approval. These documents are currently under development. All residential units in Blocks 5 and 6 will be listed for sale. In Block 4, all townhome units will be listed for sale, and the remaining residential units will be listed for rent.

- Please respond and provide updated material for the previous design review memo comments. If the Block 5 mechanical equipment is over 12 ft., please include the rooftop appurtenances on the rendering to demonstrate how the AHUs and other mechanical equipment are screened from the street.

  Response: The three (3) largest pieces of exterior rooftop equipment being screened with screening walls are the Cooling Towers, Air Handling Units (AHU)'s, and Generator. The Cooling Towers are 11'-6" high (not inclusive of top railings) and will sit on 4' high dunnage for a total height of 15'-6" above the roof. The AHU's are 11' high and will sit on 4' high dunnage for a total height of 15' above the roof. The Generator will sit on curbs and have an overall height of 12'. As designed and presented, the equipment screen is universally set at 12' high above the roof.

  The proposed equipment screen height of 12' matches or is lower than the highest equipment. The 12' height will provide adequate visual screening for sightlines from the street level, but we do not recommend reducing the height of these screens to lower than 12' as proposed.

- Final Traffic Comments:

- Please provide requested intersection analysis at Fore St. Garage entrance and Thames/Freedom.

  Response: The requested traffic analysis is included with this letter and uploaded to ProjectDox.

- For the Block 6 elevated parking area within the R-6 zone, please provide a clarification on the operation / access to the site from Eastern Promenade, what traffic signage will be required, submit a turning template for the parking spots and vehicle access, provide dimensions for drive aisles, and please explain how pedestrian routing will occur from Block 6 portion of the building to the Eastern Promenade.

  Response: Additional operational information on the Block 6 parking area will be provided to the City later this week.

- *DPW Comments*

  - * The applicant shall create a 20 scale plan (on 24" x 36" Sheet) depicting and labeling all improvements and existing conditions in the Fore Street ROW.

    Response: The requested plans were provided as part of a submission on August 24. Woodard & Curran met with the City on September 1 to discuss Fore Street revisions, and updated plans will be provided to reflect what was discussed at that meeting.

  - * Improvements and existing conditions in the ROW shall be dimensioned on the plan view sheets. For example, ROW, street, lanes, sidewalks, esplanade driveways (and other improvements) widths as well as at locations when a width changes. In this case, Fore Street ROW shall be dimensioned on the plans.

    Response: The requested notations were made on the plans submitted on August 24.

  - * The applicant shall provide a detail in the plan set that depicts how the existing wall, the proposed sidewalk, and the proposed building landings will interface.

    Response: A detail of the wall was previously provided to the City and was reviewed during the meeting on September 1.

  - * Grading Sheets: Spot grades and slopes shall be added to plans (within the ROW) at proposed driveways, pedestrian ramps, accessible crossings, sidewalks, egress locations, and steps.

    Response: The requested notations were made on the plans submitted on August 24. Revisions to these items to address the discussions at the September 1 meeting will be made and updated plans provided to the City.

- * The applicant shall design the proposed driveway off of Fore Street using the current City Standard Residential Driveway Apron I-9A eliminating the proposed tipdowns.

  Response: Woodard & Curran met with the City on September 1 to discuss Fore Street revisions, and updated plans will be provided to reflect what was discussed at that meeting.

- * The proposed accessible ramp adjacent to the driveway shall be redesigned and constructed separate from the driveway apron using the sidewalk as the landing (examples shown in previous comment documents).

  Response: Woodard & Curran met with the City on September 1 to discuss Fore Street revisions, and updated plans will be provided to reflect what was discussed at that meeting.

- * Please depict a striped bike lane on plans - City Staff will include a contribution as a condition of approval for the striping of the portion of the bike lane in front of the proposed development along Fore St.

  Response: Woodard & Curran met with the City on September 1 to discuss Fore Street revisions, and updated plans will be provided to reflect what was discussed at that meeting.

Additionally, City staff requested updates to the waiver table to remove the EV Charger waiver (not required) and add a parking dimension waiver (for spaces within the garage). The revised waiver table has been uploaded to ProjectDox.

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
Technical Manager

Enclosures:

- Drawings (Uploaded separately to ProjectDox)
  - Subdivision Plan
  - Block 4 Fore Street Materials Plan
  - Block 6 Elevations
  - Civil Drawings
- Documents (Uploaded separately to ProjectDox)
  - Site Entrance Traffic Study
  - Waiver Table

Att. 18

4. CONSISTENCY WITH CITY OF PORTLAND TRANSPORTATION STANDARDS (14.6.1)

A Traffic Movement Permit (TMP #2016-224) was issued by the City of Portland on May 26, 2017, as part of the 58 Fore Street Master Development Plan review process. The TMP conditions of approval require that updated traffic analyses and a Transportation Demand Management (TDM) Plan be approved for each phase of development. Traffic Assessments have been prepared by Gorrill Palmer for each development Block (assuming Block 4 will be constructed first, followed by Block 6, then Block 5). A TDM Plan was developed by VHB for all three development blocks. These reports will be uploaded separately to the Documents folder in Eplan.

Compliance with the City of Portland's Land Use Code Section 14.6.1 Transportation Standards is described in the following sections.

4.1 Impact on Surrounding Street Systems

The project's Traffic Assessments were prepared by Gorrill Palmer for the proposed development. They evaluate the entire site as approved to date with previously approved and constructed Block 1A and Building 12, and the approved, but not yet rehabilitated Block 2 development. The first assessment adds in just the Block 4 development, the second memo includes both Block 4 and Block 6, and the third memo includes Blocks 4, 5, and 6. A trip generation summary is provided in the traffic assessment, as well as a comparison to trip generation previously approved in the Traffic Movement Permit as part of the 58 Fore Street Master Development Plan process. The proposed development will remain within the level of traffic that was previously approved for the Traffic Movement Permit.

4.2 Access and Circulation

General

The primary vehicular and pedestrian entrances to the site are via Thames Street Extension and Fore Street. Pedestrians will also be able to access the site from the Eastern Promenade trail and Fore Street by using the new staircase that was installed as part of Phase 1.

Vehicles entering on Thames Street may park in one of nine on-street parallel parking spaces or may drive through the site to park in garage spaces located in Buildings 1A, 4, or 6. Additional vehicular access to the Building 4 garage is provided via a garage entrance on Fore Street, directly opposite Waterville Street.

Similar to Phase 1, the design of the proposed roadway internal to the Site will safely accommodate a mix of pedestrian and vehicle traffic. Sections of the roadway will have continuous paving to unify the driving lane and sidewalk zones, while the paving design defines various zones for vehicles, pedestrians, and parking through a mix of materials and paving patterns. Though the material will be continuous, a textured band of paving will differentiate the zones providing visual and tactile clues to the change in use. Curbing will also be used in some areas of the site to help to accommodate grading challenges. Driving lanes are defined by continuous, centerline trench drains along sections of the roadway and the edges are marked by a combination of parking spaces, plants, street trees, bollards, and light poles.

Loading and Servicing

Loading and trash removal will be addressed in each of the buildings throughout the site with designated spaces to accommodate deliveries and storage.

Fore Street Curb and Sidewalks

Brick sidewalks and granite curbs will be provided along Fore Street, generally per the City of Portland Sidewalks and Driveway Apron Materials Policy. We have requested a waiver relative to the driveway apron standards, requesting that ramps be provided on either side of the Fore Street garage entrance as an alternative to the City's apron detail that requires a continuous sidewalk grade with a steep grade change at the curb edge of the sidewalk. The existing steep running grade of Fore Street (as much as 12% in the area of the garage entrance) makes the grading of this space a challenge. With this grade defining the cross pitch of the driveway we do not want to also introduce a steep grade change at the curb line as well. In addition, the City's recent Fore Street roadwork has introduced a crosswalk across Fore Street from Waterville Street located just to the west of the garage entrance; we will be providing a ramp down to access this crosswalk and will ramp the sidewalk back up to curb height following the garage entrance.

4.3 Public Transit Access

While no specific changes to public transit access are proposed as part of this project at this time, Portland Foreside Development Company has been in close touch with Metro. Portland Foreside and Metro are in agreement that this development area is very transit-friendly in terms of land use and location. In addition, the recent development of the Fore Street/Thames Street corridor warrants consideration for transit service in the future. Currently, the site is one quarter of a mile away from India Street where Route 8 runs, with additional service along Congress Street which is a short walk, or Route 8 transfer.

Casco Bay Lines, transit to the local islands, is also within a short walking distance from the site and the Portland Jetport and Portland Transportation Station (Amtrak and Bus Service) are within a 10-minute drive.

4.4 Parking

Vehicular Parking

The attached Traffic Assessment provides a detailed parking analysis for the proposed development. The parking demand will be satisfied by parking spaces on the garage level of Building 1A (previously permitted and under construction), and the proposed Phase 2 parking garage. A portion of the Phase 2 parking garage includes stackers that will allow for more efficient use of space for parking.

Snow Storage

The Site's snow removal will be managed by a contracted third party to ensure safe vehicular and pedestrian circulation, and to maintain access to the building entrances.

Electric Vehicle (EV) Charging

We are currently proposing 69 electric vehicle charging stations within the proposed parking garage. We are evaluating the electrical demand of more widespread electric vehicle charging, anticipating increases in demand in the future, and developing the garage space to support future expansions in charging stations. As set forth in more detail in Section 2.6, we are requesting a waiver of this standard to allow for a smaller number of stations initially, with installation of additional stations in response to demand.

Bicycle Parking

The project will include significant increases in bicycle parking on the site to support both the residential and non-residential uses on the property. Residential bicycle parking will be located inside the Block 4, 5 and Block 6 residential buildings. In the Block 4 building, a majority of the storage space is located on the first floor in a Campus Storage room and in a space near the Thames Street garage entrance. A bicycle FixIt Station will also be included within the Block 4 garage space. In Block 6, bicycle storage will be located on the first flow within designated recreational storage space that will be accessed both from the interior of the garage and through a building entrance fronting along the Eastern Promenade Trail. The non-residential bicycle parking is primarily located outside on exterior bicycle racks, with a few spaces previously provided inside Building 1A associated with the office use. The outside non-residential bicycle parking spaces will not be designated for specific users, and residents may choose to use these spaces as well.

The attached Traffic Assessments provide an analysis of the total number of bicycle parking spaces required based on an evaluation of both the number of residential uses and the number of parking spaces. Based on this analysis and considering the bicycle parking that was provided for Buildings 1A/12 and what is proposed for Blocks 4, 5 and 6, the site will be providing adequate bicycle parking, as represented in the table below.

Table 4-1 Bicycle Parking

	Internal	External
Building 1A/12 (previously approved)	9 (non-residential)	12 (non-residential)
Block 4	100 (residential)	20 (non-residential) (Block 4 and 5 site area combined)
Block 5	30 (residential)	
Block 6	60 (residential)	12 (non-residential)

	Required	Provided
Residential:	178	190
Non-Residential:	40	53
Total:	218	243

4.5 Transportation Demand Management (TDM)

A TDM Plan was developed by VHB for all three development blocks. This report will be uploaded separately to the Documents folder in Eplan.

GORRILL PALMER

300 Southborough Dr., Suite 200
South Portland, Maine 04106
207.800.3169

Traffic Assessment
Portland Foreside, Channel Mark – Block 5
Portland, Maine

Date: May 5, 2023
Subject: Portland Foreside, Channel Mark - Combined Blocks Traffic Assessment
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

Introduction

Gorrill Palmer (GP) has been retained by **Foreside Development Co**. to complete a traffic assessment for the proposed Block 5 of the Portland Foreside Master Development Plan. Block 5 is to accompany the existing Block 1 (which includes the SunLife Office Building and Building 12), as well as the permitted Block 2, and the anticipated Blocks 4 and 6. It is our understanding that submittals seeking approval for Blocks 4 and 6 were submitted to the City in the fall of 2022. It should be noted that all three blocks (4, 5, 6) will be constructed as a single building; however, for the purposes of developing the traffic impact evaluation, it is necessary to sequence this traffic assessment in line with anticipated opening dates. Based on information provided by the Foreside Development Co. team, the proposed Block 5 is to consist of the following:

- Block 5:
  - 128 Key Hotel
  - 43 Condo Units
  - 4,928 SF Retail
  - 18,083 SF Food & Beverage
  - 19,697 SF Spa

While the existing, permitted, and anticipated blocks contain the following:

- Block 1
  - SunLife Office Building (existing, constructed per Traffic Assessment dated November 22, 2019):
    - 95,100 SF Office Space
    - 9,300 SF Retail
  - Building 12 (existing, constructed per Traffic Assessment dated November 22, 2019):
    - 3,200 SF Restaurant
    - 3,200 SF Office
    - 2 Townhouse Condo Units

- Block 2 (permitted, not yet constructed):
  - 17,950 SF Restaurant
  - 17,950 SF Retail
  - 17,900 SF Event Center
  - 12,400 SF Office
- Block 4 (anticipated, submitted fall of 2022):
  - 225 Apartment Units
  - 22 Townhouse Condo Units
  - 11,951 SF Retail
  - 443 Garage Spaces
- Block 6 (anticipated, submitted fall of 2022):
  - 154 Condo Units
  - 9,108 SF of Retail Space
  - 166 Garage Spaces

An existing conditions plan and a site plan are included in Attachment A. The Portland Foreside Master Development Plan received a Traffic Movement Permit (TMP #2016-224) from the City of Portland dated May 26, 2017. The TMP requires, as a condition of approval, that as part of the Site Plan Review by the Planning Board, an updated traffic assessment be approved for each phase of development. The following summarizes the updated traffic assessment for the combination of Blocks 1, 2, 4, 5, and 6.

Previous Traffic Assessment

This traffic assessment is modeled after an assessment associated with this project that was submitted to the City of Portland in November 2019 and approved in January 2020. This previously approved traffic assessment included an analysis for Blocks 1, 2, and 4. It should be noted that at this time, Block 1 (SunLife Office Building and Building 12) has been constructed per what was proposed in that assessment. Block 2 is not yet constructed but is still planned to be constructed per what was proposed in that assessment. The Block 4 described in that assessment is no longer being proposed and the Block 4 described above is proposed in its place. This revised Block 4 and the proposed Block 6 were the subjects of previous separate submittals which were submitted to the City fall of 2022. This traffic assessment intends to follow the same methodologies and approaches as the previous assessments to be consistent with what was originally approved.

Trip Generation

Trip generation for the proposed combined Blocks of the Portland Foreside Master Development Plan has been calculated to compare the combined trip generation to what was approved in the overall site TMP. The Master Development Plan was permitted for 506 trip ends during the AM peak hour of the adjacent street and 585 trip ends during the PM peak hour of the adjacent street. The following summarizes the trip generation calculations for the combined blocks of 1, 2, 4, 5, and 6 and the comparison to the total site approved TMP trip generation.

ITE Trip Generation

The trip generation for the combined blocks has been calculated using the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, Seventh Edition. This was done to be consistent with the means and methods presented in the original submission and consistent with previous traffic assessments for this project. At the time of the original submission, MaineDOT was accepting trip generation calculations for LUC 710 – general office that were based on the eighth edition. Since the space allotted to general office was calculated using the eighth edition in the original submission, it was repeated here. The City of Portland has delegated review authority for TMPs, but they are still required to be in accordance with MaineDOT rules. This methodology is consistent with that used for calculating the trip generation for the approved TMP. The trip generation for the combined blocks has been calculated using the following Land Use Codes (LUCs):

- LUC 710 – General Office
- LUC 931 – Quality Restaurant
- LUC 220 – Apartment
- LUC – 230 – Townhouse / Condo
- LUC 814 – Specialty Retail
- LUC 310 – Hotel
- LUC 492 – Health / Fitness Club

The following table summarizes the ITE trip generation for the site. Detailed trip generation calculations are attached. It should be noted that due to the types of restaurants and that they are expected to be destinations that would draw visitors for at least an hour, they are assumed to operate similarly to quality restaurants. Additionally, as was noted in a previous traffic assessment dated November 2019 for this project, the event space permitted in Block 2 is smaller than the existing event space on site. No credit was taken in the original TMP for the event space. Since the proposed event space is smaller than the existing event space and the uses will be similar, no increase in trips is expected. Therefore, the trip generation for the event space has not been included.

Table 1 – ITE Raw Trip Generation Summary

Use	Size	AM Adj St	PM Adj St
Block 1 – SunLife Office	**Constructed per November 2019 Assessment**		
Office	95,100 SF	180	173
Retail	9,300 SF	7	25
Subtotal		187	198
Block 1 – Building 12	**Constructed per November 2019 Assessment**		
Office	3,200 SF	12	12
Restaurant	3,200 SF	3	24
Residential - Condos	2 units	1	1
Subtotal		16	37
Block 2	**Permitted per November 2019 Assessment**		
Restaurant	17,950 SF	15	134
Retail	17,950 SF	13	49
Office	12,400 SF	35	34
Subtotal		63	217
Block 4	**Under Review**		
Residential - Apartments	225 Units	115	140
Residential - Condos	22 Units	10	12

Retail	11,951 SF	9	32
Subtotal		134	184
Block 6	**Under Review**		
Residential - Condos	154 Units	68	80
Retail	9,108 SF	7	25
Subtotal		75	105
Block 5	**Currently Proposed**		
Residential - Condos	43 Units	19	22
Hotel	128 Units	72	76
Retail	4,928 SF	4	13
Restaurant	18,083 SF	15	135
Spa	19,697 SF	24	80
Subtotal		134	326
Total		**609**	**1067**

As shown in Table 1, the ITE trip generation is forecast to be 609 trip ends during the AM peak hour of the adjacent street and 1,067 trip ends during the PM peak hour of the adjacent street. A trip end is a trip into or out of the site, thus a round trip is equal to two trip ends. The applicable ITE Trip Generation spreadsheets are included in Attachment B.

Shared Use Reduction

The National Cooperative Highway Research Program (NCHRP) 684 Internal Capture Estimation Tool has been used to estimate the traffic that will visit more than one destination without leaving the site. The NCHRP 684 spreadsheet uses the ITE forecast trip generation for each type of land use (office, retail, residential) and estimates the trips that will travel between two uses without leaving the site. This yields an internal trip capture percentage, which is the percentage of trip ends that will travel between two uses. This methodology is consistent with that used for the TMP, the previous traffic assessment, and the MaineDOT. The proposed spa is not represented in the NCHRP spreadsheet but is expected to draw at least 50% of its clientele from the on-site hotel, B4 Townhouses and Apartments, B5 condos, B6 condos, and other onsite businesses, so was added independently. The following tables summarize the AM and PM peak hour internal trip capture percentages for the proposed site.

Table 2 – AM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	205	22	10%	45%	20	10	30
Retail	24	16	46%	50%	11	8	19
Restaurant	17	16	59%	50%	10	8	18
Residential	32	181	6%	5%	2	9	11
Hotel	43	29	0%	28%	0	8	8
All Other Uses (spa)	10	14	50%	50%	5	7	12
Total	**331**	**278**	**15%***	**18%***	**48**	**50**	**98**

Table 3 – PM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	33	186	27%	7%	9	13	22
Retail	65	79	71%	63%	46	50	96
Restaurant	190	103	29%	60%	56	62	118
Residential	166	89	27%	37%	44	33	77
Hotel	41	35	34%	31%	14	11	25
All Other Uses (spa)	40	40	50%	50%	20	20	40
Total	**535**	**532**	**35%***	**35%***	**189**	**189**	**378**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

The following table summarizes the reduced trip generation for the site due to shared use trips:

Table 4 – Shared Use Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
ITE Total	609	1067
Shared Use Reduction	-98	-378
Reduced Subtotal	**511**	**689**

As shown in Table 4, the proposed site with the shared use reduction is forecast to generate 511 trip ends and 689 trip ends during the AM and PM peak hours of the adjacent street respectively. The NCHRP 684 spreadsheets are included in Attachment C.

Other Modes Reduction

In addition to a shared use reduction, a reduction for other modes of transportation can be applied to the trip generation. It can be expected for a site in a downtown area that other modes of transportation will be used to go to and from a given site. These other modes could include things such as public transit, bicycle, carpooling, or walking. This site is adjacent to an existing bus route, as well as located on a pedestrian and bicycle path, so full use of other modes of transportation are readily available. The other modes reduction that was used for the purposes of the November 2019 traffic assessment has been applied to the trip generation in this submission in order to be consistent. The reduction of 18% was recommended by Tom Errico in his comments (Response dated December 20, 2019) based on

census data existing in 2019 and accepted by the City of Portland for multiple projects at that time. The following table summarizes the trip generation including the other modes reduction:

Table 5 – Other Modes Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
Reduced Subtotal	511	689
Other Modes Reduction	-92	-124
Reduced Site Total	**419**	**565**

As shown in the table, the forecast site trip generation for Blocks 1, 2, 4, 5, and 6 is 419 trip ends during the AM peak hour of the adjacent street and 565 trip ends during the PM peak hour of the adjacent street.

Master Plan Trip Generation Comparison

The trip generation for the combined Blocks 1, 2, 4, 5, and 6 has been compared to the permitted trip generation to ensure that it does not exceed the permitted amount. The site was permitted for 506 trip ends during the AM peak hour of the adjacent street and 585 trip ends during the PM peak hour of the adjacent street. The following table summarizes the trip generation comparison:

Table 6 – Trip Generation Comparison Summary

Trip Generation	Trip Generation	
	AM Adj St	PM Adj St
Permitted	506	585
Forecast Combined Blocks	419	565
Remaining Permitted Trips	**87**	**20**

As shown in Table 6, the combined blocks trip generation is 87 AM peak hour trip ends and 20 PM peak hour trip ends **less** than the permitted site trip generation.

It should be noted that the methodology used to arrive at this trip generation will need to be generated every time new development is proposed, because the results are dependent on the overall total uses on the site and the mixture of those uses. The results would be inaccurate to simply calculate the trip generation of new uses and add to the 419 & 565 trips identified above.

Parking Demand

The forecast parking demand for the combined blocks has been based on a combination of City Ordinance parking demand, the ITE Parking Generation Manual, 5th Edition, and published data / engineering judgement. First, the number of spaces required for each use was calculated based on the

ITE Parking Generation Manual, 5th Edition. This method was chosen over the methods presented in the City Ordinance because the ITE method generally leads to more parking being required, and the intent was to be conservative. For example, ITE requires 10.52 parking spaces per 1,000 SF of floor area for a restaurant (0.01052), while the City Ordinance requires 1 parking space per 150 SF of floor area (0.0067). The number of spaces required for each use were then distributed throughout each hour of the day using factors specific to each use presented in the ITE Parking Generation Manual, 5th Edition. Then, the number of spaces required for each use was summed for each hour of the day. A mixed use reduction of 23% (average of 14% AM & 32% PM provided in NCHRP spreadsheest) was applied. This is conservative since the peak parking demand is forecast to occur during the PM peak hours and is not taking credit for the full 32%. Finally, an 18% other modes reduction (based on Tom Errico's recommendation) was applied to the data. Shared parking methodology reflects that the demand for different uses will peak during different times of day; however, when parking spaces are designated for a single use, they cannot be used to satisfy shared parking demand.

The existing parking arrangement on site is difficult to break down as it is an ongoing construction site and as work moves around different areas of the property, portions of parking areas may be unavailable for a period of time. To date, a 68-space parking garage beneath Building 1 and a 146-space surface parking lot along the southern lot line have been constructed, for a total of 214 spaces. A site parking figure has been included in Attachment A. It should be noted that the 2 "drop-off spaces" listed in the surface lot and the 9 "permanent on-street parking" spaces are not included in this total. The "interim parking expansion" and the "future expanded parking zone" are not included in this total either as the future expansion is not yet available and the interim expansion will be significantly affected by the construction of Blocks 4, 5, and 6. It should be noted that the 146-space surface parking lot will be removed once the proposed garage in Block 4 is open. Therefore, for the purposes of this analysis, the site currently has 68 spaces that will be available upon completion of Blocks 4, 5, and 6.

It is assumed that the combined blocks will all utilize the parking garages on Blocks 1, 4, 5, and 6; and that no parking spaces are designated for a specific use. Since no parking spaces are designated for a single use, the shared parking demand methodology is applicable. The combined shared parking demand spreadsheet is included in Attachment C.

Based on the methodology described above, the peak parking demand for the combined blocks is forecast to be 696 spaces and is forecast to occur from 7:00 PM to 8:00 PM, with all other hours considerably less demand. When a parking facility is approximately 85% occupied, it is considered to be the "practical capacity" of the parking facilities. This is because an unfamiliar driver may not see empty parking spaces when the lot is almost completely occupied, especially in a larger parking area. This is typically reserved for a parking facility where drivers are unfamiliar with the parking area and for parking areas that are at the "practical capacity" for several hours throughout the day, and not just a single spike. Since approximately 50% of the users at the peak time of 7:00 PM to 8:00 PM are residents of the complex (i.e. familiar with the parking) and the 696 parking spaces identified is a spike of one hour, with the remainder of the day requiring considerably less parking, the "practical capacity" is not applicable for this situation. Complete parking demand calculations are presented in the shared parking demand spreadsheet included as Attachment C.

As it exists today, the development contains 68 parking spaces that are to remain upon completion of Block 5. Block 4, which is to be constructed before Block 5, proposes to add an additional 443 spaces while Block 6, which is also to be constructed before Block 5, proposes to add an additional 166 spaces for a total of 677 "pre-existing" spaces. The development of Block 5 proposes to add 35 parking spaces for a site total number of 712 parking spaces. Based on a review of the parking demand spreadsheet and the parking demand throughout the day, these 712 parking spaces will accommodate all the parking demands throughout the day, inclusive of the peak hour demand of 696 spaces.

Bicycle Parking

Per City Ordinance, new uses are required to provide bicycle accommodations based on the type of use. Residential structures are required to provide 2 bicycle spaces for every 5 dwelling units. Non-residential structures are required to provide 2 bicycle parking spaces for every 10 vehicle parking spaces for the first 100 required spaces, plus one bicycle parking space for every 20 required vehicle parking spaces over the 100 vehicle parking spaces. Since the proposed development is utilizing shared parking, and therefore, there are not a set number of spaces allotted to non-residential uses, the peak number of spaces attributed to non-residential uses during any hour – as determined by the shared parking demand spreadsheet – was used for the purposes of this calculation. The peak non-residential parking demand was determined to be 464 spaces, which occurs during the 7:00 PM to 8:00 PM hour. The following table shows the required bicycle parking to meet the Ordinance bicycle parking requirements:

Table 7 - Bicycle Parking Summary

Use	Bicycle parking Demand
Parking Variables	464 Non-Residential Vehicle Spaces, 446 Residential Units
Residential Bicycle Spaces	178
Non-Residential Bicycle Spaces	39
Total	**217**

As shown in Table 7, the site will require 217 bicycle parking spaces to meet the City Ordinance requirements for bicycle accommodations.

Conclusions

The following is a summary of the conclusions:

1. The trip generation for the combined blocks is forecast to be 419 trip ends during the AM peak hour of the adjacent street and 565 trip ends during the PM peak hour of the adjacent street. The combined blocks trip generation is 87 AM peak hour trip ends and 20 PM peak hour trip ends **less** than the permitted site trip generation.

2. The peak parking demand for the site is forecast to be 696 spaces and is forecast to occur from 7:00 PM to 8:00 PM. Prior to the construction of Block 5 the site is expected to have 677 parking

spaces. Block 5 is expected to add an additional 35 parking spaces, for a total of 712 spaces. Based on a review of the parking demand spreadsheet and the parking demand throughout the day, these 712 parking spaces will accommodate the forecast parking demand of the site.

3. The combined blocks are required to provide 217 bicycle parking spaces, based on the peak demand for non-residential vehicle parking spaces and the residential units. However, this assumes bicycle parking demand for all uses concurrently, which will not be the case. Therefore, actual demand should be less.

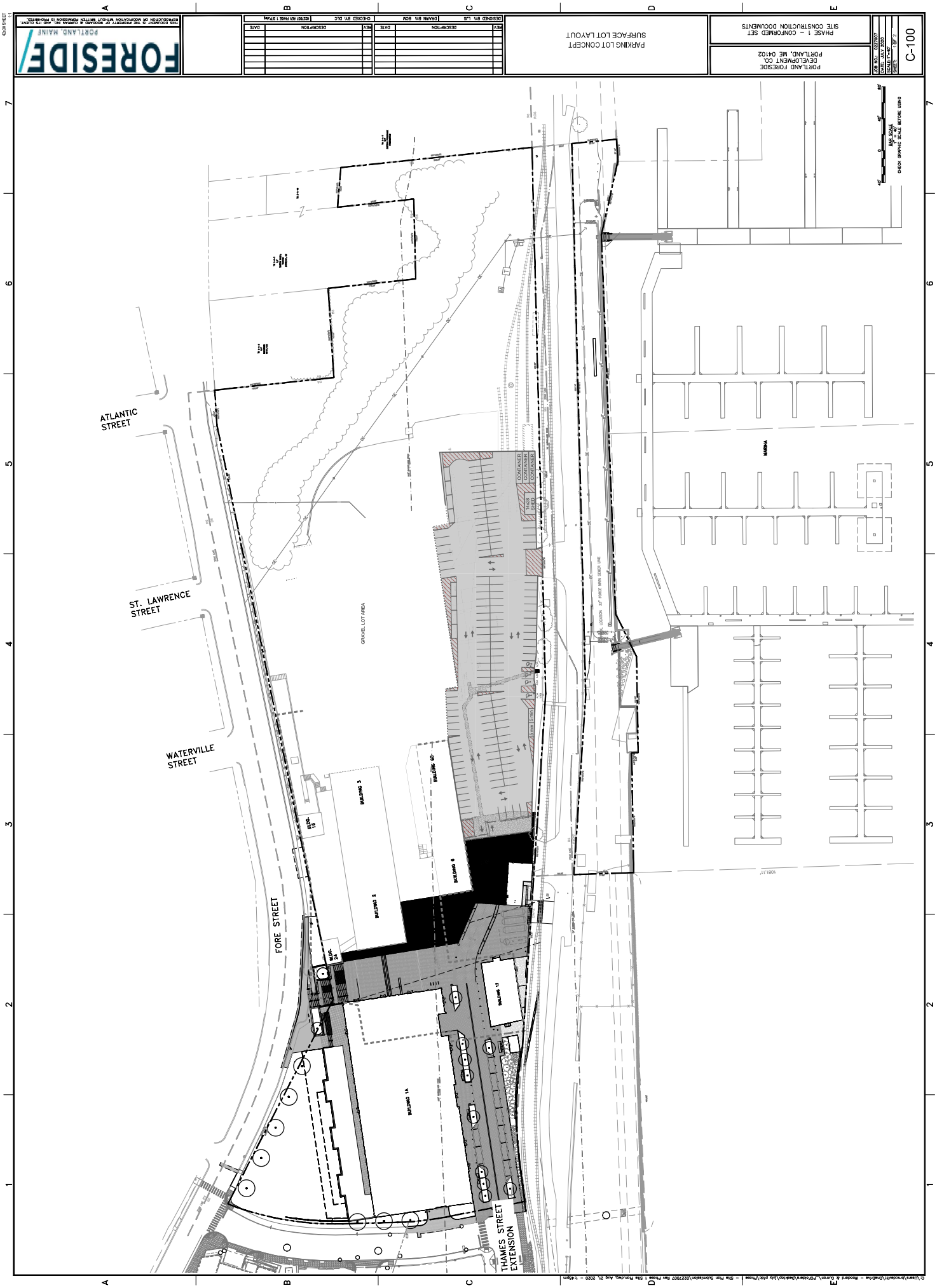
Attachments

Attachment A – Existing Conditions & Site Plans
Attachment B – Trip Generation Spreadsheets
Attachment C – NCHRP 684 & Shared Parking Demand Spreadsheets

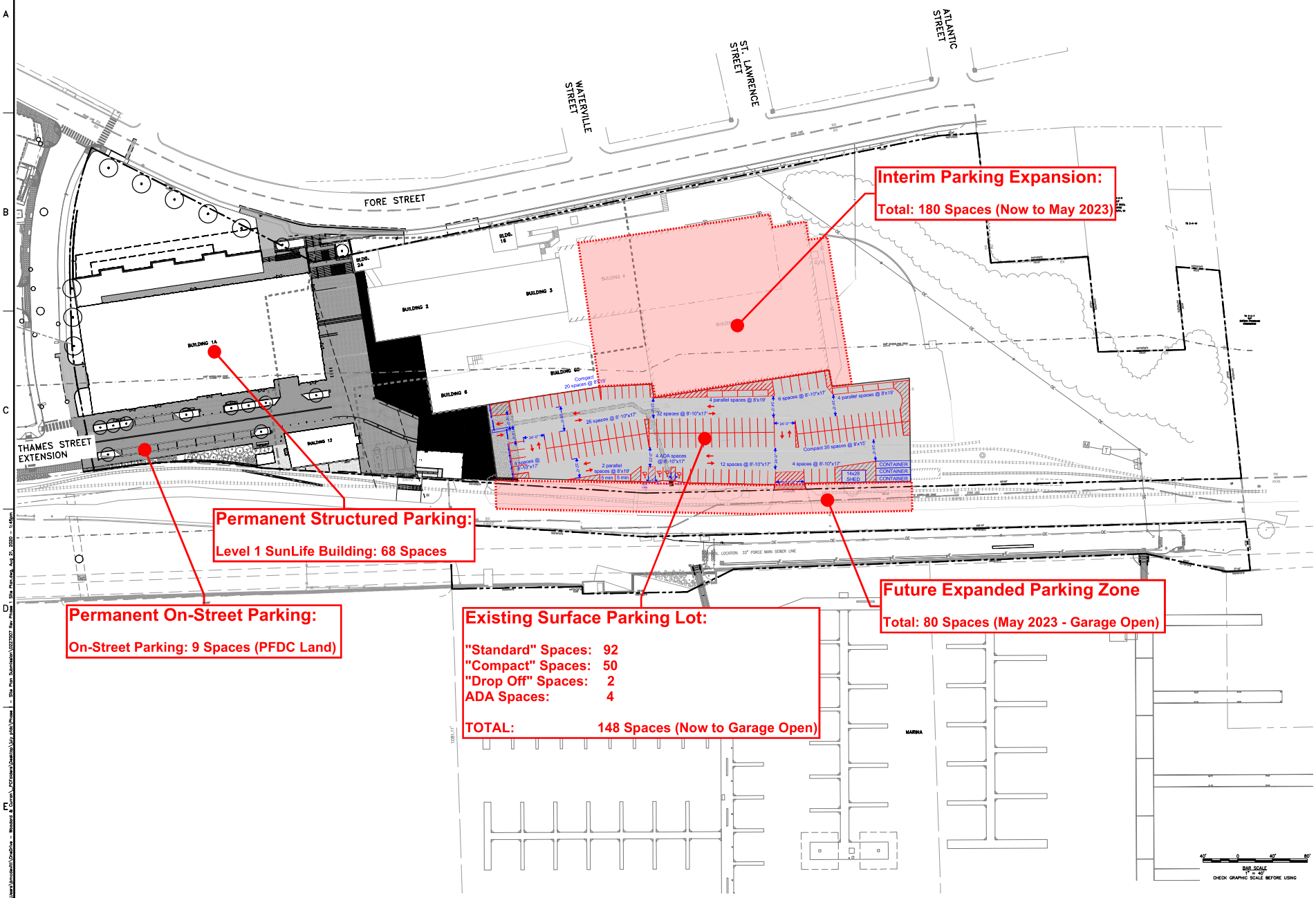
u:\4060_portland foreside block 5_portland\n traffic\block 5 - 05-05-23 combined blocks.docx

Attachment A

Existing Conditions & Site Plans


ATLANTIC STREET
ST. LAWRENCE STREET
WATERVILLE STREET
FORE STREET
THAMES STREET EXTENSION
MARINA
GRAVEL LOT AREA
BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 12
CONTAINER
CONTAINER
CONTAINER
TAGS SHED
BASE SCALE
CHECK GRAPHIC SCALE BEFORE USING
PARKING LOT CONCEPT
SURFACE LOT LAYOUT
PHASE 1 – CONFORMED SET
SITE CONSTRUCTION DOCUMENTS
PORTLAND FORESIDE
DEVELOPMENT CO.
PORTLAND, ME 04102
C-100
FORESIDE
PORTLAND, MAINE

Site Parking Plan



Interim Parking Expansion:

Total: 180 Spaces (Now to May 2023)

Permanent Structured Parking:

Level 1 SunLife Building: 68 Spaces

Permanent On-Street Parking:

On-Street Parking: 9 Spaces (PFDC Land)

Existing Surface Parking Lot:

"Standard" Spaces:	92
"Compact" Spaces:	50
"Drop Off" Spaces:	2
ADA Spaces:	4
TOTAL:	148 Spaces (Now to Garage Open)

Future Expanded Parking Zone

Total: 80 Spaces (May 2023 - Garage Open)

FORESIDE
PORTLAND, MAINE

PARKING LOT CONCEPT
SURFACE LOT LAYOUT

PORTLAND FORESIDE
DEVELOPMENT, LLC
PORTLAND, ME 04102

PHASE 1 – CONFORMED SET
SITE CONSTRUCTION DOCUMENTS

JOB NO.: 0227007
DATE: JULY 2020
SCALE: 1"=40'
SHEET: 1 OF 2

C-100


Block 1B
(Future)
Block 1
(Complete)
Block 2
(Permitted)
Block 3
(Future)
Block 4
(Submitted)
Block 5
(Current Application)
Block 6
(Submitted)
Block 7
(Complete)

Attachment B

ITE Trip Generation Spreadsheets

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 95,100

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	1283	78	50%	50%	642	641	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**180**	**217**	**90%**	**10%**	**162**	**18**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**185**	**235**	**15%**	**85%**	**28**	**157**	**0.82**
Saturday	T = 2.14 (X) + 18.47	222	17	50%	50%	111	111	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	35	10	55%	45%	19	16	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	1047	78	50%	50%	524	523	---
AM Peak Hour	T = 1.55 (X)	147	217	90%	10%	132	15	---
PM Peak Hour	T = 1.49 (X)	142	235	15%	85%	21	121	---
Saturday	T = 2.37 (X)	225	17	50%	50%	113	112	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**39**	**10**	**50%**	**50%**	**20**	**19**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	173		15%	85%	26	147	0.82

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	11/11/2019	South Portland, Maine 04106
Calculated By:	EAL	
Checked By:		

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 9,300

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	412	4	50%	50%	206	206	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**25**	**5**	**45%**	**55%**	**11**	**14**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**64**	**4**	**50%**	**50%**	**32**	**32**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**47**	**3**	**55%**	**45%**	**26**	**21**	**---**
Saturday	T = 42.04 (X)	391	3	50%	50%	196	195	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**7**		**60%**	**40%**	**4**	**3**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**33**		**50%**	**50%**	**17**	**16**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	436	4	50%	50%	218	218	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	44	5	45%	55%	20	24	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	161	4	50%	50%	81	80	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	12		60%	40%	7	5	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	58		50%	50%	29	29	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	11/11/2019	
Calculated By:	EAL	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 3,200

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split		Directional Distribution	
			IN	OUT	IN	OUT
Weekday	T = 89.95 (X)	288	50%	50%	144	144
AM Peak Adjacent Street	T = 0.81 (X)	3	50%	50%	2	1
PM Peak Adjacent Street	T = 7.49 (X)	24	65%	35%	16	8
AM Peak of Generator	T = 5.57 (X)	18	80%	20%	14	4
PM Peak of Generator	T = 9.02 (X)	29	60%	40%	17	12
Saturday	T = 94.36 (X)	302	50%	50%	151	151
Saturday Peak Hour of Gen.	T = 10.82 (X)	35	60%	40%	21	14

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 3,200

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	94	78	50%	50%	47	47	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**12**	**217**	**90%**	**10%**	**11**	**1**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**82**	**235**	**15%**	**85%**	**12**	**70**	**0.82**
Saturday	T = 2.14 (X) + 18.47	25	17	50%	50%	13	12	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	2	10	55%	45%	1	1	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	35	78	50%	50%	18	17	---
AM Peak Hour	T = 1.55 (X)	5	217	90%	10%	5	0	---
PM Peak Hour	T = 1.49 (X)	5	235	15%	85%	1	4	---
Saturday	T = 2.37 (X)	8	17	50%	50%	4	4	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**1**	**10**	**50%**	**50%**	**1**	**0**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	12		15%	85%	2	10	0.82

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	August 30, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 2

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**12**	**50%**	**50%**	**6**	**6**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**1**	**15%**	**85%**	**0**	**1**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**1**	**65%**	**35%**	**1**	**0**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	1	20%	80%	0	1	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	1	65%	35%	1	0	N/A
Saturday	T = 5.67 (X)	30	11	50%	50%	6	5	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	1	55%	45%	1	0	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	23	50%	50%	12	11	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	2	15%	85%	0	2	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	2	65%	35%	1	1	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	2	20%	80%	0	2	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	39	65%	35%	25	14	0.83
Saturday	T = 3.62 (X) + 427.93	30	435	50%	50%	218	217	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	43	55%	45%	24	19	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	11/11/2019	
Calculated By:	EAL	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 17,950

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split IN	Directional Split OUT	Directional Distribution IN	Directional Distribution OUT
Weekday	T = 89.95 (X)	1615	50%	50%	808	807
AM Peak Adjacent Street	T = 0.81 (X)	15	50%	50%	8	7
PM Peak Adjacent Street	T = 7.49 (X)	134	65%	35%	87	47
AM Peak of Generator	T = 5.57 (X)	100	80%	20%	80	20
PM Peak of Generator	T = 9.02 (X)	162	60%	40%	97	65
Saturday	T = 94.36 (X)	1694	50%	50%	847	847
Saturday Peak Hour of Gen.	T = 10.82 (X)	194	60%	40%	116	78

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	11/11/2019	South Portland, Maine 04106
Calculated By:	EAL	
Checked By:		

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 17,950

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	796	4	50%	50%	398	398	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**49**	**5**	**45%**	**55%**	**22**	**27**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**123**	**4**	**50%**	**50%**	**62**	**61**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**90**	**3**	**55%**	**45%**	**50**	**40**	**---**
Saturday	T = 42.04 (X)	755	3	50%	50%	378	377	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**13**		**60%**	**40%**	**8**	**5**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**65**		**50%**	**50%**	**33**	**32**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	806	4	50%	50%	403	403	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	65	5	45%	55%	29	36	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	204	4	50%	50%	102	102	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	18		60%	40%	11	7	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	86		50%	50%	43	43	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN: 3138.03
Project Description: Portland Foreside
Project Location: Portland, Maine
Date: 11/11/2019
Calculated By: EAL

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, ME 04106

General Office Building
Land Use Code (LUC) 710

Square Feet 12,400

Trip Ends Based on Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	Ln (T) = 0.77 Ln (X) + 3.65	267	78	50%	50%	134	133	0.80
AM Peak Hour	**Ln (T) = 0.80 Ln (X) + 1.55**	**35**	**217**	**90%**	**10%**	**32**	**3**	**0.83**
PM Peak Hour	**T = 1.12 (X) + 78.81**	**93**	**235**	**15%**	**85%**	**14**	**79**	**0.82**
Saturday	T = 2.14 (X) + 18.47	45	17	50%	50%	23	22	0.66
Peak Hour of Generator	Ln (T) = 0.81 Ln (X) - 0.12	7	10	55%	45%	4	3	0.59

* Percentages rounded to nearest 5%

Trip Ends Based on Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split *		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 11.01 (X)	137	78	50%	50%	69	68	---
AM Peak Hour	T = 1.55 (X)	19	217	90%	10%	17	2	---
PM Peak Hour	T = 1.49 (X)	18	235	15%	85%	3	15	---
Saturday	T = 2.37 (X)	29	17	50%	50%	15	14	---
Saturday Peak Hour of Gen.	**T = 0.41 (X)**	**5**	**10**	**50%**	**50%**	**3**	**2**	**---**

* Percentages rounded to nearest 5%

PM Peak Hour:	T = 1.49/1.55 (AM Peak)	34		15%	85%	5	29	0.82

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/14/2022	South Portland, Maine 04106

Apartment
Land Use Code (LUC) 220

Dwelling Units: 225

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.72 (X)	86	1512		50%	50%	756	756	N/A
AM Peak Hour of Adj. Street Traffic	T = 0.51 (X)	78	115		20%	80%	23	92	N/A
PM Peak Hour of Adj. Street Traffic	T = 0.62 (X)	90	140		65%	35%	91	49	N/A
AM Peak Hour of Generator	T = 0.55 (X)	81	124		30%	70%	37	87	N/A
PM Peak Hour of Generator	T = 0.67 (X)	83	151		60%	40%	91	60	N/A
Saturday	T = 6.39 (X)	15	1438		50%	50%	719	719	N/A
Saturday Peak Hour of Gen.	T = 0.52 (X)	14	117	**	50%	50%	59	58	N/A

* Percentages rounded to nearest 5%

** Not Available (Assumption)

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends		Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 6.01 (X) + 150.35	86	1503		50%	50%	751	752	0.88
AM Peak Hour of Adj. Street Traffic	T = 0.49 (X) + 3.73	78	114		20%	80%	23	91	0.83
PM Peak Hour of Adj. Street Traffic	T = 0.55 (X) + 17.65	90	141		65%	35%	92	49	0.77
AM Peak Hour of Generator	T = 0.53 (X) + 4.21	81	123		30%	70%	37	86	0.82
PM Peak Hour of Generator	T = 0.60 (X) + 17.52	83	153		60%	40%	92	61	0.80
Saturday	T = 7.85 (X) - 256.19	15	1510		50%	50%	755	755	0.85
Saturday Peak Hour of Gen.	T = 0.41 (X) + 19.23	14	111	**	50%	50%	56	55	0.56

* Percentages rounded to nearest 5%

** Not Available (Assumption)

JN:	4034	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	September 14, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 22

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**129**	**50%**	**50%**	**65**	**64**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**10**	**15%**	**85%**	**2**	**8**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**11**	**65%**	**35%**	**7**	**4**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	10	20%	80%	2	8	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	11	65%	35%	7	4	N/A
Saturday	T = 5.67 (X)	30	125	50%	50%	63	62	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	10	55%	45%	6	4	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	177	50%	50%	89	88	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	15	15%	85%	2	13	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	17	65%	35%	11	6	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	15	20%	80%	3	12	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	46	65%	35%	30	16	0.83
Saturday	T = 3.62 (X) + 427.93	30	508	50%	50%	254	254	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	49	55%	45%	27	22	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/21/2022	South Portland, Maine 04106
Calculated By:	BP	
Checked By:	RED	

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 11,951

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	530	4	50%	50%	265	265	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**32**	**5**	**45%**	**55%**	**14**	**18**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**82**	**4**	**50%**	**50%**	**41**	**41**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**60**	**3**	**55%**	**45%**	**33**	**27**	**---**
Saturday	T = 42.04 (X)	502	3	50%	50%	251	251	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**9**		**60%**	**40%**	**5**	**4**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**42**		**50%**	**50%**	**21**	**21**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	549	4	50%	50%	275	274	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	50	5	45%	55%	23	27	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	174	4	50%	50%	87	87	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	14		60%	40%	8	6	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	66		50%	50%	33	33	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4035	Gorrill Palmer
Project Description:	58 Fore Street	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	September 21, 2022	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 154

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**902**	**50%**	**50%**	**451**	**451**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**68**	**15%**	**85%**	**10**	**58**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**80**	**65%**	**35%**	**52**	**28**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	68	20%	80%	14	54	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	80	65%	35%	52	28	N/A
Saturday	T = 5.67 (X)	30	873	50%	50%	437	436	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	72	55%	45%	40	32	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	926	50%	50%	463	463	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	73	15%	85%	11	62	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	86	65%	35%	56	30	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	74	20%	80%	15	59	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	91	65%	35%	59	32	0.83
Saturday	T = 3.62 (X) + 427.93	30	985	50%	50%	493	492	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	87	55%	45%	48	39	0.84

* Percentages rounded to nearest 5%

JN:	3138.03	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	9/14/2022	South Portland, Maine 04106
Calculated By:	BP	
Checked By:	RED	

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 9,108

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	404	4	50%	50%	202	202	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**25**	**5**	**45%**	**55%**	**11**	**14**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**62**	**4**	**50%**	**50%**	**31**	**31**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**46**	**3**	**55%**	**45%**	**25**	**21**	**---**
Saturday	T = 42.04 (X)	383	3	50%	50%	192	191	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**7**		**60%**	**40%**	**4**	**3**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**33**		**50%**	**50%**	**17**	**16**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	427	4	50%	50%	214	213	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	43	5	45%	55%	19	24	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	160	4	50%	50%	80	80	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	12		60%	40%	7	5	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	57		50%	50%	29	28	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4060
Project Description:	Portland Foreside
Project Location:	Portland, Maine
Date:	March 27, 2023
Calculated By:	BP
Checked By:	RED

Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, Maine 04106

Hotel
Land Use Code (LUC) 310

Rooms: 128

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split*		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 8.17 (X)	10	1046	50%	50%	523	523	-
AM Peak Adjacent Street	T = 0.56 (X)	20	72	60%	40%	43	29	-
PM Peak Adjacent Street	T = 0.59 (X)	25	76	55%	45%	42	34	-
AM Peak Hour of Generator	T = 0.52 (X)	32	67	55%	45%	37	30	-
PM Peak Hour of Generator	T = 0.61 (X)	35	78	60%	40%	47	31	-
Saturday	T = 8.19 (X)	8	1048	50%	50%	524	524	-
Saturday Peak Hour of Gen.	T = 0.72 (X)	9	92	55%	45%	51	41	-

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split*		Directional Distribution		R^2
				IN	OUT	IN	OUT	
Weekday	T = 8.95 (X) - 373.16	10	772	50%	50%	386	386	0.98
AM Peak Hour of Adjacent Street Traffic	Ln(T) = 1.24 Ln(X) - 2.00	20	56	60%	40%	34	22	0.75
PM Peak Hour of Adjacent Street Traffic	--	25	--	55%	45%	--	--	--
AM Peak Hour of Generator	Ln(T) = 0.87 Ln(X) + 0.02	32	69	55%	45%	38	31	0.54
PM Peak Hour of Generator	Ln(T) = 1.00 Ln(X) - 0.58	35	72	60%	40%	43	29	0.64
Saturday	T = 9.62 (X) - 294.56	8	937	50%	50%	469	468	0.93
Saturday Peak Hour of Gen.	T = 0.69 (X) + 4.32	9	93	55%	45%	51	42	0.80

* Percentages rounded to nearest 5%

JN:	4060	Gorrill Palmer
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	March 27, 2023	South Portland, Maine 04106

Residential Condominium/Townhouse
Land Use Code (LUC) 230

Dwelling Units: 43

Average Rate

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	**T = 5.86 (X)**	**54**	**252**	**50%**	**50%**	**126**	**126**	**N/A**
Peak Hour of Adjacent Street Traffic 7-9 AM	**T = 0.44 (X)**	**59**	**19**	**15%**	**85%**	**3**	**16**	**N/A**
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 0.52 (X)**	**62**	**22**	**65%**	**35%**	**14**	**8**	**N/A**
AM Peak Hour of Generator	T = 0.44 (X)	52	19	20%	80%	4	15	N/A
PM Peak Hour of Generator	T = 0.52 (X)	50	22	65%	35%	14	8	N/A
Saturday	T = 5.67 (X)	30	244	50%	50%	122	122	N/A
Saturday Peak Hour of Gen.	T = 0.47 (X)	27	20	55%	45%	11	9	N/A

* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Sample Size	Trip Ends	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	Ln(T) = 0.85 Ln(X) + 2.55	54	313	50%	50%	157	156	0.83
Peak Hour of Adjacent Street Traffic 7-9 AM	Ln(T) = 0.80 Ln(X) + 0.26	59	26	15%	85%	4	22	0.76
Peak Hour of Adjacent Street Traffic 4-6 PM	Ln(T) = 0.82 Ln(X) + 0.32	62	30	65%	35%	20	10	0.80
AM Peak Hour of Generator	Ln(T) = 0.82 Ln(X) + 0.17	52	26	20%	80%	5	21	0.80
PM Peak Hour of Generator	T = 0.34 (X) + 38.31	50	53	65%	35%	34	19	0.83
Saturday	T = 3.62 (X) + 427.93	30	584	50%	50%	292	292	0.84
Saturday Peak Hour of Gen.	T = 0.29 (X) + 42.63	27	55	55%	45%	30	25	0.84

* Percentages rounded to nearest 5%

JN:	4060	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	Suite 30
Date:	4/27/2023	South Portland, Maine 04106
Calculated By:	RED	
Checked By:		

Specialty Retail Center- (7th Edition)
Land Use Code (LUC) 814

Gross Floor Area (ft^2): 4,928

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 44.32 (X)	218	4	50%	50%	109	109	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	**T = 2.71 (X)**	**13**	**5**	**45%**	**55%**	**6**	**7**	**---**
AM Peak Hour of Generator	**T = 6.84 (X)**	**34**	**4**	**50%**	**50%**	**17**	**17**	**---**
PM Peak Hour of Generator	**T = 5.02 (X)**	**25**	**3**	**55%**	**45%**	**14**	**11**	**---**
Saturday	T = 42.04 (X)	207	3	50%	50%	104	103	---
Saturday Peak Hour of Gen.***	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM**	**T = 0.275 (PM Peak Hour)**	**4**		**60%**	**40%**	**2**	**2**	
Saturday Peak Hour***	**T = 1.325 (PM Peak Hour)**	**17**		**50%**	**50%**	**9**	**8**	

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center
* Percentages rounded to nearest 5%

Fitted Curve Equation

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 42.78 (X) + 37.66	248	4	50%	50%	124	124	0.69
Peak Hour of Adjacent Street Traffic 7-9 AM	---	---	---	---	---	---	---	---
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 2.40 (X) + 21.48	33	5	45%	55%	15	18	0.98
AM Peak Hour of Generator	T = 4.91 (X) + 115.59	140	4	50%	50%	70	70	0.90
PM Peak Hour of Generator	---	---	---	---	---	---	---	---
Saturday	---	---	---	---	---	---	---	---
Saturday Peak Hour of Gen.	---	---	---	---	---	---	---	---
AM Peak of Adjacent Street 7-9 AM***	T = 0.275 (PM Peak Hour)	9		60%	40%	5	4	
Saturday Peak Hour***	T = 1.325 (PM Peak Hour)	44		50%	50%	22	22	

* Percentages rounded to nearest 5%
(---) Not Given

**Based on ratio of AM/PM traffic for LUC 820, Shopping Center
***Saturday Peak Hour comes from a ratio of PM to Saturday trip rates from LUC 820 - Shopping Center

JN:	4060	Gorrill Palmer Consulting Engineers
Project Description:	Portland Foreside	707 Sable Oaks Drive
Project Location:	Portland, Maine	South Portland, ME 04106
Date:	3/27/2023	
Calculated By:	RED	

Quality Restaurant
Land Use Code (LUC) 931

Gross Floor Area (ft^2): 18,083

Time Period	ITE Trip Rate (Average Rate)	Trip Ends	Directional Split		Directional Distribution	
			IN	OUT	IN	OUT
Weekday	T = 89.95 (X)	1627	50%	50%	814	813
AM Peak Adjacent Street	T = 0.81 (X)	15	50%	50%	8	7
PM Peak Adjacent Street	T = 7.49 (X)	135	65%	35%	88	47
AM Peak of Generator	T = 5.57 (X)	101	80%	20%	81	20
PM Peak of Generator	T = 9.02 (X)	163	60%	40%	98	65
Saturday	T = 94.36 (X)	1706	50%	50%	853	853
Saturday Peak Hour of Gen.	T = 10.82 (X)	196	60%	40%	118	78

JN:	4060	Gorrill-Palmer Consulting Engineers, Inc.
Project Description:	Portland Foreside	P.O. Box 1237
Project Location:	Portland, Maine	15 Shaker Road
Date:	4/27/2023	Gray, Maine 04039

Health/Fitness Club
Land Use Code (LUC) 492

Gross Floor Area (ft^2): 19,697

Average Rate

Time Period	ITE Trip Rate	Trip Ends	Number of Studies	Directional Split * IN	Directional Split * OUT	Directional Distribution IN	Directional Distribution OUT	R^2
Weekday	T = 32.93 (X)	649	1	50%	50%	325	324	---
Peak Hour of Adjacent Street Traffic 7-9 AM**	T = 1.21 (X)	24	3	40%	60%	10	14	
Peak Hour of Adjacent Street Traffic 4-6 PM	T = 4.05 (X)	80	3	50%	50%	40	40	---
AM Peak Hour of Generator	T = 1.41 (X)	28	3	40%	60%	11	17	---
PM Peak Hour of Generator	T = 4.06 (X)	80	3	50%	50%	40	40	---
Saturday	T = 20.87 (X)	411	3	50%	50%	206	205	---
Saturday Peak Hour of Gen.***	T = 2.60 (X)	51	3	50%	50%	26	25	---

* Percentages rounded to nearest 5%

Attachment C

NCHRP 684 & Shared Parking Demand spreadsheets

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	4/27/2023
Analysis Year:		**Checked By:**	
Analysis Period:	AM Street Peak Hour	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	227	205	22
Retail	814	53,292	SF	40	24	16
Restaurant	931	30,514	SF	33	17	16
Cinema/Entertainment				0		
Residential	220/230	455	Units	213	32	181
Hotel	310	130	Units	72	43	29
All Other Land Uses[2]	492			24	10	14
Total				609	331	278

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	4	0	0	0
Retail	5		2	0	1	0
Restaurant	5	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	3	0		0
Hotel	6	1	1	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	609	331	278
Internal Capture Percentage	14%	13%	15%
External Vehicle-Trips[3]	523	288	235
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	10%	45%
Retail	46%	50%
Restaurant	59%	50%
Cinema/Entertainment	N/A	N/A
Residential	6%	5%
Hotel	0%	28%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	22	22
Retail	1.00	24	24	1.00	16	16
Restaurant	1.00	17	17	1.00	16	16
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	32	32	1.00	181	181
Hotel	1.00	43	43	1.00	29	29

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	5		2	0	2	0
Restaurant	5	2		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	4	2	36	0		0
Hotel	22	4	3	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	4	0	0	0
Retail	8		9	0	1	0
Restaurant	29	2		0	2	2
Cinema/Entertainment	0	0	0		0	0
Residential	6	4	3	0		0
Hotel	6	1	1	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	20	185	205	185	0	0
Retail	11	13	24	13	0	0
Restaurant	10	7	17	7	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	2	30	32	30	0	0
Hotel	0	43	43	43	0	0
All Other Land Uses[3]	0	10	10	10	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	10	12	22	12	0	0
Retail	8	8	16	8	0	0
Restaurant	8	8	16	8	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	9	172	181	172	0	0
Hotel	8	21	29	21	0	0
All Other Land Uses[3]	0	14	14	14	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	4/27/2023
Analysis Year:		**Checked By:**	
Analysis Period:	PM Street Peak Hour	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	219	33	186
Retail	814	53,292	SF	144	65	79
Restaurant	931	30,514	SF	293	190	103
Cinema/Entertainment				0		
Residential	220/230	455	Units	255	166	89
Hotel	310	130	Units	76	41	35
All Other Land Uses[2]				80	40	40
Total				1067	535	532

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	4	0	4	0
Retail	2		23	0	21	4
Restaurant	3	33		0	19	7
Cinema/Entertainment	0	0	0		0	0
Residential	4	7	19	0		3
Hotel	0	1	10	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,067	535	532
Internal Capture Percentage	32%	32%	32%
External Vehicle-Trips[3]	729	366	363
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	27%	7%
Retail	71%	63%
Restaurant	29%	60%
Cinema/Entertainment	N/A	N/A
Residential	27%	37%
Hotel	34%	31%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
[4]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	33	33	1.00	186	186
Retail	1.00	65	65	1.00	79	79
Restaurant	1.00	190	190	1.00	103	103
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	166	166	1.00	89	89
Hotel	1.00	41	41	1.00	35	35

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	2		23	3	21	4
Restaurant	3	42		8	19	7
Cinema/Entertainment	0	0	0		0	0
Residential	4	37	19	0		3
Hotel	0	6	24	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	4	0	7	0
Retail	10		55	0	76	7
Restaurant	10	33		0	27	29
Cinema/Entertainment	2	3	6		7	0
Residential	19	7	27	0		5
Hotel	0	1	10	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	9	24	33	24	0	0
Retail	46	19	65	19	0	0
Restaurant	56	134	190	134	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	44	122	166	122	0	0
Hotel	14	27	41	27	0	0
All Other Land Uses[3]	0	40	40	40	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	13	173	186	173	0	0
Retail	50	29	79	29	0	0
Restaurant	62	41	103	41	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	33	56	89	56	0	0
Hotel	11	24	35	24	0	0
All Other Land Uses[3]	0	40	40	40	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

05-05-2023 Combined Shared Parking Demand 5th Edition

	Block 1 - SunLife Office Building					Block 4					Block 1 - Building 12							Block 2						
	Block 1A		Block 1A		Total for Block 1A	Block 4		Block 4		Total for Block 4	Building 12		Building 12		Building 12		Total for Building 12	Block 2		Block 2		Block 2		Total for Block 2
	Office (4)		Specialty Retail (5)			Specialty Retail (5)		Residential (3)			Office (4)		Restaurant (6)		Residential (3)			Office (4)		Restaurant (6)		Specialty Retail (5)		
Rate	2.39	2.39 / 1,000 sf	1.95	1.95 / 1,000 sf		1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		2.39	2.39/1,000 sf	95.0570	10.52 / 1000 sf	1.21	1.21 per Unit		2.39	2.39 / 1,000 sf	95.0570	10.52/1000	1.95	1.95 / 1,000 sf	
Monthly Adjustment	1000		1000	1		1000	1		1		1000					1		1000				1000	1	
SQF or Unit	95,100	95100 sf	9,300	9300 sf		11,951	11951 sf	247	247 Units		3,200	3,200 sf	3,200	3,200 sf	2	2 Units		12,400	12400 sf	17,950	17950 sf	17,950	17950 sf	
6:00AM	0.00	0	0.00	0	0	0.00	0	0.90	269	269	0.00	0	0.00	0	0.90	2	2	0.00	0	0.00	0	0.00	0	0
7:00AM	0.13	30	0.00	0	30	0.00	0	0.77	230	230	0.13	1	0.00	0	0.77	2	3	0.13	4	0.00	0	0.00	0	4
8:00AM	0.48	109	0.15	3	112	0.15	3	0.56	167	170	0.48	4	0.00	0	0.56	1	5	0.48	14	0.00	0	0.15	5	19
9:00AM	0.88	200	0.32	6	206	0.32	7	0.45	134	141	0.88	7	0.00	0	0.45	1	8	0.88	26	0.00	0	0.32	11	37
10:00AM	1.00	227	0.54	10	237	0.54	13	0.40	120	133	1.00	8	0.00	0	0.40	1	9	1.00	30	0.00	0	0.54	19	49
11:00AM	1.00	227	0.71	13	240	0.71	17	0.37	111	128	1.00	8	0.20	7	0.37	1	16	1.00	30	0.20	38	0.71	25	93
12:00PM	0.85	193	0.99	18	211	0.99	23	0.36	108	131	0.85	7	0.51	17	0.36	1	25	0.85	25	0.51	96	0.99	35	156
1:00PM	0.84	191	1.00	18	209	1.00	23	0.36	108	131	0.84	6	0.56	19	0.36	1	26	0.84	25	0.56	106	1.00	35	166
2:00PM	0.93	211	0.90	16	227	0.90	21	0.37	111	132	0.93	7	0.40	13	0.37	1	21	0.93	28	0.40	76	0.90	32	136
3:00PM	0.94	214	0.83	15	229	0.83	19	0.43	129	148	0.94	7	0.27	9	0.43	1	17	0.94	28	0.27	51	0.83	29	108
4:00PM	0.85	193	0.81	15	208	0.81	19	0.45	134	153	0.85	7	0.27	9	0.45	1	17	0.85	25	0.27	51	0.81	28	104
5:00PM	0.56	127	0.84	15	142	0.84	20	0.55	164	184	0.56	4	0.39	13	0.55	1	18	0.56	17	0.39	74	0.84	29	120
6:00PM	0.20	45	0.86	16	61	0.86	20	0.66	197	217	0.20	2	0.71	24	0.66	2	28	0.20	6	0.71	134	0.86	30	170
7:00PM	0.11	25	0.80	15	40	0.80	19	0.73	218	237	0.11	1	1.00	34	0.73	2	37	0.11	3	1.00	189	0.80	28	220
8:00PM	0.00	0	0.63	11	11	0.63	15	0.77	230	245	0.00	0	0.97	33	0.77	2	35	0.00	0	0.97	183	0.63	22	205
9:00PM	0.00	0	0.42	8	8	0.42	10	0.86	257	267	0.00	0	0.00	0	0.86	2	2	0.00	0	0.00	0	0.42	15	15
10:00PM	0.00	0	0.15	3	3	0.15	3	0.92	275	278	0.00	0	0.00	0	0.92	2	2	0.00	0	0.00	0	0.15	5	5
Dedicated spaces	0.00	0	0.00	0	0	0.00	0			0	0.00	0	0.00	0			0	0.00	0	0.00	0	0.00	0	0

(1) Based on the results from the NCHRP 684 Internal Trip Capture Estimation Tool

(2) Based on Commute to Work data from the 2009-2013 ACS by Census Tract for the City of Portland provided by GPCOG

(3 Time of Day distrubution for Dense Multi-use Urban, Rate for General Urban/Suburban

(4) Time of day distribution and rate based on General Urban/Suburban

(5) Time of day distrubution and rate based on Shopping Center, General Urban/Suburban, weekday (non-December)

(6) Time of day distrubution and rate based on Quality Restaurant, General Urban/Suburban, weekday (Monday-Thursday)

(7) Time of day distrubution and rate based on Hotel, General Urban/Suburban, weekday

(8) Time of day distrubution and rate based on Health / Fitness Club, weekday.

05-05-2023 Combined Shared Parking Demand 5th Edition

Block 5											Block 6					Shared Spaces					
																Combined Subtotal					
Block 5		Block 5		Block 5		Block 5		Block 5		Total for Block 5	Block 6		Block 6		Total for Block 6						
Hotel (7)		Specialty Retail (5)		Restaurant (6)		Residential (3)		Spa (8)			Specialty Retail (5)		Residential (3)								
1.1	1.1 per room	1.95	1.95 / 1,000 sf	95.0570	10.52/1000	1.21	1.21 per Unit	232.5581	4.3 / 1000SF		1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		Combined Subtotal	Mixed Use Reduction (1)	Other Modes Reduction (2)	Reduced Total	Non-Residential Spaces	Residential Spaces
		1000	1				1	1000			1000	1		1			23%	18.0%			
128	128 room	4,928		18,083		43	43 Units	19,697	19660 SF		9,108	9108 sf	154	154 Units							
0.91	128	0.00	0	0.00	0	0.90	47	0.00	0	175	0.00	0	0.90	168	168	614	141	85	388	101	287
0.89	125	0.00	0	0.00	0	0.77	40	0.00	0	165	0.00	0	0.77	143	143	575	132	80	363	118	245
0.90	127	0.15	1	0.00	0	0.56	29	0.00	0	157	0.15	3	0.56	104	107	570	131	79	360	182	178
1.00	141	0.32	3	0.00	0	0.45	23	0.00	0	167	0.32	6	0.45	84	90	649	149	90	410	267	143
0.98	138	0.54	5	0.00	0	0.40	21	0.62	53	216	0.54	10	0.40	75	85	729	168	101	460	332	128
0.89	125	0.71	7	0.20	38	0.37	19	0.55	47	236	0.71	13	0.37	69	82	795	183	110	502	384	118
0.85	120	0.99	10	0.51	97	0.36	19	0.44	37	282	0.99	18	0.36	67	85	890	205	123	562	447	115
0.75	106	1.00	10	0.56	107	0.36	19	0.41	35	275	1.00	18	0.36	67	85	892	205	124	563	448	115
0.81	114	0.90	9	0.40	76	0.37	19	0.36	30	249	0.90	16	0.37	69	85	850	196	118	536	418	118
0.70	99	0.83	8	0.27	51	0.43	22	0.41	35	215	0.83	15	0.43	80	95	812	187	113	512	375	137
0.74	104	0.81	8	0.27	51	0.45	23	0.69	58	245	0.81	14	0.45	84	98	825	190	114	521	378	143
0.65	92	0.84	8	0.39	74	0.55	29	0.96	81	284	0.84	15	0.55	102	117	865	199	120	546	372	174
0.73	103	0.86	8	0.71	135	0.66	34	1.00	85	365	0.86	15	0.66	123	138	979	225	136	618	408	210
0.78	110	0.80	8	1.00	190	0.73	38	0.85	72	418	0.80	14	0.73	136	150	1102	253	153	696	464	232
0.93	131	0.63	6	0.97	185	0.77	40	0.00	0	362	0.63	11	0.77	143	154	1012	233	140	639	394	245
0.96	135	0.42	4	0.00	0	0.86	45	0.00	0	184	0.42	7	0.86	160	167	643	148	89	406	132	274
0.95	134	0.15	1	0.00	0	0.92	48	0.00	0	183	0.15	3	0.92	171	174	645	148	89	408	115	293

GORRILL PALMER

300 Southborough Dr., Suite 200
South Portland, Maine 04106
207.800.3169

Traffic Response
Blocks 4, 5, & 6 Portland Foreside
Portland, Maine

Date: June 23, 2023
Subject: Portland Foreside, Combined Blocks Traffic Assessment Response
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

Introduction

The purpose of this memo is to respond to traffic comments received from the City regarding Blocks 4, 5, & 6 of the Foreside Development. The following are the original City comments in *italics* followed by our response in **bold**.

Comment:

The Trip Generation estimate included in the Traffic Assessment shall be based on the 11th Edition of the ITE Trip Generation publication. This was discussed and confirmed with MaineDOT's State Traffic Engineer. Please provide updated Trip Generation estimates accordingly.

Response: The trip generation estimate provided with the application was based upon the 7th Edition of the ITE because that was the edition that was in effect when the Master Development Plan was approved. Normal practice would be to review phases of that project using the edition in effect at the time of original approval, so that we compare apples to apples. For example, it is what we used for the first phase of this project. This comment asks us to provide estimates based upon the 11th Edition. We have provided those estimates below, but note that we are no longer comparing apples to apples, as it relates to the MDP approval. Below are revised tables associated with the trip generation for Blocks 4, 5, & 6 based on the ITE Trip Generation Manual, 11th Edition. The other blocks in Table 1 have already been constructed or permitted.

Raw Trip Generation:

It should be noted that the Specialty Retail use that was available in the 7th Edition and used in the previous submittal is not available in the 11th Edition. For that reason, that same square footage was divided into Quality Restaurant, High Turnover Restaurant, and Apparel Store.

Table 1 – Raw Trip Generation

Use	Size	AM Adj St	PM Adj St
Block 1 – SunLife Office	**Constructed per November 2019 Assessment**		
Office	95,100 SF	180	173
Retail	9,300 SF	7	25
Subtotal		187	198
Block 1 – Building 12	**Constructed per November 2019 Assessment**		
Office	3,200 SF	12	12
Restaurant	3,200 SF	3	24
Residential - Condos	2 units	1	1
Subtotal		16	37
Block 2	**Permitted per November 2019 Assessment**		
Restaurant	17,950 SF	15	134
Retail	17,950 SF	13	49
Office	12,400 SF	35	34
Subtotal		63	217
Block 4	**Under Review**		
Multifamily (Mid-Rise)	247 Units	91	96
Quality Restaurant	2,988	2	23
High Turnover Restaurant	2,988	29	27
Apparel Store	5,975	6	25
Subtotal		128	171
Block 5	**Under Review**		
Multifamily (Mid-Rise)	43 Units	16	17
Hotel	128 Units	59	76
Quality Restaurant	19,315	14	151
High Turnover Restaurant	1,232	11	11
Apparel Store	2,464	3	10
Spa (Health / Fitness Club)	19,697 SF	26	68
Subtotal		129	333
Block 6	**Under Review**		
Multifamily (Mid-Rise)	154 Units	57	60
Quality Restaurant	2,277	2	18
High Turnover Restaurant	2,277	22	21
Apparel Store	4,554	5	19
Subtotal		86	118
Total		**609**	**1074**

As seen from the above table, the forecast trip generation is 609 & 1074 trip ends for the AM and PM peak hours of the adjacent street respectively. This is zero change from the previous forecast trip ends for the AM peak hour and an increase of 7 trip ends for the PM peak hour of adjacent street traffic.

Shared Use Reduction:

Table 2 – AM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	205	22	13	82	26	18	44
Retail	23	11	43	45	10	5	15
Restaurant	53	45	49	42	26	19	45
Residential	38	127	8	12	3	15	18
Hotel	33	26	3	35	1	9	10
All Other Uses (spa)	13	13	50	50	7	7	14
Total	**365**	**244**	**20***	**30***	**73**	**73**	**146**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 3 – PM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	33	186	24	8	8	14	22
Retail	61	67	70	60	43	40	83
Restaurant	269	140	19	44	51	62	113
Residential	107	67	36	37	38	25	63
Hotel	39	37	38	38	15	14	29
All Other Uses (spa)	39	29	50	50	20	20	40
Total	**548**	**526**	**32***	**33***	**175**	**175**	**350**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 4 – Shared Use Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
ITE Total	609	1074
Shared Use Reduction	-146	-350
Reduced Subtotal	**463**	**724**

Other Modes Reduction:

In an email from Tom Errico to Randy Dunton dated 6/22/23, "The City suggests use of a 20% non-auto trip factor."

Table 5 – Other Modes Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
Reduced Subtotal	463	724
Other Modes Reduction	-93	-145
Reduced Site Total	**370**	**579**

Master Plan Trip Generation Comparison:

Table 6 – Trip Generation Comparison Summary

Trip Generation	Trip Generation	
	AM Adj St	PM Adj St
Permitted	506	585
Forecast Combined Blocks	370	579
Remaining Permitted Trips	**136**	**6**

As summarized in Table 6, after completion of Blocks 4, 5, and 6, the site is forecast to have 136 AM and 6 PM trip ends remaining to meet their permitted trip ends. It should be noted that an additional 99 trip ends above what was permitted is allowed before a Traffic Movement Permit modification is required.

Bicycle Parking:

Table 7 - Bicycle Parking Summary

Use	Bicycle parking Demand
Parking Variables	499 Non-Residential Vehicle Spaces, 446 Residential Units
Residential Bicycle Spaces	178
Non-Residential Bicycle Spaces	40
Total	**218**

Comment:

The reduction assumptions used in prior analysis should be revisited and documentation should be provided in support of suggested trip reduction factors given current conditions. Please provide revised documentation accordingly.

Response:

As identified above in the previous response (Other Modes Reduction), the 20% non-auto trip factor provided by the City was used for the revised trip evaluation.

Comment:

The applicant shall provide the EXCEL spreadsheet for the parking demand analysis for review and approval. Adjustments to mode share and internal capture may be necessary following the changed to methods used in the traffic study noted above.

Response:

As requested, a readable EXCEL spreadsheet of the parking summary has been sent to the City and their traffic peer reviewer. A hard copy is provided as an attachment to this response.

Attachments

Attachment A – Supporting information

u:\4060_portland foreside block 5_portland\n traffic\summary response memo - 06-23-23 .docx

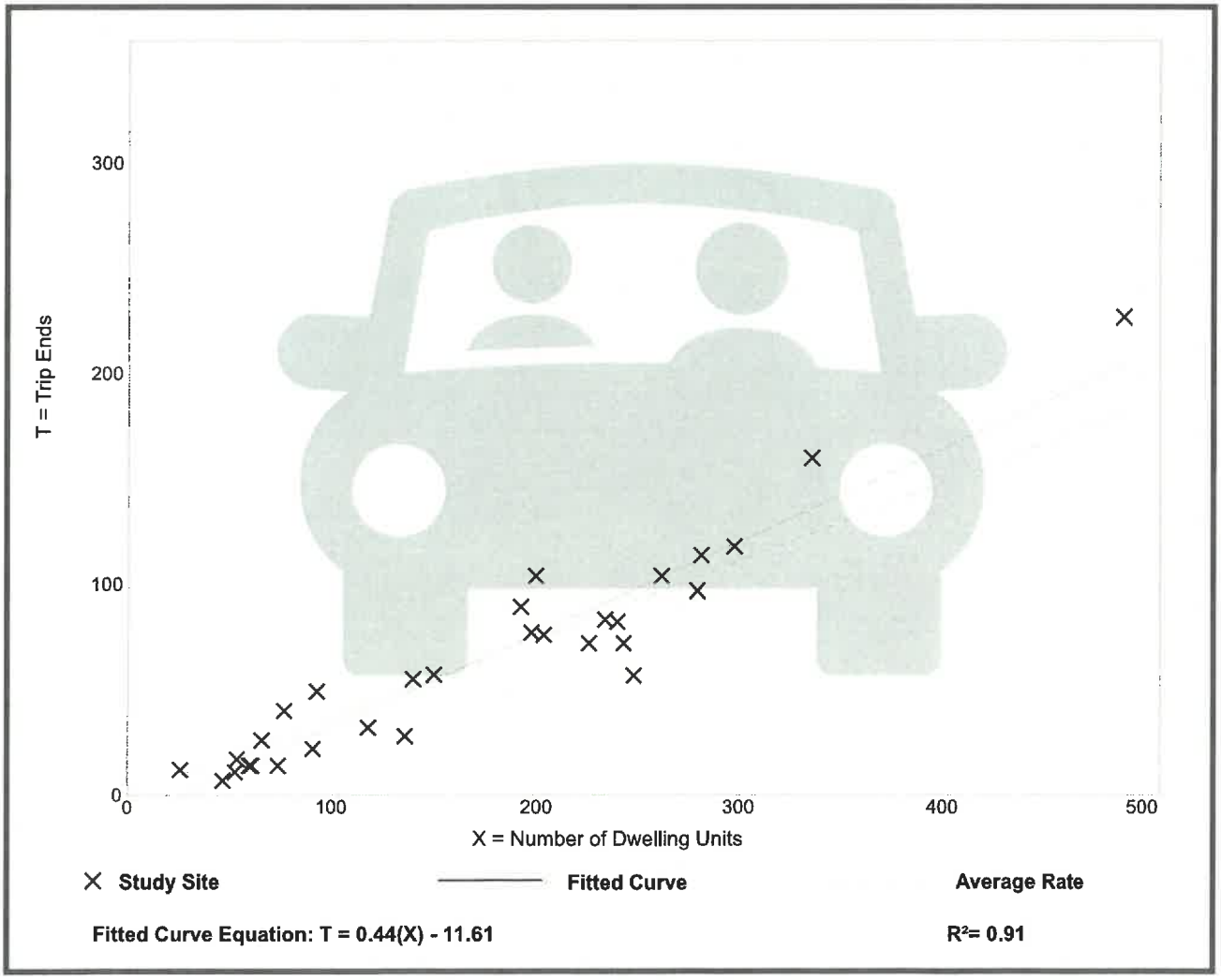
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



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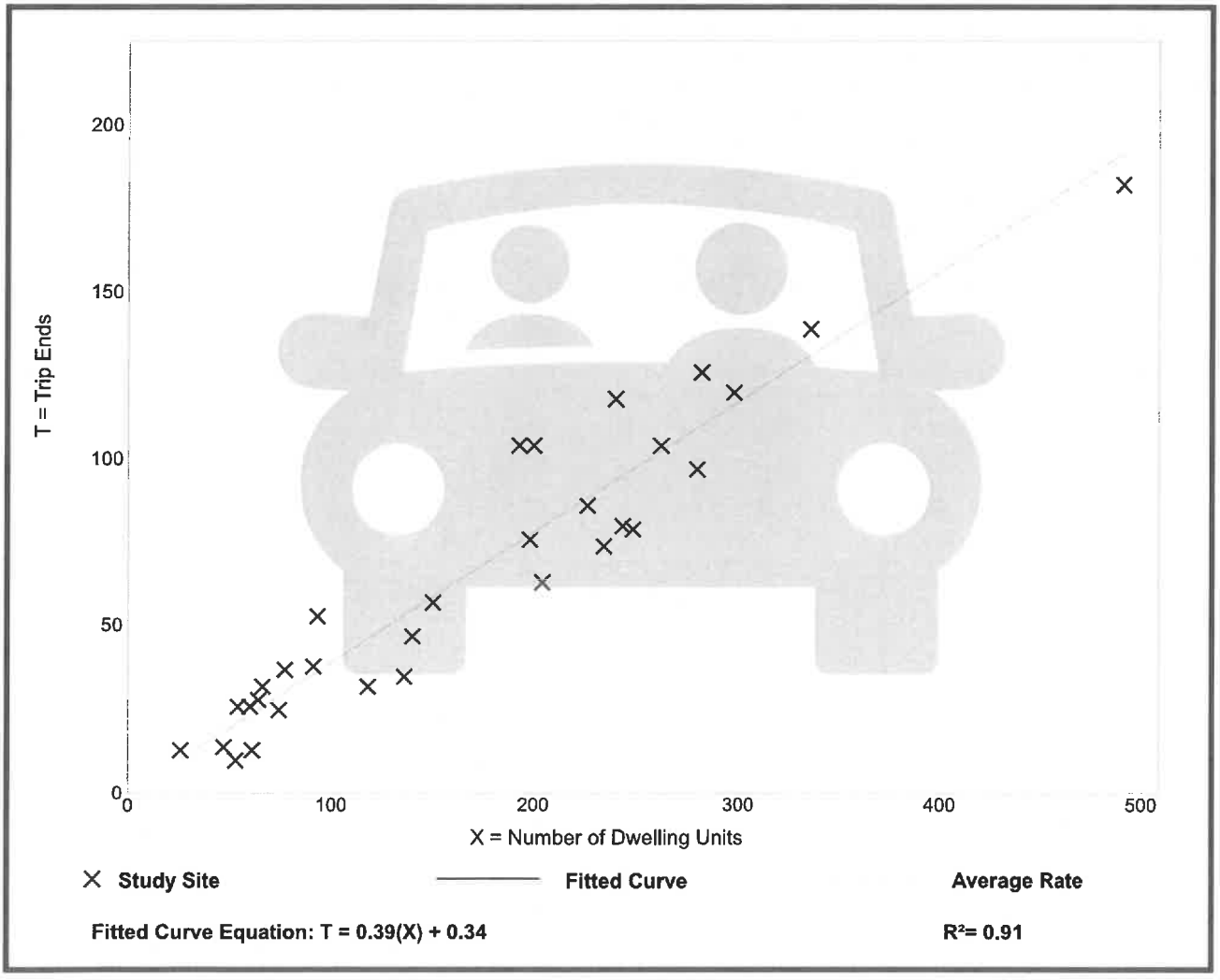
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



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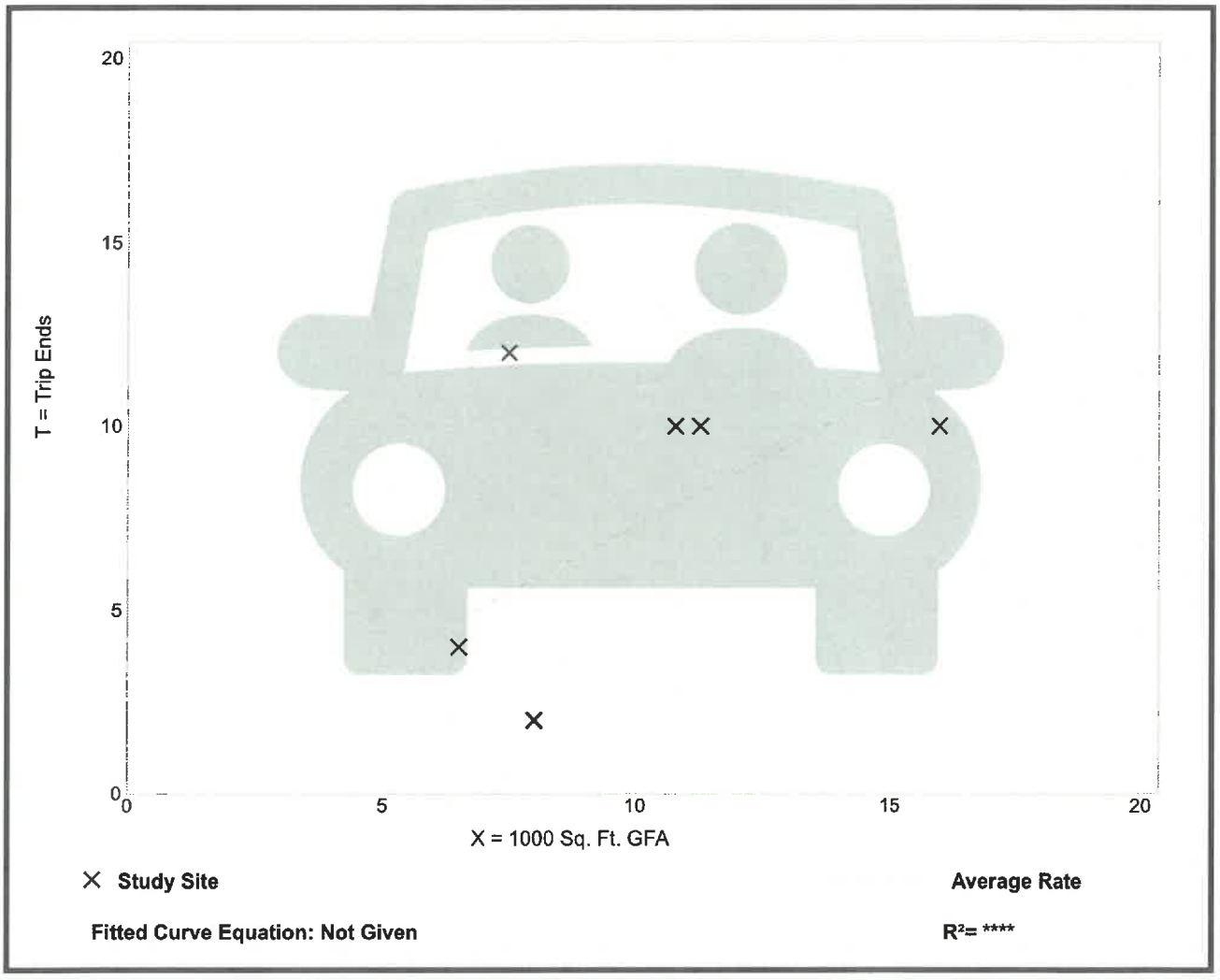
Fine Dining Restaurant
(931)

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: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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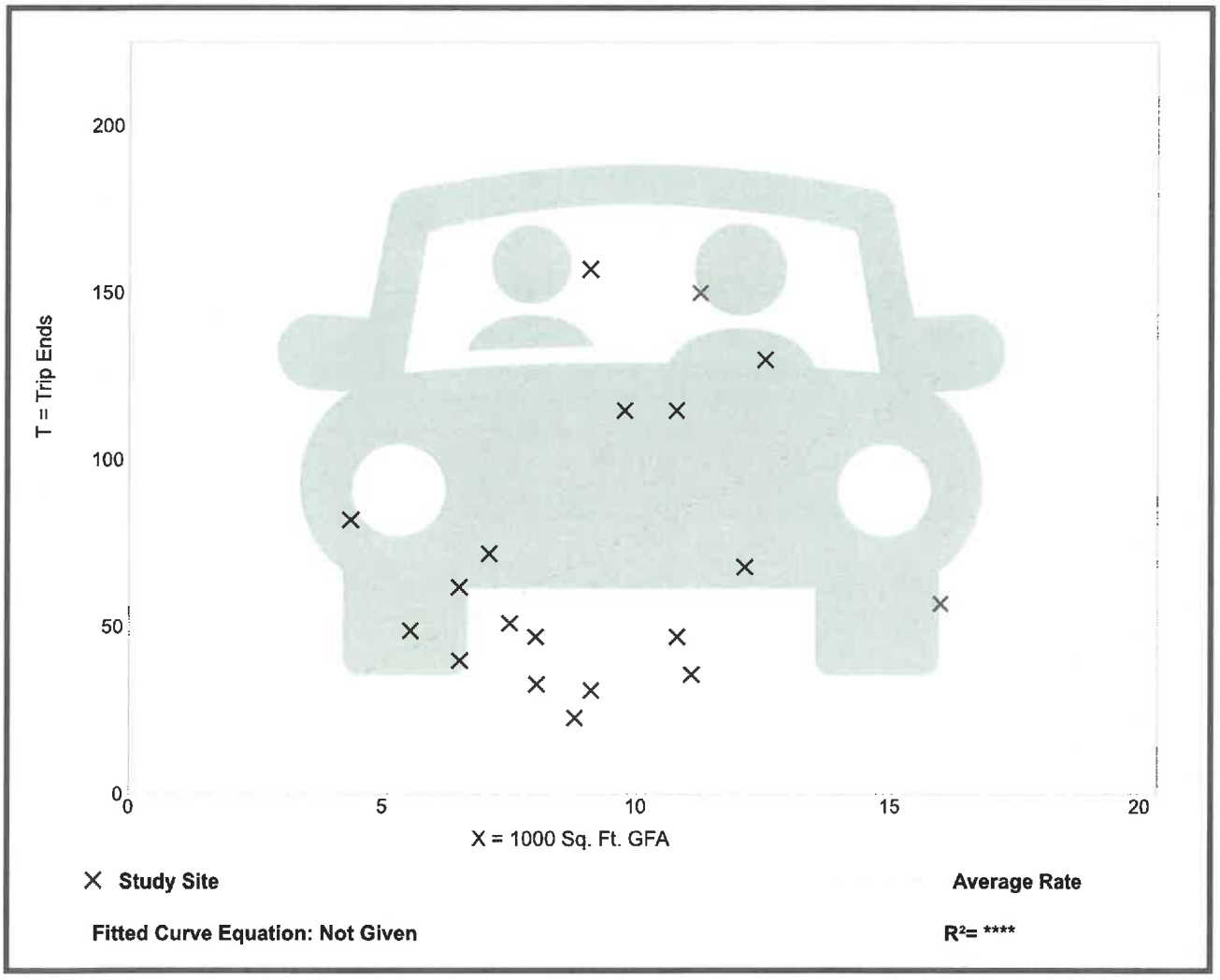
Fine Dining Restaurant
(931)

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: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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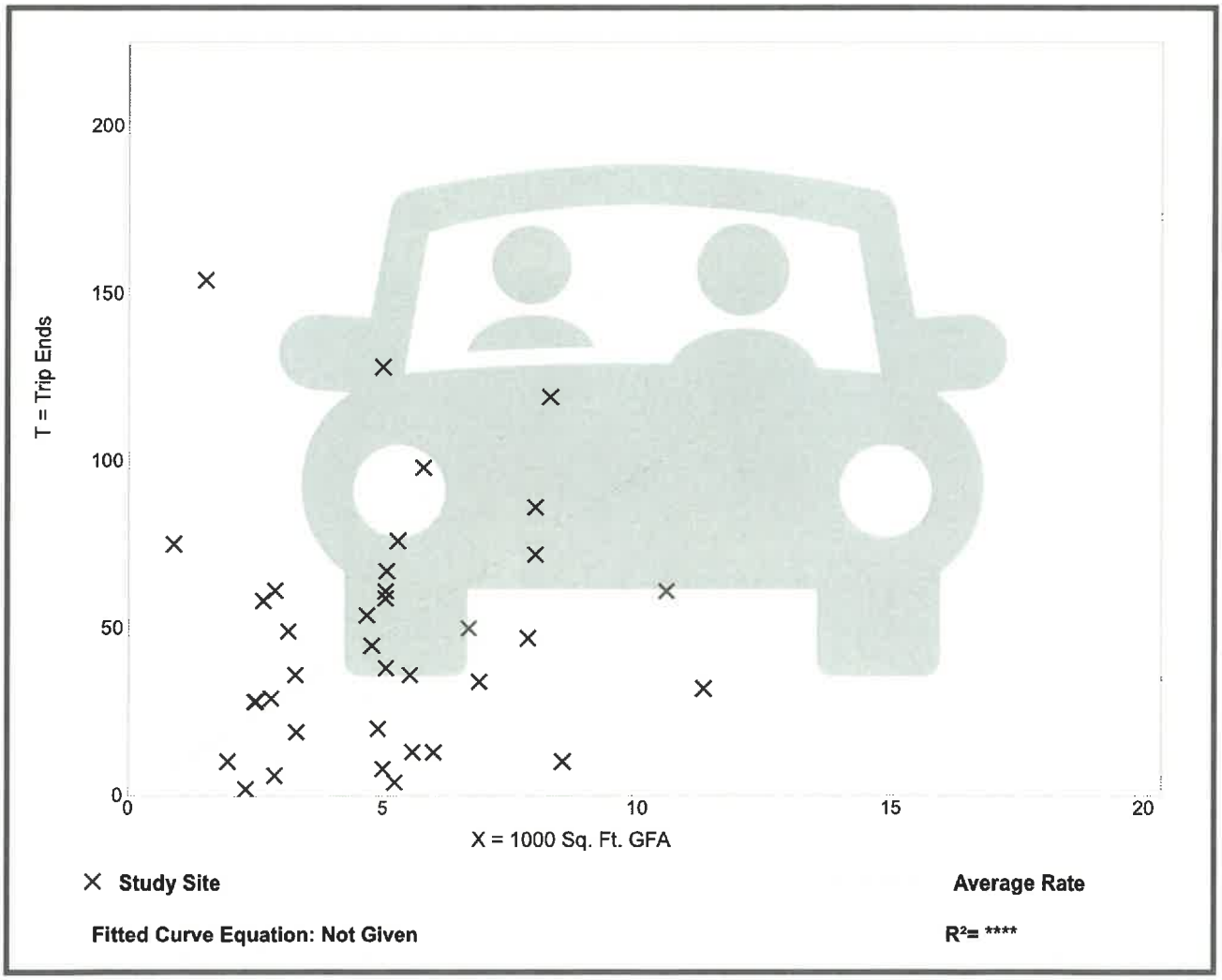
High-Turnover (Sit-Down) Restaurant
(932)

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:	37
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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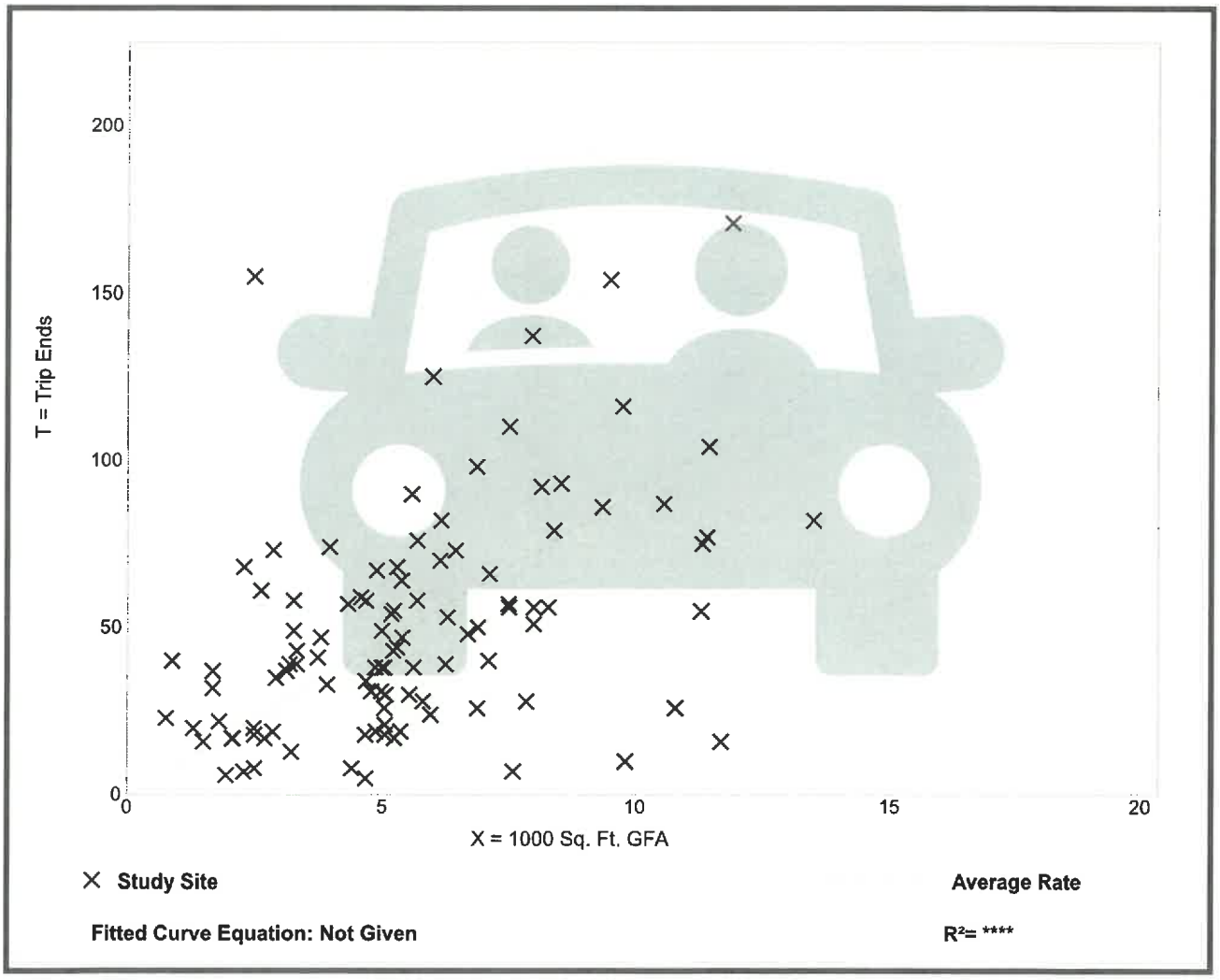
High-Turnover (Sit-Down) Restaurant
(932)

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:	104
Avg. 1000 Sq. Ft. GFA:	6
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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Apparel Store
(876)

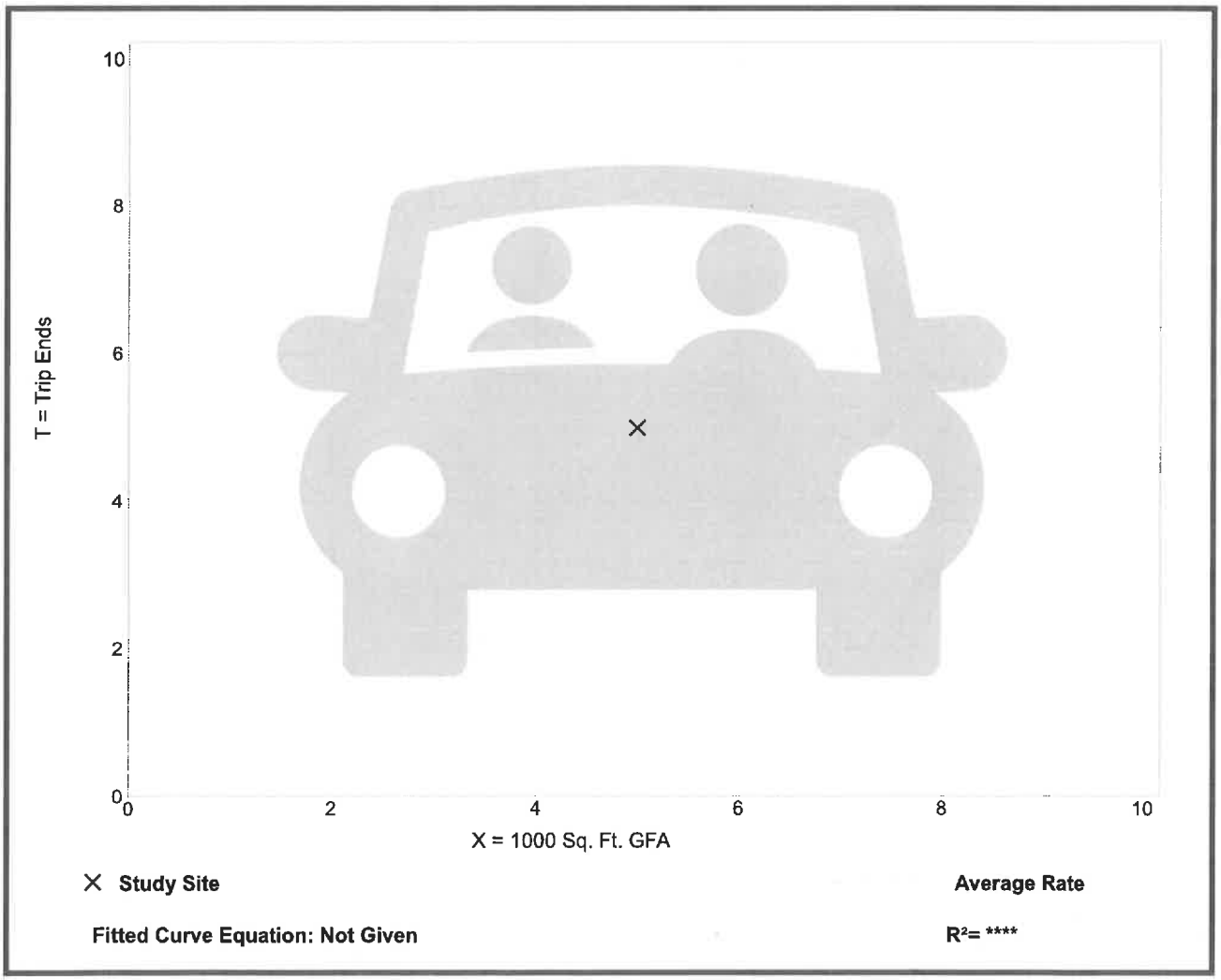
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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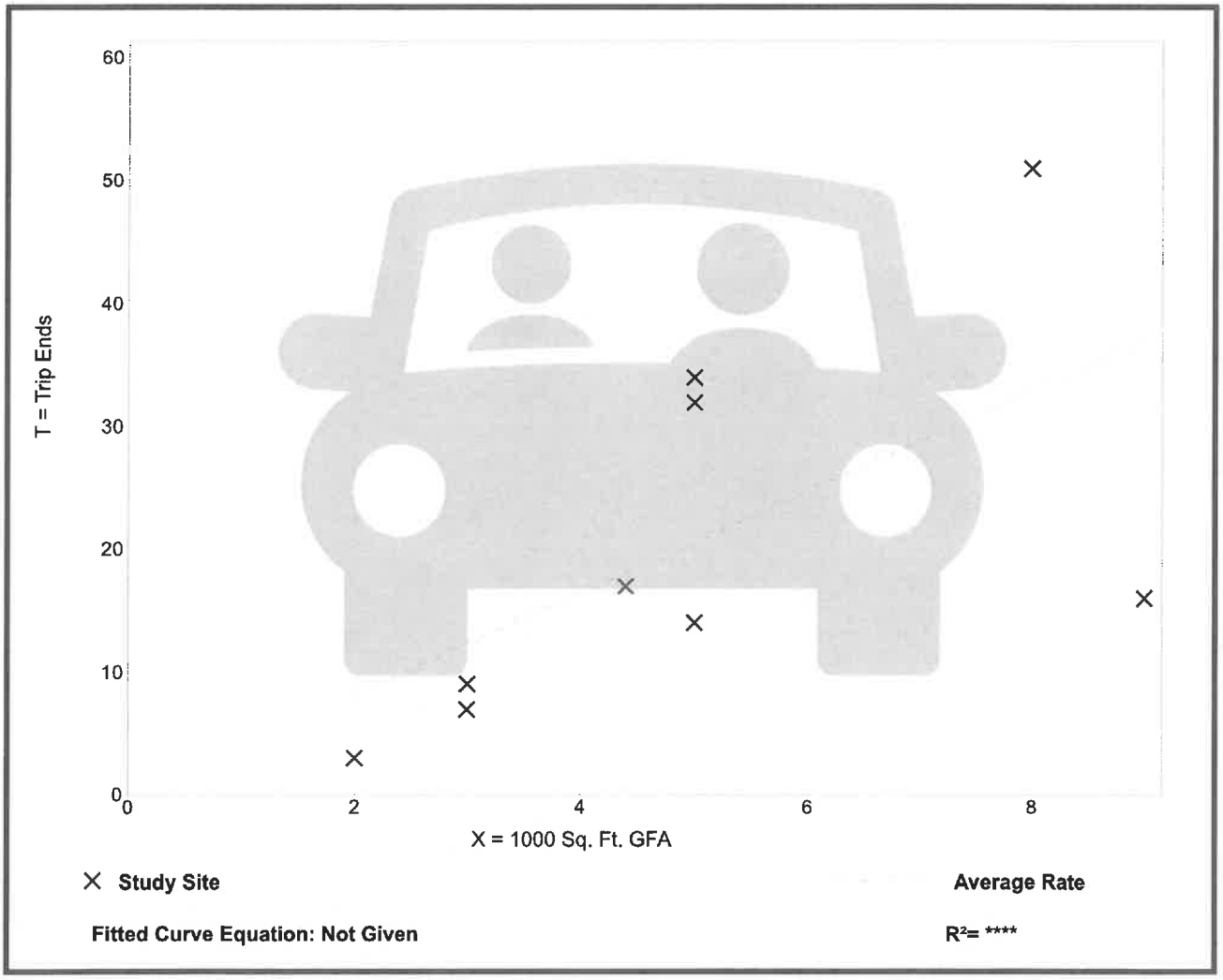
Apparel Store
(876)

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:	9
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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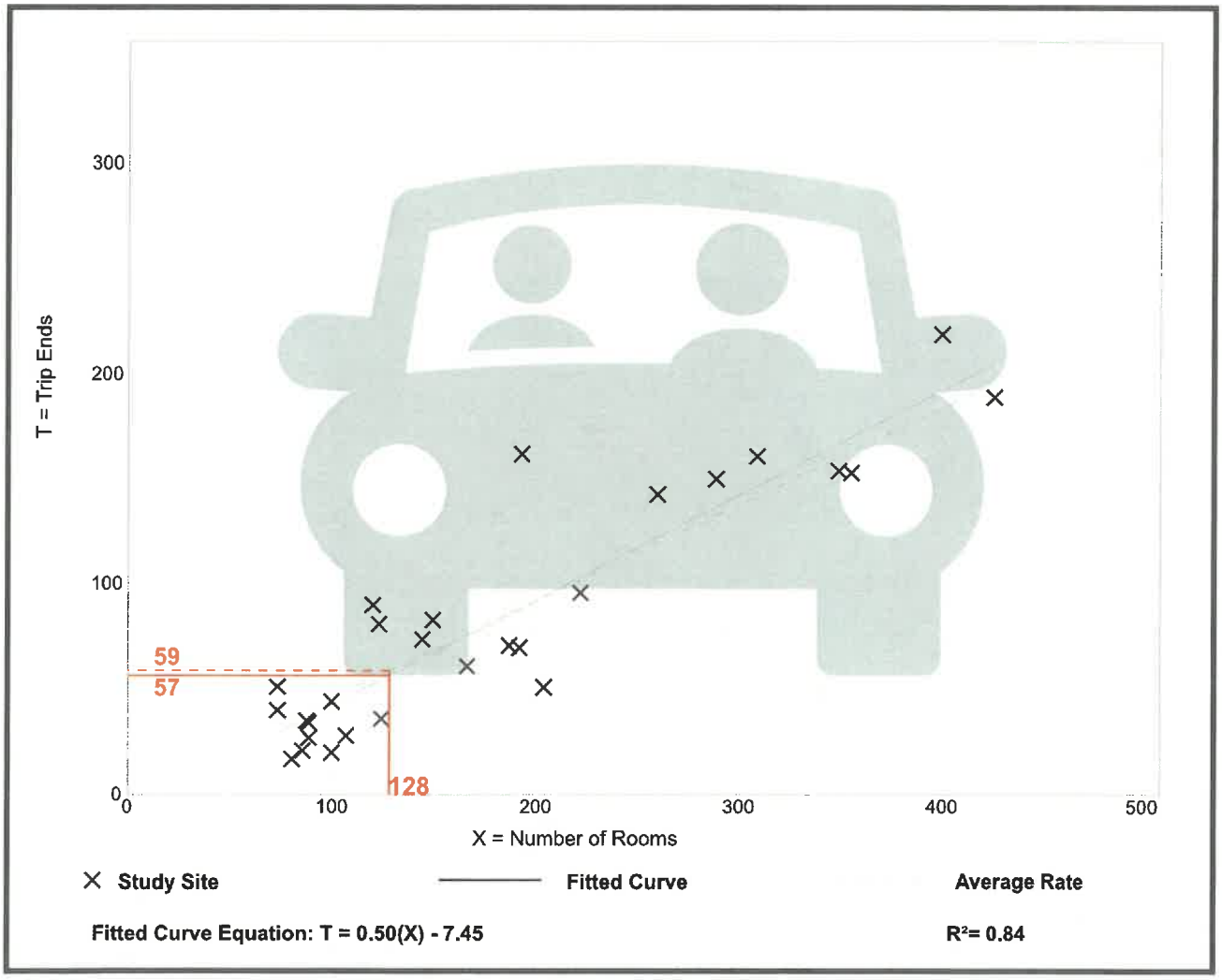
Hotel
(310)

Vehicle Trip Ends vs: **Rooms**
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: 28
Avg. Num. of Rooms: 182
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



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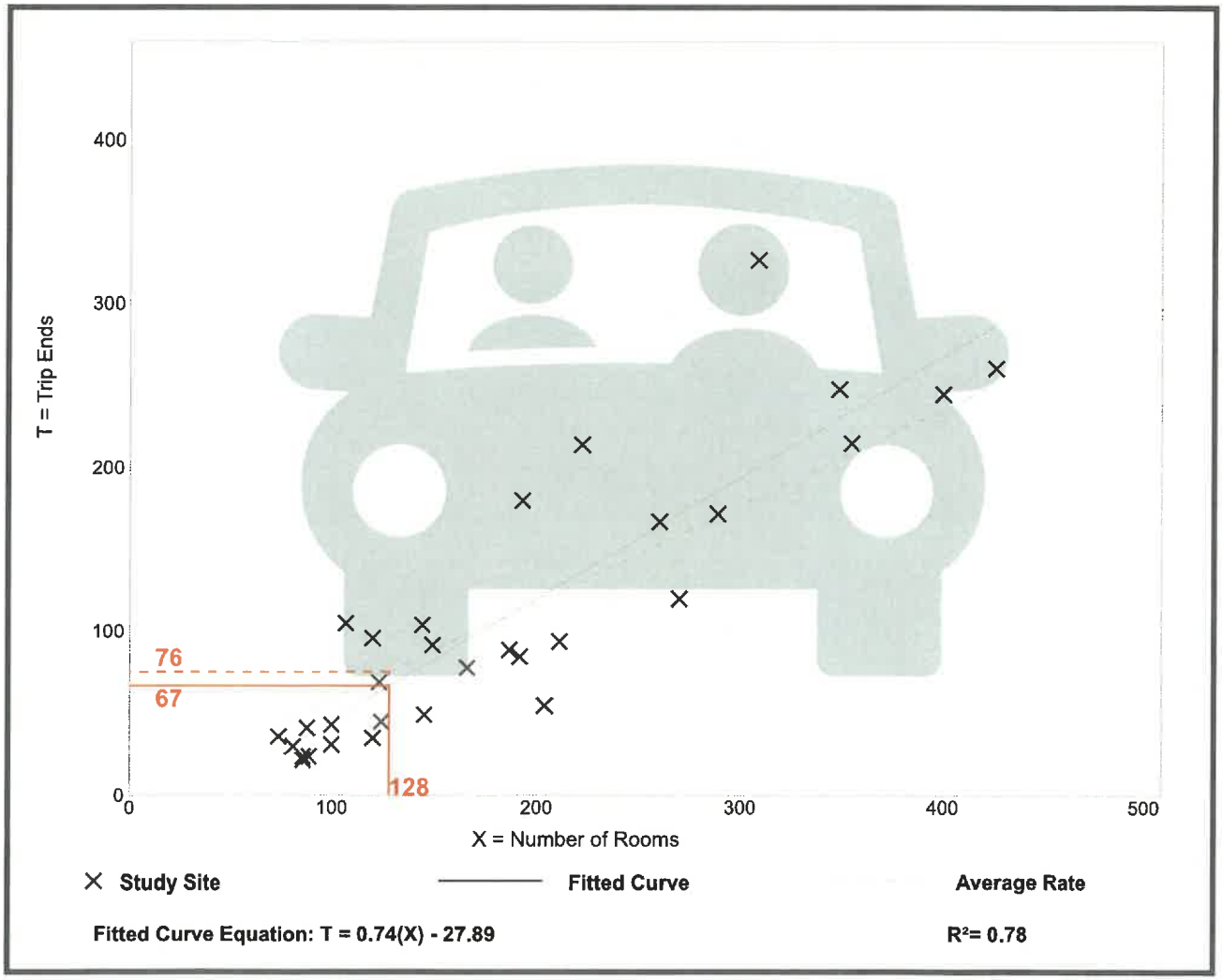
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
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:	31
Avg. Num. of Rooms:	186
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



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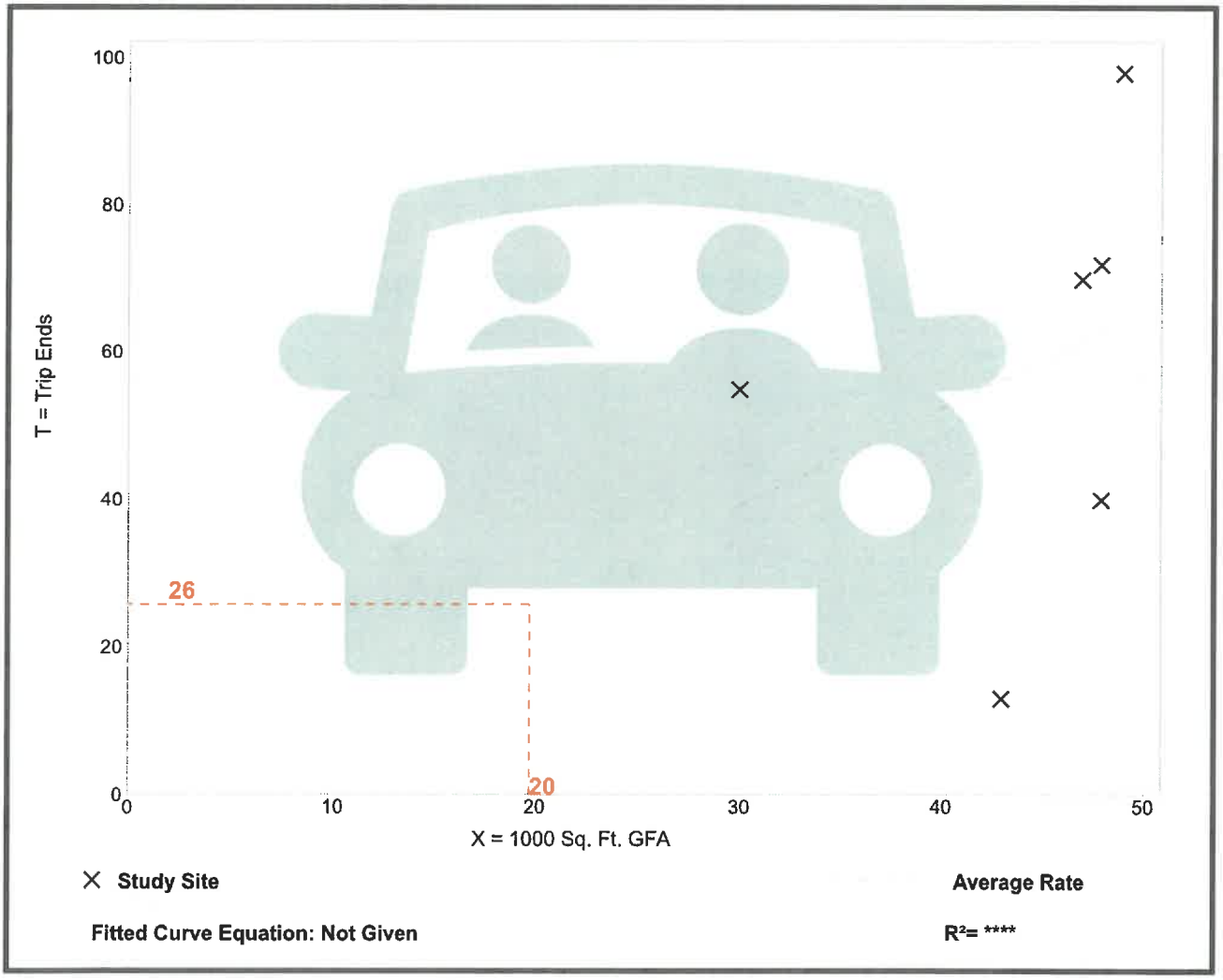
Health/Fitness Club
(492)

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: 6
Avg. 1000 Sq. Ft. GFA: 44
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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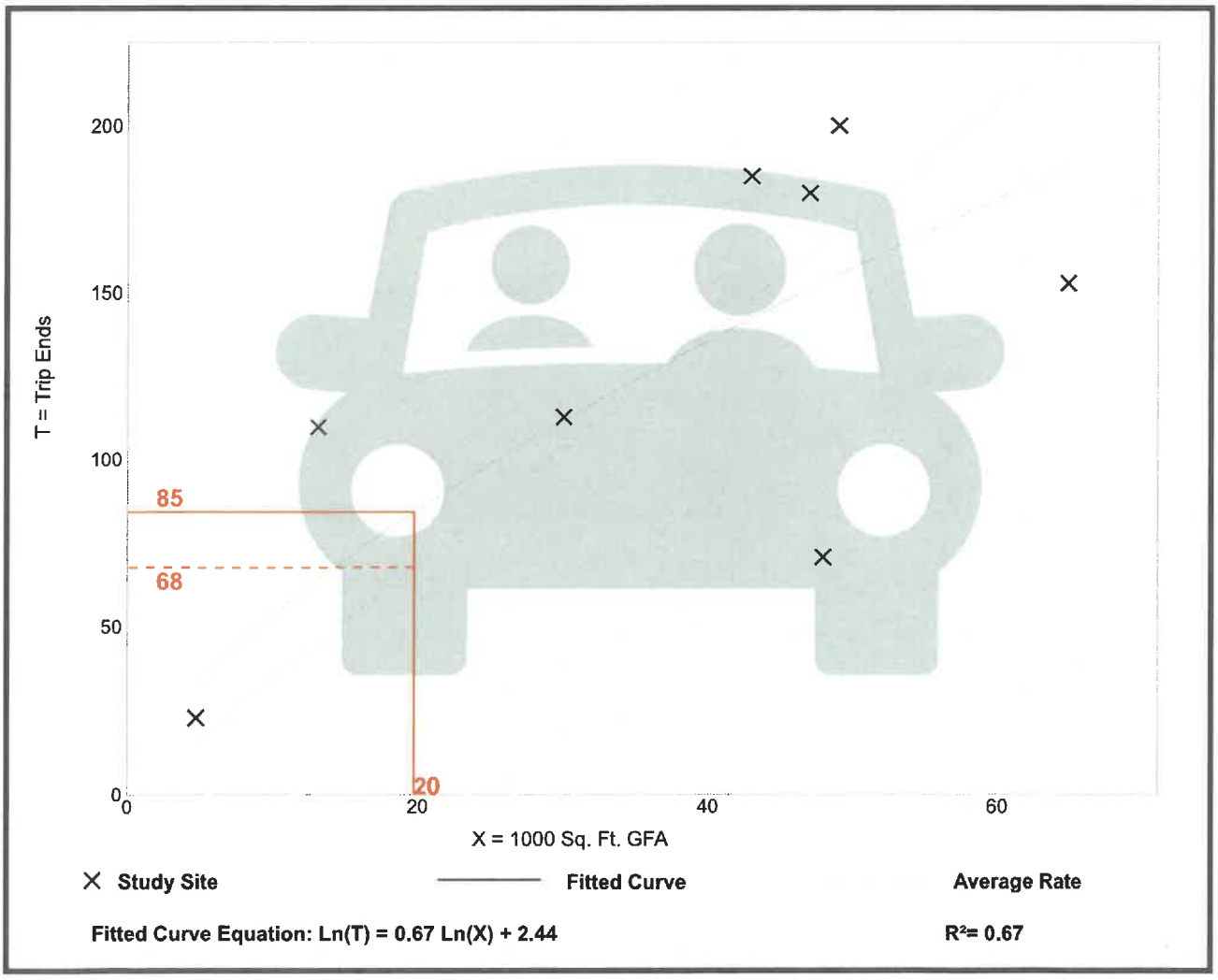
Health/Fitness Club
(492)

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: 8
Avg. 1000 Sq. Ft. GFA: 37
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	6/22/2023
Analysis Year:		**Checked By:**	
Analysis Period:	AM Street Peak Hour	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	227	205	22
Retail	814	53,292	SF	34	23	11
Restaurant	931	30,514	SF	98	53	45
Cinema/Entertainment				0		
Residential	220/230	455	Units	165	38	127
Hotel	310	130	Units	59	33	26
All Other Land Uses[2]	492			26	13	13
Total				609	365	244

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	12	0	0	0
Retail	3		1	0	1	0
Restaurant	14	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	11	0		0
Hotel	6	1	2	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	609	365	244
Internal Capture Percentage	22%	18%	27%
External Vehicle-Trips[3]	477	299	178
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	13%	82%
Retail	43%	45%
Restaurant	49%	42%
Cinema/Entertainment	N/A	N/A
Residential	8%	12%
Hotel	3%	35%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	22	22
Retail	1.00	23	23	1.00	11	11
Restaurant	1.00	53	53	1.00	45	45
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	38	38	1.00	127	127
Hotel	1.00	33	33	1.00	26	26

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	3		1	0	2	0
Restaurant	14	6		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	3	1	25	0		0
Hotel	20	4	2	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	12	0	0	0
Retail	8		27	0	1	0
Restaurant	29	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	6	4	11	0		0
Hotel	6	1	3	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	26	179	205	179	0	0
Retail	10	13	23	13	0	0
Restaurant	26	27	53	27	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	35	38	35	0	0
Hotel	1	32	33	32	0	0
All Other Land Uses[3]	0	13	13	13	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	18	4	22	4	0	0
Retail	5	6	11	6	0	0
Restaurant	19	26	45	26	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	15	112	127	112	0	0
Hotel	9	17	26	17	0	0
All Other Land Uses[3]	0	13	13	13	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Block 5	**Date:**	6/22/2023
Analysis Year:		**Checked By:**	
Analysis Period:	PM Street Peak Hour	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	219	33	186
Retail	814	53,292	SF	128	61	67
Restaurant	931	30,514	SF	409	269	140
Cinema/Entertainment				0		
Residential	220/230	455	Units	174	107	67
Hotel	310	130	Units	76	39	37
All Other Land Uses[2]				68	39	29
Total				1074	548	526

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	1		19	0	17	3
Restaurant	4	31		0	17	10
Cinema/Entertainment	0	0	0		0	0
Residential	3	6	14	0		2
Hotel	0	1	13	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,074	548	526
Internal Capture Percentage	29%	28%	29%
External Vehicle-Trips[3]	764	393	371
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	24%	8%
Retail	70%	60%
Restaurant	19%	44%
Cinema/Entertainment	N/A	N/A
Residential	36%	37%
Hotel	38%	38%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P
[4]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	33	33	1.00	186	186
Retail	1.00	61	61	1.00	67	67
Restaurant	1.00	269	269	1.00	140	140
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	107	107	1.00	67	67
Hotel	1.00	39	39	1.00	37	37

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	1		19	3	17	3
Restaurant	4	57		11	25	10
Cinema/Entertainment	0	0	0		0	0
Residential	3	28	14	0		2
Hotel	0	6	25	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	10		78	0	49	7
Restaurant	10	31		0	17	28
Cinema/Entertainment	2	2	8		4	0
Residential	19	6	38	0		5
Hotel	0	1	13	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	8	25	33	25	0	0
Retail	43	18	61	18	0	0
Restaurant	51	218	269	218	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	38	69	107	69	0	0
Hotel	15	24	39	24	0	0
All Other Land Uses[3]	0	39	39	39	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	14	172	186	172	0	0
Retail	40	27	67	27	0	0
Restaurant	62	78	140	78	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	25	42	67	42	0	0
Hotel	14	23	37	23	0	0
All Other Land Uses[3]	0	29	29	29	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

06-22-2023 Combined Shared Parking Demand 5th Edition

	Block 1 - SunLife Office Building					Block 4								Block 1 - Building 12							Block 2						
	Block 1A		Block 1A		Total for Block 1A	Block 4		Block 4		Block 4		Block 4		Total for Block 4	Building 12		Building 12		Building 12		Total for Building 12	Block 2		Block 2		Block 2		Total for Block 2
	Office (4)		Specialty Retail (5)			Qual. Rest (6)		High Turn Rest (9)		Specialty Retail (5)		Multi Fam (Mid) (3)			Office (4)		Qual. Rest (6)		Residential (3)			Office (4)		Qual. Rest (6)		Specialty Retail (5)		
Rate	2.39	2.39 / 1,000 sf	1.95	1.95 / 1,000 sf		95.0570	10.52 / 1000 sf	105.9322	9.44 / 1000 SF	1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		2.39	2.39/1,000 sf	95.0570	10.52 / 1000 sf	1.21	1.21 per Unit		2.39	2.39 / 1,000 sf	95.0570	10.52/1000	1.95	1.95 / 1,000 sf	
Monthly Adjustment	1000		1000	1						1000	1		1		1000					1		1000				1000	1	
SQF or Unit	95,100	95100 sf	9,300	9300 sf		2988		2988		5,975	5975	247	247 Units		3,200	3,200 sf	3,200	3,200 sf	2	2 Units		12,400	12400 sf	17,950	17950 sf	17,950	17950 sf	
6:00AM	0.00	0	0.00	0	0	0.00	0	0.10	3	0.00	0	0.90	269	272	0.00	0	0.00	0	0.90	2	2	0.00	0	0.00	0	0.00	0	0
7:00AM	0.13	30	0.00	0	30	0.00	0	0.25	7	0.00	0	0.77	230	237	0.13	1	0.00	0	0.77	2	3	0.13	4	0.00	0	0.00	0	4
8:00AM	0.48	109	0.15	3	112	0.00	0	0.68	19	0.15	2	0.56	167	188	0.48	4	0.00	0	0.56	1	5	0.48	14	0.00	0	0.15	5	19
9:00AM	0.88	200	0.32	6	206	0.00	0	0.72	20	0.32	4	0.45	134	158	0.88	7	0.00	0	0.45	1	8	0.88	26	0.00	0	0.32	11	37
10:00AM	1.00	227	0.54	10	237	0.00	0	0.77	22	0.54	6	0.40	120	148	1.00	8	0.00	0	0.40	1	9	1.00	30	0.00	0	0.54	19	49
11:00AM	1.00	227	0.71	13	240	0.20	6	0.83	23	0.71	8	0.37	111	148	1.00	8	0.20	7	0.37	1	16	1.00	30	0.20	38	0.71	25	93
12:00PM	0.85	193	0.99	18	211	0.51	16	1.00	28	0.99	12	0.36	108	164	0.85	7	0.51	17	0.36	1	25	0.85	25	0.51	96	0.99	35	156
1:00PM	0.84	191	1.00	18	209	0.56	18	0.91	26	1.00	12	0.36	108	164	0.84	6	0.56	19	0.36	1	26	0.84	25	0.56	106	1.00	35	166
2:00PM	0.93	211	0.90	16	227	0.40	13	0.56	16	0.90	10	0.37	111	150	0.93	7	0.40	13	0.37	1	21	0.93	28	0.40	76	0.90	32	136
3:00PM	0.94	214	0.83	15	229	0.27	8	0.42	12	0.83	10	0.43	129	159	0.94	7	0.27	9	0.43	1	17	0.94	28	0.27	51	0.83	29	108
4:00PM	0.85	193	0.81	15	208	0.27	8	0.42	12	0.81	9	0.45	134	163	0.85	7	0.27	9	0.45	1	17	0.85	25	0.27	51	0.81	28	104
5:00PM	0.56	127	0.84	15	142	0.39	12	0.64	18	0.84	10	0.55	164	204	0.56	4	0.39	13	0.55	1	18	0.56	17	0.39	74	0.84	29	120
6:00PM	0.20	45	0.86	16	61	0.71	22	0.87	25	0.86	10	0.66	197	254	0.20	2	0.71	24	0.66	2	28	0.20	6	0.71	134	0.86	30	170
7:00PM	0.11	25	0.80	15	40	1.00	31	0.79	22	0.80	9	0.73	218	280	0.11	1	1.00	34	0.73	2	37	0.11	3	1.00	189	0.80	28	220
8:00PM	0.00	0	0.63	11	11	0.97	30	0.65	18	0.63	7	0.77	230	285	0.00	0	0.97	33	0.77	2	35	0.00	0	0.97	183	0.63	22	205
9:00PM	0.00	0	0.42	8	8	0.00	0	0.42	12	0.42	5	0.86	257	274	0.00	0	0.00	0	0.86	2	2	0.00	0	0.00	0	0.42	15	15
10:00PM	0.00	0	0.15	3	3	0.00	0	0.21	6	0.15	2	0.92	275	283	0.00	0	0.00	0	0.92	2	2	0.00	0	0.00	0	0.15	5	5
Dedicated spaces	0.00	0	0.00	0	0					0.00	0			0	0.00	0	0.00	0			0	0.00	0	0.00	0	0.00	0	0

(1) Based on the results from the NCHRP 684 Internal Trip Capture Estimation Tool (Average of 22% & 29%)

(2) Provided by City of Portland in an email from Tom Errico to Randy Dunton dated 6/22/23

(3 Time of Day distrubution for Dense Multi-use Urban, Rate for General Urban/Suburban

(4) Time of day distribution and rate based on General Urban/Suburban

(5) Time of day distrubution and rate based on Shopping Center, General Urban/Suburban, weekday (non-December)

(6) Time of day distrubution and rate based on Quality Restaurant, General Urban/Suburban, weekday (Monday-Thursday)

(7) Time of day distrubution and rate based on Hotel, General Urban/Suburban, weekday

(8) Time of day distrubution and rate based on Health / Fitness Club, weekday.

(9) Based on ITE Parking Generation 5th Edition using SF for High Turnover Rest

06-22-2023 Combined Shared Parking Demand 5th Edition

Block 5													Block 6									Shared Spaces					
																						Combined Subtotal					
Block 5		Block 5		Block 5		Block 5		Block 5		Block 5		Total for Block 5	Block 6		Block 6		Block 6		Block 6		Total for Block 6						
Hotel (7)		Specialty Retail (5)		High Turn Rest (9)		Qual Rest (6)		Multi Fam (Mid) (3)		Spa (8)			Qual Rest (6)		High Turn Rest (9)		Specialty Retail (5)		Multi Fam (Mid) (3)								
1.1	1.1 per room	1.95	1.95 / 1,000 sf	105.9322	9.44 / 1000 SF	95.0570	10.52/1000	1.21	1.21 per Unit	232.5581	4.3 / 1000SF		95.0570	10.52/1000	105.9322	9.44 / 1000 SF	1.95	1.95 / 1,000 sf	1.21	1.21 per Unit		Combined Subtotal	Mixed Use Reduction (1)	Other Modes Reduction (2)	Reduced Total	Non-Residential Spaces	Residential Spaces
		1000	1						1	1000							1000	1		1			26%	20.0%			
128	128 room	2,464		1232		19,315		43	43 Units	19,697	19660 SF		2277		2277		4,554	4554 sf	154	154 Units							
0.91	128	0.00	0	0.10	1	0.00	0	0.90	47	0.00	0	176	0.00	0	0.10	2	0.00	0	0.90	168	170	620	158	92	370	105	265
0.89	125	0.00	0	0.25	3	0.00	0	0.77	40	0.00	0	168	0.00	0	0.25	5	0.00	0	0.77	143	148	590	150	88	352	126	226
0.90	127	0.15	1	0.68	8	0.00	0	0.56	29	0.00	0	165	0.00	0	0.68	15	0.15	1	0.56	104	120	609	155	91	363	199	164
1.00	141	0.32	2	0.72	8	0.00	0	0.45	23	0.00	0	174	0.00	0	0.72	15	0.32	3	0.45	84	102	685	175	102	408	276	132
0.98	138	0.54	3	0.77	9	0.00	0	0.40	21	0.62	53	223	0.00	0	0.77	17	0.54	5	0.40	75	97	763	195	114	454	336	118
0.89	125	0.71	3	0.83	10	0.20	41	0.37	19	0.55	47	245	0.20	5	0.83	18	0.71	6	0.37	69	98	840	214	125	501	392	109
0.85	120	0.99	5	1.00	12	0.51	104	0.36	19	0.44	37	296	0.51	12	1.00	21	0.99	9	0.36	67	109	961	245	143	573	467	106
0.75	106	1.00	5	0.91	11	0.56	114	0.36	19	0.41	35	289	0.56	13	0.91	20	1.00	9	0.36	67	109	963	246	143	574	468	106
0.81	114	0.90	4	0.56	7	0.40	81	0.37	19	0.36	30	256	0.40	10	0.56	12	0.90	8	0.37	69	99	889	227	132	530	421	109
0.70	99	0.83	4	0.42	5	0.27	55	0.43	22	0.41	35	220	0.27	6	0.42	9	0.83	7	0.43	80	102	835	213	124	498	371	127
0.74	104	0.81	4	0.42	5	0.27	55	0.45	23	0.69	58	250	0.27	6	0.42	9	0.81	7	0.45	84	106	848	216	126	506	374	132
0.65	92	0.84	4	0.64	7	0.39	79	0.55	29	0.96	81	292	0.39	9	0.64	14	0.84	7	0.55	102	132	908	232	135	541	380	161
0.73	103	0.86	4	0.87	10	0.71	144	0.66	34	1.00	85	380	0.71	17	0.87	19	0.86	8	0.66	123	167	1060	270	158	632	438	194
0.78	110	0.80	4	0.79	9	1.00	203	0.73	38	0.85	72	436	1.00	24	0.79	17	0.80	7	0.73	136	184	1197	305	178	714	499	215
0.93	131	0.63	3	0.65	8	0.97	197	0.77	40	0.00	0	379	0.97	23	0.65	14	0.63	6	0.77	143	186	1101	281	164	656	430	226
0.96	135	0.42	2	0.42	5	0.00	0	0.86	45	0.00	0	187	0.00	0	0.42	9	0.42	4	0.86	160	173	659	168	98	393	140	253
0.95	134	0.15	1	0.21	2	0.00	0	0.92	48	0.00	0	184	0.00	0	0.21	5	0.15	1	0.92	171	177	654	167	97	390	120	270

GORRILL PALMER

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South Portland, Maine 04106
207.800.3169

Traffic Analysis
Combined Blocks - Portland Foreside
Portland, Maine

Date: August 31, 2023
Subject: Portland Foreside, Combined Blocks Traffic Assessment & Response
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

INTRODUCTION

This traffic analysis is being submitted per the City's request in an email from Charles Tetelman (City Planner) to Darrin Stairs (Woodard & Curran), Lauren Swett (Woodard & Curran), Matt Grooms (City of Portland), Kevin Kraft (City of Portland) dated Friday August 18, 2023. The following is from that email request:

"The applicant shall conduct a traffic analysis at the Fore Street/Waterville Street/Garage entrance and Thames Street/Freedom Way/ Site Drive intersections. The analysis shall consist of the following:

- *The analysis shall be performed during the weekday AM and PM peak hours.*
- *Traffic counts shall be conducted at the intersections from 7-9AM and 3-6PM. The count shall collect passenger cars, trucks, pedestrians, and bicycles.*
- *The study shall include traffic from approved but unbuilt or occupied developments.*
- *Graphics shall be provided that depict, Existing Design Hour Volumes, Other Development Traffic, No-Build Volumes, Site Trip Generation, and Build Volumes*
- *A Synchro/SimTraffic analysis shall be conducted for existing, No-Build and Build conditions. Some field calibration shall be performed.*
- *The study shall report levels of service, vehicle delay and 95th% queue estimates.*
- *A safety analysis shall be performed at the two study intersections.*
- *Sight distance shall be documented at the two site entrances."*

BACKGROUND

The following information is background information for the requested Traffic Analysis.

➢ Trip generation

Raw Trip Generation:

Per the request of the City, the following trip generation is based on the ITE Trip Generation Manual 11th Edition. Trip generation calculations are provided in Attachment A.

Table 1 – Raw Trip Generation

Use	Size	AM Adj St	PM Adj St
Block 1 – SunLife Office	**Constructed per November 2019 Assessment**		
Office	95,100 SF	180	173
Retail	9,300 SF	7	25
Subtotal		187	198
Block 1 – Building 12	**Constructed per November 2019 Assessment**		
Office	3,200 SF	12	12
Restaurant	3,200 SF	3	24
Residential - Condos	2 units	1	1
Subtotal		16	37
Block 2	**Permitted per November 2019 Assessment**		
Restaurant	17,950 SF	15	134
Retail	17,950 SF	13	49
Office	12,400 SF	35	34
Subtotal		63	217
Block 4	**Under Review**		
Multifamily (Mid-Rise)	199 Units	74	78
Quality Restaurant	2,988	2	23
High Turnover Restaurant	2,988	29	27
Apparel Store	5,975	6	25
Subtotal		111	153
Block 5	**Under Review**		
Multifamily (Mid-Rise)	43 Units	16	17
Hotel	128 Units	59	76
Quality Restaurant	19,315	14	151
High Turnover Restaurant	1,232	11	11
Apparel Store	2,464	3	10
Spa (Health / Fitness Club)	19,697 SF	26	68
Subtotal		129	333
Block 6	**Under Review**		
Multifamily (Mid-Rise)	154 Units	57	60
Quality Restaurant	2,277	2	18
High Turnover Restaurant	2,277	22	21
Apparel Store	4,554	5	19
Subtotal		86	118
Total		**592**	**1056**

As seen from the above table, the forecast raw trip generation is 592 & 1056 trip ends for the AM and PM peak hours of the adjacent street respectively.

Shared Use Reduction:

Table 2 – AM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	205	22	12	82	25	18	43
Retail	23	11	43	45	10	5	15
Restaurant	53	45	49	42	26	19	45
Residential	34	114	9	12	3	14	17
Hotel	33	26	3	35	1	9	10
All Other Uses (spa)	13	13	50	50	7	7	14
Total	**361**	**231**	**20***	**31***	**72**	**72**	**144**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 3 – PM Peak Hour Adjacent Street NCHRP 684 Internal Trip Capture

Land Use	ITE Trip Generation		Internal Capture %		Internal Capture Trip Ends		
	Enter	Exit	Enter	Exit	Enter	Exit	Total
Office	33	186	21	8	7	15	22
Retail	61	67	70	60	43	40	83
Restaurant	269	140	19	43	51	60	111
Residential	95	61	38	38	36	23	59
Hotel	39	37	38	38	15	14	29
All Other Uses (spa)	39	29	50	50	20	20	40
Total	**536**	**520**	**32***	**33***	**172**	**172**	**344**

*The percentages are slightly higher than the NCHRP spreadsheets because the spreadsheets do not adequately represent or include the internal capture of the spa, so those reductions were added after the results of the spreadsheets were determined.

Table 4 – Shared Use Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
ITE Total	592	1056
Shared Use Reduction	-144	-344
Reduced Subtotal	**448**	**712**

Other Modes Reduction:

In an email from Tom Errico to Randy Dunton dated 6/22/23, "The City suggests use of a 20% non-auto trip factor."

Table 5 – Other Modes Reduced Trip Generation Summary

Building Use	Trip Generation	
	AM Adj St	PM Adj St
Reduced Subtotal	448	712
Other Modes Reduction	-90	-142
Reduced Site Total	**358**	**570**

Master Plan Trip Generation Comparison:

Table 6 – Trip Generation Comparison Summary

Trip Generation	Trip Generation	
	AM Adj St	PM Adj St
Permitted	506	585
Forecast Combined Blocks	358	570
Remaining Permitted Trips	**148**	**15**

As summarized in Table 6, after completion of Blocks 4, 5, and 6, the site is forecast to have 148 AM and 15 PM trip ends remaining to meet their permitted trip ends. It should be noted that an additional 99 trip ends above what was permitted is allowed before a Traffic Movement Permit modification is required.

➢ Traffic Volumes and Adjustments

Turning movement counts were collected at the two study area intersections on Tuesday 8/22/2023 from 7:00 – 9:00 AM & 3:00 – 6:00 PM. The times were as requested by the City. The counts included passenger cars, trucks, pedestrians, and bicycles as requested. The raw traffic volumes are shown on Figure 2 in Attachment B, with the raw counts provided in Attachment A.

- Seasonal Adjustment: Because the counts were completed in August, no seasonal adjustment was applied.

- Yearly Growth: The raw traffic volumes were adjusted by 0.5% per year to the anticipated full occupancy year of 2027. This growth rate is consistent with past projects GP has completed in the immediate area. Because of the isolated location, the growth adjustment was not applied to the site drive / Freedom Way / Thames Street intersection, but was applied to the Fore Street / Waterville Street traffic volumes. The Adjusted Volumes are shown on Figure 3 in Attachment B.

- Other Development: The City requested that this traffic analysis include traffic from the Eastern Waterfront TMP. That TMP included four developments:

    - Shipyard
    - WEX
    - 100 Fore Street
    - City Owned Parcel

  Of the above four developments that were permitted, all but the City Owned Parcel have been constructed and occupied. Therefore, traffic from the other three developments would have been included in the turning movement counts that were completed for this traffic analysis. The City Owned Parcel traffic volume as approved in the TMP is shown on Figure 4 in Attachment B.

- 2027 Predevelopment DHV: The Adjusted Volumes and the Other Development traffic were added to yield the 2027 Predevelopment DHV, as shown on Figure 5 in Attachment B.

- The forecast trip assignment is shown on Figure 6 in Attachment B. Consistent with previous submittals, it was assumed that 60% of the traffic will use the Fore Street access.

- Based on communications with the applicant and identification of what is already occupied on-site, the equivalent trip generation would be approximately 31% in the AM peak hour and 19% in the PM peak hour. This results in approximately 248 AM and 462 PM peak hour trips that were added to the existing volumes. This could be conservative, since it is expected that the volumes counted included workers that are also on-site.

- 2027 Postdevelopment DHV: The 2027 Predevelopment DHV and the forecast trip assignment were added to yield the 2027 Postdevelopment DHV as shown on Figure 7 in Attachment B.

RESPONSE TO CITY REQUESTS

The following provides responses to each of the City's requests as identified at the beginning of this evaluation. For ease of review, the City's requests are repeated below in *italics* followed by our responses in **bold**:

Request - The analysis shall be performed during the weekday AM and PM peak hours.

Response: Turning movement counts for this analysis were completed on Tuesday 8/22/2023. The raw data is provided in Attachment A with the AM & PM peak hours shown on Figure 2 in Attachment B.

Request - Traffic counts shall be conducted at the intersections from 7-9AM and 3-6PM. The count shall collect passenger cars, trucks, pedestrians, and bicycles.

Response: The counts were completed from 7-9 AM and 3-6 PM as requested. The counts included passenger cars, trucks, pedestrians, and bicycles. The raw data is provided in Attachment A.

Request - The study shall include traffic from approved but unbuilt or occupied developments.

Response: It is our understanding from the City that the "other development" traffic to be included in this analysis are the proposed developments that were identified in the Eastern Waterfront TMP application. It should be noted that for the submittal of the Eastern Waterfront TMP, they were required to include the approved Portland Foreside development. The Portland Foreside development still has a valid TMP, so including a project that needed to include this project does not appear logical, but we have included it anyway per City's request. See also previous discussion in "Background".

Request - Graphics shall be provided that depict, Existing Design Hour Volumes, Other Development Traffic, No-Build Volumes, Site Trip Generation, and Build Volumes

Response: The following Figures are provided in Attachment B:

Figure 1 – Site Location
Figure 2 – 2023 Raw Volumes
Figure 3 – 2027 Adjusted Volumes
Figure 4 – City Parcel
Figure 5 – 2027 Predevelopment DHV
Figure 6 – Trip Distribution
Figure 7 – 2027 Postdevelopment DHV

Request - A Synchro/SimTraffic analysis shall be conducted for existing, No-Build and Build conditions. Some field calibration shall be performed.

Response: The following summarizes the results of the Synchro / SimTraffic analysis. Computer printouts are provided in Attachment C. The SimTraffic analysis was reviewed in house by the persons who conducted the traffic counts to calibrate the results to see if they appeared representative of what is actually happening. Based on the internal review, the SimTraffic results appeared reasonable.

A capacity analysis was completed for Fore St / Waterville St and Thames St / Freedom Way intersections using Synchro/SimTraffic computer analysis software (Version 11). Level of service rankings are similar to the academic ranking system where an 'A' is good with little control delay and an 'F' represents poor traffic conditions. If the level of service falls below a 'D,' an evaluation should be made to determine if mitigation is warranted. The following table summarizes the relationship between control delay per vehicle and level of service for an unsignalized intersection:

Table 7 – Level of Service Criteria

Level of Service	Control Delay per Vehicle (seconds)
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 capacity analysis results are based on an average of five SimTraffic simulations. The following tables summarize the capacity analysis for Fore St / Waterville St and Thames St / Freedom Way intersections with both a level of service and the delay (rounded up to nearest second). The simulation was run for three different scenarios; existing conditions, 2027 No-build, and 2027 Build conditions.

Table 8 – Capacity Analysis Results (2023 Existing Conditions)

Intersection Movement	AM		PM	
Thames St / Freedom Way (Unsignalized)	LOS	Delay	LOS	Delay
Freedom Way SEB LR	A	4	A	4
Thames Street NEB LT	A	5	A	5
Thames Street SWB TR	A	4	A	5
Waterville St / Fore St (Unsignalized)				
Waterville Street SEB LR	A	4	A	4
Fore Street NEB LT	A	1	A	1
Fore Street SWB TR	A	1	A	1

Table 9 – Capacity Analysis Results (2027 Predevelopment)

Intersection Movement	AM		PM	
Thames St / Freedom Way (Unsignalized)	LOS	Delay	LOS	Delay
Freedom Way SEB LR	A	4	A	4
Thames Street NEB LT	A	6	A	5
Thames Street SWB TR	A	5	A	6
Waterville St / Fore St (Unsignalized)				
Waterville Street SEB LR	A	4	A	4
Fore Street NEB LT	A	1	A	1

Intersection Movement	AM		PM	
Fore Street SWB TR	A	1	A	1

Table 10 – Capacity Analysis Results (2027 Postdevelopment)

Intersection Movement	AM		PM	
Thames St / Freedom Way (Unsignalized)	LOS	Delay	LOS	Delay
Freedom Way SEB LR	A	4	A	4
Thames Street NEB LT	A	6	A	6
Thames Street SWB TR	A	5	A	6
Waterville St / Fore St (Unsignalized)				
Waterville Street SEB LTR	A	4	A	5
Site Garage NWB LTR	A	6	A	10
Fore Street NEB LTR	A	1	A	2
Fore Street SWB LTR	A	1	A	1

In reviewing results of the intersections of Fore St & Site Garage/Waterville and Thames St & Freedom Way all movements are operating at LOS A.

Request - The study shall report levels of service, vehicle delay and 95th% queue estimates.

Response: See above response for level of service and vehicle delay. Similar to the capacity analysis, the Synchro/SimTraffic modeling software provides the 95th percentile queuing of vehicles for each lane. Tables 11, 12, and 13 show that there are no significant queues forecasted in the intersections of Fore St & Site Garage/Waterville and Thames St & Freedom Way. The queues have been rounded up to the nearest 5 feet. Hard copies of the queuing analysis are provided in Attachment C.

Table 11 – 95th Queue Summary (2023 Existing Conditions)

Intersection Movement	AM	PM
Thames St / Freedom Way		
Freedom Way SEB LR	50	45
Thames Street NEB LT	55	60
Thames Street SWB TR	45	50
Waterville St / Fore St		
Waterville Street SEB LR	40	45
Fore St NEB LT	15	25

Table 12 – 95th Queue Summary (2027 Predevelopment)

Intersection Movement	AM	PM
Thames St / Freedom Way		
Freedom Way SEB LR	55	45
Thames Street NEB LT	65	65
Thames Street SWB TR	45	60
Waterville St / Fore St		
Waterville Street SEB LR	40	45
Fore St NEB LT	15	25

Table 13 – 95th Queue Summary (2027 Postdevelopment)

Intersection Movement	AM	PM
Thames St / Freedom Way		
Freedom Way SEB LR	55	50
Thames Street NEB LT	65	75
Thames Street SWB TR	50	75
Waterville St / Fore St		
Waterville Street SEB LTR	45	45
Site Garage NWB LTR	55	80
Fore Street NEB LTR	20	25
Fore Street SWB LTR	10	15

Request - A safety analysis shall be performed at the two study intersections.

Response: The latest three-year crash history (2020-2022) for the two study area intersections was requested from the MaineDOT. 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 to be classified as an HCL. The criteria are as follows:

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 a review of the crash data information provided on the MaineDOT Crash Query Tool website, MaineDOT Map Viewer and crash summary from the MaineDOT, there are no HCLs in the immediate vicinity of the site. Safety information is provided in Attachment D.

Request - Sight distance shall be documented at the two site entrances.

Response: The sight distance for vehicles exiting the two site driveways was reviewed in the field on August 22, 2023. It should be noted that only the driveway at the intersection with Freedom Way / Thames Street is constructed. The proposed garage access across from Waterville Street is not constructed.

The City of Portland conforms to the same standards established by the MaineDOT. The table below presents the standard distances for the MaineDOT.

Table 13 – Sight Distance Criteria

Speed Limit (mph)	MaineDOT Required (ft)
25	200
30	250
35	305
40	360
45	425
50	495

MaineDOT uses a specific evaluation methodology to measure sight distance, the MaineDOT method is as follows:

Driveway Observation Point:	**10 feet from traveled way**
Height of Eye at Driveway:	**3.5 feet above the ground**
Height of Approaching vehicle:	**4.25 feet above the ground**

The speed limit on Fore Street and Freedom Way is unposted but due to the urban area an assumption of 25 mph was used at the proposed entrance locations, requiring an available sight distance of 200 feet. The following table summarizes the measured sight distances.

Table 14 – Sight Distance Evaluation

Approach	Sight Distance (ft)		
	Required (ft)	Looking Left	Looking Right
Exiting onto Freedom Way – 25 mph	200	N/A	400+
Exiting onto Fore Street – 25 mph	200	400+	Blocked by Cars

As shown in the table above, the sight distance looking right exiting onto Freedom Way exceeds the requirements set by the MaineDOT. The sight distance looking left onto Fore Street exceeds the requirements set by the MaineDOT, looking right was blocked by cars parked along the street during the intersection sight distance evaluation. Without cars parked in front of the proposed garage entrance this sight distance is expected to exceed

MaineDOT standards. We recommend sight distance be re-evaluated once the garage entrance is constructed and parking restricted as needed to allow adequate sight distances.

Attachments

Attachment A – Trip Generation, Raw Counts, NCHRP
Attachment B – Figures
Attachment C – Capacity Analysis
Attachment D – Safety Information

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Attachment A

Trip Generation, Raw Counts, NCHRP

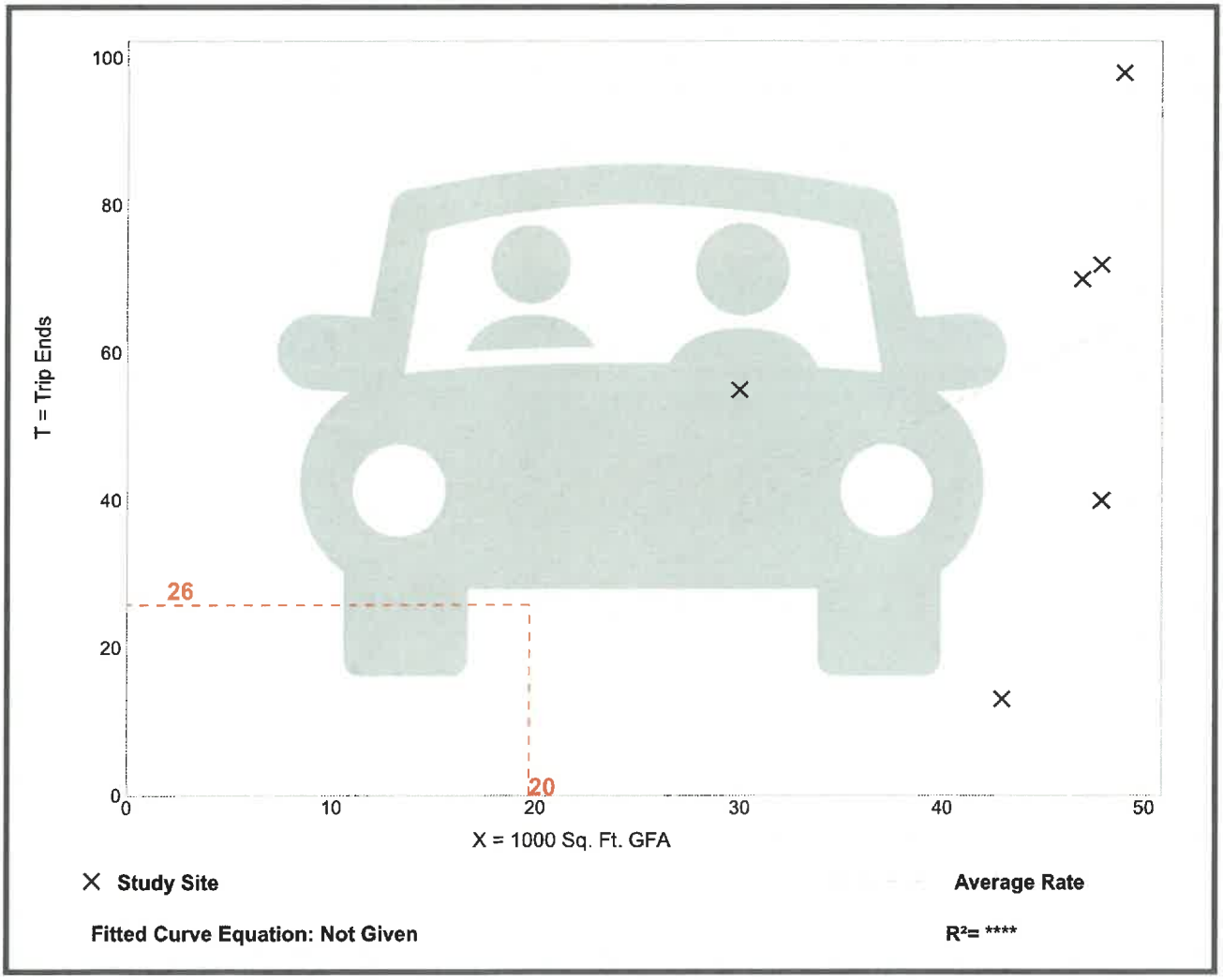
Health/Fitness Club
(492)

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: 6
Avg. 1000 Sq. Ft. GFA: 44
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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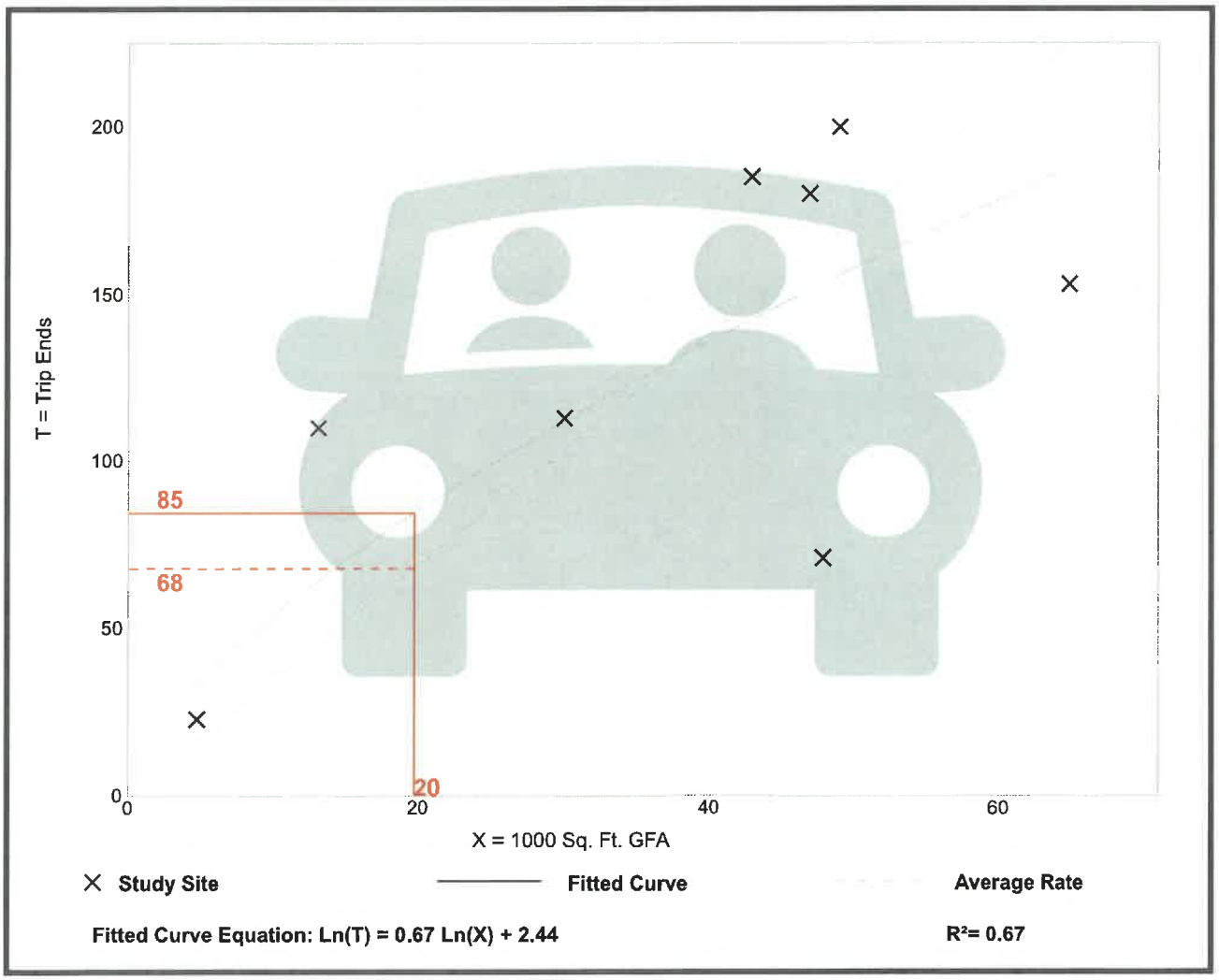
Health/Fitness Club
(492)

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: 8
Avg. 1000 Sq. Ft. GFA: 37
Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



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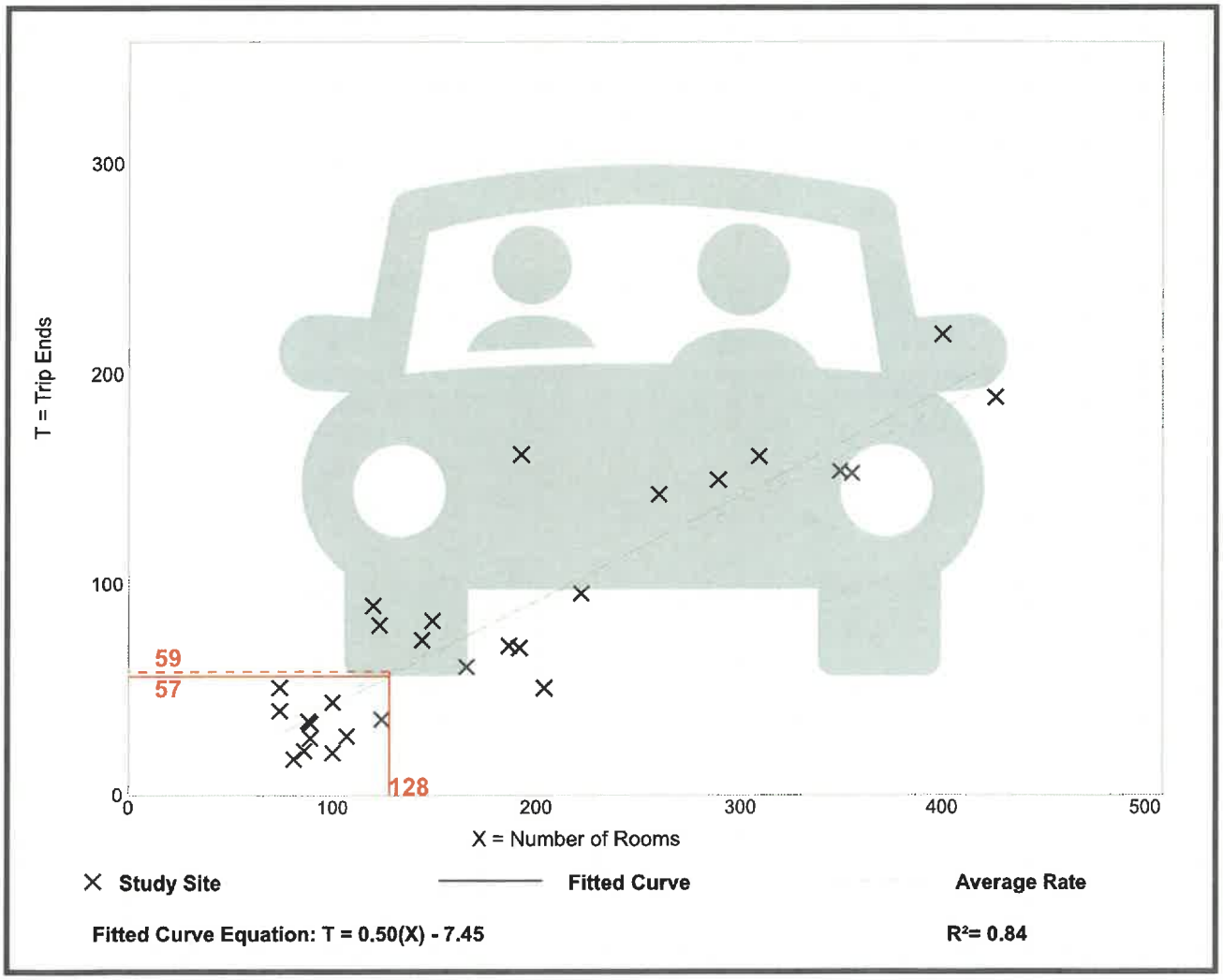
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
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:	28
Avg. Num. of Rooms:	182
Directional Distribution:	56% entering, 44% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.46	0.20 - 0.84	0.14

Data Plot and Equation



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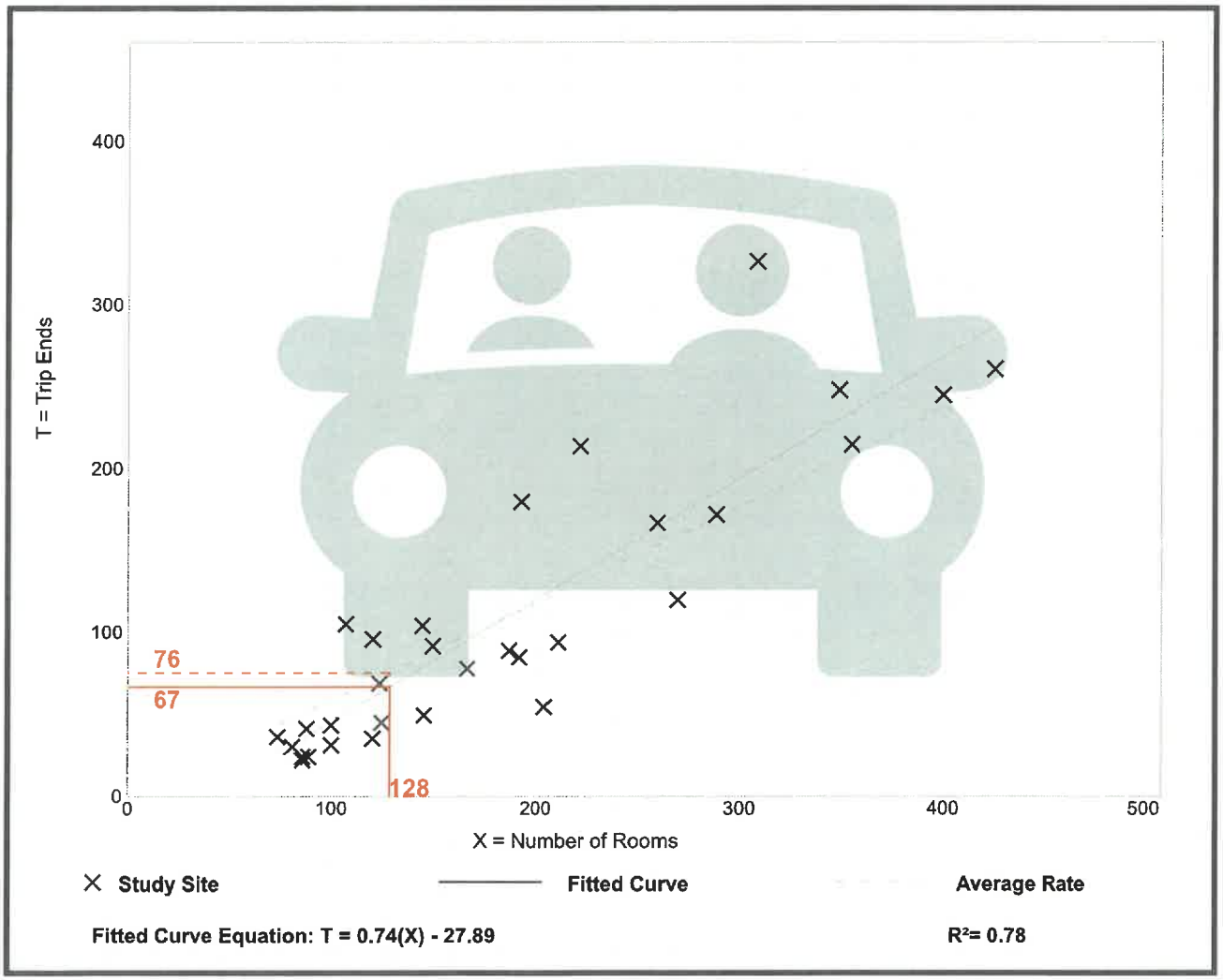
Hotel
(310)

Vehicle Trip Ends vs:	**Rooms**
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:	31
Avg. Num. of Rooms:	186
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
0.59	0.26 - 1.06	0.22

Data Plot and Equation



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Apparel Store
(876)

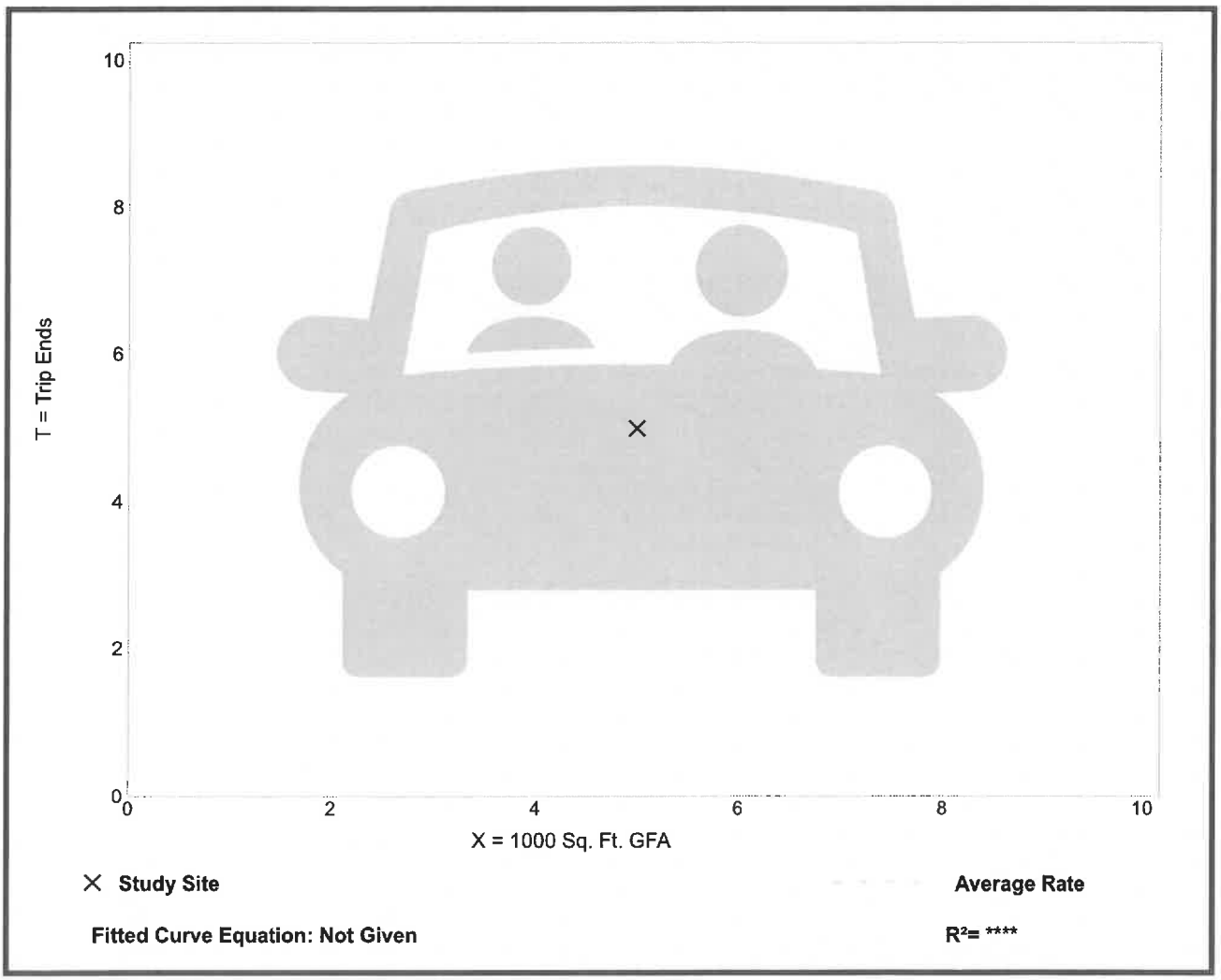
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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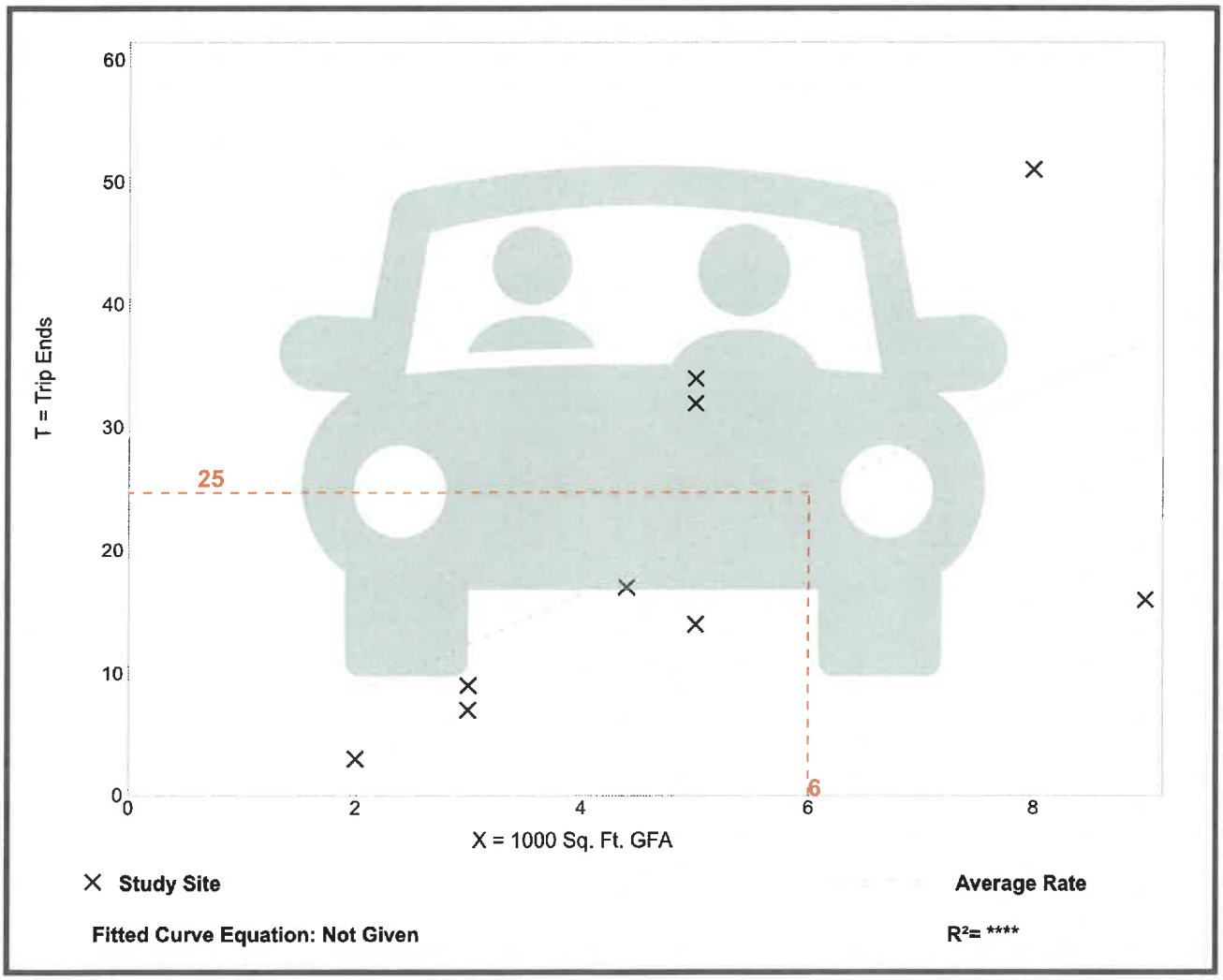
Apparel Store
(876)

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: 9
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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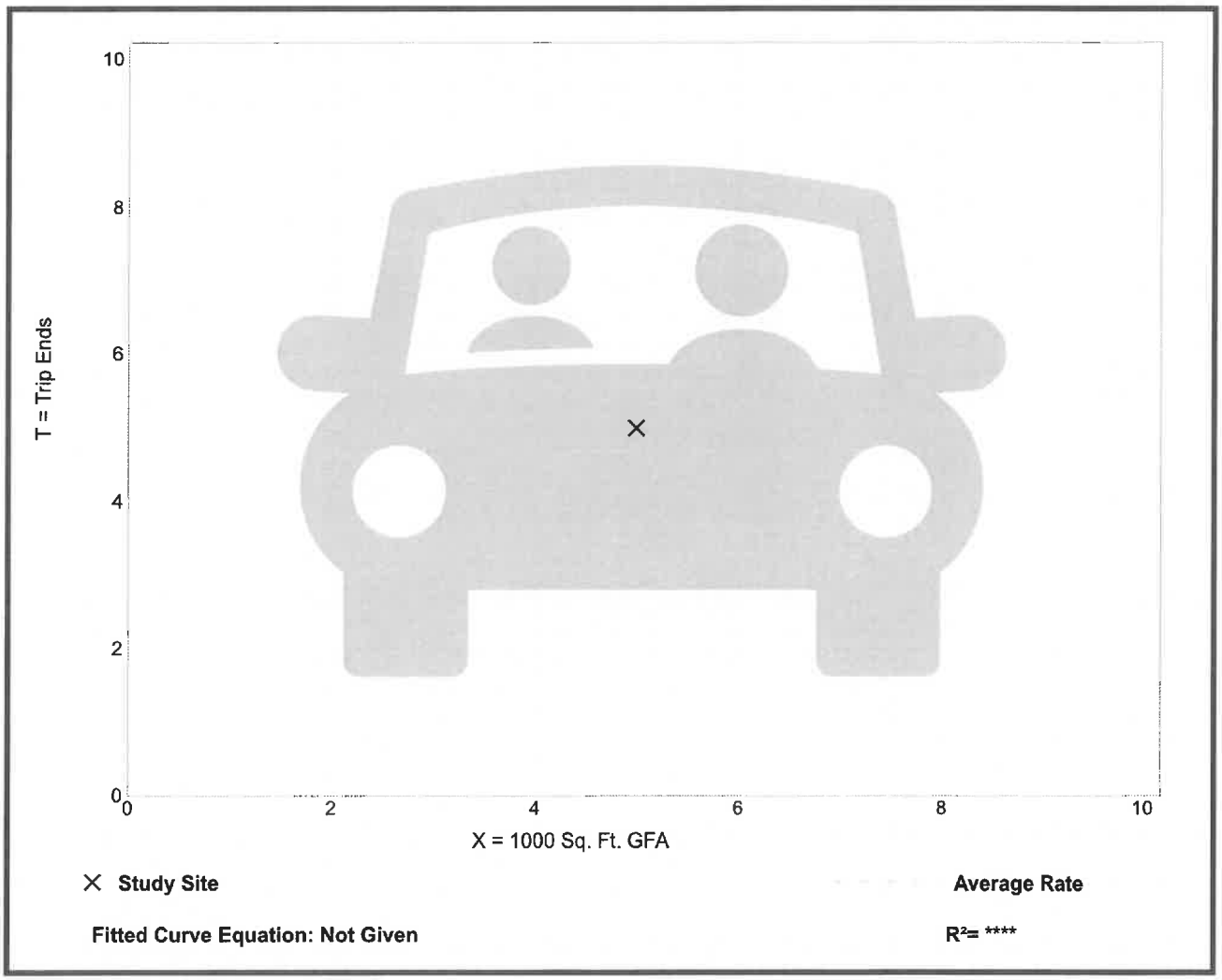
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On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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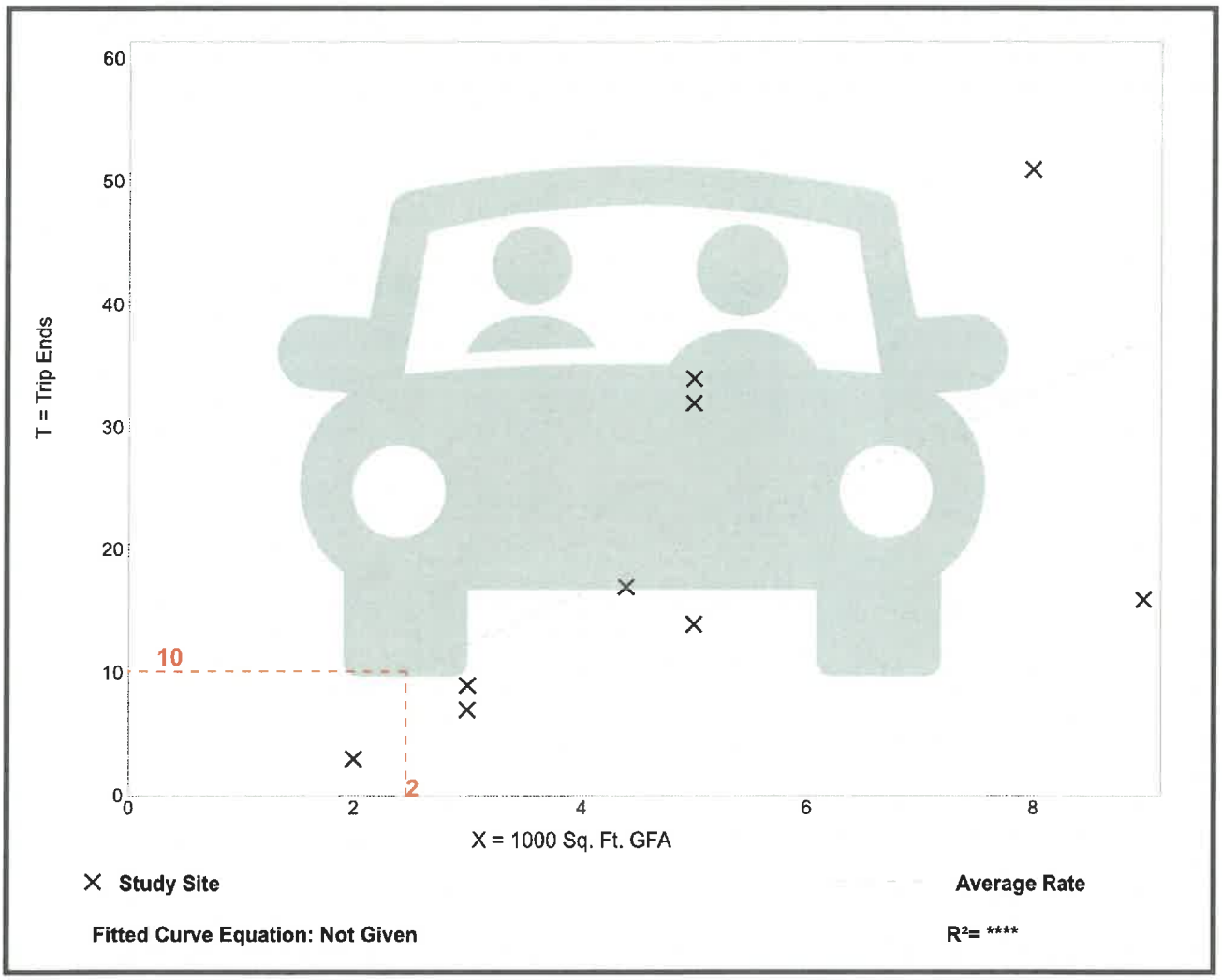
Apparel Store
(876)

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: 9
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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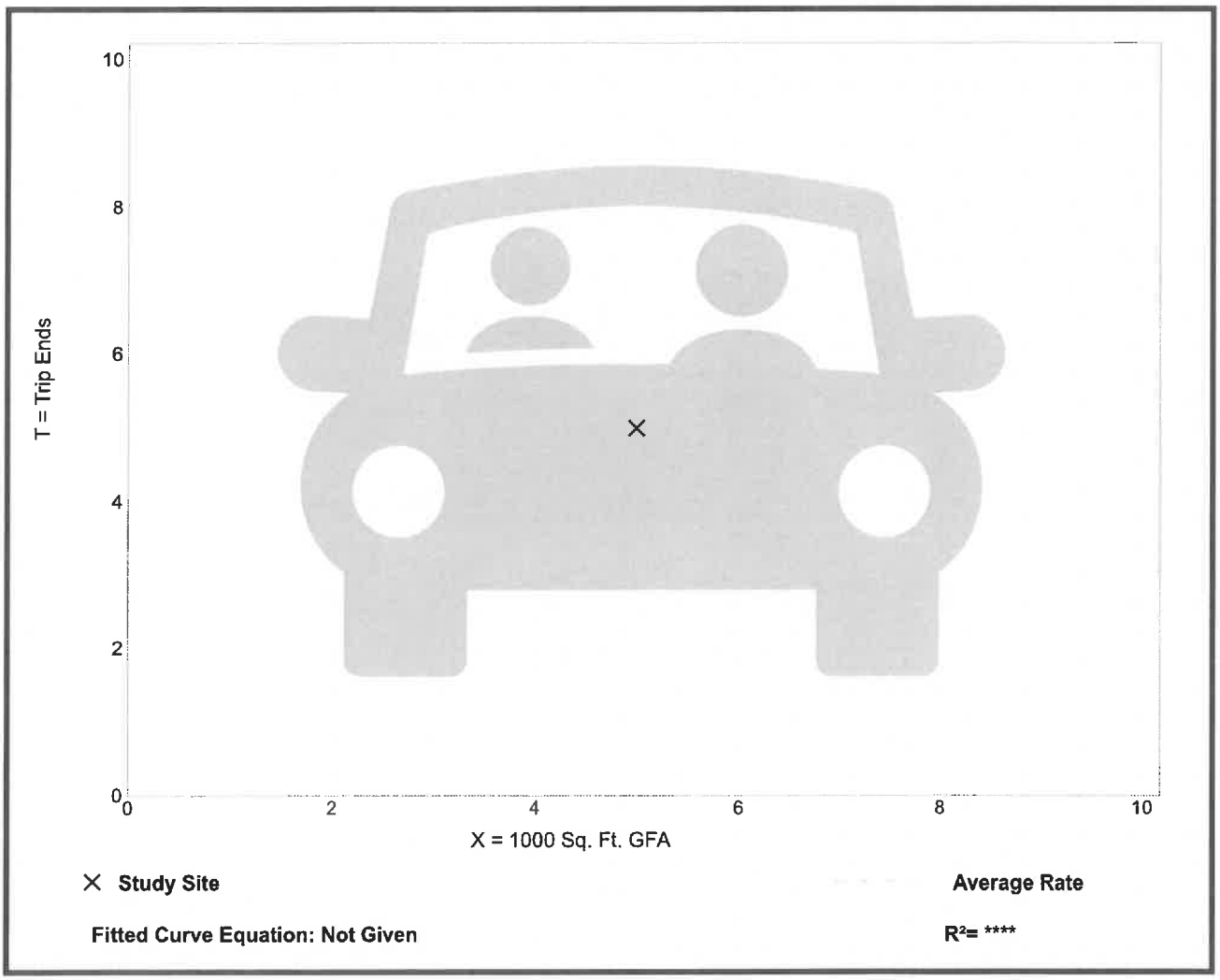
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On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 80% entering, 20% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.00	1.00 - 1.00	*

Data Plot and Equation

Caution – Small Sample Size



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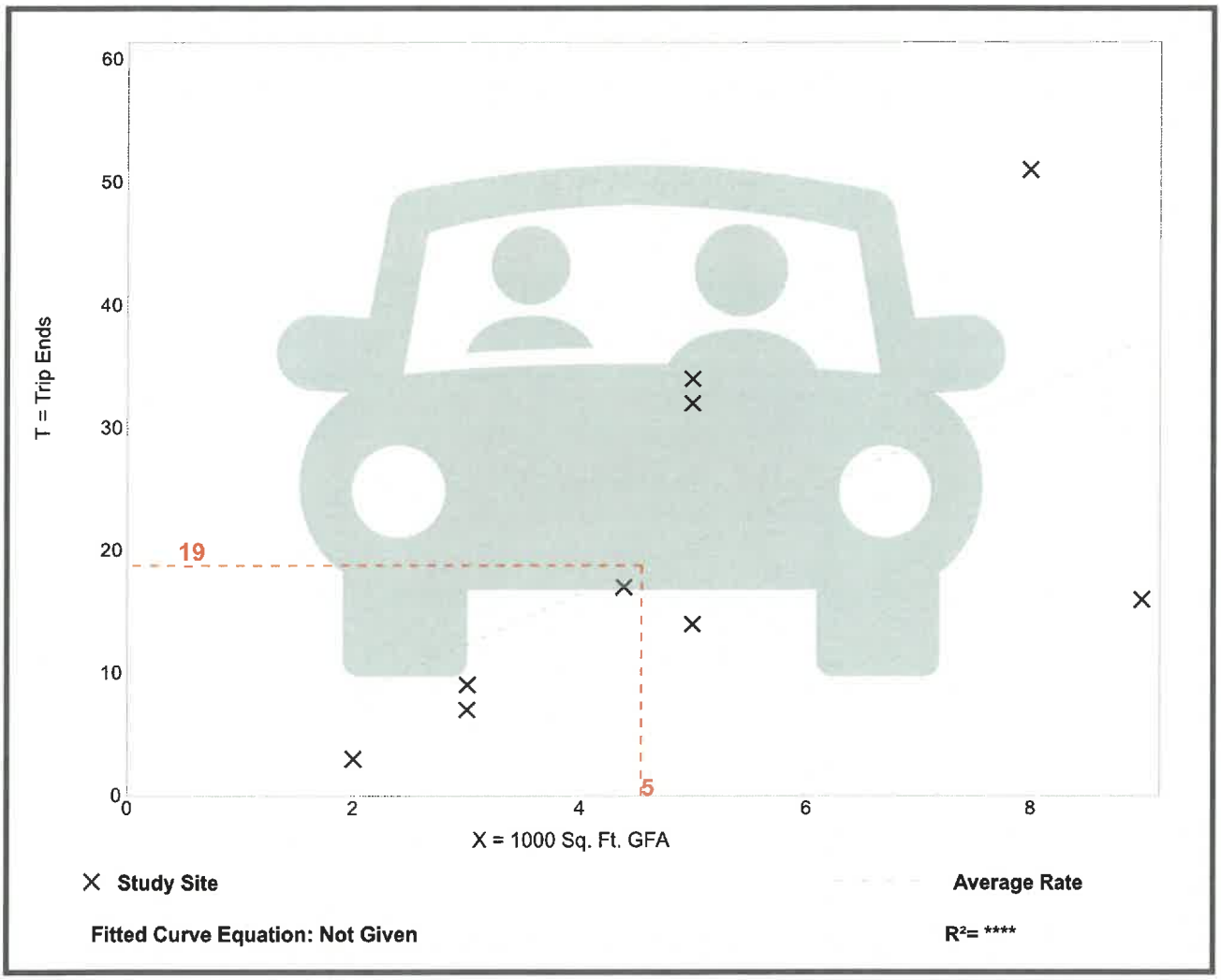
Apparel Store
(876)

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: 9
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.12	1.50 - 6.80	2.18

Data Plot and Equation



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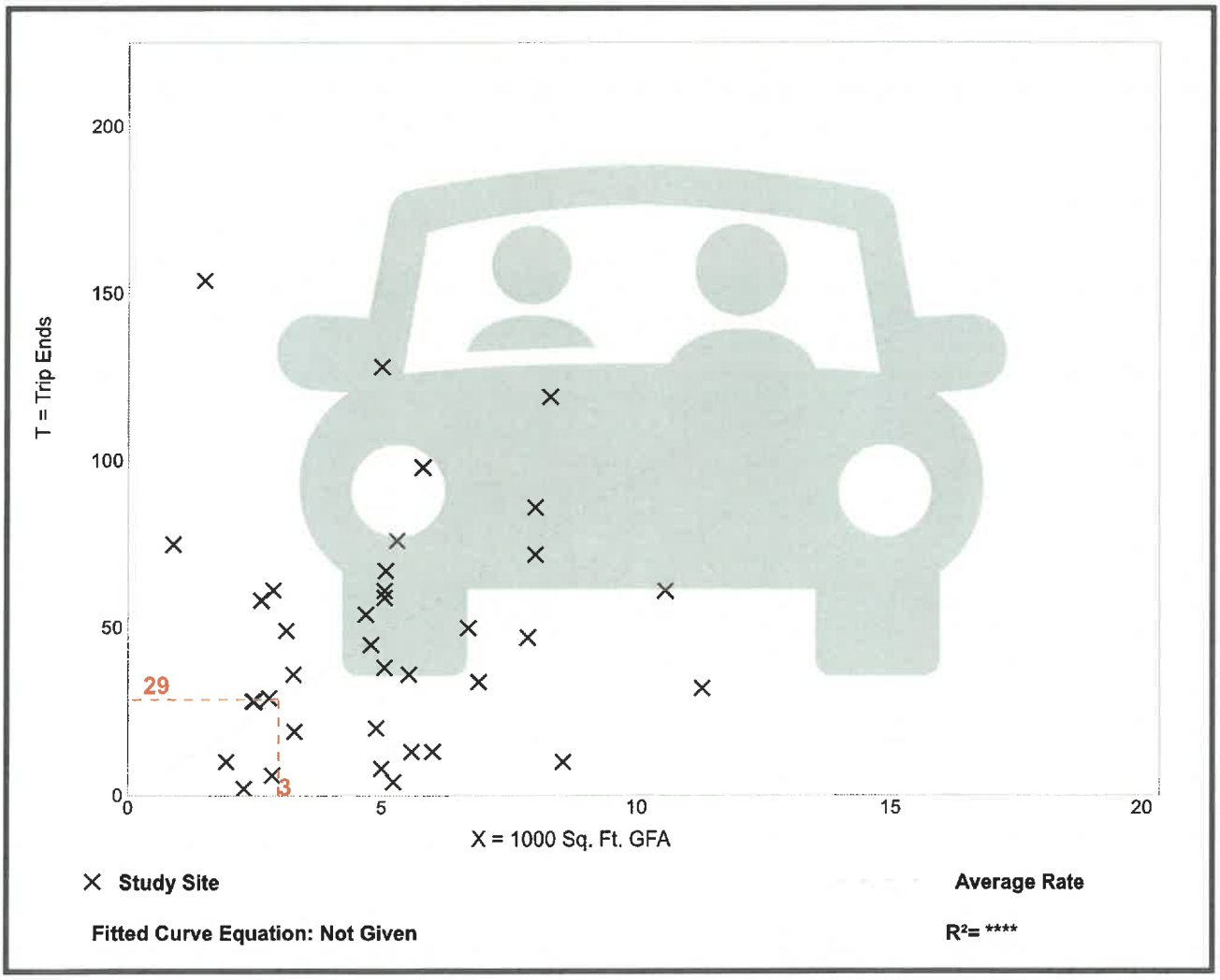
High-Turnover (Sit-Down) Restaurant
(932)

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: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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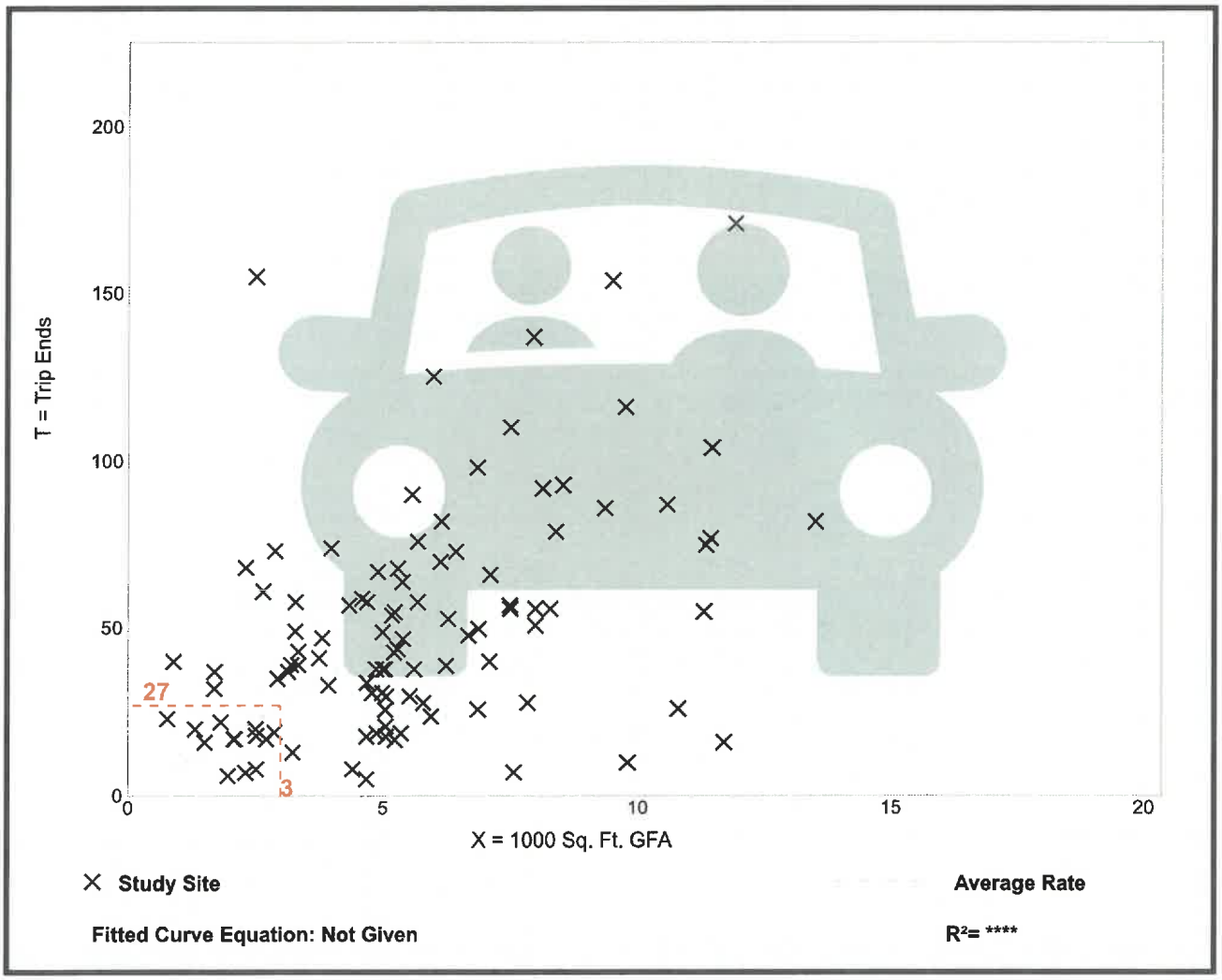
High-Turnover (Sit-Down) Restaurant
(932)

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:	104
Avg. 1000 Sq. Ft. GFA:	6
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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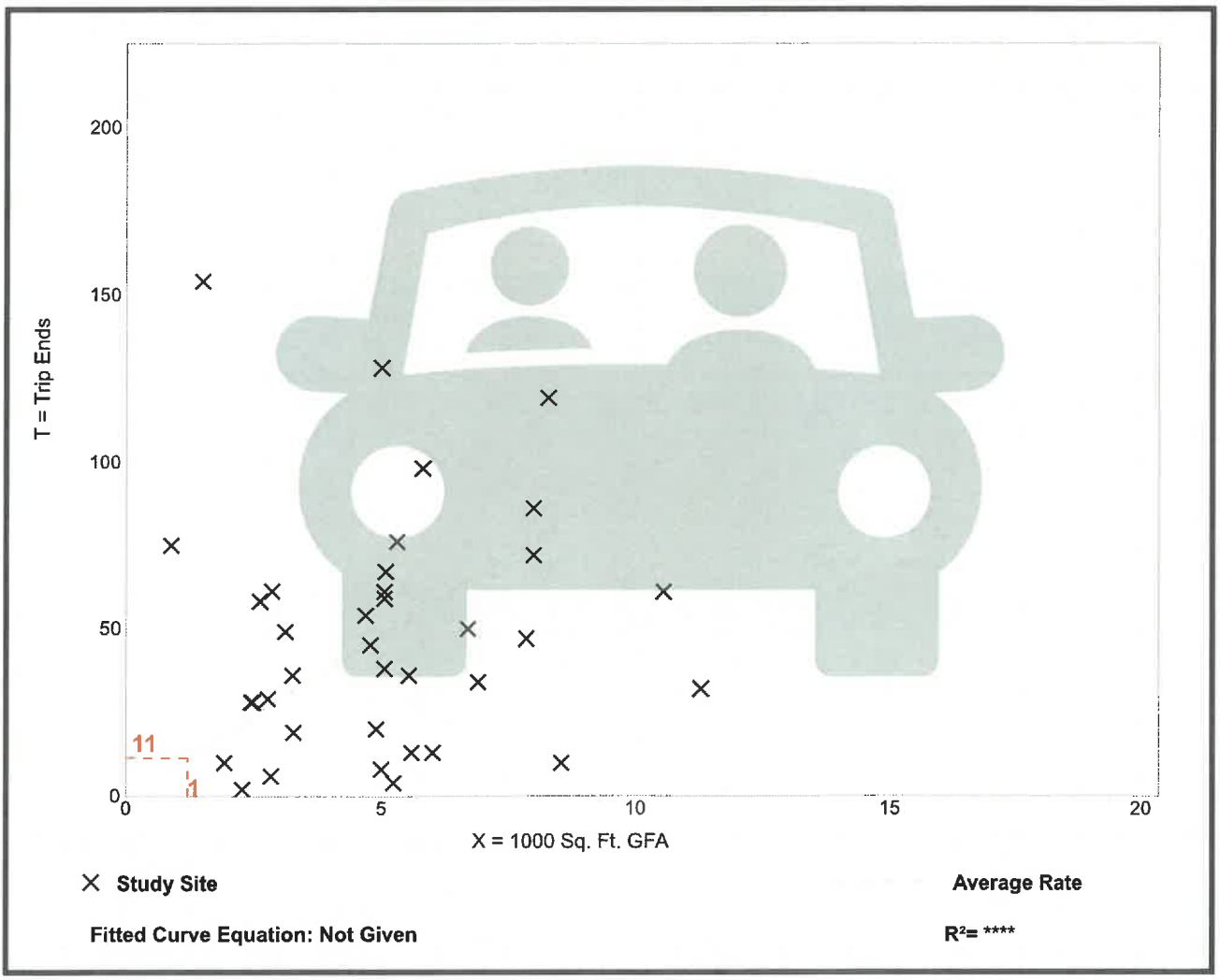
High-Turnover (Sit-Down) Restaurant
(932)

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: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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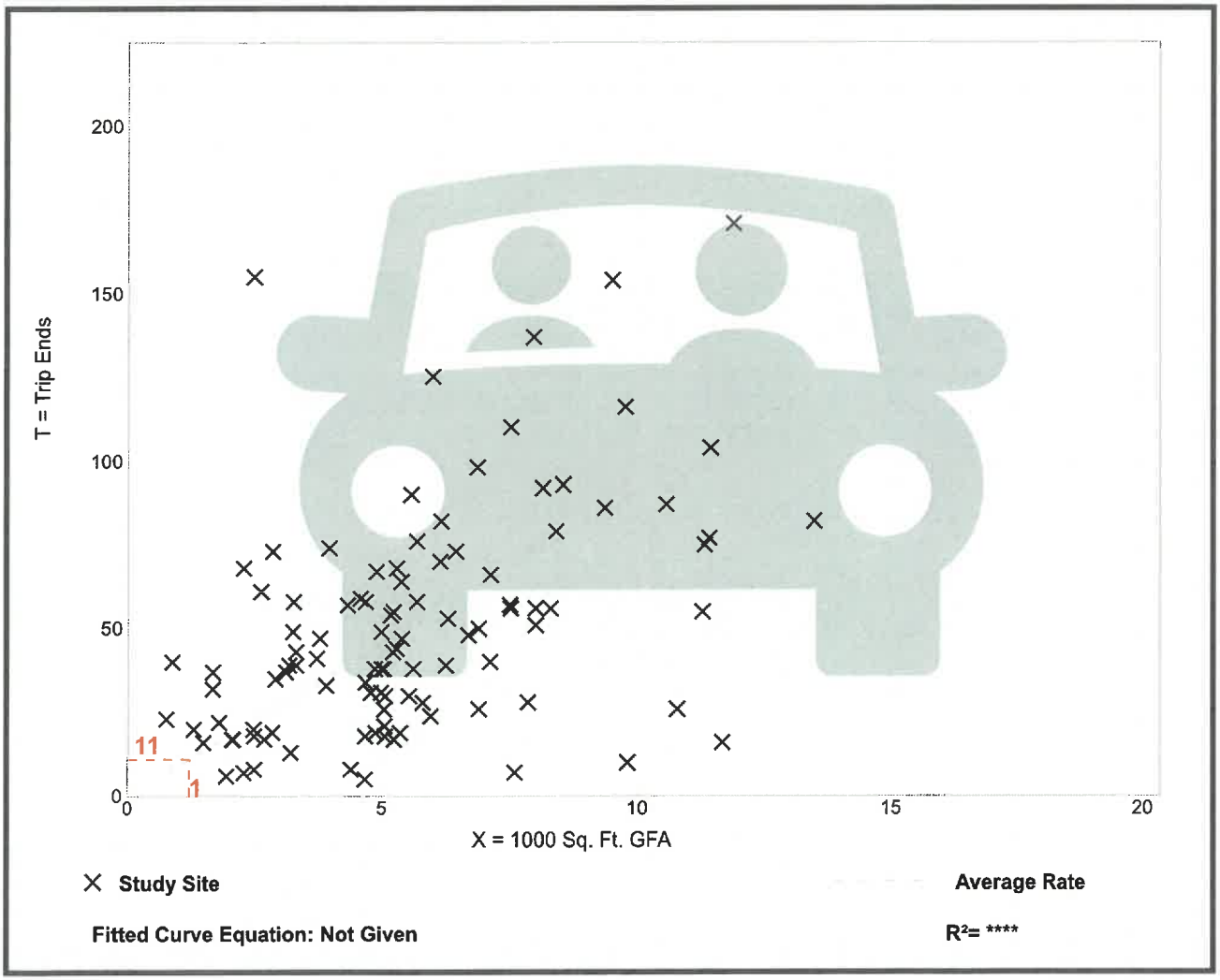
High-Turnover (Sit-Down) Restaurant
(932)

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:	104
Avg. 1000 Sq. Ft. GFA:	6
Directional Distribution:	61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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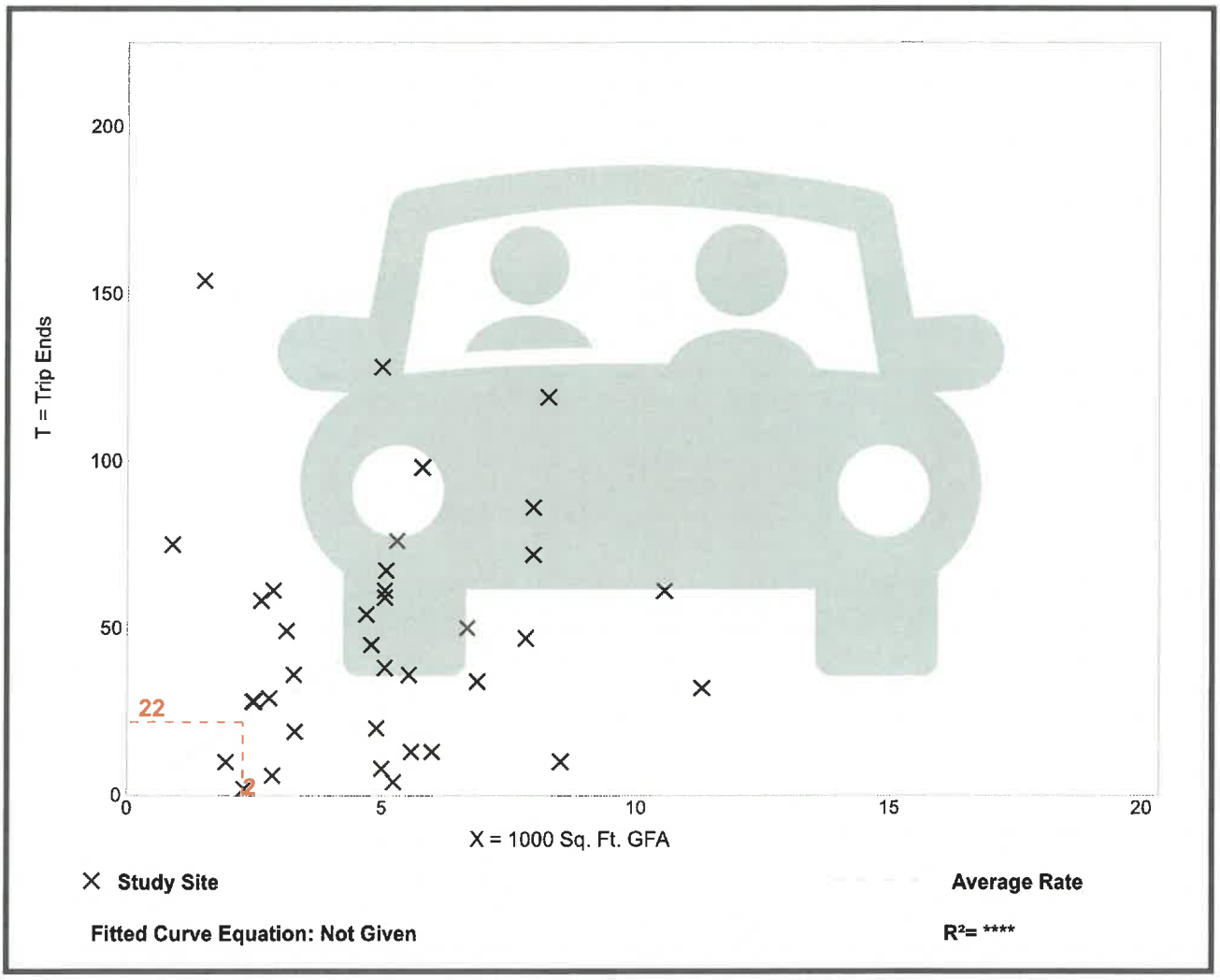
High-Turnover (Sit-Down) Restaurant
(932)

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: 37
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.57	0.76 - 102.39	11.61

Data Plot and Equation



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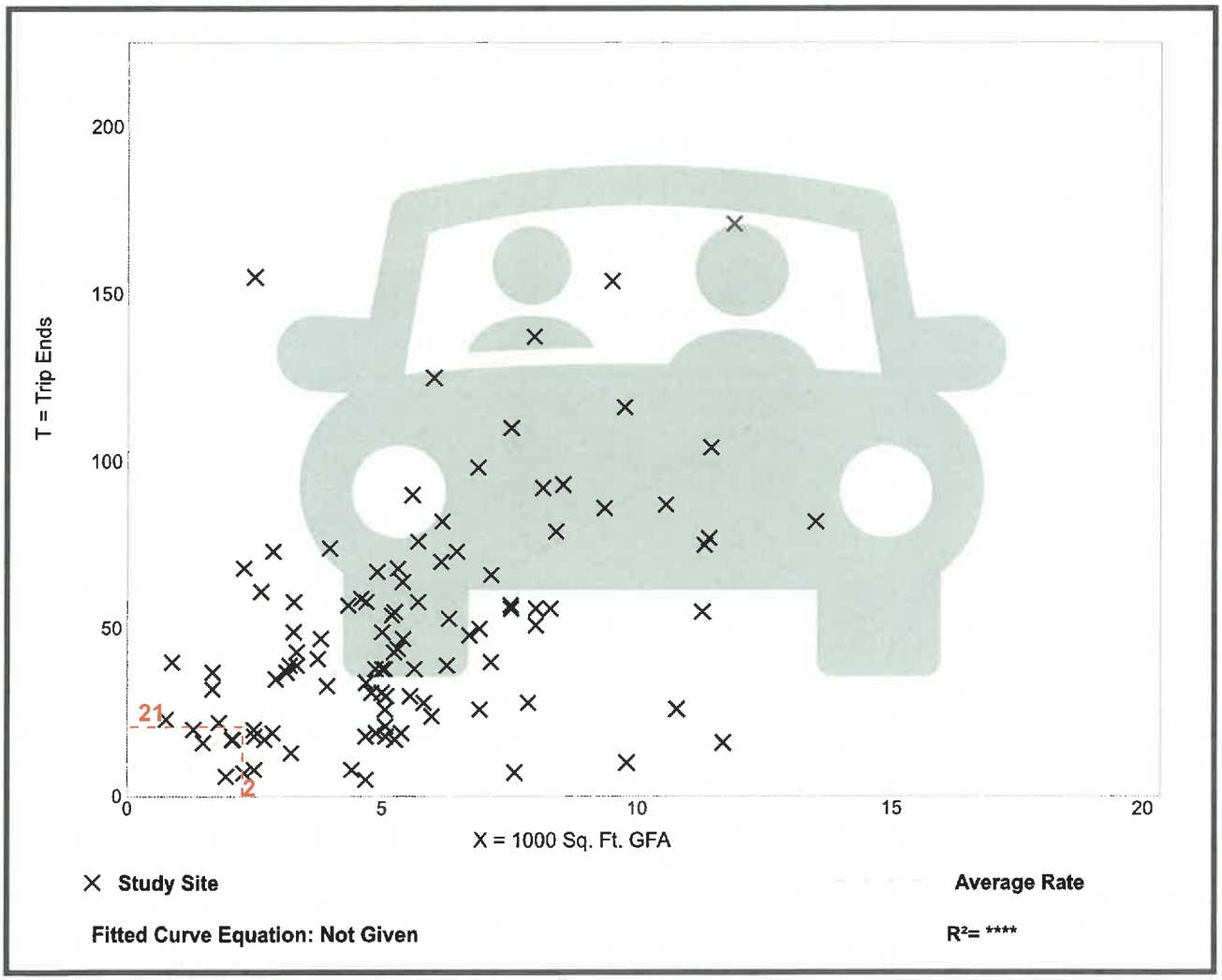
High-Turnover (Sit-Down) Restaurant
(932)

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: 104
Avg. 1000 Sq. Ft. GFA: 6
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.05	0.92 - 62.00	6.18

Data Plot and Equation



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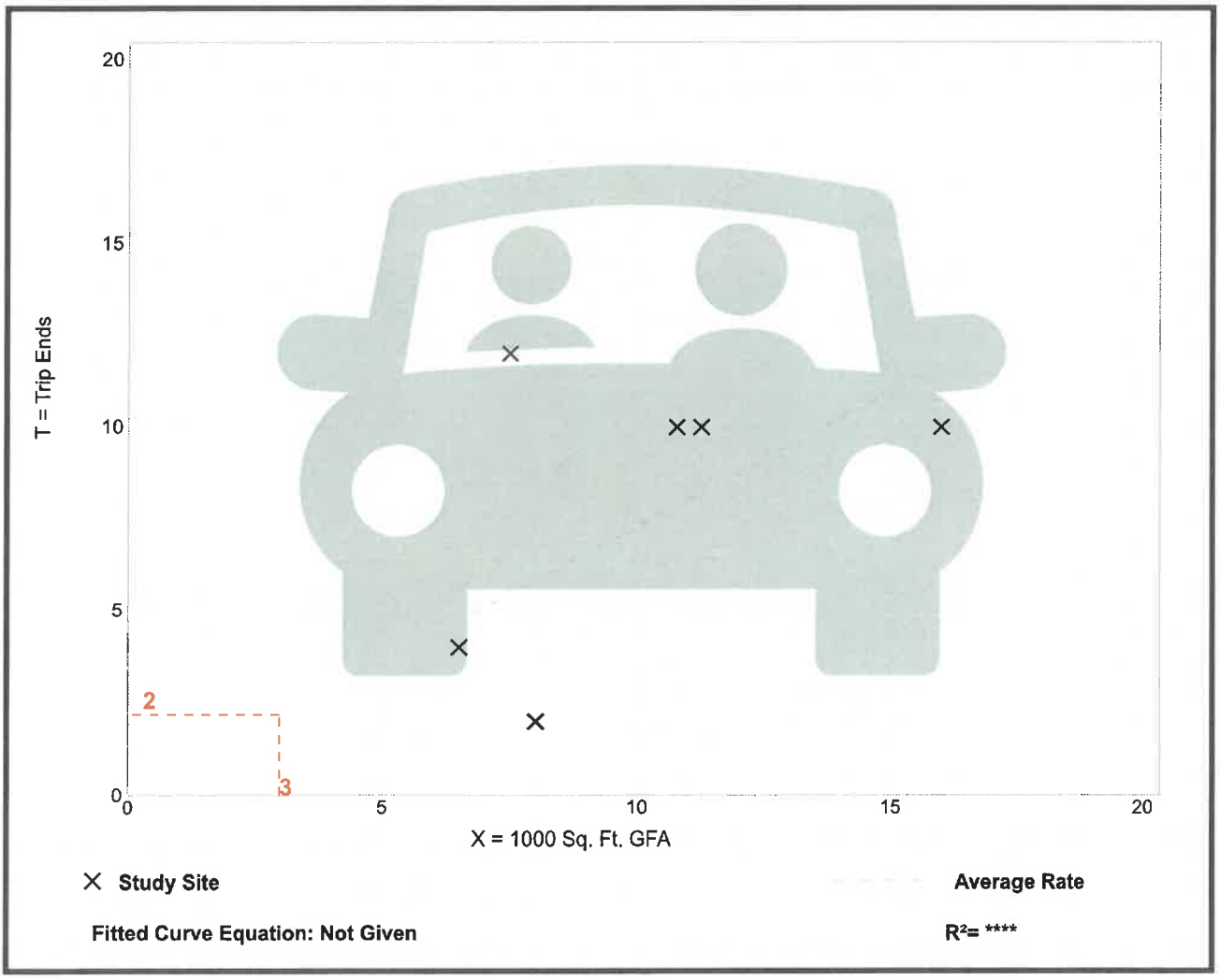
Fine Dining Restaurant
(931)

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: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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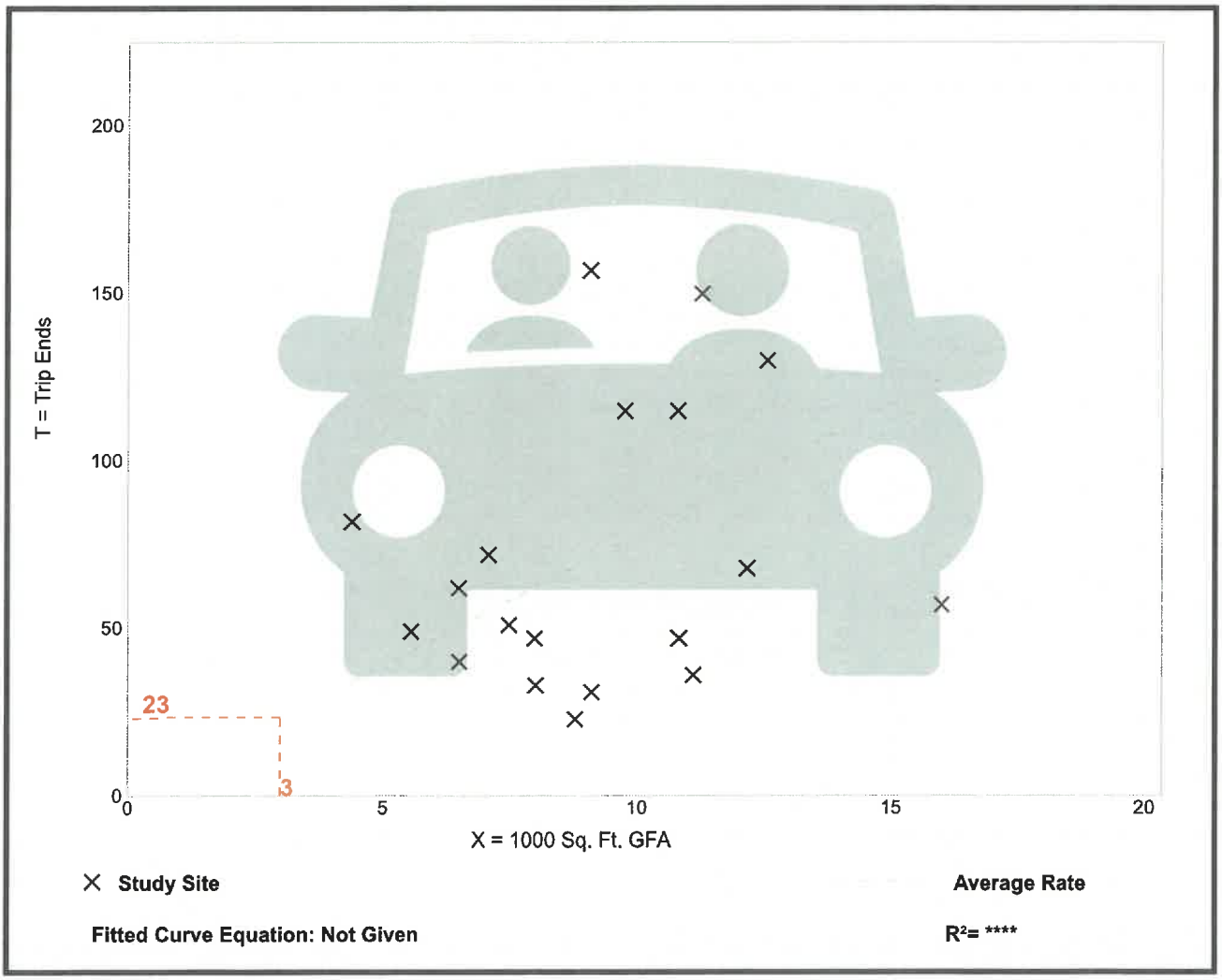
Fine Dining Restaurant
(931)

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: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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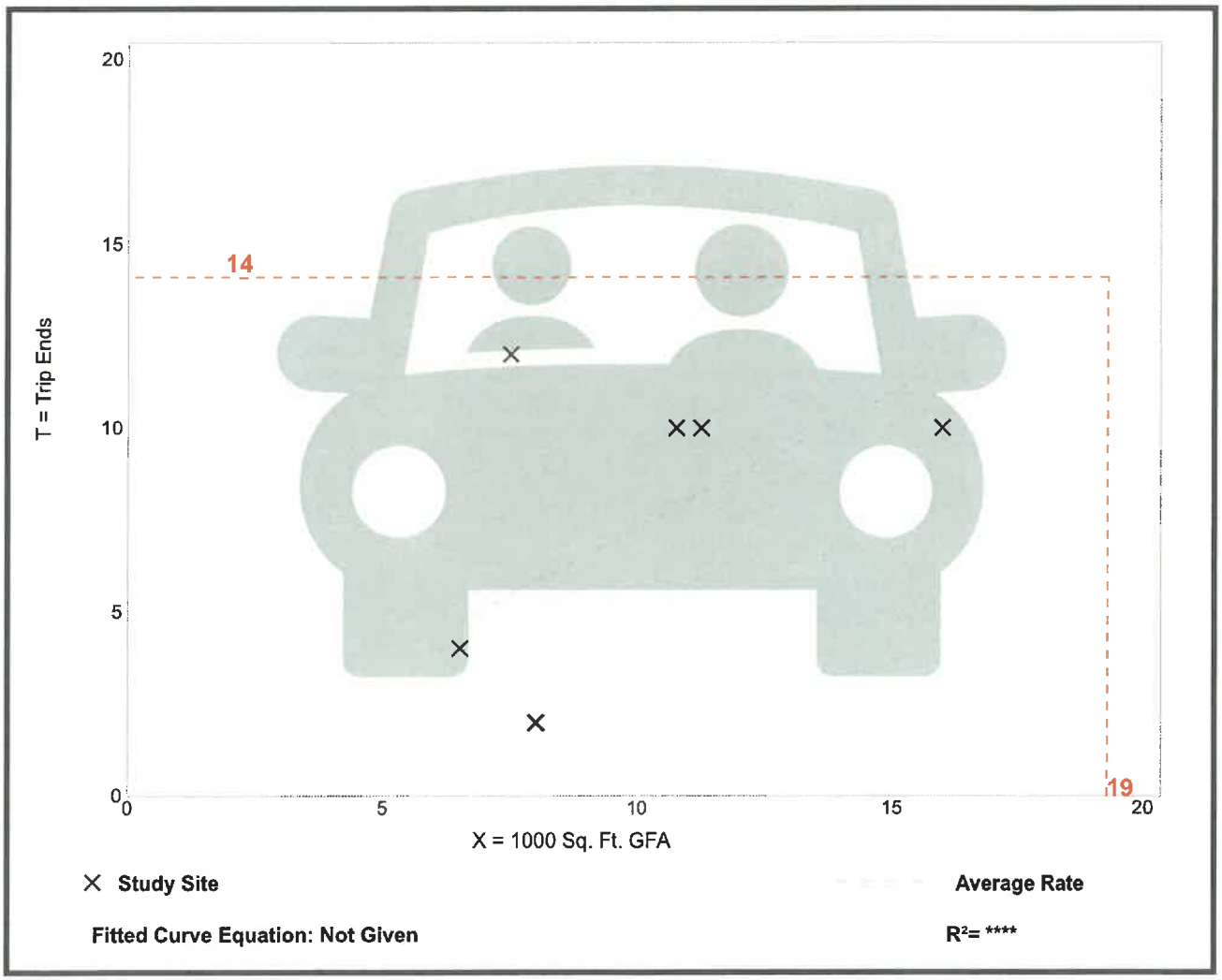
Fine Dining Restaurant
(931)

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: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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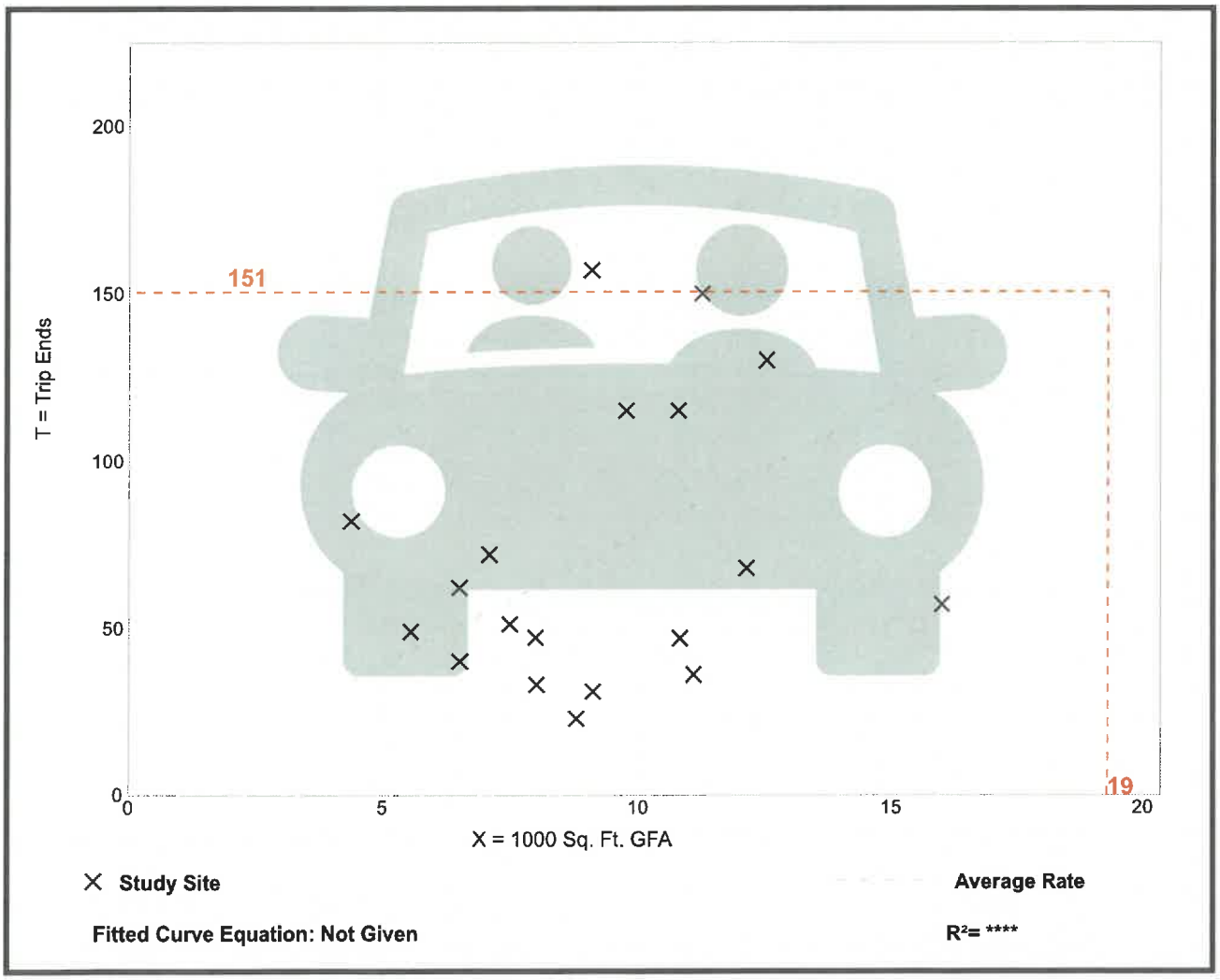
Fine Dining Restaurant
(931)

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: 19
Avg. 1000 Sq. Ft. GFA: 9
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
7.80	2.62 - 18.68	4.49

Data Plot and Equation



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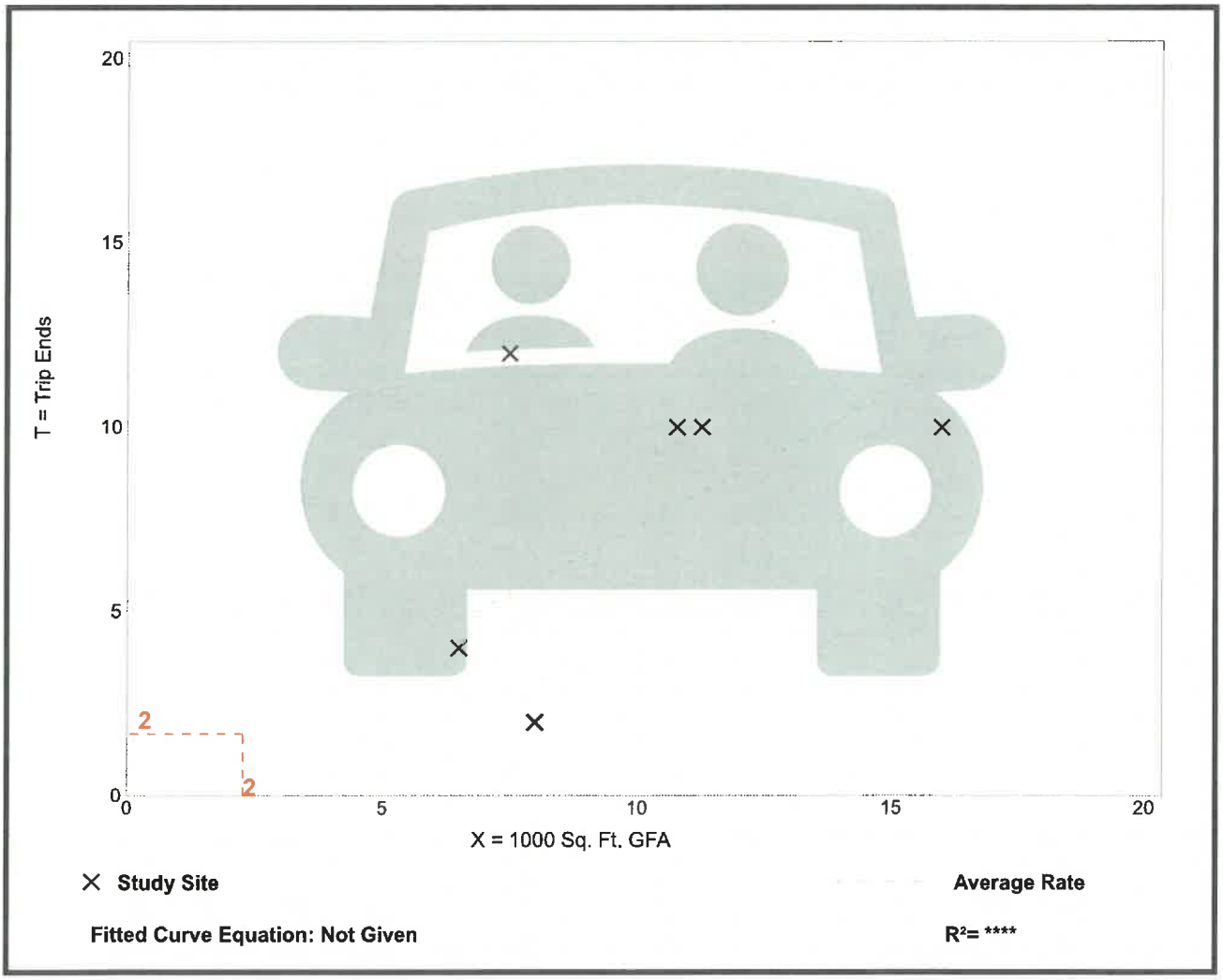
Fine Dining Restaurant
(931)

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: 7
Avg. 1000 Sq. Ft. GFA: 10
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.73	0.25 - 1.60	0.42

Data Plot and Equation



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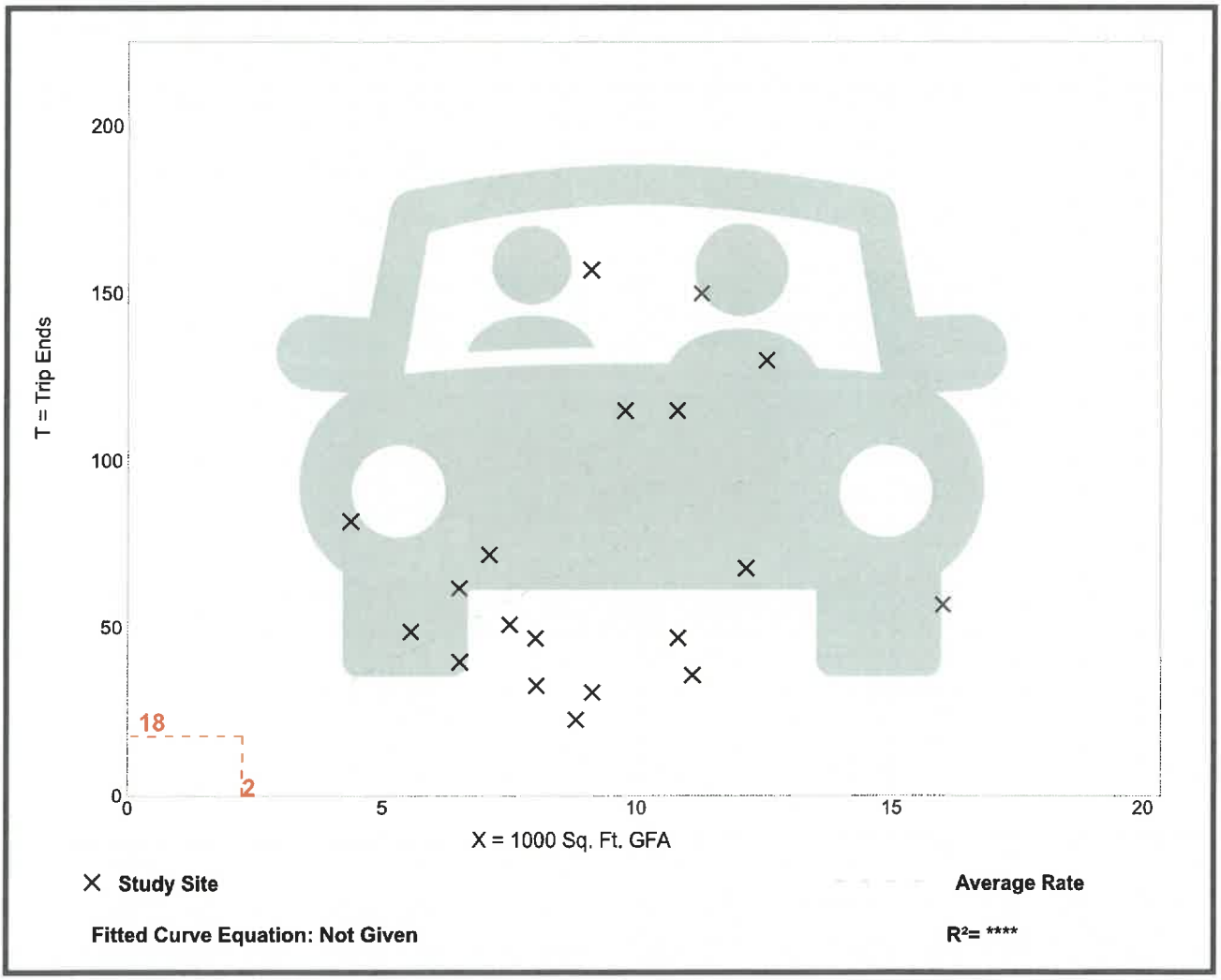
Fine Dining Restaurant
(931)

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: 19
Avg. 1000 Sq. Ft. GFA: 9
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Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
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Data Plot and Equation



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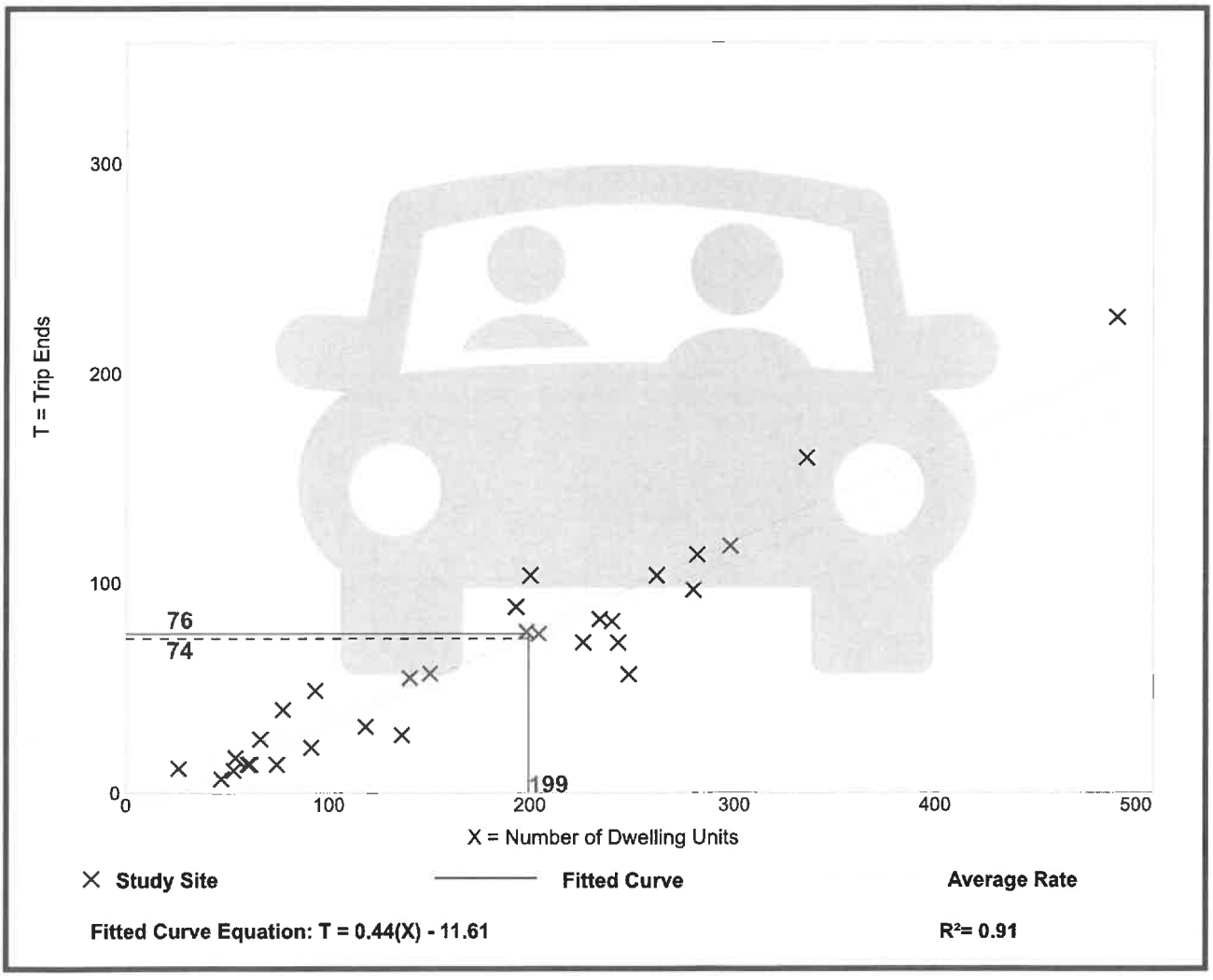
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 30
Avg. Num. of Dwelling Units: 173
Directional Distribution: 23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.37	0.15 - 0.53	0.09

Data Plot and Equation



Trip Gen Manual, 11th Edition • Institute of Transportation Engineers

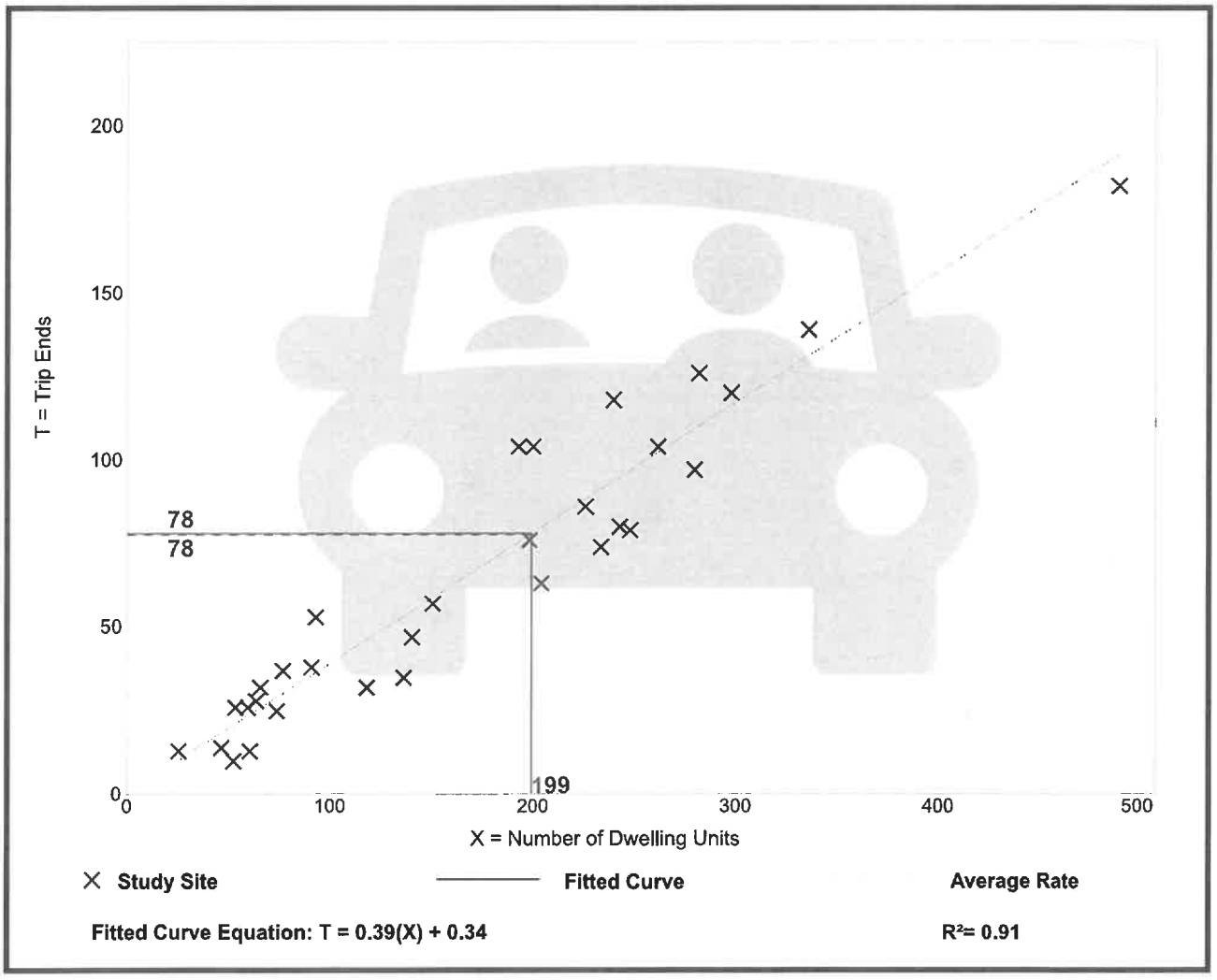
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
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: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



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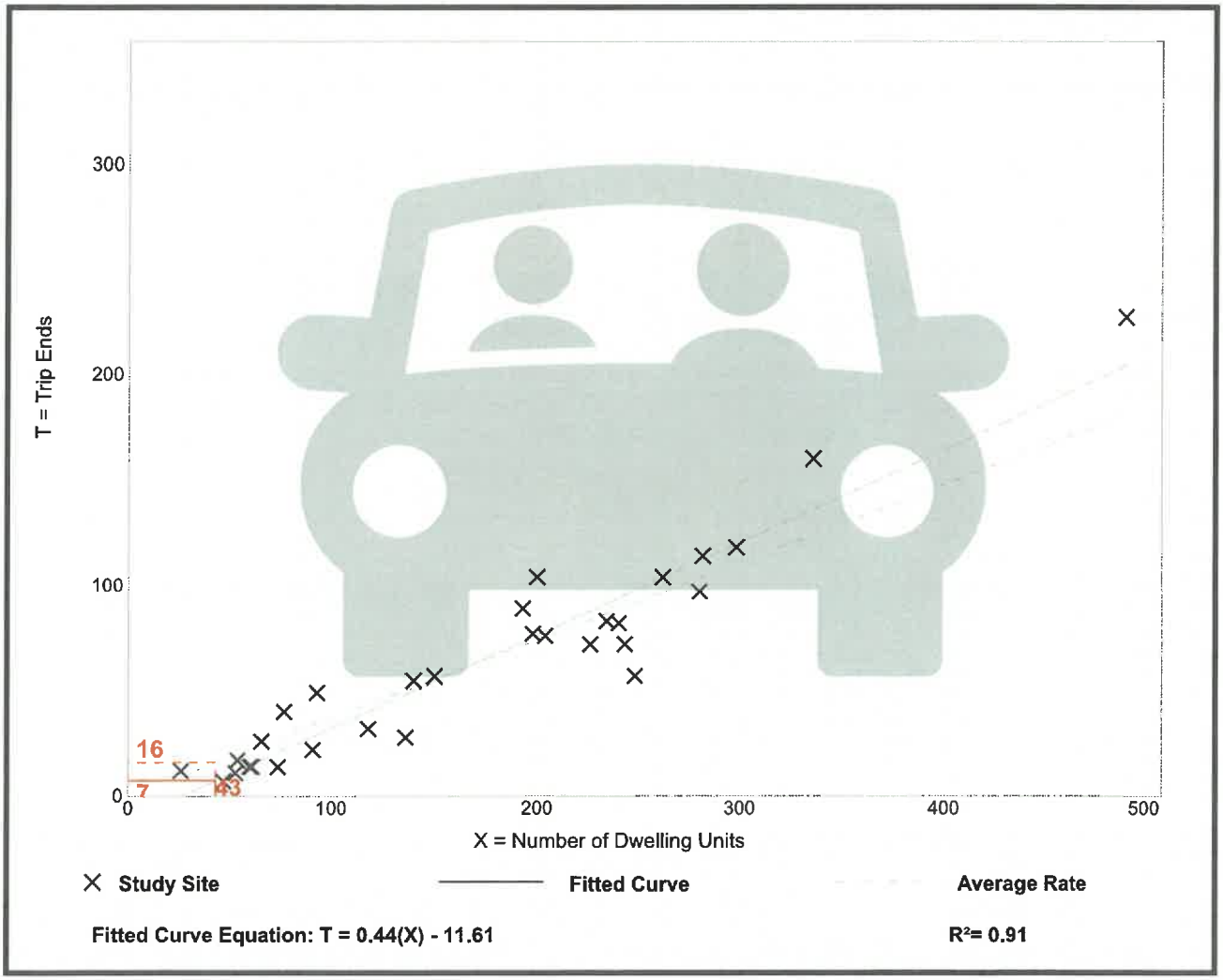
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Data Plot and Equation



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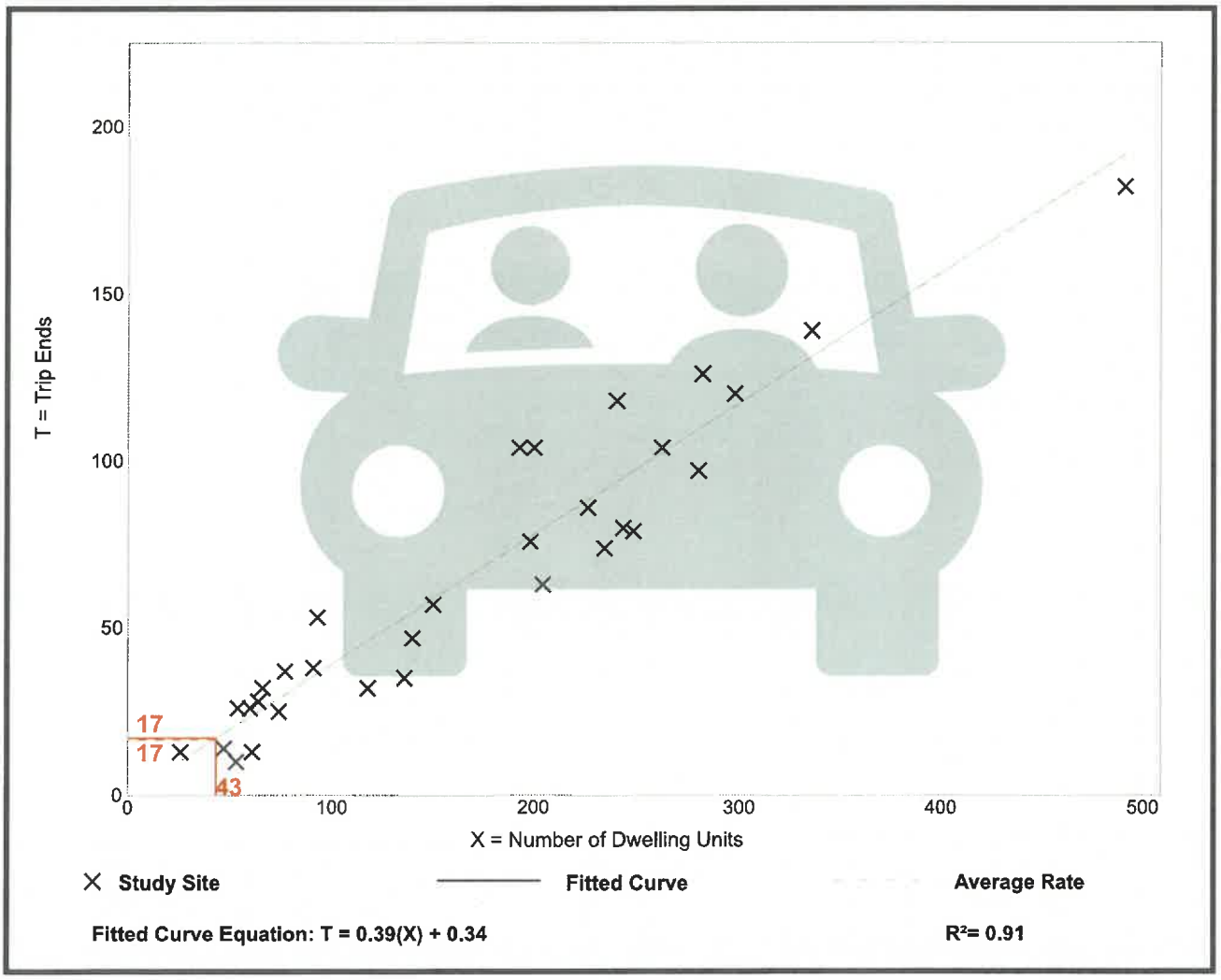
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Vehicle Trip Ends vs: **Dwelling Units**
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Data Plot and Equation



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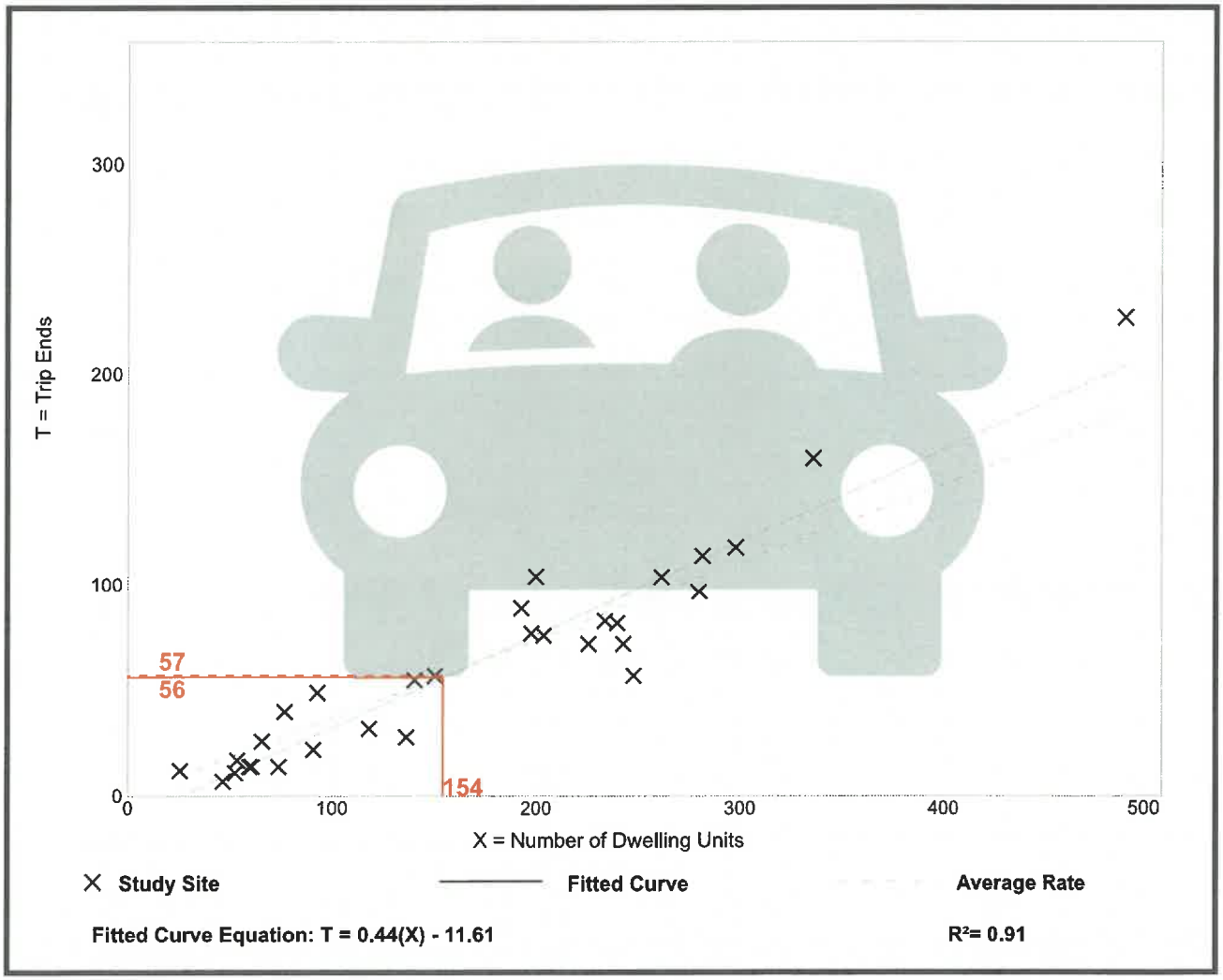
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Data Plot and Equation



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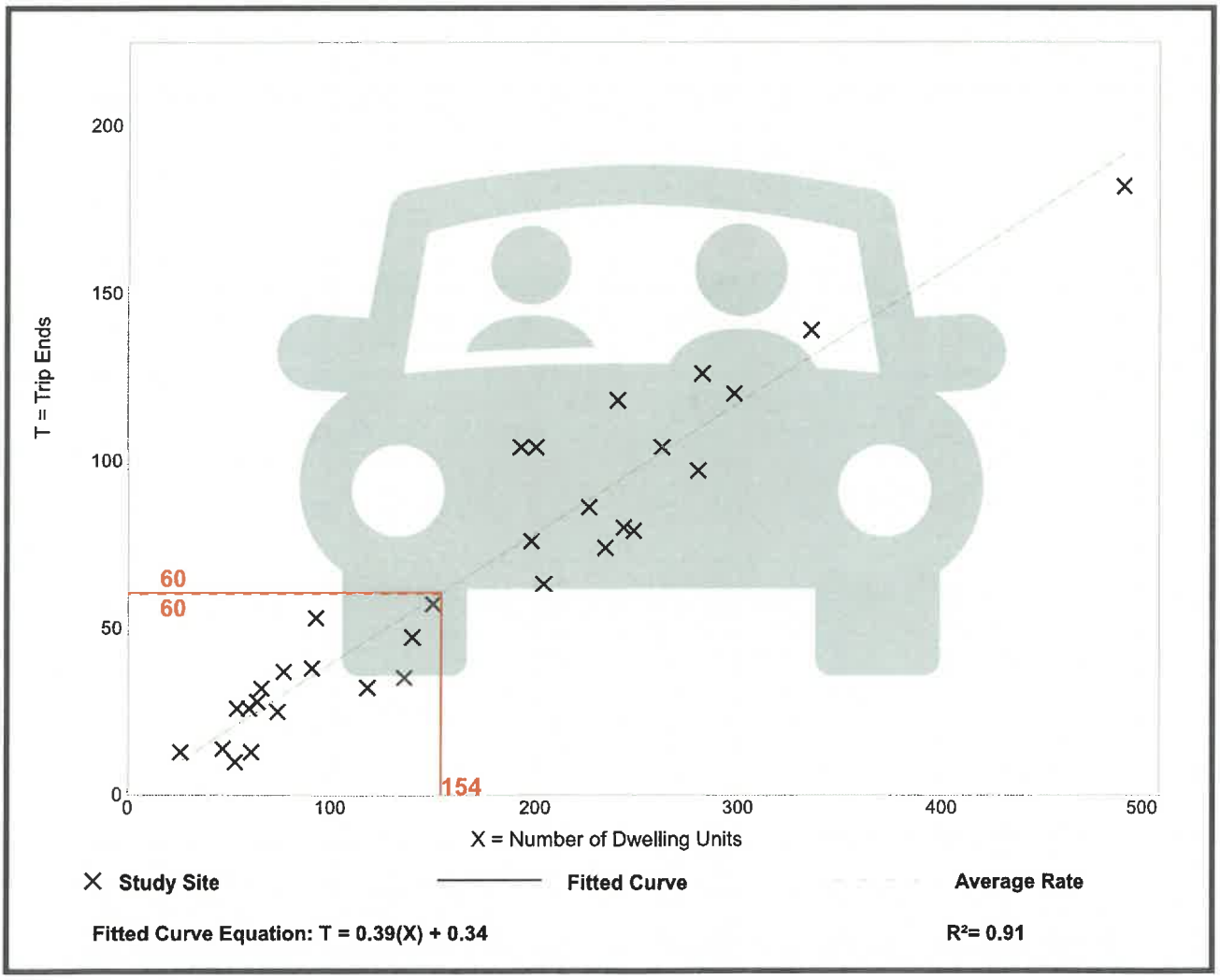
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Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
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Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 31
Avg. Num. of Dwelling Units: 169
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.39	0.19 - 0.57	0.08

Data Plot and Equation



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NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Site	**Date:**	8/29/2023
Analysis Year:		**Checked By:**	
Analysis Period:	AM Street Peak Hour	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	227	205	22
Retail	814	53,292	SF	34	23	11
Restaurant	931	30,514	SF	98	53	45
Cinema/Entertainment				0		
Residential	220/230	455	Units	148	34	114
Hotel	310	130	Units	59	33	26
All Other Land Uses[2]	492			26	13	13
Total				592	361	231

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	12	0	0	0
Retail	3		1	0	1	0
Restaurant	14	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	11	0		0
Hotel	6	1	2	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	592	361	231
Internal Capture Percentage	22%	18%	28%
External Vehicle-Trips[3]	462	296	166
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	12%	82%
Retail	43%	45%
Restaurant	49%	42%
Cinema/Entertainment	N/A	N/A
Residential	9%	12%
Hotel	3%	35%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	205	205	1.00	22	22
Retail	1.00	23	23	1.00	11	11
Restaurant	1.00	53	53	1.00	45	45
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	34	34	1.00	114	114
Hotel	1.00	33	33	1.00	26	26

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	14	0	0	0
Retail	3		1	0	2	0
Restaurant	14	6		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	23	0		0
Hotel	20	4	2	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		7	12	0	0	0
Retail	8		27	0	1	0
Restaurant	29	2		0	2	1
Cinema/Entertainment	0	0	0		0	0
Residential	6	4	11	0		0
Hotel	6	1	3	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	25	180	205	180	0	0
Retail	10	13	23	13	0	0
Restaurant	26	27	53	27	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	31	34	31	0	0
Hotel	1	32	33	32	0	0
All Other Land Uses[3]	0	13	13	13	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	18	4	22	4	0	0
Retail	5	6	11	6	0	0
Restaurant	19	26	45	26	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	14	100	114	100	0	0
Hotel	9	17	26	17	0	0
All Other Land Uses[3]	0	13	13	13	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	58 Fore Street Redevelopment	**Organization:**	GP
Project Location:	Portland, Maine	**Performed By:**	RED
Scenario Description:	Site	**Date:**	8/29/2023
Analysis Year:		**Checked By:**	
Analysis Period:	PM Street Peak Hour	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710	110,700	SF	219	33	186
Retail	814	53,292	SF	128	61	67
Restaurant	931	30,514	SF	409	269	140
Cinema/Entertainment				0		
Residential	220/230	455	Units	156	95	61
Hotel	310	130	Units	76	39	37
All Other Land Uses[2]				68	39	29
Total				1056	536	520

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	1		19	0	17	3
Restaurant	4	31		0	15	10
Cinema/Entertainment	0	0	0		0	0
Residential	2	6	13	0		2
Hotel	0	1	13	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,056	536	520
Internal Capture Percentage	29%	28%	29%
External Vehicle-Trips[3]	754	385	369
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	21%	8%
Retail	70%	60%
Restaurant	19%	43%
Cinema/Entertainment	N/A	N/A
Residential	38%	38%
Hotel	38%	38%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	58 Fore Street Redevelopment
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	33	33	1.00	186	186
Retail	1.00	61	61	1.00	67	67
Restaurant	1.00	269	269	1.00	140	140
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	95	95	1.00	61	61
Hotel	1.00	39	39	1.00	37	37

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		37	7	0	4	0
Retail	1		19	3	17	3
Restaurant	4	57		11	25	10
Cinema/Entertainment	0	0	0		0	0
Residential	2	26	13	0		2
Hotel	0	6	25	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		5	5	0	4	0
Retail	10		78	0	44	7
Restaurant	10	31		0	15	28
Cinema/Entertainment	2	2	8		4	0
Residential	19	6	38	0		5
Hotel	0	1	13	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	7	26	33	26	0	0
Retail	43	18	61	18	0	0
Restaurant	50	219	269	219	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	36	59	95	59	0	0
Hotel	15	24	39	24	0	0
All Other Land Uses[3]	0	39	39	39	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	14	172	186	172	0	0
Retail	40	27	67	27	0	0
Restaurant	60	80	140	80	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	23	38	61	38	0	0
Hotel	14	23	37	23	0	0
All Other Land Uses[3]	0	29	29	29	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

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LOCATION: FORE ST-WATERVILLE ST
COUNTER: KJB
BOARD: 1
WEATHER: CLEAR

File Name : AM - Fore St & Waterville St
Site Code : 4060
Start Date : 8/22/2023
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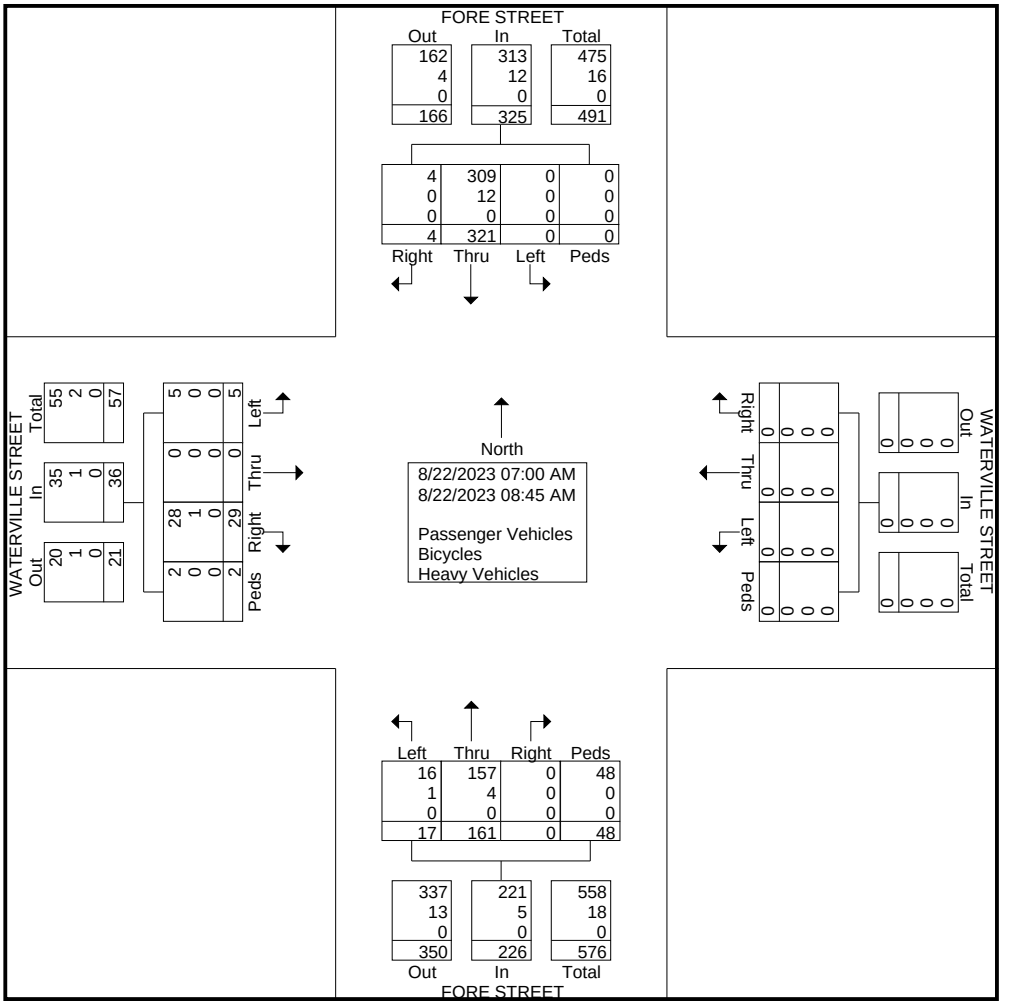
Groups Printed- Passenger Vehicles - Bicycles - Heavy Vehicles

	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE 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
07:00 AM	1	28	0	0	29	0	0	0	0	0	0	12	2	3	17	2	0	0	0	2	48
07:15 AM	0	27	0	0	27	0	0	0	0	0	0	12	2	8	22	2	0	1	0	3	52
07:30 AM	0	35	0	0	35	0	0	0	0	0	0	21	3	10	34	4	0	0	0	4	73
07:45 AM	1	40	0	0	41	0	0	0	0	0	0	20	0	5	25	6	0	1	0	7	73
Total	2	130	0	0	132	0	0	0	0	0	0	65	7	26	98	14	0	2	0	16	246
08:00 AM	0	38	0	0	38	0	0	0	0	0	0	18	2	9	29	3	0	0	0	3	70
08:15 AM	1	52	0	0	53	0	0	0	0	0	0	27	8	5	40	4	0	0	2	6	99
08:30 AM	0	52	0	0	52	0	0	0	0	0	0	23	0	6	29	5	0	2	0	7	88
08:45 AM	1	49	0	0	50	0	0	0	0	0	0	28	0	2	30	3	0	1	0	4	84
Total	2	191	0	0	193	0	0	0	0	0	0	96	10	22	128	15	0	3	2	20	341
Grand Total	4	321	0	0	325	0	0	0	0	0	0	161	17	48	226	29	0	5	2	36	587
Apprch %	1.2	98.8	0	0		0	0	0	0		0	71.2	7.5	21.2		80.6	0	13.9	5.6		
Total %	0.7	54.7	0	0	55.4	0	0	0	0	0	0	27.4	2.9	8.2	38.5	4.9	0	0.9	0.3	6.1	
Passenger Vehicles	4	309	0	0	313	0	0	0	0	0	0	157	16	48	221	28	0	5	2	35	569
% Passenger Vehicles	100	96.3	0	0	96.3	0	0	0	0	0	0	97.5	94.1	100	97.8	96.6	0	100	100	97.2	96.9
Bicycles	0	12	0	0	12	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	18
% Bicycles	0	3.7	0	0	3.7	0	0	0	0	0	0	2.5	5.9	0	2.2	3.4	0	0	0	2.8	3.1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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File Name : AM - Fore St & Waterville St
Site Code : 4060
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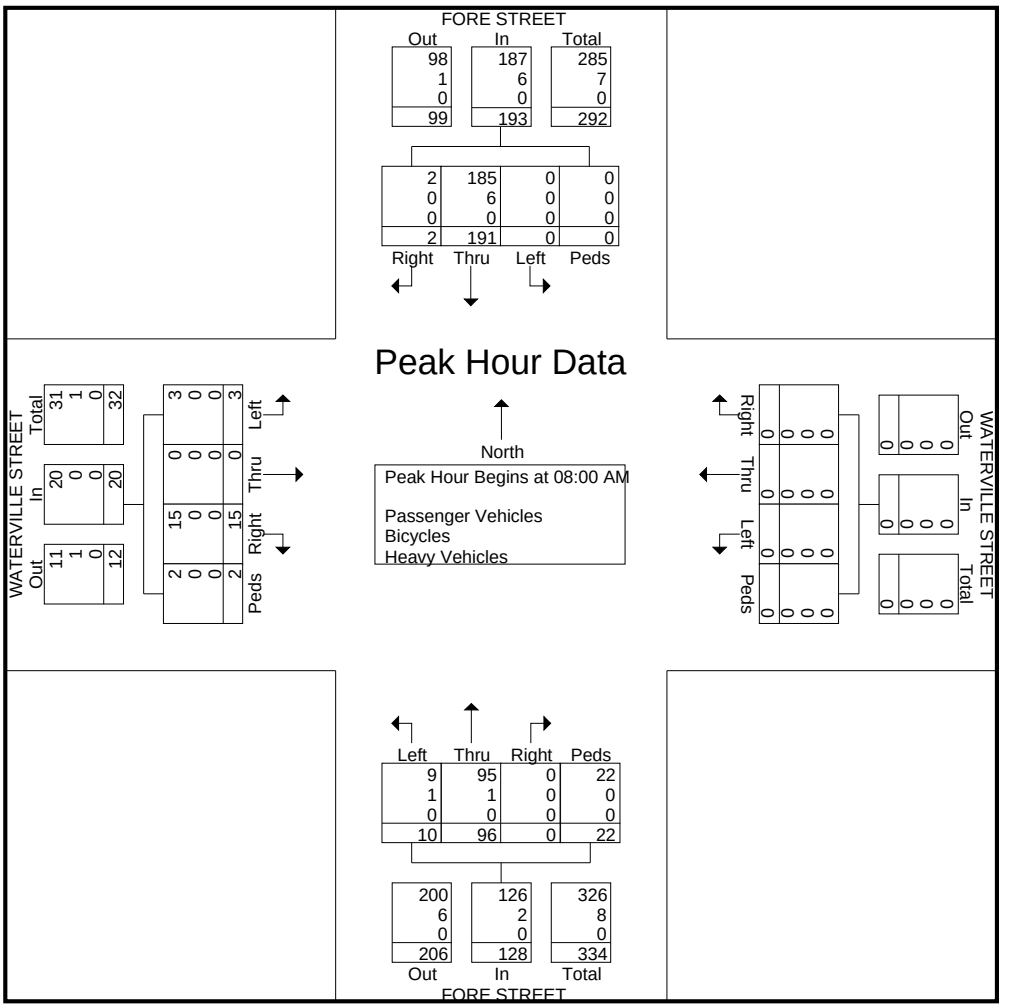


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File Name : AM - Fore St & Waterville St
Site Code : 4060
Start Date : 8/22/2023
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	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE STREET From West					
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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	38	0	0	38	0	0	0	0	0	0	18	2	**9**	29	3	0	0	0	3	70
08:15 AM	**1**	**52**	0	0	**53**	0	0	0	0	0	0	27	**8**	5	**40**	4	0	0	**2**	6	**99**
08:30 AM	0	52	0	0	52	0	0	0	0	0	0	23	0	6	29	**5**	0	**2**	0	**7**	88
08:45 AM	1	49	0	0	50	0	0	0	0	0	0	**28**	0	2	30	3	0	1	0	4	84
Total Volume	2	191	0	0	193	0	0	0	0	0	0	96	10	22	128	15	0	3	2	20	341
% App. Total	1	99	0	0		0	0	0	0		0	75	7.8	17.2		75	0	15	10		
PHF	.500	.918	.000	.000	.910	.000	.000	.000	.000	.000	.000	.857	.313	.611	.800	.750	.000	.375	.250	.714	.861
Passenger Vehicles	2	185	0	0	187	0	0	0	0	0	0	95	9	22	126	15	0	3	2	20	333
% Passenger Vehicles	100	96.9	0	0	96.9	0	0	0	0	0	0	99.0	90.0	100	98.4	100	0	100	100	100	97.7
Bicycles	0	6	0	0	6	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	8
% Bicycles	0	3.1	0	0	3.1	0	0	0	0	0	0	1.0	10.0	0	1.6	0	0	0	0	0	2.3
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

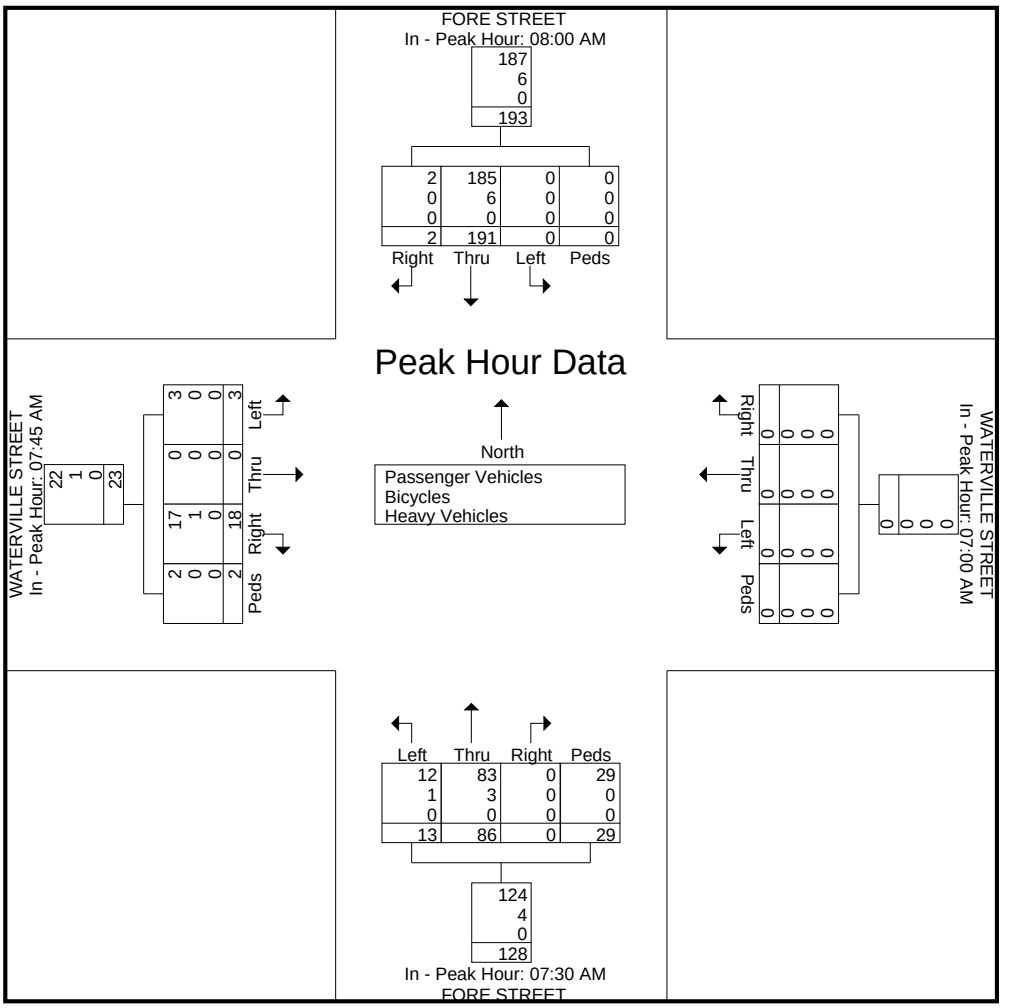


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	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE STREET From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	08:00 AM					07:00 AM					07:30 AM					07:45 AM					
+0 mins.	0	38	0	0	38	0	0	0	0	0	0	21	3	**10**	34	**6**	0	1	0	**7**	
+15 mins.	**1**	**52**	0	0	**53**	0	0	0	0	0	0	20	0	5	25	3	0	0	0	3	
+30 mins.	0	52	0	0	52	0	0	0	0	0	0	18	2	9	29	4	0	0	**2**	6	
+45 mins.	1	49	0	0	50	0	0	0	0	0	0	**27**	**8**	5	**40**	5	0	**2**	0	7	
Total Volume	2	191	0	0	193	0	0	0	0	0	0	86	13	29	128	18	0	3	2	23	
% App. Total	1	99	0	0		0	0	0	0		0	67.2	10.2	22.7		78.3	0	13	8.7		
PHF	.500	.918	.000	.000	.910	.000	.000	.000	.000	.000	.000	.796	.406	.725	.800	.750	.000	.375	.250	.821	
Passenger Vehicles	2	185	0	0	187	0	0	0	0	0	0	83	12	29	124	17	0	3	2	22	
% Passenger Vehicles	100	96.9	0	0	96.9	0	0	0	0	0	0	96.5	92.3	100	96.9	94.4	0	100	100	95.7	
Bicycles	0	6	0	0	6	0	0	0	0	0	0	3	1	0	4	1	0	0	0	1	
% Bicycles	0	3.1	0	0	3.1	0	0	0	0	0	0	3.5	7.7	0	3.1	5.6	0	0	0	4.3	
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



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LOCATION: THAMES ST-FREEDOM WAY
COUNTER: LEL
BOARD: 2
WEATHER: CLEAR

File Name : AM - Thames St & Freedom Way
Site Code : 4060
Start Date : 8/22/2023
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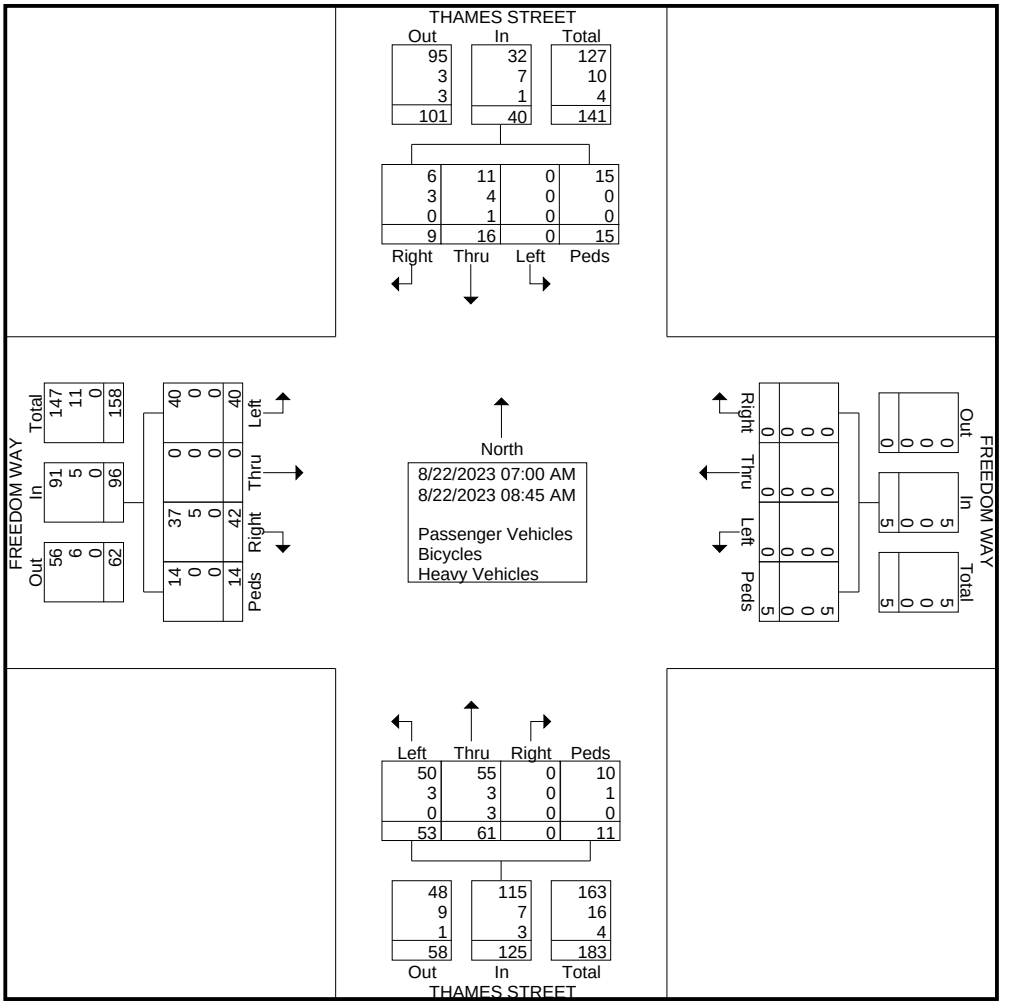
Groups Printed- Passenger Vehicles - Bicycles - Heavy Vehicles

	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY 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
07:00 AM	0	0	0	2	2	0	0	0	2	2	0	4	7	0	11	2	0	1	2	5	20
07:15 AM	0	3	0	0	3	0	0	0	1	1	0	4	2	2	8	3	0	5	1	9	21
07:30 AM	4	3	0	3	10	0	0	0	0	0	0	6	3	0	9	6	0	5	3	14	33
07:45 AM	1	0	0	4	5	0	0	0	0	0	0	11	12	1	24	10	0	3	1	14	43
Total	5	6	0	9	20	0	0	0	3	3	0	25	24	3	52	21	0	14	7	42	117
08:00 AM	1	5	0	3	9	0	0	0	0	0	0	12	11	3	26	4	0	7	3	14	49
08:15 AM	0	3	0	2	5	0	0	0	1	1	0	6	4	1	11	5	0	6	1	12	29
08:30 AM	2	0	0	0	2	0	0	0	0	0	0	8	5	1	14	4	0	7	1	12	28
08:45 AM	1	2	0	1	4	0	0	0	1	1	0	10	9	3	22	8	0	6	2	16	43
Total	4	10	0	6	20	0	0	0	2	2	0	36	29	8	73	21	0	26	7	54	149
Grand Total	9	16	0	15	40	0	0	0	5	5	0	61	53	11	125	42	0	40	14	96	266
Apprch %	22.5	40	0	37.5		0	0	0	100		0	48.8	42.4	8.8		43.8	0	41.7	14.6		
Total %	3.4	6	0	5.6	15	0	0	0	1.9	1.9	0	22.9	19.9	4.1	47	15.8	0	15	5.3	36.1	
Passenger Vehicles	6	11	0	15	32	0	0	0	5	5	0	55	50	10	115	37	0	40	14	91	243
% Passenger Vehicles	66.7	68.8	0	100	80	0	0	0	100	100	0	90.2	94.3	90.9	92	88.1	0	100	100	94.8	91.4
Bicycles	3	4	0	0	7	0	0	0	0	0	0	3	3	1	7	5	0	0	0	5	19
% Bicycles	33.3	25	0	0	17.5	0	0	0	0	0	0	4.9	5.7	9.1	5.6	11.9	0	0	0	5.2	7.1
Heavy Vehicles	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
% Heavy Vehicles	0	6.2	0	0	2.5	0	0	0	0	0	0	4.9	0	0	2.4	0	0	0	0	0	1.5

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File Name : AM - Thames St & Freedom Way
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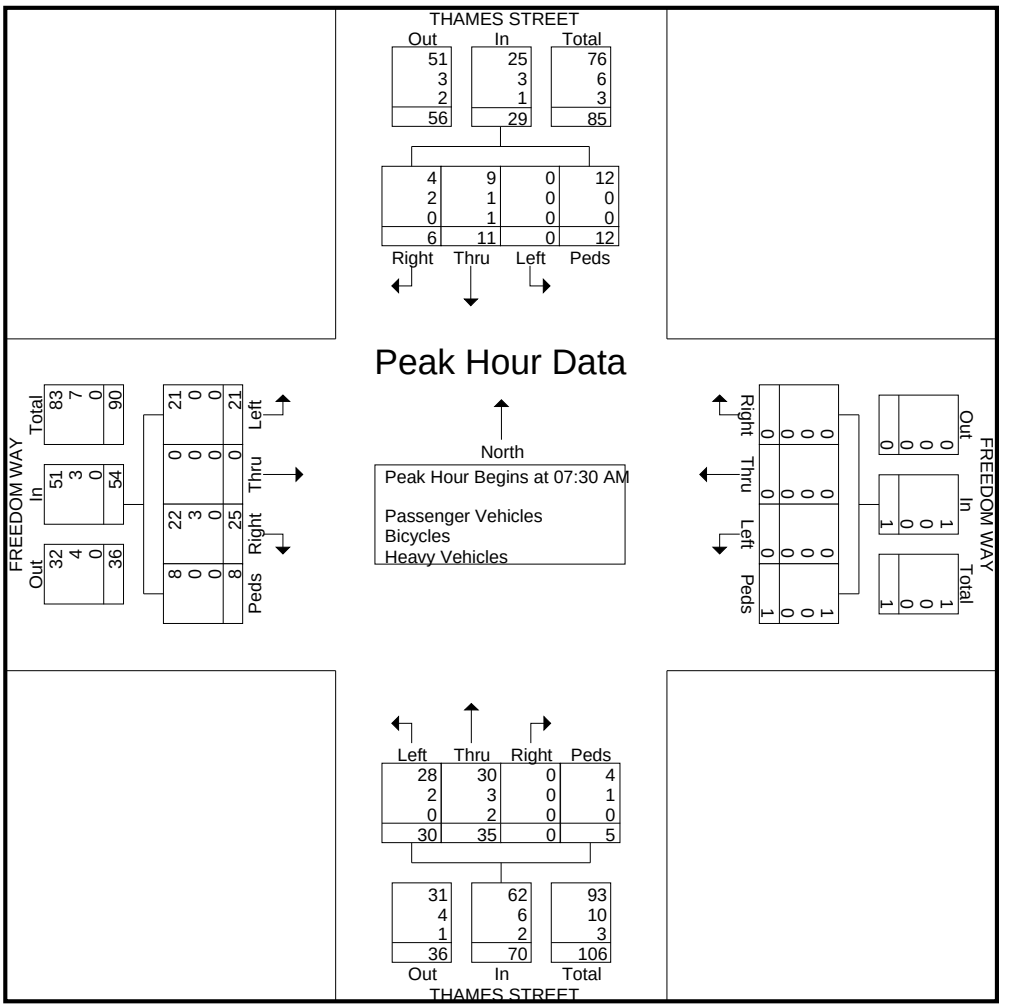


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File Name : AM - Thames St & Freedom Way
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	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	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	**4**	3	0	3	**10**	0	0	0	0	0	0	6	3	0	9	6	0	5	**3**	**14**	33
07:45 AM	1	0	0	**4**	5	0	0	0	0	0	0	11	**12**	1	24	**10**	0	3	1	14	43
08:00 AM	1	**5**	0	3	9	0	0	0	0	0	0	**12**	11	**3**	**26**	4	0	**7**	3	14	**49**
08:15 AM	0	3	0	2	5	0	0	0	**1**	**1**	0	6	4	1	11	5	0	6	1	12	29
Total Volume	6	11	0	12	29	0	0	0	1	1	0	35	30	5	70	25	0	21	8	54	154
% App. Total	20.7	37.9	0	41.4		0	0	0	100		0	50	42.9	7.1		46.3	0	38.9	14.8		
PHF	.375	.550	.000	.750	.725	.000	.000	.000	.250	.250	.000	.729	.625	.417	.673	.625	.000	.750	.667	.964	.786
Passenger Vehicles	4	9	0	12	25	0	0	0	1	1	0	30	28	4	62	22	0	21	8	51	139
% Passenger Vehicles	66.7	81.8	0	100	86.2	0	0	0	100	100	0	85.7	93.3	80.0	88.6	88.0	0	100	100	94.4	90.3
Bicycles	2	1	0	0	3	0	0	0	0	0	0	3	2	1	6	3	0	0	0	3	12
% Bicycles	33.3	9.1	0	0	10.3	0	0	0	0	0	0	8.6	6.7	20.0	8.6	12.0	0	0	0	5.6	7.8
Heavy Vehicles	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% Heavy Vehicles	0	9.1	0	0	3.4	0	0	0	0	0	0	5.7	0	0	2.9	0	0	0	0	0	1.9

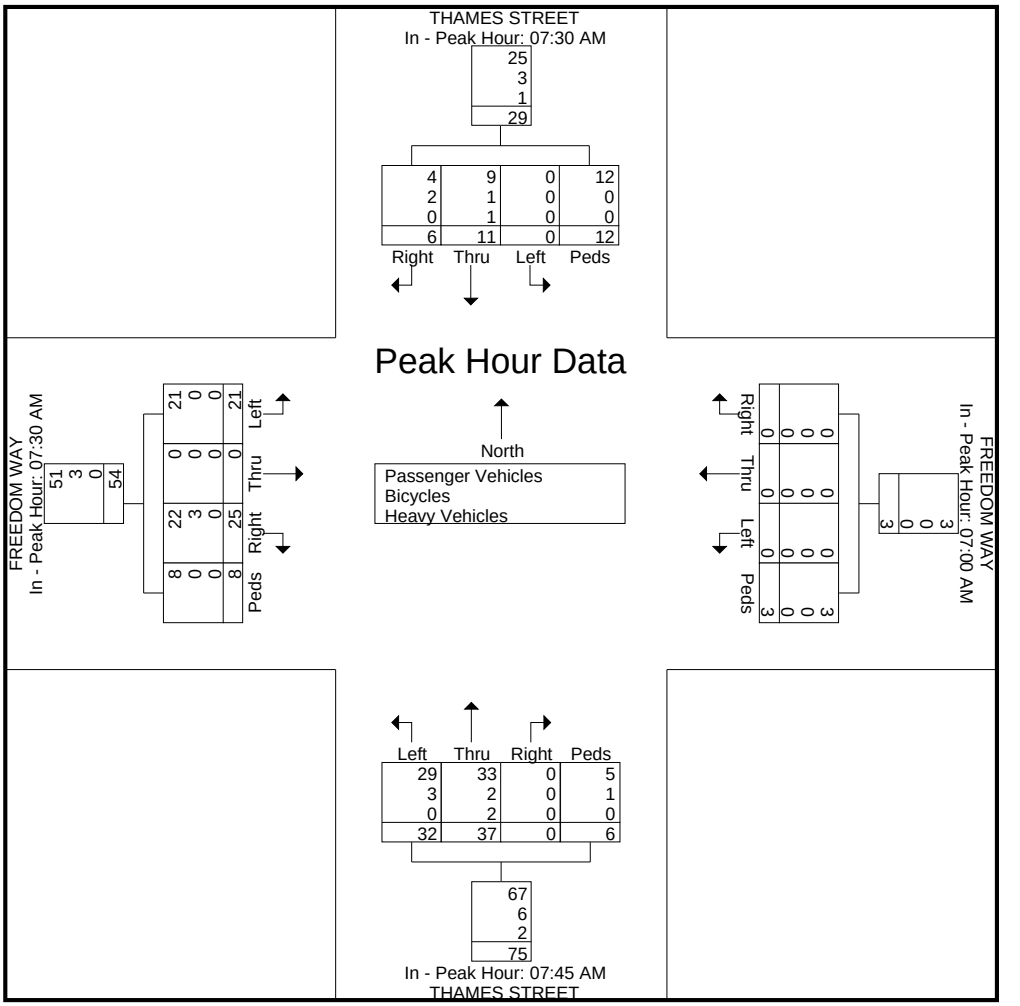


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File Name : AM - Thames St & Freedom Way
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	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	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 Each Approach Begins at:																					
	07:30 AM					07:00 AM					07:45 AM					07:30 AM					
+0 mins.	**4**	3	0	3	**10**	0	0	0	**2**	**2**	0	11	**12**	1	24	6	0	5	**3**	**14**	
+15 mins.	1	0	0	**4**	5	0	0	0	1	1	0	**12**	11	**3**	**26**	**10**	0	3	1	14	
+30 mins.	1	**5**	0	3	9	0	0	0	0	0	0	6	4	1	11	4	0	**7**	3	14	
+45 mins.	0	3	0	2	5	0	0	0	0	0	0	8	5	1	14	5	0	6	1	12	
Total Volume	6	11	0	12	29	0	0	0	3	3	0	37	32	6	75	25	0	21	8	54	
% App. Total	20.7	37.9	0	41.4		0	0	0	100		0	49.3	42.7	8		46.3	0	38.9	14.8		
PHF	.375	.550	.000	.750	.725	.000	.000	.000	.375	.375	.000	.771	.667	.500	.721	.625	.000	.750	.667	.964	
Passenger Vehicles	4	9	0	12	25	0	0	0	3	3	0	33	29	5	67	22	0	21	8	51	
% Passenger Vehicles	66.7	81.8	0	100	86.2	0	0	0	100	100	0	89.2	90.6	83.3	89.3	88	0	100	100	94.4	
Bicycles	2	1	0	0	3	0	0	0	0	0	0	2	3	1	6	3	0	0	0	3	
% Bicycles	33.3	9.1	0	0	10.3	0	0	0	0	0	0	5.4	9.4	16.7	8	12	0	0	0	5.6	
Heavy Vehicles	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	
% Heavy Vehicles	0	9.1	0	0	3.4	0	0	0	0	0	0	5.4	0	0	2.7	0	0	0	0	0	



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COUNTER: KJB
BOARD: 1
WEATHER: CLEAR

File Name : PM - Fore St & Waterville St
Site Code : 4060
Start Date : 8/22/2023
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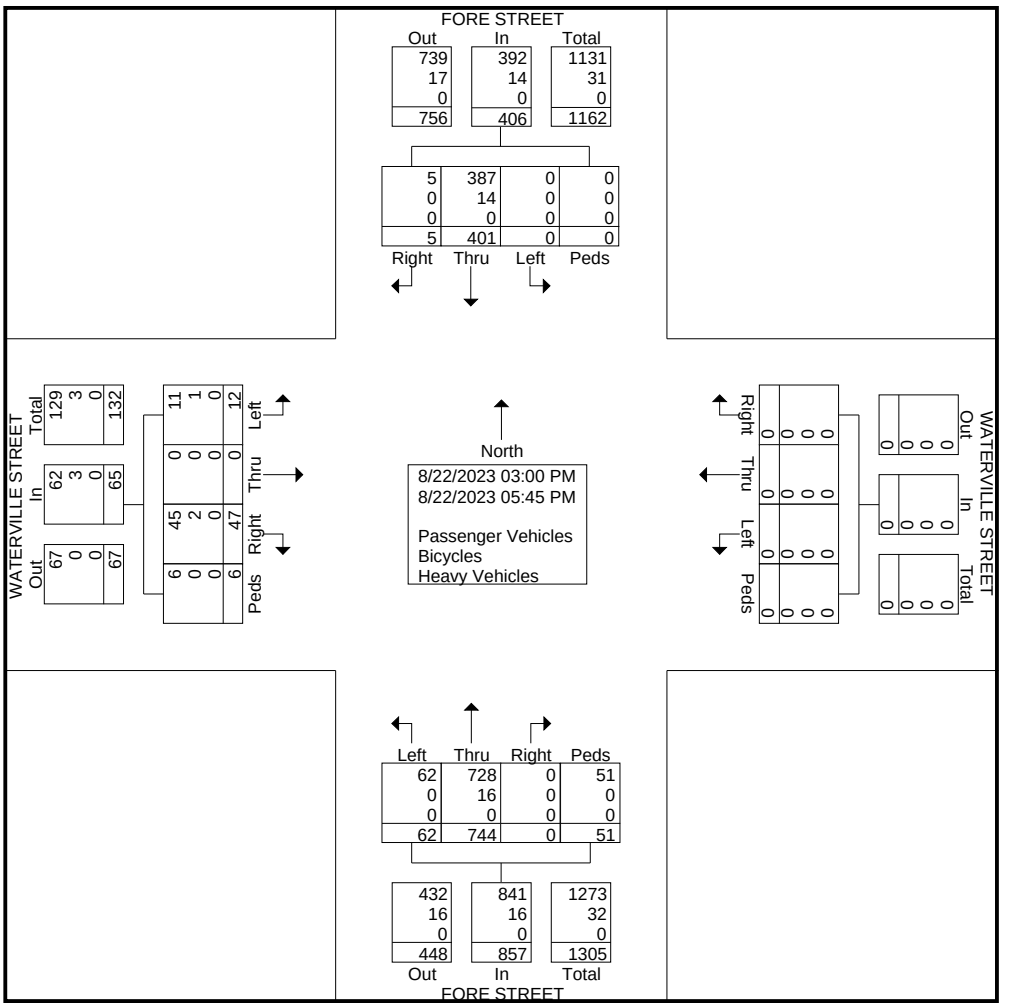
Groups Printed- Passenger Vehicles - Bicycles - Heavy Vehicles

	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE 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
03:00 PM	0	34	0	0	34	0	0	0	0	0	0	61	4	2	67	5	0	3	0	8	109
03:15 PM	1	35	0	0	36	0	0	0	0	0	0	59	3	6	68	3	0	1	1	5	109
03:30 PM	1	32	0	0	33	0	0	0	0	0	0	42	6	7	55	2	0	0	0	2	90
03:45 PM	0	30	0	0	30	0	0	0	0	0	0	51	1	2	54	2	0	0	0	2	86
Total	2	131	0	0	133	0	0	0	0	0	0	213	14	17	244	12	0	4	1	17	394
04:00 PM	1	40	0	0	41	0	0	0	0	0	0	63	6	5	74	6	0	0	0	6	121
04:15 PM	1	34	0	0	35	0	0	0	0	0	0	52	4	2	58	2	0	1	0	3	96
04:30 PM	0	32	0	0	32	0	0	0	0	0	0	69	4	11	84	2	0	1	0	3	119
04:45 PM	1	38	0	0	39	0	0	0	0	0	0	65	6	0	71	8	0	3	0	11	121
Total	3	144	0	0	147	0	0	0	0	0	0	249	20	18	287	18	0	5	0	23	457
05:00 PM	0	26	0	0	26	0	0	0	0	0	0	70	3	3	76	3	0	1	1	5	107
05:15 PM	0	35	0	0	35	0	0	0	0	0	0	85	6	3	94	3	0	1	0	4	133
05:30 PM	0	29	0	0	29	0	0	0	0	0	0	73	12	7	92	7	0	1	1	9	130
05:45 PM	0	36	0	0	36	0	0	0	0	0	0	54	7	3	64	4	0	0	3	7	107
Total	0	126	0	0	126	0	0	0	0	0	0	282	28	16	326	17	0	3	5	25	477
Grand Total	5	401	0	0	406	0	0	0	0	0	0	744	62	51	857	47	0	12	6	65	1328
Apprch %	1.2	98.8	0	0		0	0	0	0		0	86.8	7.2	6		72.3	0	18.5	9.2		
Total %	0.4	30.2	0	0	30.6	0	0	0	0	0	0	56	4.7	3.8	64.5	3.5	0	0.9	0.5	4.9	
Passenger Vehicles	5	387	0	0	392	0	0	0	0	0	0	728	62	51	841	45	0	11	6	62	1295
% Passenger Vehicles	100	96.5	0	0	96.6	0	0	0	0	0	0	97.8	100	100	98.1	95.7	0	91.7	100	95.4	97.5
Bicycles	0	14	0	0	14	0	0	0	0	0	0	16	0	0	16	2	0	1	0	3	33
% Bicycles	0	3.5	0	0	3.4	0	0	0	0	0	0	2.2	0	0	1.9	4.3	0	8.3	0	4.6	2.5
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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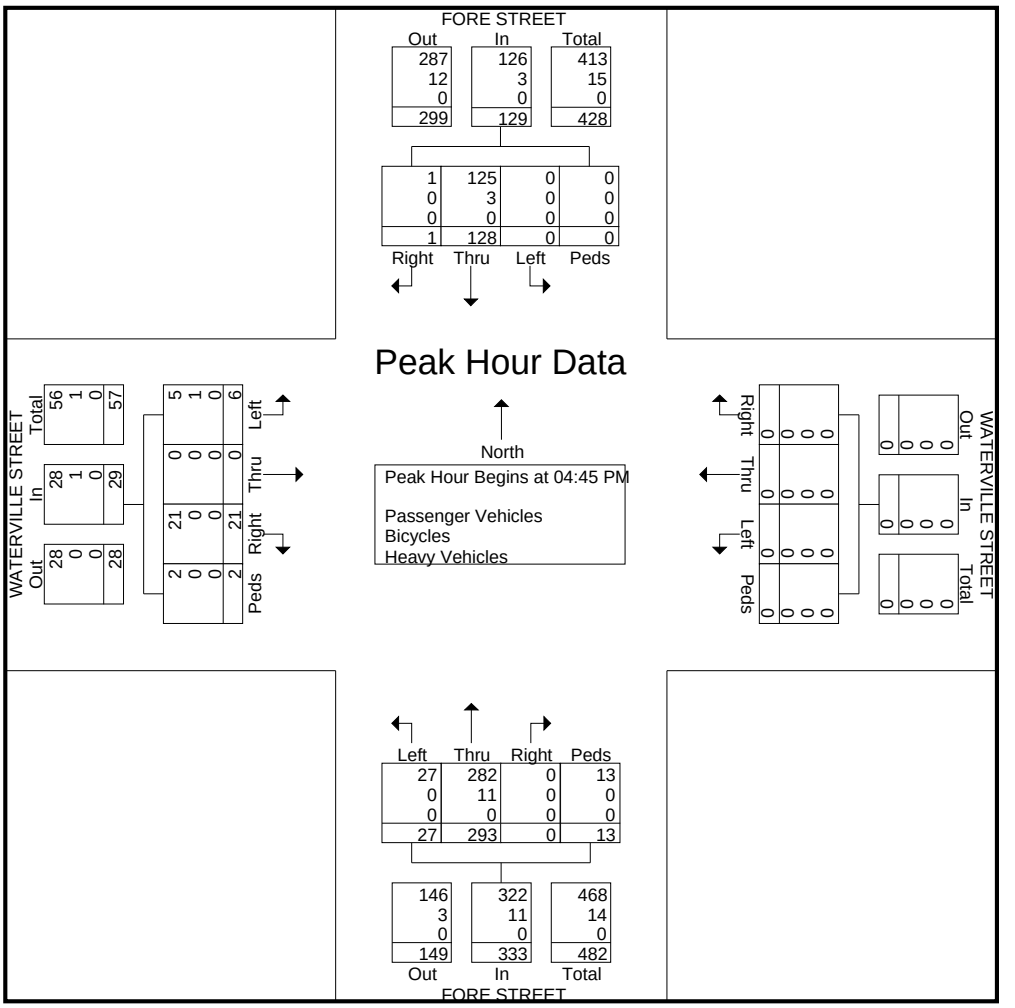


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File Name : PM - Fore St & Waterville St
Site Code : 4060
Start Date : 8/22/2023
Page No : 3

	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE 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 04:45 PM																					
04:45 PM	**1**	**38**	0	0	**39**	0	0	0	0	0	0	65	6	0	71	**8**	0	**3**	0	**11**	121
05:00 PM	0	26	0	0	26	0	0	0	0	0	0	70	3	3	76	3	0	1	**1**	5	107
05:15 PM	0	35	0	0	35	0	0	0	0	0	0	**85**	6	3	**94**	3	0	1	0	4	**133**
05:30 PM	0	29	0	0	29	0	0	0	0	0	0	73	**12**	**7**	92	7	0	1	1	9	130
Total Volume	1	128	0	0	129	0	0	0	0	0	0	293	27	13	333	21	0	6	2	29	491
% App. Total	0.8	99.2	0	0		0	0	0	0		0	88	8.1	3.9		72.4	0	20.7	6.9		
PHF	.250	.842	.000	.000	.827	.000	.000	.000	.000	.000	.000	.862	.563	.464	.886	.656	.000	.500	.500	.659	.923
Passenger Vehicles	1	125	0	0	126	0	0	0	0	0	0	282	27	13	322	21	0	5	2	28	476
% Passenger Vehicles	100	97.7	0	0	97.7	0	0	0	0	0	0	96.2	100	100	96.7	100	0	83.3	100	96.6	96.9
Bicycles	0	3	0	0	3	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	15
% Bicycles	0	2.3	0	0	2.3	0	0	0	0	0	0	3.8	0	0	3.3	0	0	16.7	0	3.4	3.1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

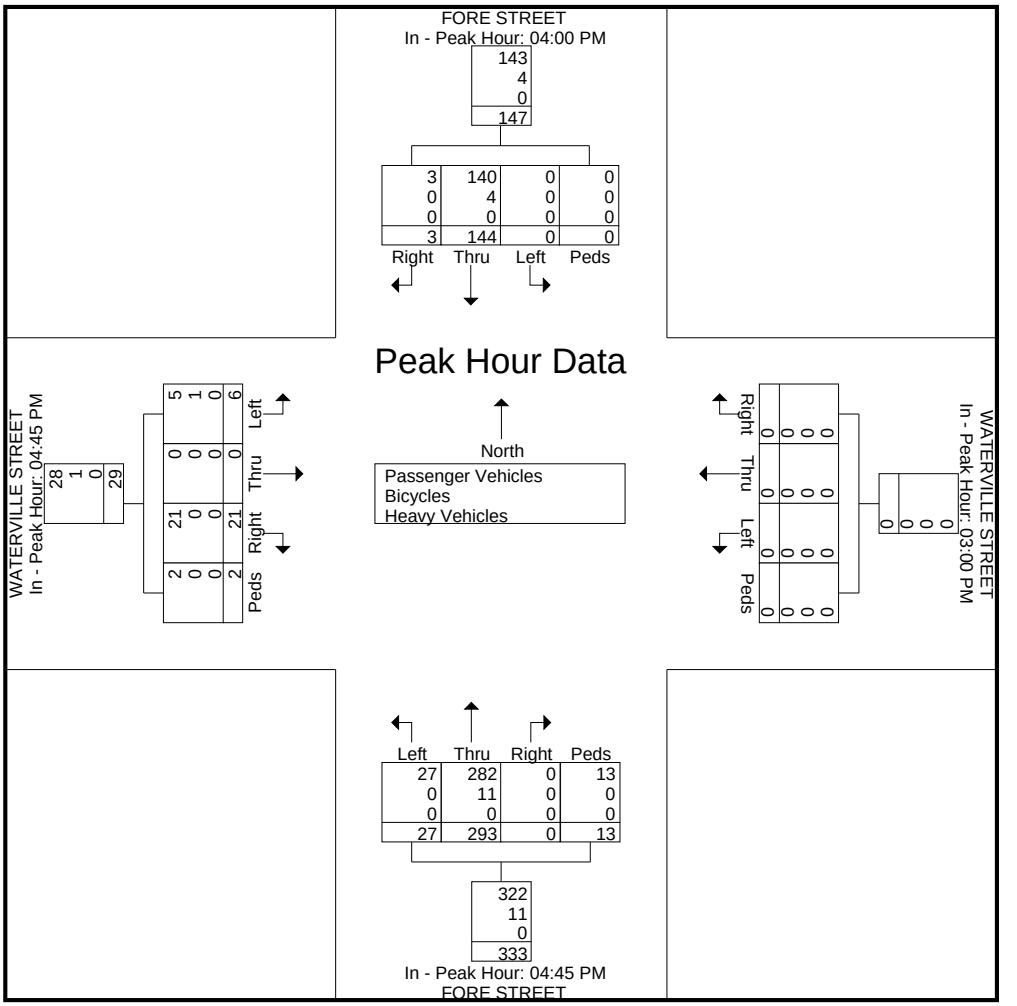


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File Name : PM - Fore St & Waterville St
Site Code : 4060
Start Date : 8/22/2023
Page No : 4

	FORE STREET From North					WATERVILLE STREET From East					FORE STREET From South					WATERVILLE 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 Each Approach Begins at:																					
	04:00 PM					03:00 PM					04:45 PM					04:45 PM					
+0 mins.	**1**	**40**	0	0	**41**	0	0	0	0	0	0	65	6	0	71	**8**	0	**3**	0	**11**	
+15 mins.	1	34	0	0	35	0	0	0	0	0	0	70	3	3	76	3	0	1	**1**	5	
+30 mins.	0	32	0	0	32	0	0	0	0	0	0	**85**	6	3	**94**	3	0	1	0	4	
+45 mins.	1	38	0	0	39	0	0	0	0	0	0	73	**12**	**7**	92	7	0	1	1	9	
Total Volume	3	144	0	0	147	0	0	0	0	0	0	293	27	13	333	21	0	6	2	29	
% App. Total	2	98	0	0		0	0	0	0		0	88	8.1	3.9		72.4	0	20.7	6.9		
PHF	.750	.900	.000	.000	.896	.000	.000	.000	.000	.000	.000	.862	.563	.464	.886	.656	.000	.500	.500	.659	
Passenger Vehicles	3	140	0	0	143	0	0	0	0	0	0	282	27	13	322	21	0	5	2	28	
% Passenger Vehicles	100	97.2	0	0	97.3	0	0	0	0	0	0	96.2	100	100	96.7	100	0	83.3	100	96.6	
Bicycles	0	4	0	0	4	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	
% Bicycles	0	2.8	0	0	2.7	0	0	0	0	0	0	3.8	0	0	3.3	0	0	16.7	0	3.4	
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



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LOCATION: THAMES ST-FREEDOM WAY
COUNTER: LEL
BOARD: 2
WEATHER: CLEAR

File Name : PM - Thames St & Freedom Way
Site Code : 4060
Start Date : 8/22/2023
Page No : 1

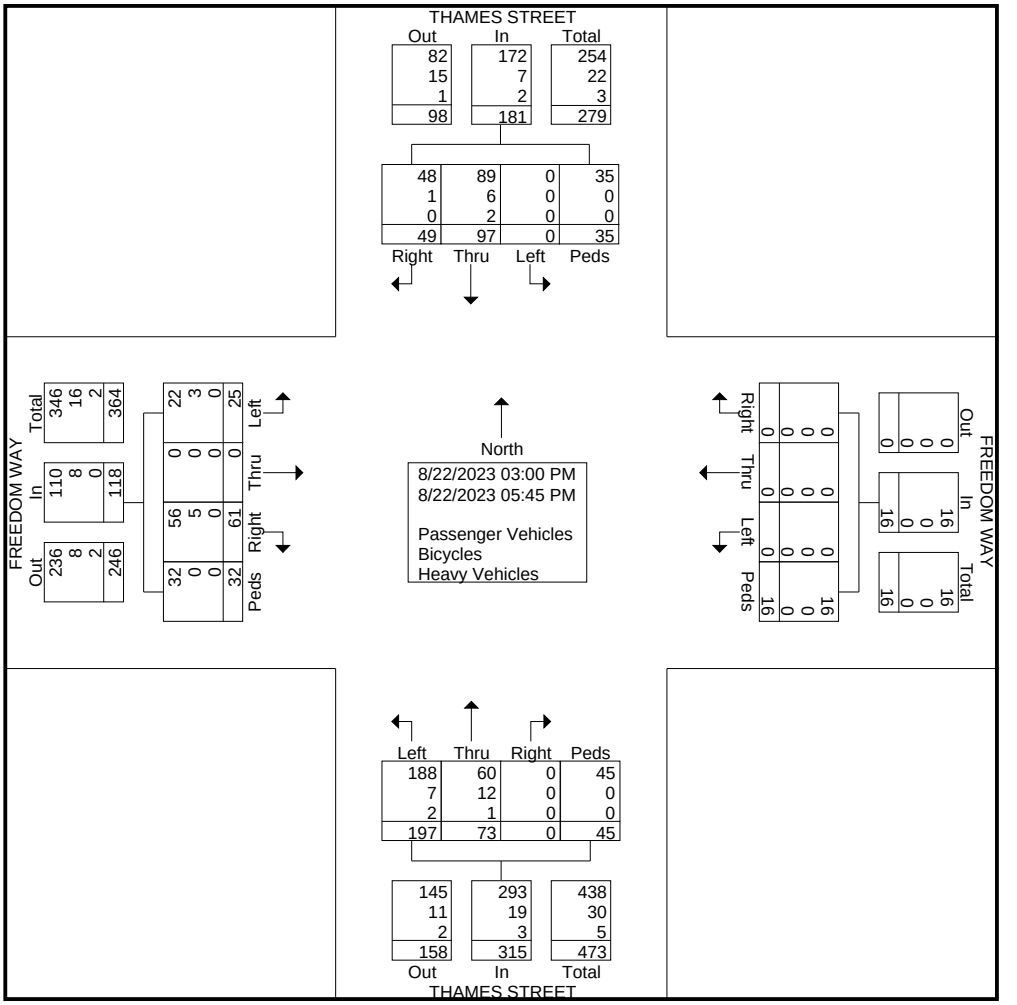
Groups Printed- Passenger Vehicles - Bicycles - Heavy Vehicles

	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY 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
03:00 PM	2	11	0	2	15	0	0	0	2	2	0	2	17	2	21	2	0	3	1	6	44
03:15 PM	4	10	0	0	14	0	0	0	1	1	0	2	11	2	15	3	0	1	3	7	37
03:30 PM	5	7	0	2	14	0	0	0	0	0	0	9	15	0	24	9	0	1	1	11	49
03:45 PM	2	8	0	4	14	0	0	0	3	3	0	6	10	6	22	3	0	0	3	6	45
Total	13	36	0	8	57	0	0	0	6	6	0	19	53	10	82	17	0	5	8	30	175
04:00 PM	7	11	0	3	21	0	0	0	0	0	0	4	15	3	22	5	0	1	1	7	50
04:15 PM	2	10	0	4	16	0	0	0	1	1	0	10	21	2	33	5	0	2	4	11	61
04:30 PM	4	4	0	4	12	0	0	0	1	1	0	4	17	0	21	5	0	1	2	8	42
04:45 PM	6	9	0	2	17	0	0	0	1	1	0	8	25	5	38	11	0	5	8	24	80
Total	19	34	0	13	66	0	0	0	3	3	0	26	78	10	114	26	0	9	15	50	233
05:00 PM	4	9	0	3	16	0	0	0	2	2	0	9	12	12	33	7	0	2	3	12	63
05:15 PM	7	7	0	4	18	0	0	0	1	1	0	7	22	3	32	2	0	3	4	9	60
05:30 PM	4	6	0	4	14	0	0	0	2	2	0	9	20	5	34	4	0	4	1	9	59
05:45 PM	2	5	0	3	10	0	0	0	2	2	0	3	12	5	20	5	0	2	1	8	40
Total	17	27	0	14	58	0	0	0	7	7	0	28	66	25	119	18	0	11	9	38	222
Grand Total	49	97	0	35	181	0	0	0	16	16	0	73	197	45	315	61	0	25	32	118	630
Apprch %	27.1	53.6	0	19.3		0	0	0	100		0	23.2	62.5	14.3		51.7	0	21.2	27.1		
Total %	7.8	15.4	0	5.6	28.7	0	0	0	2.5	2.5	0	11.6	31.3	7.1	50	9.7	0	4	5.1	18.7	
Passenger Vehicles	48	89	0	35	172	0	0	0	16	16	0	60	188	45	293	56	0	22	32	110	591
% Passenger Vehicles	98	91.8	0	100	95	0	0	0	100	100	0	82.2	95.4	100	93	91.8	0	88	100	93.2	93.8
Bicycles	1	6	0	0	7	0	0	0	0	0	0	12	7	0	19	5	0	3	0	8	34
% Bicycles	2	6.2	0	0	3.9	0	0	0	0	0	0	16.4	3.6	0	6	8.2	0	12	0	6.8	5.4
Heavy Vehicles	0	2	0	0	2	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	5
% Heavy Vehicles	0	2.1	0	0	1.1	0	0	0	0	0	0	1.4	1	0	1	0	0	0	0	0	0.8

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File Name : PM - Thames St & Freedom Way
Site Code : 4060
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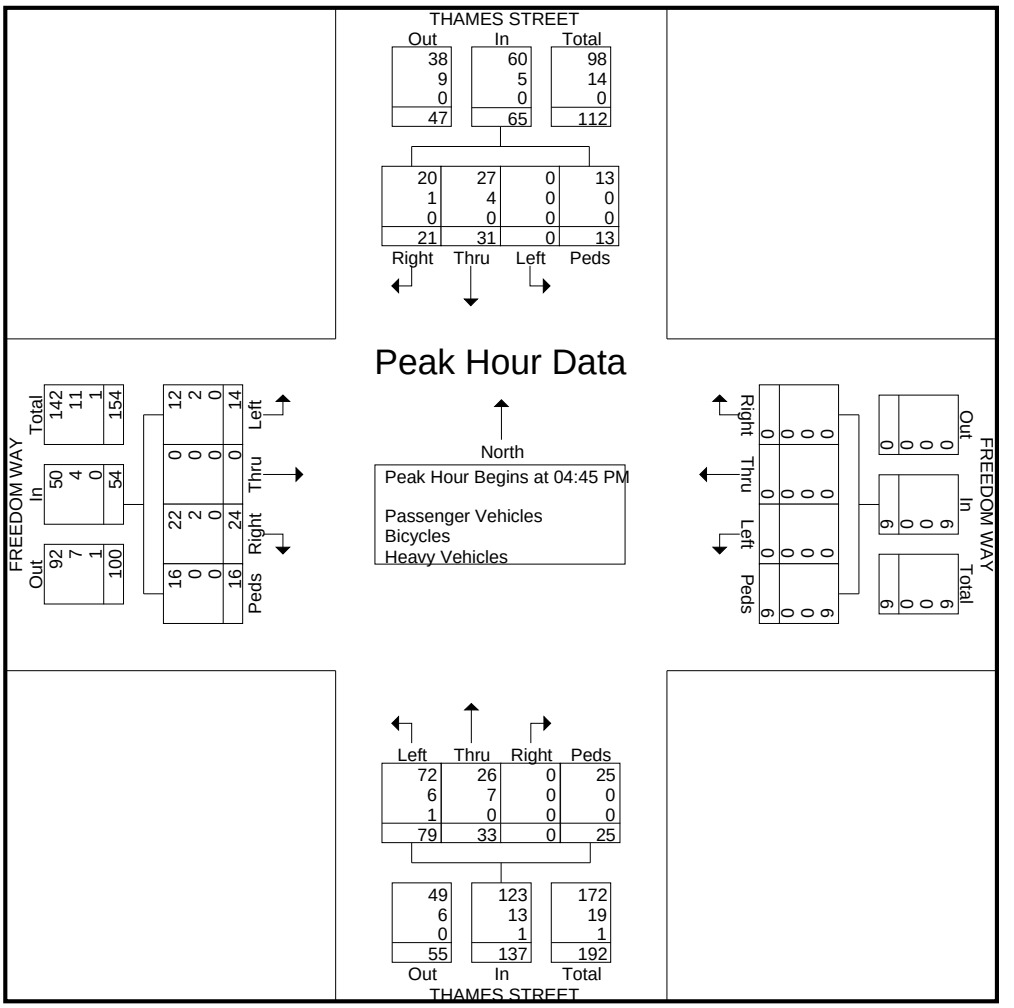


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File Name : PM - Thames St & Freedom Way
Site Code : 4060
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	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY From West					
Start Time	Right	Thru	Left	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 04:45 PM																					
04:45 PM	6	**9**	0	2	17	0	0	0	1	1	0	8	**25**	5	**38**	**11**	0	**5**	**8**	**24**	**80**
05:00 PM	4	9	0	3	16	0	0	0	**2**	**2**	0	**9**	12	**12**	33	7	0	2	3	12	63
05:15 PM	**7**	7	0	**4**	**18**	0	0	0	1	1	0	7	22	3	32	2	0	3	4	9	60
05:30 PM	4	6	0	4	14	0	0	0	2	2	0	9	20	5	34	4	0	4	1	9	59
Total Volume	21	31	0	13	65	0	0	0	6	6	0	33	79	25	137	24	0	14	16	54	262
% App. Total	32.3	47.7	0	20		0	0	0	100		0	24.1	57.7	18.2		44.4	0	25.9	29.6		
PHF	.750	.861	.000	.813	.903	.000	.000	.000	.750	.750	.000	.917	.790	.521	.901	.545	.000	.700	.500	.563	.819
Passenger Vehicles	20	27	0	13	60	0	0	0	6	6	0	26	72	25	123	22	0	12	16	50	239
% Passenger Vehicles	95.2	87.1	0	100	92.3	0	0	0	100	100	0	78.8	91.1	100	89.8	91.7	0	85.7	100	92.6	91.2
Bicycles	1	4	0	0	5	0	0	0	0	0	0	7	6	0	13	2	0	2	0	4	22
% Bicycles	4.8	12.9	0	0	7.7	0	0	0	0	0	0	21.2	7.6	0	9.5	8.3	0	14.3	0	7.4	8.4
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0.7	0	0	0	0	0	0.4

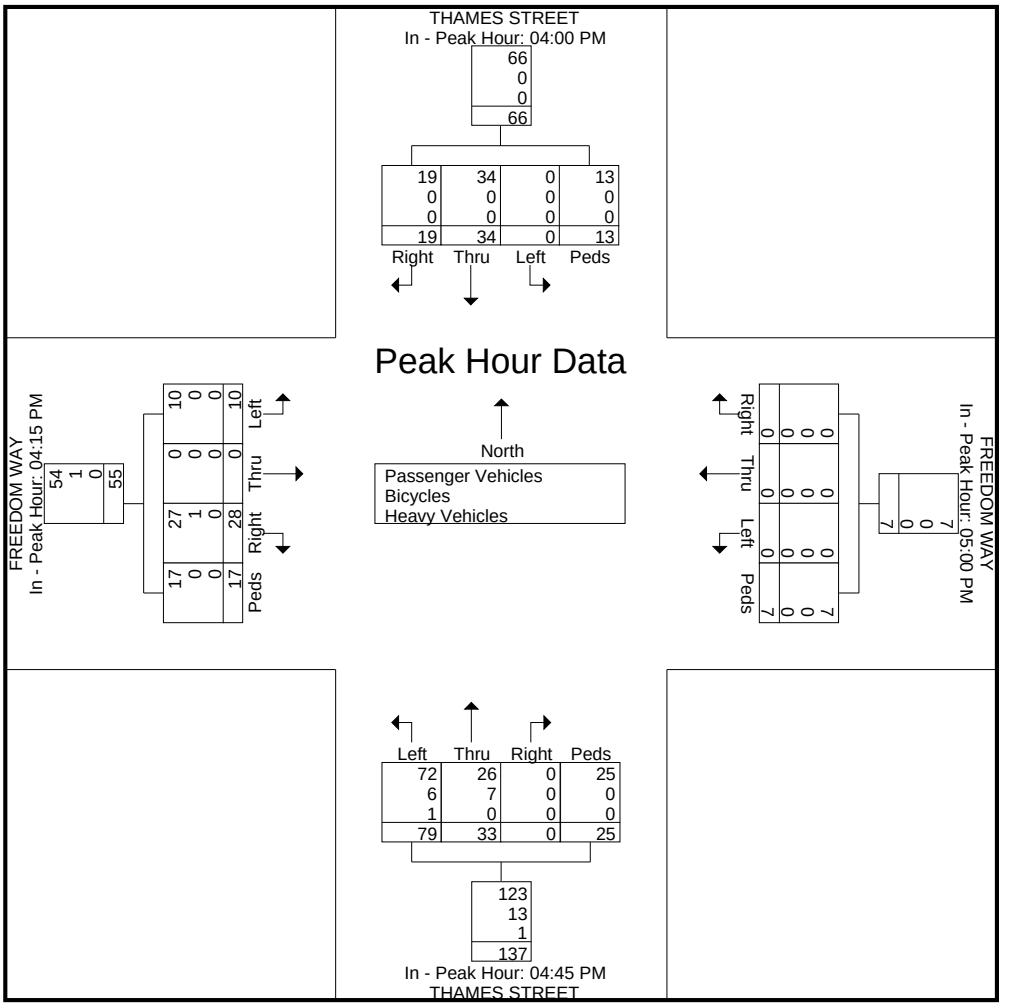


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File Name : PM - Thames St & Freedom Way
Site Code : 4060
Start Date : 8/22/2023
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	THAMES STREET From North					FREEDOM WAY From East					THAMES STREET From South					FREEDOM WAY From West					
Start 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 Each Approach Begins at:																					
	04:00 PM					05:00 PM					04:45 PM					04:15 PM					
+0 mins.	**7**	**11**	0	3	**21**	0	0	0	**2**	**2**	0	8	**25**	5	**38**	5	0	2	4	11	
+15 mins.	2	10	0	**4**	16	0	0	0	1	1	0	**9**	12	**12**	33	5	0	1	2	8	
+30 mins.	4	4	0	4	12	0	0	0	2	2	0	7	22	3	32	**11**	0	**5**	**8**	**24**	
+45 mins.	6	9	0	2	17	0	0	0	2	2	0	9	20	5	34	7	0	2	3	12	
Total Volume	19	34	0	13	66	0	0	0	7	7	0	33	79	25	137	28	0	10	17	55	
% App. Total	28.8	51.5	0	19.7		0	0	0	100		0	24.1	57.7	18.2		50.9	0	18.2	30.9		
PHF	.679	.773	.000	.813	.786	.000	.000	.000	.875	.875	.000	.917	.790	.521	.901	.636	.000	.500	.531	.573	
Passenger Vehicles	19	34	0	13	66	0	0	0	7	7	0	26	72	25	123	27	0	10	17	54	
% Passenger Vehicles	100	100	0	100	100	0	0	0	100	100	0	78.8	91.1	100	89.8	96.4	0	100	100	98.2	
Bicycles	0	0	0	0	0	0	0	0	0	0	0	7	6	0	13	1	0	0	0	1	
% Bicycles	0	0	0	0	0	0	0	0	0	0	0	21.2	7.6	0	9.5	3.6	0	0	0	1.8	
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	1.3	0	0.7	0	0	0	0	0	

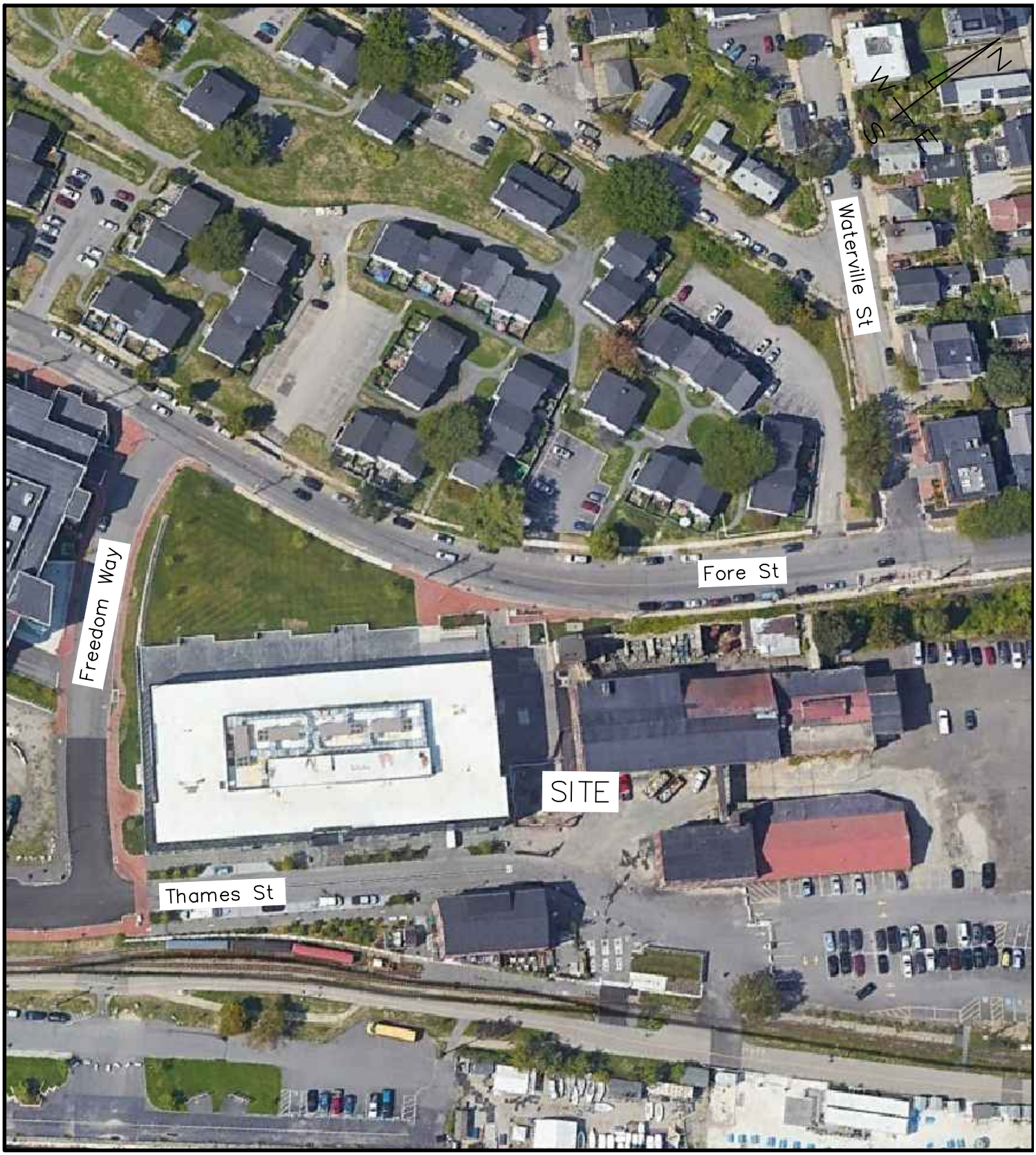


Attachment B

Figures

LOCATION MAP

Figure No. 1



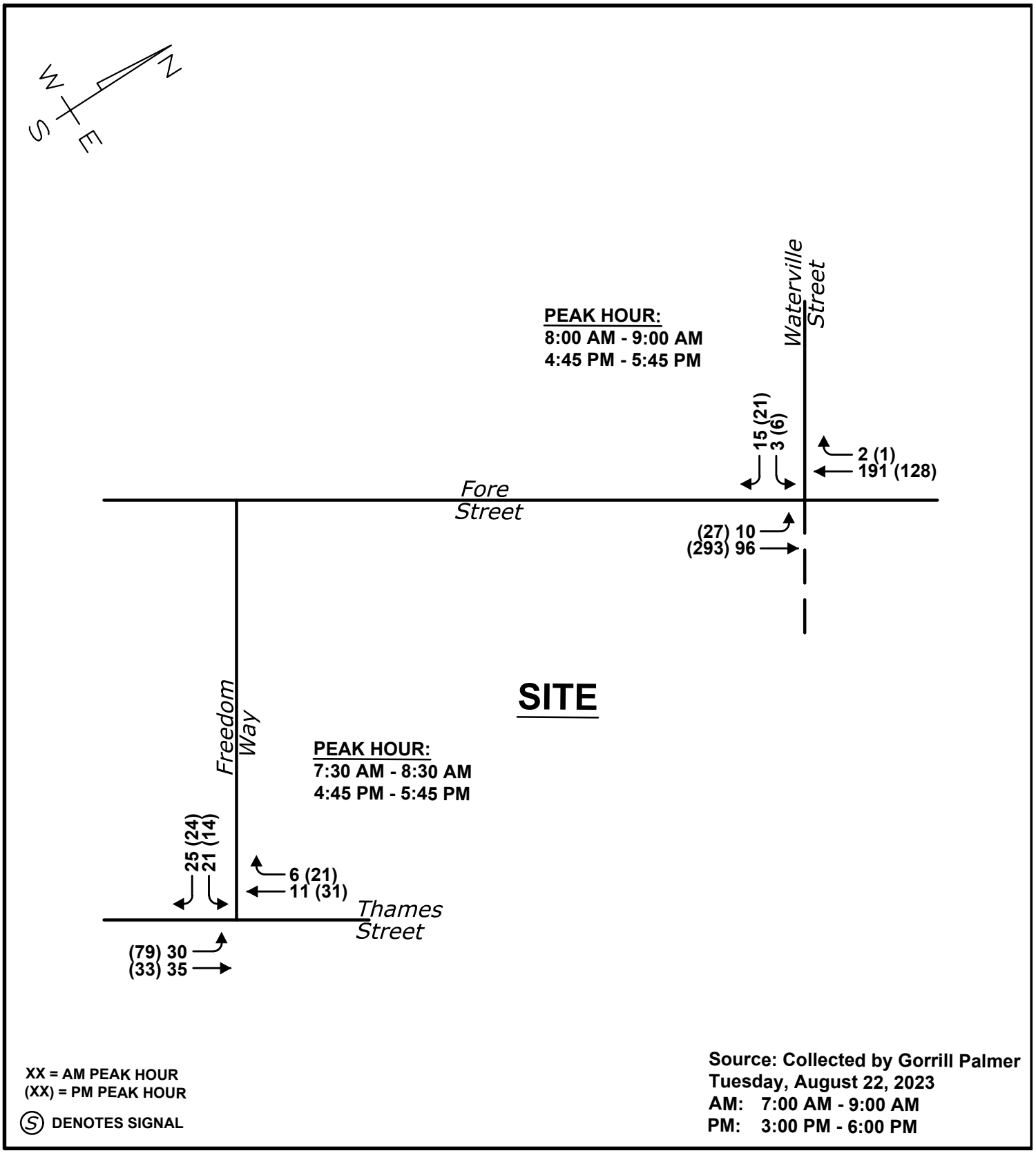
FORESIDE DEVELOPMENT
PORTLAND, MAINE

Design:	KJB	Scale:	NONE
Draft:	KJB	Date:	8/28/2023
Checked:	RED	File Name:	Location Map.dwg

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2023 RAW VOLUMES

Figure No. 2



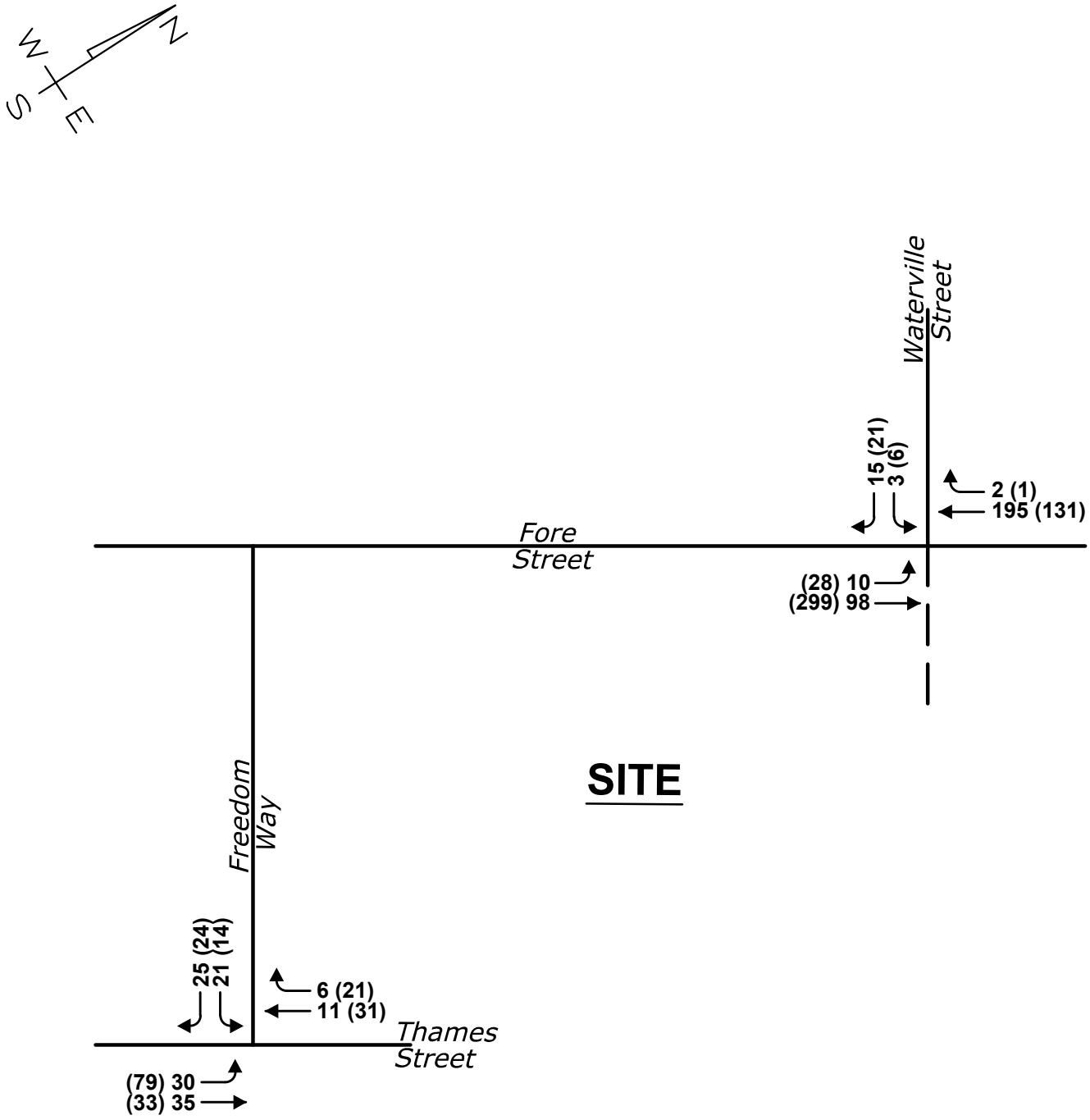
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Checked:	RED	File Name:	Figures.dwg

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2027 ADJUSTED VOLUMES

Figure No. 3



ADJUSTMENTS
Yearly: 4 yrs X 0.5%/yr = 1.02
Total: 1.02
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

(S) DENOTES SIGNAL

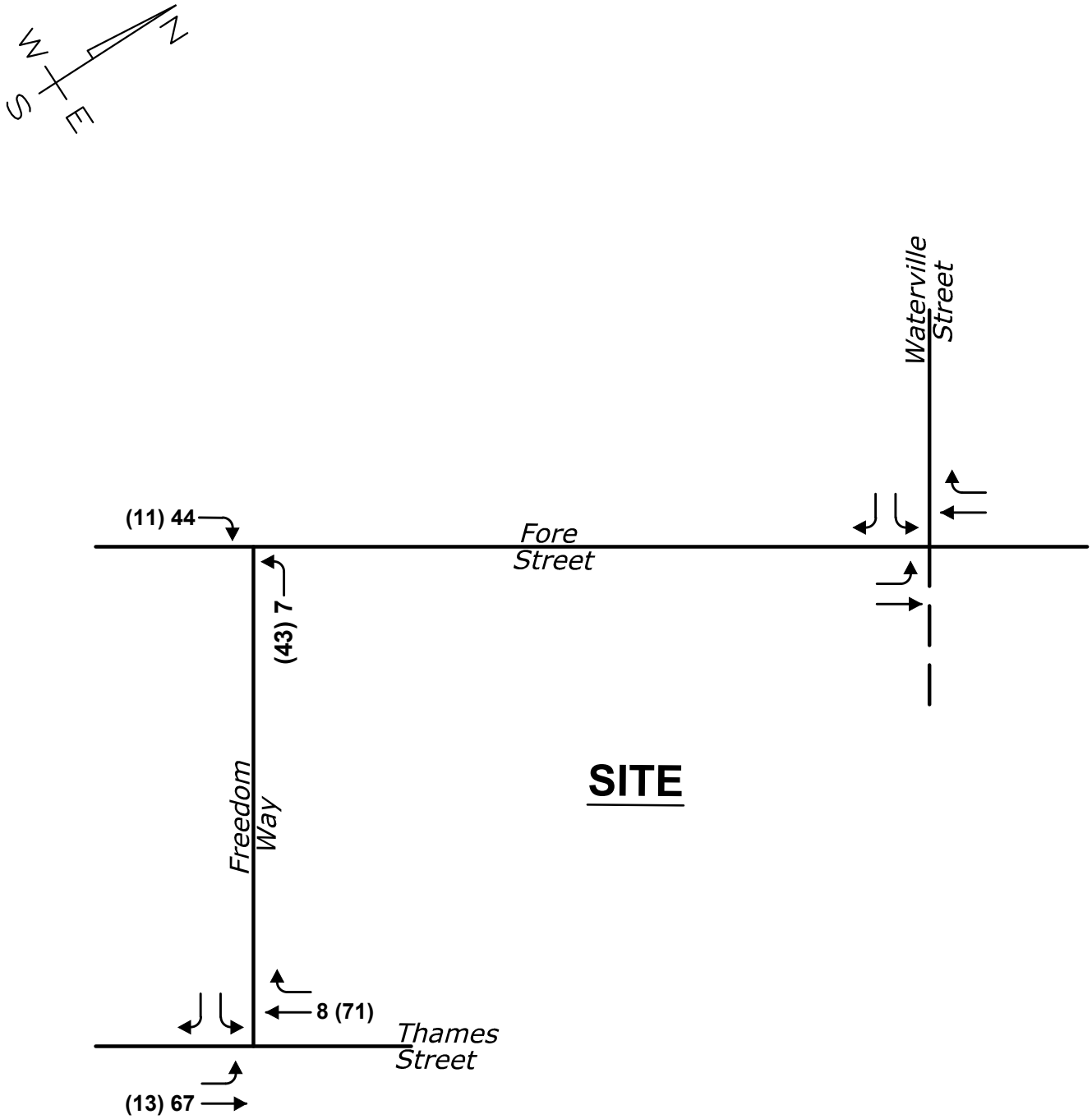
FORESIDE DEVELOPMENT
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Checked:	RED	File Name:	Figures.dwg

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CITY PARCEL

Figure No. 4



XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

(S) DENOTES SIGNAL

NOTE: These volumes and assignment are as approved in the Eastern Waterfront TMP

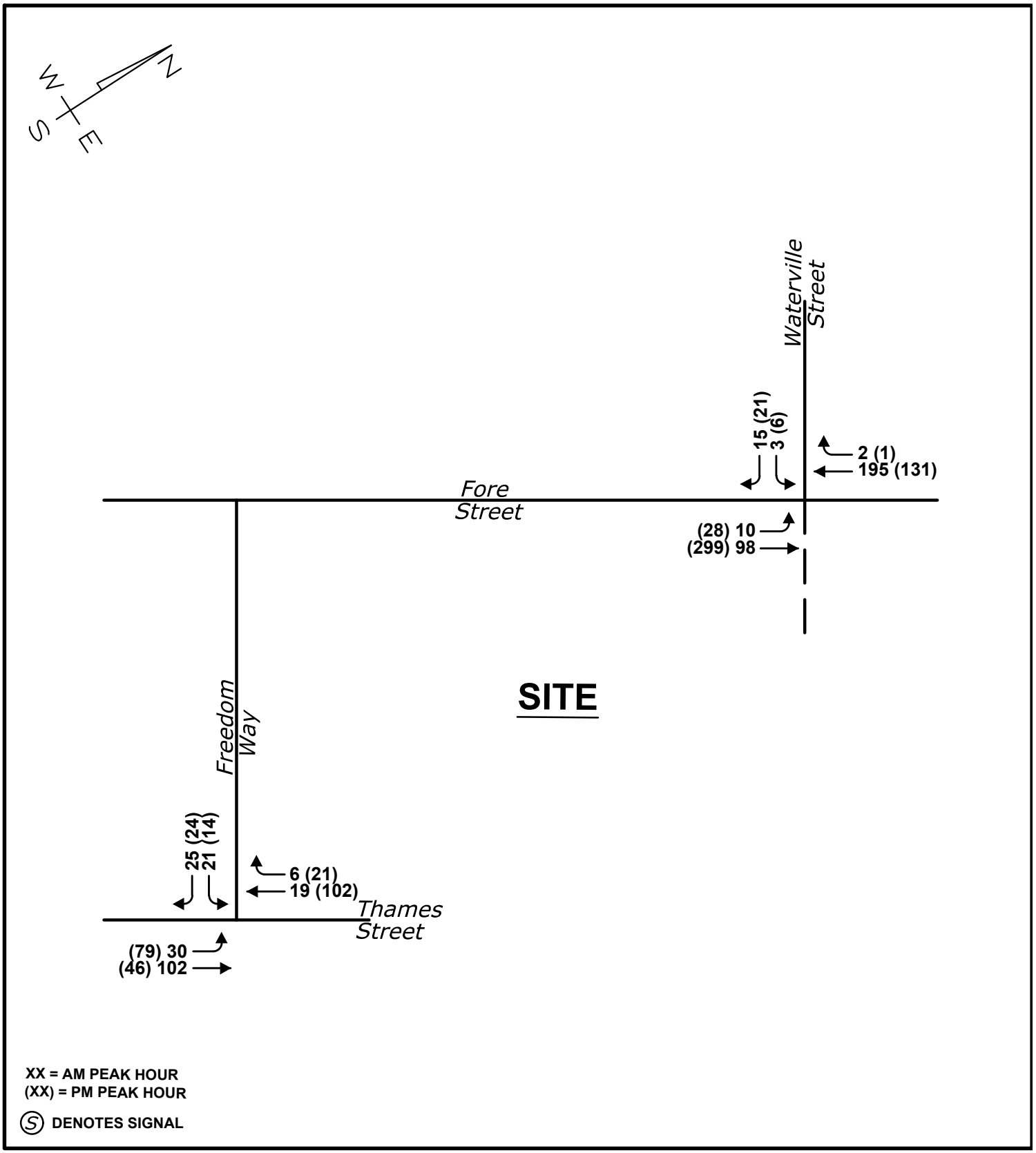
FORESIDE DEVELOPMENT
PORTLAND, MAINE

Design:	KJB	Scale:	NONE
Draft:	KJB	Date:	8/28/2023
Checked:	RED	File Name:	Figures.dwg

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2027 PREDEVELOPMENT DHV

Figure No. 5



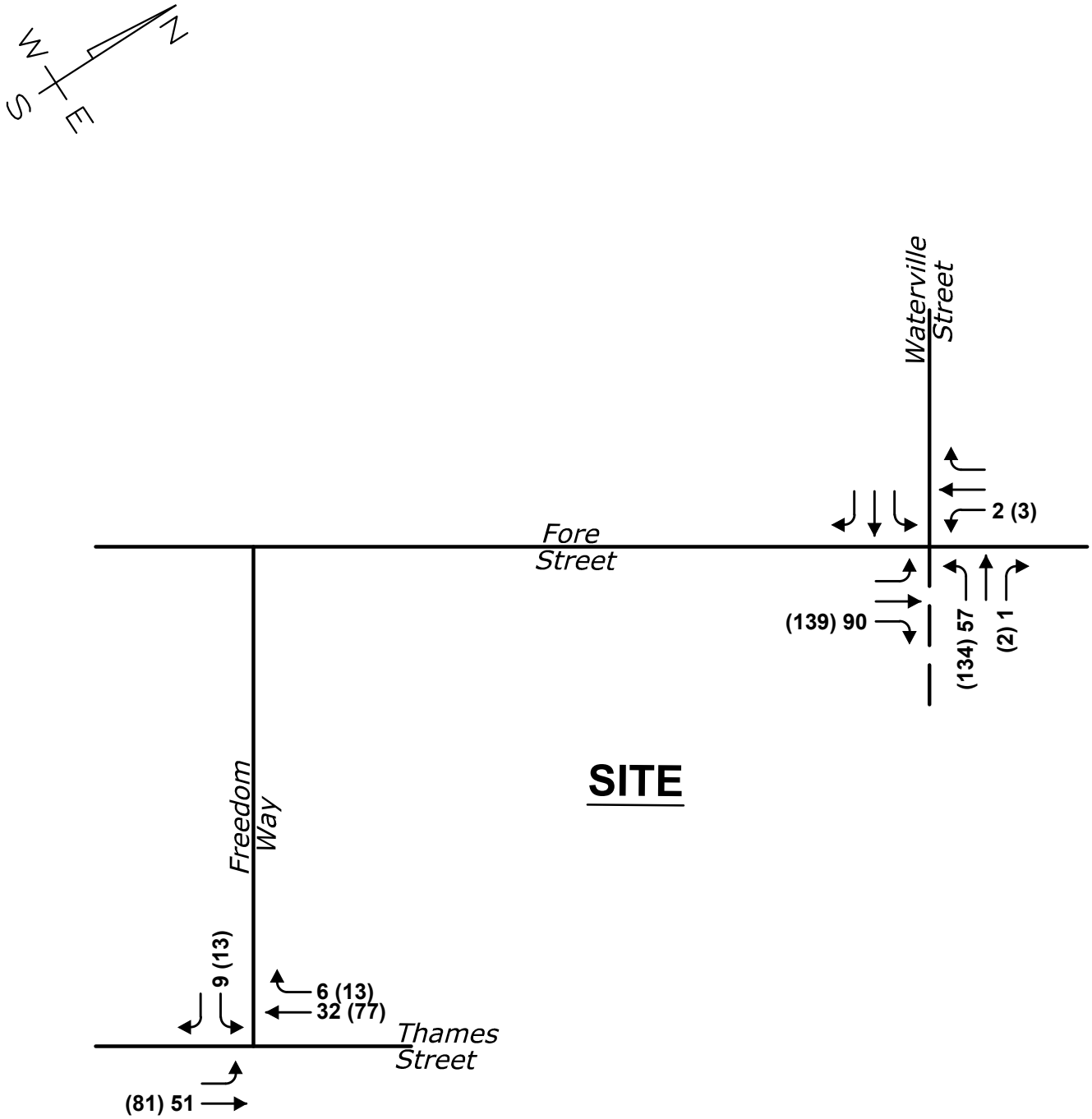
FORESIDE DEVELOPMENT
PORTLAND, MAINE

Design:	KJB	Scale:	NONE
Draft:	KJB	Date:	8/28/2023
Checked:	RED	File Name:	Figures.dwg

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TRIP DISTRIBUTION

Figure No. 6



XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

(S) DENOTES SIGNAL

	AM	PM
IN	152	236
OUT	96	226
TOTAL	248	462

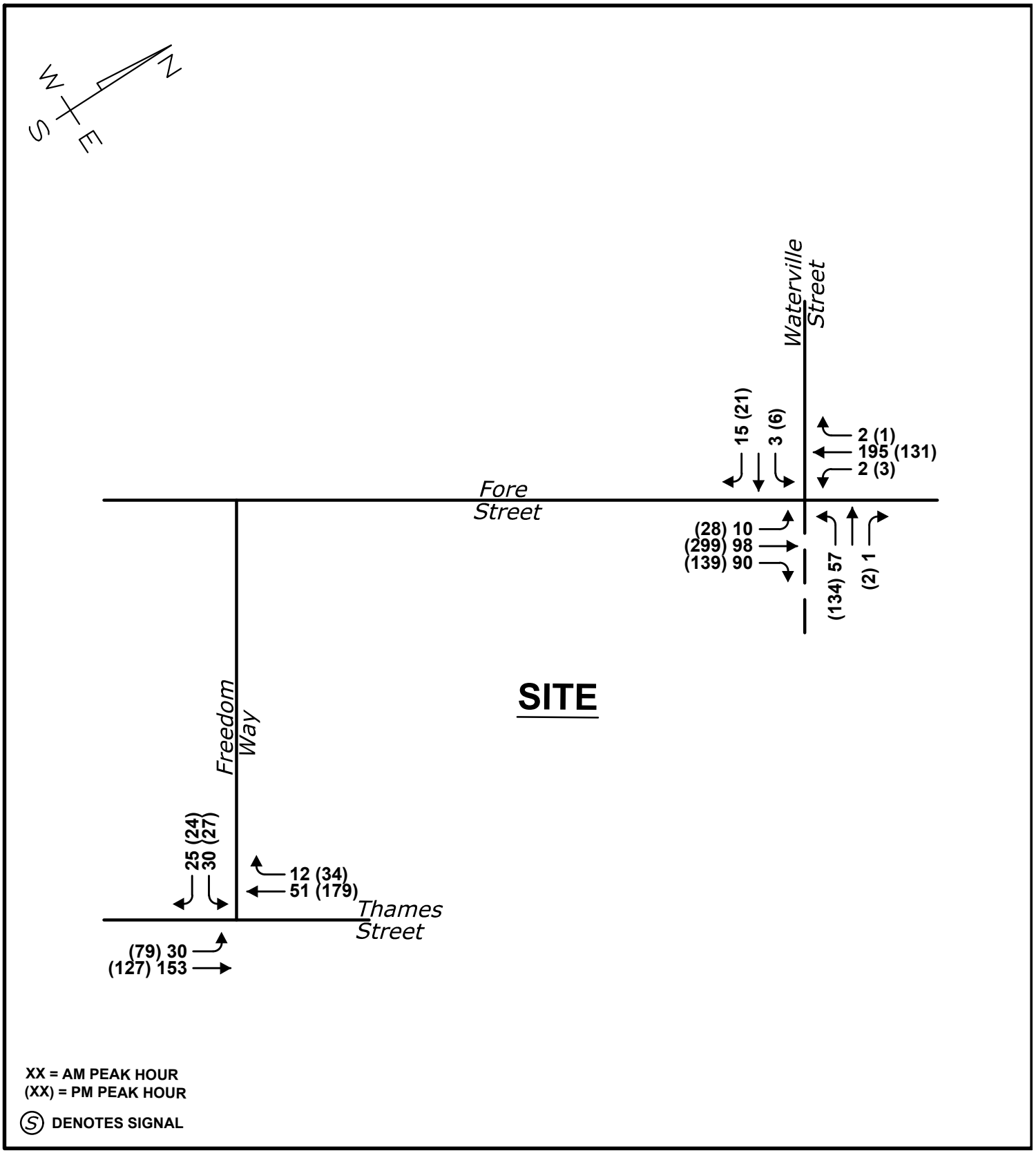
FORESIDE DEVELOPMENT
PORTLAND, MAINE

Design: KJB Scale: NONE
Draft: KJB Date: 8/28/2023
Checked: RED File Name: Trip Distribution.dwg

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2027 POSTDEVELOPMENT DHV

Figure No. 7



FORESIDE DEVELOPMENT
PORTLAND, MAINE

Design:	KJB	Scale:	NONE
Draft:	KJB	Date:	8/28/2023
Checked:	RED	File Name:	Trip Distribution.dwg

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Attachment C

Capacity Analysis

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	8:02	8:02	8:02	8:02	8:02	8:02
Total Time (min)	65	65	65	65	65	65
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	442	447	442	474	423	446
Vehs Exited	443	446	444	472	427	447
Starting Vehs	2	0	2	0	7	1
Ending Vehs	1	1	0	2	3	0
Travel Distance (mi)	56	56	55	59	53	56
Travel Time (hr)	2.3	2.3	2.3	2.5	2.2	2.3
Total Delay (hr)	0.3	0.2	0.2	0.3	0.2	0.2
Total Stops	168	138	136	159	147	150
Fuel Used (gal)	2.1	2.1	2.0	2.2	2.0	2.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:02
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:02
End Time	8:02
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	442	447	442	474	423	446
Vehs Exited	443	446	444	472	427	447
Starting Vehs	2	0	2	0	7	1
Ending Vehs	1	1	0	2	3	0
Travel Distance (mi)	56	56	55	59	53	56
Travel Time (hr)	2.3	2.3	2.3	2.5	2.2	2.3
Total Delay (hr)	0.3	0.2	0.2	0.3	0.2	0.2
Total Stops	168	138	136	159	147	150
Fuel Used (gal)	2.1	2.1	2.0	2.2	2.0	2.1

3: Thames Street & Freedom Way Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	3.4	4.5	4.0	4.1

7: Fore Street & Waterville Street Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.2	0.3	0.1	0.4

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1.8

Intersection: 3: Thames Street & Freedom Way

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	54	68	36
Average Queue (ft)	25	30	15
95th Queue (ft)	48	52	41
Link Distance (ft)	338	323	379
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Waterville Street

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	36	31
Average Queue (ft)	16	2
95th Queue (ft)	40	14
Link Distance (ft)	416	314
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:55	3:55	3:55	3:55	3:55	3:55
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	65	65	65	65	65	65
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	662	697	683	664	592	661
Vehs Exited	659	696	685	663	594	658
Starting Vehs	3	1	4	2	7	1
Ending Vehs	6	2	2	3	5	1
Travel Distance (mi)	83	88	86	83	75	83
Travel Time (hr)	3.5	3.7	3.6	3.5	3.2	3.5
Total Delay (hr)	0.4	0.4	0.4	0.4	0.4	0.4
Total Stops	222	233	232	223	217	226
Fuel Used (gal)	3.2	3.3	3.3	3.2	2.9	3.2

Interval #0 Information Seeding

Start Time	3:55
End Time	4:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	662	697	683	664	592	661
Vehs Exited	659	696	685	663	594	658
Starting Vehs	3	1	4	2	7	1
Ending Vehs	6	2	2	3	5	1
Travel Distance (mi)	83	88	86	83	75	83
Travel Time (hr)	3.5	3.7	3.6	3.5	3.2	3.5
Total Delay (hr)	0.4	0.4	0.4	0.4	0.4	0.4
Total Stops	222	233	232	223	217	226
Fuel Used (gal)	3.2	3.3	3.3	3.2	2.9	3.2

3: Thames Street & Freedom Way Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	3.3	4.6	4.1	4.2

7: Fore Street & Waterville Street Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.5	0.5	0.1	0.6

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.0

Intersection: 3: Thames Street & Freedom Way

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	35	74	46
Average Queue (ft)	20	36	28
95th Queue (ft)	43	60	47
Link Distance (ft)	338	323	379
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Waterville Street

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	40	35
Average Queue (ft)	17	4
95th Queue (ft)	42	21
Link Distance (ft)	416	314
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 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	8:02	8:02	8:02	8:02	8:02	8:02
Total Time (min)	65	65	65	65	65	65
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	518	533	519	554	498	524
Vehs Exited	519	532	518	552	505	525
Starting Vehs	2	1	1	0	7	1
Ending Vehs	1	2	2	2	0	0
Travel Distance (mi)	66	67	66	70	63	67
Travel Time (hr)	2.8	2.9	2.9	3.0	2.7	2.9
Total Delay (hr)	0.4	0.4	0.4	0.4	0.4	0.4
Total Stops	222	213	233	236	212	223
Fuel Used (gal)	2.6	2.6	2.7	2.8	2.5	2.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:02
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:02
End Time	8:02
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	518	533	519	554	498	524
Vehs Exited	519	532	518	552	505	525
Starting Vehs	2	1	1	0	7	1
Ending Vehs	1	2	2	2	0	0
Travel Distance (mi)	66	67	66	70	63	67
Travel Time (hr)	2.8	2.9	2.9	3.0	2.7	2.9
Total Delay (hr)	0.4	0.4	0.4	0.4	0.4	0.4
Total Stops	222	213	233	236	212	223
Fuel Used (gal)	2.6	2.6	2.7	2.8	2.5	2.6

3: Thames Street & Freedom Way Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.1
Total Del/Veh (s)	3.5	5.1	4.2	4.7

7: Fore Street & Waterville Street Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.3	0.3	0.2	0.4

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.6

Intersection: 3: Thames Street & Freedom Way

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	60	75	31
Average Queue (ft)	25	39	18
95th Queue (ft)	51	61	43
Link Distance (ft)	310	323	379
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Waterville Street

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	36	25
Average Queue (ft)	15	2
95th Queue (ft)	39	14
Link Distance (ft)	415	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:55	3:55	3:55	3:55	3:55	3:55
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	65	65	65	65	65	65
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	742	806	803	796	703	771
Vehs Exited	741	807	805	792	705	770
Starting Vehs	4	5	4	2	7	2
Ending Vehs	5	4	2	6	5	3
Travel Distance (mi)	95	102	103	102	90	98
Travel Time (hr)	4.1	4.4	4.6	4.5	4.0	4.3
Total Delay (hr)	0.6	0.6	0.7	0.7	0.6	0.6
Total Stops	294	321	349	332	305	319
Fuel Used (gal)	3.8	4.0	4.2	4.0	3.6	3.9

Interval #0 Information Seeding

Start Time	3:55
End Time	4:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	742	806	803	796	703	771
Vehs Exited	741	807	805	792	705	770
Starting Vehs	4	5	4	2	7	2
Ending Vehs	5	4	2	6	5	3
Travel Distance (mi)	95	102	103	102	90	98
Travel Time (hr)	4.1	4.4	4.6	4.5	4.0	4.3
Total Delay (hr)	0.6	0.6	0.7	0.7	0.6	0.6
Total Stops	294	321	349	332	305	319
Fuel Used (gal)	3.8	4.0	4.2	4.0	3.6	3.9

3: Thames Street & Freedom Way Performance by lane

Lane	EB	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.5	4.8	5.1	4.8

7: Fore Street & Waterville Street Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.6	0.5	0.1	0.6

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	2.7

Intersection: 3: Thames Street & Freedom Way

Movement	EB	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	38	80	68
Average Queue (ft)	20	40	39
95th Queue (ft)	42	65	59
Link Distance (ft)	339	319	380
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Waterville Street

Movement	SE	NE
Directions Served	LR	LT
Maximum Queue (ft)	40	48
Average Queue (ft)	18	4
95th Queue (ft)	43	25
Link Distance (ft)	415	313
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 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	8:02	8:02	8:02	8:02	8:02	8:02
Total Time (min)	65	65	65	65	65	65
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	728	758	780	755	745	754
Vehs Exited	731	758	783	754	745	753
Starting Vehs	8	8	6	2	3	4
Ending Vehs	5	8	3	3	3	3
Travel Distance (mi)	93	96	99	95	95	96
Travel Time (hr)	4.4	4.5	4.5	4.4	4.5	4.4
Total Delay (hr)	0.7	0.7	0.7	0.7	0.8	0.7
Total Stops	366	378	349	359	384	368
Fuel Used (gal)	4.0	4.1	4.1	4.0	4.1	4.1

Interval #0 Information Seeding

Start Time	6:57
End Time	7:02
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:02
End Time	8:02
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	728	758	780	755	745	754
Vehs Exited	731	758	783	754	745	753
Starting Vehs	8	8	6	2	3	4
Ending Vehs	5	8	3	3	3	3
Travel Distance (mi)	93	96	99	95	95	96
Travel Time (hr)	4.4	4.5	4.5	4.4	4.5	4.4
Total Delay (hr)	0.7	0.7	0.7	0.7	0.8	0.7
Total Stops	366	378	349	359	384	368
Fuel Used (gal)	4.0	4.1	4.1	4.0	4.1	4.1

3: Thames Street & Freedom Way Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.7	5.3	4.5	4.9

7: Fore Street & Site Garage/Waterville Street Performance by lane

Lane	SE	NW	NE	SW	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.2
Total Del/Veh (s)	3.5	6.0	0.7	0.2	1.2

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	3.3

Intersection: 3: Thames Street & Freedom Way

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	63	75	51
Average Queue (ft)	27	42	29
95th Queue (ft)	53	64	49
Link Distance (ft)	338	323	379
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Site Garage/Waterville Street

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	31	58	43	18
Average Queue (ft)	17	29	2	1
95th Queue (ft)	41	52	19	9
Link Distance (ft)	416	244	309	244
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:55	3:55	3:55	3:55	3:55	3:55
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	65	65	65	65	65	65
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	1213	1246	1221	1203	1203	1216
Vehs Exited	1209	1243	1219	1206	1207	1216
Starting Vehs	8	12	7	9	7	7
Ending Vehs	12	15	9	6	3	6
Travel Distance (mi)	153	158	154	153	153	154
Travel Time (hr)	7.6	7.9	7.6	7.6	7.6	7.7
Total Delay (hr)	1.6	1.7	1.6	1.6	1.7	1.6
Total Stops	623	644	625	630	655	634
Fuel Used (gal)	7.0	7.2	7.1	7.1	7.0	7.1

Interval #0 Information Seeding

Start Time	3:55
End Time	4:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1213	1246	1221	1203	1203	1216
Vehs Exited	1209	1243	1219	1206	1207	1216
Starting Vehs	8	12	7	9	7	7
Ending Vehs	12	15	9	6	3	6
Travel Distance (mi)	153	158	154	153	153	154
Travel Time (hr)	7.6	7.9	7.6	7.6	7.6	7.7
Total Delay (hr)	1.6	1.7	1.6	1.6	1.7	1.6
Total Stops	623	644	625	630	655	634
Fuel Used (gal)	7.0	7.2	7.1	7.1	7.0	7.1

3: Thames Street & Freedom Way Performance by lane

Lane	SE	NE	SW	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.2
Total Del/Veh (s)	3.9	5.5	5.6	5.3

7: Fore Street & Site Garage/Waterville Street Performance by lane

Lane	SE	NW	NE	SW	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.3
Total Del/Veh (s)	4.7	9.1	1.4	0.3	2.7

Total Network Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	4.5

Intersection: 3: Thames Street & Freedom Way

Movement	SE	NE	SW
Directions Served	LR	LT	TR
Maximum Queue (ft)	56	87	83
Average Queue (ft)	27	45	48
95th Queue (ft)	48	71	72
Link Distance (ft)	338	323	379
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: Fore Street & Site Garage/Waterville Street

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	48	89	43	22
Average Queue (ft)	17	47	4	1
95th Queue (ft)	44	78	25	11
Link Distance (ft)	416	244	309	244
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

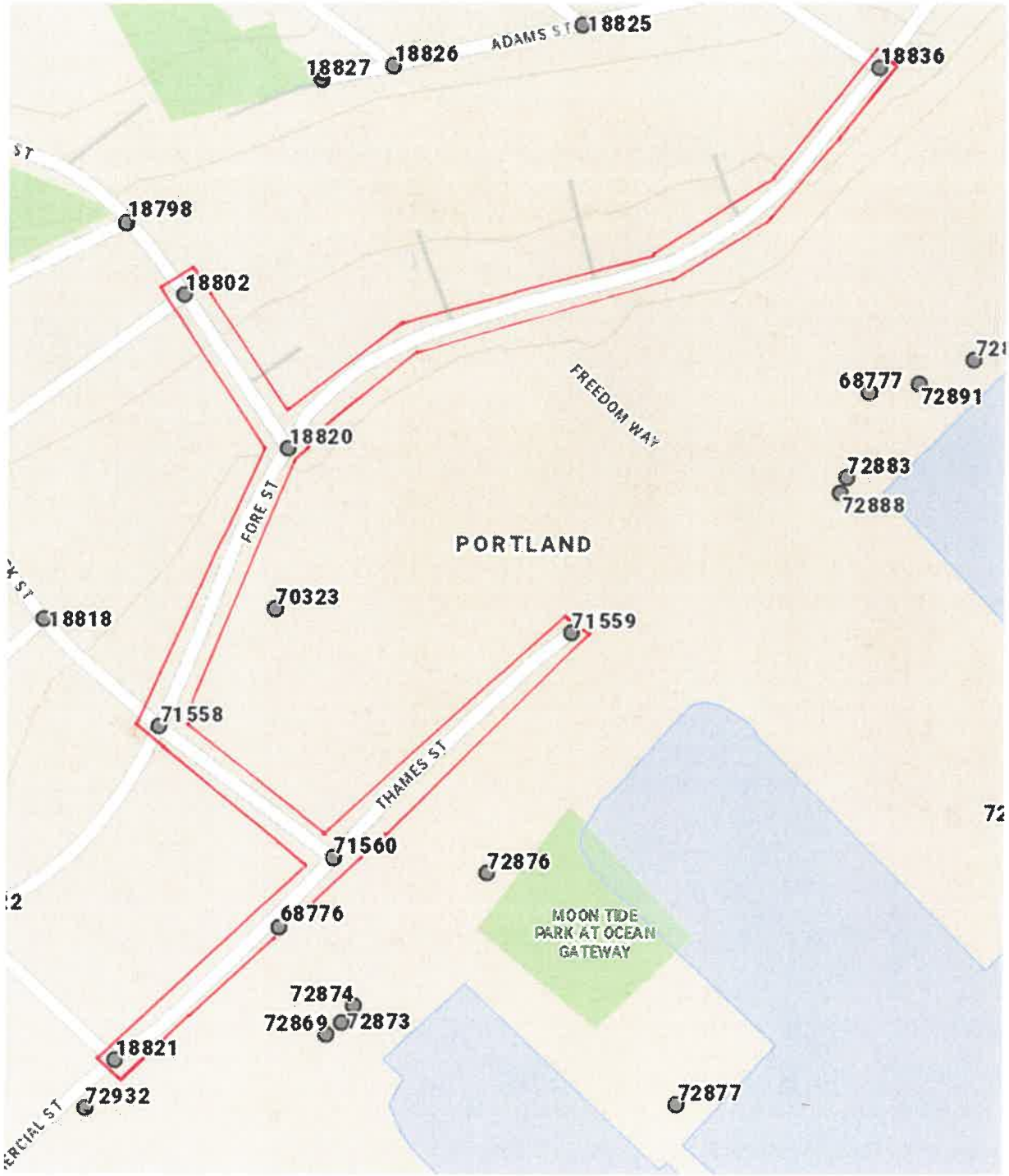
Network Summary

Network wide Queuing Penalty: 0

Attachment D

Safety Information

Portland, Maine



Maine Department Of Transportation - Office of Safety, 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
Fore St./Thames St. Area

REPORT PARAMETERS

Year 2020, Start Month 1 through Year 2022 End Month: 12

Route: 0560286	Start Node: 18836	Start Offset: 0	☐ Exclude First Node
	End Node: 71558	End Offset: 0	☐ Exclude Last Node
Route: 3210303	Start Node: 18821	Start Offset: 0	☐ Exclude First Node
	End Node: 71559	End Offset: 0	☐ Exclude Last Node
Route: 0560344	Start Node: 71558	Start Offset: 0	☑ Exclude First Node
	End Node: 71560	End Offset: 0	☑ Exclude Last Node
Route: 0560524	Start Node: 18802	Start Offset: 0	☐ Exclude First Node
	End Node: 18820	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
18836	0560286 - 0.08	Int of FORE ST WATERVILLE ST	2	0	0	0	0	0	0	0.0	1.235	0.00	0.45	0.00
												Statewide Crash Rate:	0.12	
18820	0560286 - 0.28	Int of FORE ST MOUNTFORT ST	2	1	0	0	0	0	1	0.0	1.607	0.21	0.42	0.00
												Statewide Crash Rate:	0.12	
71558	0560286 - 0.37	Int of FORE ST HANCOCK ST	2	0	0	0	0	0	0	0.0	1.671	0.00	0.42	0.00
												Statewide Crash Rate:	0.12	
71560	3210303 - 0.08	Int of HANCOCK ST THAMES ST	2	0	0	0	0	0	0	0.0	0.774	0.00	0.49	0.00
												Statewide Crash Rate:	0.12	
71559	3210303 - 0.17	End of THAMES ST	2	0	0	0	0	0	0	0.0	0.212	0.00	0.45	0.00
												Statewide Crash Rate:	0.12	
18821	3210303 - 0	Int of COMMERCIAL ST INDIA ST THAMES ST	2	0	0	0	0	0	0	0.0	1.557	0.00	0.48	0.00
												Statewide Crash Rate:	0.14	
18802	0560524 - 0.17	Int of MOUNTFORT ST NEWBURY ST	2	0	0	0	0	0	0	0.0	0.398	0.00	0.52	0.00
												Statewide Crash Rate:	0.12	
Study Years: 3.00		NODE TOTALS:		1	0	0	0	0	1	0.0	7.454	0.04	0.29	0.15

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
18820	18836	3131698	0 - 0.20	0560286 - 0.08	0.20	2	2	0	0	0	0	2	0.0	0.00289	230.62	442.51	0.00
Int of FORE ST MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 155.37		
18820	71558	4047688	0 - 0.09	0560286 - 0.28	0.09	2	3	0	0	0	0	2	0.0	0.00125	799.62	546.32	1.46
Int of FORE ST MOUNTFORT ST				RD INV 05 60286											Statewide Crash Rate: 155.37		
18821	71560	4047707	0 - 0.08	3210303 - 0	0.08	2	3	0	0	0	0	3	0.0	0.00060	1670.56	1166.62	1.43
Int of COMMERCIAL ST INDIA ST THAMES ST				RD INV 3210303											Statewide Crash Rate: 334.04		
71560	71559	4047708	0 - 0.09	3210303 - 0.08	0.09	2	2	0	0	0	0	2	0.0	0.00038	1749.51	1289.14	1.36
Int of HANCOCK ST THAMES ST				RD INV 3210303											Statewide Crash Rate: 334.04		
71560	71558	4047714	0 - 0.06	0560344 - 0.13	0.06	2	0	0	0	0	0	0	0.0	0.00023	0.00	1405.03	0.00
Int of HANCOCK ST THAMES ST				RD INV 05 60344											Statewide Crash Rate: 334.04		
18802	18820	194401	0 - 0.05	0560524 - 0.17	0.05	2	0	0	0	0	0	0	0.0	0.00019	0.00	1428.86	0.00
Int of MOUNTFORT ST NEWBURY ST				RD INV 05 60524											Statewide Crash Rate: 334.04		
Study Years: 3.00				Section Totals:	0.57		10	0	0	0	0	9	0.0	0.00554	602.05	453.24	1.33
				Grand Totals:	0.57		11	0	0	0	0	10	0.0	0.00554	662.26	605.30	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
18820	18836	3131698	0 - 0.20	0560286 - 0.08	2	0	0	0	0	2	2021-11398	05/08/2021	0.16	PD
											2020-25312	10/21/2020	0.18	PD
18820	71558	4047688	0 - 0.09	0560286 - 0.28	3	0	0	0	0	2	2022-24545	08/27/2022	0.32	PD
											2022-9547	03/24/2022	0.33	
											2020-11734	05/14/2020	0.35	PD
18821	71560	4047707	0 - 0.08	3210303 - 0	3	0	0	0	0	3	2021-37364	12/27/2021	0.03	PD
											2020-18603	08/06/2020	0.04	PD
											2022-5001	02/12/2022	0.07	PD
71560	71559	4047708	0 - 0.09	3210303 - 0.08	2	0	0	0	0	2	2021-2968	02/03/2021	0.11	PD
											2021-16393	07/01/2021	0.12	PD
71560	71558	4047714	0 - 0.06	0560344 - 0.13	0	0	0	0	0	0				
18802	18820	194401	0 - 0.05	0560524 - 0.17	0	0	0	0	0	0				
				Totals:	10	0	0	0	0	9				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												Hour of Day	PM											
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	0	0	0	0	0	0	0	0	0	0	0	0	0
MONDAY	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
TUESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
THURSDAY	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	3
Totals	0	0	1	0	0	0	0	0	0	1	0	2	0	1	2	0	0	1	0	1	1	0	0	1	0	11

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	10
2-(Sport) Utility Vehicle	6
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	0
5-Pickup	1
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)	3
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0
23-Bicyclist	0
24-Witness	2
25-Other	1
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	23

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	0	4	0	0	0	0	4
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	1	0	0	0	0	0	1
Ran Red Light	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0
Improper Turn	0	0	0	0	0	0	0
Improper Backing	3	1	0	0	0	0	4
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	0	0	0	0	0	0	0
Failed to Keep in Proper Lane	2	1	0	0	0	0	3
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	2	0	0	0	0	0	2
Unknown	0	0	0	0	0	0	0
Total	8	6	0	0	0	0	14

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	5	6	0	0	0	0	11
Physically Impaired	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	1	0	0	0	0	0	1
Total	8	6	0	0	0	0	14

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	0	0	0	0	0	0
20-24	1	0	0	0	0	1
25-29	3	0	0	0	0	3
30-39	6	0	0	0	0	6
40-49	4	0	0	0	0	4
50-59	2	0	0	0	0	2
60-69	0	0	0	0	0	0
70-79	1	0	0	0	0	1
80-Over	1	0	0	0	0	1
Unknown	3	0	0	0	0	3
Total	21	0	0	0	0	21

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	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	20
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	13		
14-Parked Motor Vehicle	6		
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	1		
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		

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	0
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
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	0
13-None	11
14-Other	0
Total	11

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	0	0
C	0	0
PD	10	0
Total	10	0

Road Character

Road Grade	Total
1-Level	9
2-On Grade	2
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	11

Light

Light Condition	Total
1-Daylight	6
2-Dawn	2
3-Dusk	0
4-Dark - Lighted	2
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	11

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2020	2021	2022	Total
JANUARY	0	0	0	0
FEBRUARY	1	1	1	3
MARCH	0	0	1	1
APRIL	0	0	0	0
MAY	1	1	0	2
JUNE	0	0	0	0
JULY	0	1	0	1
AUGUST	1	0	1	2
SEPTEMBER	0	0	0	0
OCTOBER	1	0	0	1
NOVEMBER	0	0	0	0
DECEMBER	0	1	0	1
Total	4	4	3	11

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	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
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	8	1	1	0	0	1	0	0	0	0	0	0	0	0	11

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	2	0	0	0	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0	0	0	0	0	1
Daylight	2	0	0	0	0	0	0	0	0	0	1	3
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
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	1	0	0	0	0	0	0	0	0	0	1	2
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	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	1	1
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
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	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	1	0	0	0	1
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	7	0	0	0	0	0	0	1	0	0	3	11

GORRILL PALMER

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South Portland, Maine 04106
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Parking Comment – Response #1
Combined Blocks - Portland Foreside
Portland, Maine

Date: September 6, 2023
Subject: Portland Foreside, Combined Blocks
Parking Comment – Response #1
Portland, Maine
To: David Senus, PE – Foreside Development
From: Randy Dunton, PE, PTOE – Gorrill Palmer

This parking response is being submitted per the City's request in City Staff Comments dated July 26, 2023 (starting on page 3). Below please find the original City Staff comments in *italics* followed by our response in **bold**.

City Staff and Third-Party Reviewers reviewed the parking demand estimate and are requesting additional information as noted below:

Response: For this parking response we have reviewed the "Parking Generation Manual *(PGM)*, 5th Edition" and revised the parking spreadsheet as needed and discussed in the following responses. Please note, we did not change the parking information for previously approved blocks.

Comment: Multi-Family 1.21 spaces per unit – The applicant should provide back-up information for time-of-day and parking generation assumptions.

Response: LUC 221 – The PGM average parking rate is 1.31. The time-of-day and parking generation information is attached with a revised parking spreadsheet.

Comment: Specialty Retail 1.95 spaces per 1,000 SF – The applicant should provide back-up information.

Response: The 1.95 parking rate was based on using Shopping Center which is Land Use 820. Specialty retail is an older land use that is no longer provided in the ITE Manuals. For both the previous trip generation evaluation (Traffic Analysis dated 8-31-23) and for this parking assessment, retail was assumed to be LUC 876 (Apparel Store). The PGM average rate for an apparel store is 1.13. The time-of-day and parking generation information is attached with a revised parking spreadsheet.

Comment: Hotel 1.1 spaces per room – The applicant should provide back-up data for the parking generation rate.

Response: LUC 310 – The PGM average parking rate is 0.74. The time-of-day and parking generation information is attached with a revised parking spreadsheet.

Comment: Spa 4.3 spaces per 1,000 SF – The applicant should provide back-up data for the parking generation rate.

Response: LUC 492 – The PGM average parking rate is 4.73. The time-of-day and parking generation information is attached with a revised parking spreadsheet.

Comment: The applicant should confirm that the trip generation and parking generation assumptions of ITE land use codes are the same or different.

Response: For the land use codes identified by the City to be re-visited, the land use codes are the same as those used in the trip generation provided in the recent "Traffic Analysis" provided to the City dated August 31, 2023.

Conclusion

Based on this current evaluation, the vehicular parking demand decreased from the previous submittal of 714 parking spaces to 672 parking spaces, a decrease of 42 parking spaces.

Attachments

Attachment – Parking Generation Rates and Times of Day Distributions

u:\4060_portland foreside block 5_portland\n traffic\parking\parking review 9-6-23.docx

Attachment

Parking Generation Rates and Times of Day Distributions

Land Use: 221 Multifamily Housing (Mid-Rise)

Description

Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with between three and 10 levels (floors) of residence. Multifamily housing (low-rise) (Land Use 220), multifamily housing (high-rise) (Land Use 222), and affordable housing (Land Use 223) are related land uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday (one general urban/suburban study site), a Saturday (two general urban/suburban study sites), and a Sunday (one dense multi-use urban study site).

	Percent of Peak Parking Demand		
Hour Beginning	Weekday	Saturday	Sunday
12:00–4:00 a.m.	100	100	100
5:00 a.m.	94	99	–
6:00 a.m.	83	97	–
7:00 a.m.	71	95	–
8:00 a.m.	61	88	–
9:00 a.m.	55	83	–
10:00 a.m.	54	75	–
11:00 a.m.	53	71	–
12:00 p.m.	50	68	–
1:00 p.m.	49	66	33
2:00 p.m.	49	70	40
3:00 p.m.	50	69	27
4:00 p.m.	58	72	13
5:00 p.m.	64	74	33
6:00 p.m.	67	74	60
7:00 p.m.	70	73	67
8:00 p.m.	76	75	47
9:00 p.m.	83	78	53
10:00 p.m.	90	82	73
11:00 p.m.	93	88	93

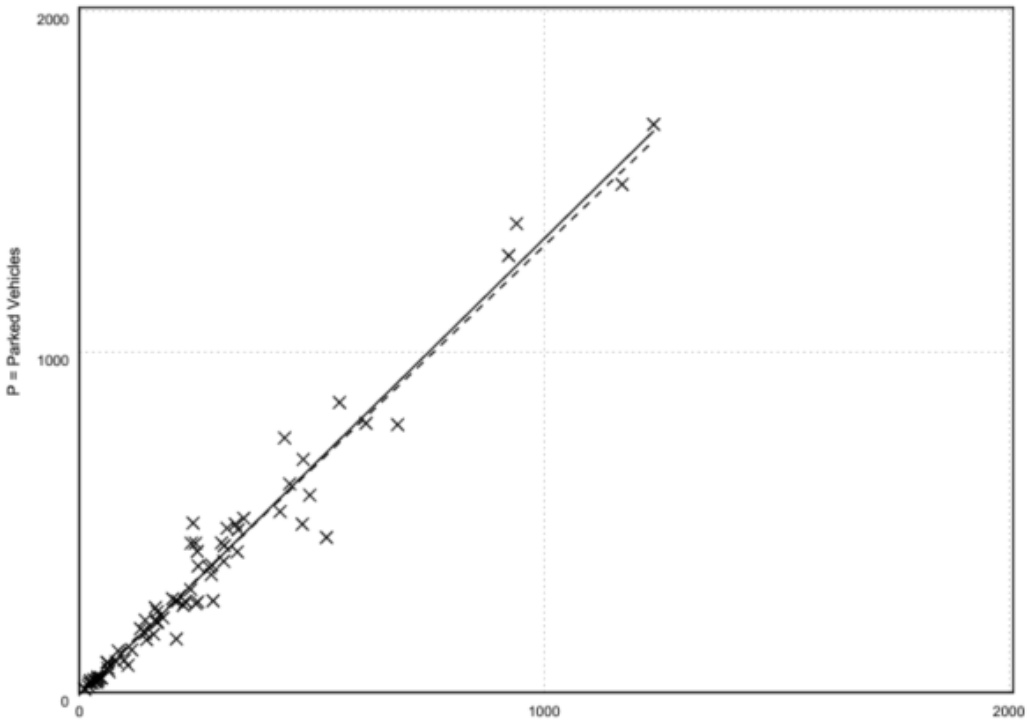
Multifamily Housing (Mid-Rise)
(221)

Peak Period Parking Demand vs: Dwelling Units
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban (no nearby rail transit)
Peak Period of Parking Demand: 10:00 p.m. - 5:00 a.m.
Number of Studies: 73
Avg. Num. of Dwelling Units: 261

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.31	0.75 - 2.03	1.13 / 1.47	1.26 - 1.36	0.22 (17%)

Data Plot and Equation



Fitted Curve Equation: P = 1.34(X) - 8.73

R^2= 0.97

Land Use: 876 Apparel Store

Description

An apparel store is an individual store specializing in the sale of clothing.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday at one study site in a general urban/suburban setting.

Hour Beginning	Percent of Weekday Peak Parking Demand
12:00–4:00 a.m.	–
5:00 a.m.	–
6:00 a.m.	–
7:00 a.m.	–
8:00 a.m.	–
9:00 a.m.	–
10:00 a.m.	–
11:00 a.m.	–
12:00 p.m.	–
1:00 p.m.	82
2:00 p.m.	88
3:00 p.m.	100
4:00 p.m.	65
5:00 p.m.	65
6:00 p.m.	47
7:00 p.m.	59
8:00 p.m.	47
9:00 p.m.	–
10:00 p.m.	–
11:00 p.m.	–

Additional Data

The average parking supply ratio for the two study sites in a general urban/suburban setting with parking supply information is 8.2 spaces per 1,000 square feet GFA.

The sites were surveyed in the 1980s in New York.

Source Number

21

Apparel Store
(876)

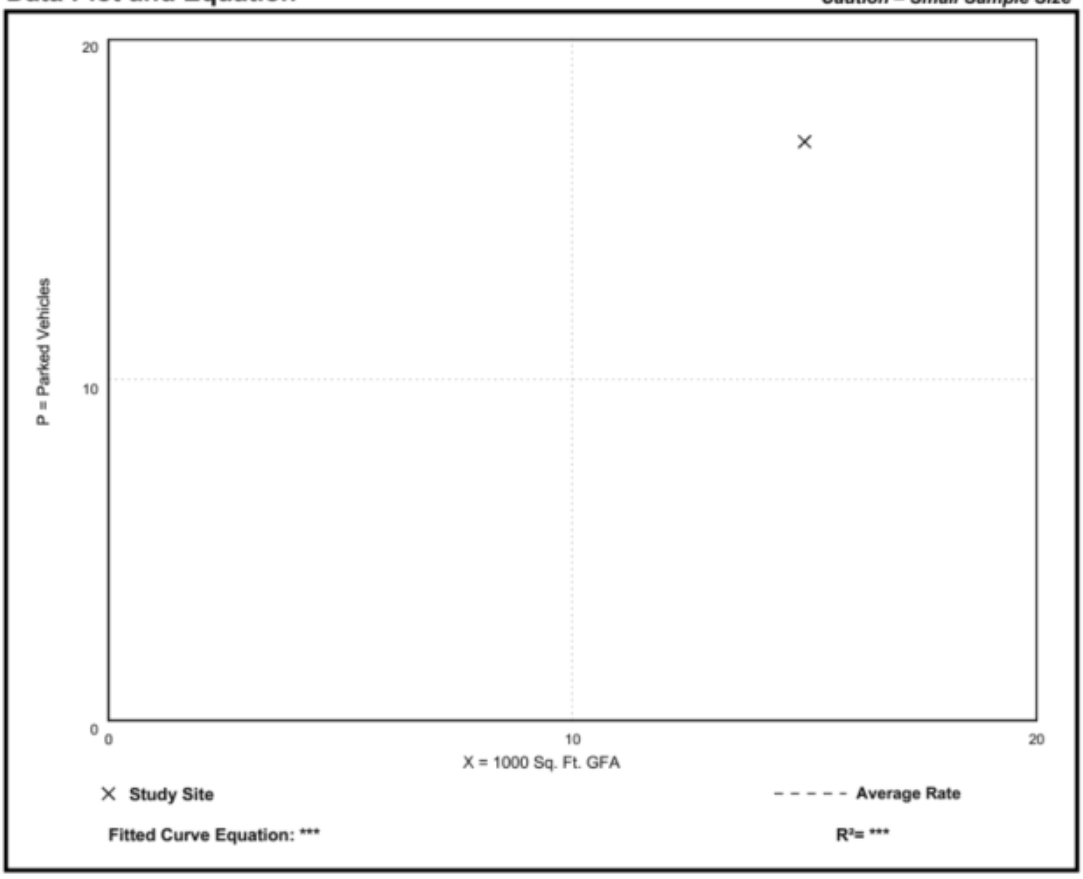
Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 1:00 - 3:00 p.m.
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 15

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.13	1.13 - 1.13	*** / ***	***	*** (***)

Data Plot and Equation

Caution – Small Sample Size



Land Use: 310 Hotel

Description

A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as a full-service restaurant, cocktail lounge, meeting rooms, banquet room, and convention facilities. It typically provides a swimming pool or another recreational facility such as a fitness room. All suites hotel (Land Use 311), business hotel (Land Use 312), motel (Land Use 320), and resort hotel (Land Use 330) are related uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand (1) on a weekday (four study sites) and a Saturday (five study sites) in a general urban/suburban setting and (2) on a weekday (one study site) and a Saturday (one study site) in a dense multi-use urban setting.

	Percent of Peak Parking Demand			
	General Urban/Suburban		Dense Multi–Use Urban	
Hour Beginning	Weekday	Saturday	Weekday	Saturday
12:00–4:00 a.m.	96	74	93	100
5:00 a.m.	–	–	–	–
6:00 a.m.	91	62	97	95
7:00 a.m.	89	62	100	95
8:00 a.m.	90	72	93	89
9:00 a.m.	100	74	72	85
10:00 a.m.	98	76	69	74
11:00 a.m.	89	77	65	61
12:00 p.m.	85	79	78	47
1:00 p.m.	75	78	78	42
2:00 p.m.	81	67	63	41
3:00 p.m.	70	64	59	43
4:00 p.m.	74	67	58	48
5:00 p.m.	65	73	52	53
6:00 p.m.	73	83	63	64
7:00 p.m.	78	92	74	67
8:00 p.m.	93	97	78	78
9:00 p.m.	96	100	72	81
10:00 p.m.	95	91	84	93
11:00 p.m.	95	83	92	98

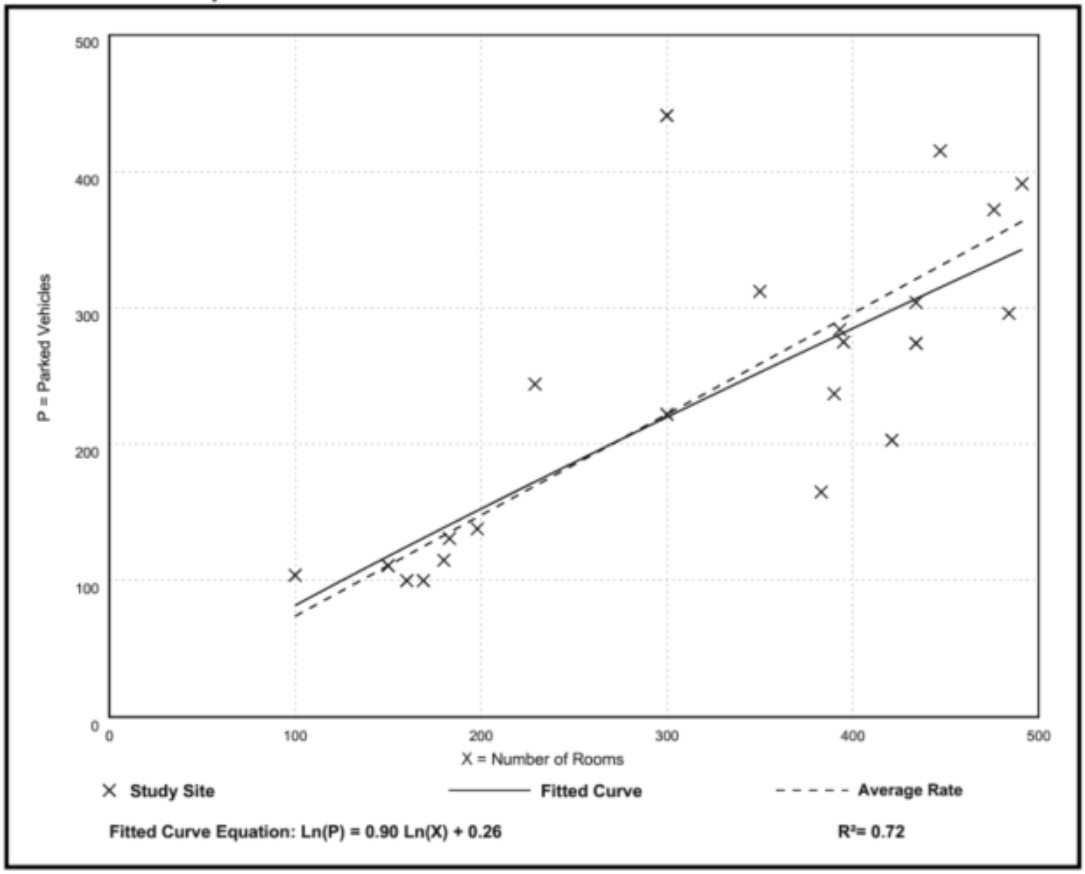
Hotel
(310)

Peak Period Parking Demand vs: Rooms
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 11:00 p.m. - 8:00 a.m.
Number of Studies: 22
Avg. Num. of Rooms: 321

Peak Period Parking Demand per Room

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
0.74	0.43 - 1.47	0.64 / 0.99	0.65 - 0.83	0.22 (30%)

Data Plot and Equation



Land Use: 492 Health/Fitness Club

Description

A health/fitness club is a privately-owned facility that primarily focuses on individual fitness or training. It typically provides exercise classes, fitness equipment, a weight room, spa, locker rooms, and a small restaurant or snack bar. This land use may also include ancillary facilities, such as a swimming pool, whirlpool, sauna, limited retail, and tennis, racquetball or handball courts. These facilities are membership clubs that may allow access to the general public for a fee. Racquet/tennis club (Land Use 491), athletic club (Land Use 493), and recreational community center (Land Use 495) are related uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand on a weekday (five study sites) and a Saturday (two study sites) in a general urban/suburban setting.

	Percent of Peak Parking Demand	
Hour Beginning	Weekday	Saturday
12:00–4:00 a.m.	–	–
5:00 a.m.	–	–
6:00 a.m.	–	–
7:00 a.m.	–	–
8:00 a.m.	–	80
9:00 a.m.	–	100
10:00 a.m.	62	100
11:00 a.m.	55	97
12:00 p.m.	44	79
1:00 p.m.	41	81
2:00 p.m.	36	73
3:00 p.m.	41	71
4:00 p.m.	69	70
5:00 p.m.	96	65
6:00 p.m.	100	62
7:00 p.m.	85	–
8:00 p.m.	–	–
9:00 p.m.	–	–
10:00 p.m.	–	–
11:00 p.m.	–	–

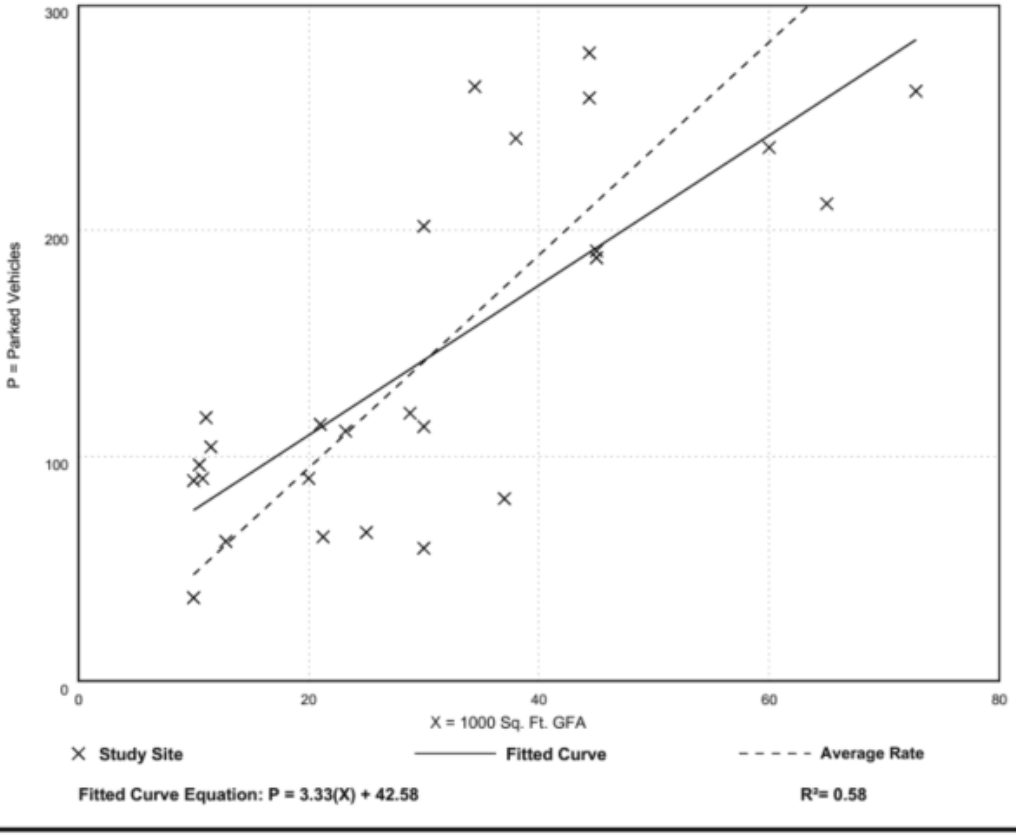
Health/Fitness Club
(492)

Peak Period Parking Demand vs: 1000 Sq. Ft. GFA
On a: Weekday (Monday - Friday)
Setting/Location: General Urban/Suburban
Peak Period of Parking Demand: 5:00 - 7:00 p.m.
Number of Studies: 26
Avg. 1000 Sq. Ft. GFA: 30

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
4.73	1.97 - 10.56	3.93 / 8.87	4.00 - 5.46	1.91 (40%)

Data Plot and Equation



Fitted Curve Equation: P = 3.33(X) + 42.58

R^2= 0.58

Portland Foreside Development

Transportation Demand Management Plan (Updated)

PREPARED FOR

FORESIDE/

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Revised August, 2023

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1

Introduction

This updated Transportation Demand Management (TDM) Plan presents a cohesive strategy for the Portland Foreside Development to enhance multimodal accessibility, promote and encourage the use of non-vehicular modes such as walking, biking and transit, and discourage single occupancy vehicles traveling to and from the Development's downtown waterfront location.

The Portland Foreside Development Company ("Portland Foreside") is developing this updated TDM Plan, pursuant to Section 17.3 of the City of Portland Technical Manual (updated November 2022), to promote the use of alternative modes of travel to its 10+ acre development project on the eastern waterfront off Fore Street in Portland, Maine. The original TDM plan was submitted as part of the Phase 1 permitting efforts in 2020. The City of Portland previously granted approval for the Master Development Plan including a MaineDOT Traffic Movement Permit (TMP) in 2017 which required that as a part of Site Plan Review, a TDM Plan be approved for each phase. This updated TDM plan supports the Level III Site Plan Submittal to the City of Portland for Blocks 4, 5 and 6 but also sets the baseline for the entire site moving forward.

The updated TDM Plan intends to implement various strategies to increase multimodal use and promote non-vehicular modes. The strategies aim at encouraging the use of local transit services to promote ridership, encouraging walking and bicycling, supporting carpooling, and disincentivizing vehicular trips via parking pricing.

Program Summary and Project Status

The Portland Foreside Company previously obtained site plan permits for Blocks 1 and 7 which programs and status are summarized in Table 1.

Table 1 Previously Permitted Buildings

Block	Building Name	Land Use	Parking	Status
1	SunLife	95,100 SF Office 9,300 SF Retail	68 Ground Level Parking Spaces	Core and Shell Constructed/91,000 SF of Office Space will be Occupied as of June, 2023
	Building 12	3,200 SF Restaurant 3,200 SF Office 2 Townhouse Condo Units		Core and Shell Constructed/3,000 SF Twelve Restaurant Operating, 3,000 SF of Office will be Occupied Late Summer 2023
7	Marina	150 Seasonal Slips and Transient Boating		Open

Portland Foreside is currently seeking approval for Blocks 4, 5 and 6 as part of the Level III Site Plan Submission to the City of Portland. The proposed project programs by Block are provided in Table 2.

Table 2 Proposed Buildings

Block	Building Name	Land Use	Parking
4	Harbor Hill	183 Apartment Units 16 Townhouse Condo Units 11,951 SF Ground Floor Retail	443 Garage Parking Spaces
5	Promenade Hotel and Residences	128 Key Hotel 43 Condo Units 4,928 SF Retail 18,083 SF Food & Beverage 19,697 SF Spa	35 Parking Spaces
6	Channel Mark	154 Condo Units 9,108 SF Retail	166 Garage Parking Spaces

2

Mobility Context

Understanding the transportation network that is available for employees, residents and visitors of the Portland Foreside Development is important to be able to recommend targeted TDM program elements. This section discusses the alternative modes of transportation that individuals can use to access the development as well as the opportunities and challenges related to those options.

The traffic analysis associated with the Traffic Movement Permit for the site assumed an auto mode share of 64 percent for the Project trip generation based on data contained in the Portland Plan. Ultimately, however, an alternate mode share of 18 percent was included in the trip estimates and TDM plan with the goal of an additional 5 percent trip reduction associated with the plan. Most recently, an updated trip generation analysis for the Traffic Assessment for Blocks 4, 5, and 6 dated June 23, 2023, assumed a 20 percent non-auto trip factor.

Walking and the Pedestrian Environment

The waterfront development is located on the Eastern Promenade adjacent to a dense residential neighborhood and an urban retail and restaurant hub. These uses are all connected through an extensive network of pedestrian facilities including sidewalks, ramps,

and crosswalks. This provides employees, residents and visitors with safe and efficient pedestrian accommodations to and from the project. There is a mix of concrete, asphalt, stone pavers, and brick laid sidewalks dispersed throughout the project area.

As shown in Figure 1, The City's sidewalk policy indicates that new permanent sidewalks in the City right of way will be of brick material. A field visit determined that the sidewalks surrounding Portland Foreside are currently brick along Freedom Way and a combination of brick, asphalt, and concrete along Fore Street. Thames Street within the project site is a shared street consisting of stone pavers for the sidewalk, parking and the roadway all at the same grade. Although it is not clear based on this GIS information from City of Portland's Driveway Apron Policy graphic shown below, there are sidewalks on both sides of all the streets (Fore Street, Freedom Way and Thames Street surrounding the site). The Eastern Promenade Trail runs along the southeast side of the site along the waterfront connecting pedestrians from the Eastern Promenade to downtown.

Within walking distance of the site are restaurants, retail, offices, residences, and hotels.

Figure 1 – Sidewalk Material Policy



Source: City of Portland Maine, Sidewalks and Driveway Apron Material Policy

Bicycling Environment and Infrastructure

As illustrated in Figure 2, the Eastern Promenade Trail (multi-use path shown with red solid line) runs right through the Foreside Development, separating the Marina from the rest of the development. In addition, based on this infrastructure map from the Greater Portland Council of Government, there is a planned shared bicycle lane for Fore Street along the site.

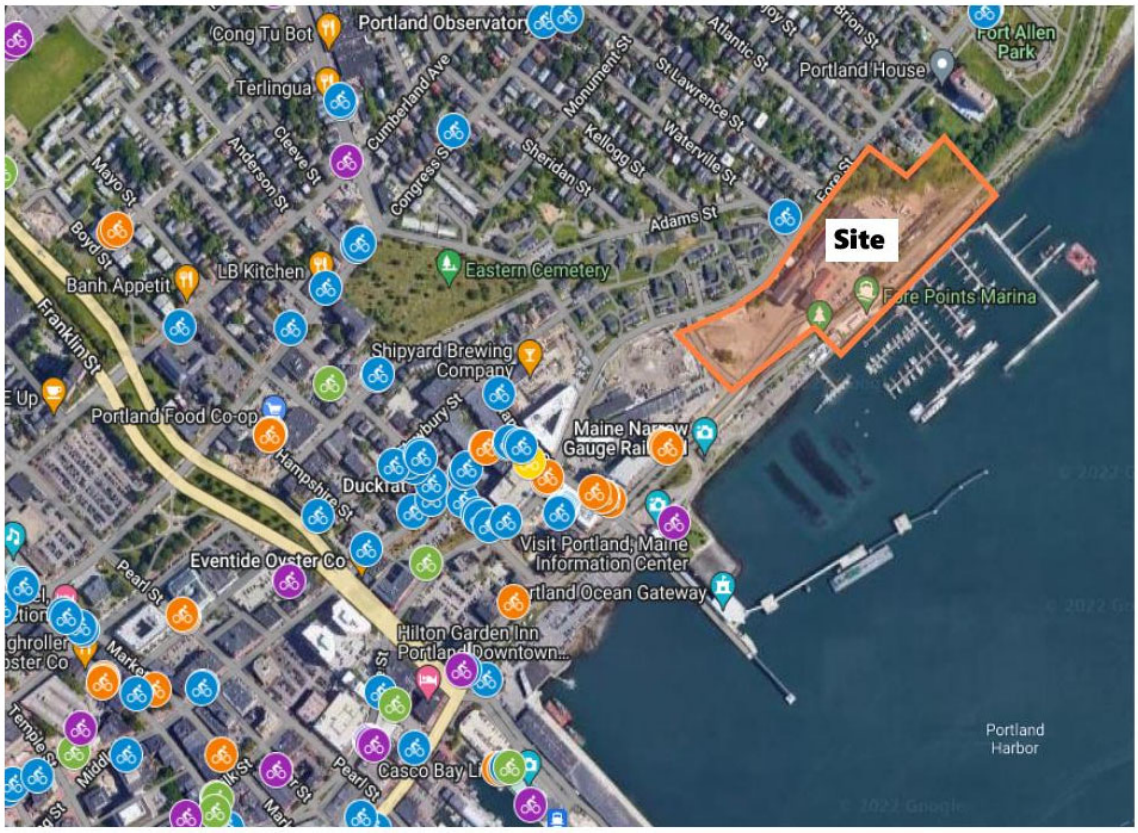
Figure 2- Bicycle and Trail Infrastructure



Source: Greater Portland Councils of Government, Bike Pedestrian Network

In addition to bicycle facilities, there are plenty of bicycle parking opportunities in the area. These opportunities are displayed on Figure 3, which is a Google Map of bicycle rack locations created by Portland Downtown. Blue represents 1-hitch, green is wave racks, purple is wheel benders, orange is u-racks, and yellow is covered bike parking locations.

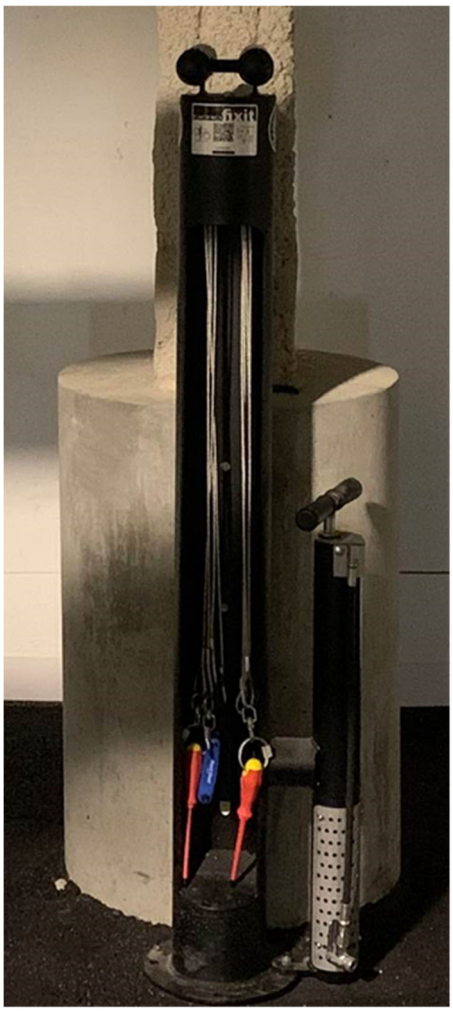
Figure 3 – Existing Bicycle Infrastructure



Source: Portland Downtown, Bike Parking Locations

Bicycle parking at the site was also reviewed. Directly outside the SunLife building, there are two Hitch style bicycle racks along Fore Street. There are four U-Rack style bicycle racks located on the southeast corner of the SunLife building. Each outdoor rack provides parking for two bicycles, therefore a total of 12 bicycle parking spaces are located outside. For longer-term bicycle parking, there are nine single vertical bike racks in the garage of the SunLife building. The SunLife building includes a Bike Fix-it station, showers, and locker rooms for those who travel by bicycle or walk/run to the site. The Fix-it station is located in the garage as shown in Photograph 1.

Photograph 1 – Fix-It station



The site will provide 178 residential bicycle parking spaces and 40 non-residential bicycle parking spaces once Blocks 4, 5 and 6 are constructed. Portland Foreside will provide showers and lockers for their employees as well.

Portland BIKESHARE provides a bikeshare program with two stations located near the site: Eastern Promenade Trail at Portland Landing and at the Cruise Terminal. The City of Portland has 200 bikes at over 40 stations including pedal and electric bikes. Monthly and annual memberships are available as well as by the minute rentals.

Figure 4 – Existing Portland BIKESHARE Locations

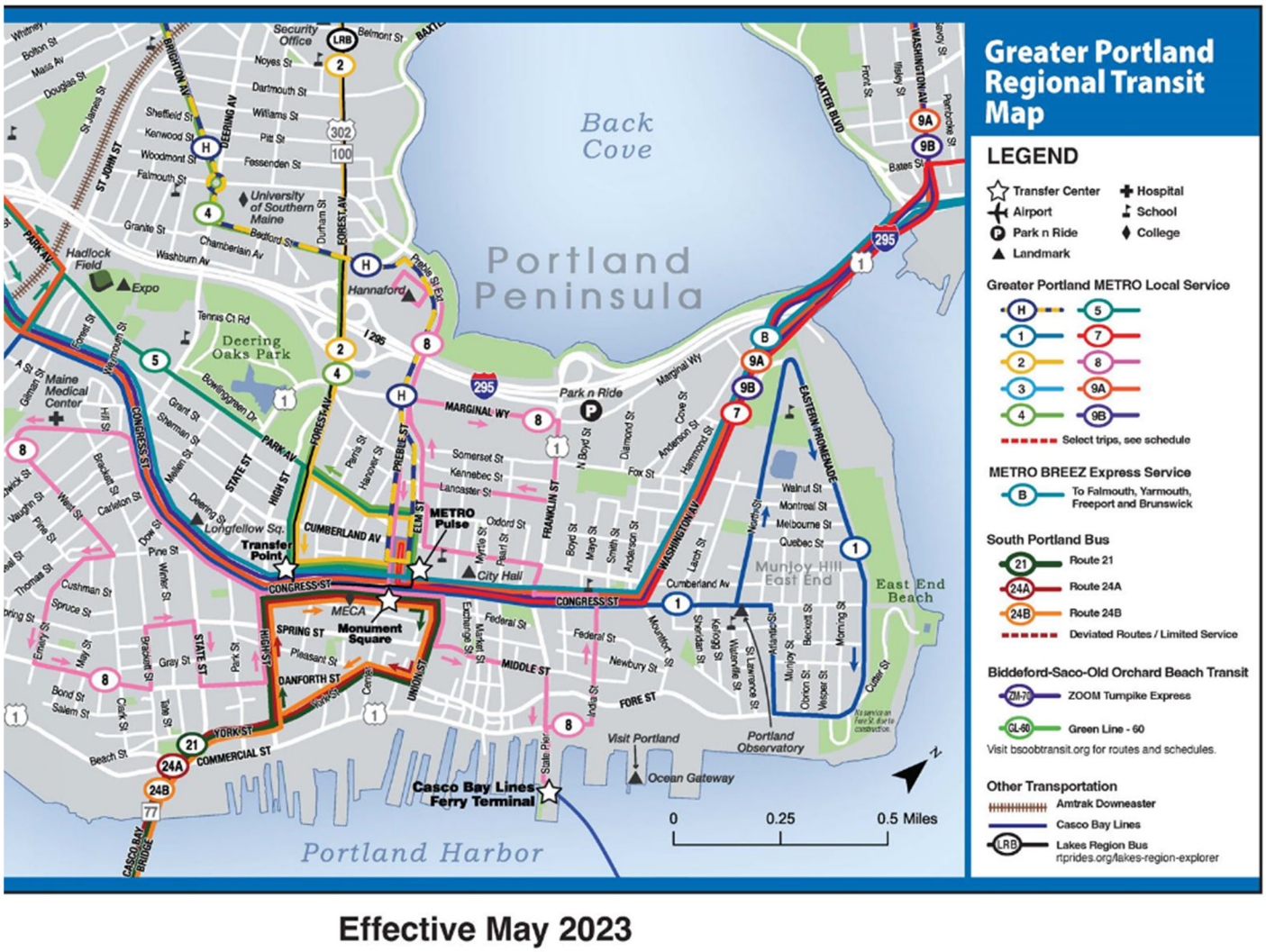


Source: Tandem Mobility, Portland Bikeshare

Public Transit

The site is located within a short walk of several METRO bus stops. Figure 5 illustrates that there are opportunities for employees, residents, and visitors to access the Greater Portland Metro bus lines. Route # 8 stops at India Street/Commercial Street within approximately one quarter mile from the site. Bus # 1 stops along Congress Street approximately one third of a mile from the site. Bus # 7, 9 and BRZ stop along Congress Street under half a mile from the site. The distance to the METRO Pulse at Elm Street transit hub corresponds to approximately an 18-minute walk (just under 1 mile).

Figure 5 – Portland Public Transportation Opportunities



Source: Greater Portland Metro, Greater Portland Regional Transit Map

Transit Together – Route and Schedule Changes

In January 2023, the Transit Together Plan was approved by the Portland Area Comprehensive Transportation System (PACTS) Policy Board to improve the regional transit system. These improvements will impact the Husky line as well as Routes 2, 4, and 8.

On August 27, 2023, METRO plans to extend the Huskey Line to the Ocean Gateway Terminal. It currently ends at the Metro Pulse on Elm Street. This change will provide a faster one-seat connection between Gorham, Westbrook, Rosemont, and Oakdale to Portland with new stops at the Ocean Gateway Terminal and Franklin Street at Fore Street.

Future improvements to Routes 2 and 4 include extending these routes to Ocean Gateway to enhance connectivity between Westbrook and off-peninsula neighborhoods to Downtown Portland. Ocean Gateway is under a quarter of a mile walk from the site.

Future improvements to Route 8 include modifying the route to be bidirectional. This will improve travel time around Portland's peninsula.

Parking Facilities and Policy

A temporary on-site surface parking lot containing 146 spaces currently serves SunLife office employees, the Marina and the Twelve Restaurant. The parking rate is currently set at $5 per hour with a max rate of $40 for 8-24 hours.

The SunLife building provides 68 gated parking spaces that are used by SunLife and Marina office employees as well as occasional visitors and guests of the Marina and the Twelve Restaurant. As of October, 2023, office uses are expected to lease approximately 60 spaces in the garage and 110 spaces in the surface lot. Short-term paid on-street parking is provided along Thames Street near the SunLife building.

The proposed Block 4 Residential Building (Harbor Hill) will provide 443 parking spaces while the proposed Block 6 Residential Building (Channel Mark) will provide 166 parking spaces. Block 5 (Promenade Hotel and Residences) will provide an additional 35 parking spaces for a site total of 712 parking spaces. The Hotel is expected to operate with valet parking while self-parking at market rates will also likely be an option. The residential parking will be charged at market rate as a separate expense unbundled from rent in order to discourage having a personal vehicle.

3

TDM Coordinator

TDM program management responsibilities will be designated to a single representative associated with the Portland Foreside Development.

Portland Foreside will oversee and be responsible for appointing a TDM Coordinator for the different uses on the site who will commit to survey employees, residents and visitors to estimate the mode shares as well as understand any barriers to using alternative modes. Portland Foreside would likely include costs for the TDM monitoring as part of the real estate fees for tenants and the condo building associations. In the short term, Portland Foreside has hired VHB to perform these services.

The responsibilities of the TDM Coordinator include the following:

- Promote human powered transportation choices to employees, residents and visitors and reduce single occupant vehicles (SOV) trips.
- Coordinate the implementation of TDM strategies with the various tenants and encourage them to conduct new employee orientation to educate regarding their transportation options to and from the site.
- Monitor bike rack usage and make recommendations as needed to accommodate demand.
- Work with the City of Portland, METRO, GoMaine, car share and bike share, and other potential partners to improve access to non-SOV modes.

- Recruit and engage participants for any outreach events or campaigns associated with the TDM program.
- Coordinate all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Complete the standard City of Portland TDM Reporting Form, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.
- Conduct Transportation Monitoring.
- Administer and review TDM surveys on a yearly basis.
- File annual TDM reports with the City of Portland.

The TDM Coordinator will be the primary point of contact for employers and tenants regarding TDM. The TDM Coordinator will help tenants develop strategies and incentives for employees, residents and customers where applicable. The TDM Coordinator will also work with tenants prior to when they occupy their space to inform them of the robust network of alternative mode choices available to them.

4

TDM Mode Split Targets

Portland Foreside is planning for the TDM program to reduce the number of single-occupancy vehicle trips by implementing incentives and infrastructure that encourages the use of alternative travel modes.

Successful implementation of the TDM Plan will reduce single-occupancy vehicle trips and increase other mode trips. The SunLife building, Marina, and Building 12 will be subject to the TDM plan developed as part of the Phase I permitting until one year following the Certificate of Occupancy for Phase II. One year following Certificate of Occupancy of Phase II, and going forward, all phases and uses will be governed by this TDM Plan.

Phase I: Blocks 1 and 7

The original TDM plan for Phase I included a target auto mode share reduction of 5 percent beyond the assumed alternative mode shares (18 percent) resulting in a decrease of 10 AM Peak Hour trips, 16 PM Peak hour trips and 14 parking spaces for the entire site development.

VHB conducted the annual monitoring program for the existing uses currently occupied: Restaurant (Twelve) and the Marina in the Fall of 2022. VHB worked with Portland Foreside to create a survey for employees of the site to estimate mode shares.

Based on the permitting for Blocks 1 and 7, Block 1 is expected to generate 187 AM Peak Hour vehicle trips and 198 PM Peak Hour vehicle trips prior to internal capture and mode share adjustments. Building 12 is expected to generate 16 AM Peak Hour trips and 37 PM Peak Hour trips. In addition, Block 7 the Marina, is expected to generate 36 AM Peak Hour and 36 PM Peak Hour vehicle trips.

Phase II: Blocks 4, 5 and 6

The TDM mode split target approach for Phase II Blocks 4, 5 and 6 is based on the updated November 22, 2022 City of Portland Technical Manual 17.3 Transportation Demand Management (TDM) section. The updated Traffic Assessment memorandum dated June 23, 2023 for Block 5 includes updated trip generation for Blocks 1, 2, 4, 5 and 6 assuming a non-auto mode share of 20 percent. The updated trip generation analysis indicates that, after adjusting for alternative modes and internal capture, the site is anticipated to generate 370 AM Peak Hour vehicle trips and 579 PM Peak Hour vehicle trips. To be consistent with the Master Plan for the entire site, the mode split target goal is a five percent auto mode share reduction from the 80 percent auto mode share assumed in the updated traffic analysis. Therefore, the target mode split is 75 percent for auto and 25 percent for all other modes. Five percent of the trips would result in a reduction of 19 AM Peak Hour vehicle trips and 29 PM Peak Hour vehicle trips. Portland Foreside is committed to implementing the TDM strategies presented in the following Section 5 to work towards achieving that Mode Share Target and beyond.

5

Mode Split Target Strategies

The Portland Foreside TDM Plan establishes a vision and set of strategies to incentivize commuters and visitors to travel more sustainably to and from the site.

Portland Foreside is taking advantage of the urban site location, providing support for and promoting alternative modes, and discouraging automobile trips in order to achieve success. The table below presents the TDM strategies that Portland Foreside agrees to implement; they are grouped by categories reflected in the City of Portland's *Technical Manual* and include timelines for implementing the various strategies.

Table 3: Proposed TDM Program for Portland Foreside

	Strategy	Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
Walk/Bike	**City Bikeshare – Participation**	Portland Foreside will support participation in the citywide Bikeshare system with the existing stations located at the Eastern Prom Trail at Portland Landing and at the Cruise Terminal.	Primary – Residents and Office Employees who use Alternative Modes to Commute Secondary – Retail and Hotel Employees, Retail and Hotel Patrons, Visitors		X		Portland Foreside will provide discounted Bikeshare membership rates to its employees that participate in the Bikeshare program. Transportation Coordinator to provide information to all tenants including other office employees.	Transportation Coordinator provide information to all tenants
	City Bikeshare – Potential New Location on Site	Portland Foreside is actively investigating a possible Bikeshare station on the Project site.	Primary – Residents and Office Employees who use Alternative Modes to Commute Secondary – Retail and Hotel employees, Retail and Hotel Patrons, Visitors	X			Actively exploring with Bikeshare to choose potential location	Implement
	Bicycle Repair	The SunLife building will provide a compact bike fix-it station in the garage near the hanging bike racks.	Site Residents, Employees and Visitors	X			Implement	
	Promote Local Bicycling Activities	Promote the participation in (and facilitation of) local bike activities such as the Portland Slow Ride, Smart Cycling Traffic Skills 101, and Cycling Savvy Events through Bicycle Coalition of Maine. Promote the use of the Eastern Promenade Trail. These local bicycling activities would be promoted during the tenant orientations as well as on the electronic transportation kiosk/bulletin board.	Employees, Residents			X	Transportation Coordinator to start promoting	X
	Showers and Lockers for cyclists/runners/ walkers	Portland Foreside will provide showers and lockers for its own employees and will encourage other tenants to do so as well. SunLife will also provide showers and lockers for its employees.	Office Employees	X			Provided upon occupancy	
	Bicycle Parking	There are currently two Hitch style bicycle racks outside of the SunLife building on Fore Street and four U-Rack style bicycle racks to the southeast of the SunLife building for visitors and all site users. Each outdoor rack provides parking for two bicycles therefore totaling 12 bicycle parking spaces outside. In addition, the SunLife garage provides nine single	Office, Hotel and Retail Employees, Residents, Retail Patrons, Visitors	X			Provided upon occupancy	

Strategy		Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
		long-term covered vertically mounted bicycle racks for employees. On-site bicycle parking will include 178 residential spaces and 40 non-residential spaces. Increase bicycle parking when warranted.						
Transit	**Potential Subsidy and Pre-tax Transit Passes**	Portland Foreside will explore the possibility of providing a transit subsidy for its own office employees. Transportation Coordinator will educate and encourage the other office tenants to offer employees the option of purchasing a pre-tax monthly transit pass and/or provide a subsidy.	Office Employees		X	X	Investigate process and cost implications, investigate Portland Foreside Subsidy	Include Information with Transportation Coordinator Correspondence to all site users Possibly subsidize Portland Foreside transit usage
	GO Maine Program	Portland Foreside will explore the possibility of leveraging GO MAINE programs for employees who use an alternative mode of transportation to travel to work, such as transit or carpool and an emergency ride home benefit to further encourage employees to use alternative means to get to work. GO MAINE also includes a rewards program for current users and a preferential parking program. Employers promote utilization of the GO MAINE programs by streamlining the process to enroll in their programs.	Office Employees		X	X	Transportation Coordinator to investigate demand	Implement as demand dictates/site develops
	Guaranteed Ride Home	Portland Foreside will explore the possibility of promoting a Guaranteed Ride Home Program from GoMaine or a private carpool app to complement alternative mode use.	Office Employees		X		Investigate process and cost implications	Include Information with Transportation Coordinator Correspondence to all site users Implement Portland Foreside Guaranteed Ride Home Program
	Hotel Shuttle Service	Hotel Shuttle service to promote travel to and from hotel for guests. Routes might provide access to the airport, train station etc.	Hotel Patrons	X	X		Investigate	Implement
Carpool	**Establish Carpool System**	Establishment of a carpool system and convenient parking spaces reserved for carpoolers.	Office Employees		X	X	Transportation Coordinator to investigate demand	Implement as demand dictates/site develops
	Carshare Parking	Once the garage is nearing completion, potential carshare services in the area that may be available will be investigated to provide a car-share space on site in the Block 4 garage.	Residents		X		Investigate	Implement
	Carshare Membership	Promote carshare membership.	Residents/Employees			X	Transportation Coordinator to promote	

Strategy		Description	Targeted User/Group	Infrastructure	Incentives	Education	Timeline Years	
							Short-Term (0–2 Years)	Long-Term (2–5 Years)
Parking	**Unbundled Residential Parking**	Unbundle parking cost from the cost of rent. Charge all site users market parking rates.	Residents		X		Implement market rate from beginning	
	Parking Pricing Increase	Increase parking pricing to reflect market rates.	Residents		X			Over time, continue to ensure market rates and unbundled parking
	Electric Vehicle Parking	Provide Level 2 and Level 3 electric vehicle charging stations for 69 vehicles (10%). Install conduits and electrical expansion capacity for an additional 66 Level 2 and Level 3 electric charging stations to meet future capacity (in aggregate, 20%). Currently provide two level 2 electric vehicle charging stations with conduit and capacity for an additional 6 Level 2 electric vehicle charging stations in Building 1A SunLife Building.	Office, Hotel & Retail Employees, Residents, Hotel and Retail Patrons Visitors		X		Incorporate infrastructure in garage during construction	Offer spaces as demand dictates
	Parking Cash Out	The monthly costs for spaces is anticipated at $275/month in the garage and $185/month in the surface lot. A “parking cash out” where employees receive monetary payments in lieu of provided parking, free or reduced public transit passes, or periodic prize drawings for employees using alternative modes of transportation is being considered.	Employees of tenants (if tenant provides parking)		X		Portland Foreside to investigate options and Transportation Coordinator to provide information to all employer tenants for consideration (if they provide parking).	Transportation Coordinator to provide tenants information
Communications and Marketing	**New Tenant Orientation**	Provide employees and new residents with an orientation and new tenant packet promoting non sov modes as outlined herein.	Employees and Residents			X	Continuous Transportation Coordinator to develop	Continuous
	Transportation Kiosk or Bulletin Board	Identify buildings or site central areas where an electronic Kiosk or Bulletin Board could post real-time transit information, carshare and rideshare opportunities, bicycle and pedestrian information (bikeshare, bike/ped routes, bike parking), and promotions.	Office, Hotel and Retail Employees, Residents, Retail and Hotel Patrons, Visitors			X	Transportation Coordinator to work with tenants to identify locations	Implement
	Transportation Website	Create Transportation page on Portland Foreside website “getting here” that highlights non-automobile methods of travel. Site can provide information on alternative mode. Transportation Coordinator to provide tenants with suggested information on their websites.	Office, Hotel and Retail Employees, Residents, Retail and Hotel Patrons, Visitors			X	Transportation Coordinator to develop content	Implement

6

Monitoring and Reporting Plan

Program monitoring and evaluation are important components of any successful Transportation Demand Management (TDM) Program because they provide a quantitative benchmark of the program's effectiveness in reducing single occupancy vehicle trips and parking demand. The TDM Coordinator can use the information gathered via the monitoring plan to direct the ongoing implementation of the TDM Program, allowing for adjustments and the introduction of new strategies. Furthermore, via annual reports, Portland Foreside will provide evidence to the city of the applicant's diligence in implementing the program.

There are different methods for collecting the data necessary to monitor a TDM Program, including surveys, program participation documentation, vehicle parking permits and usage data, bicycle parking demand counts and activity logs. Portland Foreside's TDM program monitoring will use annual person surveys (with other data collection, such as parking

utilization counts where needed) to evaluate the effectiveness of the program. Each of these tools is discussed below.

Commute/Travel Survey

On an annual basis, the TDM Coordinator (or contracted company) will administer a survey of employees, residents, hotel and retail patrons and visitors of Portland Foreside.

Surveys provide a qualitative understanding of how well TDM program elements are working. The survey will, at a minimum, ask respondents for the type and frequency of modes of transportation used in a typical week (for residents and employees), reasons behind driving alone, and ideas for incentives that would encourage drive-alone respondents to use an alternative mode. Surveys will be completed in the Spring prior to the May 15th TDM Report submission deadline.

Parking Demand Data

Should parking utilization counts be needed to support the monitoring process, the TDM Coordinator will track the number of parked vehicles on the site during the midday period (to capture highest commercial user demand period) and during the late evening (to capture highest resident demand period) during the same data capture window (determined to be a typical week during discussions with the City of Portland). This data will help track the vehicular parking demand on the site over time.

Since Portland Foreside is requesting a partial waiver for the required Electric Vehicle (EV) Parking, the TDM Coordinator will complete annual monitoring of the EV charging demand to determine EV ownership and station use statistics. Should additional EV charging spaces be needed beyond what is initially installed, the report will include a plan to increase the number of EV charging spaces to meet projected demands as warranted.

Bicycle Parking Data

Should bicycle parking utilization counts be needed to support the monitoring process, the number of bicycles parked in the Portland Foreside bike spaces will be noted. This data will be reviewed for trends in bicycle usage over time.

Transit Usage Data

The TDM Coordinator will work with Metro to track the transit usage of Portland Foreside employees via any pass program implemented for Portland Foreside employees or other site tenants. The data for the same time period as outlined above in the surveys will be obtained and reviewed.

Status and Monitoring Report

Each year that monitoring is conducted, the TDM Coordinator will prepare the standard City of Portland Transportation Demand Management (TDM) Reporting Form by May 15th.

The data collected regarding electric vehicle charging use will also be summarized in the monitoring report. Should additional EV charging spaces be needed beyond what was initially installed, the report will include a plan to increase the number of EV charging spaces to meet project demands as warranted.

Once the report is submitted, the TDM Coordinator would be available to meet with the City of Portland Planning Department and discuss suggestions for adjustments to the TDM Program.

5. CONSISTENCY WITH CITY OF PORTLAND ENVIRONMENTAL QUALITY STANDARDS (14.6.2)

Compliance with the City of Portland's Land Use Code Section 14.6.2 Environmental Quality Standards is described in the following sections.

5.1 Preservation of Significant Natural Features

The Site has been previously developed and there are no known areas of significant natural features, including unusual natural areas, rare or endangered botanical features, areas of significant wildlife habitats, or wetland areas. The attached Official Species List identifies the northern long-eared bat (threatened species), roseate tern (endangered species) and monarch butterfly (candidate 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. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat, roseate tern, or monarch butterfly.

5.2 Landscape Preservation

The project will meet the Landscape Preservation standards as follows:

1. Site development shall be designed to incorporate, limit disturbance to, and limit removal of existing trees.
    a. The existing site is fully developed and there are no known areas of significant or unusual natural features, rare or endangered botanical features, or areas of significant wildlife habitats within or adjacent to the project site.
    b. Much of the site will be raised to elevation +/-15' above sea level (see grading plan for more detail) as an extension of the first phase of the project and to align with the City of Portland Comprehensive Plan for a resilient waterfront.
    c. The area around the existing seawall along Fore Street is populated with volunteer plants that have seeded themselves in. This slope will be cleared to allow the building to address Fore Street. The planting design more than doubles the number of trees currently found on site.
2. The site plan shall include adequate measures to protect vegetation to be preserved from construction impacts, in accordance with the landscaping and landscape preservation standards of the Technical Manual.
    a. There are no significant trees on site to be preserved.
3. All development subject to zoning setbacks shall preserve a minimum of 30% of existing trees 10 inches DBH or greater within the required setback area unless trees are non-native invasive species, as identified in the landscaping and landscape preservation standards of the Technical Manual or are deemed unsalvageable by the Portland City Arborist or their designee.
    a. The only vegetation on site is a steep slope of volunteer trees and dense shrubs/weeds. Much of the area is dominated by vines and invasive plants. The slope will be cleared as part of the construction process.

5.3 Site Landscaping & Buffers

Block 4 of the development is located to the east of Phase 1 of the project along Fore Street. The site design for this formerly industrial site includes an extension of Thames Street from Phase 1 along the southern side of the building, four significant courtyard spaces on the rooftop of the garage between the residential towers, and individual entries to several townhouses along Fore Street. The design intent is to provide vehicular and pedestrian access to the building and site while creating contemporary social spaces respectful of the site's industrial history that support the programmatic intent of the building.

The frontage along Fore Street consists primarily of a series of individual townhouses. Each unit has its own entry from the sidewalk. Each entry is flanked by a series of planting areas containing a mix of shrubs and groundcover plants to provide separation between the residential units and the sidewalk. The proximity to the existing seawall precludes the planting of trees as their roots would undermine the back of the seawall.

The primary pedestrian and vehicular entrances to the site are via an extension of Thames Street from the west. Nine street trees (Karpick Red Maple) are located within the sidewalk to the south of the building. These trees will be planted using a pavement support system to allow for healthy root development while maximizing paved areas for pedestrian circulation. The trees are arranged in groups of three to mimic the spacing of the residential buildings above. This has the added benefit of being able to aggregate the pavement support system such that they share a contiguous volume of soil.

Pedestrians will also be able to access the site via public stairs from Fore Street through the central courtyard, then down to Thames Street. The courtyards will contain an extensive series of raised planters, paved walkways, seating areas and entry decks to the residential units. The planters will contain a variety of plant types including small to medium trees, shrubs, and perennials to provide privacy for the residential units and to enhance the public walkway.

The east side of the property, where construction will require reinforced slopes cut into the hillside, will contain a sunken woodland garden containing thirteen birch trees and a mix of shade tolerant perennials.

5.4 Water Quality, Stormwater Management & Erosion Control

The project must comply with the water quality, stormwater management, and erosion control standards identified by the City of Portland in the Land Use Chapter of the Code of Ordinances, as well as the MaineDEP Chapter 500 Stormwater Standards associated with Site Location of Development Act Permit requirements. The Stormwater Management Plan included with this application demonstrates that the proposed development meets the applicable standards.

The project has been designed to minimize the impact of stormwater leaving the site. The project will not result in the flooding of adjacent lots or City property. Proprietary stormwater treatment systems have been installed as part of Phase 1 of the site's development, and additional systems are proposed as part of the current phase. A site that had previously seen no stormwater treatment or management other than some limited collection systems, will be managed to reduce the impact of stormwater on surrounding resources. Additionally, the project is not located within the watershed of an Urban Impaired Stream and is not anticipated to pose a risk of groundwater contamination during or after construction. Erosion and sediment control measures are described in the attached Stormwater Management Plan and detailed in the drawings. The development has also been designed to provide for the adequate and sanitary disposal of sewage, as further described in Section 5 of this Report.

5.5 Attachments

- Official Species List
- Stormwater Management Report (uploaded separately)

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

In Reply Refer To:
Project Code: 2022-0086547
Project Name: 58 Fore Street

September 19, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The 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 website 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/or 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 and/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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

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 Code 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

Project Code: 2022-0086547
Project Name: 58 Fore Street
Project Type: Mixed-Use Construction
Project Description: Development project at 58 Fore Street.
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.663273149999995,-70.24280579125673,14z



Counties: Cumberland County, Maine

Endangered Species Act Species

There is a total of 3 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

Birds

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Woodard & Curran
Name: Amy LeBel
Address: 41 Hutchins Drive
City: Portland
State: ME
Zip: 04102
Email alebel@woodardcurran.com
Phone: 2075583841

PORTLAND FORESIDE DEVELOPMENT – PHASE 2

STORMWATER MANAGEMENT PLAN

58 Fore Street
Portland, ME

41 Hutchins Drive
Portland, ME 04102
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woodardcurran.com

0227007.19
Portland Foreside Development Co.
April 2023

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APPENDICES

Appendix A: Stormwater Inspection & Maintenance Plan
Appendix B: Stormwater Quality Calculations
Appendix C: HydroCAD Report
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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 development of Phase 2 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine.

1.1 Background

The proposed development is the next phase of the 58 Fore Street Master Development Plan, unanimously approved by the Portland Planning Board on December 22, 2016, to redevelop and revitalize the former Portland Company Complex into a mixed-use development. The Master Development Plan consists of six development "blocks" will include new buildings, renovated historic buildings, open space plazas and a shared roadway. The project is being constructed in phases.

The project received approval of a Level III Site Plan, Site Location of Development and Subdivision approval from the Portland Planning Board for Phase 1 of the development on January 28, 2020. Phase 1 included portions of Block 1 (office building and reconstruction of Building 12), Block 2 (renovation of historic core buildings), Block 4 (parking garage with limited residential and retail), construction of site infrastructure around these buildings, and improvements along the waterfront. After the project received Planning Board approval, construction advanced on a portion of Phase 1. Construction on Block 1 is complete, and included installation of R-Tank System 1, Jellyfish 1, and Outfall #1. Construction of Blocks 2 and 4 was not completed, including R-Tank System 2, Jellyfish 2, and Outfall #2.

The proposed project on Blocks 4, 5 and 6 is the next phase of development (Phase 2). The stormwater management system has been designed to ensure stormwater standards are met for the development during each phase, with consideration to the full build-out. The following report demonstrates the development of the site meets the stormwater standards for this next phase.

1.2 Existing Conditions

The project site is a portion of an approximately 10.7-acre property adjacent to the Fore River. The property was previously developed as the Portland Company Complex, which contained various industrial uses. Many of the existing buildings located within the project area have previously been demolished. Current conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site.

The project site is bordered by Fore Street to the north, Freedom Way to the west, the Fore River to the south, and the Portland House condominium complex to the east. Runoff from the Site drains via sheet flow in a southerly direction to a series of catch basins that ultimately discharge to the Fore River.

1.3 Proposed Development

The proposed development of Phase 2 will result in approximately 7.2-acres of disturbance and approximately 6.9-acres of impervious area. Proposed work includes the following:

- Construction of a structured parking garage with overlying rental apartments, townhouses, hotel, and condominiums and ground-level retail and restaurant spaces;
- Construction of a shared street, plazas, and subsurface utilities to support the development; and
- Landscaping and other site improvements to enable the surrounding work.

The proposed drainage system in Phase 2 will be comprised of trench drains located along the centerline of the new roadway, and a series of catch basins and area drains throughout the plaza area which ultimately discharge to Fore River via two outfalls.

Runoff from the Block 4 building roof, portions of the Block 2 building roofs, and a portion of the Block 5 building roof, as well as the proposed roadway, sidewalks and plaza area between these buildings will be conveyed to a subsurface stormwater management system (R-Tank System 2 and Jellyfish 2) that will provide storage and treatment for site runoff prior to discharging to the Fore River via Outfall #1. Roof runoff from portions of the Block 5 roof will be captured, stored, and treated via green roof, and portions of the Block 6 roof will be captured and treated via one of two Filterra Bioretention Systems (Filterra 1 and Filterra 2). Treated runoff from the green roof and Filterra units will discharge to the Fore River via Outfall #2, along with runoff from the remainder of the roof area on Blocks 5 and 6, plaza around Block 6 and south of Block 5, and runoff captured from upgradient drainage area.

As noted in Section 1.1, the proposed R-Tank storage system (R-Tank System 2) and Jellyfish Filter (Jellyfish 2) were previously designed, reviewed and approved as part of Phase 1. Minimal changes to this system are proposed as detailed below:

- Relocation of Jellyfish Filter 2 to accommodate relocation of the railroad and trail, and associated adjustment of invert elevations;
- Increase in drainage area to accommodate the total "future treated area" of which the water quality treatment calculations were based on for Phase 1 (i.e. while the contributing area increased, the water quality volume provided remained the same, as shown on the water quality calculations in Appendix B);
- Reconfiguration of the R-Tank storage system to accommodate utility and landscaping improvements while maintaining the total storage volume provided; and
- Improvement in pollutant loading from converting exposed Block 4 parking garage deck (Phase 1) to structured parking with overlying residential apartments and plaza (current phase).

The proposed stormwater management systems are discussed in further detail in the following sections.

1.4 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.

1.4.1 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", latest edition. 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.

1.4.2 Flooding Standard (Stormwater Quantity)

Runoff from the proposed project will ultimately discharge to the adjacent Fore River, which is a tidal waterbody, via either sheet flow, the on-site storm drain system, or the City's 60-inch storm drain located within the adjacent Fore Connector roadway. In accordance with Section 4.F(3) of the MaineDEP Chapter 500 Stormwater Standards, a project is eligible for a waiver from the Flooding Standard if it discharges to a coastal wetland or a major river segment. Per the Master Development Plan Approval letter dated December 22, 2016, the City of Portland Planning

Board voted to grant a waiver from the Flooding Standard for future site plan applications associated with the 58 Fore Street Site.

The stormwater management system has been adequately sized to safely convey runoff from the proposed 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. For your reference, a copy of the HydroCAD Report and the Drainage Area Figure for the proposed site are provided in Appendix C and D of this Report, respectively.

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. According to the latest NRCS Web Soil Survey data, the Site consists largely of urban fill, which is assumed to be equivalent to HSG D soils. The area of each land cover type was delineated utilizing survey information and HydroCAD computed the final CN for each subcatchment based on an area-weighted average.

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 and land cover. The primary types of flow include sheet flow, shallow concentrated flow, and channel flows. A minimum Tc of six minutes was utilized.

1.4.3 General & Redevelopment Standards (Stormwater Quality)

The proposed project is subject to the redevelopment standards for stormwater quality. A figure showing the area of redevelopment is included in Appendix D of this Report. Calculations have been prepared in accordance with Section 4.C(2)(d) of the MaineDEP Chapter 500 Stormwater Standards to determine how much treatment is required for the proposed redevelopment project. Based on the impact analysis calculations provided in Appendix B of this Report, it has been determined that the proposed project is required to provide treatment for 50% of the redevelopment area. Figures showing existing and proposed pollutant ranking areas are provided in Appendix D. Greater than 50% of the redevelopment area will be captured and treated. The redevelopment calculations will be re-evaluated as part of the design of future phases to determine if treatment requirements change.

Based on previous discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, it is our understanding that the project will not be required to provide storage for the full water quality channel protection volume (typically 1-inch over impervious areas and 0.4-inches over landscaped areas) because the project discharges directly to the Fore River. Some storage will be provided by R-Tank 2 prior to treatment via Jellyfish Filter 2, which will increase

the time of concentration on-site. It should be noted the Jellyfish Filter 2 was sized to accommodate the water quality flow from 1-inch of runoff over the entire drainage area. The reduced water quality volume for R-Tank 2 was approved during Phase 1. Due to direct discharge to Fore River, stand-alone Filterra Units (without subsurface water quality volume storage) are proposed for treatment of portions of the Block 6 roof. We anticipate some detention will be provided by the building plumbing system. Green roof provided on Block 5 has been sized to provide the full water quality volume storage for the drainage area. The treatment calculations provided in Appendix B of this Report include a summary of the water quality volume that will be provided.

A Jellyfish Filter and two Filterra units will provide stormwater quality treatment for the Site. The systems have been designed in accordance with the MaineDEP proprietary BMP approval letter to Contech dated January 21, 2015 (Jellyfish Filter) and February 2, 2017 (Filterra). The Jellyfish Filter and Filterra units have been sized to accommodate the water quality flow from 1-inch of runoff over the entire drainage area. The Jellyfish Filter is equipped with high-flow bypass via an internal weir for larger storm events. The proposed Filterra units are configured to be "off-line" with a downgradient catch basin inlet. We are coordinating with the manufacturer on proposed Jellyfish Filter and Filterra unit design; a letter that demonstrates manufacturer review and approval of the design will be provided upon receipt.

1.5 Inspection & Maintenance Requirements

General inspection and maintenance of stormwater systems will take place during and after construction. During construction, the Contractor will be responsible for inspecting and maintaining the Site, as described in Section 1.3.1 of this Report. Upon completion of construction, the property owner will be responsible for implementing the Inspection and Maintenance Plan for the proposed stormwater system, which is provided in Appendix A of this Report.

APPENDIX A: STORMWATER INSPECTION & MAINTENANCE PLAN

STORMWATER INSPECTION & MAINTENANCE PLAN

Portland Foreside Development – Phase 2, 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 storm drain 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.

Green Roof

Green roof areas should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the green roof areas should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater and drains within no less than 36 to 60 hours following storms that fill the system to overflow. If ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity. If ponding exceeds 72 hours, the top several inches of the filter shall be replaced with fresh material. Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.

Subsurface R-Tank System

The subsurface R-Tank System must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance documents.

Jellyfish Filter Unit

The Jellyfish Filter Unit must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance document.

Filterra Bioretention System

The Filterra Bioretention System must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance document.

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		
Green Roof	inlet free of erosion		some erosion at inlet		inlet heavily eroded		
Green Roof	drains in <24 hours		drains in 24 to 48 hours		ponding exceeds 48 hours		
Jellyfish Filter Unit*	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
Jellyfish Filter Unit*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
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 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
Replace stone rip-rap	Every 3 to 5 years as needed
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.

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.

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).

ACF ENVIRONMENTAL
LET'S GET IT DONE
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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:_____

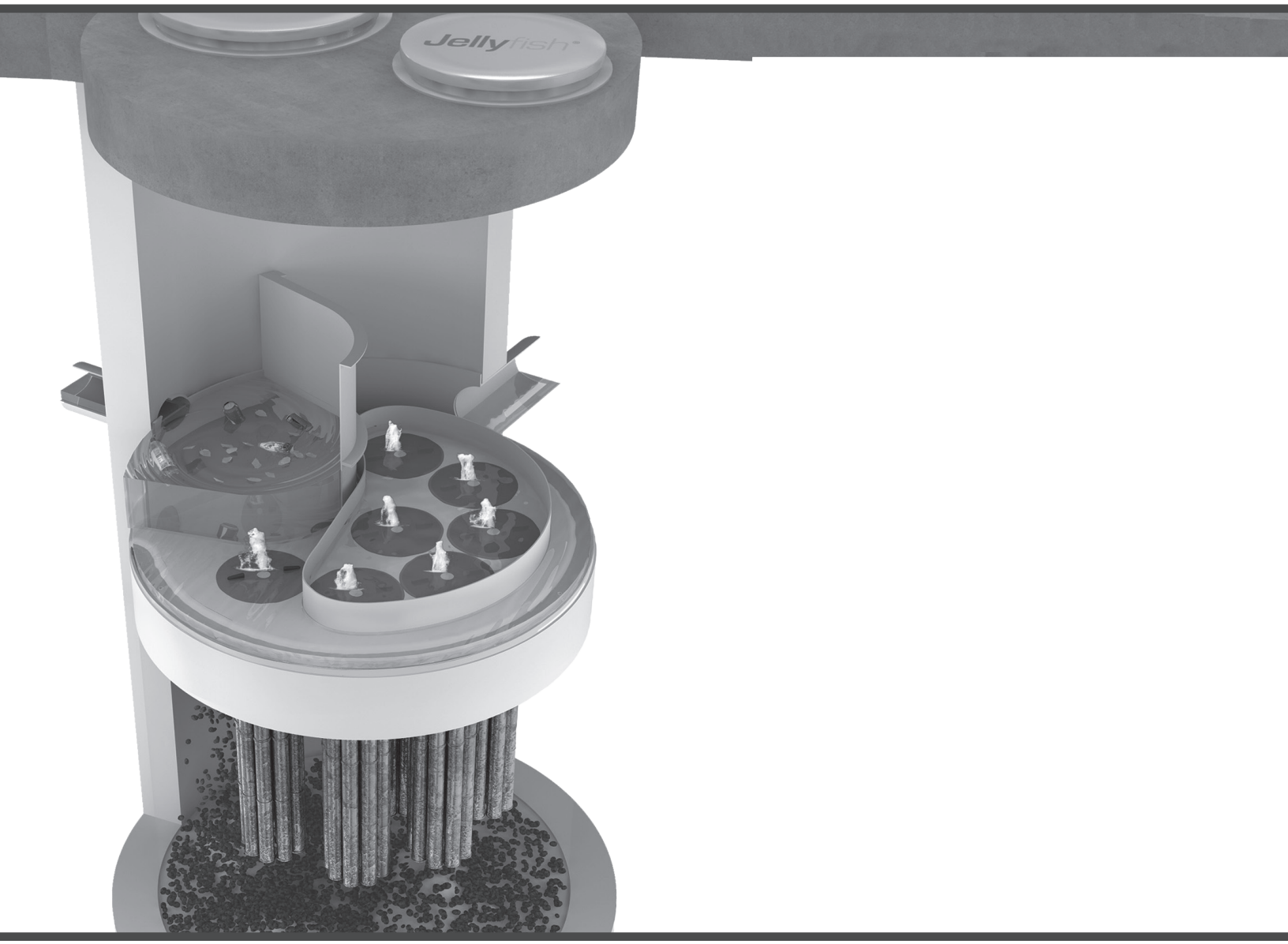
Contact:_____

Phone Number:_____

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

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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Inspection Process 7

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.

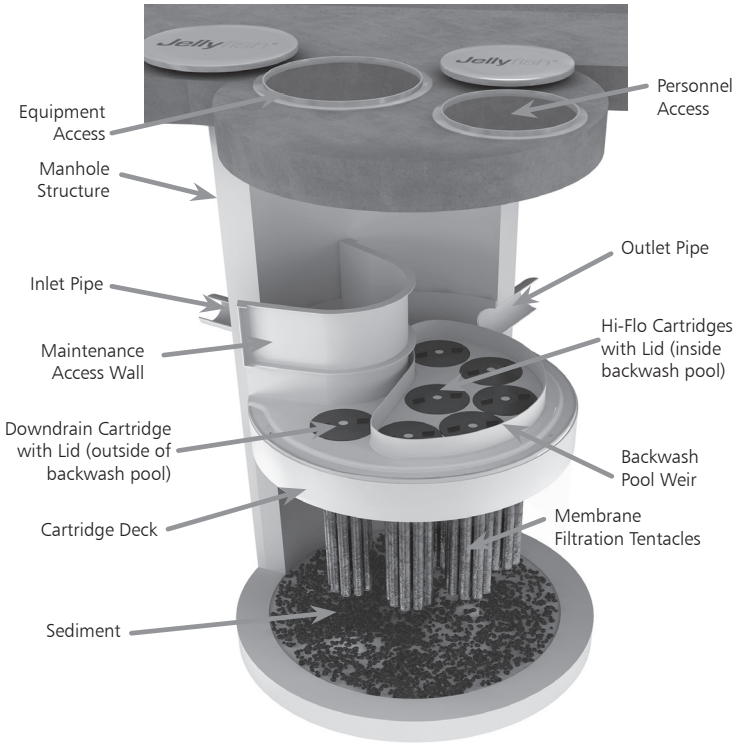
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion 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:

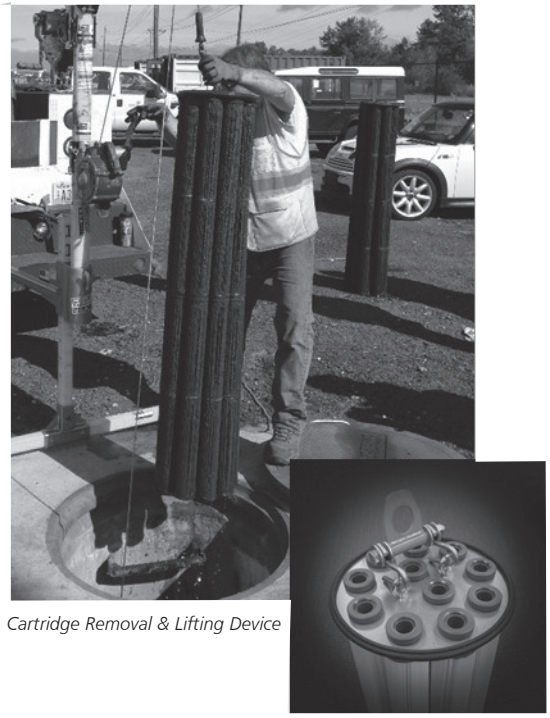
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. 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.

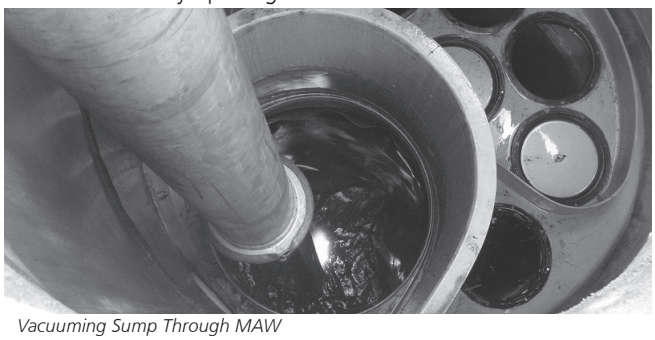
5.3 Sediment and Flotables Extraction

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

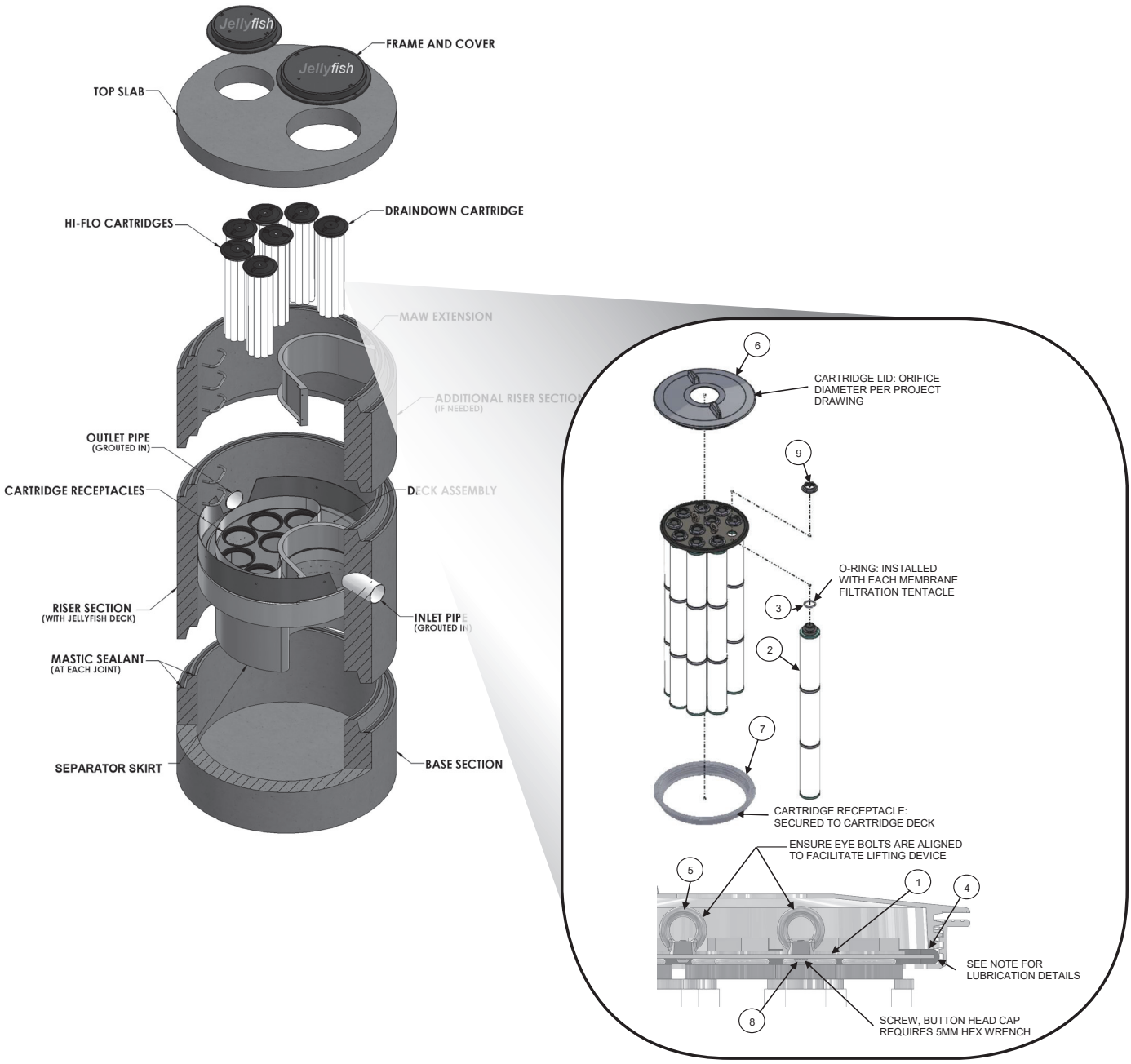


TABLE 1: BOM

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

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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Filterra Owner's Manual



filterra®

Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

This Owner's Manual applies to all precast Filterra Configurations, including Filterra Bioscape Vault.







filterra®
Bioretention Systems

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CONTECH®
ENGINEERED SOLUTIONS

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.

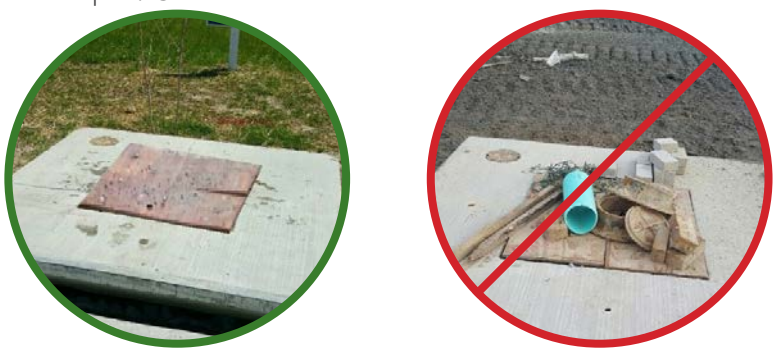
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

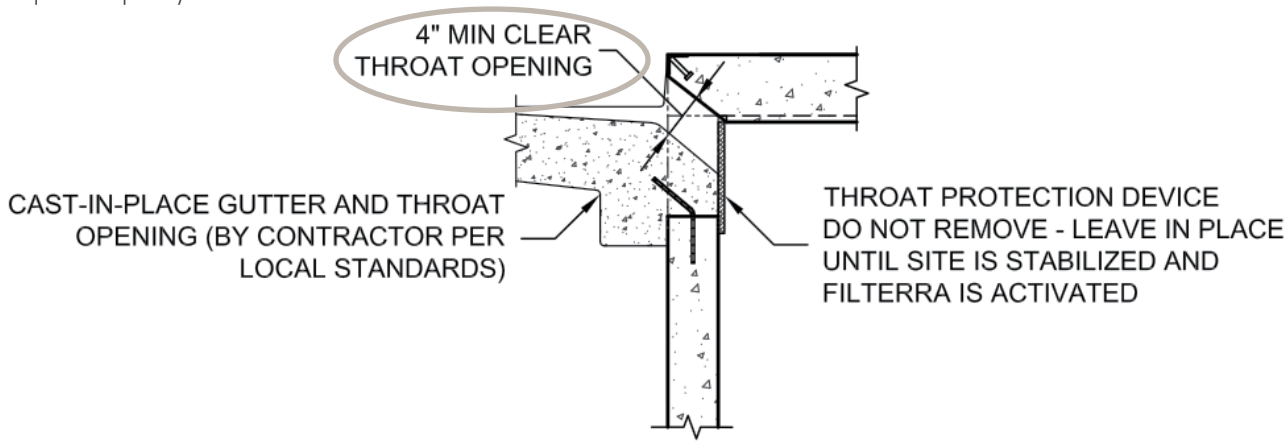
1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



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. Where curb inlets are included as part of the Filterra system, 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 is available on the Contech website 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 typically 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 provider 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 (where applicable) 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, where applicable (up to 170 lbs each). If tree grate opening expansion is necessary, safety glasses/goggles and a 3lb or greater mini sledgehammer are required. 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.

Media Bay Length	Media Bay Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	16	4	2
6	4	24	6	3
8	4	32	8	4
6	6	36	9	5
8	6	48	12	6
10	6	60	15	8
12	6	72	18	9
13	7	91	23	12

Other sizes not listed - 1 bag per 8 ft^2 of media.

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 (if applicable)	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 (if applicable) and erosion control stones

- Remove cast iron grates for access into Filterra box (if applicable).
- 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 (if applicable) correctly using appropriate lifting or moving tools, taking care not to damage the plant.
- Where applicable, if 6" tree grate opening is too close to plant trunk, the grate opening may be expanded to 12" using a mini sledgehammer. Refer to instructions in Appendix 3.



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 top of Filterra Unit	_____ (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 Top of Vault	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 ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	

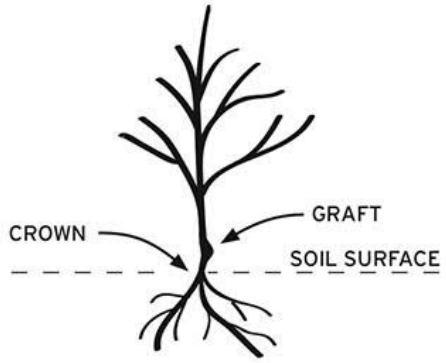
Attach additional sheets as necessary.

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) may 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 with a tree grate of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant foliage 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 meets 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 top/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.



Appendix 3 – Filterra® Tree Grate Opening Expansion Procedure

The standard grates used on all Filterra configurations that employ Tree Grates are fabricated with a 6″ opening that is designed with a breakaway section that can be removed, allowing the grate opening to be expanded to 12″ as the tree matures and the trunk widens.

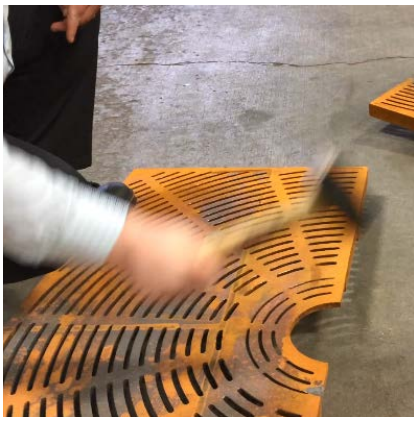
The following tools are required to expand the opening:

- Mini sledgehammer (3 lb. or greater)
- Safety Glasses / Goggles

The following guidelines should be followed to properly expand the tree opening from 6″ to 12″:



1. Remove the grate from the Filterra frame, place it flat on a hard surface, and support the grate by stepping on the edge or using other weighted items such as a few mulch bags if this is being done during a Filterra maintenance event. Put on safety glasses/goggles. Align the mini sledgehammer as shown in the figure to the left. The head of the sledgehammer should be aimed just inside the wide cast iron bar between the larger grate section and the breakaway section.



2. Repeatedly hit the grate at this spot with the mini sledgehammer.



3. After several hits, the breakaway section should snap cleanly off of the larger grate section. Reinstall the grate into the Filterra grate frame. Recycle or dispose of the breakaway section per local guidelines.





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PDF 6/21

Stormwater BMP Maintenance Log

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

APPENDIX B: STORMWATER QUALITY CALCULATIONS

Woodard & Curran
41 HUTCHINS DRIVE
PORTLAND, MAINE 04102

CLIENT: PFDC
PROJECT: Phase 2
CALCS BY: AL/LS
DATE: 4/11/2023
PROJECT NO.: 227007.19

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

Area of Redevelopment (acres) = 12.15

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	4.14	16.54
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	2.70	8.09
Other Roofs/Landscaped Area/Paved Walkway	2	3.51	7.03
Non-grass Landscaping/Stormwater	1	1.80	1.80
Forest/Meadow	0	0.00	0.00
		12.15	33.46

b. Proposed Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.51	2.54
Other Roads/Medium Use Parking Lot	4	0.70	2.80
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	0.55	1.66
Other Roofs/Landscaped Area/Paved Walkway	2	10.29	20.59
Non-grass Landscaping/Stormwater	1	0.09	0.09
Forest/Meadow	0	0.00	0.00
		12.15	27.68

c. Existing Impact/Total Redevelopment Acres

2.754

d. Proposed Impact/Total Redevelopment Acres

2.278

e. Item D Minus Item C

-0.48

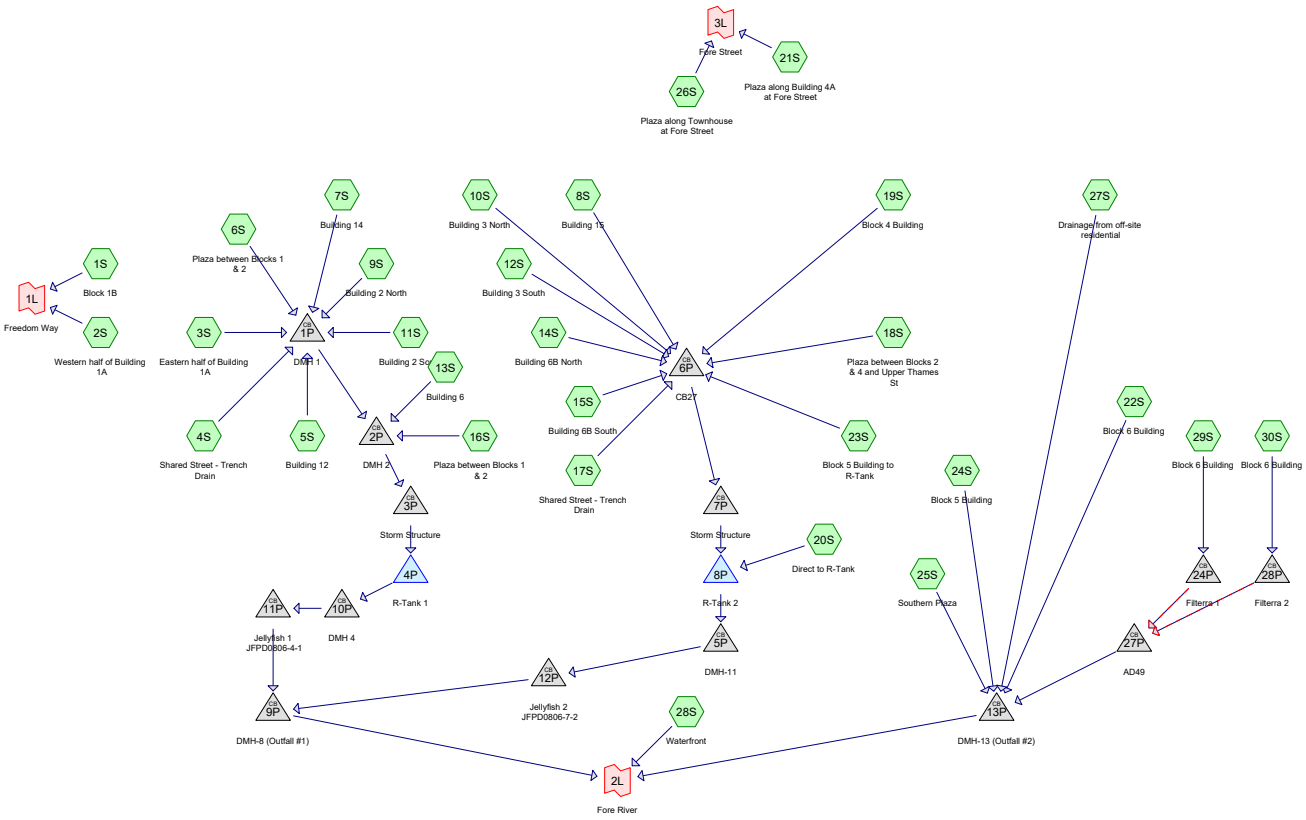
Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects)
	50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

Stormwater Treatment Summary	*Treatment Percentage*	*Treated Area (SF)*
Required	50%	264,605
Provided	51%	271,000

WQV Summary	*R-Tank System 1*	*R-Tank System 2*	*Block 5 Green Roof*	*Filterra 1*	*Filterra 2*
Status	Approved (Phase 1), Constructed	Approved (Phase 1), Proposed	Proposed	Proposed	Proposed
Phase 1 Treated Area (SF)	84,114	114,084	N/A	N/A	N/A
Proposed Treated Area (SF)	89,644	149,106	8,300	11,975	11,975
Total Future Treated Areas (same as Phase 1) (SF)	94,090	149,106	N/A	N/A	N/A
WQV Required (CF)	7,841	12,426	692	998	998
WQ Design Storm Event (in.)	1.00	1.00	1.00	1.00	1.00
WQV Provided (CF)	2,859	6,035	N/A	N/A	N/A
*WQ Storm Event Provided (in.)**	0.36	0.49	N/A	N/A	N/A
Filterra Size	N/A	N/A	N/A	6'X8'	6'X8'

**Note: Based on discussions with Jeff Dennis, MaineDEP Watershed Management Unit Biologist, and consistent with the approach for Phase 1 of the development, it is our understanding that the project will not be required to provide storage for the full Water Quality Volume (WQV) because the project ultimately discharges to the Fore River. R-Tank Systems 1 & 2 were previously approved as part of Phase 1 of development, but only R-Tank System 1 was constructed. R-Tank System 2 is proposed to be installed during this next phase of development. Additional area may be directed to the R-Tank treatment systems as part of future phases of development; the total future treated area is consistent with what was approved during Phase 1. The WQ storm event that the proposed WQV will be able to accommodate has been calculated based upon the total future treated area.*

APPENDIX C: HYDROCAD REPORT



Routing Diagram for PFDC Working Model
Prepared by Woodard & Curran, Inc, Printed 6/22/2023
HydroCAD® 10.20-2d s/n 01204 © 2021 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.914	80	>75% Grass cover, Good, HSG D (1S, 4S, 6S, 16S, 27S, 28S)
5.607	98	Impervious (1S, 4S, 6S, 16S, 17S, 18S, 20S, 21S, 23S, 24S, 25S, 26S, 27S, 28S)
5.399	98	Roof (2S, 3S, 5S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, 19S, 22S, 29S, 30S)
12.919	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>0.08"
Tc=6.0 min CN=80 Runoff=0.02 cfs 0.003 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>0.56"
Tc=6.0 min CN=95 Runoff=0.39 cfs 0.028 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>0.71"
Tc=6.0 min CN=97 Runoff=0.34 cfs 0.025 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.007 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.005 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.006 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>0.50"
Tc=6.0 min CN=94 Runoff=0.05 cfs 0.004 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.013 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.58 cfs 0.044 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=1.73 cfs 0.131 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.011 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.072 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.046 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>0.25"
Tc=6.0 min CN=88 Runoff=0.29 cfs 0.024 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=93 Runoff=1.29 cfs 0.094 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>0.79"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.018 af

Pond 1P: DMH 1 Peak Elev=10.40' Inflow=1.48 cfs 0.110 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=1.48 cfs 0.110 af

Pond 2P: DMH 2 Peak Elev=10.12' Inflow=1.60 cfs 0.119 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=1.60 cfs 0.119 af

Pond 3P: Storm Structure Peak Elev=8.81' Inflow=1.60 cfs 0.119 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=1.60 cfs 0.119 af

Pond 4P: R-Tank 1 Peak Elev=7.51' Storage=838 cf Inflow=1.60 cfs 0.119 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 5P: DMH-11 Peak Elev=8.54' Inflow=1.96 cfs 0.219 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=1.96 cfs 0.219 af

Pond 6P: CB27 Peak Elev=10.43' Inflow=2.98 cfs 0.226 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=2.98 cfs 0.226 af

Pond 7P: Storm Structure Peak Elev=9.03' Inflow=2.98 cfs 0.226 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=2.98 cfs 0.226 af

Pond 8P: R-Tank 2 Peak Elev=8.71' Storage=2,746 cf Inflow=3.12 cfs 0.237 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=1.96 cfs 0.219 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=7.42' Inflow=3.24 cfs 0.333 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=3.24 cfs 0.333 af

Pond 10P: DMH 4 Peak Elev=7.47' Inflow=1.30 cfs 0.114 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=1.30 cfs 0.114 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=9.73' Inflow=1.30 cfs 0.114 af
Outflow=1.30 cfs 0.114 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.01' Inflow=1.96 cfs 0.219 af
Outflow=1.96 cfs 0.219 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=7.47' Inflow=2.55 cfs 0.195 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=2.55 cfs 0.195 af

Pond 24P: Filterra 1 Peak Elev=14.80' Inflow=0.24 cfs 0.018 af
Primary=0.24 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.018 af

Pond 27P: AD49 Peak Elev=14.39' Inflow=0.48 cfs 0.036 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=0.48 cfs 0.036 af

Pond 28P: Filterra 2 Peak Elev=14.80' Inflow=0.24 cfs 0.018 af
Primary=0.24 cfs 0.018 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.018 af

Link 1L: Freedom Way Inflow=0.45 cfs 0.037 af
Primary=0.45 cfs 0.037 af

Link 2L: Fore River Inflow=6.66 cfs 0.623 af
Primary=6.66 cfs 0.623 af

Link 3L: Fore Street Inflow=0.06 cfs 0.005 af
Primary=0.06 cfs 0.005 af

Total Runoff Area = 12.919 ac Runoff Volume = 0.686 af Average Runoff Depth = 0.64"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

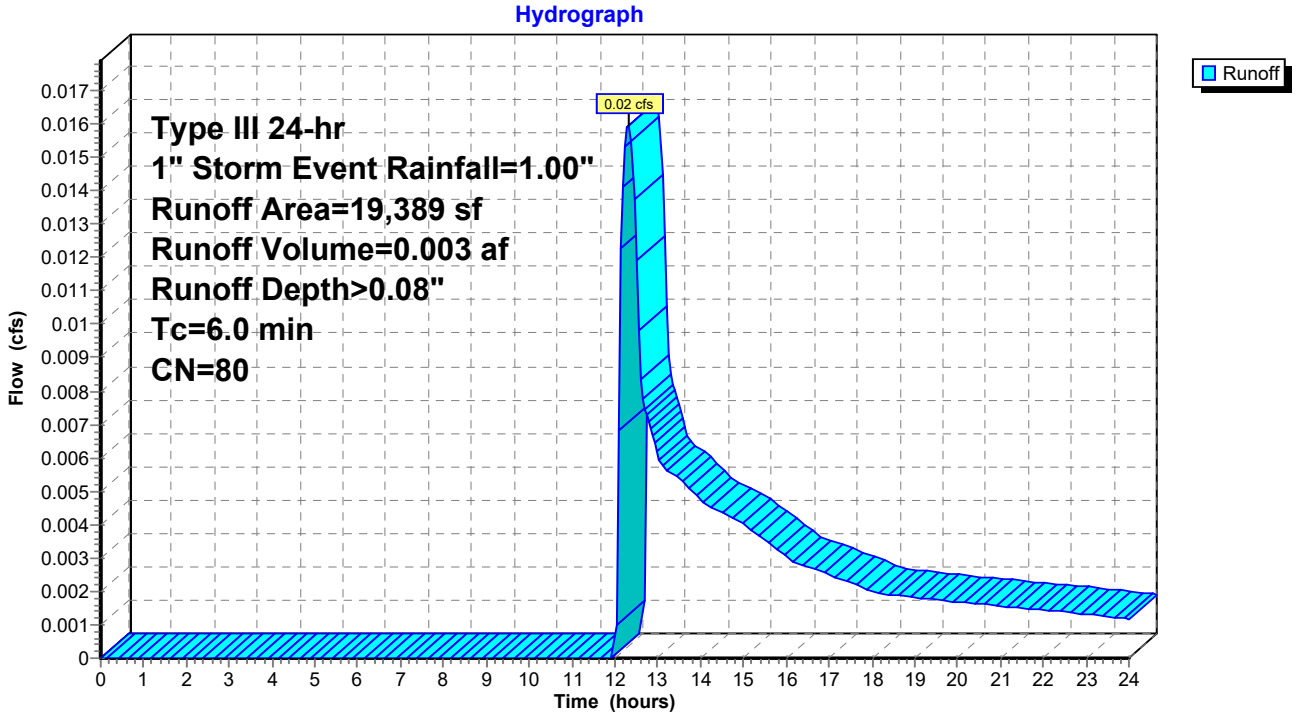
Runoff = 0.02 cfs @ 12.32 hrs, Volume= 0.003 af, Depth> 0.08"
Routed to Link 1L : Freedom Way

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

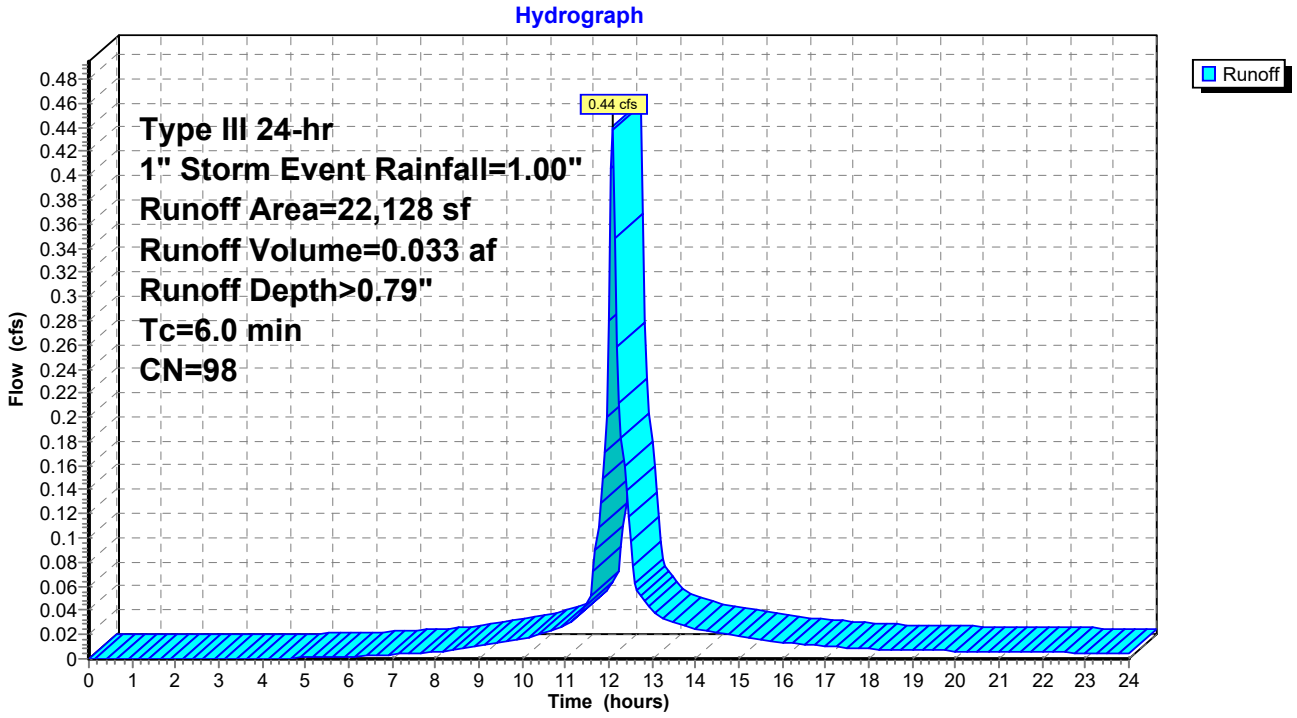
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Link 1L : Freedom Way

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

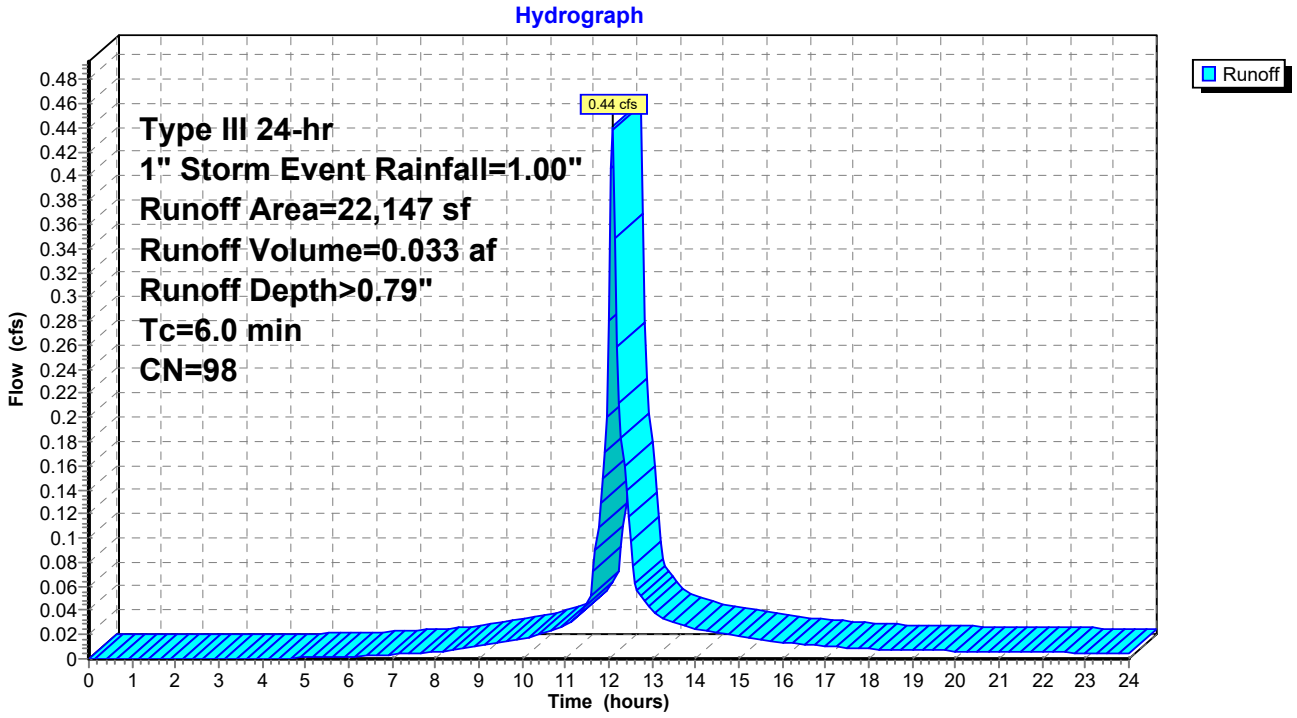
Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

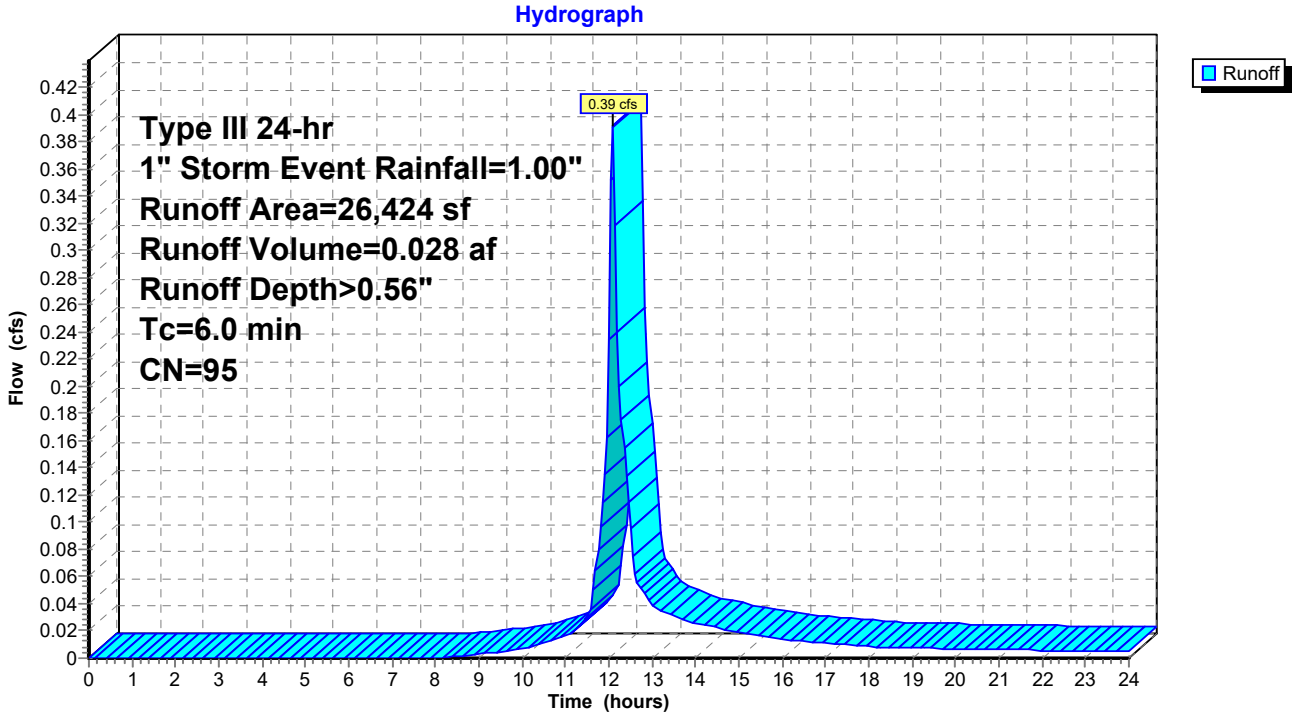
Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 0.56"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

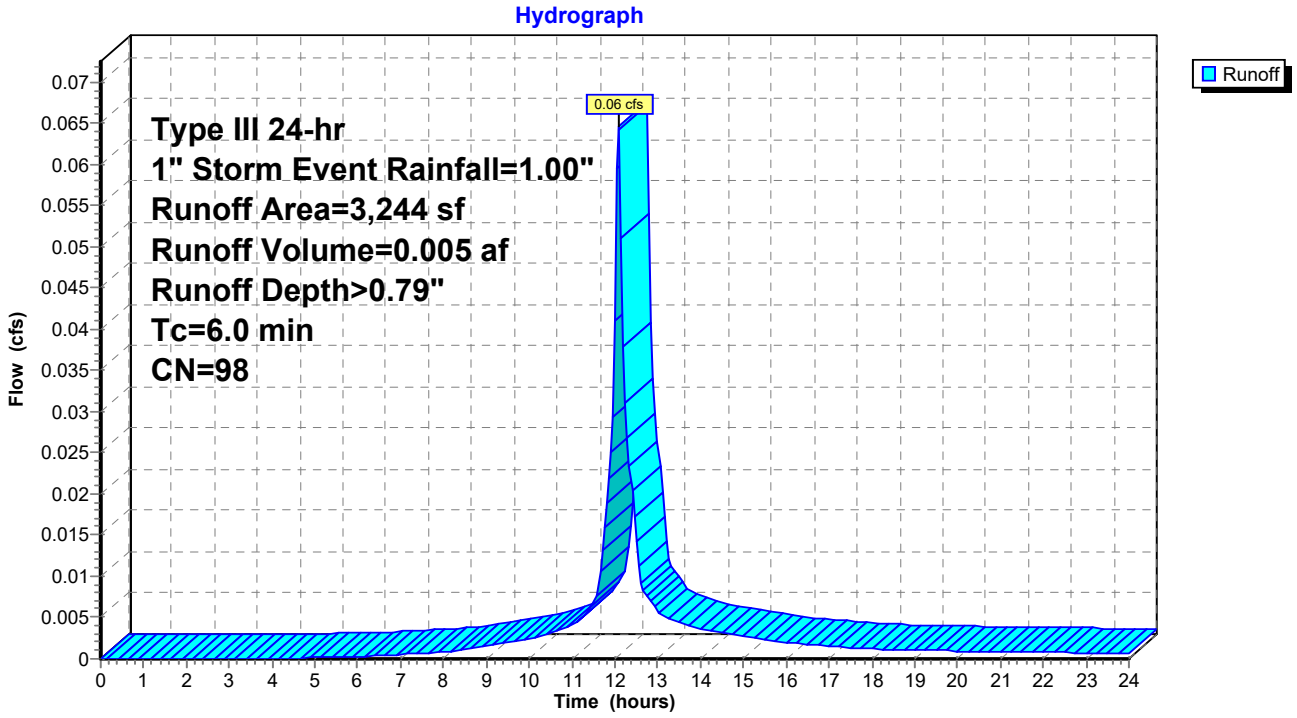
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

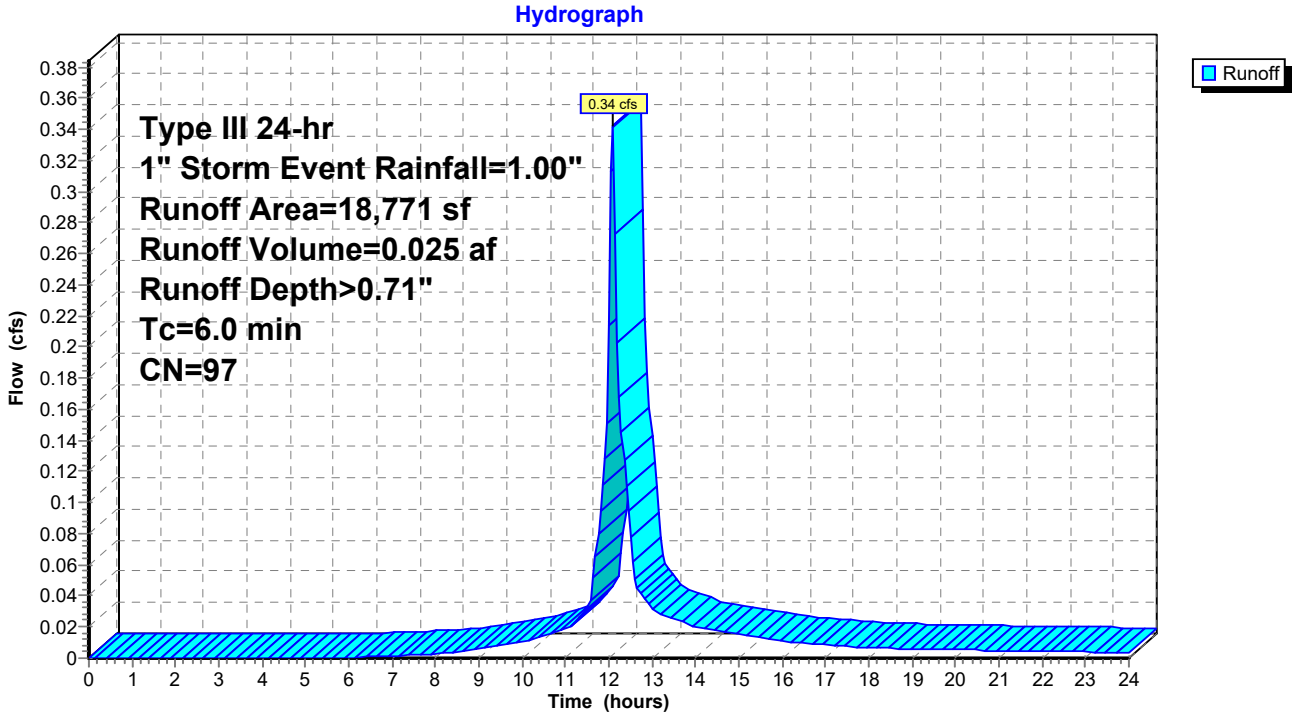
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 0.71"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

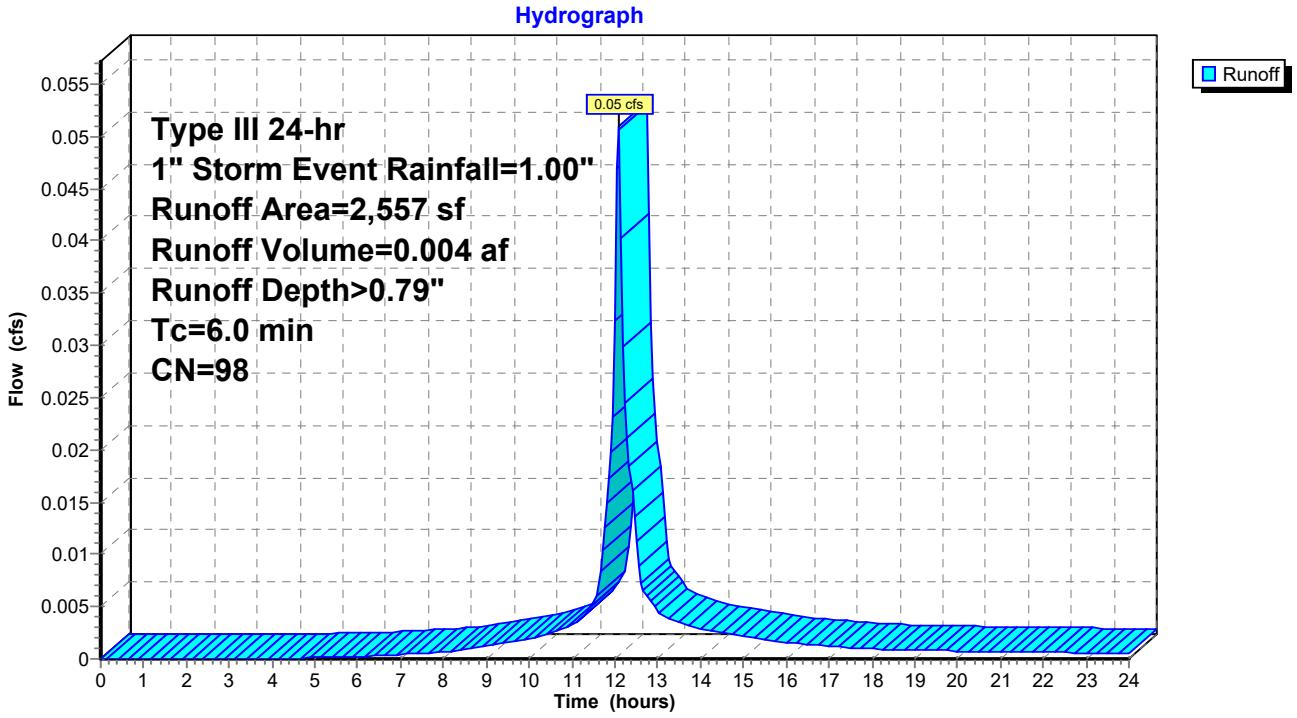
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

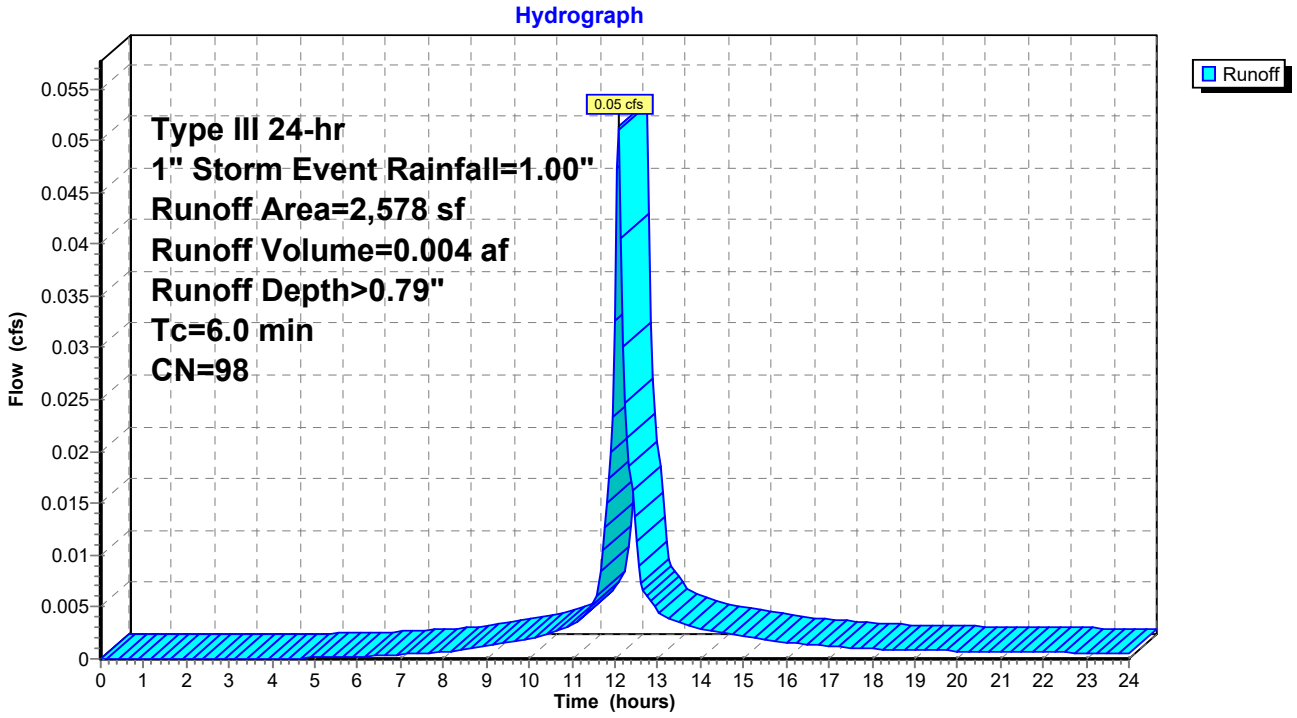
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

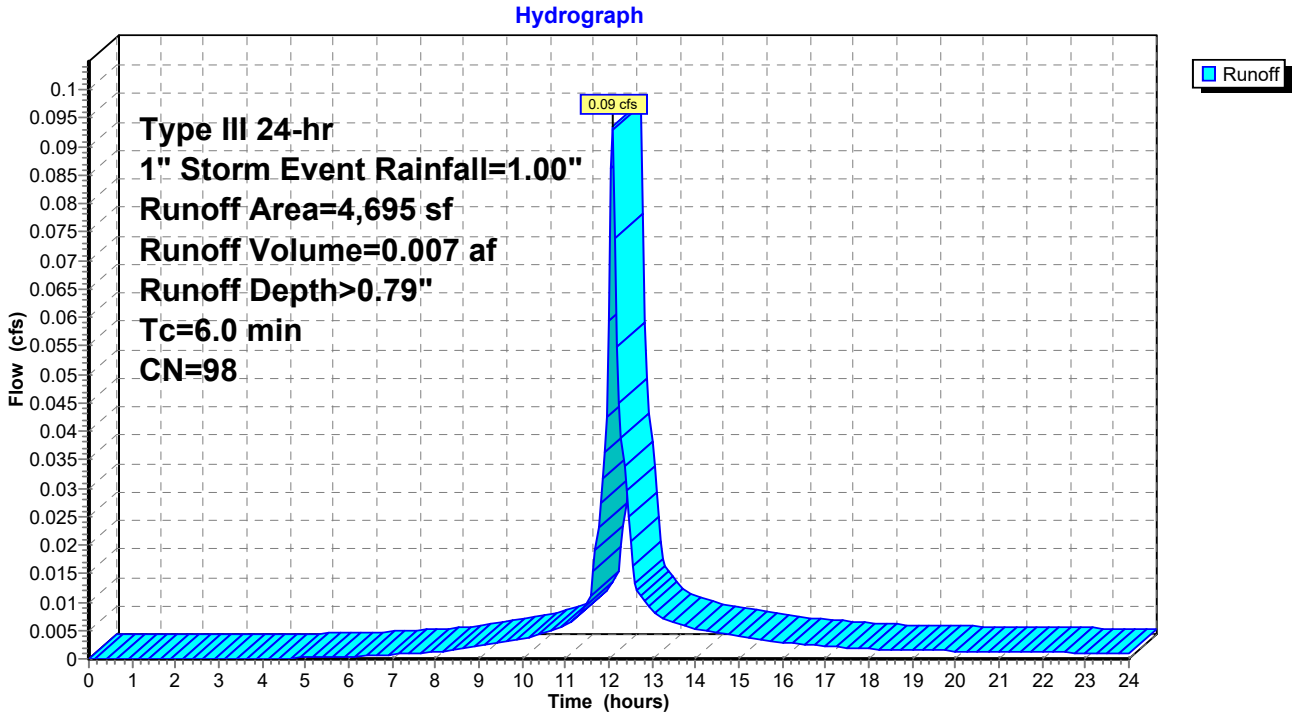
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

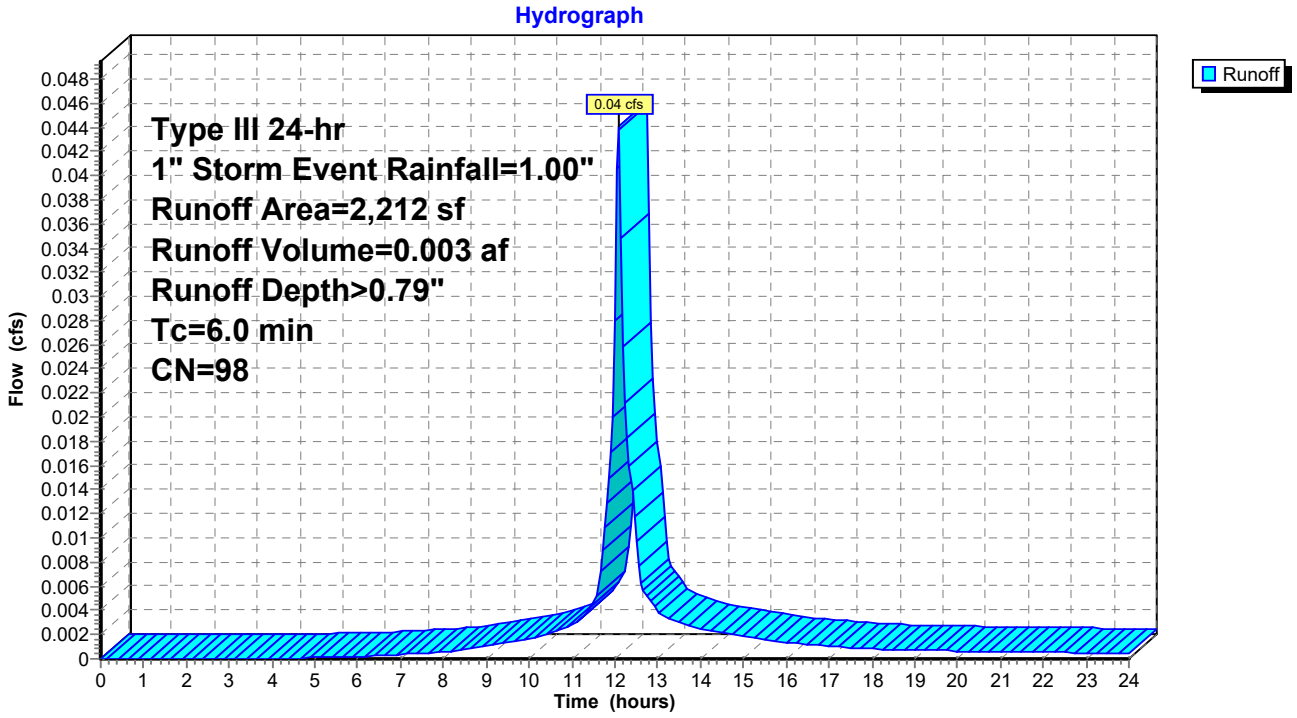
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

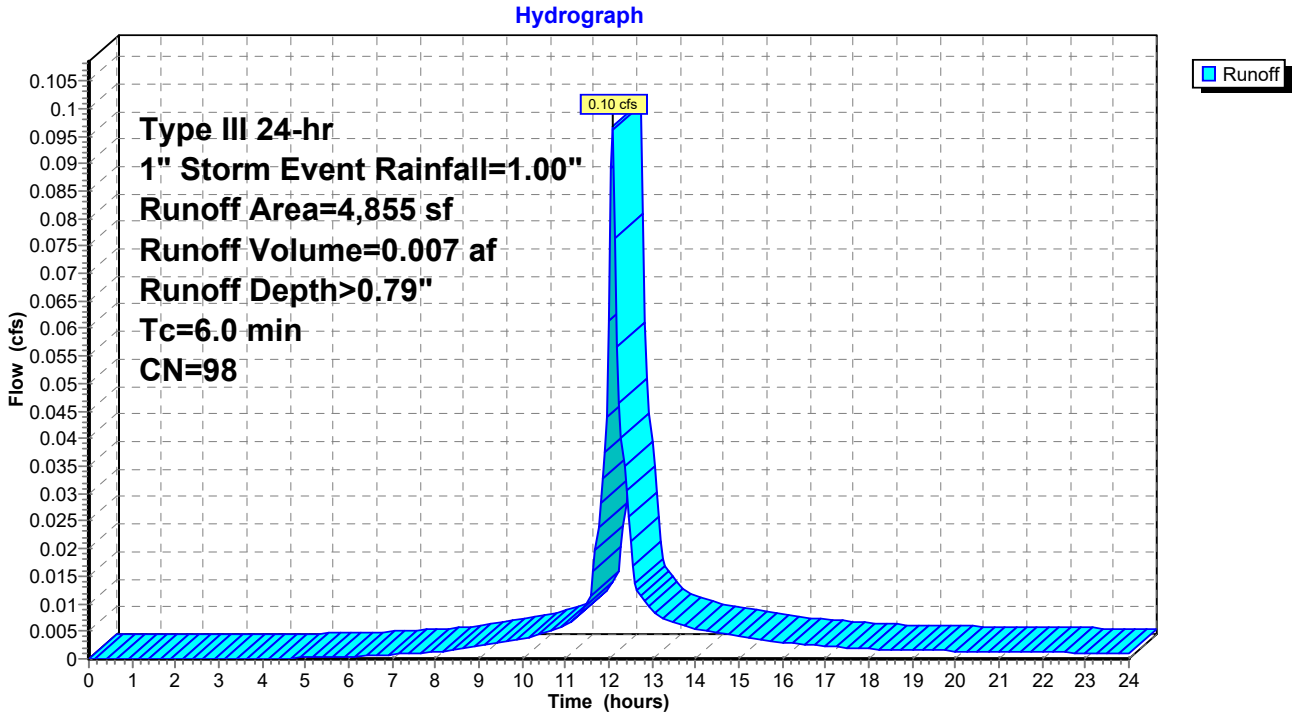
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.007 af, Depth> 0.79"
Routed to Pond 1P : DMH 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

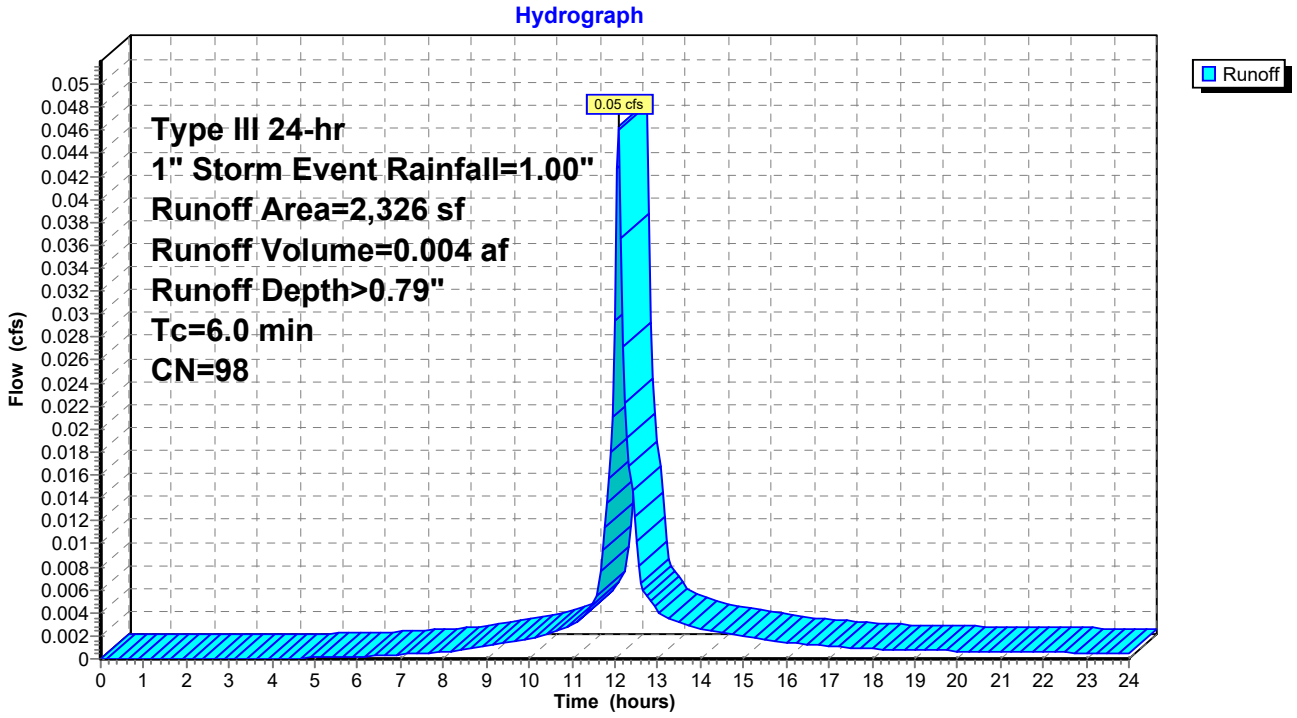
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

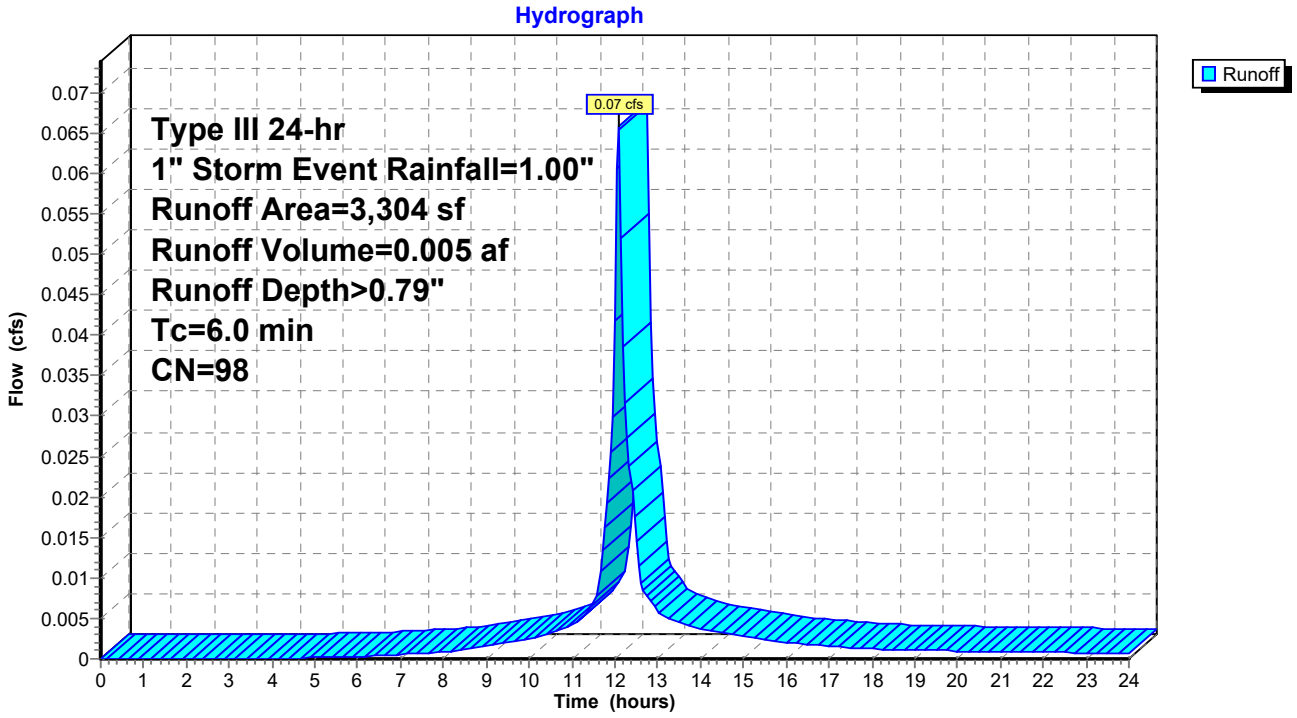
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.79"
Routed to Pond 2P : DMH 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

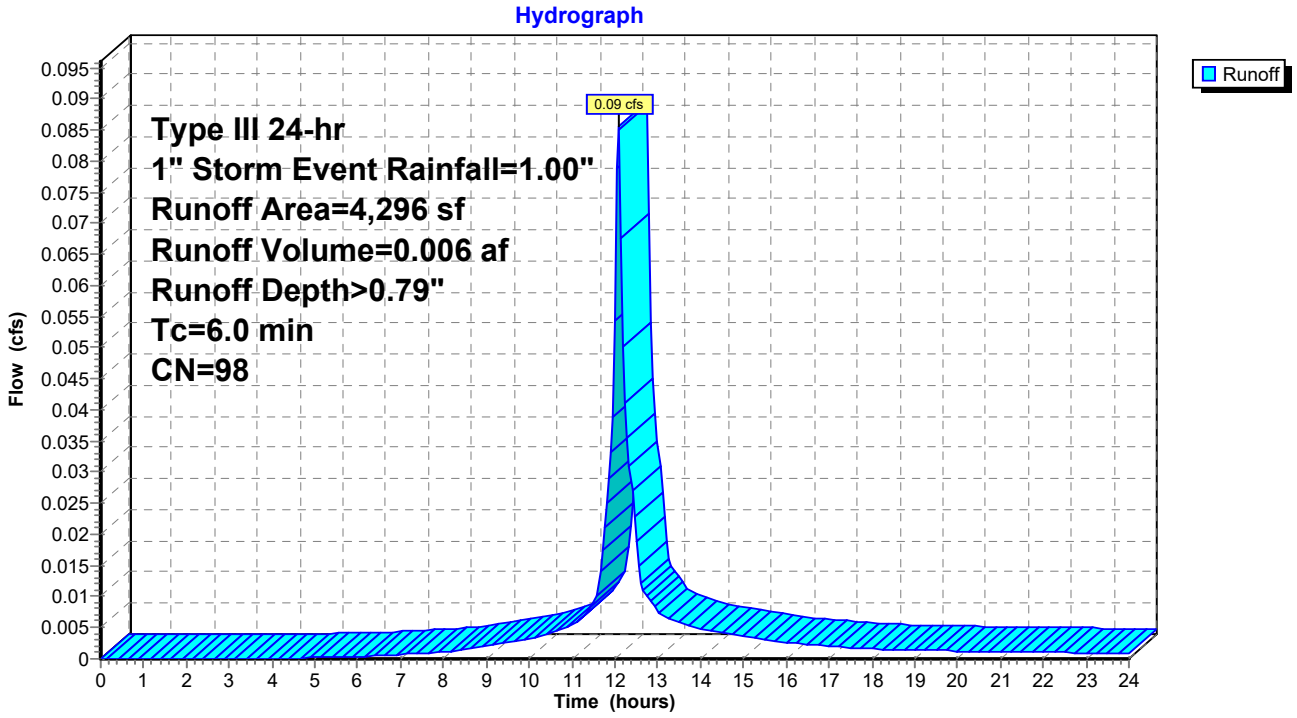
Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

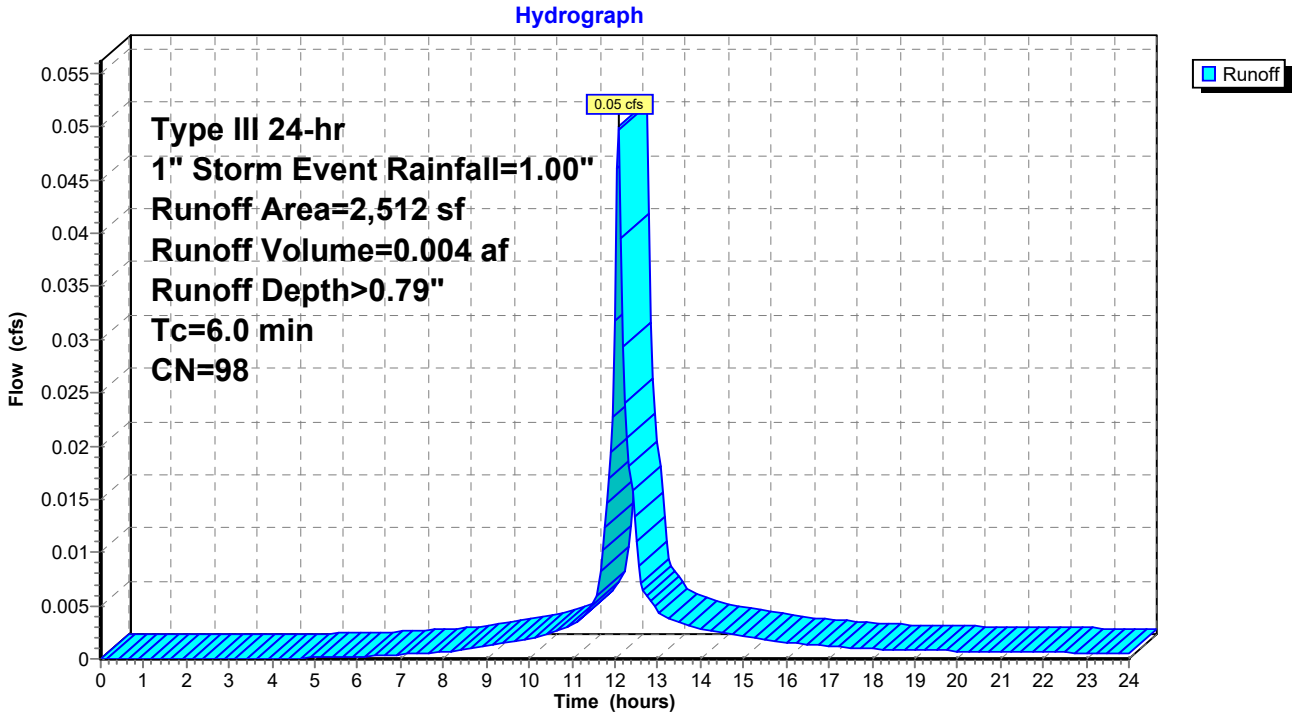
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

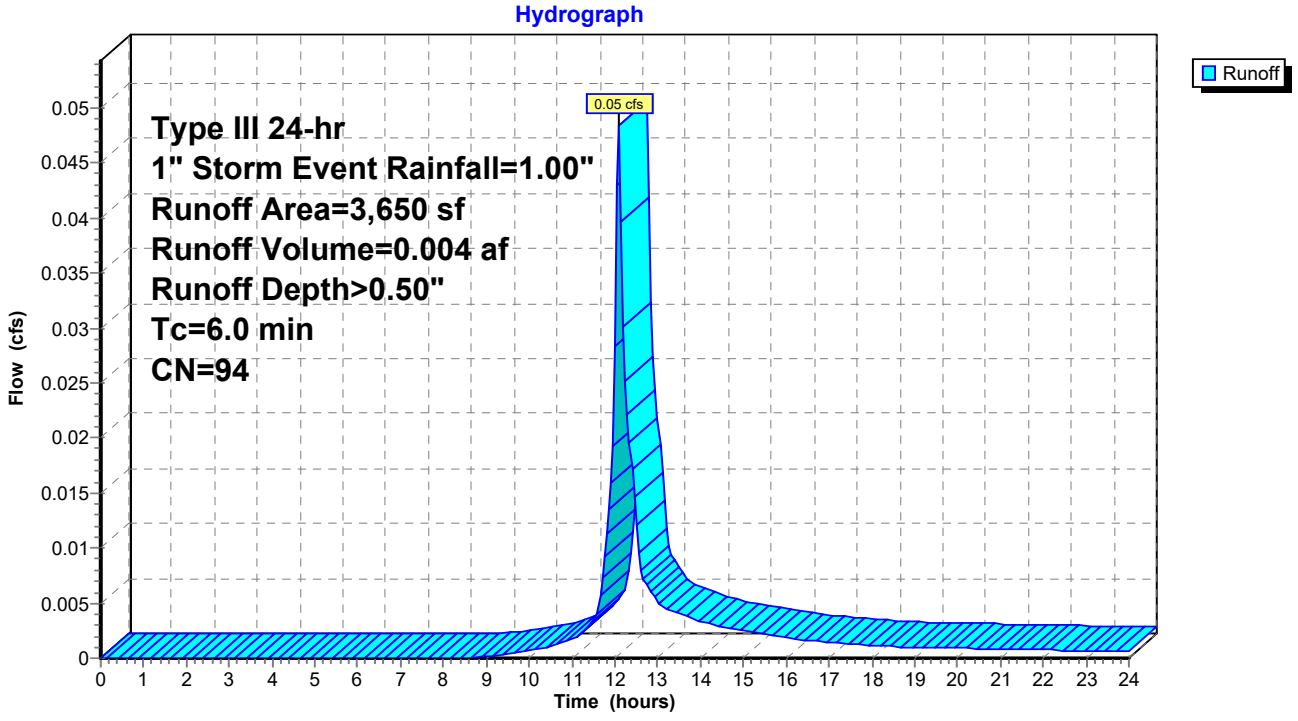
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.50"
Routed to Pond 2P : DMH 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

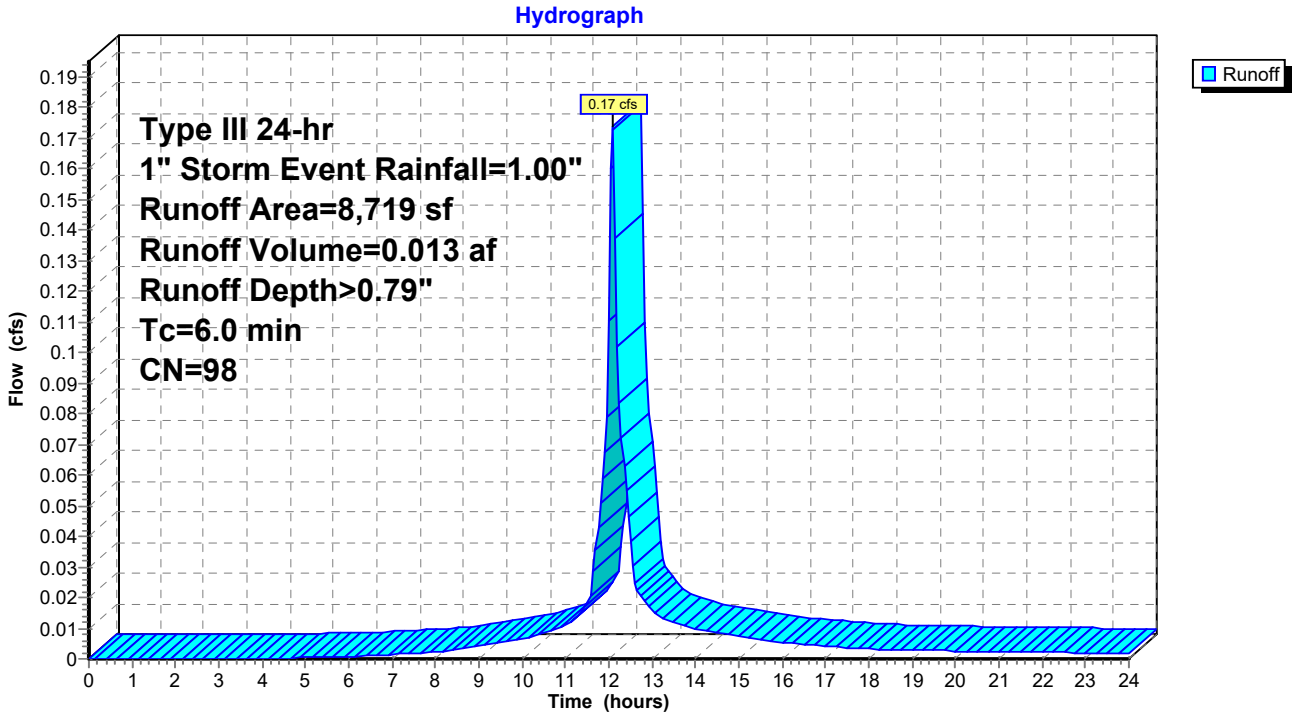
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

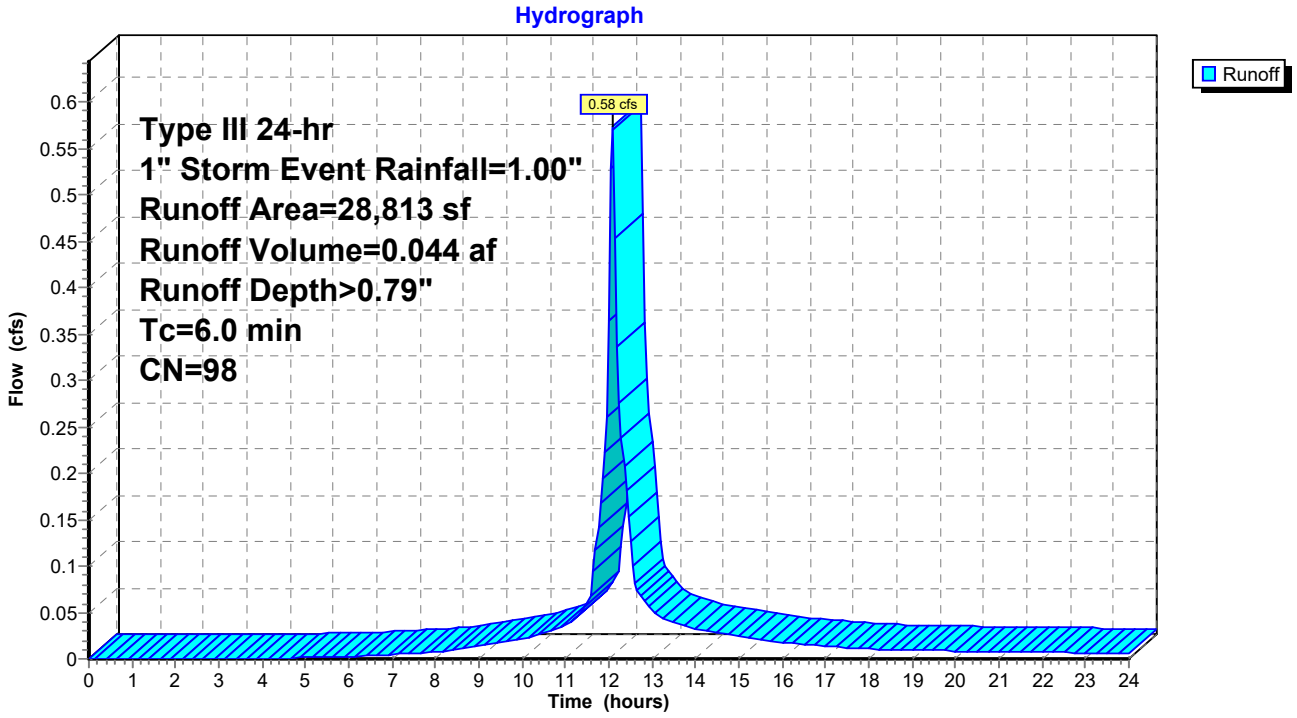
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

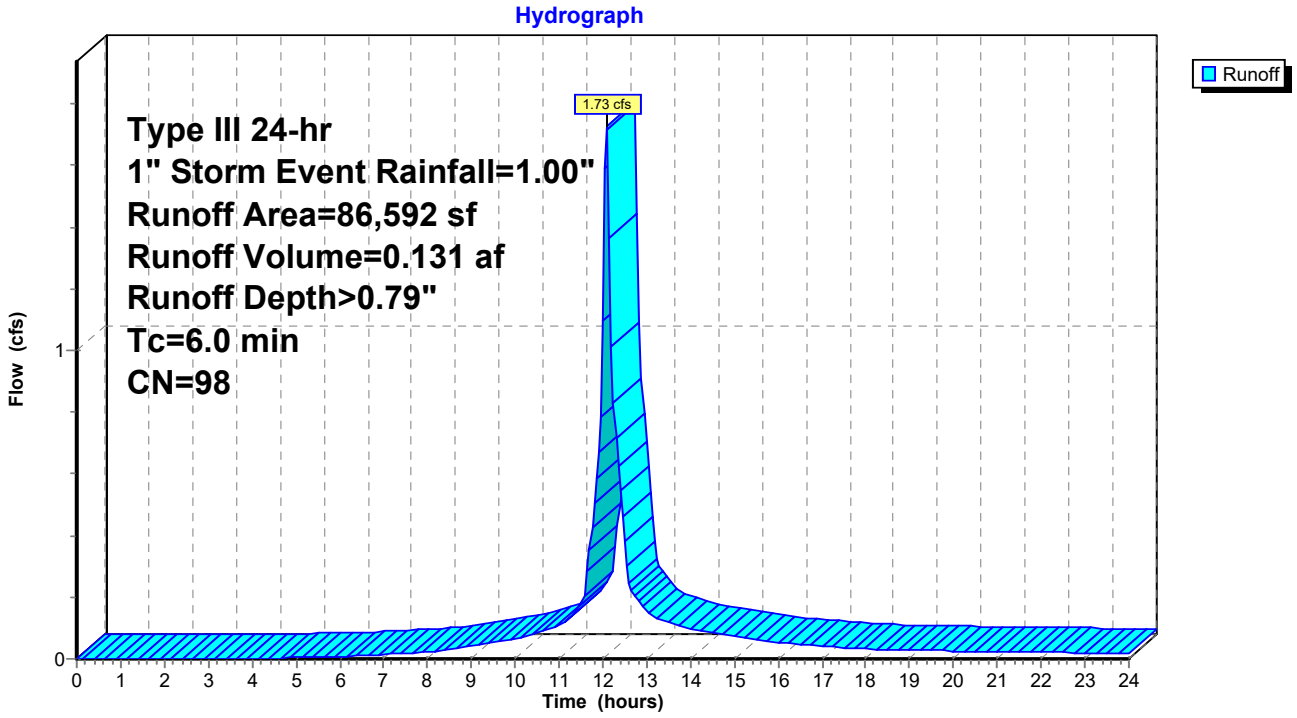
Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.131 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

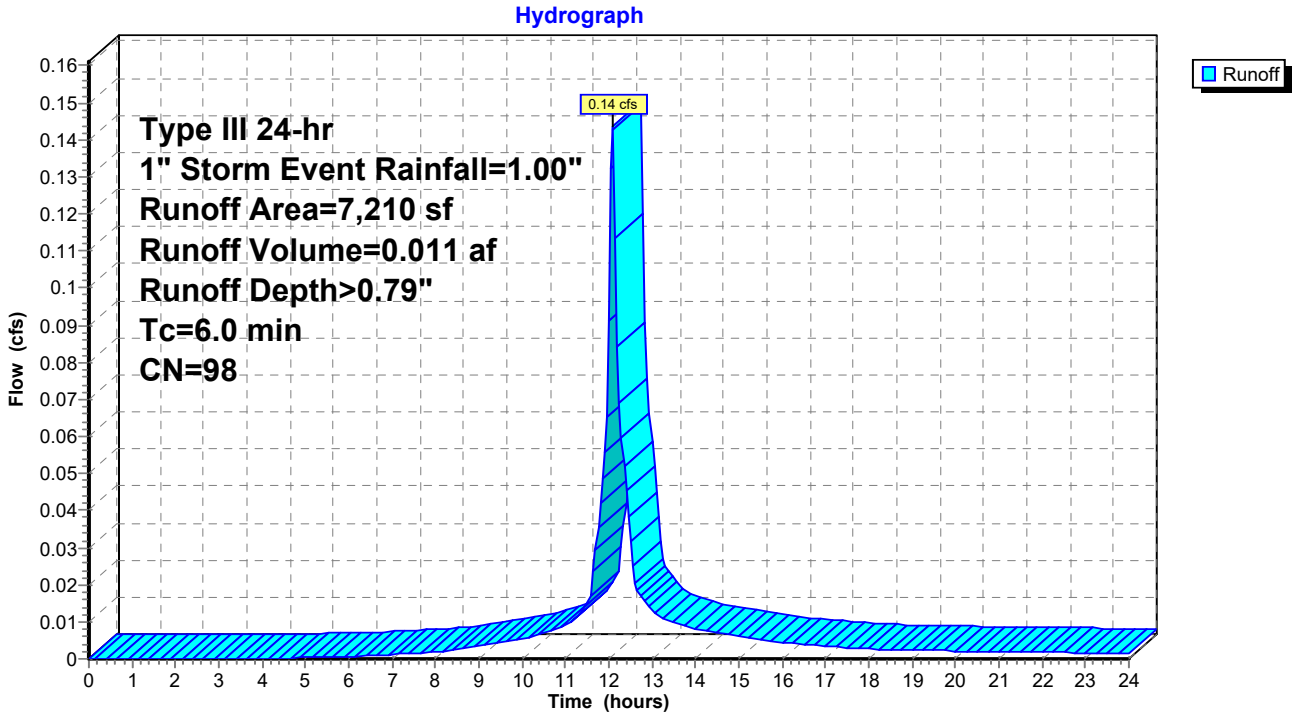
Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.011 af, Depth> 0.79"
Routed to Pond 8P : R-Tank 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

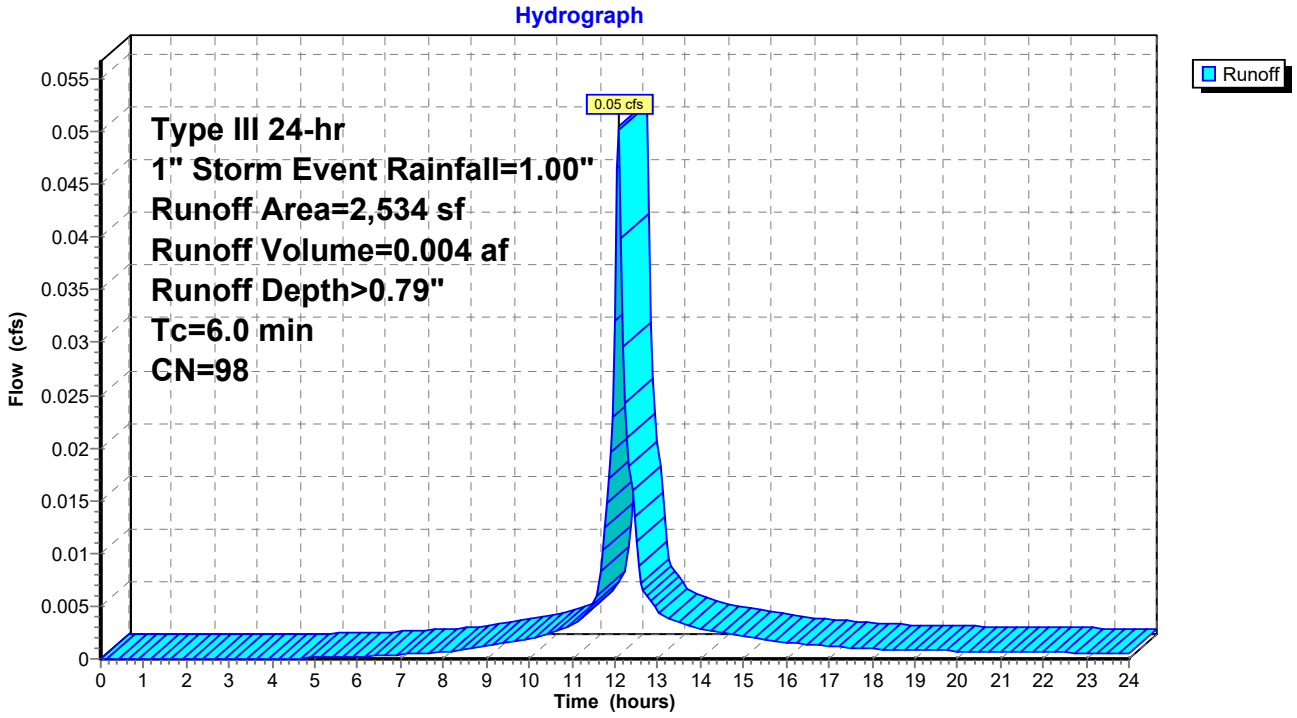
Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 0.79"
Routed to Link 3L : Fore Street

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

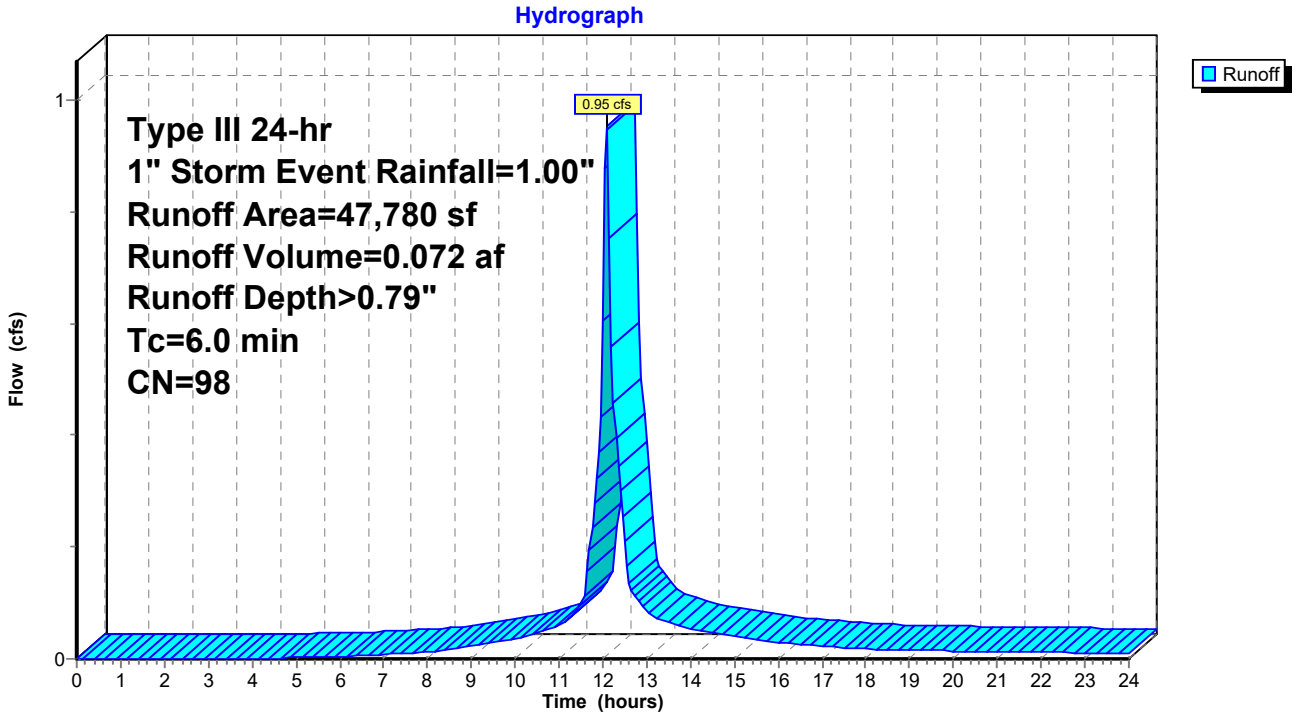
Runoff = 0.95 cfs @ 12.09 hrs, Volume= 0.072 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

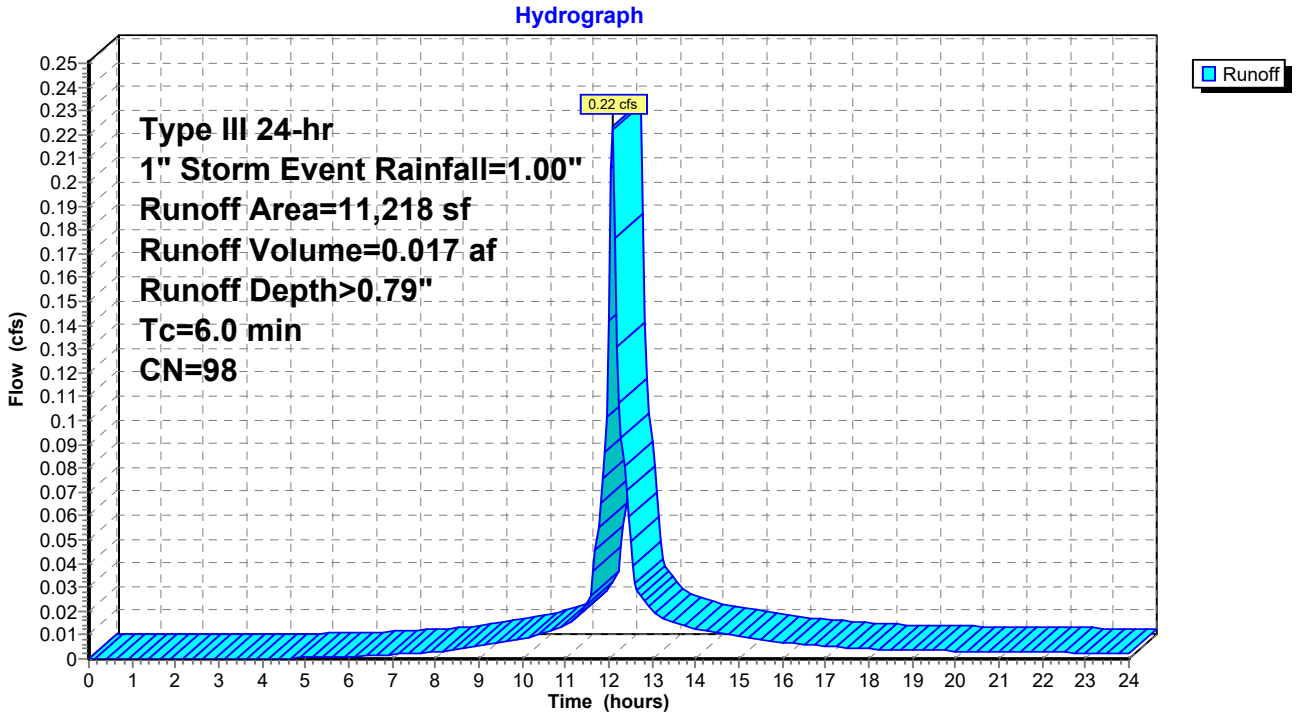
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 6P : CB27

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

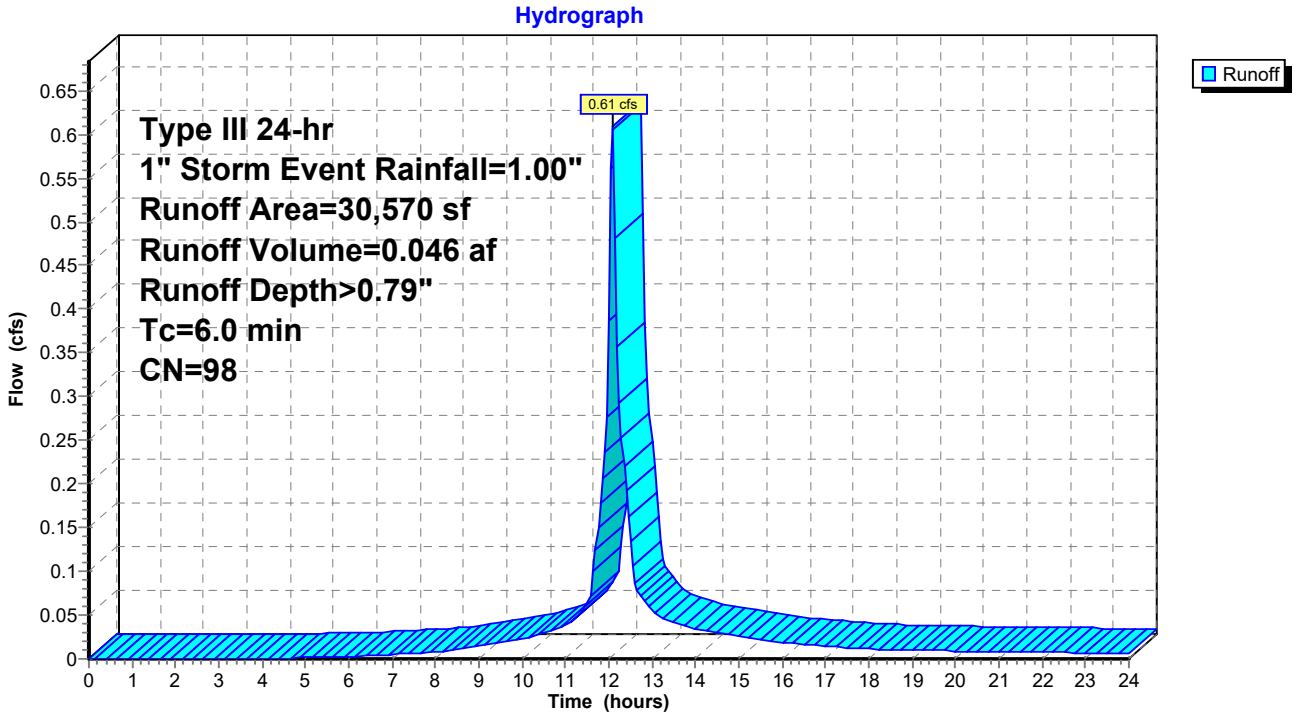
Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

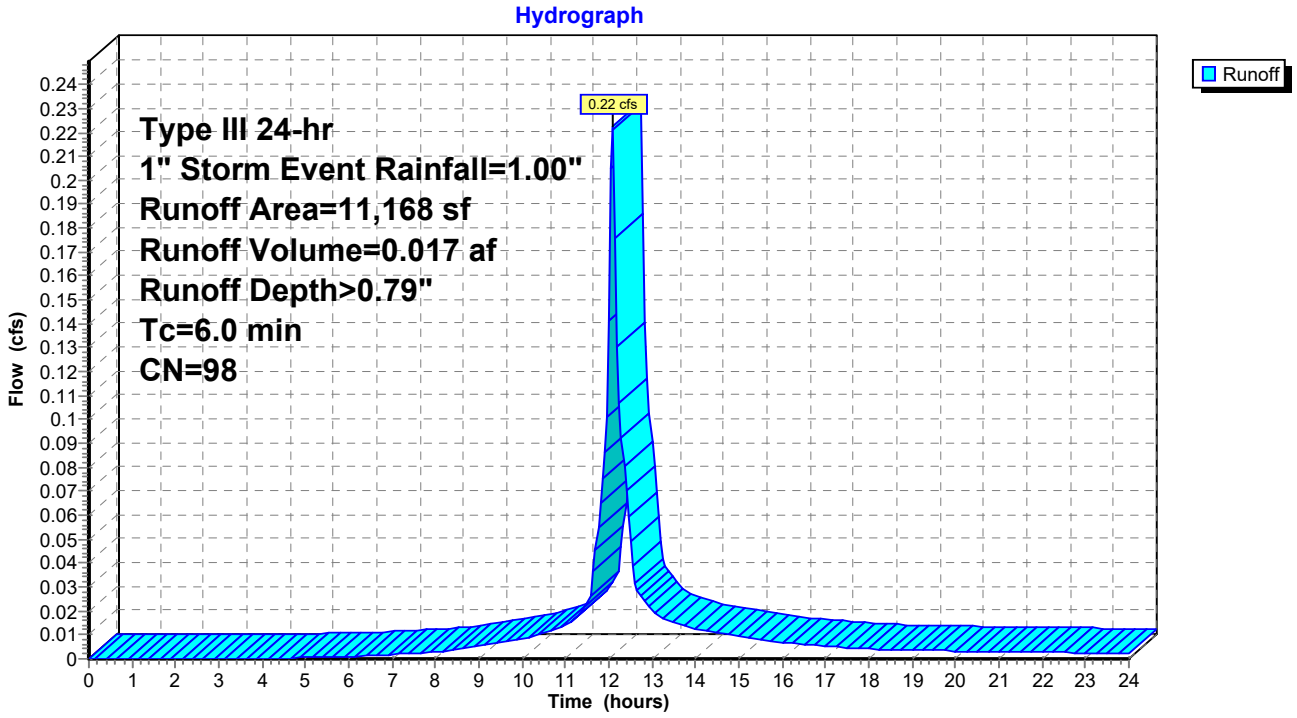
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 0.79"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

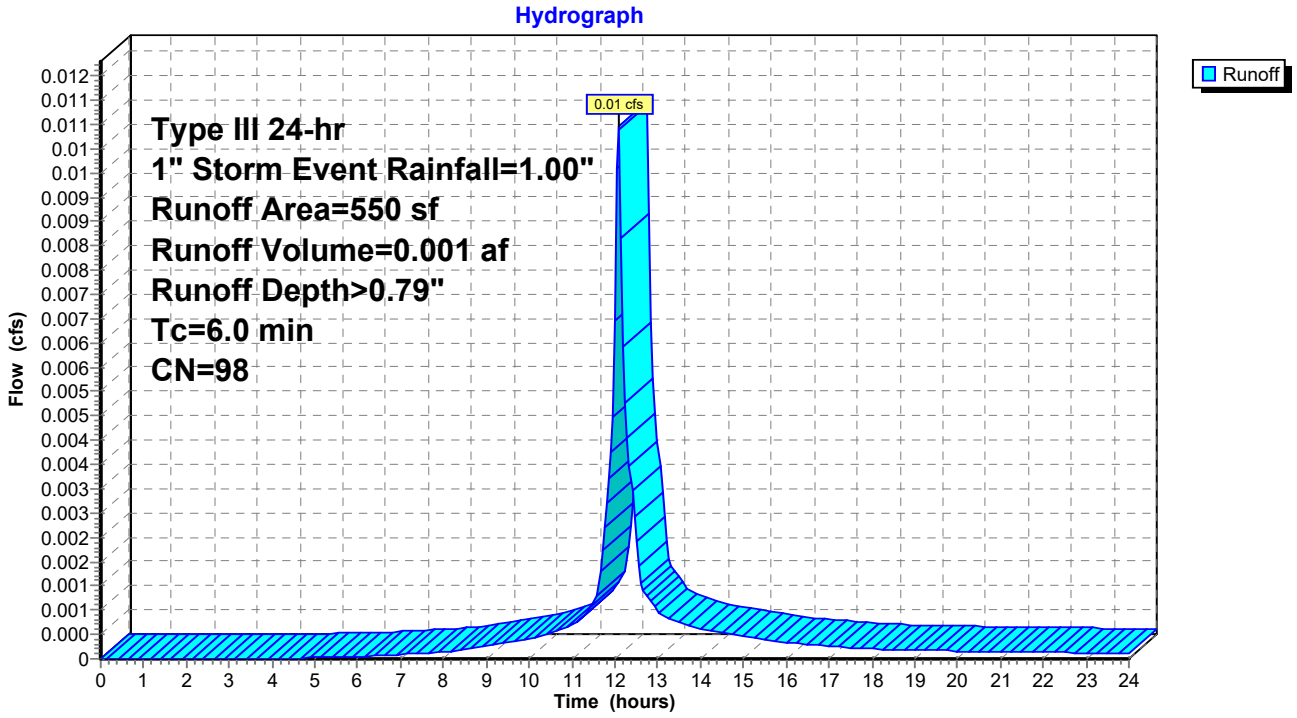
Runoff = 0.01 cfs @ 12.09 hrs, Volume= 0.001 af, Depth> 0.79"
Routed to Link 3L : Fore Street

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

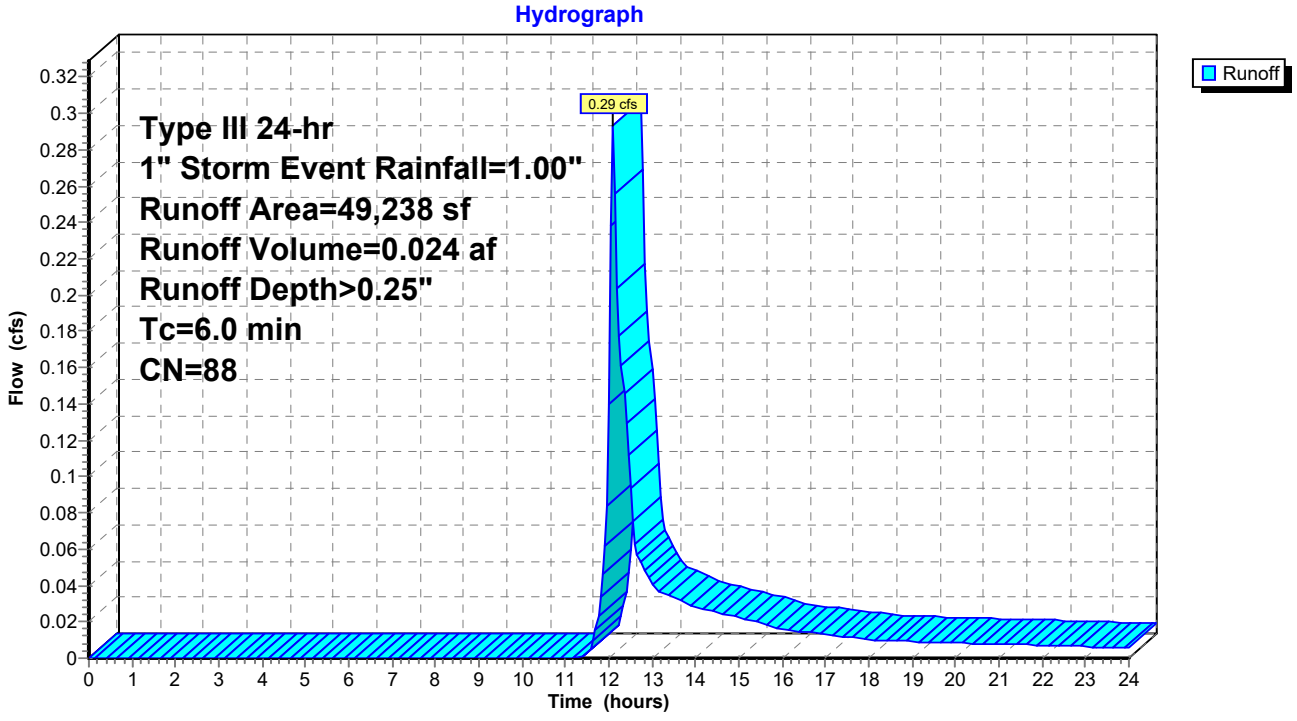
Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.024 af, Depth> 0.25"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

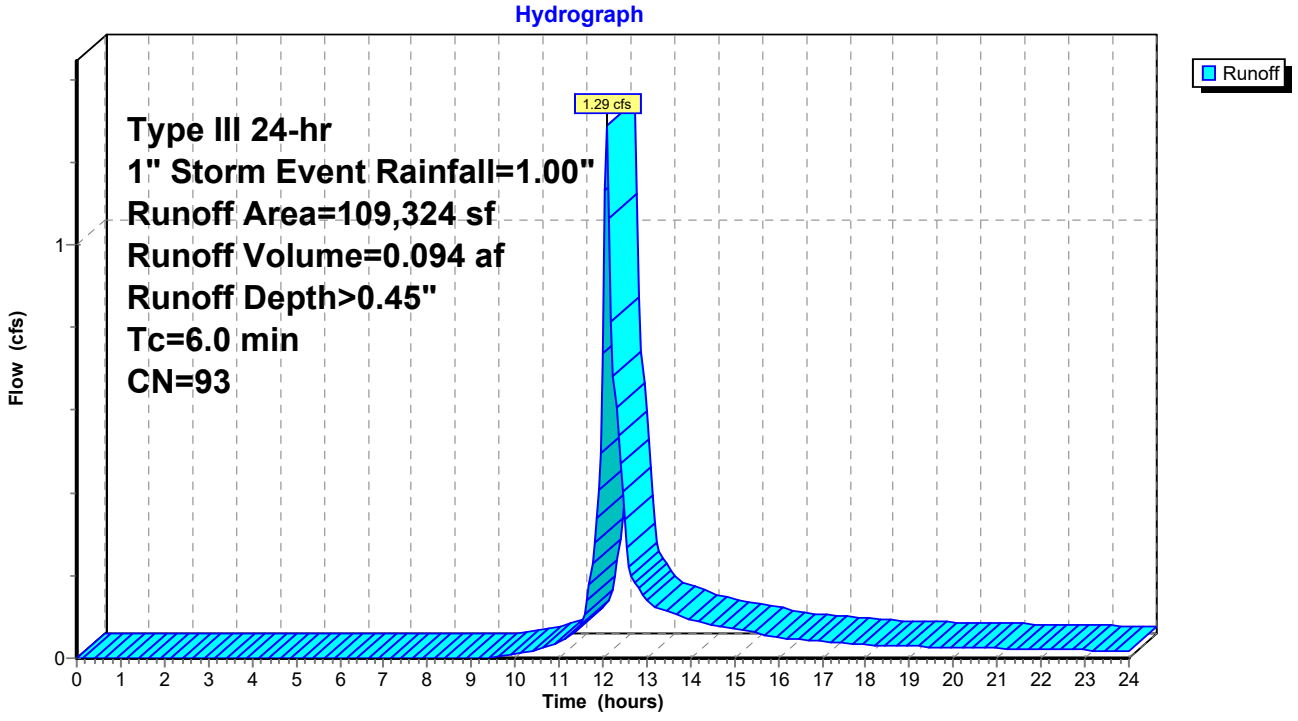
Runoff = 1.29 cfs @ 12.10 hrs, Volume= 0.094 af, Depth> 0.45"
Routed to Link 2L : Fore River

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

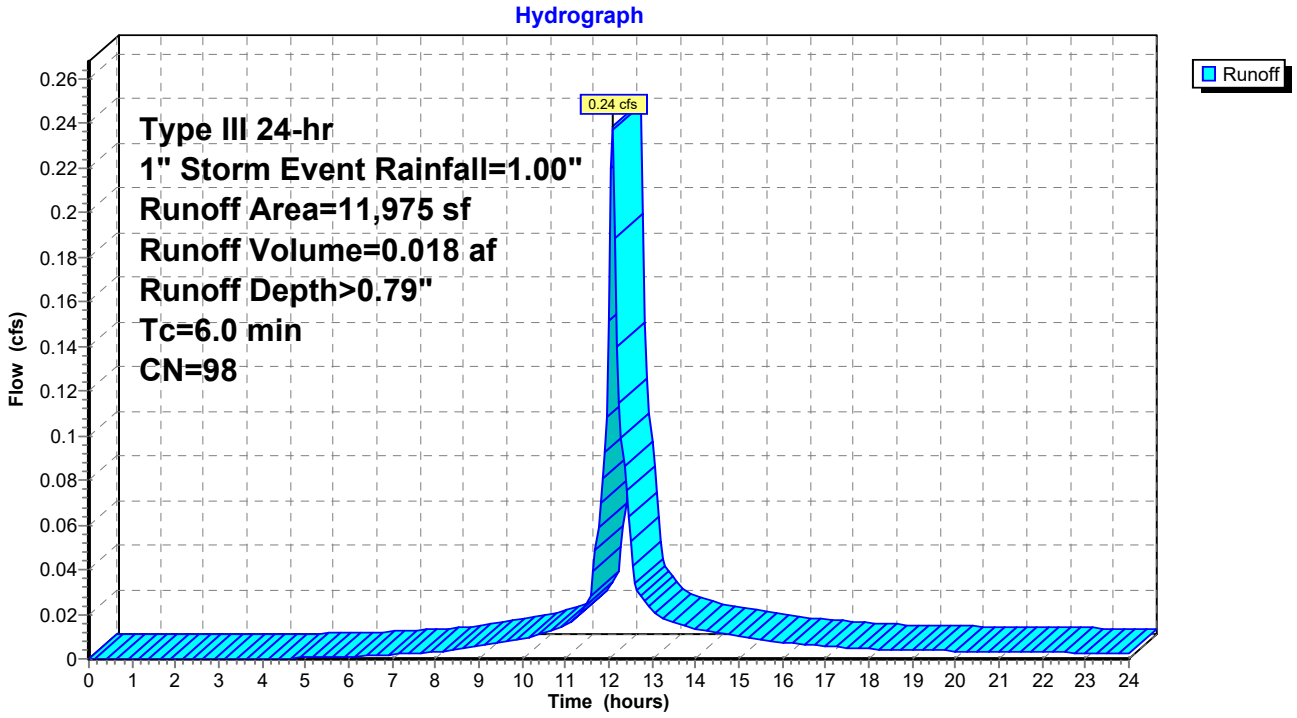
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 24P : Filterra 1

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

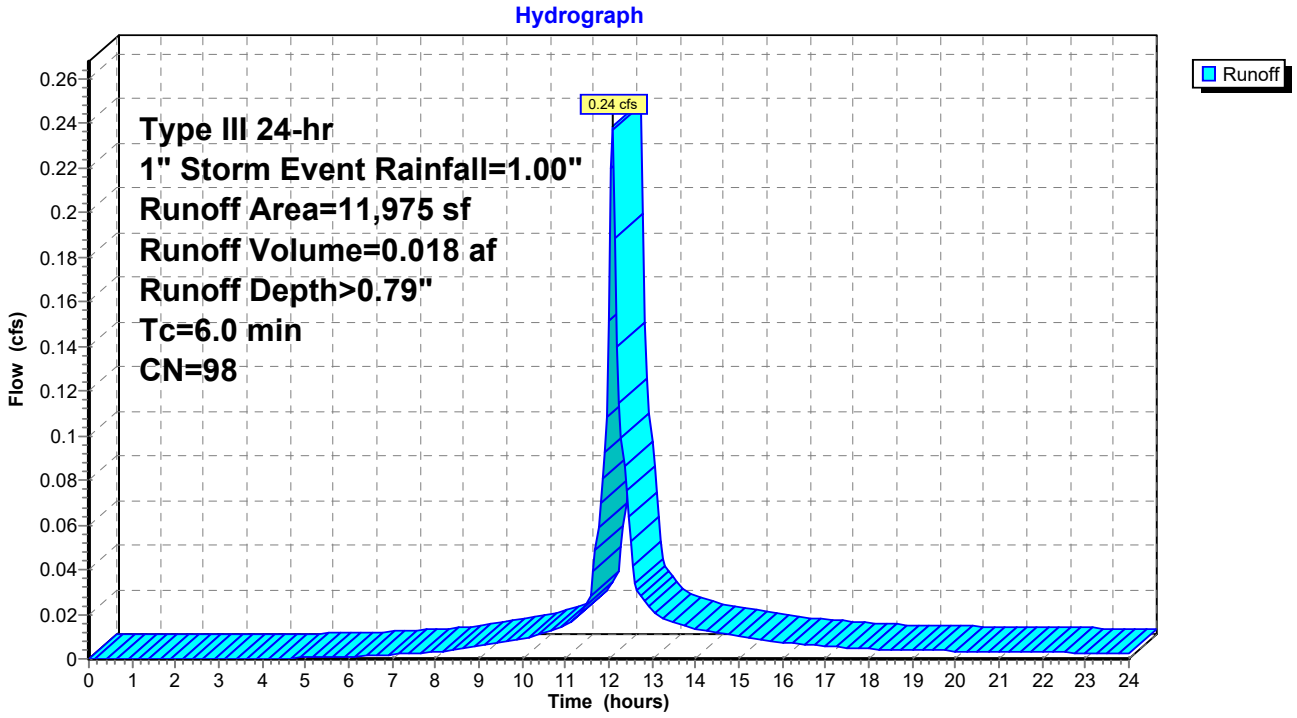
Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 0.79"
Routed to Pond 28P : Filterra 2

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 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

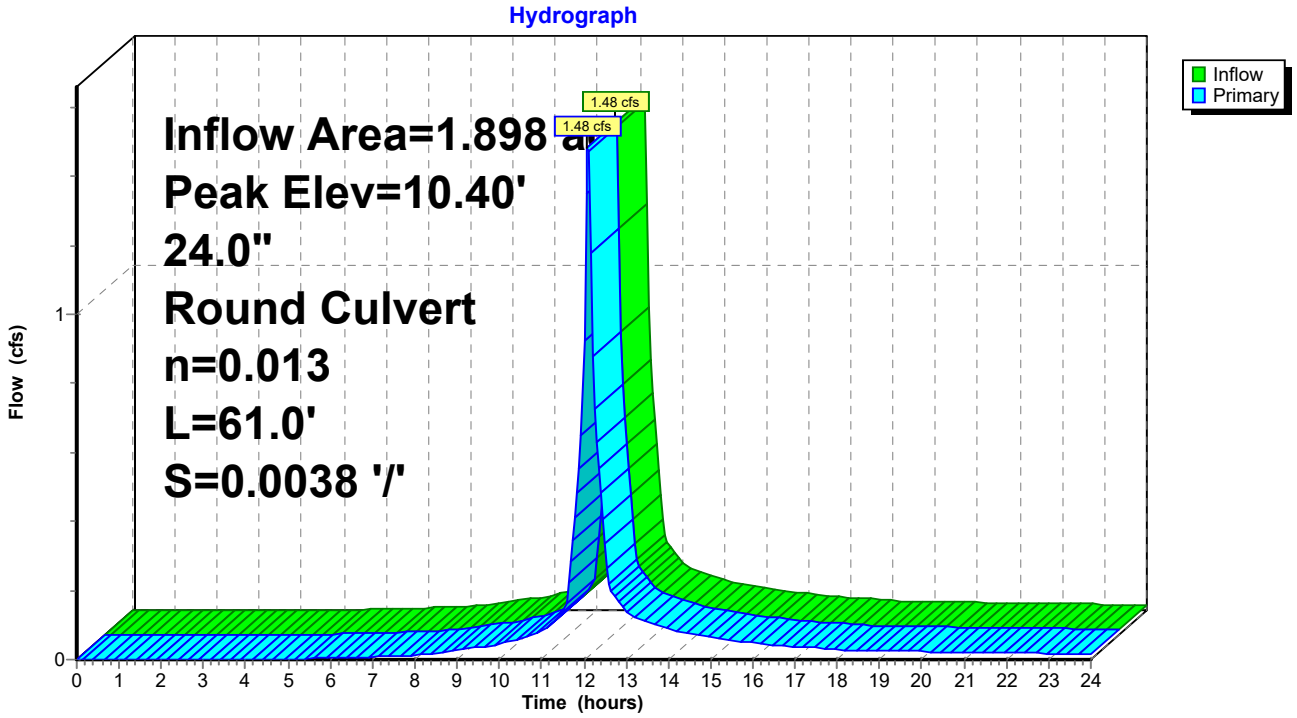
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 0.70" for 1" Storm Event event
Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Outflow = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.09 hrs, Volume= 0.110 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.40' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.45 cfs @ 12.09 hrs HW=10.39' (Free Discharge)
1=Culvert (Barrel Controls 1.45 cfs @ 2.63 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

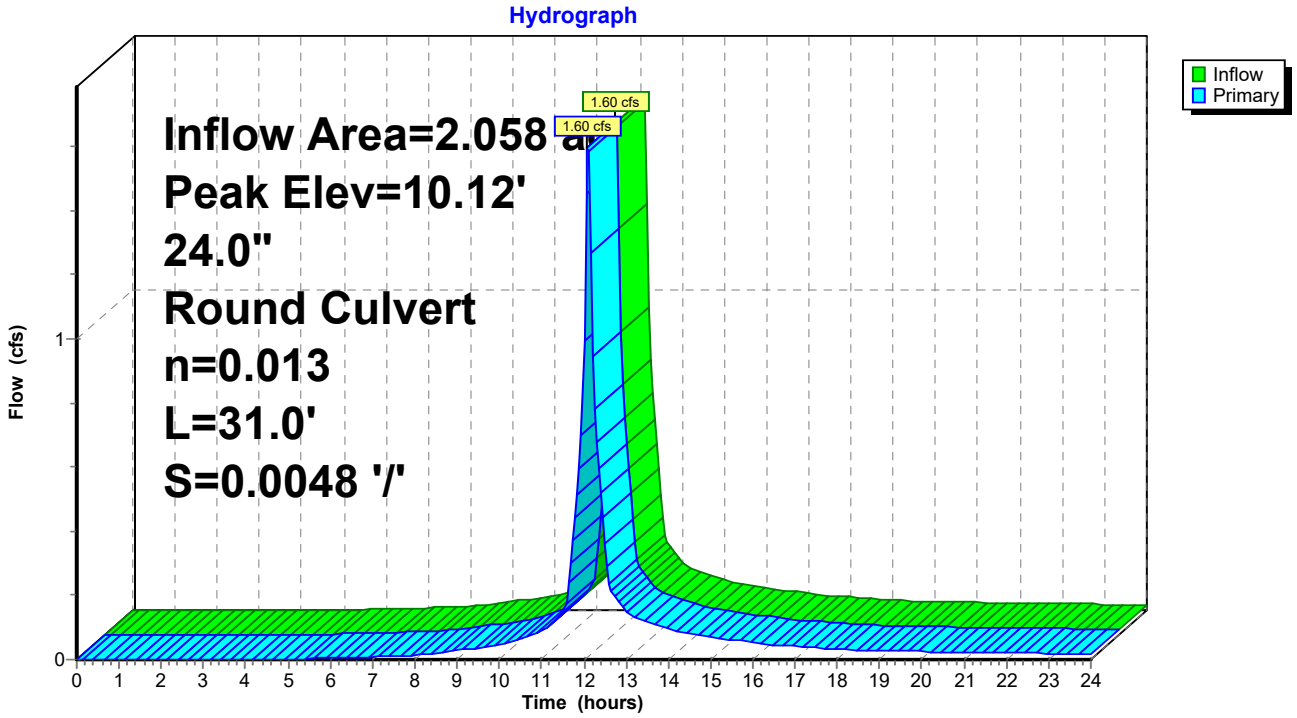
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.12' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=10.11' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 2.87 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

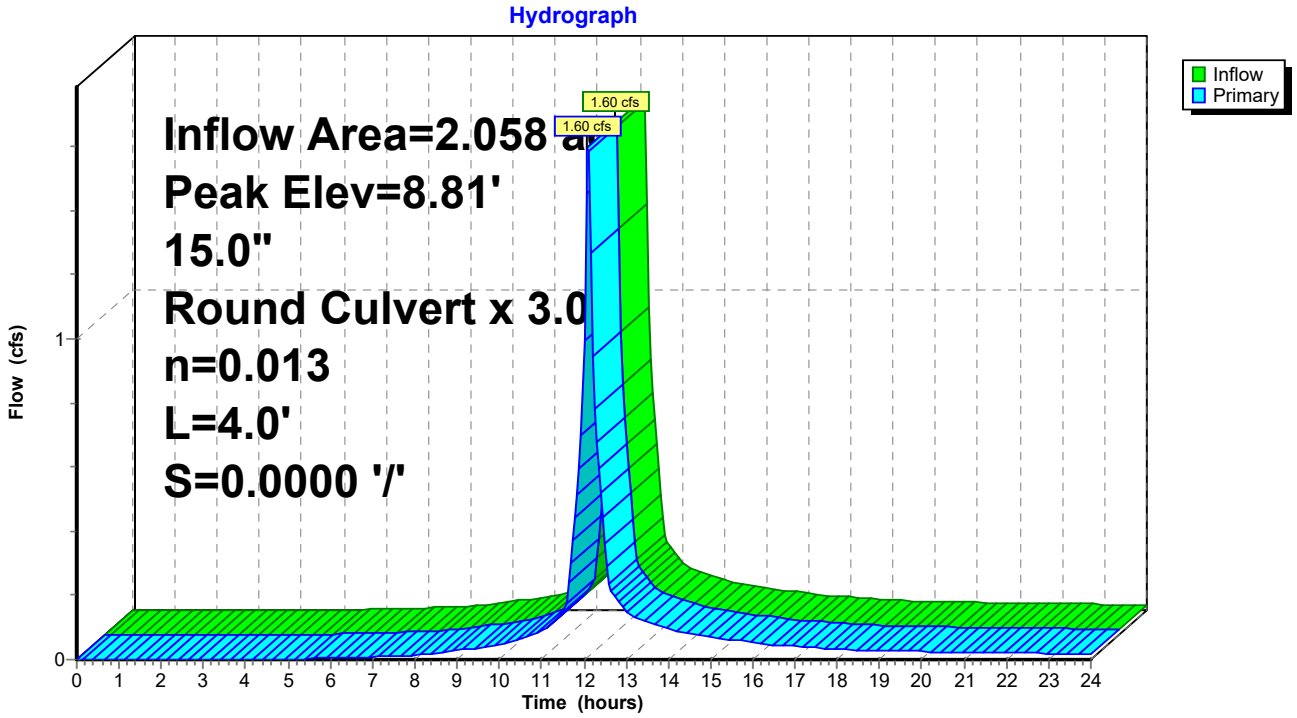
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.0 min
Primary = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.56 cfs @ 12.09 hrs HW=8.81' (Free Discharge)
1=Culvert (Barrel Controls 1.56 cfs @ 1.89 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.69" for 1" Storm Event event
Inflow = 1.60 cfs @ 12.09 hrs, Volume= 0.119 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 18%, Lag= 3.8 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.51' @ 12.15 hrs Surf.Area= 1,162 sf Storage= 838 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 52.4 min calculated for 0.113 af (95% of inflow)
Center-of-Mass det. time= 27.8 min (828.2 - 800.5)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

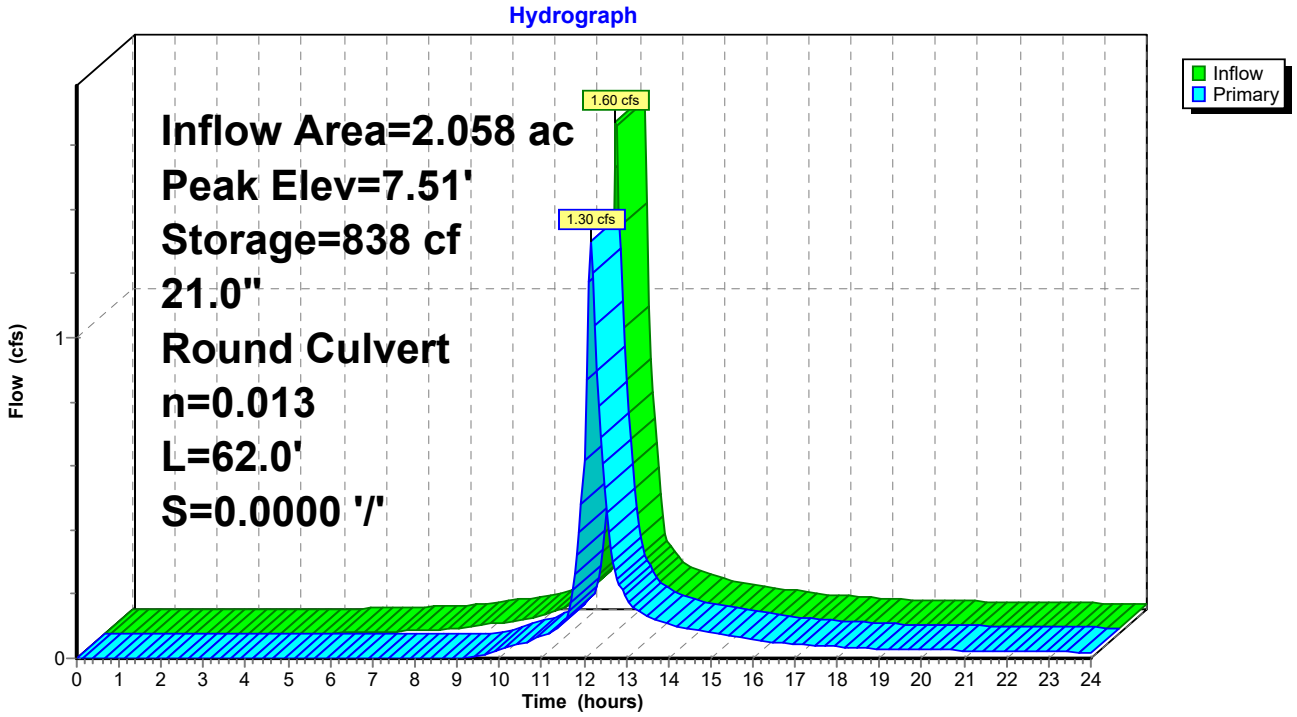
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.51' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 1.29 cfs @ 1.92 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

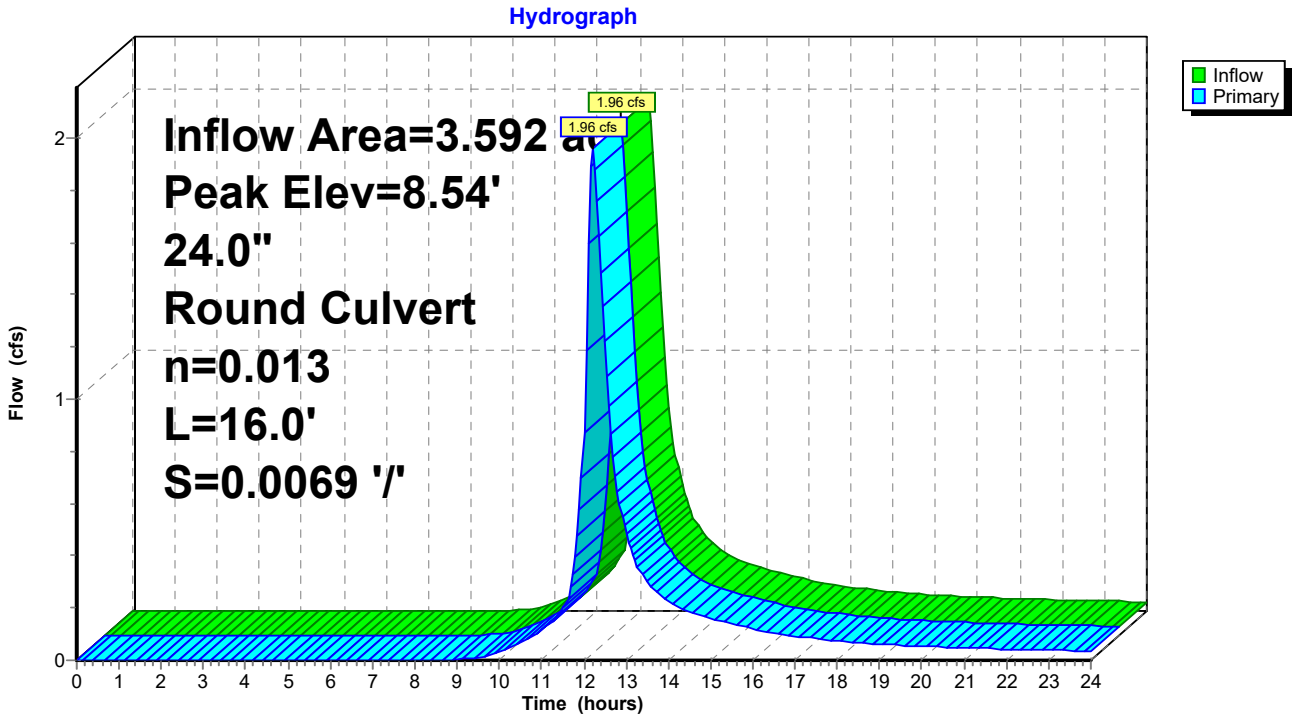
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.54' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.54' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.87 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

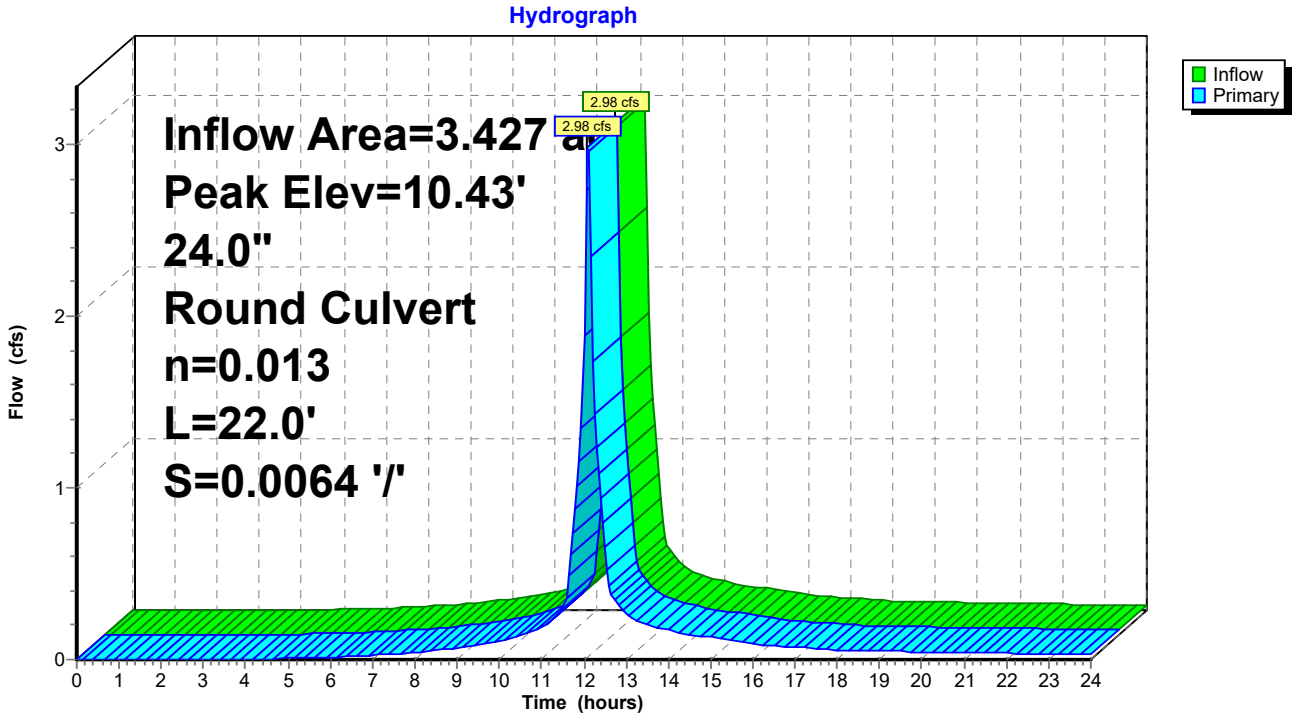
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=10.42' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 3.18 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

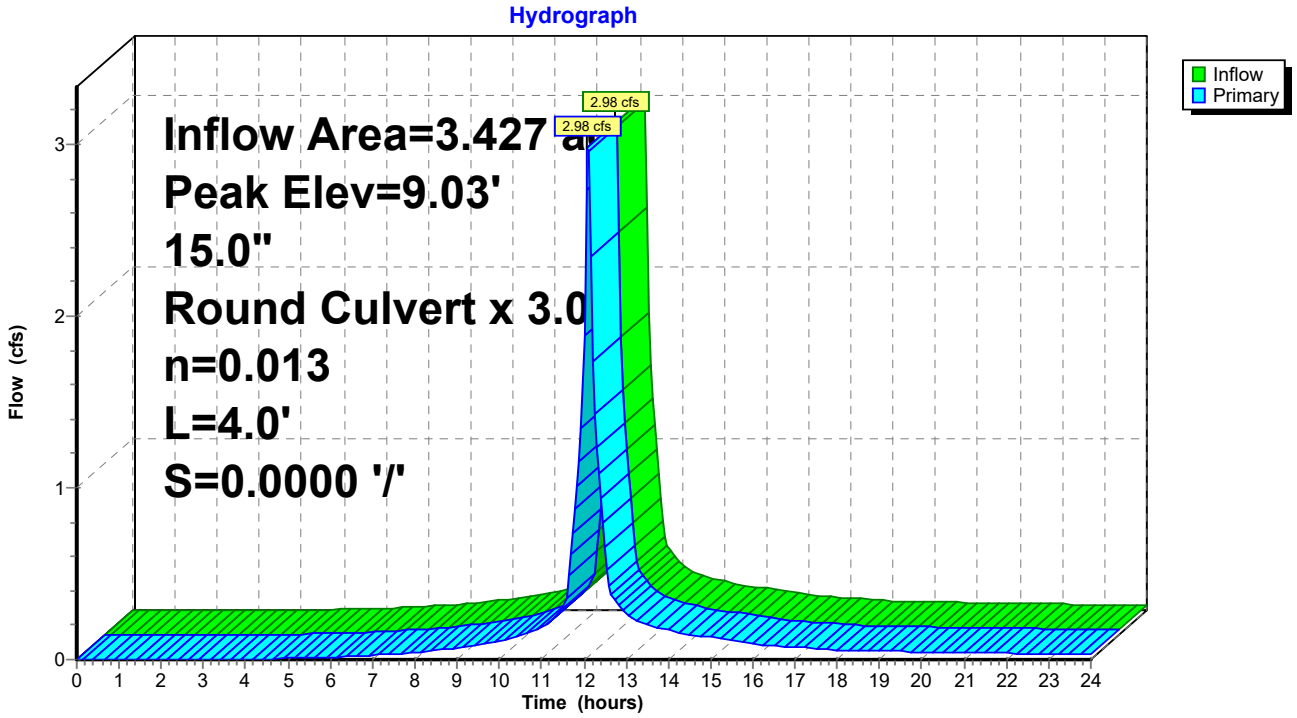
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Outflow = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.98 cfs @ 12.09 hrs, Volume= 0.226 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.03' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.90 cfs @ 12.09 hrs HW=9.03' (Free Discharge)
1=Culvert (Barrel Controls 2.90 cfs @ 2.25 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 3.12 cfs @ 12.09 hrs, Volume= 0.237 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 37%, Lag= 6.6 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.71' @ 12.20 hrs Surf.Area= 3,128 sf Storage= 2,746 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 86.4 min calculated for 0.219 af (93% of inflow)
Center-of-Mass det. time= 48.7 min (836.1 - 787.4)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

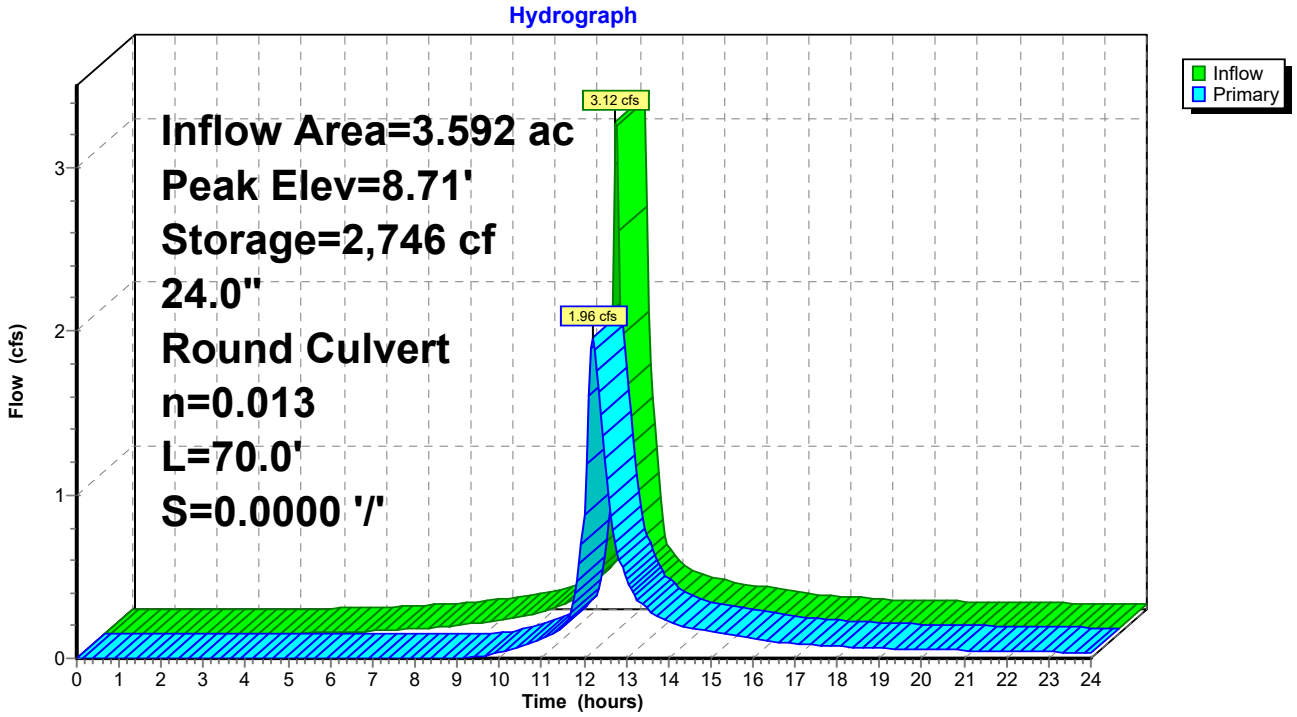
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.96 cfs @ 12.20 hrs HW=8.71' (Free Discharge)
1=Culvert (Barrel Controls 1.96 cfs @ 2.12 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

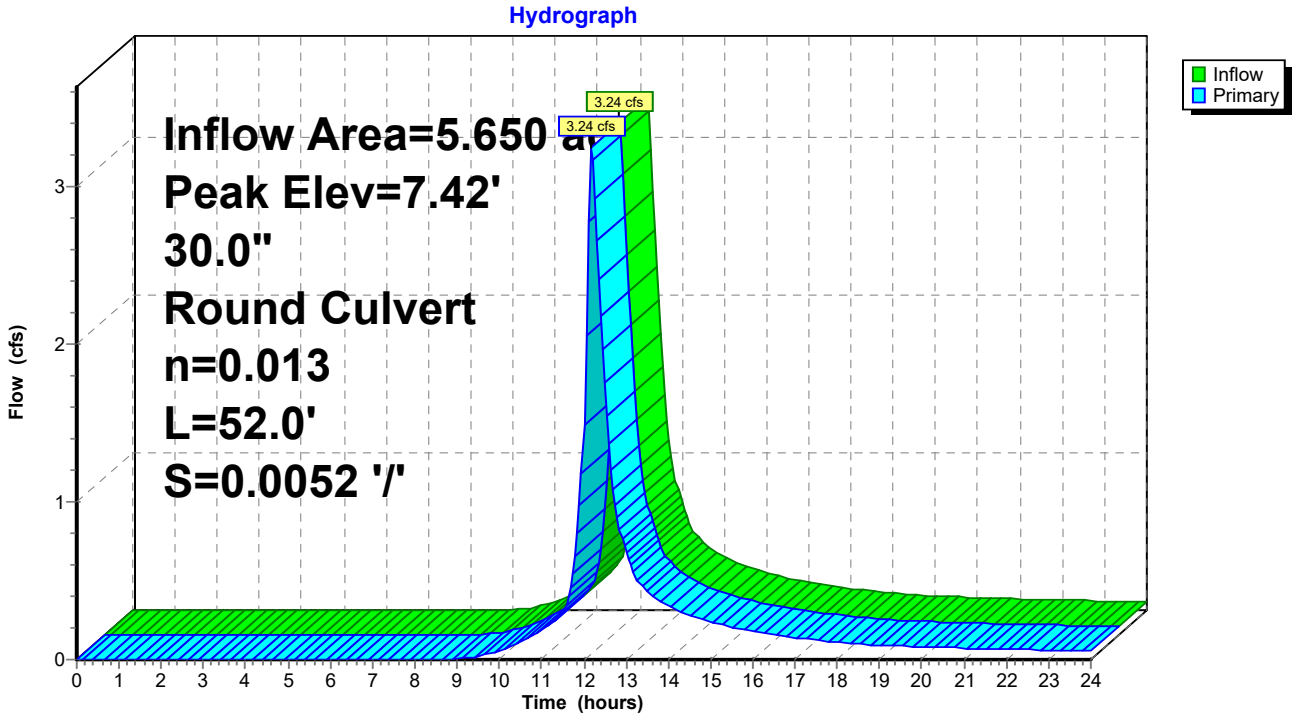
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 0.71" for 1" Storm Event event
Inflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Outflow = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.0 min
Primary = 3.24 cfs @ 12.17 hrs, Volume= 0.333 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.42' @ 12.17 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=3.18 cfs @ 12.17 hrs HW=7.41' (Free Discharge)
1=Culvert (Barrel Controls 3.18 cfs @ 3.28 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

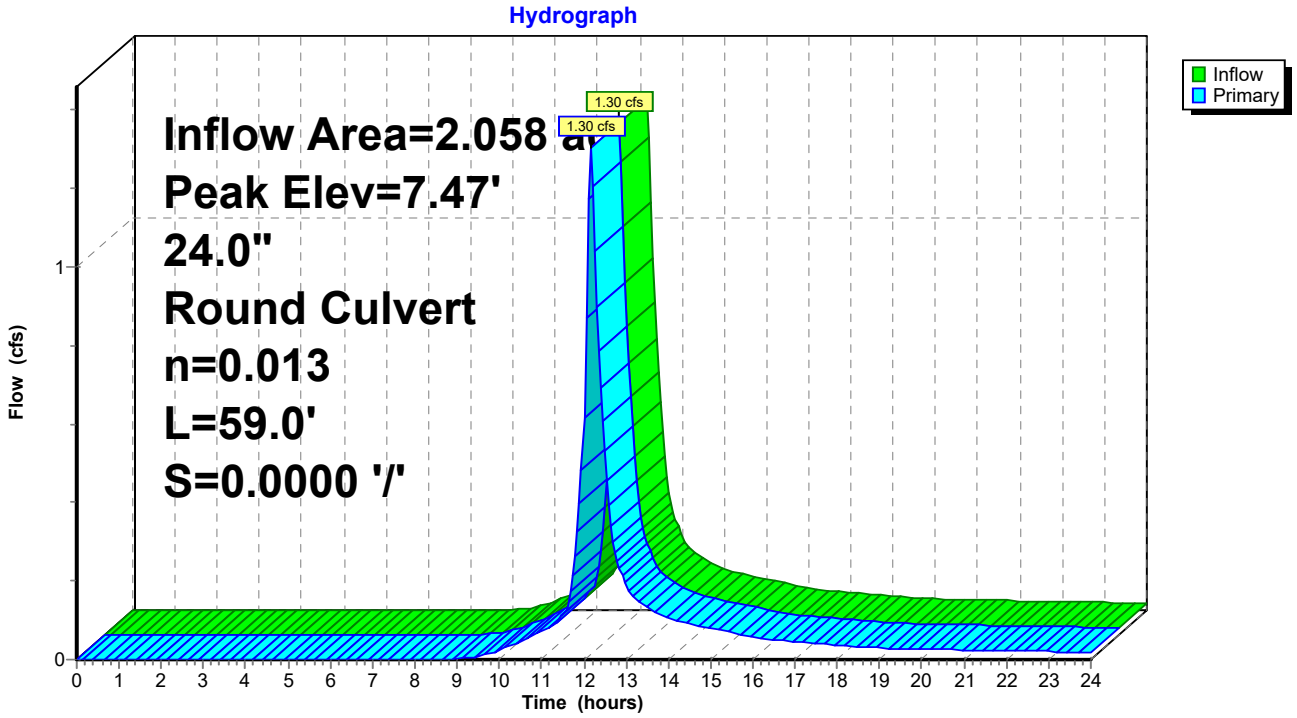
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.15 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=1.29 cfs @ 12.15 hrs HW=7.47' (Free Discharge)
1=Culvert (Barrel Controls 1.29 cfs @ 1.88 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

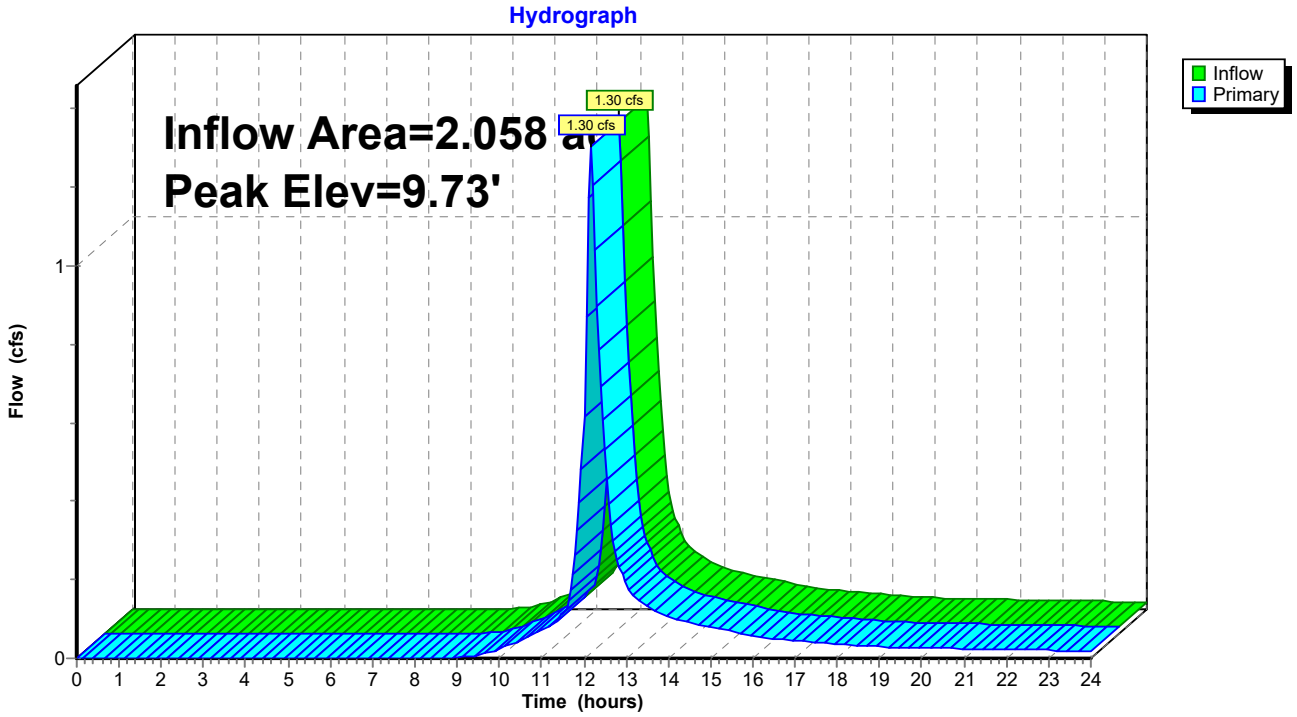
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 0.66" for 1" Storm Event event
Inflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Outflow = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.15 hrs, Volume= 0.114 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.73' @ 12.15 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=1.29 cfs @ 12.15 hrs HW=9.73' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.29 cfs of 16.79 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.40 cfs @ 1.04 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

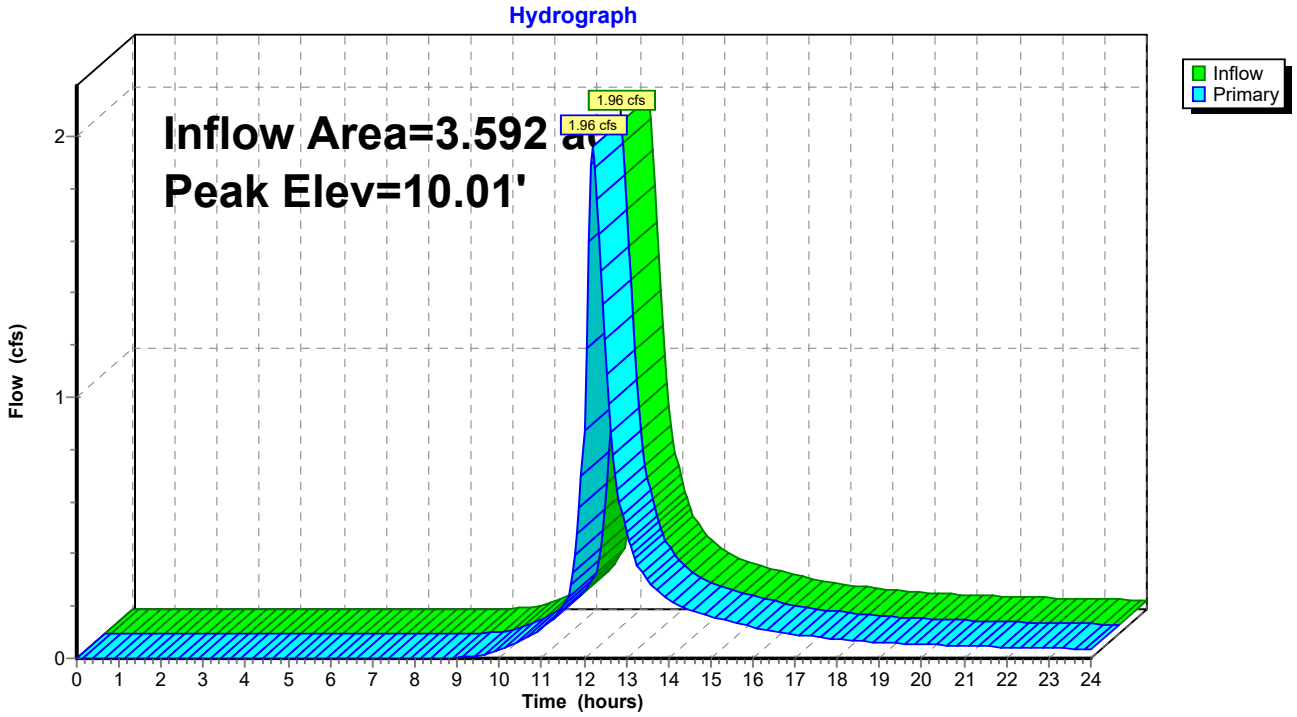
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Outflow = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.20 hrs, Volume= 0.219 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.01' @ 12.20 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**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=1.96 cfs @ 12.20 hrs HW=10.01' (Free Discharge)
└**1=Filter Culvert Out** (Passes 1.96 cfs of 13.59 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 0.53 cfs @ 1.14 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

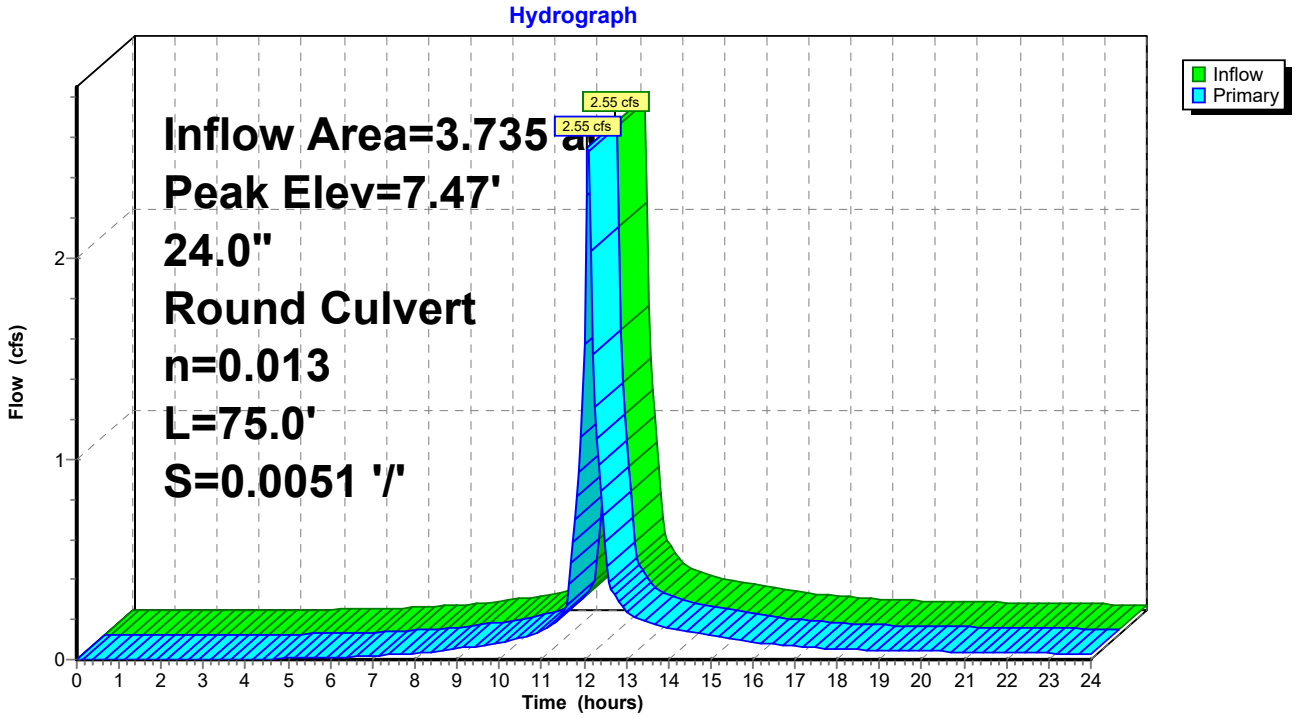
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 0.63" for 1" Storm Event event
Inflow = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af
Outflow = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 2.55 cfs @ 12.09 hrs, Volume= 0.195 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 7.47' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.50 cfs @ 12.09 hrs HW=7.46' (Free Discharge)
1=Culvert (Barrel Controls 2.50 cfs @ 3.26 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

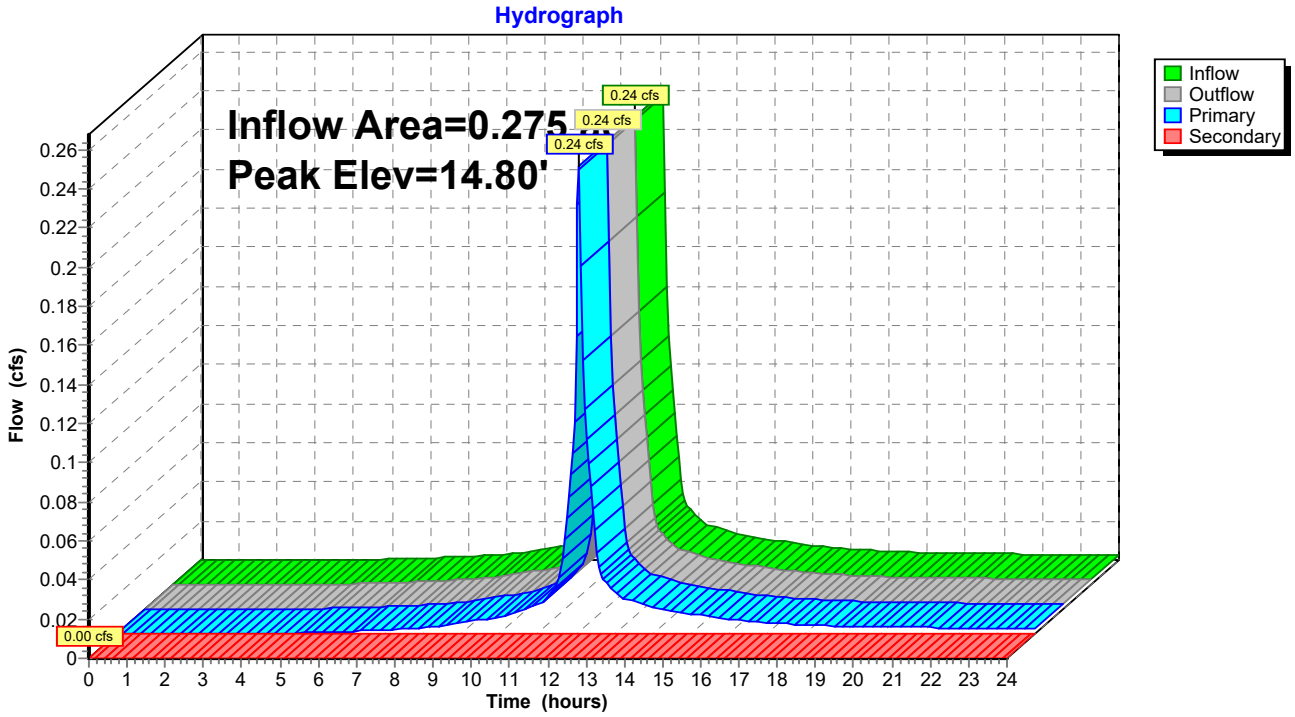
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=14.80' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.23 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

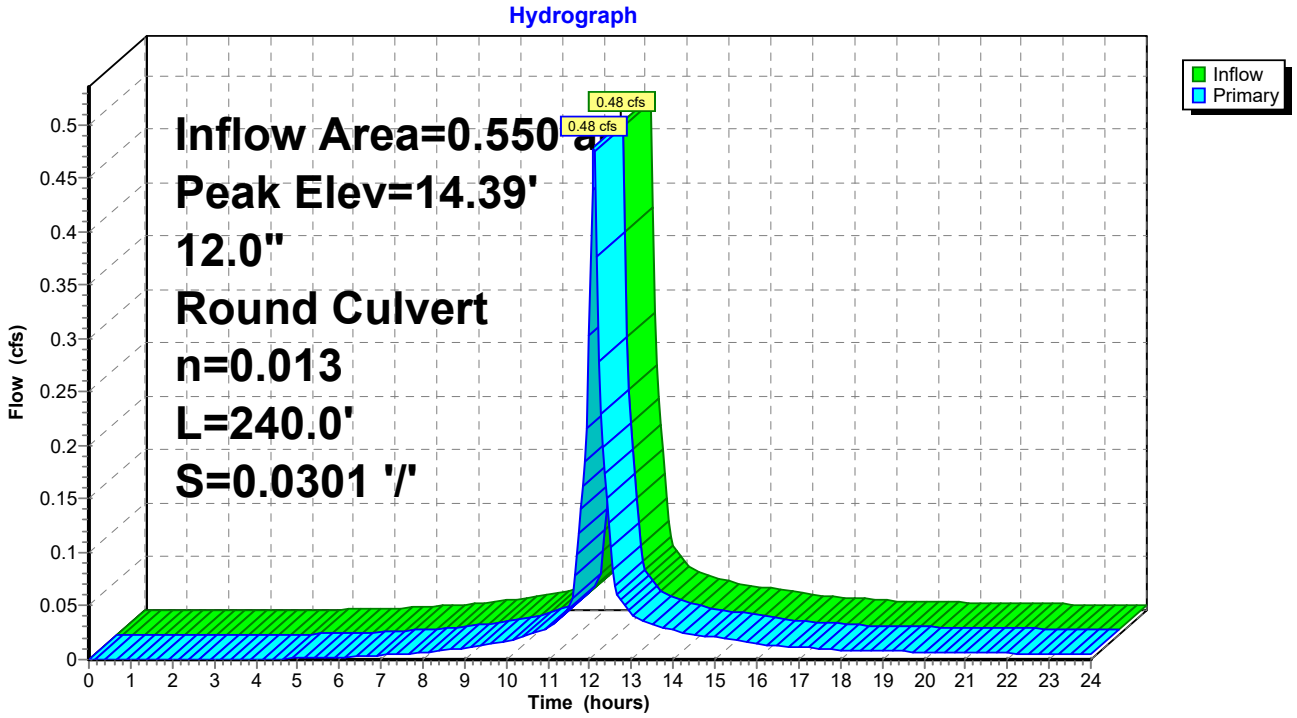
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.09 hrs, Volume= 0.036 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.39' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.09 hrs HW=14.39' (Free Discharge)
1=Culvert (Inlet Controls 0.47 cfs @ 1.67 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Outflow = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.09 hrs, Volume= 0.018 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

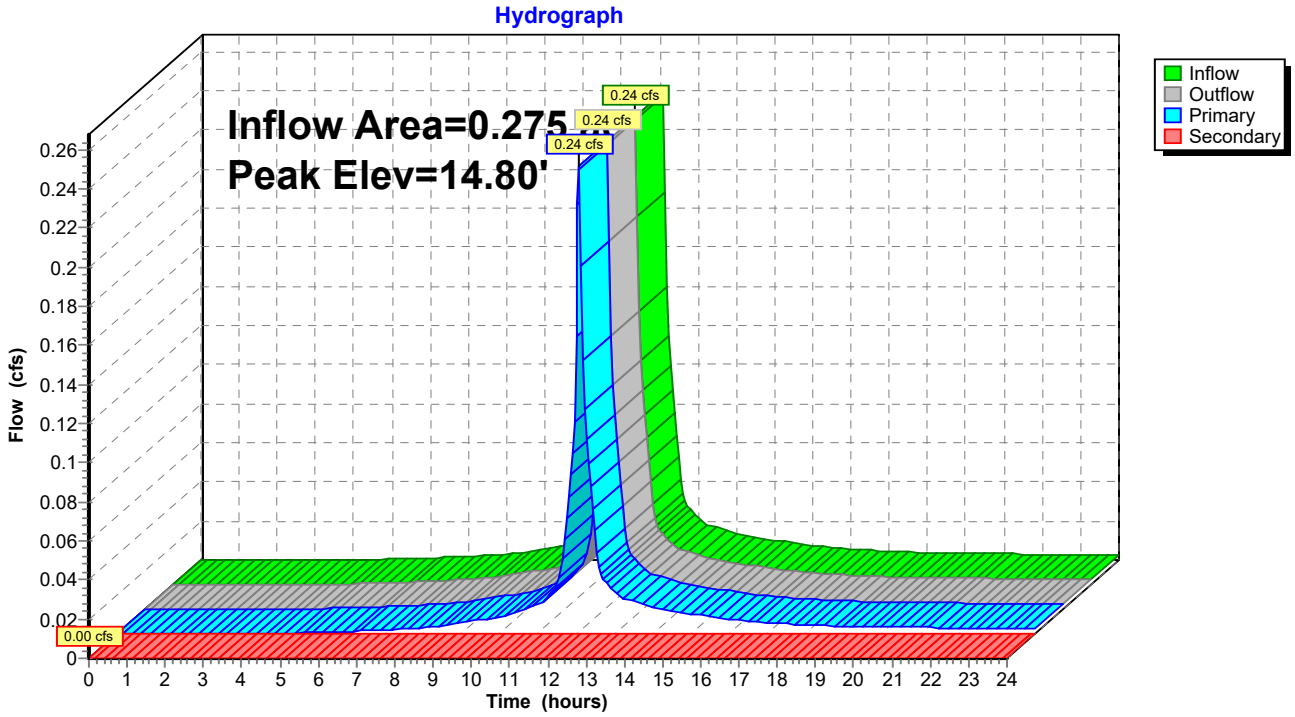
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.23 cfs @ 12.09 hrs HW=14.80' (Free Discharge)
1=Culvert (Barrel Controls 0.23 cfs @ 1.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 28P: Filterra 2

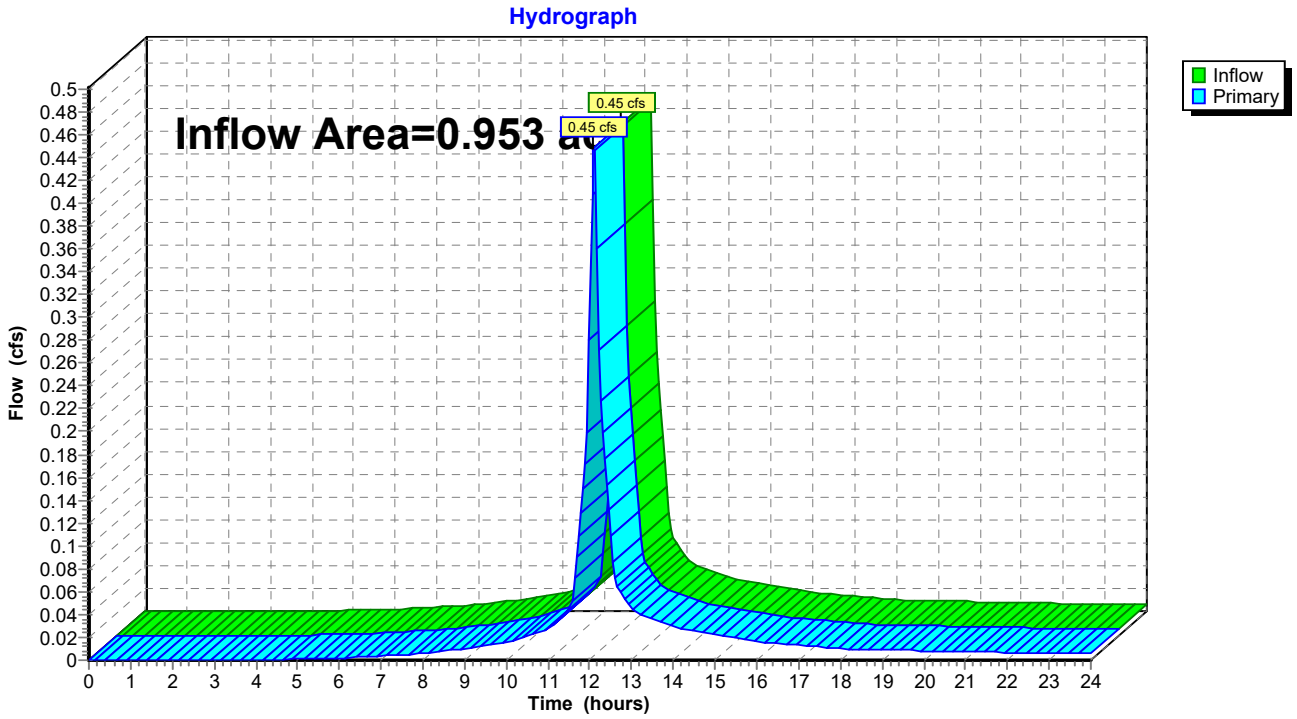


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 0.46" for 1" Storm Event event
Inflow = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.45 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

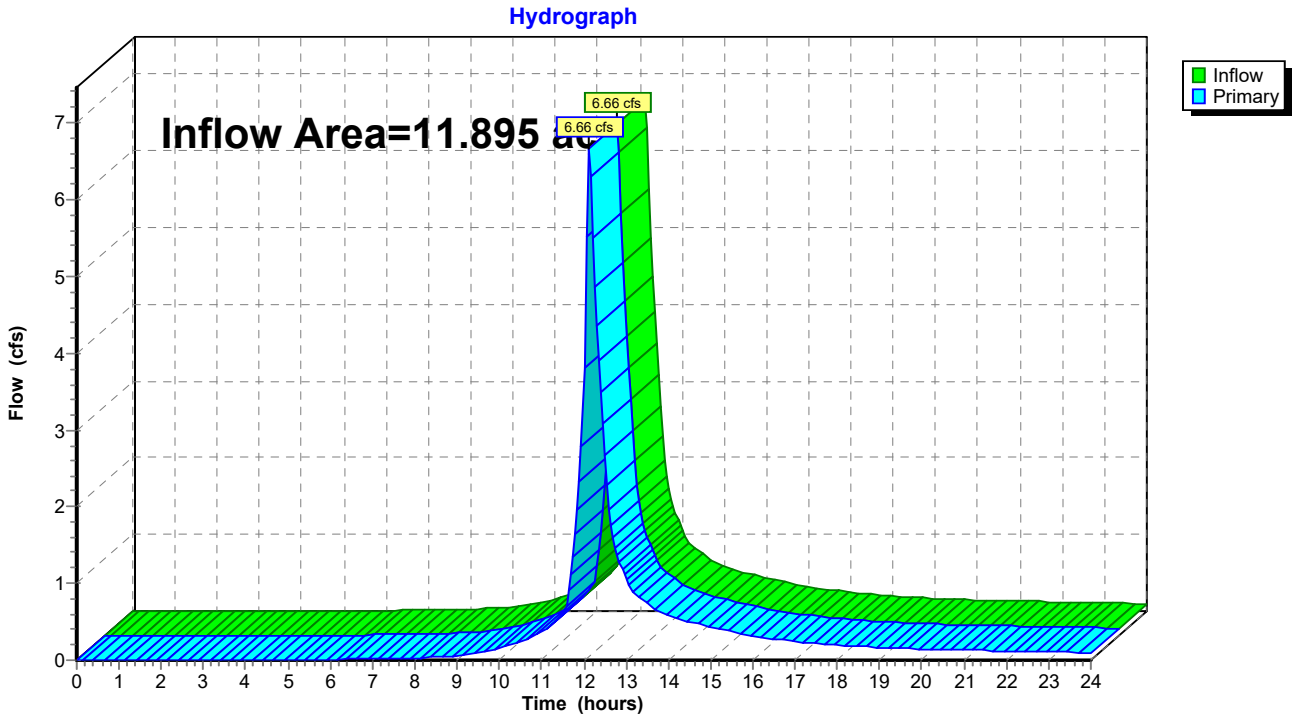


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 0.63" for 1" Storm Event event
Inflow = 6.66 cfs @ 12.11 hrs, Volume= 0.623 af
Primary = 6.66 cfs @ 12.11 hrs, Volume= 0.623 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

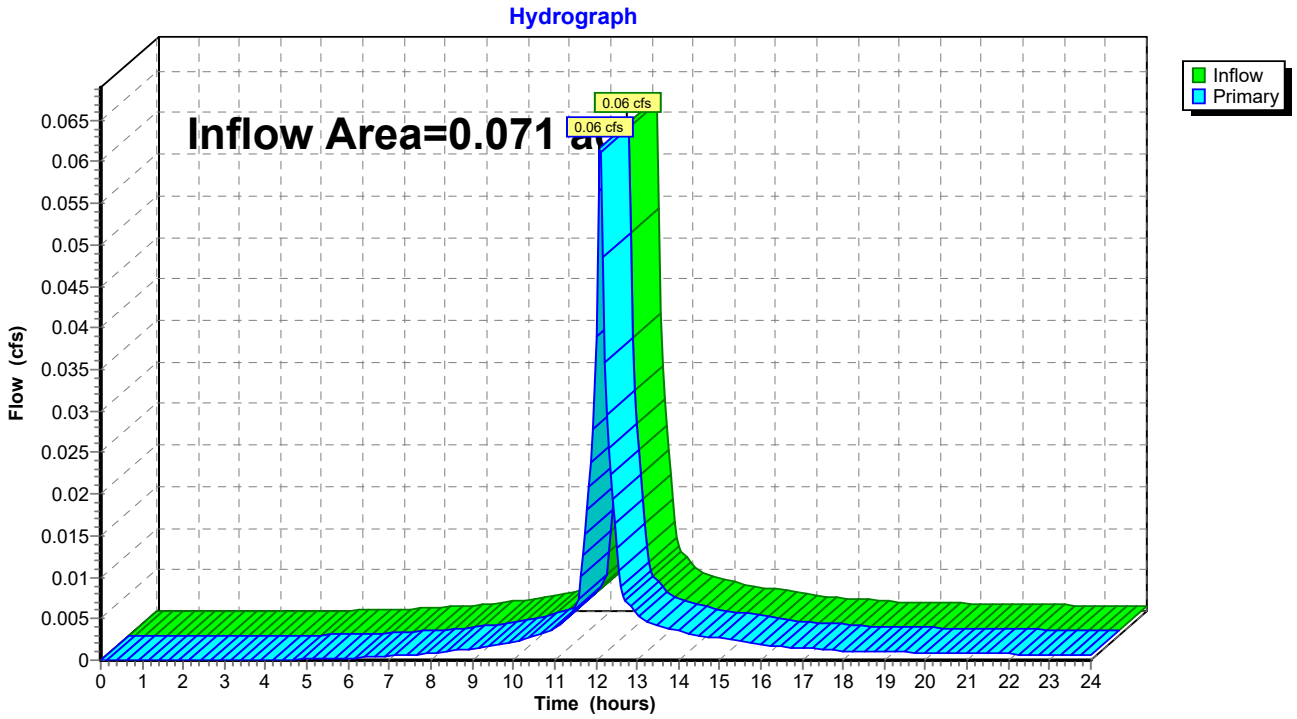


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 0.79" for 1" Storm Event event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>1.32"
Tc=6.0 min CN=80 Runoff=0.67 cfs 0.049 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.49 cfs 0.121 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=95 Runoff=1.68 cfs 0.129 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>2.76"
Tc=6.0 min CN=97 Runoff=1.25 cfs 0.099 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.012 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.024 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=94 Runoff=0.23 cfs 0.017 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.59 cfs 0.048 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.94 cfs 0.158 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=5.84 cfs 0.475 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=3.22 cfs 0.262 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.76 cfs 0.062 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=2.06 cfs 0.168 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.061 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>1.91"
Tc=6.0 min CN=88 Runoff=2.47 cfs 0.180 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>2.35"
Tc=6.0 min CN=93 Runoff=6.56 cfs 0.491 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.066 af

Pond 1P: DMH 1 Peak Elev=11.06' Inflow=5.45 cfs 0.433 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=5.45 cfs 0.433 af

Pond 2P: DMH 2 Peak Elev=10.77' Inflow=5.90 cfs 0.468 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=5.90 cfs 0.468 af

Pond 3P: Storm Structure Peak Elev=9.29' Inflow=5.90 cfs 0.468 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=5.90 cfs 0.468 af

Pond 4P: R-Tank 1 Peak Elev=8.32' Storage=1,608 cf Inflow=5.90 cfs 0.468 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 5P: DMH-11 Peak Elev=9.45' Inflow=8.11 cfs 0.835 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=8.11 cfs 0.835 af

Pond 6P: CB27 Peak Elev=11.39' Inflow=10.06 cfs 0.818 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=10.06 cfs 0.818 af

Pond 7P: Storm Structure Peak Elev=9.69' Inflow=10.06 cfs 0.818 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=10.06 cfs 0.818 af

Pond 8P: R-Tank 2 Peak Elev=9.70' Storage=5,443 cf Inflow=10.55 cfs 0.858 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=8.11 cfs 0.835 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=8.49' Inflow=13.31 cfs 1.297 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=13.31 cfs 1.297 af

Pond 10P: DMH 4 Peak Elev=8.21' Inflow=5.30 cfs 0.461 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=5.30 cfs 0.461 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.22' Inflow=5.30 cfs 0.461 af
Outflow=5.30 cfs 0.461 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.65' Inflow=8.11 cfs 0.835 af
Outflow=8.11 cfs 0.835 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=8.48' Inflow=10.12 cfs 0.802 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=10.12 cfs 0.802 af

Pond 24P: Filterra 1 Peak Elev=15.10' Inflow=0.81 cfs 0.066 af
Primary=0.81 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.81 cfs 0.066 af

Pond 27P: AD49 Peak Elev=14.80' Inflow=1.61 cfs 0.131 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=1.61 cfs 0.131 af

Pond 28P: Filterra 2 Peak Elev=15.10' Inflow=0.81 cfs 0.066 af
Primary=0.81 cfs 0.066 af Secondary=0.00 cfs 0.000 af Outflow=0.81 cfs 0.066 af

Link 1L: Freedom Way Inflow=2.16 cfs 0.170 af
Primary=2.16 cfs 0.170 af

Link 2L: Fore River Inflow=29.07 cfs 2.590 af
Primary=29.07 cfs 2.590 af

Link 3L: Fore Street Inflow=0.21 cfs 0.017 af
Primary=0.21 cfs 0.017 af

Total Runoff Area = 12.919 ac Runoff Volume = 2.806 af Average Runoff Depth = 2.61"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

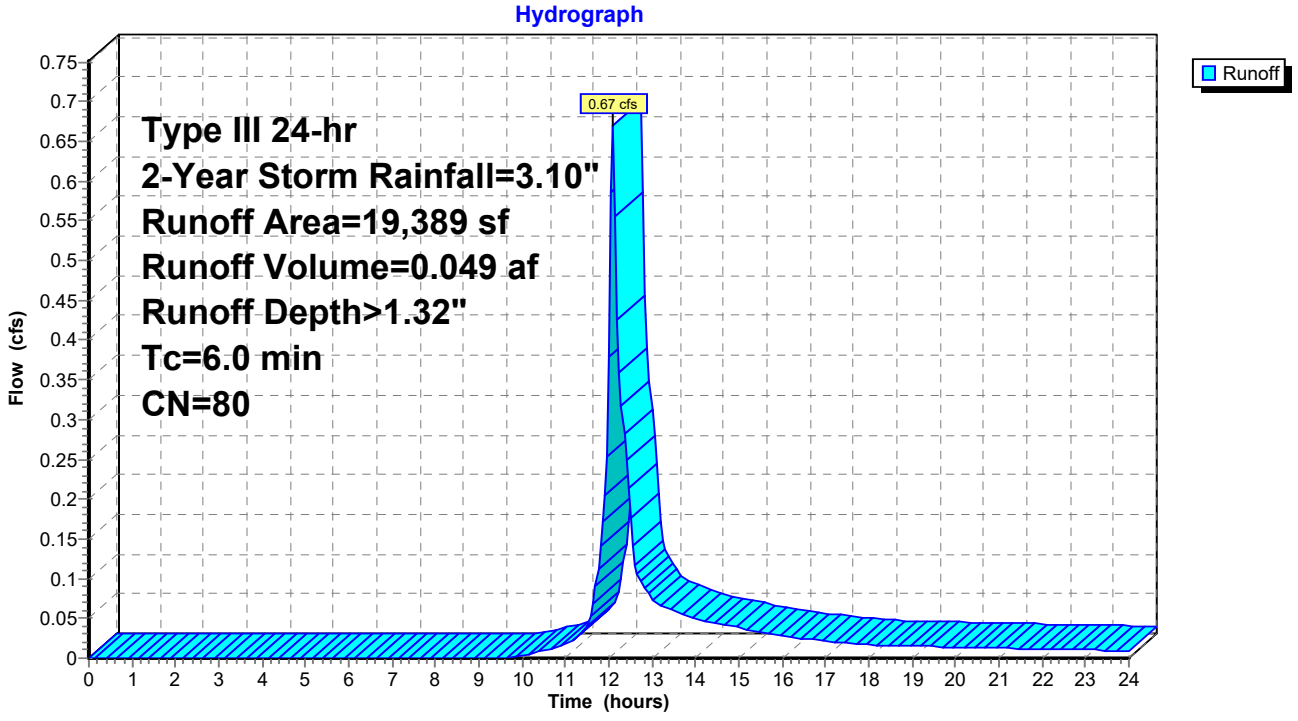
Runoff = 0.67 cfs @ 12.10 hrs, Volume= 0.049 af, Depth> 1.32"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

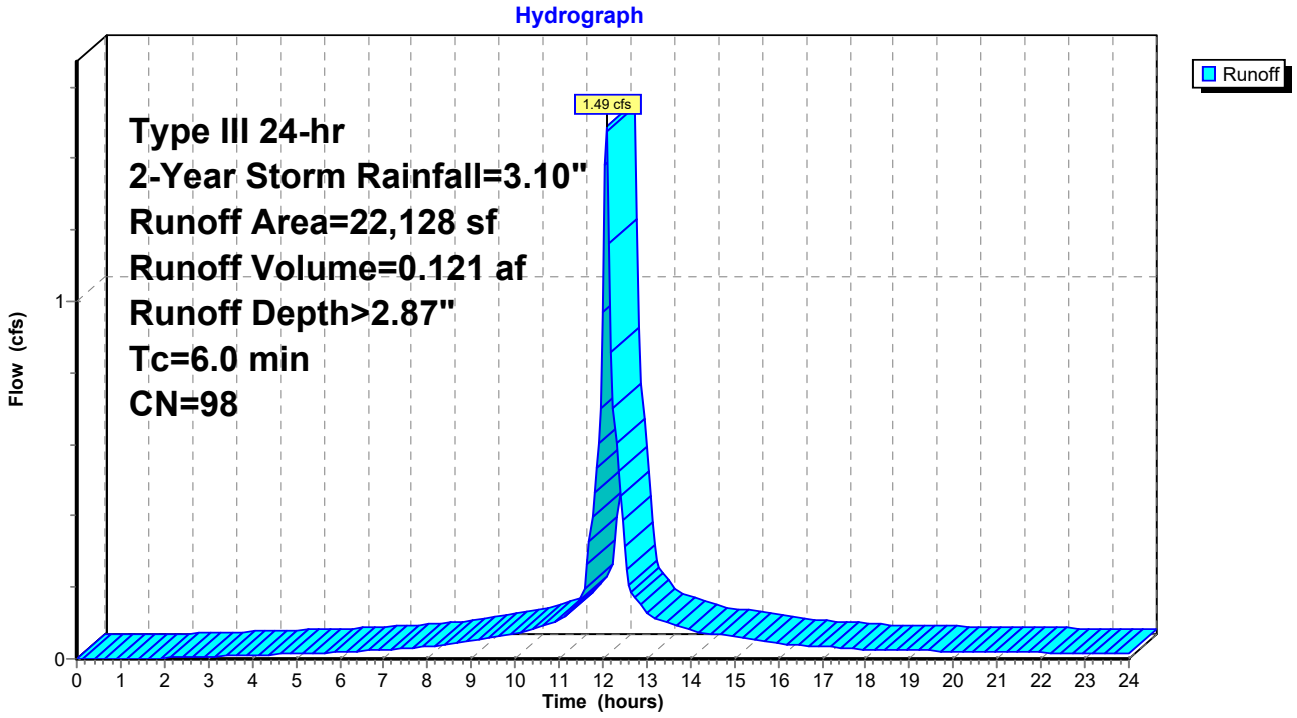
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

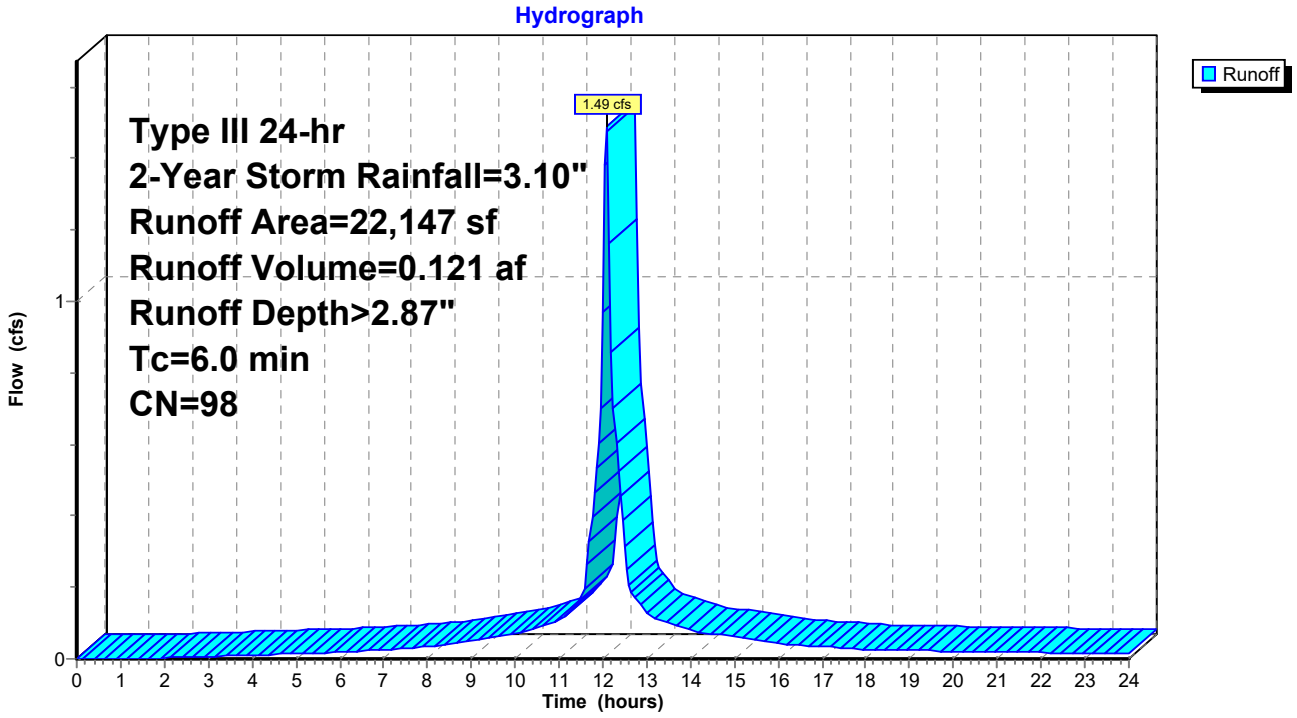
Runoff = 1.49 cfs @ 12.09 hrs, Volume= 0.121 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

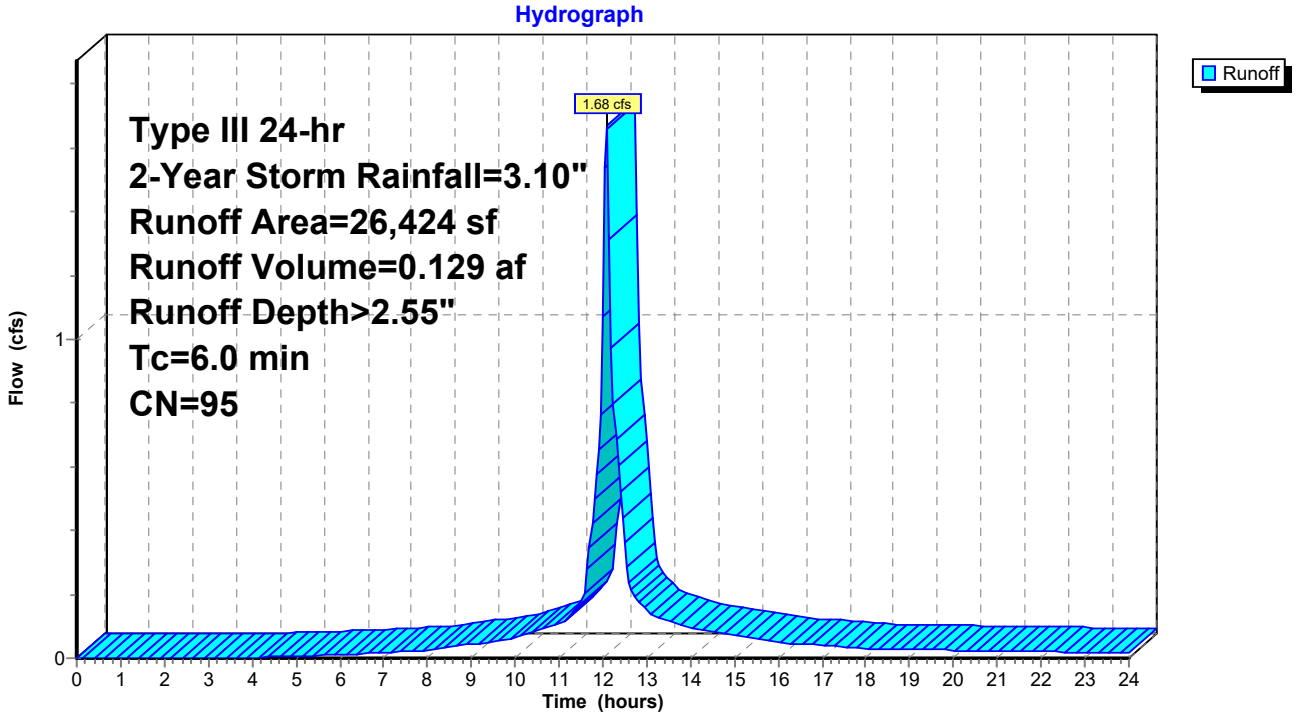
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.129 af, Depth> 2.55"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

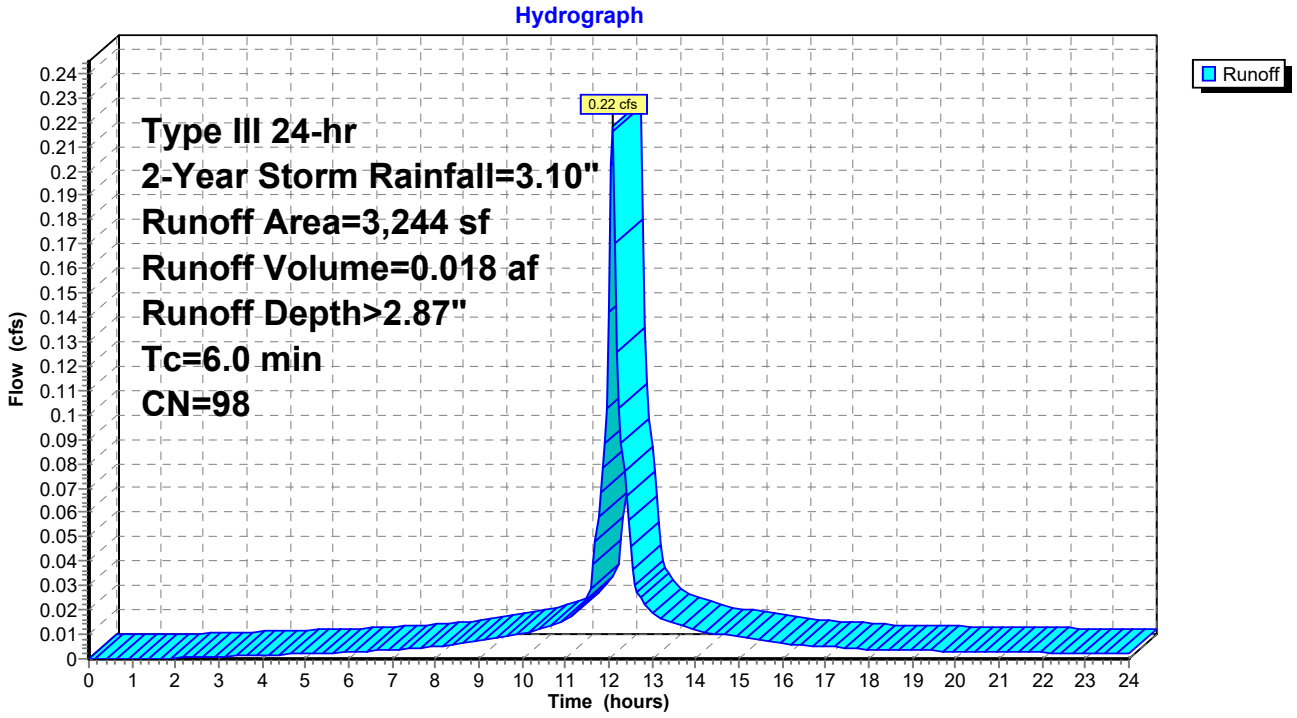
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

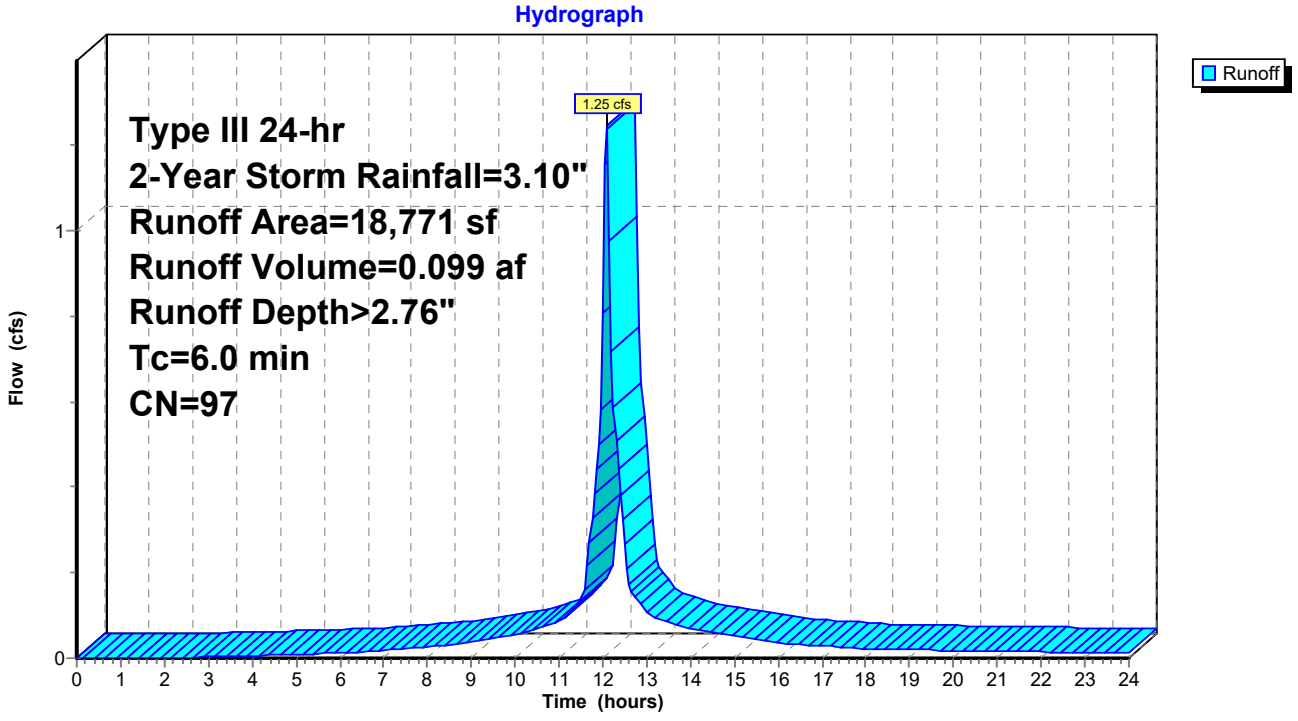
Runoff = 1.25 cfs @ 12.09 hrs, Volume= 0.099 af, Depth> 2.76"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

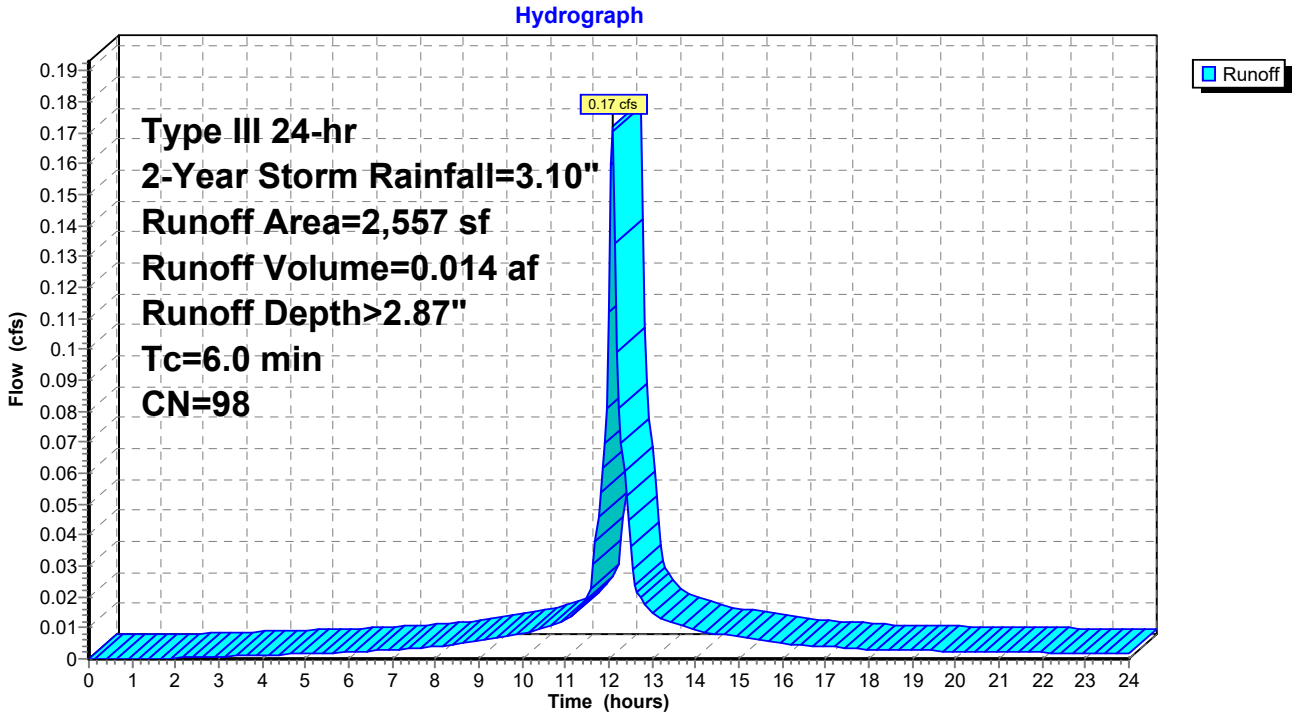
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

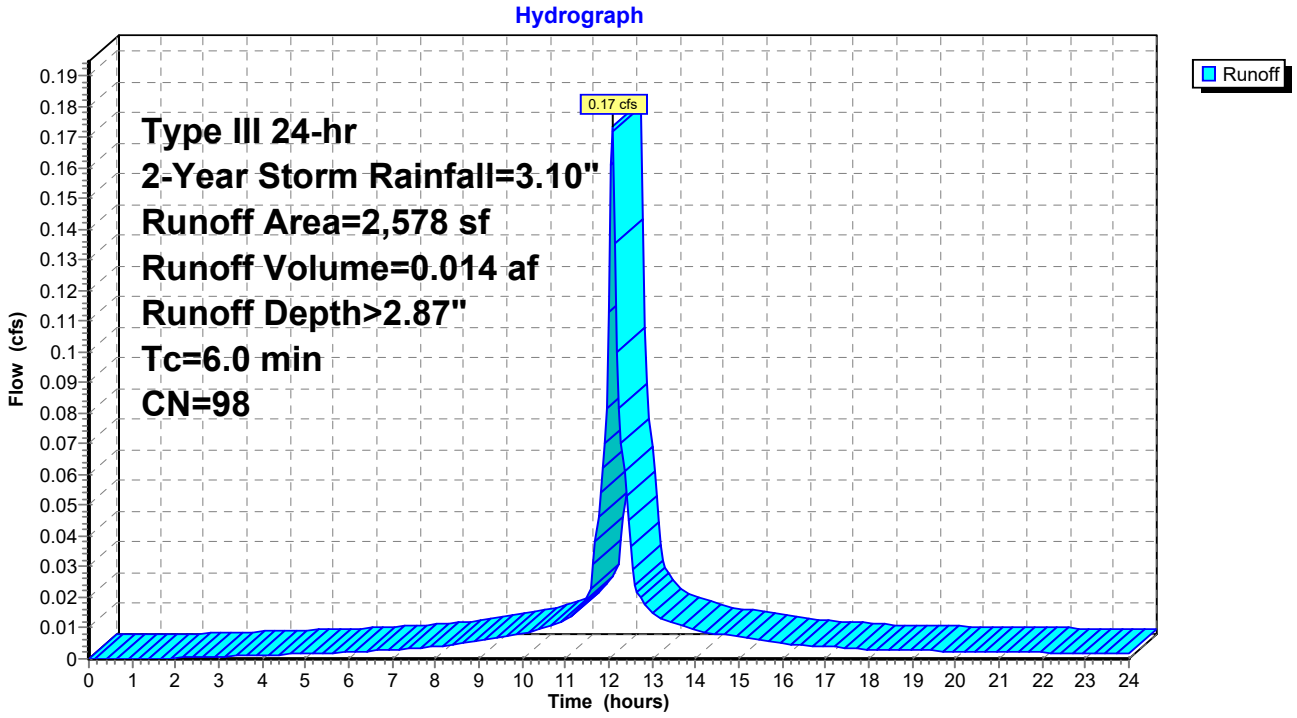
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

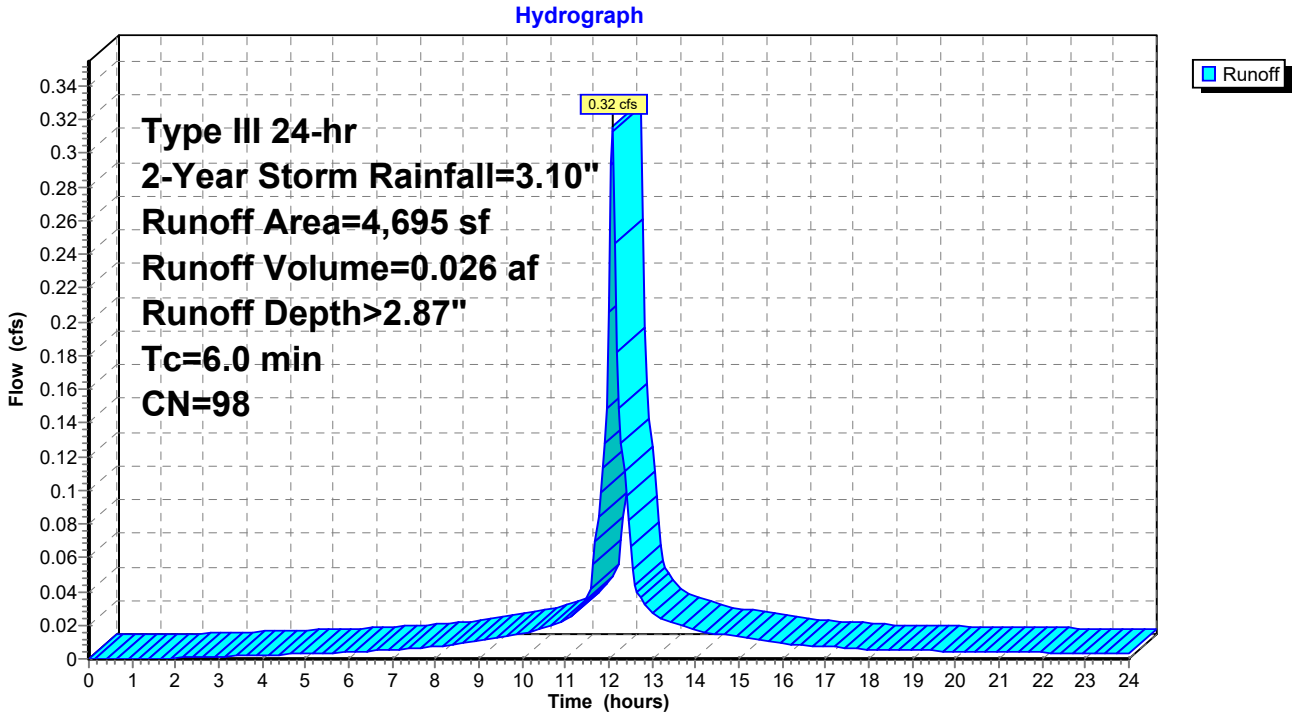
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.026 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

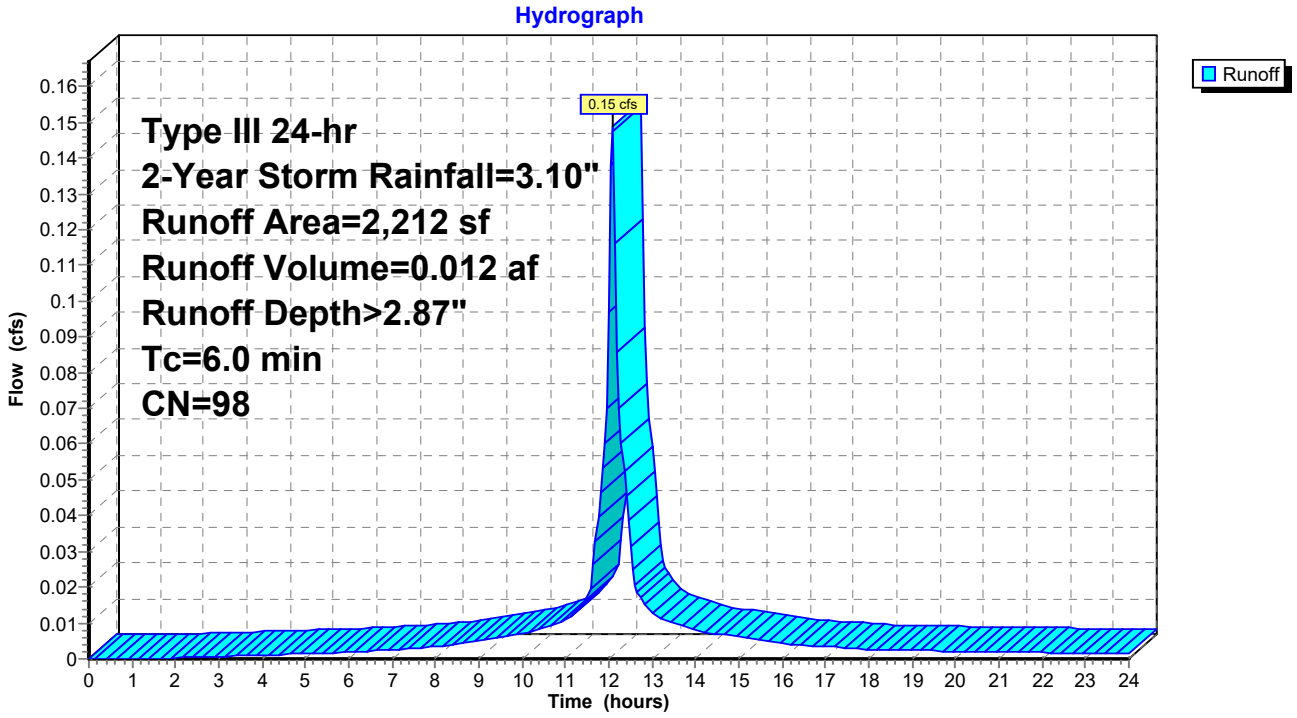
Runoff = 0.15 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

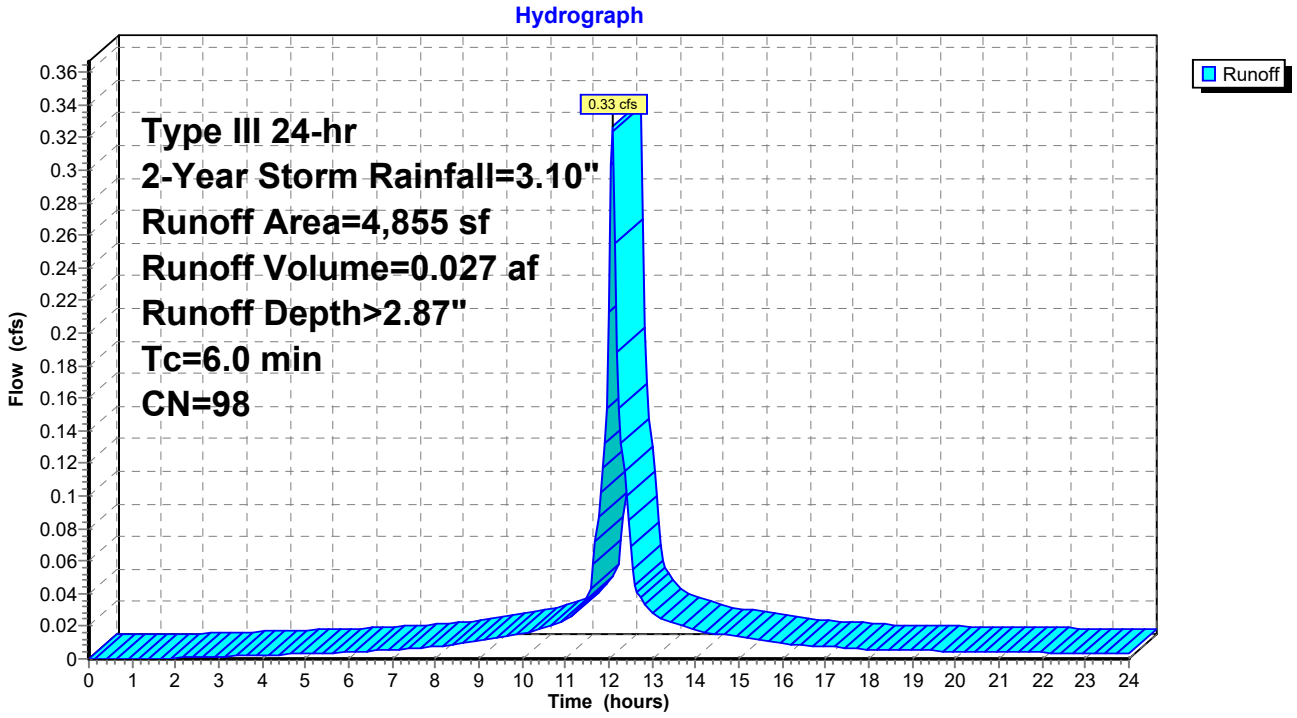
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 2.87"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

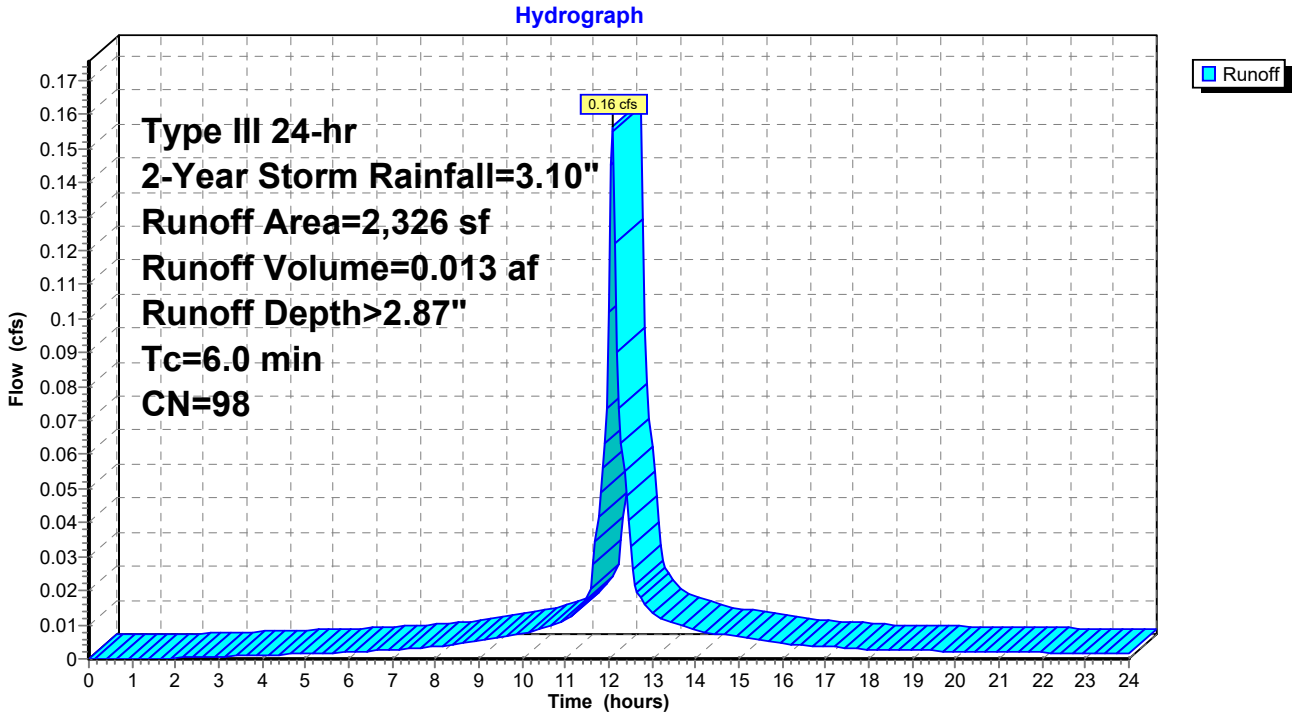
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

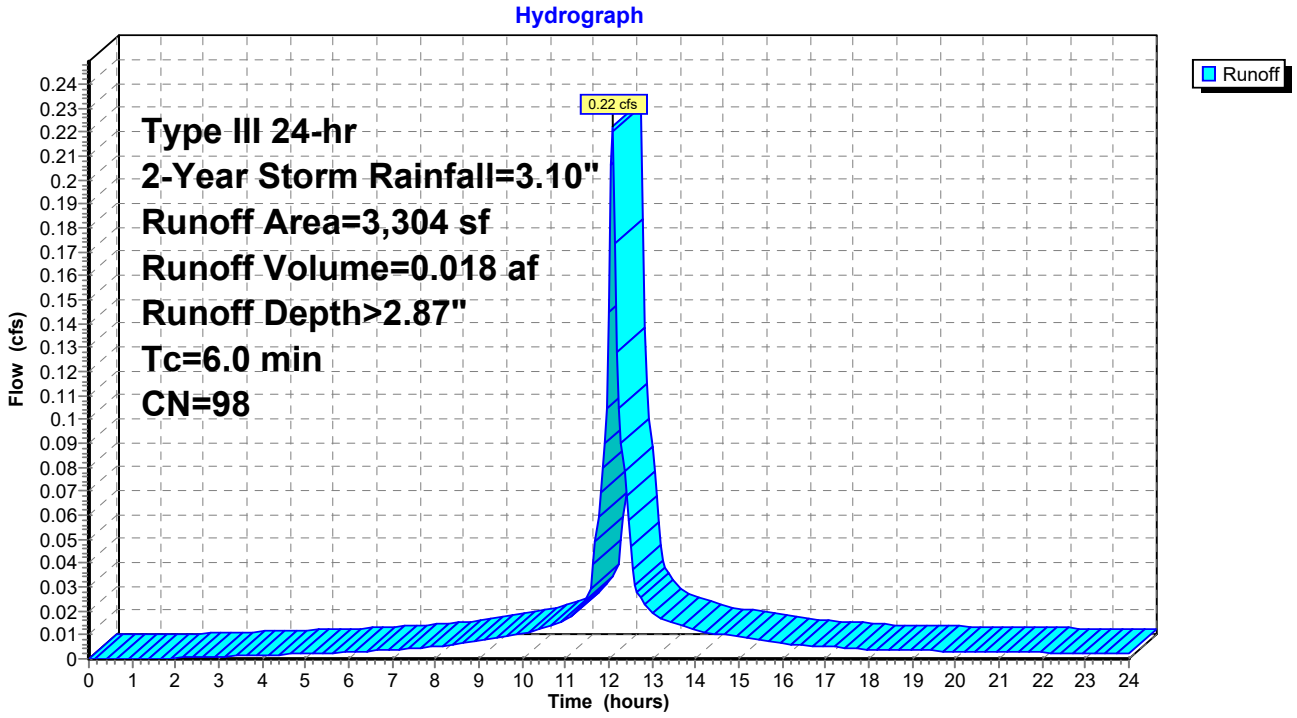
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 2.87"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

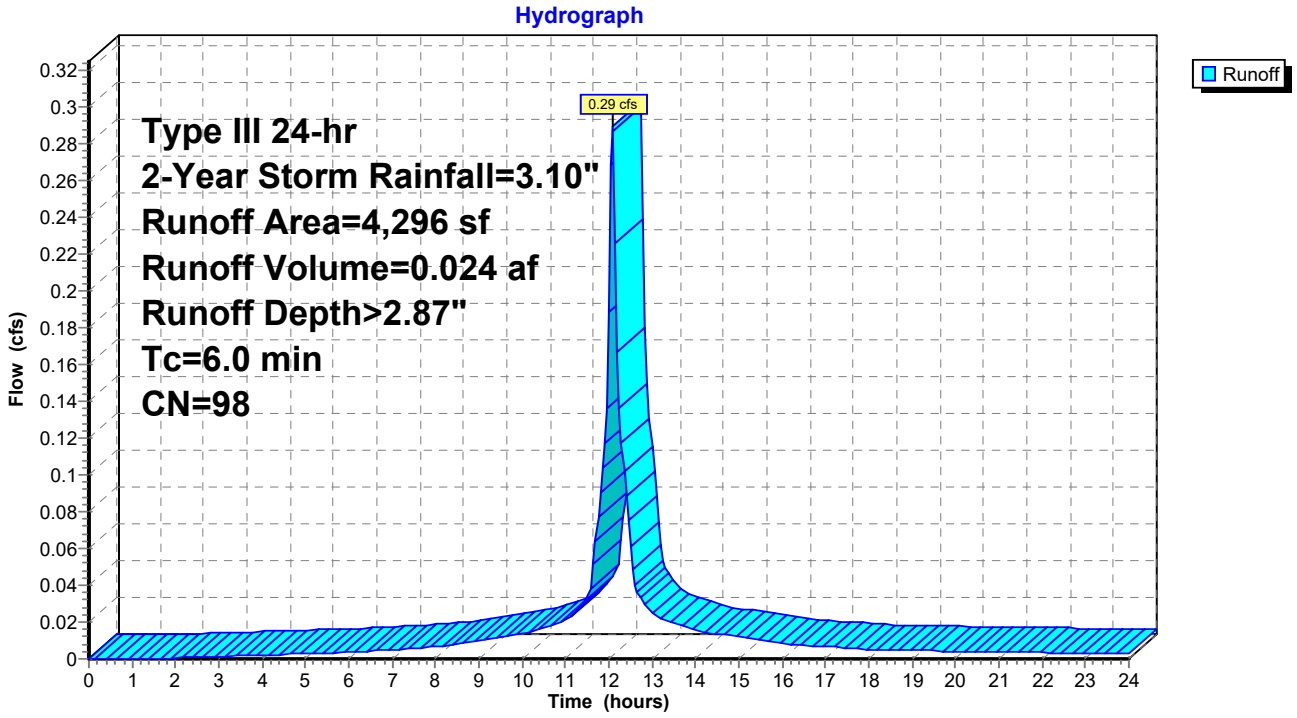
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

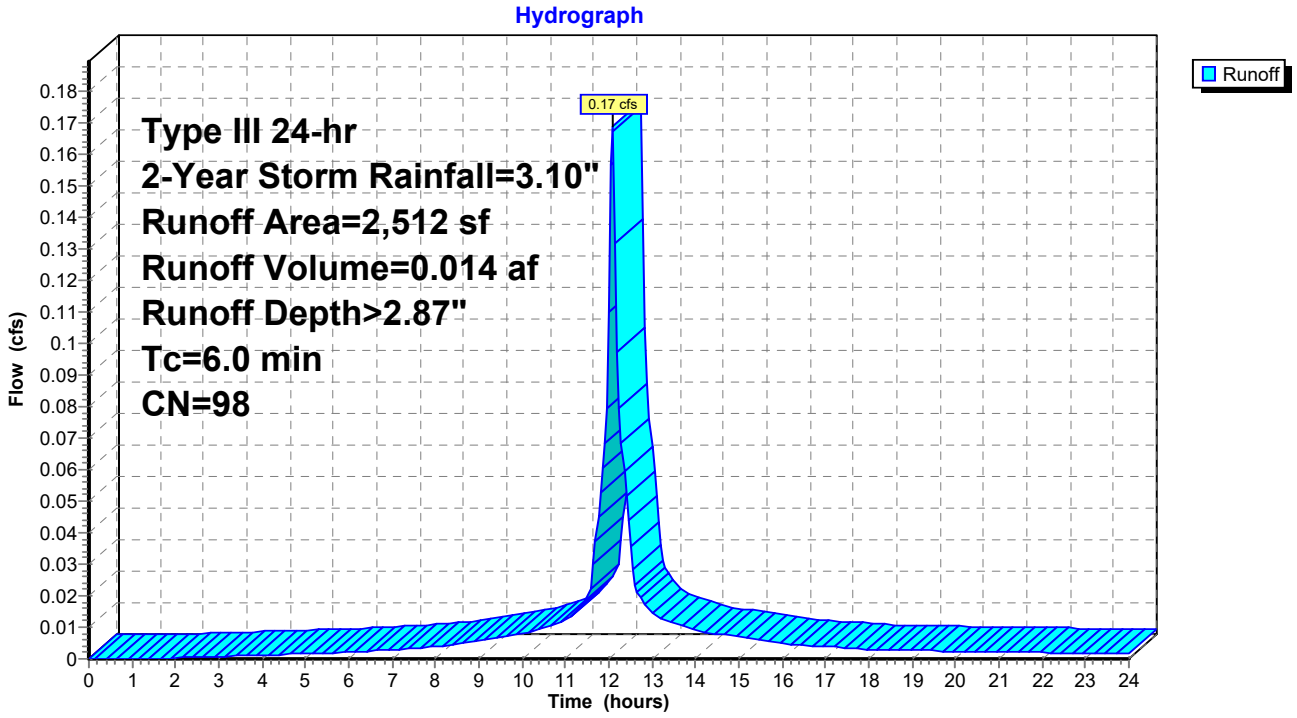
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

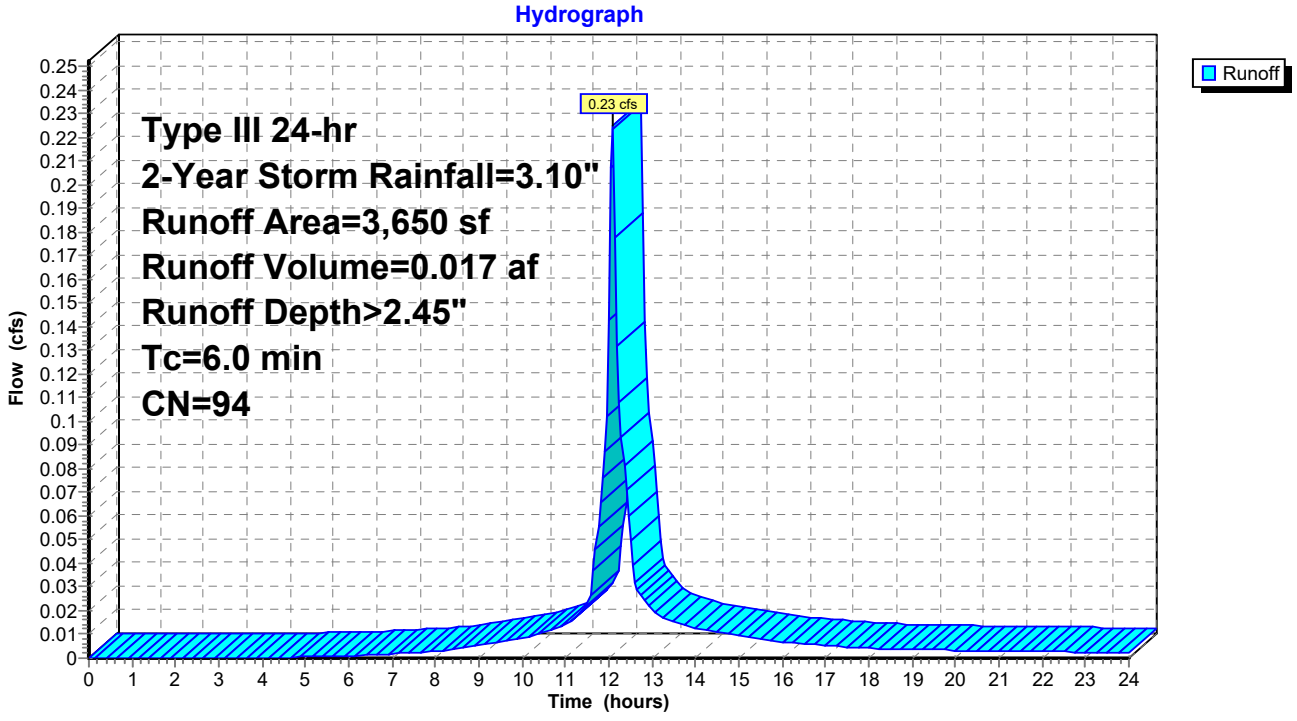
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 2.45"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

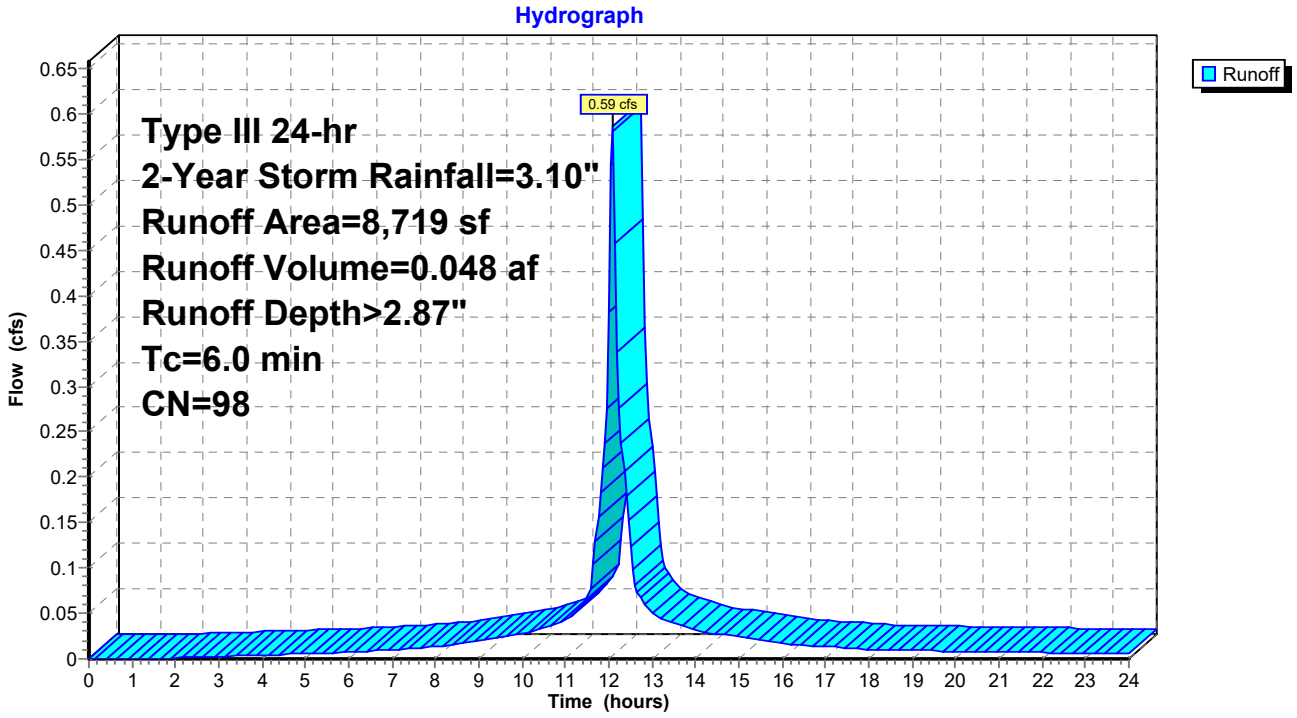
Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.048 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

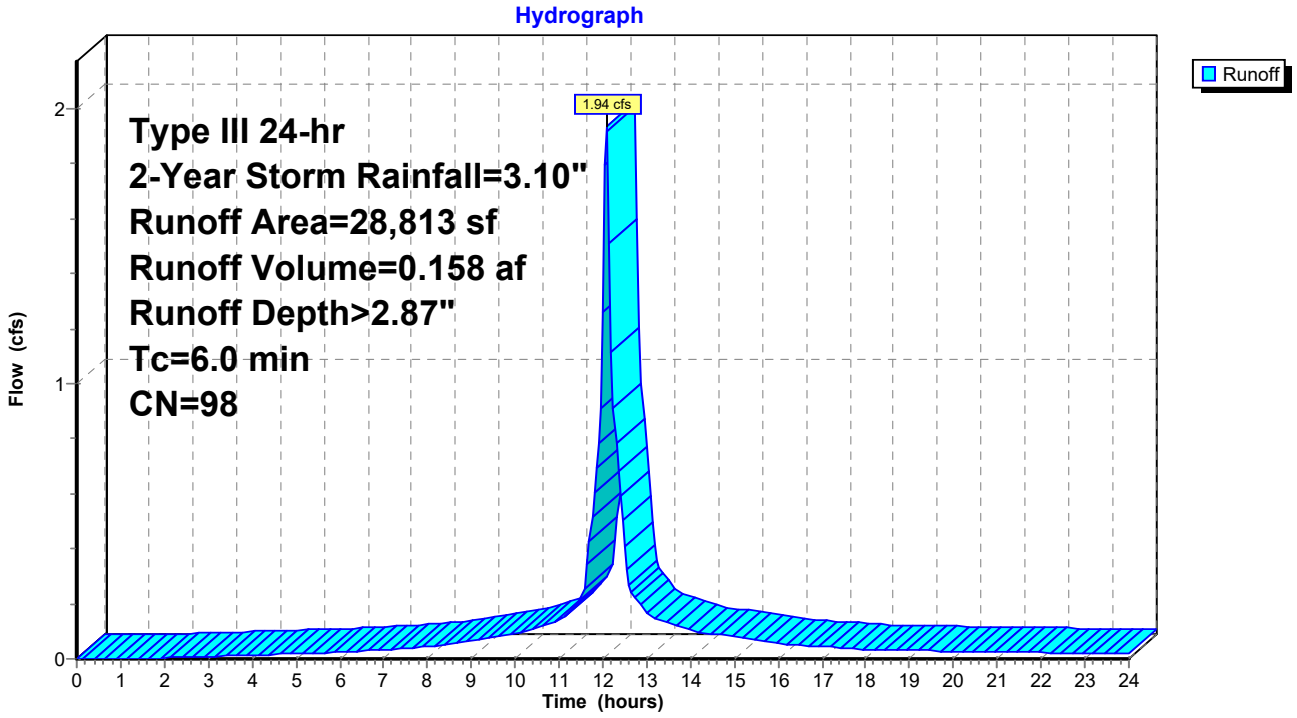
Runoff = 1.94 cfs @ 12.09 hrs, Volume= 0.158 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

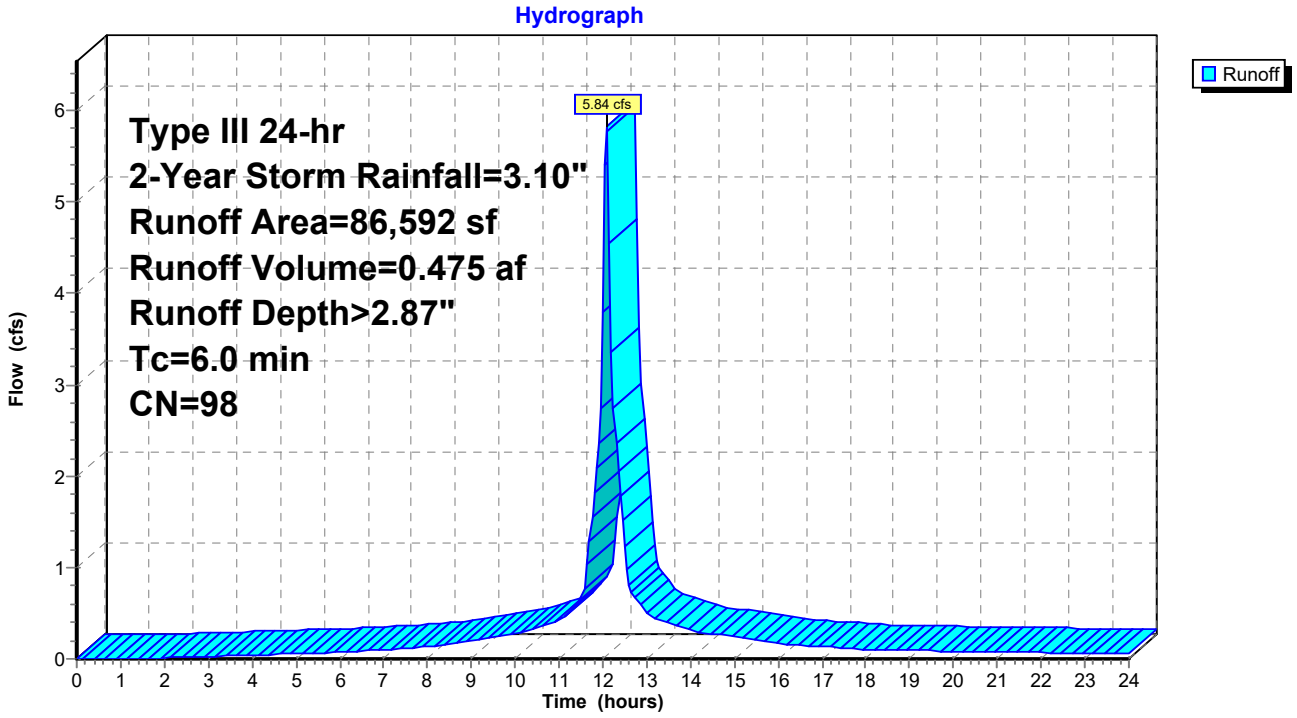
Runoff = 5.84 cfs @ 12.09 hrs, Volume= 0.475 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

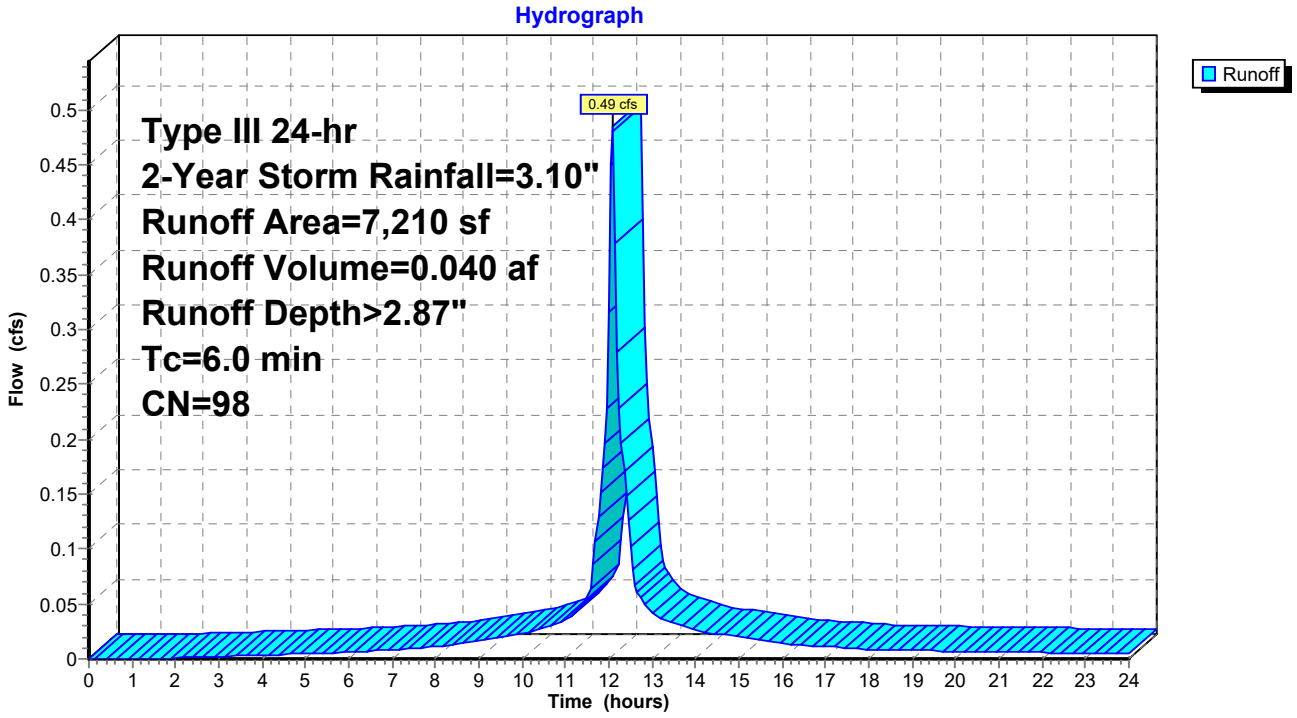
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.87"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

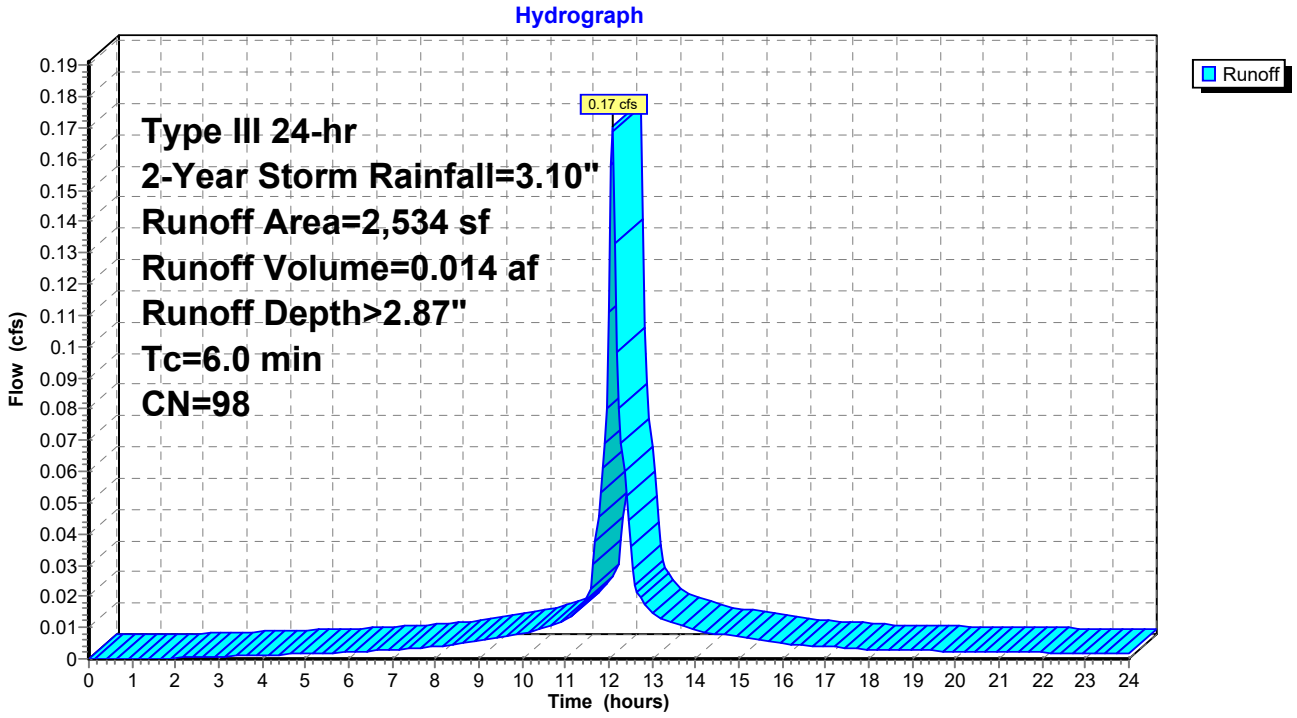
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"
Routed to Link 3L : Fore Street

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

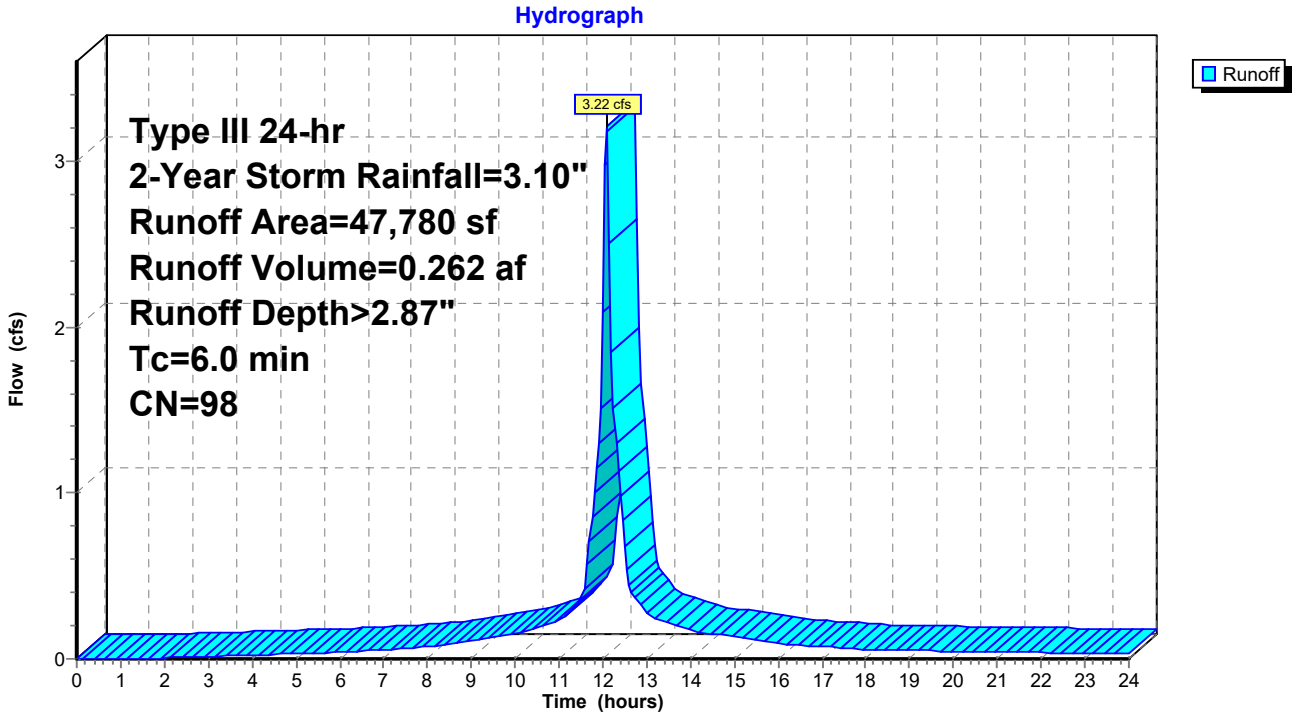
Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.262 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

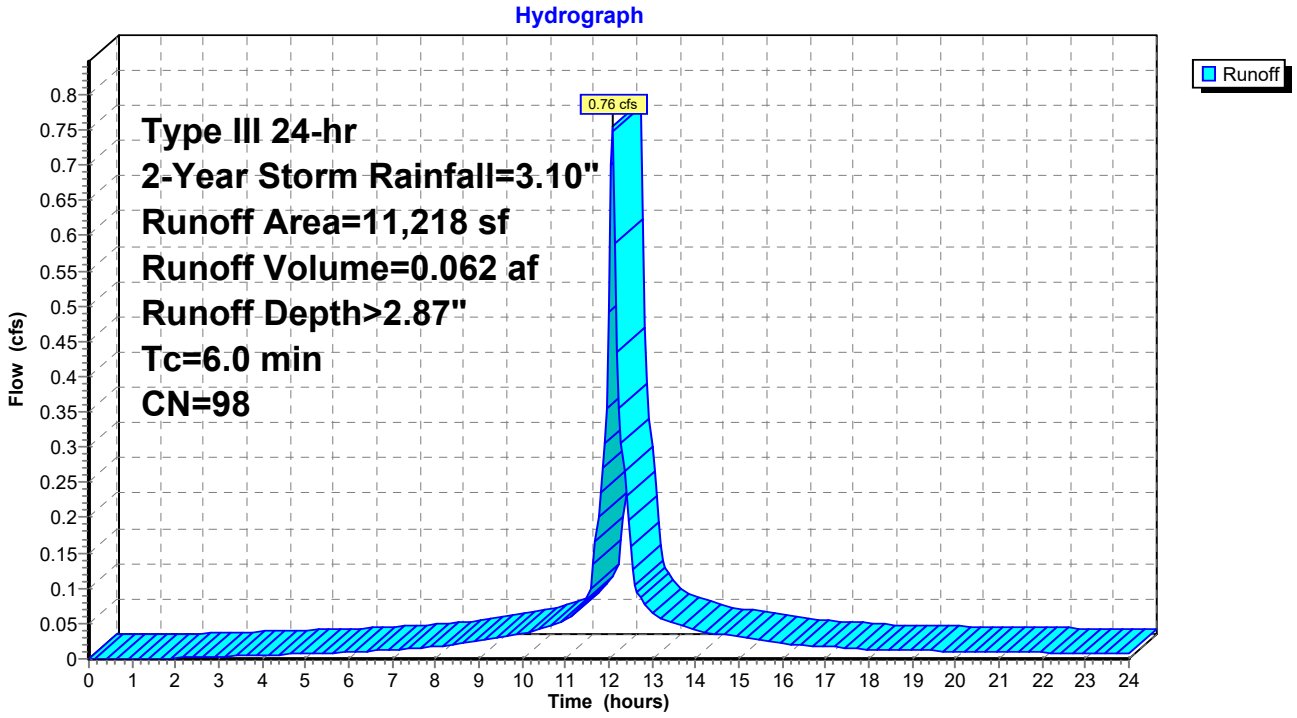
Runoff = 0.76 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 2.87"
Routed to Pond 6P : CB27

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

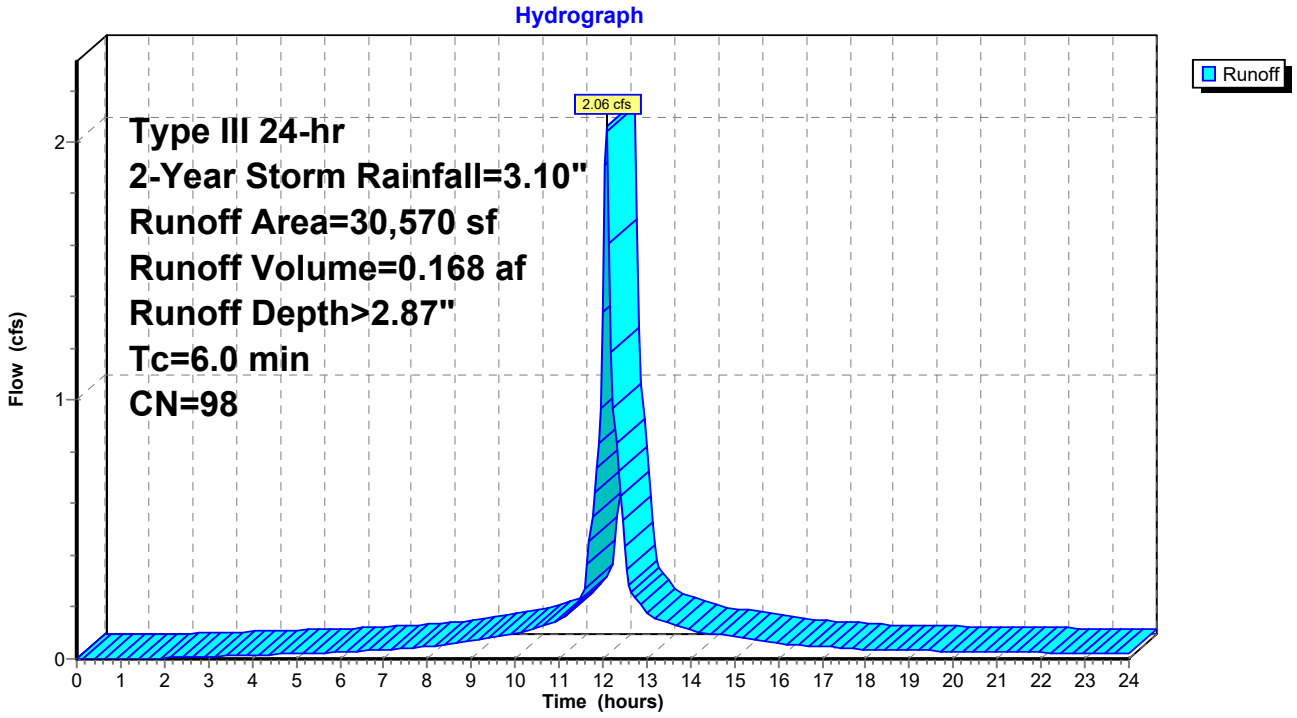
Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.168 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

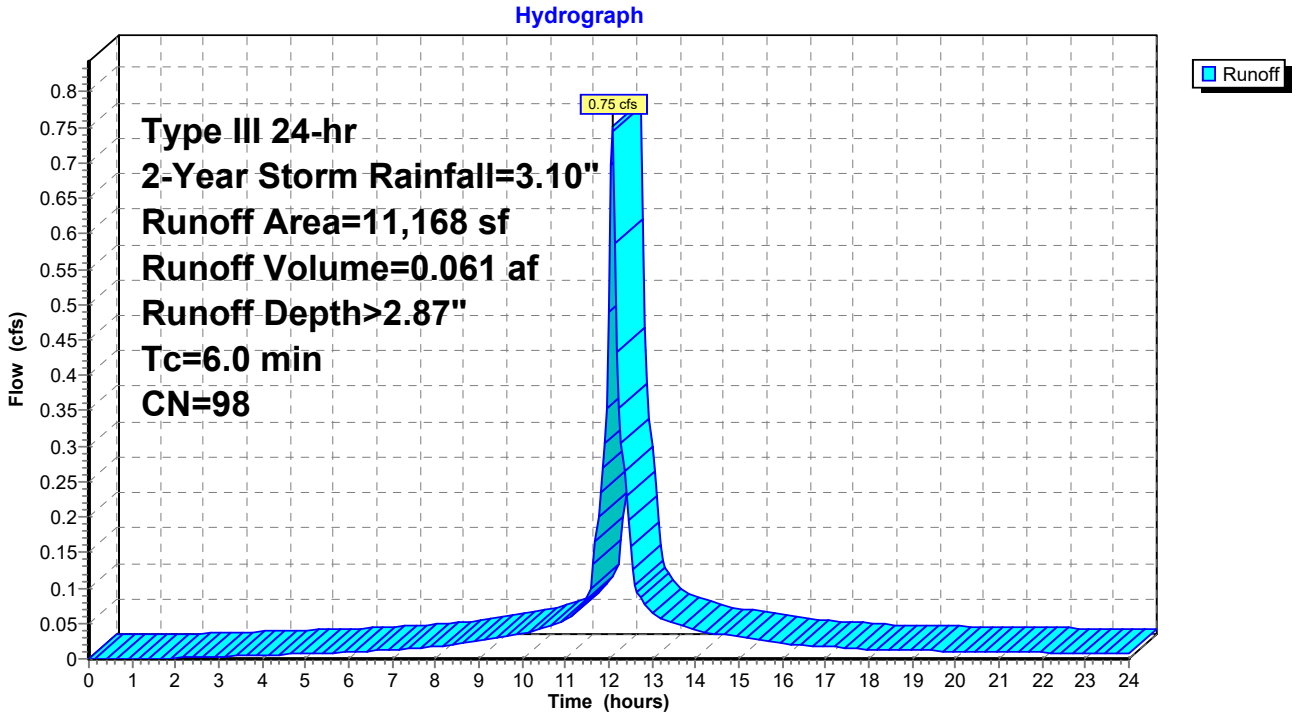
Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 2.87"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

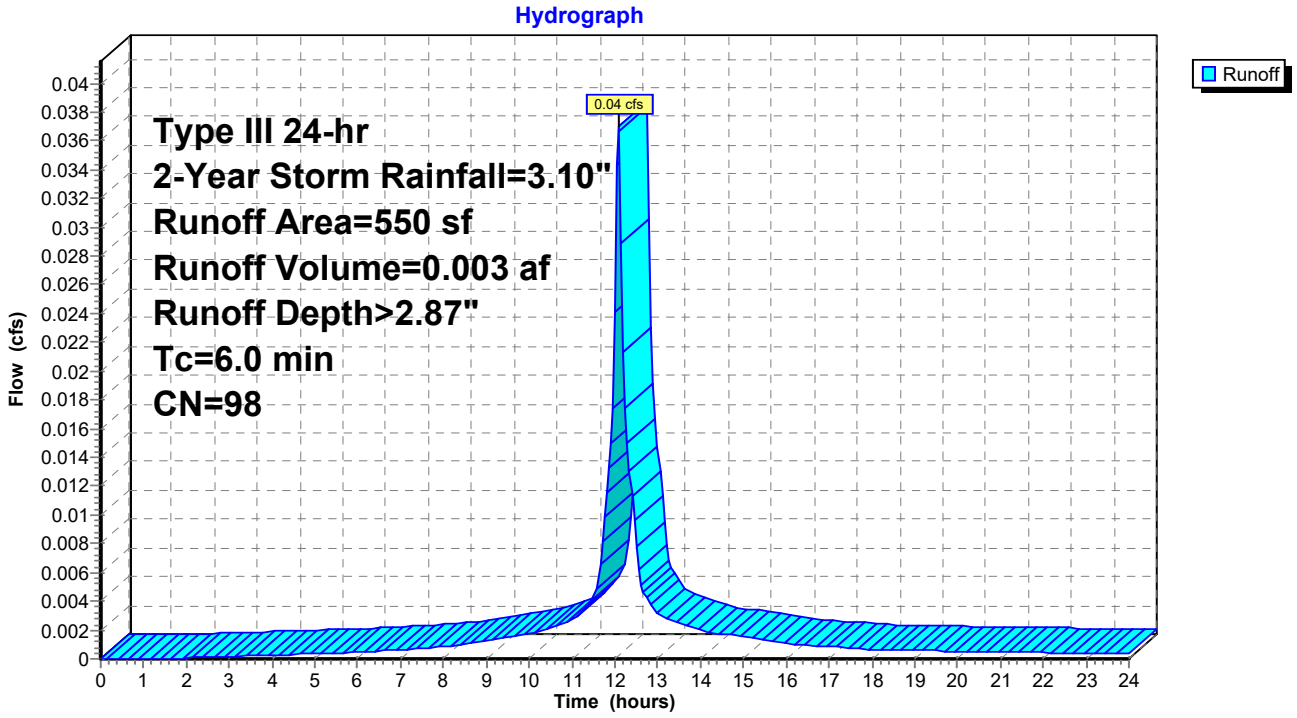
Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"
Routed to Link 3L : Fore Street

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

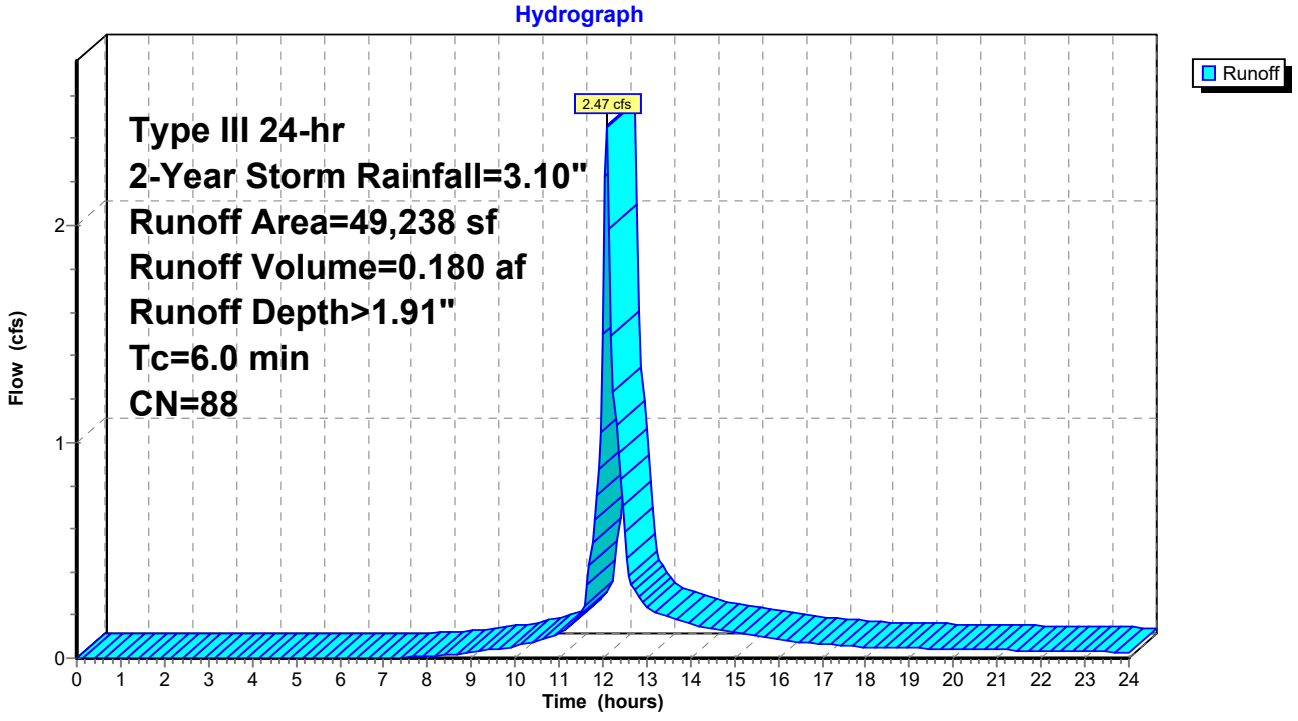
Runoff = 2.47 cfs @ 12.09 hrs, Volume= 0.180 af, Depth> 1.91"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

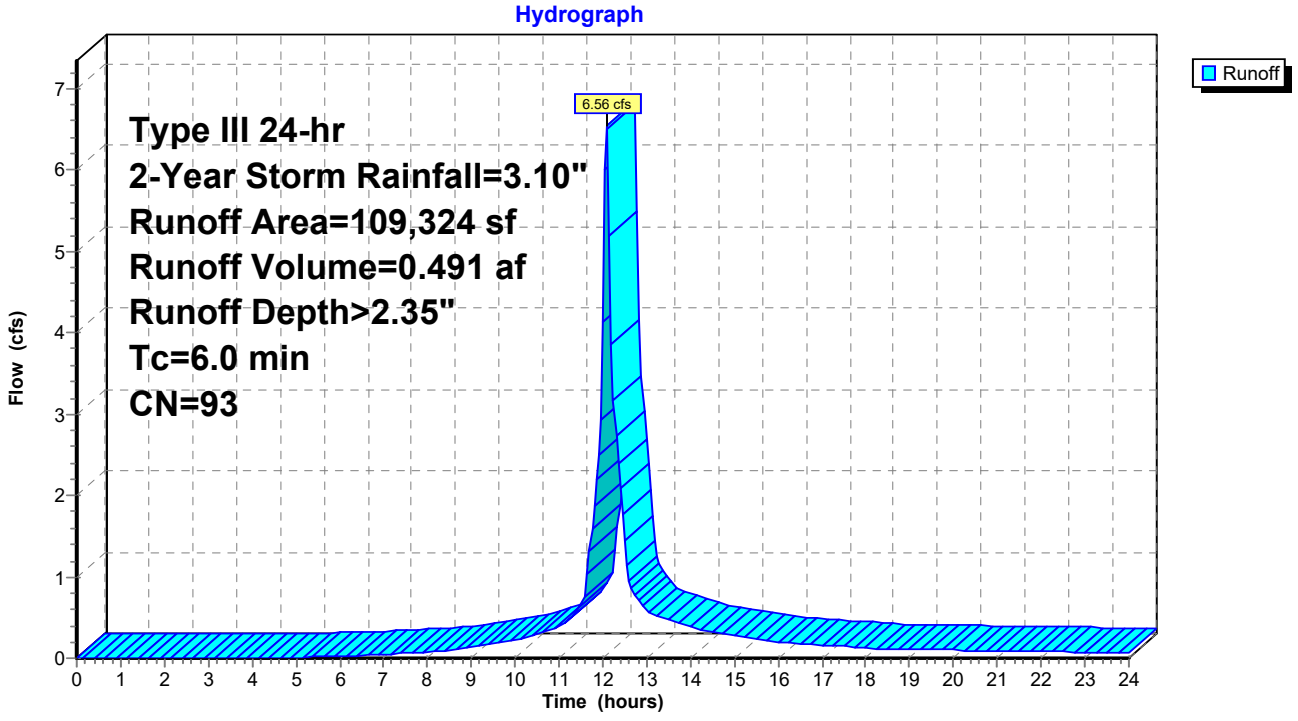
Runoff = 6.56 cfs @ 12.09 hrs, Volume= 0.491 af, Depth> 2.35"
Routed to Link 2L : Fore River

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

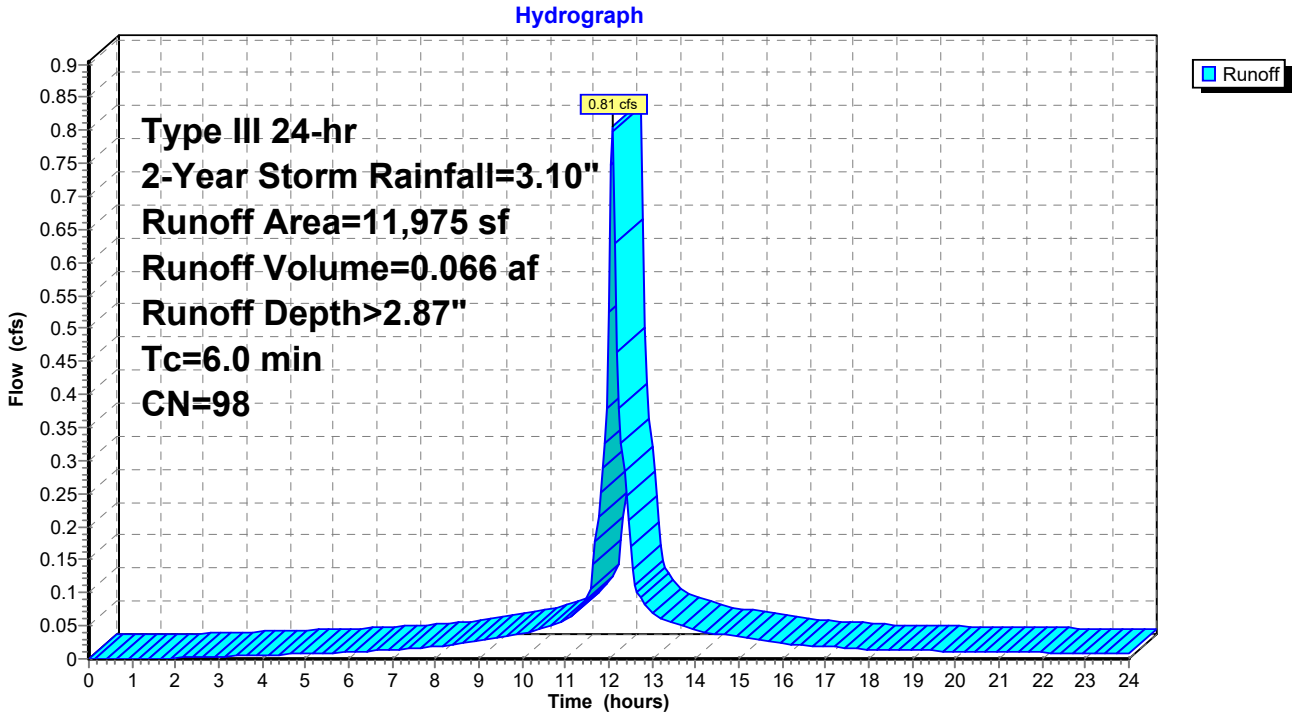
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 24P : Filterra 1

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

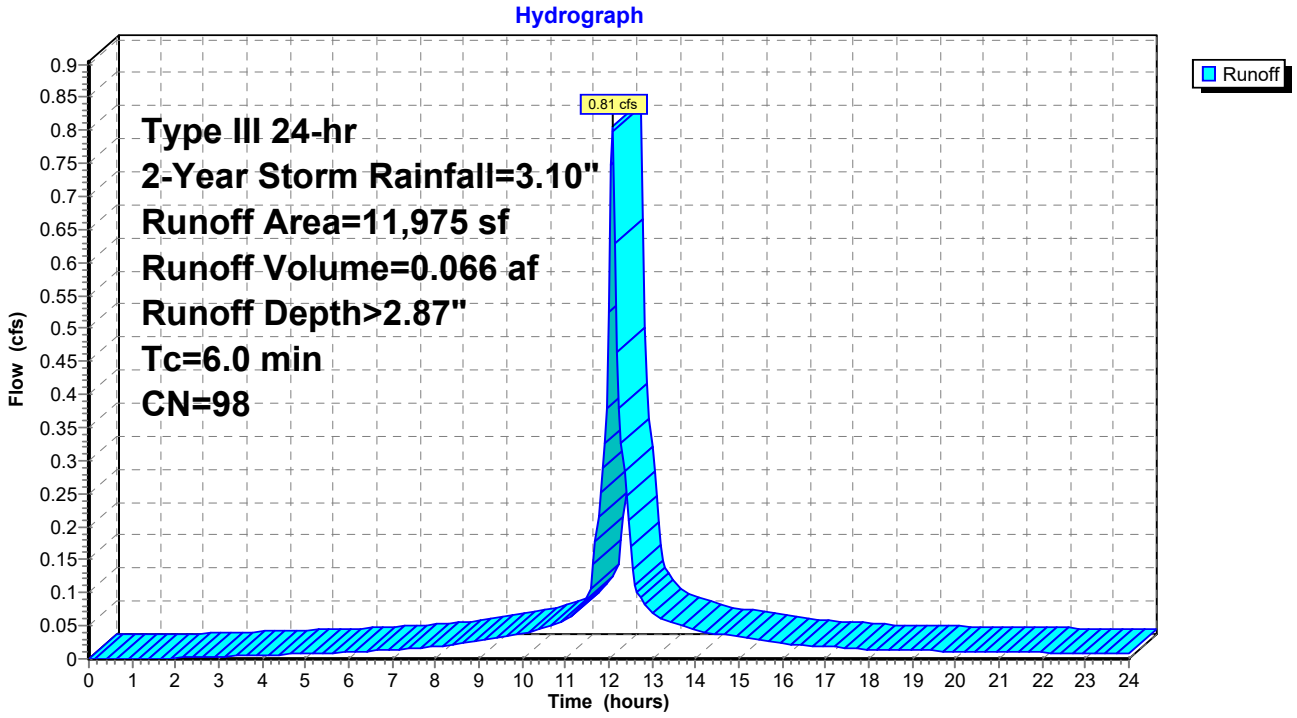
Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Depth> 2.87"
Routed to Pond 28P : Filterra 2

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 Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

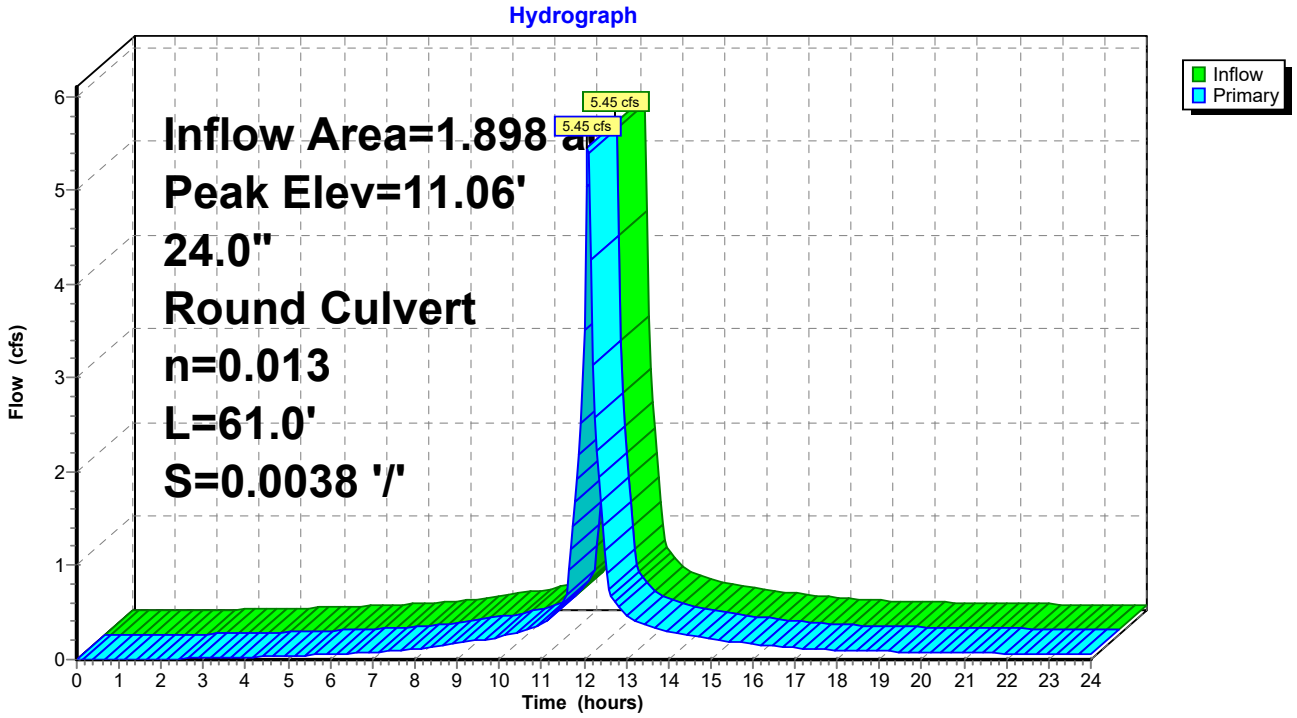
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 2.74" for 2-Year Storm event
Inflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Outflow = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af, Atten= 0%, Lag= 0.0 min
Primary = 5.45 cfs @ 12.09 hrs, Volume= 0.433 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.06' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.31 cfs @ 12.09 hrs HW=11.04' (Free Discharge)
1=Culvert (Barrel Controls 5.31 cfs @ 3.61 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

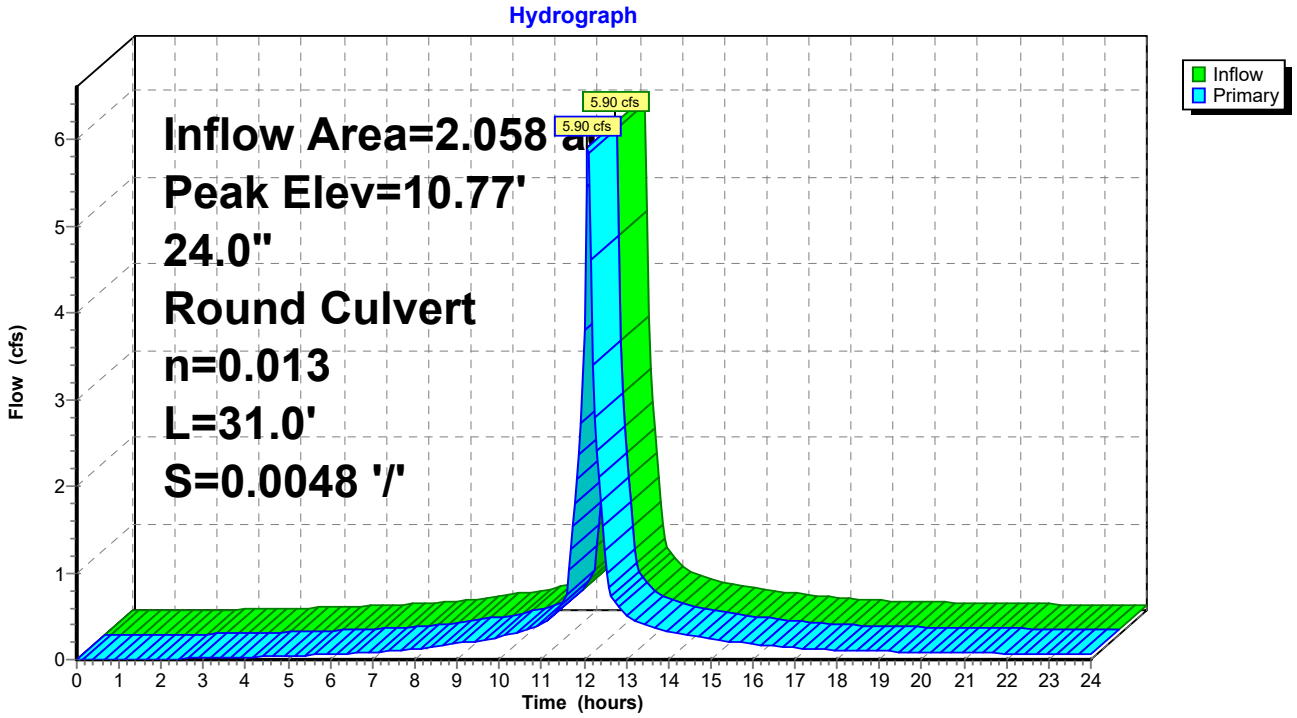
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.77' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=10.75' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 3.96 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

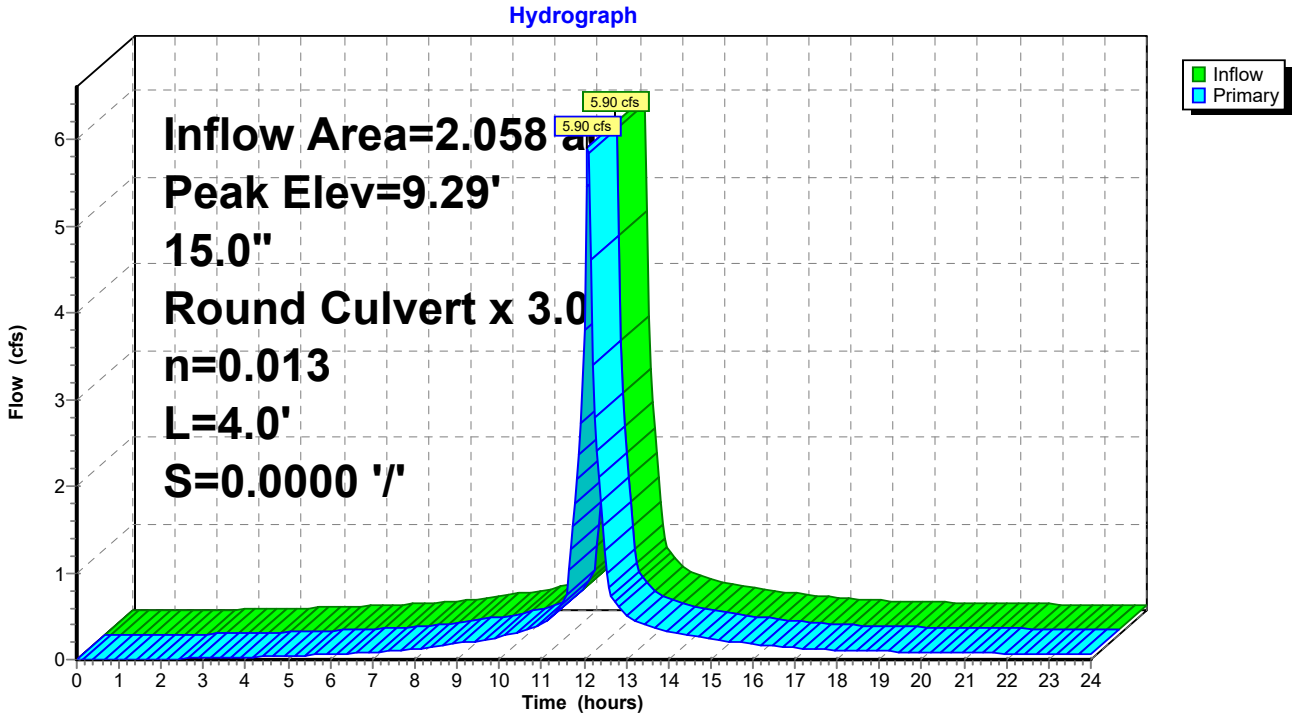
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.29' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.74 cfs @ 12.09 hrs HW=9.27' (Free Discharge)
1=Culvert (Barrel Controls 5.74 cfs @ 2.74 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.73" for 2-Year Storm event
Inflow = 5.90 cfs @ 12.09 hrs, Volume= 0.468 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 10%, Lag= 2.4 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.32' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 1,608 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 24.2 min calculated for 0.461 af (99% of inflow)
Center-of-Mass det. time= 14.9 min (781.5 - 766.7)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

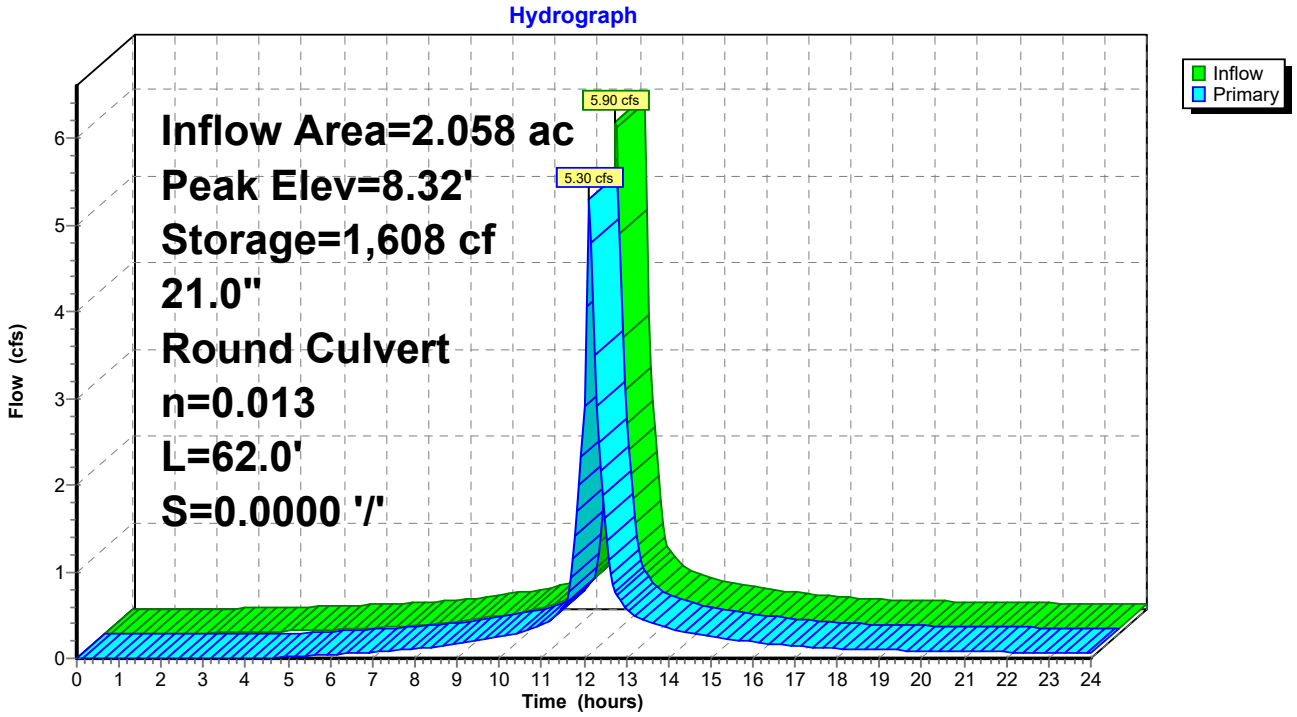
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.30' (Free Discharge)
1=Culvert to Filter (Barrel Controls 5.19 cfs @ 3.06 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

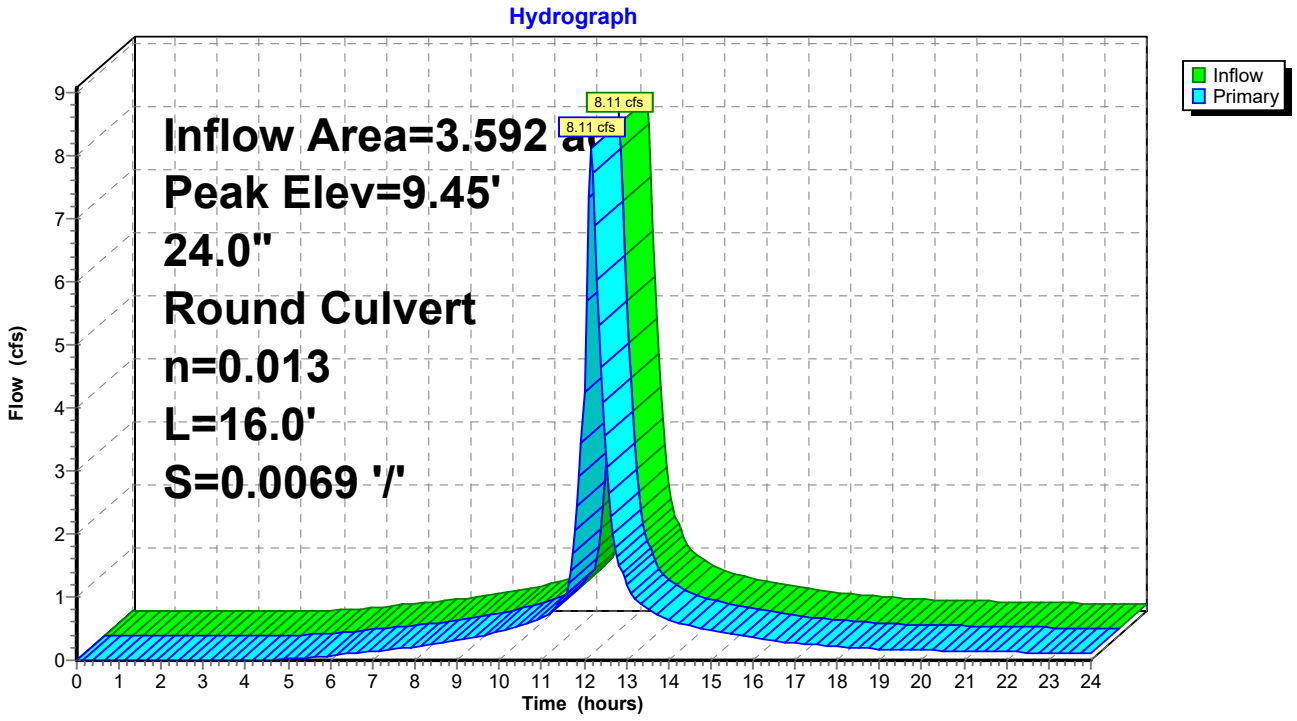
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.45' @ 12.16 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.44' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 4.01 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

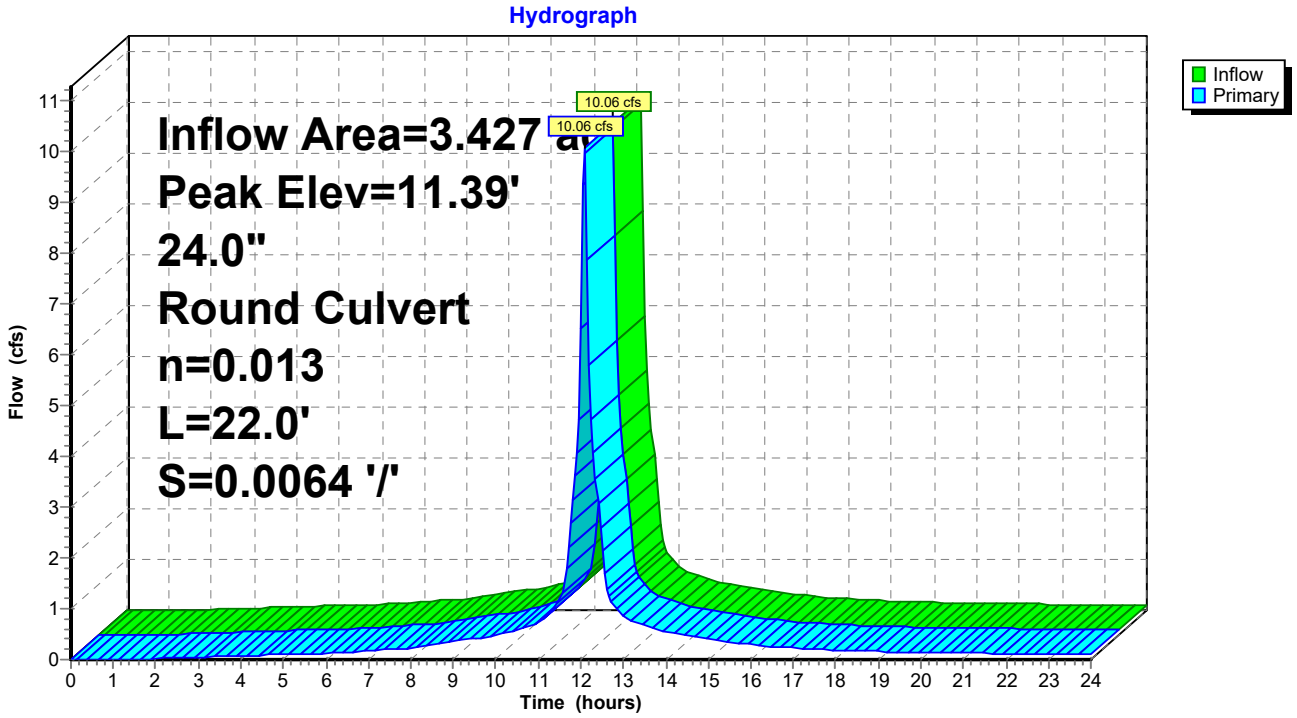
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.39' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=11.36' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 4.26 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

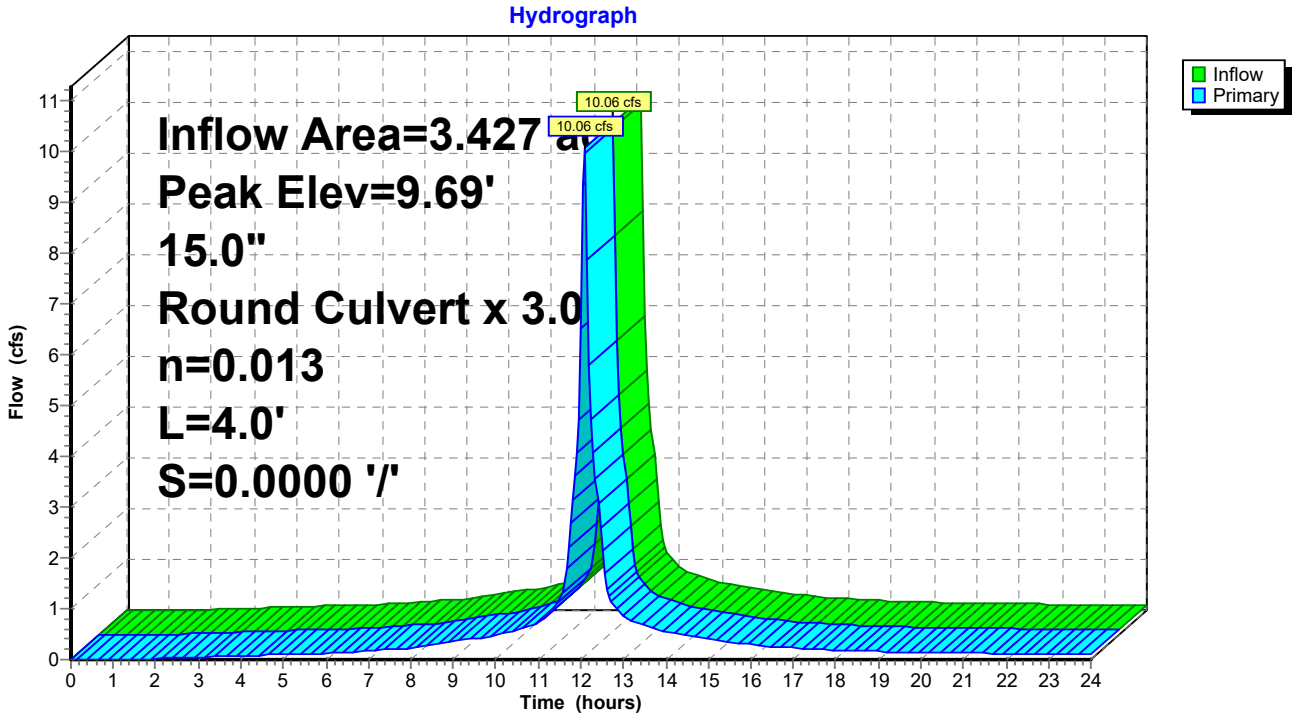
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Outflow = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af, Atten= 0%, Lag= 0.0 min
Primary = 10.06 cfs @ 12.09 hrs, Volume= 0.818 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.69' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.79 cfs @ 12.09 hrs HW=9.67' (Free Discharge)
1=Culvert (Barrel Controls 9.79 cfs @ 3.23 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 10.55 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 23%, Lag= 4.3 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.70' @ 12.16 hrs Surf.Area= 3,128 sf Storage= 5,443 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 44.5 min calculated for 0.835 af (97% of inflow)
Center-of-Mass det. time= 28.2 min (784.9 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

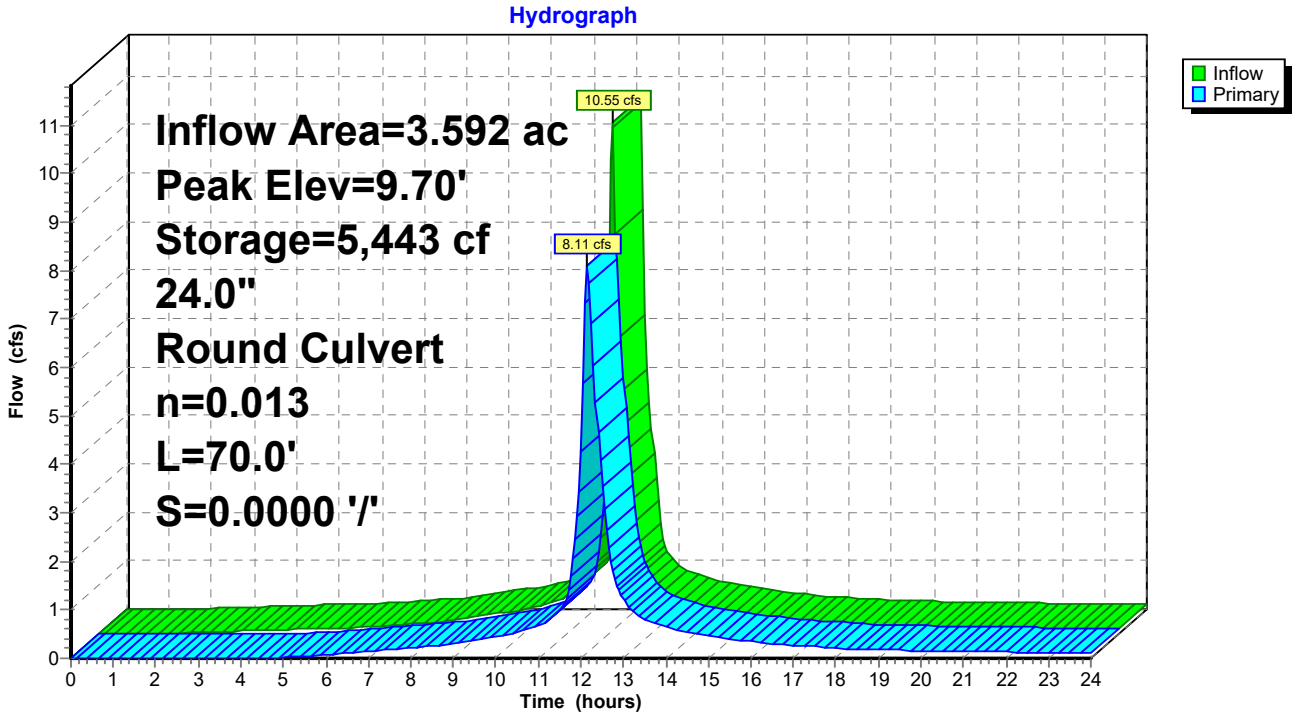
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.02 cfs @ 12.16 hrs HW=9.69' (Free Discharge)
1=Culvert (Barrel Controls 8.02 cfs @ 3.41 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

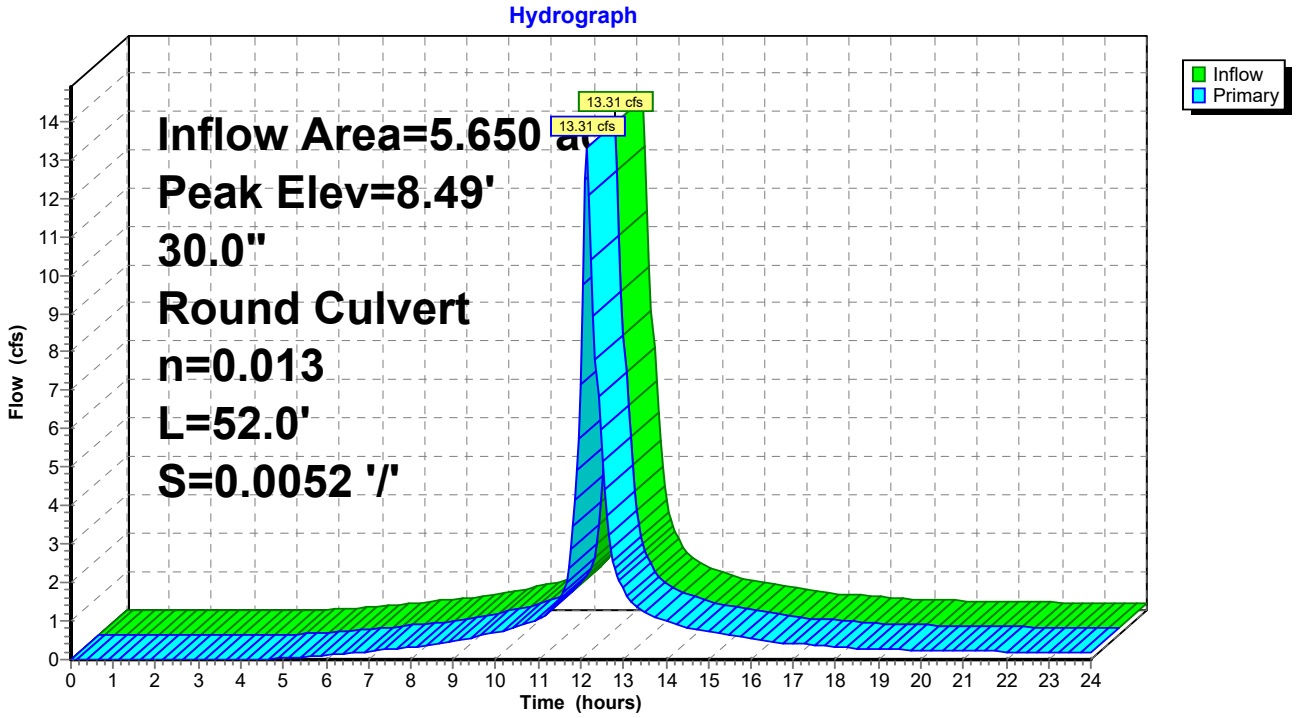
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 2.75" for 2-Year Storm event
Inflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Outflow = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af, Atten= 0%, Lag= 0.0 min
Primary = 13.31 cfs @ 12.15 hrs, Volume= 1.297 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.49' @ 12.15 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=13.22 cfs @ 12.15 hrs HW=8.48' (Free Discharge)
1=Culvert (Barrel Controls 13.22 cfs @ 4.54 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

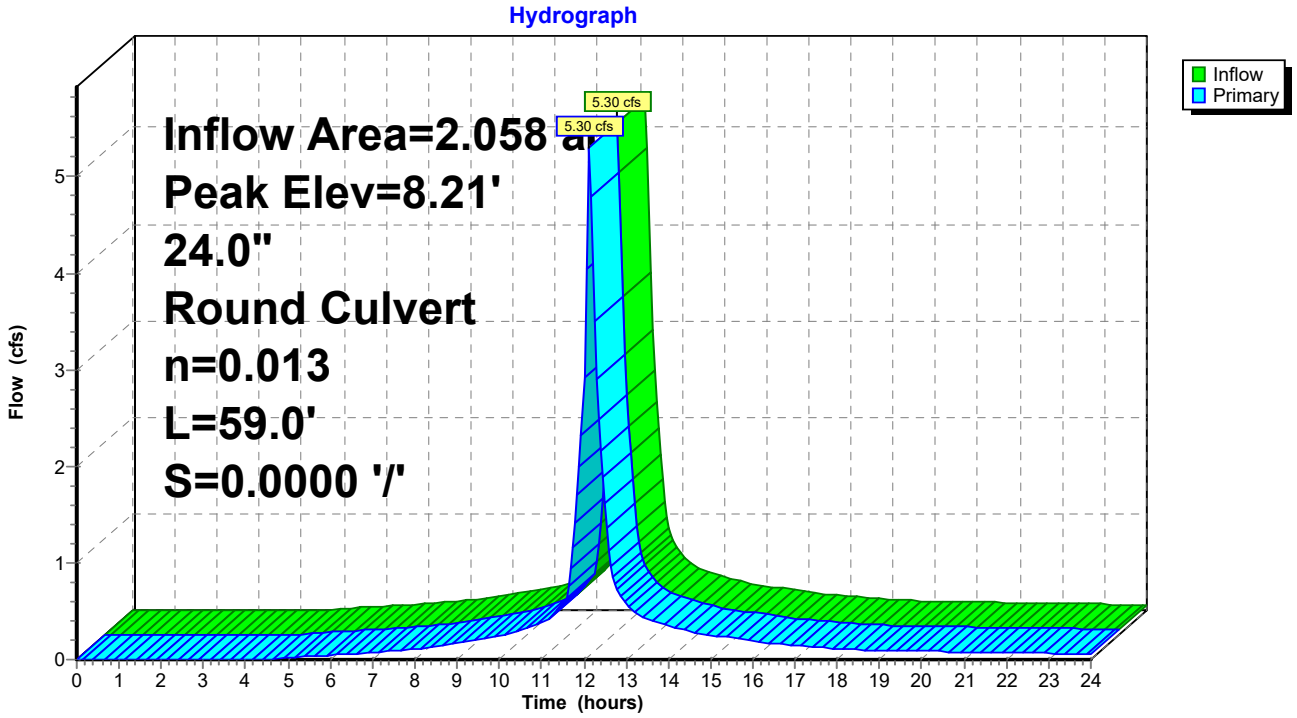
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.21' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.19 cfs @ 12.13 hrs HW=8.19' (Free Discharge)
1=Culvert (Barrel Controls 5.19 cfs @ 2.99 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

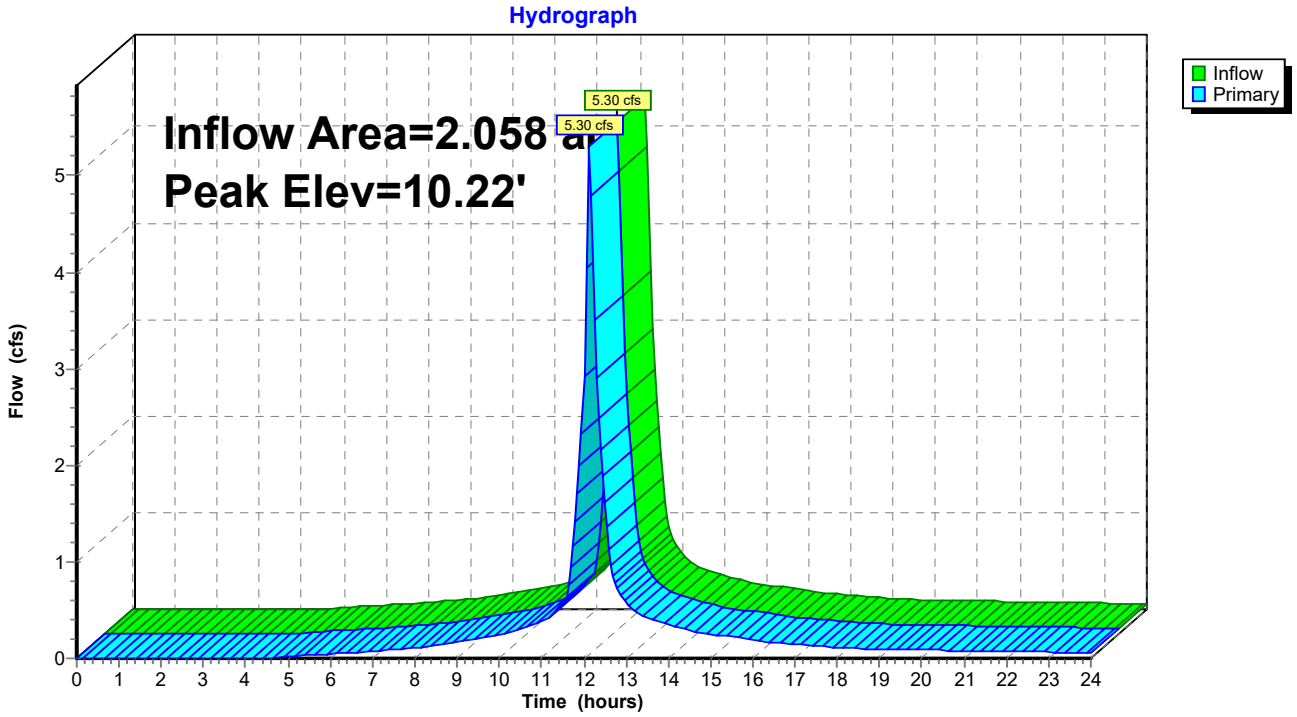
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 2.69" for 2-Year Storm event
Inflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Outflow = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 5.30 cfs @ 12.13 hrs, Volume= 0.461 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.22' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=5.18 cfs @ 12.13 hrs HW=10.21' (Free Discharge)
└**1=Filter Culvert Out** (Passes 5.18 cfs of 18.75 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.29 cfs @ 2.45 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

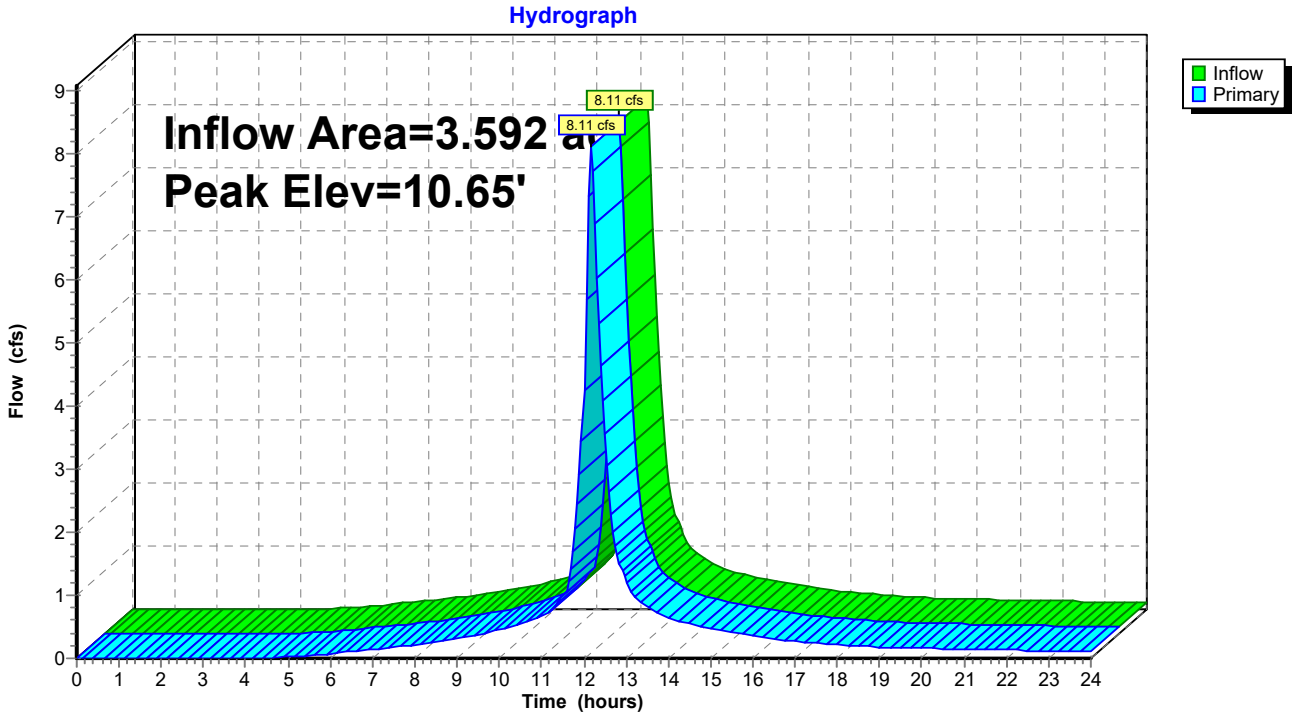
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 2.79" for 2-Year Storm event
Inflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Outflow = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af, Atten= 0%, Lag= 0.0 min
Primary = 8.11 cfs @ 12.16 hrs, Volume= 0.835 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.65' @ 12.16 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**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=8.04 cfs @ 12.16 hrs HW=10.64' (Free Discharge)
└**1=Filter Culvert Out** (Passes 8.04 cfs of 16.59 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.61 cfs @ 2.95 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

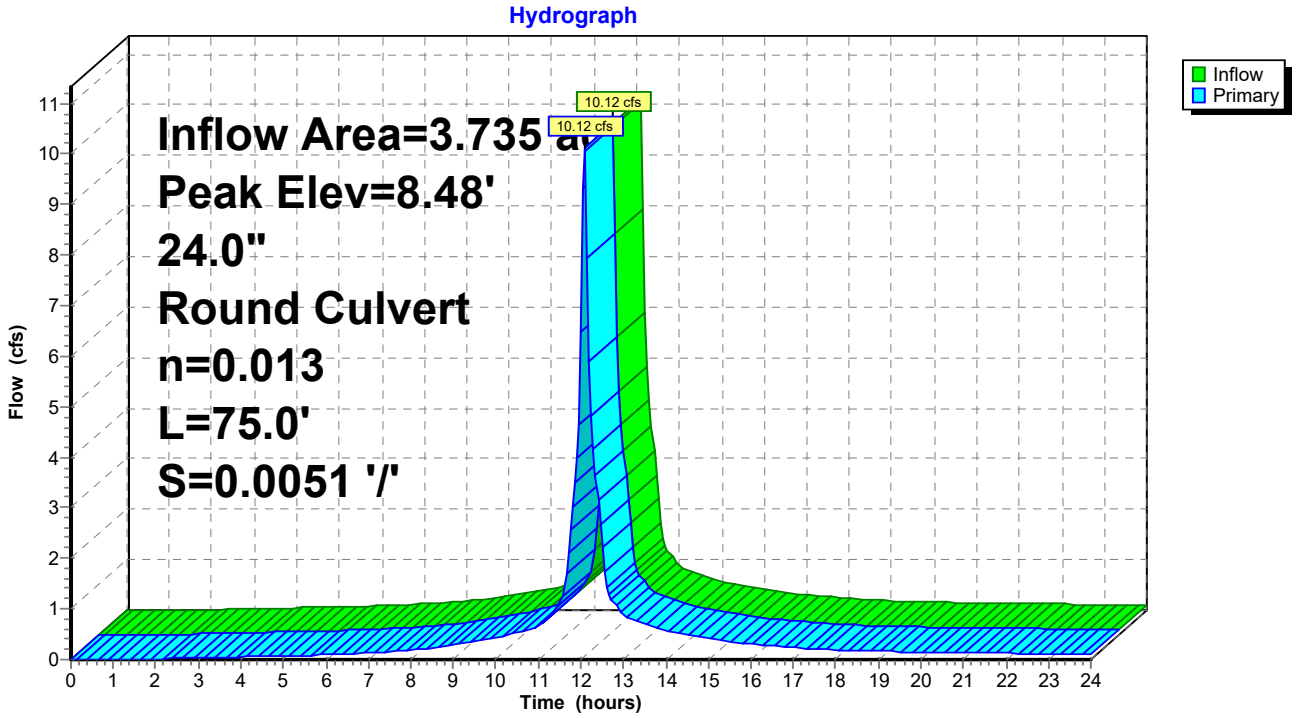
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 2.58" for 2-Year Storm event
Inflow = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af
Outflow = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af, Atten= 0%, Lag= 0.0 min
Primary = 10.12 cfs @ 12.09 hrs, Volume= 0.802 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.86 cfs @ 12.09 hrs HW=8.45' (Free Discharge)
1=Culvert (Barrel Controls 9.86 cfs @ 4.46 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

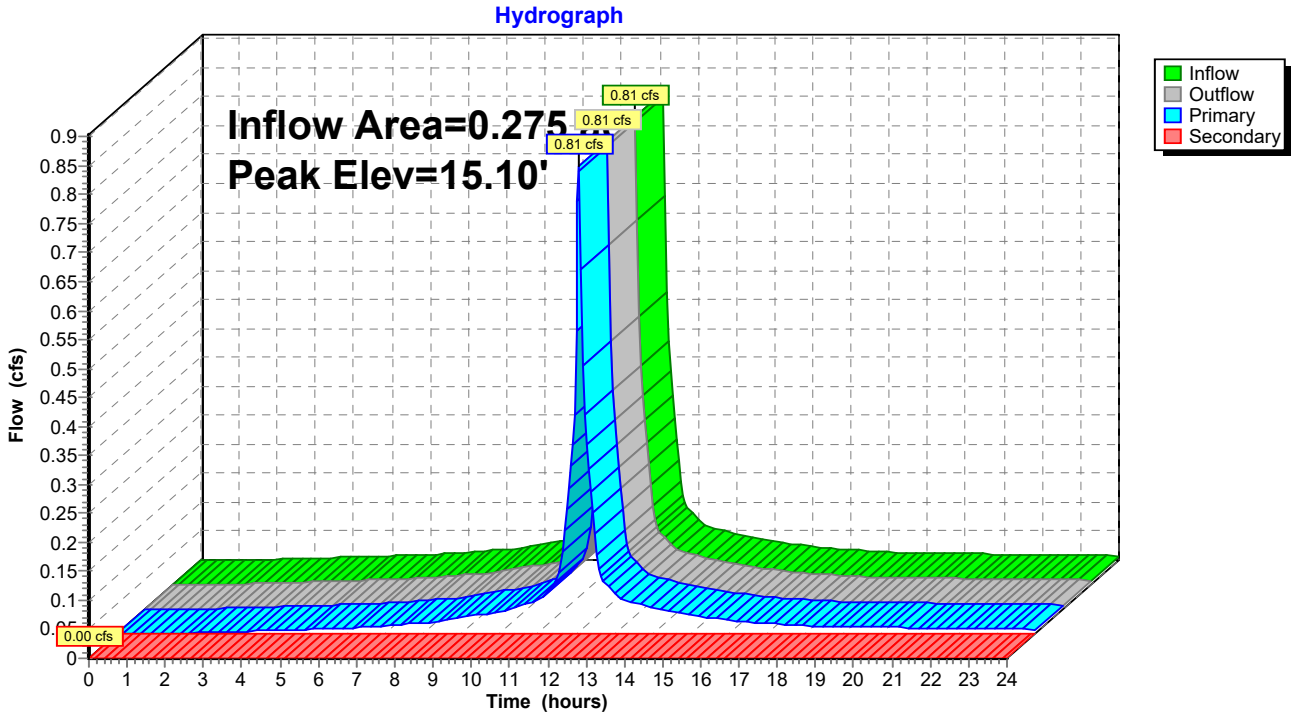
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.10' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=15.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.79 cfs @ 2.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

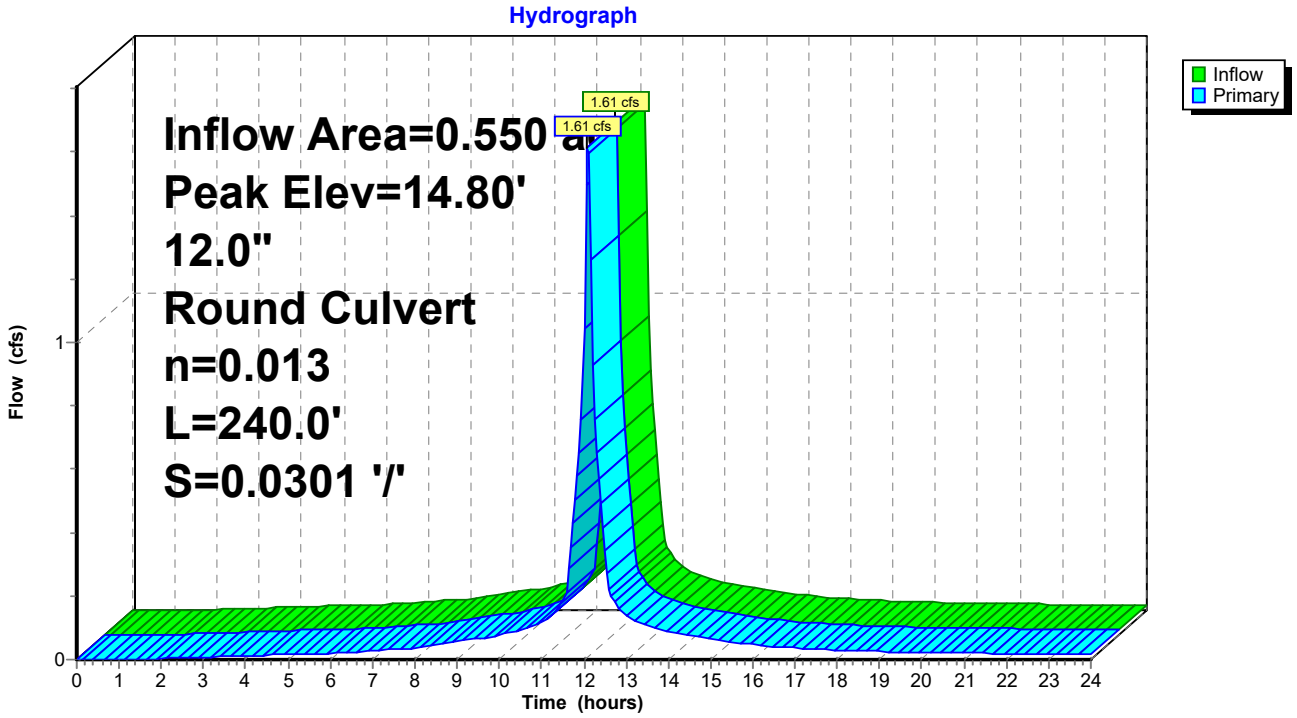
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af
Outflow = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.09 hrs, Volume= 0.131 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 14.80' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.09 hrs HW=14.78' (Free Discharge)
1=Culvert (Inlet Controls 1.57 cfs @ 2.38 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Outflow = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.09 hrs, Volume= 0.066 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

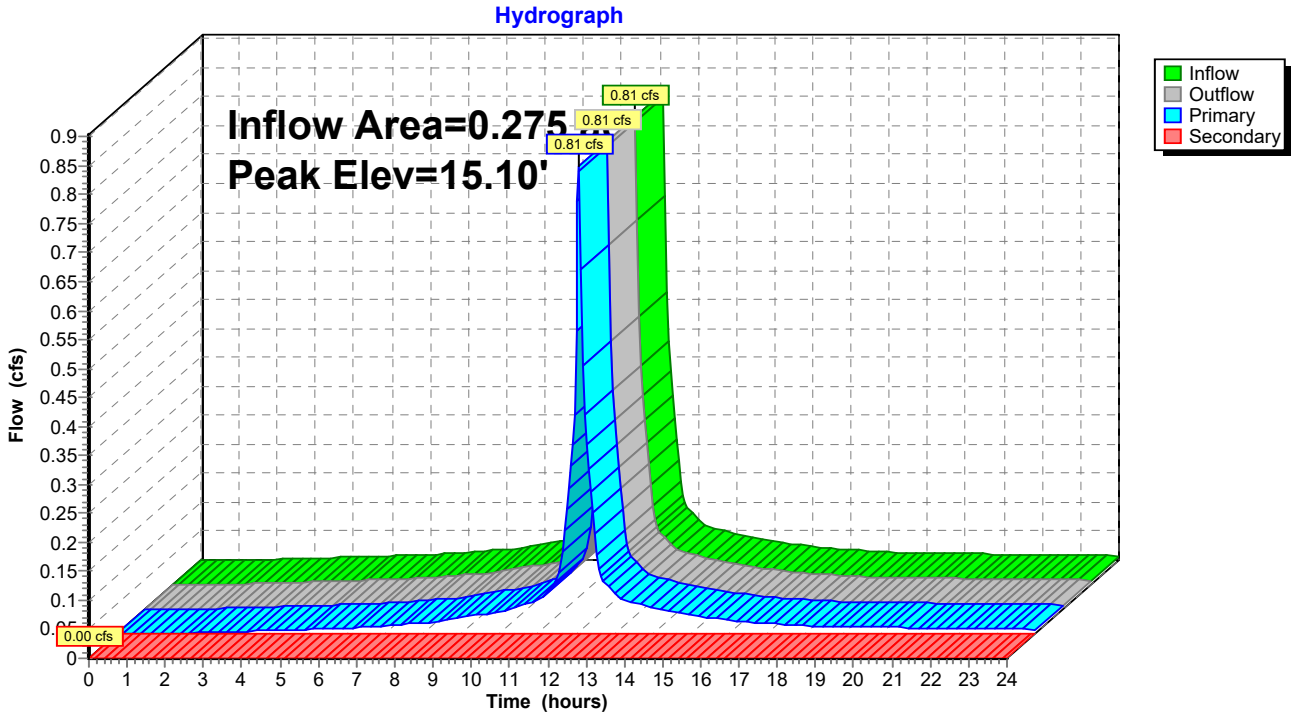
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.10' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=15.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.79 cfs @ 2.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 2

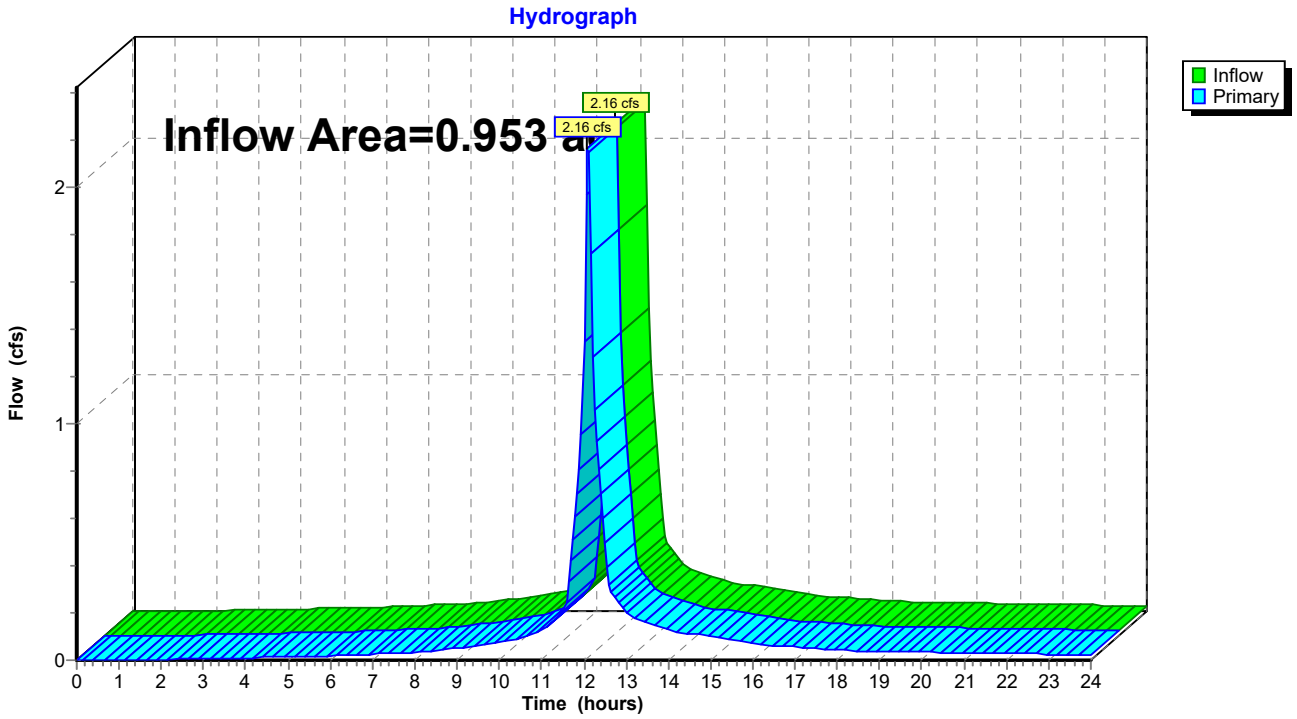


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 2.15" for 2-Year Storm event
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af
Primary = 2.16 cfs @ 12.09 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

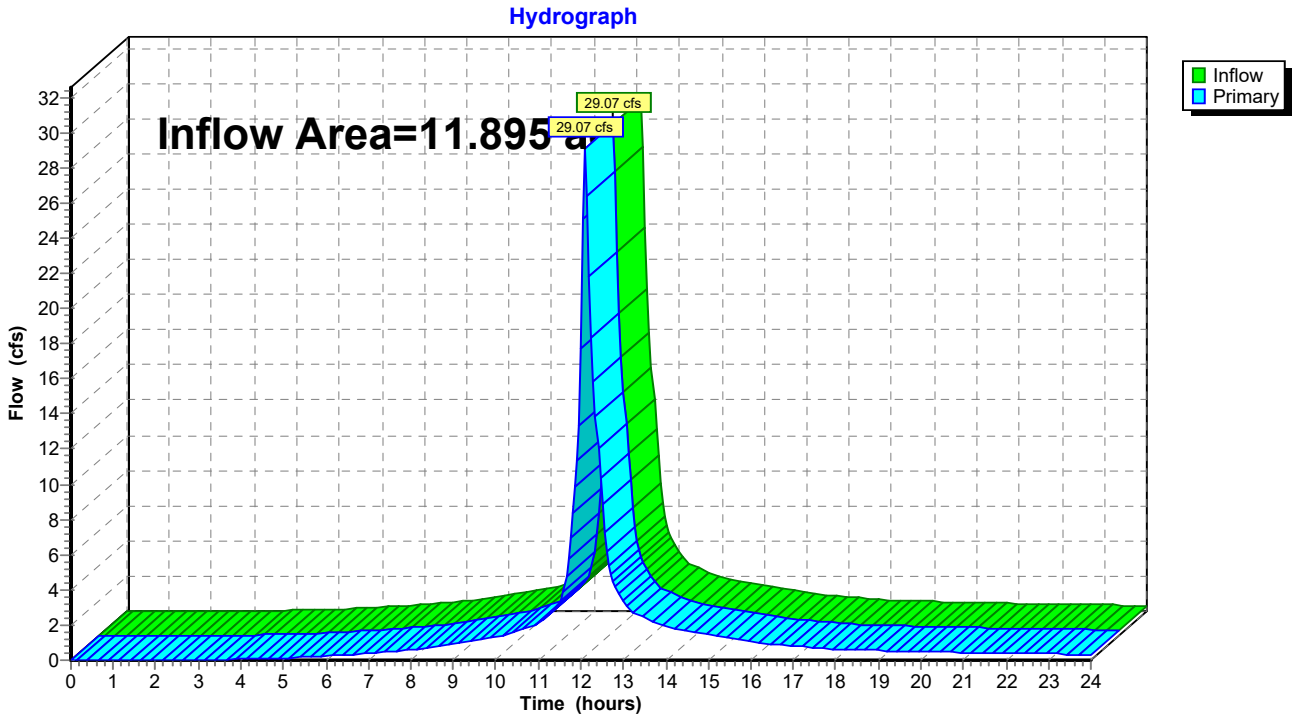


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 2.61" for 2-Year Storm event
Inflow = 29.07 cfs @ 12.11 hrs, Volume= 2.590 af
Primary = 29.07 cfs @ 12.11 hrs, Volume= 2.590 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

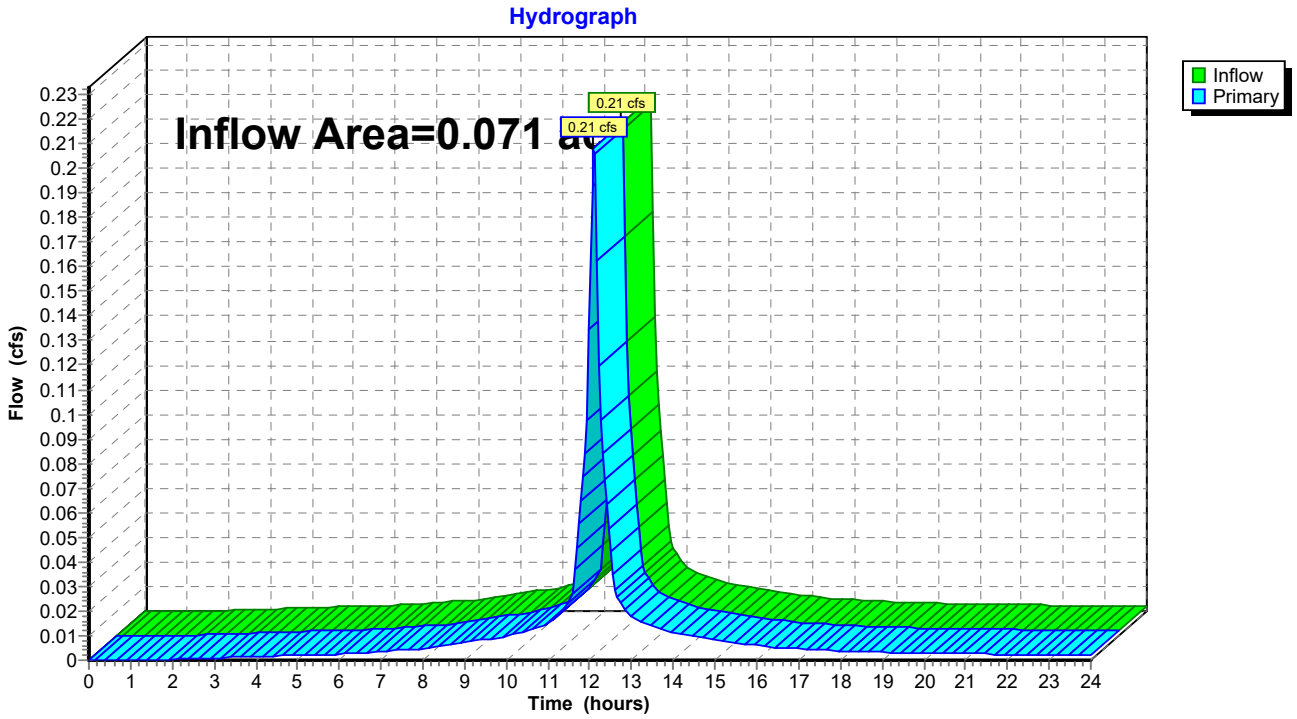


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 2.87" for 2-Year Storm event
Inflow = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af
Primary = 0.21 cfs @ 12.09 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>2.54"
Tc=6.0 min CN=80 Runoff=1.30 cfs 0.094 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.185 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>4.02"
Tc=6.0 min CN=95 Runoff=2.58 cfs 0.203 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>4.25"
Tc=6.0 min CN=97 Runoff=1.88 cfs 0.152 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.022 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.018 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.041 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.019 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.028 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.036 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>3.91"
Tc=6.0 min CN=94 Runoff=0.35 cfs 0.027 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.88 cfs 0.073 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=2.90 cfs 0.240 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=8.73 cfs 0.722 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.73 cfs 0.060 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=4.82 cfs 0.399 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.094 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=3.08 cfs 0.255 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.093 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>3.29"
Tc=6.0 min CN=88 Runoff=4.19 cfs 0.310 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>3.80"
Tc=6.0 min CN=93 Runoff=10.34 cfs 0.795 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=98 Runoff=1.21 cfs 0.100 af

Pond 1P: DMH 1 Peak Elev=11.42' Inflow=8.24 cfs 0.669 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=8.24 cfs 0.669 af

Pond 2P: DMH 2 Peak Elev=11.13' Inflow=8.92 cfs 0.723 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=8.92 cfs 0.723 af

Pond 3P: Storm Structure Peak Elev=9.55' Inflow=8.92 cfs 0.723 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=8.92 cfs 0.723 af

Pond 4P: R-Tank 1 Peak Elev=8.81' Storage=2,076 cf Inflow=8.92 cfs 0.723 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 5P: DMH-11 Peak Elev=10.03' Inflow=12.72 cfs 1.280 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=12.72 cfs 1.280 af

Pond 6P: CB27 Peak Elev=12.10' Inflow=15.04 cfs 1.245 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=15.04 cfs 1.245 af

Pond 7P: Storm Structure Peak Elev=10.17' Inflow=15.04 cfs 1.245 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=15.04 cfs 1.245 af

Pond 8P: R-Tank 2 Peak Elev=10.53' Storage=6,896 cf Inflow=15.77 cfs 1.306 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=12.72 cfs 1.280 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.14' Inflow=20.64 cfs 1.996 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=20.64 cfs 1.996 af

Pond 10P: DMH 4 Peak Elev=8.59' Inflow=8.00 cfs 0.716 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=8.00 cfs 0.716 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.43' Inflow=8.00 cfs 0.716 af
Outflow=8.00 cfs 0.716 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=10.98' Inflow=12.72 cfs 1.280 af
Outflow=12.72 cfs 1.280 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=9.38' Inflow=15.62 cfs 1.256 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=15.62 cfs 1.256 af

Pond 24P: Filterra 1 Peak Elev=15.25' Inflow=1.21 cfs 0.100 af
Primary=1.21 cfs 0.100 af Secondary=0.00 cfs 0.000 af Outflow=1.21 cfs 0.100 af

Pond 27P: AD49 Peak Elev=15.15' Inflow=2.41 cfs 0.200 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=2.41 cfs 0.200 af

Pond 28P: Filterra 2 Peak Elev=15.25' Inflow=1.21 cfs 0.100 af
Primary=1.21 cfs 0.100 af Secondary=0.00 cfs 0.000 af Outflow=1.21 cfs 0.100 af

Link 1L: Freedom Way Inflow=3.53 cfs 0.279 af
Primary=3.53 cfs 0.279 af

Link 2L: Fore River Inflow=45.43 cfs 4.048 af
Primary=45.43 cfs 4.048 af

Link 3L: Fore Street Inflow=0.31 cfs 0.026 af
Primary=0.31 cfs 0.026 af

Total Runoff Area = 12.919 ac Runoff Volume = 4.386 af Average Runoff Depth = 4.07"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

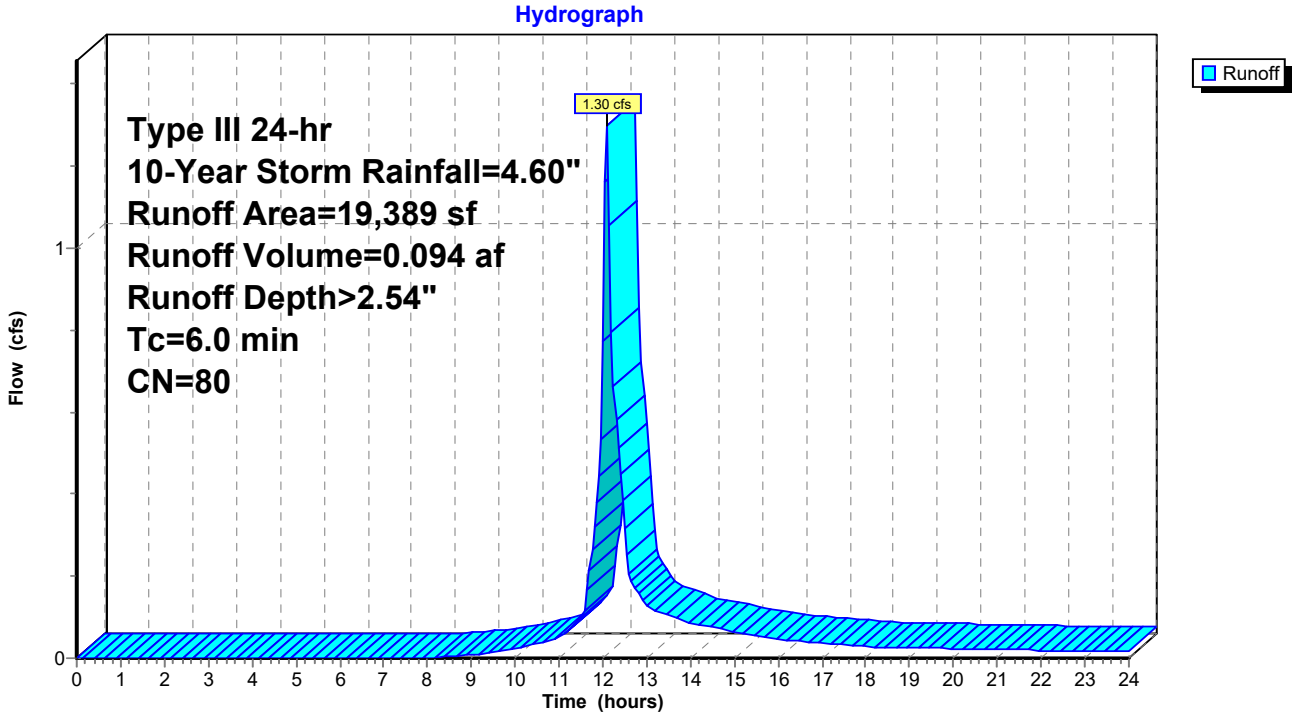
Runoff = 1.30 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 2.54"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

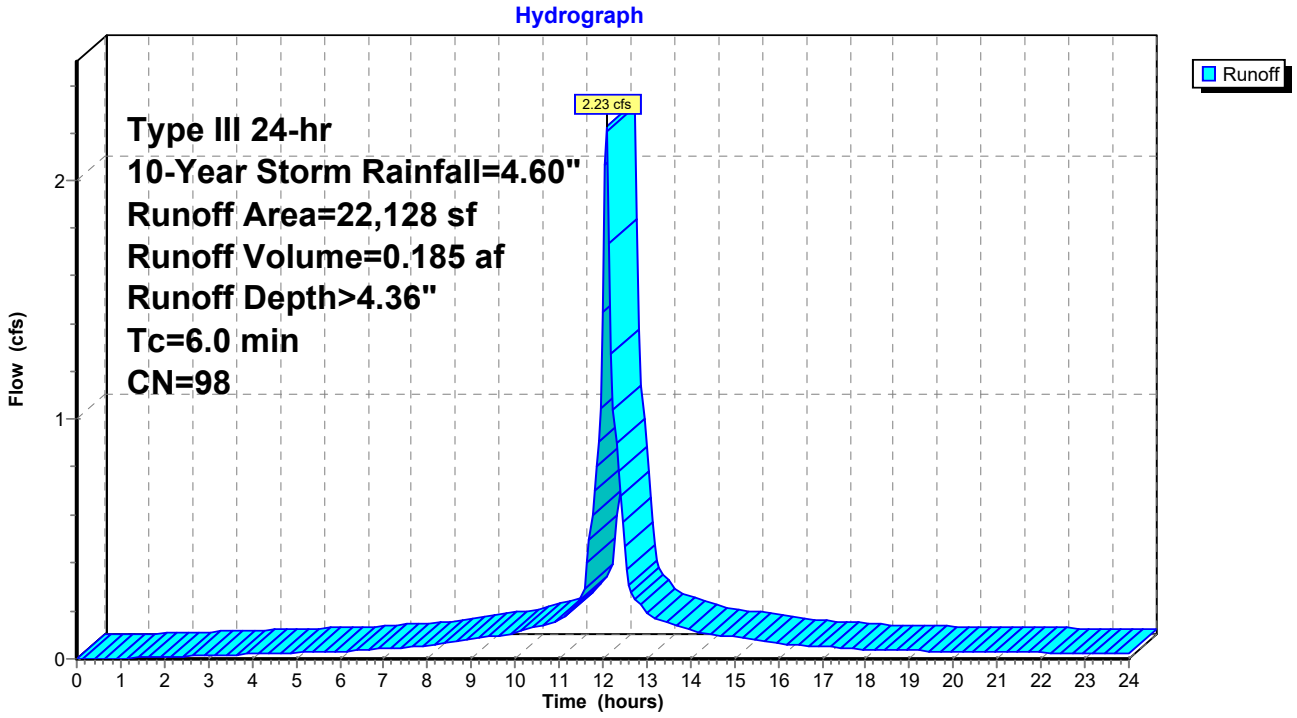
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

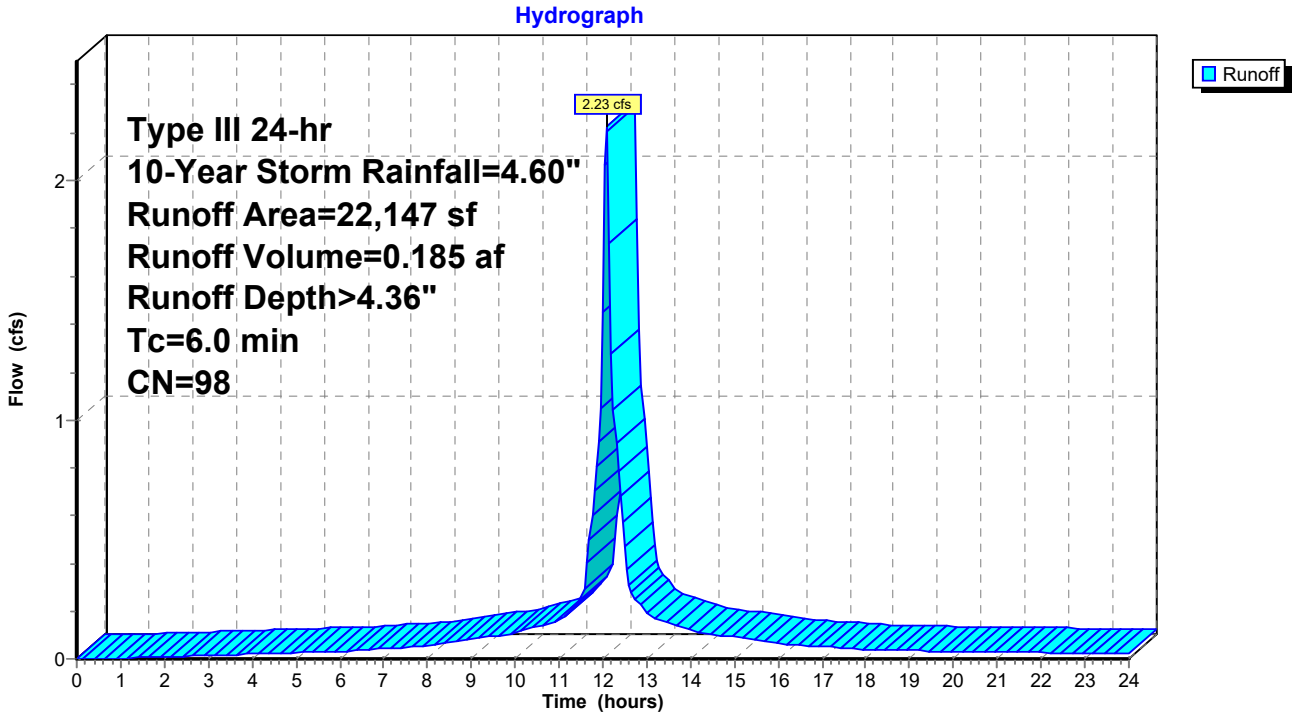
Runoff = 2.23 cfs @ 12.09 hrs, Volume= 0.185 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

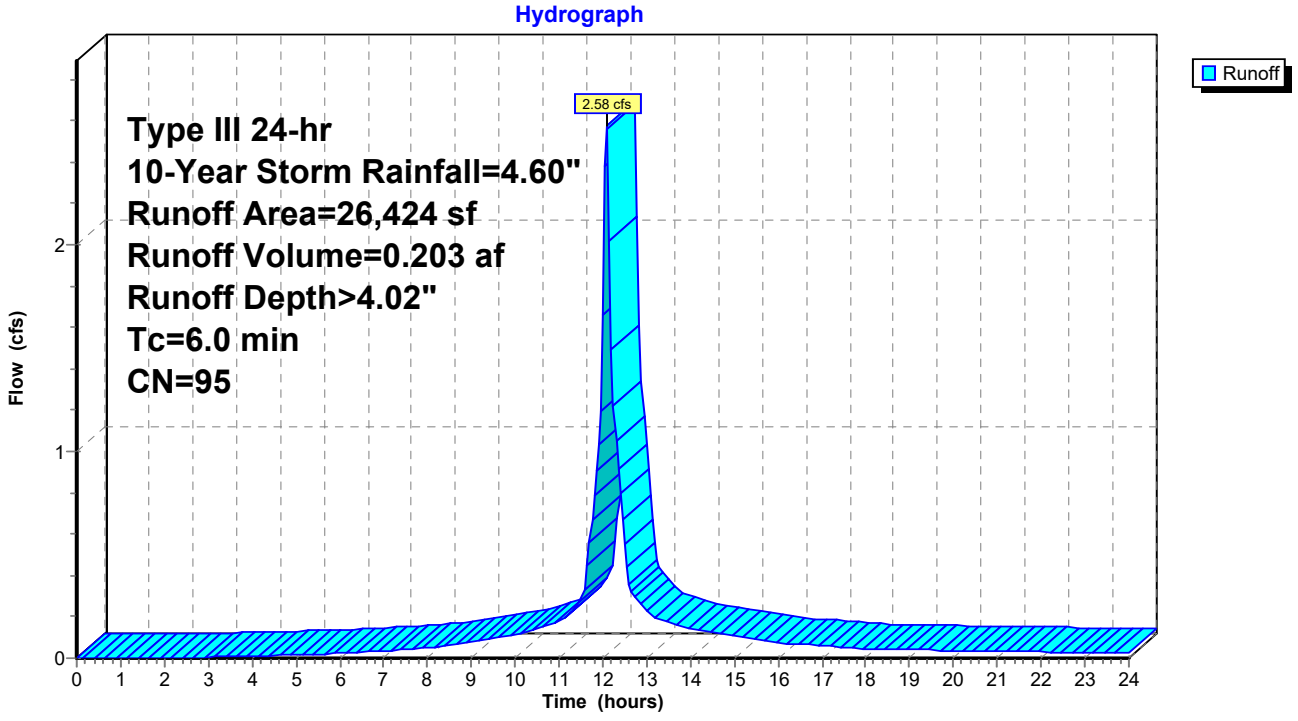
Runoff = 2.58 cfs @ 12.09 hrs, Volume= 0.203 af, Depth> 4.02"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

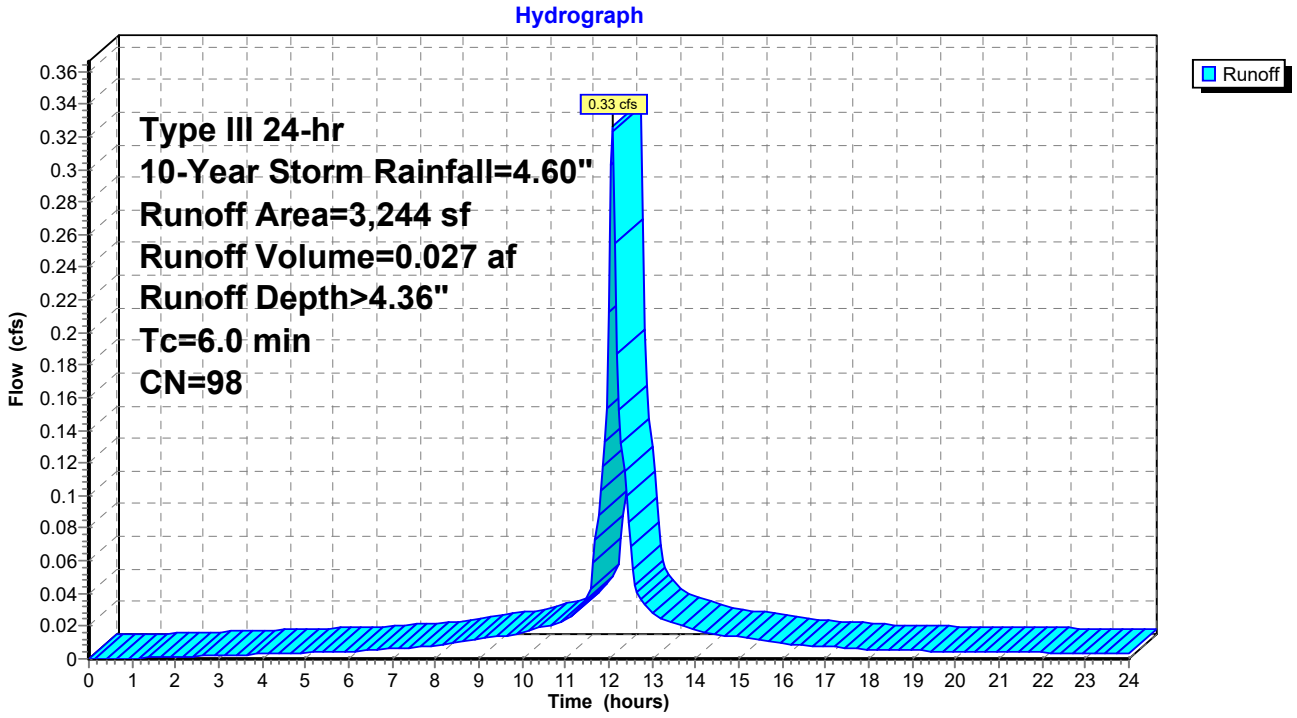
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

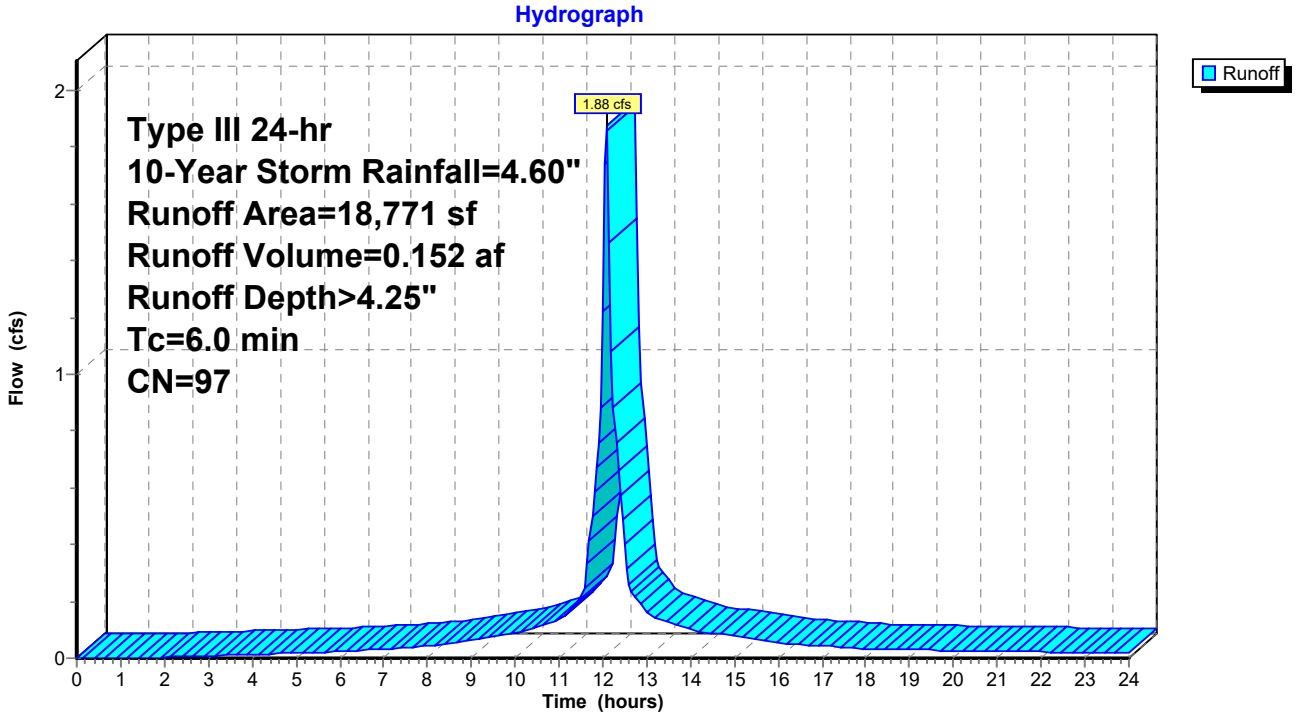
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 4.25"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

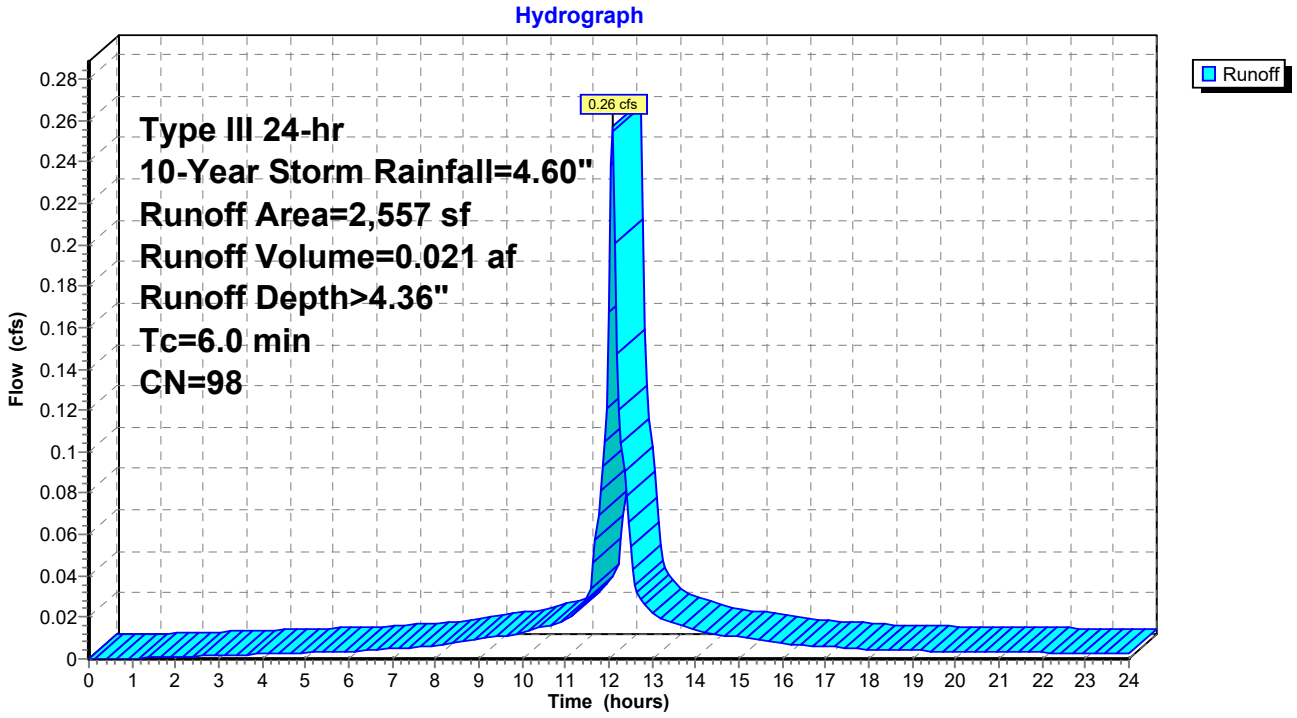
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

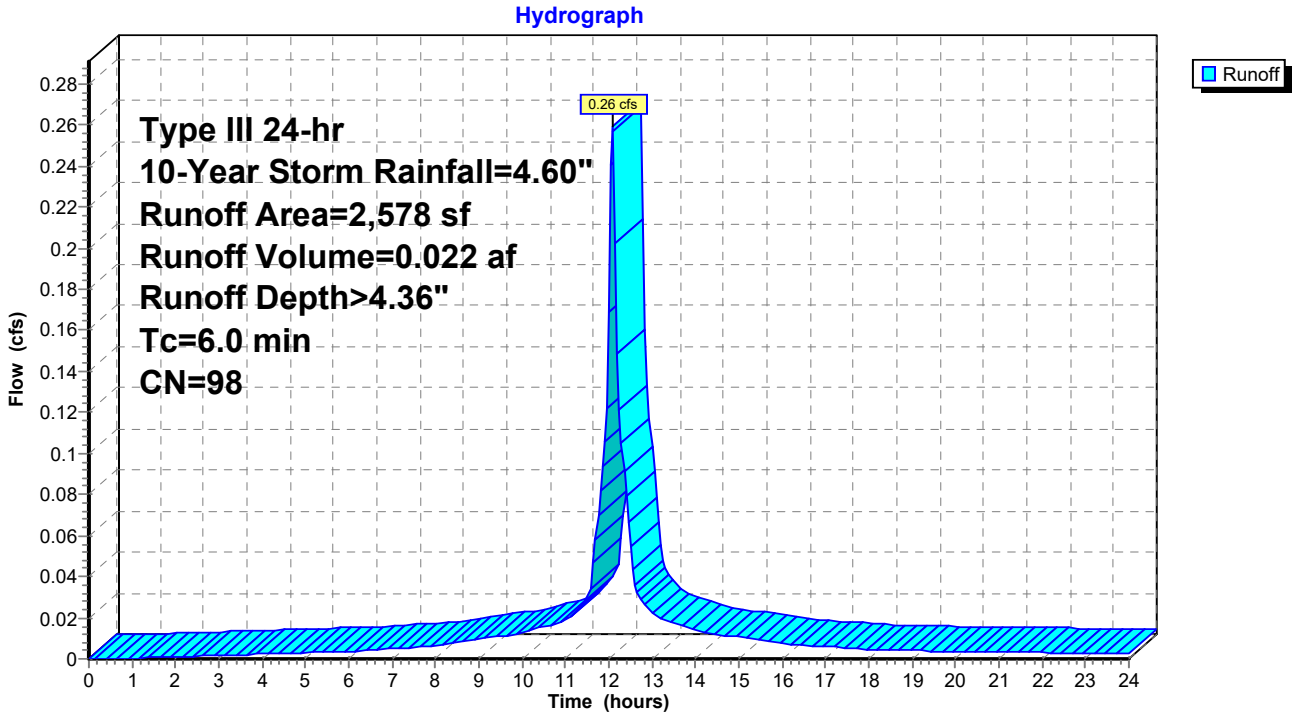
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

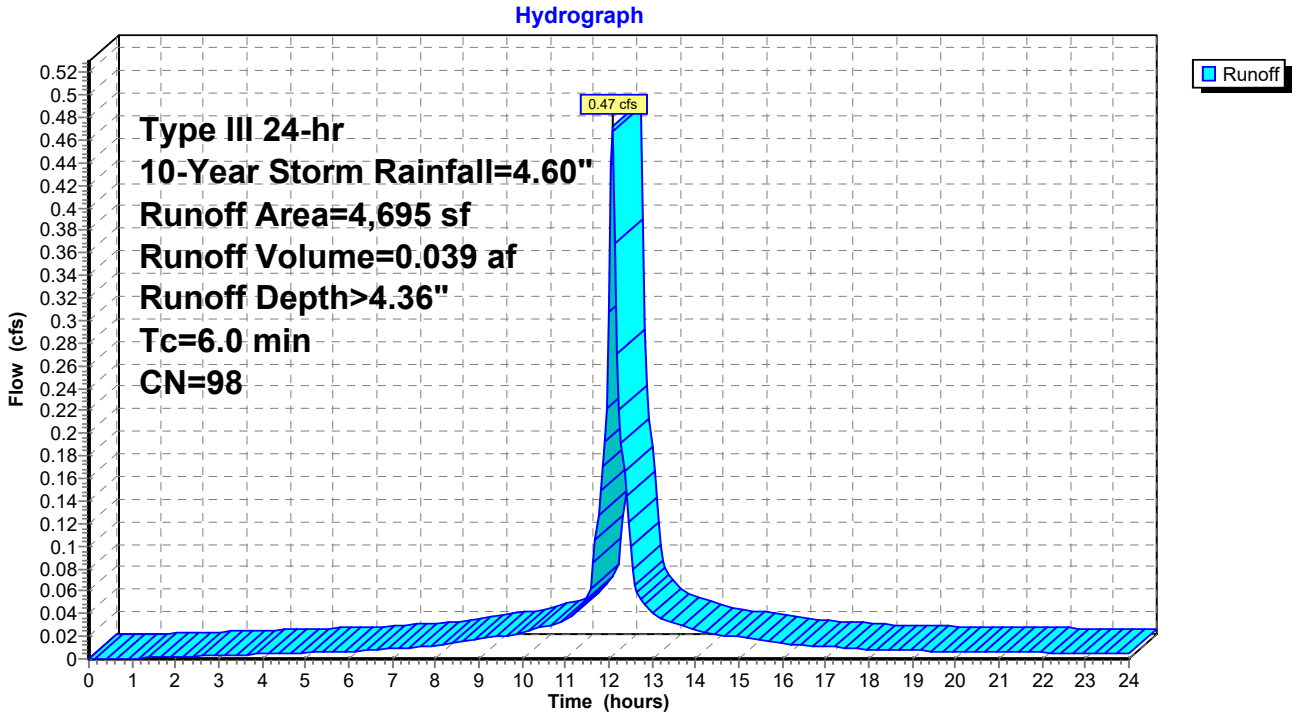
Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

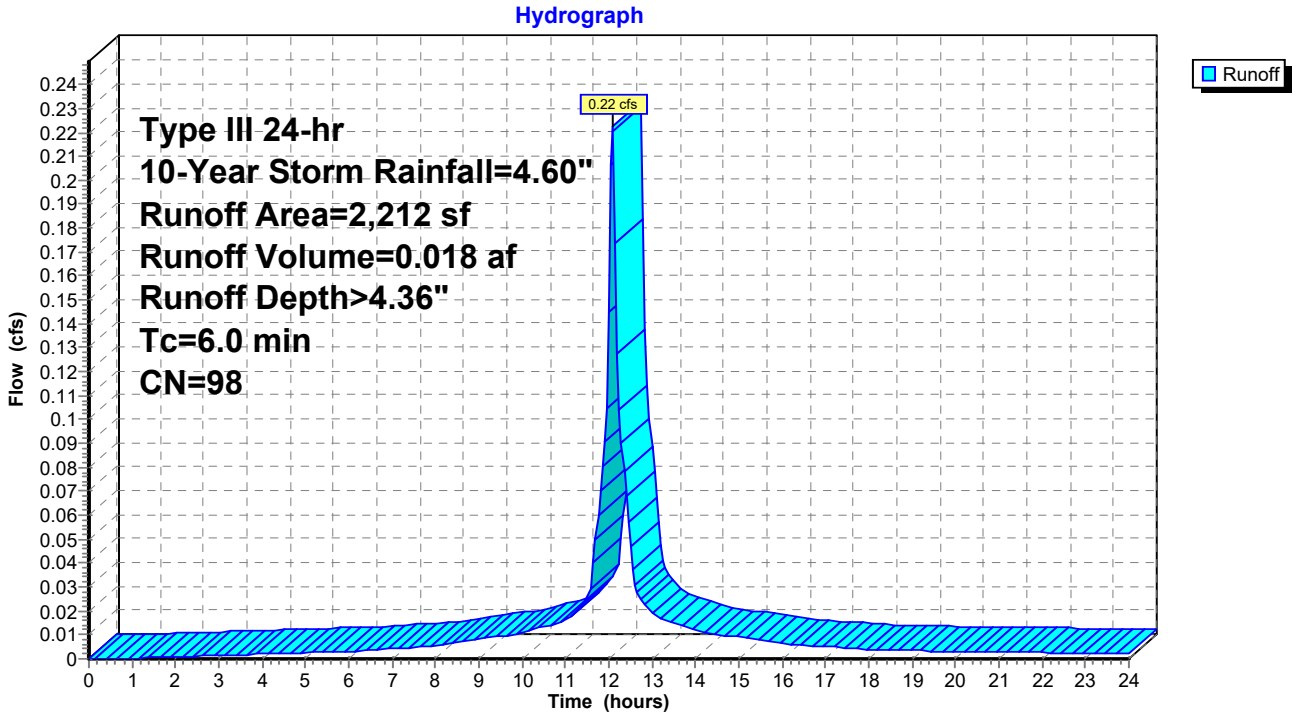
Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.018 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

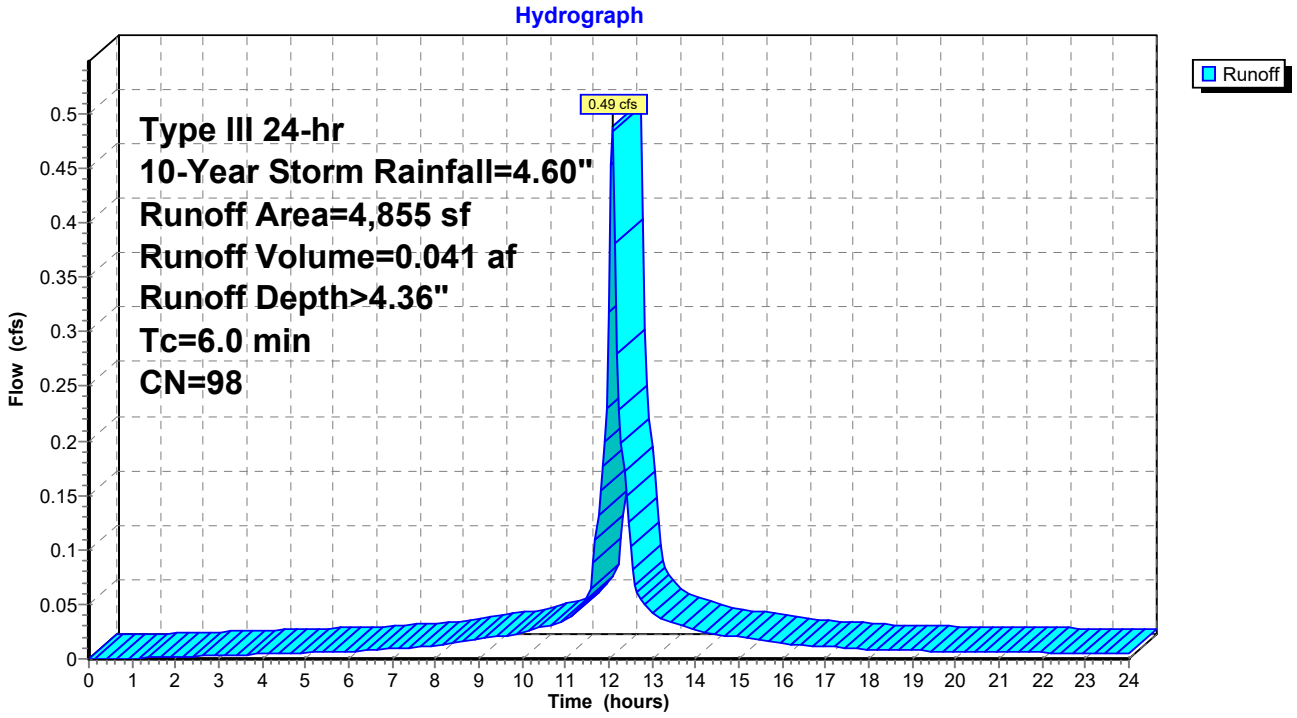
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 4.36"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

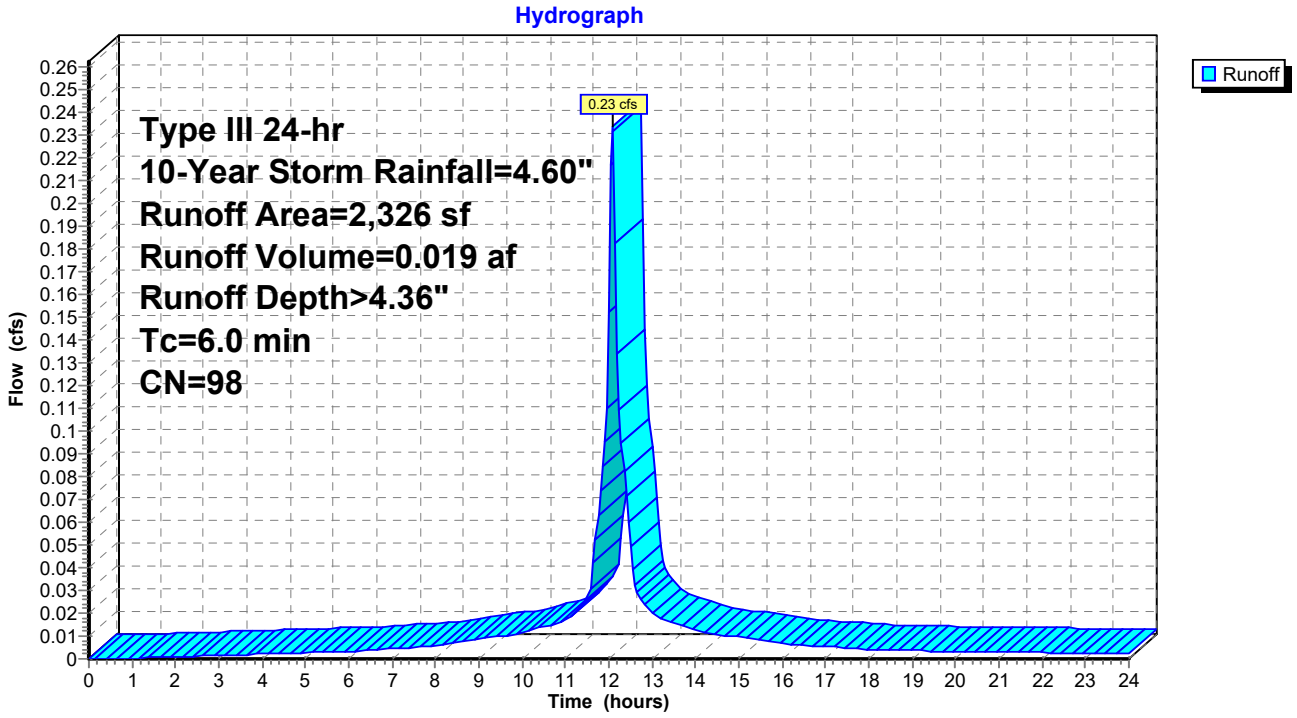
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

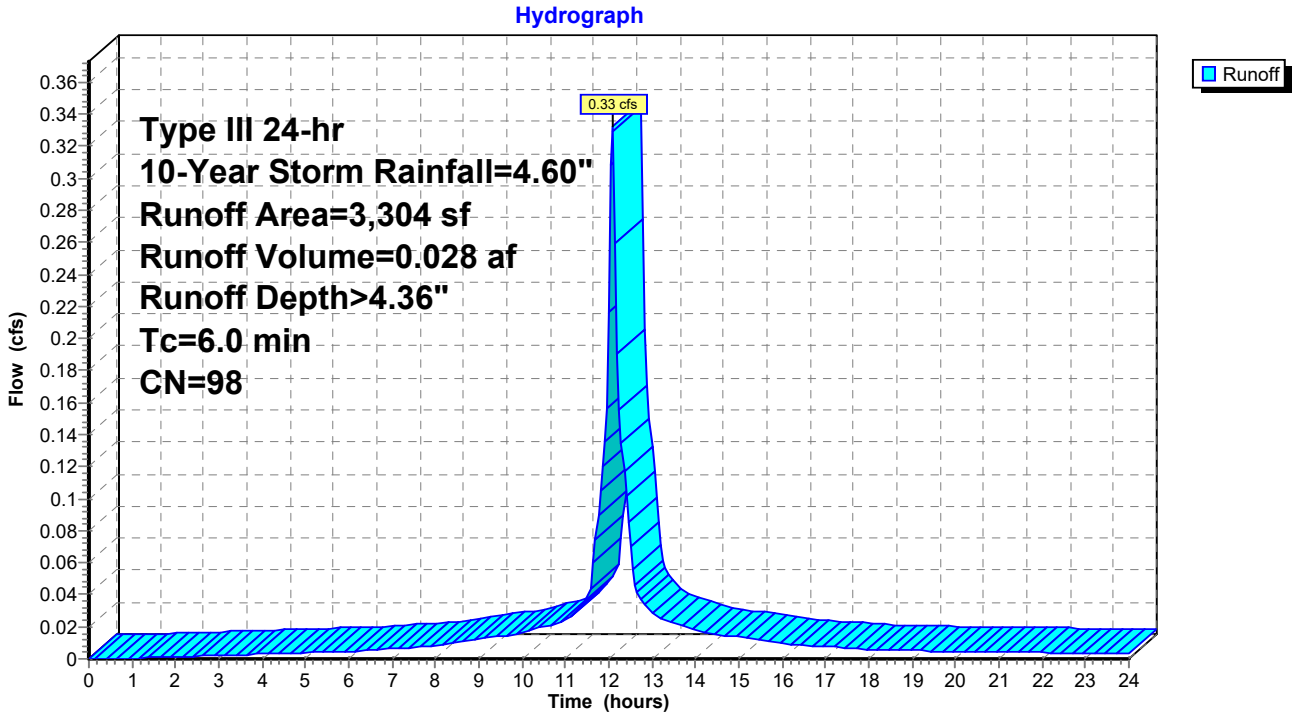
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.028 af, Depth> 4.36"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

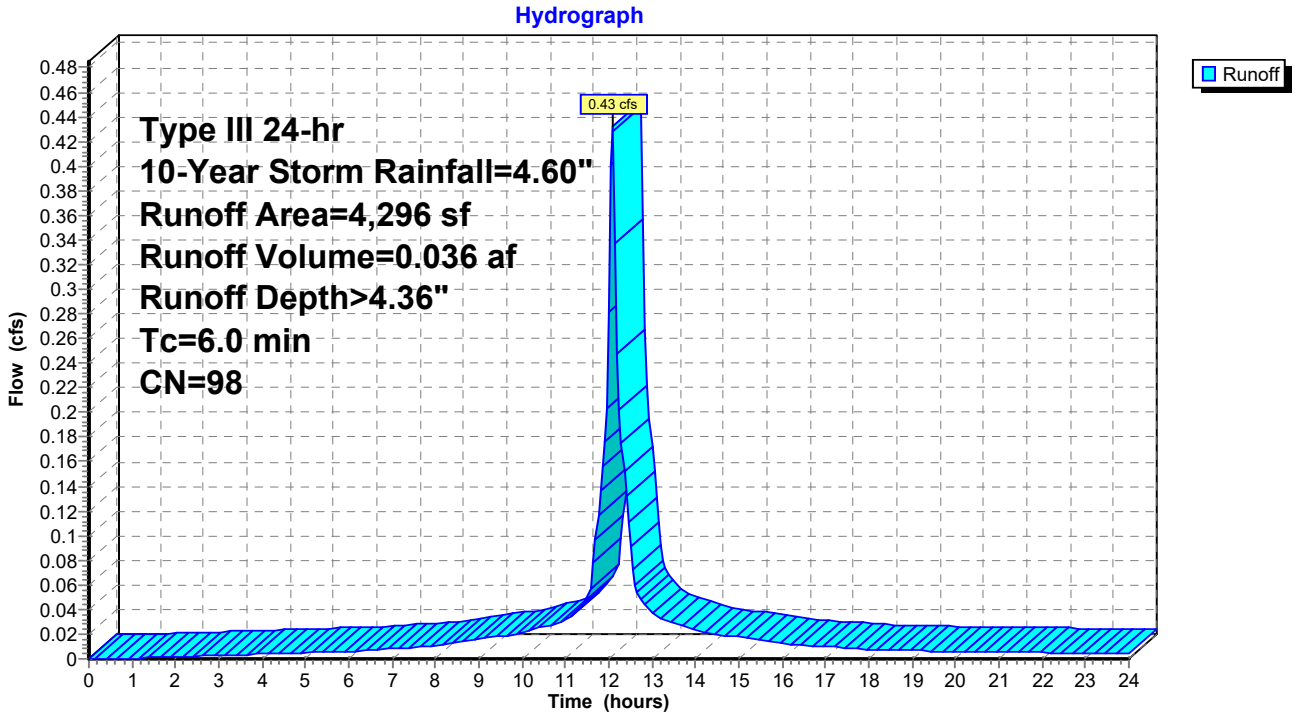
Runoff = 0.43 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

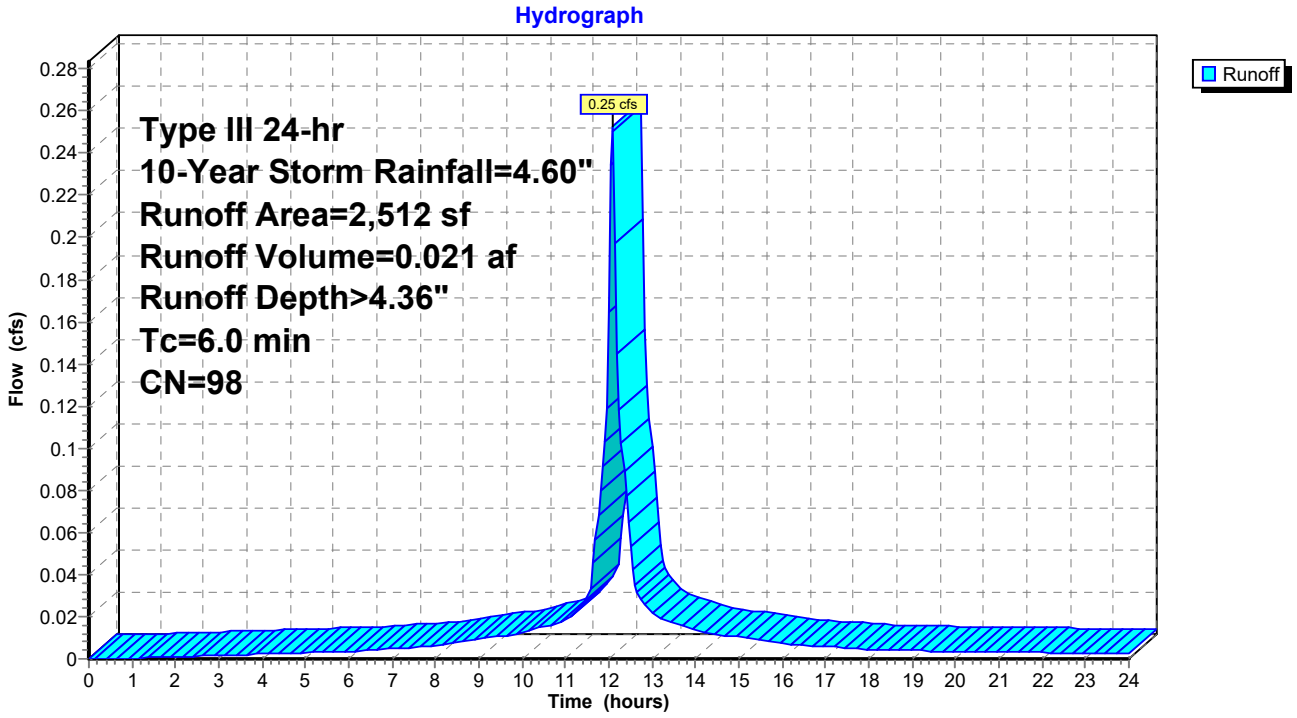
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

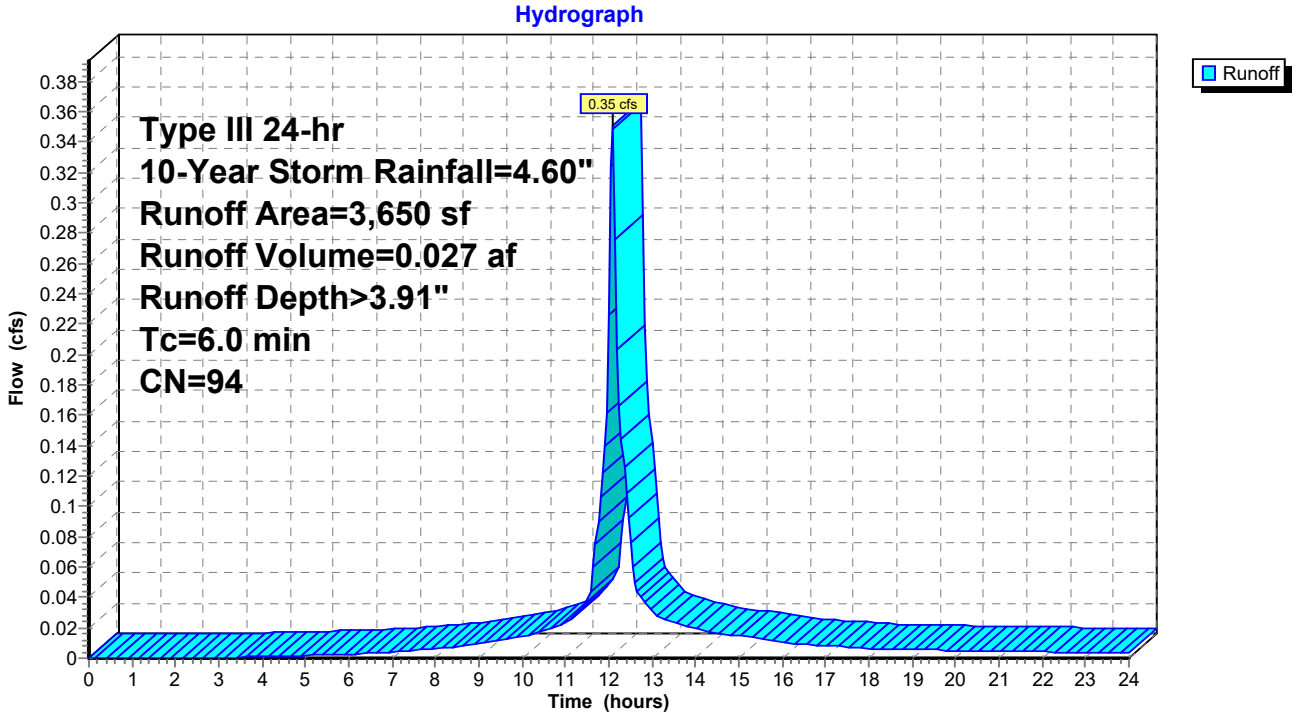
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 3.91"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

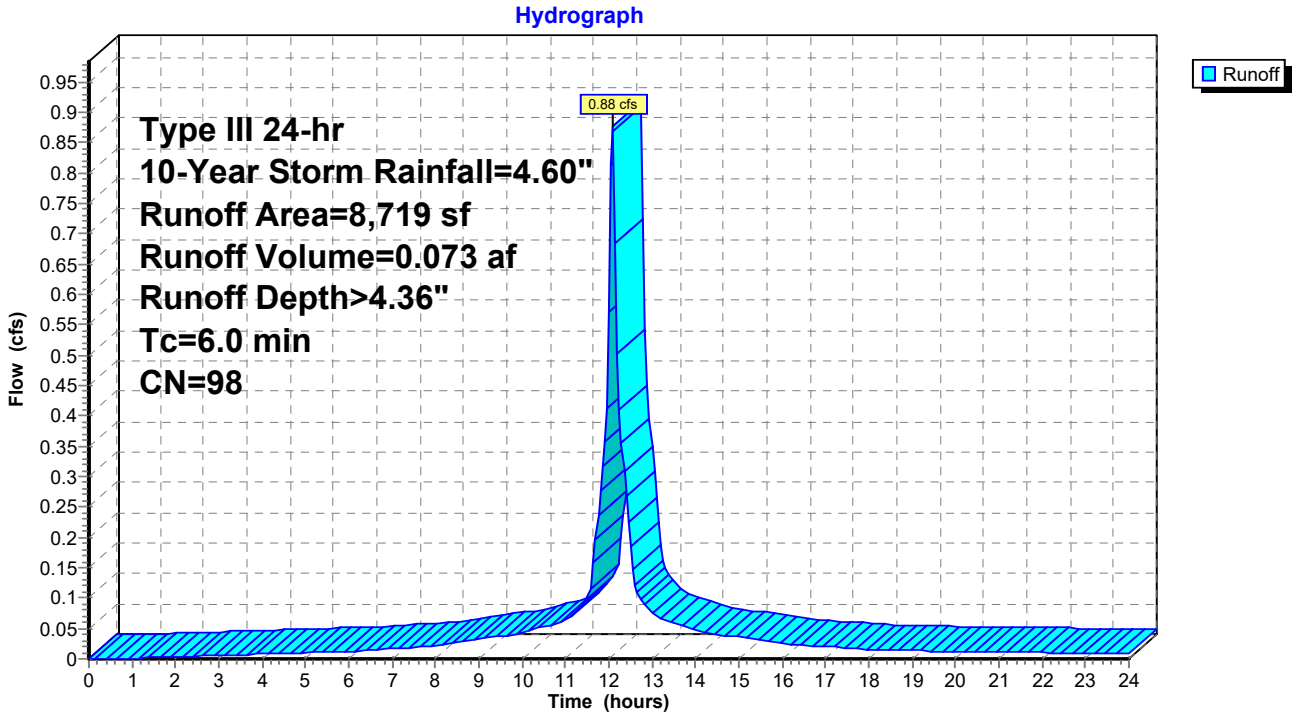
Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.073 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

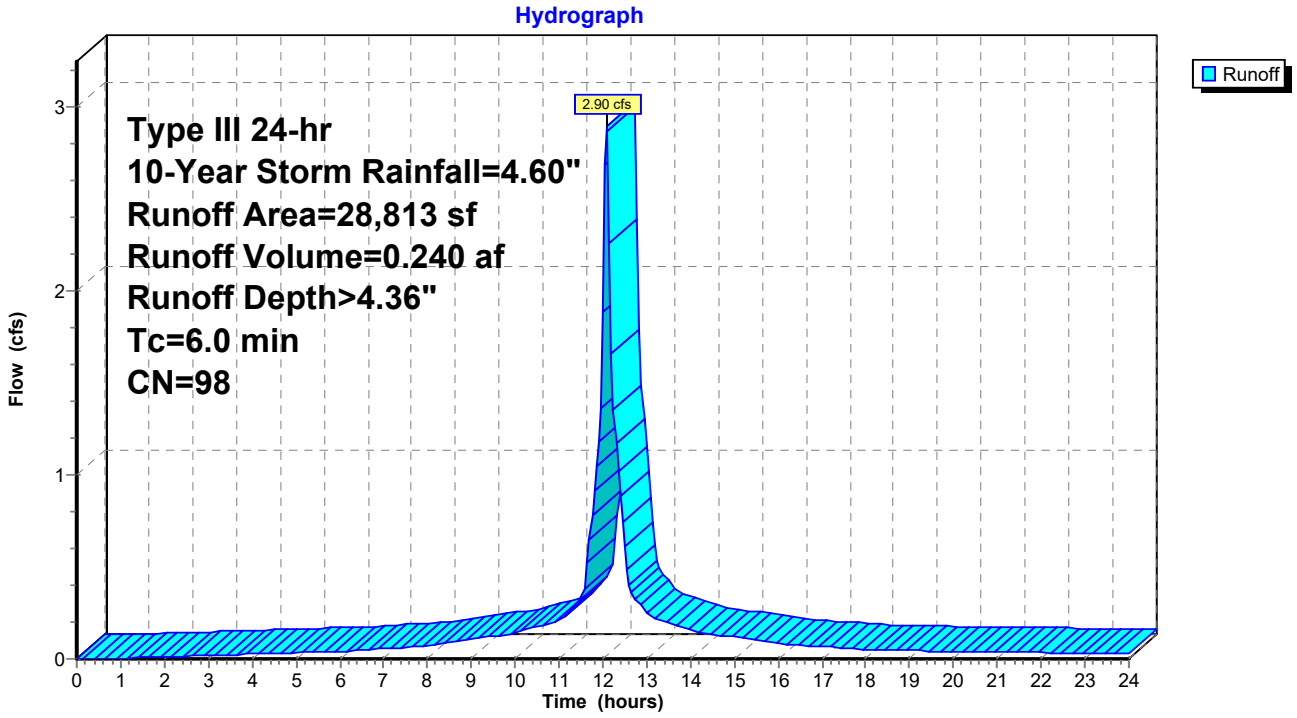
Runoff = 2.90 cfs @ 12.09 hrs, Volume= 0.240 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

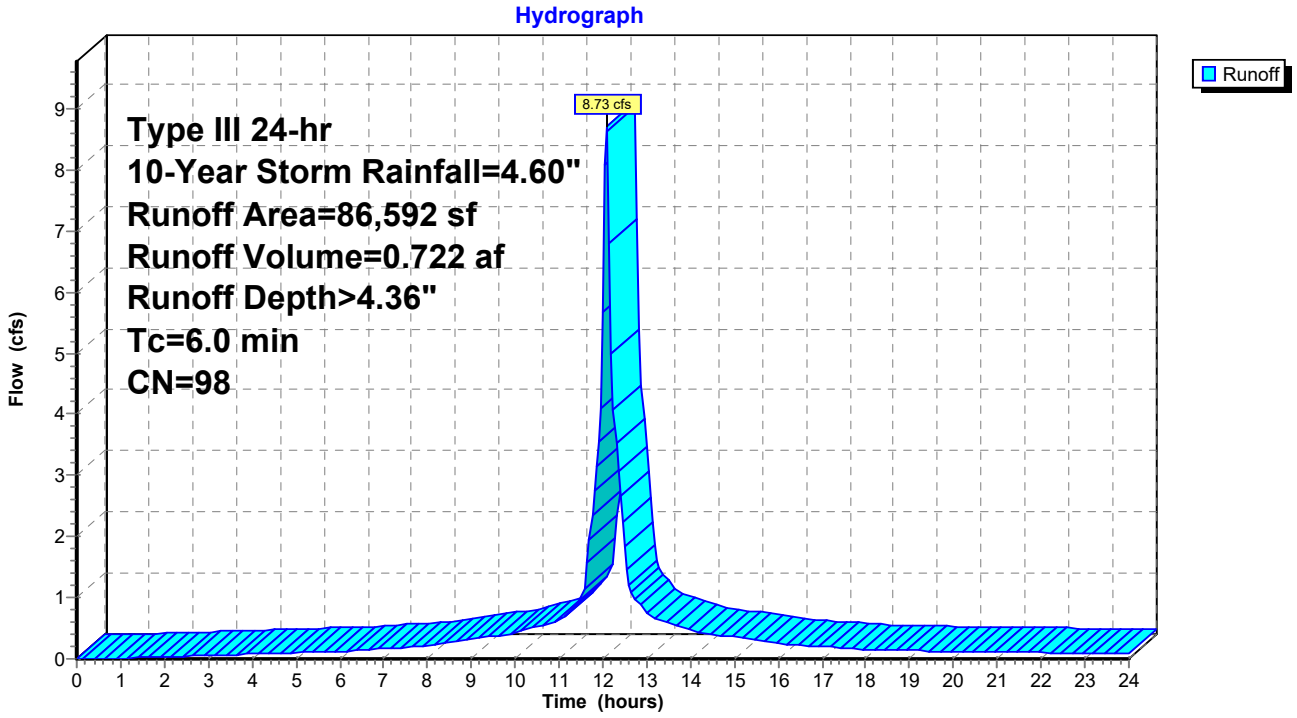
Runoff = 8.73 cfs @ 12.09 hrs, Volume= 0.722 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

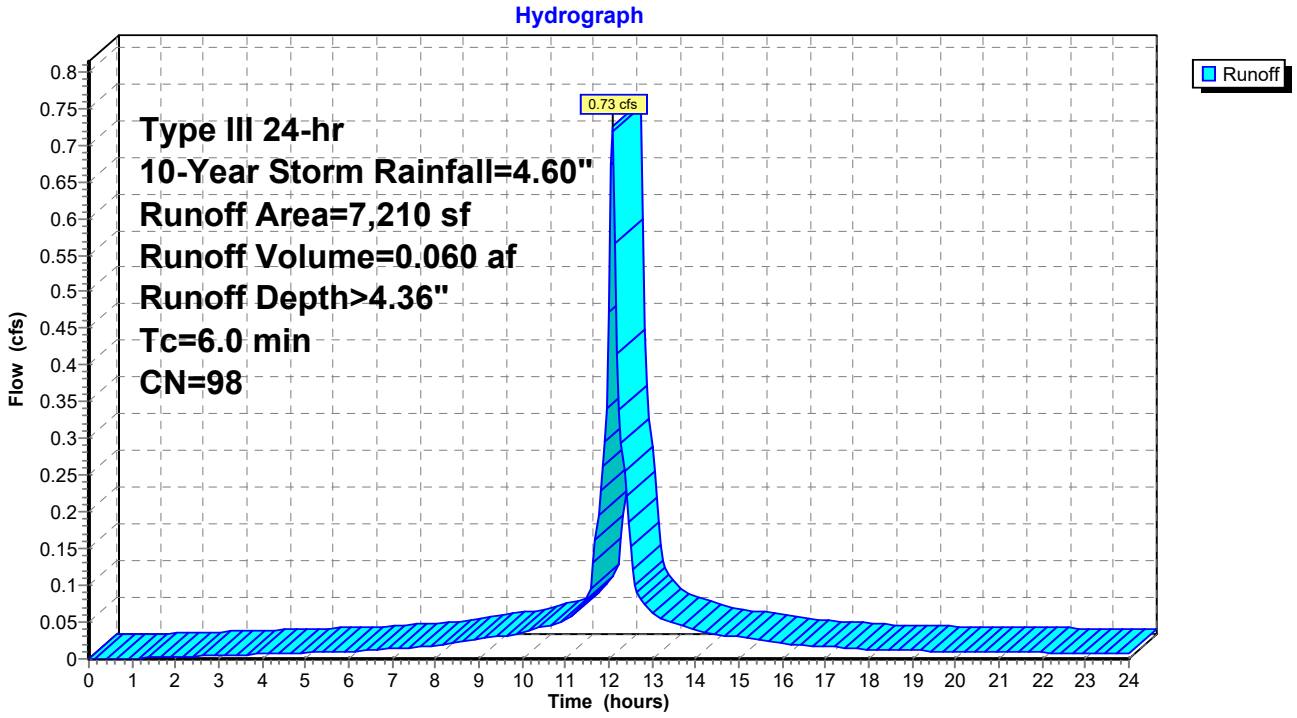
Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 4.36"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

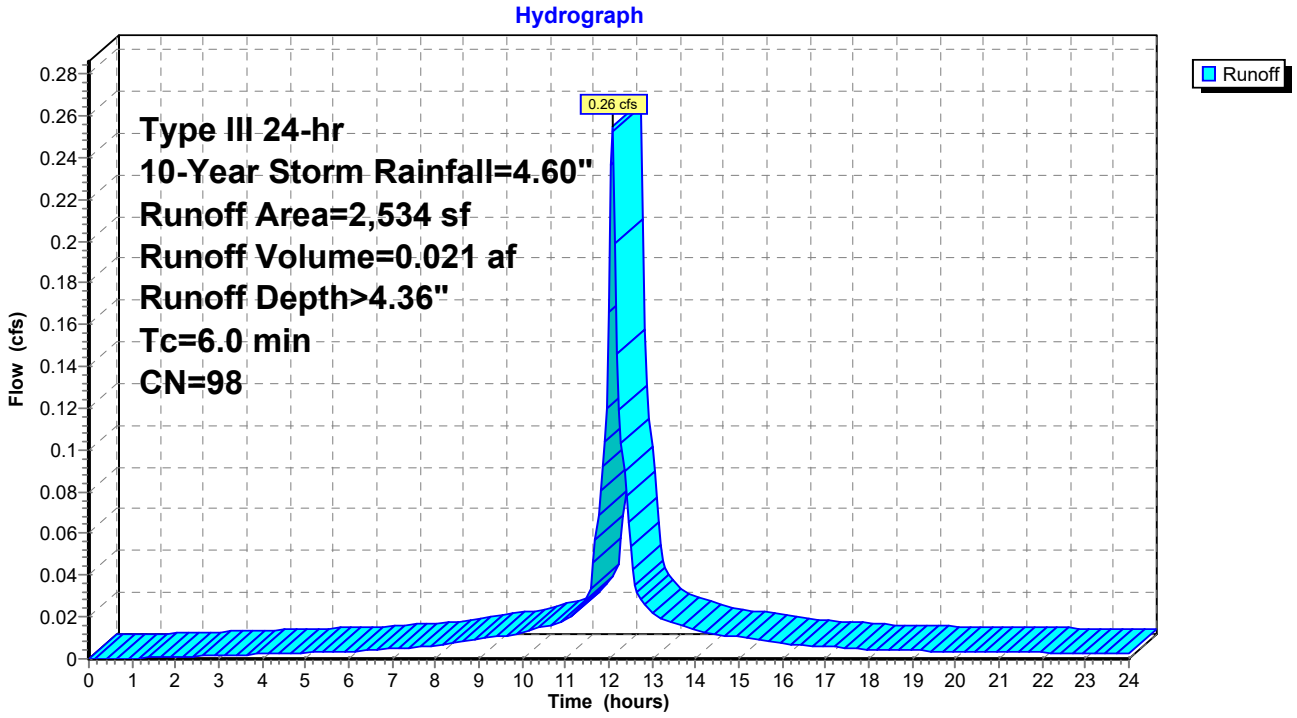
Runoff = 0.26 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.36"
Routed to Link 3L : Fore Street

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

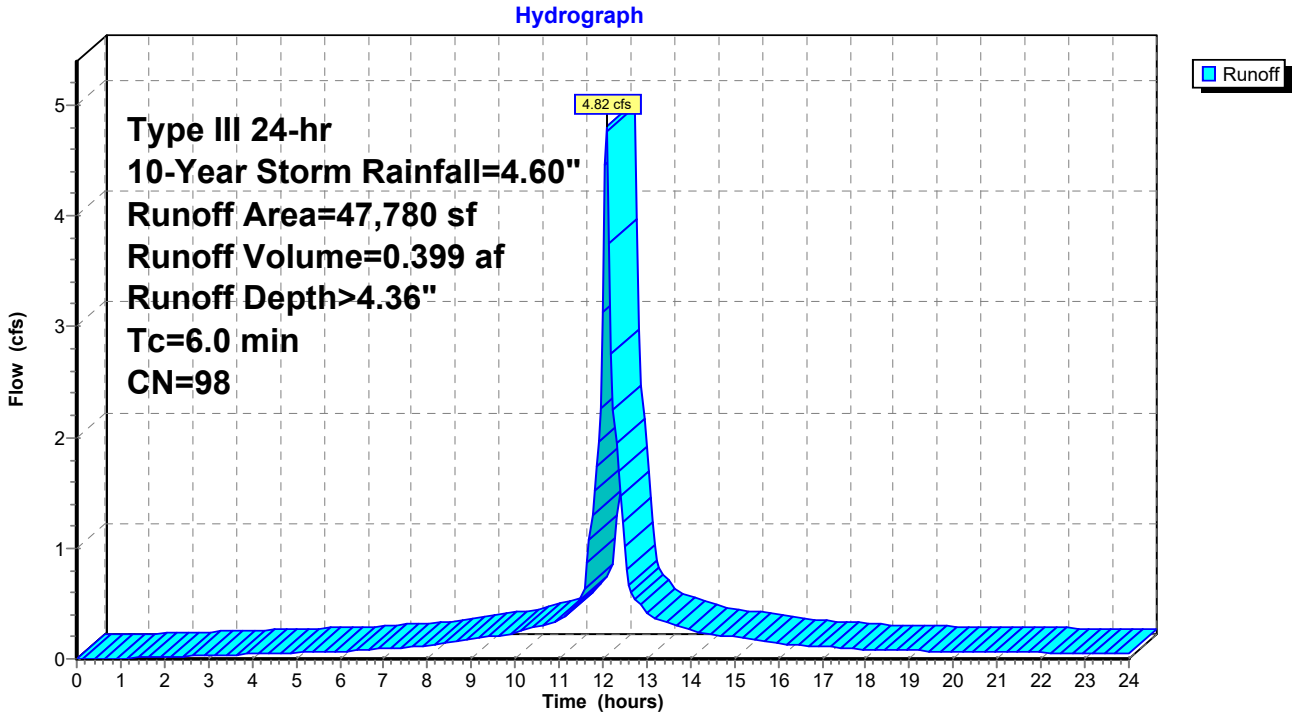
Runoff = 4.82 cfs @ 12.09 hrs, Volume= 0.399 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

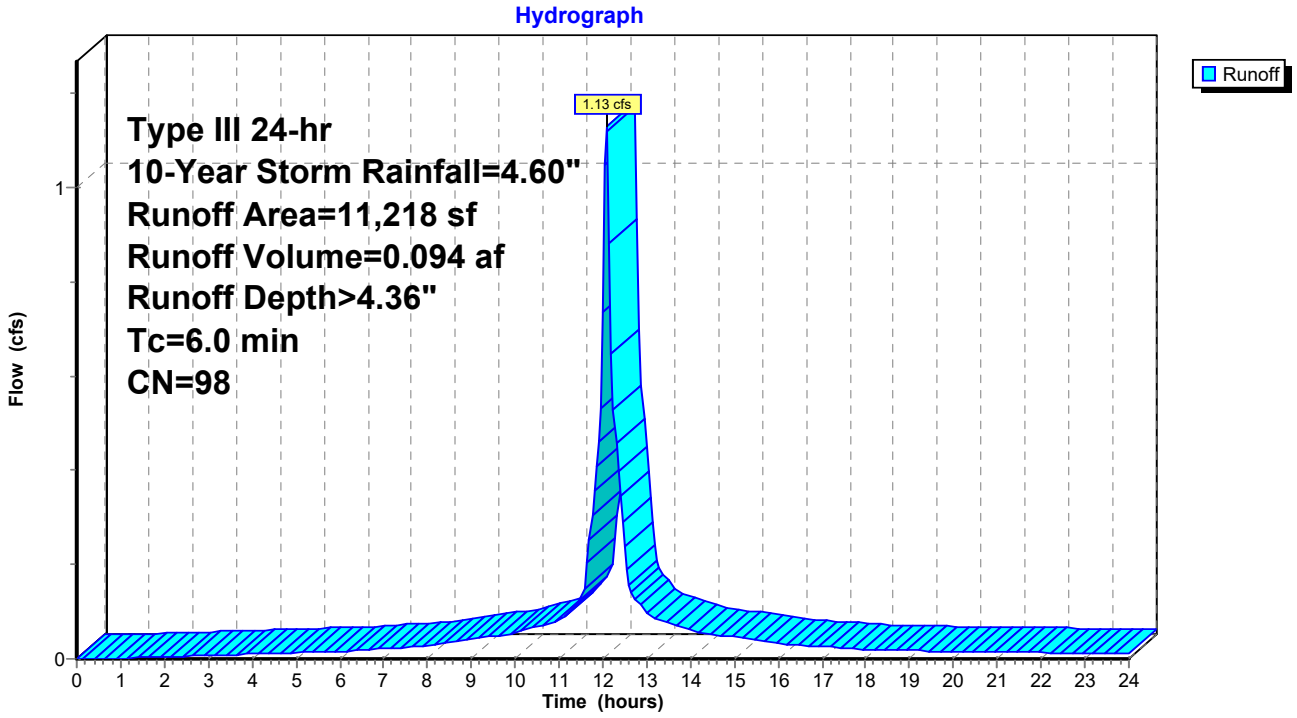
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 4.36"
Routed to Pond 6P : CB27

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

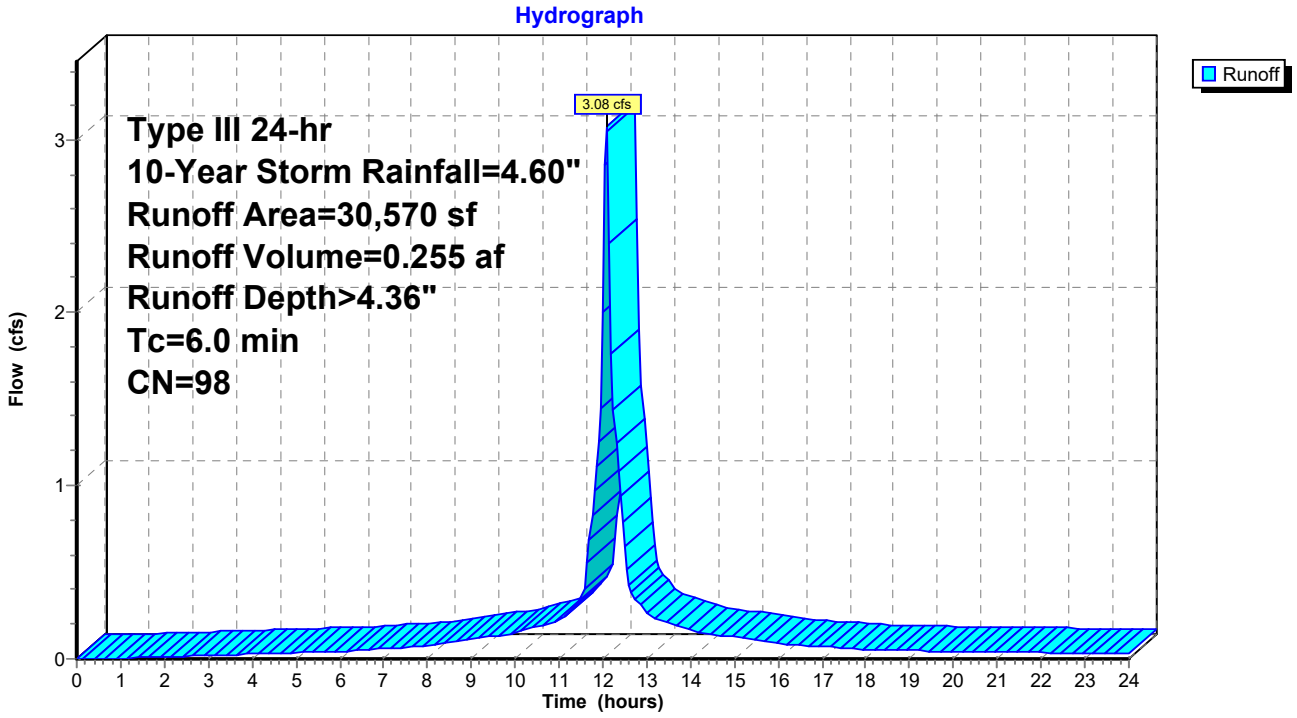
Runoff = 3.08 cfs @ 12.09 hrs, Volume= 0.255 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

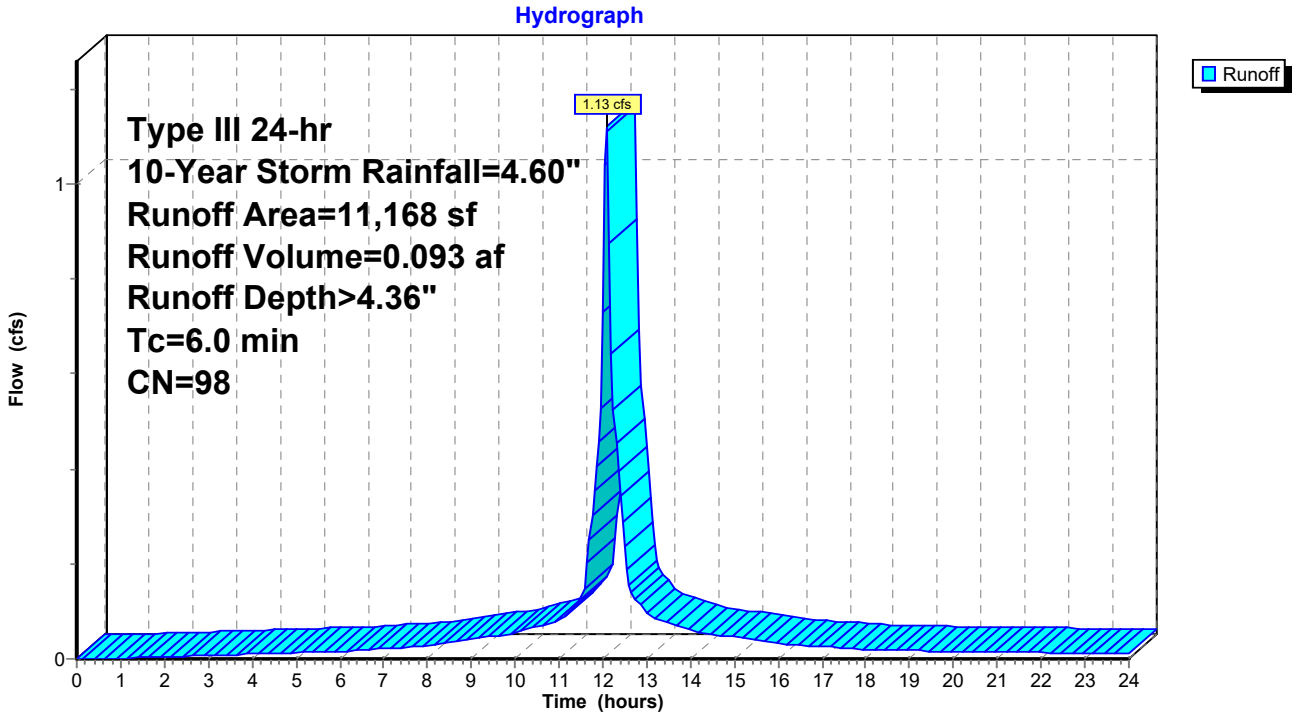
Runoff = 1.13 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 4.36"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

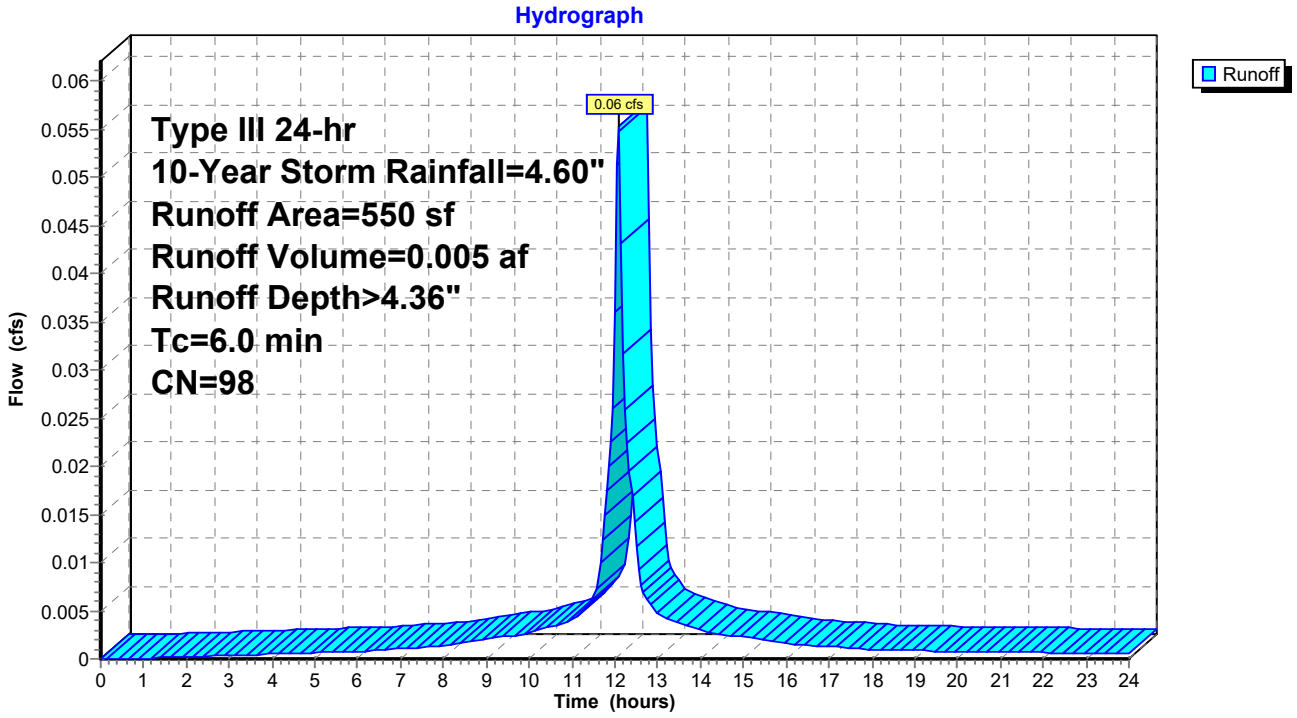
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 4.36"
Routed to Link 3L : Fore Street

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

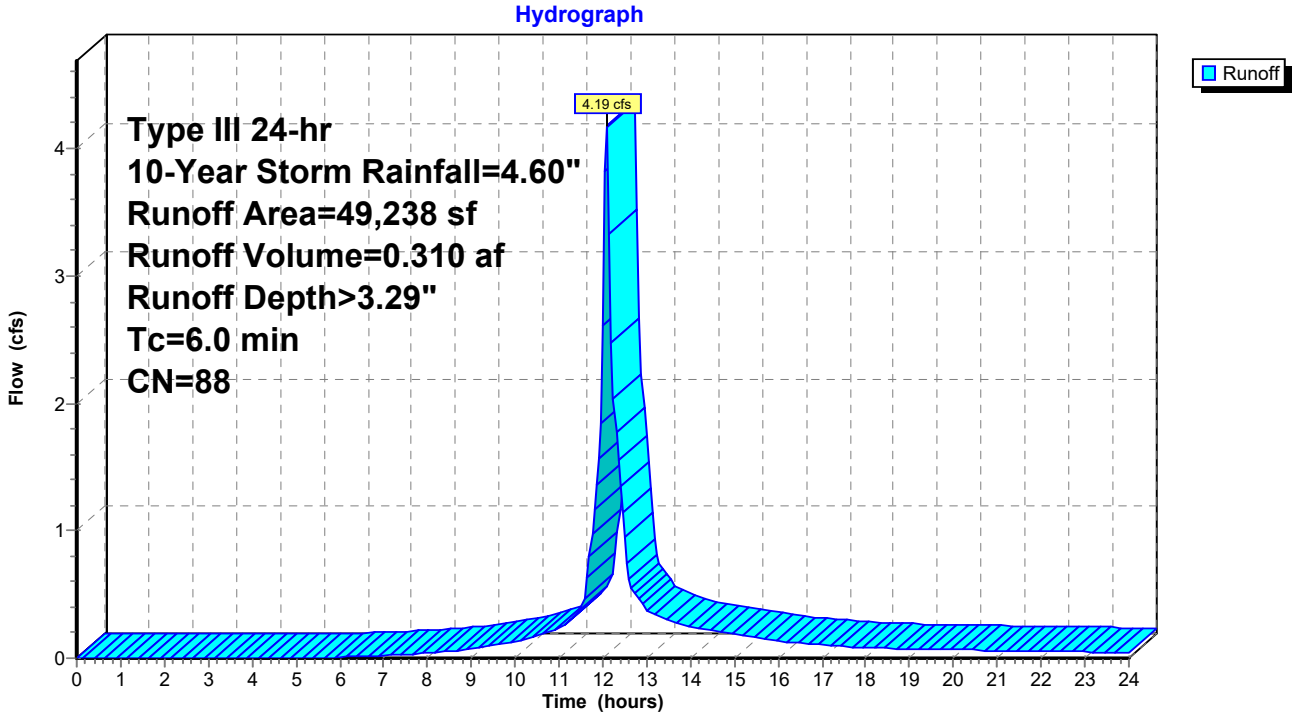
Runoff = 4.19 cfs @ 12.09 hrs, Volume= 0.310 af, Depth> 3.29"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

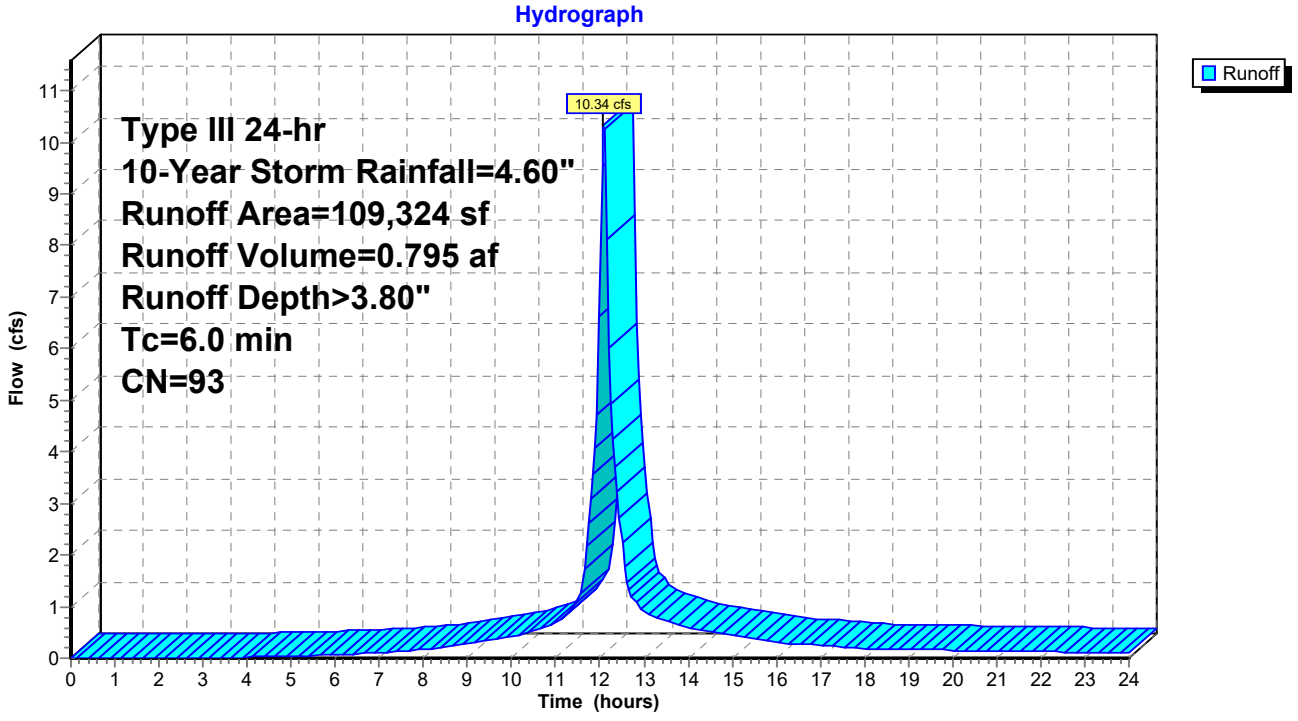
Runoff = 10.34 cfs @ 12.09 hrs, Volume= 0.795 af, Depth> 3.80"
Routed to Link 2L : Fore River

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

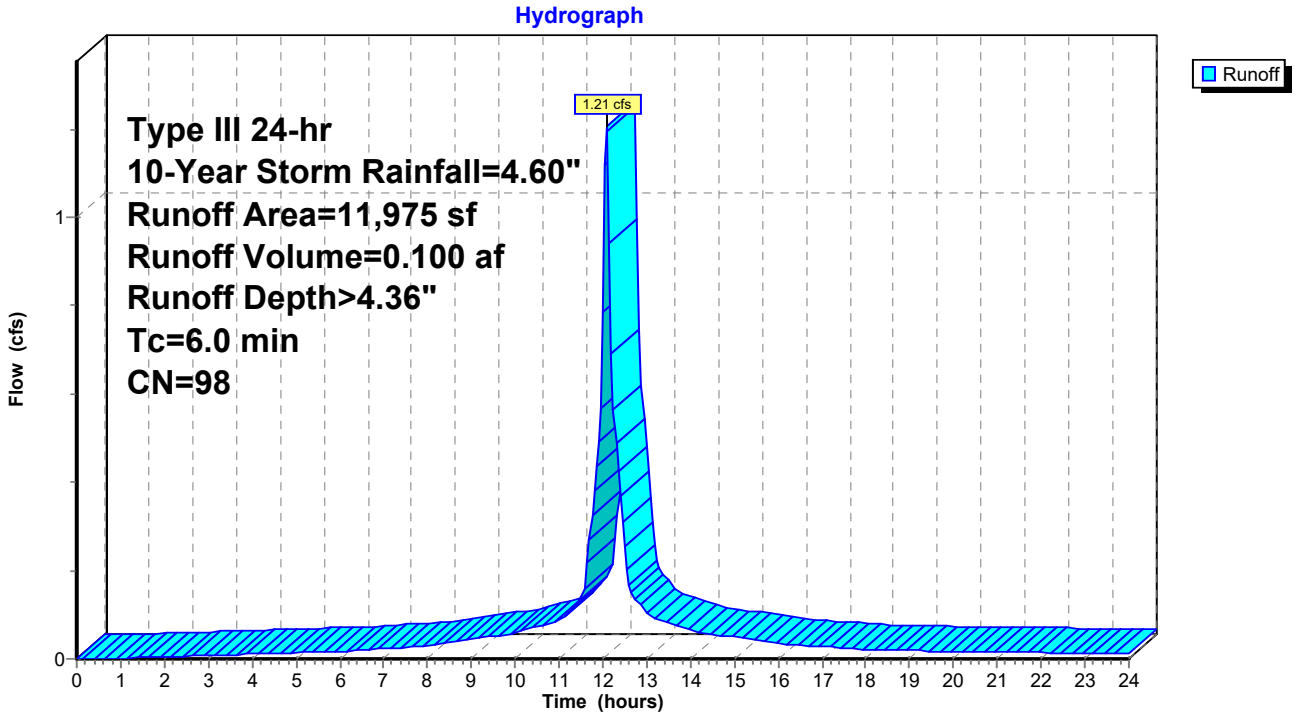
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 24P : Filterra 1

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

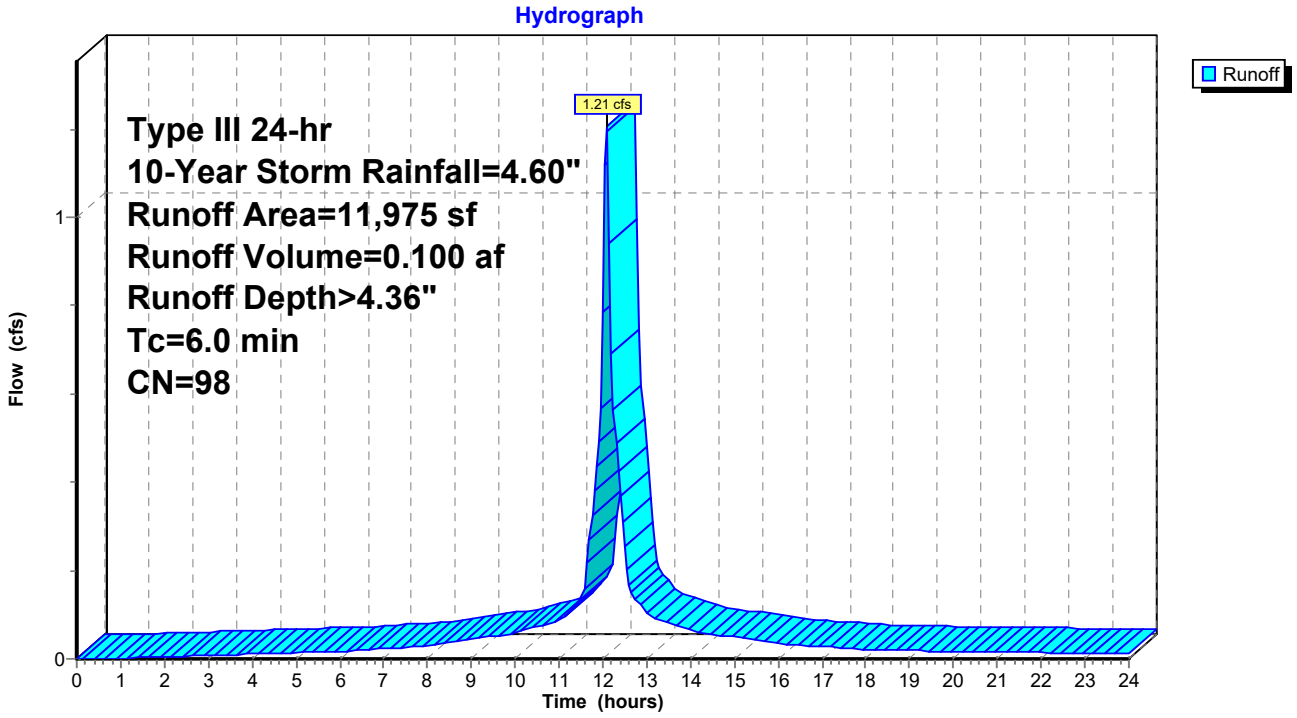
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Depth> 4.36"
Routed to Pond 28P : Filterra 2

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 Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

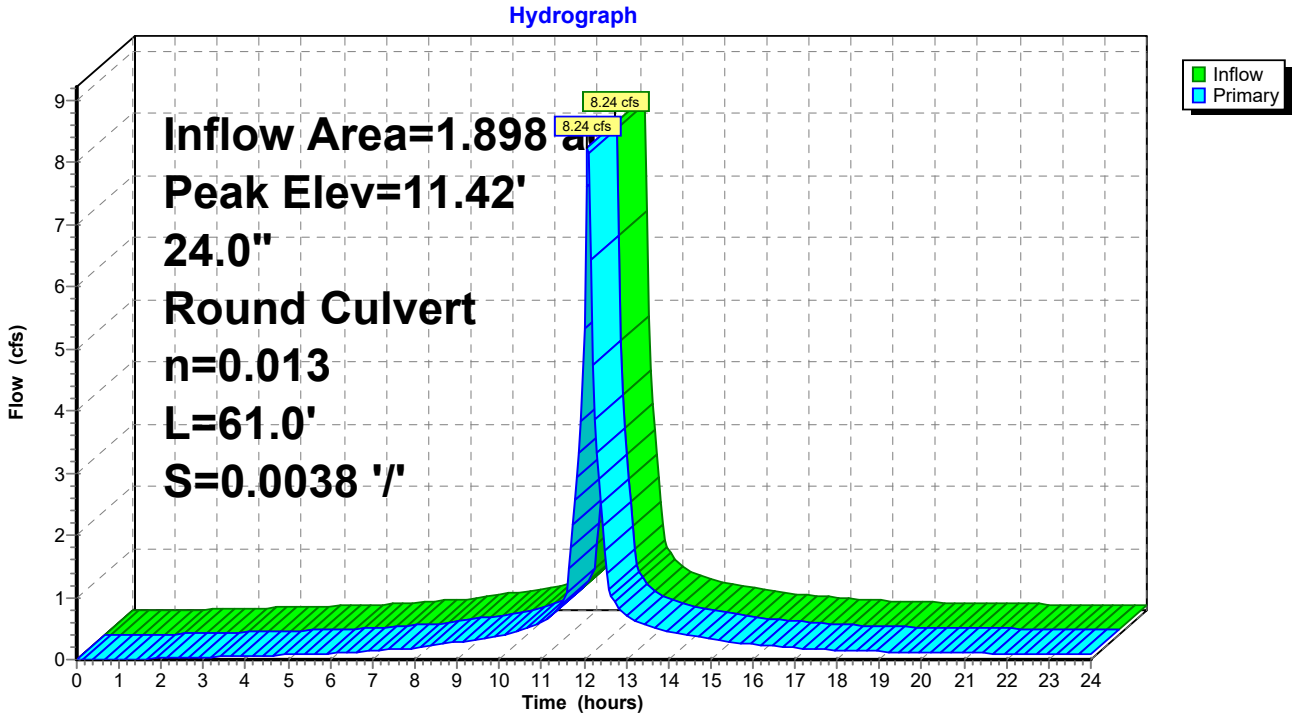
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 4.23" for 10-Year Storm event
Inflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Outflow = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af, Atten= 0%, Lag= 0.0 min
Primary = 8.24 cfs @ 12.09 hrs, Volume= 0.669 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.42' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.01 cfs @ 12.09 hrs HW=11.39' (Free Discharge)
1=Culvert (Barrel Controls 8.01 cfs @ 4.00 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

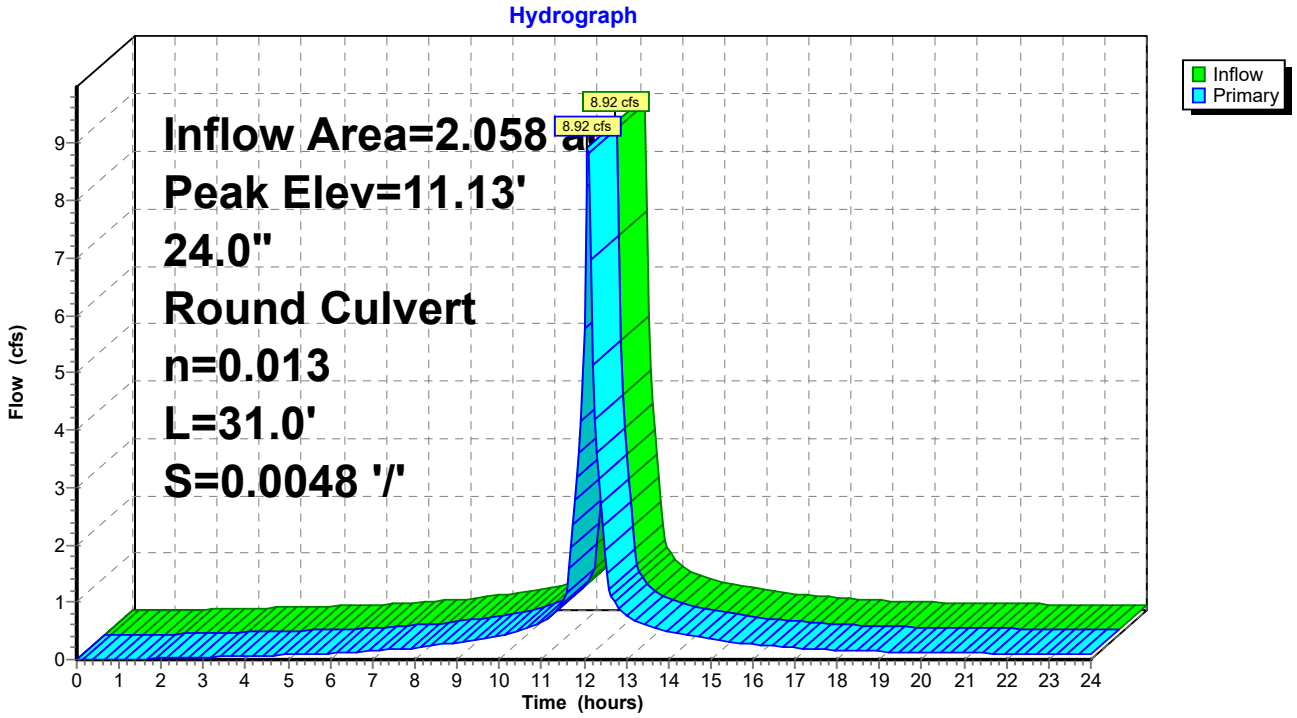
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=11.10' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 4.40 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

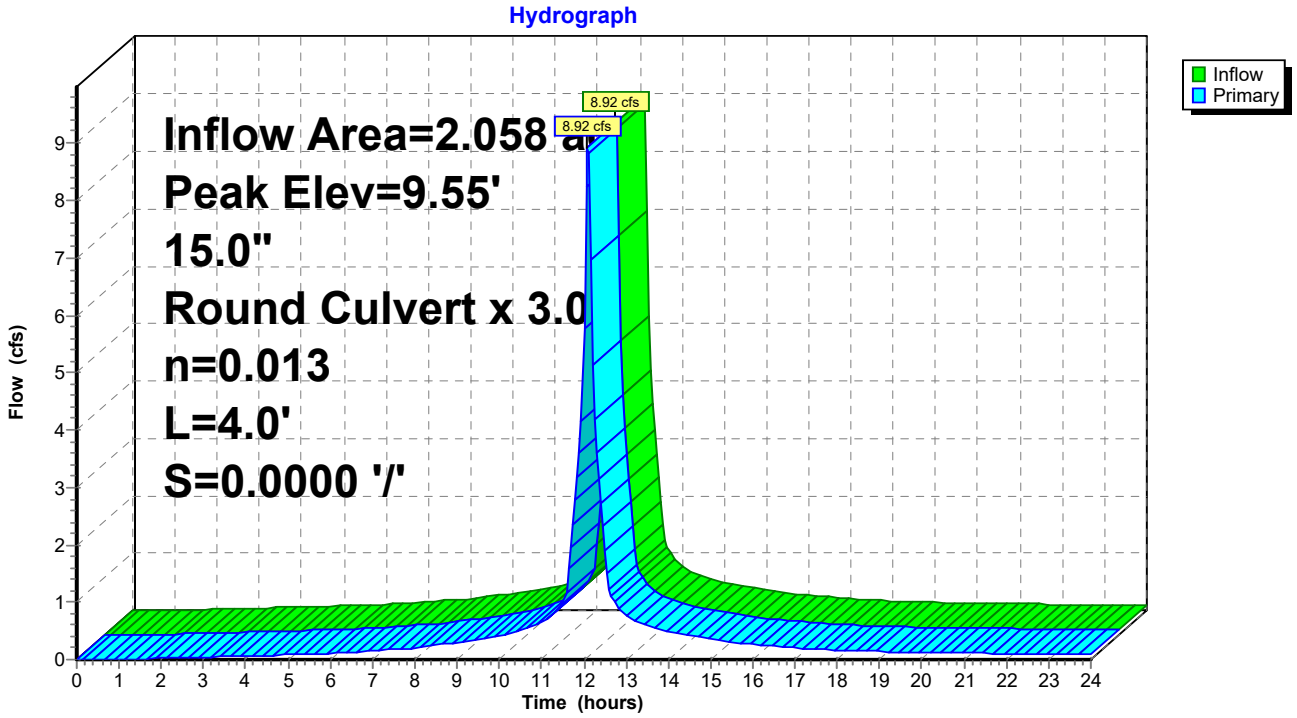
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af, Atten= 0%, Lag= 0.0 min
Primary = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.68 cfs @ 12.09 hrs HW=9.53' (Free Discharge)
1=Culvert (Barrel Controls 8.68 cfs @ 3.11 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.22" for 10-Year Storm event
Inflow = 8.92 cfs @ 12.09 hrs, Volume= 0.723 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 10%, Lag= 2.4 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.81' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,076 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 18.7 min calculated for 0.714 af (99% of inflow)
Center-of-Mass det. time= 12.0 min (769.6 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

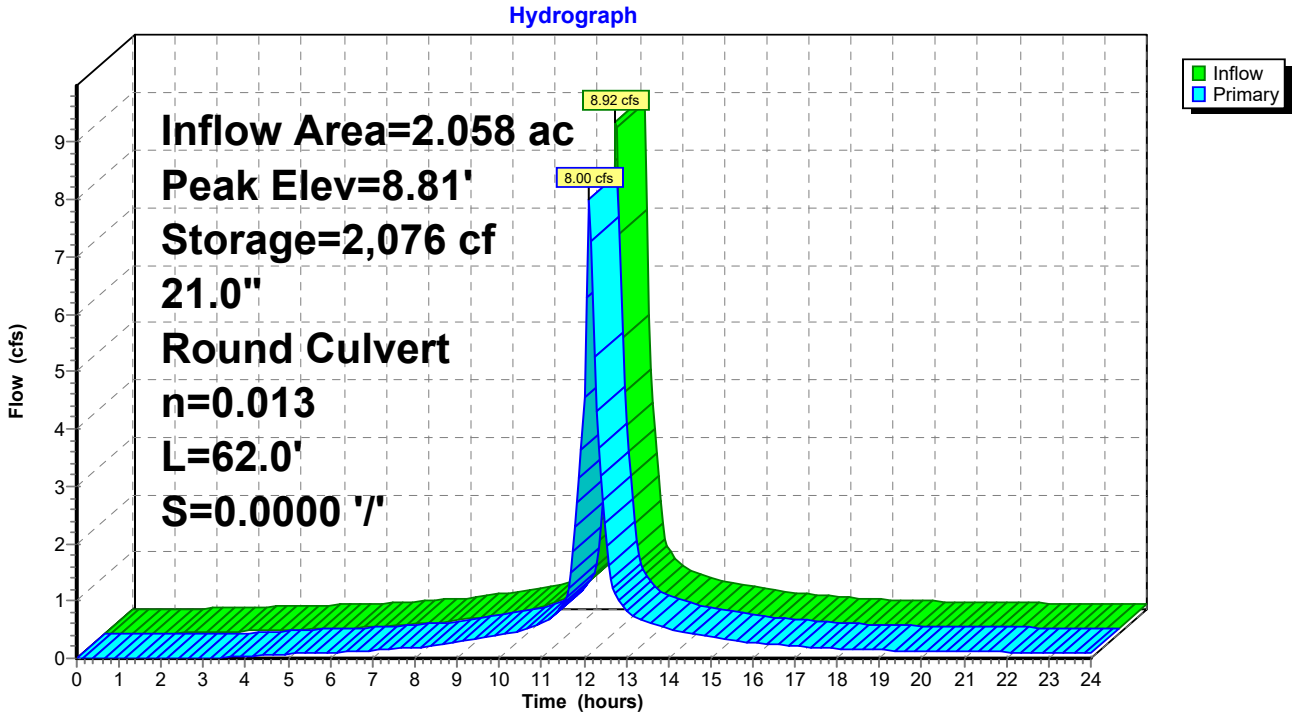
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.78' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 7.84 cfs @ 3.53 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

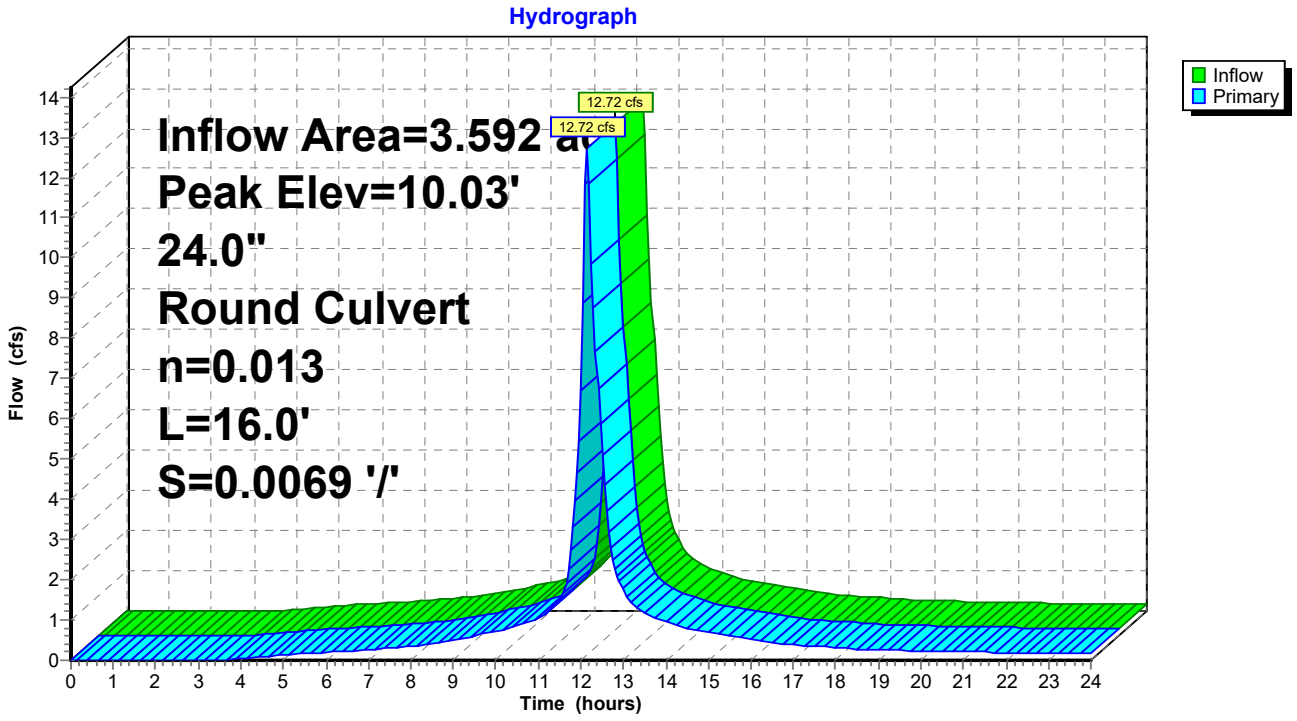
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.03' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.71 cfs @ 12.15 hrs HW=10.03' (Free Discharge)
1=Culvert (Barrel Controls 12.71 cfs @ 4.56 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

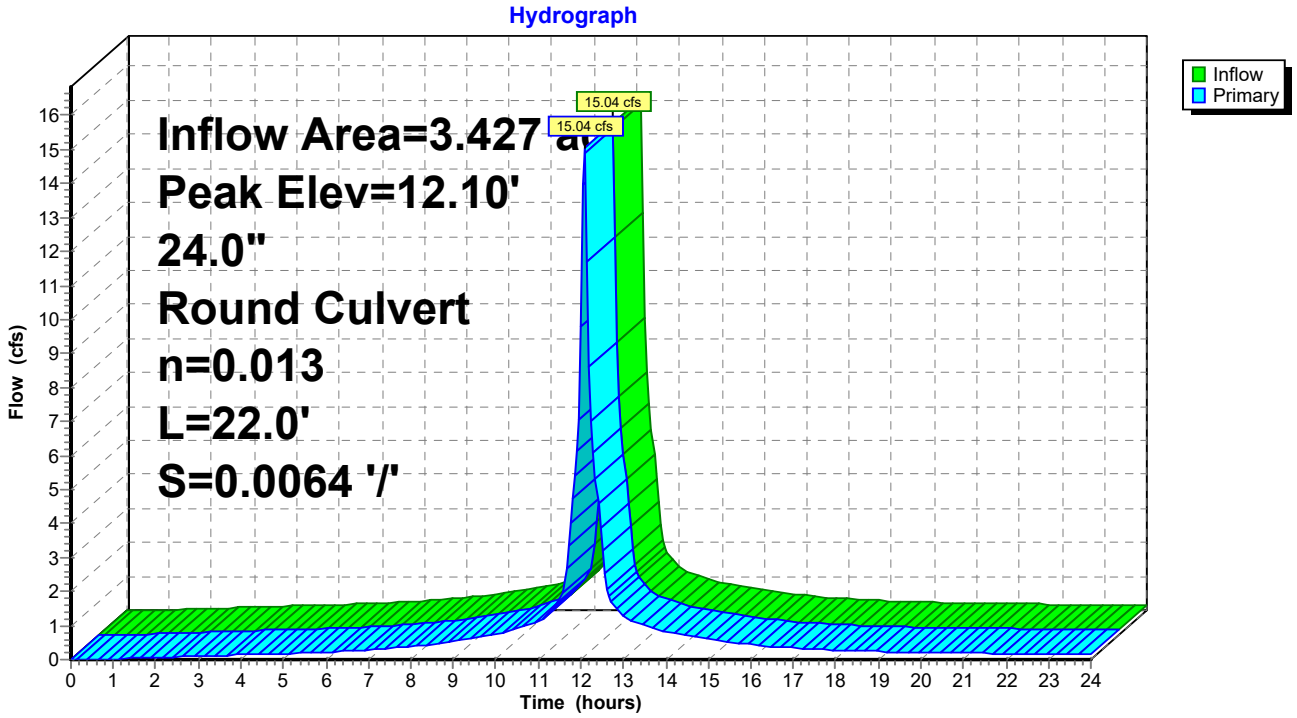
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 12.10' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=12.04' (Free Discharge)
1=Culvert (Inlet Controls 14.65 cfs @ 4.66 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

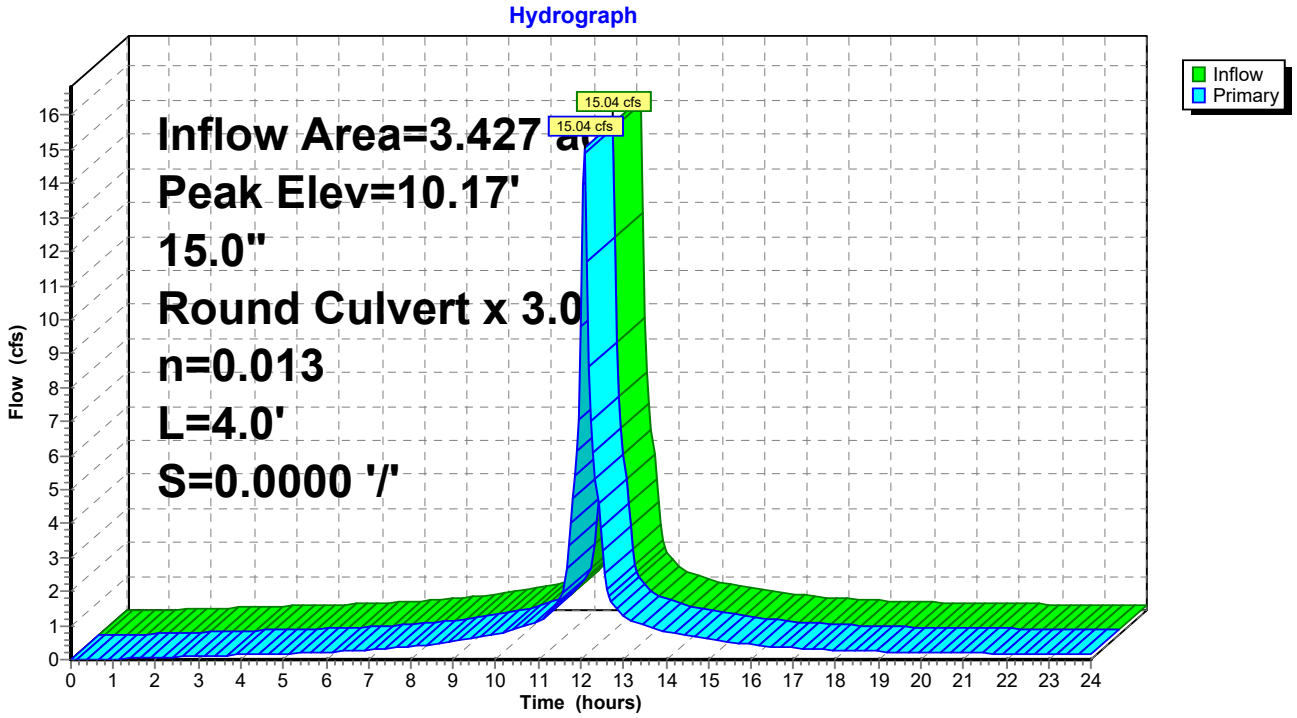
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Outflow = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af, Atten= 0%, Lag= 0.0 min
Primary = 15.04 cfs @ 12.09 hrs, Volume= 1.245 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.17' @ 12.08 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=14.65 cfs @ 12.09 hrs HW=10.13' (Free Discharge)
1=Culvert (Barrel Controls 14.65 cfs @ 3.98 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 15.77 cfs @ 12.09 hrs, Volume= 1.306 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 19%, Lag= 3.8 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.53' @ 12.15 hrs Surf.Area= 3,128 sf Storage= 6,896 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 35.4 min calculated for 1.280 af (98% of inflow)
Center-of-Mass det. time= 23.1 min (772.1 - 749.0)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

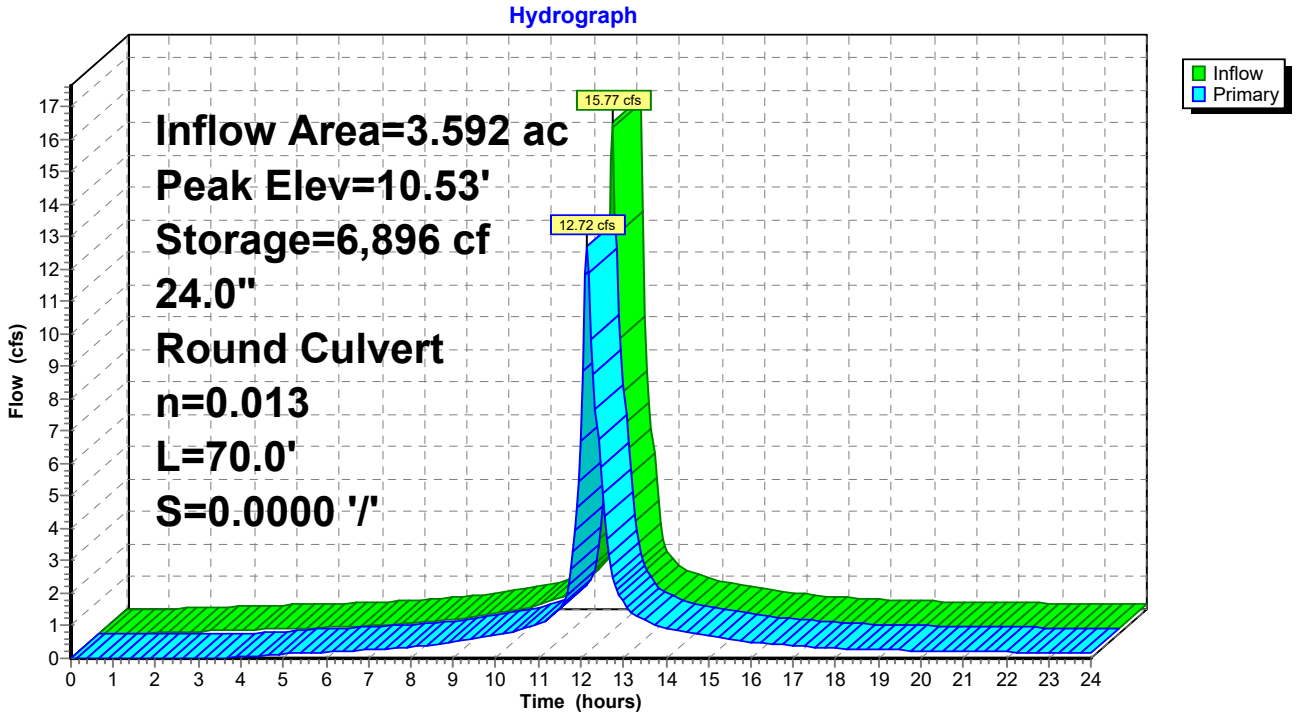
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.70 cfs @ 12.15 hrs HW=10.52' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 12.70 cfs @ 4.04 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

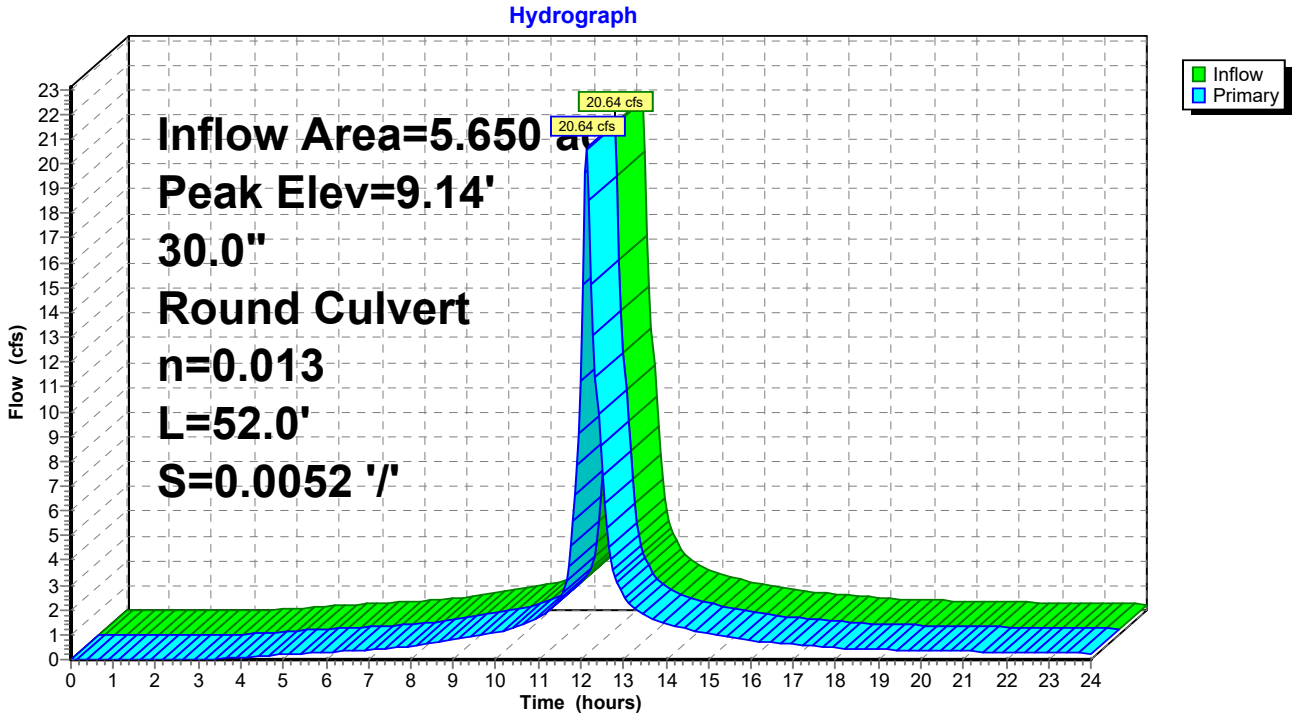
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 4.24" for 10-Year Storm event
Inflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Outflow = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af, Atten= 0%, Lag= 0.0 min
Primary = 20.64 cfs @ 12.14 hrs, Volume= 1.996 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.14' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=20.41 cfs @ 12.14 hrs HW=9.12' (Free Discharge)
1=Culvert (Barrel Controls 20.41 cfs @ 5.07 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

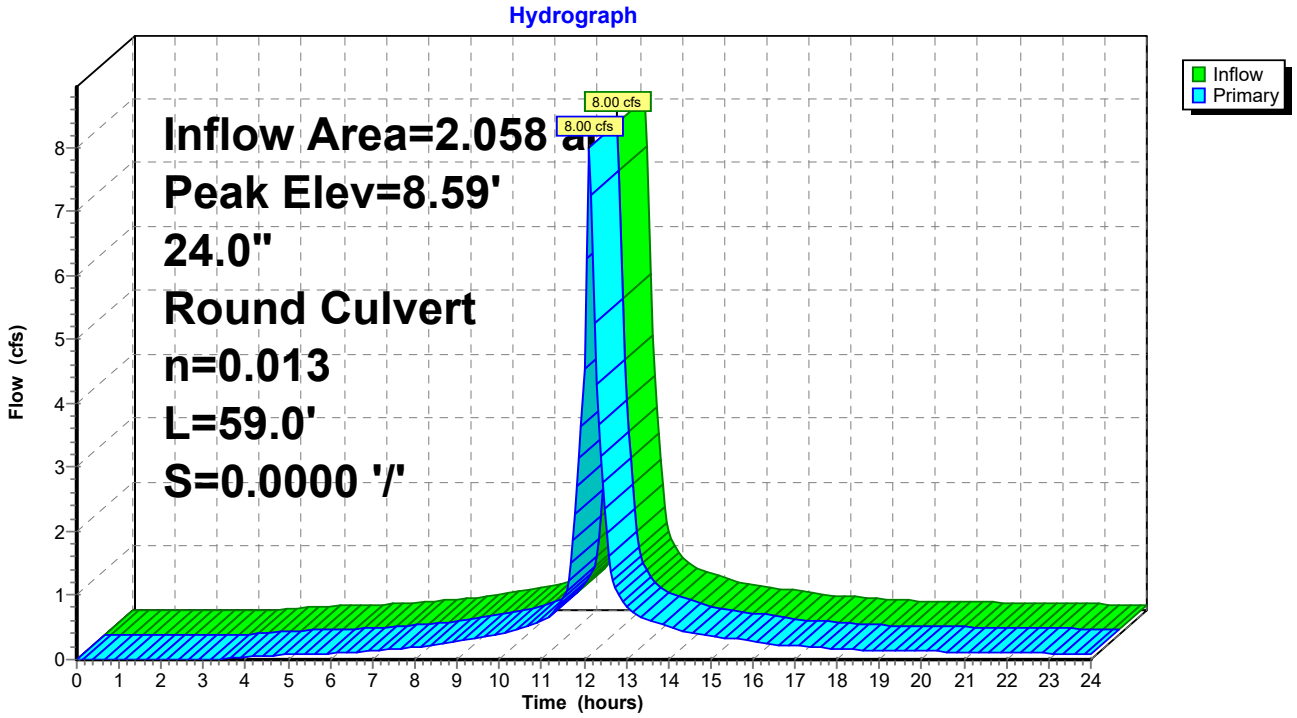
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.59' @ 12.13 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.84 cfs @ 12.13 hrs HW=8.57' (Free Discharge)
1=Culvert (Barrel Controls 7.84 cfs @ 3.43 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

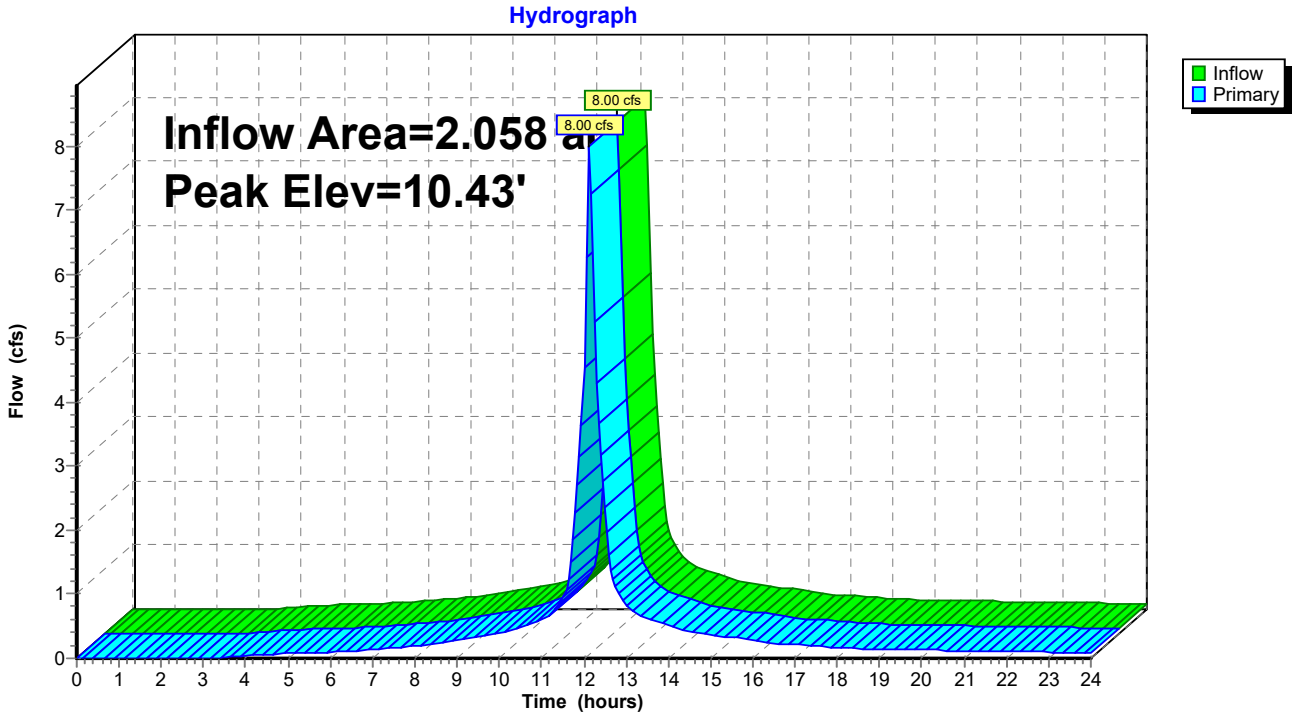
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 4.17" for 10-Year Storm event
Inflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Outflow = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af, Atten= 0%, Lag= 0.0 min
Primary = 8.00 cfs @ 12.13 hrs, Volume= 0.716 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.43' @ 12.13 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=7.85 cfs @ 12.13 hrs HW=10.42' (Free Discharge)
└**1=Filter Culvert Out** (Passes 7.85 cfs of 19.50 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 6.96 cfs @ 3.00 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

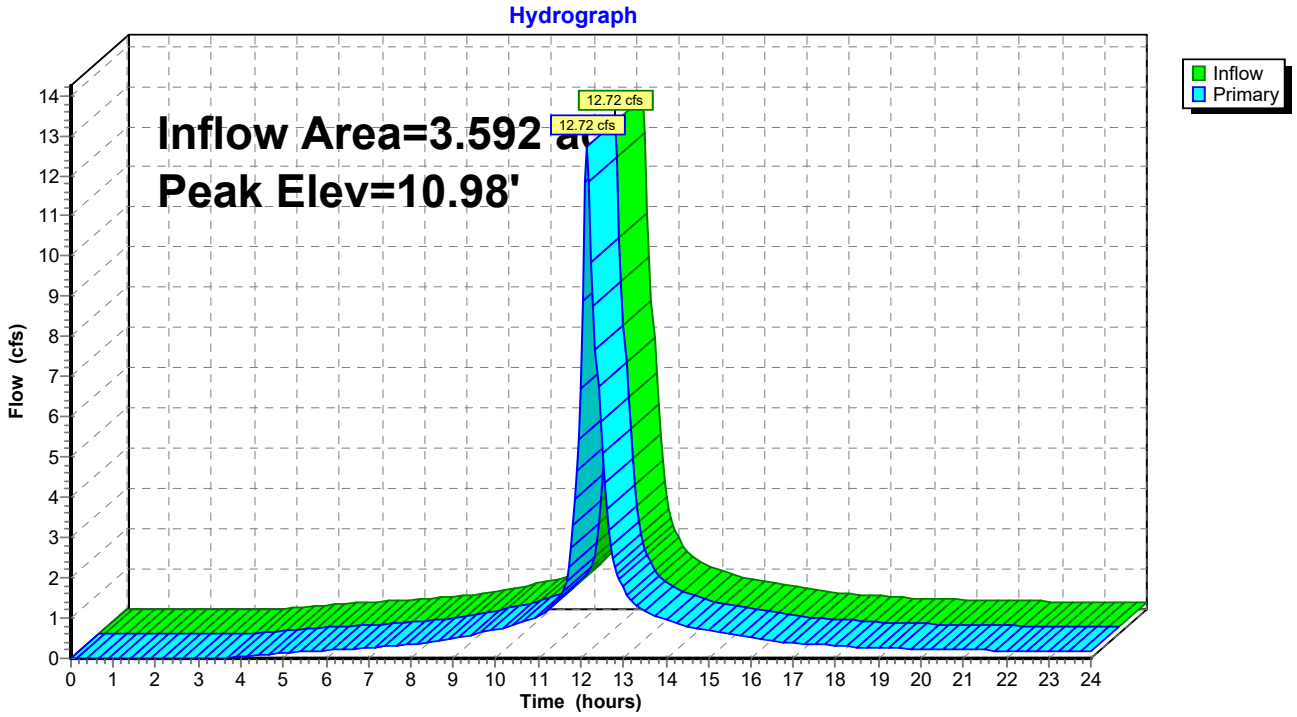
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 4.28" for 10-Year Storm event
Inflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Outflow = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af, Atten= 0%, Lag= 0.0 min
Primary = 12.72 cfs @ 12.15 hrs, Volume= 1.280 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.98' @ 12.15 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**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=12.71 cfs @ 12.15 hrs HW=10.98' (Free Discharge)
└**1=Filter Culvert Out** (Passes 12.71 cfs of 17.98 cfs potential flow)
└**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 11.28 cfs @ 3.54 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

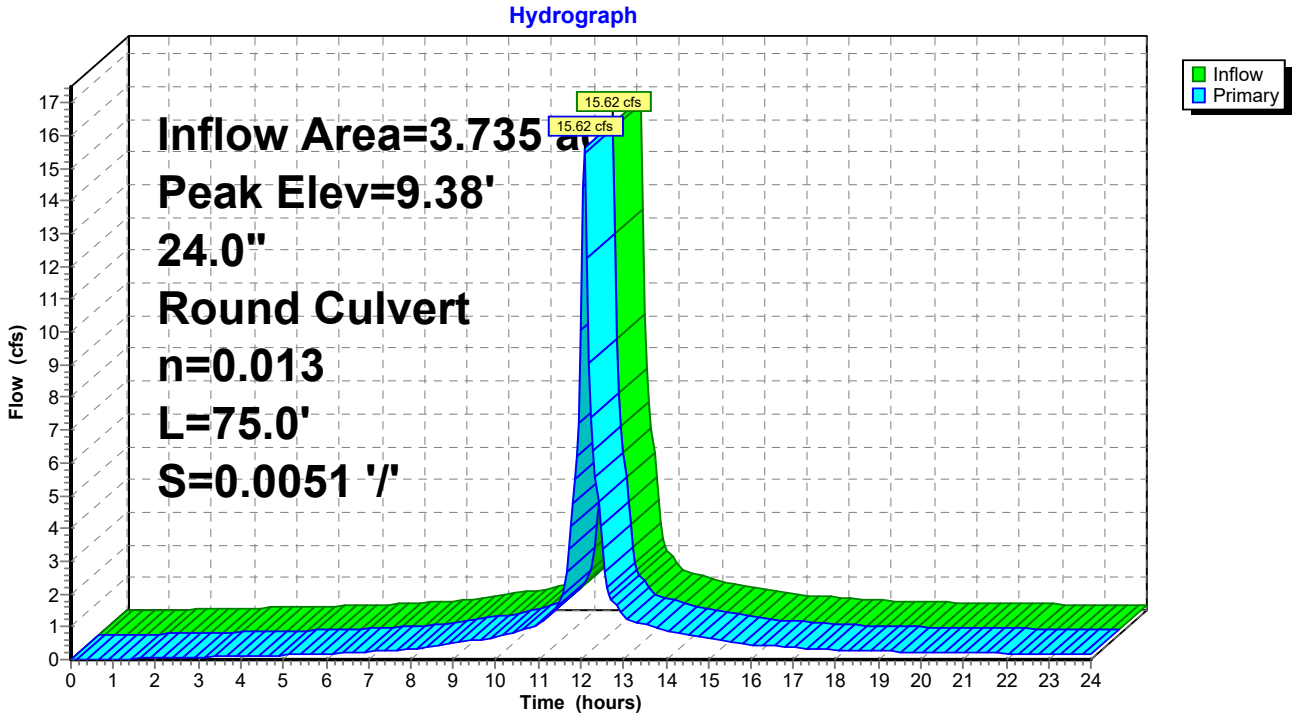
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 4.04" for 10-Year Storm event
Inflow = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af
Outflow = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af, Atten= 0%, Lag= 0.0 min
Primary = 15.62 cfs @ 12.09 hrs, Volume= 1.256 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.38' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.22 cfs @ 12.09 hrs HW=9.30' (Free Discharge)
1=Culvert (Inlet Controls 15.22 cfs @ 4.84 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

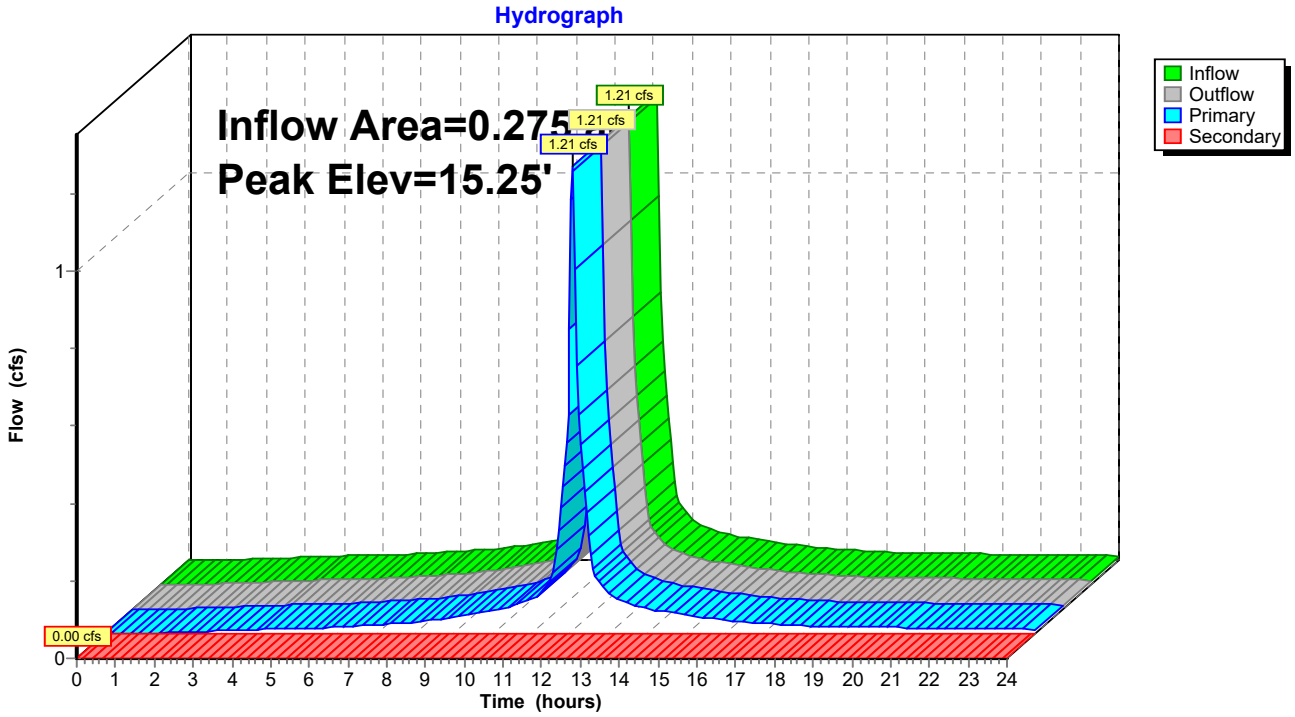
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.25' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=15.24' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.17 cfs @ 2.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

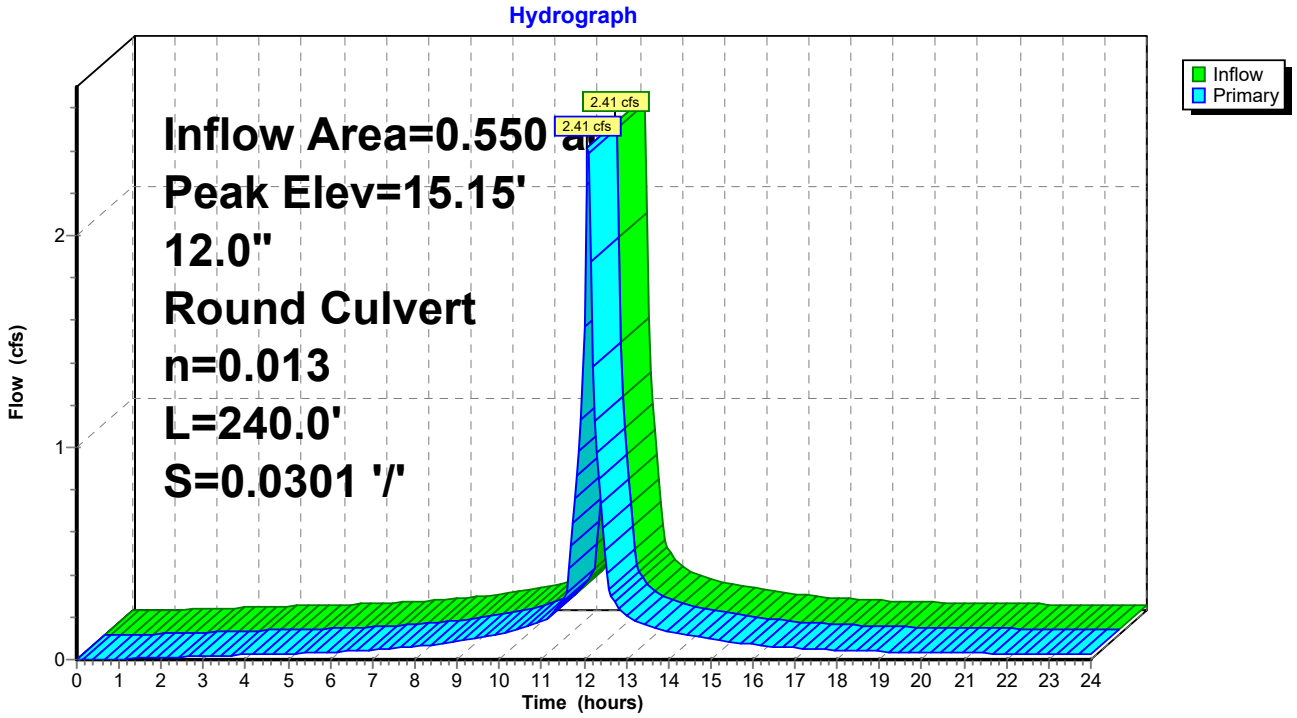
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af
Outflow = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.09 hrs, Volume= 0.200 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.15' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 12.09 hrs HW=15.12' (Free Discharge)
1=Culvert (Inlet Controls 2.35 cfs @ 2.99 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.09 hrs, Volume= 0.100 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

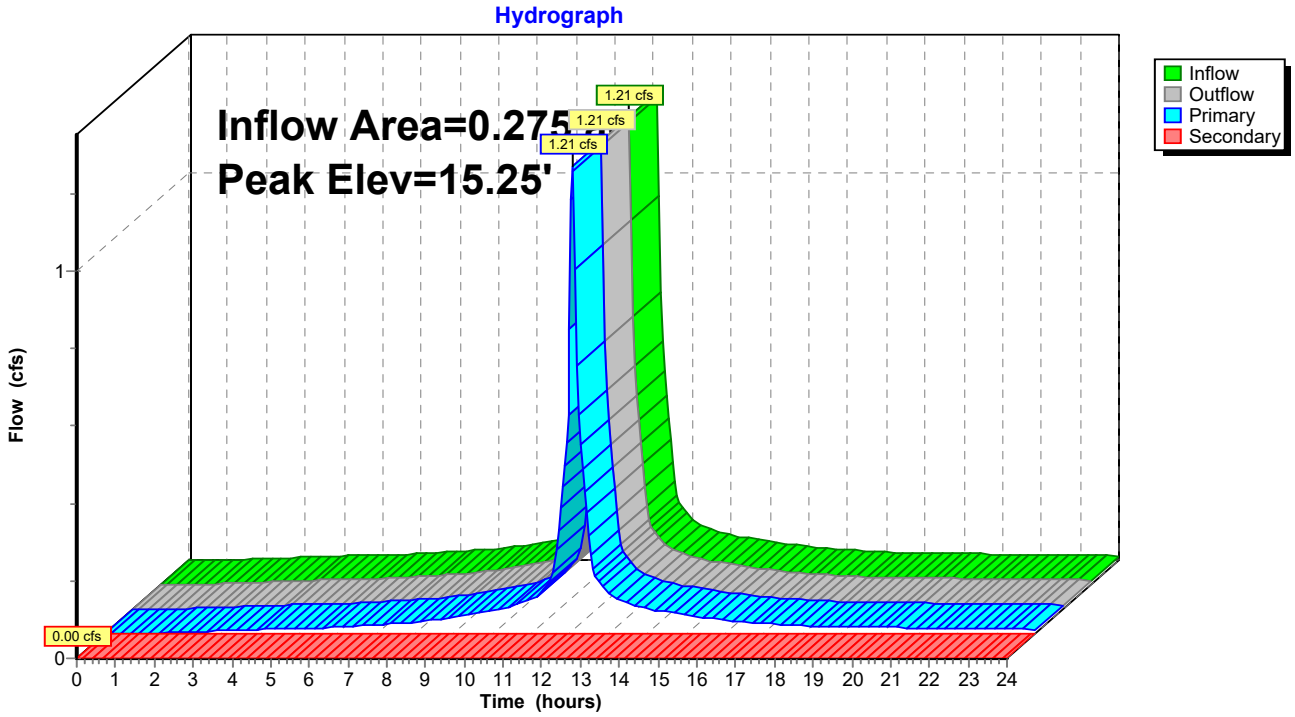
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.25' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.17 cfs @ 12.09 hrs HW=15.24' (Free Discharge)
1=Culvert (Barrel Controls 1.17 cfs @ 2.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 28P: Filterra 2

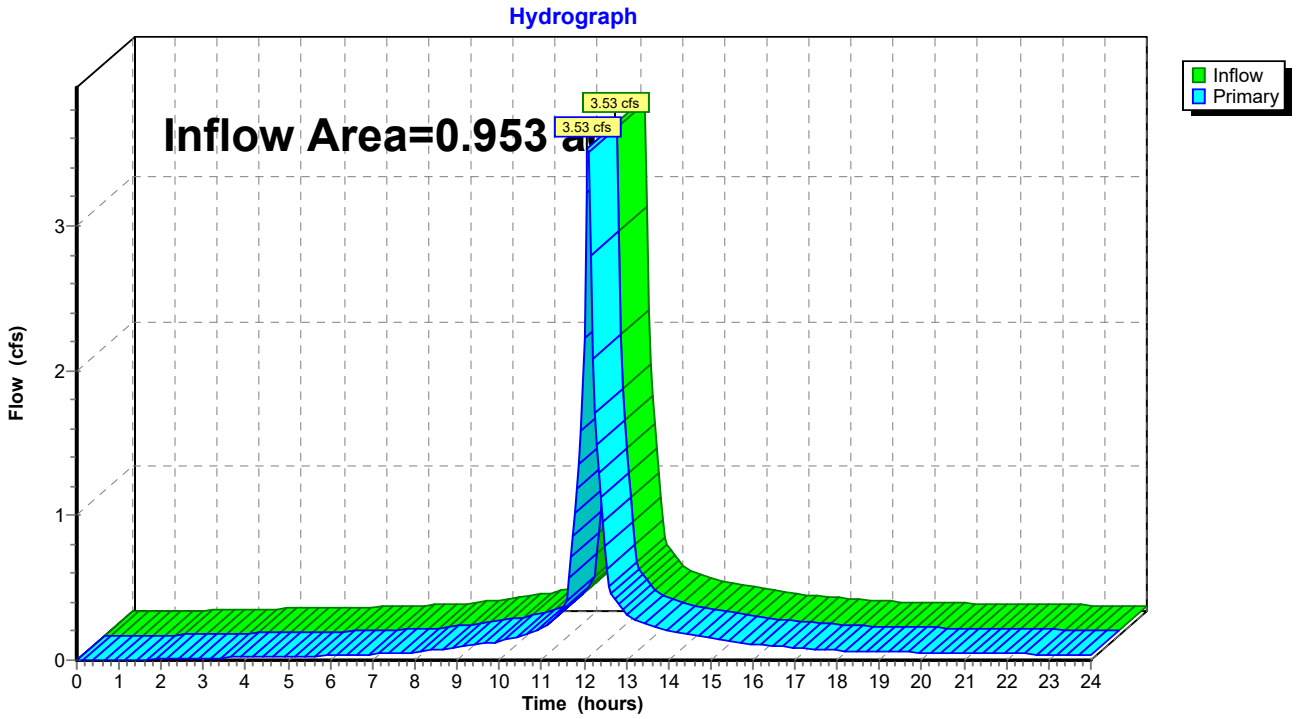


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 3.51" for 10-Year Storm event
Inflow = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af
Primary = 3.53 cfs @ 12.09 hrs, Volume= 0.279 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

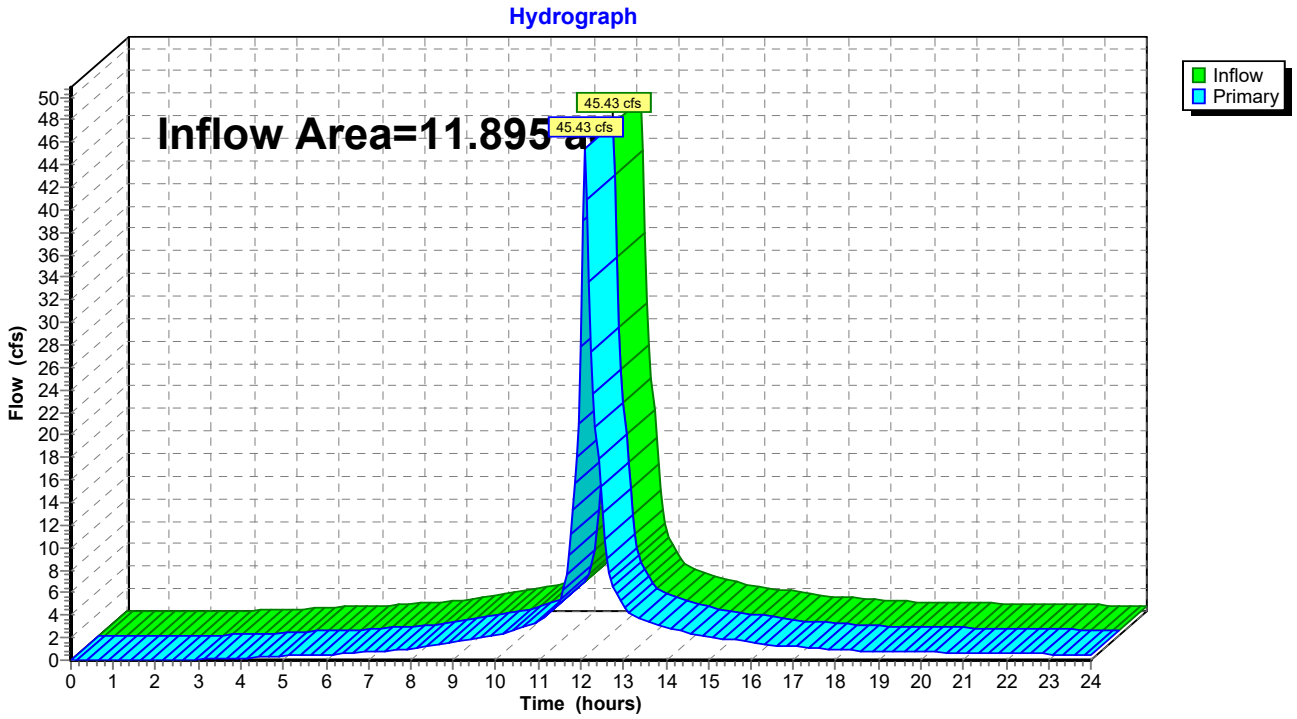


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 4.08" for 10-Year Storm event
Inflow = 45.43 cfs @ 12.10 hrs, Volume= 4.048 af
Primary = 45.43 cfs @ 12.10 hrs, Volume= 4.048 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

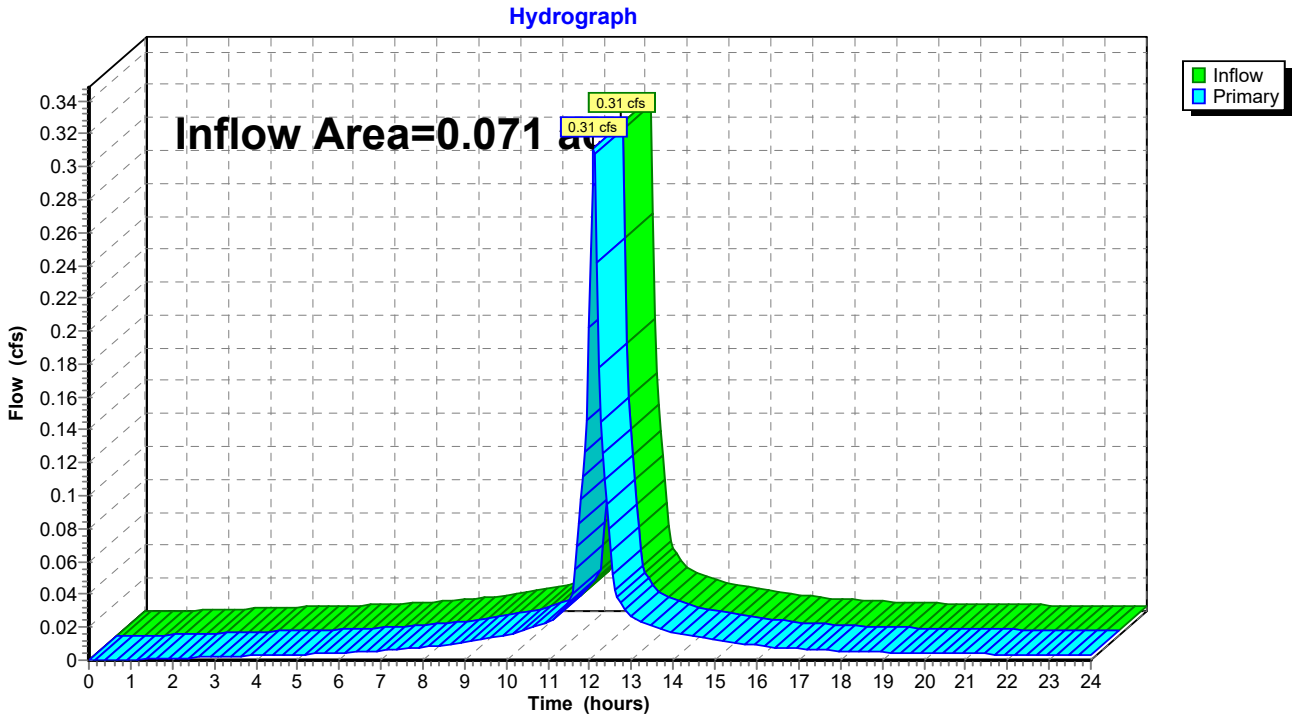


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 4.36" for 10-Year Storm event
Inflow = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af
Primary = 0.31 cfs @ 12.09 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: Block 1B Runoff Area=19,389 sf 1.02% Impervious Runoff Depth>3.60"
Tc=6.0 min CN=80 Runoff=1.83 cfs 0.133 af

Subcatchment2S: Western half of Runoff Area=22,128 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.235 af

Subcatchment3S: Eastern half of Runoff Area=22,147 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=2.82 cfs 0.236 af

Subcatchment4S: Shared Street - Trench Runoff Area=26,424 sf 83.24% Impervious Runoff Depth>5.21"
Tc=6.0 min CN=95 Runoff=3.30 cfs 0.263 af

Subcatchment5S: Building 12 Runoff Area=3,244 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Subcatchment6S: Plaza between Blocks 1 Runoff Area=18,771 sf 95.74% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=97 Runoff=2.38 cfs 0.195 af

Subcatchment7S: Building 14 Runoff Area=2,557 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment8S: Building 15 Runoff Area=2,578 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment9S: Building 2 North Runoff Area=4,695 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.60 cfs 0.050 af

Subcatchment10S: Building 3 North Runoff Area=2,212 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.024 af

Subcatchment11S: Building 2 South Runoff Area=4,855 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.62 cfs 0.052 af

Subcatchment12S: Building 3 South Runoff Area=2,326 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.30 cfs 0.025 af

Subcatchment13S: Building 6 Runoff Area=3,304 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

Subcatchment14S: Building 6B North Runoff Area=4,296 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.046 af

Subcatchment15S: Building 6B South Runoff Area=2,512 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment16S: Plaza between Blocks 1 Runoff Area=3,650 sf 75.84% Impervious Runoff Depth>5.10"
Tc=6.0 min CN=94 Runoff=0.45 cfs 0.036 af

Subcatchment17S: Shared Street - Trench Runoff Area=8,719 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.11 cfs 0.093 af

Subcatchment18S: Plaza between Runoff Area=28,813 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.67 cfs 0.306 af

Subcatchment19S: Block 4 Building Runoff Area=86,592 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=11.03 cfs 0.921 af

Subcatchment20S: Direct to R-Tank Runoff Area=7,210 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.92 cfs 0.077 af

Subcatchment21S: Plaza along Building Runoff Area=2,534 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.32 cfs 0.027 af

Subcatchment22S: Block 6 Building Runoff Area=47,780 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=6.09 cfs 0.508 af

Subcatchment23S: Block 5 Building to Runoff Area=11,218 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.43 cfs 0.119 af

Subcatchment24S: Block 5 Building Runoff Area=30,570 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=3.89 cfs 0.325 af

Subcatchment25S: Southern Plaza Runoff Area=11,168 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.42 cfs 0.119 af

Subcatchment26S: Plaza along Townhouse Runoff Area=550 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.006 af

Subcatchment27S: Drainage from off-site Runoff Area=49,238 sf 43.84% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=88 Runoff=5.56 cfs 0.417 af

Subcatchment28S: Waterfront Runoff Area=109,324 sf 72.19% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=93 Runoff=13.34 cfs 1.042 af

Subcatchment29S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Subcatchment30S: Block 6 Building Runoff Area=11,975 sf 100.00% Impervious Runoff Depth>5.56"
Tc=6.0 min CN=98 Runoff=1.53 cfs 0.127 af

Pond 1P: DMH 1 Peak Elev=11.70' Inflow=10.45 cfs 0.858 af
24.0" Round Culvert n=0.013 L=61.0' S=0.0038 '/' Outflow=10.45 cfs 0.858 af

Pond 2P: DMH 2 Peak Elev=11.40' Inflow=11.32 cfs 0.928 af
24.0" Round Culvert n=0.013 L=31.0' S=0.0048 '/' Outflow=11.32 cfs 0.928 af

Pond 3P: Storm Structure Peak Elev=9.76' Inflow=11.32 cfs 0.928 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=11.32 cfs 0.928 af

Pond 4P: R-Tank 1 Peak Elev=9.27' Storage=2,513 cf Inflow=11.32 cfs 0.928 af
21.0" Round Culvert n=0.013 L=62.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 5P: DMH-11 Peak Elev=10.93' Inflow=17.37 cfs 1.637 af
24.0" Round Culvert n=0.013 L=16.0' S=0.0069 '/' Outflow=17.37 cfs 1.637 af

Pond 6P: CB27 Peak Elev=13.06' Inflow=19.01 cfs 1.587 af
24.0" Round Culvert n=0.013 L=22.0' S=0.0064 '/' Outflow=19.01 cfs 1.587 af

Pond 7P: Storm Structure Peak Elev=10.85' Inflow=19.01 cfs 1.587 af
15.0" Round Culvert x 3.00 n=0.013 L=4.0' S=0.0000 '/' Outflow=19.01 cfs 1.587 af

Pond 8P: R-Tank 2 Peak Elev=11.13' Storage=7,657 cf Inflow=19.93 cfs 1.664 af
24.0" Round Culvert n=0.013 L=70.0' S=0.0000 '/' Outflow=17.37 cfs 1.637 af

Pond 9P: DMH-8 (Outfall #1) Peak Elev=9.97' Inflow=27.37 cfs 2.557 af
30.0" Round Culvert n=0.013 L=52.0' S=0.0052 '/' Outflow=27.37 cfs 2.557 af

Pond 10P: DMH 4 Peak Elev=8.87' Inflow=10.00 cfs 0.920 af
24.0" Round Culvert n=0.013 L=59.0' S=0.0000 '/' Outflow=10.00 cfs 0.920 af

Pond 11P: Jellyfish 1 JFPD0806-4-1 Peak Elev=10.58' Inflow=10.00 cfs 0.920 af
Outflow=10.00 cfs 0.920 af

Pond 12P: Jellyfish 2 JFPD0806-7-2 Peak Elev=11.27' Inflow=17.37 cfs 1.637 af
Outflow=17.37 cfs 1.637 af

Pond 13P: DMH-13 (Outfall #2) Peak Elev=10.48' Inflow=20.01 cfs 1.624 af
24.0" Round Culvert n=0.013 L=75.0' S=0.0051 '/' Outflow=20.01 cfs 1.624 af

Pond 24P: Filterra 1 Peak Elev=15.37' Inflow=1.53 cfs 0.127 af
Primary=1.53 cfs 0.127 af Secondary=0.00 cfs 0.000 af Outflow=1.53 cfs 0.127 af

Pond 27P: AD49 Peak Elev=15.54' Inflow=3.05 cfs 0.255 af
12.0" Round Culvert n=0.013 L=240.0' S=0.0301 '/' Outflow=3.05 cfs 0.255 af

Pond 28P: Filterra 2 Peak Elev=15.37' Inflow=1.53 cfs 0.127 af
Primary=1.53 cfs 0.127 af Secondary=0.00 cfs 0.000 af Outflow=1.53 cfs 0.127 af

Link 1L: Freedom Way Inflow=4.65 cfs 0.369 af
Primary=4.65 cfs 0.369 af

Link 2L: Fore River Inflow=59.19 cfs 5.223 af
Primary=59.19 cfs 5.223 af

Link 3L: Fore Street Inflow=0.39 cfs 0.033 af
Primary=0.39 cfs 0.033 af

Total Runoff Area = 12.919 ac Runoff Volume = 5.660 af Average Runoff Depth = 5.26"
14.81% Pervious = 1.914 ac 85.19% Impervious = 11.005 ac

Summary for Subcatchment 1S: Block 1B

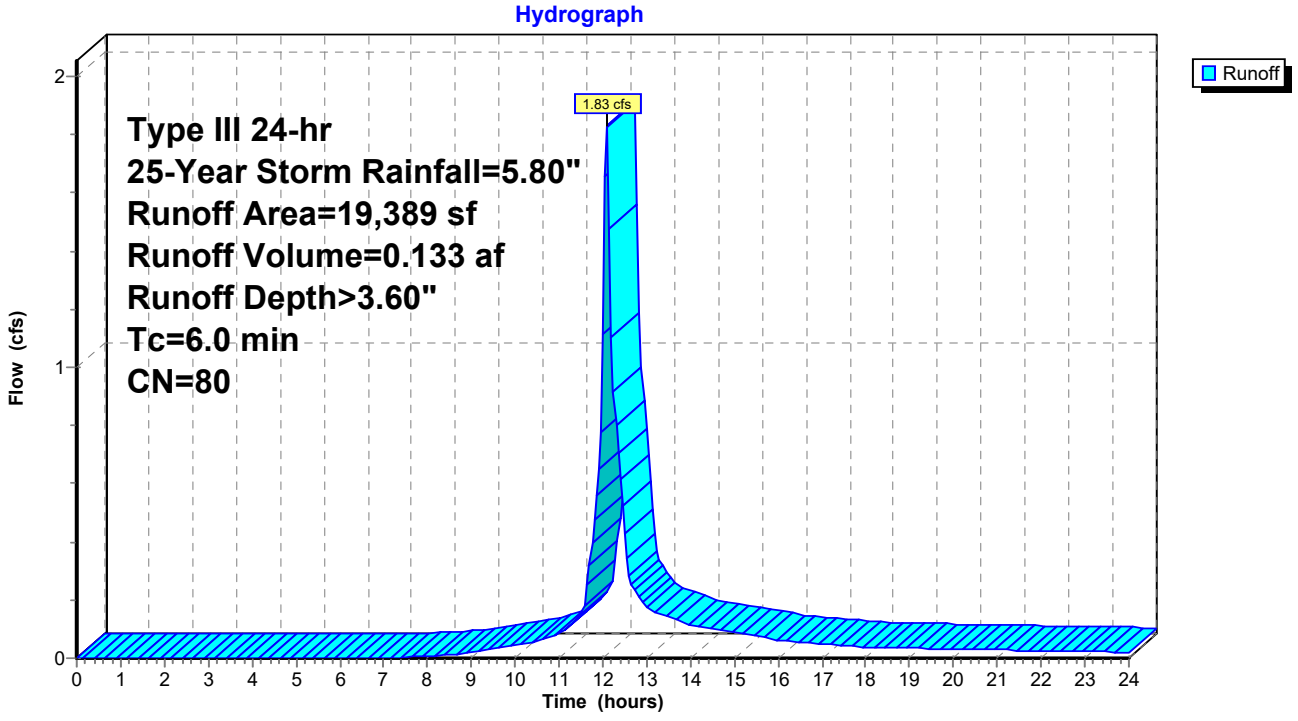
Runoff = 1.83 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 3.60"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	198	98	Impervious
	19,191	80	>75% Grass cover, Good, HSG D
	19,389	80	Weighted Average
	19,191		98.98% Pervious Area
	198		1.02% Impervious Area

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

Subcatchment 1S: Block 1B



Summary for Subcatchment 2S: Western half of Building 1A

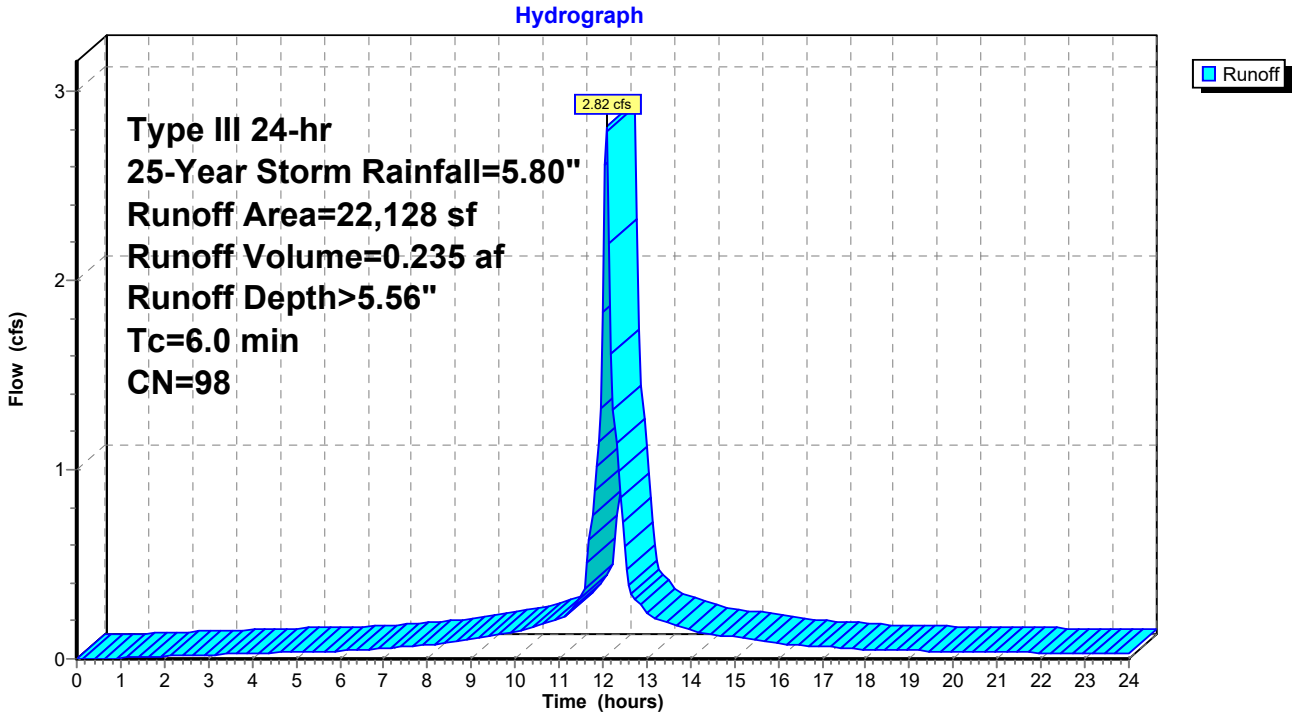
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.235 af, Depth> 5.56"
Routed to Link 1L : Freedom Way

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,128	98	Roof
	22,128		100.00% Impervious Area

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

Subcatchment 2S: Western half of Building 1A



Summary for Subcatchment 3S: Eastern half of Building 1A

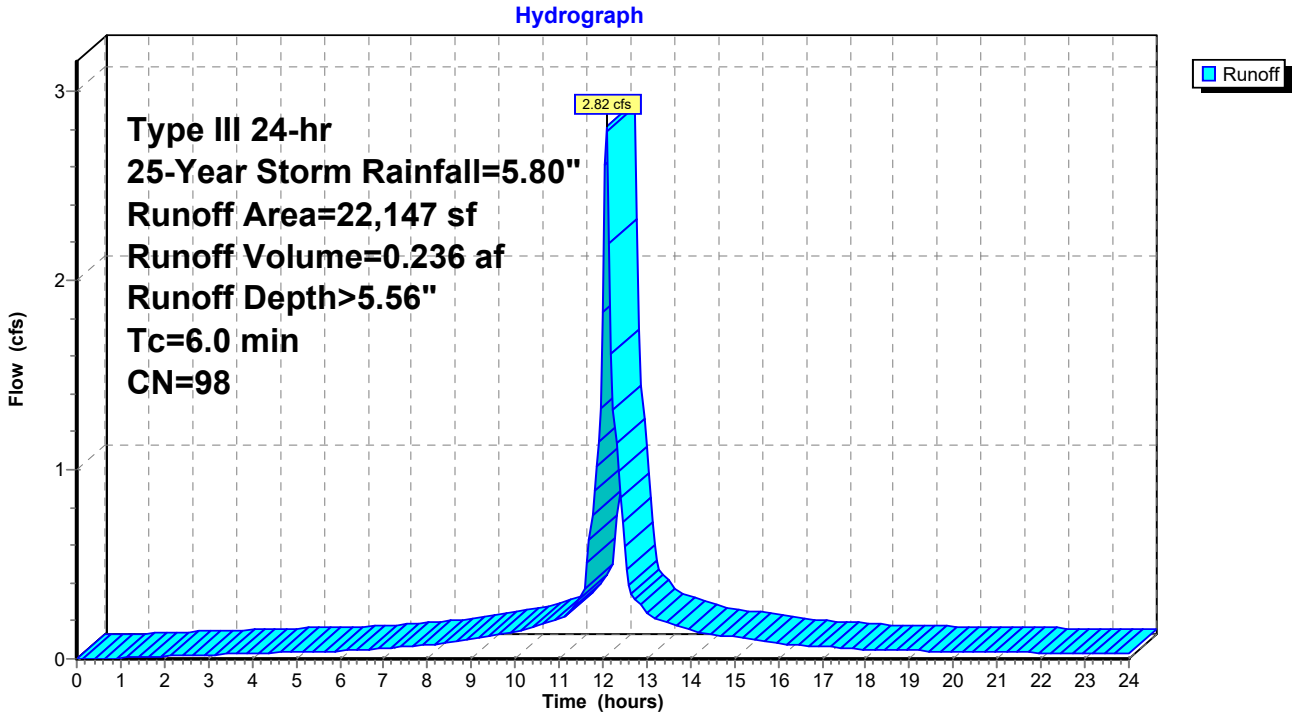
Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.236 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	22,147	98	Roof
	22,147		100.00% Impervious Area

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

Subcatchment 3S: Eastern half of Building 1A



Summary for Subcatchment 4S: Shared Street - Trench Drain

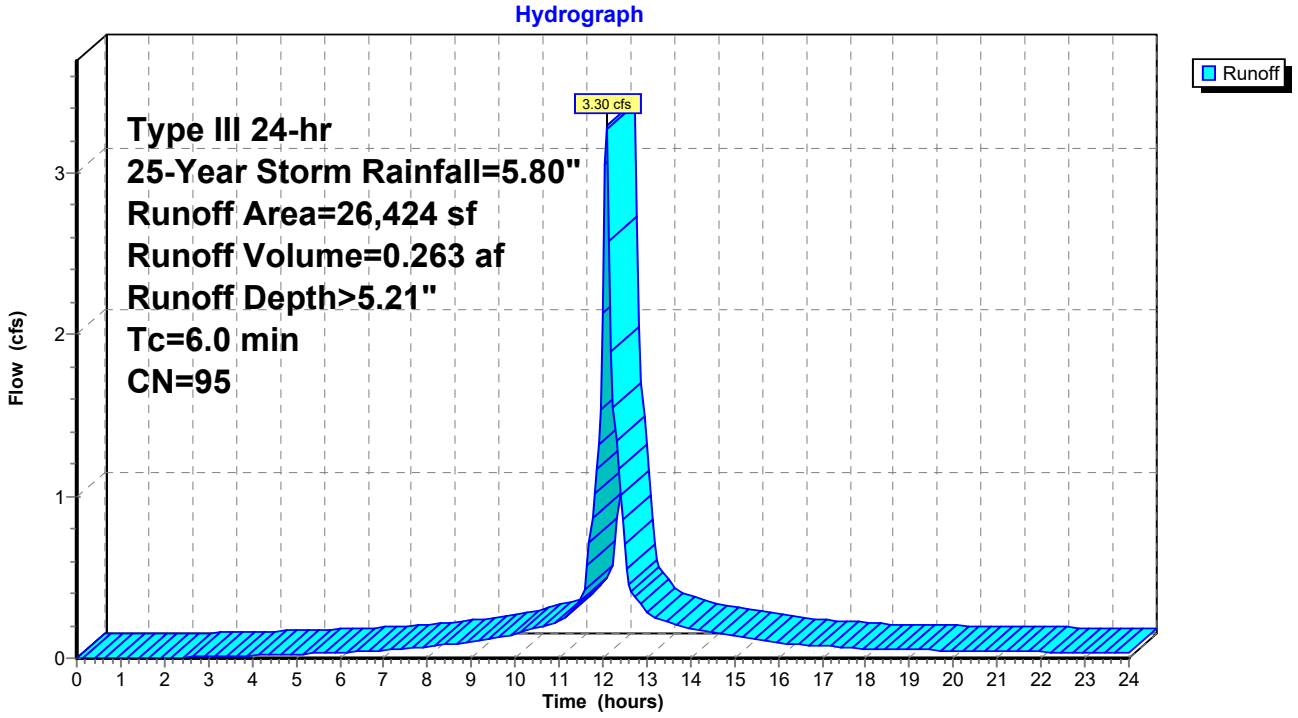
Runoff = 3.30 cfs @ 12.09 hrs, Volume= 0.263 af, Depth> 5.21"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
	4,428	80	>75% Grass cover, Good, HSG D
*	21,996	98	Impervious
	26,424	95	Weighted Average
	4,428		16.76% Pervious Area
	21,996		83.24% Impervious Area

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

Subcatchment 4S: Shared Street - Trench Drain



Summary for Subcatchment 5S: Building 12

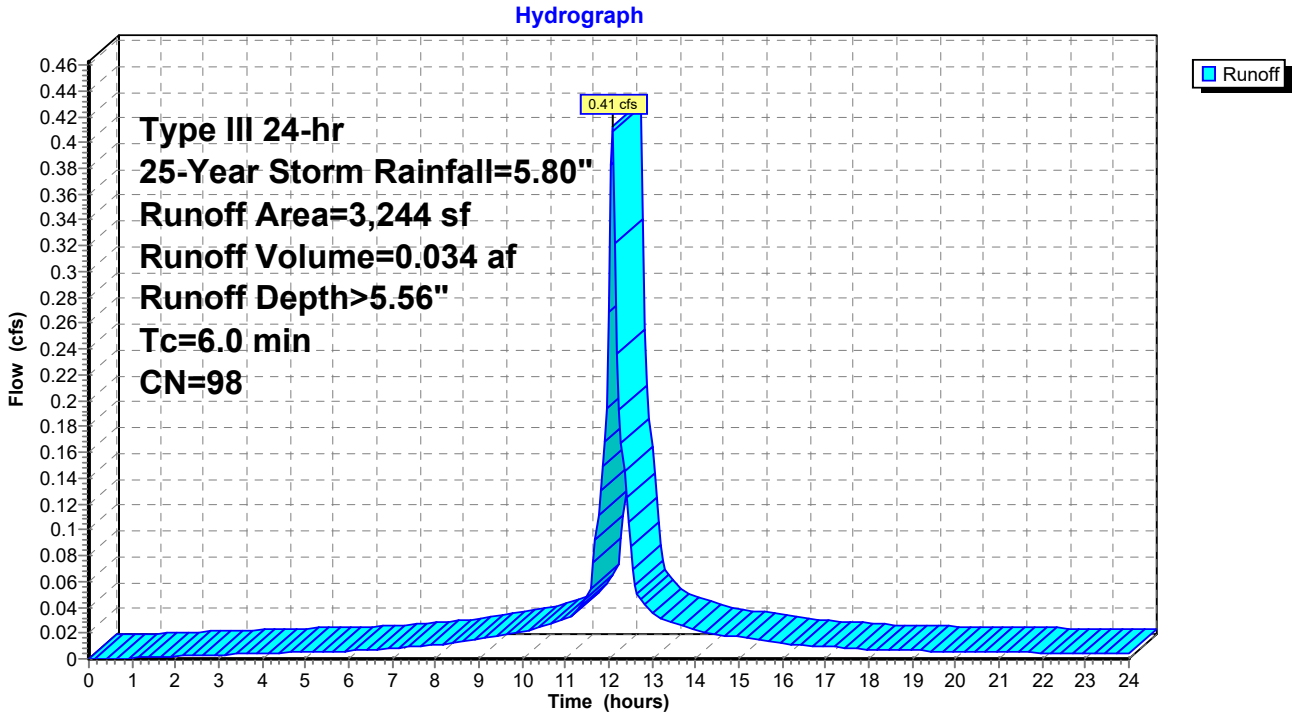
Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,244	98	Roof
	3,244		100.00% Impervious Area

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

Subcatchment 5S: Building 12



Summary for Subcatchment 6S: Plaza between Blocks 1 & 2

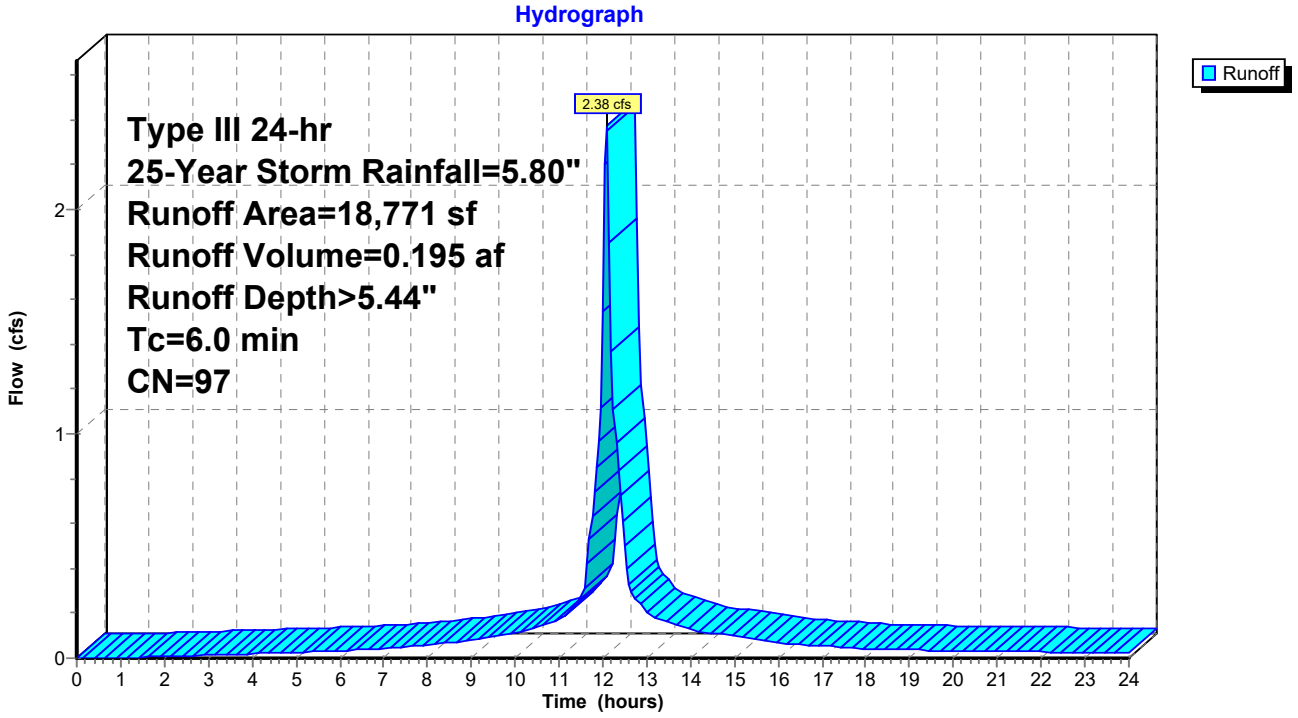
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 0.195 af, Depth> 5.44"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	17,972	98	Impervious
	799	80	>75% Grass cover, Good, HSG D
	18,771	97	Weighted Average
	799		4.26% Pervious Area
	17,972		95.74% Impervious Area

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

Subcatchment 6S: Plaza between Blocks 1 & 2



Summary for Subcatchment 7S: Building 14

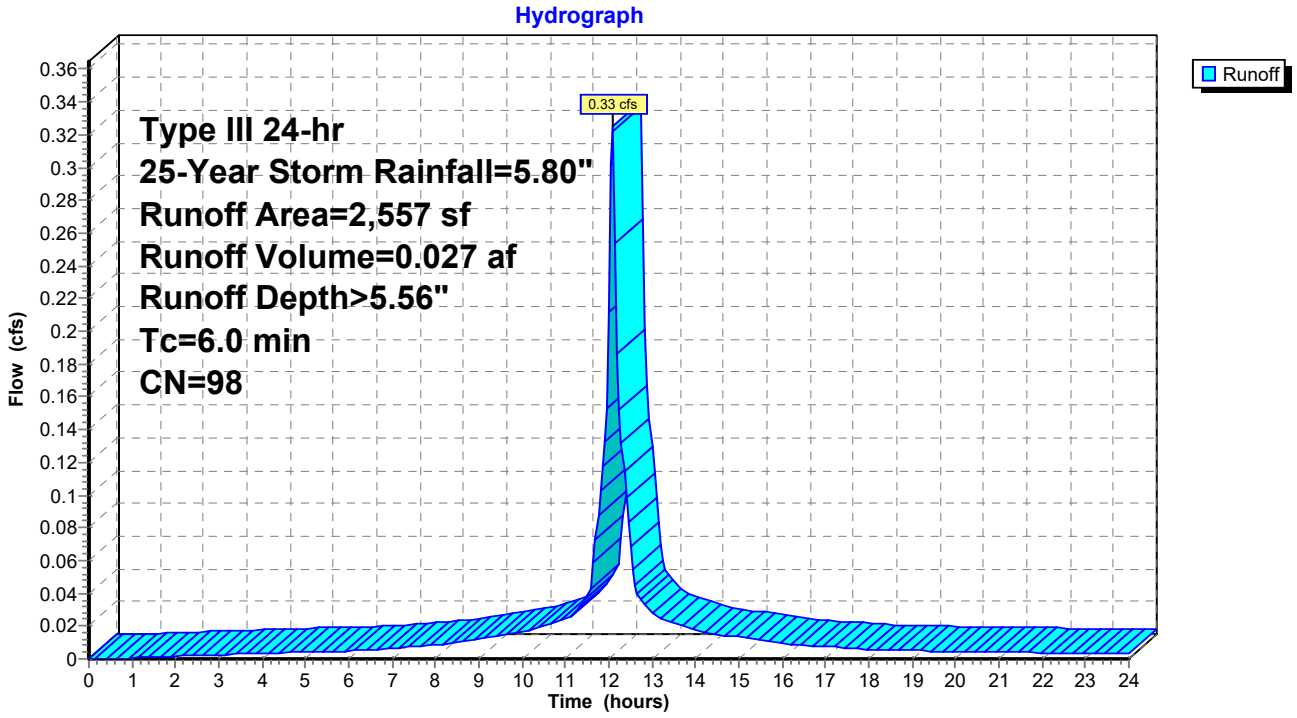
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,557	98	Roof
	2,557		100.00% Impervious Area

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

Subcatchment 7S: Building 14



Summary for Subcatchment 8S: Building 15

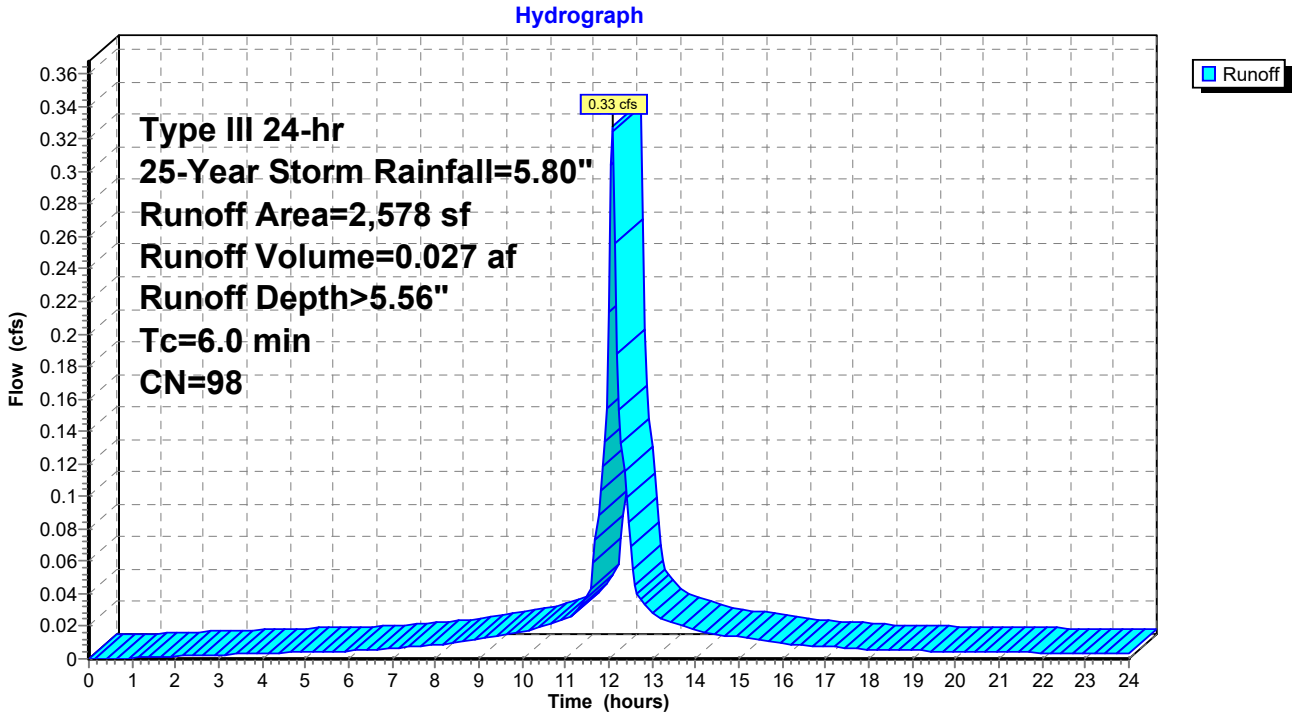
Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,578	98	Roof
	2,578		100.00% Impervious Area

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

Subcatchment 8S: Building 15



Summary for Subcatchment 9S: Building 2 North

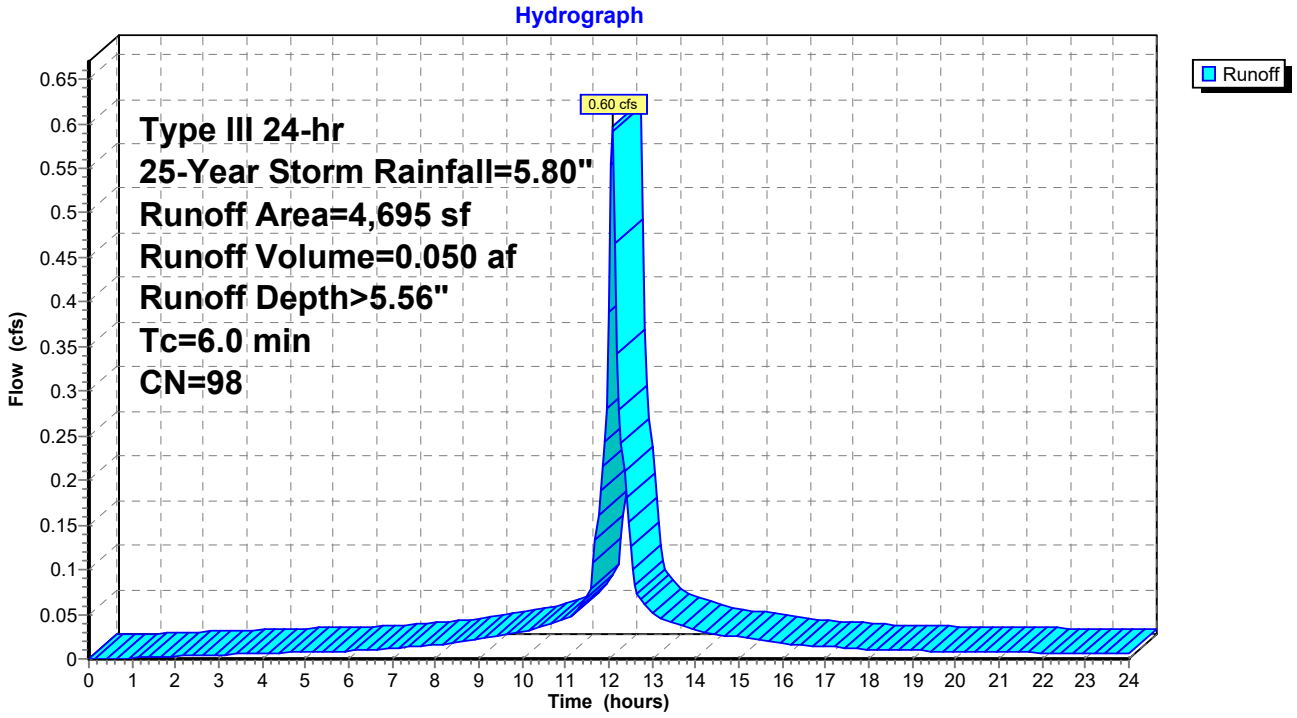
Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,695	98	Roof
	4,695		100.00% Impervious Area

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

Subcatchment 9S: Building 2 North



Summary for Subcatchment 10S: Building 3 North

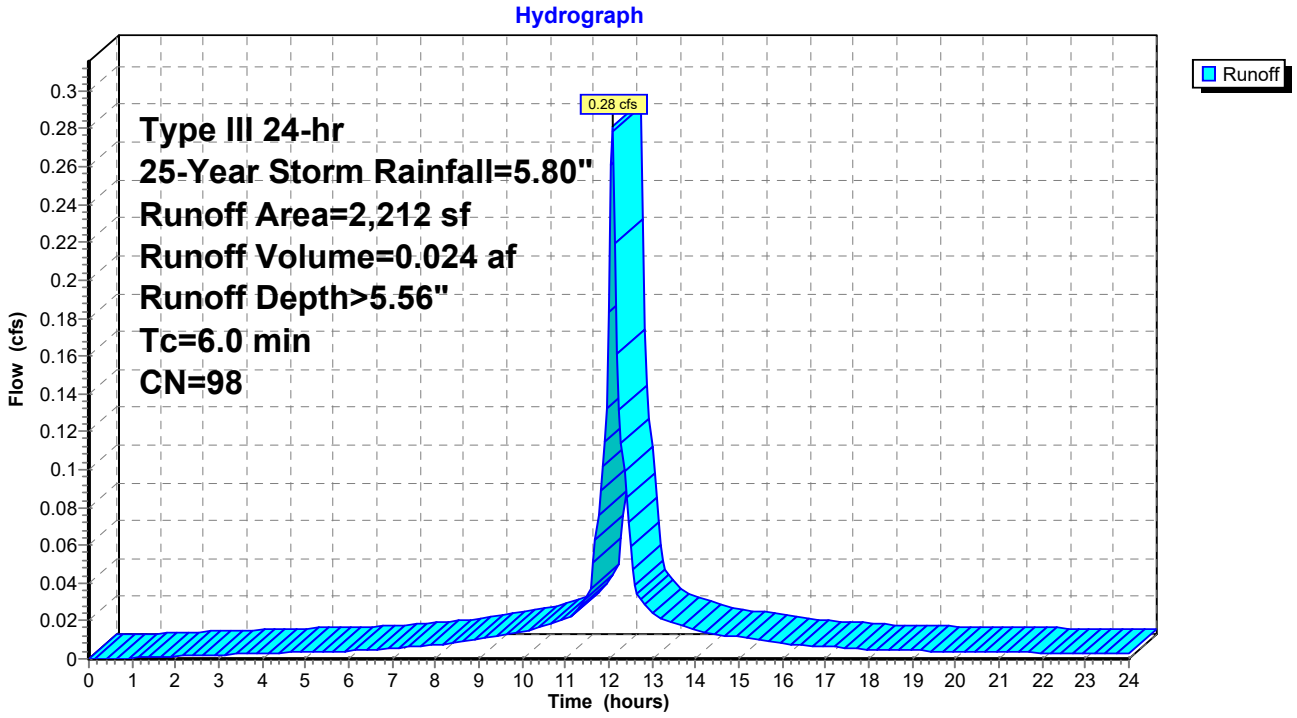
Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.024 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,212	98	Roof
	2,212		100.00% Impervious Area

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

Subcatchment 10S: Building 3 North



Summary for Subcatchment 11S: Building 2 South

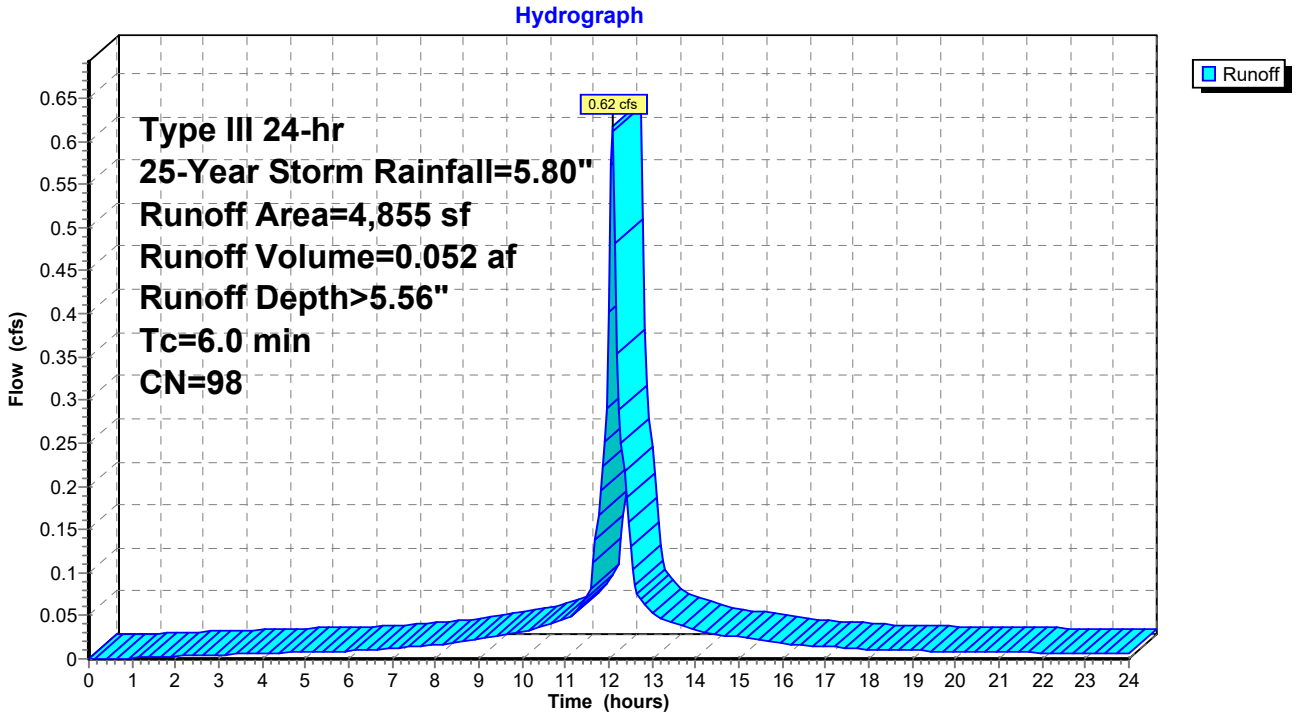
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 5.56"
Routed to Pond 1P : DMH 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,855	98	Roof
	4,855		100.00% Impervious Area

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

Subcatchment 11S: Building 2 South



Summary for Subcatchment 12S: Building 3 South

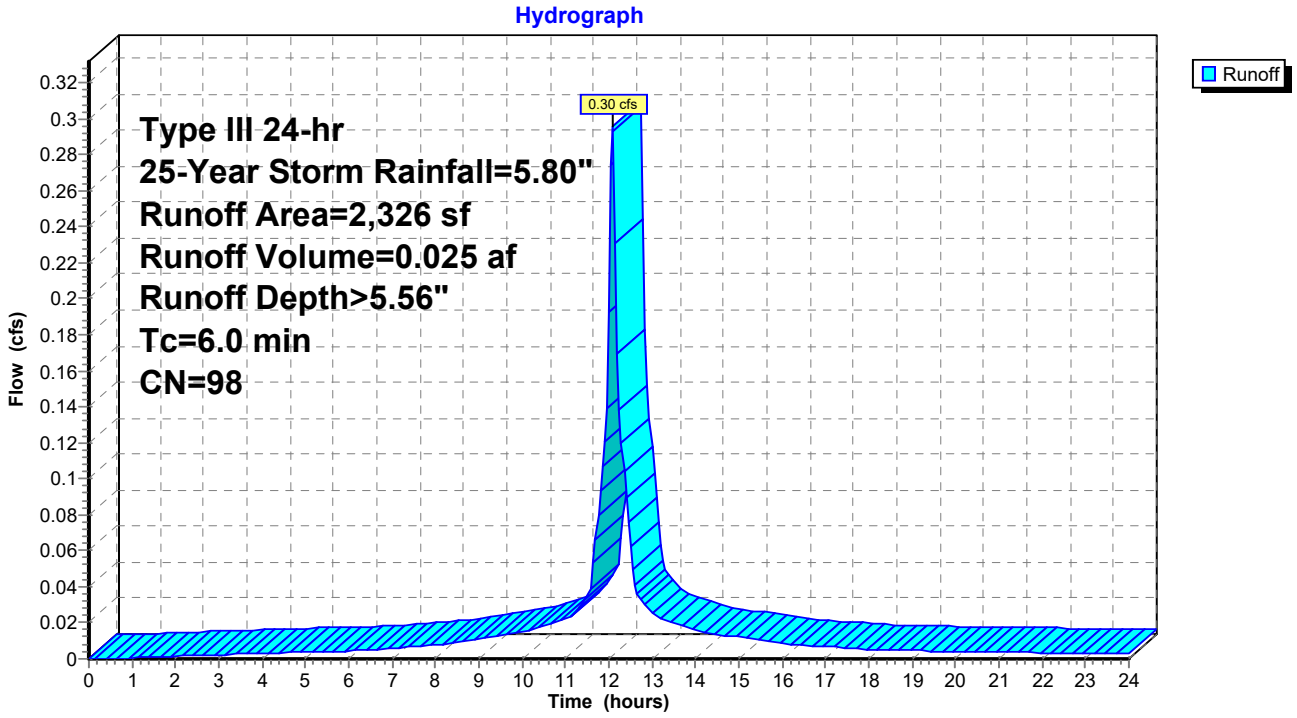
Runoff = 0.30 cfs @ 12.09 hrs, Volume= 0.025 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,326	98	Roof
	2,326		100.00% Impervious Area

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

Subcatchment 12S: Building 3 South



Summary for Subcatchment 13S: Building 6

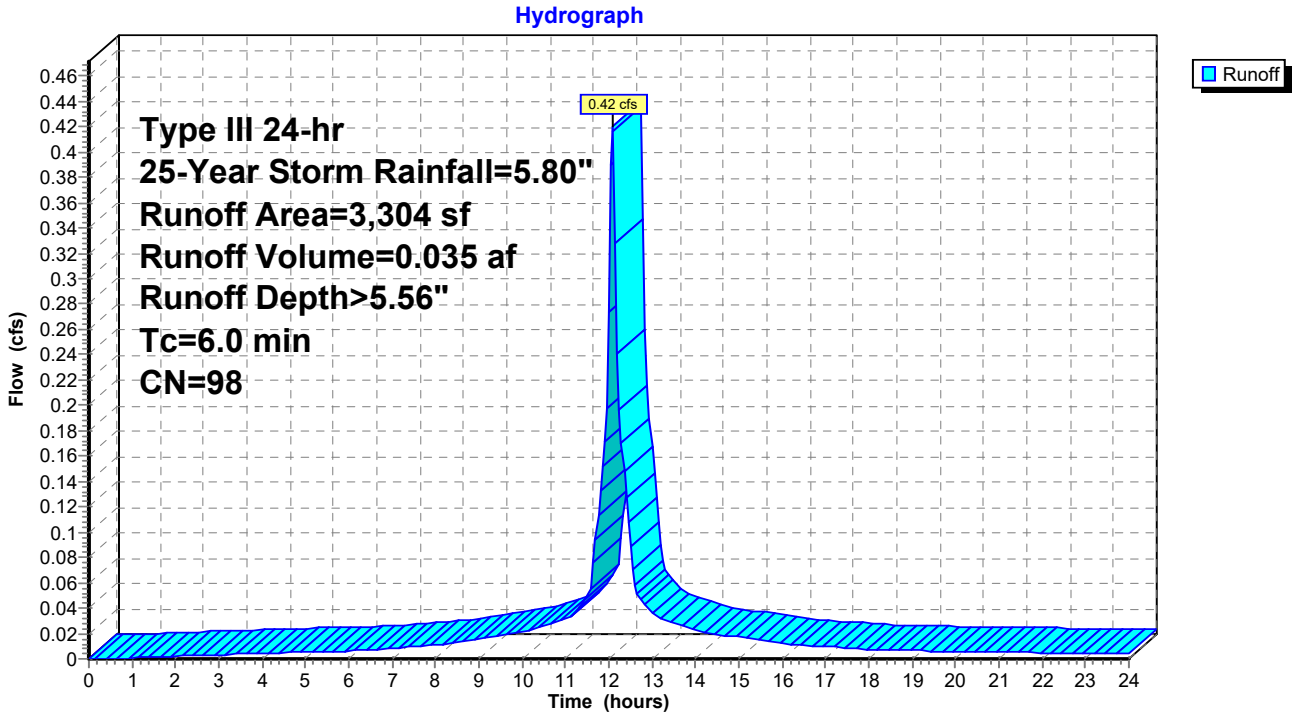
Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.56"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,304	98	Roof
	3,304		100.00% Impervious Area

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

Subcatchment 13S: Building 6



Summary for Subcatchment 14S: Building 6B North

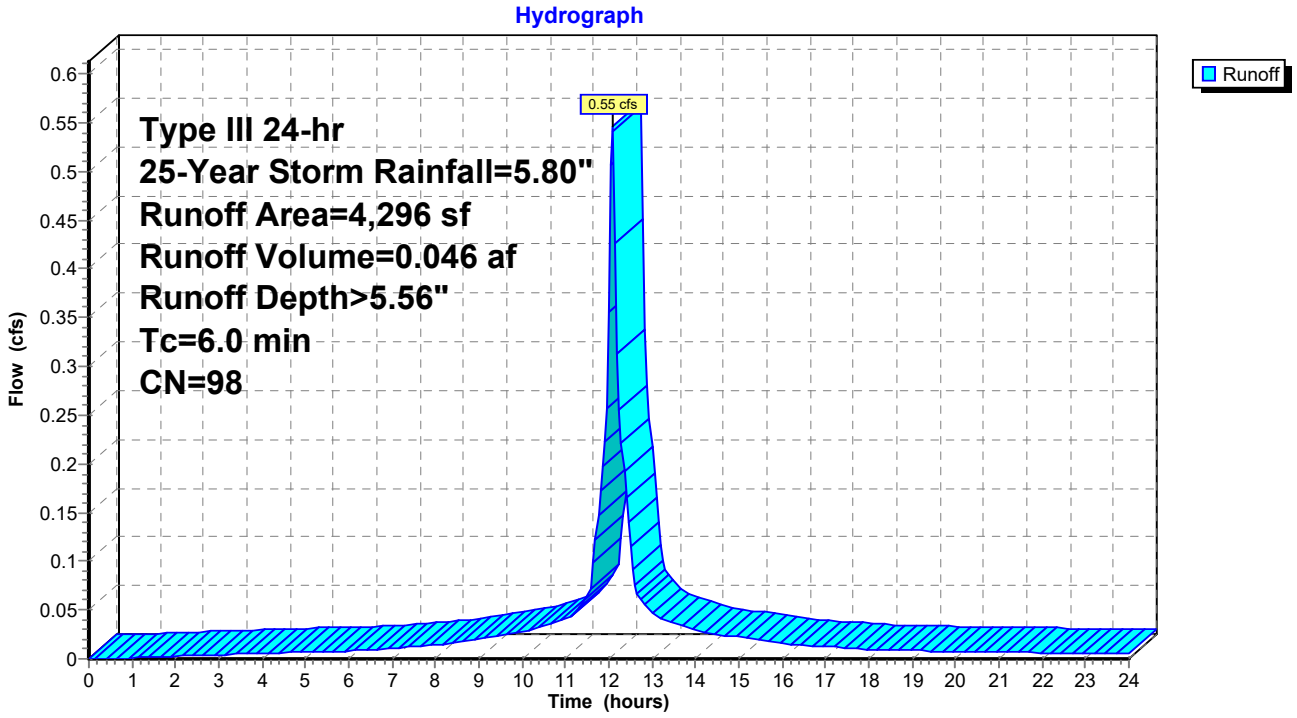
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.046 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	4,296	98	Roof
	4,296		100.00% Impervious Area

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

Subcatchment 14S: Building 6B North



Summary for Subcatchment 15S: Building 6B South

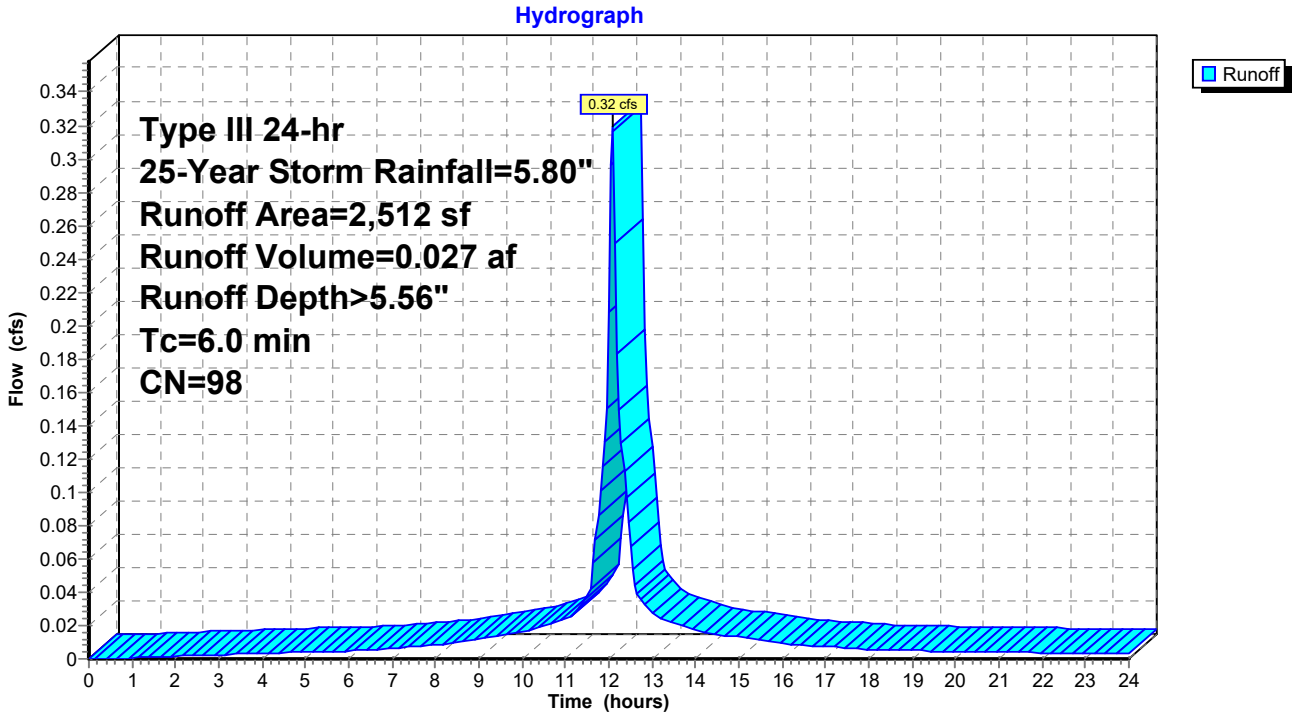
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,512	98	Roof
	2,512		100.00% Impervious Area

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

Subcatchment 15S: Building 6B South



Summary for Subcatchment 16S: Plaza between Blocks 1 & 2

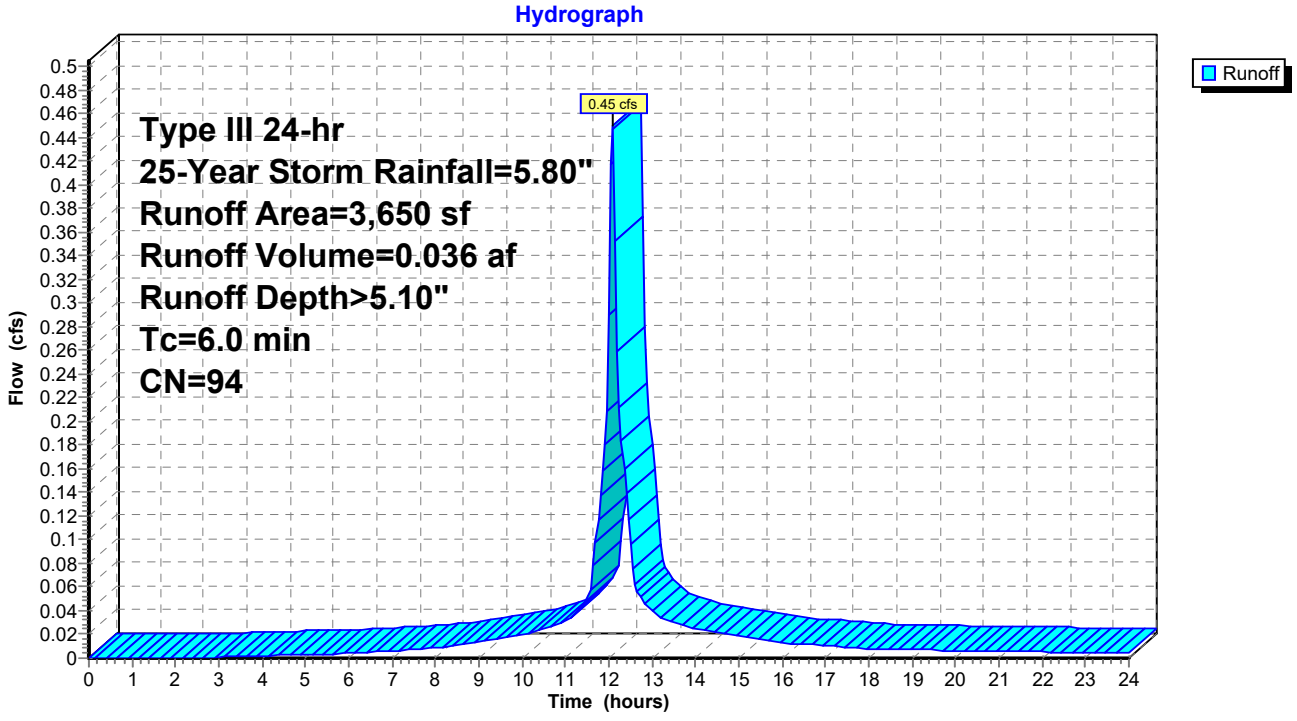
Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.10"
Routed to Pond 2P : DMH 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,768	98	Impervious
	882	80	>75% Grass cover, Good, HSG D
	3,650	94	Weighted Average
	882		24.16% Pervious Area
	2,768		75.84% Impervious Area

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

Subcatchment 16S: Plaza between Blocks 1 & 2



Summary for Subcatchment 17S: Shared Street - Trench Drain

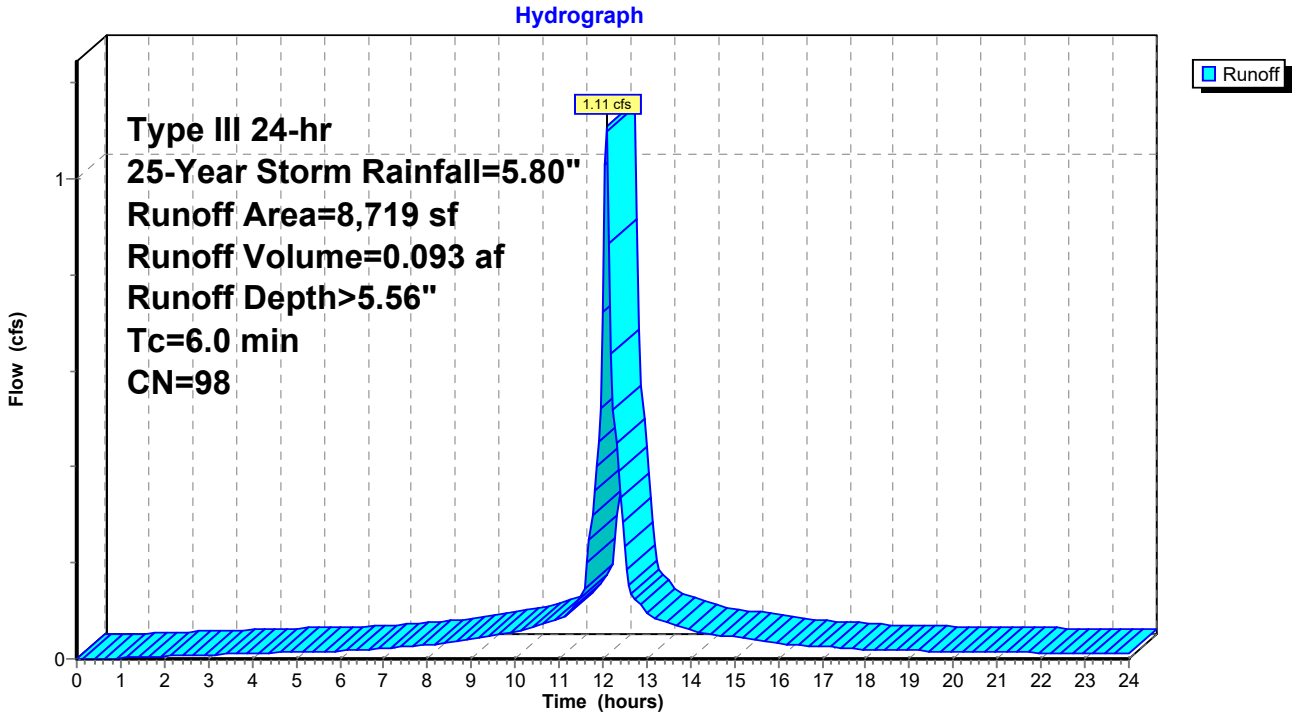
Runoff = 1.11 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	8,719	98	Impervious
	8,719		100.00% Impervious Area

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

Subcatchment 17S: Shared Street - Trench Drain



Summary for Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St

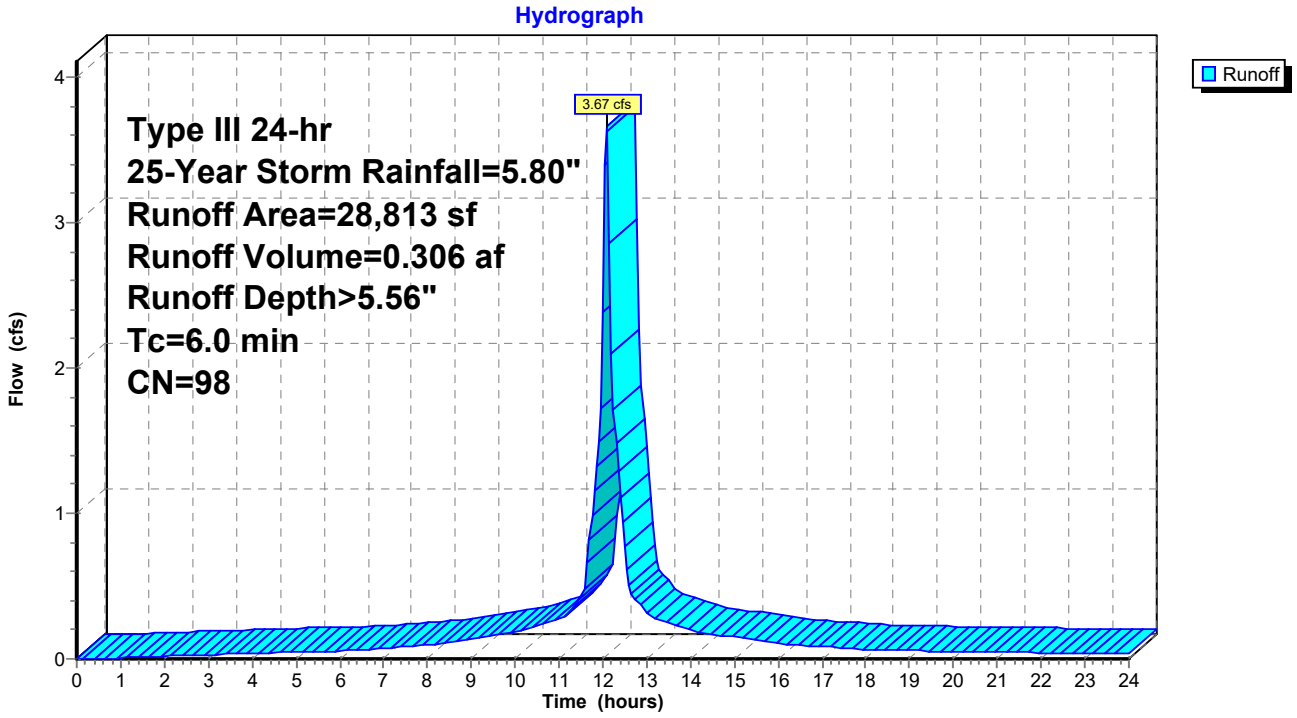
Runoff = 3.67 cfs @ 12.09 hrs, Volume= 0.306 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	28,813	98	Impervious
	28,813		100.00% Impervious Area

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

Subcatchment 18S: Plaza between Blocks 2 & 4 and Upper Thames St



Summary for Subcatchment 19S: Block 4 Building

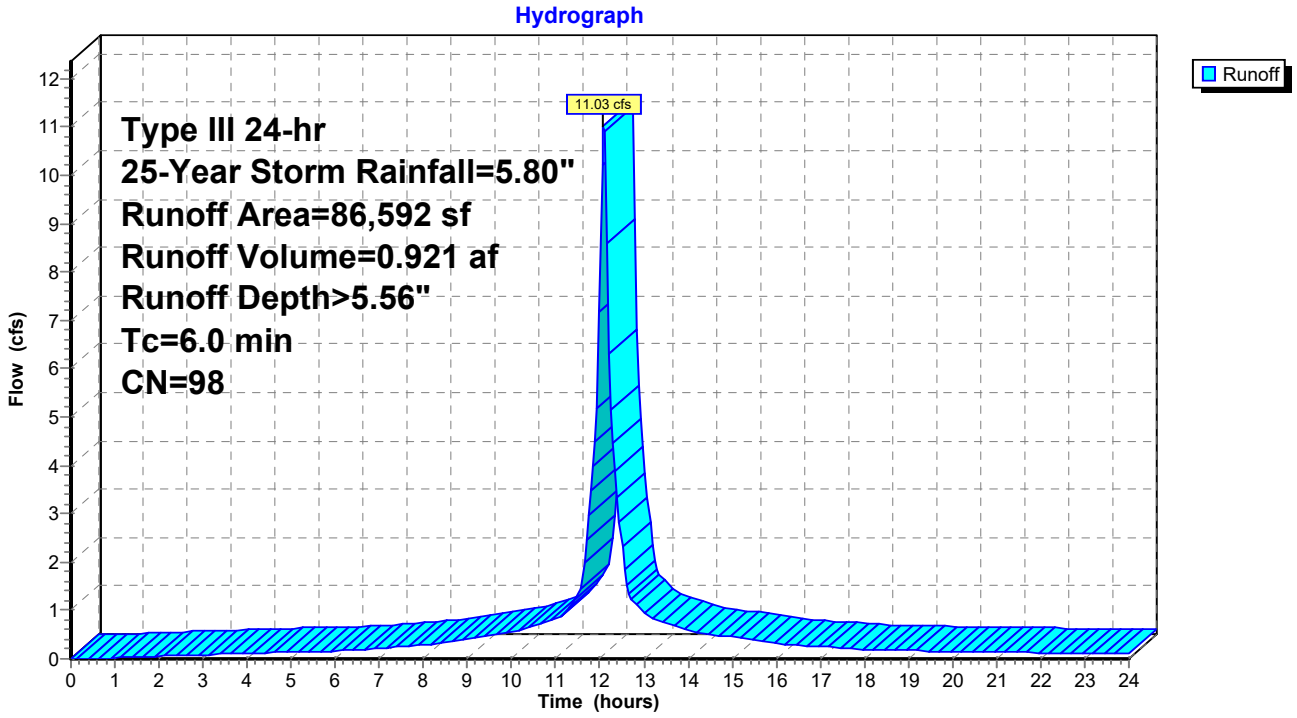
Runoff = 11.03 cfs @ 12.09 hrs, Volume= 0.921 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	86,592	98	Roof
	86,592		100.00% Impervious Area

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

Subcatchment 19S: Block 4 Building



Summary for Subcatchment 20S: Direct to R-Tank

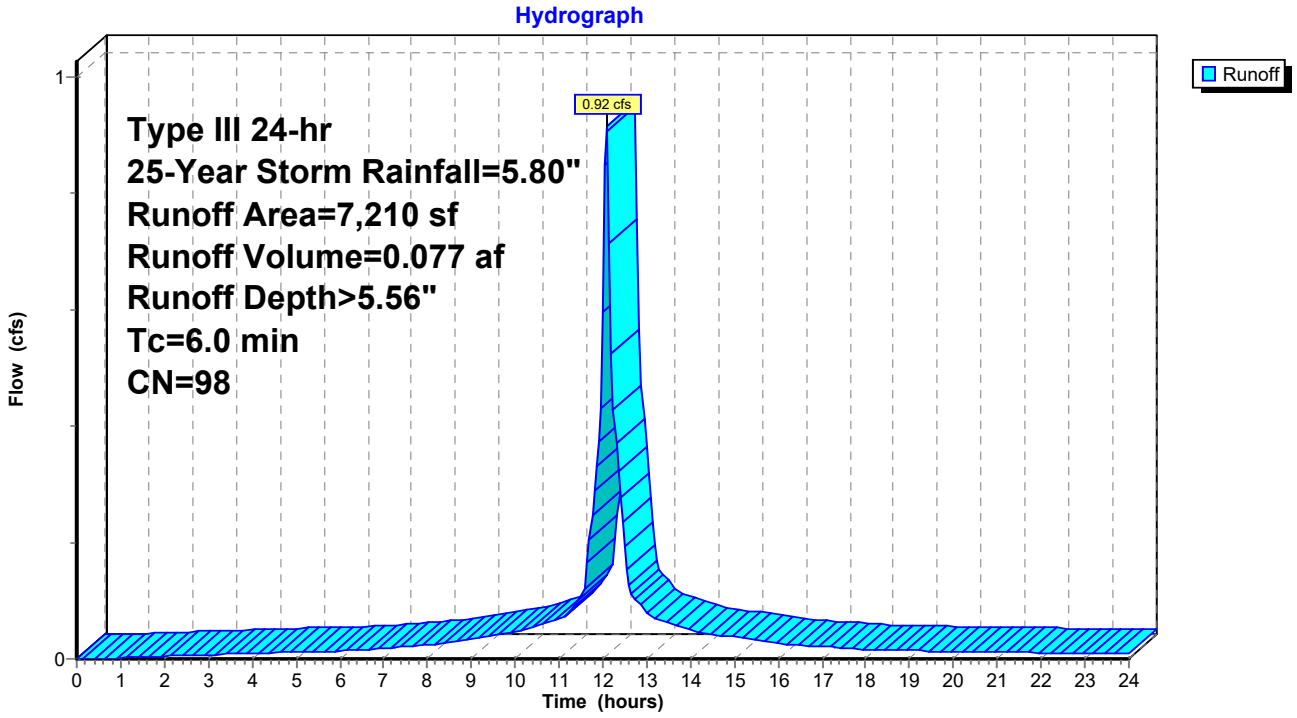
Runoff = 0.92 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 5.56"
Routed to Pond 8P : R-Tank 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	7,210	98	Impervious
	7,210		100.00% Impervious Area

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

Subcatchment 20S: Direct to R-Tank



Summary for Subcatchment 21S: Plaza along Building 4A at Fore Street

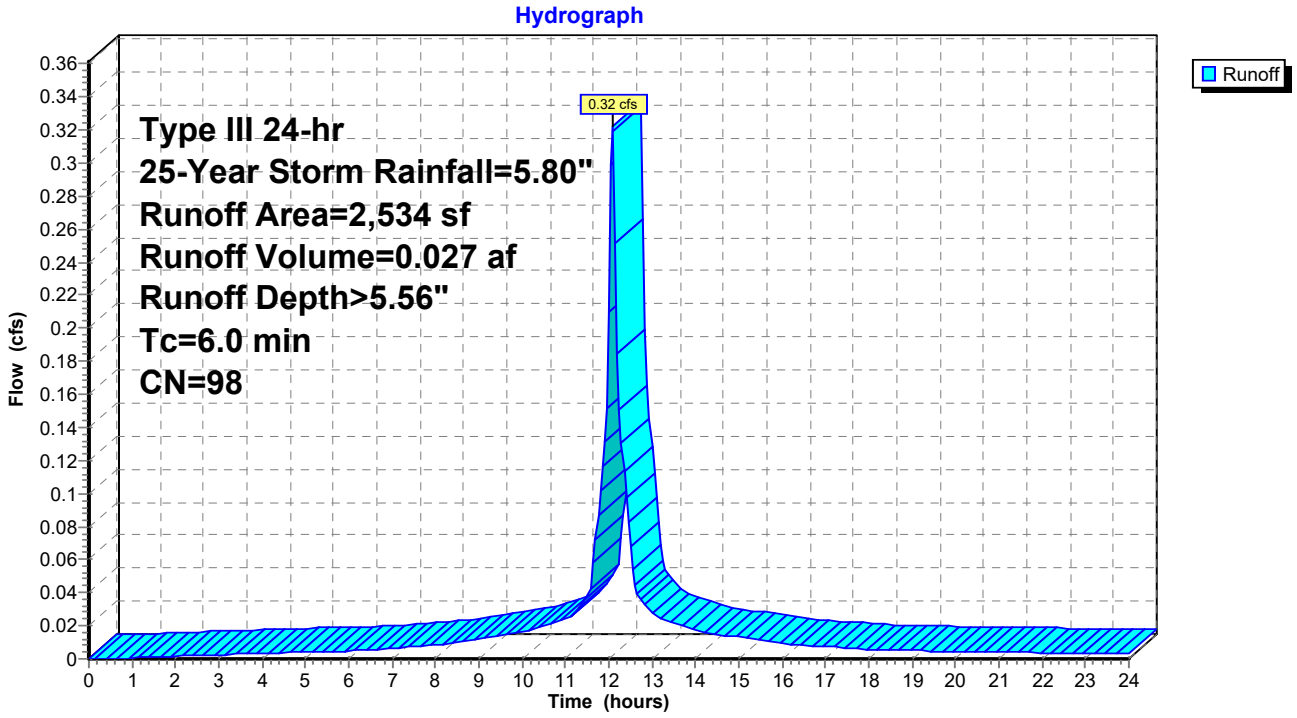
Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 5.56"
Routed to Link 3L : Fore Street

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,534	98	Impervious
	2,534		100.00% Impervious Area

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

Subcatchment 21S: Plaza along Building 4A at Fore Street



Summary for Subcatchment 22S: Block 6 Building

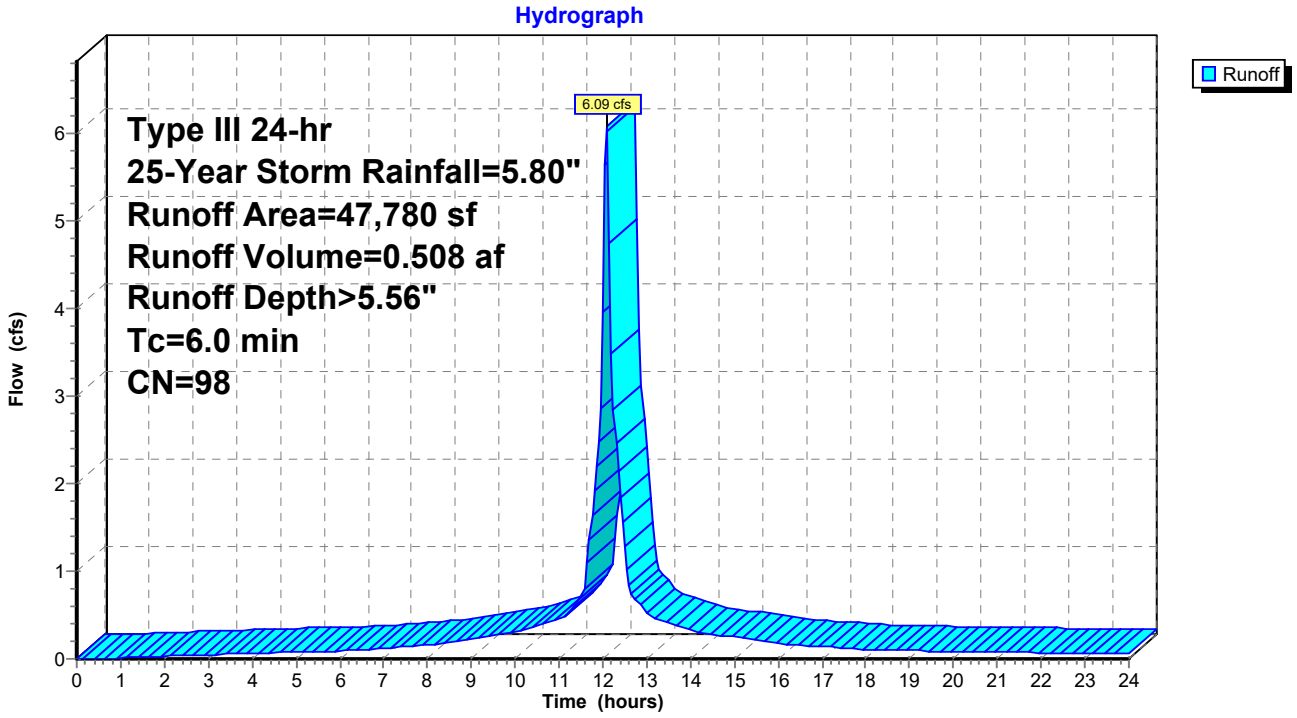
Runoff = 6.09 cfs @ 12.09 hrs, Volume= 0.508 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	47,780	98	Roof
	47,780		100.00% Impervious Area

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

Subcatchment 22S: Block 6 Building



Summary for Subcatchment 23S: Block 5 Building to R-Tank

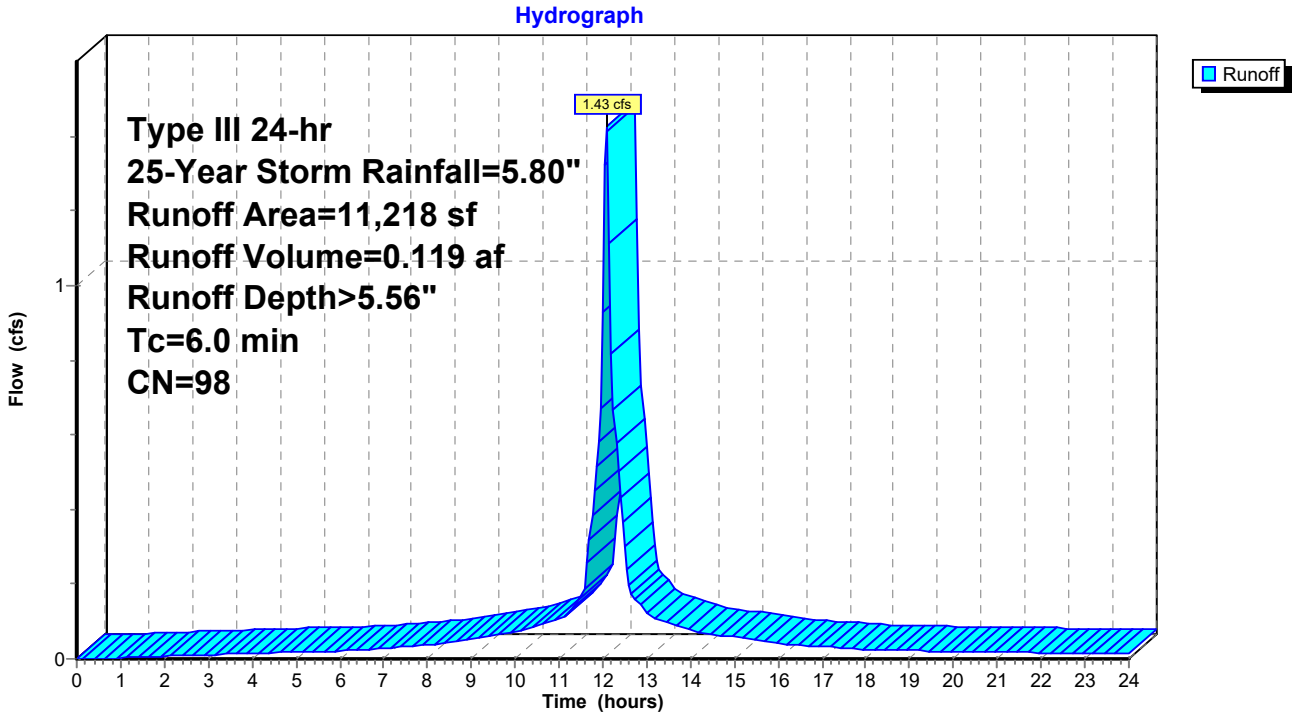
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 6P : CB27

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,218	98	Impervious
	11,218		100.00% Impervious Area

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

Subcatchment 23S: Block 5 Building to R-Tank



Summary for Subcatchment 24S: Block 5 Building

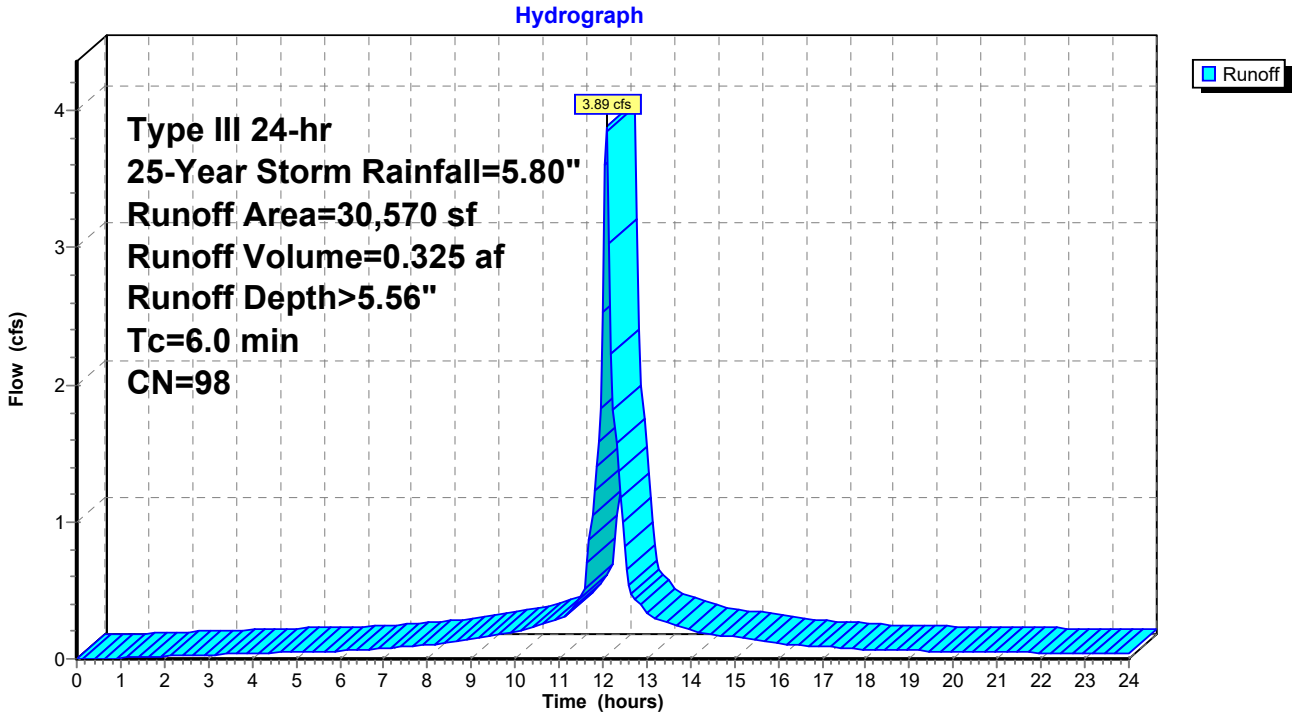
Runoff = 3.89 cfs @ 12.09 hrs, Volume= 0.325 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	30,570	98	Impervious
	30,570		100.00% Impervious Area

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

Subcatchment 24S: Block 5 Building



Summary for Subcatchment 25S: Southern Plaza

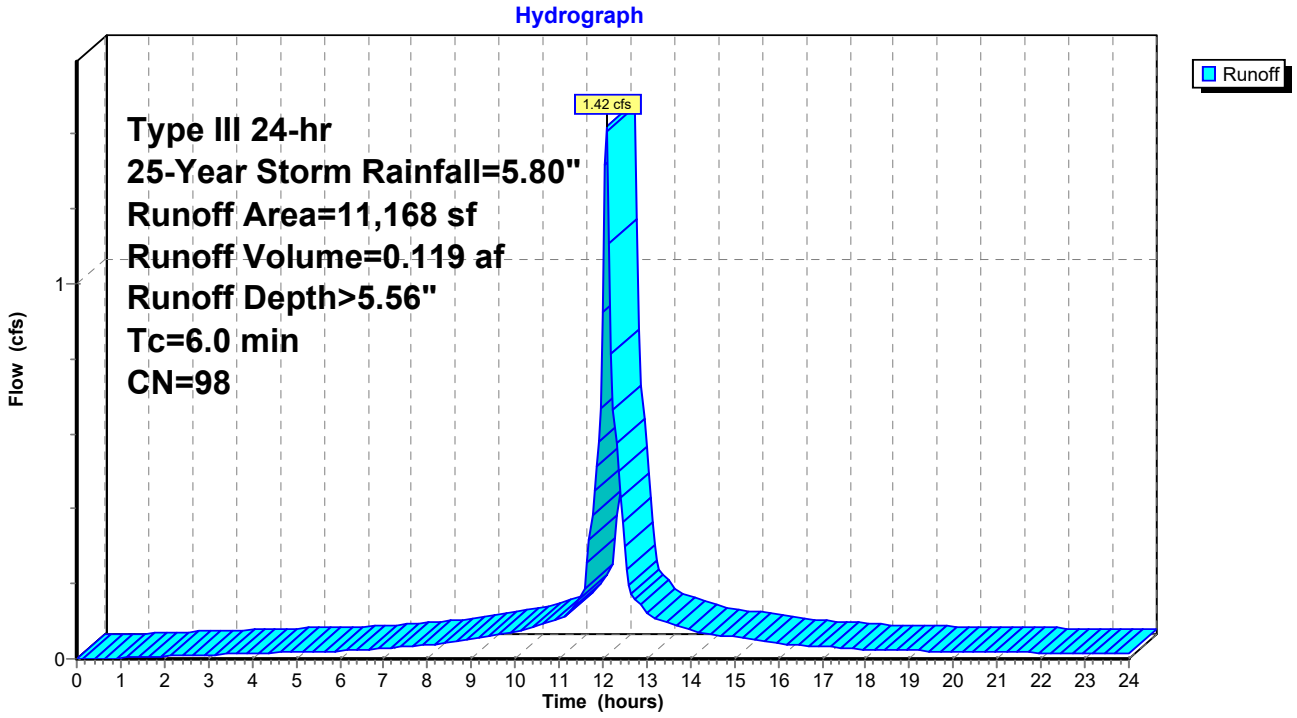
Runoff = 1.42 cfs @ 12.09 hrs, Volume= 0.119 af, Depth> 5.56"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,168	98	Impervious
	11,168		100.00% Impervious Area

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

Subcatchment 25S: Southern Plaza



Summary for Subcatchment 26S: Plaza along Townhouse at Fore Street

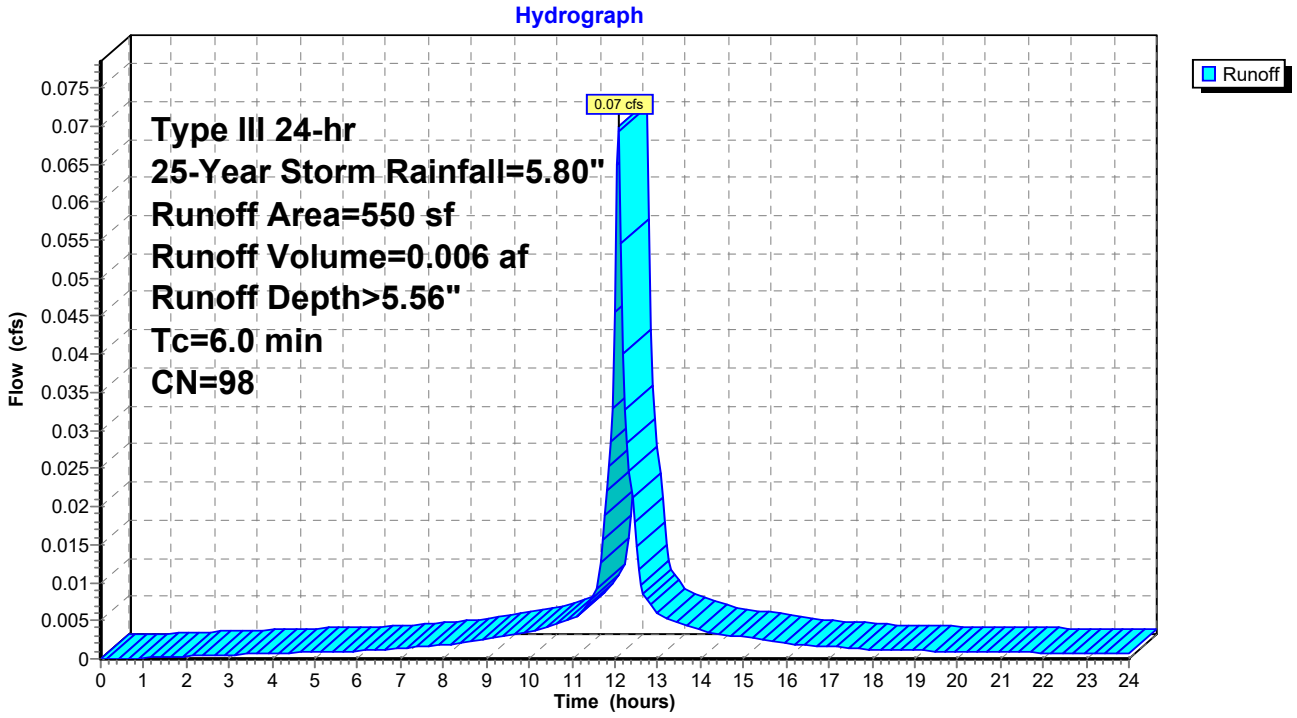
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.006 af, Depth> 5.56"
Routed to Link 3L : Fore Street

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	550	98	Impervious
	550		100.00% Impervious Area

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

Subcatchment 26S: Plaza along Townhouse at Fore Street



Summary for Subcatchment 27S: Drainage from off-site residential

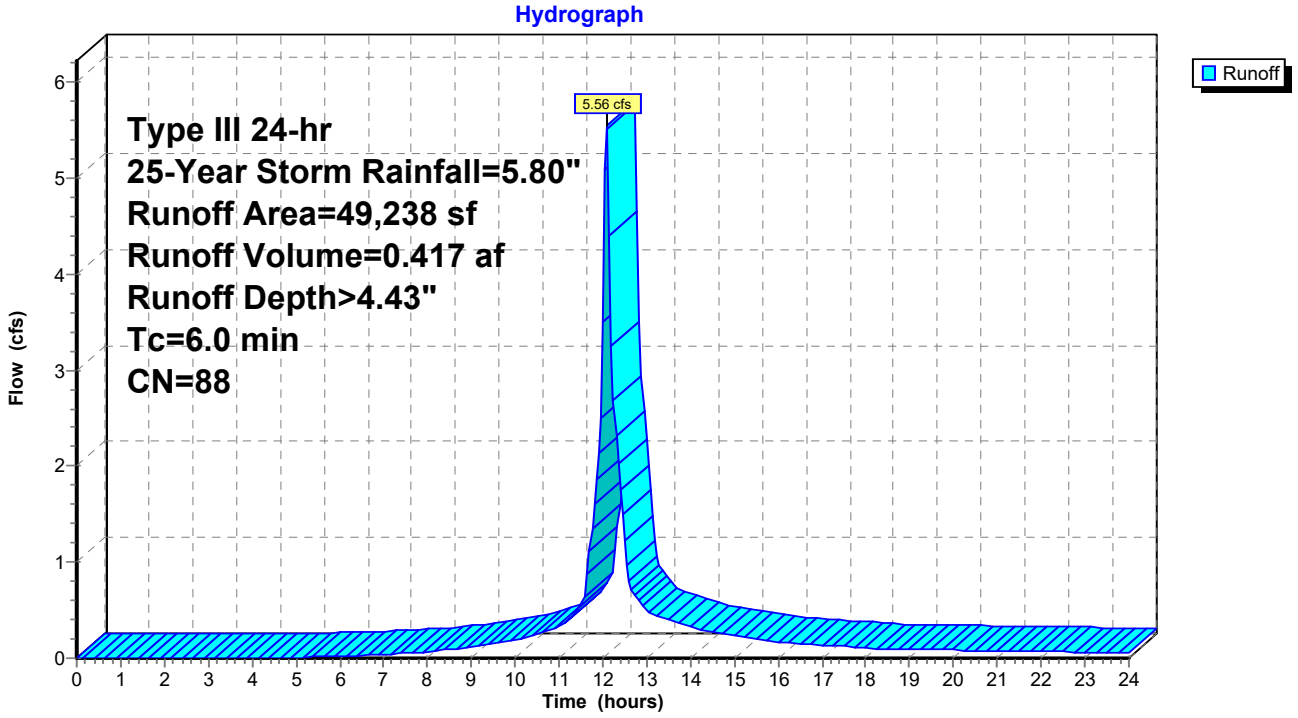
Runoff = 5.56 cfs @ 12.09 hrs, Volume= 0.417 af, Depth> 4.43"
Routed to Pond 13P : DMH-13 (Outfall #2)

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	21,588	98	Impervious
	27,650	80	>75% Grass cover, Good, HSG D
	49,238	88	Weighted Average
	27,650		56.16% Pervious Area
	21,588		43.84% Impervious Area

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

Subcatchment 27S: Drainage from off-site residential



Summary for Subcatchment 28S: Waterfront

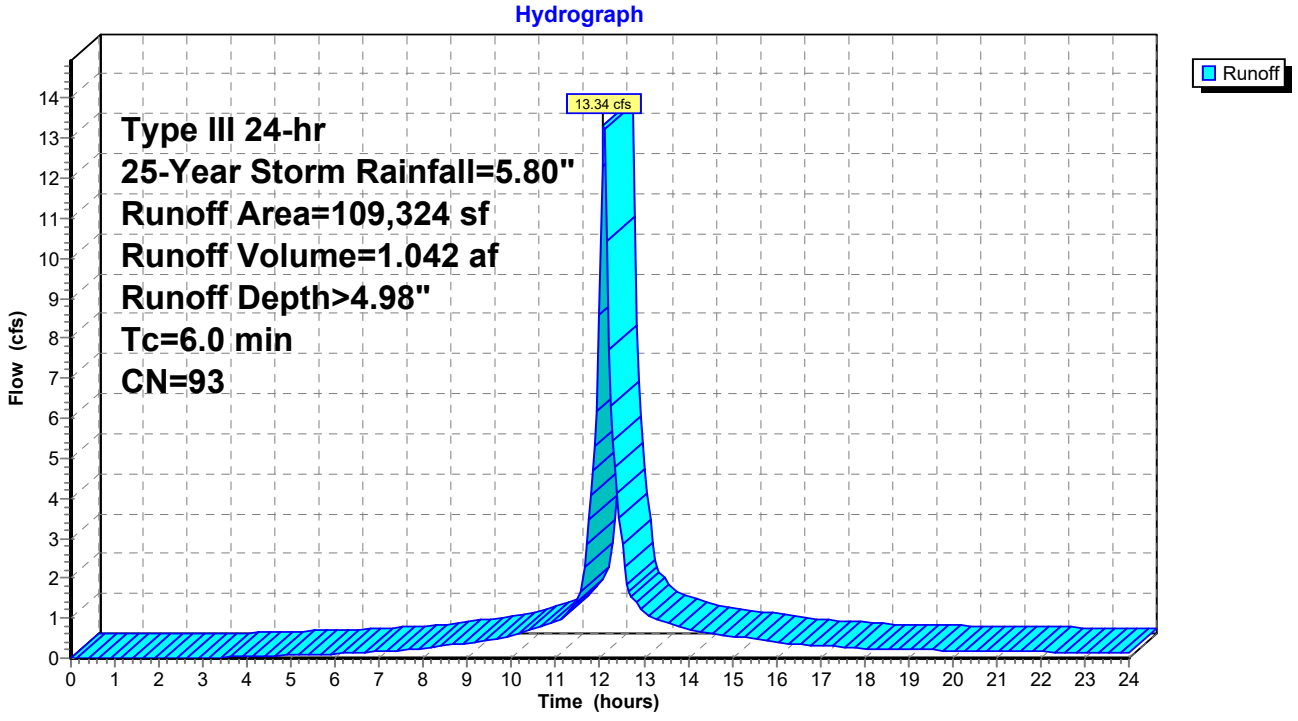
Runoff = 13.34 cfs @ 12.09 hrs, Volume= 1.042 af, Depth> 4.98"
Routed to Link 2L : Fore River

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	78,916	98	Impervious
	30,408	80	>75% Grass cover, Good, HSG D
	109,324	93	Weighted Average
	30,408		27.81% Pervious Area
	78,916		72.19% Impervious Area

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

Subcatchment 28S: Waterfront



Summary for Subcatchment 29S: Block 6 Building

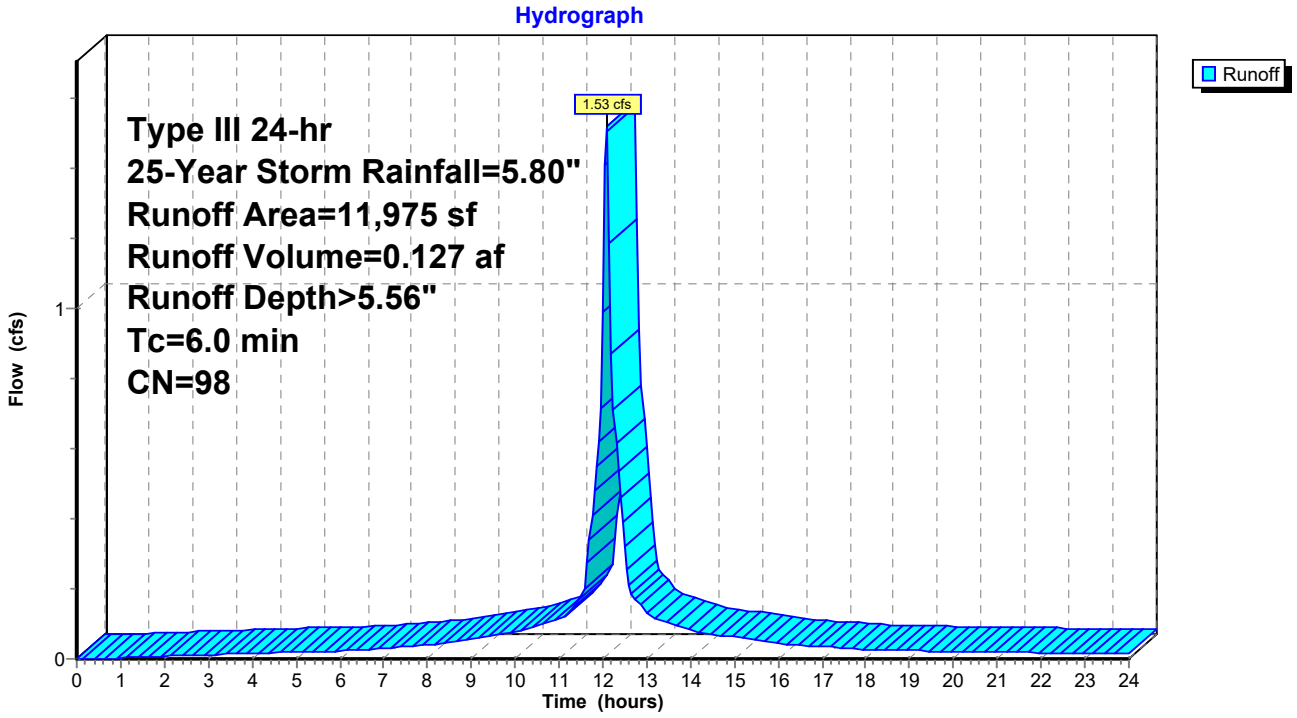
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 24P : Filterra 1

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 29S: Block 6 Building



Summary for Subcatchment 30S: Block 6 Building

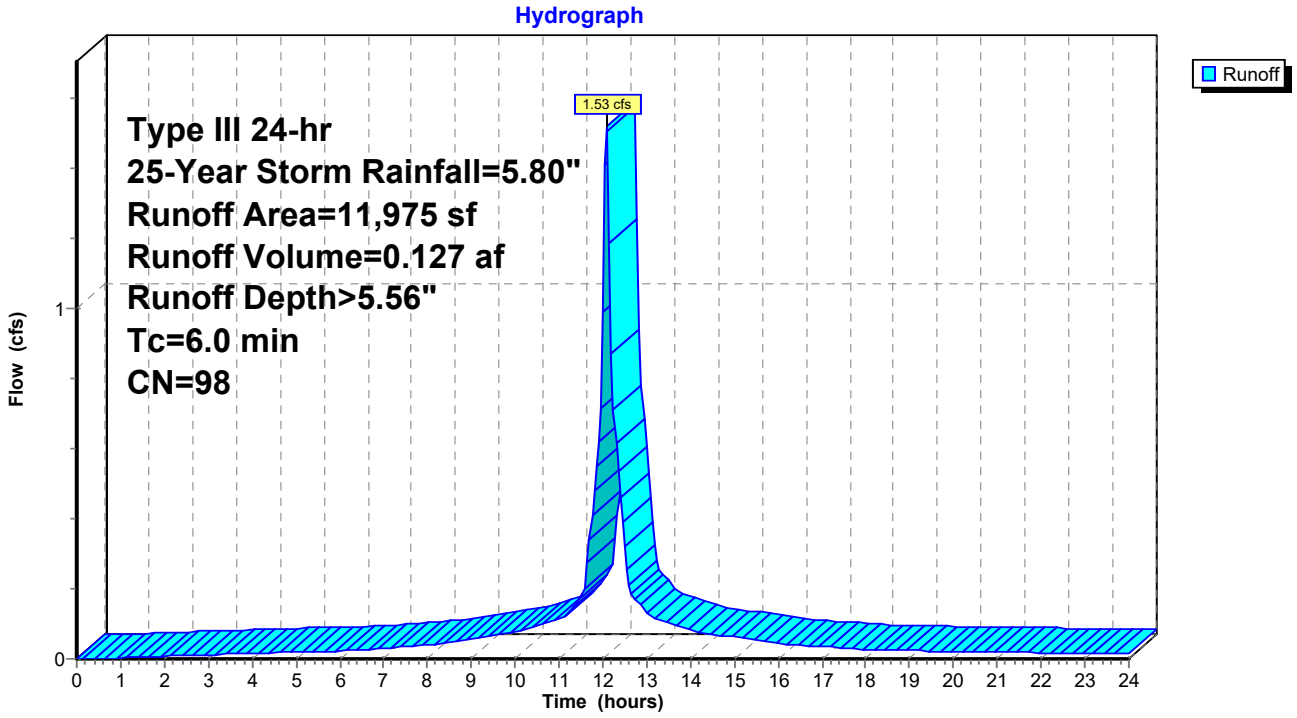
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Depth> 5.56"
Routed to Pond 28P : Filterra 2

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 Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	11,975	98	Roof
	11,975		100.00% Impervious Area

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

Subcatchment 30S: Block 6 Building



Summary for Pond 1P: DMH 1

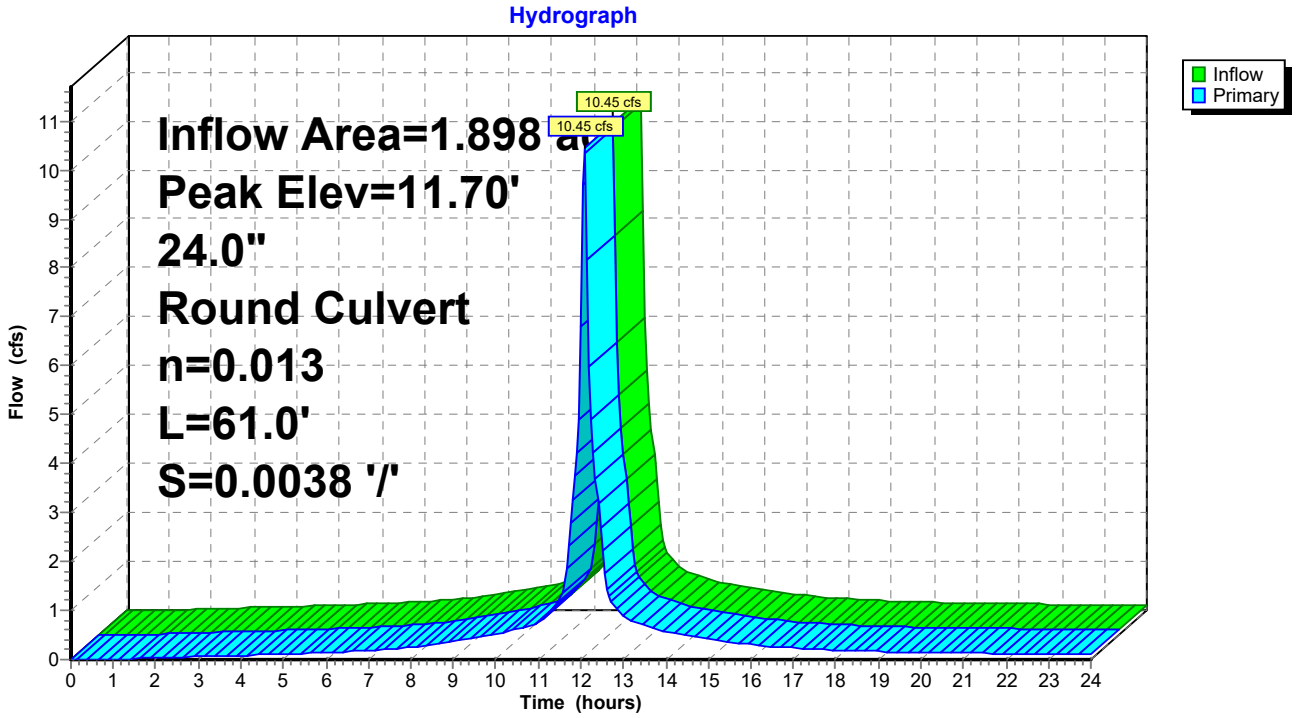
Inflow Area = 1.898 ac, 93.68% Impervious, Inflow Depth > 5.42" for 25-Year Storm event
Inflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Outflow = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af, Atten= 0%, Lag= 0.0 min
Primary = 10.45 cfs @ 12.09 hrs, Volume= 0.858 af
Routed to Pond 2P : DMH 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.70' @ 12.09 hrs
Flood Elev= 14.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.77'	**24.0" Round Culvert** L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.77' / 9.54' S= 0.0038 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.17 cfs @ 12.09 hrs HW=11.67' (Free Discharge)
1=Culvert (Barrel Controls 10.17 cfs @ 4.26 fps)

Pond 1P: DMH 1



Summary for Pond 2P: DMH 2

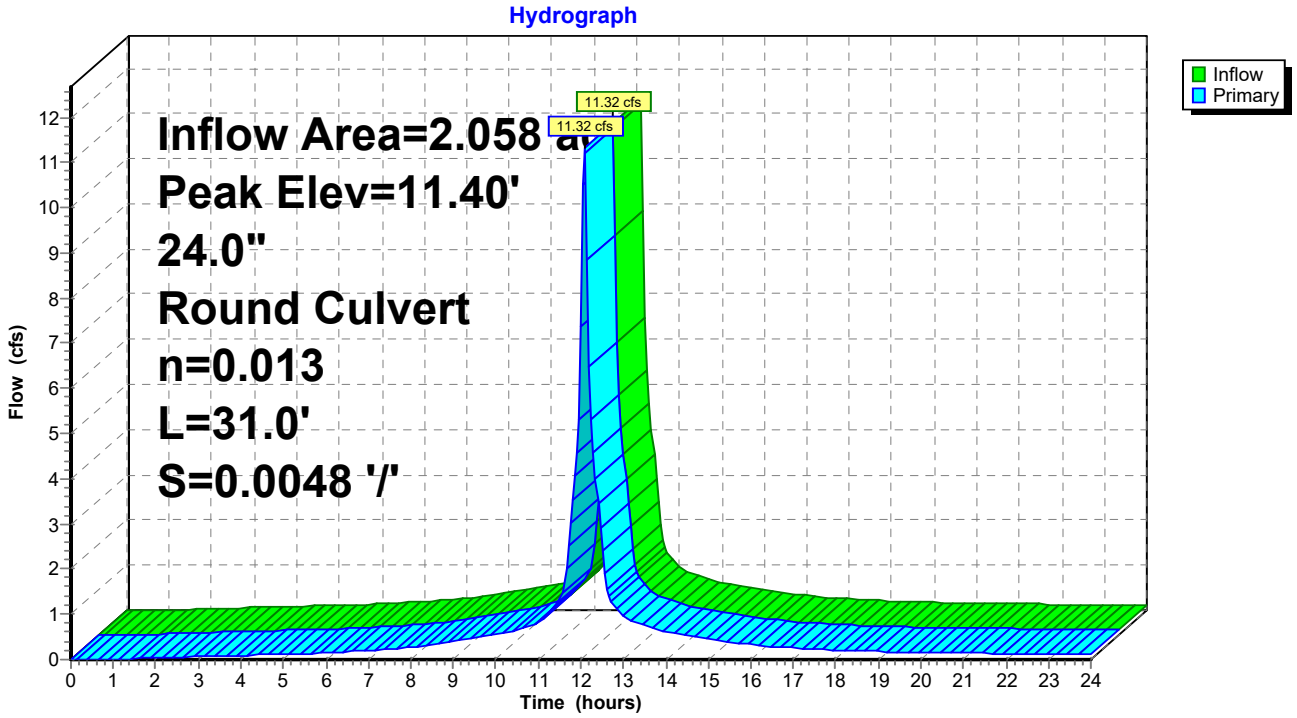
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 3P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.40' @ 12.09 hrs
Flood Elev= 14.63'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.50'	**24.0" Round Culvert** L= 31.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.35' S= 0.0048 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=11.37' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 4.69 fps)

Pond 2P: DMH 2



Summary for Pond 3P: Storm Structure

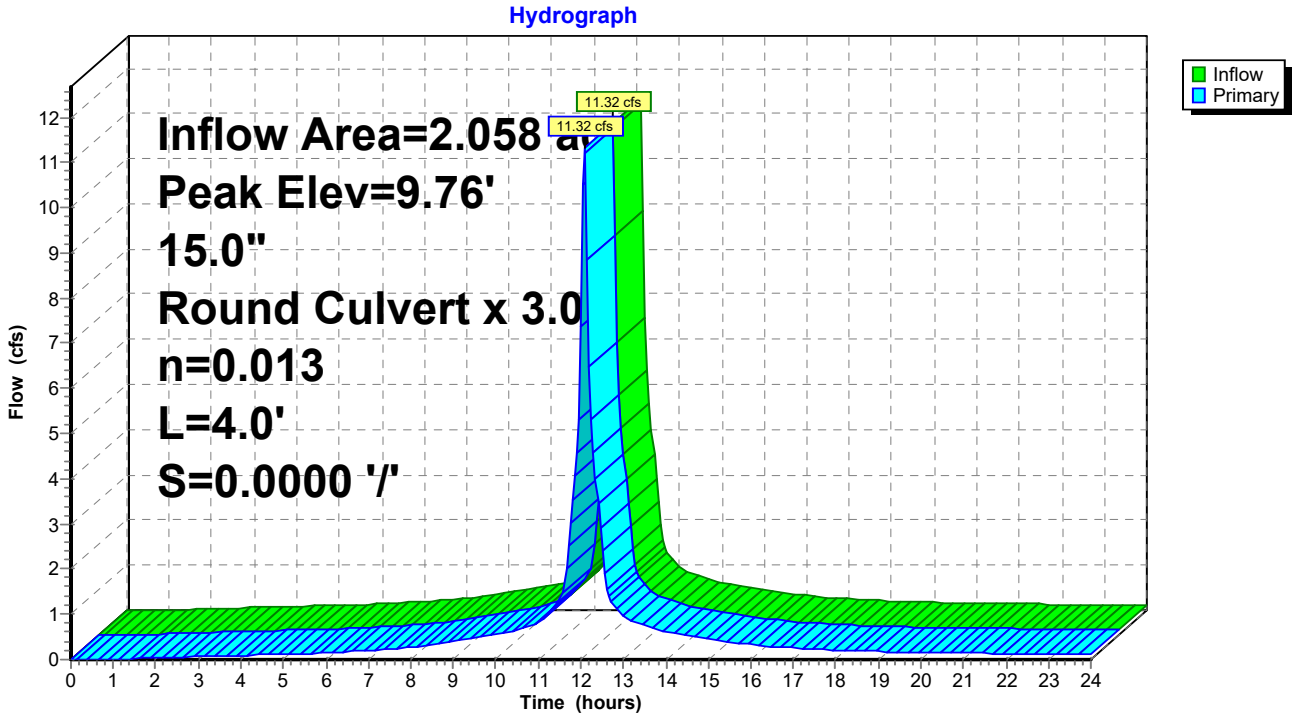
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af, Atten= 0%, Lag= 0.0 min
Primary = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Routed to Pond 4P : R-Tank 1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.76' @ 12.09 hrs
Flood Elev= 14.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.35'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.35' / 8.35' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.02 cfs @ 12.09 hrs HW=9.74' (Free Discharge)
1=Culvert (Barrel Controls 11.02 cfs @ 3.37 fps)

Pond 3P: Storm Structure



Summary for Pond 4P: R-Tank 1

Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.41" for 25-Year Storm event
Inflow = 11.32 cfs @ 12.09 hrs, Volume= 0.928 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 12%, Lag= 2.9 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 10P : DMH 4

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.27' @ 12.13 hrs Surf.Area= 1,162 sf Storage= 2,513 cf
Flood Elev= 12.00' Surf.Area= 1,162 sf Storage= 3,266 cf

Plug-Flow detention time= 16.3 min calculated for 0.920 af (99% of inflow)
Center-of-Mass det. time= 10.6 min (763.5 - 753.0)

Volume	Invert	Avail.Storage	Storage Description
#1	6.50'	892 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,729 cf Overall - 2,499 cf Embedded = 2,231 cf x 40.0% Voids
#2	6.75'	2,374 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 2,499 cf Overall x 95.0% Voids
		3,266 cf	Total Available Storage

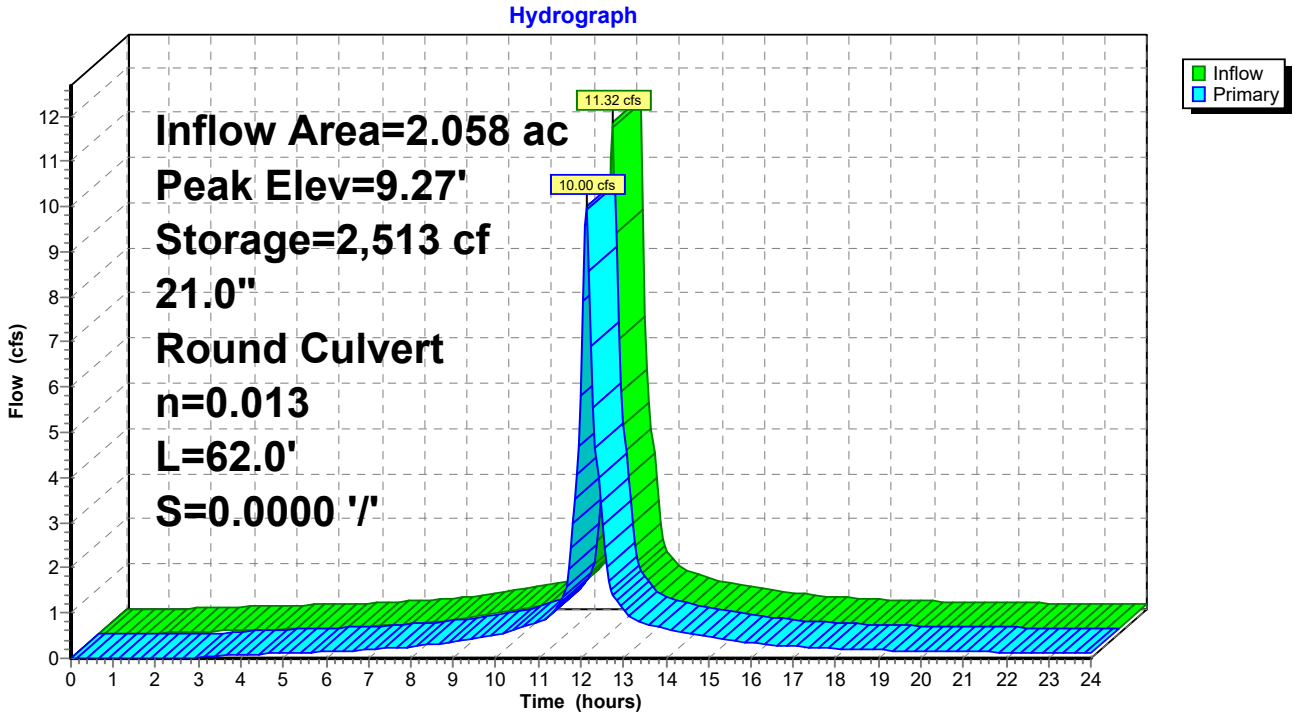
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.50	1,162	0	0
10.57	1,162	4,729	4,729

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
6.75	886	0	0
9.57	886	2,499	2,499

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**21.0" Round Culvert to Filter** L= 62.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 2.41 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=9.23' (Free Discharge)
↑—**1=Culvert to Filter** (Barrel Controls 9.82 cfs @ 4.08 fps)

Pond 4P: R-Tank 1



Summary for Pond 5P: DMH-11

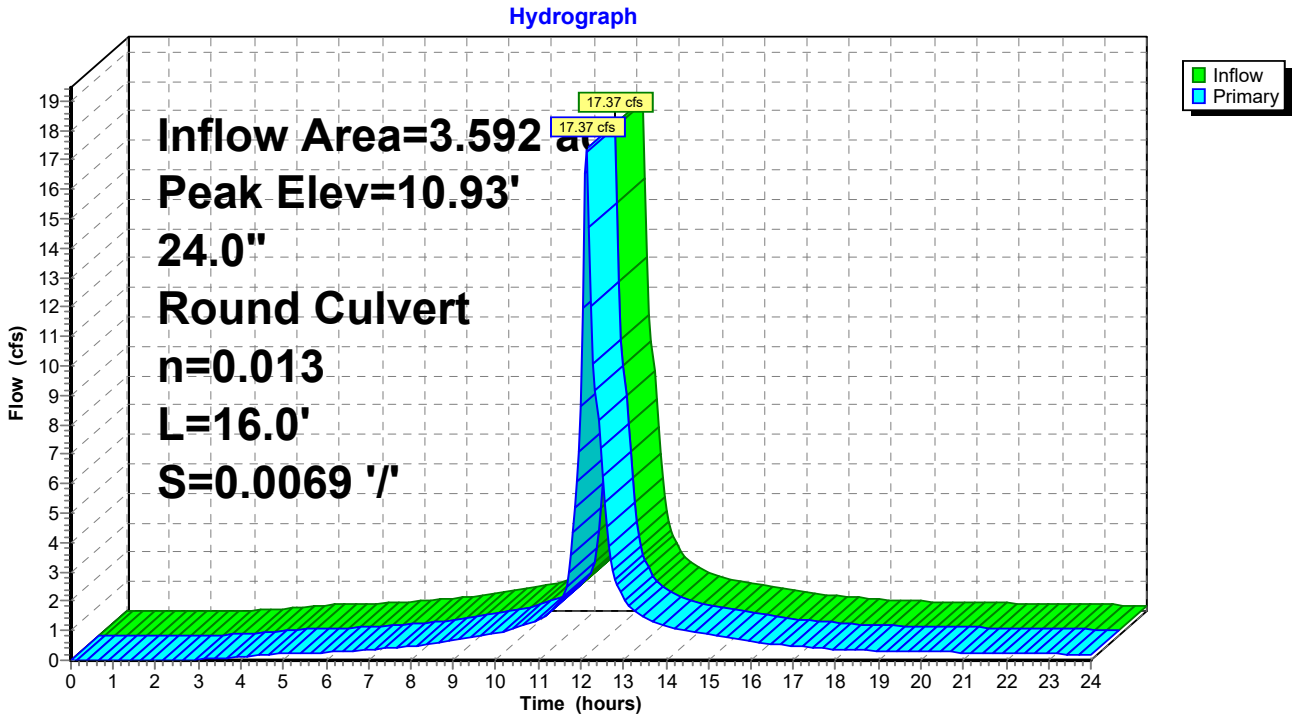
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 12P : Jellyfish 2 JFPD0806-7-2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.93' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 16.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.71' S= 0.0069 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=10.86' (Free Discharge)
1=Culvert (Inlet Controls 17.04 cfs @ 5.43 fps)

Pond 5P: DMH-11



Summary for Pond 6P: CB27

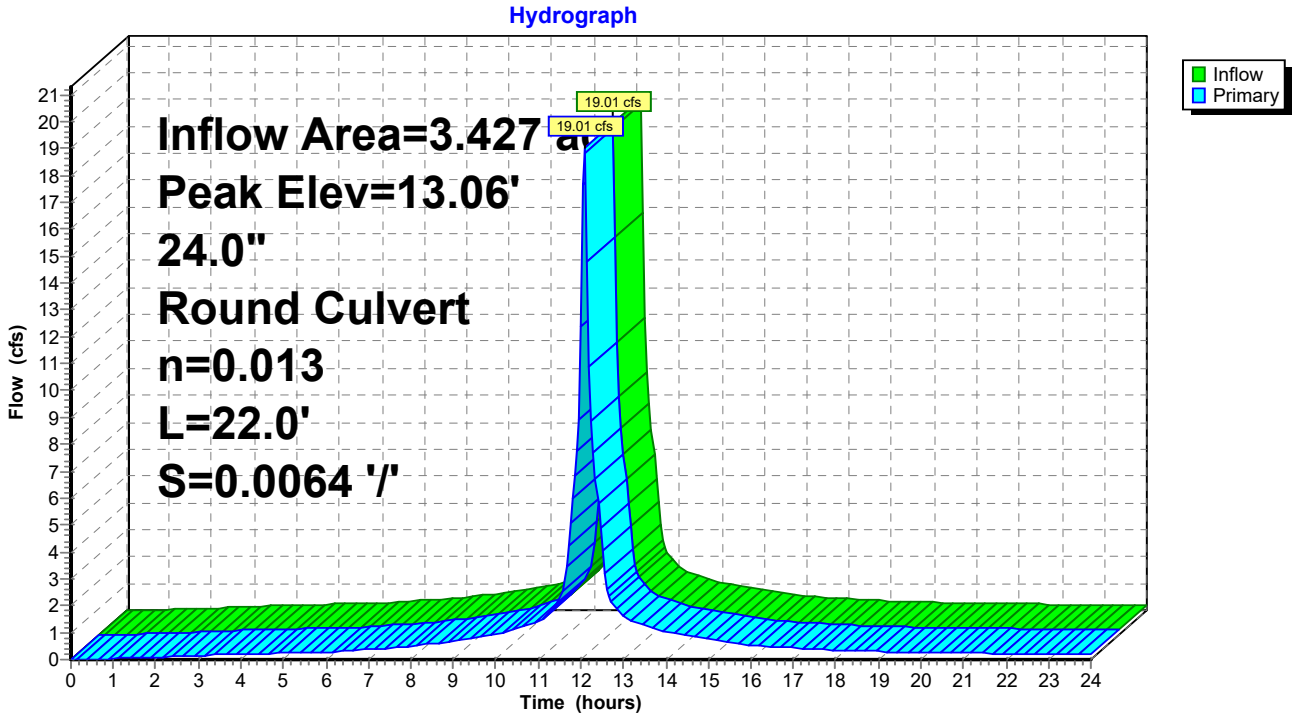
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 7P : Storm Structure

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 13.06' @ 12.09 hrs
Flood Elev= 14.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	9.53'	**24.0" Round Culvert** L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 9.53' / 9.39' S= 0.0064 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=12.93' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.89 fps)

Pond 6P: CB27



Summary for Pond 7P: Storm Structure

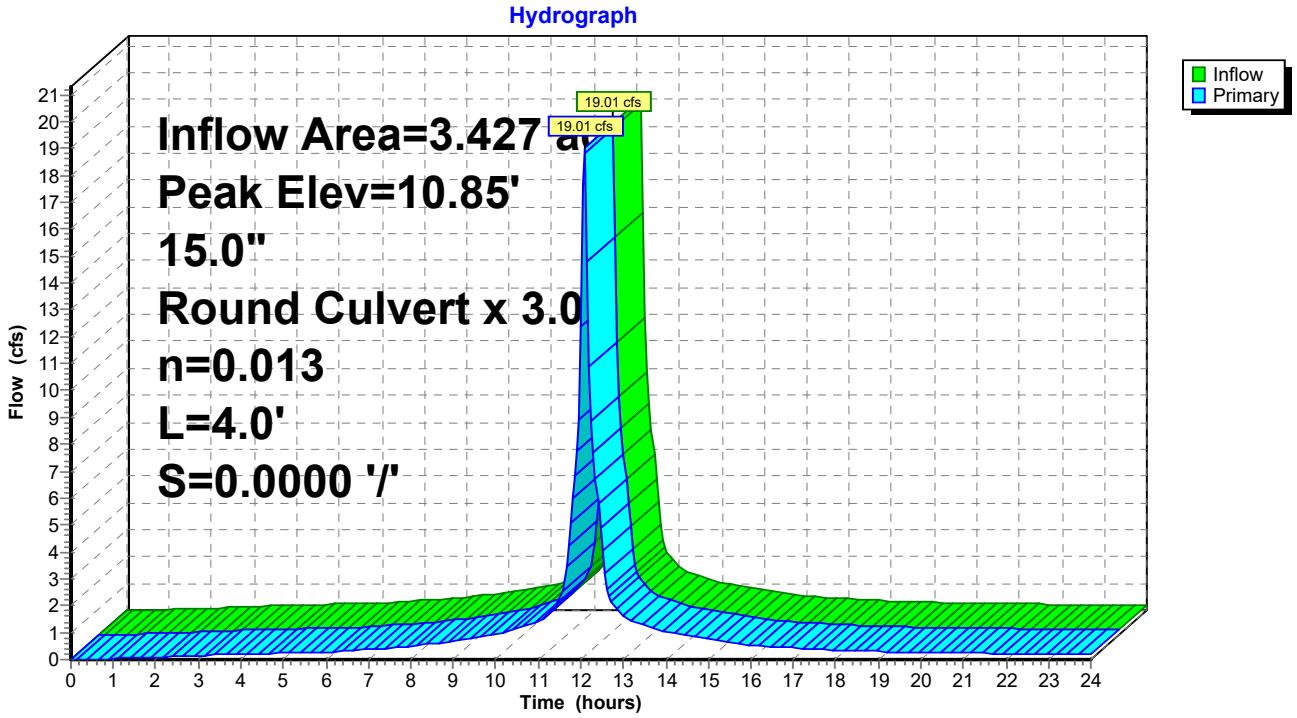
Inflow Area = 3.427 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Outflow = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af, Atten= 0%, Lag= 0.0 min
Primary = 19.01 cfs @ 12.09 hrs, Volume= 1.587 af
Routed to Pond 8P : R-Tank 2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.85' @ 12.09 hrs
Flood Elev= 14.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	8.39'	**15.0" Round Culvert X 3.00** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 8.39' / 8.39' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=18.51 cfs @ 12.09 hrs HW=10.76' (Free Discharge)
1=Culvert (Inlet Controls 18.51 cfs @ 5.03 fps)

Pond 7P: Storm Structure



Summary for Pond 8P: R-Tank 2

Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 19.93 cfs @ 12.09 hrs, Volume= 1.664 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 13%, Lag= 3.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 5P : DMH-11

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.13' @ 12.14 hrs Surf.Area= 3,128 sf Storage= 7,657 cf
Flood Elev= 12.71' Surf.Area= 3,128 sf Storage= 8,290 cf

Plug-Flow detention time= 30.8 min calculated for 1.634 af (98% of inflow)
Center-of-Mass det. time= 20.4 min (765.7 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	7.57'	2,767 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 12,731 cf Overall - 5,813 cf Embedded = 6,918 cf x 40.0% Voids
#2	7.82'	5,523 cf	**R-Tank Double Modules (Prismatic)** Listed below (Recalc) Inside #1 5,813 cf Overall x 95.0% Voids
		8,290 cf	Total Available Storage

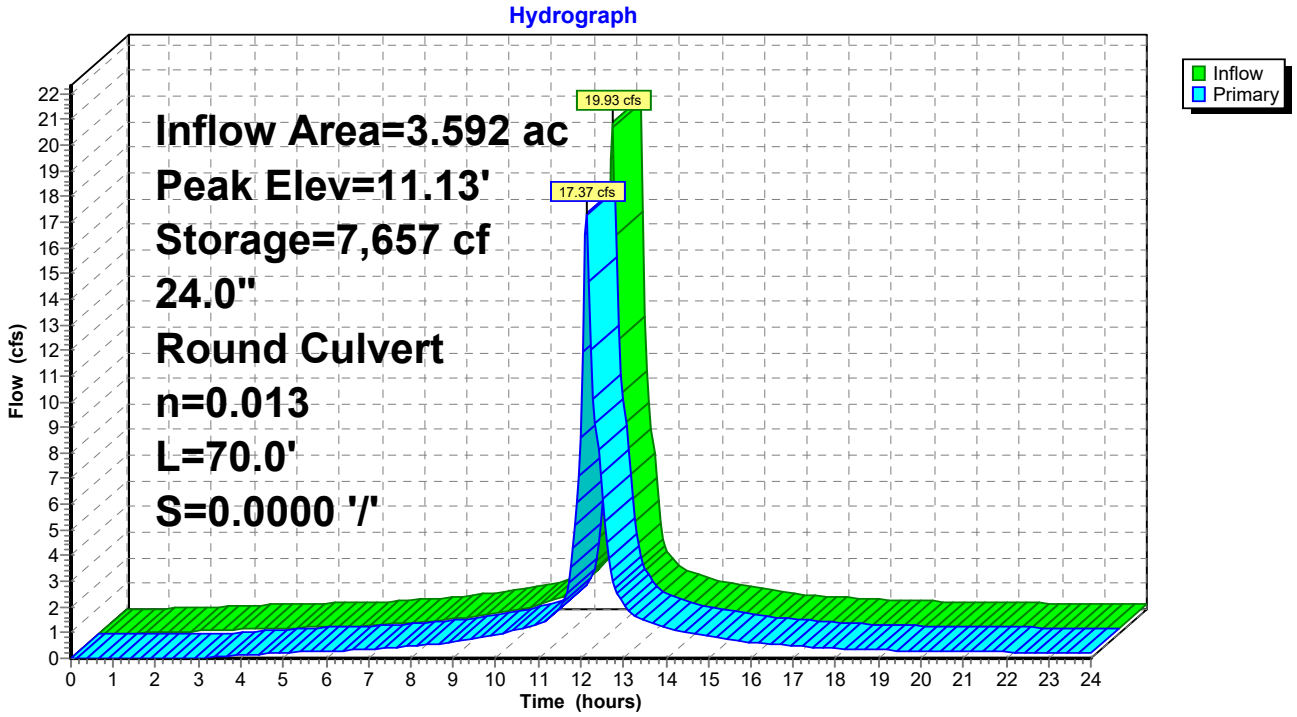
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.57	3,128	0	0
11.64	3,128	12,731	12,731

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
7.82	2,679	0	0
9.99	2,679	5,813	5,813

Device	Routing	Invert	Outlet Devices
#1	Primary	7.82'	**24.0" Round Culvert** L= 70.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.82' / 7.82' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.04 cfs @ 12.14 hrs HW=11.09' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 17.04 cfs @ 5.43 fps)

Pond 8P: R-Tank 2



Summary for Pond 9P: DMH-8 (Outfall #1)

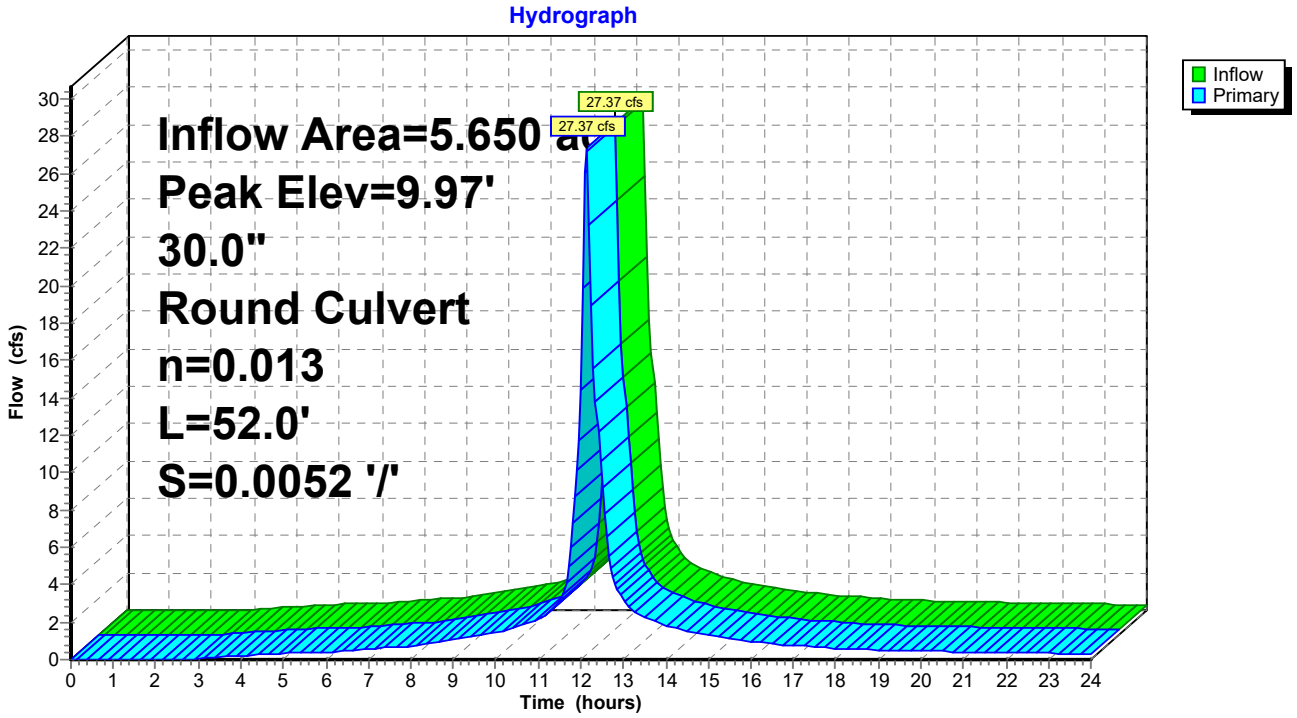
Inflow Area = 5.650 ac, 97.52% Impervious, Inflow Depth > 5.43" for 25-Year Storm event
Inflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Outflow = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af, Atten= 0%, Lag= 0.0 min
Primary = 27.37 cfs @ 12.14 hrs, Volume= 2.557 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.97' @ 12.14 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.57'	**30.0" Round Culvert** L= 52.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.57' / 6.30' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=26.88 cfs @ 12.14 hrs HW=9.90' (Free Discharge)
1=Culvert (Inlet Controls 26.88 cfs @ 5.48 fps)

Pond 9P: DMH-8 (Outfall #1)



Summary for Pond 10P: DMH 4

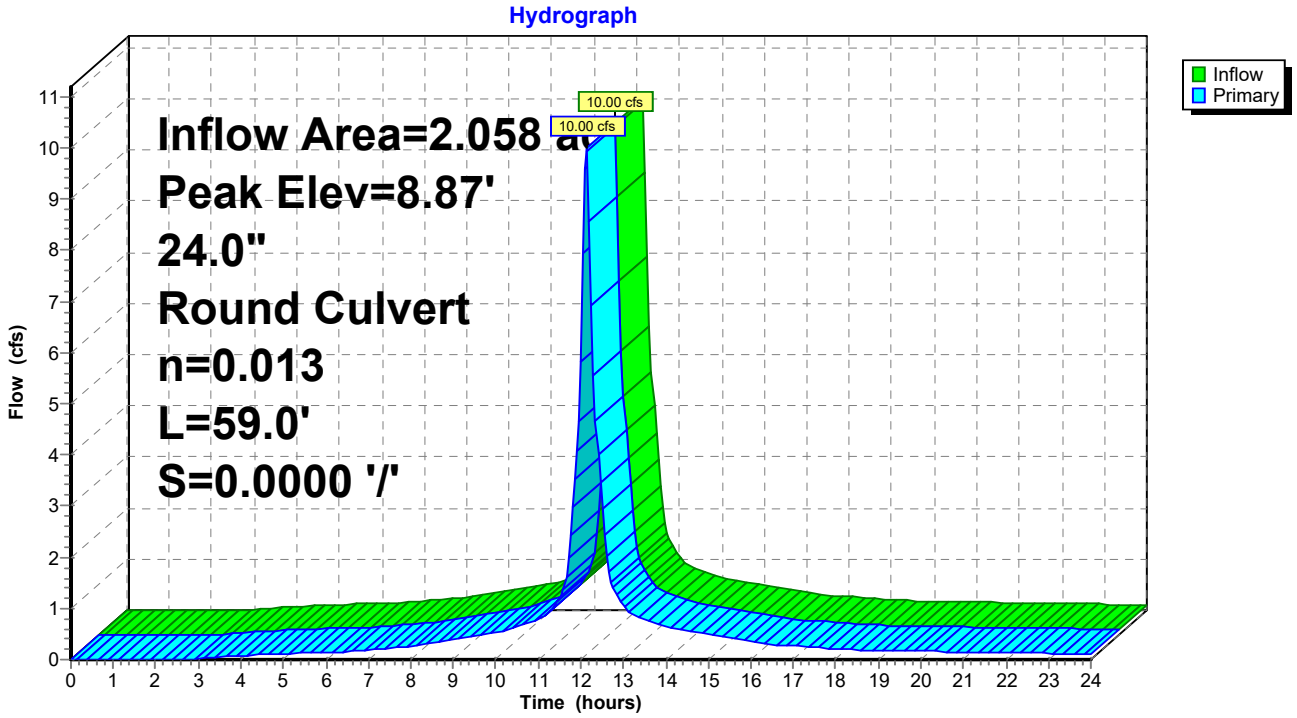
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 11P : Jellyfish 1 JFPD0806-4-1

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 8.87' @ 12.14 hrs
Flood Elev= 13.56'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Culvert** L= 59.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.82 cfs @ 12.14 hrs HW=8.85' (Free Discharge)
1=Culvert (Barrel Controls 9.82 cfs @ 3.70 fps)

Pond 10P: DMH 4



Summary for Pond 11P: Jellyfish 1 JFPD0806-4-1

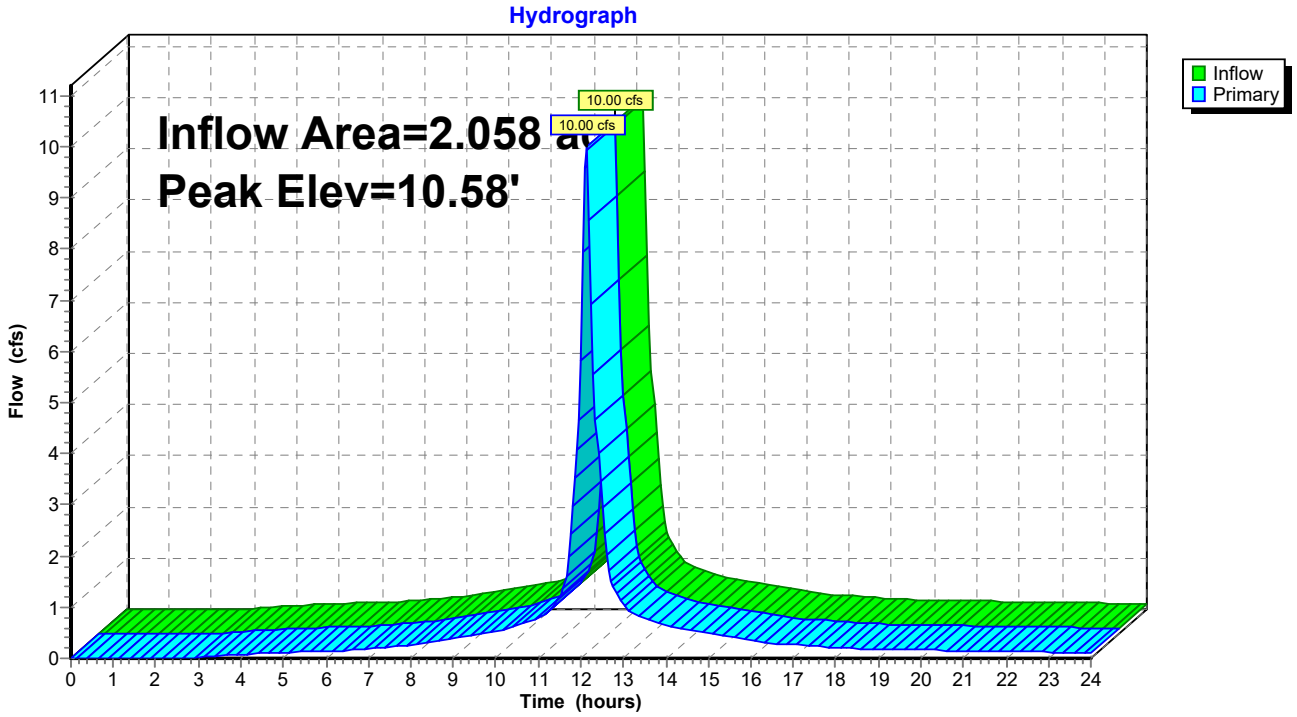
Inflow Area = 2.058 ac, 93.19% Impervious, Inflow Depth > 5.36" for 25-Year Storm event
Inflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Outflow = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af, Atten= 0%, Lag= 0.0 min
Primary = 10.00 cfs @ 12.14 hrs, Volume= 0.920 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.58' @ 12.14 hrs
Flood Elev= 12.89'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.75'	**24.0" Round Filter Culvert Out** L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.75' / 6.67' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	6.75'	**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	9.59'	**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=9.82 cfs @ 12.14 hrs HW=10.56' (Free Discharge)
└**1=Filter Culvert Out** (Passes 9.82 cfs of 20.03 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 8.92 cfs @ 3.27 fps)

Pond 11P: Jellyfish 1 JFPD0806-4-1



Summary for Pond 12P: Jellyfish 2 JFPD0806-7-2

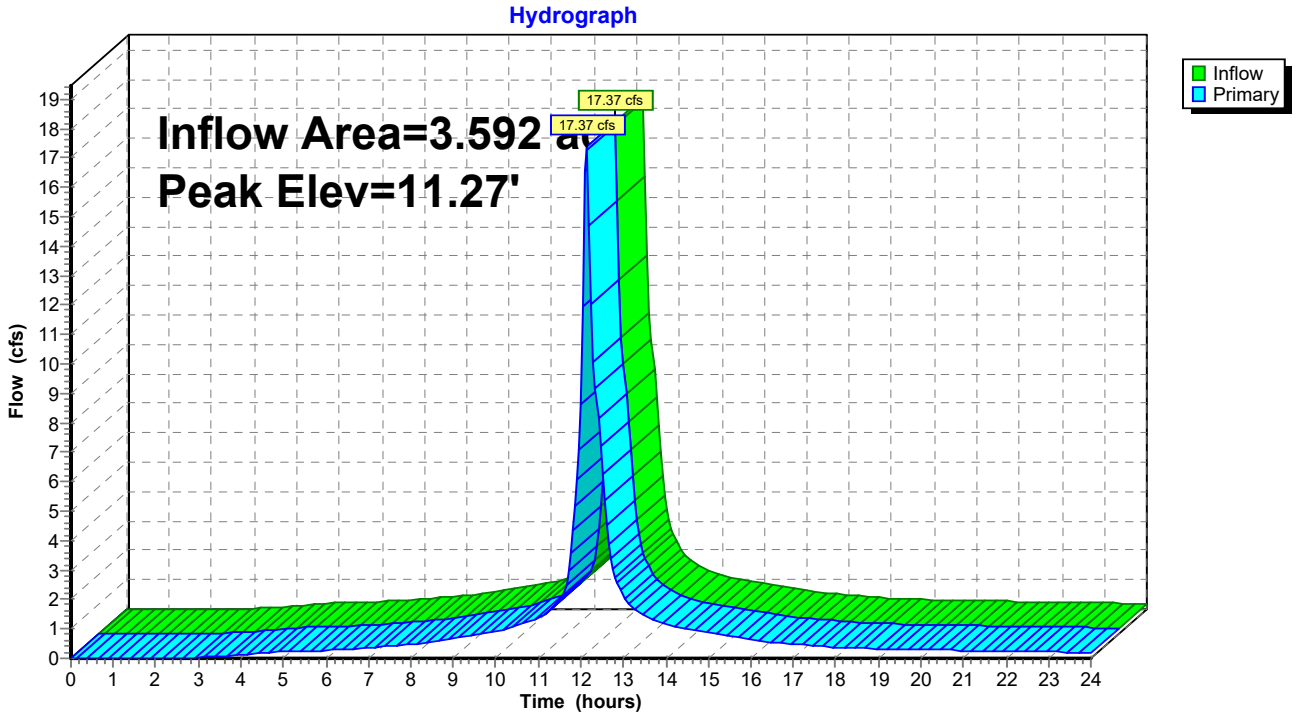
Inflow Area = 3.592 ac,100.00% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Outflow = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af, Atten= 0%, Lag= 0.0 min
Primary = 17.37 cfs @ 12.14 hrs, Volume= 1.637 af
Routed to Pond 9P : DMH-8 (Outfall #1)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 11.27' @ 12.14 hrs
Flood Elev= 11.43'

Device	Routing	Invert	Outlet Devices
#1	Primary	7.71'	**24.0" Round Filter Culvert Out** L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 7.71' / 6.92' S= 0.0063 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Device 1	7.71'	**JF Filter-2 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 0.173 0.287 0.401 0.515 0.629 0.743 0.857 0.970 1.084 1.198 1.312 1.426
#3	Device 1	9.84'	**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=17.04 cfs @ 12.14 hrs HW=11.25' (Free Discharge)
└**1=Filter Culvert Out** (Passes 17.04 cfs of 19.04 cfs potential flow)
  ├**2=JF Filter-2 CSV File** (Custom Controls 1.43 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 15.61 cfs @ 3.95 fps)

Pond 12P: Jellyfish 2 JFPD0806-7-2



Summary for Pond 13P: DMH-13 (Outfall #2)

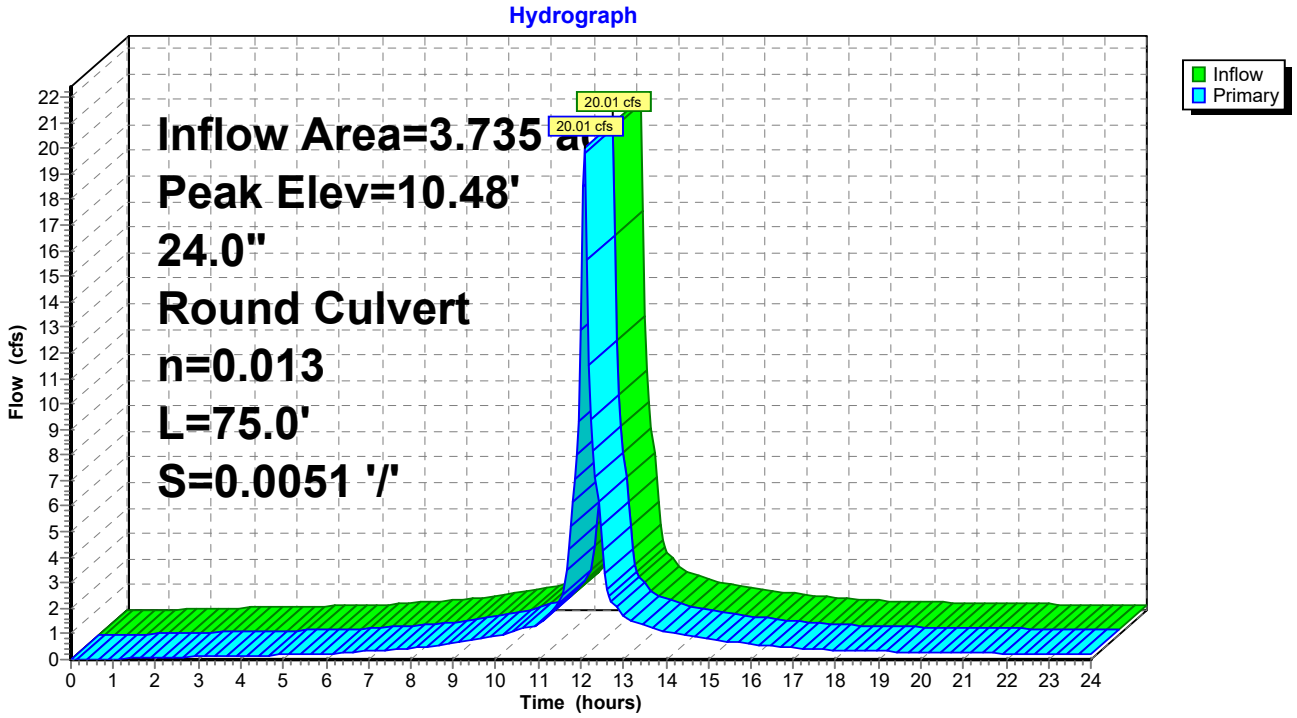
Inflow Area = 3.735 ac, 83.01% Impervious, Inflow Depth > 5.22" for 25-Year Storm event
Inflow = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af
Outflow = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af, Atten= 0%, Lag= 0.0 min
Primary = 20.01 cfs @ 12.09 hrs, Volume= 1.624 af
Routed to Link 2L : Fore River

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 10.48' @ 12.09 hrs
Flood Elev= 11.78'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.68'	**24.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 6.68' / 6.30' S= 0.0051 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=19.49 cfs @ 12.09 hrs HW=10.34' (Free Discharge)
1=Culvert (Inlet Controls 19.49 cfs @ 6.21 fps)

Pond 13P: DMH-13 (Outfall #2)



Summary for Pond 24P: Filterra 1

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

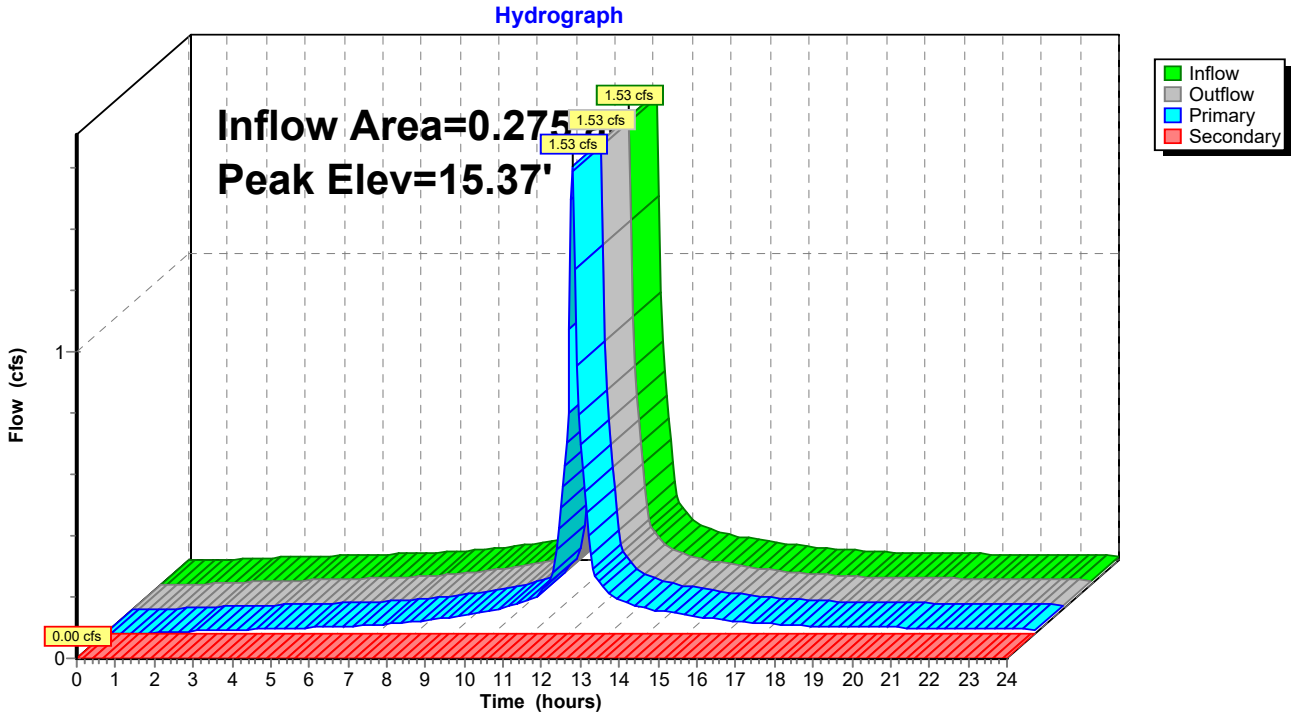
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.37' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=15.35' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.48 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: Filterra 1



Summary for Pond 27P: AD49

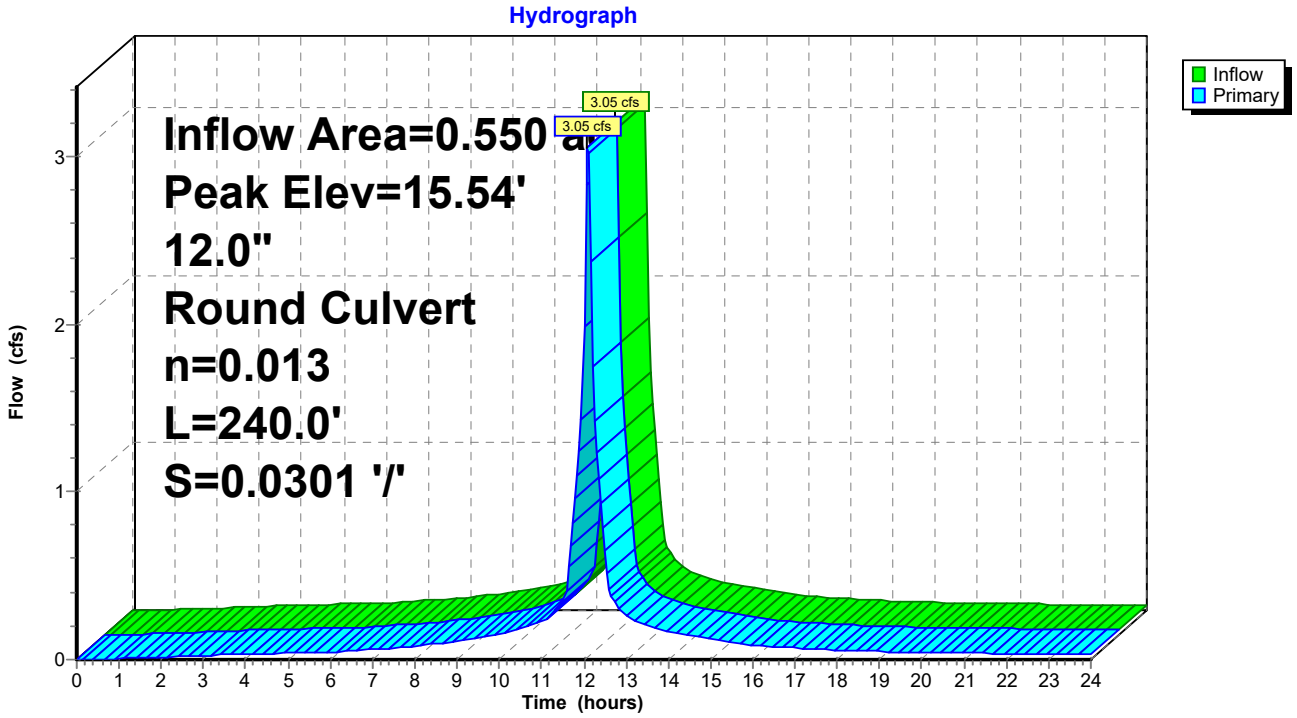
Inflow Area = 0.550 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af
Outflow = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.09 hrs, Volume= 0.255 af
Routed to Pond 13P : DMH-13 (Outfall #2)

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.54' @ 12.09 hrs
Flood Elev= 12.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	14.00'	**12.0" Round Culvert** L= 240.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 6.78' S= 0.0301 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.97 cfs @ 12.09 hrs HW=15.49' (Free Discharge)
1=Culvert (Inlet Controls 2.97 cfs @ 3.78 fps)

Pond 27P: AD49



Summary for Pond 28P: Filterra 2

Inflow Area = 0.275 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min
Primary = 1.53 cfs @ 12.09 hrs, Volume= 0.127 af
Routed to Pond 27P : AD49
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 27P : AD49

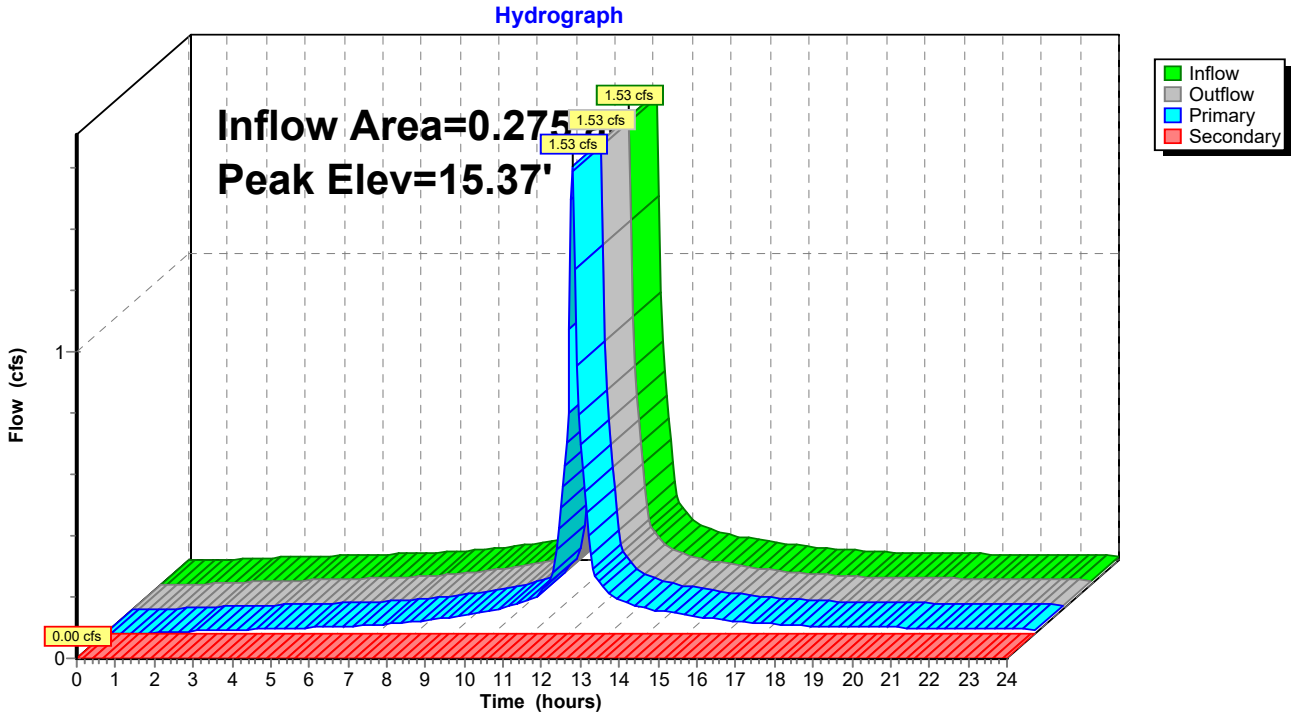
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 15.37' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	14.50'	**12.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.50' / 14.47' S= 0.0075 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	18.04'	**5.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=1.48 cfs @ 12.09 hrs HW=15.35' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.48 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.50' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 28P: Filterra 2

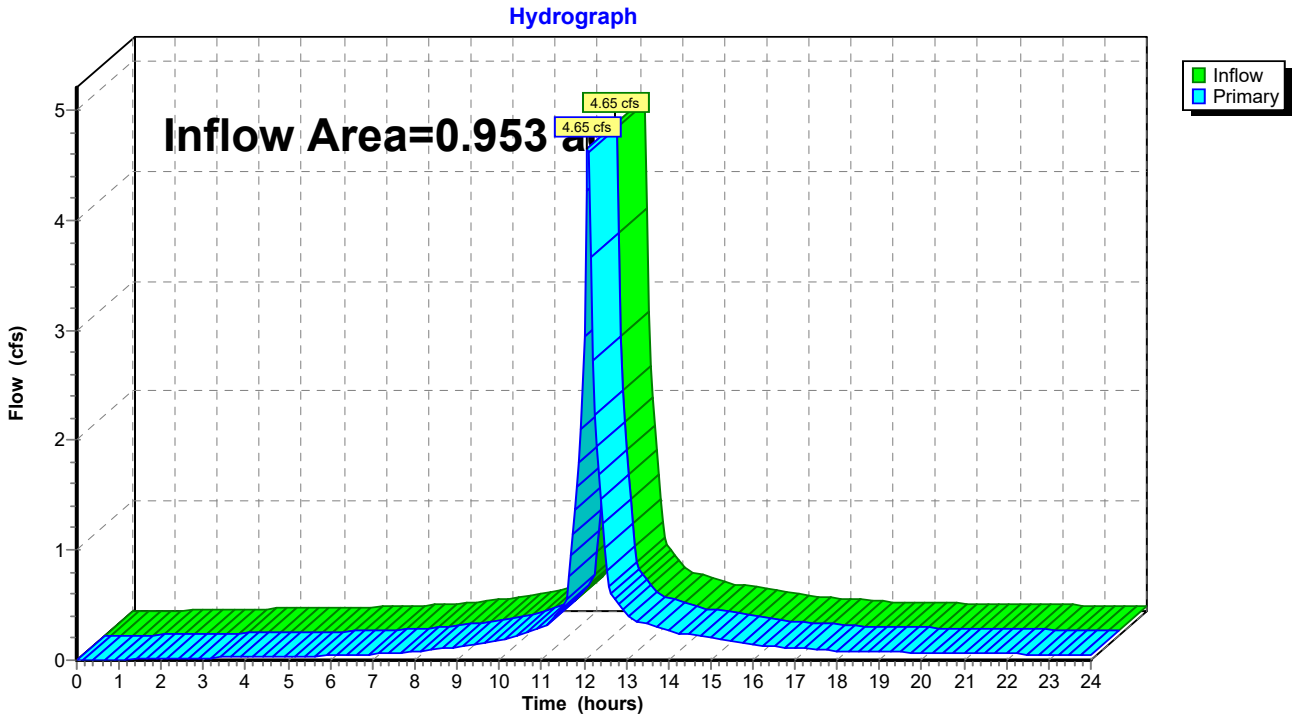


Summary for Link 1L: Freedom Way

Inflow Area = 0.953 ac, 53.78% Impervious, Inflow Depth > 4.64" for 25-Year Storm event
Inflow = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af
Primary = 4.65 cfs @ 12.09 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 1L: Freedom Way

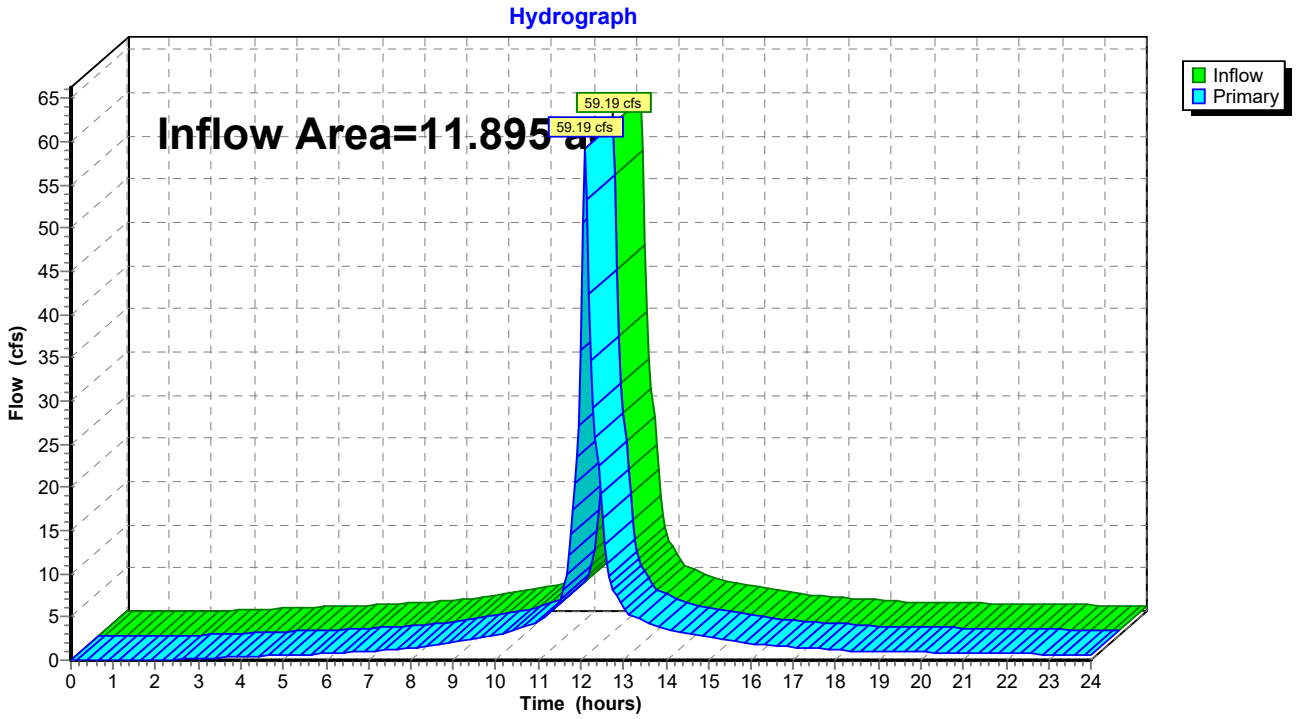


Summary for Link 2L: Fore River

Inflow Area = 11.895 ac, 87.62% Impervious, Inflow Depth > 5.27" for 25-Year Storm event
Inflow = 59.19 cfs @ 12.10 hrs, Volume= 5.223 af
Primary = 59.19 cfs @ 12.10 hrs, Volume= 5.223 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L: Fore River

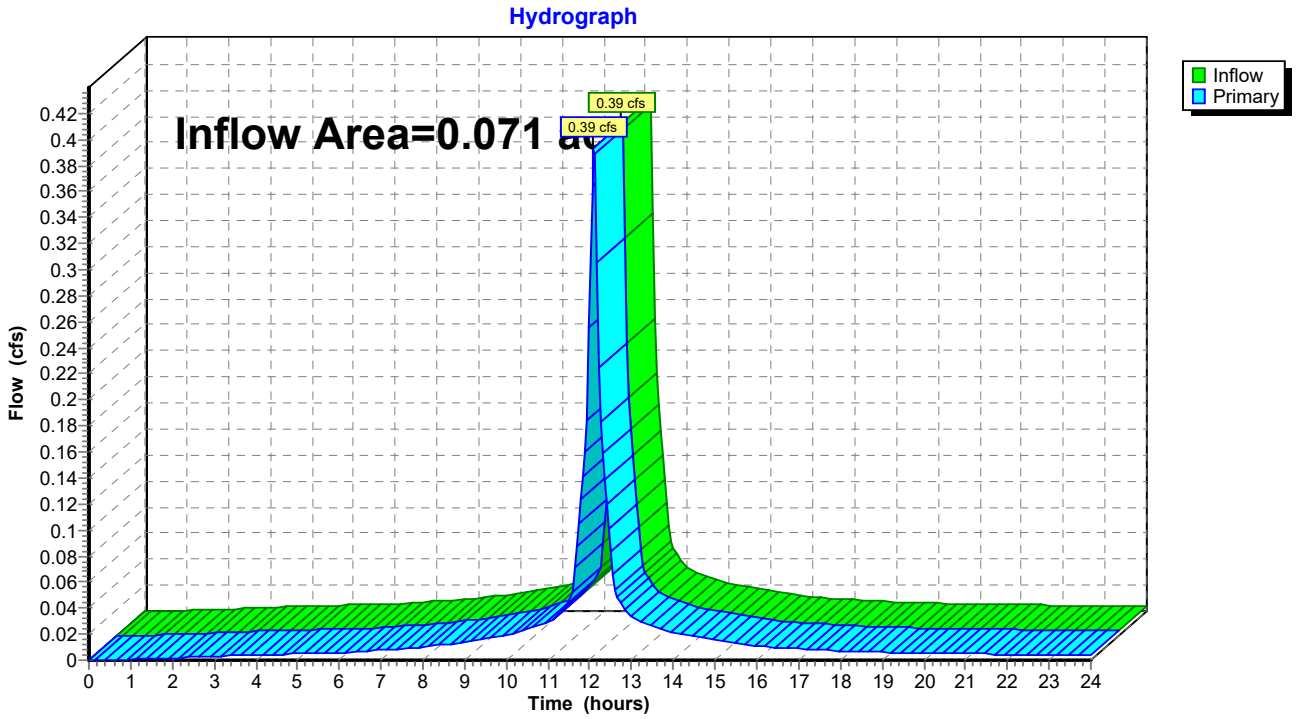


Summary for Link 3L: Fore Street

Inflow Area = 0.071 ac,100.00% Impervious, Inflow Depth > 5.56" for 25-Year Storm event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af
Primary = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 3L: Fore Street



APPENDIX D: FIGURES

30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET

FORE CONNECTOR

THAMES STREET EXTENSION

REDEVELOPMENT AREA

BUILDING 1
BUILDING 4
BUILDING 5
BUILDING 7
BUILDING 10
BUILDING 11
BUILDING 12
BUILDING 30
BLDG 14
BLDG 15

APPROX. LOCATION 33" FORCE MAIN SEWER LINE

100 YEAR FLOOD LINE, ZONE VZ (EL 13') AS SCALED FROM FLOOD INSURANCE RATE MAP PANEL 230051 0014B DATED JULY 17, 1986

LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

Woodard & Curran
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Portland, Maine 04102
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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	ANL/BCM
DRAWN BY:	BCM
CHECKED BY:	LIS
FILENAME:	STORMWATER FIGURES - EX*.dwg

DRAWING TITLE:

CIVIL
REDEVELOPMENT IMPACT ANALYSIS EXISTING CONDITION

DRAWING NO:
A
SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"



LEGEND

- POLLUTANT RANKING 5
- POLLUTANT RANKING 4
- POLLUTANT RANKING 3
- POLLUTANT RANKING 2
- POLLUTANT RANKING 1
- POLLUTANT RANKING 0

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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Lauren J. Swett

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:

CIVIL
REDEVELOPMENT IMPACT ANALYSIS
PROPOSED CONDITION

DRAWING NO:

B

SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET

FORE CONNECTOR

THAMES STREET EXTENSION

REDEVELOPMENT AREA

TREATMENT AREA

BUILDING 1A

BUILDING 2

BUILDING 3

BUILDING 6

BUILDING 6B

BUILDING 12

BUILDING 14

BUILDING 15

BUILDING 16

BUILDING 24

TOWNHOUSES

SD125 AD45 SD126 AD46 SD127 AD47 SD128 AD48 SD129

40' 0 40' 80'

BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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PORTLAND, MAINE

PHASE 2

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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:

CIVIL
REDEVELOPMENT FIGURE

DRAWING NO:

C

SHEET: 1 OF 1

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
FORE CONNECTOR
THAMES STREET EXTENSION
BUILDING 1A
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 6B
BUILDING 12
BUILDING 15
TOWNHOUSES
1S 2S 3S 4S 5S 6S 7S 8S 9S 10S 11S 12S 13S 14S 15S 16S 17S 18S 19S 20S 21S 22S 23S 24S 25S 26S 27S 28S 29S 30S
1L 2L 3L
1P 2P 3P 4P 5P 6P 7P 8P 9P 10P 11P 12P 13P 24P 27P 28P
SD126 SD127 AD46 AD48 DMH3125 AD45
TW 19 BLOCK 4 LOT 10 N/F 100 FORE STREET LLC DEED
TW 19 BLOCK 4 LOT 14 N/F CITY OF PORTLAND DEED/PLAN

STORMWATER LEGEND

- 1S — SUBCATCHMENT AREAS
- LIMIT OF DRAINAGE AREA
- SP1 — STUDY POINT
- XX — POND

40' 0 40' 80'
BAR SCALE
1" = 40'
CHECK GRAPHIC SCALE BEFORE USING

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Lauren J. Swett

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PORTLAND, MAINE
PHASE 2

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JOB NO:	227007
DATE:	APRIL 2023
SCALE:	1"=40'
DESIGNED BY:	LJS/BCM
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 STORMWATER PLAN*.dwg

DRAWING TITLE:
CIVIL
DRAINAGE AREA FIGURE

DRAWING NO:
D
SHEET: 1 OF 1

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STORMWATER INSPECTION & MAINTENANCE PLAN

Portland Foreside Development – Phase 2, 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 storm drain 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.

Green Roof

Green roof areas should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the green roof areas should be inspected at least once every six months to ensure that it is draining within 48 hours following a one-inch storm or greater and drains within no less than 36 to 60 hours following storms that fill the system to overflow. If ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity. If ponding exceeds 72 hours, the top several inches of the filter shall be replaced with fresh material. Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.

Subsurface R-Tank System

The subsurface R-Tank System must be inspected and maintained at minimum once annually and at minimum once every six months during the first year of operation per the manufacturer's guidelines, which are outlined in the attached guidance documents.

Jellyfish Filter Unit

The Jellyfish Filter Unit must be inspected and maintained at minimum once annually and at minimum once quarterly during the first year of operation per the manufacturer's guidelines, which are outlined in the attached guidance document.

Filterra Bioretention System

The Filterra Bioretention System must be inspected and maintained at minimum once annually and at minimum once every six months during the first year of operation per the manufacturer's guidelines, which are outlined in the attached guidance document.

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		
Green Roof	inlet free of erosion		some erosion at inlet		inlet heavily eroded		
Green Roof	drains in <24 hours		drains in 24 to 48 hours		ponding exceeds 48 hours		
Jellyfish Filter Unit*	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
Jellyfish Filter Unit*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
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 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
Replace stone rip-rap	Every 3 to 5 years as needed
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.

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.

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).

ACF ENVIRONMENTAL
LET'S GET IT DONE
2831 Cardwell Road
Richmond, Virginia, 23234
800.448.3636
FAX 804.743.7779
acfenvironmental.com

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:_____

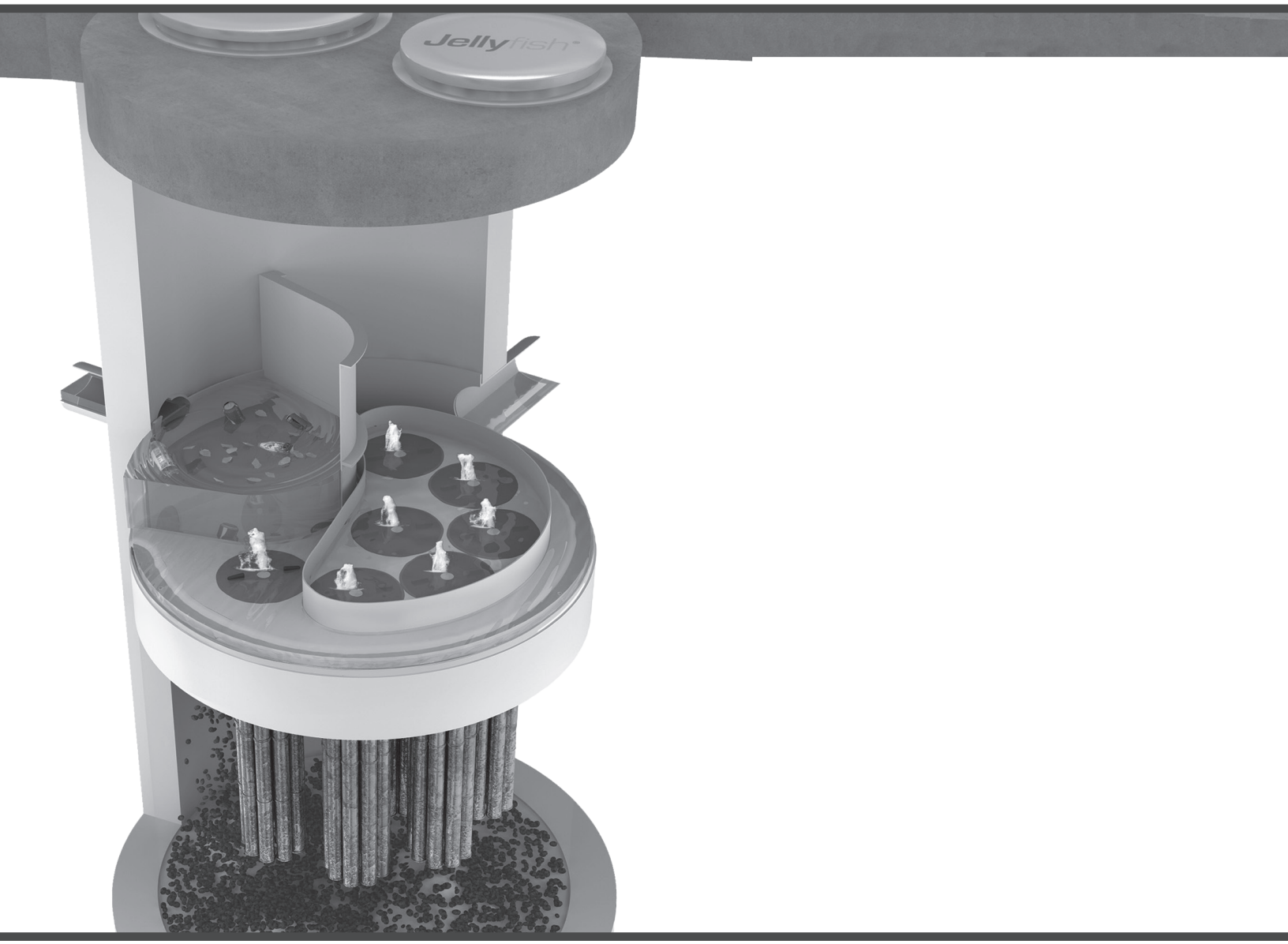
Contact:_____

Phone Number:_____

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

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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Inspection Procedure.....3

Maintenance Procedure.....4

Cartridge Assembly & Cleaning.....5

Inspection Process 7

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.

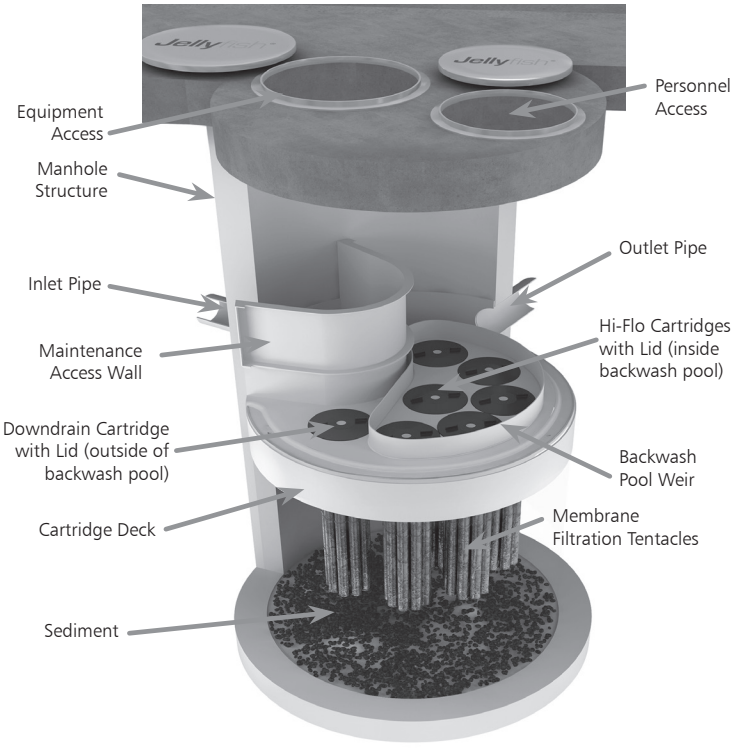
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion 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:

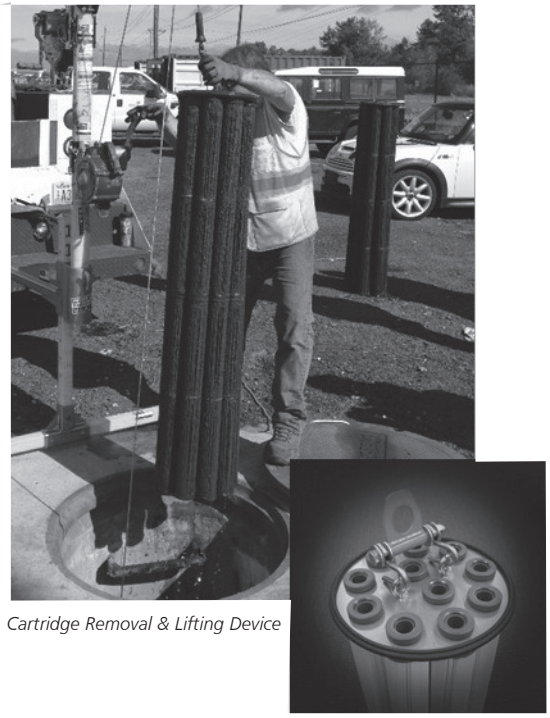
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. 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.

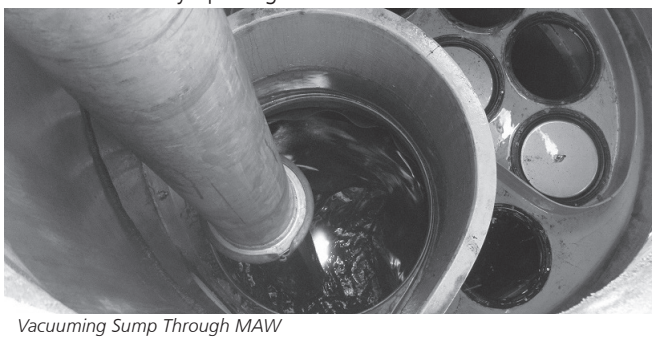
5.3 Sediment and Flotables Extraction

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

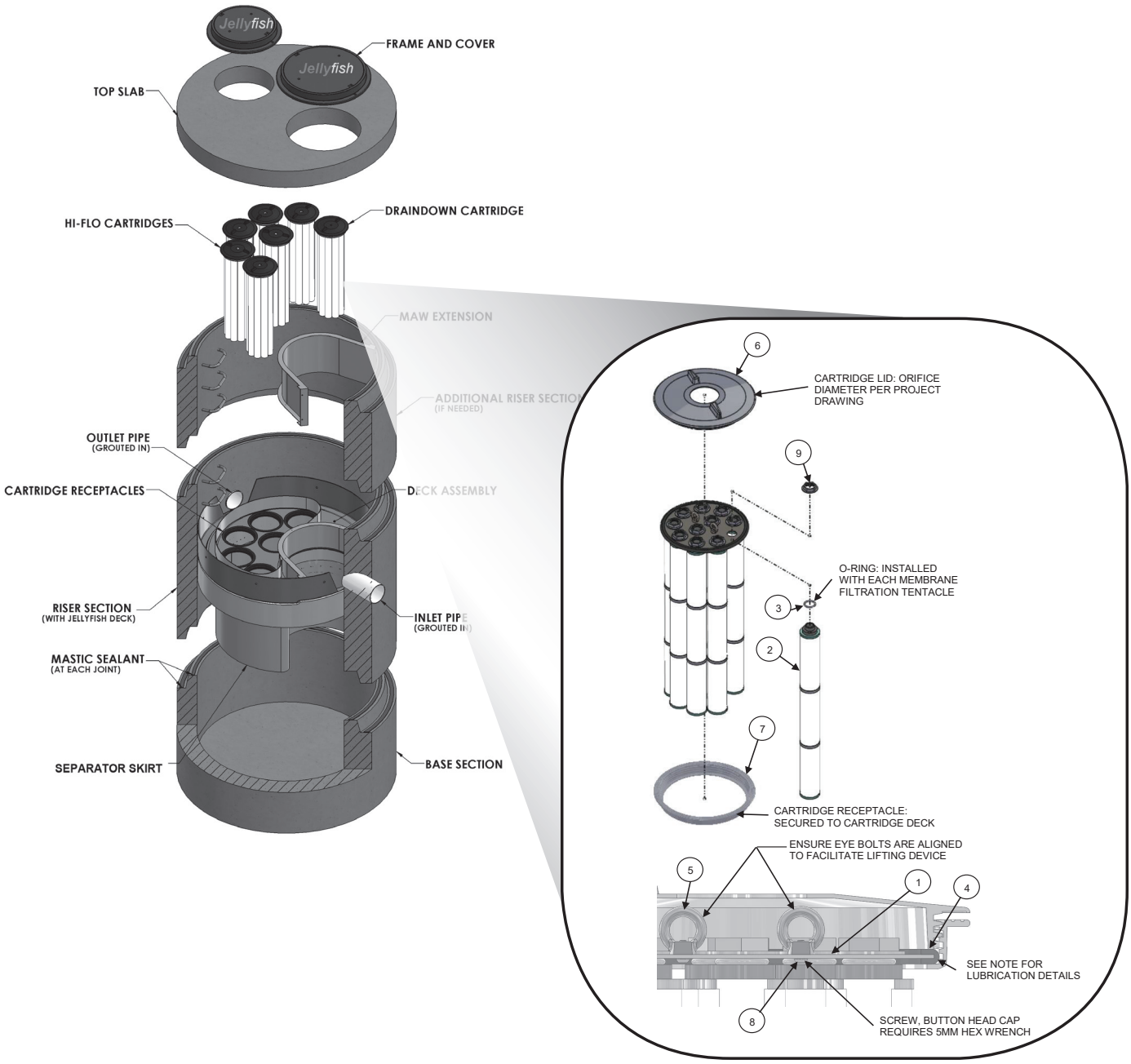


TABLE 1: BOM

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

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

800.338.1122
www.ContechES.com

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Filterra Owner's Manual



filterra®

Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

This Owner's Manual applies to all precast Filterra Configurations, including Filterra Bioscape Vault.







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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.

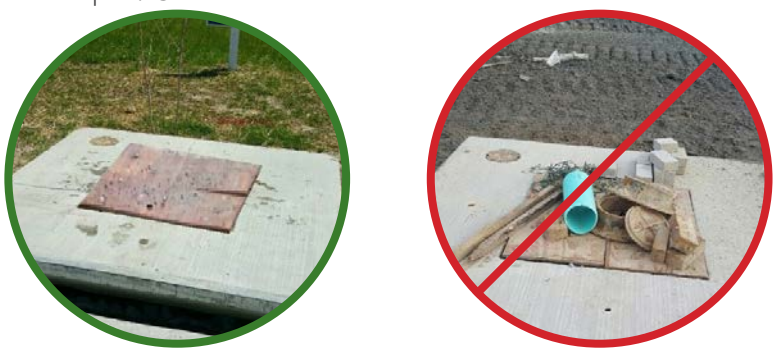
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

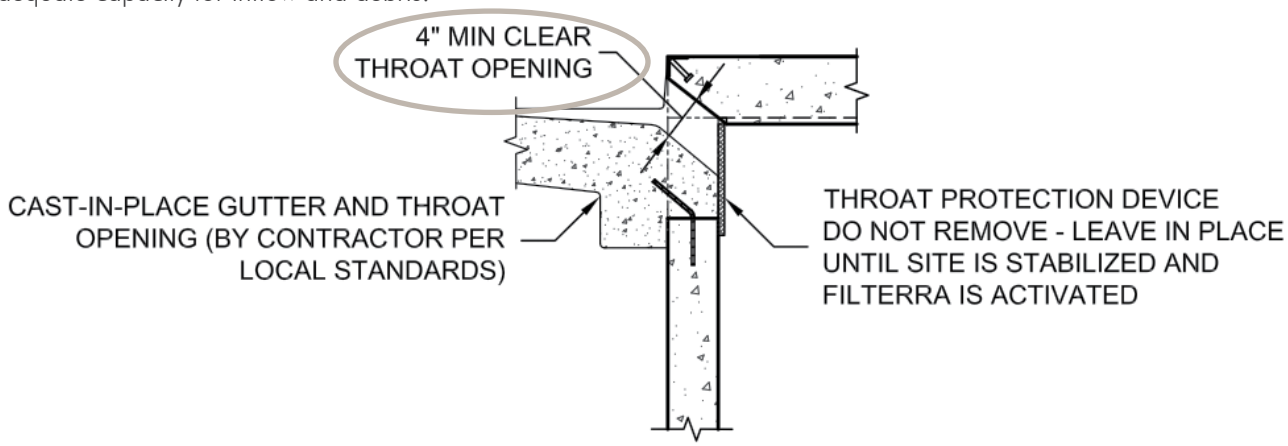
1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



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. Where curb inlets are included as part of the Filterra system, 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 is available on the Contech website 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 typically 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 provider 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 (where applicable) 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, where applicable (up to 170 lbs each). If tree grate opening expansion is necessary, safety glasses/goggles and a 3lb or greater mini sledgehammer are required. 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.

Media Bay Length	Media Bay Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	16	4	2
6	4	24	6	3
8	4	32	8	4
6	6	36	9	5
8	6	48	12	6
10	6	60	15	8
12	6	72	18	9
13	7	91	23	12

Other sizes not listed - 1 bag per 8 ft^2 of media.

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 (if applicable)	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 (if applicable) and erosion control stones

- Remove cast iron grates for access into Filterra box (if applicable).
- 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 (if applicable) correctly using appropriate lifting or moving tools, taking care not to damage the plant.
- Where applicable, if 6" tree grate opening is too close to plant trunk, the grate opening may be expanded to 12" using a mini sledgehammer. Refer to instructions in Appendix 3.



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 top of Filterra Unit	_____ (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 Top of Vault	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

CONTECH® ENGINEERED SOLUTIONS

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 ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No ☐ N/A	

Attach additional sheets as necessary.

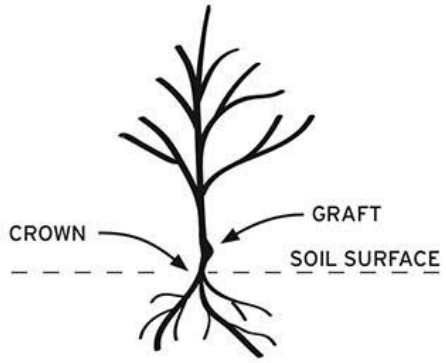
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void 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) may 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 with a tree grate of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant foliage 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 meets 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 top/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.



Appendix 3 – Filterra® Tree Grate Opening Expansion Procedure

The standard grates used on all Filterra configurations that employ Tree Grates are fabricated with a 6″ opening that is designed with a breakaway section that can be removed, allowing the grate opening to be expanded to 12″ as the tree matures and the trunk widens.

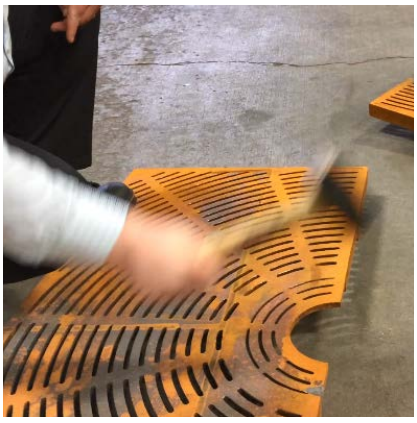
The following tools are required to expand the opening:

- Mini sledgehammer (3 lb. or greater)
- Safety Glasses / Goggles

The following guidelines should be followed to properly expand the tree opening from 6″ to 12″:



1. Remove the grate from the Filterra frame, place it flat on a hard surface, and support the grate by stepping on the edge or using other weighted items such as a few mulch bags if this is being done during a Filterra maintenance event. Put on safety glasses/goggles. Align the mini sledgehammer as shown in the figure to the left. The head of the sledgehammer should be aimed just inside the wide cast iron bar between the larger grate section and the breakaway section.



2. Repeatedly hit the grate at this spot with the mini sledgehammer.



3. After several hits, the breakaway section should snap cleanly off of the larger grate section. Reinstall the grate into the Filterra grate frame. Recycle or dispose of the breakaway section per local guidelines.





9025 Centre Pointe Drive, Suite 400
West Chester, OH 45069
info@conteches.com | 800-338-1122
www.ContechES.com

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PDF 6/21

Stormwater BMP Maintenance Log

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

6. CONSISTENCY WITH CITY OF PORTLAND PUBLIC INFRASTRUCTURE AND SAFETY STANDARDS (14.6.3)

Compliance with the City of Portland's Land Use Code Section 14.6.3 Public Infrastructure and Safety Standards is described in the following sections.

6.1 Public Safety and Fire Prevention

Provisions for public safety have been incorporated into the design of site visibility, access, and security. Adequate emergency vehicle access is provided via the proposed roadway. We have had multiple conversations with the Fire Department over the years throughout the Master Development Plan and previous site plan phases. Access remains consistent with what has been intended over the years of planning for this site.

6.1.1 Portland Fire Department Site Review Checklist

The items in the Portland Fire Department Site Review Checklist are addressed as follows:

- Name, address, telephone number of applicant:
    - Portland Foreside Development Company, c/o David Senus, PE
        - 110 Thames Street, Suite 200, Portland, ME 04101
        - (207) 558-3704
- Name, address, telephone number of architect:
    - Block 4
        - Perkins+Will, c/o Derek Johnson, LEED AP BD+C
        - 225 Franklin St, Boston, MA 02110
        - (617) 406-3430
    - Block 5
        - MARVEL, c/o Zachary Griffin
        - 145 Hudson Street, New York, NY 10013
        - (212) 616-0420
    - Block 6
        - Baskervill, c/o Burt Pinnock
        - 1051 E. Cary Street, Suite 200, Richmond, VA 23219
        - (804)728-3039
- Proposed uses of any structures [NFPA and IBC classification]:
    - The structures are mixed-use. Use classifications are provided on the code summaries included in the architectural plans.

- Square footage of all structures [total and per story]:
    - The square footage of all structures is provided on the architectural plans.
- Elevations of all structures:
    - The elevations of all structures are provided on the architectural plans.
- Proposed fire protection of all structures:
    - All structures shall be sprinkled.
- Hydrant locations:
    - Hydrant locations are shown on the Utility Plan.
- Water main size and location:
    - Watermain locations and sizes are shown on the Utility Plan.
- Access to all structures [min. 2 sides]:
    - Access will be provided to a minimum of two sides of all structures.
- A code summary shall be included referencing NFPA 1 and all fire department technical standards:
    - The buildings will be compliant with requirements of NFPA 101: Uniform Fire Code. Automatic sprinkler systems and fire alarms will be provided as required by Use and Occupancy types. Code summaries are provided on the architectural plans.

The life safety code plans for the proposed buildings are uploaded separately to the Drawings folder in Eplan.

6.2 Availability and Adequate Capacity of Public Utilities

The proposed development will be serviced by public water, sewer, gas, and electric utilities. The proposed locations of the utility services are shown on the Utility Plan included in the Design Drawings. The proposed development will also generate waste as a result of construction and post-construction operations.

6.2.1 Water

Woodard & Curran has been working directly with the Portland Water District (PWD) throughout the prior and current phases of work to ensure that all proposed infrastructure is being constructed in conformance with their standards. We previously received the ability to serve confirmation for the overall development and will provide required block-specific approvals as part of the Site Plan process for each phase of development.

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via a private water system that will connect to the public water main on Fore Street. Woodard & Curran is working directly with the Portland Water District to determine the appropriate design for this work. The ability to serve documentation for Phase 2 is attached to this section.

6.2.2 Sewer

The proposed development will be provided with sanitary sewer service as shown in the drawings. The private system on the site will include a combination of gravity sewer and force main with a pump station that will discharge to the sewer on the Thames Street Extension. The existing sewer service on Fore Street will be abandoned. The proposed development will include restaurants, kitchens, and parking garages; grease traps and oil/water separators will be provided as shown in the drawings. A copy of the City's determination of ability to serve will be provided upon receipt.

6.2.3 Gas

The proposed development will utilize natural gas service provided by Unitil. Proposed infrastructure is shown on the Utility Plan. The location and size of the gas service is being coordinated with Unitil. An ability to serve determination will be provided upon receipt.

6.2.4 Electric

The proposed development will utilize underground electric service. Proposed infrastructure is shown on the Utility Plan. The design of the electric service is being coordinated with Central Maine Power (CMP). Final electric layouts will be provided to CMP for their review and an ability to serve determination will be provided upon receipt.

6.2.5 Solid Waste

Adequate provisions for recycling and solid waste disposal have been made. All solid waste materials and recyclables generated by the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations. Solid waste will be managed in full accordance with all applicable laws and regulations.

6.2.6 Construction & Demolition Debris

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

6.2.7 Special & Hazardous Waste

The proposed development is not anticipated to produce any hazardous waste. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan has been developed for the site.

6.3 Attachments

- PWD Ability to Serve Email

Amy LeBel

From: AMaP MEANS <means@pwd.org>
Sent: Wednesday, March 22, 2023 3:47 PM
To: Lauren Swett
Cc: Thomas Whitney
Subject: 525766-58 Fore Street PH2, PO
Attachments: PO - Portland Foreside Ph II - Infrastructure Map - 2023.pdf

Hello Ms. Swett,

This email does not give final approval of the 58 Fore Street Phase 2 development project from PWD, however it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP or other governing body. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. Based on the demand provided by the applicant, the district has sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

Portland Water District

225 Douglass Street, PO Box 3553

Portland, ME 04104

Phone: 207-774-5961 x3199

E-mail: means@pwd.org

http://www.pwd.org

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Please consider the environment before printing this email



86 Leland Street

Portland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 20 40 80 120 160 Feet — 1 inch = 100 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: HAS	Infrastructure Map
Scale: As Noted	March 8, 2023

Mary McCrann

From: COUGH, JAMES <jcough@cmpco.com> on behalf of COUGH, JAMES
Sent: Thursday, July 20, 2023 2:45 PM
To: Mary McCrann
Cc: ENDSLEY, JASON; BOUCHER BOUCHER, ANTHONY; Brian Gardner
Subject: CMP Three Phase Service Process and Ability to Serve Letter
Attachments: Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; August 2022 EDET.xlsx; PFDC Illustrative Site Plan_2023.07.18.pdf

Mary McCrann, AICP | Director of Strategic Initiatives
Foreside Development Co.
110 Thames Street | Suite 200 | Portland, ME 04101

RE: Portland Foreside Ability to Serve for Blocks 4, 5 & 6
Fore Street, Portland, ME
Letter of Ability to Serve

SAP TBD

Project Description:

The Portland Foreside project includes the redevelopment of a 10.7 acre former industrial site into a mixed use property. The site has previously received electrical power to support the first phase of development, which includes a marina, and mixed use buildings containing primarily office and retail uses. The Project's Phase 2 work which includes the proposed Blocks 4, 5 and 6. The proposed mix of uses in Phase 2 includes the following:

Use	Block 4	Block 5	Block 6
Residential	247 units (Apartment & Townhome)	43 units (Condominium)	154 units (Condominium)
Hotel	N/A	128 units	N/A
Retail/Service/Restaurant	47,035 SF	42,708 SF	9,108 SF

The three blocks will all be built over a common parking plinth, with approximately 644 garage parking spaces proposed. The site area surrounding the three Blocks will be developed for pedestrian and vehicular access with site lighting proposed throughout the property.

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 CMP at 800-565-3181.

Here is our typical process for getting your three phase service installed. If you have any questions, please let us know. The underlined links will redirect you to the appropriate site for additional information.

Service Milestones for Three Phase Services and CT Rated Single Phase Services. There are additional requirements for primary metered Solar Service Installations listed in the Chapter 324 Interconnections section below. Please refer to CMP Installation Checklists for other installations.

- Call 800-750-4000 option 4 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. If the loads are over 500 kw, more in depth load studies may be required with our Distribution Planning and Transmission Planning Departments. Be advised that these will involve more detailed load information, a load study agreement (signed contract), as well as other items. This additional study process may add up to two additional months to completion of the job. In addition, the study results may require system upgrades that may not meet with your desired time frames. We will work with your team on any required upgrades to facilitate project phasing if possible. Additional costs for system upgrades will be accordance with our Terms & Conditions.
- Submit the easement information worksheet, including where any CMP structures may be on ANY private property (Poles, Wires, Anchors). You are responsible for obtaining all information for all required easements. 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.
- For Primary Metered installations (including PV), please have the access road in for pole staking.
- 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 scheduled once the preliminary information is complete. This will allow us to cost out the job and develop a CMP Invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- Submit completed W9 so that your bill can be properly processed. This is a new CMP process.
- 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. System impact studies and remedies may also add to expected energization lead time. 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.

As you may be aware, there are global supply chain issues impacting the utility industry. CMP is closely monitoring and managing their inventory in order to serve our customers. Larger padmount transformers may not be readily available for the date that you will need to be energized. Please consider this as part of your construction plan. The energy service advisor will continue to work closely with you and let you know as soon as the transformer becomes available. Should you have any questions or concerns throughout this process, please do not hesitate to contact your ESA directly at the number or email provided.

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 An additional resource is our Distribution Construction Standards: CMP Distribution Construction Standards CMP Distribution Construction Standards.

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.

In addition, we have recently added on an online map that shows single phase and three phase power locations within CMP. Here is that link: CMP ArcGIS Information

Metering:

All metering (including locations) must be preapproved by CMP. If you have any questions, please consult the CMP Handbook of Standard Requirements

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: Polyphase Line Extension.

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
W9

Regards,

Jamie

Jamie Cough
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207.629.1489

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Unitil

August 10, 2023

Woodard & Curran
41 Hutchins Dr,
Portland, ME 04102
Attn: Lauren Swett

Subject: Portland Foreside Phase 2
Re: Ability to Serve

Dear Lauren,

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that Unitil has natural gas in the vicinity to the proposed mixed use new construction project. Once the gas load is available we can size any mains, services and/or meter(s) that will be needed.

If you have any further questions or require additional information, please contact me at 207-541-2543 or email at carpenters@unitil.com.

Sincerely,
Scott Carpenter

Scott Carpenter
Senior Business Development Representative
207-541-2543

Amy LeBel

From: AMaP MEANS <means@pwd.org>
Sent: Wednesday, March 22, 2023 3:47 PM
To: Lauren Swett
Cc: Thomas Whitney
Subject: 525766-58 Fore Street PH2, PO
Attachments: PO - Portland Foreside Ph II - Infrastructure Map - 2023.pdf

Hello Ms. Swett,

This email does not give final approval of the 58 Fore Street Phase 2 development project from PWD, however it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP or other governing body. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. Based on the demand provided by the applicant, the district has sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

Portland Water District

225 Douglass Street, PO Box 3553

Portland, ME 04104

Phone: 207-774-5961 x3199

E-mail: means@pwd.org

http://www.pwd.org

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Please consider the environment before printing this email



86 Leland Street

Portland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 20 40 80 120 160 Feet — 1 inch = 100 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: HAS	Infrastructure Map
Scale: As Noted	March 8, 2023

Department of Public Works
Mike Murray
Director

Date: August 15, 2023
Re: Wastewater Capacity Authorization
Address: 58 Fore Street – Phase 2 – Block 4, 5 & 6
Applicant: Portland Foreside Development Company c/o David Senus, P.E.
Planner: Charles Tetelman

Dear Mr. Senus,
Thank you for providing the attached wastewater design flow calculations by way of your design firm, Woodard & Curran.

The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov

Sincerely,



Bradley A. Roland, P.E.,
Senior Project Engineer

PFDC Block 4				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Parking Garage	Toilet	325	0	0
Restaurant (Eating place, 3 meals/day)	Seat	30	70	2100
	Employee	12	14	168
Restaurant (Eating place, 2 meals/day)	Seat	20	43	860
	Employee	12	9	108
Retail (Employees at place of employment with no showers)	Employee	12	22	264
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	229	41220
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	18	4860
			Total	**49580**

PFDC Block 5				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Restaurant (Eating place, 3 meals/day)	Seat	30	469	14070
	Employee	12	63	756
Restaurant (Eating place, 2 meals/day)	Seat	20	173	3460
	Employee	12	35	420
Retail (Employees at place of employment with no showers)	Employee	12	13	156
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	16	2880
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	6	1620
Hotel (Hotel rooms with private baths)	Room w/bath	100	158	15800
	Employee	12	100	1200
Hotel room with kitchen	Bed	60	42	2520
Laundry, self-service	Machine	300	8	2400
Fitness, exercise, karate or dance center	100 SF	50	71.3	3565
Swimming pools, Bathhouses & Spas	Toilet	250	13	3250
			Total	**52097**

PFDC Block 6				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Parking Garage	Toilet	325	0	0
Restaurant (Eating place, 3 meals/day)	Seat	30	183	5490
	Employee	12	37	444
Restaurant (Eating place, 2 meals/day)	Seat	20	183	3660
	Employee	12	7	84
Retail (Employees at place of employment with no showers)	Employee	12	7	84
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	127	22860
Residential (single-family dwelling unit w/ 3 bedrooms)	Dwelling Unit	270	27	7290
Heated Pool	Toilet	250	0	0
Spa	Toilet	250	0	0
			Total	**39912**

Combined Design Flow to Private Pump Station/Thames Street	
Total	**141589**

Eastern Promenade Property (Net)				
Facility	Unit	Design Flow/Unit	Quantity	Design Flow (gpd)
Residential (single-family dwelling unit w/ 2 or less bedrooms)	Dwelling Unit	180	-5	-900
			Total	**-900**

Net Design Flow to Eastern Promenade	
Total	**-900**

https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/documents/SubsurfaceWastewaterDisposalRulesProposal.pdf

Att. 32

7. CONSISTENCY WITH CITY OF PORTLAND SITE DESIGN STANDARDS (14.6.4)

Compliance with the City of Portland's Land Use Code Section 14.6.4 Site Design Standards is described in the following sections.

7.1 Massing, ventilation, and wind impact

Buildings have been designed within a context of similarly scaled new and existing buildings. All primary mechanical equipment is housed either within buildings, or within a fully screened extent of roof located to minimize disruption to abutting properties. HVAC venting is directed away from adjacent public areas.

7.2 Shadows

Buildings have been designed to minimize impacts of shadows on open space and public areas that would affect the viability of the public use and existing vegetation. Over the course of the day, direct sunlight will be provided to adjacent areas to promote the use and growth of vegetation.

7.3 Snow and ice loading

Buildings have been designed to prevent snow and ice from accumulating and falling onto abutting properties and public ways.

7.4 View corridors

Buildings have been designed to accommodate view corridors identified in the City's regulatory requirements.

7.5 Historic Resources

A small portion (4 townhouses) of the proposed development is located within the Portland Company Historic District and the western façade of Block 4 is located within 100 feet of the Portland Company Historic District. The design of these components takes into consideration the review that was undertaken during the Master Development Plan process and the previous Level III Site Plan process. A portion of the residential condominium project associated with Block 6 is located partially within the Munjoy Hill Historic District. We will work with the Planning Division on the required historic preservation review concurrent with the Site Plan process.

7.6 Exterior Lighting

Site Lighting

Proposed exterior lighting will be addressed as part of a future submission. The photometric evaluation of the site is currently ongoing and will be provided under separate cover.

7.7 Noise and Vibration

The noise impact from the proposed development will be minor. The primary source of noise from the proposed project will be the result of construction. Construction activities will be limited to the hours permitted by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Noise associated with the proposed development will not exceed regulated levels and is not anticipated to negatively impact surrounding development in its urban setting. Noise and vibration associated with the proposed development will not exceed regulated levels.

7.8 Signage and Wayfinding

Sign permit applications will be submitted under separate cover. The size, scale, proportions, design, materials, placement, quantity and source and intensity of illumination shall be designed to complement and enhance the architectural attributes of the proposed building.

Consideration has been put into wayfinding to minimize vehicular traffic. The primary site entrances associated with Phase 2 are located off Fore Street and Thames Street, which will lead directly into the Block 4 parking garage. The Traffic Assessment provided in Section 3 includes a trip summary for each site entrance.

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Att. 33

June 23, 2023

Charles Tetelman, Planner
City of Portland
389 Congress Street, 4th Floor
Portland, Maine 04101

Re: Response to Design Review Comments – 58 Fore Street Phase 2
Project ID PL-002202-2022

Dear Charles:

Thank you for coordinating the review of the Level III Site Plan, Subdivision and Site Location of Development (SLOD) Amendment for Phase 2 of development at 58 Fore Street in Portland. We received the following Design Review comments on the project through you, and provide the following response:

REQUEST FOR ADDITIONAL APPLICANT MATERIALS

Staff is requesting additional materials to assist with the design review to include:

- Block 5: 3-dimensional and/or perspective renderings to illustrate the proposed building design with views from the water, view corridor and internal street network in context with the overall development site.

Response: Block 5 3-D renderings were uploaded to ProjectDox on April 25, 2023 and entitled "Block 5 Renderings". Updates have been made to some of the renderings, and a new version has been uploaded with this response to design review comments.

- Block 5 building material palette with images of proposed products

Response: Some of the materiality for Block 5 is shown on the previously submitted Block 5 Renderings. We are providing with this response an additional Block 5 material palette document to provide further clarification of the products that are being proposed. This has been uploaded to ProjectDox as the "Block 5 Material Palette."

- Block 4 renderings to show existing overhead electrical lines along Fore Street.

Response: Overhead electrical utility lines along Fore Street were shown on the Block 4 Renderings uploaded to ProjectDox on March 9, 2023 and entitled "2023.02.21 PFDC Harbor Hill HP Materials & Renderings" and uploaded on March 19, 2023 entitled "Block 4 Renderings". Renderings have been updated and re-uploaded as part of this response to comments, and continue to include the overhead utility lines.

Design Review Comments | June 2, 2023 | PL-002202-2022

DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, red text denotes standards not met to require resubmission.

A. Land Use Code section 14.7.5 – *Master Development Plan for 58 Fore Street*

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

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

Response: Noted.

h. 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,…

Staff comment: Staff finds the site plan application to be generally consistent with the overall master plan development.

Response: Noted.

l. *Designed 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;…*

Staff comment: The site plan application for Block 4, 5 & 6 is generally consistent with the overall master plan development with the exception of the additional property located at the eastern portion where Block 6 extends into the R-6 zone and Munjoy Hill historic district. The applicant shall relate to the context of the surrounding residential neighborhood through building scale, massing and articulation. Staff is requesting the applicant provide additional material for [Block 6] north outdoor open space and pedestrian linkages proposed for the new property boundary in relationship to the existing adjacent residential structures at Fore Street.

Staff finds several inconsistencies from the approved Master Development Plan regarding protection mechanism (shown as a landscape buffer) along the railroad right of way to restrict public points of access into the development.



*approved master plan development overall site plan

Response: For northeast entrance to Block 6, we have updated the drawings in the Phase 2 Civil Plans and Details to show the space with some parking spaces to be used for drop-offs, and additional landscape area. The remaining structures on the Eastern Promenade will be part of a future site plan application that will look at that property and consider how any revisions can be made to integrate it further with the Block 6 entrance.

Along the Narrow Gauge Railroad Right of Way, there have been intermittent planters incorporated into the space south of the Block 5 building. These planters are on the Portland Foreside property, not in the Right of Way, as they had originally been shown at the time of the Master Development Plan. The space within the Right of Way is now reserved for railroad infrastructure and the surrounding ballast. A vertical granite curb is included to connect the space in between the proposed planters and rail crossings to further define the separation of the two spaces. We can discuss with the Narrow Gauge Railroad if there may be opportunities to add additional landscape buffering, like a narrow strip of sea grasses, within the Right of Way to add further buffering, but the goal has been to keep the space as visibly open as possible. We will work with the Narrow Gauge Railroad on any additional safety signage that may be beneficial.

B. Eastern Waterfront Master Plan – *Design Guidelines for Portland's Eastern Waterfront*

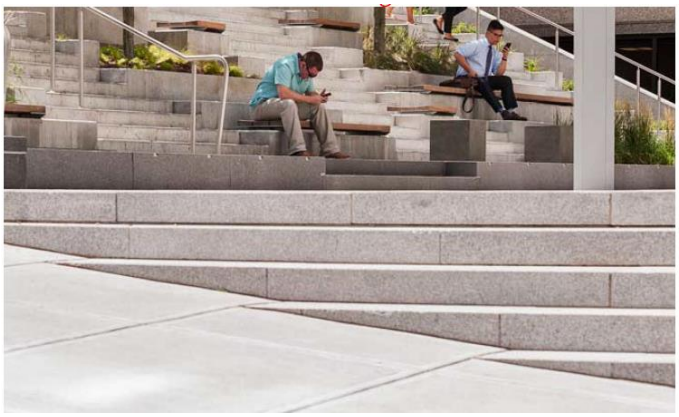
Streets: *The retention and expansion of pedestrian scaled street grid…*

1. Public Streets: The applicant proposes to maintain vehicular and pedestrian access along Fore Street, staff recommends additional crosswalks and curb ramps at St. Lawrence, Atlantic and Munjoy Street to connect the existing neighborhood across Fore Street.

Response: The City of Portland recently conducted a sewer separation and road reconstruction project on Fore Street that included the section of the road along the project frontage and all referenced intersections. During the design of this project, crosswalks were evaluated at intersections along Fore Street based on traffic flow, grades, and existing conditions. The installed pedestrian ramps along the northern side of Fore Street reflect the results of these discussions. The existing crosswalk at Atlantic Street will be maintained, and a crosswalk will be added at Waterville Street once the southern sidewalk is complete and receiving ramps are constructed. Granite tipdown curb sections were installed during the sewer separation at the future Waterville Street ramp location on the northern side of Fore Street to enable pedestrian ramp installation without impacting the newly surface-paved roadway. Tipdowns were not installed along the northern edge of Fore Street at St. Lawrence Street or Munjoy Street. Construction of pedestrian ramps at these locations would result in a much larger disturbance, especially now that Fore Street is under moratorium. Renderings have been updated to be consistent with the proposed crosswalk locations.

2. Sidewalks: The applicant proposes brick sidewalks per city standards along Fore Street. Staff observes the applicant's intent to comply with accessibility requirements and continues to support building entries of the Block 4 Townhouses at Fore Street, however, staff finds the new retaining wall encroachment to be in conflict with this standard *to accommodate visiting and residential pedestrians comfortably and safely*. In particular, staff finds that the proposed retaining wall creates several vertical elevations

above 30 inches to require a guardrail that would not contribute to the value of the pedestrian experience along Fore Street. Staff recommends the applicant replace the retaining wall for stairs to transition the grade difference between the Fore Street sidewalk and paved access to new building entries. The applicant should consider additional landscape opportunities, such as planters, sloped planting areas or other that would consider the existing wall, to mitigate the grade changes between Fore Street sidewalk and new building entries.



Precedent image (courtesy of Christian Phillips Photography, KMDG, landscape architect) to illustrate grade transition along sloped sidewalk condition

Response: The design team recognizes that permanent construction must remain out of the ROW. In addition, we've evaluated the potential for stair grade transitions along Fore Street, and the number of risers and treads necessary would take up more space than is available. The Block 4 Townhouse design has been revised to move the required site features out of the ROW, maintaining only sidewalk within the Fore Street ROW space. There will be below-grade foundation features required in the City ROW, and we understand that a license will be required from the City for this structure. Project drawings including Block 4 Elevations and Renderings and Phase 2 Civil Plans have been updated to reflect these changes.

3. Railroad Right of Way: Staff requests the applicant provide additional detailing, including selection of materials and signage to allow for safe pedestrian access routes at key locations (shown by red arrows) across the railroad right of way. The applicant shall provide additional landscape buffering (e.g., planting areas or low transparent fencing) between the proposed development and railroad right of way to consolidate safe pedestrian access points.



*major site plan landscape plans (combined)

Response: We are working on the railroad crossings as part of the separate site plan application that addresses changes to the Phase 1 site plan approval and includes work within the Narrow Gauge Railroad Right of Way. As noted in a previous comment, along

the Narrow Gauge Railroad Right of Way, there have been intermittent planters incorporated into the space south of the Block 5 building. These planters are on the Portland Foreside property, not in the Right of Way, as they had originally been shown at the time of the Master Development Plan. The space within the Right of Way is now reserved for railroad infrastructure and the surrounding ballast. A vertical granite curb is included to connect the space in between the proposed planters and rail crossings to further define the separation of the two spaces. We can discuss with the Narrow Gauge Railroad if there may be opportunities to add additional landscape buffering, like a narrow strip of sea grasses, within the Right of Way to add further buffering, but the goal has been to keep the space as visibly open as possible. We will work with the Narrow Gauge Railroad on any additional safety signage that may be beneficial.

4. Underground Utilities: Staff supports the underground utilities proposed within the development and observes the existing overhead electrical lines and utility poles to remain along Fore Street. Staff acknowledges the existing cobrahead municipal lights fixed to existing utility poles and shall review exterior lighting during a future submission as the applicant has not provided an exterior lighting replacement.

Response: On Fore Street, we intend to maintain the existing cobrahead lights on the utility poles for site lighting. The Phase 2 Photometrics plans have been updated to show the locations of the existing lights that have been evaluated as part of the overall photometrics design. The revised photometrics plans are uploaded to ProjectDox.

Buildings and Architecture: *Architecture that enhances the development of a mixed-use and marine inter-modal transportation center, and is compatible with the surrounding neighborhood…*

1. Building Composition

    a. Height: The building heights for the Block 4 Townhouses on Fore Street are compatible with the residential building of 3-4 stories located within a two-block radius. The development observes the building break line between Block 4 and Block 5 to divide the building mass into separate distinct buildings of various heights. Block 6 is located at the eastern most portion of the development with the tallest building heights. Staff finds the Block 5, 6 building heights exceed the B-6 building height overlay map with the established average grad (50'). Staff finds the increase in Block 5 heights above Block 4 does not correspond to the B-6 building overlay map's intent to stepdown the building heights towards the waterfront and will continue to review the Block 5 heights related to the City's average grade interpretation.

Response: The enclosed elevations have been notated to show how each of the buildings will meet the height overlay map's requirements.

    b. Massing: The buildings on the western half of the Foreside development site have long and low massing consistent with the historic industrial complex and working waterfront building typologies. The building massing of the Block 4 West Wrapper provides height transitions that step-up towards the west of the development to create a strong relationship with Building 3 and 6B. Staff

recommends Block 5 provide building height transitions by incorporating stepbacks at the southwest elevation. Block 6 is sculpted by many volumetric planes highlighted with changes in the material that staff finds to reduce the building massing.

Response: The Block 5 building has been modified slightly to provide a stepback on the southwest elevation. The ground and second floors are now designed to be slightly forward from the upper floors. The revised Block 5 drawings reflect this change.

c. Proportion: The Block 4,5 & 6 buildings share a similar horizontal orientation with ample window openings unique to each building. The facades along the Thames Street extension include storefront windows to create pedestrian-scaled proportions. The waterfront facades shall be pedestrian scaled and respond more to the intended retail use, staff requests additional articulation or an increased fenestration pattern to reduce the Block 6 ground-level blank facades. In addition, Staff recommends the applicant relocate the Block 6 wharf vehicle storage to promote a stronger pedestrian-activated façade facing the waterfront and discourage marine vehicles within the pedestrian plaza.

Response: The service door is sited to have the least impact on the activation of the Block 6 Terrace, as well as the MNGRR and Eastern Promenade Trail. The location of this door will be further studied along with architectural interventions to enhance the pedestrian experience. Additional fenestration and pattern at the ground level will be incorporated into the design.

d. Materials: Materials shall reflect the historic character of Portland's waterfront. Each building employs a variety of exterior materials and rhythms to complement a contemporary architectural style. Staff will continue to review materials based on future historic preservation board meetings for consistency throughout the development.

- Block 4 Townhouses along Fore Street: The exterior material context of the surrounding neighborhood includes the use of brick, natural stone, and clapboard siding. Based on the architectural renderings, the brick façade, framed windows and roofline articulation separates the Block 4 Townhouse from the internal Block 4 building design. The applicant shall provide exterior material selection on elevations for staff review.

Response: Updated Block 4 renderings are provided with material selection information included.

- Block 5: Staff requests exterior finish material palette imagery for Block 5. Staff is concerned with the reflective infill panel due to glare at the northwest elevation and requests the applicant provide additional narrative and materials for review.

Response: Exterior finish materials were shown on the prior renderings provided for Block 5. Further information is included in a new Block 5 Material Palette document uploaded to ProjectDox with this submission. In addition, it is noted that there are no reflective infill

panels proposed on the northwest elevation of Block 5, as indicated on the renderings and elevations that have been provided.

- Block 6: Staff recommends consideration of a larger format stone to respond to a larger building scale, in addition to historic preservation staff reference to the more monumental stone material found in the nearby context. The proposed stone cladding at the west elevation seems generally out of scale with the mass of the building, staff recommends the applicant consider a horizontal rainscreen panel material above a stone cladded base.



Response: The project team is considering staff's recommendations for larger format stones and is evaluating a larger stone clad base. We will coordinate with the City further as we are considering possible material sources.

2. Pedestrian Environment: Staff finds the Block 4,5 & 6 development generally fosters a walkable pedestrian environment through a unified streetscape at the Thames Street extension with unique surface paving, street trees and lighting. Staff finds the Block 4 Fore Street pedestrian environment to be insufficient and suggests the applicant minimize any encroachments into public right of way to allow for ample sidewalk widths, plantings and pedestrian amenities where possible. Staff recommends a greater concentration of street trees, the applicant should consider a street tree alternative for new trees within the view corridors of St. Lawrence Street and Atlantic Street or allow for street trees within the private property along Fore Street that would require building recessions at the street-facing Block 4 Townhouse facades.

Response: As noted previously, the Block 4 Townhouses have been revised to move site features out of the ROW. The enclosed Block 4 Elevations and Renderings reflect this change to the buildings, site, and landscape features. The landscape design in this area is largely driven by the accessible route of travel adjacent to the sidewalk. The landscape design is also impacted by the presence of the existing Fore Street retaining wall, which provides a restriction on the plantings that are acceptable in the area. It is not recommended that any street trees be planted within the Fore St sidewalk, as these trees may have a negative impact on the retaining wall.

3. Primary Entrances and Service Entrances: Staff supports the clearly articulated primary entrances expressed with distinct materiality at each building as a unifying building

component throughout the development. Service entrances appear to be internal to the site with shared infrastructure. Staff finds the service garage doors at the shared street-facing facades reduce the pedestrian experience and recommends the Block 5 loading dock adjust away from spa and fitness entrance, if possible, to consolidate the rooftop bar entrance (see image below).



Response: The service door is not able to move due to complex coordination of grades on Thames Street and due to the required operational layout of the interior to maintain separation between service corridors, the freight elevator, and public areas. We have updated the design of the service door to match our regular glazed fenestration, changing to a frosted glazed garage door that will better blend with the rest of the façade and feel less like a loading area. The revised Block 5 drawings reflect this change.

Staff finds the building entry south of the garage parking entry at the west elevation is not clearly articulated (see image below), the applicant shall provide additional architectural elements such as a canopy or additional fenestrations that correspond to the Block 4 West Wrapper.

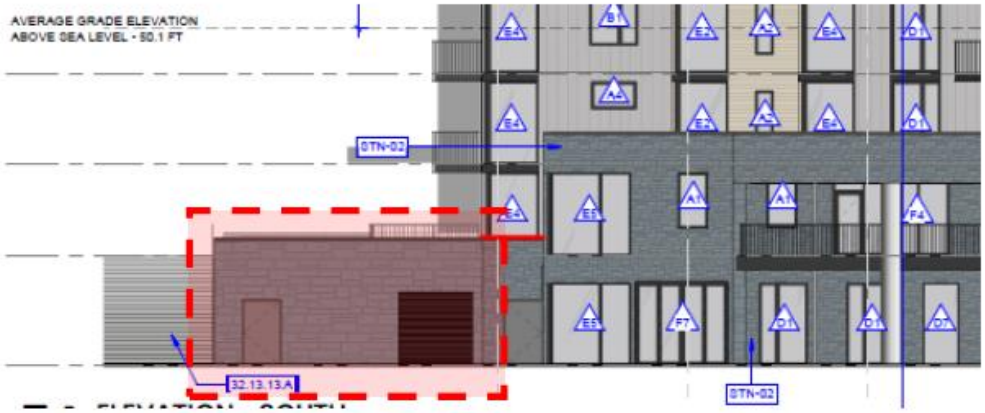


Response: The Block 4 garage entry concerns have been discussed and addressed as part of the Historic Preservation review, and updated Block 4 Elevations and Renderings reflect these changes.

4. Historic Structures: A portion of the Block 4 development is within the Portland Company historic district and a portion of the Block 6 development is within the Munjoy Hill historic district, both are subject to Historic Preservation Board review and applicable design standards. The applicant shall incorporate Historic Preservation board reviews that impact the design of the overall development.

Response: Blocks 4 and 6 are currently under review by the Historic Preservation Board, and recommendations from that Board will be incorporated into the design.

5. Marine Development: Staff observes the Block 6 marine support loading area, service entry and garage door located adjacent to the lower plaza between Block 5 and Block 6. Staff finds the activation of the Block 6 pedestrian-oriented plaza and associated retail uses adjacent to the railroad right of way conflicts with the location of the marine support loading area. Staff recommends the applicant relocate to avoid potential conflicts with vehicles and pedestrians. Staff will review additional railroad right of way crossings as needed as shown in the minor site plan amendment PL-002252-2022.



Response: As noted previously, the service door is sited to have the least impact on the activation of the Block 6 Marina Terrace, as well as the MNGRR and Eastern Promenade Trail. The relocation of the vehicle door will be evaluated along with architectural interventions to enhance the pedestrian experience.

Open Space and the Open Realm: *The character of public streets and sidewalks is the primary determinant of the quality of the public realm…is further defined and enhanced by the incorporation of quality open spaces…*

1. Private Open Space and Plazas: Private open spaces are adjacent to Block 4,5 & 6 retail uses to allow for seating and entries. Internal private open spaces are unique to each building through shared courtyards, rooftop terraces and private balconies for residents. The applicant shall confirm if any shared private opens space (e.g., balconies, terraces, etc.) is proposed for Block 5.

Response: Balconies and Exterior Roof Terraces are indicated on the Block 5 floor plans, and these areas have been highlighted on the updated plans included with this response to comments submission. The large roof terrace on the third floor is intended for shared use by residential tenants. Other roof terrace areas are carved out for individual condo units. Select hotel rooms have terrace space on the third floor as well.

Water's Edge: *The interaction of land activities with harbor activities creates the essential value and character of the Eastern Waterfront district…The successful accommodation of a diverse mixture of people and activity through quality design will best maximize the value of the water's edge.*

1) Public Access to Water: The applicant shall incorporate railroad crossings appropriate to the intended use, staff finds that the conflicts between pedestrians and marine service vehicles shall be minimized to the greatest extent possible.

Response: As noted previously, we are working on the railroad crossings as part of the separate site plan application that addresses changes to the Phase 1 site plan approval and includes work within the Narrow Gauge Railroad Right of Way. The need for service vehicle crossings has been minimized.

2) Lighting: The development provides exterior lighting appropriate at view corridors. Staff requests additional lighting plans and fixture information associated with the Block 5 & 6 buildings to include façade mounted fixtures.

Response: We have submitted additional information about the proposed building lighting fixtures. Two documents on Block 5 Lighting and Block 6 Lighting have been uploaded to the Documents section of ProjectDox.

C. City of Portland Design Manual

i. Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts and emergency shelters.

a. Proposed Structures and related site improvements shall meet the following standards:

iii. *Open space on the site for all multiple-family development shall be integrated into the development site.*

Staff comment: The development of Block 4 & 5 integrates open space within the building through shared courtyards, balconies and roof terraces. Staff observes a green roof in the view corridor of Block 5 along with rooftop amenities specific to the upper condo units. Staff finds that Block 5 does not address open space for each residential unit and requests the applicant provide additional open space (e.g., balconies, shared roof terrace or other outdoor space) and an architectural narrative to meet this design standard.

Response: As noted, in a previous comment response, balconies and exterior roof terraces are indicated on the Block 5 floor plans, and these areas have been highlighted on the updated plans included with this response to comments submission. The large roof

terrace on the third floor is intended for shared use by residential tenants. Other roof terrace areas are carved out for individual condo units. Select hotel rooms have terrace space on the third floor as well.

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
Technical Manager

The following supporting documents have been uploaded to ProjectDox, each is noted as a new upload or a revision to materials that have previously been uploaded:

- Block 5 Renderings (Revised)
- Block 5 Material Palette (New)
- Block 4 Renderings (Revised)
- Block 4 Elevations (Revised)
- Block 4 Floor Plans (Revised)
- Phase 2 Civil Plans and Details (Revised)
- Block 5 Elevations (Revised)
- Block 5 Foor Plans (Revised)
- Block 6 Elevations (Revised)
- Block 6 Floor Plans (Revised)
- Block 6 Renderings (Revised)
- Block 5 and 6 Lighting (New)
- Photometrics Plans (Revised)

cc: Dave Senus, PFDC
Mary McCrann, PFDC
Shelby Burgau, PFDC

426 Portland Foreside B5
Lighting Fixture Schedule (see attached fixture details)
Design Development

May 12, 2023

Type	Description	Location	Finish	Lamp	Watt	Volt	Mfr.
Exterior							
FXA	Surface mounted LED area light sconce.	Ground Level Entries	Architect to Confirm	1659lm 3000K LED	14W	Per EE	Bega
FXB	Exterior rated, fully recessed LED downlight with nominal 3" round micro-flange bevel trim.	Ground Level Entries	Architect to Confirm	1506lm 3000K LED	14W	Per EE	Lucifer
FXC	Exterior rated, surface mounted LED tape light with fully diffuse potted lensing.	Landscape Benches	Standard	187lm/ft 3000K LED	4 W/LF	LV/Per EE	Acclaim
FXD	Fully submersible recessed mounted linear LED pool light.	Pool Steps	Standard	76lm/ft 3000K LED	3 W/LF	LV/Per EE	Filix
FXE	Fully submersible recessed mounted LED pool marker light.	Pool	Standard	600lm 3000K LED	9W	LV/Per EE	Filix
FXF	Stake mounted LED tree uplight.	Landscape Throughout	Architect to Confirm	1091lm 3000K LED	13W	Per EE	BK Lighting
FXG	Surface mounted LED garden bollard area light with 360 degree distribution.	Landscape Throughout	Architect to Confirm	915lm 3000K LED	20W	Per EE	Targetti
FXH	Surface mounted LED handrail stanchion light.	Terrace Handrails	Standard	116lm 3000K LED	2W	LV/Per EE	Wagner
FXI	NOT USED						
FXJ	Fully recessed LED step light.	Landscape Throughout	Standard	269lm 3000K LED	6W	LV/Per EE	Sistemalux
FXK	Fully recessed exterior rated LED downlight integrated into terrace pergolas.	Pergolas	Standard	540lm 3000K LED	5W	LV/Per EE	ZANEEN
FXL	Exterior rated ingrade LED grazer uplight.	Mechanical Equipment Screen	Standard	4586lm/ft 3000K LED	9 W/LF	Per EE	Lumenpulse
FXM	Recessed linear LED handrail light.	Ground Level Stairs	Standard	152lm/ft 3000K LED	4 W/LF	LV/Per EE	Wagner

426 Portland Foreside B5
Lighting Fixture Schedule (see attached fixture details)
Design Development

May 12, 2023

Type	Description	Location	Finish	Lamp	Watt	Volt	Mfr.
FXN	Surface mounted LED floodlight.	Rooftop Terraces	Architect to Confirm	1597lm 3000K LED	27W	LV/Per EE	BK Lighting
FXO	NOT USED						
FXP	Surface mounted LED sconce.	Private Terraces	Architect to Confirm	781lm 3000K LED	20W	Per EE	Artimede

Note:

1. Contractor to confirm all input wattages with specified voltages.
2. Contractor to verify all fixture mounting as required per code.
3. Contractor to verify all ceiling types for trim compatibility; ACT to have overlap flange, gyp to have mud-in trimless flange.
4. Contractor to provide fixture with flicker-free dimming where dimming is required to avoid ripple effect with video conferencing e
5. Remote drivers / control modules to be located in nearby, accessible location.
6. Architect to verify all finishes.



FMS SHEETS FOR REFERENCE ONLY - REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS

100% DD	12 MAY 2023
DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 1ST FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-101

Fisher Marantz Stone Partners in Architectural Lighting Design
22 West 19th Street, Floor 6 New York, NY 10011 | +1 212 691 3020
80 Vine Street, Suite 202 Seattle, WA 98121 | +1 206 691 0101
www.fmsp.com

LEVEL 02 PLAN A (1/A-102A LEVEL 02 PLAN B (1/A-102B)



FMS SHEETS FOR REFERENCE ONLY - REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS

100% DD	12 MAY 2023
DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 2ND FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-102

Fisher Marantz Stone Partners in Architectural Lighting Design
22 West 19th Street, Floor 6 New York, NY 10011 | +1 212 691 3020
80 Vine Street, Suite 202 Seattle, WA 98121 | +1 206 691 0101
www.fmsp.com



FMS SHEETS FOR REFERENCE ONLY - REFER TO ARCHITECTURAL AND ELECTRICAL DRAWINGS

100% DD	12 MAY 2023
DD PROGRESS SET	28 APR 2023
Issued For:	DATE:

FMS

Project PORTLAND FORESIDE B5

Title 3RD FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-103

Fisher Marantz Stone Partners in Architectural Lighting Design
22 West 19th Street, Floor 6 New York, NY 10011 | +1 212 691 3020
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Project PORTLAND FORESIDE B5

Title 4TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-104

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Project PORTLAND FORESIDE B5

Title 5TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-105

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Project PORTLAND FORESIDE B5

Title 6TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-106

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Project PORTLAND FORESIDE B5

Title 7TH FLOOR OVERALL PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-107

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Project PORTLAND FORESIDE B5

Title 8TH FLOOR OVERALL PLAN (HOTEL) - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-108

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Project PORTLAND FORESIDE B5

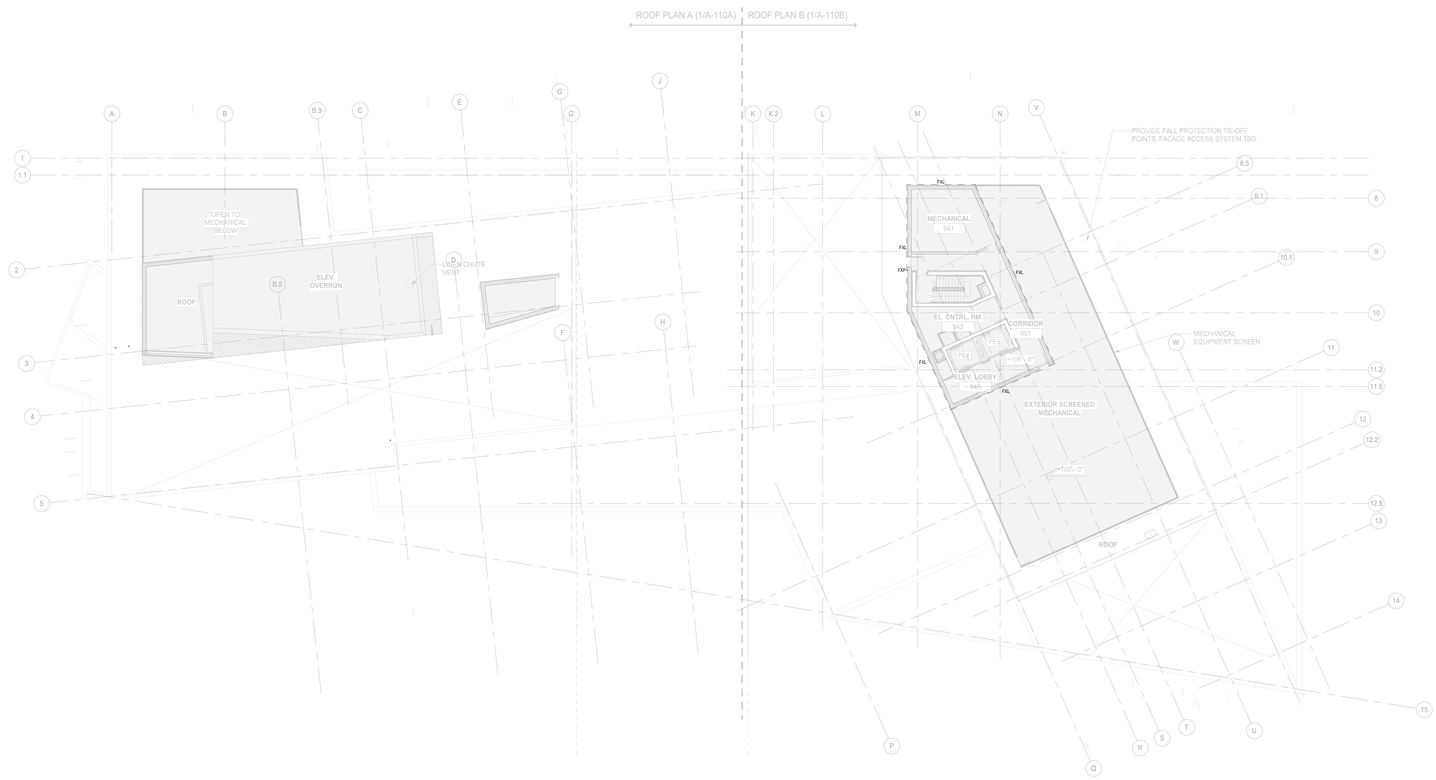
Title 8TH FLOOR OVERALL PLAN (CONDO) - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-109

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FMS **Project** PORTLAND FORESIDE B5

Title ROOF PLAN - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-110

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Project PORTLAND FORESIDE B5

Title 2ND FLOOR OVERALL RCP - LIGHTING LAYOUT

Job No. 426

Scale 1/16" = 1'-0"

LT-202

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Application
This wall mounted LED luminaire features a forward throw light distribution and is designed for the general illumination of pathways and walkways from various mounting heights. Downlight applications only.

Materials
Luminaire housing constructed of die-cast marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Clear safety glass with optical texture
High temperature silicone gasket
Mechanically captive stainless steel fasteners

NRTL listed to North American Standards, suitable for wet locations
Protection class IP64
Weight: 3.7 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	13.9 W
System wattage	17 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	1659 lumens (3000K)
Lifetime at Ta = 15° C	>500,000 h (L70)
Lifetime at Ta = 50° C	101,000 h (L70)

LED color temperature

☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☉ 3000K - Product number + **K3**
☐ 2700K - Product number + **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.

Available colors ☐ Black (BLK) ☐ White (WHT) ☐ RAL:
☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

Type:
BEGA Product:
Project:
Modified:





LED wall luminaire · shielded with forward throw

	LED	A	B	C
33817	13.9 W	5 1/8	9 1/8	5 3/8

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 09/10/18

100% Design Development

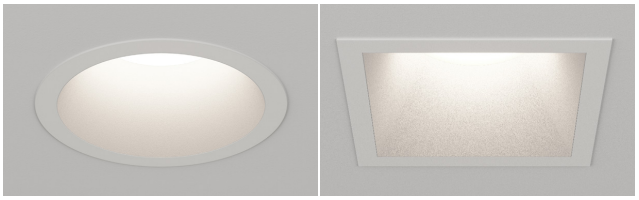
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Project **Portland Foreside B5** Date **12 May 2023** Type **FXA**
Architect **Marvel** Proj No. **522426**

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FRAXION®3 SLIM FIXED

PROJECT NAME:	TYPE:



Lots of light in an under-the-radar profile, with multiple design and installation options, ideal for corporate offices and retail settings.

ORDERING INFORMATION - DOWNLIGHT / HOUSING

JA8-2019 INDICATED BY SHADING

SHAPE	TRIM	RATING	TYPE		FLANGE FINISH	BAFFLE FINISH		LUMEN PACKAGE	CCT	OPTIC	INSTALL TYPE	CEILING THICKNESS		DRIVER	EFFECTS DEVICE
			F	-			-						-		
F3R Round F3S Square	M Microflange T Trimless Drywall W Trimless Millwork	1 Dry/Damp 2 Wet* *(Requires provided suction cup to service or aim & focus)	F Fixed		WH White AG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer 00 Trimless* *(Required for trimless) CF Custom Finish* *(Consult Factory)	WH White AG Satin Silver AU Cashmere Gold BB Burnt Bronze BK Black PR Primer CF Custom Finish* *(Consult Factory)		STATIC WHITE 80C12A 80+ CRI Dlvd. Lumens - 795 80C16A 80+ CRI Dlvd. Lumens - 1095 80C23A 80+ CRI Dlvd. Lumens - 1506 90C10A 90+ CRI Dlvd. Lumens - 683 90C14A 90+ CRI Dlvd. Lumens - 936 90C19A 90+ CRI Dlvd. Lumens - 1291 97C10A 97+ CRI Dlvd. Lumens - 608 97C12A 97+ CRI Dlvd. Lumens - 833 97C17A 97+ CRI Dlvd. Lumens - 1151* *(Not available for IC housings)	22 2200K* *(Only available with 90C10A and 90C14A) 27 2700K 30 3000K 35 3500K 40 4000K	10 10°* *(Only available with 80C12A, 90C10A and 97C10A. Not available with 2200K) 15 15° 22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)	INTEGRAL DRIVER X IC Y NIC C IC, Airtight* *(Chicago Plenum, Airtight & Title 24 compliant housing) REMOTE DRIVER V IC, Remote W NIC, Remote D IC, Airtight, Remote* *(Chicago Plenum, Airtight & Title 24 compliant housing)	1 0.50" - 1.375" 2 1.375" - 2.125" T 0.50" - 1.375"* *(Includes adjustable housing height bracket, recommended for any T-Grid or Furring Channel applications)		INTEGRAL PH ELV/Triac, 2% 120V* *(Not available for 80C12A, 90C10A, and 97C10A) SG 0-10V Analog, LOG 1% 120 or 277V SN 0-10V Analog, LIN 1% 120 or 277V EG eldoLED, SOLOdrive 0.1% 0-10V, LOG* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) EN eldoLED, SOLOdrive 0.1% 0-10V, LIN* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) ED eldoLED, SOLOdrive 0.1% DALI-2, LOG* *(Not available for 80C23A, 90C19A, or 97C17A in all IC install types) REMOTE (120V) L2 Lutron, Hi-Lume 1% 2-wire REMOTE (120-277V) LH Lutron, Hi-Lume 1% Ecosystem EG eldoLED, SOLOdrive 0.1% 0-10V, LOG EN eldoLED, SOLOdrive 0.1% 0-10V, LIN ED eldoLED, SOLOdrive 0.1% DALI, LOG TUNABLE WHITE REMOTE (120-277V) DG eldoLED, DUALdrive 0.1% 0-10V, LOG DN eldoLED, DUALdrive 0.1% 0-10V, LIN DD eldoLED, DUALdrive 0.1% DALI, LOG	STANDARD EFFECTS DEVICE 04 Soft Focus Lens NL No Lens* *(Standard with 10° optic. Not available for Wet location, Warm Dim or Airtight Housings) ALTERNATE EFFECTS DEVICE 02 Honeycomb Louver* *(Not available for Wet location, Warm Dim or Airtight Housings) 03 Clear Glass Lens* *(Not available for Warm Dim) 05 Frosted Glass Lens 08 Frosted Soft Focus Lens 14 Wide Distribution Lens* *(Required and only available for 85° beam spread) 26 Frosted Linear Spread Lens
								WARM DIM 90W11A 90+ CRI Dlvd. Lumens - 856 Incandescent Profile 90W12A 90+ CRI Dlvd. Lumens - 962 Standard Profile *SEE PAGE 3 FOR DETAILED WARM DIM PROFILE COMPARISON.	WL 2700K - 1800K WD 3000K - 1800K	15 15° 22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)					
								TUNABLE WHITE 90T12A 90+ CRI Dlvd. Lumens - 950* *(Only available for remote housings) *ALL DELIVERED LUMEN OUTPUTS AND T24 COMPLIANCE REFLECT 3000K PAIRED WITH 40° OPTIC AND SOFT FOCUS LENS. REFERENCE PAGE 3 FOR ADDITIONAL T24 COMPLIANT CONFIGURATIONS.	TW 5000K - 2700K	22 22° 40 40° 60 60° 85 85°* *(Uses 60° optic and optional configuration 14 (WDL) to achieve 85° beam spread)					

(WH) White Powder Coat

(AG) Satin Silver Powder Coat

(AU) Cashmere Gold Powder Coat

(BB) Burnt Bronze Powder Coat

(BK) Black Powder Coat

PART NUMBER NOTES

- Housing and trim ship as e.g., F3RM1F-WHWH-90C10A2-3X1-PH*
- Remote driver ships with fixture as e.g., PSF3-RMT-90C-10A-1L2*

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FRAXION3 SLIM FIXED

ACCESSORIES

ROUND ALTERNATE EFFECTS DEVICES
Dry / Damp location only
Wet location requires alternate baffle.

- ☐ **HCL-F3R** Honeycomb Louver w/ Diffusion Lens*
  *(Not available for Warm Dim, Wet locations, or Airtight Housings)
- ☐ **CGL-F3R** Clear Glass Lens*
  *(Not available for Warm Dim)
- ☐ **FGL-F3R** Frosted Glass Lens
- ☐ **SFL-F3R** Soft Focus Lens
- ☐ **FSFL-F3R** Frosted Soft Focus Lens
- ☐ **WDL-F3R** Wide Distribution Lens*
  *(For use with 60° optic only)
- ☐ **FLSL-F3R** Frosted Linear Spread Lens

SQUARE ALTERNATE EFFECTS DEVICES
Dry / Damp location only
Wet location requires alternate baffle.

- ☐ **HCL-F3S** Honeycomb Louver w/ Diffusion Lens*
  *(Not available for Warm Dim, Wet locations, or Airtight Housings)
- ☐ **CGL-F3S** Clear Glass Lens*
  *(Not available for Warm Dim)
- ☐ **FGL-F3S** Frosted Glass Lens
- ☐ **SFL-F3S** Soft Focus Lens
- ☐ **FSFL-F3S** Frosted Soft Focus Lens
- ☐ **WDL-F3S** Wide Distribution Lens*
  *(For use with 60° optic only)
- ☐ **FLSL-F3S** Frosted Linear Spread Lens

REPLACEMENT OPTICS
Interchangeable optics accessible through fixture aperture.

- ☐ **RO-50-15-2** 15° optic
- ☐ **RO-50-22-2** 22° optic
- ☐ **RO-50-40-2** 40° optic
- ☐ **RO-50-60-2** 60° optic

REPLACEMENT TUNABLE WHITE OPTICS
Interchangeable optics accessible through fixture aperture.

- ☐ **RO-50-22-3** 22° optic
- ☐ **RO-50-40-3** 40° optic
- ☐ **RO-50-60-3** 60° optic

ALTERNATE BAFFLE ASSEMBLY (INCLUDES EFFECTS DEVICE)

ASSEMBLY		SHAPE	RATING	TYPE		BAFFLE FINISH		EFFECTS DEVICE
RBA	-			F	-		-	
REPLACEMENT BAFFLE ASSEMBLY		F3R Round F3S Square	1 Dry / Damp 2 Wet* *(Requires suction cup to service or aim & focus)	F Fixed		WH White BK Black PR Primer AU Cashmere Gold AG Satin Silver BB Burnt Bronze CF Custom Finish * *(Consult Factory)		Leave blank for standard Soft Focus Lens CGL Clear Glass Lens * *(Not available for Warm Dim) FGL Frosted Glass Lens FSFL Frosted Soft Focus Lens WDL Wide Distribution Lens * *(For use with 60° optic only) FLSL Frosted Linear Spread Lens

REPLACEMENT SUCTION TOOL
One included with every six fixtures designated Wet location.

- ☐ **F4-TOOL-SUCTION** Allows for removal of Wet Location baffles

T-GRID ACCESSORY KIT
Supplied with ceiling thickness "T" and recommended for installations in T-Grid and furring channel up to 1.5" tall. Available for ceiling thicknesses from 0.50" - 2.125".

- ☐ **TG-FX3-KIT**

HANGER BAR EXTENDER KIT
Extends hanger bars from 24.0" to 46.0" maximum.

- ☐ **FRX-HBE-46** Extender, Hanger Bar

EMERGENCY LIGHTING - REMOTE MOUNT ONLY
During disruption of main power, emergency battery inverter provides temporary 120V or 277V to fixture.

- ☐ **EMB-S-20/25-120/277-LEDX** 20/25 watt max capacity, 120 or 277 VAC 60Hz, Non-Dimmable
- ☐ **EMB-S-100-120-LEDX** 100 watt max capacity, 120 VAC 60Hz, Dimmable
- ☐ **EMB-S-100-277-LEDX** 100 watt max capacity, 277 VAC 60Hz, Dimmable
- ☐ **EMB-S-250-120/277-LEDX** 250 watt max capacity, 120 or 277 VAC 60Hz, Dimmable

REPLACEMENT APPLIQUÉ

- ☐ **DLA-APP-F3RT** Round
- ☐ **DLA-APP-F3ST** Square

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FRAXION3 SLIM FIXED

PERFORMANCE - 3000K

LUMEN PACKAGE	WATTAGE	10° OPTIC NO SOFT FOCUS LENS		15° OPTIC SOFT FOCUS LENS		22° OPTIC SOFT FOCUS LENS		40° OPTIC SOFT FOCUS LENS		60° OPTIC SOFT FOCUS LENS		85° OPTIC WIDE DISTRIBUTION LENS	
		DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW	DELIVERED	LPW
80C12A	10	739	51 (14W)	872	86	729	72	795	79	784	78	623	62
80C16A	14	-	-	1191	82	1003	71	1095	78	1079	77	857	61
80C23A	21	-	-	1642	77	1381	65	1506	71	1486	70	1180	56
90C10A	10	627	44 (14W)	721	71	626	62	683	68	673	67	535	53
90C14A	14	-	-	984	68	858	61	936	66	923	65	733	52
90C19A	21	-	-	1357	63	1184	56	1291	61	1273	60	1011	48
97C10A	10	578	40 (14W)	657	65	557	55	608	60	599	59	476	47
97C12A	14	-	-	897	62	763	54	833	59	821	58	652	46
97C17A	21	-	-	1238	58	1055	50	1151	58	1135	54	901	42
90W11A	14	-	-	910	65	744	53	856	61	871	62	703	50
90W12A	14	-	-	1023	73	837	59	962	68	979	69	790	56
90T12A	16	-	-	-	-	852	53	950	59	949	59	838	52

JA8-2019 INDICATED BY SHADING

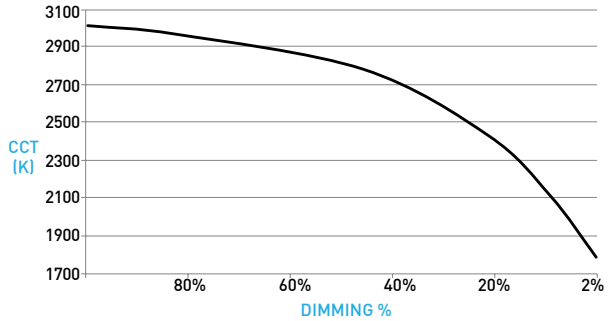
OUTPUT MULTIPLIER	
CCT	CCT SCALE
2200K (Consult factory for JA8 details)	0.800
2700K	0.957
3000K	1.000
3500K	1.019
4000K	1.030

LIGHT LOSS FACTOR MULTIPLIER	
NO LENS	1.05
CGL	1.00
SFL	1.00
FGL	0.90
FSFL	0.87
FLSL	0.83
WDL	0.78
HCL	0.65

WARM DIM PERFORMANCE - SOFT FOCUS LENS - 40° OPTIC

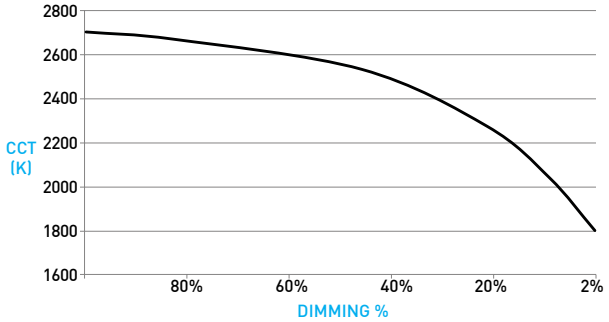
STANDARD WARM DIM PROFILE

90W12A 3000K - 1800K	Full on 100%	Dimmed to 80%	Dimmed to 70%	Dimmed to 50%	Dimmed to 20%	Dimmed to 10%	Dimmed to 2%
CCT (K)	3000	2950	2920	2775	2375	2000	1800
Light Output (Lm)	962	769	673	481	192	96	19
Power (W)	14	11	10	7	3	1.5	0.3
Efficacy (LPW)	68	68	68	68	68	68	68



WARM DIM TO MIRROR INCANDESCENT DIMMING PROFILE

90W11A 2700K - 1800K	Full on 100%	Dimmed to 80%	Dimmed to 70%	Dimmed to 50%	Dimmed to 20%	Dimmed to 10%	Dimmed to 2%
CCT (K)	2700	2650	2620	2520	2180	1950	1800
Light Output (Lm)	856	684	599	428	171	85	17
Power (W)	14	11	10	7	3	1.5	0.5
Efficacy (LPW)	61	61	61	61	61	61	61



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FRAXION3 SLIM FIXED

DOWNLIGHT / HOUSING

A LED
Integral LED module design enables field service / replacement through housing aperture.

B OPTIC
Proprietary optic integrates Reflection, Refraction and TIR offering 10°, 15°, 22°, 40° & 60° beams.

C TRIMLESS MILLWORK SPACERS
Provided for Trimless Millwork installations; includes (1) 1/16" spacer and (5) 1/8" spacers.

D TRIM EXTENSION
Provided for -2 ceiling thickness; accommodates 2.125" max ceiling thickness.

E MICROFLANGE PROFILE
Features 0.30" flange. Thickness measures 0.06". Installed after ceiling is complete. Requires 3.375" diameter cutout. Wet location features integral silicone gasket.

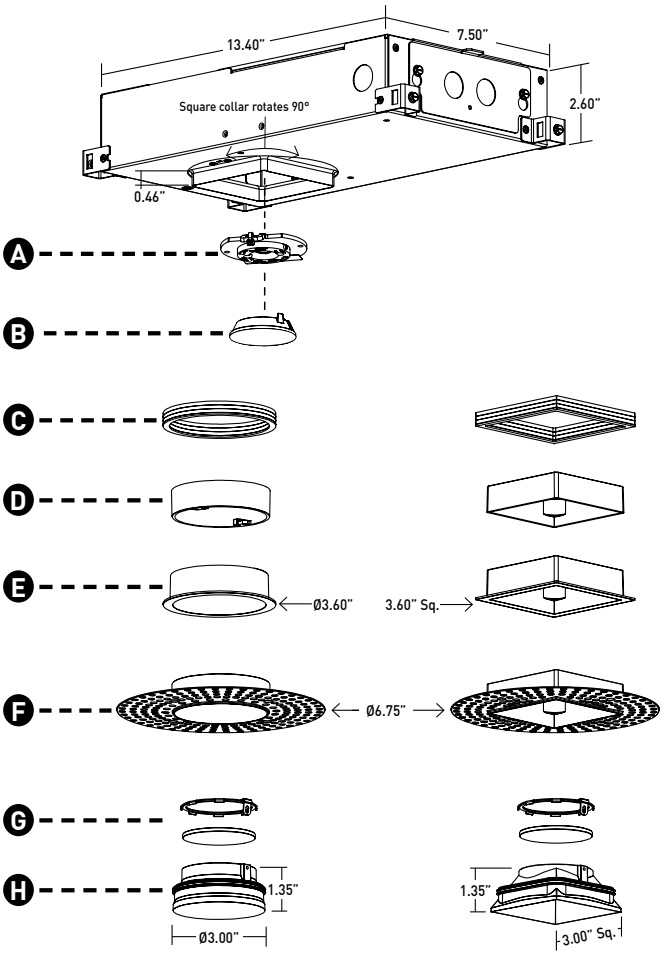
F TRIMLESS DRYWALL PROFILE
Installs totally flush with the ceiling with no visible trim. Appliqué includes screws for mounting and has 0.06" plaster stop. Not recommended for stucco applications.

G EFFECTS DEVICES / LENS RETAINER
Fixture is limited to 1 effects device. Wet location effects device is sealed in place. Suction tool provided for removal of baffle with wet location. Lens retainer allows effects devices to be changed in Dry /Damp locations.

H ROUND BAFFLE
Die-cast removable baffle provides easy access to tilting mechanism and features 62° glare cutoff. Minimizes aperture glare and conceals view into housing; includes gasket.

SQUARE TRANSITIONAL BAFFLE
Die-cast removable baffle provides easy access to tilting mechanism and features 62° glare cutoff. Transitions from square aperture at ceiling plane to round aperture at light source. Minimizes aperture glare and conceals view into housing; includes gasket.

DIMENSIONS / DRAWINGS



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FRAXION3 SLIM FIXED

DOWNLIGHT / HOUSING

I **IC HOUSING**
- For IC ceilings.
- No setback from polycell spray foam insulation having max R-Value of 60 on all sides and top of housing.

J **NIC HOUSING**
- Minimum 0.50" setback from combustible and non-combustible materials on all sides and top of housing.
- Minimum 3.00" setback from insulation material having max R-Value 30 on all sides and top of housing.
- Minimum 6.00" setback from polycell spray foam insulation having max R-Value 60.

K **ADJUSTABLE HANGER BAR HEIGHT ACCESSORY**
Provided with ceiling thickness "T" and recommended for installations in T-Grid and furring channel up to 1.5" tall. Hanger bars are installed to adjustable bracket. Allows housing to be raised and lowered; ceiling thickness remains 0.5" to 1.375" max.

L **APPLIQUÉ DETAIL**
Appliqué for plaster floating directly to baffle.

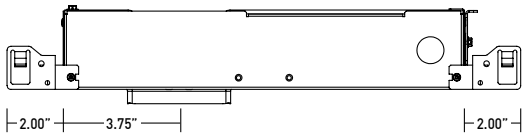
M **REMOTE POWER SUPPLY**
Provided with install Types "V", "W" and "D". Remote power supply provides additional driver options. See page 6 for maximum allowable secondary run lengths between PSF3-RMT and fixture. Must be installed in an accessible location.

HOUSING NOTES

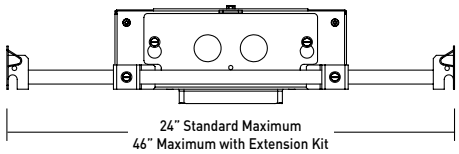
- Do not install NON-IC housings in environments where ambient temperatures exceed 40°C (104°F). See table below for IC housings.
- Power supply compartment and all splice connections may be serviced from room side.
- Consult factory for spacing requirements for any installations exceeding R-Value 60.
- Hanger bars fitted to short side of housing or long side when TG accessory is specified; extend from 14.0" to 24.0", but may be field cut to accommodate narrow stud spacing. Can be extended up to 46" maximum with FRX-HBE-46 kit.
- Hanger bars and brackets add 4.00" max to the overall dimension, but are exclusive of the setback requirements.
- Housings for round trims feature a round aperture housing collar. Housings for square trims feature a square housing collar that rotates up to 90 degrees for fixture alignment. Housing collars accommodate ceiling thicknesses between 0.50" and 2.125".

IC HOUSING MAX AMBIENT TEMPERATURE	
LUMEN PACKAGE	TEMPERATURE
10W STATIC WHITE	40°C (104°F)
14W STATIC WHITE	35°C (95°F)
21W STATIC WHITE	25°C (77°F)
14W WARM DIM	30°C (86°F)
16W TUNABLE WHITE	30°C (86°F)

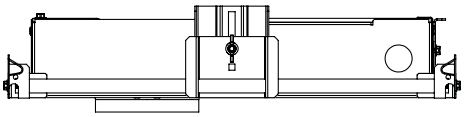
I / J



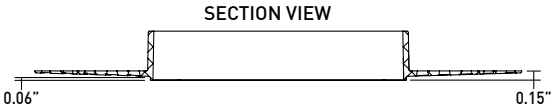
IC HOUSING FEATURES STRIP GASKETS



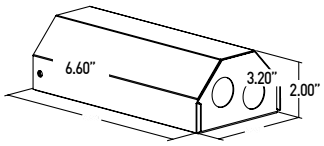
K



L



M



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FRAXION3 SLIM FIXED

TECHNICAL

CONSTRUCTION
Downlight: Painted finishes are granulated powder coat.
Housing: Aluminum and 22 Gauge galvanized steel. Extruded aluminum housing panel to act as heat-sink.
Remote Power Supply: 22 Gauge galvanized steel.
Appliqué: Zinc alloy.

STATIC WHITE LED
2-step MacAdam ellipse LED module available in 80+, 90+ and 97+ CRI configurations in color temperatures of 2200K, 2700K, 3000K, 3500K and 4000K. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

WARM DIM LED
3-step MacAdam ellipse warm dim LED module available in 90+ CRI configuration. 3000K or 2700K at full brightness, warming to 1800K at full dim. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

TUNABLE WHITE LED
5-step MacAdam ellipse tunable white LED module available in 90+ CRI configuration. Features tuning range of 2700K to 5000K. Average rated lamp life of 50,000 hours. LED and driver assemblies are field-replaceable.

POWER SUPPLY PERFORMANCE AND DIMMING INFORMATION

Power Supply	PH	SG	SN	LH	L2	EG	EN	ED	DG	DN	DD
Minimum °C	-20 °C	-10 °C	-10 °C	0 °C	0 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
Maximum °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Dimming %	2.0%	1.0%	1.0%	0.1%	1.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

Note: For L2, LH, EG and EN drivers consult chart on page 7 to confirm appropriate dimming curve for compatibility with selected control.

MAXIMUM ALLOWABLE REMOTE DRIVER WIRING DISTANCES

	WIRE AWG				
DRIVER	12	14	16	18	20
PH, SG, SN	285'	180'	113'	71'	45'
LH, L2	60'	40'	25'	15'	-
EG, EN, ED, DG, DN, DD	-	-	118'	72	46'

LISTING
cTUVus listed to UL1598 standard for Dry / Damp and Wet locations.
CCEA, Airtight and Title 24 JA8-2019 Listed.

BUY AMERICAN ACT
All Fraxion3 Slim Fixed configurations are Buy American Act compliant.

WEIGHT
Fixture - 2.4 lbs
Remote Driver - 1.4 lbs

LIMITED WARRANTY
Manufacturer's 1-year warranty guarantees product(s) listed to be free from defects in material and workmanship under normal use and service. 5-year warranty on LED and power supply to operate with 70% of the original flux and remain within a range of 3 duv. 10-year Lutron Advantage limited warranty available on Lutron equipped systems. Warranty period begins from the date of shipment by Seller and conditional upon the use of manufacturer-supplied power supply. Consult website for full warranty terms and conditions.

CHANGE LOG
1. 01/12/2021: ADDED 2200K, 2700K-1800K WARM DIM AND 10 DEGREE OPTIC OFFERINGS.
2. 04/30/2021: REMOVED QUICK SHIP.
3. 06/16/2021: ADDED BAA COMPLIANCE.
4. 10/17/2022: REMOVED 90W13A 3200K-1800K WARM DIM AND ADDED 90W12A 3000K-1800K WARM DIM.
5. 10/17/2022: UPDATED MAX AMBIENT TEMPERATURE TABLE.
6. 10/26/2022: DISCONTINUED LP DRIVER AND ADDED LH DRIVER.
7. 02/14/2022: ADDED EG, EN, AND ED INTEGRAL DRIVER OFFERINGS.

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FRAXION3 SLIM FIXED

DIMMING COMPATIBILITY

LUTRON DRIVER COMPATIBILITY

Power supply **L2** **Lutron Product Family**	**Part No.**
Maestro WirelessR 600 W dimmer	MRF2-6ND-120-
Maestro WirelessR 1000 W dimmer	MRF2-10ND-120-
Caséta® Wireless Pro 1000 W dimmer	PD-10NXD-
GRAFIK T™ CL® dimmer	GT-250M- GTJ-250M-
HomeWorks® QS adaptive dimmer	HQRD-6NA-
HomeWorks® QS 600 W dimmer	HQRD-6ND-
HomeWorks® QS 1000 W dimmer	HQRD-10ND-
RadioRA® 2 adaptive dimmer	RRD-6NA-
RadioRA® 2 1000 W dimmer	RRD-10ND
myRoom™ DIN power module	MQSE-4A1-D
HomeWorks® QS DIN power module	LQSE-4A1-D
HomeWorks® QS wallbox power module	HQRJ-WPM-6D-120
HomeWorks® wallbox power module	HWI-WPM-6D-120
GRAFIK Eye® QS control unit	QSGR-, QSGRJ-
GRAFIK Eye® 3000 control unit	GRX-3100- GRX-3500-
RPM-4U module (LCP, HomeWorks® QS, GRAFIK Systems™, Quantum®)	HW-RPM-4U-120 LP-RPM-4U-120
RPM-4A module (LCP, HomeWorks® QS, GRAFIK Systems™, Quantum®)	HW-RPM-4A-120, LP-RPM-4A-120
GP dimming panels	Various
Ariadni CL 250W dimmer	AYCL-253P-
Diva CL 250W dimmer	DVCL-253P- DCSCCL-253P-
Nova T CL 250W dimmer	NTCL-250-
Power supply **LH** **Lutron Product Family**	**Part No.**
PowPak Dimming Modules	RMJ-ECO32-DV-B
PowPak Dimming Modules	FCJ/FCJS-ECO
Energi Savr Nodes	QSN-1ECO-S
GRAFIK Eye QS control unit Homeworks QS control unit	QSN-2ECO-S
GRAFIK Eye QS control unit Homeworks QS control unit	QSGRJ-_E (wireless) QSGR-_E
Quantum Hub	QP2-_ _ 2C
Quantum Hub	QP2-_ _ 4C
Quantum Hub	QP2-_ _ 6C
Quantum Hub	QP2-_ _ 8C
Homeworks QS power module myRoom Plus power module	LQSE-2ECO-D

LUTRON
2016 OEM ADVANTAGE ACCOUNT

eldoLED DRIVER COMPATIBILITY

Power supply **EG / EN** **Dimmer / Switch Control Manufacturer**	**Family/Model #**
Busch-Jaeger	2112U-101
Jung	240-10
Leviton Lighting Controls	IP710-DLX
Lightolier Controls	ZP600FAM120
Lutron Electronics	Nova T® - NTFTV
Lutron Electronics	Diva® - DVTV
Lutron Electronics	Nova® - NFTV
Merten	5729
Pass & Seymour	CD4FB-W
The Watt Stopper	DCLV1
Sensor Switch	nIO EZ
Synergy	ISD BC
Power supply **EG / EN** **Lighting Control System Manufacturer**	**Family/Model #**
Lutron Electronics	GrafixEye® GRX-TVI w GRX3503
Lutron Electronics	Energy Savr Node™ - QSN-4T16-S
Lutron Electronics	TVM2 Module
Crestron®	GLX-DIMFLV8
Crestron®	GLXP-DIMFLV8
Crestron®	GLPAC-DIMFLV4-*
Crestron®	GLPAC-DIMFLV8-*
Crestron®	GLPP-DIMFLVEX-PM
Crestron®	GLPP-1DIMFLV2EX-PM
Crestron®	GLPP-1DIMFLV3EX-PM
Crestron®	DIN-AO8
Crestron®	DIN-4DIMFLV4
Crestron®	CLS-EXP-DIMFLV
Crestron®	CLCI-1DIMFLV2EX
ABB	SD/S 2.16.1

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FLEX TUBE SC™

GEN 2

ACCLAIM LIGHTING



Client:	
Project:	
Type:	
Order Code:	
Quantity:	

Flex Tube SC is a flexible, single color, indoor/outdoor LED strip, available in multiple color temperatures and mounting orientations. It comes in seven-meter spool or custom-built lengths to suit project requirements and features a highly durable second-generation silicone body, which is outdoor rated and high impact resistant.

SPECIFICATIONS

Colors	2200K, 2700K, 3000K, 3500K. 4000K, 5700K, Red, Green, Blue, Amber
Beam Angle	120º
Photometrics	Up to 215 lumens per foot, 80 CRI, 3 step SDCM, see page 4 for details
Strip Length	Built to order lengths from 4.37" (111mm) to 22.96' (7m), most sections length 2.18" (55.56mm)
Dimming	DMX/RDM (0-100%), DALI (0-100%), 0-10V (1-100%), TRIAC (1-100%), ELV (1-100%)
Bend Directions & Radius	Vertical bending or horizontal bending options, minimum bend radius of 5.9" (150mm)
Power Consumption	3.65W per foot, 12W per meter ***except*** Red and Amber - 2.43W per foot, 8W per meter
Operating Voltage	24VDC
Lumen Maintenance	L70 @ 50,000 hours (25º C)
Mounting	Aluminum mounting channel required, 0.78" (20mm), 11.8' (1m), or 6.56' (2m) lengths
Finish	White
Material	UV resistant silicone
Ambient Operating Temperature	-40º F to 131º F (-40º C to 55º C)
IP Rating	IP68, wet location, submersible* up to 6.56' (2m)
IK Rating	IK08, protection against 5 joule impact
Fixture Connectors	16.4' (5m) injection molded feed cable and end cap included
Warranty	5 Years, limited
Weight	5.73 lbs (2.59 kg) - 7m Spool
Dimensions	**L:** As specified **W:** 0.62" **H:** 0.66" **/ L:** As specified **W:** 16mm **H:** 17mm
Certifications	c UL us CE

*UL approval limits submersible installation to non-human occupied and freshwater locations only. All cables must be landed in environmentally suitable junction boxes.

ORDER CODES

* indicates special order

F2# - 2 2 # - # A # N

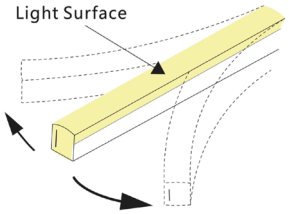
- Version: **B** = Horizontal Bend, **U** = Vertical Bend
- Control: **2** = Dimmable
- Housing Finish: **2** = White
- Feed Cable: **2** = Side Feed Right, **4** = Side Feed Left, **5** = Rear Feed, **6** = End Feed
- Length: **X** = Custom*†
- Beam: **A** = 120°
- LED Color: **B** = 2200K, **D** = 2700K, **E** = 3000K, **F** = 3500K, **G** = 4000K, **J** = 5700K, **M** = Red *83.34mm, **N** = Green, **O** = Blue, **P** = Amber *83.34mm
- Input Voltage: **N** = 24VDC

†: When ordering custom lengths, please specificy number of 2.18" (55.56mm) sections required after X (4.37" / 111mm min - 22.96', 7m max).
Example order code: **F2B-225-X40AQN = 55.56mm x 40 / 2.22m spool**

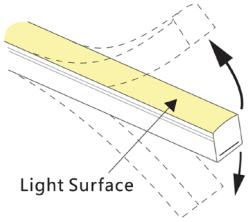
FEED CABLE LOCATIONS



HORIZONTAL BEND



VERTICAL BEND



TWO WIRE CABLE LIMIT

Gauge	Conductors	Max Amperage	Max feet to tube
18 AWG	2	4	40
14 AWG	2	4	100
12 AWG	2	4	170

RELATED COMPONENTS

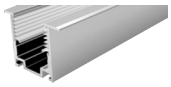
Mounting Accessories



F2CH20
20mm (0.78") Gen 2 mounting channel
Aluminum profile, includes 2 screws

F2CH1000
1M (3.28') Gen 2 mounting channel
Aluminum profile, includes 5 screws

F2CH2000
2M (6.56') Gen 2 mounting channel
Aluminum profile, includes 10 screws



F2RCH20
20mm (0.78") Gen 2 recessed mounting channel
Aluminum profile, includes 2 screws

F2RCH1000
1M (3.28') Gen 2 recessed mounting channel
Aluminum profile, includes 5 screws

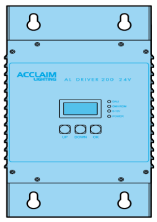
F2RCH2000
2M (6.56') Gen 2 recessed mounting channel
Aluminum profile, includes 10 screws



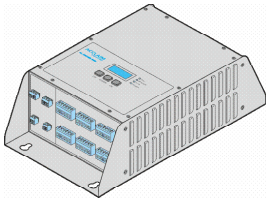
F2FCH500
0.5M (1.64') Gen 2 flexible mounting channel
Only for HB versions, includes 2 screws

F2FCH1000
1M (3.28') Gen 2 flexible mounting channel
Only for HB versions, includes 5 screws

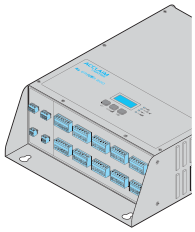
DMX Multi Protocol Drivers AL Driver 200/400/800



ALD-200-24 C2
AL Driver 200 24V, 2 spools max
200W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
4 output ports, 100-277VAC input



ALD-400-24 C2
AL Driver 400 24V, 4 spools max
400W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
6 output ports, 100-277VAC input



ALD-800-24 C2
AL Driver 800 24V, 8 spools max
800W 24V Class 2 power supply
DMX, 0-10V (sink & source) & DALI driver
10 output ports, 100-277VAC input

RELATED COMPONENTS

0-10V + TRIAC (Forward Phase) Drivers



MLE96-24DC-UD
24VDC PWM Driver, 1 spool max
96W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input



MLE192-24DC-UD
24VDC PWM Driver, 2 spools max
192W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input



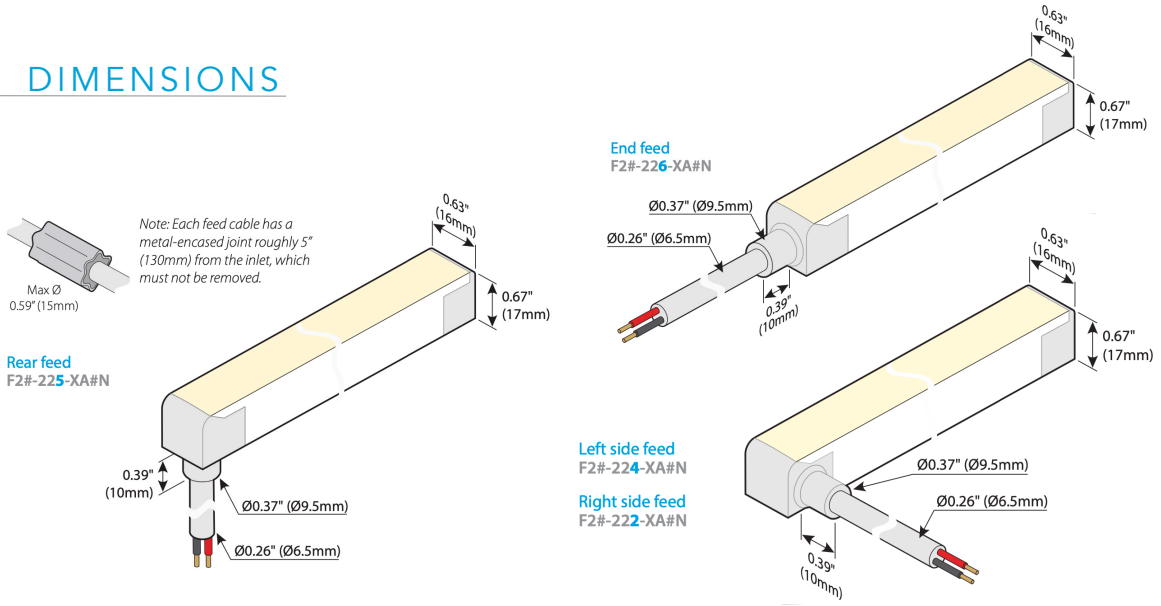
MLE288-24DC-UD
24VDC PWM Driver, 3 spools max
288W 24V Class 2 LED Driver, 5-100%
0-10V (sink) & TRIAC (forward phase) dimming
100-277VAC input

PHOTOMETRICS

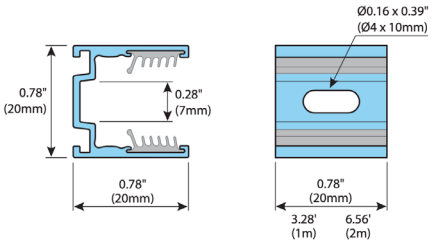
Bend /Color	Lumens (per foot)	Max Candela	CRI	TM30
HB 2200K	149	47.5	80.7	83.1
HB 2700K	157	52.5	83.1	81.8
HB 3000K	154	49.1	86.2	86.2
HB 3500K	155	49.1	84	84.9
HB 4000K	151	50.5	84.1	83.7
HB 5700K	151	47.9	84.3	83.2
HB Red	60	19.3	-	-
HB Green	182	58.4	-	-
HB Blue	38	12.6	-	-

Bend /Color	Lumens (per foot)	Max Candela	CRI	TM30
VB 2700K	182	61.3	83.4	81.7
VB 3000K	187	62.7	85.3	83.7
VB 3500K	189	63.5	82.0	82.8
VB 4000K	183	61.1	84.5	84.9
VB 5700K	188	63	83.3	82.4
VB Green	215	69.4	-	-
VB Blue	43	15	-	-

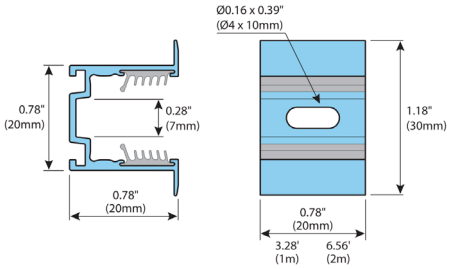
DIMENSIONS



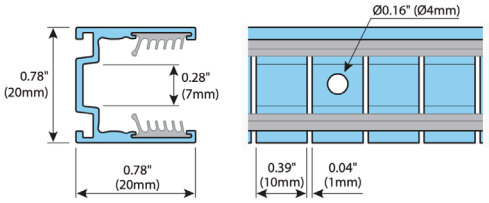
Flex Tube Gen 2



Flex Tube Gen 2 Recessed



Flex Tube Gen 2 Flexible



Note: The Ø0.16" (4mm) mounting holes are spaced at 4.57" (116mm) - on every tenth segment.

100% Design Development

FMS

Project **Portland Foreside B5**
Architect **Marvel**

Date **12 May 2023**
Proj No. **522426**

Type **FXC**

5 of 5

Fisher Marantz Stone Partners in Architectural Lighting Design

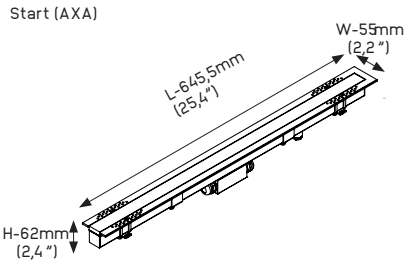
New York | **Seattle** | www.fmsp.com

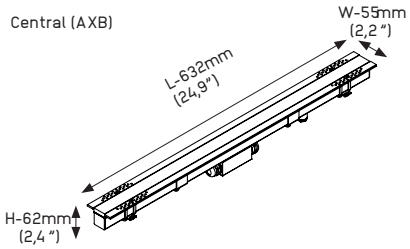
Arpool Nexus

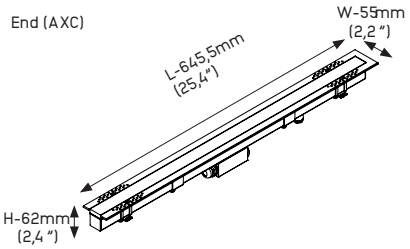
Specification Sheet



UL STD 676 swimming pool rated
CSA C22.2#89 swimming pool rated
IP68







LUMINAIRE FEATURES

Design and Application

- Installation depth max. up to 5m (16')
- Max tile thickness 25mm (1")
- Trim flange overlap 10mm (0,4")
- DMX, DALI, 0-10V compatible (remote)
- Wall and floor installation
- Infinity pools and swimming pool complexes

Performance

- IK10, PMMA cover
- Chlorine and saline environment
- Stainless Steel type 316L, marine grade
- Galvanic current protection (installation housing)
- Thermal fold back technology
- Lifetime TM-21 @85C L90(9K)=60500h
- Supplied with oil and water resistant 3m (10') feed cable as standard
- CRI: > 85
- 3 Step MacAdam

Safety

- Remote power supply
- Low voltage operation
- Recessed installation

Sustainabilty

- Recyclable material

Installation housing

- A501 - Start (left) Installation housing
- B503 - Central Installation housing
- C505 - End (Right) Installation housing

Power suplies

- List of proposed power supplies that are to be ordered separately.
- Click here for list of available drivers.
- Click here for voltage drop and distances.

Click here to download fixure instalation manual.

100% Design Development

Arpool Nexus

ORDERING INFORMATION

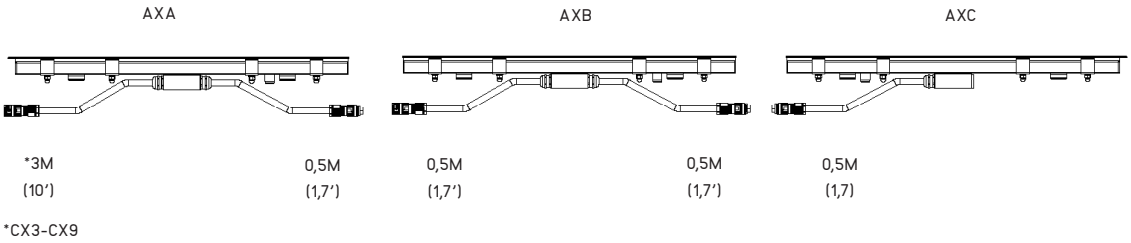
	MODEL	
●	**AX**	
	LENGHT	
○	**A**	• A - (25,4") 645,5mm - Start (AXA)
○	**B**	• B - (24,9") 632mm - Central (AXB)
○	**C**	• C - (25,4") 645,5mm - End (AXC)
	POWER	
○	**L**	• L - 10W/m, 3000 - 4000K, 250lm/m
○		• L - 18W/m, RGBW
	COLOR TEMP.	
○	**30**	• 30 - 3000K
○	**40**	• 40 - 4000K
○	**RGBW**	• RGBW (W 4000K)
	OPTICS	
○	**LL**	• LL - 120° even illumination
	VOLTAGE	
○	**12**	• 12 - 12VDC fixture voltage
○	**24**	• 24 - 24VDC fixture voltage
	OPTIONS	TYPE A ONLY:
○	**X3**	• X3 - coming lead 3m (10') feed cable with connector
○	**X6**	• X6 - coming lead 6m (20') feed cable with connector
○	**X9**	• X9 - coming lead 9m (30') feed cable with connector
○	**X20**	• X20 - coming lead 20m (65') feed cable with connector

Arpool Nexus

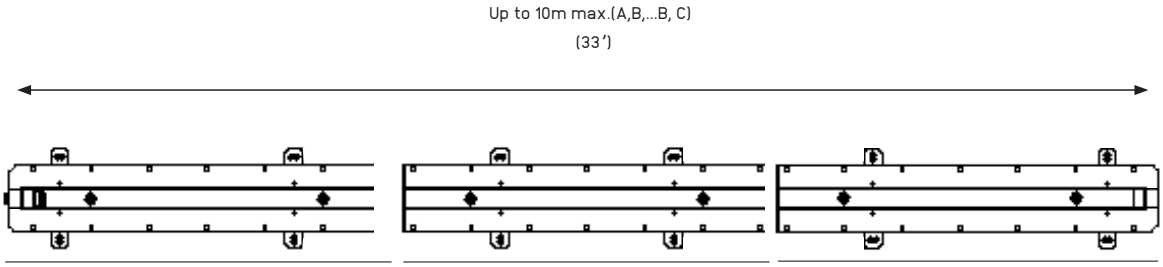
INSTALATION DETAILS

Specifying continuous run (A+B+C)
A - START
A - has "U"typed flange to cover the start gap of the line (shown in page 1.)
B - CENTRAL
B - has "I" typed flange to allow continuation of the line of light (shown in page 1.)
C - END
C - has "U" typed to cover the end gap of the line (shown in page 1.)

Cable length*



*CX3-CX9



657mm
(25,9")

FA501

632mm
(24,9")

FB503

657mm
(25,9")

FC505

Note:
Possible to combine only A housing + C housing, min 1,2m

FILIX LIGHTING USA INC

FIXTURE TO BE RATED FOR SHOWERS

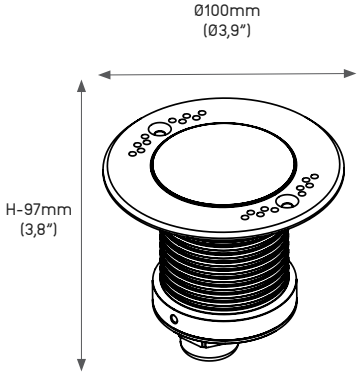
Arpool M

Specification Sheet



UL STD 676 swimming pool rated
CSA C22.2#89 swimming pool rated
IP68

TRIM (TM)



LUMINAIRE FEATURES

Design and Application

- Installation depth max. up to 3m (10')
- Max tile thickness 25mm (1")
- Trim flange overlap 10mm (0,4")
- DMX, DALI, 0-10V compatible (remote)
- Wall and stairs installation
- Small and medium pools
- Fountains and water features

Performance

- IK10, Tempered glass, crystal clear
- Chlorine and saline environment
- Stainless Steel type 316L, marine grade
- Galvanic current protection (installation housing)
- Thermal fold back technology
- Lifetime TM-21 @85C L80(10K)=60500h
- Supplied with oil and water resistant 3m (10') feed cable as standard
- CRI: > 85
- 3 Step MacAdam

Safety

- Remote power supply
- Low voltage operation
- Recessed installation

Sustainabilty

- Recyclable material

Installation housing

- FAM382 - Concrete Pool Installation
- FAM382SP - Stainless Steel Pool Installation
- FAM382LN - Liner Pool Installation

Accesories

- 203131 - Socket wrench for cable gland

Power supplies

- List of proposed power supplies that are to be ordered separately.
- Click here for list of available drivers.
- Click here for voltage drop and distances.

Note

Underwater luminaire – must be constantly submersed.

Click here to download fixure installation manual.
Click here to download housing installation manual.
Click here to download CAD file.
Click here to download IES-LTD data.

filixlighting-usa.com info@filixlighting.com
Filix reserves the right to make technical changes without notice.

100% Design Development

Arpool M

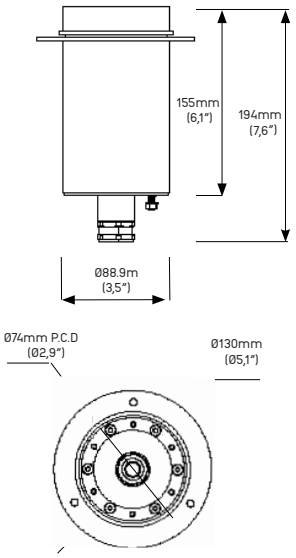
ORDERING INFORMATION

	MODEL	
●	**FAM**	
	APPLICATION	
○	**TM**	• TM - Ø100mm x 97mm (Ø3,9" x 3,9")
	POWER	
○	**L**	• **L - 9W, 3000/4000K, 600 lm**
○	**H**	• **H - 15W, 3000/4000K, 1000lm**
		• **H - 15W, RGBW (W 4000K)**
	COLOR TEMP.	
○	**30**	• 30 - 3000K
○	**40**	• 40 - 4000K
○	**RGBW**	• RGBW (W 4000K)
	OPTICS	
○	**SP**	• SP - Spot - 15°
○	**FL**	• FL - Flood - 40°
○	**W**	• W - Wide - 70°
	VOLTAGE	
○	**12**	• 12 - 12VDC fixture voltage
○	**24**	• 24 - 24VDC fixture voltage
	OPTIONS	
○	**3**	• 3* - standard feed cable 3m (10')
○	**6**	• 6 - luminaire supplied with 6m (20') feed cable
○	**9**	• 9 - luminaire supplied with 9m (30') feed cable
○	**20**	• 20 - luminaire supplied with 20m (65') feed cable

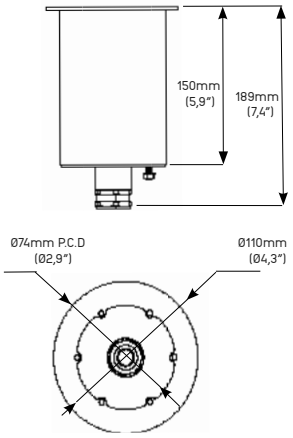
Arpool M

HOUSING

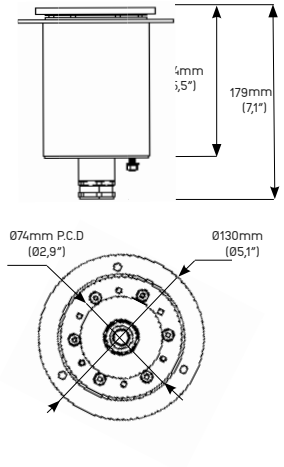
Installation housing - FAM382 *fits 1m (3') cable
Concrete pool installation



Installation housing - FAM382SP *fits 1m (3') cable
Stainless steel pool installation



Installation housing - FAM382LN *fits 1m (3') cable
Liner pool installation



Note:
For details on specific depths, tiling thickness and other please refer to both Installation instructions for fixture and housing.

DENALI LED (INTEGRAL)

IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



*Accommodates up to 2 lens/shielding media.

**120V only.

CATALOG NUMBER LOGIC		
Example: DE - LED - TR - x98 - SP - BZW - 9 - 11 - A - ELV - 120 - 25		
MATERIAL		
Aluminum		
SERIES		
DE - Denali		
SOURCE		
LED - Chip on Board (COB) Technology		
HOUSING		
TR - Integral Driver		
LED TYPE		
x98 - 13W/2700K/80CRI	x101 - 13W/2700K/90CRI	✓
x99 - 13W/3000K/80CRI	x102 - 13W/3000K/90CRI	✓
x103 - 13W/3500K/80CRI	x104 - 13W/3500K/90CRI	✓
x100 - 13W/4000K/80CRI	x121 - 13W/4000K/90CRI	✓
x122 - 21W/2700K/80CRI	x126 - 21W/2700K/90CRI	✓
x123 - 21W/3000K/80CRI	x127 - 21W/3000K/90CRI	✓
x124 - 21W/3500K/80CRI	x128 - 21W/3500K/90CRI	✓
x125 - 21W/4000K/80CRI	x129 - 21W/4000K/90CRI	✓
OPTICS		
SP - Spot (17°)	FL - Flood (45°)	WFL - Wide Flood (55°)
FINISH (See page 3 for full-color swatches)		
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)		
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)		
Also available in RAL Finishes		
LENS TYPE*		
9 - Clear (Standard)		
12 - Soft Focus	13 - Rectilinear	
SHIELDING*		
11 - Honeycomb Baffle		
CAP STYLE		
A - 45°		
B - 90°		
C - Flush		
D - 45° Less Weephole (Downward Aiming Only)		
E - 90° Less Weephole (Downward Aiming Only)		
CONTROLS		
ELV - Dimming Driver (For use with Electronic Low Voltage Dimmer)**		
INC - Dimming Driver (For use with incandescent dimmer)**		
010 - 0-10V Dimming Driver (Dimming ≤3-100%)		
INPUT VOLTAGE		
120 - 120 VAC		
277 - 277 VAC		

✓ **TITLE 24, JA8 COMPLIANT**

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12/06/2022 SKU-1245 P1
SUB-2783-00

DENALI LED (INTEGRAL) IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



MOD OPTIONS
5 - 5 Ft Leads
25 - 25 Ft Leads

*Accommodates up to 2 lens/shielding media.

**120V only.

TITLE 24, JA8 COMPLIANT

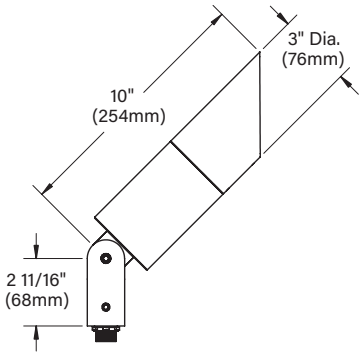
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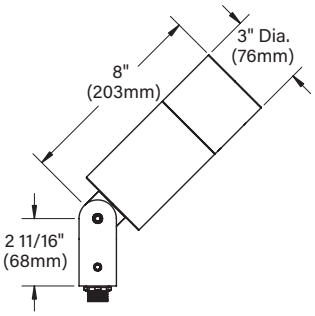
12/06/2022 SKU-1245 P2
SUB-2783-00

DENALI LED (INTEGRAL) — IP66 RATED

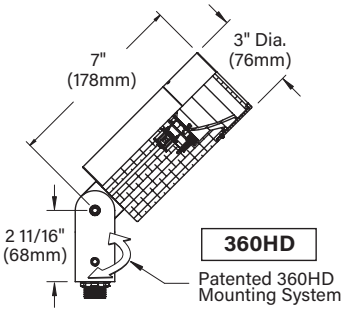
DATE:	PROJECT:	TYPE:



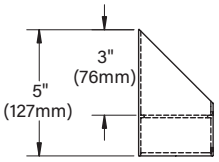
"A/D" CAP



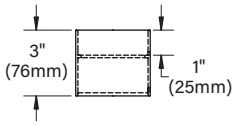
"B/E" CAP



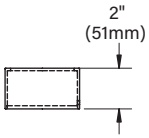
"C" CAP



"A"/"D" CAP



"B"/"E" CAP



"C" CAP

STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)	Weathered Iron (WIR)	Clear Anodized Powder (CAP)
Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)		

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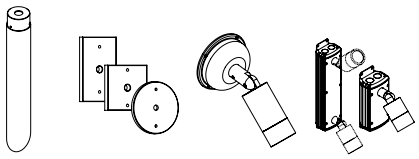
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12/06/2022 SKU-1245 P1
SUB-2783-00

DENALI LED (INTEGRAL) IP66 RATED

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)



Power Pipe II | Canopies | Power Canopy | PM2DJ & PM2J

SPECIFICATIONS

ELECTRICAL	WATTAGE	13W or 21W LED
	LED	COB technology and modular design with electrical quick disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant options available. Minimum 50,000 hour rated life at 70% of initial lumens (L70).
	COLOR MANAGEMENT	COB technology delivers natural white light. Exact color point conformity exceeds ANSI C78.377 standard. Module exceeds 80 CRI (RA>80, R9.16). Color point uniformity 2 SDCM color control for 2700K-4000K CCT.
	WIRING	INC/ELV Wiring: 3 Wire, 18GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire 0-10 Wiring: 5 Wire, (3) 18GA and (2) 22GA, Stranded, XLPE, 125°C, 300V, UL3265 rated wire
	DRIVER	Incandescent/ELV Control Option Driver: Dimming driver for use with standard incandescent or electronic low voltage dimmers (10-100% range), 120VAC only. 0-10 Control Option Driver: Dimming driver for use with standard 0-10V dimmers (≤3-100% dim. range), 120-277VAC. With [1] 440mA (13W) / 700mA (21W). 50/60Hz. >0.9 Power Factor, (INC/ELV)10.0A/(0-10) <250mA in-rush current , .20%THD (nominal at 120VAC full load). Output over-voltage, overcurrent, and short circuit protection with auto recovery. Class 2 power supply; FCC47CFR Part 15 Compliant Class B (120VAC)/Class A (277VAC).
PHYSICAL	MATERIALS	Furnished in copper-free aluminum (6061-T6).
	BODY	Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components.
	KNUCKLE	360HD Mounting System features a mechanical taperlock, allowing full 180° vertical adjustment without the use of aim-limiting serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lbs. static load prior to movement for optical alignment with a ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim & Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw.
	CAP	Fully machined and accommodates two (2) lens or louver media.
	LENS	Shock-resistant, tempered glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment.
	HARDWARE	Tamper-resistant, stainless steel hardware. 360HD hardware is black oxide treated for additional corrosion resistance.
	OPTICS	Interchangeable optics permit changes in the field.
	FINISH	StarGuard, our 15-stage chromate-free process, cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
TITLE 24, JA8	WARRANTY	5-year limited warranty.
c UL us LISTED	CERTIFICATION & LISTING	UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant components. Suitable for indoor or outdoor use, in wet locations, and for installation within 4' of the ground. IP66 Rated. Made in the USA with sustainable processes.
RoHS		
MADE IN THE USA		

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12/06/2022 SKU-1245 P1
SUB-2783-00

LAMP & DRIVER DATA (page 1 of 2)

DATE:	PROJECT:	TYPE:

DRIVER ELECTRICAL DATA

Type	AC Input Range	Frequency Hz	Power Factor At Full Load (Efficiency)	THD	InRush Current	Operating Current	Operation Ambient Temperature	Dimmer Type	Dimmer Range
Integral	120VAC	50/60	> 0.9	20%	10A	440mA (13W)/700mA (21W)	-30° C ~ 70°C	TRIAC/ELV	1-100%
Integral	105-300VAC	50/60	> 0.9	20%	<250mA	440mA (13W)/700mA (21W)	-30° C ~ 90°C	0-10	≤3-100%

LM79 DATA

BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)	L70 Data
x98	2700	80	13	50,000
x98	**2700**	**80**	**13**	**50,000**
x98	2700	80	13	50,000
x99	3000	80	13	50,000
x99	**3000**	**80**	**13**	**50,000**
x99	3000	80	13	50,000
x103	3500	80	13	50,000
x103	**3500**	**80**	**13**	**50,000**
x103	3500	80	13	50,000
x100	4000	80	13	50,000
x100	**4000**	**80**	**13**	**50,000**
x100	4000	80	13	50,000
x101	2700	90	13	50,000
x101	**2700**	**90**	**13**	**50,000**
x101	2700	90	13	50,000
x102	3000	90	13	50,000
x102	**3000**	**90**	**13**	**50,000**
x102	3000	90	13	50,000
x104	3500	90	13	50,000
x104	**3500**	**90**	**13**	**50,000**
x104	3500	90	13	50,000
x121	4000	90	13	50,000
x121	**4000**	**90**	**13**	**50,000**
x121	4000	90	13	50,000
x122	2700	80	21	50,000
x122	**2700**	**80**	**21**	**50,000**
x122	2700	80	21	50,000
x123	3000	80	21	50,000
x123	**3000**	**80**	**21**	**50,000**
x123	3000	80	21	50,000
x124	3500	80	21	50,000
x124	**3500**	**80**	**21**	**50,000**
x124	3500	80	21	50,000
x125	4000	80	21	50,000
x125	**4000**	**80**	**21**	**50,000**
x125	4000	80	21	50,000

OPTICAL DATA

Angle	CBCP	Del. Lumens	Muliplier
17	6,480	829	0.92
45	**1,773**	**1,041**	**0.92**
55	1,478	1,180	0.92
17	6,796	869	0.96
45	**1,860**	**1,091**	**0.96**
55	1,550	1,237	0.96
17	6,685	855	0.95
45	**1,829**	**1,074**	**0.95**
55	1,525	1,217	0.95
17	7,059	903	1.00
45	**1,931**	**1,134**	**1.00**
55	1,610	1,285	1.00
17	4,486	574	0.69
45	**1,228**	**720**	**0.69**
55	1,023	817	0.69
17	4,936	631	0.73
45	**1,350**	**793**	**0.73**
55	1,126	899	0.73
17	4,775	611	0.71
45	**1,307**	**767**	**0.71**
55	1,089	869	0.71
17	5,324	681	0.75
45	**1,457**	**855**	**0.75**
55	1,214	969	0.75
17	9,040	1,208	0.87
45	**2,437**	**1,359**	**0.87**
55	1,876	1,416	0.87
17	10,030	1,341	0.96
45	**2,704**	**1,508**	**0.96**
55	2,082	1,571	0.96
17	8,496	1,136	0.81
45	**2,290**	**1,277**	**0.81**
55	1,763	1,331	0.81
17	10,431	1,394	1.00
45	**2,812**	**1,568**	**1.00**
55	2,165	1,634	1.00

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LAMP & DRIVER DATA (page 2 of 2)

DATE:	PROJECT:	TYPE:

LM79 DATA

BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)
x126	2700	90	21
x126	**2700**	**90**	**21**
x126	2700	90	21
x127	3000	90	21
x127	**3000**	**90**	**21**
x127	3000	90	21
x128	3500	90	21
x128	**3500**	**90**	**21**
x128	3500	90	21
x129	4000	90	21
x129	**4000**	**90**	**21**
x129	4000	90	21

L70 Data
50,000
50,000
50,000
50,000
50,000
50,000
50,000
50,000
50,000
50,000
50,000
50,000

OPTICAL DATA

Angle	CBCP	Del. Lumens	Muliplier
17	6120	818	0.68
45	**1650**	**920**	**0.68**
55	1270	959	0.68
17	7535	1007	0.75
45	**2031**	**1133**	**0.75**
55	1564	1180	0.75
17	5406	723	0.64
45	**1457**	**813**	**0.64**
55	1225	847	0.64
17	8148	1089	0.78
45	**2196**	**1225**	**0.78**
55	1691	1277	0.78

OPTICS

Optic	Angle
Spot w/ 13 Accy	16 x 50
Spot	17°
Flood	45°
Wide Flood	55°

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POWER PIPE

ORDER FIXTURE SEPARATELY.

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



**Includes stake, not available with Junction Box or transformer. Not compatible with fixtures that has 360HD knuckle.*

***For use with MR16 LED Lamps and Halogen Lamps.*

****For use with 3W-7W LED fixtures. 105-300 VAC. 50/60 Hz. non-dimming.*

*****Non-dimming.*

CATALOG NUMBER LOGIC
Example: PP - S12 - TRSS75 - BZW - B - 120 -SF
MATERIAL
(Blank) - Aluminum B - Brass S - Stainless Steel
SERIES
PP - Power Pipe System
TYPE
S12 - 12" Stake
S18 - 18" Stake
J12 - 12" Junction Box
J18 - 18" Junction Box
A18 - 18" Adjustable Stem*
TRANSFORMER HOUSING
(Blank) - Less Transformer Housing
TRSS75 - 75VA Electronic Transformer with Housing**
TRe20 - TRe20 Electronic Transformer with Housing***
FINISH (See page 2 for full-color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)
(Also available in RAL Finishes. See submittal SUB-1439-00)
Brass Finishes (MAC, POL, MIT)
Stainless Steel Finishes (MAC, POL)
CAP STYLE
(Blank) - Less Cap (Adjustable stem only)
B - Single Hole Cap
C- Solid Cap
INPUT VOLTAGE
(Blank) - For use with TRe20 Electronic Transformer***
120 - 120 VAC (For use with TRSS75)
230 - 230 VAC**** (Electronic only, for use with TRSS75)
277 - 277 VAC**** (For use with TRSS75)
OPTIONS
SF - Stability Flange

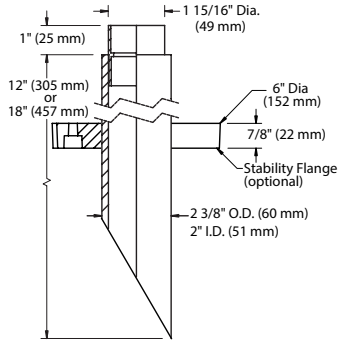
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POWER PIPE

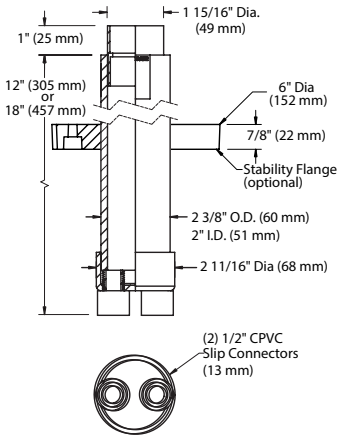
ORDER FIXTURE SEPARATELY.

DATE: | PROJECT: | TYPE:

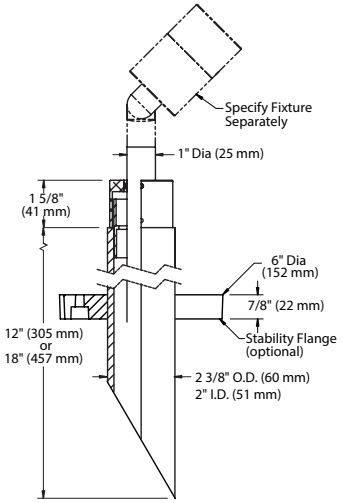
STAKE (S)



JUNCTION (J)

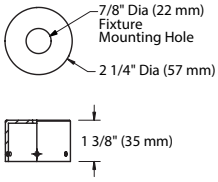


ADJUSTABLE STEM (A)

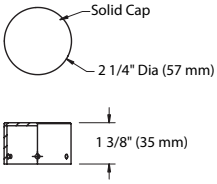


CAP STYLES

'B' Cap (Single Hole)

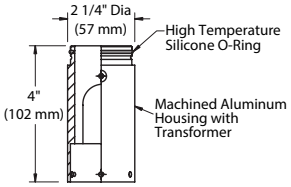


'C' Cap (Solid Cap)



TRANSFORMER

Transformer with Housing



STANDARD FINISHES

Satin Black (BLP)	Satin Bronze (BZP)	Satin White (WHP)	Satin Aluminum (SAP)
Black Wrinkle (BLW)	Bronze Wrinkle (BZW)	White Wrinkle (WHW)	Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)	Rocky Mtn. Granite (RMG)	Sierra Mtn Granite (SMG)	Aleutian Mtn Granite (AMG)	Textured Forest (TXF)
Black Chrome (BCM)	Beige (BGE)	Weathered Copper (WCP)	Old Copper (OCP)	Hunter Green (HUG)
Antique Brass Powder (ABP)	Brown Patina Powder (BPP)	Sonoran Desert Sandstone (SDS)	Weathered Iron (WIR)	Clear Anodized Powder (CAP)
Cream (CRM)	Antique White (AQW)	Natural Brass Powder (NBP)		

B-K LIGHTING | MADE IN THE USA | 559.438.5800 | INFO@BKLIGHTING.COM | BKLIGHTING.COM

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12/06/2022 SKU-449

POWER PIPE

ORDER FIXTURE SEPARATELY.

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)

SPECIFICATIONS

Electrical	WIRING	Teflon® coated wire, 18AWG, 600V, 250° C rated and certified to UL 1659 standard. Adjustable stem mount additionally includes 24" or 36" 12/2 direct burial low voltage cable.
	TRANSFORMER HOUSING	Fully machined from copper-free aluminum, solid machined brass or stainless steel. Stainless steel hardware. High temperature, silicone 'O' Ring provides watertight seal.
	ELECTRONIC TRANSFORMER	For use with halogen lamps. 120V, 230V, and 277V primary voltage. 120V is fully dimmable (40W minimum load). 50/60Hz. 11.6V secondary voltage. 10W minimum load (halogen) non-dimmed. 75 watt maximum load. >0.93 Power Factor. <20% THD. Operating frequency >10kHz. Soft start circuitry to extend lamp life.
	TRe20 ELECTRONIC TRANSFORMER	For use with solid state 12V systems. 105-300VAC primary voltage. 50/60Hz. Non-dimming. 20VA maximum load.
PHYSICAL	INSTALLATION	Provides a clean, architectural transition from wiring system to fixture. 2" Schedule 80 PVC pipe. For direct burial in soil or concrete. Available in 12" and 18" lengths. Available in three installation types:
	STAKE (TYPE S)	60° angled bottom designed for use with conduit or direct burial low voltage cable.
	JUNCTION BOX (TYPE J)	Includes two (2) 1/2" PVC slip connectors for branch circuit wiring.
	ADJUSTABLE STEM (TYPE A18)	18" field adjustable stem accommodates future landscape growth. Unused stem length remains hidden inside housing. Delrin bushing and stainless steel set screws lock mounting height.
	STABILITY FLANGE	Optional 6" diameter, molded stability flange simplifies installation and projects into substrate to simplify installation and reinforce housing stability.
	CAP STYLE	Machined from copper-free aluminum or machined brass.
	HARDWARE	Tamper-resistant, stainless steel hardware.
	FINISH	StarGuard, our 15-stage, chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
	WARRANTY	5-year limited warranty.
	CERTIFICATION & LISTING	Certified to CAN/CSA/ANSI Standards. UL Listed. RoHS compliant. Made in USA with sustainable processes.

c UL us LISTED

RoHS

MADE IN THE USA

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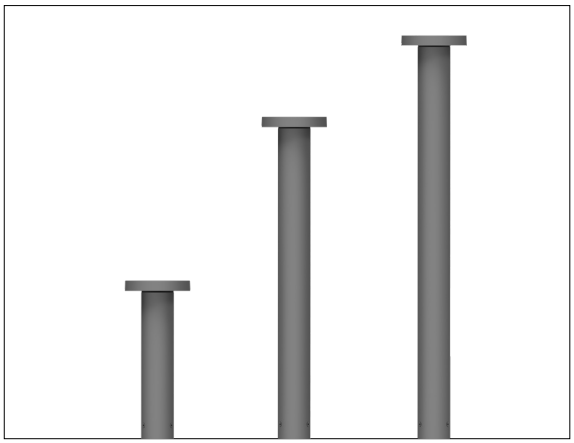
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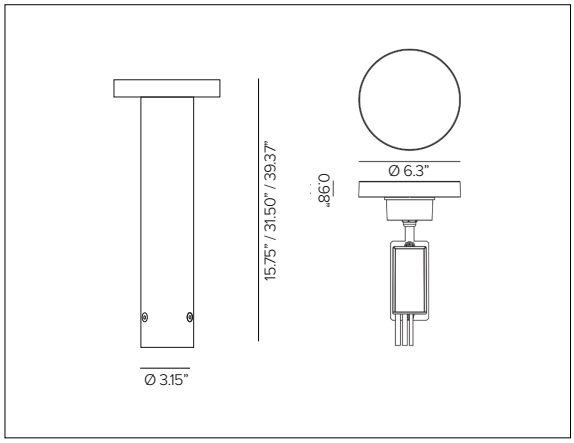
12/06/2022 SKU-449

TARGETTI

CHIOBO

Radial Emission LED Bollard





Dark Sky · Marine · RoHS3 · IP66 · cULus

CONCEPT

Radial-emission LED bollard specifically designed to light large open spaces.

FIXTURE MECHANICAL CHARACTERISTICS

Housing	Ø 6.3" Dia. Top with Ø 3.15" Dia. Post
Materials	Powder coated anodized die-cast aluminum optical head with extruded body. Marine Grade cataphoresis[E] available as optional.
Finish	Textured finish. Ferrite Dark Grey · Black · White · Bronze Sandstone Grey · Heritage Brown
Power Connection	Factory shipped with DSM&T IP68 quick disconnect at fixture and mating 4ft SJOOW 18-6 cable with purple and grey wires for 0-10V.
Functionality	Available in three different heights - 15.75in, 31.50in and 39.37in. 316L grade stainless steel base and stainless steel anti-theft screws.
BUG	B0–U0–G0 Dark Sky Compliant
Weight	2.98lbs (fixture head only)
Protection	IP66
Resistance	IK10

CERTIFICATIONS

cULus Wet Location Listed.
Tested in accordance with LM-79-08.
Compliant for California installations.
IEC 62471
RoHS3 EU 215/863

WARRANTY

5 year limited warranty.

SUSTAINABILITY

Luminaire designed for disposal/recycling at end-of-life. Replaceable LED light source and control gear by a Targetti technician.

ELECTRICAL CHARACTERISTICS

Driver	Integral 4/1 smart driver (Non-Dimmable / 0-10V / Reverse Phase / Forward Phase).
Wattage	20W (360°) / 14W (180°, 90°+90°) / 9W (90°)
Voltage	Universal Voltage 120-277V AC 50/60Hz

SOURCE

LED Chip on Board.

TM30	*CCT (Nominal)*	*CRI*	*Rf*	*Rg*	*SDCM*
	2700K	80	82	96	2
	3000K	80	83	96	2
	3500K	80	83	95	2
	4000K	80	82	95	2

Ra90 available upon request

OPTIC

Internal high reflective anodized aluminum reflector with transparent polycarbonate lens positioned horizontally under optical head with external black anti-glare control.



Beam		*360°*	*180°*	*90°*	*90°+90°*
Delivered Lumens	***2700K***	878Lm	470Lm	232Lm	485Lm
	3000K	915Lm	490Lm	242Lm	506Lm
	3500K	931Lm	498Lm	246Lm	514Lm
	4000K	939Lm	502Lm	248Lm	519Lm

Efficacy	47Lm/W max. Refer to photometric graphs for specific values.
Lifetime	14W / 9W version: L92/B10 30000hrs at max TA +25°C L90/B10 50000hrs at max TA +25°C 20W version only: L89/B10 30000hrs at max TA +25°C L84/B10 50000hrs at max TA +25°C
Photobiological Classification	Low risk safety RG1

100% Design Development

FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXG**
Architect **Marvel** Proj No. **522426** 1 of 5

Fisher Marantz Stone Partners in Architectural Lighting Design **New York | Seattle | www.fmsp.com**

CHIOBO

SPECIFICATION INFORMATION

CBB							/	/
1	2	3	4	5	6	7	8	9 10
							OPTIONAL	REQUIRED

Ex: CBB414036L330FE / 1US4033 / 1US2530

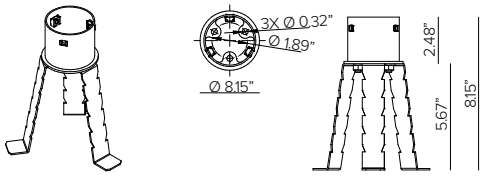
1 - PRODUCT CODE	3 - DRIVER	4 - HEIGHT	5 - EMISSION	6 - WATTAGE	6 - KELVIN	7 - FINISH
CBB — CHIOBO	**41** — 4/1 Smart Dimming *(Non-Dimming / 0-10V / Reverse Phase / Forward Phase)*	**16** — 16in **32** — 32in **40** — 40in	**36**[D] — 360° **18**[C] — 180° **99**[C] — 90°+90° **90**[B] — 90°	**L3** — 20W **L2** — 14W **L1** — 9W	**27** — 2700K **30** — 3000K **35** — 3500K **40** — 4000K	**FE** — Ferrite Dark Grey **HB** — Heritage Brown **BZ** — Bronze **WT** — White **BT** — Black **SG** — Sandstone Grey **RAL** — Custom RAL

8 - OPTIONAL	9 - MOUNTING	10 - INSTALLATION
__ — Blank no option **MG**[E] — Marine Grade	Trimless Anchor Base *See section for details* Plate for Surface Installation *See section for details* Ground Anchor Base *See section for details*	J-Box with sleeve *See section for details*

[B] 90° optic only available in 9W nominal.
[C] 90°+90° and 180° optics only available in 14W nominal.
[D] 360°optic only available in 20W nominal.
[E] Marine Grade is recommended for use in environments with occasional exposure to salt air, reclaimed water, fertilizers, chemical cleaners, or frequent pressure washing (steam) cleaning. Fixture housing complete with marine grade cataphoresis suitable for use in marine grade environments. Not to be in direct contact with salt or corrosive agents for extended periods of time.

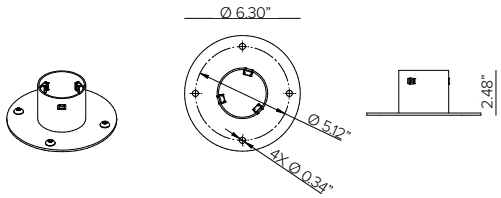
CHIOBO

9 – MOUNTING (REQUIRED)



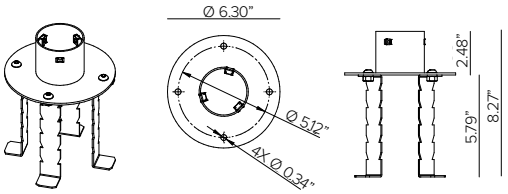
Trimless mounting base with ground anchor fixing rods for installation in concrete. AISI 316 stainless steel. Mounting bolts included. **Required for use with 1US2530 by NEC.**

Part No. **1US4033**



Powder coated mounting plate for surface installation outside the post. AISI 316 stainless steel compatible with dowels to be inserted into 4 holes, Ø 0.34" Dia. for use with 5/16" bolts maximum. Anchor bolts not included. **Required for use with 1US2530 by NEC.**

Part No. **1US4035(*)**



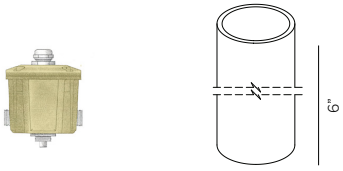
Powder coated mounting base with ground anchor fixing rods for installation in concrete. AISI 316 stainless steel. Mounting bolts included. **Required for use with 1US3450 by NEC.**

Part No. **1US3450(*)**

Ferrite Dark Grey *(Default)* · Heritage Brown (**HB**)* · Bronze (**BZ**)* · White (**WT**)* · Black (**BT**)* · Sandstone Grey (**SG**)*

Add suffix to end of number to identify finish (EX. 1US4035HB)

10 – INSTALLATION (REQUIRED)



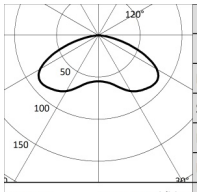
Direct burial brass ingrade j-box with PVC sleeve. Features stainless steel cover screws and strain relief for power cord, (2) 3/4" NPT bottom holes and (2) 3/4" NPT side holes. Includes (4) 3/4" to 1/2" adapters and (2) 1/2" NPT plugs. **(REQUIRED by NEC).**

Part No. **1US2530**

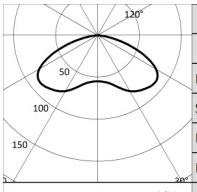
CHIOBO

PHOTOMETRY

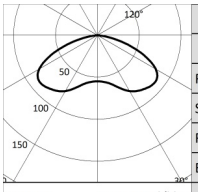
360° EMISSION



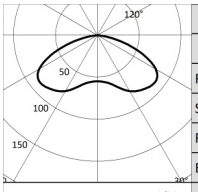
2700K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	136
Source Flux	2489lm	2	11.81	34
Fixture Flux	878lm	3	17.71	15
Efficacy	44lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 220cd	5	29.51	5



3000K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	142
Source Flux	2595lm	2	11.81	36
Fixture Flux	915lm	3	17.71	16
Efficacy	46lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 230cd	5	29.51	6

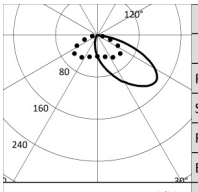


3500K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	144
Source Flux	2640lm	2	11.81	36
Fixture Flux	931lm	3	17.71	16
Efficacy	47lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 234cd	5	29.51	6

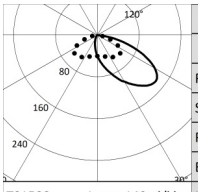


4000K		H(m)	D(m)	Emax(lx)
Ra80			143°	
Fixture Power	20W	1	5.90	146
Source Flux	2661lm	2	11.81	36
Fixture Flux	939lm	3	17.71	16
Efficacy	47lm/W	4	23.61	9
TS1587 Imax=88cd/klm	Imax 235cd	5	29.51	6

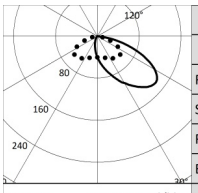
180° EMISSION



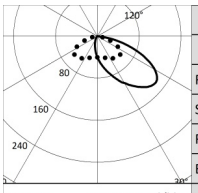
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	127
Source Flux	1855lm	2	5.30	8.65	32
Fixture Flux	470lm	3	7.95	12.98	14
Efficacy	35lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 263cd	5	13.25	21.64	5



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	132
Source Flux	1934lm	2	5.30	8.65	33
Fixture Flux	490lm	3	7.95	12.98	15
Efficacy	36lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 274cd	5	13.25	21.64	5



3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	134
Source Flux	1967lm	2	5.30	8.65	34
Fixture Flux	498lm	3	7.95	12.98	15
Efficacy	37lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 279cd	5	13.25	21.64	5

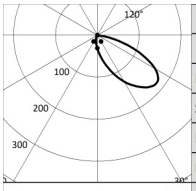


4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			55°	106°	
Fixture Power	14W	1	2.65	4.33	136
Source Flux	1983lm	2	5.30	8.65	34
Fixture Flux	502lm	3	7.95	12.98	15
Efficacy	37lm/W	4	10.60	17.31	8
TS1588 Imax=142cd/klm	Imax 281cd	5	13.25	21.64	5

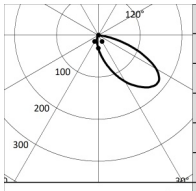
CHIOBO

PHOTOMETRY

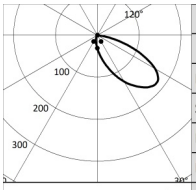
90° EMISSION



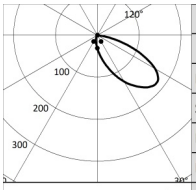
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	114
Source Flux	1379lm	2	4.73	3.15	28
Fixture Flux	232lm	3	7.09	4.73	13
Efficacy	27lm/W	4	9.46	6.31	7
TS1589 Imax=181cd/klm	Imax 250cd	5	11.82	7.88	5



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	118
Source Flux	1438lm	2	4.73	3.15	30
Fixture Flux	242lm	3	7.09	4.73	13
Efficacy	28lm/W	4	9.46	6.31	7
TS1589 Imax=181cd/klm	Imax 260cd	5	11.82	7.88	5

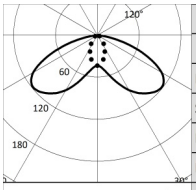


3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	121
Source Flux	1463lm	2	4.73	3.15	30
Fixture Flux	246lm	3	7.09	4.73	13
Efficacy	28lm/W	4	9.46	6.31	8
TS1589 Imax=181cd/klm	Imax 265cd	5	11.82	7.88	5

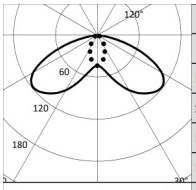


4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			49°	53°	
Fixture Power	9W	1	2.36	1.58	122
Source Flux	1475lm	2	4.73	3.15	30
Fixture Flux	248lm	3	7.09	4.73	14
Efficacy	29lm/W	4	9.46	6.31	8
TS1589 Imax=181cd/klm	Imax 267cd	5	11.82	7.88	5

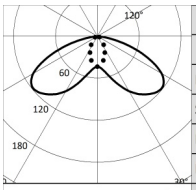
90° + 90° EMISSION



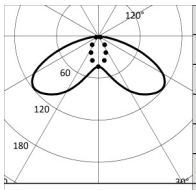
2700K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	110
Source Flux	1855lm	2	5.16	5.08	27
Fixture Flux	485lm	3	7.74	7.62	12
Efficacy	36lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 219cd	5	12.90	12.69	4



3000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	114
Source Flux	1934lm	2	5.16	5.08	29
Fixture Flux	506lm	3	7.74	7.62	13
Efficacy	37lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 228cd	5	12.90	12.69	5



3500K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	116
Source Flux	1967lm	2	5.16	5.08	29
Fixture Flux	514lm	3	7.74	7.62	13
Efficacy	38lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 232cd	5	12.90	12.69	5



4000K		H(m)	D1(m)	D2(m)	Emax(lx)
Ra80			54°	77°	
Fixture Power	14W	1	2.58	2.54	117
Source Flux	1983lm	2	5.16	5.08	29
Fixture Flux	519lm	3	7.74	7.62	13
Efficacy	38lm/W	4	10.32	10.15	7
TS1590 Imax=118cd/klm	Imax 234cd	5	12.90	12.69	5

WAGNER
Architectural Systems



POST SURFACE LUMINAIRE

This post mount luminaire is designed for wall grazing and pathway illumination with mounting options for railings, walls, decks and entry structures. Superior harsh environment protection and vandal resistance are combined with a simple field or factory prepared installation using included 316 stainless steel hardware.

The Bantam provides an inconspicious architectural solution for new or retrofit applications and egress compliance opportunities.



- Solid machined 316 stainless steel
- 116 lumens per watt LED (500mA)
- 70° beam spread @ 10° above nadir
- 5 IES file supported optic distributions
- IK10 impact rating
- 24VDC operation
- ETL wet location listed
- IP67 ingress protection
- Standard in 2700 K, 3000 K and 4000 K
- 4 CCT whites and solid colors available
- Round or flat post mounting options

Specifications subject to change without notice. Verify data at time of order.

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WagnerCompanies.com
LUBT SUBM R5

100% Design Development

FMS

Project	**Portland Foreside B5**	Date	**12 May 2023**	Type	**FXH**
Architect	**Marvel**	Proj No.	**522426**		1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design — **New York** | **Seattle** | www.fmsp.com

BANTAM™

Another Lumenrail® Component for Life Safety and Light



PROJECT NAME: _____

REP AGENCY: _____

APPROX. LINEAR FT: _____

SERVICE OPTIONS: ☐ Field Measure ☐ Job Site Support ☐ System Installation

SCAN QR CODE
for technical information, downloads and instructions.

PART NUMBER BUILDER

LULF30K705XTR					
EXAMPLE	LULF				
	FIXTURE TYPE	COLOR TEMP	OPTIC	DRIVE CURRENT	BANTAM
** Indicates stock, other options may require additonal leadtime*	**LULF**- Lumenpod 16 Light Engine	***27K**- 2700 K ***30K**- 3000 K ***40K**- 4000 K **50K**- 5000 K **BLU**- Blue **GRN**- Green **RED**- Red **AMB**- Amber	**16**- 16° beam **23**- 23° beam **46**- 46° beam ***70**- 70° beam **94**- 94° beam	***5**- 2.2W @ 500 mA ***3**- 1.7W @ 350 mA *Extended life 100,000HR version requires 350 mA*	**XTR**- Machined 316 SS, post-mount housing **XTF**- Machined 316 SS, flat surface-mount housing

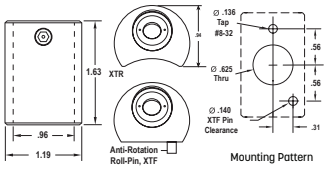
ELECTRICAL SPECIFICATIONS

Intertek

All electrical connections to be made by a qualified electrician in accordance with all national, state and local electrical codes.

24VDC	ETL LISTED WET, IK10, IP67, CE	0-10V INPUT	-40°F TO +120°F		
INPUT VOLTAGE	CERTIFICATIONS	DIMMING	OPERATING TEMP		
CLASS 2 REQUIRED	5 YEARS	UP TO 116 LM/W LED	80+	8″	
DRIVER	WARRANTY	EFFICIENCY	CRI	WIRE LENGTH	

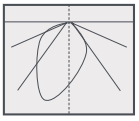
CONSTRUCTION



Bantam is solid machined 316 stainless steel with security hardware and is available for flat or round, 1.50″-1.90″ diameter, surface mounting.

PHOTOMETRICS

70° @ +10° nadir



Bantam is designed with an inherent 10° bias above nadir. This asymmetric feature projects the output from the mounting surface towards the path. Scan QR code or visit our website to view or download available IES reports.

LUMENGEAR™ LED DRIVER & NEMA ENCLOSURE OPTIONS

Wagner offers multiple ETL listed options for both 24VDC power supplies and NEMA enclosures. Quantities and types will be configured based on your specifications and design. Additional specification options are available by request. Not all options apply to all products, please verify compatibility with the factory.

CLASS II DRIVERS:
- STD 100W
- Dali, DMX, 0-10V Dimming Protocols
- Multiple Wattages
- Made in USA Units Available

NEMA ENCLOSURES:
4X - Polycarbonate
4X - Painted Steel
4X - Stainless Steel

Specifications subject to change without notice. Verify data at time of order.

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WAGNER Architectural Systems
888-243-6914 // rfq@mailwagner.com
10600 West Brown Deer Road // Milwaukee, WI 53224, USA

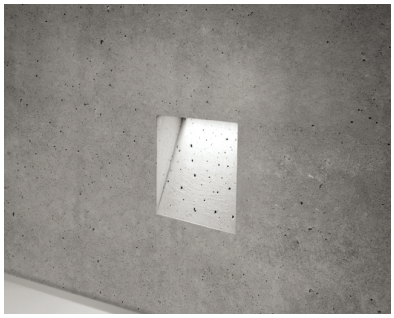
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LUBT SUBM R5

100% Design Development

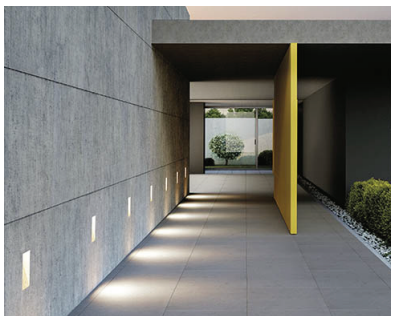
FMS

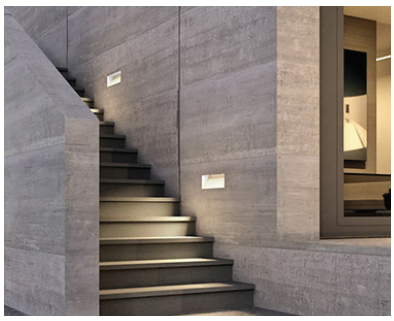
Project **Portland Foreside B5** Date **12 May 2023** Type **FXH**
Architect **Marvel** Proj No. **522426** 1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design **New York | Seattle | www.fmsp.com**









Unique lighting system for wall recessed lighting in exterior applications. The system consists of a series of concrete forming boxes designed to create a cavity in the wall during the concrete forming process. The resulting void in the wall houses the LED light module, which is concealed from view. Designed for low mounting heights with downward asymmetric light distribution. Low luminance with light source regressed inside the luminaire and shielded from all viewing angles

Luminaire characteristic:	**Power input:** 4W to 12W **Lumens:** up to 551lm (for 3000K, 80CRI) **Luminaire efficacy:** Up to 60lm/W
Source:	White LED module (LM-80) 3000K: 80CRI, 4000K: 80CRI.
Lumen maintenance:	70% of initial lumens at 50 000 hours (L70) (LM79).
Optic:	Downward Asymmetric
Material:	Body: Die-cast Diffuser: Toughened glass Recessed housing: Polypropylene
Mounting:	Wall recessed cast in concrete. Supplied with a two part housing installation kit, anchor screws, bolts, locking system and adhesive template to ensure perfect alignment when installing. Connections to be done inside the back box.
Electrical:	See remote power supply options on page 3.
Finish:	Concrete
Weight:	1.8 lbs (0.8 kg) to 3.97 lbs (1.8 kg).
Warranty:	5 year limited warranty
Rating:	IP65, IK06
Certification:	cULus listed for Wet location

SISTEMALUX
9320 Boul. St-Laurent, suite 100, Montréal (Québec) Canada H2N 1N7, P.: 514.523.1339 F.: 514.525.6107 www.sistemalux.com

100% Design Development

ORDERING INFO

SGHO - ____ **-** ____ **- REM - 35**
FIXTURE

____
BACK BOX

RESET INFO

MODEL

SQUARE

- ☐ **SQS -** Square Small
- ☐ **SQM -** Square Medium
- ☐ **SQL -** Square Large

HORIZONTAL

- ☐ **HOR -** Horizontal

LED

- ☐ **830 -** 3000K, 80 CRI
- ☐ **840 -** 4000K, 80 CRI

VOLTAGE

- ■ **REM -** 24V remote power supply

FINISH

- ■ **35 -** Concrete

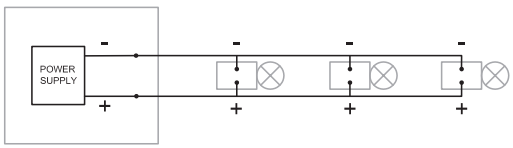
REMOTE POWER SUPPLY OPTIONS (TO BE ORDERED SEPARATELY)

						Min-Max Units			
Watts	**Voltage**	**Dimming protocol**	**Dimming range**	**Dimension**	**Max distance****	**GHO-SQS** 4W*	**GHO-SQM** 6W*	**GHO-HOR** 10W*	**GHO-SQL** 12W*
Indoor rating									
☐		**4444-0024-025-UNV-ND**				1-6	1-4	1-2	1-2
25	120-277V	None	None	6" x 4" x 3" (152 x 102 x 76mm)	30ft (9m)				
☐		**4448-0024-060-UNV-ND**				1-15	1-10	1-5	1-5
60	120-277V	None	None	10" X 8" X 4" (254 X 203 X 101mm)	30ft (9m)				
☐		**4445-0024-072-UNV-D10**				1-18	1-12	1-7	1-6
72	120-277V	0-10V	Down to ±10%	6" X 6" X 3" (152 X 152 X 76mm)	30ft (9m)				
☐		**4447-0024-096-UNV-D2**				2-23	1-16	1-9	1-8
96	120-277V	Lutron Hi Lume® 1% EcoSystem™ (Soft-on, Fade to Black)	Down to ±0.1%	11" X 6" X 2" (279 X 152 X 51mm)	30ft (9m)				
☐		**4448-0024-150-UNV-D10**				1-37	1-25	1-14	1-12
150	120-277V	0-10V	Down to ±10%	10" X 8" X 4" (254 X 203 X 101mm)	20ft (6m)				
Outdoor rating									
☐		**4548-0024-025-UNV-ND**				1-6	1-4	1-2	1-2
25	120-277V	None	None	4" X 7" X 3" (102 X 178 X 76mm)	30ft (9m)				
☐		**4548-0024-036-UNV-ND**				1-9	1-6	1-3	1-3
36	120-277V	None	None	4" X 7" X 3" (102 X 178 X 76mm)	30ft (9m)				
☐		**4551-0024-080-120-LTE**				2-20 (DIM 8-20)	1-13 (DIM 5-13)	1-7 (DIM 3-7)	1-6 (DIM 3-6)
80	120V	Leading and trailing edge (ELV and TRIAC)	Down to ±15%	14" X 5" X 2" (355 X 127 X 51mm)	30ft (9m)				
☐		**4546-0024-200-2C-UNV-ND**				1-25 Per channel (Max 50)	1-16 Per channel (Max 32)	1-10 Per channel (Max 20)	1-8 Per channel (Max 16)
200	120-277V	None	None	12" X 5" X 2" (304 X 127 X 51mm)	15ft (4m)				

* Wattage requirement for one (1) fixture (Remote fixture only).
** Calculated for 16AWG cable. Contact factory for longer remote distance.

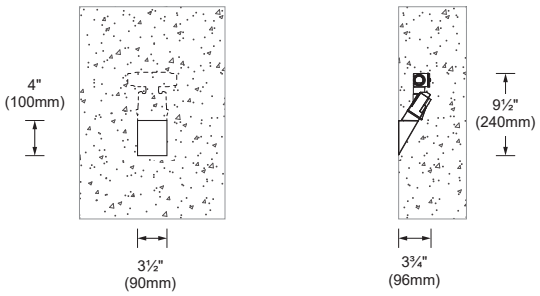
WIRING DIAGRAM

*Multiple luminaires must be connected in parallele

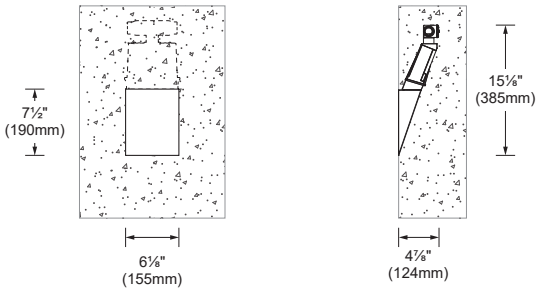


DIMENSION

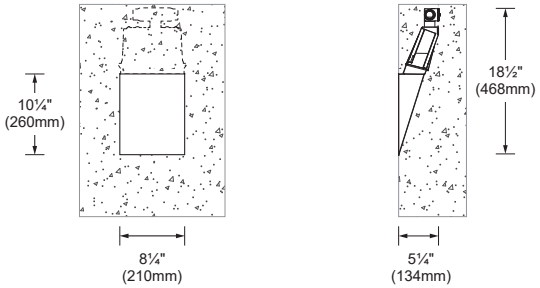
GHOST SQUARE SMALL
Complete with back box: **SCASSC8030**



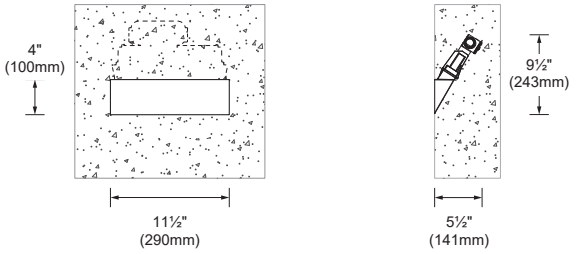
GHOST SQUARE MEDIUM
Complete with back box: **SCASSC8028**



GHOST SQUARE LARGE
Complete with back box: **SCASSC8026**



GHOST HORIZONTAL
Complete with back box: **SCASSC8022**



PHOTOMETRIC DATA

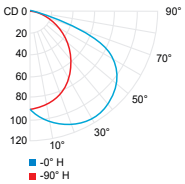
Visit sistemalux.com for complete photometric data.

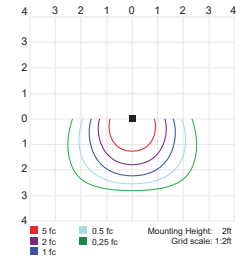
GHOST SQUARE SMALL

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	80	4W	Asymmetric	240	60	113	SGHO-SQS-830

***USE MULTIPLIER TABLE FOR OTHER CCT AND CRI OUTPUT DATA**

Asymmetric (3000K, 80 CRI)





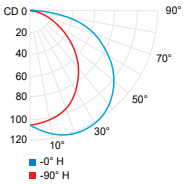
CCT options	300K	4000K
CRI options	80CRI	80CRI
Multiplier	**1**	**1.08**

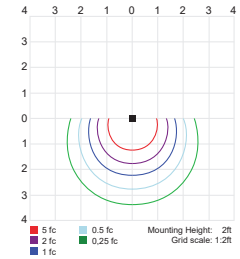
GHOST SQUARE MEDIUM

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	80	6W	Asymmetric	269	44	119	SGHO-SQM-830

***USE MULTIPLIER TABLE FOR OTHER CCT AND CRI OUTPUT DATA**

Asymmetric (3000K, 80 CRI)





CCT options	300K	4000K
CRI options	80CRI	80CRI
Multiplier	**1**	**1.08**

ZANEEN®

PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	

DIXIT RA4 RECESSED

L5604521

base number

1.To build a product code in our configurator select the specify button on the base model # product page
2. To build a manual product code on this datasheet choose from the options listed below in blue font and add the suffix to the base model #



GENERAL

Series: Dixit
Subseries: Dixit RA4
Brand: Ivela
Division: Exterior
Mounting Type: Recessed
Mounting Location: Ceiling
Subcategory: Downlight

PHYSICAL

Shape: Round
Diameter (mm): 41
Diameter (in): 1 5/8
Height (mm): 45
Height (in): 1 3/4
Min. Recessing Depth (mm): 55
Min. Recessing Depth (in): 2 3/16
Light Distribution: Direct
Weight (kg): 0.1
Weight (lbs): 0.22
Diffuser: Clear polycarbonate
Fixture Finish: MWH
Fixture Material: Aluminum Die Cast
Cut-out Measurements: 36mm / 1 7/16"

ELECTRICAL

Input Wattage Range: 1 - 9 W
Lamp Type: LED
Total Output Wattage (W): 4.6
Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V Dimming
Driver Included: No
Driver Location: Remote
Driver Type: Constant Current - 120 / 277Vac
Driver Class: Class 2
Input Voltage (V): 120 / 277
Constant Current (MA): 500

LED

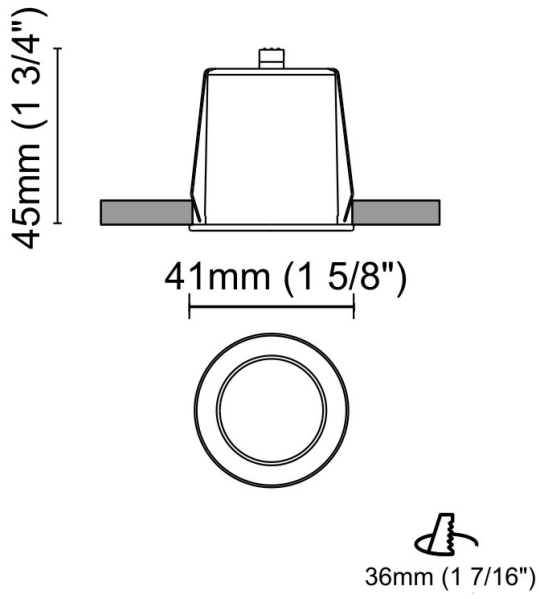
Delivered Lumen Range: 100 - 499 lm
Color Temperature (°K): 3000
Max. Delivered Lumen (lm): 320
Efficiency (%): 59.3
Lamp Life (hrs): 50000

OPTICAL

Optic°: 60

RATINGS AND CERTIFICATIONS

Certified By: Certified for North American Standards
IP rating: IP43
IK Rating: IK07



E

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Available for International specifications by adding 'INT' at the end of the existing Model #. For assistance on 'custom' specifications, contact zteam@zaneen.com.
In a constant effort to supply the best product, we reserve the right to change specifications or materials without notice. The most recent specification sheets are found at zaneen.com

May 2, 2023, 12:06 pm

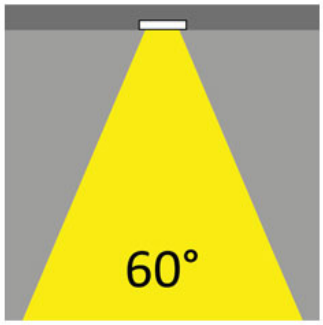
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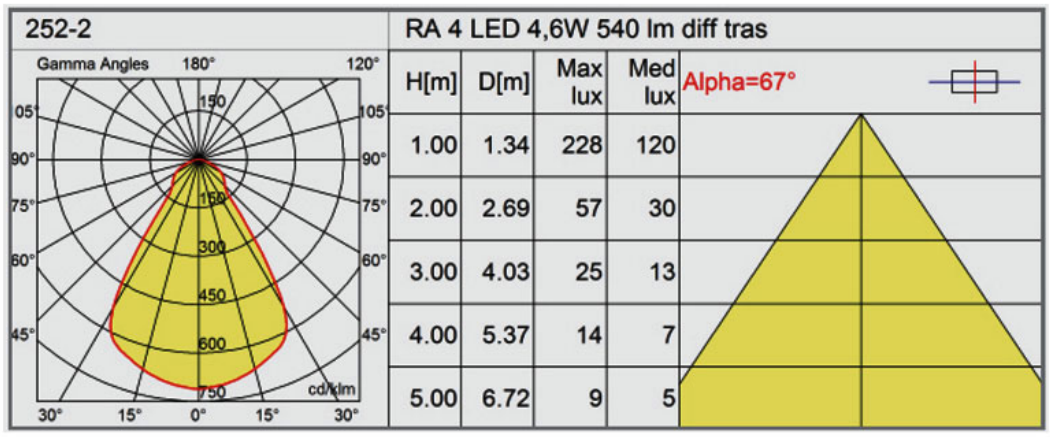
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PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	





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PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	

DIXIT

COLOR FINISH CHART

Fixture Finish

Matte White - MWH

Digital: Not all screens are calibrated the same, and therefore, colors will appear differently between screens.
Physical: When texture is involved, there will be variations in color, character and tone within a product series and between product families.

E

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May 2, 2023, 12:06 pm

100% Design Development

ZANEEN®

DIXIT

PROJECT	
TYPE	
SPECIFIER	
QUANTITY	
DATE	

LEGEND

	floor-mounted		pivotable		special LED (upon request) RGB, RGBW, tunable, gold+, meat+, art+, fashion+
	wall and ceiling: recessed and surface mounted		rotating		warm dim / natural dimming LED
	ceiling-mounted and wall-mounted		illuminate tilted		rechargeable battery powered
	wall-mounted		color of suspension cable		fixture with natural vivid LED (upon request)
	omni-directional light distribution		length of suspension cable	CRI	color rendering index
	direct light distribution		reflector degree selection	°K	color temperature
	direct/indirect light distribution		super spot	LM	lumen (luminous flux)
	indirect light distribution		lens	LM/W	efficacy (lumens per watt)
	asymmetric light distribution		lens pack	UGR	Unified Glare Rating (UGR) range from 5-40
	aura light distribution		shine ring	316	marine grade (AISI 316 stainless steel)
	round wall or ceiling cut-out		integrated shine ring with diffuser		walk on
	square wall or ceiling cut-out		free individual colors 01-29		drive on
	the supplied jig specifies the cutout dimensions		individual colors: 00 (free of charge), 01-25 (extra charge)	DSC	Dark Sky Compliance
	minimum distance (meters) lamp - object		luminaire part to be colored (F1)		Americans with Disabilities Act (less than 4" off the wall located between 27"-84" from floor)
	recessed depth		luminaire part to be colored (F2)		lamp protected against explosion
	ceiling thickness in mm		luminaire part to be colored (F3)		blown glass using traditional methods by master glass blower
	ceiling thickness selection		luminaire part to be colored (F4)		acoustic material
	dimmable DP (phase), DV (0-10V), DD (dali), DS (step-dim)		luminaire part to be colored (F5)		protection class I, protection insulation
	included or excluded LED driver/transformer/ control gear		color of 3-circuit adaptor		protection class II, protection insulation
	separately switchable		indirect diffuser		ETL Certified to UL and CSA Standards
	sensor	D	direct diffuser		UL Certified to UL and CSA Standards
	remote control		ball-proof (upon request)		CSA Certified to UL and CSA Standards
	available upon request		accessory		Certified for North American Standards

IP RATING

IP20	protected against ingress of solid bodies greater than 12.5mm (finger)
IP33	protected against ingress of solid bodies greater than 2.5mm protected against sprays of water up to 60 degrees from the vertical (rain)
IP40	protected against ingress of solid bodies greater than 1mm (wire) no protection against the ingress of moisture
IP43	protected against ingress of solid bodies greater than 1mm (wire) protected against sprays of water up to 60 degrees from the vertical (rain)
IP44	protected against ingress of solid bodies greater than 1mm (wire) protected against water splashed from all directions
IP54	protected against limited ingress of dust (wet rooms/covered outdoor areas) protected against water splashed from all directions
IP65	protected against ingress of dust protected against jets of water
IP66	protected against ingress of dust protected against powerful jets of water or heavy seas
IP67	protected against ingress of dust protected against immersion of water between 15cm - 1m for 30 minutes
IP68	protected against ingress of dust protected against immersion of water under pressure for long periods

IK RATING

IK01	protected against 0.14 joules impact (equivalent to 0.25kg mass dropped from 56mm above the surface)
IK02	protected against 0.2 joules impact (equivalent to 0.25kg mass dropped from 80mm above the surface)
IK03	protected against 0.35 joules impact (equivalent to 0.25kg mass dropped from 140mm above the surface)
IK04	protected against 0.5 joules impact (equivalent to 0.25kg mass dropped from 200mm above the surface)
IK05	protected against 0.7 joules impact (equivalent to 0.25kg mass dropped from 280mm above the surface)
IK06	protected against 1 joules impact (equivalent to 0.25kg mass dropped from 400mm above the surface)
IK07	protected against 2 joules impact (equivalent to 0.5kg mass dropped from 400mm above the surface)
IK08	protected against 5 joules impact (equivalent to 1.7kg mass dropped from 300mm above the surface)
IK09	protected against 10 joules impact (equivalent to 5.0kg mass dropped from 200mm above the surface)
IK10	protected against 20 joules impact (equivalent to 5.0kg mass dropped from 400mm above the surface)

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100% Design Development

FMS

Project **Portland Foreside B5**
Architect **Marvel**

Date **12 May 2023**
Proj No. **522426**

Type **FXK**
4 of 4

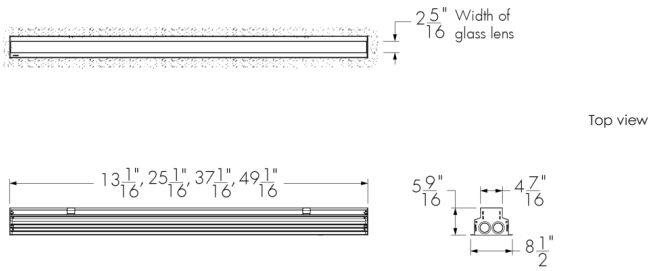
Fisher Marantz Stone Partners in Architectural Lighting Design

New York | **Seattle** | www.fmsp.com

Project Name _____ **Qty** _____

Type _____ **Catalog / Part Number** _____



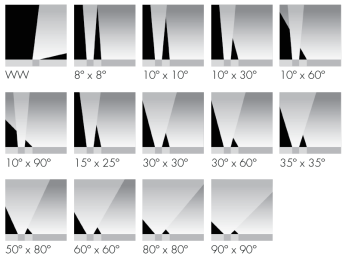


Photometric Summary

	Delivered output (lm)	Intensity (peak cd)
WW	3,634	10,795
8°x8°	4,512	59,238
10°x10°	4,410	33,872
10°x30°	4,586	25,296
10°x60°	3,876	12,062
10°x90°	4,077	6,927
15°x25°	4,346	19,773
30°x30°	4,730	16,886
30°x60°	4,035	5,317
35°x35°	4,612	11,616
50°x80°	4,656	3,904
60°x60°	3,868	3,368
80°x80°	4,548	2,992
90°x90°	4,070	2,132

Based on HO 40K full output, 4ft [1219mm], DMX/RDM configuration.
2.5° factory-set tilt setting for WW optic, 0° tilt setting for all other optics.
Photometric performance is measured in compliance with IESNA LM-79-08.

Optics



Description

The Lumenfacade Inground is an LED luminaire designed for ground-recessed lighting applications, including asymmetric wall washing, grazing, and linear wayfinding. An innovative, plug and play design simplifies installation, protecting the system from water infiltration and ensuring long-lasting performance. Featuring second generation LED technology, the Lumenfacade Inground is available in four different sizes (12 in, 24 in, 36 in or 48 in), with a wide choice of outputs, color temperatures, color-mixing systems, optics and controls. A unique asymmetric wallwash distribution is also available, providing exceptional uniformity and brightness for walls and signage.

Features

Construction	Walk over compliant up to 500 kg in any type of ground, Walk over compliant up to 1000 kg in concrete
Color and Color Temperature	2200K, 2700K, 3000K, 3500K, 4000K, Red, Green, Blue
Length (nominal)	12 in, 24 in, 36 in, 48 in
Optics	Asymmetric wallwash, 8° x 8°, 10° x 10°, 10° x 30°, 10° x 60°, 10° x 90°, 15° x 25°, 30° x 30°, 30° x 60°, 35° x 35°, 50° x 80°, 60° x 60°, 80° x 80°, 90° x 90°
Tilt Setting (factory set)	0 degrees, 2.5 degrees, 5 degrees, 20 degrees
Optical Option	Internal louver
Options	Anti-slip lens, CE (certification covers European Economic Area)
Power Consumption	5 W/ft (meets ASHRAE standards for linear lighting on building facades - not available for 12 in fixture lengths), 8.5 W/ft (RO version), 15.25 W/ft (HO version), Typically 20% higher for 12 in fixture lengths
Warranty	5-year limited warranty

lumenpulse™
1220 Marie-Victorin Blvd., Longueuil, QC, J4G 2H9, CA **T** United States 617.307.5700 | Canada 1.877.937.3003 | 514.937.3003 **F** 514.937.6289
info@lumenpulse.com **www.lumenpulse.com** **www.lumenpulse.com/products/2556**

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Colors and Color Temperatures



Controls

ON/OFF 0-10V DALI

lumentalk DMXrdm EcoSystem Enabled

Ratings

IP68 IK10

Certifications

cULus CE RoHS 5 YEARS

Performance

Maximum Delivered Output	4,730 lm (48 in fixture, 4000K, 30° x 30°, 0° tilt setting, DMX/RDM)
Maximum Delivered Intensity	59,238 cd at nadir (48 in fixture, 4000K, 8° x 8°, 0° tilt setting, DMX/RDM)
Illuminance at Distance	Minimum 1 fc at 243 ft (48 in fixture, 4000K, 8° x 8°, 0° tilt setting, DMX/RDM)
Color Consistency	2 SDCM, 3 SDCM (2200K)
Color Rendering	Minimum CRI 80
Lumen Maintenance	L70 280,000 hrs, L95 35,000 hrs

Physical

Optical Chamber Material	Aluminum
Blockout Material	Polymer recycled PVC reinforced with a stainless steel frame
Trim Material	Anodized aluminum
Lens Material	Tempered glass
End Cap Material	Die cast aluminum
Hardware Material	Stainless steel
Weight	12 in: 7.5 lbs, 24 in: 15.3 lbs, 36 in: 21.4 lbs, 48 in: 27 lbs

Electrical and control

Voltage	120 to 277 volts
Fixture Cable	Power and data in one cable
Leader Cable Conductor	5C #16-5
Connectors	IP68 push-lock
Control	On/Off control, Lumentalk, 0-10V dimming, DALI dimming, Lutron® EcoSystem® Enabled dimming, DMX/RDM enabled
Resolution (DMX/RDM)	Per foot or per fixture (configured with LumenID V3 software), 8-bit or 16-bit

Environmental

Storage Temperature	-40 °F to 185 °F (device must reach start-up temperature value before operating)
Start-up Temperature	-13 °F to 122 °F
Operating Temperature	-40 °F to 122 °F
Ingress Protection Rating	IP68 rated for up to 1 ft, not suitable for permanent immersion applications
Impact Resistance Rating	IK10

Accessories (order separately)

Cables	Lumenfacade Inground Leader Cable, Lumenfacade Inground Jumper Cable
Electrical Accessories	Lumenfacade Inground Junction Box

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info@lumenpulse.com **www.lumenpulse.com** **www.lumenpulse.com/products/2556**

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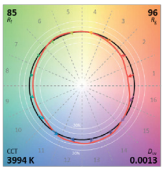
Control Boxes	DMX/RDM enabled (daisy chain or star configuration), Ethernet enabled (daisy chain or star configuration)
Control Systems	Lumentone™ 2 (LTN2), Pharos® kit (PHAROS)
Diagnostic and Addressing Tools	LumenID (LID), LumentalkID (LIDLT)

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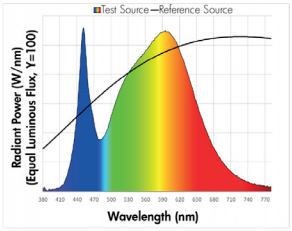
Chromaticity data

TM-30 - 4000K

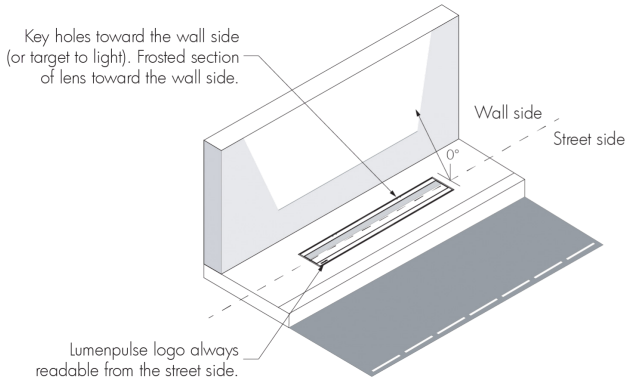
CCT	CIE		TM-30	
4000K	R_a	83	85	R_f
	R_9	14	96	R_g



Spectral Power Distribution



Optical chamber orientation



Cables (order separately)

LOILC - Leader cable for Lumenfacade Inground



LOILC-**CERTIFICATION-LENGTH**

Please specify:
CERTIFICATION: UL or CE; **LENGTH**: 10 ft, 25 ft or 50 ft

- Suitable for dimming/data and non-dimming applications.
- Consult Lumenfacade Inground leader cable specification sheet for details.

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LOIJC - Jumper cable for Lumenfacade Inground

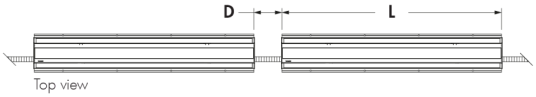


LOIJC-**CERTIFICATION-LENGTH**

Please specify:
CERTIFICATION: UL or CE; **LENGTH**: 2 ft, 4 ft or 10 ft

- Suitable for dimming/data and non-dimming applications.
- Consult Lumenfacade Inground jumper cable specification sheet for details.

Jumper cable length selection



D - distance between two fixtures
L - length of fixture

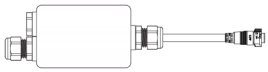
Add the length of one fixture to the distance between two fixtures: L + D. Order the next longest jumper cable available: 2 ft, 4 ft or 10 ft.

Example: if the distance between two 4 ft fixtures is 0.5 ft, L + D = 4.5 ft, therefore a 10 ft jumper cable is required.

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Electrical accessories (order separately)

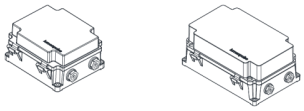
LOI-JBOX - Lumenfacade Inground Junction Box



Lumenfacade Inground IP68 sealed junction box starter kit. Use for stand alone fixtures and/or first of run installations. The LOI-JBOX accessory does not fit in 12 in fixtures.

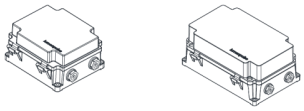
Control boxes (order separately)

CBX-DMX/RDM - DMX/RDM enabled (daisy chain or star configuration)



DMX/RDM control box. Up to six power and data outputs to fixtures or fixture runs. Consult CBX specification sheet and installation instructions for details. Lumenterminators provided with CBX (2x for daisy chain configuration, 6x for star configuration), consult factory to order spares.

CBX-ENET - Ethernet enabled (daisy chain or star configuration)



Ethernet control box. Up to four power and data outputs to fixture or fixture runs. Consult Ethernet CBX specification sheet and installation instructions for details.

Control systems (order separately)

LTN2 - Lumentone™ 2



Lumentone 2 is a simple pre-programmed DMX 512 controller with a push button rotary dial and live feedback.

PHAROS - Pharos® kit



The Pharos kit, available for 1 or 2 DMX universes, allows for complete control of large lighting installations. 2 DMX universes kit shown.

Diagnostic and addressing tools (order separately)

LID - LumenID



LumenID is a diagnostic and addressing DMX/RDM tool. It must be specified on all DMX applications. Consult LID specification sheet for details.

LID-LT - LumentalkID

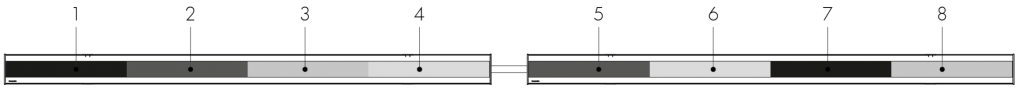


LumentalkID is a diagnostic and addressing tool. It must be specified for all Lumentalk (LT) applications. Consult LID-LT specification sheet for details.

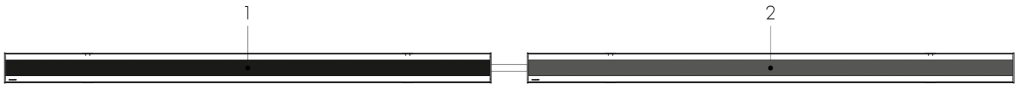
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Resolution details

DMX/RDM control, resolution per foot: each 12 in section is addressed independently
DMX addresses:



DMX/RDM control, resolution per fixture: each fixture is addressed independently
DMX addresses:



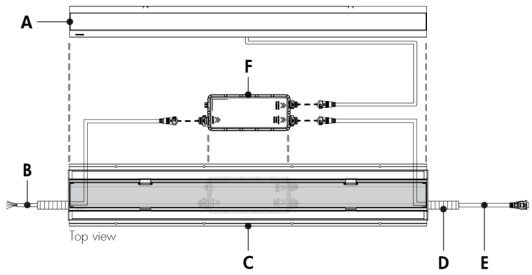
- 48 in fixtures shown.
- Applicable for DMX/RDM control option only. Fixture resolution can be configured on-site within the LumenID V3 software. A DMX/RDM enabled CBX is required.

Typical wiring diagrams

Wiring color code

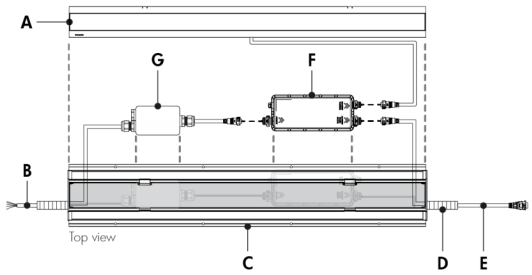
UL Color Code	USE
Green	Ground
Black	Line
White	Line/Neutral
Red or Purple	0-10V / Data +
Orange	0-10V / Data -

Typical installation with leader cable



A - Optical chamber
B - Leader cable (LOILC, order separately)
C - Blockout
D - Conduit (by others)
E - Jumper cable to next fixture (LOIJC, order separately, for continuous run installations)
F - PACBOX

Typical installation with IP68 LOI-JBOX accessory

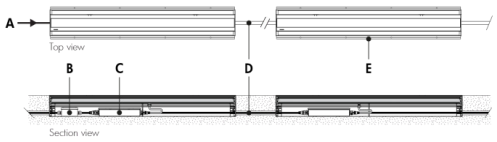


A - Optical chamber
B - Power and data input cable (by others)
C - Blockout
D - Conduit (by others)
E - Jumper cable to next fixture (LOIJC, order separately, for continuous run installations)
F - PACBOX
G - IP68 LOI-JBOX (order separately)

The IP68 LOI-JBOX accessory cannot be used with 12 in fixtures.

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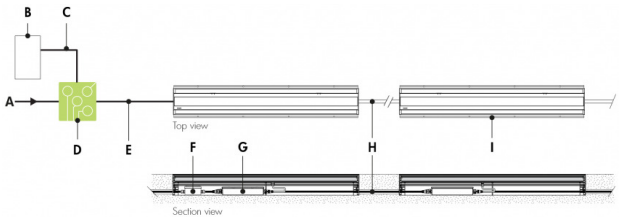
On/Off Control (NO)



A - Power input (120-277V, wiring by others)
B - IP68 LOI-JBOX (optional)
C - PACBOX
D - Jumper cable (LOIJC)
E - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

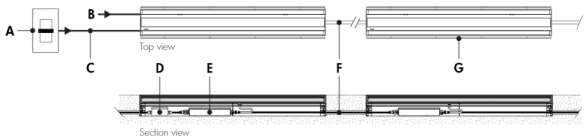
Lumentalk (LT)



A - Power input (100-277V AC, wiring by others)
B - Dimmer/controller (order separately from Lumenpulse, or by others)
C - Data wiring (by others)
D - Lumentranslator 2 (LTL2-DIM, -DMX, -TRIAC, -DALI)
E - Power wiring (by others)
F - IP68 LOI-JBOX (optional)
G - PACBOX
H - Jumper cable (LOIJC)
I - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- Lumentalk enabled fixtures must be commissioned using LumentalkID software and a LID-LT. Consult factory for details.
- Maximum of 1 transmitter (Lumentranslator or Lumenlink) per system.
- No third party fixtures allowed on the same circuit.
- For DMX applications: 1 DMX controller per Lumentalk network, maximum of 48 DMX channels per Lumentalk network (minimum step transition update rate is 1 second, minimum fade time between two colors is 1 minute). Consult factory for applications that require additional capabilities.
- Consult factory for DALI Lumentalk applications.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

0-10V dimming (DIM)



A - Dimmer (by others)
B - Power input (120-277V, wiring by others)
C - Data wiring (by others)
D - IP68 LOI-JBOX (optional)
E - PACBOX
F - Jumper cable (LOIJC)
G - Lumenfacade Inground

- Consult the installation instructions for additional wiring details.
- Consult factory for specific applications and maximum fixture count/cable length recommendations.
- 0-10V mA ratings: passive dimmer (Current Sink): 3 mA per fixture, active dimmer (Current Source): 0.5 mA per fixture.
- 1% minimum dimming value.
- ASHRAE version (not available for 12 in fixture lengths): 5 W/ft; Regular Output version: 8.5 W/ft; High Output version: 15.25 W/ft.

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How to order

Housing (1) (4) (5)	Voltage	Length	Color and Color Temperature (6)	Optics	Tilt Setting (10) (11)	Optical Option	Control	Options
LOI ASHRAE Lumenfacade™ Inground, 5 W/ft ASHRAE compliant (2) (3) **LOI RO** Lumenfacade™ Inground, Regular Output, 8.5 W/ft (3) **LOI HO** Lumenfacade™ Inground, High Output, 15.25 W/ft (3)	**120/277** 120-277 volts	**12** 13 1/16 in (7.5 lbs) (5) **24** 25 1/16 in (15.3 lbs) **36** 37 1/16 in (21.4 lbs) **48** 49 1/16 in (27 lbs)	**22K** 2200K **27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K **RD** Red (7) **GR** Green (7) **BL** Blue (7)	**WW** Asymmetric Wallwash (8) **8x8** 8° x 8° (8) (9) **10x10** 10° x 10° (8) (9) **10x30** 10° x 30° (8) **10x60** 10° x 60° (8) **10x90** 10° x 90° (8) **15x25** 15° x 25° (8) **30x30** 30° x 30° **30x60** 30° x 60° **35x35** 35° x 35° **50x80** 50° x 80° **60x60** 60° x 60° **80x80** 80° x 80° **90x90** 90° x 90°	**TS2.5** 2.5 degrees **TS0** 0 degrees **TS5** 5 degrees **TS20** 20 degrees	**INTL** Internal louver (12)	**NO** On/Off control **LT** Lumentalk (13) **DIM** 0-10V dimming **DALI** DALI dimming **ES** Lutron® EcoSystem® Enabled dimming **DMX/RDM** DMX/RDM enabled (14)	**ASL** Anti-slip lens **CE** CE (European certification) (15)

Notes:

1. A Lumenfacade Inground fixture includes one optical chamber (LOIC), one power and control box (PACBOX) and one recessed blockout (RBO). The LOIC, PACBOX and RBO are provided according to the output/color, length and control configuration.
2. ASHRAE version not available for 12 in fixture lengths.
3. Consult factory for products that are BAA-approved (Buy America.n Act).
4. Consult the installation instructions to plan all aspects of the fixture installation.
5. Power consumption is typically 20% higher for 12 in fixture lengths.
6. Consult factory for availability of static Royal Blue, 6500K and 90+ CRI.
7. Static colors made to order 8-10 weeks.
8. 8x8, 10x10, 10x30, 10x60, 10x90, 15x25 and WW distributions come with a half-frosted lens to bring light low on the wall for grazing applications. Clear lens also available, consult factory.
9. For best results use with HO fixtures at a 6 in setback from surface. Contact factory for application support.
10. Do not specify a tilt setting for the asymmetric wallwash option. The asymmetric wallwash optic is factory set with a 2.5 degree tilt.
11. Tilt setting is factory set and cannot be adjusted in the field.
12. The addition of an internal louver will affect beam distribution. Consult factory for application support.
13. A Lumentranslator 2 (LTL2) and LumentalkID (LIDLT) must be specified for Lumentalk applications. Consult Lumentranslator 2 and Lumentalk pages and specification sheets for details.
14. A control box (CBX) and LumenID (LID) must be specified.
15. Consult European specification sheet and installation instructions for CE wiring information.

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WAGNER®
Architectural Systems



LINEAR LUMINAIRE

Our linear product is a state-of-the-art, low-voltage LED light fixture that provides exceptional lighting performance to enhance any stairway, ramp or walkway application. Its soft light provides ample illumination for safety and ambiance without the glare or harshness of overhead lighting. Available with warm, neutral or cool white color temperatures, and a range of solid color options for static hues. Standard low, mid and high output offerings make Lumenlinear a highly flexible and practical solution for adding beauty and light to your life safety installations.



- Industry leading output: 70° asymmetric @ 45° above nadir
- Matte and transparent lens options
- Available in: 140, 152, 284 or 413 lpf (4000 K Values)
- IES full cutoff classification when installed in Wagner Architectural Systems handrail
- Fully gasketed, extruded aluminum housing
- ETL wet location listed, UL1598 certified
- 5 year warranty
- Cast 316 stainless steel, mechanical mounting, secure but easily serviceable
- CCT standard in 5 white options
- 4 solid color options including wildlife amber
- Up to 88 CRI standard, 95+ available upon request
- 9 standard lengths from 6″ to 54″

Specifications subject to change without notice. Verify data at time of order.

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LULSA SUBM R7

100% Design Development

LUMENLINEAR™ ASYMMETRIC

Another Lumenrail® Component for Life Safety and Light



PROJECT NAME: _____

REP AGENCY: _____

APPROX. LINEAR FT: _____

SERVICE OPTIONS: ☐ Field Measure ☐ Job Site Support ☐ System Installation

SCAN QR CODE
for technical information, downloads and instructions.

PART NUMBER BUILDER

LULS40K6070TA24	LULS						
EXAMPLE	FIXTURE TYPE	COLOR TEMP	FIXTURE WATTAGE	BEAM ANGLE	LENS OPTION	LENGTH	
	LULS- Lumenlinear™	**27K**- 2700 K **30K**- 3000 K **35K**- 3500 K **40K**- 4000 K **50K**- 5000 K	**BLU**- Blue **GRN**- Green **RED**- Red **AMB**- Amber	**20**- 1.85 W/FT **40**- 3.57 W/FT **60**- 5.45 W/FT	**70**- 70° Spread *Main Beam @ 45° about nadir*	**TA**- Transparent Asymmetric **MA**- Matte Asymmetric	**6**- 7.64″ **12**- 13.51″ **18**- 19.39″ **24**- 25.33″ **30**- 31.23″	**36**- 37.14″ **42**- 43.07″ **48**- 48.95″ **54**- 54.89″

Longer lengths available by request.

ELECTRICAL SPECIFICATIONS

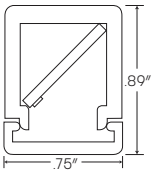
Intertek

All electrical connections to be made by a qualified electrician in accordance with all national, state and local electrical codes.

24VDC	ETL LISTED WET, UL 1598/CSA 22.2	0-10V INPUT (PWM)	-40°F TO +120°F
INPUT VOLTAGE	CERTIFICATIONS	DIMMING	OPERATING TEMP

CLASS 2 REQUIRED	5 YEARS	UP TO 77 LM/W LED	UP TO 88 (95+ AVAIL. UPON REQUEST)	18″ (X2)
DRIVER	WARRANTY	EFFICIENCY	CRI	WIRE LENGTH

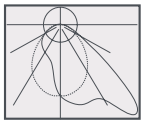
CONSTRUCTION



An extruded aluminum housing and fully gasketed assembly insure heat dissipation and ingress protection to IP67. Stainless steel hardware and mechanical attachment promote easy installation and longevity.

PHOTOMETRICS

Main Beam 45° + nadir



The asymmetric output has industry leading performance with a 70° beam spread, focused at 45° above nadir. Installed in Wagner Lumenrail®, Lumenlinear performs with full IES cutoff. Reports to view or download are available by scanning the QR code or visiting our website.

LUMENGEAR™ LED DRIVER & NEMA ENCLOSURE OPTIONS

Wagner offers multiple ETL listed options for both 24VDC power supplies and NEMA enclosures. Quantities and types will be configured based on your specifications and design. Additional specification options are available by request. Not all options apply to all products, please verify compatibility with the factory.

CLASS II DRIVERS:
- STD 100W
- Dali, DMX, 0-10V Dimming Protocols
- Multiple Wattages
- Made in USA Units Available

NEMA ENCLOSURES:
4X - Polycarbonate, Painted Steel or Stainless Steel

LUMENPOST™:
Integrated 100W, 0-10V DIM

Specifications subject to change without notice. Verify data at time of order.

@wagnercompanies

WAGNER Architectural Systems
888-243-6914 // rfq@mailwagner.com
10600 West Brown Deer Road // Milwaukee, WI 53224, USA

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LULSA SUBM R7

100% Design Development

FMS

Project **Portland Foreside B5** Date **12 May 2023** Type **FXM**
Architect **Marvel** Proj No. **522426** 2 of 2

Fisher Marantz Stone Partners in Architectural Lighting Design **New York | Seattle | www.fmsp.com**

DENALI LED (REMOTE)

IP66 RATED

DATE:	PROJECT:	TYPE:

CATALOG NUMBER LOGIC:



Driver housing required. Configure separately.

**Accommodates up to 2 lens/shielding media.*

CATALOG NUMBER LOGIC			
Example: DE - LED - x58 - SP - BZW - 9 - 11 - A			
MATERIAL			
Aluminum			
SERIES			
DE - Denali			
SOURCE			
LED - Chip on Board Technology			
LED TYPE			
x58 - 12W/2700K/80CRI	x62 - 20W/3000K/80CRI	x66 - 27W/4000K/80CRI	
x59 - 12W/3000K/80CRI	x63- 20W/4000K/80CRI	x67 - 27W/2700K/90CRI	✓
x60 - 12W/4000K/80CRI	x64 - 27W/2700K/80CRI	x68 - 27W/3000K/90CRI	✓
x61 - 20W/2700K/80CRI	x65 - 27W/3000K/80CRI	x69 - 27W/3500K/80CRI	
OPTICS			
SP - Spot (15°)	FL - Flood (35°)	WFL - Wide Flood (60°)	
FINISH (See page 2 for full-color swatches)			
Standard Finishes (BZP, BZW, BLP, BLW, WHP, WHW, SAP, VER)			
Premium Finish (ABP, AMG, AQW, BCM, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TXF, WCP, WIR)			
Also available in RAL Finishes			
LENS TYPE*			
9 - Clear (Standard)			
10 - Spread	12 - Soft Focus	13 - Rectilinear	
SHIELDING*			
11 - Honeycomb Baffle			
CAP STYLE			
A - 45°			
B - 90°			
C - Flush			
D - 45° Less Weephole (Interior use only)			
E - 90° Less Weephole (Interior use only)			

TITLE 24, JA8 COMPLIANT

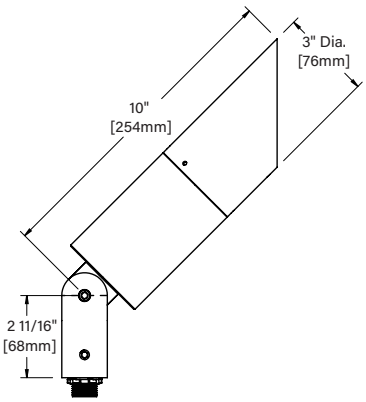
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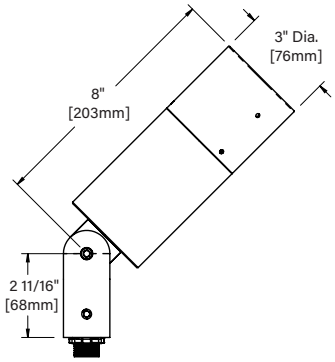
12/06/2022 SKU-848
SUB001113

DENALI LED (REMOTE) IP66 RATED

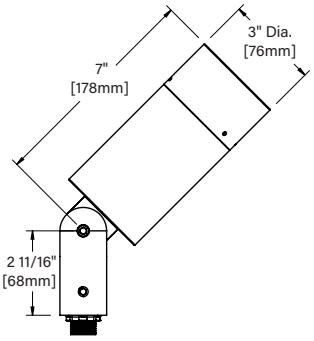
DATE:	PROJECT:	TYPE:



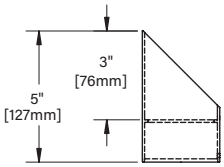
"A"/"D" CAP

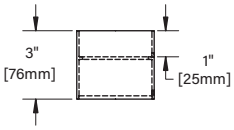


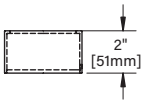
"B"/"E" CAP



"C" CAP







STANDARD FINISHES

Satin Black (BLP)
Satin Bronze (BZP)
Satin White (WHP)
Satin Aluminum (SAP)
Black Wrinkle (BLW)
Bronze Wrinkle (BZW)
White Wrinkle (WHW)
Verde (VER)

Click Here to view larger, full-color swatches of all available finishes on our website.

PREMIUM FINISHES

Cascade Mtn. Granite (CMG)
Rocky Mtn. Granite (RMG)
Sierra Mtn Granite (SMG)
Aleutian Mtn Granite (AMG)
Textured Forest (TXF)
Black Chrome (BCM)
Beige (BGE)
Weathered Copper (WCP)
Old Copper (OCP)
Hunter Green (HUG)
Antique Brass Powder (ABP)
Brown Patina Powder (BPP)
Sonoran Desert Sandstone (SDS)
Weathered Iron (WIR)
Clear Anodized Powder (CAP)
Cream (CRM)
Antique White (AQW)
Natural Brass Powder (NBP)

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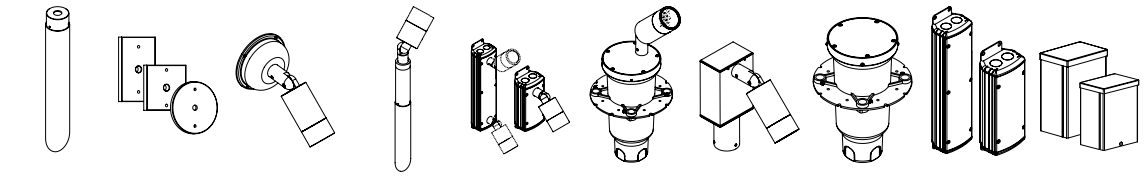
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SUB001113

DENALI LED (REMOTE) IP66 RATED

DATE:	PROJECT:	TYPE:

Accessories (Configure separately)



Power Pipe II | Canopies | Power Canopy | Power Pipe II | PM2D & PM2 | HP2 | TMB | HP2RM | PM2DRM & PM2RM | RM & DRM

SPECIFICATIONS

ELECTRICAL	WATTAGE	12W, 20W, or 27W LED
	WIRING	Stranded XLPE, 18GA, 600V, 150°C, wire rated to UL3321.
	REMOTE DRIVER	For use with remote LED driver. See remote driver submittal to determine remote distance and wiring requirements prior to detailing field installation of any remote wiring.
PHYSICAL	MATERIALS	Furnished in copper-free aluminum (6061-T6).
	BODY	Unibody design with enclosed, water-proof wireway and integral heat sink is fully machined from solid billet. Anti-condensation and corrosion vent equalizes fixture pressure and eliminates potential for damage to internal components.
	KNUCKLE	360HD Mounting System features a mechanical taperlock, allowing full 180° vertical adjustment without the use of aim-limiting serrated teeth. High temperature, silicone 'O' Ring provides water-tight seal and compressive resistance to maintain fixture position. Design withstands 73 lbs. static load prior to movement for optical alignment with a ½" pipe thread for mounting. Biaxial source control additionally provides 360° horizontal rotation in addition to vertical adjustment. Aim & Lock technology allows precision adjustment without the redundant tightening and loosening of knuckle screw. 360HD hardware is stainless steel with black oxide treatment for additional corrosion resistance.
	CAP	Fully machined and accommodates two (2) lens or louver media.
	LENS	Shock-resistant, tempered glass lens is factory adhered to fixture cap and provides hermetically sealed optical compartment.
	LED	Integrated solid state system and modular design with electrical disconnects allow for easy field upgrade and maintenance. LM-80 certified. Title 24, JA8 compliant. Minimum 50,000 hour rated life at 70% of initial lumens (L70). LED technology provides long life, significant energy reduction and exceptional thermal management.
	COLOR MANAGEMENT	Corrected cold phosphor technology delivers natural white light with long term phosphor maintenance over product life. Exact color point conformity exceeds ANSI C78.377 standard. Provides uniform beam with no color variation over angle. Module exceeds 80 CRI (RA>80, R9>16).
	HARDWARE	Tamper-resistant, stainless steel hardware. 360HD hardware is black oxide treated for additional corrosion resistance.
	FINISH	StarGuard, our 15-stage chromate-free process cleans and conversion coats aluminum components prior to application of Class 'A' TGIC polyester powder coating and is RoHS compliant.
	WARRANTY	5-year limited warranty.
	CERTIFICATION & LISTING	UL tested to IESNA LM-79. UL Listed. Certified to CAN/CSA/ANSI Standards. RoHS compliant. Title 24, JA8 compliant. Suitable for indoor or outdoor use, in wet locations, and for installation within 4' of the ground. IP66 Rated. Made in the USA with sustainable processes.

TITLE 24, JA8

c UL us LISTED

RoHS

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SUB001113

LAMP & DRIVER DAT (page 1 of 2)

DATE: | PROJECT: | TYPE:

DRIVER ELECTRICAL DATA

Type	LED Type	AC Input Range	Frequency Hz	Power Factor At Full Load (Efficiency)	THD	InRush Current	Operating Current	Operation Ambient Temperature	Dimmer Type	Dimmer Range
INC	x58-x63	105-305Vac	50/60	> 0.94	≤5%	< 250mA	700mA	-30° C ~ 50°C	Incandescent	10-100%
INC	x64-x66	105-305Vac	50/60	> 0.94	≤5%	< 250mA	700mA	-30° C ~ 50°C	TRIAC/ELV, (120 Only)	10-100%
010	x64-x66	120-277Vac	50/60	> 0.90	<20%	6A	700mA	-30° C ~ 70°C	0-10 (120 or 277)	10-100%

LM79 DATA				OPTICAL DATA				
BK No.	CCT (Typ.)	CRI (Typ.)	Input Watts (Typ.)	L70 Data	Angle	CBCP	Del. Lumens	Muliplier
x58	2700	80	12	50,000	15	3,865	721	0.85
x58	**2700**	**80**	**12**	**50,000**	**35**	**1,493**	**661**	**0.85**
x58	2700	80	12	50,000	60	627	623	0.85
x59	3000	80	12	50,000	15	4,048	756	0.89
x59	**3000**	**80**	**12**	**50,000**	**35**	**1,564**	**692**	**0.89**
x59	3000	80	12	50,000	60	657	653	0.89
x60	4000	80	12	50,000	15	4,561	851	1.00
x60	**4000**	**80**	**12**	**50,000**	**35**	**1,762**	**780**	**1.00**
x60	4000	80	12	50,000	60	740	736	1.00
x61	2700	80	20	50,000	15	7,103	1,307	0.91
x61	**2700**	**80**	**20**	**50,000**	**35**	**2,623**	**1,125**	**0.91**
x61	2700	80	20	50,000	60	1,049	1,064	0.91
x62	3000	80	20	50,000	15	7,478	1,376	0.96
x62	**3000**	**80**	**20**	**50,000**	**35**	**2,761**	**1,184**	**0.96**
x62	3000	80	20	50,000	60	1,104	1,120	0.96
x63	4000	80	20	50,000	15	7,800	1,435	1.00
x63	**4000**	**80**	**20**	**50,000**	**35**	**2,880**	**1,235**	**1.00**
x63	4000	80	20	50,000	60	1,152	1,168	1.00
x64	2700	80	27	50,000	15	15,656	1,767	0.92
x64	**2700**	**80**	**27**	**50,000**	**35**	**4,649**	**1,586**	**0.92**
x64	2700	80	27	50,000	60	1,515	1,383	0.92
x65	3000	80	27	50,000	15	16,132	1,820	0.95
x65	**3000**	**80**	**27**	**50,000**	**35**	**4,791**	**1,634**	**0.95**
x65	3000	80	27	50,000	60	1,561	1,426	0.95
x66	4000	80	27	50,000	15	17,042	1,923	1.00
x66	**4000**	**80**	**27**	**50,000**	**35**	**5,061**	**1,726**	**1.00**
x66	4000	80	27	50,000	60	1,649	1,506	1.00
x67	2700	90	27	50,000	15	14852	1676	0.95
x67	**2700**	**90**	**27**	**50,000**	**35**	**4411**	**1504**	**0.95**
x67	2700	90	27	50,000	60	1437	1312	0.95
x68	3000	90	27	50,000	15	15770	1779	0.98
x68	**3000**	**90**	**27**	**50,000**	**35**	**4683**	**1597**	**0.98**
x68	3000	90	27	50,000	60	1526	1394	0.98

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Oblique LED wall

T086008

SPECIFICATIONS



Design By

Arik Levy

Collection

Outdoor

Colors & Finishes

Anthracite grey

Specifications

Delivered lumens	780.7lm
Light output ratio	39.1lm/W
Power consumption	20W
Led type	20W C.O.B.*
CCT (Correlated Color Temperature)	3000K
CRI (Color Rendering Index)	>90
Life expectancy	50000Hrs
Control type	Dimmable 2-Wire
Input Voltage	120V
Driver	N/A
BUG Rating	B0-U0-G0

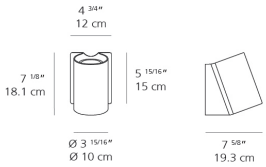
Materials

- Body in aluminum
- Diffuser in frosted tempered glass
- Reflector in polycarbonate

Features & Accessories

- Slightly downward angle projects light via a high-performance reflector

Dimensions



Packaging

1 Box

1 x 10-15/16" x 10-15/16" x 8-3/16" / 5.07 lbs - 27.5 cm x 27.5 cm x 20.5 cm / 2.3 kg

Light distribution

Direct

Luminaire weight

4.41 lbs / 2 kg

Warranty

5 year limited warranty

last updated: 2022-10-26

We reserve the right to change specifications of our products.
For the latest product information please visit www.artemide.net

Artemide

100% Design Development

FMS

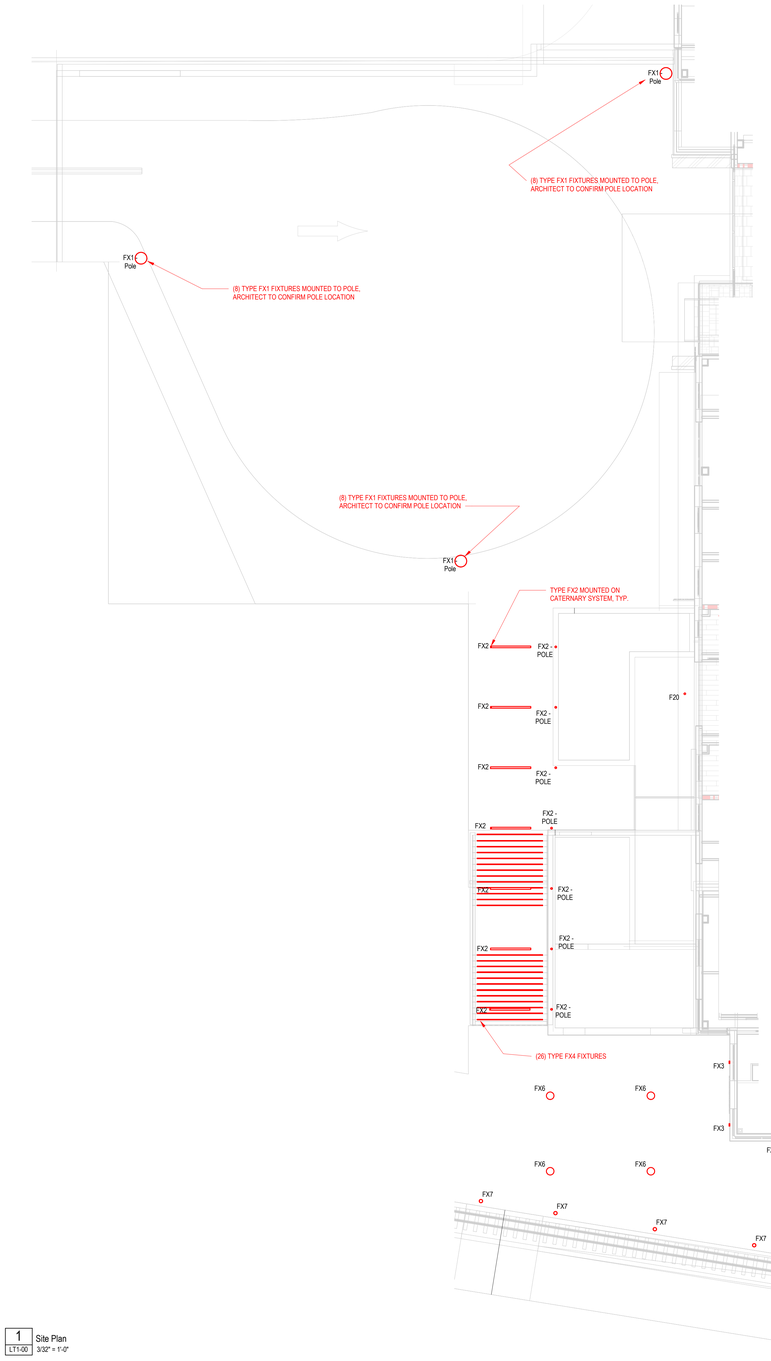
Project **Portland Foreside B5**
Architect **Marvel**

Date **12 May 2023**
Proj No. **522426**

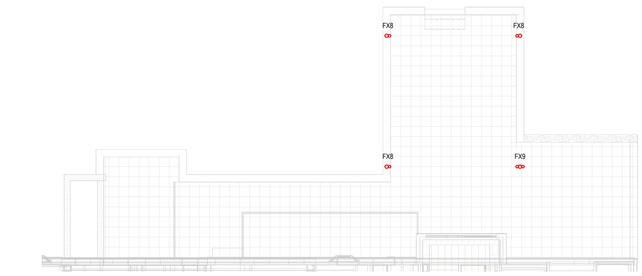
Type **FXP**
1 of 1

Fisher Marantz Stone Partners in Architectural Lighting Design

New York | **Seattle** | www.fmsp.com



1 LT1-00 Site Plan
3/32" = 1'-0"



2 LT1-00 Level 7 - Street Entrance
3/32" = 1'-0"

Baskervill

FORESIDE/

THE CHANNEL MARK°

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2226

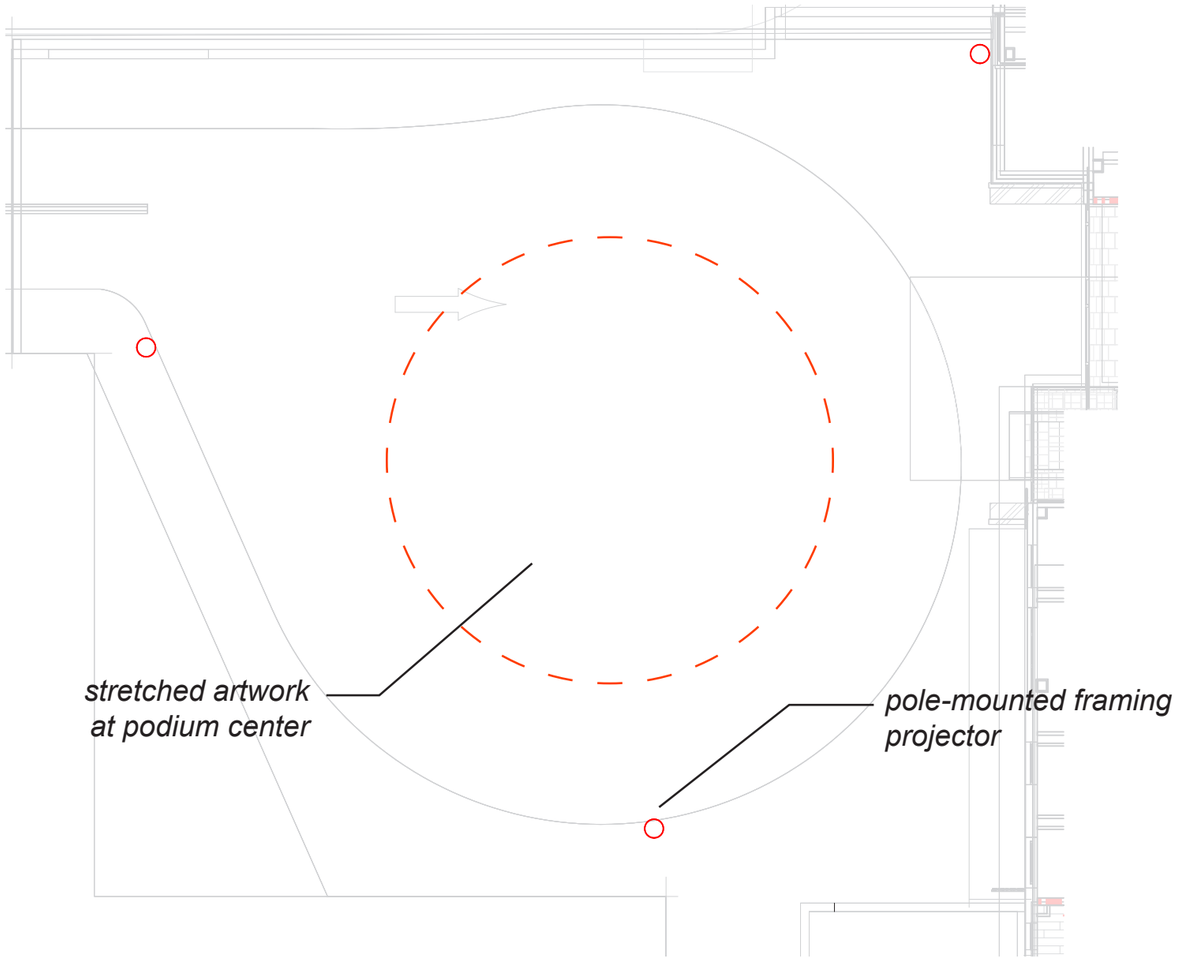
Portland Foreside Block 6

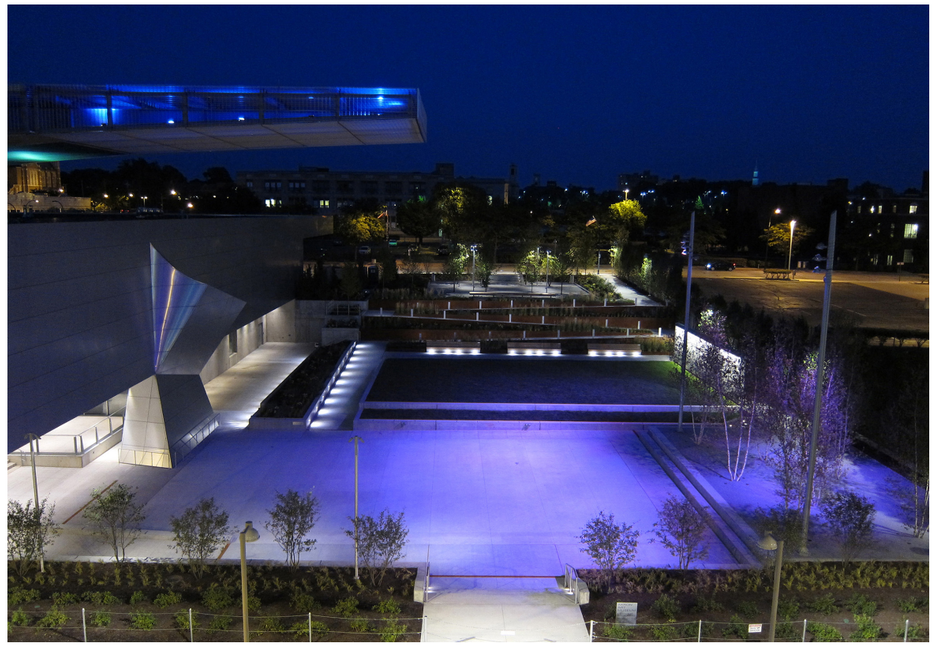
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ISSUE
02/09/23 - Schematic Design Progress

Site Plan and 7th Floor - Street Entrance

LT1-00





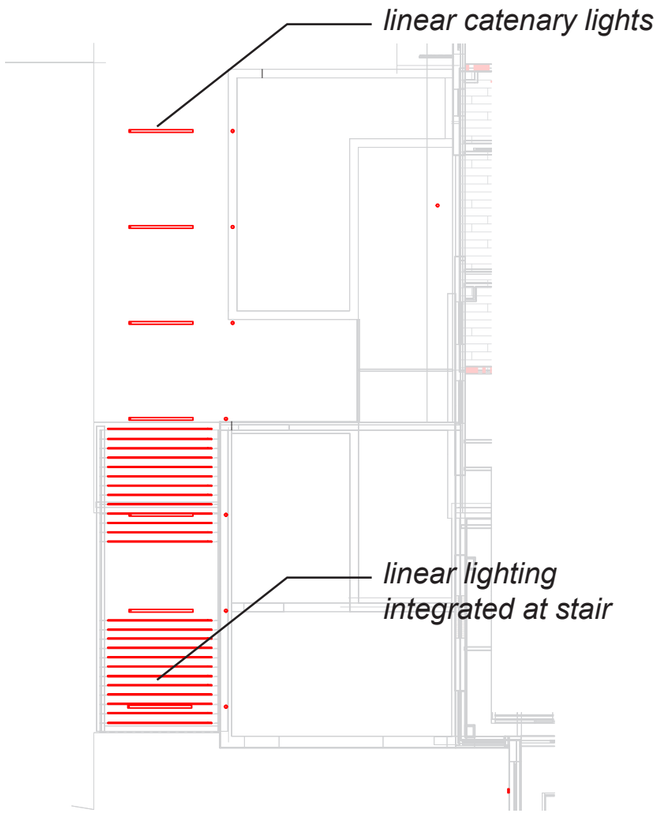




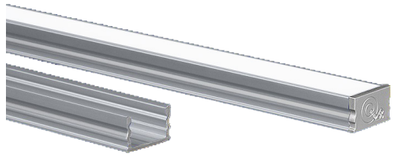


Podium turnaround | Pole lighting

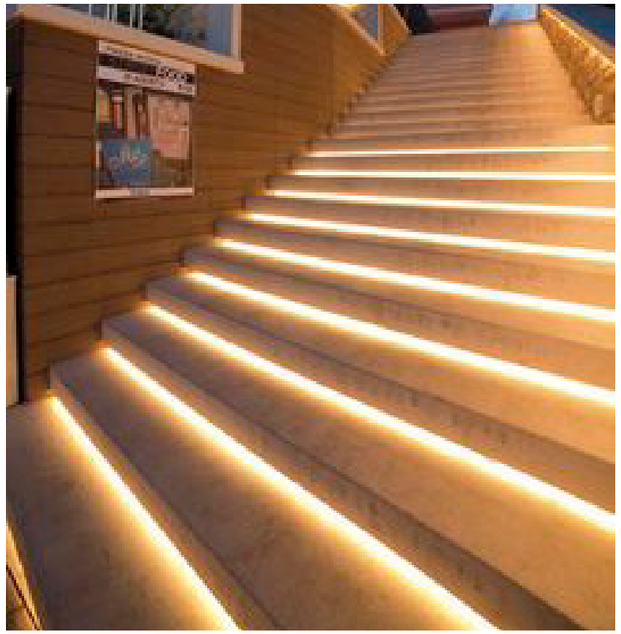
Portland Foreside Block 6
9 January 2023 | Schematic Lighting Design



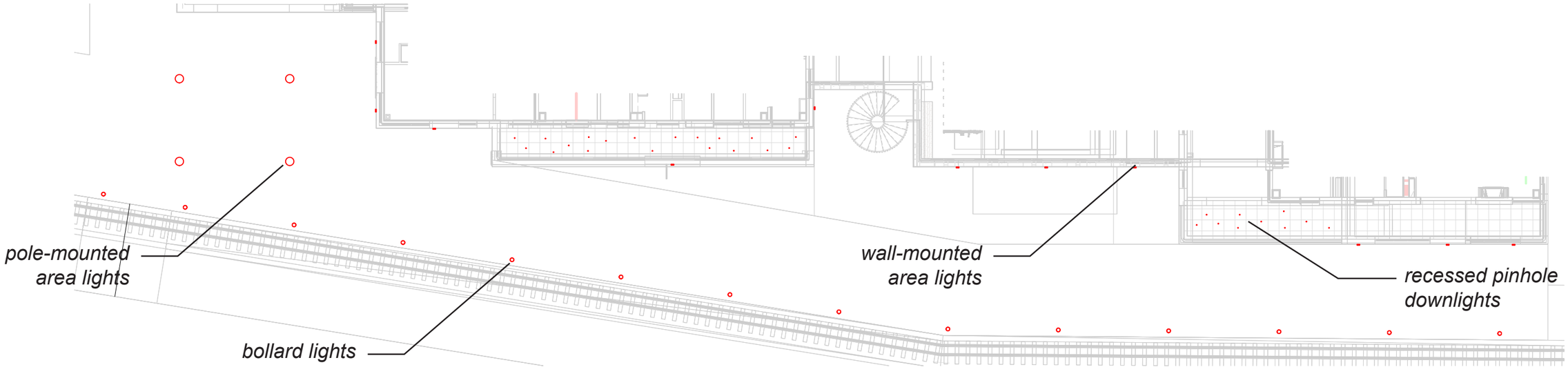








Stair corridor


pole-mounted
area lights
bollard lights
wall-mounted
area lights
recessed pinhole
downlights

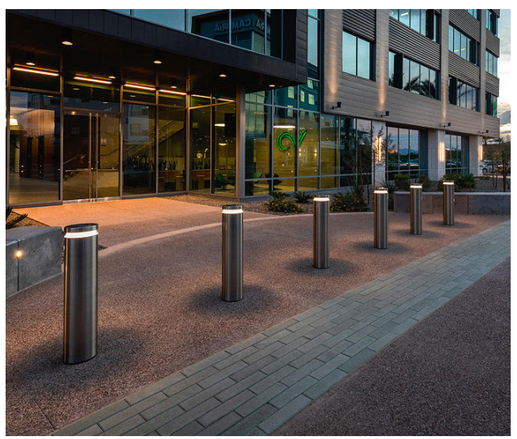


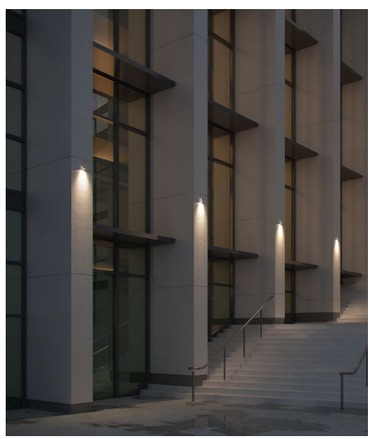


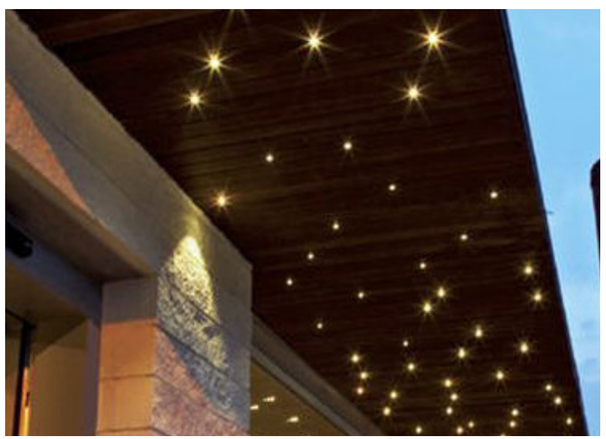


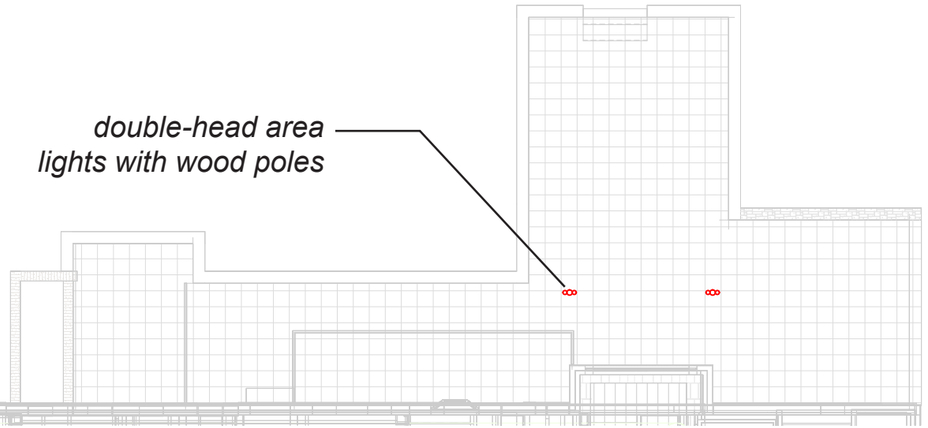




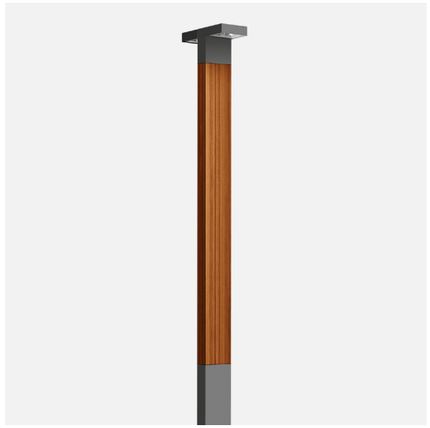








2 LT1-00 Level 7 - Street Entrance
3/32" = 1'-0"





Block 6 Street Entrance

FLC210 LED FRAMING PROJECTOR

139-2481_max

1/8

we-ef



Description
Profile Projector [FP] for framing applications, polygon shape. Spherical and aspherical, double flat convex lens system. IP66, Class I. IK05. Marine-grade, die-cast aluminum alloy. 5CE superior corrosion protection including PCS hardware. Silicone CCG® Controlled Compression Gasket. Safety glass lens. One cable gland. Second gland for through wiring on request. Integral driver, thermally separated. OLC® One LED Concept. Factory installed LED circuit board. 0-10V Dimming comes standard with luminaire. Specify product with 7 Digit product code – Finish Color. Accessories, such as mounting, optical, and electrical, must be specified separately. Example: XXX-XXXX – 9004 (Black) + XXX-XXXX (Accessory 1)

Beam Type	symmetric Framing-Projector [FP] - max aperture angle
Light Source	LED-FT-26W - 3000 K
CRI	80
Gear Type	electronic gear

Nominal Luminous Flux (lm)

LED Lumens	3295 lm
LEDs	1
Total Lumens	3295 lm
Tj	25 °C

Delivered Lumens Flux (lm)

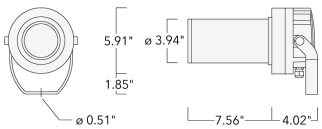
LED Lumens	1827.3 lm
Total Lumens	1827.3 lm
Ta	25 °C

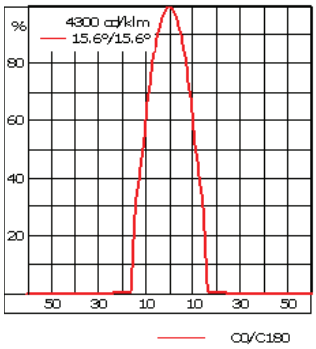
Rated Input Power	28 W

FLC210 LED FRAMING PROJECTOR

139-2481_max

2/8





Material Specification

Body:	Marine-grade, die-cast aluminium alloy
Weight (lbs):	8.80
Lens:	Safety glass lens
Colours:	RAL9004 Black RAL9007 Grey Metallic RAL9016 White RAL8019 Dark Bronze
Gasket:	Silicone CCG® Controlled Compression Gasket
Fasteners:	PCS Polymer Coated Stainless Steel Hardware
Ingress protection:	IP66
Impact protection:	IK05
Corrosion protection:	5CE
Listings:	Contact WE-EF USA for ETL/UL certification status.

Electrical Specification

Power supply:	Integral [ECG] electronic driver 120V-277V.
Power factor:	> 0.9
Driver / Ballast:	Integral 0-10V LED Driver
Cable:	One cable gland, second gland for through-wiring on request

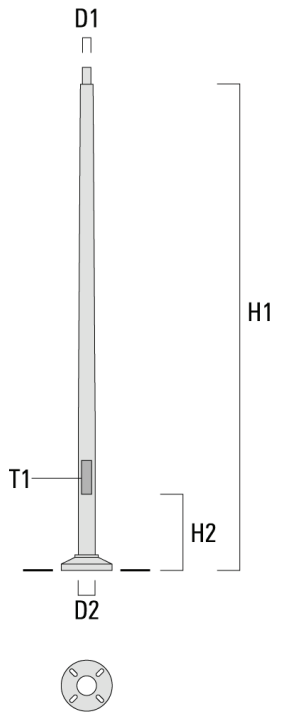
Lifetime

Ta=25°/40° L70B50 > 90000h

AML-K-ANC

we-ef

1/2



Description

Tapered round aluminum. Chromated pre-treatment with superior powdercoat finish in black RAL 9004, grey metallic RAL 9007, white RAL 9016 or dark bronze RAL 8019. The shaft is spun tapered from all new seamless 6063 alloy aluminum tubing and heat treated to produce a T6 temper. It is gracefully cone tapered to the butt diameter. Each shaft has a 6 -long straight section at the top that may be drilled to the luminaire manufacturer's mounting specifications. An Aluminum tenon may also be supplied as standard. Cast from A356 alloy aluminum, the anchor base is heat treated to produce a T6 condition and inserted into the anchor base casting. The two pieces are joined by a continuous circumferential weld at the outside top and inside bottom of the anchor base. The anchor bolts and nuts recess in the base casting, sitting flush, and are covered by four (4) tamper-resistant aluminum nut cover discs.
Refer to Individual Spec sheets for allowable wind loading (Square Feet) - attached at the bottom.

Specify Product Code
-
Specify Pole Top or Tenon: 3"x3" Tenon (-T3x3), 3"x4" Tenon (-T3x4), 3"x4" Tenon (-T3x5), or Pole Cap (-CAP)
-
Specify Finish Color: Black (-9004), Grey Metallic (-9007), White (-9016), or Dark Bronze (-8019); (consult WE-EF color chart for others)

SAMPLE: 695-3120-T3x5-9004

		D1 ϕ	D2 ϕ	H1	Weight (lbs)
693-3310	AML-K-08-30/40-125	3	4	7 ft 8 in	17
693-3311	AML-K-10-30/50-125	3	5	9 ft 8 in	24
693-3324	AML-K-12-30/50-156	3	5	11 ft 8 in	31
693-3312	AML-K-12-30/50-188	3	5	11 ft 8 in	36
693-3325	AML-K-14-30/50-156	3	5	13 ft 8 in	37
693-3313	AML-K-14-30/50-188	3	5	13 ft 8 in	43
693-3314	AML-K-16-30/50-188	3	5	15 ft 8 in	50
693-3326	AML-K-16-40/60-156	4	6	15 ft 8 in	53
693-3315	AML-K-16-40/60-188	4	6	15 ft 8 in	62
693-3327	AML-K-18-30/50-188	3	5	17 ft 8 in	56
693-3316	AML-K-18-40/60-188	4	6	17 ft 8 in	70
693-3317	AML-K-18-40/70-156	4	7	17 ft 8 in	66
693-3328	AML-K-20-40/60-188	4	6	19 ft 8 in	74
693-3318	AML-K-20-40/70-156	4	7	19 ft 8 in	73
693-3329	AML-K-23-40/70-156	4	7	22 ft 8 in	77

WE-EF LIGHTING USA LLC
410-D Keystone Drive | Warrendale PA 15086 | U.S.A. | Tel +1 724 742 0030 | Fax +1 724 742 0035 | info.usa@we-ef.com | www.we-ef.com

AML-K-ANC

we-ef

2/2

	693-3319	AML-K-23-45/80-156	4.50	8	22 ft 8 in	87
	693-3320	AML-K-23-45/80-188	4.50	8	22 ft 8 in	102
	693-3330	AML-K-25-45/80-156	4.50	8	24 ft 8 in	96
	693-3321	AML-K-25-45/80-188	4.50	8	24 ft 8 in	113
	693-3322	AML-K-28-45/80-188	4.50	8	27 ft 8 in	124
	693-3331	AML-K-28-45/80-250	4.50	8	27 ft 8 in	161
	693-3323	AML-K-28-60/10-188	6	10	27 ft 8 in	161
	693-3332	AML-K-29-60/10-250	6	10	27 ft 8 in	217
	693-3333	AML-K-30-60/10-188	6	10	29 ft 8 in	175
	693-3335	AML-K-33-60/10-188	6	10	32 ft 8 in	191
	693-3336	AML-K-33-60/10-250	6	10	32 ft 8 in	257
	693-3617	AML-V-16-55-188	5.5	ø 2.38 x 3.94/ ø 1.66 x 3.94	16 ft 6 in	55

WE-EF LIGHTING USA LLC
410-D Keystone Drive | Warrendale PA 15086 | U.S.A. | Tel +1 724 742 0030 | Fax +1 724 742 0035 | info.usa@we-ef.com | www.we-ef.com

Corde Illuminated Aluminum Linear Pendant

structura

FIXTURE TYPE: _____

PROJECT NAME: _____



Catenary mounted aluminum linear LED pendant.

FEATURES:

- Available in 2' to 20' lengths
- >90CRI smooth, dot free illumination
- Dimmable IP67 power supply and IP67 LED strip
- Small scale with seamless catenary mounting

SPECIFICATIONS:

HOUSING: Seamless housing comprised of custom aluminum 6005A-T6 extrusions with 6061-T6 end caps.

ELECTRICAL: Powered by a standalone Q-Tran QZ, 120-277VAC primary/24VDC secondary outdoor rated remote dimmable power supply. Power supply features built-in short circuit protection, over load protection, and over temperature protection. System is forward phase, reverse phase, and 1-10V dimming. Consult factory for other driver options. Fixtures supplied with 1' infeed cable and 1' outfeed cable, if applicable, with a IP67 connector. Operating temperature of -40°F to 125°F SO, 115°F MO, and 108°F HO.

OPTICAL SYSTEM: Available in 2700K, 3000K, 3500K, 4000K color temperatures with smooth, dot free illumination.

FINISHES: All exterior aluminum parts are polyester powder coat painted to meet AAMA 2604 standards. See Structura's finish options for available colors. Care and Maintenance

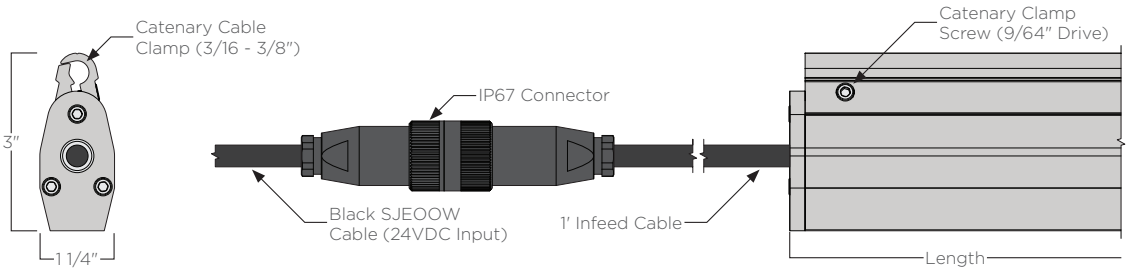
HARDWARE: All fasteners are stainless steel unless otherwise noted.

LISTINGS & RATINGS: Luminaire CSA listed according to CSA C22.2 No. 250.0-18/UL Standard 1598 and UL Standard 2108. Suitable for wet locations. LM-80 test calculated L70 > 35,000 hours.

WARRANTY: A 2-year finish warranty with 3-year warranty on LED and driver.

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structura



	Standard Output		Medium Output		High Output			
Length	Lumens[1]	Watts	Lumens[1]	Watts	Lumens[1]	Watts	Weight	EPA
2'	253	3	508	6	877	12	3.6lbs.	.50ft^2
4'	506	6	1017	12	1754	24	7.0lbs.	.98ft^2
6'	760	9	1525	18	2631	36	10.4lbs.	1.46ft^2
8'	10134	12	2034	24	3508	48	13.8lbs.	1.95ft^2
10'	1266	15	2542	30	4385	60	17.3lbs.	2.43ft^2
12'	1520	18	3051	36	5262	72	20.7lbs.	2.91ft^2
14'	1773	21	3559	42	6139	84	24.1lbs.	3.40ft^2
16'	2026	24	4068	48	7016	96	27.5lbs.	3.88ft^2
18'	2280	27	4576	54	7893	108	30.9lbs.	4.36ft^2
20'	2533	30	5084	60	8771	120	34.4lbs.	4.85ft^2

ORDERING GUIDE: EXAMPLE: CORDE-6-L30HO-C3-CAT/S-40-STD

C SP US

CORDE						
1	2	4	5	6	7	8

1 Series
- **CORDE** Corde

2 Length
- **2** 2'
- **4** 4'
- **6** 6'
- **8** 8'
- **10** 10'
- **12** 12'
- **14** 14'
- **16** 16'
- **18** 18'
- **20** 20'

3 CCT
- **L27** 2700K
- **L30** 3000K
- **L35** 3500K
- **L40** 4000K
- **RGB** RGB
- **RGBW/27** RGBW/2700K
- **RGBW/30** RGBW/3000K

4 Output
- **SO** Standard Output
- **MO** Medium Output
- **HO** High Output

5 Metal Finish
- **C*** See color options on finishes technical sheet
- **CSM** Custom Color

6 Mounting
- **CAT/S** Catenary, Standalone
- **CAT/D** Catenary, Daisy Chain[2]

7 Mounting Length
- **10** 10'
- **40** 40'
- ****** Specify

8 Special
- **STD** Standard
- **MOD** Modified

1. Lumen output based upon 3000K CCT.
2. Consult factory for daisy chain applications.

Product specification sheets subject to change.

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LED wall luminaire - asymmetric light distribution

BEGA

Application
This LED wall luminaire with an asymmetric light distribution can be used to illuminate ceiling or ground surfaces in front of the mounting surface. Can be used for uplight or downlight applications.

Materials
Luminaire housing constructed of die-cast marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Clear safety glass
Reflector made of pure anodized aluminum
Silicone applied robotically to casting, plasma treated for increased adhesion
High temperature silicone gasket
Mechanically captive stainless steel fasteners

NRTL listed to North American Standards, suitable for wet locations
Protection class IP65
Weight: 6.8 lbs

Electrical

Operating voltage	120-277V AC
Minimum start temperature	-30° C
LED module wattage	17.9 W
System wattage	23 W
Controllability	0-10V dimmable
Color rendering index	Ra > 90
Luminaire lumens	2352 lumens (3000K)
Lifetime at Ta = 15° C	>500,000 h (L70)
Lifetime at Ta = 25° C	133,000 h (L70

LED color temperature

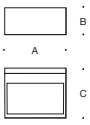
☐ 4000K - Product number + **K4**
☐ 3500K - Product number + **K35**
☐ 3000K - Product number + **K3** ***(EXPRESS)***
☐ 2700K - Product number + **K27**

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured polyester powder coat with minimum 3 mil thickness.

Available colors ☐ Black (BLK) ☐ White (WHT) ☐ RAL:
☐ Bronze (BRZ) ☐ Silver (SLV) ☐ CUS:

Type:
BEGA Product:
Project:
Modified:





LED wall luminaire · asymmetric light distribution

	LED	A	B	C
22386	17.9 W	9 1/2	4 1/8	7 7/8

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 09/04/18

LALO-ENCAPSULATED (03) Linear Fixtures



Ideal for lighting direct and indirect surface mount applications, LALO is now available as a fully assembled fixture. LALO Encapsulated is available in satin and black finishes and features high quality LED strips encapsulated in a rigid extrusion providing a robust fixture for various environments.

Part Number Builder

Static White

5 YEAR WARRANTY

Product	W/FT	CCT	Rated	Efficiency	Lens	Input/ Output	Connector/ Wire In	Connector/ Wire Out	Wire Color	Wire Type	Mounting	Finish	Length* (in)
LL3SW			ENC	STD									
	1.5 3.0 4.0 5.0	24 27 30 35 40	ENC (IP67)	STD Standard	CL TL	S1 S2 Single (Closed exit)	BW BRL CON6 CON24	CLS	WH BK N/A	CL2 CL2P N/A	SST MG	ST BK	
						P1 P2 Pass through	BW BRL CON6 CON24	BW BRL CON6 CON24					

Voltage: 24 VDC

Typical lumens at 5.0W/ft with CL at 3000K: 331 lm/ft

*Available in 1" increments, maximum length of 98.43" not including end caps. Tolerance +0.0"/-0.5. Minimum fixture length 6".

Static White High Efficacy

5 YEAR WARRANTY

Product	W/FT	CCT	Rated	Efficiency	Lens	Input/ Output	Connector/ Wire In	Connector/ Wire Out	Wire Color	Wire Type	Mounting	Finish	Length* (in)
LL3SW			ENC	STD									
	1.5HE 3.0HE 6.0HE	24 27 30 35 40	ENC (IP67)	STD Standard	CL TL	S1 S2 Single (Closed exit)	BW BRL CON6 CON24	CLS	WH BK N/A	CL2 CL2P N/A	SST MG	ST BK	
						P1 P2	BW BRL CON6 CON24	BW BRL CON6 CON24					

Voltage: 24 VDC

Typical lumens at 6.0W/ft with CL at 3000K: 563 lm/ft

*Available in 2" increments, maximum length of 98.43" not including end caps. Tolerance +0.0"/-0.5. Minimum fixture length 6".

- If selecting **BRL**, select N/A for wire color and type
- **BW** comes in standard 24"- request custom length (Max 120") by writing it in inches next to "BW" in the order code box (ex. BW48)
- **Connector/Wire In or Out** not needed to specify product. Standard configuration is Type S1, Connector/Wire In: BW & Connector/Wire Out: CLS
- Specify **CL2P** for plenum rated wire

- 5 year warranty
- Field modifications void warranty
- Data subject to change, all data has +/- 5% tolerance
- Compatible for use with Q-Tran power supplies
- IK10 rated

© 2022 Q-Tran Inc. All rights reserved | 155 Hill St. Milford, CT 06460 | 203-367-8777 | sales@q-tran.com | www.q-tran.com

Specification subject to change. Rev-02-24-22

LALO-ENCAPSULATED (03) Linear Fixtures

Technical Information

Static White [Calculated L70 = 30000 hrs]
Tested with LL3SW-**-30-ENC-STD

	1.5W/FT	3.0W/FT	4.0W/FT	5.0W/FT
	LM/FT	LM/FT	LM/FT	LM/FT
CL	126	219	272	331
TL	67	117	145	177

Static White High Efficacy
[Calculated L70 = 70000 hrs]
Tested with LL3SW-**-30-ENC-STD

	1.5HEW/FT	3.0HEW/FT	6.0HEW/FT
	LM/FT	LM/FT	LM/FT
CL	162	297	563
TL	87	159	301

Dynamic White
[Calculated L70 = 70000 hrs]
Tested with LL3DW-6.0-**-ENC-STD

	3000K
	LM/FT
CL	191
TL	102

Dynamic White High Efficacy
[Calculated L70 = 70000 hrs]
Tested with LL3DW-**-30-DRY-STD

	3.0W/FT	5.0W/FT
	LM/FT	LM/FT
CL	130	205
TL	69	110

Static Color [Calculated L70 = 30000 hrs]
Tested with LL3SC-5.0-**-ENC-STD

	Red	Green	Blue	Amber
	LM/FT	LM/FT	LM/FT	LM/FT
CL	76	411	107	69
TL	41	220	57	37

RGB [Calculated L70 = 55000 hrs]
Tested with LL3RGB-6.0-RGB-ENC-STD

	Red	Green	Blue
	LM/FT	LM/FT	LM/FT
CL	73	147	42
TL	39	79	22

RGBW [Calculated L70 = 70000 hrs]
Tested with LL3RGBW-6.0-30-DRY-STD

	Red	Green	Blue	3000K
	LM/FT	LM/FT	LM/FT	LM/FT
CL	27	91	23	72
TL	14	48	12	39

RGBW High Efficacy [Calculated L70 = 70000 hrs]
Tested with LL3RGBW-4.0HE-30-DRY-STD

	Red	Green	Blue	3000K
	LM/FT	LM/FT	LM/FT	LM/FT
CL	29	112	24	69
TL	16	60	13	37

Temperature Ratings Dependent on LED Strip W/FT

Light Engine (LED Strip)	W/FT	Minimum Limit (°F)	Maximum Limit (°F)
Static White	1.5	-4	138
	3.0	-4	124
	4.0	-4	115
	5.0	-4	108
Static White High-Efficacy	1.5HE	-4	152
	3.0HE	-4	140
	6.0HE	-4	118

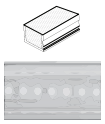
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Specification subject to change. **Rev-02-24-22**

LALO-ENCAPSULATED (03) Linear Fixtures

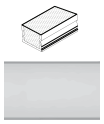
Lens
with LED visibility

CL



Encapsulated in Clear

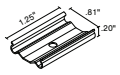
TL



Encapsulated in Translucent

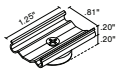
Mounting
2 clips provided for 4' or less; 4 clips provided for greater than 4'

SST



Stainless steel clip

MG

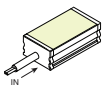


Magnet clip

Type

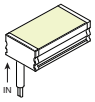
SINGLE (Input only)

S1



End feed

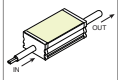
S2



Bottom feed

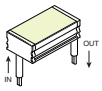
PASS THROUGH (Input/Output)

P1



End feed

P2



Bottom feed

Finish

ST

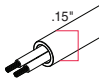
Satin

BK

Black

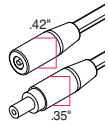
Connector/Wire – In/Out

BW



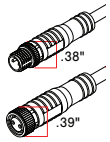
Bare Wire 24"

BRL

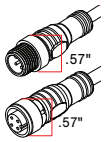


Barrel 6"

CON6 / CON24



SW, SW-HE, DW, DW-HE, SC

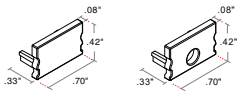


RGB, RGBW, RGBW-HE

6" or 24" wire connector

End Caps

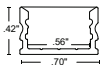
Flat end caps



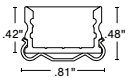
No feed

Feed

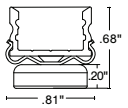
Dimensions



Profile

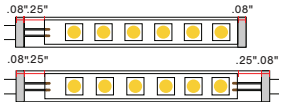


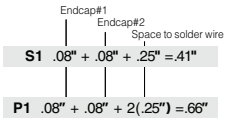
Profile with stainless steel mounting clip



Profile with magnet mounting clip

Length (in)
Add to nominal LED length for fixture length





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NANOLED

DOWNLIGHT - REMOTE

Type: **SPECIFICATION SHEET**
Project: Page: 1 of 3









The main feature of this ceiling recessed luminaire is its extremely reduced dimensions (60mm). The lighting body is completely manufactured in 316L stainless steel to ensure an increased corrosion resistance and has no visible screws. Reduced energy consumption and very high lighting performances accomplish the profile of this extraordinary recessed spotlight for the exterior.

Luminaire characteristic:	**Power input:** 2.2W (system wattage) **Lumens:** 131lm (for 3000K, 90CRI) **Luminaire efficacy:** 59lm/W
Source:	White LED (LM-80), 2700K: 90CRI, 3000K: 90CRI, 4000K: 80CRI.
Lumen maintenance:	80% of initial lumens at 70 000 hours (L80) (LM-79).
Optic:	Narrow flood with transparent diffuser
Material:	Body: AISI 316L monoblock stainless steel
Mounting:	Downlight version supplied with clips for installation. Supplied with 16' cable (5m). Ceiling thickness: min: ⅝" (15mm), max 1⅛" (30mm). Cut-out dimension: Ø2" (50mm)
Electrical:	High efficiency LED driver, rated at 50 000 hours. See remote LED driver options on page 2.
Finish:	Stainless steel.
Weight:	1.63lb (0.74kg)
Warranty:	5 year limited warranty.
Rating:	IP65, IP67, IK08
Certification:	cULus listed for wet location

NANOLED
DOWNLIGHT - REMOTE

Type: **SPECIFICATION SHEET**
Project: Page: 2 of 3

ORDERING INFO

S3321-19
PRODUCT CODE

S3321		REM	19
MODEL	LED	VOLTAGE	FINISH
S3321 Round downlight Narrow flood 29°	**H** 2700K, 90CRI	**REM** Remote	**19** Stainless steel
	W 3000K, 90CRI		
	N 4000K, 80CRI		

REMOTE LED DRIVER OPTIONS (TO BE ORDERED SEPARATELY)

S3321-19
PRODUCT CODE

Nanoled driver list
DRIVER CODE

Outdoor rated drivers

Driver box model	Min-max units
	1.4W*
4545-0024-075-UNV-ND	1-33
4549-0024-075-UNV-D10	1-33
4551-0024-080-120-LTE	13-35

Indoor rated drivers

Driver box model	Min-max units
	1.4W*
4444-0024-020-120-ND	1-9
4449-0024-060-UNV-D10	1-27

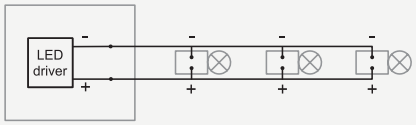
* Wattage requirement for one (1) fixture (Remote fixture only).

Driver code example

XXXX	-0024	-XXX	-XXX	-XXX
MODEL	CONSTANT VOLTAGE	WATTAGE	VOLTAGE	DIMMING PROTOCOL
4444 6" x 4" x 3" (152 x 102 x 76mm)	**0024** 24V	**020 to 080** 20W to 80W	**120** 120V	**ND** No dimming Max distance: 6m (20ft)**
4449 12" x 8" x 4" (305 x 203 x 102mm)			**UNV** 120-277V	**D10** 0-10V Max distance: 6m (20ft)** (down to 10%)
4545 11" x 3" x 2" (279 x 76 x 51mm)				**LTE** Leading edge and trailing edge (ELV and TRIAC) Max distance: 6m (20ft)** (down to 15%)
4549 14.5" x 5" x 3.5" (368 x 127 x 89mm)				
4551 14.5" x 5" x 2" (368 x 127 x 51mm)				

** Max distance cable calculated for 16AWG cable. Contact customer service for longer remote distance.

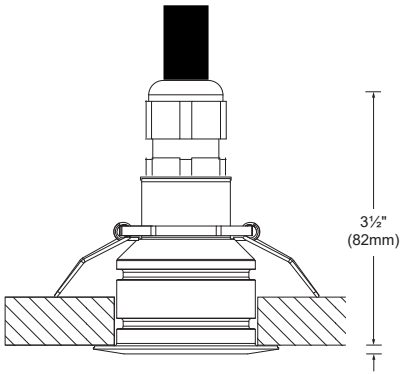
WIRING DIAGRAMS
Multiple luminaires must be connected in parallel.



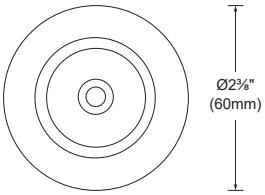
NANOLED
DOWNLIGHT - REMOTE

Type: **SPECIFICATION SHEET**
Project: Page: 3 of 3

DIMENSIONS



SIDE VIEW



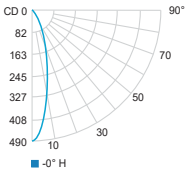
BOTTOM VIEW

PHOTOMETRIC DATA

CCT (K)	CRI	LOAD (W)	OPTIC	LUMENS (lm)	EFFICACY (lm / W)	MAX CANDELA (cd)	MODEL
3000K	90	2.2W	Narrow flood 29°	131	59	481	S3321W

*For products that uses a remote led driver, total system wattage will varies according to the efficacy of the remote led driver selected. For this reason, the load and efficacy values given in the table above refers to the led source only and does not include the led driver consumption.

Narrow flood 29° (3000K, 90 CRI)



	Center Beam fc	Beam Width ft
2ft	120	1.0
4ft	30.1	2.1
6ft	13.4	3.1
8ft	7.52	4.1
10ft	4.81	5.2
12ft	3.34	6.2

CCT options	2700K	3000K	4000K
CRI options	90CRI	90CRI	80CRI
Multiplier	**0.95**	**1**	**1.05**

Pole top luminaires with indirect adjustable light distribution

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Housing/fitter: Heavy one piece die-cast aluminum optical housing with integrally cast transition "fitter" which slip fits a 3" O.D. pole top or tenon and is secured by six (6) flush, stainless steel set screws. The housing gracefully supports two (2) ¾" diameter stainless steel struts located at 180° as well as a die-cast aluminum diffuser retaining ring. All components function and appear as a unified design. Die castings are marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy.

Enclosure: ¾" thick, machined tempered crystal clear optical glass with a high temperature-rated one piece molded silicone rubber gasket encloses the precise, stippled pure aluminum, wide flood distribution reflector. The glass retaining ring is secured by two (2) hidden stainless steel hex head access screws.

Reflective disk: 31½" diameter x ¼" thick aluminum plate secured by two (2) die-cast aluminum fixed clamping "saddles" which receive the stainless steel struts. Adjustable up to 30° in 5° increments in one direction. A ¼" wide by ⅛" deep "drip" channel is provided around the edge of the underside disk.

Electrical: 36.4W LED luminaire, 43 total system watts, -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with an 85 CRI. Available in 4000K (85 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

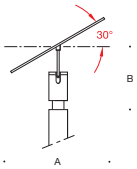
Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 33.0 lbs.

EPA (Effective projection area): 3.2 sq. ft.

Luminaire Lumens: 1742
Tested in accordance with LM-79-08





	Lamp	LEED	A	B
77 208	36.4 W LED	LZ-3	31½	19⅞

BEGA-US 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA



FORMS+SURFACES®

HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

Helio M30/K4 Security Bollards, Series 900 offer robust protection for public spaces of all kinds. Simply elegant in stainless steel, fixtures 9.25" in diameter have an embedded security core and are available in illuminated and non-illuminated designs. Illuminated bollards feature a frosted acrylic lens, 180˚ or 360˚ light distribution, and Cree® LEDs in 3000K warm white and 4000K neutral white. Helio Bollards with 3000K LEDs are approved by the International DarkSky Association to minimize light pollution. For expanded performance, the Helio family also includes Helio M40/K8 and M50/K12 Security Bollards 11.5" in diameter (Series 1200) in illuminated and non-illuminated designs, and Helio Bollards 6" in diameter (Series 600) in illuminated, non-illuminated and S10-P1 security core variations.

MATERIAL & CONSTRUCTION DETAILS

CONFIGURATIONS

- Series 900 Helio Bollards are 40" high x 9.25" diameter.
- Illuminated security bollards are available with 180° and 360° light distribution options.
- Non-illuminated versions are also available.
- Series 900 Helio Bollards without security cores are available (illuminated or non-illuminated).

MATERIALS & FINISHES

- Illuminated bollards have a tubular stainless steel column, frosted acrylic lens, and stainless steel head cap.
- Non-Illuminated bollards are tubular stainless steel with welded stainless steel cap.
- Stainless steel is standard with a Satin finish and Ceramiloc treatment. See below for details.
- For optional powdercoat colors see the Forms+Surfaces Powdercoat Chart. Custom RAL colors are available for an upcharge.

LED LAMPS & DRIVER

- Custom LED light engine with Cree® LEDs.
- 3000K warm white and 4000K neutural white color temperatures.
- Less than 5% upward lumen output.
- LED driver input voltage is 120-277VAC, -30˚C minimum starting temperature.
- Driver has reverse-phase, forward-phase, and 0-10V dimming capabilities.
- LED driver certifications include: IP64 enclosure and Class 2 rated output (UL8750).

INSTALLATION

- Security bollards have an embedded security core.
- Non-security bollards are surface mounted with J-bolts.
- Installation of a surge protector as part of each unit's wiring is recommended.
- Stainless steel mounting hardware sold separately. Templates are available upon request.

MAINTENANCE

- Metal surfaces can be cleaned as needed using a soft cloth or brush with warm water and a mild detergent. Avoid abrasive cleaners.

CERAMILOC TREATMENT

Ceramiloc is an invisible surface treatment that offers significantly enhanced protection from weather and graffiti and increases the maintenance ease of stainless steel. Ceramiloc combines ceramic durability with an unparalleled ability to lock out water spots, fingerprints, graffiti and more. Patented technology bonds nano-silica particles to the surface of the stainless steel. The treatment minimally alters the surface appearance of the stainless and offers numerous benefits:

- Easily Cleaned: The Ceramiloc treatment creates a surface that simultaneously resists fingerprints and is easy to clean. Water spots, grease marks and more can be quickly wiped away. It also creates an “anti-graffiti” surface – even permanent marker is easily removed with a clean microfiber towel and water.
- Durable: Ceramiloc-treated materials are abrasion- and scratch-resistant. The treatment is permanent, UV stable, and will not degrade or discolor over time.
- Environmentally Sound: The Ceramiloc treatment is a no-VOC, water-based process. Because Ceramiloc surfaces are so easily maintained, cleaning solutions and maintenance are kept to a minimum.

LIGHT ENGINE DESCRIPTION

LED ENGINE	LIGHT DISTRIBUTION	DESCRIPTION	LUMINAIRE LUMENS*	B.U.G. RATING	STARTING TEMPERATURE ˚C
3000K LED	360°	40W LED driver	604	B0-U1-G0	-30
4000K LED	360°	40W LED driver	604	B0-U1-G0	-30
3000K LED	180°	20W LED driver	224	B0-U1-G0	-30
4000K LED	180°	20W LED driver	224	B0-U1-G0	-30

Luminaire lumens represent the absolute photometry for the luminaire, and indicates the lumens out of the entire fixture.

NOTE: Polar candela and isofootcandle plots can be found on the Helio M30/K4 Security Bollard, Series 900 product page on our website.

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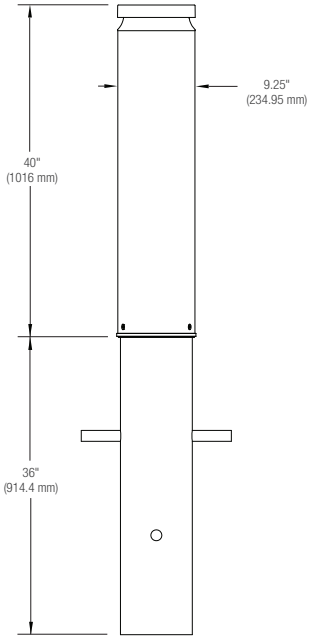
HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

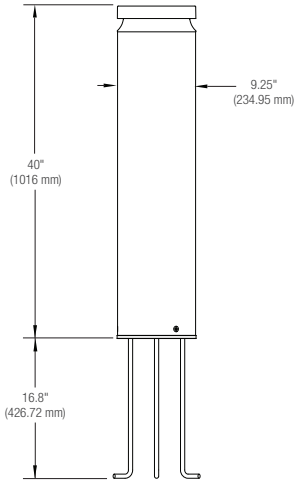
ILLUMINATED BOLLARDS

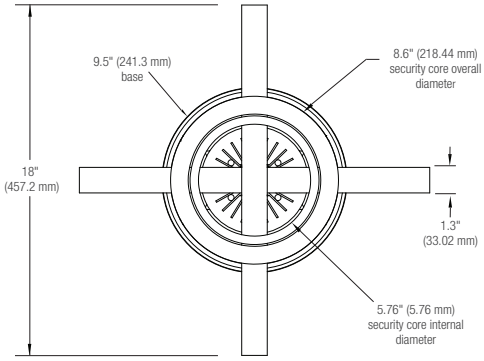
NOMINAL DIMENSIONS

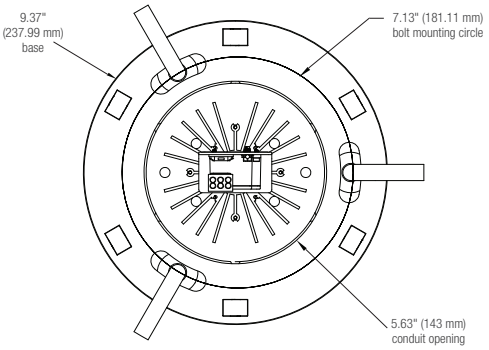
EMBEDDED M30/K4 SECURITY CORE, ILLUMINATED



SURFACE MOUNT WITH J-BOLTS, ILLUMINATED







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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

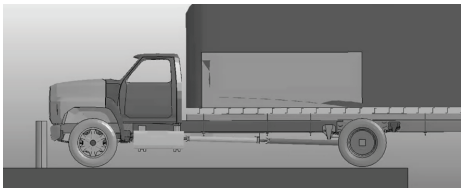
M30-P1/K4 SECURITY CORE

Site security is a major concern in today's unpredictable world. Public and private buildings, government facilities, campuses and public parks are all susceptible to accidental, as well as deliberate, vehicle infringement. Design professionals, city planners, facilities managers and engineers must now be increasingly sensitive to the safety and security requirements of public and private spaces. Security bollards placed at ingress points are an excellent way to guard against vehicle infringement while allowing pedestrian access.

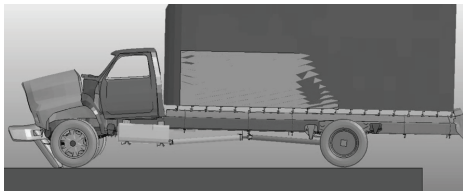
Most security bollards have taken the form of generic pipes and cylinders that offered little in the way of design or lighting functionality. Forms+Surfaces' Helio M30-P1/K4 Security Bollards bring a pre-engineered and fully-tested security core to our Helio line to offer a beautiful and efficient lighting bollard that also meets the stringent high-impact crash requirements normally attained only with unattractive pipe barriers.

Forms+Surfaces' security bollards have been tested using a Finite Element Analysis (FEA) by a professional engineering consultant. FEA is a software-based tool commonly used in the automotive industry and used extensively for crash test simulations. All of our bollards with the security solution option were tested and passed a very demanding set of impact criteria. Tests were performed using a bollard set in permanent concrete footings and struck by a vehicle at a 90-degree impact. The impact simulation found the bollards to be successful in stopping a 15,000 lb. vehicle traveling at a minimum test velocity of 30 mph in less than 3.3 feet (1 meter).

Our permanently embedded security cores are available for both illuminated and non-illuminated bollards. Please contact us to discuss design and installation considerations for Helio bollards with security cores.



Crash scenario with 15,000 lb pickup truck approaching embedded bollard system at 30 mph



Full-scale crash immediately after impact

CERTIFICATION

- ETL and C-ETL listed for wet locations.
- Helio Bollard 3000K is International DarkSky Approved

ENVIRONMENTAL CONSIDERATIONS

- Please refer to the Helio M30/K4 Security Bollard, Series 900 Environmental Data Sheets for detailed environmental impact information.
- Metal components have a long life cycle and are 100% recyclable.
- Standard powdercoat finishes are no-VOC; non-standard powdercoat finishes are no- or low-VOC, depending on color.
- Low maintenance.

MODEL NUMBERS AND DESCRIPTIONS

MODEL	DESCRIPTION
LBHLO-903-SEC	Helio M30/K4 Security Bollard, Series 900, illuminated
LBHLO-903-NSEC	Helio M30/K4 Security Bollard, Series 900, non-illuminated
LBHLO-903	Helio Bollard, Series 900, illuminated (non-security)
LBHLO-903-N	Helio Bollard, Series 900, non-illuminated (non-security)

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HELIO™ M30/K4 SECURITY BOLLARD, SERIES 900

PRODUCT DATA

PRODUCT OPTIONS

The following options are available for an upcharge

Add powdercoat color from Forms+Surfaces Powdercoat Chart	Custom RAL powdercoat color
Add stainless steel mounting hardware	

LEAD TIME: 6 to 8 weeks. Shorter lead times may be available upon request. Please contact us to discuss your specific timing requirements.

PRICING: Please contact us at **800.451.0410** or **sales@forms-surfaces.com**. At Forms+Surfaces, we design, manufacture and sell our products directly to you. Our sales team is available to assist you with questions about our products, requests for quotes, and orders. Territory Managers are located worldwide to assist with the front-end specification and quoting process, and our in-house Project Sales Coordinators follow your project through from the time you place an order to shipment.

TO ORDER SPECIFY: Quantity, finish, color temperature, and light distribution option. Quote/Order Forms are available on our website to lead you through the specification process in a simple checkbox format.

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Wood building element · Asymmetric · Single

BEGA

Application
Wooden light building elements soften the built environment by using natural materials of the highest quality. These luminaires are ideally suited for delineating and structuring interior and exterior spaces such as landscape areas, plazas, building entrances and atria. Optionally available with a brushed finish.

Materials
Clear safety glass with optical texture
Glue-laminated Scots pine heartwood (<10% sapwood)
Marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy
Fumigation and anti-termite treated
High temperature silicone gasket
High-temperature laminate glue
Timber sourced from FSC or PEFC sustainably managed forests, minimum 80 year growth and 250mm diameter trees
Galvanized steel anchorage
Pure anodized aluminum reflector

NRTL listed to North American Standards, suitable for wet locations
Protection class IP 65

Weight: 88.2 lbs.

Electrical

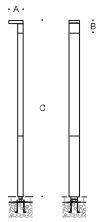
Operating voltage	120-277V AC
Minimum start temperature	-20° C
LED module wattage	17.6 W
System wattage	22.0 W
Controllability	0-10V dimmable
Color rendering index	Ra > 80
Luminaire lumens	2521 lm
LED service life (L70)	60000 hrs

LED color temperature
☐ 4000K (K4)
☐ 3500K (K35)
☐ 3000K (K3)
☐ 2700K (K27)

BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details

Finish
All BEGA standard finishes are matte, textured powder coat with minimum 3 mil thickness. BEGA Unidure® finish, a fluoropolymer technology, provides superior fade protection in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL and custom color finishes provided in either polyester powder or liquid paint.

Available colors
☐ Black (BLK)
☐ Silver (SLV)
☐ CUS:
☐ Bronze (BRZ)
☐ RAL:



Wood building element · Asymmetric · Single

	LED	A	B	C
B84468	17.6 W	11	$9\frac{7}{8}$	$137\frac{3}{4}$

Type:
BEGA Product:
Project:
Modified:

Wood Finish
Wood is finished smooth with three coats of stain to both color and protect the wood, optionally available with a brushed finish. BEGA can supply you with wood stain for maintenance up to 20 years after purchase.

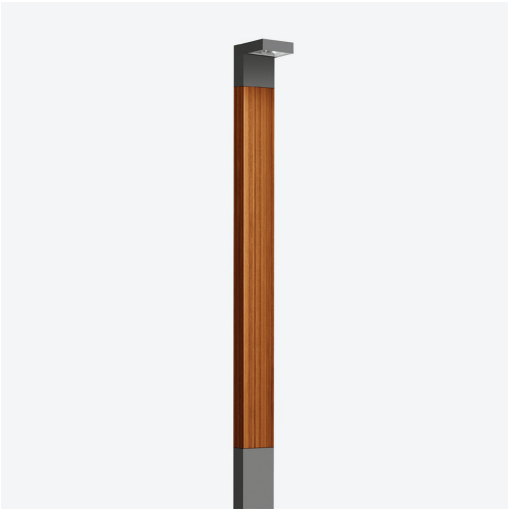
Available colors
☐ Brume
☐ Copper
☐ Ferrare oak
☐ Original mineral
☐ Tyrol pine
☐ Chestnut
☐ Dark mineral
☐ Light mineral
☐ Rustic (brushed)

Available options

☐ 70895	Direct burial anchorage
☐ CUS	Custom finish
☐ DALI	DALI dimming
☐ FSC	Fusing
☐ RAL	RAL finish

Included (available for pre-shipment)

☐ B79802	Anchorage kit



BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 info@bega-us.com

Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to bega-us.com
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Updated 12/13/22

8. CONSISTENCY WITH CITY COMPREHENSIVE PLAN

Since the original vision for the redevelopment of 58 Fore Street was formed, Portland Foreside has reviewed, considered, and referenced numerous City Planning documents – both past and present. The broad planning efforts that have been undertaken in the past have provided a foundation for what the intention and vision is for the eastern waterfront and for what this new, mixed-use neighborhood will become.

Portland Foreside has documented consistency with the City's comprehensive plan(s) twice in the past, including the Master Development Plan that was approved in 2016 and the Phase I Level III Site Plan that was approved in 2020. Phase II, the next phase of development which includes Block 4, Block 5, Block 6 and associated site and infrastructure improvements was designed to bring to life many of the goals and themes of Portland's Plan 2030. Creating a vibrant mixed-use neighborhood that is an extension of the City's downtown area and opens up the waterfront to residents, employees and visitors is what this overall project seeks to achieve.

The City's current Comprehensive Plan (Portland's Plan 2030) completed in 2017 articulates a vision of Portland's values and provides a framework for decision making revolving around the values, goals, and strategies of the City over the next decade. This next phase of the redevelopment remains consistent with the previous planning documents and is also consistent with Portland's Plan 2030.



Figure 8-1 Six Interconnected Themes Identified During Portland's Comprehensive Planning Process

Comprehensive Plan Vision Statement

Portland's Plan 2030 is guided by a vision statement for the City that includes six interconnected themes, which provide the foundation for focusing City policies and priorities identified for gauging success. The goals and implementation strategies in the Plan support the vision statement.

This current phase of the Portland Foreside development aligns with all six themes of the vision statement, with focus on many of the specific points (listed below in italics) highlighted within those themes.

Equitable *We (City) will remain an open and inclusive city, celebrating diversity and providing a welcoming and safe place for residents and visitors alike.*

The benefits and costs of our City will be born fairly across the entire City.

We will incorporate the needs of all our residents in planning for our future.

A core principle of the entire Portland Foreside project is connectivity to the rest of the City and opening up this part of the eastern waterfront to the public for the very first time. Enjoying the waterfront is something that should be available to all residents, employees, and visitors to the City. This new mixed-use neighborhood will be welcoming and safe.

Phase 2 of the project features the addition of over 444 housing units of various types to the Portland market, a hotel, retail spaces and public plaza spaces. The added tax revenue to the City that will be generated from this currently underutilized property will be a tremendous benefit. Phase I of the project completed site features such as stairs and plaza areas that are now accessible from Fore Street. The site is intended to be welcoming to pedestrians and provide important public access to the waterfront.

Sustainable *Portland has been built and rebuilt to endure; we will balance our historic fabric, sound infrastructure, and the best of new technology and design for the future.*

Portland will grow in order to sustain our community, infrastructure, and economy.

Growth should respect and seek to preserve our spectacular natural resources.

We will recognize our responsibility as a global citizen and that climate change will have significant impacts on our city by prioritizing a transition to a low-carbon economy and adapting to those climate changes we can no longer mitigate.

With an authentic, celebrated historic core, Portland Foreside is excited to balance the past with a mix of uses that will allow for full enjoyment of the eastern waterfront by the public. Redevelopment and reuse are a core sustainability principle. Block 4, Block 5, and Block 6 will serve to complement the adjacent historic core and provide needed housing units and additional infrastructure to support sustainable growth. Developing underutilized urban sites by nature helps to preserve natural resources where otherwise growth may occur. The Portland Foreside neighborhood has been framed with important consideration given to floodplain, drainage during storm events, EV charging stations, bicycle access, pedestrian access and offering residents, visitors, and employees a place to live, work and visit without using a vehicle or other mode of transportation. Each of these considerations are actions to help advance the City's climate change goals.

Dynamic *We will embrace innovation in order for our community to thrive.*

We will welcome new residents into our community because they enrich and sustain our city.

Portland will plan for a built environment that encourages an active citizenry.

Phase 2 of the Portland Foreside redevelopment project supports the opportunity to link its a vibrant downtown to the eastern waterfront. Connections to the Eastern Promenade trail reinforce important pedestrian and bicycle connections, while the shared street design prioritizes pedestrian access through the site. The space will be accessible to residents, visitors, and employees from within the development and from the surrounding Portland neighborhoods. The addition of 400 housing units to this site in an already densely developed area is good urban planning and a way to further enrich the City and where people can live. With a new neighborhood that provides places for people to work, live and visit, there is a natural intersection of the built environment with varying uses to encourage an active, diverse, dynamic vibrancy.

Secure *We will strive to create a resilient economy through innovation, investment, and commitment to diversity.*

We will be committed to accessible housing and healthy food for all our residents.

We will prepare for emergencies and be ready for a changing climate.

We will strive to create a resilient economy through innovation, investment, and commitment to diversity.

Phase I of the redevelopment at Portland Foreside focused heavily on adding good paying jobs to the local downtown area by constructing a building for Sun Life Financial. The innovation, investment, and commitment to diversity of this company is inspiring. To further support this office use, Phase 2 is further diversifying the uses on the site to include retail, a hotel, housing, waterfront improvements and infrastructure that will be a major investment along the eastern waterfront. Creating 444 housing units in Block 4, Block 5 and Block 6 is advancing the City's commitment to accessible housing units. Designing these three blocks with climate change and security in mind will provide the City the ability to achieve its resilient economy goals.

Authentic *We (City) will celebrate our city's incredible history.*

The uniqueness and integrity of our neighborhoods will be maintained and enhanced.

We will invest in and support our local economy.

We will maintain our character through preservation, innovation, and excellence in design for the built environment.

The entire Portland Foreside redevelopment project is a celebration of the City's history while positioning the eastern waterfront to be successful in the future. The historic core of this project is complemented by Phase 2 which is unique and different from any other neighborhood in the City. As a true mixed-use neighborhood, the uses not only provide much needed housing, but also a variety of jobs that are good paying and foster further investment in the local economy. Maintaining the character of the eastern waterfront is evident through what has been preserved on site and the outstanding thought and design put forth in Blocks 4, 5 and 6 to complement the historic core and waterfront area.

Connected *We will foster accessible linkages between where we live, work, shop, and play.*

We will enable meaningful access to the natural world and recreational opportunities as a central component of community health.

Our success will be tied to our connections to each other, our state, and our region.

A 21st century Portland will continue to rely on integrated transportation infrastructure.

The entire Portland Foreside redevelopment project is focused on being connected and fostering linkages to the rest of the Old Port, the Eastern Promenade, and the Munjoy Hill Neighborhood. The access to these areas is very meaningful, because historically, they have not existed in this part of the City. Residents, employees, and visitors have not been able to live, work or visit this area of the City and the access that Phase II will provide immediate, meaningful access to the Eastern Promenade trail and the enjoyment of Casco Bay. As a true mixed-use neighborhood, connection of all uses on this property are key to success of the project, but also for people who live and work there. The massive changes as a result of this project connect directly to the City, State and region through increased tax revenue, increased sales tax, and increased income tax. The commitment to integrating this site into the City's public infrastructure will also serve to offer meaningful connections and integration throughout other areas of Portland and the region.

The proposed development supports Portland's desire to endure by offering an opportunity to grow, change, and revitalize an area of the City that has been underutilized for many years and to support redevelopment where it makes sense within the City. The following sections describe how the proposed development will align with the policy guides associated with Portland's Plan 2030.

Comprehensive Plan Policy Guides

The City of Portland Comprehensive Plan includes eight specific policy guides focused on the topics of environment, historic resources, waterfront, economy, housing, recreation and open space, facilities and services and transportation. The discussion below emphasizes how the proposed development is consistent with each individual policy guide.

Environment Policy Guide

- Within the Environment Policy Guide, one of the local goals is to develop climate resilience through specific carbon reduction goals, comprehensive climate adaptation strategies, and protections for the City's most vulnerable infrastructure. The design team has specifically considered resiliency as part of the proposed Block 4, Block 5 and Block 6 development through building design and site layout.

- The Policy Guide also has a local goal to adopt sustainable land use and transportation policies that support connectivity, walkable neighborhoods, and multi-modal transportation. The proposed development is the next phase of the overall 58 Fore Street Master Development Plan to move forward, and it was conceptualized around the ideas of connectivity and walkability. The proposed shared street concept will prioritize pedestrian movements through the site, and parking garages have been efficiently incorporated into the site layout. Pedestrians will be able to access the site directly from Munjoy Hill.

- One future strategy is improving water quality. As described by the project-specific Stormwater Management Plan, stormwater best management practices will be incorporated into the Site to improve drainage and water quality treatment.

- Another future strategy is to develop climate resilience by pursuing strategic investment where storm surge and sea level rise will have impacts, including the waterfront. The design team has considered future sea level rise, storm surge, and flooding scenarios and the project has been designed to prioritize resiliency on the Site. Building finish floor elevations are established in consideration of future sea level rise.

- The development also includes the addition of stormwater treatment and conveyance systems to improve drainage and water quality. Prior to the site's redevelopment, no stormwater treatment was in place on the site. The development of this phase of work will bring the site to a level of 50% treatment through the use of proprietary treatment devices and below-grade stormwater storage.

The proposed development of Blocks 4, 5 and 6 of the 58 Fore Street Master Development Plan will have a positive impact on maintaining and enhancing connectivity and walkability in the East End of the City. This downtown development is also in line with the goals of the City's environmental policy.

Historic Resources Policy Guide

The overall proposed development supports the Historic Resources Policy Guide by aligning with the following goals:

- Promote historic preservation as a key economic, sustainability, and community development strategy.

- Stabilize and enhance historic areas of the city by ensuring quality investment in existing structures and compatible infill development.

- Ensure an appropriate balance of continuity and change as Portland grows and evolves.

Portions of the proposed development are located within the Portland Company Historic District and the Munjoy Hill Historic District. This phase of the 58 Fore Street Master Development Plan will be compatible with the major character defining elements of the districts. The development has been designed to promote historic preservation as an economic, sustainability, and community development strategy. The redevelopment of this Site is based on enhancing the former Portland Company Complex components that remain through quality investment and compatible adaptive reuse. The project balances continuity and change in an evolving Portland by preserving the historic character of the site while helping to meet the demand for sustainable growth.

Waterfront Policy Guide

The proposed development includes access points from Fore Street and through the site that connect plaza areas on the building rooftops down to the waterfront level. Promoting passive and active recreational access to the waterfront is a key goal in the Waterfront Policy Guide. The overall site development will create public access to the waterfront in an area of the City where direct access does not currently exist by creating thoughtful linkages at the pedestrian level in a built environment. The proposed development will also promote the City's connectivity by maintaining and enhancing the existing Eastern Promenade Trail, which

provides pedestrian access to both the Site and the waterfront area. Reconstruction of the trail has been included as part of a separate site plan application along with the reconstruction of the Narrow Gauge Railroad through this area, and other waterfront improvements that will supplement the work being completed for this phase.

Economy Policy Guide

The proposed development directly supports goals within the Economy Policy Guide including:

- Create economic prosperity by growing Portland's tax and employment base.
- Reinforce the waterfront as a key component of Portland's economic health, balancing traditional and emerging industries with tourism and recreation.

Retail, hotel, and residential space created by the development will help to grow Portland's tax and employment base. Locating these types of uses in this development helps to balance activity in this part of the City between tourism and recreation and traditional and emerging industries, while also providing for new residential uses. The proposed development intends to encourage public access by creating an authentic and dynamic environment, which will help stimulate use of the businesses located in the City's east end. The scale of residential development proposed will also bring a new residential population a property in the City that has never previously served the residential use. Additionally, the proposed development will revitalize the area, which will ultimately result in an increased valuation of the existing surrounding properties.

Housing Policy Guide

Phase 2 (Block 4, Block 5, and Block 6) includes the development of 444 housing units and supports the goals of the City's Housing Policy Guide to create complete neighborhoods. The proposed development will provide housing in close proximity to the City's urban center and transportation hubs in support of a walkable and vibrant neighborhood.

In a 2021 memo to the HECD from the City's Planning Director, it is noted that housing is one of the City's most pressing issues. It references Portland's Plan 2030 and the housing production target goals to "encourage housing that meets the needs, preferences and financial capabilities of all Portland households." Portland's Plan 2030 also is supportive of housing creation "in all neighborhoods and supports significant increases in housing within major transportation nodes and corridors."

The opportunity to create 444 housing units on the peninsula in a mixed-use waterfront neighborhood is consistent with both local policies and plans and with redevelopment efforts throughout the country. The opportunity to live, work and visit waterfront areas that have been previously underutilized in the past is a documented, successful approach to sustainable cities and communities. Phase II will directly and immediately address some of the City's housing production goals in a positive way and allow for residents at varying incomes to live in a vibrant, densely developed area.

Recreation and Open Space Policy Guide

Additional public access to the waterfront from Fore Street is being created as part of Phase 2 through the addition of two staircases that will take pedestrians through a courtyard down a staircase to Thames Street or through an interior staircase down to the historic core. From these locations, pedestrians can continue

onto the waterfront and the Eastern Promenade Trail. The proposed development is exciting and directly consistent with goals in this policy guide including:

- Sustain and build our system of parks, trails, and open spaces to enhance our quality of life, protect our environment, and promote the economic well-being of our remarkable city by the sea.
- Strengthen connections between open spaces.

Providing and strengthening connections to the waterfront and providing passive open space areas is stated in this policy guide as integral to the health and well-being of Portland's residents and visitors. The preservation of open space and revitalization of the downtown area will help the City to maintain its authentic character.

Facilities and Services Policy Guide

The infrastructure associated with the proposed development is supportive of the goal in the Facilities and Services Policy Guide focused on coordinating infrastructure planning and investments with areas of greatest anticipated growth. The buildings will require connections to water, sewer, gas, and electric utilities. Some of the infrastructure investments will be paid for privately, but the coordination and additional investments by the City are in an area where growth is supported and has been planned for. The City will realize a reduced cost for public infrastructure operations and maintenance by permitting downtown development and leveraging existing utilities when compared to developments in other areas of Portland where new utilities are required.

Eastern Waterfront Master Plan

The Master Plan for Redevelopment of the Eastern Waterfront (EWMP) specifically acknowledges the vacant, underutilized land in the area of the project site at 58 Fore Street. The EWMP notes that, given the location of the site and proximity to water views, urban amenities, vehicular access, port access and integration with the City trail system, significant redevelopment potential exists. Redevelopment such as parking structures, intensive reuse of historic buildings, replacement of non-historic structures, and open space enhancement were all anticipated in the EWMP. Many of these items are included in this Phase II project. Several principles and associated objectives for redevelopment are identified in the EWMP, including:

- *"Development within the eastern waterfront will be compatible with the surrounding areas, neighborhoods, natural environment and maritime uses."* Objectives associated with this principle that are consistent with the proposed redevelopment are the use of compatible architecture, continued establishment of a new street and pedestrian network that integrates with the surrounding street and trail network and preservation of significant view corridors to the water and along the waterfront.
- *"Development within the eastern waterfront will create a vital and active mixed-use urban area that generates life and use every day of the year and all hours of the day."* Objectives associated with this principle that are consistent with the proposed redevelopment are the creation of mixed-used non-marine development and activities that are compatible with the use of maritime resources, the increase of the public's use of the water, waterfront, and shore through public access, and maintaining and enhancing recreational trail access.

- *"Development in the eastern waterfront on piers, bulkheads and on land within 75' of mean high-water line, will give priority to compatible water-dependent and maritime uses."* Objectives associated with this principle that are consistent with the proposed redevelopment are preserving and enhancing water dependent uses by providing public physical and visual access to the water and continued prioritization of Fore Points Marina, a water dependent use.

- *"Development in the eastern waterfront will provide a significant benefit to the City and the regional economy."* Objectives associated with this principle that are consistent with the proposed redevelopment are creating a positive economic return to City, sustaining, and strengthening water-related tourism, enhancing the economic viability of the eastern waterfront's property and facilities, and assuring that development benefits the residents of the greater Portland community.

The vision for Phase 2 of the Portland Foreside Master Development Plan was built on the foundation of the EWMP with the intent of connecting the waterfront to the City of Portland with inspiring design focused on mixed-uses, public spaces and historic preservation.

Design Guidelines for the Eastern Waterfront

Consistent with Phase I of the project, the Design Guidelines for the Eastern Waterfront have been considered as part of the master planning of the proposed project. In general, it was noted that encouraging the adaptive reuse and sensitive rehabilitation of historic structures, increasing connections to Commercial Street, and promoting shared parking with abutting uses were key points to consider in the design of the proposed project. The design team has made the following considerations:

Streets

- Appropriate Street Design – The proposed shared roadway has been designed to accommodate expected vehicles and pedestrians safely and efficiently while encouraging appropriate speeds. On-street parking has been provided wherever possible to provide a buffer between pedestrians and moving traffic and to serve the retail, residential, and commercial uses in the area.

- Sidewalks – The proposed shared street concept along with sufficient additional walkways will accommodate pedestrians comfortably and safely. The pedestrian environment will be further enhanced using fixed street furniture, compatible and consistent lighting, and landscaping. Sidewalk cafes, temporary art installations, and seasonal lighting will also be considered to encourage year-round activity.

- View Corridors – The site has been designed to provide for views to and from the water, including the view corridors.

- Underground Utilities - Overhead utilities have been avoided; utilities have been designed to be located underground to the maximum extent practicable.

- Bicycle Safety - The proposed roadway has been designed to accommodate bicycle traffic and safety. Bicycle parking will be provided throughout the site and in the parking garage.

Buildings/Architecture

- Contextual Design - Buildings have been designed in response to their context and will be compatible with the surrounding neighborhood.

- Pedestrian Environment - Large expanses of blank walls have been avoided and multiple entries will be provided into buildings. Amenities such as street furniture and lighting will encourage year-round pedestrian use.

- Primary Entrances and Service Entrances - Service entrances and loading facilities have been strategically located such that they will not directly impact primary entrances.

- Parking Structures - Parking structures will be compatible with adjacent uses and architecture.

Open Space

- Public Open Space and Plazas – The proposed project will contribute to the public realm through enhancement of pedestrian spaces and increased recreational opportunities.

Waterfront

- The Eastern Waterfront - The function of this area as an intermodal transportation center has been designed to facilitate integration and coordination of the various current and potential future modes of transportation.

The overall intent of the project has been to create a vibrant, usable space that will become an extension of the City of Portland's existing downtown. Throughout design, the project team has considered the City's various master plans, policies, and guidelines with the goal of integrating the project into the existing City fabric.

PORTLAND FORESIDE DEVELOPMENT – PHASE 2

SITE LOCATION OF DEVELOPMENT

58 Fore Street
Portland, ME

41 Hutchins Drive
Portland, ME 04102
800.426.4262

woodardcurran.com

0227007.19
Portland Foreside Development Company
April 2023

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1. DEVELOPMENT DESCRIPTION

This narrative report is in support of a Site Location of Development (SLOD) Permit Application for development of Blocks 4, 5 and 6 of the Portland Foreside Development located at 58 Fore Street in Portland, Maine ("Phase 2"). It is also our understanding that the MaineDEP has determined that the City of Portland has delegated review authority over this project.

1.1 OBJECTIVES & DETAILS

The proposed development is the next phase of the 58 Fore Street Master Development Plan, approved by the City of Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acre former Portland Company complex into a mixed-use development.

The redevelopment of 58 Fore Street into a mixed-use neighborhood highlights the historical significance of the area, access to the waterfront and provides a direct connection from the adjacent neighborhoods to the waterfront. The result is a vibrant revitalization of the City's eastern waterfront. The development program for the project was considered and designed around the overall vision of creating this mixed-use neighborhood and proposes commercial, residential, retail, restaurant, marina and public open space uses which are consistent with the Master Development Plan for the site. Open space proposed for Phase 2 includes plazas for pedestrian use between the individual building components as well as a public access easement, view corridors and access to the waterfront.

The 58 Fore Street Master Development Plan consists of six "blocks" of development as shown by the below figure:



The next phase of the development includes the following work:

- **Block 4.** Includes the construction of a four-level structured parking garage with overlying rental apartment units and plaza space, three-story townhouses along Fore Street, and ground-level retail on the north and south elevations.

- **Block 5.** Includes the construction of an eight-story building comprised of a hotel, residential condominiums, below-grade parking and ground-level retail and restaurant. The below-grade parking lot is a continuation of the Block 4 parking garage and will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.
- **Block 6.** Includes development of residential condominiums and courtyard area with ground-level retail and below-grade parking. The below-grade parking lot is a continuation of the Block 4 parking garage and will be accessed using the Block 4 garage entrances on Fore Street and Thames Street.
- **Infrastructure, Utilities & Access Improvements.** In addition to the Block development and similar to Phase 1 of the development, shared street infrastructure and utilities will be installed throughout the site in the common spaces between the development parcels with reciprocal easements granted throughout.
- **Interim Conditions.** In order to create a complete, functional site following construction of this phase, interim conditions are proposed in Block 2, which will not see its finished condition as part of this project. Minor surface improvements, grading, and utility work are required within Parcel 2B and 2C to enable the surrounding work.

The area of disturbance for development of Phase 2 is approximately 7.2-acres and will include approximately 6.9-acres of impervious area. It should be noted that roof areas were considered fully impervious (as any rooftop landscaping systems do not infiltrate into the ground), and significant areas of landscaping and green roof are proposed.

The proposed development is a critical piece to Portland's future for a number of reasons including:

- The overall Project Site is large (+/- 10.7 acres) and strategically located between Portland's vibrant downtown, its working waterfront, and the beginning of its Eastern Promenade residential neighborhoods. This phase will continue building the connection of an underutilized part of the City to adjacent neighborhoods, the waterfront and the Old Port.
- The Project Site represents a keystone piece in the City's continuing efforts to link its vibrant downtown to the vast potential of its commercial waterfront. This project will help the City further realize the benefits of its investments in the Ocean Gateway marine terminal facility and related infrastructure;
- The development will help stimulate other investments in the eastern waterfront with the anticipation that investment in the Project Site will result in investment in underdeveloped public and private lands situated between the India Street neighborhood and the Project Site;

- As a whole, this proposed development presents an unparalleled opportunity to grow the City's tax base, add housing, and create jobs; and

- The development can act as a catalyst for change in this area, improve the quality of life for all Portland residents by facilitating access to the waterfront, adding capacity for events that draw residents and visitors and enable the City's cruise ship terminal to live up to its name as a truly memorable gateway.

In addition to the SLOD permit, the proposed work requires the following permits:

- City of Portland Major Site Plan & Subdivision;
- City of Portland Historic Preservation Application for Certificate of Appropriateness;
- Maine Construction General Permit Notice of Intent; and
- FAA Notice of Proposed Construction.

1.2 EXISTING FACILITIES

The proposed development will be located on a portion of the approximately 10.7-acre property. Existing site conditions consist primarily of impervious paved and gravel areas with some areas of sparse vegetation and a steep, vegetated slope along the eastern edge of the site. The Site is adjacent to the Fore River. There are no significant natural features or wetlands on-site. A survey of the Site was completed by Owen Haskell, Inc. (dated December 10, 2019 and June 27, 2022).

The former Portland Company Complex contained various industrial uses and many of the existing buildings have been demolished. The Site previously served as a pre-Civil War locomotive manufacturing site and components of that past still stand today. Historically significant facades include the Portland Company Vault, the Machine Shop, The Pattern Storehouse, and the Blacksmith Shop. The development team has included these historic facades, along with the character and linear orientation of the alleyways between, in the redevelopment planning for the site.

1.3 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of proposed development is attached to this Section for your reference. The proposed development is located within the Portland East Quadrangle.

1.4 CONSTRUCTION PLAN

The proposed development will be constructed in phases. Construction of Phase 2 is anticipated to begin in summer 2023. Erosion and sediment control measures will be installed prior to any ground disturbing activities, as described in Section 14 of this Report. The Contractor will be required to provide a construction management plan for the project, subject to the review and approval of the City and Engineer.

The Site will be managed during construction to minimize impacts to the adjacent land uses. Maintaining access to adjacent properties and public facilities will be a priority. Traffic impacts to adjacent roadways, including Thames Street Extension, Freedom Way, and Fore Street, will be minimized during construction to the greatest extent possible. Traffic controls will consist of temporary signage and barriers where necessary to manage vehicle, pedestrian, and bicycle traffic and direct it safely around the construction area. Work affecting traffic circulation such as underground utility work and grading activities will be conducted during periods of low traffic to reduce potential impacts.

Below is the anticipated sequence of construction activities for major aspects of the development:

- Installation of erosion and sediment control measures and traffic control measures;
- Demolition and site preparation activities;
- Construction of utilities, stormwater management system, and roadway;
- Construction of buildings;
- Installation of landscaping and final surface materials; and
- Removal of erosion and sediment control measures.

1.5 DRAWINGS

Design drawings showing the proposed development are attached to this Section.

1.6 LIST OF ATTACHMENTS

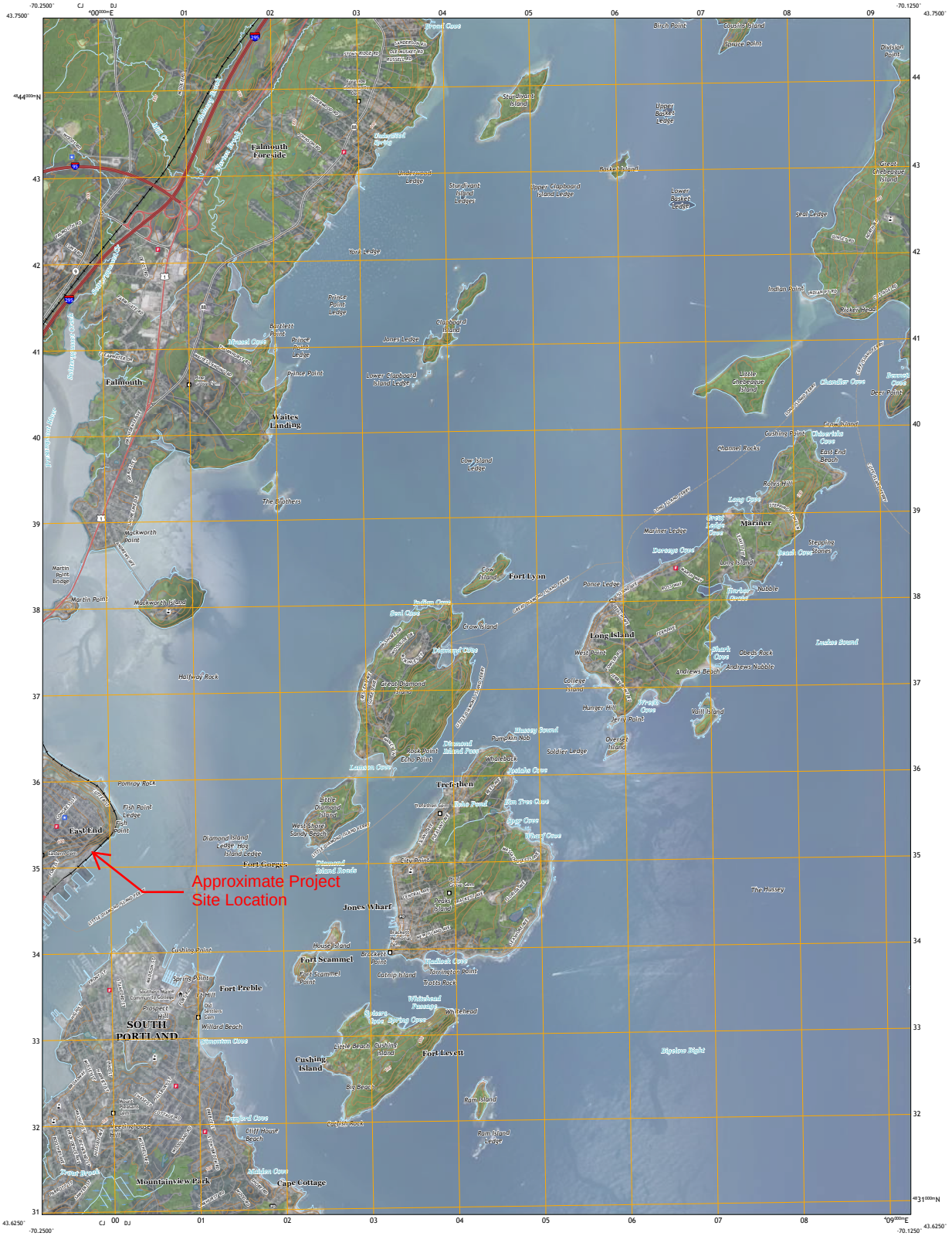
The following documents are attached to this Section:

- Topographic Map; and
- Design Drawings (Bound Separately).

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map
US Topo

PORTLAND EAST QUADRANGLE
MAINE - CUMBERLAND COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAIP, July 2015 - November 2015
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2003 - 2016
Contours.....National Elevation Dataset, 2005 - 2012
Boundaries.....Multiple sources; see metadata file 2014 - 2016

Wetlands.....FWS National Wetlands Inventory 2001 - 2004

UTM GRID AND 2017 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Version 2.0.0, 2011.
A metadata file associated with this product is named ...Version 0.6.18

ADJOINING QUADRANGLES
1 Cumberland Center
2 Yarmouth
3 Freeport
4 Portland West
5 South Harpswell
6 Prouts Neck
7 Cape Elizabeth

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

PORTLAND EAST, ME
2018

Page 1981

7643016370409
USGS X24K36119
MRA REF NO.

2. TITLE, RIGHT, OR INTEREST

The Project will occur on a parcel of land identified by the City as Lot 18-A-01 and owned by PF Land LLC. The deed into PF Land is attached. PF Land LLC subsequently conveyed approximately 482 square feet to PF One Devco LLC. The deed from PF Land LLC to PF One Devco LLC is also attached, modifying the original parcel into PF Land.

The Project area also includes a portion of an adjacent lot purchased by 21 Eastern Prom LLC, which is an entity affiliated with PF Land LLC. That lot is identified by the City as Lot 2-A-4 and is located at 21 Eastern Promenade. 21 Eastern Prom will convey said portion of Lot 2-A-4 to PF Land LLC prior to obtaining a building permit for the work occurring on that portion of the property.

Project construction may require installation of tiebacks into property on adjacent land, including City land, similar to the tiebacks into the City's Fore Street right-of-way for the Block 4 garage as previously approved in the Phase 1 Site Plan. The Phase 1 Site Plan approval contained the following condition to address the situation: "Prior to application for building permits, the applicant shall finalize any agreement required by the City of Portland authorizing the replacement and maintenance of the retaining wall along Fore Street and any license agreements required to permit encroachments into the City's right of way. All necessary agreements shall be finalized to the satisfaction of the Planning Authority, Department of Public Works, and Corporation Counsel."

Small portions of the Project located along the Maine DOT corridor are subject to the Land Exchange Agreement between the City, Maine DOT, and PF Land. The land swap will occur prior to obtaining building permits for work occurring on that southern edge of the property.

2.1 LIST OF ATTACHMENTS

- Deeds; and
- Easements.

TRUSTEE'S DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **TIMOTHY HALEY, of Stuart, Florida, SOLE TRUSTEE OF THE TIMOTHY HALEY LIVING TRUST, dated June 3, 2005** ("Grantor"), for consideration paid, grants to **21 EASTERN PROM LLC**, a Maine limited liability company with a mailing address of 254 Commercial Street, Portland, Maine 04101 ("Grantee"), the following described real estate situated at 13-23 Eastern Promenade, in the City of Portland, Cumberland County, State of Maine as more particularly described in Exhibit A attached hereto and made a part hereof

See Attached Exhibit A

MAINE REAL ESTATE TAX PAID

Meaning and intending to convey the premises conveyed by virtue of Quitclaim Deed without Covenant from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007, and recorded in the Cumberland County Registry of Deeds in Book 24759, Page 67, by Quitclaim Deed without Covenants from Katherine C. Haley and Timothy J. Haley, Trustees, under the Daniel T. Haley Sr. Family Trust dated January 21, 2006, dated January 11, 2007 and recorded at Cumberland County Registry of Deeds in Book 24759, Page 069 and by Quitclaim Deed without Covenants from Timothy J. Haley and Julia A. Haley, successor Trustees, under the Haley Family Living Trust dated February 6, 1997, dated December 4, 2008 and recorded at Cumberland County Registry of Deeds in Book 26503, Page 224 to Timothy Haley, sole Trustee or his successors in trust, under the Timothy Haley Living Trust, dated June 3, 2005.

I hereby covenant that I am Trustee pursuant to said Trust; that said Trust is still in full force and effect; that I have the power thereunder to convey as aforesaid; and that, in the making this conveyance, I have, in all respects, acted pursuant to the authority vested in and granted to me there.

WITNESS my hand and seal, this 08 day of December, 2021.

WITNESS:

Cecilia Merrill

Timothy Haley, Sole Trustee of The Timothy Haley Living Trust, dated June 3, 2005

STATE OF FLORIDA
COUNTY OF MARTIN, ss.

December 28, 2021

Then personally appeared the above-named Timothy Haley, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

LANA ELAINE BAILEY
Commission # GG 329959
Expires August 31, 2023
Bonded Thru Troy Fain Insurance 800-385-7019

Before me,

Attorney at Law/Notary Public
Print Name: Elaine Bailey
My Commission Expires: 8-31-23

Exhibit A

Certain lots or parcels of land, together with any building and improvement thereon, situated on the southeasterly side of Eastern Promenade, in the City of Portland, Cumberland County, State of Maine, bounded and described as follows:

PARCEL ONE:

A certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of the Eastern Promenade in said Portland, and bounded and described as follows, viz: Beginning on said side of said Eastern Promenade at the northeasterly corner of land now or formerly of Henry F. Merrill, and running thence southeasterly by said Merrill land and land of Portland Company two hundred fifty-five (255) feet, more or less, to land conveyed by John G. Munroe and others to the Portland Company by deed dated January 5, 1904, and recorded in Cumberland County Registry of Deeds, Book 765, Page 307; thence northeasterly by said land conveyed to said Portland Company as aforesaid one hundred (100) feet to other land now or formerly of Henry F. Merrill; thence northwesterly on a line parallel with the first described course two hundred fifty-five (255) feet, more or less, to said Eastern Promenade; thence southwesterly by said Eastern Promenade one hundred (100) feet to the place of beginning.

PARCEL TWO:

Beginning at a point on the southeasterly side of said Eastern Promenade at the northwesterly corner of land of Walter W. Duffett and thirty-six (36) feet southwesterly from the dividing line between the land now or formerly of Walter W. Duffett and the land now or formerly of William Curtis; thence southwesterly by said Eastern Promenade, forty-nine (49) feet, more or less, to land formerly belonging to one Monroe; thence southeasterly by said Monroe's land seventy (70) feet, more or less, to land now or formerly of Cyrus Cole; thence northeasterly by said Cole's land, forty-nine (49) feet, more or less, to said Duffett's land; thence northwesterly by said Duffett's land, seventy (70) feet, more or less, to the point begun at.

PARCEL THREE:

Beginning at a point in a southeasterly direction from the Eastern Promenade in the northeasterly side line of land now or formerly owned by heirs of J. Monroe, and distant one hundred and sixty-two (162) feet from the point of intersection of said side line of the Monroe land with the southeasterly side line of said Eastern Promenade, and from this point extending in a northeasterly direction about fifty (50) feet along the northwesterly side line of land sold to Henry Merrill et als. by deed dated June 29, 1898, recorded in Cumberland Registry of Deeds in Book 661, Page 176, and to the southwesterly side of land sold to Walter W. Duffett by deed dated June 29, 1898, recorded in said Registry of Deeds in Book 661, Page 175; thence by said southwesterly side line of the land so conveyed to Walter W. Duffett and by land now or

formerly of Mary Duffett to the southeasterly side line of land now or formerly of one Clark: thence by the said southeasterly side line of land now or formerly of said Clark, and by said line extended, to the said northeasterly side line of said Monroe land; thence by said Monroe land, in a southeasterly direction to the point of beginning.

Received
Recorded Register of Deeds
Dec 30,2021 03:33:48P
Cumberland County
Jessica M. Spaulding

SHORT FORM QUITCLAIM DEED WITH COVENANT
DLN: 1002040119134

CPB2 I LLC (formerly known as **CPB2 LLC**), a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF LAND LLC**, a Maine limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof (the "Property").

Being a portion of the property described in the following deeds: (i) Quitclaim Deed with Covenant from 100 Fore Street, LLC dated April 10, 2019 and recorded in the Cumberland County Registry of Deeds in Book 35576, Page 153; (ii) Quitclaim Deed with Covenant from the City of Portland to CPB2 I LLC dated November 2, 2018 and recorded in the Cumberland County Registry of Deeds in Book 35264, Page 286; (iii) Quitclaim Deed with Covenant from The Portland Company to CPB2 LLC dated April 1, 2014 and recorded in the Cumberland County Registry of Deeds in Book 31425, Page 267; and (iv) Trustee's Deed from Elizabeth M. Sprague, Eric Thomas Sprague and Phineas M. Sprague, Trustees of the Buena Vista Trust, to CPB2 LLC dated July 19, 2013 and recorded in the Cumberland County Registry of Deeds in Book 30879, Page 75.

IN WITNESS WHEREOF, CPB2 I LLC has caused this instrument to be executed by Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, thereunto duly authorized, as of this 4th day of November 2020.

WITNESS:

Richard D Prentice

Name: Richard D Prentice

CPB2 I LLC
By: CPB2 Management LLC, Manager

By: _____
Casey W. Prentice, Manager

13531538.3
12481681.4.4.3.3.2

State of Maine
County of Cumberland, ss. November 3, 2020

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of CPB2 Management LLC, Manager of CPB2 I LLC, as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability companies.

Before me,

Notary ~~Public~~/Attorney at Law
Print Name: Tom S. Hanson
Commission Expires: N/A

13531538.3
12481681.4.4.3.3.2

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHERLY CORNER OF LAND NOW OR FORMERLY OF 100 FORE STREET LLC AS DESCRIBED IN DEED BOOK 33748, PAGE 1 ON THE SOUTHEASTERLY SIDELINE OF FORE STREET AT AN IRON ROD FOUND;

THENCE, N 76°17'54"E ALONG THE SOUTHEASTERLY SIDELINE OF SAID FORE STREET 287.55 FEET;

THENCE, N 37°34'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 734.45 FEET;

THENCE, N 45°16'49"E CONTINUING ALONG THE SOUTHEASTERLY SIDELINE OF FORE STREET 43.36 FEET TO THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF KENNETH & CAROLL MACGOWAN AS DESCRIBED IN DEED BOOK 15773, PAGE 153;

THENCE, S 47°03'11"E ALONG THE SOUTHERLY LINE OF SAID MACGOWEN 150.00 FEET;

THENCE, N 45°16'49"E ALONG THE EASTERLY LINE OF LAND OF MACGOWEN 112.00 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF TIMOTHY HALEY, TRUSTEE AS DESCRIBED IN DEED BOOK 24759, PAGE 67 & 69;

THENCE, ALONG THE LAND OF SAID HALEY THE FOLLOWING COURSES AND DISTANCES:

S 47°03'11"E A DISTANCE OF 110.28 FEET;

N 47°33'49"E A DISTANCE OF 100.00 FEET;

N 47°03'11"W A DISTANCE OF 95.88 FEET;

N 53°46'39"E A DISTANCE OF 49.73 FEET TO THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°03'07"E ALONG THE SOUTHERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM 240.48 FEET TO THE NORTHWESTERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE KNOWN AS THE RAIL-TRAIL CORRIDOR AT AN IRON ROD FOUND;

13531538.3
12481681.4.4.3.3.2

THENCE, S 47°33'49"W ALONG THE NORTHWESTERLY LINE OF LAND OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49"W CONTINUING ALONG THE NORTHWESTERLY LINE OF LAND OF STATE OF MAINE 442.91 FEET TO THE LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;

THENCE, S 57°47'32" W ALONG LAND OF SAID CITY OF PORTLAND 11.22 FEET TO A POINT OF CURVATURE;

THENCE, SOUTHWESTERLY CONTINUING ALONG LAND OF SAID CITY OF PORTLAND ALONG A CURVE TO THE LEFT, HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 133.12 FEET, CHORD BEARING OF S 49°37'02" W AND CHORD LENGTH OF 132.67 FEET;

THENCE, S 41°26'32" W CONTINUING ALONG LAND OF THE CITY OF PORTLAND 17.92 FEET TO THE LAND NOW OR FORMERLY OF SAID STATE OF MAINE;

THENCE, S 46°01'18" W ALONG LAND OF STATE OF MAINE 31.95 FEET TO THE LAND OF CITY OF PORTLAND;

THENCE, N 52°05'24" W ALONG LAND OF CITY OF PORTLAND 97.53 FEET TO A POINT OF CURVATURE;

THENCE, NORTHWESTERLY ALONG LAND OF CITY OF PORTLAND ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 47.73 FEET, CHORD BEARING OF N 48°23'40" W AND CHORD LENGTH OF 47.70 FEET TO THE SOUTHERLY LINE OF LAND OF SAID 100 FORE STREET LLC;

THENCE, NORTHWESTERLY ALONG THE EASTERLY LINE OF SAID 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.00 FEET, AN ARC LENGTH OF 13.77 FEET, CHORD BEARING OF N 43°37'59" W AND CHORD LENGTH OF 13.77 FEET;

THENCE, N 42°34'01" W CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET LLC 68.76 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 370.24 FEET, AN ARC LENGTH OF 134.07 FEET, CHORD BEARING OF N 32°11'34" W AND CHORD LENGTH OF 133.34 FEET;

THENCE, NORTHWESTERLY CONTINUING ALONG THE EASTERLY LINE OF 100 FORE STREET, LLC ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 274.33 FEET, AN ARC LENGTH OF 13.01 FEET, CHORD BEARING OF N 20°51'48" W AND CHORD LENGTH OF 13.01 FEET TO THE SOUTHERLY SIDELINE OF SAID FORE STREET AT THE POINT OF BEGINNING.

13531538.3
12481681.4.4.3.3.2

DOC :71668 BK:37397 PG:82
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
11/05/2020, 10:28:36A
Register of Deeds Nancy A. Lane E-RECORDED

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

EXCEPTING FROM THE ABOVE DESCRIBED PARCEL, THE LAND CONVEYED BY CBP2 1 LLC TO PF ONE DEVCO LLC BY DEED OF EVEN DATE TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS CONTEMPORANEOUSLY WITH THIS DEED

REFERENCE IS MADE TO THAT CERTAIN PLAN ENTITLED "ALTA/NSPS LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE, MADE FOR PF ONE DEVCO LLC & PF LAND LLC", DATED MARCH 4, 2020 AND REVISED THOUGH NOVEMBER 2, 2020, PREPARED BY OWEN HASKELL, INC., JOB NO. 2019-013P.

THE PROPERTY IS CONVEYED SUBJECT TO AND WITH THE BENEFIT OF CERTAIN INTERESTS, RIGHTS, EASEMENTS, CONDITIONS, COVENANTS, RESTRICTIONS AND ENCUMBRANCES AS MORE FULLY SET FORTH IN THAT CERTAIN DECLARATION OF RESTRICTIONS, EASEMENTS AND AGREEMENTS BY CPB2 I LLC OF NEAR OR EVEN DATE HEREWITH, AND TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BEFORE THE RECORDING OF THIS DEED.

THE PROPERTY IS CONVEYED TOGETHER WITH THAT CERTAINREVOCABLE ACCESS LICENSE BY AND BETWEEN THE CITY OF PORTLAND, PF ONE DEVCO LLC, PF LAND LLC AND PF MARINA LLC OF NEAR OR EVEN DATE HEREWITH, TO BE RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS AT OR NEAR THE DATE OF THIS DEED.

THIS CONVEYANCE IS ALSO MADE SUBJECT TO ALL OTHER EASEMENTS, CONDITIONS, COVENANTS AND RESTRICTIONS OF RECORD.

MAINE REAL ESTATE TAX-Paid

QUITCLAIM DEED WITHOUT COVENANT
DLN: 1002140132239

PF LAND LLC, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantor"), FOR CONSIDERATION PAID, grants to **PF ONE DEVCO LLC**, a Delaware limited liability company, with a mailing address of 254 Commercial Street, Suite 118, Portland, Maine 04101 (the "Grantee"), certain real property, together with any improvements thereon, situated southerly of Fore Street, in the City of Portland, County of Cumberland and State of Maine, more particularly described on **Exhibit A** attached hereto and made a part hereof.

Being a portion of the property conveyed to Grantor by deed from CPB2 I LLC dated November 4, 2020 and recorded in the Cumberland County Registry of Deeds in Book 37397, Page 78.

IN WITNESS WHEREOF, PF Land LLC has caused this instrument to be executed by Casey W. Prentice, Manager, thereunto duly authorized, this 11th day of February, 2021, as of

WITNESS:

Name:

PF LAND LLC

By:
Casey W. Prentice, Manager

State of Maine
County of Cumberland, ss.

February 9, 2021

PERSONALLY APPEARED the above-named Casey W. Prentice, Manager of PF Land LLC, and acknowledged that the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

~~Notary Public~~/Attorney at Law
Print Name: William M. Welch
Commission Expires:

13531538.3
12722943.2

DOC :11203 BK:37821 PG:161
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
02/17/2021, 10:57:49A
Register of Deeds Nancy A. Lane E-RECORDED

EXHIBIT A

A CERTAIN LOT OR PARCEL OF LAND SITUATED ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHERLY CORNER OF LAND OF PARCEL 1C AS SHOWN ON PLAN TITLED "SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC" BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65;

THENCE, S 57°47'32" W A DISTANCE OF 10.19 FEET;

THENCE, ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 466.50 FEET, AN ARC LENGTH OF 1.10 FEET, A CHORD BEARING OF S 57°43'29" W AND CHORD DISTANCE OF 1.10 FEET;

THENCE, N 49°28'50" W THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 19.41 FEET;

THENCE, N 40°31'10" E CONTINUING THROUGH REMAINING LAND BY DEVELOPER A DISTANCE OF 38.71 FEET TO SAID PARCEL 1C;

THENCE, S 53°28'50" E ALONG PARCEL 1C A DISTANCE OF 9.05 FEET;

THENCE, S 40°31'10" W ALONG PARCEL 1C A DISTANCE OF 28.56 FEET;

THENCE, S 49°28'50" E ALONG PARCEL 1C A DISTANCE OF 13.73 FEET TO THE POINT OF BEGINNING, CONTAINING 482 S.F. MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

3. FINANCIAL CAPACITY

3.1 FINANCING

A copy of a letter verifying the Applicant's financial capacity to undertake the project is attached to this Section.

3.2 CERTIFICATE OF GOOD STANDING

A copy of the Secretary of State's Certificate of Good Standing for Portland Foreside Management Company, LLC (the Applicant) is attached to this Section.

3.3 LIST OF ATTACHMENTS

- Financial Capacity Letter; and
- Certificate of Good Standing.

ROCKLAND TRUST Where Each Relationship Matters®

September 14, 2022

PF One Devco, LLC
Portland Foreside Development Company
Casey Prentice
Kevin Costello
254 Commercial Street,
Portland, ME 02101

To: City of Portland

From: Rose M. Buckley, Senior Vice President
Rockland Trust Company

Rockland Trust Company has and will provide funding for the construction at 58 Fore Street, Portland ME. Rockland Trust is funding the construction of the Sun Life Building and has provided funding for Building 12 occupied by Twelve Restaurant.

Rockland Trust looks forward to working with Portland Foreside Development Company in the future.

Please contact me at 781-982-6165 with any questions.

Best regards,
ROCKLAND TRUST COMPANY

By: Rose M. Buckley
Rose M. Buckley, Senior Vice President

Member FDIC

EQUAL HOUSING LENDER

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF LAND LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20200853FC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
PO BOX 7987 PORTLAND, ME 04112	BERNSTEIN SHUR, 100 MIDDLE STREET PORTLAND, ME 04101

State of Maine

Department of the Secretary of State

I, the Secretary of State of Maine, certify that according to the provisions of the Constitution and Laws of the State of Maine, the Department of the Secretary of State is the legal custodian of the Great Seal of the State of Maine which is hereunto affixed and that the paper to which this is attached is a true copy from the records of this Department.

In testimony whereof, I have caused the Great Seal of the State of Maine to be hereunto affixed. Given under my hand at Augusta, Maine, this twenty-ninth day of September 2022.

Shenna Bellows

Shenna Bellows

Secretary of State

Additional Addresses

Legal Name	Title	Name	Charter #	Status
PF MARINA LLC	Registered Agent	HELEN STERLING COBURN, ESQ.	20183084DC	GOOD STANDING

Home Office Address (of foreign entity)	Other Mailing Address
	100 MIDDLE STREET WEST TOWER PORTLAND, ME 04101

4. TECHNICAL ABILITY

The project team includes the following partners completing various engineering, landscape architecture, and architecture components of the project work. The project team is also supported by a number of other professional firms providing support with survey, structural design, geotechnical design, mechanical/electrical/plumbing design, and other disciplines. Copies of resumes and information on other members of the project team can be provided upon request.

Woodard & Curran (W&C), an over 1,000-person Portland-based firm, has provided engineering services to the public and private sector for over 40 years, including permitting, civil/site engineering, stormwater, and construction management services. W&C has completed projects for colleges, universities, and healthcare institutions that build strong, sustainable infrastructure and environmental programs serving both their business needs and the communities that make them so vibrant. With extensive experience in design and permitting for site development projects, W&C has completed many projects within the City of Portland and for the University of Maine System.

MBLA is a professional design firm located in Freeport, Maine. MBLA practices nationally and internationally, and over the past twenty-eight years, the office has collaborated on diverse and notable projects, located in a wide range of settings and climates and across the state of Maine. MBLA projects range in scale and complexity including plazas, courtyards, university building projects, private school facilities, master plans, museums, churches, resorts, parks, and residential landscape projects. Many of MBLA's design projects have focused on creating places for people to gather while addressing issues of circulation, security, and programming.

Perkins+Will architects is a firm consisting of twenty-four domestic and international offices with a depth of technical and management skill employed to execute projects of great complexity. Perkins+Will maintains a full-time QA/QC leader in each office to provide ongoing quality assurance for projects. These experts are guided by a national project delivery system that has resulted from the best practices from around the firm.

MARVEL is a design firm with over 20 years of experience working at the intersection of public and private space, creating intentionally timeless design solutions that integrate nature and context. Their portfolio spans affordable housing, commercial, cultural institutions, schools and higher education, civic and public works, hospitality, high-end residential, recreational projects, workspaces, and parks and public spaces.

Baskervill, founded in 1897, is one of the nation's oldest continually operating architectural firms. With five offices along the east coast of the United States, and internationally, Baskervill is a multi-disciplinary design firms with a mix of services from architecture and interior design to MEP engineering and sustainable design.

5. NOISE

The noise impact from the proposed development will be minor. The primary source of noise from the proposed project will be the result of construction. Construction activities will be limited to the hours permitting by the City. HVAC and primary mechanical equipment will be located and screened to mitigate noise impacts. Noise associated with the proposed development will not exceed regulated levels and is not anticipated to negatively impact surrounding development in its urban setting.

6. VISUAL QUALITY & SCENIC CHARACTER

As further described in the City of Portland Site Plan Application for the proposed development, the architecture and landscaping have been designed to be consistent with the scenic and historic character of the surrounding urban waterfront area. The Site Plan Application includes renderings showing how view corridors will be preserved. A Certificate of Appropriateness will also be obtained from the City of Portland Historic Preservation Board. It is not anticipated that the proposed development will result in any negative visual impacts.

7. WILDLIFE & FISHERIES

The Site has been previously 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 (threatened species), roseate tern (endangered species) and monarch butterfly (candidate 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.

A letter was sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) requesting information regarding any known threatened or endangered species or critical habitat relative to the project area; a copy of their response letter is attached to this Section. It is not anticipated that the proposed development will have a negative impact on the northern long-eared bat, roseate tern or monarch butterfly.

7.1 LIST OF ATTACHMENTS

- Official Species List; and
- MDIFW Environmental Review Response Letter.

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

In Reply Refer To:
Project Code: 2022-0086547
Project Name: 58 Fore Street

April 03, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The 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 website 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/or 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 and/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

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

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 Code 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

Project Code: 2022-0086547
Project Name: 58 Fore Street
Project Type: Mixed-Use Construction
Project Description: Development project at 58 Fore Street.
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.66328875,-70.24278546387461,14z



Counties: Cumberland County, Maine

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 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

BIRDS

NAME	STATUS
Roseate Tern *Sterna dougallii dougallii* Population: Northeast U.S. nesting population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2083	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPAC USER CONTACT INFORMATION

Agency: Woodard & Curran
Name: Amy LeBel
Address: 41 Hutchins Drive
City: Portland
State: ME
Zip: 04102
Email alebel@woodardcurran.com
Phone: 2075583841

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

October 11, 2022

Amy Lebel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04101

RE: Information Request – 58 Fore Street Project, Portland,

Dear Amy:

Per your request received on October 03, 2022, 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 *58 Fore Street Project* in Portland.

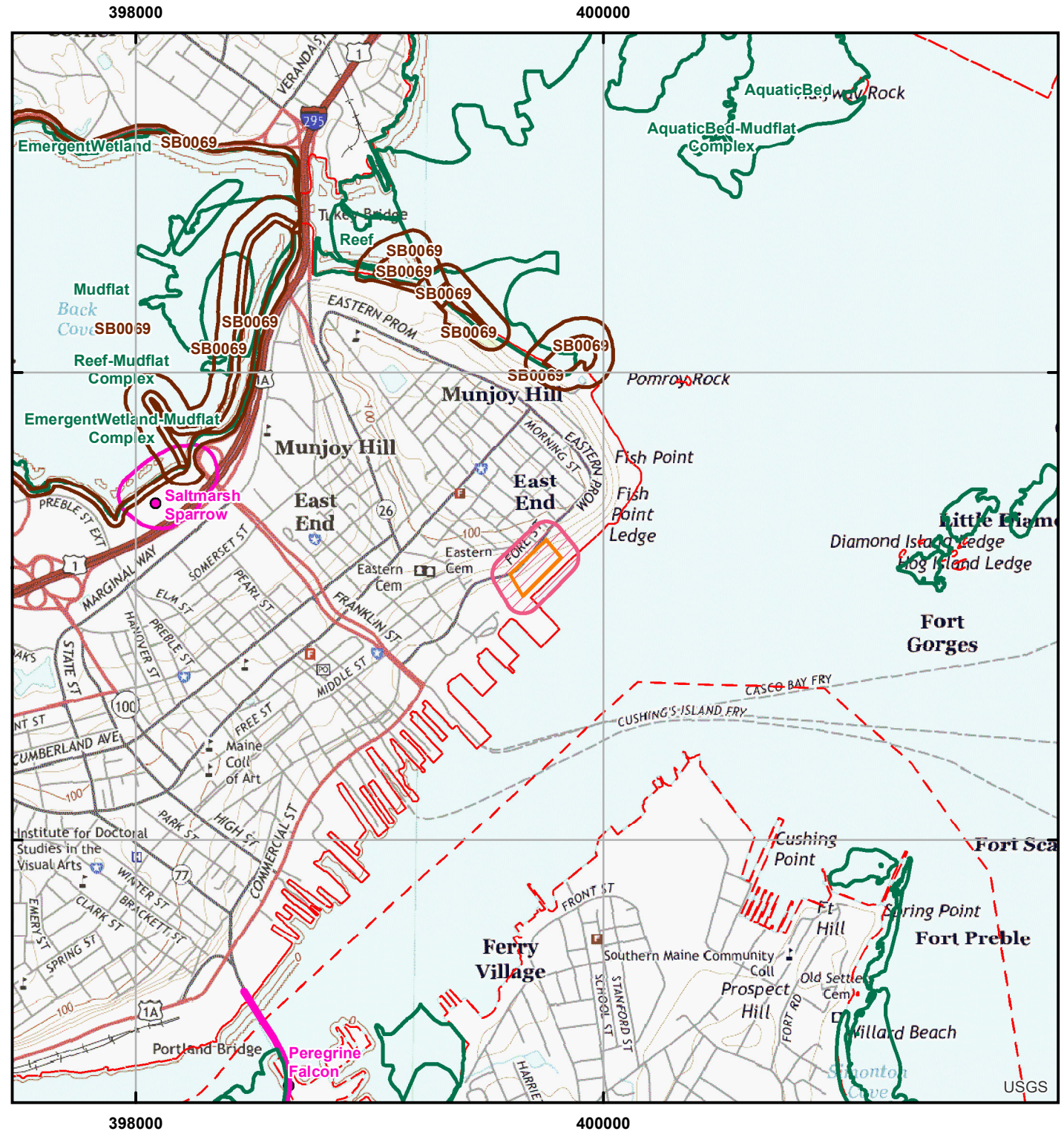
Our information indicates no locations of State-listed Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would 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, 58 Fore Street (Version 2)

Miles

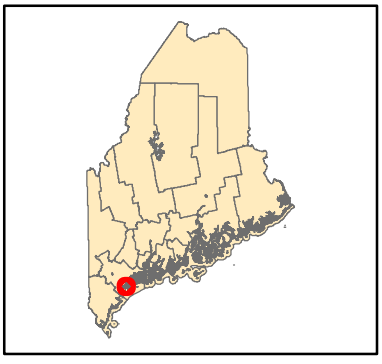
0 0.125 0.25 0.5 0.75 1

Projection: UTM, NAD83, Zone 19N

Date: 10/3/2022

Maine Department of Inland Fisheries and Wildlife

- ProjectSearchAreas - All Versions
- 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



8. HISTORIC SITES

A letter has been sent to the Maine Historic Preservation Commission (MHPC) requesting a review of the project area relative to historic properties; a copy of their response letter is attached to this Section. We will work with the Planning Division on the required historic preservation review concurrent with the Site Plan process.

Portions of the site are also being reviewed by the City of Portland's Historic Preservation Board. A Certificate of Appropriateness has been received for Phase 1 buildings (Building 12, the Block 2 historic core of buildings and Building 1A) and will soon be started for the Block 6 building.

8.1 LIST OF ATTACHMENTS

- MHPC Project Review Response Letter.

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 19, 2022

Ms. Amy LeBel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Project: MHPC #1777-22 — Portland Foreside Development Co.; 58 Fore St
Develop Blocks 4 and 6

Town: Portland, ME

Dear Ms. LeBel:

In response to your recent request, I have reviewed the information received November 28, 2022 to continue consultation on the above referenced project in accordance with the requirements of Maine Department of Environmental Protection.

Based on the information provided, the Commission feels that the proposed undertaking will have no adverse effect on architectural resources located with in the proposed project area, as defined by Section 106 of the National Historic Preservation Act of 1966, as amended.

With regard to archaeological resources, a historic archaeological survey is recommended. Survey can be conducted in the form of monitoring ground disturbing activities in coordination with the developer. Purpose of the survey is to document architectural remains of the Portland company buildings that are not depicted on maps and plans, and to identify/document/collect potentially significant objects associated with the company's industrial production.

A list of qualified historic archaeologists can be found on our website:
https://www.maine.gov/mhpc/programs/survey/approved-consultants/historic

If you have any questions regarding archaeology, please contact Dr. Leith Smith of this office at Leith.Smith@maine.gov.

We look forward to continuing consultation with you. If you have any questions regarding above-ground properties, please contact Megan M. Rideout of this office at megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

9. UNUSUAL NATURAL AREAS

The Site has been previously developed and there are no known unusual natural areas. A letter was sent to the Maine Natural Areas Program (MNAP) requesting a review of the Site relative to rare and exemplary botanical features; a copy of their response letter is attached to this Section.

9.1 LIST OF ATTACHMENTS

- MNAP Site Review Response Letter.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

October 5, 2022

Amy LeBel
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

Via email: alebel@woodardcurran.com

Re: Rare and exemplary botanical features in proximity to: 58 Fore Street Mixed-Use Development, Blocks 4 and 6, Portland, Maine

Dear Ms. LeBel:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received September 29, 2022 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

10. BUFFERS

The Site has been previously developed. There are no existing or proposed buffers. This Section is not applicable.

11. SOILS

Copies of the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey and the Geotechnical Report prepared for the Site are attached to this Section for your reference. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site.

11.1 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



September 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


70° 14' 48" W
70° 14' 19" W
43° 39' 54" N
43° 39' 40" N
399490
399560
399630
399700
399770
399840
399910
399980
400050
400120
4835400
4835330
4835260
4835190
4835120
4835050
HIC
HIB
HID
HIB
Cu
W
Hoyts Ln
Fore St
Adams St
Munjoy St
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
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 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

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
Cu	Cut and fill land	8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	2.5	18.7%
W	Water	1.3	9.4%
Totals for Area of Interest		**13.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Cumberland County and Part of Oxford County, Maine

Cu—Cut and fill land

Map Unit Composition

Cut and fill land: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cut And Fill Land

Typical profile

H1 - 0 to 65 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 35 percent

Drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 20.00 in/hr)

Depth to water table: About 24 to 42 inches

Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

HIB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8

Elevation: 0 to 1,430 feet

Mean annual precipitation: 36 to 53 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 8 inches: loamy sand

Bw1 - 8 to 11 inches: gravelly loamy sand

Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HIC—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kame terraces, outwash plains, kames, eskers, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

HID—Hinckley loamy sand, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2svmc
Elevation: 0 to 1,460 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, outwash terraces, outwash deltas, kame terraces, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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:

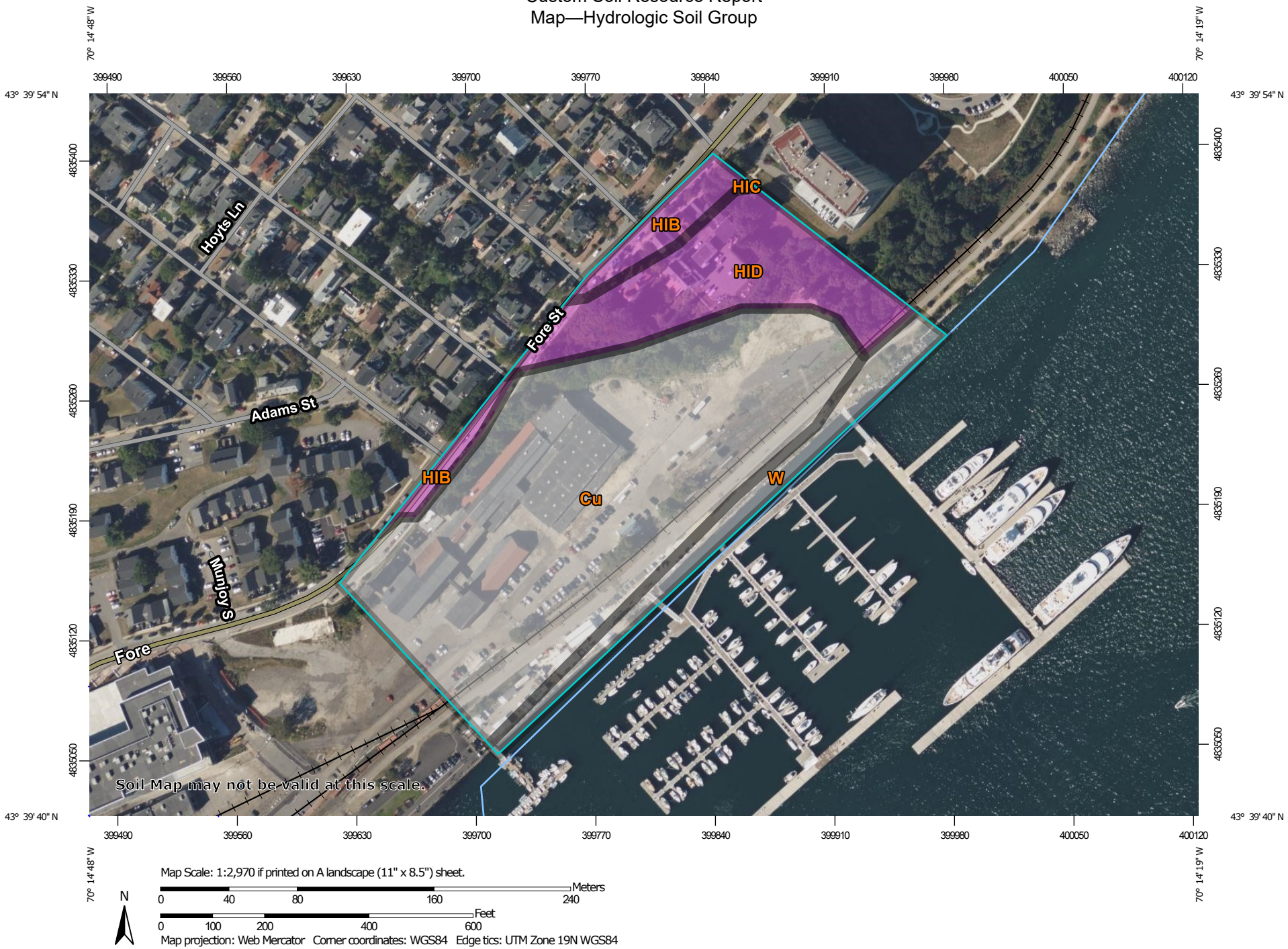
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

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.


70° 14' 48" W
70° 14' 19" W
399490
399560
399630
399700
399770
399840
399910
399980
400050
400120
43° 39' 54" N
43° 39' 40" N
4835400
4835330
4835260
4835190
4835120
4835050
HIC
HIB
HID
HIB
Cu
W
Hoyts Ln
Fore St
Adams St
Munjoy St
Fore
Soil Map may not be valid at this scale.
Map Scale: 1:2,970 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 40 80 160 240
Feet
0 100 200 400 600
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 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Cu	Cut and fill land		8.9	65.7%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.8	6.1%
HIC	Hinckley loamy sand, 8 to 15 percent slopes	A	0.0	0.1%
HID	Hinckley loamy sand, 15 to 25 percent slopes	A	2.5	18.7%
W	Water		1.3	9.4%
Totals for Area of Interest			**13.6**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

12. STORMWATER MANAGEMENT

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.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed development is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream Standard does not apply.

14. BASIC STANDARD

The proposed development is adjacent to the Fore River; there are no other known protected resources associated with the Site. As shown by the soil survey attached to Section 11 of this Report, the Site is comprised primarily of urban fill. The Soil Erosion and Sediment Control Plan and compliance with the Basic Standard is described in the Stormwater Management provided as part of Section 12 of this Report.

During construction, the Contractor will be responsible for 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 of the permit approvals, 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 Owner will be responsible for inspecting and maintaining the Site's stormwater system.

14.1 LIST OF ATTACHMENTS

- Erosion & Sediment Control Inspection Report Form.

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

The proposed development is not located within a Significant Sand and Gravel Aquifer; as previously noted, the Site is comprised primarily of urban fill. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). The proposed development will not infiltrate to or extract groundwater and is not anticipated to produce any hazardous waste. It is not anticipated that the proposed development will result in any impacts to groundwater.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service as shown on the drawings via a private water system that will connect to the public water main on Fore Street. Woodard & Curran is working directly with the Portland Water District to determine the appropriate design for this work and ability to serve documentation is attached to this section.

16.1 LIST OF ATTACHMENTS

- PWD Ability to Serve Email

Amy LeBel

From: AMaP MEANS <means@pwd.org>
Sent: Wednesday, March 22, 2023 3:47 PM
To: Lauren Swett
Cc: Thomas Whitney
Subject: 525766-58 Fore Street PH2, PO
Attachments: PO - Portland Foreside Ph II - Infrastructure Map - 2023.pdf

Hello Ms. Swett,

This email does not give final approval of the 58 Fore Street Phase 2 development project from PWD, however it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP or other governing body. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. Based on the demand provided by the applicant, the district has sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

Portland Water District

225 Douglass Street, PO Box 3553

Portland, ME 04104

Phone: 207-774-5961 x3199

E-mail: means@pwd.org

http://www.pwd.org

Portland Water District NOTICE & DISCLAIMER Confidentiality Notice:

THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL. Please notify the sender if you have received this message in error. Recipients should be aware that replies to this message may not be considered confidential under the Maine Freedom of Access law, 1 M.R.S.A. §402, and may therefore be subject to public disclosure upon request.

Please consider the environment before printing this email



86 Leland Street

Portland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 20 40 80 120 160 Feet — 1 inch = 100 feet

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: HAS	Infrastructure Map
Scale: As Noted	March 8, 2023

17. WASTEWATER DISPOSAL

The proposed development will be provided with sanitary sewer service as shown on the drawings. The private system on the site will include a combination of gravity sewer and forcemain with a pump station that will discharge to the sewer on the Thames Street Extension. The existing sewer service on Fore Street will be abandoned. The proposed development will include restaurants, kitchens, and parking garages; grease traps and oil/water separators will be provided as shown on the drawings. Woodard & Curran is working directly with the City of Portland to determine the appropriate design for this work. A Wastewater Capacity Application was submitted to the City under separate cover as part of the Site Plan Application for the proposed development. A copy of the City's determination will be provided upon receipt.

18. SOLID WASTE

18.1 SOLID WASTE

All solid waste materials and recyclables from the proposed development will be transported and disposed of or recycled in accordance with applicable laws and regulations.

18.2 CONSTRUCTION & DEMOLITION DEBRIS

The proposed development will generate construction waste and demolition debris (CDD). The Contractor will be responsible for properly disposing of the CDD. The Contractor will be responsible for handling, managing, and disposing of all waste generated by construction in accordance with the Maine Solid Waste Management Regulations and all other applicable local, state, and federal regulations.

18.3 SPECIAL & HAZARDOUS WASTE

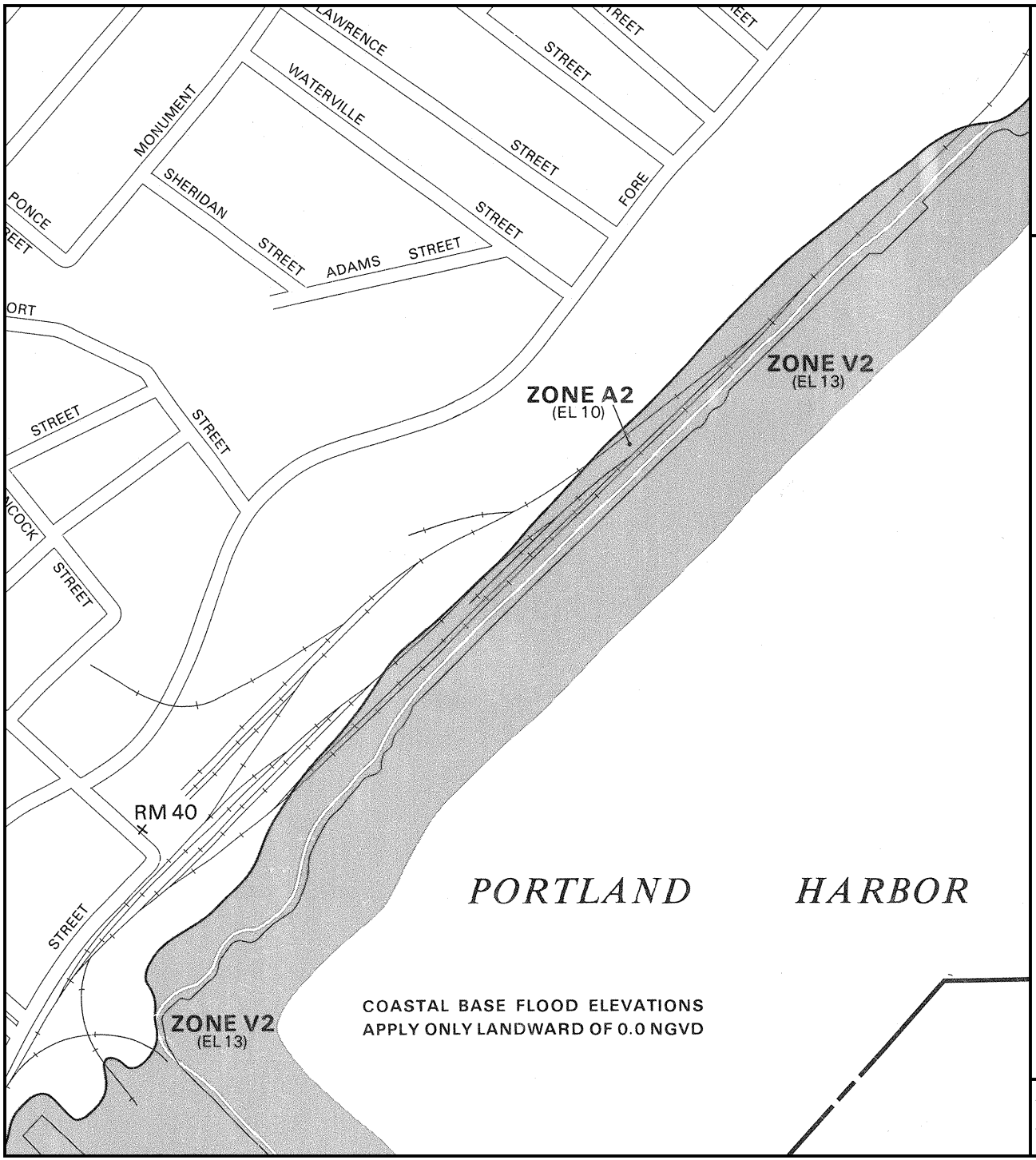
The proposed development is not anticipated to produce any hazardous waste. Environmental assessments of the Site have been conducted and the Owner is a participant in the Maine Department of Environmental Protection Voluntary Response Action Program (VRAP). A soil management plan will be developed for the site to address management of "urban fill" special waste anticipated to be encountered during the construction process.

19. FLOODING

Portland Foreside has submitted and received approval of two Letters of Map Amendment (LOMA), removing the site's developed area from the floodplain. As a result, a Flood Hazard Permit is not required as part of this project's permit review. A copy of the FEMA Flood Insurance Rate Map and LOMA documentation is attached.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map;
- LOMA documentation.



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



Area to be Removed from Flood Zone AE

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50;

THENCE, S 47°33'49" W ALONG THE NORTHELRY LINE OF SAID STATE OF MAINE 685.00 FEET;

THENCE, S 52°46'49" W CONTINUING ALONG THE NORTHELRY LINE OF STATE OF MAINE 272.75 FEET TO THE NORTHERLY LIMIT OF FLOOD ZONE A2 (EL 10) AS SCALED FROM FEMA FLOOD INSURANCE RATE MAP NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG THE NORTHERLY LIMIT OF SAID FLOOD ZONE A2:

N 18°22'51" E A DISTANCE OF 26.60 FEET;
N 48°05'42" E A DISTANCE OF 204.67 FEET;
N 50°41'38" E A DISTANCE OF 184.50 FEET;
N 45°09'56" E A DISTANCE OF 136.93 FEET;
N 47°53'09" E A DISTANCE OF 144.17 FEET;
N 39°47'45" E A DISTANCE OF 121.02 FEET;
N 60°27'17" E A DISTANCE OF 116.02 FEET;
N 44°32'44" E A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM;

THENCE, S 47°03'07" E ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING, CONTAINING 28,157 S.F. OR 0.65 ACRES, MORE OR LESS.

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.

Plan References

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622-624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *AMENDED SUBDIVISION PLAN, OCEAN GATEWAY, COMMERCIAL STREET, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD CITY OF PORTLAND JULY 17, 2019 BY OWEN HASKELL.*

7. *SUBDIVISION PLAT PORTLAND FORESIDE THAMES STREET & FORE STREET PORTLAND, MAINE MADE FOR OWNER OF RECORD CPB2 I LLC, BY OWEN HASKELL, INC. DATED FEB. 13, 2020, RECORDED IN PLAN BOOK 220, PAGE 65.*

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS LOCATED IN ZONE C, AREAS OF MINIMUM FLOODING, ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

General Notes

1. OWNER OF RECORD: CPB2 I LLC, C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75, BOOK 35264, PAGE 286. SEE AFFIDAVIT RECORDED IN BOOK 34737 PAGE 327 FOR NAME CHANGE & CPB2 I LLC BOOK 35576 PAGE 153

2. PARCEL IS MADE UP OF LOTS A3, A1, PART OF A2 & PART OF A13 ON TAX MAP 18 AND LOT A3 & A16 ON TAX MAP 19 AS SHOWN ON THE OFFICIAL CITY OF PORTLAND TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31
T-113-12-111 N:302722.13 E:2933029.45

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) - TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

EXISTING CONDITIONS SURVEY

58 Fore Street
Portland, Cumberland County, Maine
Made For
PF One Devco LLC & PF Land LLC

Surveyor's 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 CURRENT STANDARDS OF PRACTICE.

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: NOVEMBER 5, 2020
REVISED THROUGH: NOVEMBER 17, 2020

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105
Tel. (207) 774-0424 www.owenhaskell.com rloubier@owenhaskell.com

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-013 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	LOMA

Federal Emergency Management Agency
Washington, D.C. 20472

MR. RANDY LOUBIER
OWEN HASKELL
390 U.S. ROUTE 1 UNIT 10
FALMOUTH, ME 04105

CASE NO.: 21-01-0177A
COMMUNITY: CITY OF PORTLAND,
CUMBERLAND COUNTY, MAINE
COMMUNITY NO.: 230051

DEAR MR. LOUBIER:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415.

Sincerely,

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Quitclaim Deed with Covenant recorded as Document No. 13675 in Book 31425, Pages 267, 268, and 269; and in the Trustee's Deed recorded as Document No. 45157 in Book 30879, Pages 75 through 79; both deeds in the Office of the Register of Deeds, Cumberland County, Maine
	COMMUNITY NO: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	The portion of property is more particularly described by the following metes and bounds:
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 43.662943, -70.242677 SOURCE OF LAT & LONG: GPS DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	58 Fore Street	Portion of Property	C	--	--	12.0 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
PORTIONS REMAIN IN THE SFHA/FLOODWAY
eLOMA DETERMINATION

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. If there are any errors on this eLOMA Determination Letter that cause FEMA to rescind and/or nullify the determination the property owner should consult the Licensed Professional that submitted this eLOMA. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, 3601 Eisenhower Avenue, Alexandria, VA 22304-4605, Fax: 703-751-7415.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE NORTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142, PAGE 50; THENCE S47°33'49"W, ALONG THE NORTHERLY LINE OF SAID STATE OF MAINE 685.00 FEET; THENCE S52°46'49"W, CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE N18°22'51"E, A DISTANCE OF 26.60 FEET; THENCE N48°05'42"E, A DISTANCE OF 204.67 FEET; THENCE N50°41'38"E, A DISTANCE OF 184.50 FEET; THENCE N45°09'56"E, A DISTANCE OF 136.93 FEET; THENCE N47°53'09"E, A DISTANCE OF 144.17 FEET; THENCE N39°47'45"E, A DISTANCE OF 121.02 FEET; THENCE N60°27'17"E, A DISTANCE OF 116.02 FEET; THENCE N44°32'44"E, A DISTANCE OF 28.73 FEET TO THE WESTERLY LINE OF LAND OF SAID PORTLAND HOUSE CONDOMINIUM; THENCE S47°03'07"E, ALONG PORTLAND HOUSE CONDOMINIUM 22.78 FEET TO THE POINT OF BEGINNING.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

Portion of Property Removal:

The following considerations may or may not apply to the determination for your Portion of Property:

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA and/or FLOODWAY - Portions of this property, but not the subject of the Determination document, may remain in the Special Flood Hazard Area (SFHA) and/or the regulatory floodway for the flooding source indicated on the Determination Document. The NFIP regulatory floodway is the area that must remain unobstructed in order to prevent unacceptable increases in base flood elevations. Therefore, no construction may take place in an NFIP regulatory floodway that may cause an increase in the base flood elevation. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. The NFIP regulatory floodway is provided to the community as a tool to regulate floodplain development. Modifications to the NFIP regulatory floodway must be accepted by both the Federal Emergency Management Agency (FEMA) and the community involved. Appropriate community actions are defined in Paragraph 60.3(d) of the NFIP regulations. Any proposed revision to the NFIP regulatory floodway must be submitted to FEMA by community officials. The community should contact either the Regional Director (for those communities in Regions I-IV, and VI-X), or the Regional Engineer (for those communities in Region V) for guidance on the data which must be submitted for a revision to the NFIP regulatory floodway. Contact information for each regional office can be obtained by calling the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or from our web site at https://www.fema.gov/regional-contact-information

STUDY UNDERWAY - This determination is based on the flood data presently available. However, the Federal Emergency Management Agency may be currently revising the National Flood Insurance Program (NFIP) map for the community. New flood data could be generated that may affect this property. If a new NFIP map is issued it will supersede this determination. The Federal requirement for the purchase of flood insurance will then be based on the newly revised NFIP map.

EXTRATERRITORIAL JURISDICTION - The subject of the determination is shown on the National Flood Insurance Program map and may be located in an Extraterritorial Jurisdiction area for the community indicated on the Determination Document.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

eLOMA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

GREAT LAKES - The Federal Emergency Management Agency (FEMA) has based this determination on elevation data which is published in the current Flood Insurance Study for the community. However, the elevations established in the U.S. Army Corps of Engineers (USACE) reports on the Great Lakes are the best available data known to us. If in the future there are any subsequent map revisions to the National Flood Insurance Program map and the USACE reports remain the best available data known, FEMA will use those elevations for any such revisions. Further, be advised that the elevations on the Flood Insurance Rate Map (FIRM) may only reflect the Stillwater elevation for the lake and may not account for the effects of wind driven waves or wave run-up. On-site conditions such as wind speed, wind direction, fetch distance, water depth and the slope of the beach or bluff may result in significant increases to the base flood elevation. Therefore, it is strongly recommended that the requestor be aware of these circumstances and, if warranted, evaluate the effects of wind driven waves along the shoreline of the property.

STATE AND LOCAL CONSIDERATIONS - Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

COASTAL BARRIER RESOURCE SYSTEM - Based upon information provided to FEMA by the U.S. Fish and Wildlife Service (USFWS), the subject property may be within a System Unit or an Otherwise Protected Area (OPA) of the John H. Chafee Coastal Barrier Resource System (CBRS). Federal flood insurance is generally not available within the CBRS for new construction or substantial improvements occurring after the flood insurance prohibition date (which is generally tied to the date that the area was first established as either a System Unit or OPA, but may differ in some cases). Other federal expenditures and financial assistance (including certain types of disaster assistance) are also restricted within System Units of the CBRS. The USFWS is the authoritative source for information regarding the CBRS. Additional information, including the CBRS Mapper, can be found on the USFWS website at: https://www.fws.gov/cbra.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Attn: North Wind Resource Partners (NWRP) eLOMA Coordinator, NWRP eLOMA Coordinator, 3601 Eisenhower Ave., Alexandria, VA 22304-6439, Fax: 703-751-7415

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

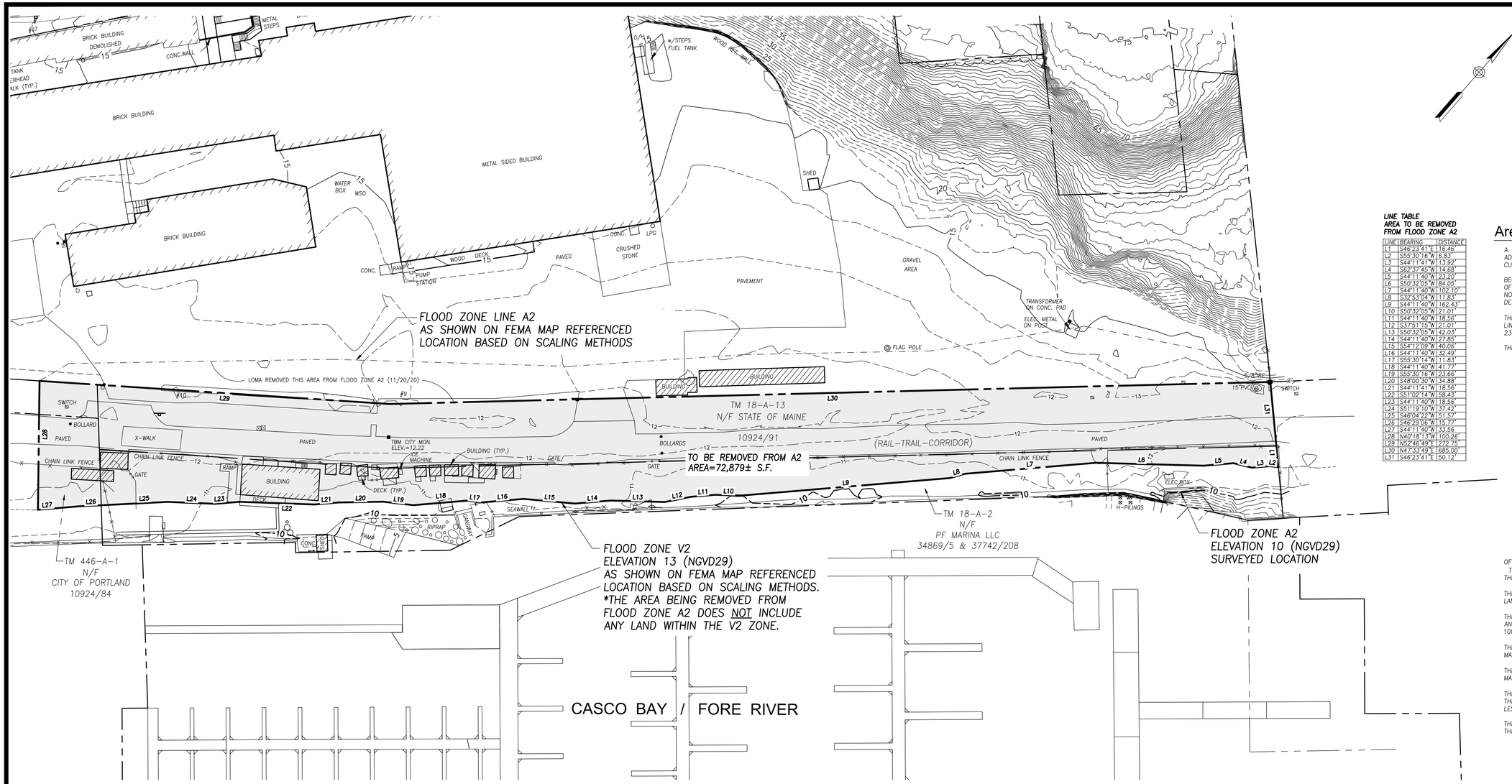
The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

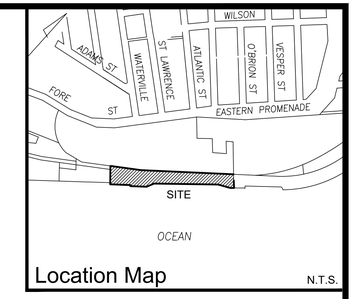
FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.





LINE TABLE
AREA TO BE REMOVED FROM FLOOD ZONE A2

LINE	BEARING	DISTANCE
L1	S46°23'41"E	16.46'
L2	S55°30'16"W	6.83'
L3	S44°11'41"W	13.92'
L4	S62°37'45"W	14.68'
L5	S44°11'40"W	23.20'
L6	S50°32'05"W	84.05'
L7	S44°11'40"W	102.10'
L8	S32°53'04"W	11.83'
L9	S44°11'40"W	162.43'
L10	S50°32'05"W	21.01'
L11	S44°11'40"W	18.56'
L12	S37°51'15"W	21.01'
L13	S50°32'05"W	42.03'
L14	S44°11'40"W	27.85'
L15	S54°12'09"W	40.06'
L16	S44°11'40"W	32.49'
L17	S55°30'14"W	11.83'
L18	S44°11'40"W	41.77'
L19	S55°30'16"W	23.66'
L20	S48°00'30"W	34.88'
L21	S44°11'41"W	18.56'
L22	S51°02'14"W	58.43'
L23	S44°11'40"W	18.56'
L24	S51°19'10"W	37.42'
L25	S46°04'22"W	51.57'
L26	S46°29'06"W	15.77'
L27	S44°11'40"W	33.56'
L28	N40°18'13"W	100.26'
L29	N52°46'49"E	272.75'
L30	N47°33'49"E	685.00'
L31	S46°23'41"E	50.12'

Area to be Removed from Flood Zone A2

A CERTAIN LOT OR PARCEL OF LAND ON THE SOUTHERLY SIDE OF, BUT NOT ADJACENT TO FORE STREET IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208;

THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B;

THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE:

S 55°30'16" W A DISTANCE OF 6.83 FEET;
S 44°11'41" W A DISTANCE OF 13.92 FEET;
S 62°37'45" W A DISTANCE OF 14.68 FEET;
S 44°11'40" W A DISTANCE OF 23.20 FEET;
S 50°32'05" W A DISTANCE OF 84.05 FEET;
S 44°11'40" W A DISTANCE OF 102.10 FEET;
S 32°53'04" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 162.43 FEET;
S 50°32'05" W A DISTANCE OF 21.01 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 37°51'15" W A DISTANCE OF 21.01 FEET;
S 50°32'05" W A DISTANCE OF 42.03 FEET;
S 44°11'40" W A DISTANCE OF 27.85 FEET;
S 54°12'09" W A DISTANCE OF 40.06 FEET;
S 44°11'40" W A DISTANCE OF 32.49 FEET;
S 55°30'14" W A DISTANCE OF 11.83 FEET;
S 44°11'40" W A DISTANCE OF 41.77 FEET;
S 55°30'16" W A DISTANCE OF 23.66 FEET;
S 48°00'30" W A DISTANCE OF 34.88 FEET;
S 44°11'41" W A DISTANCE OF 18.56 FEET;
S 51°02'14" W A DISTANCE OF 58.43 FEET;
S 44°11'40" W A DISTANCE OF 18.56 FEET;
S 51°19'10" W A DISTANCE OF 37.42 FEET;
S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMERLY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84;
THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET;

THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF CITY OF PORTLAND A DISTANCE OF 33.56 FEET;

THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE;

THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET;

THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET;

THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING, CONTAINING 72,879 S.F. OR 1.67 ACRES MORE OR LESS.

THE LAND DESCRIBED ABOVE DOES NOT INTEND TO INCLUDE ANY LAND WITHIN THE V2 ZONE.

SCALE : 1" = 50'
0' 25' 50' 100'

General Notes

1. OWNERS OF RECORD: PF MARINA LLC
C.C.R.D. BOOK 34869 PAGE 50
BOOK 37742, PAGE 208

2. PARCEL IS SHOWN AS LOT 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.

4. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET NGVD 29 DATUM.

Plan References

1. "ALTA/NSPS LAND TITLE SURVEY, 1 MARINA WAY, PORTLAND, MAINE MADE FOR PF MARINA, LLC" BY OWEN HASKELL, INC. DATED JANUARY 26, 2021 REVISED THROUGH MARCH 18, 2021.

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS PARTIALLY LOCATED IN FLOOD ZONE A2 ELEV. 10, AREAS OF 100-YEAR FLOOD AND PARTIALLY LOCATED IN FLOOD ZONE V2 ELEV. 13, AREAS OF 100-YEAR COASTAL FLOOD WITH VELOCITY ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986. THE FEMA FIRM ZONE A2 FLOOD LINE IS DEMARKED ON THE PLAN BY THE ELEVATION 10 CONTOUR. ALL POINTS NORTH OF THIS CONTOUR ON THE SUBJECT PROPERTY EXCEEDS THIS ELEVATION AND THEREFORE FALL OUTSIDE OF THE A2 ZONE.

Existing Conditions Survey

1 Marina Way
Portland, Cumberland County, Maine
Made For
PF MARINA, LLC
1 Marina Way, Portland, Maine

Surveyor's 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 CURRENT STANDARDS OF PRACTICE.

RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 19, 2021

STATE OF MAINE
RANDY R. LOUBIER 2407
PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2019-031 P
CHECKED BY: RRL/SDG	SCALE: 1" = 50'	DRWG. #	MARINA-ALTA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	CITY OF PORTLAND, CUMBERLAND COUNTY, MAINE	A parcel of land, as described in the Deeds recorded as Document Nos. 23925 and 55154, both in the Office of the Register of Deeds, Cumberland County, Maine The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 230051	
AFFECTED MAP PANEL	NUMBER: 2300510014B	
	DATE: 7/17/1986	
FLOODING SOURCE: PORTLAND HARBOR; CASCO BAY		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:43.662774, -70.242547 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NGVD 29)	LOWEST ADJACENT GRADE ELEVATION (NGVD 29)	LOWEST LOT ELEVATION (NGVD 29)
--	--	--	1 Marina Way	Portion of Property	C	--	--	10.5 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION
ZONE V
PORTIONS REMAIN IN THE SFHA
SUPERSEDES PREVIOUS DETERMINATION
STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

BEGINNING ON THE SOUTHERLY LINE OF LAND NOW OR FORMERLY OF STATE OF MAINE AS DESCRIBED IN DEED BOOK 10924, PAGE 91 AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF PF MARINA, LLC AS DESCRIBED IN DEED BOOK 37742, PAGE 208; THENCE, S 46°23'41" E A DISTANCE OF 16.46 FEET TO THE V2 FLOOD ZONE LINE AS SHOWN ON THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051-0014B; THENCE, THE FOLLOWING COURSES AND DISTANCES ALONG SAID V2 ZONE: S 55°30'16" W A DISTANCE OF 6.83 FEET; S 44°11'41" W A DISTANCE OF 13.92 FEET; S 62°37'45" W A DISTANCE OF 14.68 FEET; S 44°11'40" W A DISTANCE OF 23.20 FEET; S 50°32'05" W A DISTANCE OF 84.05 FEET; S 44°11'40" W A DISTANCE OF 102.10 FEET; S 32°53'04" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 162.43 FEET; S 50°32'05" W A DISTANCE OF 21.01 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 37°51'15" W A DISTANCE OF 21.01 FEET; S 50°32'05" W A DISTANCE OF 42.03 FEET; S 44°11'40" W A DISTANCE OF 27.85 FEET; S 54°12'09" W A DISTANCE OF 40.06 FEET; S 44°11'40" W A DISTANCE OF 32.49 FEET; S 55°30'14" W A DISTANCE OF 11.83 FEET; S 44°11'40" W A DISTANCE OF 41.77 FEET; S 55°30'16" W A DISTANCE OF 23.66 FEET; S 48°00'30" W A DISTANCE OF 34.88 FEET; S 44°11'41" W A DISTANCE OF 18.56 FEET; S 51°02'14" W A DISTANCE OF 58.43 FEET; S 44°11'40" W A DISTANCE OF 18.56 FEET; S 51°19'10" W A DISTANCE OF 37.42 FEET; S 46°04'22" W A DISTANCE OF 51.57 FEET TO LAND NOW OR FORMELRY OF CITY OF PORTLAND AS DESCRIBED IN DEED BOOK 10924, PAGE 84; THENCE, S 46°29'06" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OF SAID CITY OF PORTLAND A DISTANCE OF 15.77 FEET; THENCE, S 44°11'40" W CONTINUING ALONG THE SAID V2 ZONE AND THROUGH LAND OFCITY OF PORTLAND A DISTANCE OF 33.56 FEET; THENCE, N 40°18'13" W CONTINUING THROUGH LAND OF CITY OF PORTLAND AND LAND NOW OR FORMERLY OF SAID STATE OF MAINE A DISTANCE OF 100.26 FEET TO THE NORTHERLY LINE OF LAND OF SAID STATE OF MAINE; THENCE, N 52°46'49" E ALONG THE NORTHERLY LINE OF STATE OF MAINE 272.75 FEET; THENCE, N 47°33'49" E CONTINUING ALONG THE NORTHERLY LINE OF STATE OF MAINE 685.00 FEET; THENCE, S 46°23'41" E THROUGH LAND OF STATE OF MAINE 50.12 FEET TO THE POINT OF BEGINNING

ZONE V (This Additional Consideration applies to the preceding 1 Property.)

A portion of this property, but not the subject of the Determination/Comment Document, is located within a Coastal High Hazard Area (Zone V, VE or V1-30). Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management. No construction using fill for structural support or that may increase flood damage to other property may take place in these areas.

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

SUPERSEDES OUR PREVIOUS DETERMINATION (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

This Determination Document supersedes our previous determination dated 7/16/2021, for the subject property.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Information eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, Engineering Library, 3601 Eisenhower Ave Ste 500, Alexandria, VA 22304-6426.

Luis V. Rodriguez, P.E., Director
Engineering and Modeling Division
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of Homeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy*. The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

If a lender releases a property owner from the flood insurance requirement, and the property owner decides to cancel the policy and seek a refund, the NFIP will refund the premium paid for the current policy year, provided that no claim is pending or has been paid on the policy during the current policy year. The property owner must provide a written waiver of the insurance requirement from the lender to the property insurance agent or company servicing his or her policy. The agent or company will then process the refund request.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

The NFIP offers two types of flood insurance policies to property owners: the low-cost Preferred Risk Policy (PRP) and the Standard Flood Insurance Policy (SFIP). The PRP is available for 1- to 4-family residential structures located outside the SFHA with little or no loss history. The PRP is available for townhouse/rowhouse-type structures, but is not available for other types of condominium units. The SFIP is available for all other structures. Additional information on the PRP and how a property owner can quality for this type of policy may be obtained by calling the Flood Insurance Information Hotline, toll free, at 1-800-427-4661. Before making a final decision about flood insurance coverage, FEMA strongly encourages property owners to discuss their individual flood risk situations and insurance needs with an insurance agent or company.

FEMA has established "Grandfather" rules to benefit flood insurance policyholders who have maintained continuous coverage. Property owners may wish to note also that, if they live outside but on the fringe of the SFHA shown on an effective NFIP map and the map is revised to expand the SFHA to include their structure(s), their flood insurance policy rates will not increase as long as the coverage for the affected structure(s) has been continuous. Property owners would continue to receive the lower insurance policy rates.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

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Your property has been reclassified as moderate-to-low flood risk. Your flood risk has been reduced but not removed.

You may now qualify for a Preferred Risk Flood Insurance Policy with annual rates starting as low as $325. Keep your home—and everything inside of it—covered for less money. Contact your insurance agent to secure a lower-cost policy today.

Protect the life you've built.

Call **800-427-4661** or visit www.FloodSmart.gov



FEMA

NATIONAL FLOOD INSURANCE PROGRAM

Flooding 101: Did you know?

- Flooding is the most common and costly disaster in the United States. Just 1 inch of flood water can cause $25,000 of damage to your home.
- People outside of high-risk flood areas file more than 20% of NFIP claims and receive one-third of disaster assistance for flooding.
- Most homeowners and renters insurance doesn't cover flood damage. Only flood insurance provides financial protection from costly flooding.

Stay covered. Save money. Talk to an agent today.
For more information visit FloodSmart.gov.

20. BLASTING

Haley & Aldrich, the geotechnical engineer for the project has confirmed that based on investigations completed to date, no blasting is anticipated for this project.

21. AIR EMISSIONS

The project will not require an air emissions license; 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 access to sunlight for any structures utilizing solar energy; this Section is not applicable.

25. NOTICES

The City of Portland has Delegated Review Authority for this application; as such, it is our understanding that the public notice requirements associated with MaineDEP Site Law do not apply.

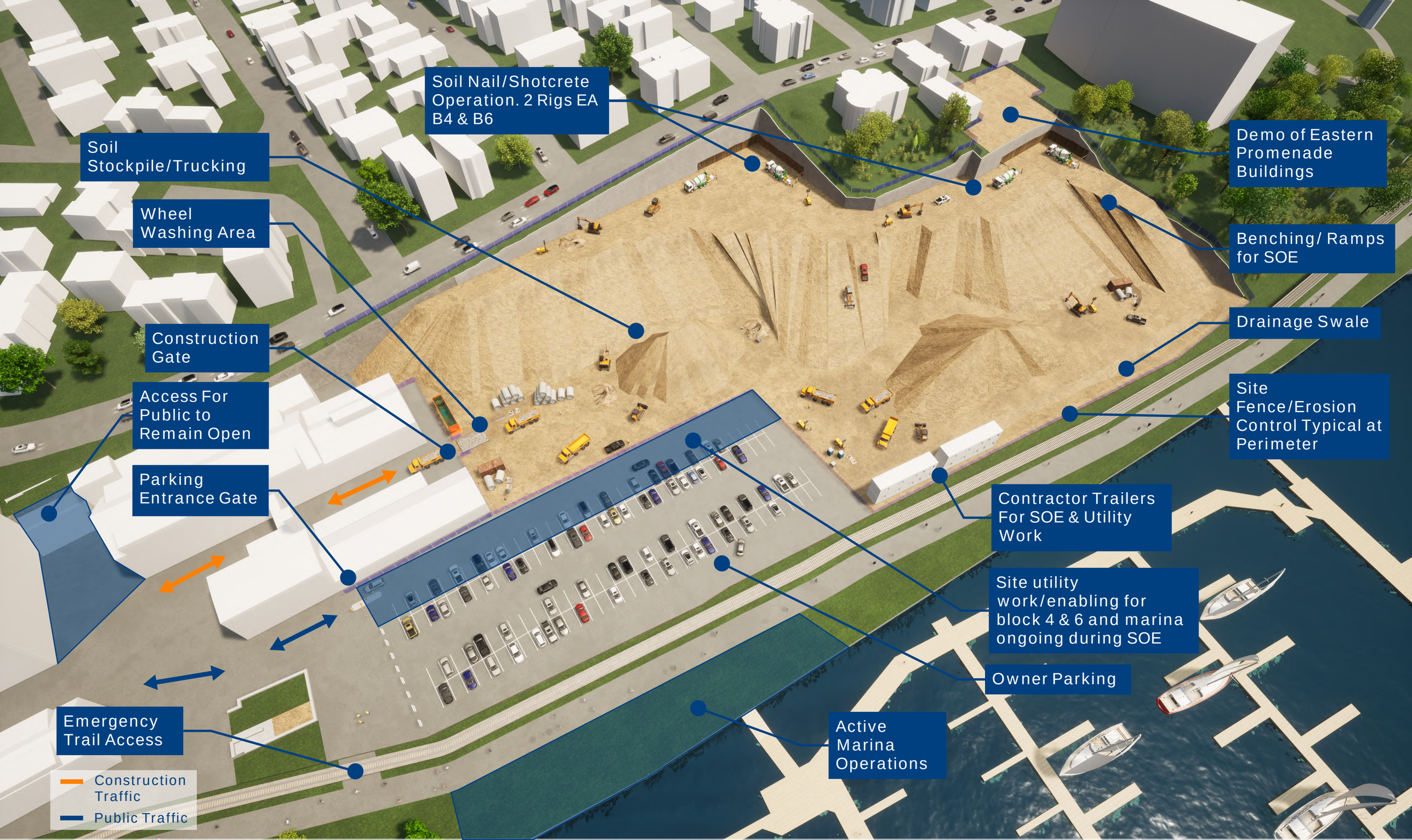


B4, B5 & B6 Site Logistics Plan - Slide 1 (Existing Site)

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

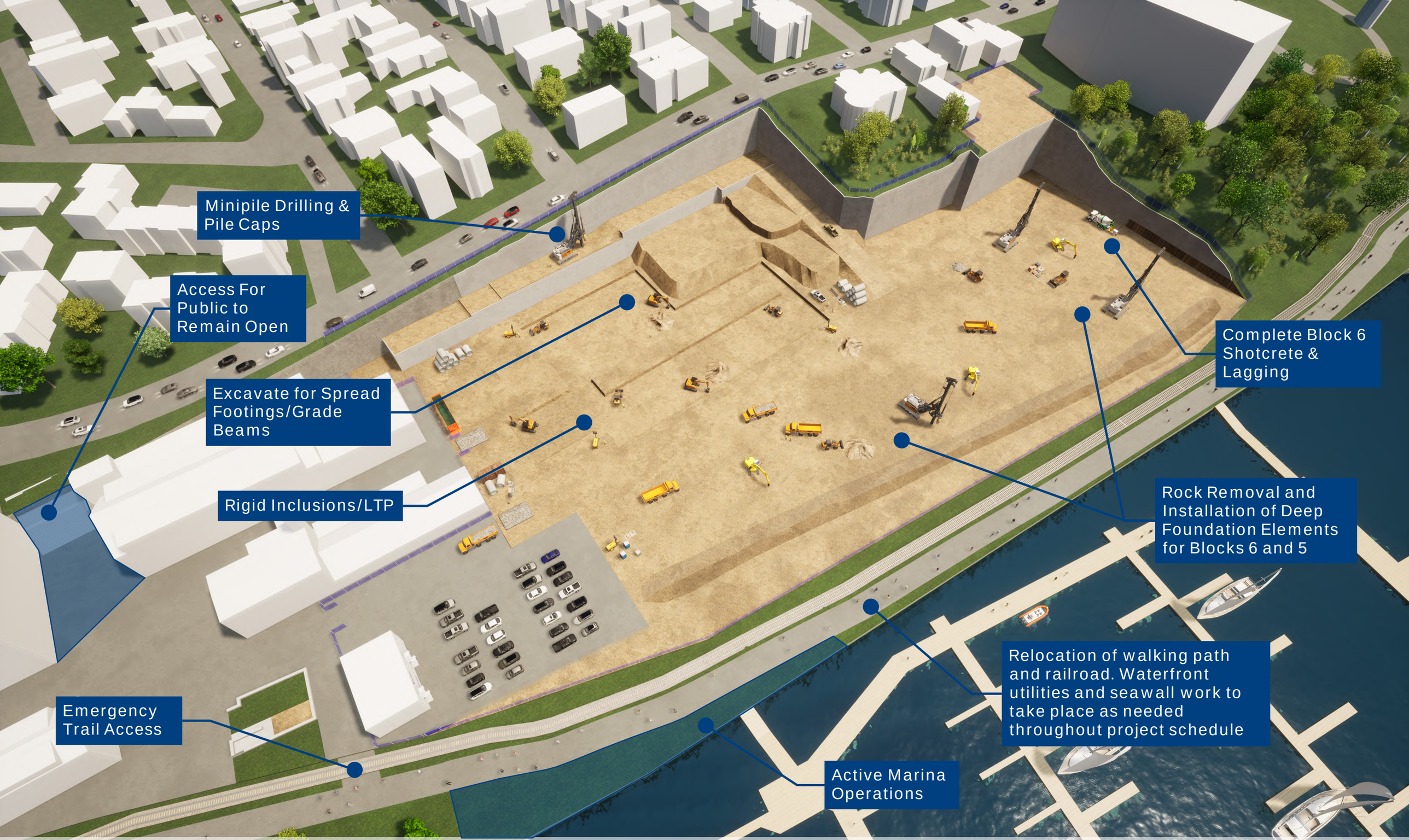


B4, B5 & B6 Site Logistics Plan - Slide 2

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 3

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

Sitework, Utility work, and deep foundations tor Blocks 4,5,6 to be done as single mobilization. Foundation work for foundations to be done sequentially from Block 4 to Block 6 to block 5.

B6 Excavation to Subgrade

Concrete Pump & Truck Staging Area

Access For Public to Remain Open

Emergency Trail Access

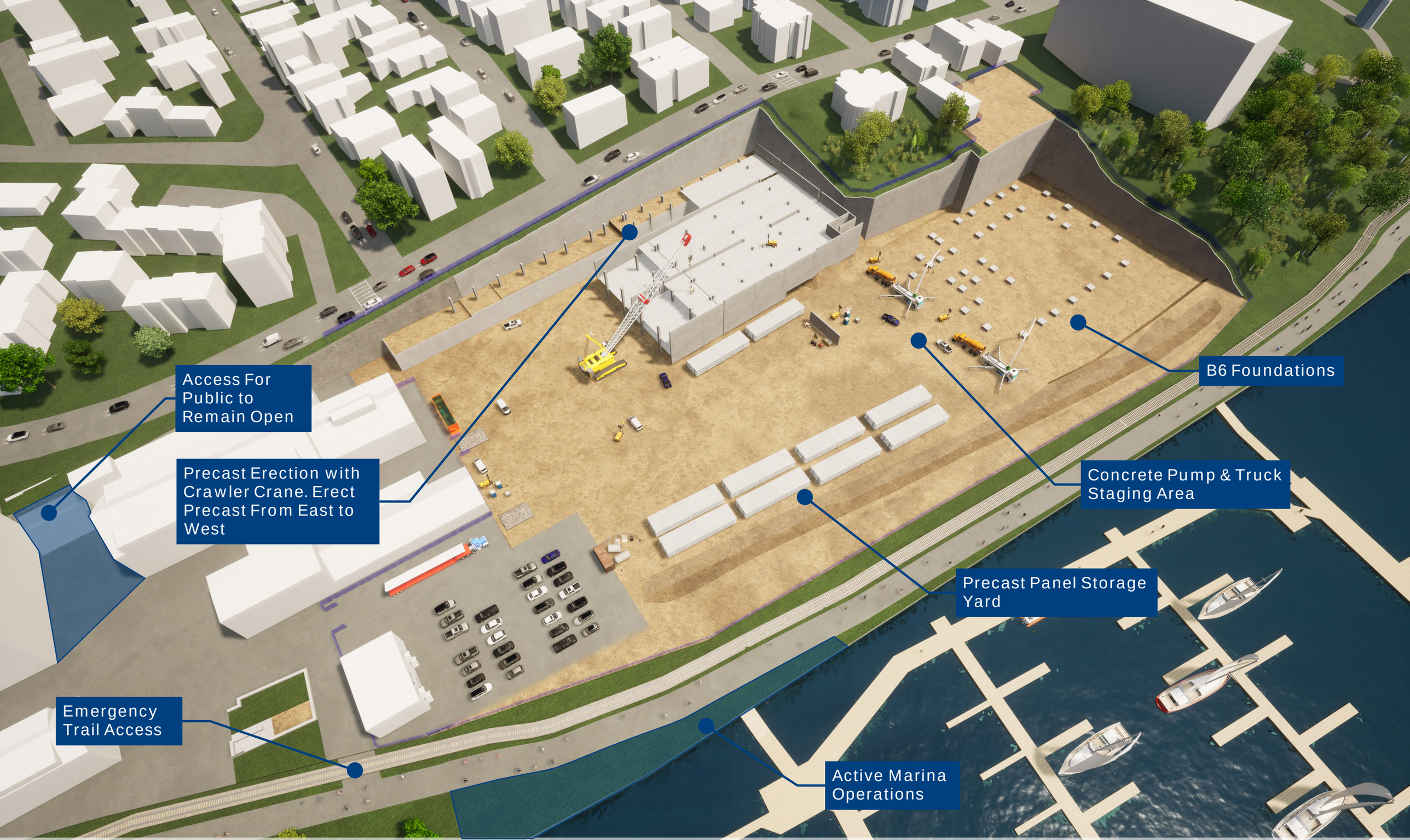
Active Marina Operations

B4, B5 & B6 Site Logistics Plan - Slide 4

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

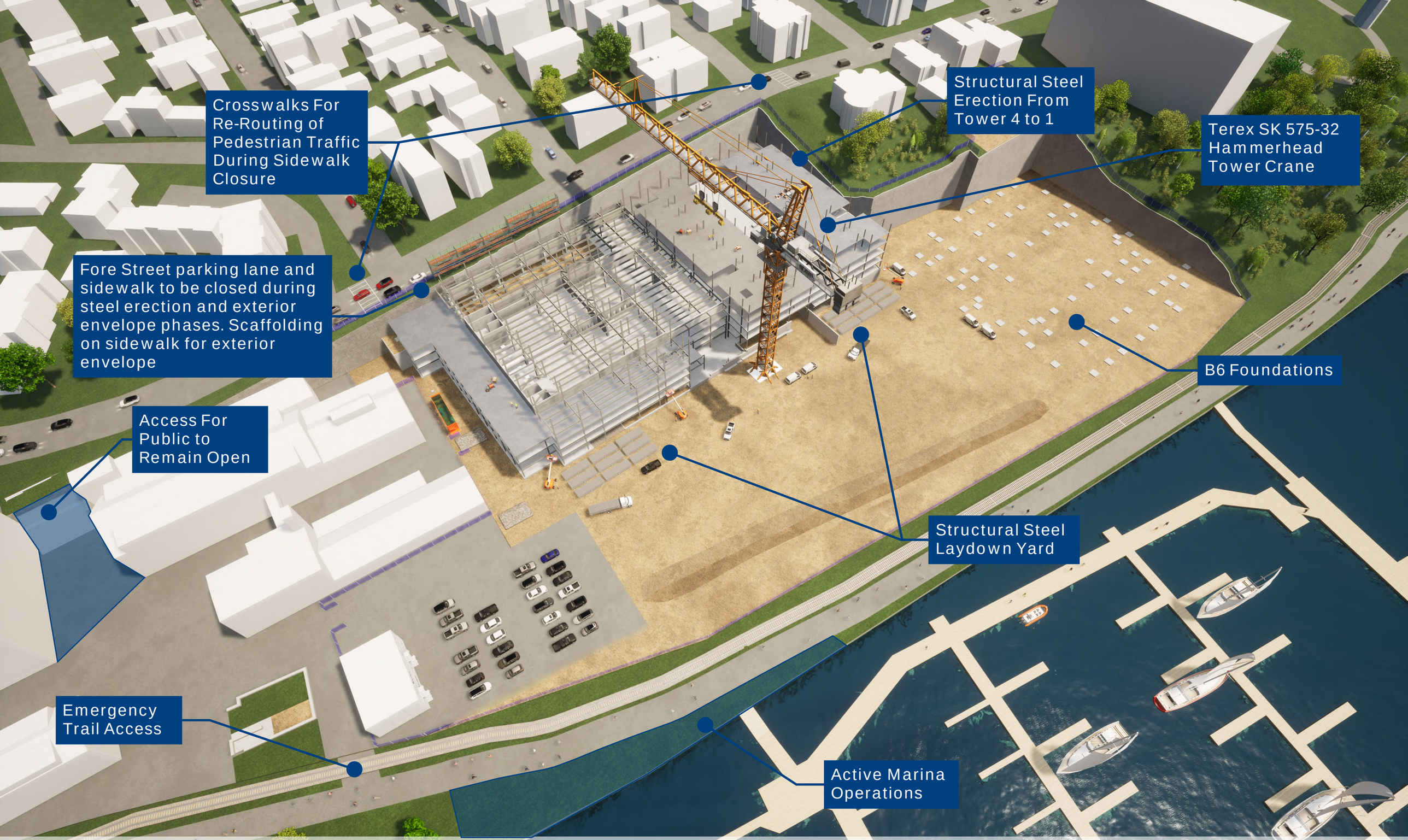


B4, B5 & B6 Site Logistics Plan - Slide 5

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

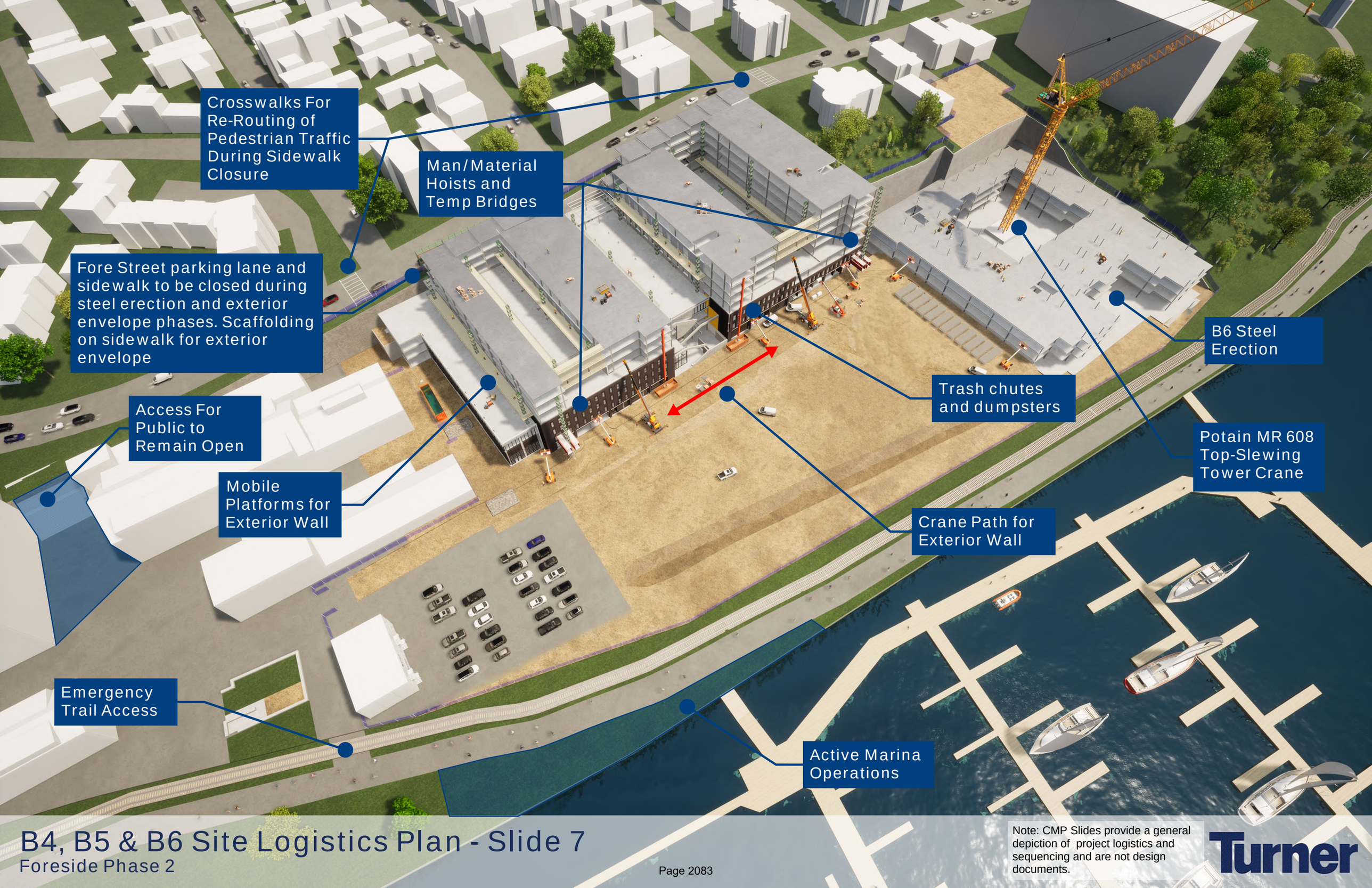


B4, B5 & B6 Site Logistics Plan - Slide 6

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 7

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

Crosswalks For Re-Routing of Pedestrian Traffic During Sidewalk Closure

Man/Material Hoists

Man/Material Hoist. Scaffolding on North & East Elevations

Access from Fore St during exterior envelope

B6 Exterior Envelope

Fore Street parking lane and sidewalk to be closed during steel erection and exterior envelope phases. Scaffolding on sidewalk for exterior envelope

Access For Public to Remain Open

Crane Path for Exterior Wall

Foundations & Basement for B5

Parking area reduced for B5 mobilization

Emergency Trail Access

Active Marina Operations

B4, B5 & B6 Site Logistics Plan - Slide 8

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 9

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 10

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 11

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner



B4, B5 & B6 Site Logistics Plan - Slide 12

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

B4, B5 & B6 Site Logistics Plan - Slide 13

Foreside Phase 2

Note: CMP Slides provide a general depiction of project logistics and sequencing and are not design documents.

Turner

Att. 39

Portland Foreside Development – Phase 2

CONSTRUCTION MANAGEMENT PLAN

May 26, 2023

Submitted to:

City of Portland Department of Planning & Urban Development Department

Submitted by:

Turner/PGC
Two Seaport Lane
Boston, MA 02210
May 26, 2023

Developer:

Portland Foreside Development Company
110 Thames St
Portland, ME 04101

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A. Project Information

B. Responsible Parties

C. Construction Schedule

D. Phases of Construction

E. Construction Traffic Flow

F. Site Fencing/Locations and Durations

G. Additional Provisions

H. Summary

I. Logistic Plans

Portland Foreside
Construction Management Plan

A. Project Information

The Foreside Development Project will be a new mixed use development located on Thames Street. The Project is a multi-phase project and will consist of the construction of a new 247 unit residential apartment building with 4 levels of structured parking and ground level retail space (Block 4), a new 9 story Residential building consisting of 154 residential units and one level of structured parking (Block 6), a new 128 key Hotel with 43 condominium units and ground level retail utilizing a continuous level of parking through connections to blocks 4 and 6.(Block 5). The site of the proposed building currently consists of an existing gravel lot area and wooded hillside. The site is currently bordered by Fore Street to the north, an adjacent Narrow gauge railroad, walking trail, and marina to the south, existing commercial buildings to the west, and existing residential buildings on Eastern Promenade St to the east.

B. Responsible Parties

For the Contractor:

Patrick Carroll, Sr. Project Manager
Turner / PGC
Two Seaport Lane
Boston, MA 02110
Cell Phone 207.233.3328
Email: pcarroll@@tcco.com

For the Developer:

Timothy Schneider, Director of Construction and Operations
Portland Foreside Development Company
110 Thames St., Suite 200
Portland, ME 04101
207.317.6220
Email: tps@portlandforeside.com

C. Construction Schedule

Major phases of the work are as follows:

Major Phases of Construction	Approx. Schedule	Duration
Block 4 & 6 Demolition, Enabling Utility Work, SOE and Site Setup	Months 1 thru 6	6 Months
Block 4		
Foundations	Months 7 thru 10	4 Months
Precast Garage/ Superstructure	Months 11 thru 15	5 Months
Exterior Envelope	Months 16 thru 23	8 Months

Interior MEP and Finishes	Months 24 thru 31	8 Months
Site Development (Weather Permitting)	Months 32 thru 36	5 Months

Block 6

Foundations	Months 10 thru 14	5 Months
Superstructure	Months 15 thru 20	6 Months
Exterior Envelope	Months 21 thru 30	10 Months
Interior MEP and Finishes	Months 31 thru 37	7 Months
Site Development (Weather Permitting)	Months 38 thru 41	4 Months

Block 5 (Understudy)

Foundations
Superstructure
Exterior Envelope
Interior MEP and Finishes
Site Development (Weather Permitting)

D. Phases of Construction

Site Setup, Demolition, Enabling Utility Work, and SOE Phase / Months 1 thru 6 Block 4, 5 & 6

- Site fencing will be established to separate construction areas from public vehicle and pedestrian access.
- Demolition of existing residential structures on Eastern Promenade will be demolished and removed via access from Eastern Promenade.
- The majority of the utility work will be completed during the enabling phase of the project along with temporary utilities that may be required for construction. Remaining utility work will be phased throughout the project dependent on sequence and limitations associated with construction phasing and adjacent facilities.
- A significant amount of utility work, seawall work, walking trail and railroad track relocation work will be required along the existing Marina. This work will require detailed scheduling and phasing to accommodate a continuous operation of the Marina, walking trails and railroad functions. Additional phasing and schedule information will be completed as additional information and details becomes available.
- Support of Excavation work and mass excavation work will require site benching/grading and ramping in order to create access for multiple soil nail drill rigs to drill, install, and grout soil nail walls. Soil nails will be installed in approximate 5' vertical lifts. Grout plants, concrete trucks and pump trucks will be used for grouting and shotcrete operations.
- A Storm Water Pollution Prevention Plan will be established and maintained throughout construction.
- The discharge of pumped ground water shall be done in a manner as according to all required City, State and Federal Permits and approvals

Foundation Construction / Months 7 thru 10 Block 4/Months 10 thru 14 Block 6/Block 5

- Soldier piles and lagging will be installed along the east end of the site. Minipiles and H-piles and rigid inclusions are planned for foundation elements.
- Temporary dewatering will be performed to control site water table until permanent system can be utilized.
- Hoe-Ram and blasting will be required for approximately 5,000 cy of bedrock removal.
- Approximately 70,000 cy of soil will be trucked from the project site for disposal.
- Concrete trucks and pump trucks will be utilized to place building foundations.
- Concrete wash out will be contained on site for disposal.

Superstructure Construction / Months 11 thru 15 Block 4 / Months 21 thru 30 Block 6/Block 5

- Block 4 superstructure consists of a 4 level precast garage structure with four towers of structural steel frame and concrete slabs on deck ranging from 3 to 5 stories above.
- Block 6 superstructure consists of an 8-story structural steel frame and concrete slabs on deck.
- Precast will be delivered to site from offsite staging areas. Precast will also be stored on site. Approximately 25 – 30 pieces are expected to be delivered per day.
- Delivery trucks will follow established delivery routes to the project site.
- Precast erection will be done with crawler type cranes from within the footprint of the site
- Tower cranes will be used for structural steel erection. Tower cranes will be built within the project site. Swing of tower cranes may be required to reach beyond the limits of the project site. Cranes will be erected to heights required to not interfere with surrounding structures.
- Structural steel deliveries will follow established truck routes. Steel will be staged in a laydown area within the site. Daily deliveries will be required.
- The parking lane and sidewalk along Fore Street may be required to safely erect the structural steel and concrete structures along North side (Fore St. elevation) of the site.

Temporary Hoist / Months 15 thru 20 Block 4/ Months 25 thru 30 Block 6/Block 5

- Temporary hoists with loading platforms will be installed within the project site and utilized until permanent service elevators are available for use. Dual man/material hoists with loading platforms will be utilized. It is anticipated that two hoists will be used to service Block 4 and 1 hoist will be used to service block 6.
- Secondary material loading will be utilized from Fore St.

Exterior Envelope Construction / Months 16 thru 23 Block 4 / Months 16 thru 23 Block 6/Block 5

- Block 4 and Block 6 incorporate multiple exterior wall systems and materials. Primarily the exterior wall systems consist of light gauge metal framing, sheathing, air barrier, and a rain screen system of metal panel, masonry, siding and punched windows.
- Access for exterior wall construction will be achieved through the use of conventional staging, mast climbers, and aerial lifts. All work will be performed from within the project site with the exception of work along Fore St that may require the use of the sidewalk and parking lane on for material, equipment, and staging.

Interior MEP and Finishes / Months 18 thru 33 Block 4 / Months 22 thru 37/Block 5

- Interior MEP and Finishes phase will consist of HVAC, electrical distribution and finishes, plumbing distribution and finish systems, fire protection, gypsum wallboard, millwork, flooring, appliance, and specialty work.
- Interior MEP and finish materials will be delivered to project site as needed, offloaded, and stocked on required floors using the site material hoists.
- Off-hour deliveries and hoisting will be required during the project fit out and finish phases.

Site Development / Months 32 thru 36 Block 4/ Months 36 thru 41 Block 6/ Block 5

- The project includes and extensive hardscape and landscape and scope. This work will be weather dependent and need to take place in the May to November months.
- Landscape and hardscape work on Fore St will require use of a parking lane and sidewalk closure for the duration of this work. Input a detailed description of work to take place in this Phase.

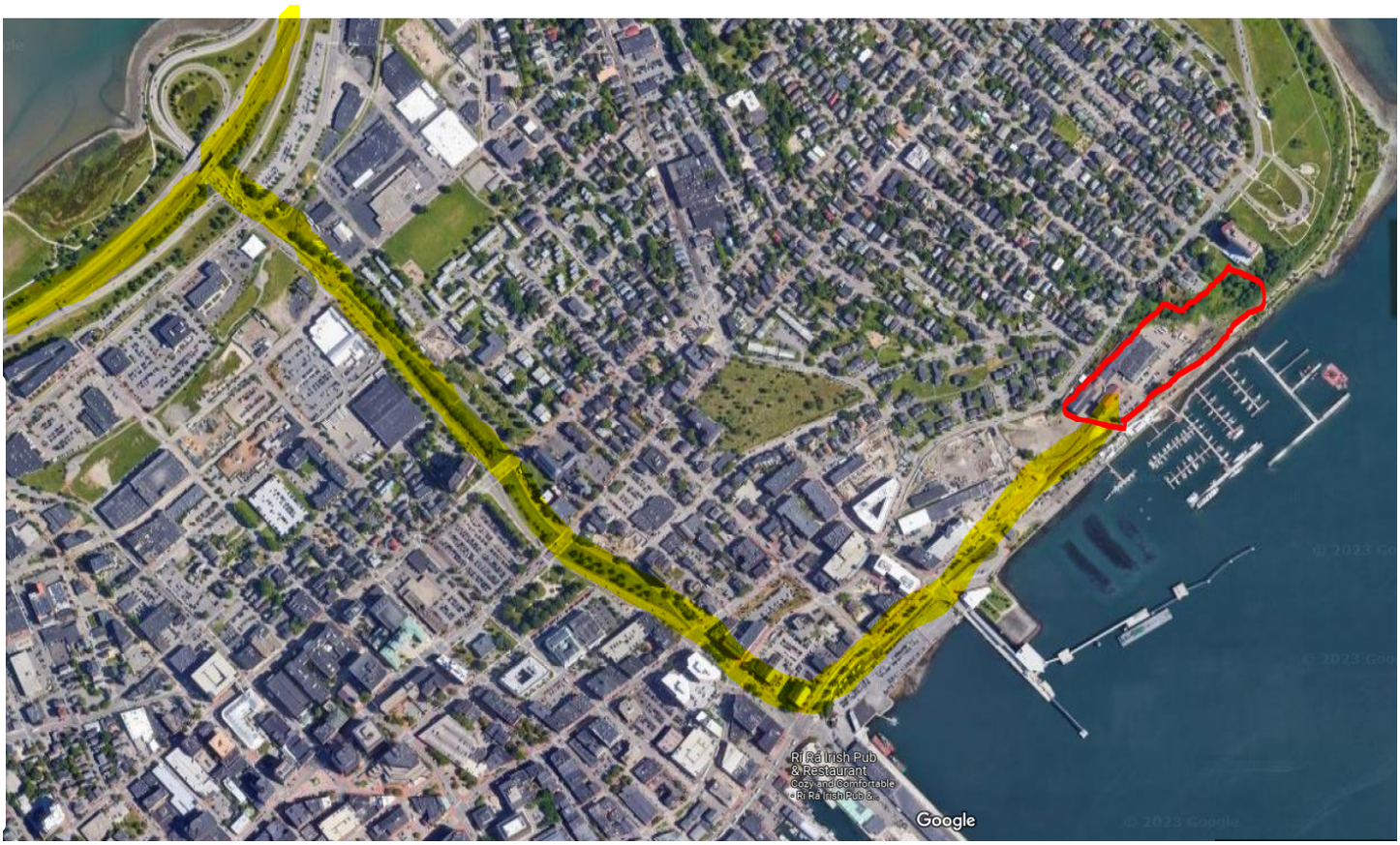
E. Construction Traffic Flow

The delivery routes to the project will be as follows:

- For vehicles traveling North or South on Route 295:
  Take Exit #7 (Franklin Street), continue on Franklin Street to right on Commercial Street, continue on Commercial Street straight on to Thames Street and project entrance at the end of Thames Street.

The exit routes from the project will be as follows:

- For vehicles traveling to Route 295 North or South:
  Exit the site onto Thames Street, continue straight on Commercial Street, take a right onto Franklin Street, continue straight to route 295 north or South.


Ri Ra Irish Pub
& Restaurant
Google

F. Site Construction Fencing, Pedestrian Access. (Refer to site logistics plans for locations)

To allow for safe access to and from the site, the following will be provided:

- Fencing will enclose the site for the duration of the project to protect the public.
- A single entrance/exit gate will be established on the project site during months 1 thru 4.
- After month 4 the existing parking area will be captured into the project site and secondary entrance/exit gate will be established on the project site.
- Temporary public walking paths will be provided during phasing work for Marina seawall, utility work, and relocation work for the Eastern Promenade Trail and the Narrow Gauge Railroad.
- Jersey barriers and fencing will be installed along Fore St. It is anticipated that the jersey barriers and fence line will be extended along Fore St to capture a parking lane and sidewalk during structural steel, exterior façade, and landscape/hardscape work. (Anticipated to be project months 11-36). Temporary crosswalks will be provided to route pedestrians across Fore St during sidewalk closures.
- Signage, cross walks, and access ramps will be provided for sidewalk and pedestrian access temporary closures and detours.

G. Additional Provisions

Along with the proposed fencing locations and trucking routes, this plan includes the following:

- Wheel wash stations will utilized to prevent tracking of debris from the project site
- A mechanical street sweeper shall clean the streets impacted by site operations on an as needed basis.
- Deliveries will be scheduled to avoid rush hour traffic to the greatest extent possible.
- Public safety will be the primary consideration in all the planning and building processes.
- Fire access to the site will be provided on Thames St and/or Fore St. A temporary standpipe will be maintained and located on the side of the building and coordinated with the Portland Fire Department. This location will be marked by a temporary red light.
- Existing fire hydrants will remain accessible during construction and readily visible for PFD personnel in the event of an emergency.
- Construction worker parking on the site will be limited. Public parking garages and lots are located within walking distance to the site. There will be language put in all subcontracts informing subcontractors that parking on site is limited, depicting acceptable employee parking locations, and encouraging use of public transportation to the site.
- The project start time shall be 7:00 AM including any time necessary to allow for equipment warm-up. Workers will gather at their workplace from 6:00 AM to 7:00 AM. Saturday work will be required on a regular basis from 7:00 AM to 6:00 PM. Off-hours and second shift work may be required at different points throughout the project.
- Truck queuing or idling will not be permitted on a roadway under the jurisdiction of the City of Portland prior to 7:00 AM.

- Access to the Fore Points Marina, Narrow Gauge Railroad, and Eastern Promenade trail will be maintained throughout the project.

H. Summary

Turner Construction Company will work the Portland Transportation Department and pertinent City groups to ensure a safe and effective program to protect and coordinate the interest of the neighborhood and the City of Portland.

I. Logistics Plans and Maps

See attached Logistics Plans dated 5/26/23

Submitted by: _____ Date _____
Patrick Carroll, Turner / PGC

Approved by: _____ Date Approved _____
City of Portland Department of Planning and Urban Development Department

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Portland, Maine 04102
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F 207.774.6635

Att. 40

NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #1

PROJECT: Portland Foreside Development Company – Block 4 & Block 6
MEETING DATE: 12/20/2022

LOCATION: East End School, Portland
ISSUED DATE: 4/18/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Shelby Burgau - PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Kelly Walker
Ted Kurtz
Roger Trettel
Denise Preisser
Bonnie Coplon
Peter & Pam Macomber
Gayle Briggs & Joe Sukaskas
Rick & Barbara Reisso
Laura Lee Sanyo
Barbara Vestal
Teresa & Michael Cantara
Pamela Day
Dan Haley
Debby Murray
Robin Whitten
Ned Chester
Mary Rhoads
Brian Ricks
Peter Bass
Rob & Robin Whitten
William Brennan

Total recorded attendance 31. Please note that there were over 45 attendees present, but some elected not to sign in.

In person began at 6:00 p.m.

Project Presentation & Content

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C

- Overview of Blocks 4 and 6 Scope
- Review of proposed architecture for Block 4 and 6, highlighting what has changed since the Master Development Plan

- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question and answer period with attendees. The following topics were discussed:

- Discussion about Block 4 and 6 Building Structure and Architecture
  - Reviewed proposed building architecture further
  - Reviewed proposed building heights
  - Specific discussion of Block 6 height relative to the adjacent Portland House
  - Noted that current number of stories is not planned to change
- Discussion about geotechnical design
  - The design does consider the presence of some marinae clay on the site, but this site is mostly fill soil that will be a good condition for construction
- Discussion about scale and scope of project
  - It was noted that the proposed project is consistent with the City's Eastern Waterfront Master Plan.
  - The project proposes a mix of types of housing, welcoming pedestrian access, and public spaces that will make the area open and welcome to all.
  - The project will have a mix of different price points
  - The project will include both apartments and condominiums
- Discussion about timing and length of construction
  - Concern raised about noise and impact on neighbors
  - Asked for notice about timing and types of construction activities (potentially a website?)
  - Anticipating a start in 2023 with completion in 2025 or 2026
- Discussion about Inclusionary Zoning and residential unit types
  - Planning for Market Rate Apartments on Block 4
  - Block 4 units will provide for 10% units to meet inclusionary zoning
  - Block 6 will pay in lieu fee to meet inclusionary zoning
- Discussion about plans for recently purchased Eastern Promenade property
  - Portion of property incorporated into Block 6
  - Only two buildings on property to be demolished; these two buildings have been determined to be non-contributing structures to the Munjoy Hill Historic District
- Planning to keep remaining buildings as rental units Questions about traffic
  - How is traffic from Franklin Arterial and Commercial Street to be addressed as part of this project?
    - The project has a Traffic Movement Permit with a per-trip fee paid for use by the City to make traffic improvements.
  - Are any other egress points possible?
    - Site study has shown no. Freedom Way is a private street.

- Will there be restrictions on who can use certain site entrances?
    - Not planning on restrictions at this time.
- Questions about parking
    - How will parking be accessed?
        - Access will be from entrances on Fore Street and on Thames Street internal to the site
    - Will condo and apartment owners be provided with parking spaces? Will area businesses be offered space?
        - The final parking assignment approach is being determined by the sales department. Programs are being developed to provide more efficiency in parking on the site, including possible bike and car share programs.
        - Parking will be available for on-site retail workers and shoppers
    - How will EV charging be accessed?
        - There will be multiple levels that will likely include both pay-to-park/charge and valet.
- Questions about electrical utility
    - Will Fore Street lines be placed underground?
        - It was noted that a prior study about placing electrical utility underground and it was decided by City not to complete at this time.
    - Are any more poles or transformers needed?
        - CMP is working on the load study to confirm electrical design. Anticipate that the one entrance completed already into the site is adequate, and all transformers are within the site.
- Questions asked about work outside of current project scope
    - Questions about rail/trail changes
        - The trail and rail lines will be moved over along the whole length of the project area
        - Construction documents are complete, and anticipate construction in late 2023, early 2024
        - The land swap required to complete this work was approved by the City Council
    - Questions about Block 2 Historic Core
        - Attendees inquired about the status of this part of the project
        - Clarified as part of previously permitted Phase 1, construction documents completed, working on some changes
        - PFDC working with Project for Public Spaces on plan for modifications Block 2, and will plan on a public meeting in the future to provide more information
        - Block 2 will include mix of retail, public market space, event space, and office space
    - Questions about Block 5, future work
        - Block 5 to be hotel, condosand retail, to be put forward to City in 2023
        - Height takes into consideration view corridors

List of Plans, Documents or Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4 & 6)
    - Details of each phase including SF, number of units, vehicle parking and bike parking
    - Block 4 & Block 6 master development plan rendering
    - Block 4 & Block 6 current design model/renderings
- Summary of Foreside Development Public Tours

Meeting Close

- The meeting closed at 7:45 and the project team thanked attendees and noted that a second Neighborhood Meeting would follow on January 11, 2023.

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Neighborhood Meeting Sign-In Sheet

Woodard & Curran

DATE: December 20, 2022

RE: Portland Foreside Phase 2 Neighborhood Meeting Sign-In Sheet

---

Dear Neighbors,

Thank you for attending tonight's public Neighborhood Meeting at the East End School for the proposed development of Phase 2 of the Portland Foreside project to be located at 58 Fore Street in Portland, Maine. Please sign in below.

Thank you,

Portland Foreside Project Team

Name	Email
Kelly Walker	kellytwalker47@gmail.com
Ted Kutz	tedk13@roadrunner.com
Roger Trettel	rogertrettel@gmail.com
Denise Preisser	depreisser@hotmail.com
Bonnie Caplan	bcaplan@gmail.com
Peter & Pam Macomber	peter@macomber.com
GAYLE BRIGGS + JOE SULLIVAN	GJ2017@maine.rr.com
Rick and Barbara Russo	45 Eastern Promenade
Laura Lee Sawyer	Sunsetsuite42@gmail.com 42 North St.

Woodard & Curran

Name	Email
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TERESA & MICHAEL CANTARA	45EP8C@GMAIL.COM
Pamela Day	pday2304@gmail.com
DAN HALEY	Daniel.T.Haley@gmail.com
Debby Murray	debbym@gwi.net
Robin Whitten	robin@audiofilemagazine.com

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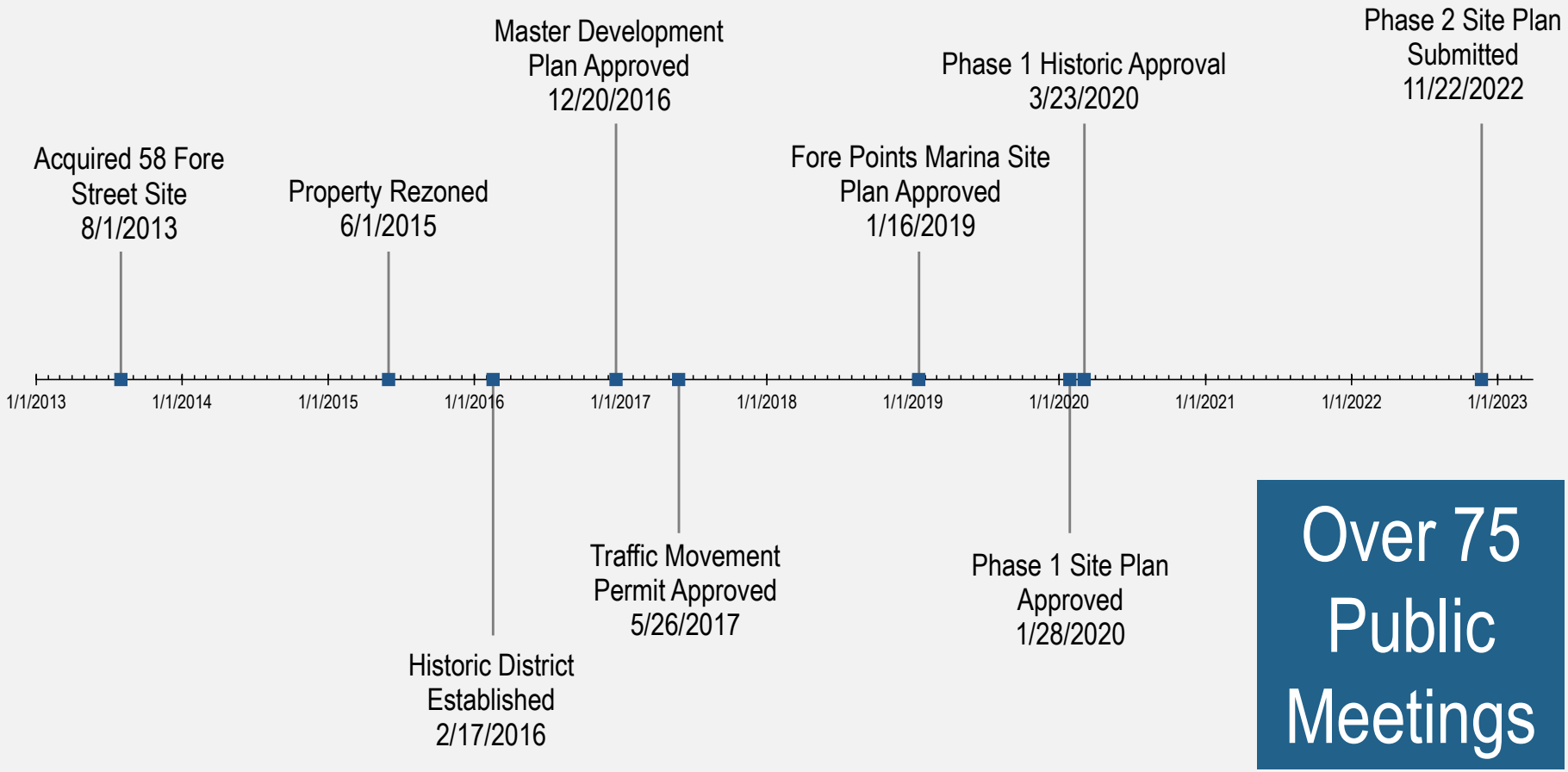
Name	Email
Neil Chester	Chesterc chesterand vestal.com
Mary Rhoads	rhoadsmg@gmail.com
Brian Ricks	brian.ricks@gmail.com
KATHLEEN BENDER	kabendr@icloud.com
PETER BASS	
of ROBIN ROB WHITTEN	ROB@WHITTENARCHITECTS.COM
William Brennan	WilliamBrennan207@GMAIL.COM

Portland Foreside Development Company

Phase 2 – Blocks 4 & 6 – Neighborhood Meeting – December 20, 2022 & January 11, 2023



PORTLAND FORESIDE PERMITTING TIMELINE



Over 75 Public Meetings

MASTER DEVELOPMENT PLAN



MASTER DEVELOPMENT PLAN



COMPLETED TO DATE



FORE POINTS MARINA



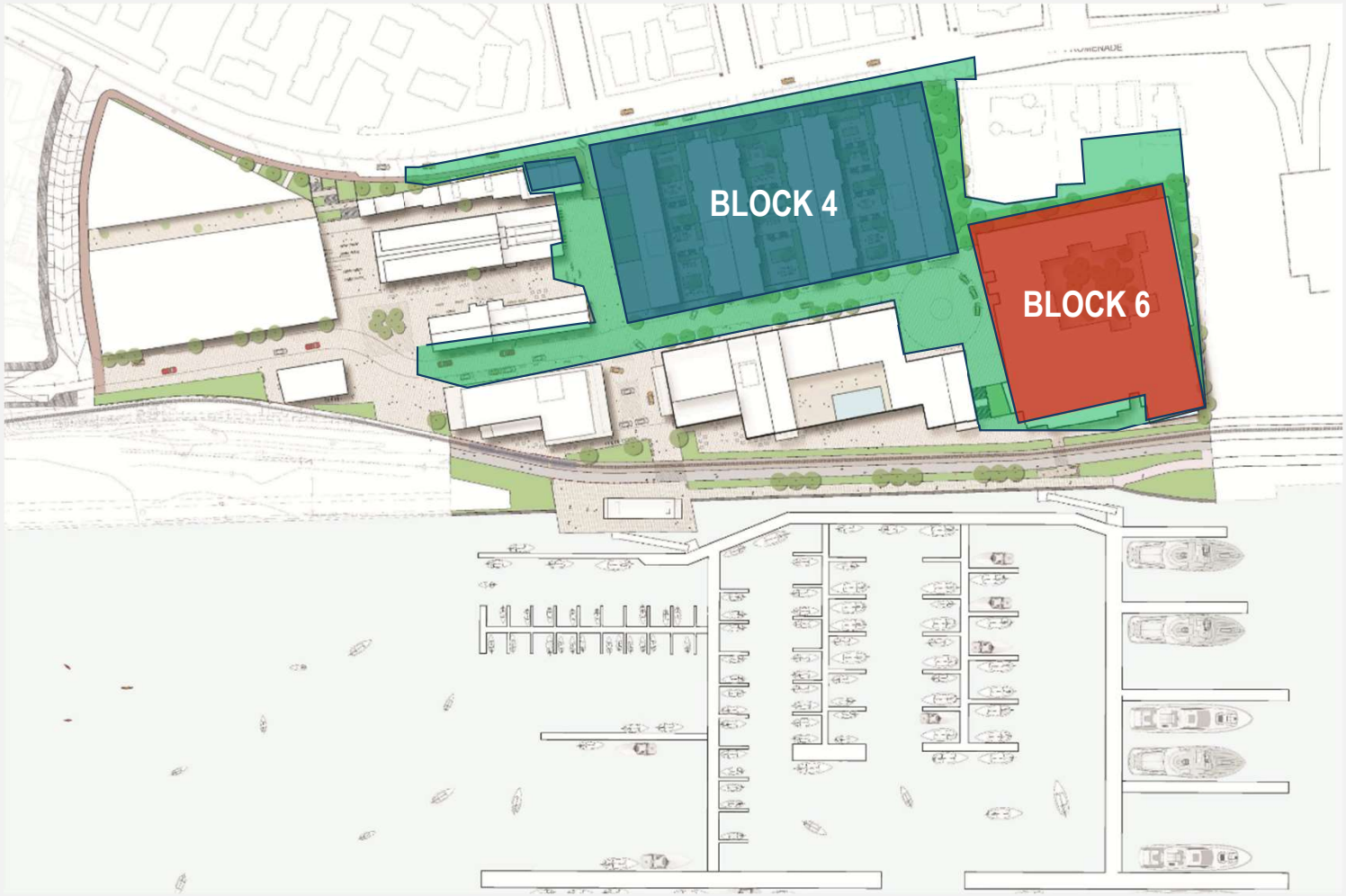
PHASE 1 – SUN LIFE BUILDING AND BUILDING 12



PHASE 1 – FORE STREET STAIR PUBLIC ACCESS



PHASE 2 – BLOCKS 4 AND 6



PHASE 2

Use	Proposed Block 4	Proposed Block 6
Residential	211,180 SF 225 Apartments 22 Townhomes	196,660 SF 154 Condos
Retail, Service, Restaurant	11,950 SF	9,108 SF
Vehicle Parking	202,670 SF 454 spaces	86,068 SF 242 spaces
Bicycle Parking	100 Internal 20 External	70 Internal 12 External

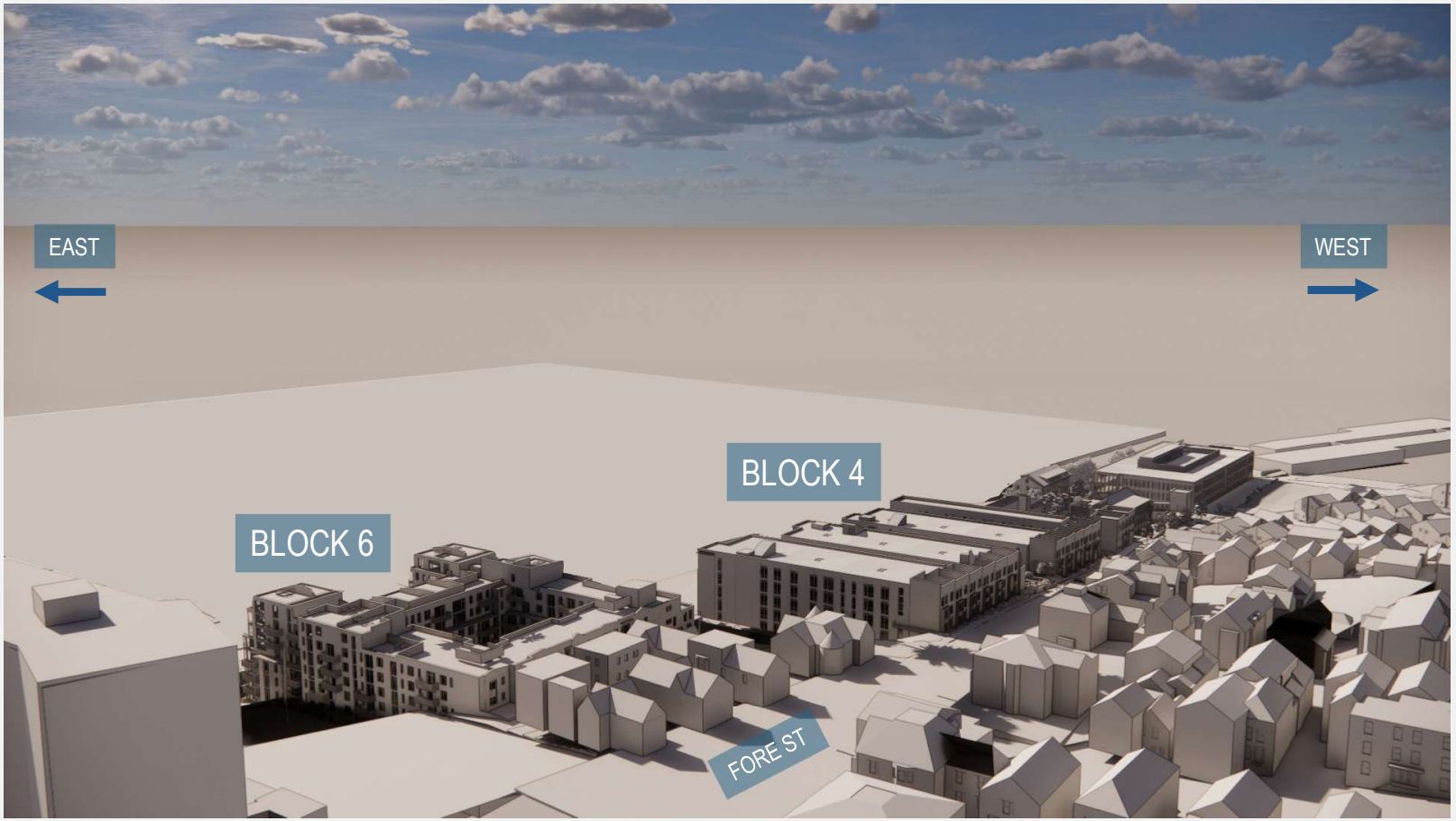
PHASE 2 - MASTER DEVELOPMENT PLAN



PHASE 2 – CURRENT DESIGN



PHASE 2 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – MASTER DEVELOPMENT PLAN



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 6



BLOCK 6 – MASTER DEVELOPMENT PLAN



BLOCK 6 – CURRENT DESIGN



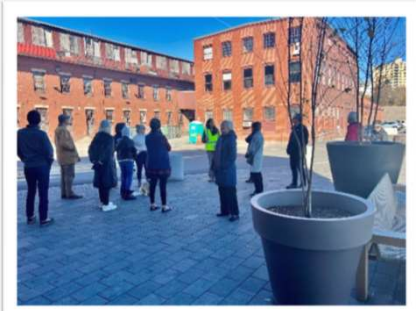
BLOCK 6



BLOCK 6 – CURRENT DESIGN



PORTLAND FORESIDE PUBLIC TOURS



- Informative Public Walking Tours Available
  - Started in September 2022
  - Continuing Wednesdays 11:30am to 12:30pm
- Please contact Sarah Hach to register/attend a tour in the New Year | Sarah.Hach@prenticeorg.com










58
FORE
ST.
THE
PORTLAND
COMPANY
MARINE COMPLEX
THANK YOU!
FORESIDE
DEVELOPMENT
Woodard & Curran

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NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #2

PROJECT: Portland Foreside Development Company – Block 4 & Block 6
MEETING DATE: 1/11/2023

LOCATION: East End School, Portland
ISSUED DATE: 4/18/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Roger Trettel
Terry & Susan Ingalls
Pam & Peter Macomber
Elena Schmidt
Berry Manter
Carol McCracken
Mark MacLeod & Roberta DeDonto
Kelly Walker
Heather Abt
Alex Kapplman
Joe Lewis

Total recorded attendance 18. Please note that there were over 30 attendees present, but some elected not to sign in.

In person meeting began at 6:00 p.m.

Project Presentation

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C
  - Overview of Blocks 4 and 6 Scope
  - Review of proposed architecture for Block 4 and 6, highlighting what has changed since the Master Development Plan
- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question and answer period with attendees. The following topics were discussed:

- Discussion about Block 4 and 6 Building Structure and Architecture
    - Reviewed proposed building architecture further
    - Reviewed proposed building heights
    - Specific discussion of Block 6 height relative to the adjacent Portland House and relative to the north elevation
    - Discussion on view corridors
- Questions about electrical utility
    - Will Fore Street lines be placed underground?
        - It was noted that a prior study about placing electrical utility underground and it was decided by City not to complete at this time.
    - Fore Street renderings will be updated to show electrical utility
    - The public questioned why Portland Foreside was not replacing these powerlines and why they were not shown on any renderings.
- Discussion about timing and length of construction
    - Concern raised about noise and impact on neighbors and parking during construction
    - Asked for notice about timing and types of construction activities
    - Planning for neighborhood engagement
    - Anticipating a start in 2023 with completion in 2026
- Discuss plans for renewable energy, sustainability, and resiliency
    - A summary of these aspects of the project was communicated
- Discussion about Inclusionary Zoning and residential unit types
    - Planning for Market Rate Apartments on Block 4
    - Block 4 units will provide for 10% units to meet inclusionary zoning
    - Block 6 will pay in lieu fee to meet inclusionary zoning
- Questions about geotechnical design & site soils
    - Is any pile driving planned?
        - Anticipating some will be necessary
    - Will the existing soil pile remain?
        - Large soil pile on site now will be removed as part of upcoming work.
- Questions about permitting
    - Is any Federal permitting required?
        - None specifically anticipated for these Blocks
- Discussions on site operations
    - Site darkness and security
        - Photometrics is being evaluated
        - Site security will be addressed
    - Who will be in charge of clearing sidewalks?
        - A plan will be developed for the long term maintenance of the site.
    - Will there be amenities on site for children?
        - The intent is for varied facilities, but final plan for all amenities not yet determined.

List of Plans, Documents or Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4 & 6)
    - Details of each phase including SF, number of units, vehicle parking and bike parking
    - Block 4 & Block 6 master development plan rendering
    - Block 4 & Block 6 current design model/renderings
- Summary of Foreside Development Public Tours

Meeting Close

- The meeting closed at 7:45 and the project team thanked attendees.

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www.woodardcurran.com

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T 207.774.2112
F 207.774.6635

Neighborhood Meeting Sign-In Sheet

Woodard & Curran

DATE: January 11, 2023

RE: Portland Foreside Phase 2 Neighborhood Meeting Sign-In Sheet

Dear Neighbors,

Thank you for attending tonight's public Neighborhood Meeting at the East End School for the proposed development of Phase 2 of the Portland Foreside project to be located at 58 Fore Street in Portland, Maine. Please sign in below.

Thank you,

Portland Foreside Project Team

Name	Email
Roger Trottel	rogertrottel@gmail.com
Terry & Susan Ingalls	singalls@maine.rr.com ingalls3@maine.rr.com
Pam + Pete Macomber	pam@macomber.com
Elena Schmidt	eschmidtme@outlook.com

Woodard & Curran

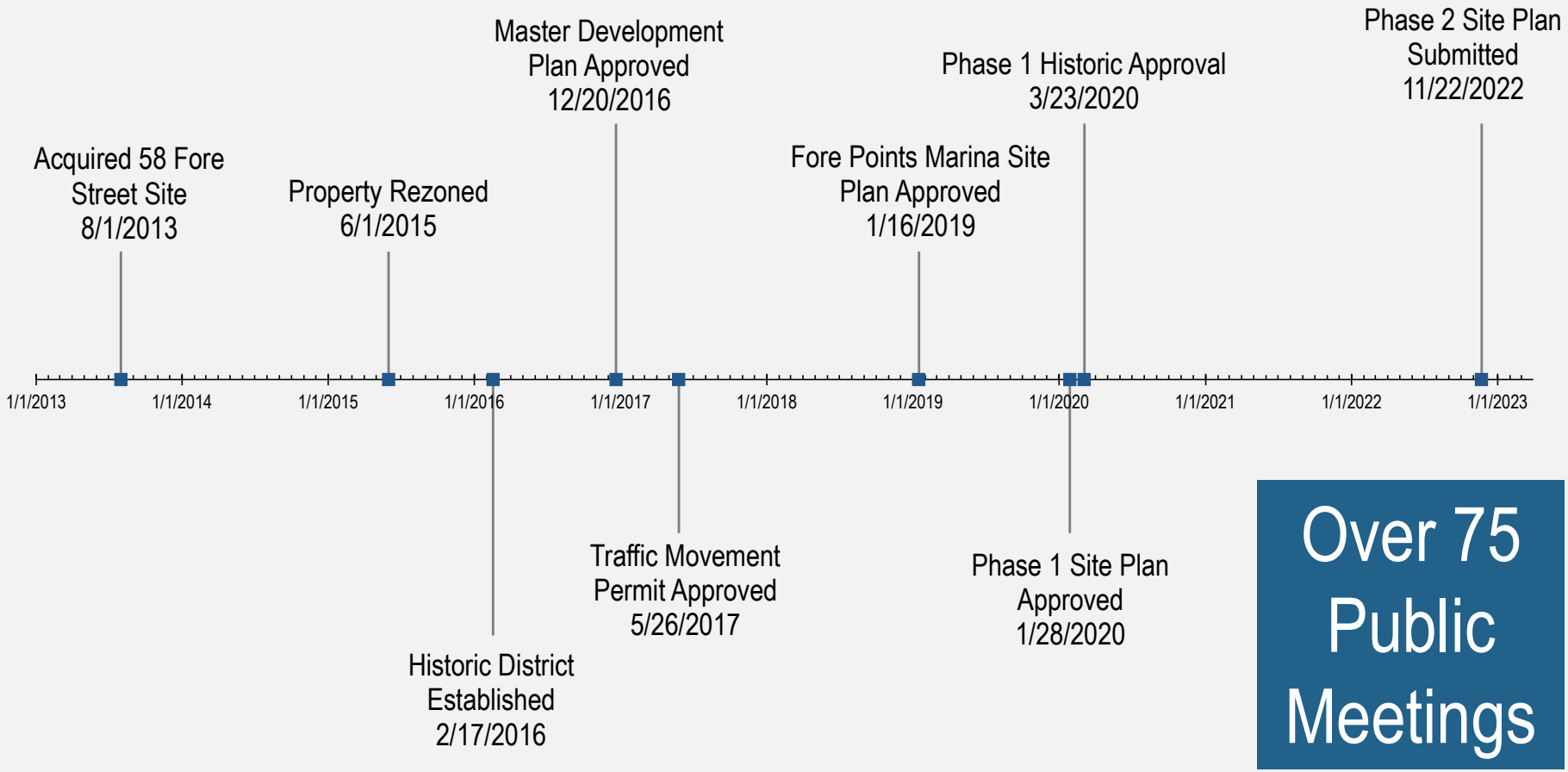
Name	Email
Barry Manter	
Carol McCracken	carlockencaol.com
Mark Macleod + Roberta DeMonte	mark_k_macleod@yahoo.com
Kelly Walker	kellytwalker47@gmail.ca
Heather Abt	Eclipsesglimpsed@gmail.com
Alex Kappelman	alex@shorelineagents.com
Joe Lewis	joe@portcitylegal.ca

Portland Foreside Development Company

Phase 2 – Blocks 4 & 6 – Neighborhood Meeting – December 20, 2022 & January 11, 2023



PORTLAND FORESIDE PERMITTING TIMELINE



Over 75 Public Meetings

MASTER DEVELOPMENT PLAN



MASTER DEVELOPMENT PLAN



COMPLETED TO DATE



FORE POINTS MARINA



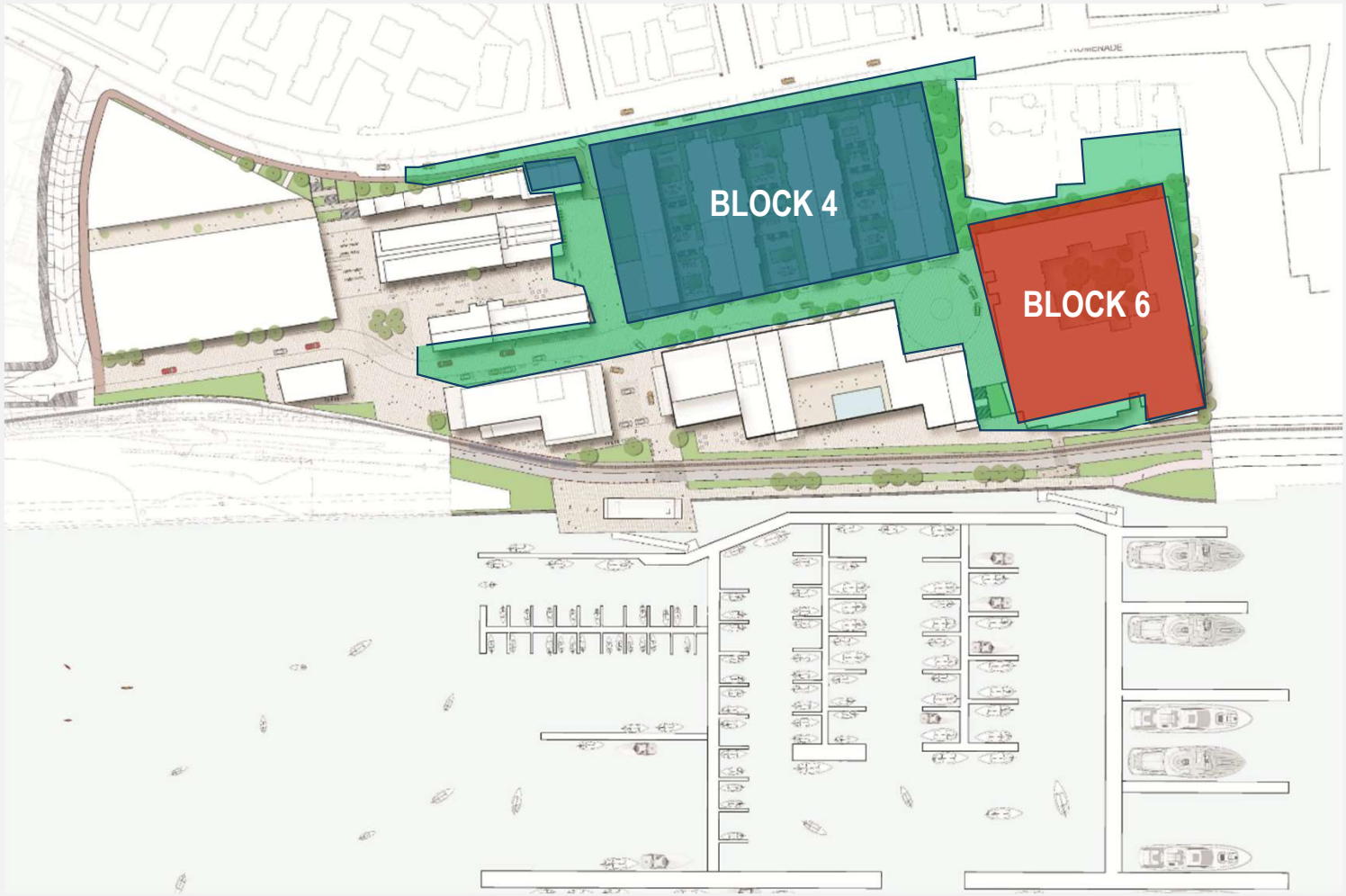
PHASE 1 – SUN LIFE BUILDING AND BUILDING 12



PHASE 1 – FORE STREET STAIR PUBLIC ACCESS



PHASE 2 – BLOCKS 4 AND 6



PHASE 2

Use	Proposed Block 4	Proposed Block 6
Residential	211,180 SF 225 Apartments 22 Townhomes	196,660 SF 154 Condos
Retail, Service, Restaurant	11,950 SF	9,108 SF
Vehicle Parking	202,670 SF 454 spaces	86,068 SF 242 spaces
Bicycle Parking	100 Internal 20 External	70 Internal 12 External

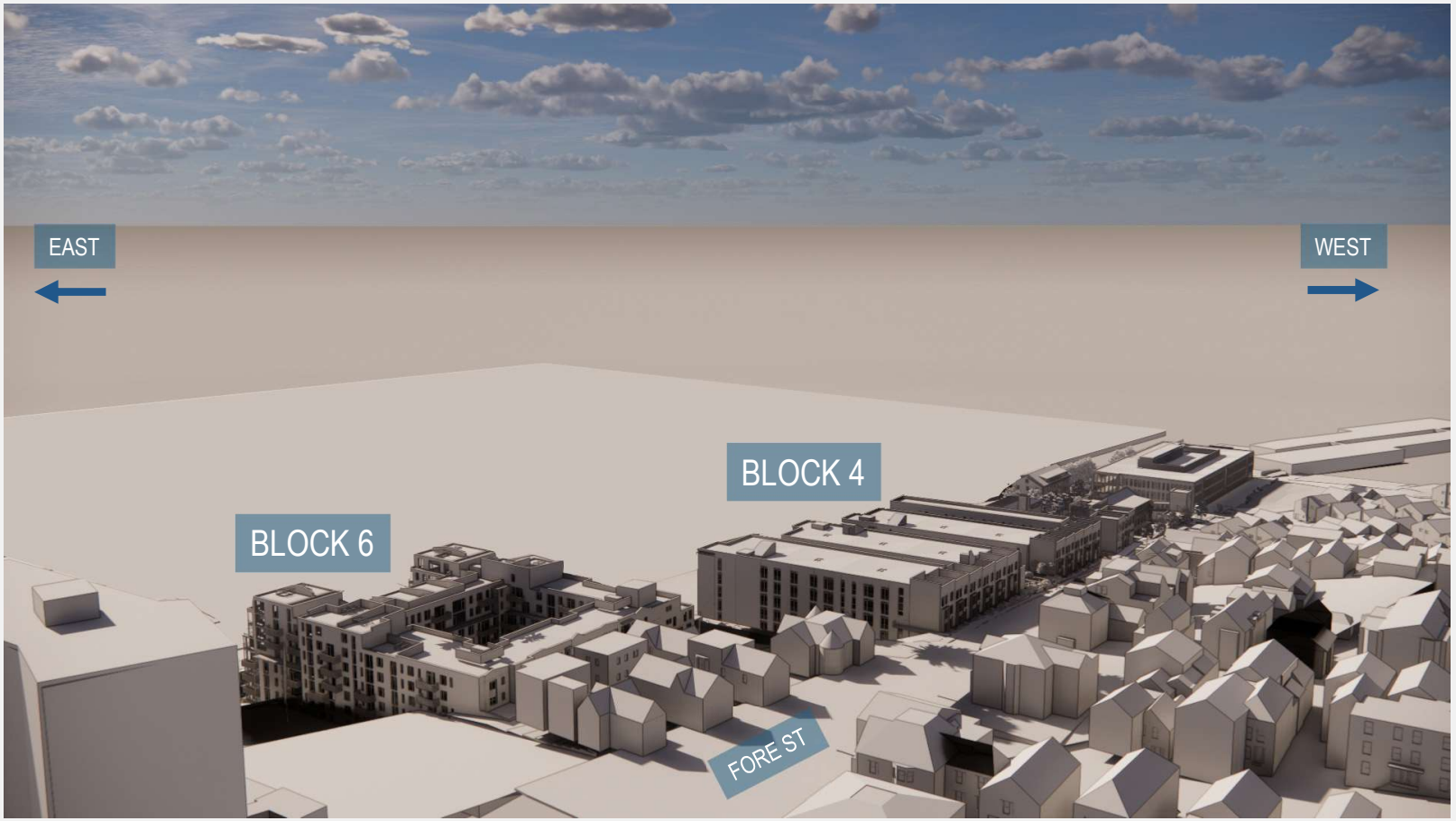
PHASE 2 - MASTER DEVELOPMENT PLAN



PHASE 2 – CURRENT DESIGN



PHASE 2 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – MASTER DEVELOPMENT PLAN



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 4



BLOCK 4 – CURRENT DESIGN



BLOCK 6



BLOCK 6 – MASTER DEVELOPMENT PLAN



BLOCK 6 – CURRENT DESIGN



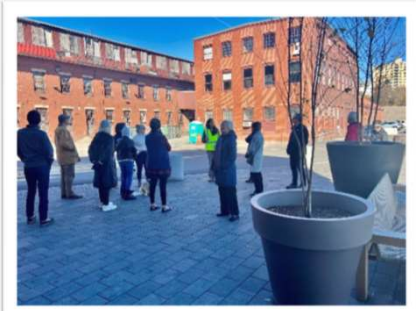
BLOCK 6



BLOCK 6 – CURRENT DESIGN



PORTLAND FORESIDE PUBLIC TOURS



- Informative Public Walking Tours Available
  - Started in September 2022
  - Continuing Wednesdays 11:30am to 12:30pm
- Please contact Sarah Hach to register/attend a tour in the New Year | Sarah.Hach@prenticeorg.com










58
FORE
ST.
THE
PORTLAND
COMPANY
MARINE COMPLEX
THANK YOU!
FORESIDE
DEVELOPMENT
Woodard & Curran

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Portland, Maine 04102
www.woodardcurran.com

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NEIGHBORHOOD MEETING MINUTES

Portland Foreside Development Company – Neighborhood Meeting #3

PROJECT: Portland Foreside Development Company – Block, 5
MEETING DATE: 5/2/2023

LOCATION: East End School, Portland
ISSUED DATE: 5/26/2023

ATTENDEES:

Presenters/Representatives
David Senus – PFDC
Mary McCrann – PFDC
Darrin Stairs – Woodard & Curran (W&C)
Lauren Swett – Woodard & Curran (W&C)

Public
Michael Cantara
Teresa Cantara
Tica Douglas
Maggy Wolf
Ron Welton
Roberta DeDonato
Mark MacLeod
Paul Allen
Kelly Walker
Sandi Knakal
Charles Grimes
Paul & Jen Flaxman
Karen Snyder
Ted Kurtz
Barbara Vestal
Nathan Szanton
Roger Trettel
Talce McNally
Pamela Day
Michael Petit

In person meeting began at 6:00 p.m.

Project Presentation

- Welcome and Introductions provided by Darrin Stairs, W&C
- Project Background presentation provided by David Senus, PFDC
  - Prior permitting timeline
  - Master Development Plan
  - Work Completed to Date - Marina, Phase 1
- Proposed Phase 2 presentation provided by Darrin Stairs, W&C
  - Overview of Blocks 4, 5 and 6 Scope
  - Review of proposed architecture for Block 5 highlighting what has changed since the Master Development Plan

- Information provided on available public tours on the site, presented by Mary McCrann, PFDC

Record of Feedback

Following the project presentation, there was a question-and-answer period with attendees. The following topics were discussed:

- Will Blocks 4, 5, and 6 be constructed in parallel?
  - The building will be built as one structure with an anticipated start in fall 2023, continuing through 2026.
  - Block 4 garage is likely to come online one year before completion of remainder of work.
- Questions about access through site to the waterfront, and if the hotel will block access.
  - Access routes will be available through the site.
- What construction materials will be used?
  - Garage is precast concrete with other parts of construction in steel, composite, concrete, wood, and varied architectural façade materials.
- When does the Phase 1 Sun Life Building come online?
  - The exterior construction is complete, a portion of the interior is complete, and Portland Foreside is operating in the office, and the remaining Sun Life portion of the building is expected to be online later in May.
- How will traffic enter the site and how will traffic be mitigated through the neighborhood? There is concern that the project doesn't consider new developments since the prior approvals.
  - Evaluated at Master Plan through the Traffic Movement Permit, and traffic studies are completed with each Block to show how the proposed work falls within the original planned traffic study.
  - The design included traffic modeling throughout the neighborhood from Franklin Arterial.
- Who is the Planner?
  - Charles Tetelman
- How will Sun Life parking be managed?
  - Some parking was constructed in the Block 1 building and there will also be temporary surface parking to support Sun Life until the Block 4 garage is open.
- Throughout the meeting a handful of common questions were asked about building heights
  - Concerns raised on impact to neighborhood, looking for more details on height and renderings with neighborhood views.
  - What is the height of Block 6 relative to the Eastern Promenade?
  - What is the height and how is it justified in this zone? Why isn't height calculated from the foundation?
    - The height is calculated based on average grade calculations per zoning requirements.
  - Concern about boats blocking view corridors
    - Neighbors requested renderings of view corridors from multiple viewpoints including what will be seen from Munjoy Hill.
  - Is the grade in the view corridors at Fore Street or lower?

        - In view corridors, building height is held at or below the Fore Street grade.
        - Neighbors want an interpretation about what can/can't be in a view corridor.
    - Will mechanical systems and landscape elements intrude in the view corridors?
        - Not planning for mechanical systems in view corridors and will check on the landscaping.
- How does electrical service enter the site? Are there any transformers being added to the poles on Fore Street?
    - There is a drop pole on Fore Street that was installed during Phase 1. Electrical service enters the site underground from that location.
    - No new transformers are to be added on Fore Street. There will only be some pole/line upgrades.
- Will there be light/noise impact to the Portland House?
    - Not anticipating significant impact. Much of the site is lower than Portland House, and the area closest to Portland House is residential and will not result in much noise or light impact.
- Are there pre-sales, and what are the prices? Who is the agent?
    - The PFDC representative is Lauren Salzer.
- An easement is requested from Portland House for the soil nail wall construction method. If not received, what is the alternative?
    - If a soil nail wall cannot be constructed, the building's wall design will be used to support the adjacent grade.
- Where is access to parking?
    - Access from Thames Street in the site and from Fore Street entrances to Block 4 garage.
- What is the parking plinth, and where is it relative to Thames Street?
    - The parking plinth is a single level of parking across Blocks 4, 5, and 6, and is located with access from Thames Street.
- Is there a Phase 3 planned?
    - The next phase will be Block 3 or Block 1B, but there is not a specific timeframe.
- When will renovation of the historic buildings be completed.
    - Working on the Public Market for Block 2 and are planning for a Building Permit application in fall of 2023 with construction happening in the winter.
- There was a request for a 3D model and/or a fly through movie of the site.

List of Plans & Drawings Shared

The following information was shared via the PowerPoint presentation given at the meeting:

- Permitting timeline
- Master Development Plan & Rendering
- Work completed to date including Fore Points Marina
- Phase 1 work completed to date (Sun Life, Building 12, Infrastructure, Public Stair Access)
- Phase 2 (Block 4, 5 & 6)

- Details of each phase including SF, number of units, vehicle parking and bike parking
- Block 5 master development plan rendering
- Block 5 current design model/renderings

Meeting Close

- The meeting closed at 7:30 and the project team thanked attendees.

jt2 portland me <joantwin2jean@gmail.com> Dec 8, 2022, 6:22:04 PM (16 hours ago)

to planningboard@portlandmaine.gov

Oh my fing god! Not more people on the prom! 700 parking spaces and fing expensive 401 condos. We have had enough! Stop it! It's bad enough you ruined 218 Washington ave with an ugly condo box. I am a senior citizen who lived at eastern prom for 30 years. You have ruined it with developers! Greedy fing bastards.

Denise Preisser <depreisser@hotmail.com> Dec 10, 2022, 9:36:22 AM (yesterday)
to planningboard@portlandmaine.gov

Greetings,
I received a card in the mail in regards to site plan submission. I am very concerned about a wall of buildings between Waterville and St. Lawrence and St. Lawrence and Atlantic.

The original design had 5 view corridors for walkers to enjoy up and down Fore Street. The new design on the white model has built a wall of dwellings with only 3 openings at the street intersections. I do think the design would be more neighborhood walking friendly for Munjoy Hill residents and visitors of the original plan of 5 openings was used, in addition to, create some mini park outcrops with benches tucked in on the Fore Street hill for pedestrians to have a relaxing view spot.

I am also concerned with that wall of dwellings causing a lack of sunlight hours on Fore Street in winter. Very steep hill and sunlight does wonders melting snow. The street with those dwellings would lose 2 hours of morning sunlight in winter.
I hope you continue to work on creating a nice Munjoy Hill neighborhood vibe, rather than a wall between the neighborhood and water. The original design, created space rather than Building the Wall.
Best Regards,
Denise Preisser

FORESIDE/





Susan Green' via Planning Board
to planningboard, Susan

Hello:

I am a resident of The Portland House at 45 Eastern Promenade in Portland and am very interested in the proposed development of the parcel immediately adjacent to our property on the Old Port side.

I tried to find more information using the plan number referenced above, however, was unable to locate any summary or drawings of the proposal on the Citizen's Self Service Portal.

We are particularly interested in seeing elevations of the the new proposed condominium development adjacent to The Portland House. What would be helpful is an elevation showing how tall the new condominium will be in relation to the Portland House, including any structures to be located on the roof, such as antennas, HVAC structures, elevator vestibules, etc. We are very concerned about the views from our building, which has been there since about 1969, being blocked by the new condominium. That would destroy the property values of the units that lose their views.

Hoping someone in your department can help by forwarding the requested elevations and also floor plans. If the developer has not provided such elevations, they must be required to do so.

Thank you very much for any help you can provide.

Best regards,

Susan Green

45 Eastern Promenade
Apt. 6FG
Portland, ME 04101

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

December 28, 2022

Via Email:
Portland Planning Board
Maggie Stanley, Chair
C/O Kevin Kraft, Deputy Director
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
kkraft@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

This firm represents John Roger Trettel, the owner of property located at 5 Eastern Promenade, and a direct abutter to the 58 Fore Street Master Development Plan project. Mr. Trettel objects to the recent Portland Foreside Development Company application ("Application") for the mixed use of Blocks 4 and 6 for multiple inconsistencies with the City of Portland code. While we represent Mr. Trettel only in this matter, be advised that the undersigned has heard from others in the community who express similar concerns. In the interest of brevity, this letter focuses on several of the more egregious inconsistencies, each of which are grounds for termination of Planning review, as presented below.

I. The Master Development Plan Approval Has Expired.

First and foremost, there is at present no valid Master Development Plan ("MDP") approval for 58 Fore Street and any current applications must therefore be reviewed as non-MDP related Major Site Plan developments pursuant to the 2022 Land Use Ordinance.

On December 20, 2016, the Portland Planning Board granted approval of a Master Development Plan for a mixed-use development on approximately 10 acres of land at 58 Fore Street. As an integral part of that approval, Standard Conditions of Approval & Requirements, Section 3, "Master Development Plan Expiration" states that:

> An approved master development plan shall expire six (6) years from the date of approval unless, prior to the expiration of the master development plan, a written

> request for an extension is submitted to the Planning Authority. Only two (2) such extensions may be granted by the Planning Authority, and each such extension shall be limited to two (2) years from the date of expiration of the master development plan. The Planning Authority may grant an extension provided there have not been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval. The Planning Authority may condition the extension on an amendment of the master development plan to comply with such applicable ordinance or site plan standard changes per section *14-532(d)* of the city's land use ordinance. Approved major or minor amendments to a master development plan do not alter the expiration date for the master development plan.

The Section 3 MDP Condition language is also found in Section 14-532(d) of the Portland Land Use Ordinance, Expiration of Master Development Plan, effective on the date of the 2016 MDP approval.

There is no evidence that the applicant has ever submitted a written request for any extension to the 2016 MDP, and furthermore no evidence that the Planning Authority has ever made a determination in response to such a request that there have been no substantial changes to the underlying zoning or site plan standards (which would include, at a minimum the City's recent Inclusionary Zoning requirements). As such, that approval has now expired and there can be no further reviews undertaken or permits issued under the terms or conditions of that 2016 MDP approval. Any further site plan approvals must be subject to the Major Site Plan standards and requirements as found in the 2022 Land Use Ordinance.

II. The Proposed Development is Outside of the Master Development Plan Boundary.

The proposed site plan for Block 6 includes portions of three parcels of land, identified as 13-23 Eastern Promenade, which were purchased by the developer on December 28, 2021, a full 5 years after the MDP was approved and potentially adding up to 33,323 square feet to the project. Furthermore, these appended properties are not located in the B-6 zone, but rather in the R-6 zone and in the Munjoy Hill Neighborhood Conservation Overlay District and therefore subject to different and enhanced ordinance standards and regulations.

The 2016 Land Use Ordinance only provides a methodology for the Planning Authority to permit *minor* amendments to still effective Master Development Plans, and then only upon written application and explanation of the changes by the applicant. (14-532(b)(1)(a)). A minor amendment is defined as one that is generally consistent with the approved MDP layout of buildings, circulation infrastructure, and open spaces and: (i) does not propose a new general type of use: (ii) does not increase building ground coverage, floor area ratio or residential density; (iii) does not decrease any specified area regulations or enumerated parking rations; and (iv) does not

substantially change access, circulation, or infrastructure adjacent to the site. The application does not describe a minor amendment.

Neither the 2016 Land Use Ordinance, nor the 2016 MDP, provide *any* avenue for a major, substantive amendment to an MDP (such as expansion of the boundaries of the original MDP by the addition of new land located in a different zone); if permitted, presumably it would require a complete application, public hearings and Planning Board approval. Furthermore, any such consideration of a major amendment to expand the previously approved land area of a MDP must be in compliance with current zoning standards and requirements.

III. The Proposed Development Exceeds Height Restrictions on Numerous Grounds

The proposed site plan does not comply with height restrictions on numerous, interrelated and various grounds. The Code defines "height" as the "vertical measurement from grade" to the highest point of the roof or structure.[1] "Grade" is not defined, although throughout the Code, there are multiple indications that creative design and use of topography is not a permissible end run around height regulations.[2] There is nothing in the Code that codifies "average development grade" as the lawful beginning point for measuring height.[3]

No final building plans were submitted or approved as part of the MDP in 2016, and the Planning Board's review and approvals were clear that compliance with applicable height standards for the B-6 Overlay would be undertaken on an individual, envelope-by-envelope basis at the time of the final site plan application.

The B-6 Building Height Overlay imposes height restrictions of 45 feet, with extensions up to 55 or 65 feet (as in another 10 or 20 feet) across the distinct building envelope areas. The B-6 Height Overlay prohibits buildings that exceed 65 feet in height. As depicted in the Master Plan renderings, "grade" of the site (in particular development Blocks 4, 5, and 6) show the existing grade as at or around approximately 12' above sea level, with sharp increases in topography closer and up to Fore Street. The Portland Company property has long existed as a developed site and there is a defined existing, developed grade.[4] At a minimum, it is from the existing site grade that

[1] This definition is more or less consistent in the 2014 City Land Use Code (as amended 2016) and the current 2022 Code.

[2] For example, the definition of "story" states in relevant part, "A basement shall be counted as a story for the purpose of height measurement where more than one-half of its height is above the average level of the adjoining ground." Portland, Me. Code, Sec. 14-47 (2016).

[3] Assuming that the Code effective in 2016 applies, there are only a handful of references therein to "average grade," none of which apply to the B-6 Height Overlay. This strongly suggests that the drafters of the Code did not intend for "average grade" to control in analyzing the B-6 Height Overlay.

[4] The unique topography of the Eastern Prom in this area, with 88' of topography change from the shore up to Fore Street, has long been a known consideration of City planning and policy. *See, e.g.*, Design

the B-6 Overlay for height must be calculated. These are the existing conditions; the applicant (as explained further below) cannot manipulate the earth or the numbers in a manner that would render height restrictions meaningless. The proposed plans submitted depicted buildings that stand up to 115 feet, more than double the 45' height restriction (and well beyond the contemplated extensions), well beyond and clearly contrary to the height restrictions for the B-6 Overlay.

Ordinances must be interpreted with common sense to avoid absurd or inconsistent results. *See Fryeburg Tr. v. Town of Fryeburg*, 2016 ME 174, ¶ 9, 151 A.3d 933 ("[W]e may reject any construction [of an ordinance] that . . . creates absurd, illogical, unreasonable, inconsistent, or anomalous results if an alternative interpretation avoids such results." (citation and quotation marks omitted)). A Planning Board interpretation of the height restrictions and calculations that would permit buildings standing 110' in a zone where buildings over 65' are prohibited is an absurd and unreasonable result.

The City cannot allow a methodology for defining "grade" and measuring heights that renders height restrictions meaningless. Moreover, the Planning Board has no authority to amend the height restrictions through manipulation of the grade calculation in an adjudicatory role; the substantive determination for height standards and restrictions has been made by the legislative authority and can only be changed by the legislative arm of City government, the City Council.

A. The use of the "pedestal" or "podium" parking garage to elevate the development is a creative, but unlawful, end run around the clear intent of the B-6 Overlay to restrict heights and contain each building/structure within defined envelopes.

To maximize purported "average grade" of the site, the developer proposes a massive parking structure that straddles a significant footprint of the site. The parking structure is presented as a "pedestal" or "podium" parking garage that spans across multiple building envelopes as depicted on the B-6 Overlay map. This is contrary to the B-6 Overlay, which requires that each proposed building stay within each of the contemplated building envelopes. This makes sense because the height restrictions are keyed to the building envelopes, which vary across portions of the site. The proposal then assumes that the constructed garage structure will constitute one structure that already has a height of 50.1', which is then proposed as the starting point for calculating building height. This method uses purported "grade" (which is really the height of the garage structure) as a springboard to launch the heights of the buildings over 100 feet where the height restrictions would call for buildings half as tall. This is clearly contrary to the letter and intent of the Code and the B-6 Overlay.

Guidelines, Master Plan for Redevelopment of the Eastern Waterfront. The site's topography has never been considered a means to artificially remold the promenade and peninsula to suit developer ambitions contrary to height restrictions.

B. The assumed average grade of the site of ~50 feet is wrong.

The City and applicant has calculated average grade for Blocks 4, 5, and 6 at 50.1 feet. "Average finished grade" is not a lawful land use standard and is contrary to industry standards for professionals. This assumption is using a simplistic, misleading, and flawed methodology that would not be used by a licensed professional engineer or land surveyor for determining cut and fill calculations and ultimate finished grade of a building site. Even taking the unlawful "average finished grade" as an appropriate legal or professional standard for purposes of argument, the calculation of 50.1 is wrong. In fact, average elevation across the area calculates to around 36 feet, even if consolidating the grade outside the defined building envelopes rather than analyzing each building/structure as required by the Code and B-6 Overlay.

C. The Master Development Plan is inconsistent with the City's Comprehensive Plan and Other Binding Regulatory Documents

Even if the Master Development Plan approval had not expired, and the methodology for calculating grade and height is somehow lawful and preserved by the 2016 approvals, those approvals are void and invalid for inconsistency with the City's Comprehensive Plan, in particular the Eastern Waterfront Master Plan, the Eastern Waterfront Building Height Study, which called for height calculations to be measured from 2' above floodplain, not developed grade, and specifically limited the number of stories and elevations of structure to not exceed the grade of Fore Street.[5] The proposal is also not consistent with the Portland Company Historic District, for among other reasons, the proposed buildings and structures would obscure views various perspectives, including from the water, looking back towards the peninsula. The massive heights of the buildings would also obscure views to and from the Munjoy Hill Historic District. On the face of the application and plans, the proposed structures are inconsistent with the letter and intent of the Master Plan, Ordinance, and Comprehensive Plan.

IV. The Application is Not Complete.

Despite the Workflow notation on the CSS online portal showing that the Major Site Development Plan Application is complete in fact it is not and consequently, there should be no further review of the application. As just one example of incompleteness, the application notes that various easements are required for the project. At the December 20, 2022 Neighborhood Meeting, it was identified that an additional easement would be required from an abutter, the Portland House Condominium Association.

[5] The Eastern Waterfront Building Height Study (September 2004) ("Study"), adopted into the E. Waterfront Master Plan and the City's Comprehensive Plan as it existed in 2015, formed the foundation and basis for the B-6 Height Overlay. In the area of the proposed new development, any building over four stories (one story is defined as 11 feet) has "has a maximum 70' width parallel with the shore and a maximum 140' length perpendicular to the shore." Per the Study, the maximum total number of stories permitted in this area of the B-6 Overlay is 5 to 6 floors.

The 2016 MDP *requires* that "[a]ll documentation of Right, Title and Interest on property pending acquisition [including easements] *shall* be included with application materials prior to any review of Level III Site Plan and/or Subdivision plan application." Sufficient evidence of an applicant's right, title, and interest is a threshold requirement for an applicant seeking land use development approval in order to establish the legal authority to utilize the permits in the manner proposed. Clearly, the project cannot be constructed as proposed without these easements first being obtained. The easement documents are therefore critical evidence of right, title and interest as required in the MDP, in Sections 14-527(c)(4) and (d)(9) in the 2016 Ordinance and in the current Major Site Plan General Document and Drawings Checklist, and the application cannot be deemed complete without them.

Yet another example of how the application is incomplete is that the plan provides only a vague idea for a critical retaining wall along Fore Street bordering Lot 4 and on the westerly and northerly side of Block 6 of the project, while noting that "[p]roject construction may require installation of tiebacks into property on adjacent land, including City land."[6] The Applicant has submitted no easements from private property owners or the City to allow for these tiebacks and no discernable design or engineering plan for the retaining wall. There is no indication of any alternate means of anchoring, or how the retaining wall will effectively retain the steep slope behind it. There is also no discussion about how this structure, which appears to be located directly abutting the Trettel property, meets setback requirements. Again, this is critical information that could alter the Board's review and that was not provided in the Application.

Beyond the issue of an incomplete application, the Applicant is utilizing valuable Planning Board time and resources to review a project that may need to be amended or ultimately be unbuildable because agreements for these easements cannot be reached.

We appreciate the Planning Board's evaluation of these points and look forward to a robust discussion at any scheduled meeting where the Portland Foreside Development Company, 58 Fore Street/Mixed Use of Blocks 4 and 6 Major Site Plan Review Application will be discussed and we ask to be added to the list of interested parties who will receive notice of any such meetings.

Very Truly Yours,

SANDRA L. GUAY

SLG/lb
Copy to:

Roger Trettel

[6] There is also no information on how this project may impact the historic Fore Street seawall.

PC5

JEREMY WINTERSTEEN <jrwintersteen22@aol.com> 4:28 PM (1 hour ago)
to planningboard@portlandmaine.gov, Charles Tetelman

1/9/23

Dear Planning Board,

Please accept these comments in regards to the 58 Fore Street project.

I objected earlier to the size and height of some of the project. In particular, I believe the City of Portland and the previous owner made a commitment to not have new buildings go higher than the plane of Fore Street. This building height restriction obviously did not carry the day as some of the new building heights are significantly higher than Fore Street.

My concern earlier, which others in the neighborhood also expressed, was the feeling of being walled off from the water. The developer said there would be view corridors but I view this term as an oxymoron.

I have heard that there will now be fewer “view corridors” and water access points than what was originally planned. Is this true?

The 58 Fore Street development is too big, is out of character for Portland and Maine, and mimics many other large scale urban developments that wall off water views and access.

I ask that you please don’t wall off Munjoy Hill from the water and that you do all you can to maintain some of the beautiful views and access points that Portland residents, Munjoy Hill homeowners, and visitors treasure so much.

Thank you for your consideration.

Sincerely,

Jeremy Wintersteen
9 Waterville Street

portlandbikeped

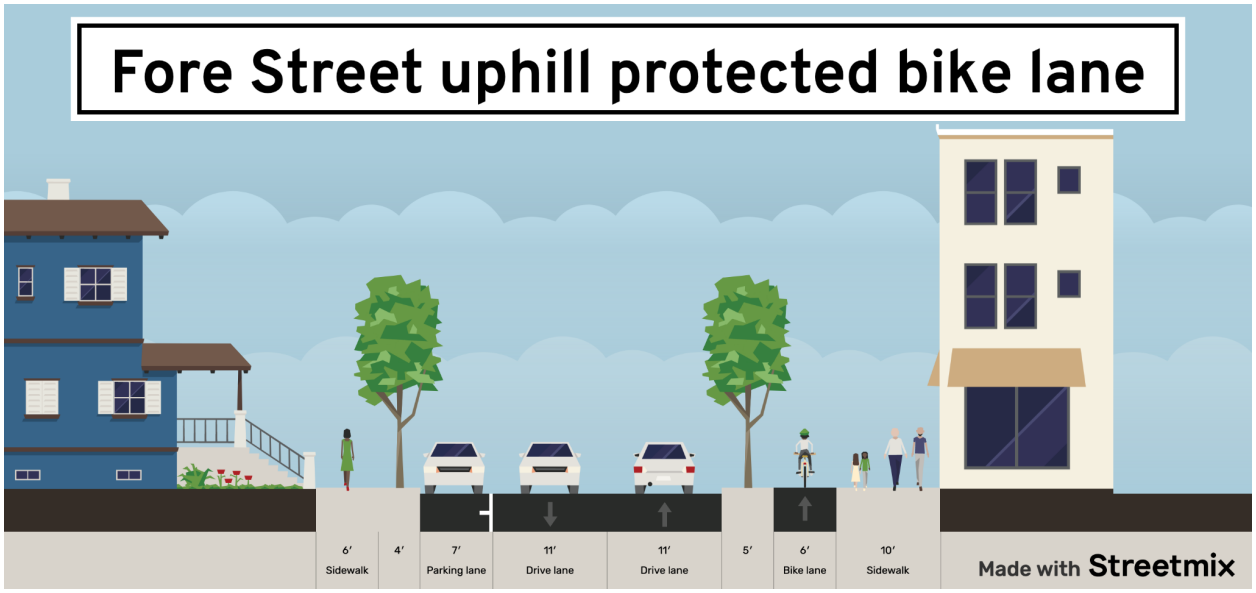
PORTLAND BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE

January 9th, 2023

Dear Chair Stanley, Members of the Portland City Planning Board,

The Portland Bicycle & Pedestrian Advisory Committee requests that the Portland Company developers take the opportunity to install an uphill protected bike lane along the southern curb of Fore Street as part of their site plan approval for 58 Fore Street.

Because this project is proposing a large off-street parking garage and there's been no on-street parking on the south side of Fore Street for the past 2-3 years because of sewer construction, this would be a great opportunity to create a safer bike route – plus additional street trees with wider sidewalks – by replacing one lane of on-street parking along the southern curb of Fore Street with an uphill, protected, sidewalk-level bike lane between Munjoy South and Atlantic Street, as shown in this conceptual cross-section:



Note that placing any street trees on the outside of the bike lane would allow a small plow truck to plow the bike lane and sidewalk at once, not requiring any special snow clearing equipment.

Example from Western Ave in Cambridge MA:



Future city-led projects could potentially expand this facility all the way to and around the Eastern Prom, which has a very wide right-of-way.

Thank you for your consideration.

Sincerely,
The Portland Bicycle & Pedestrian Advisory Committee.
https://www.portlandbikeped.org

Winston Lumpkins, *Chair*
winston.lumpkins@gmail.com, 207-408-1508

Emma Scudder, *Vice Chair*
scudder.emma@gmail.com, 603-219-5190

The Portland Bicycle and Pedestrian Advisory Committee (PBPAC) is an ad-hoc group of Portland area residents who work to make the city a better place to walk, bicycle, and wheelchair. We advocate and educate on bicycle, transit, and pedestrian issues, including handicap accessibility, in collaboration with city offices and outside organizations.

Kellie Whiteston <kelliewhiteston@gmail.com> 8:31 AM (2 minutes ago)
to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Chair Stanley and Members of the Planning Board,

Please support the proposal that the Portland Company developers take the opportunity to install an uphill protected bike lane along the southern curb of Fore Street as part of their site plan approval for 58 Fore Street.

This would be a progressive and beneficial addition to the city we could all be proud of. It will create a safer and easier biking route connecting Eastern Prom to the Commercial Street and Old Port area as well as create a more attractive and functional space for all. There already hasn't been any parking available on that side of the street for a couple years. With the developer also proposing a large parking garage, there is potentially no conflict there. Additionally, the proposed side-walk level lane would also be easier to maintain with regards to snow removal.

Thank you for your consideration,
Kellie

Paul Fuller <pfuller91@gmail.com>
to planningboard, planning

Dear Portland Planning Board Members,

I'm writing to ask you to encourage the developers of the Portland Company project along Free Street to add a separated, protected bike lane as part of their project. Fore Street is potentially a much better access point to Munjoy Hill for cyclists, and a protected bike lane will be an extent stel towards improving the bicycle infrastructure in the city.

Thanks for your consideration.

Cheers,

Paul Fuller
6 Hemlock St
Portland, ME

PC 9

Zack Barowitz

to Planning, Planning, Portland

Chair Stanley and members of the Planning Board;

Please support the proposed bike lane for Fore Street as it would be a great asset for the City of Portland to have a separated bike lane in this location. As we all know, the Eastern Prom is a spectacular amenity for our city and Fore Street presents and excellent connection to it from the Old Port. However that hill is steep so anything that can be done to make cycling up it a little less arduous would be most welcome.

Thank you,

Zack

John Clark <jmclark995@gmail.com> 8:45 AM (1 hour ago)

to planning@portlandmaine.gov, planningboard@portlandmaine.gov

Members of the Planning Board,

When reviewing the site plan this evening, please consider requiring a protected climbing bicycle lane be constructed as part of the new development at 58 Fore Street. The current lack of bicycle infrastructure at this section of Munjoy Hill creates an unsafe situation for bicyclists and motorists as it causes slow-moving bicycle traffic to compete with car traffic on the steepest part of the climb up the hill via Fore Street. The addition of a bicycle lane when the developer rebuilds the curbing would be an effective way for the city to gain vital bicycle infrastructure at little additional cost to the developer. This area is also a great fit for a climbing bike lane as there has been no parking along this corridor for the past few years due to construction. The already lack of parking combined with the developer's intentions of creating an off-street parking garage mean there is likely little-to-need for parking here, and would be better served by a bike lane.

I support the requirement of the addition of a climbing bike lane, and support the letter submitted to the Board by the Portland Bicycle and Pedestrian Advisory Committee regarding this matter. Thank you for your consideration.

Thanks,
--
John Clark (he | him | his)
225 Valley St, Portland, ME 04102
Past Chair, Portland Bicycle & Pedestrian Advisory Committee
(207) 712-0480

Winston Lumpkins <winston.lumpkins@gmail.com> 9:09 AM (24 minutes ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Chair Stanley, Members of the Portland Planning Board,

Last night the Portland Bicycle & Pedestrian Advisory Committee held our monthly meeting & voted to send a letter, which you've received, asking that a climbing bike lane along the Hill right before Fore Street becomes the Eastern Promenade be added to the Portland Company Site plan under review in the meeting to be held tonight. We had a large meeting last night, and there was no dissent.

Speaking as myself & not the Chair of PBPAC, just a resident of Munjoy hill who frequently cycles Fore Street on my way home from my job downtown, I'm very concerned about a potential parking garage with hundreds of parking spaces with the entrance part of the way up, if the status quo, narrow sidewalk, street parking & no bicycle facilities at all, is maintained.

It's important when considering plans for new development to ensure that, **at the very least, they don't put anyone's life in danger.** Increasing the amount of traffic on Fore street, while maintaining the current design without any bicycle facilities at all and with a very narrow sidewalk, **would be irresponsible.**

Furthermore, I'd like to request that the sidewalk remain concrete along the slope of the hill. When on foot I frequently take that side of the street in the winter because concrete is so much less slippery- turning it into bricks would be a step backwards.

I'd also like to request that in any approved plans the Portland Company is required to maintain a safe, passible, clear, not dangerous, paved connection to the eastern prom trail through its development. It's a key connection for a vast number of people who live off of Baxter Boulevard & outer Portland & cycle into work downtown- it's **not just a recreational path, and must remain intact & accessible at all times. If both Fore Street & the Eastern Prom trail are inaccessible & dangerous, downtown will essentially be blocked off for cyclists who live off the Peninsula.**

Thank you for reading my comments,

Sincerely,

~Winston

Winston Lumpkins IV (he/him/his)

Nat Jordan <natj@umich.edu> 10:47 AM (3 minutes ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Planning Board Members,

I'm a frequent bicyclist in and around Portland. Istrongly encourage you to work with the developers of the Portland Co. property to include a separated bike lane up Fore St. to the Eastern Prom. This would be an important step in working towards a safer bike network, would encourage car-free travel to and from the new development, and could connect to future separated bike lanes along the Prom.

Thank you for your work,

Nat Jordan

Karen Snyder <karsny@yahoo.com> 11:46 AM (1 minute ago)
to Planning Board, Christine Grimando

Dear Planning Board members,

There are many issues with this proposal submitted by the 58 Fore St developer for Phase 2. However, the primary fundamental issue with this proposal is:

- The Master Development Plan only has a 6-year shelf life which means it has expired since it was approved in 2016 and now it is 2023. So technically, this entire proposal that was submitted by the 58 Fore St developer is invalid.

With this said, there are additional issues and concerns regarding the content of the posted 58 Fore St Phase 2 proposal agenda documents. They are the following:

1. The 58 Fore St. agenda documents were only posted yesterday, Monday 1/9/2023 when they were required to post all documents this past Friday, 1/6/2023.
2. The primary parking garage entrance to the parking garage containing over 700 parking spots is at the bottom of Waterville St. The parking garage entrance at the bottom of Waterville St. is unacceptable and must be moved to either Thames St or use "Freedom Way" street that the City sold to the developer of the parking garage west of 58 Fore st.
3. The # of affordable units are using the old inclusionary 2016 guidelines of 10% which is only 29 units of the apartments. However, the developer said they will buy out the condos affordable unit. Since the master plan has expired, they should be using the new inclusionary guidelines of adding 20% of affordable housing and not do buyouts if they are so concerned about the neighborhood.
4. The developer said the heights of the buildings are 35ft above Fore St but that is only 100 feet FROM Fore St. It is unsure how much higher the developer will use the average grade trick loophole for the buildings that are farther than 100 feet from Fore St.
5. The light pollution of the multiple windows in the buildings. Just look at the shining light pollution beacon of the Covetrus building at night.
6. Implications of the damaged sea wall from the last big storm.
7. The View corridors width are not sufficiently wide enough.

   Ultimately, the City of Portland Planning Board is allowing one proposal at a time to destroy what made Portland once special which was the views of Casco Bay was for ALL residents from Fore St and not just for the wealthy.

Regards,
Karen Snyder
Waterville St.

Nat Jordan <natj@umich.edu> 10:47 AM (1 hour ago)

to planningboard@portlandmaine.gov, planning@portlandmaine.gov

Dear Planning Board Members,

I'm a frequent bicyclist in and around Portland. Istrongly encourage you to work with the developers of the Portland Co. property to include a separated bike lane up Fore St. to the Eastern Prom. This would be an important step in working towards a safer bike network, would encourage car-free travel to and from the new development, and could connect to future separated bike lanes along the Prom.

Thank you for your work,

Nat Jordan

PC 15

John Russell <jtrussell13@gmail.com> 12:47 PM (2 hours ago)

to planning@portlandmaine.gov

Chair Stanley and members of the Planning Board;
Please support the proposed bike lane for Fore Street uphill protected bike lane. It would be a great asset for the City of Portland to have a separated bike lane in this location. Fore Street presents an excellent connection to the Eastern Prom from the Old Port. The proposal would make it safer for cyclists as well as pedestrians and disabled people. It would also help with maintenance.
Thank you,
J. T. Russell

PC 16

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

March 17, 2023

Via Email:

Portland Planning Board
Maggie Stanley, Chair
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
planningboard@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

As noted in my December 28, 2022 letter, this firm represents John Roger Trettel, an abutter to 58 Fore Street and the mixed-use development project that is the subject of the Portland Foreside Development Company ("Applicant") site plan application currently pending before the Board ("Application"). As also noted in that letter, Mr. Trettel generally supports the mixed-use development project and the benefits that it will bring to the City's Munjoy Hill and waterfront area.

As an abutter to the project however, Mr. Trettel has followed the development of this site closely and is aware of its long and complex history. Although he did not own the 5 Eastern Promenade property at the time, Mr. Trettel is aware of the community conversations that took place back in 2015 when the property was rezoned to accommodate this project, and in 2016 when the Master Development Plan and Phase I site plan were reviewed and approved. Like many of his neighbors and others in the City, he is aware of the controversy that has surrounded the development since 2016 – including the after-the-fact requests for approval by the Applicant and the enforcement action taken by the City in 2021 and 2022 after repeated violations.

Given the history and context of the development of 58 Fore Street, it is critically important that the Applicant's proposal is compliant with all applicable standards and codes, and with the Planning Board and City Council's vision for the growth and development of the City of Portland. Along these lines, Mr. Trettel has significant concerns about the Application and the next phases of development and trusts that a meaningful resolution of these concerns might serve to avoid still more controversy and conflict for the City and the Munjoy Hill Neighborhood.

Attorney Keith Richard and I recently met with Kevin Kraft to discuss some of these concerns. We appreciate Kevin taking the time to meet with us and understand that the Application will be undergoing a more rigorous review process over the coming weeks and months. It is in this light that we offer the following comments and would ask that the issues raised in this letter are carefully considered and addressed by the reviewers and by the Planning Board.

I. The 2016 Master Development Plan (MDP) Approval has Expired and is Therefore Void.

On December 20, 2016, the Planning Board approved a Master Development Plan ("MDP") for the 58 Fore Street property (the "Property"). Both the City and the Applicant have since argued that the standards found in the Land Use Code in effect on December 20, 2016, apply to the current Mixed Use of Blocks 4 and 6 Major Site Plan Review Application and future development of the Property.

The 2016 MDP has only three "Standard Conditions of Approval & Requirements". The third condition, located directly above the signature of then-Planning Board Chair, Elizabeth Boepple, is captioned "Master Development Plan Expiration", and reads:

> An approved master development plan shall expire six (6) years from the date of approval unless, prior to the expiration of the master development plan, a written request for an extension is submitted to the Planning Authority. Only two (2) such extensions may be granted by the Planning Authority, and each such extension shall be limited to two (2) years from the date of expiration of the master development plan. The Planning Authority may grant an extension provided there have not been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval. The Planning Authority may condition the extension on an amendment of the master development plan to comply with such applicable ordinance or site plan standard changes per section *14-532(d)* of the city's land use ordinance. Approved major or minor amendments to a master development plan do not alter the expiration date for the master development plan.

This very same Section 3 MDP Condition language is also found in Section 14-532(d) of the Portland Land Use Ordinance, Expiration of Master Development Plan, effective on the date of the 2016 MDP approval.

It is without question that Section 14-532(d) is the controlling language for the 2016 MDP approval, yet at the January 10, 2023 Planning Board Workshop, this Board was informed by Planning staff that the criteria for expiration of the MDP was:

> Master development plans approved under this article shall expire six years from the date of approval if no site work or building construction has commenced.

This provision however is not from the MDP or even from the Land Use Code in effect in 2016, when the MDP was approved. Rather, this language is from Article 14.12.2 of the March 7, 2022 Land Use Code. It is therefore inapplicable to the 2016 MDP approval, and in fact in violation of the terms and conditions of that approval. It was additionally stated at the January 10 Workshop that only the standards of the 2016 Land Use Code apply to the Application, and that it is not subject to the new standards and requirements found in the 2022 Land Use Code; but, this then leads to an absurd result - the Applicant cannot reasonably argue on the one hand that the 2016 Code applies for *all* applicable regulations and standards, but that Article 14.12.2 from the 2022 Code applies with respect to expiration of the MDP. There is nothing in either the 2016 or the 2022 Code that would allow this, nothing in the 2016 MDP that allows

it, and there is no argument in law that would support this. The plain language of Section 14-532(d) in the 2016 Code, copied verbatim into the MDP approval, has no ambiguity as to its intent or meaning and it was the only mechanism available to the Applicant for obtaining a possible extension to the 2016 MDP.

The Maine Law Court has considered the finality of expiration language in land use approvals and ordinances, finding that "an Applicant must be diligent and request an extension within the [time] period for which the approval remains viable. Otherwise, the Ordinance would allow the Board to extend an approval that had become void." *George D. Ballard, Builder, Inc. v. Westbrook*, 502 A.2d 476, 480 (Me. 1985). "Moreover, to construe the extension provision otherwise would allow a developer to be protected from zoning changes for an indefinite period greater than the [time period] provided in the Ordinance." *Id.*

We have been provided with emails between Mary Costigan, Esq. on behalf of the Applicant, and Cristine Grimando, dated September 2022. On behalf of the City, Ms. Grimando opined that the MDP would not expire on December 22, 2022 because construction had commenced on the site. Ms. Grimando's interpretation was based on the inapplicable Article 14.12.2 of the March 7, 2022 Land Use Code; the legislatively adopted Section 14-532(d) in the 2016 Code is, however, non-discretionary and the Planner had no authority under the Code to ignore, waive or otherwise provide a variance from that extension requirement. Furthermore, the email exchange between Attorney Costigan and Ms. Grimando had no impact upon the expiration of the MDP pursuant to the express terms of the MDP itself and the applicable Section 14-532(d) effective in 2016. First, Attorney Costigan's email did not request an extension—it merely sought an opinion that the MDP would not expire. Second, there was no assessment by the City, as required by the Code, of whether there had "been substantial changes to the underlying zoning or site plan standards since the date of the master plan development plan approval that would have a substantial impact on approval…." Because there was no written request for an extension from the Applicant, nor the required process to determine whether to grant that extension by the City, the MDP expired.

Simply put - the Applicant failed to properly request an extension within requisite six years of the date of approval as clearly and unambiguously required by the 2016 MDP and in Section 14-532(d) of the 2016 Code. As a result, the 2016 MDP approval is void; there is no longer an approved or controlling MDP in place, and with all due respect to the Planning Board, it therefore lacks jurisdiction to continue to review the Application as though it were validly submitted.

II. Given the magnitude of this proposed project and its lasting impact on both the neighborhood and the character of Portland as viewed both to and from the water and Munjoy Hill, it is critical that the Planning Board understand the issue of grade and its relationship to building height.

A. The Project Violates Height Restrictions on Numerous Grounds.

"Average developed grade," which is being applied by the City and Applicant, is not in the height definition or in any provisions addressing vertical dimensional standards. In fact, "finished grade" or

"developed grade" as the starting measuring point for structures has no express support anywhere in the Code, past or present.[1]

Where a term, like "grade," is undefined, Maine courts construe the term "reasonably with regard to both the objects sought to be obtained and to the general structure of the ordinance as a whole.'" *Friends of Cong. Square Park v. City of Portland*, 2014 ME 63, ¶ 9, 91 A.3d 601 (citation omitted). Courts "give such terms their 'common and generally accepted meaning" and dictionaries are an established authority to identify definitions. *Id.*

Merriam-Webster Dictionary defines "grade" as "a datum or reference level . . . especially: GROUND LEVEL." Merriam-Webster Dictionary Online, "grade" https://www.merriam-webster.com/dictionary/grade. Oxford Languages defines "datum" as "a fixed starting point of a scale or operation." Dictionary definitions establish that "grade" has an objective, uniform starting point that bears a rational relationship to the conditions of the earth. The same conclusion follows applying the general rules of ordinance interpretation. *See Banks v. RSA #1*, 1998 ME 272, ¶ 4, 721 A.2d 655 ("A court's interpretation of an ordinance must not create 'absurd, inconsistent, unreasonable or illogical results.'")

The City's interpretation of "grade" will produce inconsistent, illogical, and absurd results. As a function of uniform height regulations, grade must consider the objective conditions of the site tethered to factual reality. Interpretation of "grade" as "post development grade" would mean height restrictions vary depending upon whatever a developer artificially creates or manipulates for conditions, divorced from what exists at the time of an application. For developers with the gumption, financial capacity, and engineering capability to reshape the earth, introduce creative structures, and pile fill, the sky is the limit. A developer can achieve whatever height they desire by creating a "developed grade" that games the height standard by anticipating when the City will begin measuring and adjusting their "developed grade" and proposed structures accordingly.

That is precisely the scenario here. The Applicant has artificially elevated their proposed buildings on a "pedestal" with the absurd and illogical result that buildings can exceed 110' in a zone that restricts buildings to half as tall. For those without the same resources (everyone else), the regular height standards of 45' up to 65' apply. That is the type of inconsistent result produced by a "grade" interpretation and height standard that does not have any objective regulatory limit. Measuring height from the perimeter of

[1] A review of the Code as a whole reveals that such an interpretation is foreclosed by express provisions. *See, e.g.*, Portland, Me., Code § 14-755 (amended 2016) (defining height of wind energy system as "vertical distance *as measured from the average elevation of the finished grade*" (emphasis added)); § 14-369(d) (establishing height computations for signs as "normal grade" defined as "the lower of either existing grade prior to construction or the newly established grade after construction excluding any filling, berming, mounding or excavating accomplished solely for the purpose of locating the sign"). Thus, in creating height and grade standards for wind energy systems and signs, the drafters of Portland's Code knew and understood how to clearly delineate between "existing" or "predevelopment grade" and "newly established" or "post development grade." If "grade" for purposes of structure height was intended to be broadly interpreted to mean "post development grade," this would have been stated explicitly. It was not, we must presume with intent. *See, e.g.*, *Fuhrmann v. Staples the Office Superstore E., Inc.*, 2012 ME 135, ¶ 34, 58 A.3d 1083 ("If the Legislature had intended to create individual supervisor liability it would have done so explicitly in much clearer terms.").

buildings, artificially elevated by new structures and fill, is a textbook example of stretching a definition to a logical extreme that violates core tenets of ordinance interpretation. *See, e.g.*, *Banks*, 1998 ME 272, ¶ 4, 721 A.2d 655 (rejecting illogical interpretation of ordinance to construe tower as exempt from height restrictions as rendering height restriction meaningless).

The fact that the Code distinguishes "pre-development grade" on the islands does not mean that "grade" on mainland Portland has no objective definition. It is a logical fallacy to infer that because "pre-development grade" applies on the Islands, that "grade" for purposes of Mainland Portland therefore means "*post*-development grade," with no objective definition of grade tied to a specific moment in time prior to development. Rather, "grade" must mean conditions of a site which logically, like any land use standard, would be determined *at the time of an application*. This is *not* an argument for applying the Islands standard to the Mainland because "pre-development grade" already has a specific meaning that is fixed in time: "'Pre-development grade' is defined as average grade, existing on October 1, 2000, at the corners of the foundation of the proposed structure."

What about grade on October 2, 2000; on October 2, 2022; the date an application is filed; or the present date? None of the foregoing points in time constitute "predevelopment grade" because they all post-date October 1, 2000. Not only is the City implying "post development grade" without support in the Code—but the City is also failing to consistently interpret "predevelopment grade." On the Mainland, the City appears to consider "predevelopment grade" to mean conditions of the site from the beginning of time until the moment before the developer has moved earth, built up, and filled the site. The Code definition of "predevelopment grade," fixed in time as of 2000, contradicts that interpretation.

Moreover, the City's interpretation is arbitrary. Starting tomorrow, the City could interpret "grade" on the Mainland to be the conditions at the time of an application, which would be consistent with the Code. If the City wants to adopt a standard with material regulatory consequence, that policy must be enacted by legislation, not unwritten longstanding internal deference to "the way we have always done it." Unlike state agencies, municipalities do not receive deference in their interpretations of law, including ordinances. *Compare Rudolph v. Golick*, 2010 ME 106, ¶ 8, 8 A.3d 684 ("The interpretation of a local ordinance is a question of law, and we review that determination de novo."), *with Guilford Transp. Indus. v. PUC*, 2000 ME 31, ¶ 11, 746 A.2d 910 (court defers to agency interpretations of ambiguous statute the agency administers). Regardless of whether this is a longstanding interpretation of the Code is immaterial to whether it is correct as a matter of law.[2]

[2] At the January workshop it was stated that the Maine courts have upheld the City's interpretation. This is technically true but requires some important qualification. A single Superior Court case has affirmed the City's height interpretation and site plan approval for an apartment building development in East Bayside, but that decision is currently on appeal at the Maine Supreme Court. *See Murray v. City of Portland*, AP-22-03 (Me. Sup. Ct. Aug. 5., 2022). The City's height and grade interpretation is directly at issue in the appeal as a matter of first impression. Because trial court decisions are not binding on other courts (only Supreme Court decisions are), another Superior Court justice in a subsequent appeal could lawfully reach the opposite conclusion and we believe likely would on the facts presented by this application. Until that appeal is decided, there are no *binding* Maine court decisions.

Even applying post-development grade to this application, the Portland Co. site *is* developed and has an existing post-development grade. If a site can be "developed" over and over again without limit, the standard truly has no objective meaning.

Finally, with respect to the portions of the proposed site that are within the Shoreland Overlay Zone, the City's grade interpretation and height calculation is inconsistent with and therefore preempted by the Mandatory Shoreland Zoning Act, 38 M.R.S. §§ 435-448.[3] *See Sawyer Envtl. Recovery Facilities, Inc. v. Town of Hampden*, 2000 ME 179, ¶ 27, 760 A.2d 257. For new structures in the shoreland, "height" is defined as "the vertical distance between the mean original grade at the downhill side of the structure, prior to construction, and the highest point of the structure . . . ." 38 M.R.S. § 436-A(7-A). This definition preempts the City's interpretation of "grade" on two grounds: first, the height calculation standards apply to "average grade" *before* construction, rather than post development; and second, the property owner must calculate from the downhill side of the structure. The statutory standard preempts the City's inconsistent unwritten interpretation for portions of the site subject to shoreland zoning.

B. Even if the Lawfulness Were Assumed, the City's Traditional Methodology for Determining Grade is Simplistic, Flawed, and Results in Errors and is being Improperly Employed by the Applicant here.

The City's 2015 and 2022 code utilizes a simplistic methodology for determining the average grade of a site that is easily manipulated and can generate dramatically inconsistent results. The methodology involves calculating a simple average of the grade elevation at the primary corners of the building foundation. This methodology is most applicable if the site is small and generally uniform; it is not appropriate for a large, irregularly shaped and undulating site as that proposed for the 58 Fore St. project. This methodology was utilized during the original Master Development Plan review phase when it was applied to a large parking podium that would be constructed across Blocks 4, 5, and 6. By heavily weighing the high sides of the site, the Applicant (and apparently the City) erroneously determined that the average grade of the site was 50.1 feet.

Engineering consultant, Tetra Tech, performed a more accurate assessment of the site utilizing more applicable industry standard methods (see Attachment A). This easily reproduceable analysis determines that the average grade of the Block 4, 5, and 6 area is in reality approximately 29 feet—*a difference of over 20 feet*. Given the importance of the site in terms of its impact on the overall character of Portland and surrounding Munjoy Hill historic community, it is extremely important for the City to get the issue of grade and subsequent building height correct. It is not acceptable to use and manipulate a simplistic and flawed methodology to establish an incorrect starting grade that enables buildings that far exceed the maximum heights (45 to 65 feet) and number of floors (max 4-6) envisioned in the adopted height study plans[4] and in the Code.

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[3] "In accordance with a schedule adopted by the board and acting in accordance with a local comprehensive plan, municipalities shall prepare and submit to the commissioner zoning and land use ordinances that are *consistent with or are no less stringent than the minimum guidelines adopted by the board* and, for coastal communities, that address the coastal management policies cited in section 1801." 38 M.R.S.A. § 438-A.2 (emphasis added).

[4] As noted, the Eastern Waterfront Building Height Study (September 2004) ("Study"), adopted into the E. Waterfront Master Plan and the City's Comprehensive Plan as it existed in 2015, formed foundation and basis for the B-6 Height Overlay. In the area of the proposed new development, any building over four stories (one story is defined

In the application for the individual buildings proposed on Block 4 and Block 6, this methodology has been improperly used to establish base grades far beyond the factual conditions of the site. Using the methodology as intended, the average grades for the Block 4 and Block 6 buildings are approximately 39 feet and 36 feet, respectively (see expert statement Attachment B). While not presented in the current filing as it will be a separate building, the average grade for Block 5 is approximately 14 feet.

Reviewing the numbers presented in the filing, it is easy to see how the Applicant has weighted the high side of the site by utilizing approximately three times the data points, thereby dramatically skewing the purported "average." This blatantly and inaccurately skews the average starting grade 30-40% higher than it actually is, with dramatic consequences for how height restrictions will be applied. More importantly, it flies in the face of the intent of the code and various height studies and overlays, to promote responsible development consistent with the character and scale of Portland's eastern waterfront and the Munjoy Hill neighborhood.

III. The Applicant Cannot Unilaterally Include New Lots in an Entirely Different Zone Within the Boundary of the 2016 MDP.

As discussed in the December 28, 2022 letter and as further discussed by Board members at the January 10, 2023 Planning Board Workshop, the proposed site plan for Block 6 includes portions of three parcels of land, identified as 13-23 Eastern Promenade, which were never a part of the now void 2016 MDP, but rather separately purchased by the developer in 2021. The Applicant has now included portions of these parcels in the Application as though they were within and a part of the 2016 MDP project. Significantly, these appended properties are not located in the B-6 zone, but rather in the R-6 zone and in the Munjoy Hill Historic District and in addition to being inappropriately included in the present Application, are therefore subject to different and enhanced ordinance standards and regulations.

At the November 23, 2021 workshop for an amendment to the 2016 MDP[5] the Planning Board opined as whether the Board had any control over the design of the project if the Level II site plan application pending at that time was subject only to staff review. The Board was informed that the MDP section of the 2016 Code had a provision for a major MDP amendment determination. In fact however, as noted in our December 28, 2022 letter, the 2016 Land Use Ordinance only provides a methodology for the Planning Authority to permit *minor* amendments to still effective Master Development Plans. Neither the 2016 Land Use Ordinance, nor the 2016 MDP, provide *any* avenue for a major, substantive amendment to an MDP (such as expansion of the boundaries of the original MDP by the addition of new land located in a different zone).

The inclusion of additional land, especially land that is in a different zone, is not a decision that can be made by staff. The addition of land in a residential zone has far reaching impacts upon those already residing in that zone, on the Comprehensive Plan and on the City's and neighborhood's vision for that residential neighborhood. It must be subject to the same rigorous review process that the initial MDP went

as 11 feet) has "has a maximum 70' width parallel with the shore and a maximum 140' length perpendicular to the shore." Per the Study, the maximum total number of stories permitted in this area of the B-6 Overlay is 5 to 6 floors.

[5] The purpose of the November 23, 2021 Planning Board Workshop was to amend the MDP in such a way non-permitted structures and uses at the 58 Fore Street project, then subject to Notices of Violation and a Consent Agreement with the City, would become compliant.

through – and in this case, as the MDP is void, there needs to be a substantial review as an entirely new project under the Site Plan Review section of the Code.

IV. The Applicant Has Failed to Establish Sufficient Right, Title, and Interest to Warrant Review by the Board.

As this Board well knows, to have sufficient standing to pursue an application for land use development, an Applicant must demonstrate that they have a reasonable expectation that they will be able to develop the property as they have proposed. In the absence of that interest, Maine courts have explained that an Applicant lacks sufficient right, title, and interest (RTI) to pursue an application before a municipal board. Ultimately, the standing/RTI requirement is aimed at ensuring that the Planning Board's (and Planning staff's) time is not wasted reviewing applications for projects that may never get built. Therefore, under state law as well as the express language of the City's Code, all applications for permission to develop land must include evidence of sufficient RTI to develop the property *before* review of the proposal is undertaken. As noted in my December 28, 2022 letter, the 2016 Master Development Plan for the 58 Fore Street property is also express on this point.

The now void MDP and the proposed Site Plan clearly contemplate improvements to the site that are located on property outside the Applicant's ownership and control, including City and private property. Easements allowing those improvements are therefore needed and required. The Applicant however has failed to provide copies of executed easements – likely because they have not yet been obtained. Nevertheless, the Applicant is treating the application as if it is complete and entitled to review by staff and this Board. It is not. Given the history of development of this property and before any further staff or board time is taken up reviewing this development, the Applicant should be required to go to the effort of securing the easements and any other permissions needed to build out the project *before* the Board reviews it. Otherwise, it is entirely possible that necessary easements will not be given causing the plans to later be amended with additional rounds of review and Board meetings required.

Rather than invite multiple hearings and amended approvals, the Applicant can and should be made to wait to present its proposals until such time as it actually has the permissions needed to build it. Without those permissions, review of this application is a waste of staff and board time. More fundamentally, the Applicant lacks standing to seek site plan approval at all.

Very Truly Yours,

SANDRA L. GUAY

KEITH P. RICHARD

Copy to:
John Roger Trettel
Portland Historic Preservation Board
c/o Evan R. Schueckler, Program Manager

ATTACHMENT A

Grade Elevation Study

TETRA TECH

Project: 58 Fore St. Project Area Elevation Review

Tetra Tech, Inc. is a global engineering, design, and consulting firm with over 50 years of experience performing complex engineering, design and construction services on 1000's of projects worldwide.

Tetra Tech performed a desktop investigation of the 58 Fore St. Project development area in the City of Portland, Maine to establish the estimated average grade across the site above mean sea level. The study area is located in the eastern waterfront area of Portland and consists of approximately 5 acres of commercial, past industrial, and vacant land uses. Approximately two-thirds of the study site is marked by a large low-lying level area slightly above sea level supporting parking areas, a commercial building slab, and a rail yard; while about one third of the site consists of undeveloped, fragmented scrub forest on steeply sloping to almost vertical terrain along its northern and eastern boundaries. The vertical portion of the site is a narrow strip along the north boundary where a stone retaining wall supports Fore Street.

The industry standard method for calculating average elevation of an irregularly shaped and undulating parcel of land involves the use on-site topographic land surveying or contouring. If time, budget, or access prohibit collecting of field data, a site can be studied remotely using Digital Elevation Models (DEMs) and Geographical Information Systems (GIS). The DEMs provide a three-dimensional representation of the topography of the parcel, while the GIS is used to process and analyze the DEM data. The first step in this process is to obtain the DEM data, either by using aerial LiDAR (Light Detection and Ranging) technology or by interpolating spot elevation data using techniques such as kriging (ESRI, 2018). Once the DEM data are obtained, it is processed to create a raster layer, which is a grid of cells with equal dimensions that represent the elevation of the parcel at each cell location. The average elevation of the parcel is then calculated by summing the elevation values of all the cells in the raster layer and dividing by the total number of cells (Lidén et al., 2003). This process is often performed using GIS software, such as ArcGIS or QGIS.

Such data were not readily available for this study, and as such, Tetra Tech utilized Google Earth's elevation profile functionality as the DEM to find the elevation across the site using a 10-foot by 10-foot raster grid. Elevation profiles were obtained by casting the raster grid across the irregular site polygon using the southern corner as an anchor point (see attached figure). Elevation profiles along grid lines were examined at 10 foot intervals and the elevation at each point was recorded and rounded to nearest whole number (data attached).

A total of 2406 data points were recorded across the polygon, totaling to 69,647 feet of total elevation. The average elevation across the site was determined to be 29 feet (total elevation / total number of data points), which is approximately 15 feet above the existing level grade elevation.

While Google Earth data are generally regarded as quite accurate and reliable in urban areas, the best measurement of average elevation/grade of an irregularly shaped and uneven site would be determined by an on-site topographic land survey using total station or global positioning system (GPS) equipment. Upon completion of a land survey, there are numerous industry standard DEM engineering models available that would use these data to quickly and precisely measure the average elevation/grade across the site.

In performing this desktop analysis, Tetra Tech performed a QA/QC check of the Google Earth data by doing a representative spot check of points across the site and comparing them to the topographic survey map provided in the 58 Fore Street project's original 2016 application. This review determined the Google Earth data to be close to the applicant's field surveyed measurements with only minor deviations observed. As such, the average calculated elevation across the site of 29 feet is expected to be accurate within a small margin of error.

Discussion on Perimeter Measure Methodology

The average grade of the site was previously determined by others using a perimeter elevation measure methodology. Using elevation measurements taken around the perimeter of an undulating site to determine the average elevation is not appropriate, as it does not accurately reflect the complex topography of the interior of the site. This method provides only a rough estimate of the average elevation and is likely to be significantly different from an average elevation calculated from more comprehensive elevation data. Using only perimeter measurements is likely to give a biased estimate of the average elevation and may result in errors, especially if the site has steep or complex topography (Lidén et al., 2003). In this case, a difference of 21 feet (50.1ft vs. 29 ft) between the perimeter measure approach and the grid overlay/topographic approach is a dramatic deviation and indicates that the perimeter measure approach is not providing an accurate assessment of the average grade of the site.

The level of measurement error that is acceptable for a project site is dependent upon the ultimate use of the site. However, in general, such a large deviation between two methods of measurement is not considered to be an acceptable level of error to enable accurate and responsible decision making and design. Tetra Tech recommends a more comprehensive method, such as a topographic land survey or a DEM analysis, to obtain a more accurate average elevation of an undulating site with extreme topography changes such as the 58 Fore St. project area.

References:

ESRI (2018). Understanding Raster Elevation Data. Environmental Systems Research Institute, Redlands, CA, USA.

American Society of Civil Engineers. (2017). Surveying Fundamentals. https://asce.org/continuing-education/courses/surveying-fundamentals/

Lidén, K., Jonsson, P., and Löfgren, S. (2003). Average elevation and other terrain attributes from digital elevation models: a comparison of methods. Geomorphology, 55(1-2), 89-104.


58 Fore Block 4, 5 & 6 Area
58 Fore Project Area
10'x10' Grade Grid
Legend
58 fore area
Feature 1
St Lawrence St
Fore St
Eastern Promenade Trail
Eastern Promenade Trail
Google Earth
N
200 ft

	58 Fore Street Site Elevation Study - 10x10 Foot Grid Data																					
GE Paths	**0**	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**	**190**	**200**	**210**
Path1	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11	11
Path2	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11	11
Path3	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11	11
Path4	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11	11	11	11	11	11	11	11
Path5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	11
Path6	12	13	13	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Path7	13	13	13	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12	12	12	12	12
Path8	13	13	14	14	14	14	14	13	13	13	13	13	13	13	13	13	13	12	12	12	12	12
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Path35	57	56	58	57	56	57	56	59	60	61	64	66	69	71	71	73	71	72	72	71	72	72
Path36	75	76	76	75	76	76	76	76	77	78	78	78	78	78	78	80	80	80	80	79	79	81
Path37	81	83	83	83	83	84	83	84	82	83	83	84	87	88								
Path38	87	88	88																			
Path39	71	69	66	64	61	60	58	57														
Path40	72	71	69	67	65	62	61	60														
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Path42	73	72	71	70	69	67	65															
Path43	74	72	72	71	70	69	67															
Path44	74	73	72	71	71	70	68															
Path45	74	74	72	72	71	71	70															
Path46	75	74	73	72	72	72	72															
	Total Count	2406																				
	Total Elevation	69647	feet																			
	Average Elevation	28.95																				

220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450
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82	86	87	88																				

460	470	480	490	500	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650	660	670	680	690
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75	75	75	76	76	76	77	79	80	83	84													

700	**710**	**720**	**730**	**740**	**750**	**760**	**770**	**780**	**790**
38									
37	38								
37									
37									
37									
37	37								
39	38								
43	41	40	39						
49	47	45	43	41	41				
57	55	53	49	47	44	44	43		
69	68	64	62	58	55	51	50	49	47
72	70	69	66	62	58	56	54	54	

ATTACHMENT B

Expert Opinion

TETRA TECH

February 24, 2023

City of Portland
Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

Attn: Planning Board

Re: Miscalculation of Average Grade
Level III Site Plan and Subdivision – 58 Fore Street
Portland Foreside Development Company

Dear Planning Board Members:

Based on our review of the above-referenced submission, it appears the Applicant has either miscalculated or misrepresented average grade for proposed structures on Parcel 4 ("Harbor Hill") and Parcel 6 ("The Channel Mark"). The proposed building elevations note average grade *singularly* as **elevation 50.1** despite there effectively being two buildings on separate parcels of land with substantially different surrounding grades. The average grade noted has no discernible relevance to the buildings proposed and no reasonably justifiable supporting calculations were found for the value. Furthermore, the calculations provided are clearly and unjustifiably skewed to result in a higher elevation than would otherwise reasonably be determined. This is particularly egregious as it pertains to the Harbor Hill structure.

The City of Portland Land Use Code (March 2022) clearly and logically specifies average grade as being calculated at the corners of the foundation of the proposed structure. Common practice for determining average grade requires weighting selected foundation corners relative to the length of building foundation. The attached figures show how applying common practice and using existing elevations at the principal foundation corners results in the substantially different average grade calculation of **elevation 39.5** for the Harbor Hill structure and **elevation 36.3** for The Channel Mark structure. A substantially different average grade calculation would be the result whether calculated using the four principal foundation corners or equidistant points along the foundation.

Any building height measured from the average grade of elevation 50.1 is simply unsupportable and inconsistent with the relatively clear intent expressed in the City of Portland Land Use Code (March 2022).

Very truly yours,

Sean P. Reardon, PE
Vice President

Matthew W. Moyen, PE
Senior Project Manager

Attachments: Figure 1 – Civil Building Height Calculation Figure Markup

Cc: Roger Trettel

Tetra Tech
Marlborough Technology Park, 100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com



Figure 1
02-16-23

Source: Civil Building Height Calculation Figure prepared by Woodard & Curran dated November 2022

TETRA TECH, INC.

Tetra Tech has been a world class provider of consulting and engineering services for over 50 years. We support global commercial and governmental clients focused on sustainable infrastructure, water, environment, energy, and international development. With over 27,000 associates worldwide, Tetra Tech provides clear solutions to complex problems.

In a complex world with competing demands for limited resources, Tetra Tech offers clear solutions made possible with sound science, understanding, innovation, and industry-leading approaches.

PERSONNEL EXPERIENCE SUMMARY

Sean P. Reardon, PE

Mr. Reardon is a Vice President at Tetra Tech who specializes in guiding site/civil engineering and land development programs to successful completion. He has 30 years of experience in the planning, permitting, design and construction of a wide range of facilities and infrastructure. His broad background encompasses all service sectors: municipal, institutional, private land developers and public/private partnerships. He is particularly skilled in managing multidisciplinary services under aggressive timeframes, as well as design/build and on-call engineering contracts. Mr. Reardon prides himself on building long-term, collaborative client relationships and overcoming technical and regulatory challenges with creative solutions that optimize project objectives. In addition to his leadership on residential, institutional, commercial and mixed-use development programs, Mr. Reardon is regularly called upon to provide expert witness testimony and litigation support. Mr. Reardon is a licensed Professional Engineer in Maine, Massachusetts, Rhode Island, New Hampshire, Connecticut, and Vermont.

Matthew W. Moyen, PE

Mr. Moyen is a Senior Project Manager at Tetra Tech with 16 years of experience in planning, civil engineering design, permitting, and construction as part of multidiscipline and multi-firm project teams. He leverages his diverse skill set and technical background to lead a range of commercial, industrial and residential land development projects, renewable energy projects, and stormwater programs to successful completion for public agencies and private clients. Mr. Moyen also provides peer review services of complex projects for municipal boards and state agencies. Mr. Moyen is a licensed Professional Engineer in New Hampshire, with reciprocity underway in several states including Maine.

PC 17

Kelly Walker 11:13 AM
to planningboard

I believe this is the correct way to make a comment on the 58 Fore St project. When looking at the zoning ordinance it appears to me as though the proposed buildings do not follow the ordinance as pertains to height and potentially other zoning restrictions as well. As such I am reaching out with my concerns.

If this is not the correct format to make a comment please let me know.

All the best,
Kelly Walker

58 Fore St/ Portland Foreside Co

0 views Subscribe



martica douglas <tica1529@gmail.com> 7:25 AM (4 hours ago)

to Planning and Urban Development, Planning Board, atrevorrow@portlandmaine.gov, council@portlandmaine.gov

Dear City Planners and Planning Board:

I write to let you know that Tuesday night's neighborhood meeting hosted by the Portland Foreside Development Company was so woefully lacking in information relevant to the neighborhood as to call into question the competency and/or good faith of the Company. Residents tried without success to get clear information about the height of the proposed barrier between land and water and the Company's interpretation of the "view corridor" requirement. The presenters' vague answers suggested that the Company believes that it's acceptable to obstruct the Harbor from street view even in the mandated view corridors, and that thanks to some kind of cobbled together grade calculation which common sense recognizes as a “cheat,” 10-story buildings are acceptable along the City's eastern waterfront. They were also unable or unwilling to address residents' concerns about the huge increase in vehicular traffic we can expect on already max'd out Fore St.

This behemoth development will profoundly and heart-breakingly destroy the iconic landscape that is the Hill overlooking the Harbor. The Hill itself will be permanently and irrevocably walled off from the view of persons on the water and the water walled off from the view of persons on the Hill. Future generations are robbed of this priceless legacy. The City has a lot to answer for for tossing Munjoy Hill under the bus here. The very least you folks can do is to make sure the developer exercises good faith in calculating allowable heights and abides by the requirements of the master plan.

Tica Douglas
District 1

PC 19

Sandra L. Guay
Principal
sguay@archipelagona.com

Keith P. Richard
Principal
krichard@archipelagona.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

June 16, 2023

Via Email:
Portland Planning Board
Maggie Stanley, Chair
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
planningboard@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4. 5 and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

As previously noted, this firm represents John Roger Trettel. As the owner of property located at 5 Eastern Promenade, Mr. Trettel is a direct abutter to 58 Fore Street and the mixed-use development project that is the subject of the Portland Foreside Development Company ("Applicant") site plan Application currently pending before the Board ("Application"). While supportive of the general concept of the development, Mr. Trettel remains concerned about the serious and repeated deficiencies put forward by the Applicant in the Application.

As also put forth in Mr. Trettel's prior submissions, the Master Development Plan ("MDP") under which the Application has been submitted, has expired. There was only one way for an extension to have been granted under the express terms of the MDP and the 2016 Ordinance which governed that approval, and that was a written request by the applicant prior to December 22, 2022, followed by a determination by the Planning Authority that there had not been any changes to the underlying zoning or site plan standards that could substantially impact the project since the date of the MDP approval. At the very least, the critical amendment to the Inclusionary Zoning requirements should have been reviewed at that time. There is no evidence in the record that either a written request was made or that zoning amendments were ever considered.

While maintaining that the review of the Application should not proceed under the 2016 MDP, and without waiving that argument, Mr. Trettel provides the following comments to the Applicant's Block 5 submission.

I. The Applicant has not provided information or a narrative sufficient for the Board to make the required findings on applicable Code standards.

The latest amended Application submission purports to set forth consistency with various site design standards (the Applicant cites 2022 Code site design standards). Describing the content of the narrative on those standards as "sparse" would be generous. For example, regarding massing, ventilation, and wind impact, as well as shadows, the narrative contends compliance is met:

> **7.1 Massing, ventilation, and wind impact**
> Buildings have been designed within a context of similarly scaled new and existing buildings. All primary mechanical equipment is housed either within buildings, or within a fully screened extent of roof located to minimize disruption to abutting properties. HVAC venting is directed away from adjacent public areas.
>
> **7.2 Shadows**
> Buildings have been designed to minimize impacts of shadows on open space and public areas that would affect the viability of the public use and existing vegetation. Over the course of the day, direct sunlight will be provided to adjacent areas to promote the use and growth of vegetation.

Major Site Plan submission at 7-1 (Nov. 2022). It is not clear what "similarly scaled new and existing buildings" are being referenced, but the only comparable high-rise building in the area is the Portland House, which few would cite as a model of massing or indicative of any other buildings in the entire Munjoy Hill area. There is no detail or narrative that connects the various architectural components of the proposed development to the longstanding or new development in the area. The proximity to the waterfront means that there will be high wind conditions on the site, enhanced by the high-rise buildings and narrow corridors that break up the buildings, yet there are no wind studies illustrating the scope of that impact. As to shadows, anyone familiar with the progression of the sun as it passes over the Portland peninsula to the west, knows that the promenade experiences premature shadow caused by the hill in mid- to late afternoon. One can anticipate that buildings of this scale and mass will create an even more substantial and earlier shadow over one of most utilized public trails used by walkers, joggers, bikers, and others year-round. A shadow study should be commissioned to analyze these impacts.

It is unclear how, without significant additional information, the Board can find these standards have been met.

II. There are multiple flaws in how "grade" is being calculated, primarily related to the parking pedestal "structure" that purportedly straddles Blocks 4, 5, and 6.

We have previously addressed the miscalculation of grade and the misinterpretation of the height standard in prior letters and incorporate those comments by reference. Now that Blocks 4, 5, and

6 are fully before the Planning Board, the entirety of the so-called "parking pedestal" structure is under review for the first time.[1] Because "grade" and "height" are keyed to a structure, and the Applicant needs to leverage the extreme elevation gain up to Fore Street to elevate building heights across the site, the Applicant must convince this Board of the fiction that the parking pedestal is one single structure. The proposed parking pedestal[2] is, as a matter of fact, more than one structure and the 2016 "Overall Site Master Plan" requires that they be kept as separate structures with individualized height calculations.[3]

III. Height restrictions vary across the combined development site and thus grade must be evaluated segment-by-segment.

Block 4 ("Harbor Hill") and Block 6 ("The Channel Mark") are separate buildings on separate parcels that must be evaluated for height compliance as such. The Applicant, in its March 2, 2023 letter to Planning calls out Block 5 as proposed was, in the Applicant's own words in the original submissions, a separate building.[4] (Woodard & Curran Letter Mar. 2, 2023.) Although stating Blocks 4+6 and Block 5 will be *separate* construction, the Applicant characterizes Block 5 as a "phased addition" to the "single building structure." As Maine courts have stated dryly, "Painting a pumpkin green and calling it a watermelon will not render its contents sweet and juicy." *Sacred Feather v. Merrill*, No. 07-18-B, 2008 U.S. Dist. LEXIS 47543, at *9 (D. Me. June 19, 2008).

Furthermore, the plans submitted clearly depict separate buildings and any reasonable observer of the site will see a group of free-standing separate buildings, despite whatever integrated infrastructure may link them. An example illustrates the absurdity of the argument: As applied to the new Townhouse buildings that are proposed to line Fore Street, this would be equivalent to considering the buildings across the street as one structure if there was a subterranean parking

[1] As was noted in the Planning Board's December 2016 decision on the Master Development Plan, "if the parking base is built in phases, the average grade for each phase will need to be evaluated for consistency with the B-6 Height Overlay. There are no final building designs in a MDP plan Application, so this review addresses the feasibility of the site design concept as proposed." (PB 12/20/16 decision at 12.)

[2] With only approximately 30 parking spaces within Block 5, it is unclear how much, if any significant actual parking connected with Block 5 is located there.

[3] The Applicant includes the Development Block Layout Plan from the 2016 MDP, but conspicuously omits the Overall Site Master Plan – the plan that shows the approved layout of structures within those Blocks.

[4] The Applicant states "Block 4 and Block 6 are considered one building. The building has pedestal parking at the base, with connected and architecturally varied residential uses above. This approach was presented and agreed to in the MDP approval and was documented in the Staff memos to the Planning Board as part of that process. Block 5 will be a phased addition to this single building structure. We will address Block 5 as part of the site plan application to be submitted separately." (Woodard & Curran Letter Mar. 2, 2023.)

garage under Fore Street that linked them. No rational interpretation of code standards or development norms would support such an assertion.

For the height standards to have any rational relationship to the structures that are being regulated (which is required by how grade and height is defined in the Code), the height standard cannot be applied as proposed but rather must be applied in segments, either by (1) each building; or (2) each parcel of the 10-parcel subdivision that comprises the site; or (3) each Block. Any of those three methodologies follow from the Code, the B-6 Height overlay, and the objective factual circumstances presented by the site.

The "parking pedestal" as a "single" massive structure is a tool of manipulation that is more fiction than fact. The manipulation is particularly obvious and consequential when one considers the average grade of Block 5, which is approximately 14' above MS. Even using the 2016 MDP version of the B-6 Height Overlay, the building envelopes that Block 5 straddles restrict heights to 45' and 45' with extensions to 55', meaning that no structure within the Block 5 building envelope should exceed 69 feet in total height. Block 5 proposes an eight-story building "comprised of a hotel, residential condominiums ground-level retail and restaurant, and below-grade parking." The structure(s) will clearly exceed 69 feet.

IV. Even assessing the site as a whole, the "average" as calculated is not an accurate average.

Even if the site is evaluated as a whole in calculating grade, the "average" is not a true average. A middle schooler with a rudimentary grasp of calculating averages could tell you that concentrating 75% of your data points in one limited area, rather than evenly distributing the points and collecting data at consistent intervals, will skew your results and will not produce an average of the whole. Polling a political issue by querying 75 Portland peninsula residents and 25 residents from the farthest rural corners of the State will not produce survey results that could be fairly presented as the opinion of "the average Mainer."

In our March 17 submission, we described two methods of determining average grade of the site using the City's grade and height methodology.[5] The first involved applying the industry standard topographic method across the entire Block 4, 5, and 6 "superblock" as was shown by the Applicant in 2016 that they improperly utilized to establish an estimated average grade of 50.1 feet. The true average grade is approximately 29 feet when calculated accurately, scientifically, and objectively without skewing the data points to the highest elevation corners of the site to "gain" more height. (Trettel Letter, March 17, 2023, Attach. A.)

[5] For the reasons stated herein and in prior submissions to this Board, we maintain that the City's interpretation of "grade" is arbitrary, unlawful, preempted, unconstitutional, and void.

The second method utilized the City's method of measuring grade from the primary foundation corners of each building (generally assumed to be four corners). Using this methodology, we demonstrated the average grade of the buildings on Block 4 and Block 6 is approximately 39 feet and 36 feet, respectively. Using this methodology, the average grade of the site of the Block 5 building would be approximately 14 feet. (Trettel Letter, March 17, 2023, Attach. B.)

If we apply the above "superblock" methodology to the new Block 5 building, the average starting grade would be 29 feet, thus resulting in a maximum allowable building height of 29+55 = 84 feet. Applying the City's "corners" methodology, the maximum allowable building height would be 14+55 = 69 feet. In either case, the 125 feet proposed by the Applicant far exceeds the maximum heights permitted in the B6 overlay zone. If the "corners" methodology is used on the superblock area, given the numerous "corners" (of what are really at least three separate buildings), the Board should be drawing an average from more than the six selective and highly subjective points that the Applicant has presented in its most recent average grade drawing. Of the six points the Applicant strategically placed on the drawing to achieve its target 50-foot average grade, four of them are concentrated on the highest edge of the site along Fore Street, with only two elevation points representing the low side of the parcel which comprises roughly 75% of the land area.

No advanced degree in engineering or mathematics is required to recognize that the grade calculations are not lawful or rationally supported by or connected to the available evidence and data.

V. The water views that the view corridors were intended to protect appear to have been eliminated.

The current proposed plans appear to eliminate a view of the water down the designated view corridors from Munjoy Hill. Notwithstanding the dimensional requirements stated in the B-6 Height Overlay notes, the clear intent of the view corridors and the spacing, massing, and building break around them was to preserve a view of Casco Bay from Kellogg, Waterville, St. Lawrence and Atlantic Streets. This intent was confirmed by renderings submitted in 2016 that show clear unobstructed sight lines down the view corridor to the water from the perspectives depicted. Those prior renderings with ocean blue are conspicuously absent from the present filings by the Applicant, which suggests that those views will be eliminated. It is not entirely clear what purpose the view corridors will now serve other than to present a horizontal view of new building rooftops.

The water views were not merely in the 2016 renderings; the approved MDP Application in numerous places spoke of the water views in connection with the view corridors, so it appears the Applicant is departing from a fundamental premise of their original proposals and prior MDP approval. *See, e.g.*, MDP Application (Sept. 2016) at 3-7 ("On the hill side, housing and planted courtyards step down the hill providing residents active and passive landscaped courts and mews to soften and enliven the architecture and to provide a lush ground plane which serves to maximize the view corridors"); 4-2 (celebrating the "preservation of significant view corridors to the water

and along the waterfront"); 4-3 ("View Corridors - Street corridor placement and design should provide for views to and from the water . . . .")).

If the City Council and Planning Board thought that the corridors would protect the water views, there has been a bait and switch.

VI. The submission does not even meet the layout that had been approved in the 2016 MDP.

The Applicant claims that the 2016 MDP approval is still valid and applicable when it works to its favor, for instance when relying on the 2016 Inclusionary Zoning requirement, but ignores the MDP when its provisions do not work in the Applicant's favor. In addition to the several ways this is illustrated in the discussion above, in its Permitting and Zoning Section. 2.3.4., the Applicant states that the "*the proposed development of Blocks 4, 5 and 6 is consistent with the general layout of the site on the Master Development Plan."* In fact, however, the proposed development of Blocks 4, 5 and 6 is not consistent with the general layout of the site on the Master Development Plan (MDP). For one thing, the design, separation and layout of structures are not as depicted in the 2016 MDP Overall Site Master Plan that, as noted above, has been excluded from the recent Application. Furthermore, the Applicant appears to simply take for granted that the newly acquired R-6 Zone property has been subsumed into the 2016 MDP approval. The R-6 Zone land that has been added to the new Application is not a part of the "second phase of development" of the 2016 MDP, as stated by the Applicant. Block 6 cannot be arbitrarily expanded beyond the MDP district in whatever way the Applicant schemes or desires, or what then is the purpose of defining the MDP district in the first place.

The dimensional requirements for the development were all based on the B-6 standards, there was never any consideration given to the separate R-6 requirements and any impact on the R-6 neighborhood, which would then have been factors in the original MDP review. Inclusion of this newly acquired property into the development plan is not "*consistent with the general layout of the site on the Master Development Plan."*

VII. The project is not in compliance with the character and form of the historic district.

For the reasons set forth in a March 31, 2023 letter to the Historic Preservation Board, attached to this letter for brevity and the Planning Board's information, the project as proposed does not meet the Munjoy Hill Historic District preservation standards.

VIII. Portland's lack of objective "grade" standards is an impermissible delegation of legislative authority to the Planning Board, would allow the Board to unlawfully grant variances, and violates constitutional due process and equal protection protections.

A decision left in the hands of the unfettered discretion of an adjudicator lacking objective standards is arbitrary and violates constitutional protections of due process and equal protection. These principles are well established in Maine law. *See, e.g.*, *Stucki v. Plavin*, 291 A.2d 508, 510 (Me. 1972) ("The governing rule, constitutionally mandated, may be simply stated as that in delegating power to an administrative agency, the legislative body must spell out its policies in sufficient detail to furnish a guide which will enable those to whom the law is to be applied to reasonably determine their rights thereunder, and so that the determination of those rights will not be left to the purely arbitrary discretion of the administrator."); *Wakelin v. Yarmouth*, 523 A.2d 575, 577 (Me. 1987) ("the absence of specific standards in zoning ordinances results in a denial of equal protection of the laws . . . The ordinance opens the door wide to favoritism and discrimination by permitting the Board to grant or deny special exceptions for reasons that are unconnected to the ordinance but that masquerade as quasi-judicial findings of fact."); *Perkins v. Town of Ogunquit*, 1998 ME 42, ¶ 9, 709 A.2d 106 ("Such a scheme would permit a town to circumvent the Legislature's express and implicitly exclusive grant of variance-granting authority to boards of appeals. . . . The statutory language is clear that allowing planning boards variance-granting powers would frustrate the purpose of the statute."); *Kosalka v. Town of Georgetown*, 2000 ME 106, ¶ 17, 752 A.2d 183 ("Because the condition that all proposed developments 'conserve natural beauty' is an unmeasurable quality, totally lacking in cognizable, quantitative standards, this condition is an unconstitutional delegation of legislative authority and violative of the due process clause.").

The City's proposed interpretation of "grade" as "average developed grade" would allow heights that are limited only by whatever the Applicant introduces for fill or creative parking pedestals or retaining walls—a regulatory gap, that on its face and as applied to the present Application, renders height restrictions objectively meaningless. Leaving the Planning Board discretion to determine "grade" as "average developed grade" results in a Code height standard that violates at least three core tenets of constitutional and administrative law: (1) the standard is an impermissible delegation of legislative authority to an adjudicatory decision maker, the Planning Board, which is a function that is expressly and solely the power of the legislative arm of government, the City Council; (2) the standard, which can essentially be relaxed, amended, or suspended to suit the application, would allow ad hoc variances from height restrictions, a function that is similarly outside the Planning Board's powers, but rather committed to the Zoning Board of Appeals; and (3) the height standard, as interpreted, is unconstitutional and void because the public and property owners to whom the standards apply cannot discern a consistent, objective standard that they or their neighbor may be held to. The lack of definition of "grade" and thereby an objective measure of how height restrictions are calculated is unlawful and unconstitutional.

In summary, the Application fails in the most significant ways to meet the standards and requirements of the City Code, or even of the now expired 2016 MDP. Mr. Trettel appreciates the Planning Board's continued examination of the Application.

Very Truly Yours,

SANDRA L. GUAY

KEITH P. RICHARD

Copy to:
John Roger Trettel

Sandra L. Guay
Partner
sguay@archipelagolaw.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

March 31, 2023

Via Email:

Portland Historic Preservation Board
Robert O'Brien, Chair
c/o Evan Schuekler, Program Manager
City of Portland
389 Congress Street
Portland, ME 04101
evans@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4 and 6
Historic Preservation Board Review Workshop
HPBR-002380-2023

Dear Chair O'Brien and Board Members:

This firm represents John Roger Trettel, the owner of property located at 5 Eastern Promenade, and a direct abutter to the proposed new construction and development at 58 Fore Street as presented in the Historic Preservation Board ("HPB") Review application ("Application") submitted by Portland Foreside Development Company ("Applicant"). This letter is submitted to voice Mr. Trettel's concerns about the proposed development's impact on his property and on the Munjoy Hill Historic District. Mr. Trettle makes these informed observations as the recent recipient of the 2023 Preservation Buffalo award for his work in the renovation of historic structures in Buffalo, New York.

The HPB is also in receipt of Mr. Trettel's March 17, 2023 letter to the Planning Board, which is incorporated into this letter and included in the record to this Board. The March 17 letter lays out in detail: (a) that the 2016 Master Development Plan ("MDP") for this project expired in December of 2022 and was never extended as required by both the City Code in effect in 2016 and as explicitly conditioned in the MDP itself, and is therefore void; (b) that the proposed new development violates the City's height restrictions on numerous grounds; (c) that even if it didn't violate the City Code on height restrictions, the methodology used by the Applicant to calculate height for the new structures in flawed, leading to significant errors in the height calculation (by more than 20 feet); (d) that the Applicant is including land that is not included in the 2016 MDP and is in fact located in an entirely different zone (the R-6 zone, which is in the Munjoy Hill

Historic District); and, (d) that that Applicant has failed to submit sufficient right, title or interest for areas of the proposed new construction that are outside of the Applicant's control, including both private and City property.

While each of these issues, well supported in the March 17 letter, are important to this Board in its review of the Application, the purpose of this letter is to focus on the additional review criteria subject to HPB review. In addition, this letter suggests that in light of the void MDP, the incomplete Application and the unresolved height calculation issues, the HPB should table the review of this Application until such time as a new and complete non-MDP application is submitted, and the height questions resolved.

I. The Application is Not Complete

The purpose of having a complete application prior to acceptance and initial review by any administrative board is to avoid waste of the board's time in the event that an applicant is either unable to provide what is needed in the application, and/or the applicant needs to significantly alter the application after review has already commenced, public comment has been received, and time has been expended. In this case, the City Code *requires* that an application submitted for review to the HPB must be deemed complete *before* that application is placed on a HPB meeting agenda. (Sec. 17.7.4.A). In addition to insufficient evidence of right, title or interest and insufficient evidence of adequate financial security, as noted in the March 15, 2023 Staff Memorandum to the HPB from Evan R. Schuekler, there is "significant amounts" of information that is lacking from the Application. The Application, as submitted, therefore lacks sufficient and required substantive information for the Applicant to have standing for even a workshop review by this Board, and review of the Application should therefore be tabled.

II. The Project is Not in Compliance with the Character and Form of the Historic District

In part, the stated purpose of the City's Historic Preservation Code is to "prevent the unnecessary loss of the community's historical features and to ensure compatible new construction." (Sect. 17.1.C). By manipulating the otherwise allowed height for structures in the B-6 zone, the massing of the proposed townhouses is significantly out of scale with the existing historic structures, leaving these historic structures shaded and dwarfed in comparison. This oversized scaling fails to meet the stated purpose of the Code, and additionally fails to protect and enhance neighborhood character (Sect. 17.1.E), fails to stabilize and improve the value of the designated properties and area (Sect. 17.1.F), fails to protect and enhance the attractiveness of the City (Sect. 17.1.G), and fails to foster and encourage preservation, restoration, and rehabilitation that respects the historic, cultural, architectural and archeological significance of the distinctive Munjoy Hill historic area and the historic structures (see discussion about the historic seawall in an email addressed to this Board from Barbara Vestal, dated March 29, 2023).

The original seawall structure is a significant archeological resource in the City of Portland. (Sec. 14.6.4.3.i). As such, it is subject to the requirements of that Section of the Code, including "leaving archeological resources untouched beneath a new development through adaptation of foundation design or architectural layout". (Sec. 14.6.4.3.a). The Applicant is required to provide evidence if complete protection is not feasible. (Sec. 14.6.4.3.b). Further, the need to impact the City's historic seawall in any way does not appear to be supported by evidence right, title or interest to do so. In addition, old maps of the area encompassing Block 4/Block 6, indicate that a fort was at one time located in that area. An archeological study should be required to identify whether the fort is located within the proposed development area, and if so, to make certain that any further development at the very least documents and where feasible, preserves, that important piece of Portland history.

The Munjoy Hill Architectural Development & Context Statement (April 2019) also illustrates how the proposed new structures fail to comply with the standards for the Munjoy Hill Historic District. For example, in the 'Visual Character of the Hill' section of the Context Statement, the scale of the existing houses is described as "generally modest" with most buildings ranging from 1½ to 3 stories in height. The Statement points out that this is the reason why some of the later developments "do not feel sufficiently integrated with the neighborhood." This statement easily applies to the tall, narrow structures proposed in the Application.

In addition, the review standards provided in Section 17.8.3.A of the City Code require that new construction in a Historic District must be visually compatible with surrounding structures "when viewed from any street or open space" with respect to height, width, proportion and scale. Section 17.8.3.B requires that the composition of the principal facades be visually compatible with structures, public ways and places to which the building is visually related. Section 17.8.3.C requires such compatibility with relation to the street. Section 17.8.3.D. requires that "the distinguishing original qualities or character of a structure, object, *or site and its environment,* not be destroyed" (emphasis added). There is no amount of wordsmithing by the Applicant that can make the proposed new structures meet these mandatory standards.

Furthermore, one critical "open space" from which these structures can be viewed is the water. For centuries, boaters have enjoyed the view of Fore Street and Munjoy Hill as seen over the top of the Portland Company buildings. The proposed structures will block and destroy this historic view forever. Likewise, because the proposed structures do not "step down" toward the water, they will forever block the view to the water from Fore Street and other locations on Munjoy Hill.

III. The Height Issue Must be Resolved Prior to Review by this Board

As fully illustrated in the March 17, 2023 letter to the Planning Board, on which this Board was copied, there are numerous issues with the way height has been calculated for the proposed new structures. In part, the Applicant (and previously, the City) has been applying an "average

developed grade" from which to begin to calculate height. Not only is this term not defined in the Code, it makes no logical sense. As used, it would mean that a developer can bring as much fill onto a property as it wants to raise the pre-measurement height to any level it desires (in this case even using another structure, the parking structure to establish "average developed grade"). In effect, this means that the City has *no enforceable maximum height restrictions*, as the starting point from which to start calculating height can be artificially manipulated to whatever the developer desires and can afford. Here the existing Portland Company site has a historically established grade – the parking lot – and it is from here that the height of the structures should be measured.

In the MDP, despite the radically elevated rear portion of the property along Fore Street, the City's Planning Office permitted the Applicant to use a method of calculating the "average developed grade" by allowing the developer to calculate an average at the corners of the building foundation. In the application to the Planning Board, it was however readily apparent that rather than use the industry standard for determining an average grade, the Applicant had taken numerous measurements from the highest side of the property, and very few measurements from the lower elevation of the property. In doing so, the supposed "average grade" was manipulated to look significantly greater than it actually is; a difference of *over 20 feet*.

Until the issue of height calculation is resolved, it is a waste of this Board's valuable time reviewing an application for structures that have been designed around these miscalculations.

IV. Summary

The Historic Preservation Board has always played a critical role in the review of applications before it and, in keeping with the legislative wishes of the City and of the surrounding community, works diligently to ensure that new development in Portland's historic districts meet the letter of the Code. The Board often gets only one shot to reshape a proposed development – or to disapprove of a proposed design in its entirety when, as proposed, the project fails to comply with the Code.

There is of course great significance to all applications that come before the HPB, from the perspective of the Board, the applicant, and the community. The size and scope of the 58 Fore Street project is however unique in many respects. The all-encompassing, view blocking scale of the proposed structures now before this Board would forever alter and destroy the historic nature of Munjoy Hill, as viewed both from the streets of the City and from the water.

The 2016 Master Development Plan has expired and is now void. The Application as submitted is woefully incomplete, in part lacking necessary evidence of right, title or interest. The height calculations proposed by the Applicant are artificially manipulated and otherwise fail to comply with the Code. The project area includes land in the R-6 zone and outside of the scope of

even the now void 2016 MDP. Lastly, the Application fails to meet even the most basic requirements of the Historic Preservation portion of the Code.

On behalf of abutter John Roger Trettel, we ask that the Historic Preservation Board find the application to be incomplete and/or otherwise not in compliance with the required review standards of the City Code.

Very Truly Yours,

SANDRA L. GUAY

KEITH P. RICHARD

Copy to:

John Roger Trettel

PC 20

Dear Mr. Tetelman,

I am an owner of an apartment at 45 Eastern Promenade, and have a few questions for the upcoming meeting regarding Phase 2 of the Portland Foreside Master Development Plan.

1. There is growing traffic generated since Wex and recently Sun Life have become a part of the Fore Street/Eastern Prom/Franklin Street/295 traffic pattern. This of course will increase once the proposed 1,000 parking spots will become part of the Portland Foreside Master Development Plan. I've read the reports from various experts who have analyzed the proposed situation based on percentages, volume, etc.

(a) My concern is that currently there is parking on both sides of the street almost all the way between India Street to Fort Allen Park. Is a bicycle lane really going to be included in the new plans on such a narrow two-lane street in its current configuration, (with 2 hotels at the base)? Block 5/6 is going to be another hotel generating its own traffic.

(b) Between September and June, this street is a school bus route. In the mornings, children cross the street over to just past the Kate Moss Gallery going up the hill to catch their bus. Sometimes, and let's not forget these are children, they run out. If this becomes a higher traffic area, consideration of this will need to be made.

(c) I may have missed this in looking at what plans have been offered, but I do not see sufficient entries/exits for emergency use vehicles, i.e., MEDCU, fire trucks, police cars and vans. What are this company's evacuation plans in case of an emergency? Have they offered a plan? How are all those people going to get out in case of a fire? Have they created a fire drill plan? Think of all those people out on the street while fire trucks are trying to get in. I never see a building plan with a fire hydrant in it. I used to live in Manhattan; this is where this question stems.

Thank you for reading this.

Lisa Martorella

45 Eastern Promenade, Apt. 7J

Portland, Maine 04101

207-775-0472

58 Fore Street 0 views

Subscribe



Barbara Vestal <vestal@chesterandvestal.com> 2:08 PM (2 hours ago)

to Planning and Urban Development, planningboard@portlandmaine.gov, Charles Tetelman

Chair Stanley and Planning Board Members:

Numerous questions remain about the proposed development at 58 Fore Street. This last 1700-page packet contains more questions than answers. I hope the Planning Board will take its time to work through all of the issues. Each aspect of the project should receive your full scrutiny, without cutting any corners due to the massive size of the project.

In my mind, the outstanding issues include:

1. **Whether the Master Development Plan expired by its own terms** on December 20, 2022, without a requested extension. I do not find Ms. Grimando's memo to be convincing. Perhaps only a court will be able to resolve that issue. Obviously, it makes a big difference in terms of the required affordable housing percentage, as well as whether the applicant will be required to comply with other changes to the regulatory framework since 2016.

2. **Whether the heights of various buildings meet the zoning requirements**. Staff has determined that block 4 does not meet the building extension width, depth or spacing requirements and will need to be revised. While that is true, it also appears that the proposed development as a whole does not employ proper average grade calculations for the individual blocks. The structures on Blocks 4, 5 and 6 are **three separate buildings**, not "towers" on a single functionally-required, integrated "parking plinth". It should not be enough to qualify as a single building that they might be designed to touch each other. Furthermore, the B-6 Building Height Overlay & Building Envelopes map identifies by different colors specific Building Envelopes. Block 4, Block 5 and Block 6 are different Building Envelopes. They are separate buildings, so Blocks 5 and 6 cannot "borrow" the height immediately along Fore Street (in a separate building envelope) to boost the height otherwise allowed in Block 5 and Block 6. **Each Building Envelope requires its own average grade calculation**. Furthermore, the applicant should not be allowed to use a system of calculation that gives undue weight to the uphill portion of the site. While these tricks and slights of hand may benefit the applicant, they impose a great burden on the public as a whole by allowing the creation of a massively out of scale development which will have an impact which is way beyond that which was anticipated in the original rezoning.

3. **Whether the City should grant an "encroachment license" to place footings within the Fore Street right of way above the retaining wall.** While the memo says this is being reviewed by Corporation Counsel, Planning Authority and Dept of Public Works, many questions remain. **Wouldn't this need approval by the City Council**? Don't they need additional approval to cross over the retaining wall with the entrance to the parking garage? Who is responsible for damage to the retaining wall during construction? Have adequate technical assessments of the wall been done? Does the proposed document adequately address the allocation of the maintenance responsibility for the existing 150-year old retaining wall along Fore Street.

4. **Whether the applicant proposes proper treatment to the required "view corridors."** While the required "view corridors" are inadequate to preserve public visual access from Fore Street to the harbor, they are all the City required at the time of the rezoning. They should be enforced to the maximum extent possible. The Planning Board should be protective of their treatment to preserve what little access they do provide. It should ensure that both building and non-building

elements do not obscure them. Close attention needs to be paid to landscaping plans which are in conflict, to signage for the parking garage entrance, to railings, roof-top appurtenances, temporary structures such as canvas shade structures, and other elements that have the potential to obscure the protected views.

5. Whether a new Traffic Movement Permit should be required. The traffic for the proposed development has always been burdensome for the Munjoy Hill neighborhood. Originally the developer said that only the residential owners would be allowed to access the parking garage from Fore Street. Over time that evolved so that the applicant is proposing that Fore Street will become the primary access for the entire development. The current traffic movement permit expires in May 2024, which according to the staff memo, means that all construction associated with that traffic movement permit needs to be completed by May, 2024, or the permit will automatically expire and the applicant will need to reapply for and receive approval of a traffic movement permit before continuing construction or opening the facility. It seems highly unlikely that construction will be completed by May, 2024. This seems like the appropriate opportunity to revisit the allocation of traffic between Fore Street and Thames Street as part of a required new traffic movement permit.

6. Whether the proposed development adequately fits in with the adjacent neighborhood. Once the overall height and massing, encroachment and impact on the Fore Street retaining wall, view corridor, and traffic impact issues are addressed, there are many remaining details to be addressed that will help determine whether the proposed development adequately respects its context. For example, the applicant is requesting a waiver for driveway apron grading affecting the pedestrian ramps in the vicinity of the parking garage driveway. It is important for pedestrians, including all who are mobility impaired, to have adequate, unobstructed access along the sidewalk on the waterside of Fore Street, from the “grand staircase” at the bottom of the hill all the way up to the Eastern Promenade. Any pedestrian solution needs to be self-contained and not be dependent upon the applicant or successor to engage in ongoing maintenance to clear leaves, trash and other obstructions from ramps. The applicant has not shown itself to be attentive to removing snow and ice along Fore Street over the past several years. It is not unreasonable to expect a similar lack of attentiveness to other forms of pedestrian obstruction.

Thank you for your attention to these thoughts. I look forward to your continued discussion of these fundamental issues.

Regards,

Barbara Vestal

58 Fore Street 0 views

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to Planning and Urban Development, planningboard@portlandmaine.gov, Charles Tetelman

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Thank you for your attention to these thoughts. I look forward to your continued discussion of these fundamental issues.

Regards,

Barbara Vestal

PC 23



Charles Tetelman <ctetelman@portlandmaine.gov> Jul 12, 2023, 11:36:56 AM (22 hours ago)

to Planning Board

---------- Forwarded message ---------
From: **Roger Trettel** <rogertrettel@gmail.com>
Date: Wed, Jul 12, 2023 at 11:01 AM
Subject: Planning Board Workshop 7-11-23 Comments
To: Charles Tetelman <ctetelman@portlandmaine.gov>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>, Sandra Guay <sguay@archipelagona.com>

Dear Charles -

Thank you for providing the opportunity to speak at yesterday's Planning workshop pertaining to the 58 Fore St. project. I had prepared comments that I was going to send, but because I was able to attend the meeting, I read them in. I am attaching the written version of them here for the paper record.

I must say I was surprised to hear that Planning is beginning to buy into the notion that the 3-building project consists of a single building and that the obviously manipulated grade elevations are correct. I may suggest that asking the applicant to calculate the average grade by taking measurements at even intervals (say every 50-100 feet) around the perimeter of the site would be a good cross check of the 6-point figure they have most recently produced. As this is an approved alternative method of calculating grade in the code, it would be an easy check to help put this issue to rest. If the applicant is unwilling to do this, perhaps the staff could do it as a quick check.

Thank you for the opportunity to comment.

Sincerely,

Roger Trettel
5 Eastern Promenade, Portland

--
Charles Tetelman (he/him)
Planner
ctetelman@portlandmaine.gov || 207-874-8724
Planning & Urban Development Department
City Hall - 4th Floor, 389 Congress Street
Portland, Maine 04101

- My name is Roger Trettel and I am the owner of 5 Eastern Promenade, a direct abutter to the project on two sides of my property. I agree with comments made on my behalf and the written comments we have submitted. As I have stated before, I don't object to the project; I only object to aspects of it that don't comply with the code. I am an experienced developer of a variety of projects for over 30 years and understand the importance of full code compliance and the legal responsibility of the regulator. If a project cannot be built in compliance with the law/code, it is fundamentally flawed.

- Our comments to date are not the arm-waving rantings of uninformed obstructionists who just don't want change. These are thoughtful, informed, and objective comments, put together by experienced and highly trained professionals who understand the law and engineering and development principles.

- Regarding the fundamental issue of building height (which effects essentially every aspect of the project in a cascading manner) we have engaged a world class engineering firm with professional engineering experts who have objectively concluded there is no rational way to arrive at the average grade of 50.0 feet the whole project is based on. It is simply wrong – it was wrong in 2016 and it is wrong today. The obviously blatantly skewed grade calculations and renderings prepared by the applicant and its engineer/architect frankly should insult the intelligence of the Planning staff, the Board, and the public.

- I commend the Planning staff for asking questions about this critical issue and encourage them to ensure that the applicant produces a realistic response that properly weights the existing grade conditions at the site and does not continue to manipulate the numbers to achieve the desired goal of obtaining more height not in compliance with code.

- The applicant maintains that the three buildings are in fact one building and bases their entire grade analysis based on a total of only 6 elevation data points, with four of them strategically selected on the high side of the site. However, much of the applicant's drawings and renderings reflect three separate buildings. This is most clearly shown by the applicant's construction process renderings on pages 479-491 of its most recent filing. Three building envelopes will generate different grade elevations and height limits for the project. But whether it is treated as a single building or three separate buildings, the average grade calculated by the applicant is too high, not rationally supportable and cannot withstand objective professional scrutiny in court.

Thank you for the opportunity to comment and I strongly encourage the Planning Staff and Board to be objective, thoughtful and analytical in your review of every aspect of this project. I believe this can be a really nice project simply by building a project that is in compliance with the code and with the intentions of many years of eastern waterfront zone planning. In doing so, this project can be a win-win for the Applicant, the City, the neighbors on Munjoy Hill, and overall for the people of Portland.

PC 24

From: **Roger Trettel** <rogertrettel@gmail.com>
Date: Wed, Jul 26, 2023 at 11:25 AM
Subject: 58 Fore St. Public Comment - Historic and Planning - "One Block" Perimeter Grade Measurement
To: Charles Tetelman <ctetelman@portlandmaine.gov>, Evan Schueckler <evans@portlandmaine.gov>
Cc: Kevin Kraft <kkraft@portlandmaine.gov>, Sandra Guay <sguay@archipelagona.com>

Dear Mr. Tetelman and Mr. Schueckler,

I submit this comment and attachment as an abutter to the 58 Fore St. project at 5 Eastern Promenade. The issue of average grade and resultant height of the project is critical to the overall Planning analysis and thoughtful Historic analysis of impacts to the surrounding Munjoy Hill and Portland Company historic districts. The applicant has prepared an existing site grade map that depicts the 3-building complex as a single building and calculates the average grade of the dramatically sloping site with 5 strategically-placed points and comes up with an average grade of 50.0 feet.

Because the majority (approx 70%) of the site is at a lower grade (approx 13-14 ft) and it exhibits extreme grade changes only at the northern and eastern portions of the site, it is much more appropriate to calculate the average grade using the unbiased method of measuring elevation at a set standard interval around the perimeter of the site (in this case every 100 feet). Attached is the applicant's site map with grade elevations measured at 100-foot intervals. When employing this simple and unbiased perimeter method, a total of 22 points are measured, resulting in an average grade of the site comprising the "one block" concept of 38.5 feet. The applicant has based its entire project on a number that is at least 11.5 feet and 23% higher than is the reality of the site. The resultant taller buildings are not in compliance with the B6 height overlay and thus have an undue effect on the properties of the Historic Districts and the eastern waterfront at large.

Thank you for the opportunity to comment.

Sincerely,

Roger Trettel
5 Eastern Promenade

PC 25

Sandra L. Guay
Partner
sguay@archipelagolaw.com

Keith P. Richard
Principal
krichard@archipelagona.com

1 Dana Street
Portland, Maine 04101
(207) 558-0102

August 23, 2023

Via Email:

Portland Planning Board
Maggie Stanley, Chair
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
planningboard@portlandmaine.gov

Re: Portland Foreside Development Company
58 Fore Street/Mixed Use of Blocks 4, 5 and 6
Level III Site Plan, Subdivision and Conditional Use Application

Dear Madam Chair and Board Members:

As noted in prior correspondence, this letter is sent on behalf of John Roger Trettel, an abutter to 58 Fore Street and the mixed-use development project that is the subject of the Portland Foreside Development Company ("Developer") site plan application currently pending before the Board ("Application"). Specifically, this letter addresses comments and statements made during the Planning Board's discussions at the August 15, 2023 workshop meeting on the Application.

With all due respect to Planning Staff and to the members of the Planning Board, the review that this project has undergone and the leeway and concessions the Board appears ready to apply to this project, based largely on Staff recommendations, seem frankly inexplainable. In particular, the City seems determined to permit the Developer to manipulate the height of its structures to the point of incredulity. Here is a partial list of these apparent concessions:

1. At the August 15, 2023 Planning Board workshop a discussion ensued about full elevator service enclosures, "appurtenances" and "occupancy". It was obvious from the discussion that the Developer intends to utilize the Block 5 rooftop (and perhaps others, as Block 6 has full rooftop elevator towers) as a "common area" for residents, guests and others to utilize as extended living area.

Merriam-Webster Dictionary, the go-to dictionary often used by courts in Maine, defines "occupancy" and specifically, "occupancy of the estate" as "*the fact or condition of holding, possessing, or residing in or on something."*

Likewise, the 2018 International Building Code, utilized by the City, classifies an occupied roof as an occupancy:

Where a structure is proposed for a purpose that is not specifically listed in this section, such structure shall be classified in the occupancy it most nearly resembles based on the fire safety and relative hazard. ***Occupied roofs*** *shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard, and shall comply with Section 503.1.4.* (2018 IBC 302.1)

Section 503.1.4 "Occupied Roofs" specifically relates to building and safety requirements for such occupation.

An "occupied" roof area does not therefore require a rooftop over it (or a tent); it does not even require walls, although the Developer will no doubt be required to add a wall on top of the roof for safety reasons, even further blocking views to the water.

Staff commented that there was "ambiguity" in the term "roof structures for the housing of elevators […..] or other building operating equipment not intended for human occupancy…." (2016 Code: 14-430(a)).[1] This term is not ambiguous. The rooftop is not intended for human occupancy and using it as such only creates yet another level of occupancy on a structure where height has already been manipulated to rise higher than ever intended in the 2004 Eastern Waterfront Building Height Study. There is no need for a full-sized elevator structure for maintenance access to a roof.

2. Both the applicant and Planning Staff seem to have ignored the state's Mandatory Shoreland Zoning Act (38 M.R.S. § 435, *et seq*.) and minimum Shoreland Zoning guidelines (Chapter 1000).[2] This state law applies to *all* land areas within 250 feet, horizontal distance, of the normal high-water line (NHW) of all tidal and subtidal lands. Approximately one-half of the project area lies within this Shoreland Zone. All new non-water dependent structures in the Shoreland Zone must be set back at least 75 feet from tidal NHW. This minimum setback should be demonstrated on any plans submitted for development.[3]

[1] At one point commenting that this was just discovered in conversations with this developer; at another point responding in the affirmative to a Planning Board question about whether this was the interpretation that has previously been universally applied in Portland.
[2] Chapter 1000, Guidelines for Municipal Shoreland Zoning Ordinances.
[3] With some exceptions (e.g., fences, electric poles and wiring, etc.), the Act defines "structure" as "anything temporarily or permanently located, built, constructed or erected for the support, shelter or enclosure of persons,

In addition, per the Act and Chapter 1000, new principal or accessory structures in the Shoreland Zone cannot exceed 35 feet in height, although the Guidelines do allow for municipal ordinances to exceed that maximum in certain shoreland zones, such as in a General Development District (GDD). The Portland Ordinance does not designate the B-6, or the now attached R-6 as a GDD. The City's Ordinance does provide for a 45-foot maximum height allowance in the Eastern Waterfront Port Zone (EWPZ), however residential uses are *prohibited* in the EWPZ. The zoning map appears to indicate that the EWPZ is located only on the easterly side of the footpath closest to the water so the enhanced 45-foot height allowance for the proposed development does not apply. In any event, calculation of the height of *any* structure within the Shoreland Zone area, whether that be 35 or 45 feet must, by statute, be measured as "the vertical distance between the mean *original grade* at the *downhill side* of the structure, *prior to construction*, and the highest point of the structure . . . ." 38 M.R.S. § 436-A(7-A).

Regardless of how Planning Staff appears to be interpreting the height measurement and allowances for this project, the City is not at liberty to simply ignore the statute and any attempt to do so for this project is preempted by state law. *See Sawyer Envtl. Recovery Facilities, Inc. v. Town of Hampden, 2000 ME 179, ¶ 27, 760 A.2d 257*. Furthermore, the Application does not include any information regarding shoreland zoning requirements and whether this project does, or does not meet *any* of those requirements.

3. The City seems prepared to buy into the illusion that three separate and distinct structures, designed by three separate and distinct architectural firms, are one single structure. This fiction has been manufactured by the Developer, strictly for the purpose of skewing the height measurements of the individual buildings by treating the separate "Blocks" as one single Block and then weighting the primary foundation corners requested by the City to calculate height to the highest possible locations. *In fact, when viewing the location of the primary foundation while on site, it appears that one or more of those points were taken from the top of the existing retaining wall. This would mean that the Applicant is stating that at least one primary foundation corner is located on top of the historic stone retaining wall.* Measured slightly south of that wall, where a foundation point would have to be, substantially reduces the grade from which height is being measured. This is the same situation for the small townhouse building to the west of the main entry that shows two of the four foundation points ***on*** the wall. *Prior to moving this Application to a public hearing, the Board should physically view the location of the corners of the building on site with staff to confirm that such points are where actual foundations would be set to support the buildings and not placed on top of the stone retaining wall.*

---

animals, goods or property of any kind or anything constructed or erected on or in the ground. The term includes structures temporarily or permanently located, such as decks, patios, and satellite dishes." 38 M.R.S. § 435(17).

The City also seems prepared to accept that height of a structure can be measured not from the ground surface, but rather from the top of a parking structure – or any other artificial base, thereby completely voiding the meaning in the ordinance of maximum height restrictions in any zone in the City for any developer who can afford to bring in enough fill, or create a parking "plinth", as has been done here.[4]

There is simply no reasonable or plausible way for members of the public to understand how the City is prepared to permit this Developer to do these things. And again, at least in the Shoreland Zone portion of the development, it is a clear violation of state law.

4. The depiction of the view corridors provided by the Applicant at the workshop showed views of the water from the Atlantic Street and Waterville Street corridors. The drawing of the St. Lawrence Street view corridor was stepped back further from Fore Street and was less clear, but it seemed apparent that the view down this corridor was of a building, not the water.

5. According to the August 11, 2023 staff memo, the Application uses 20,000 square feet from the 25,500 square foot parcel located at 21 Eastern Promenade, in the R-6 District. That leaves the 4 existing separate structures, containing multiple residences (and per the City's assessment data commercial uses as well) on what has become a 5,500 square foot lot. Each residential unit requires a minimum of 725 square feet, in addition to what is required for any commercial uses. The number of existing residential units and/or commercial businesses has not been provided. There are however approximately 27 new units proposed on the 20,000 square feet associated with the project. That leaves the remaining 5,500 for all other existing uses.

   It is also not clear from what has been presented if the entirety of 21 Eastern Prom is proposed to be subsumed into the project and therefore the MDP, or if a 20,000 square foot lot is being carved off. If it is being carved off, an apparently illegal nonconforming situation is being created as it leaves 5,500 square feet with several detached residential and commercial uses. If the plan is to not split the lot, then there are several additional uses being brought into the MDP that was never approved and that is not in conformance with the (now expired) 2016 approval.

[4] The Maine Supreme Court recently issued a decision in *Murray v. City of Portland*, 2023 ME 57, in which the Court refused to review or endorse the City's proposed application of the height standards absent additional findings of fact to support the Planning Board's conclusion. At the oral argument in May, the Justices expressed skepticism about the City's interpretation, which, in the words of one justice, would permit developers to reach "Dr. Seuss heights." The City's approach remains an open question and has not been blessed by the highest court in the state. We believe that the current application represents a far more egregious abuse of the height standard that would be struck down on appeal.

Finally, there was a good deal of discussion at last week's workshop about the City's historic stone retaining wall, and a comment in the August 11, 2023 staff memo raising a concern about possible compromise of the City's infrastructure. As mentioned on behalf of Mr. Trettel at the meeting (and as also noted by Attorney Costigan), the retaining wall is more than just that portion impacting the City's infrastructure. The retaining wall proposed for this project extends beyond the historic wall along Fore Street and goes around the back and side of the project, significantly impacting private property belonging Mr. Trettel and others. As now described and illustrated in the plans, that portion of the wall would require easements which, as previously mentioned, the developer does not now possess and may never possess. In whatever manner the wall is however ultimately constructed, the wall will reach heights of up to 70 feet and is going to either immediately abut, or abut and attach to, steep vertical slopes to be created by the applicant along neighboring property. A failure of any portion of this wall could be catastrophic, with likely loss of property and possible injury.

The building permit for this wall will come from the Code Office. However, the Planning Board can and should condition any approval on an ongoing requirement that the entirety of this wall be inspected yearly by an engineer, with a report going to the Planning Office, and if the wall shows *any* sign of distress, failure, or likely failure, that it be immediately repaired at the sole cost and expense of the developer, or the developer's successors, heirs, executors, administrators, or assigns.

Very Truly Yours,



SANDRA L. GUAY



KEITH P. RICHARD

SLG/lb
Copy to:

John Roger Trettel
Michael Goldman, Esquire, Acting Corporation Counsel

Kelly Walker <kellytwalker47@gmail.com> Jul 15, 2023, 4:04:02 PM (yesterday)

to planningboard@portlandmaine.gov

Hello - I wanted to make a comment about the most recent workshop for 58 Fore Street. It included vast amounts of information about the project including a massive retaining wall. This retaining wall obviously has to go in first before anything else. Will it be put in as separate parts as the 3 different buildings are put in? I know the applicant maintains that it is 1 building but the documents (and the fact that they are using different architectural firms) show otherwise. If it is put in in its entirety and then no further parts of the project go forward can we be sure the retaining wall will hold and that the buildings on the E prom and Fore St won't slide down the hill? The renderings show easements to hold the retaining wall in place. Are the easements already granted? After each meeting I find myself more and more concerned about the scope of the project and whether or not the applicant has all the ducks in a row.

Thank you for considering my comments.

Kelly Walker
REALTOR® | eXp Realty, LLC
207-699-8340
kellytwalker47@gmail.com
Visit my website
Office | 533 Congress Street | Portland, ME 04101 | (888) 439 - 8743

To : City of Portland Planning Board
From : Portland House Condominium Association
Re : Resident Engineers' Concerns with Foreside Block 6 Development Effect on Building Structure
Date : Sept 6, 2023

The Portland House Condominium Association would like to transmit the following safety concerns, recently raised by 2 engineers who live in the building, including structural engineer, Habib Dagher, with the Foreside Block 6 development and its potential effects on the Portland House building structure. The Association respectfully asks the City of Portland to address these requests before any final Master Plan approval or permits are issued:

1. **Blasting during construction near the Portland House:** We understand that blasting is planned as part of the Foreside Block 6 construction, and we have not seen any engineering reports or analyses regarding the effects of blasting on the Portland House structure. The city is urged to require an independent blast analysis that takes into account the current condition of the Portland House building, to prevent structural and nonstructural damage to the building. Results of such analysis may preclude blasting or provide criteria that limits blasting effects on the Portland House.

2. **Effects of major storms on the proposed retaining walls, accounting for latest climate change models.** Climate change is affecting how cities are planning waterfront construction all over the east coast. Extreme storms combining storm surges with extreme winds and wind-driven waves are expected to intensify in the decades to come. The Portland Foreside Development's Block 6 proposes a nearly a football-field long retaining wall abutting the Portland House, that may be rise as much as 50 ft in some locations. We have not seen an engineering report or calculations showing how these worse-case scenario storms have been specifically modeled and investigated, using climate-change predictions of extreme storms in our area. If these calculations exist, a thorough independent analysis needs to be undertaken including experienced climate change modelers. The concern is that these storms could create scour or undermine the proposed Foreside retaining walls abutting the Portland House, which may in turn undermine the foundations of the Portland house building. The city is urged to require such an independent third-party extreme storm analysis be completed before permits are issued for the Portland Foreside Block 6.

3. **Independent slope-stability calculations**: While RW Gillespie (RWG) provided a report regarding the proposed Block 6 easement request which covered slope stability, RWG did not run their own independent slope stability calculations (this could be a scope issue). The RWG report refers to calculations and safety factors calculated by Haley & Aldrich, which were not independently checked by RWG. Both firms are very reputable, but an independent calculation of slope stability has yet to be completed. The city is urged to have an independent analysis of slope stability for the new Block 6 retaining structure, which should also take into account the concurrent effects of extreme storms, flooding, wave, wind and scour.

PC 28

58 Fore Street 0 views

Subscribe



Barbara Vestal <vestal@chesterandvestal.com> 11:27 AM (9 minutes ago)

to Planning and Urban Development, planningboard@portlandmaine.gov, Charles Tetelman, Barbara Vestal

Chair Mazer and Planning Board Members,

I respectfully urge you to resolve numerous unanswered questions about the development at 58 Fore Street prior to taking a final vote on the pending applications. As you know, this is a massive development. For the sake of the abutters and the other residents of Portland, it is important for the Planning Board to take the time necessary to meticulously apply the controlling regulations.

Some of my comments have been made before. Others are new. I will address the newer comments first.

I. Focusing specifically on the northern elevation of the Block 4 development on Fore Street, I note that the applicant has again drastically changed what is apparently being proposed. The newest iteration appears to be in violation of zoning height requirements. For the August 15th workshop, plan A20-01 showed the area between Atlantic and St. Lawrence Streets as being developed with 2 townhouses and a one story retail space. (See attached A20-01 and enlarged portion) Now for the scheduled September 12th public hearing, the applicant has switched the plan to show six 3-story townhouses in that same space. (See attached G01-20). This newest plan seems to violate the B-6 Building Height Overlay requirements.

It appeared that plan A20-01 was developed based upon a careful reading of Note 1 of B-6 Building Height Overlay & Building Envelopes. That note states: "For buildings located East of Hancock Street . . . no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 80 feet apart, measured parallel with the waterfront . . . .) (See attached B-6 Building Height Overlay Map)

The other applicable restriction is Note 5: "For buildings located east of the area indicated for the future Fore Street Connector Road, no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.

Lines on A20-01 carefully delineate where the applicant is utilizing the 65' extension for the 2 3-story townhouses (orange line) within the allowed 70-foot wide extension, and show that the retail portion is utilizing the entire allowable 45' height (pink line).

In contrast, the new proposal for the September 12th public hearing seems to omit all illustration of claimed compliance with the height limits, contains no lines showing maximum heights, and ignores the Note 1 70' width maximum for extensions above 45'. The extension to 65' (for all 6 townhouse units) exceeds 70' in width. Surely G01-20 cannot be approved as now proposed because it is not in compliance with the height restrictions.

I have the following additional observations about the Fore Street north elevation:

1. In A20-01 the applicant indicated that the actual heights of the buildings exceeded the allowed 65' and 45' heights by approximately 5' across the entire width of the building. It is unclear the extent to which this occurs in G01-20 because there is insufficient detail provided. I understand there may be some rooftop appurtenances which exceed the maximum building height, but it seems improper to grant a blanket 5 feet across the entire façade. The applicant should be allowed to exceed the maximum height only as necessary to accommodate reasonably required mechanicals and other allowed appurtenances.

2. Both sets of proposed changes in the Fore Street north elevation were made after the initial design review. Shouldn't some design review -- historic preservation staff or otherwise -- be required for any new Fore Street north elevation. Whether it is the single story retail space or the apparently currently proposed 3-story townhouses, it is all a new design between Waterville and Atlantic Streets. At least part of it is within 100' feet of an historic district, thus subject to design review pursuant to site plan standards.

3. The applicant's submissions in the CSS portal do not include updated elevations which incorporate the G01-20 changes. Updated elevations and more detail should be required. However, if only the structures have changed, it is apparent from Overall Elevation - North and the representation of "Fore Street @ St. Lawrence Street" (attached) that one or more large planters are proposed within the 50' view corridor which appear to exceed the grade of Fore Street. Those raised planters extend into the view corridor and should not be allowed. Within the St. Lawrence St. view corridor, the same elevation depicts a gray area beyond the planters which also appears to extend above the elevation of Fore Street. It might be the top of Block 5. If so, it seems like another violation of the view corridor required by zoning. For both Blocks 4 and 5, for the entire 50' width of the view corridor, no structure should be permitted which would exceed the elevation of Fore Street.

4. Finally, I also question the representation of "Fore Street @ Waterville & B2 Townhouses" (attached) which purports to show the entrance to the parking garage. No signage is shown. Is there not going to be any signage for this huge parking garage? If signage is intended, shouldn't it be reviewed as part of this Planning Board process. Signage should not be permitted which would be located within the protected view corridor.

There are several other issues which I have addressed previously, which I will summarize here. They are detailed in prior letters and comments to the Planning Board.

II. **The way in which the applicant is calculating allowable heights is improper.** The claim that blocks 4, 5 and 6 constitutes one structure is not supported by the evidence. There are three separate buildings with three separate architects and three separate structural support systems. Borrowing height from the Fore Street frontage and claiming that it increases the average grade across blocks 4, 5 and 6 strain the developer-claimed loophole beyond all credibility. The maximum height for each block should be calculated separately. The applicant has also not met the over-riding height restrictions of mandatory shoreland zoning that apply to the portion of the site which is located within the shoreland zone.

III. **Multiple issues still need to be resolved concerning the structural interface with Fore Street** including: how to safeguard proper geotechnical support for Fore Street and how to maintain physical integrity of the seawall; whether the City should grant legal rights to the applicant to bridge over the seawall and to put structural supports on public land; and what entity will be responsible for subjacent support of Fore Street and the abutting neighbors once construction commences, during that after period after excavation has been initiated but before it has been completed, and post-construction should the proposed construction be completed. Each stage has its own complexities and the public interest needs to be fully protected during each stage should the City determine that it is appropriate to grant legal rights to enable the proposal.

IV. **It appears that the applicant's master development plan approval expired December 22, 2022 without an extension being requested or granted.** Without a continuing master development plan approval, the development is not grandfathered for the regulatory changes that have taken place since 2016, including, without limitation, the required percentage of workforce housing to be provided by the proposed development.

V. Proper deference is not being given to view corridors. While the required "view corridors" are inadequate to actually preserve public visual access from Fore Street to the harbor, they are all the City saw fit to require at the time of the rezoning. As deficient as they are, they should be enforced to the maximum extent possible. The Planning Board should be protective of their treatment to preserve what little access they do provide. It should ensure that both building and non-building elements do not obscure them. Close attention needs to be paid to raised planters and landscaping plans which are in conflict with view preservation, to signage for the parking garage entrance, to railings, roof-top appurtenances, temporary structures such as canvas shade structures, and other elements that have the potential to obscure the protected views.

VI. A new Traffic Movement Permit should be required. The traffic for the proposed development has always been extremely burdensome for the Munjoy Hill neighborhood. Originally the developer said that only the residential owners would be allowed to access the parking garage from Fore Street. Over time that evolved so that the applicant is proposing that Fore Street will become the primary access for the entire development. The current traffic movement permit expires in May 2024, which according to the staff memo, means that all construction associated with that traffic movement permit needs to be completed by May, 2024, or the permit will automatically expire and the applicant will need to reapply for and receive approval of a traffic movement permit before continuing construction or opening the facility. It seems highly unlikely that construction will be completed by May, 2024. This seems like the appropriate opportunity to revisit the allocation of traffic between Fore Street and Thames Street as part of a required new traffic movement permit.

VII. Many details remain unresolved which will impact whether the proposed development adequately fits in with the adjacent Munjoy Hill neighborhood. Beyond the broad overall height and massing, encroachment and impact on the Fore Street retaining wall, view corridor, and traffic impact issues, there are many remaining details to be addressed that will help determine whether the proposed development adequately respects its context. For example, the applicant was requesting a waiver for driveway apron grading affecting the pedestrian ramps in the vicinity of the parking garage driveway. It is unclear whether this is still being requested. In G01-20, there is a new suggestion that there may be some proposed terracing or stepping of the sidewalk interface (with a large drop/possible elevator at the foot of Waterville Street) but there is insufficient detail to know what this means. The applicant should fully detail the plan. It is important for pedestrians, including all who are mobility impaired, to have adequate, unobstructed access along the sidewalk on the waterside of Fore Street, from the "grand staircase" at the bottom of the hill all the way up to the Eastern Promenade. Any pedestrian solution needs to be self-contained and not be dependent upon the applicant or successor to engage in

ongoing maintenance to clear leaves, trash and other obstructions from ramps. The applicant has not shown itself to be attentive to removing snow and ice along Fore Street over the past several years. It is not unreasonable to expect a similar lack of attentiveness to other forms of pedestrian obstruction.

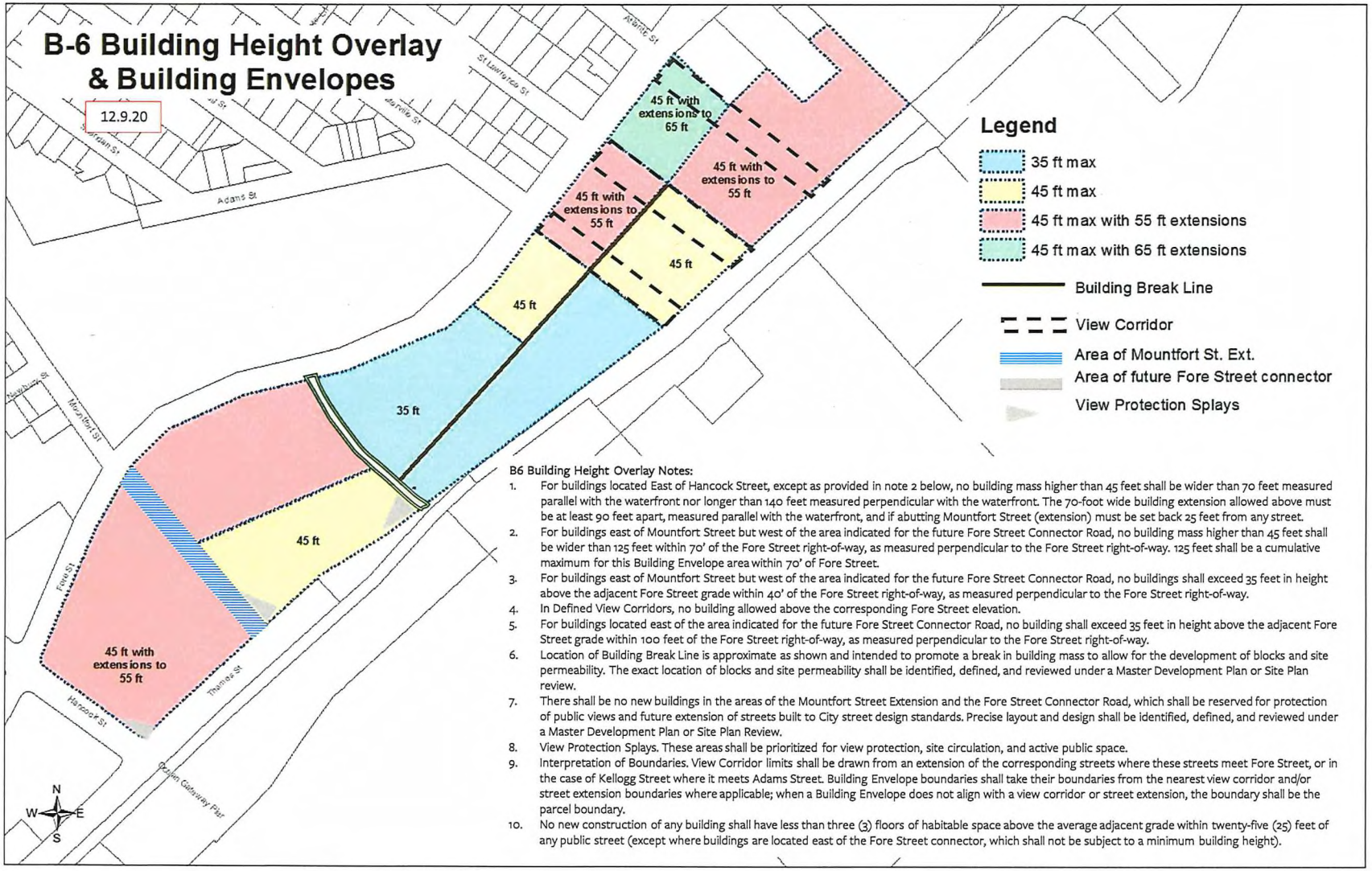
Perhaps the Planning Board can use the September 12th public hearing as an opportunity to request more information from the applicant so that it can fully understand and assess the regulatory compliance of what is being proposed now, and can determine what additional analysis or future submissions are required. As a matter of due process, the public should have an opportunity to review and comment upon the additional submissions before the Planning Board takes final action upon the pending application.

Thank you for your close attention to this matter.

Regards,
Barbara Vestal
7 Fore Street
Portland, Maine

--
Barbara A. Vestal
107 Congress Street
Portland, Maine 04101
(207) 772-7426 - phone
(207) 671-4410 - direct

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B6 Building Height Overlay Notes:

1. For buildings located East of Hancock Street, except as provided in note 2 below, no building mass higher than 45 feet shall be wider than 70 feet measured parallel with the waterfront nor longer than 140 feet measured perpendicular with the waterfront. The 70-foot wide building extension allowed above must be at least 90 feet apart, measured parallel with the waterfront, and if abutting Mountfort Street (extension) must be set back 25 feet from any street.
2. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no building mass higher than 45 feet shall be wider than 125 feet within 70' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way. 125 feet shall be a cumulative maximum for this Building Envelope area within 70' of Fore Street.
3. For buildings east of Mountfort Street but west of the area indicated for the future Fore Street Connector Road, no buildings shall exceed 35 feet in height above the adjacent Fore Street grade within 40' of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
4. In Defined View Corridors, no building allowed above the corresponding Fore Street elevation.
5. For buildings located east of the area indicated for the future Fore Street Connector Road, no building shall exceed 35 feet in height above the adjacent Fore Street grade within 100 feet of the Fore Street right-of-way, as measured perpendicular to the Fore Street right-of-way.
6. Location of Building Break Line is approximate as shown and intended to promote a break in building mass to allow for the development of blocks and site permeability. The exact location of blocks and site permeability shall be identified, defined, and reviewed under a Master Development Plan or Site Plan review.
7. There shall be no new buildings in the areas of the Mountfort Street Extension and the Fore Street Connector Road, which shall be reserved for protection of public views and future extension of streets built to City street design standards. Precise layout and design shall be identified, defined, and reviewed under a Master Development Plan or Site Plan Review.
8. View Protection Splays. These areas shall be prioritized for view protection, site circulation, and active public space.
9. Interpretation of Boundaries. View Corridor limits shall be drawn from an extension of the corresponding streets where these streets meet Fore Street, or in the case of Kellogg Street where it meets Adams Street. Building Envelope boundaries shall take their boundaries from the nearest view corridor and/or street extension boundaries where applicable; when a Building Envelope does not align with a view corridor or street extension, the boundary shall be the parcel boundary.
10. No new construction of any building shall have less than three (3) floors of habitable space above the average adjacent grade within twenty-five (25) feet of any public street (except where buildings are located east of the Fore Street connector, which shall not be subject to a minimum building height).

FACE BRICK TYPE DESCRIPTIONS

TYPE		DESCRIPTION	LOCATION
1a	MEDIUM IRONSPOT (NR (RED TONE))	ROMAN BRICK SIZE, RUNNING BOND, NO BRICK PROJECTIONS	FORE ST TOWNHOUSES, THAMES ST WRAPPER
1b		ROMAN BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	THAMES ST STOREFRONT HEADER & PUNCH ED...
1c		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	FORE ST TOWNHOUSE CORNICE
2a	MANGANESE IRONSPOT SMOOTH (GRAY TONE)	ROMAN BRICK SIZE, RUNNING BOND, NO BRICK PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK BASE
2b		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, NO PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK HEAD

NOTES:
1. REFER TO OVERALL ELEVATIONS AND ENLARGED EXTERIOR ELEVATIONS FOR EXTENTS OF BRICK TYPES.
2. STANDARD MODULAR BRICK SIZE AT SOLDIER COURSE LOCATIONS, INDICATED ON ELEVATIONS.
3. BRICK SOLDIER COURSE HEADERS ABOVE WINDOWS ARE INDICATED ON ELEVATIONS.
4. TYPICAL BRICK LOOKING LOCATIONS INDICATED ON ENLARGED ELEVATIONS UNLESS NOTED OTHERWISE. DEAD LOADING AT STRUCTURAL SLABS.
5. SEE ILLUSTRATIVE BRICK COURSING DIAGRAM ON A20-01 FOR MORE INFORMATION.

UNIT

SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1a

SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1b

COURSING FOR BRICK TYPE 1a

SINGLE SOLDIER COURSE TYPE 2b

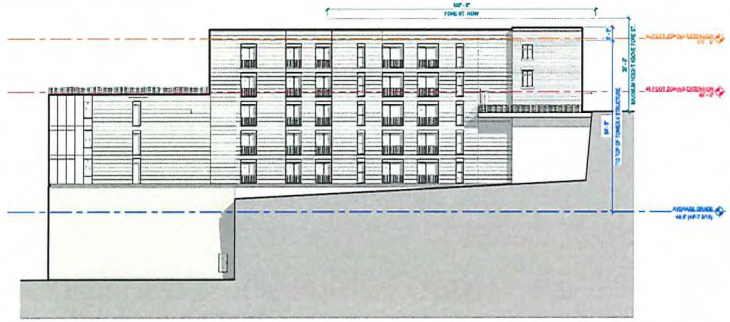
COURSING FOR BRICK TYPE 2a

FACE BRICK

FACE BRICK WITH 1" PROJECTION

REFER TO FACE BRICK TYPE DESCRIPTIONS FOR MORE INFORMATION

6 BRICK BONDING ELEVATIONS
1 1/2" = 1'-0"



5 OVERALL ELEVATION - EAST
1/16" = 1'-0"



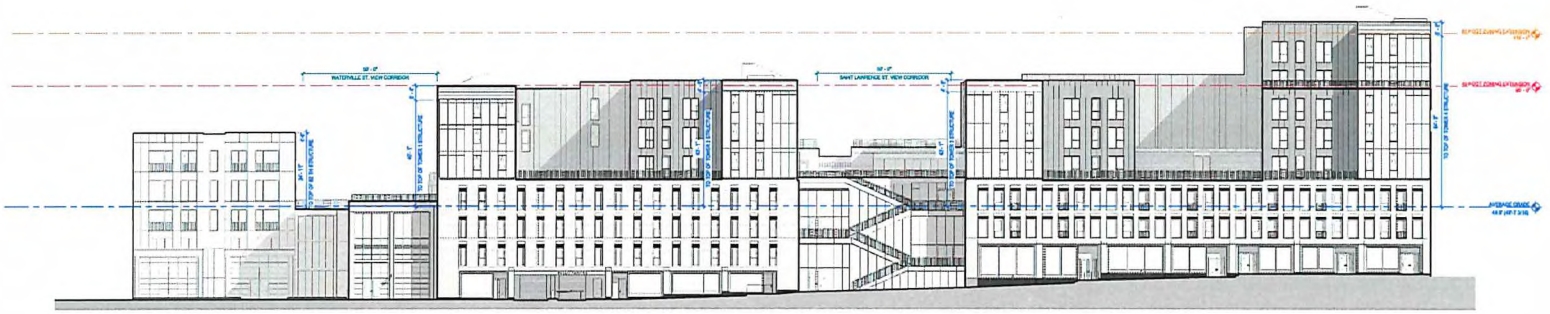
4 OVERALL ELEVATION - B2 EAST
1/16" = 1'-0"



3 OVERALL ELEVATION - WEST
1/16" = 1'-0"



2 OVERALL ELEVATION - NORTH
1/16" = 1'-0"



1 OVERALL ELEVATION - SOUTH
1/16" = 1'-0"

Perkins&Will

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ME 04102
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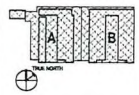
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T +1 207.482.4827

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T 207.865.1080

PROJECT
FORESIDE DEVELOPMENT
PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		19711
Checked	Checker	
Approved	Approver	

TITLE
OVERALL ELEVATIONS

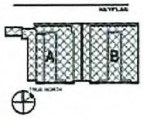
SHEET NUMBER
A20-01



② OVERALL ELEVATION - NORTH



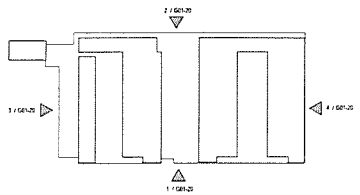
① OVERALL ELEVATION - SOUTH

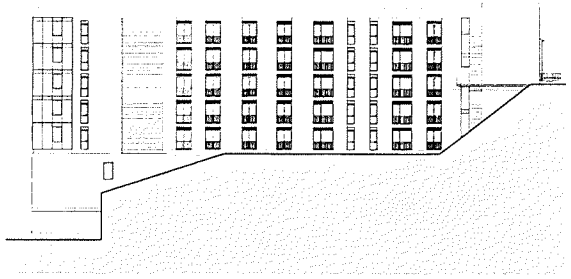


DESIGN DEVELOPMENT

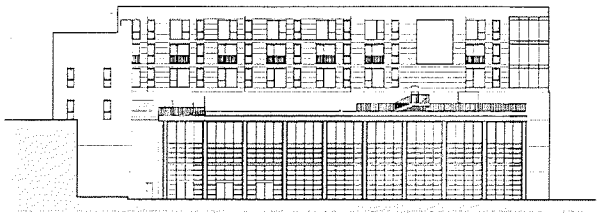
OVERALL ELEVATIONS

A20-01

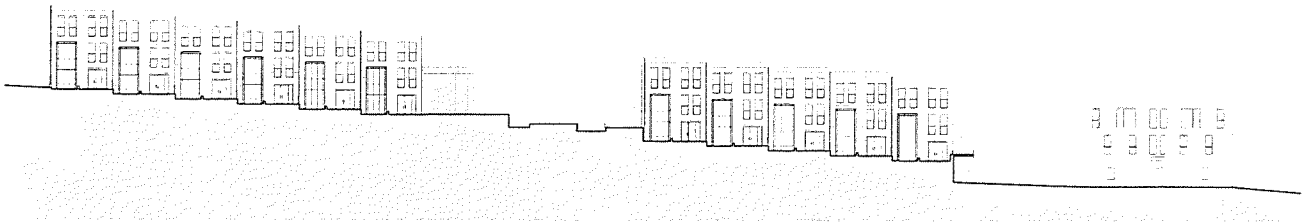




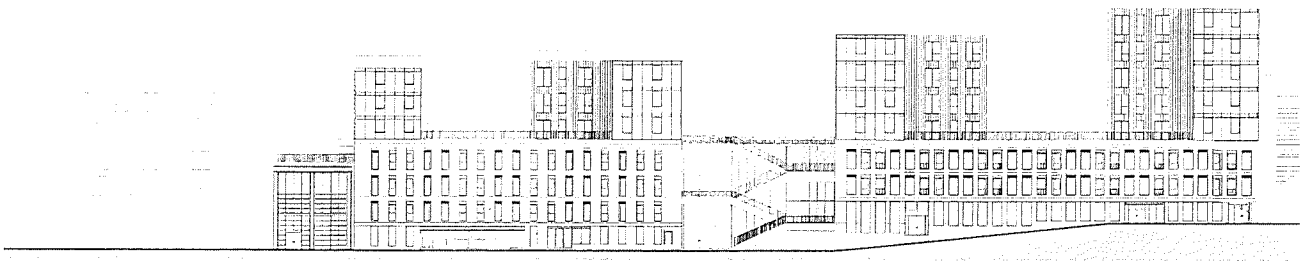
4 OVERALL ELEVATION - EAST 1
1" = 20'-0"



3 OVERALL ELEVATION - WEST 1
1" = 20'-0"



2 OVERALL ELEVATION - NORTH 1
1" = 20'-0"



1 OVERALL ELEVATION - SOUTH 1
1" = 20'-0"

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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 116
PORTLAND, ME 04101

KEYPLAN

Issue	Date

DESIGN DEVELOPMENT
AUGUST 22, 2022

Job Number	157111
Drawn	Author
Checked	Checker
Approved	Approver

TITLE

OVERALL EXTERIOR ELEVATIONS

SHEET NUMBER

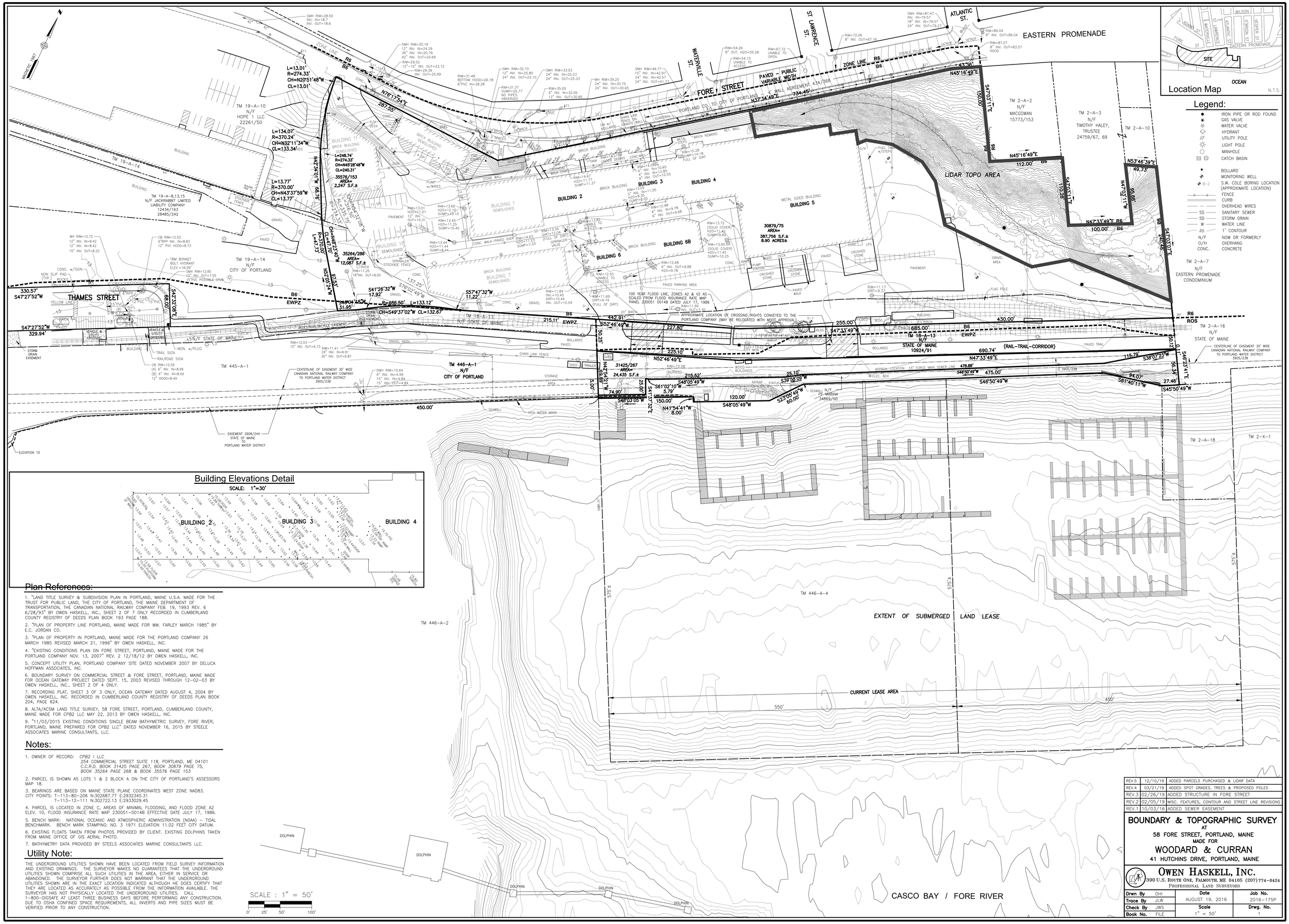
G01-20

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Fore Street @ Waterville & B2 Townhouses


Fore Street @ St. Lawrence Street



Legend:

- IRON PIPE OR ROD FOUND
- GAS VALVE
- WATER VALVE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- MANHOLE
- CATCH BASIN
- BOLLARD
- MONITORING WELL
- B-2 S.W. COLE BORING LOCATION (APPROXIMATE LOCATION)
- FENCE
- CURB
- OVERHEAD WIRES
- SS SANITARY SEWER
- SD STORM DRAIN
- W WATER LINE
- 20 1' CONTOUR
- N/F NOW OR FORMERLY
- O/H OVERHANG
- CONC. CONCRETE

Building Elevations Detail

SCALE: 1"=30'

Plan References:

1. "LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY FEB. 19, 1993 REV. 6 6/28/93" BY OWEN HASKELL, INC., SHEET 2 OF 7 ONLY RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 193 PAGE 188.
2. "PLAN OF PROPERTY LINE PORTLAND, MAINE MADE FOR WM. FARLEY MARCH 1985" BY E.C. JORDAN CO.
3. "PLAN OF PROPERTY IN PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY 26 MARCH 1985 REVISED MARCH 21, 1996" BY OWEN HASKELL, INC.
4. "EXISTING CONDITIONS PLAN ON FORE STREET, PORTLAND, MAINE MADE FOR THE PORTLAND COMPANY NOV. 13, 2007" REV. 2 12/18/12 BY OWEN HASKELL, INC.
5. CONCEPT UTILITY PLAN, PORTLAND COMPANY SITE DATED NOVEMBER 2007 BY DELUCA HOFFMAN ASSOCIATES, INC.
6. BOUNDARY SURVEY ON COMMERCIAL STREET & FORE STREET, PORTLAND, MAINE MADE FOR OCEAN GATEWAY PROJECT DATED SEPT. 15, 2003 REVISED THROUGH 12-02-03 BY OWEN HASKELL, INC., SHEET 2 OF 4 ONLY.
7. RECORDING PLAT, SHEET 3 OF 3 ONLY, OCEAN GATEWAY DATED AUGUST 4, 2004 BY OWEN HASKELL, INC. RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS PLAN BOOK 204, PAGE 624.
8. ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR CPB2 LLC MAY 22, 2013 BY OWEN HASKELL, INC.
9. "11/03/2015 EXISTING CONDITIONS SINGLE BEAM BATHYMETRIC SURVEY, FORE RIVER, PORTLAND, MAINE PREPARED FOR CPB2 LLC" DATED NOVEMBER 16, 2015 BY STEELE ASSOCIATES MARINE CONSULTANTS, LLC.

Notes:

1. OWNER OF RECORD: *CPB2 I LLC*
   254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
   C.C.R.D. BOOK 31425 PAGE 267, BOOK 30879 PAGE 75,
   BOOK 35264 PAGE 268 & BOOK 35576 PAGE 153
2. PARCEL IS SHOWN AS LOTS 1 & 2 BLOCK A ON THE CITY OF PORTLAND'S ASSESSORS MAP 18.
3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83. CITY POINTS: T-113-80-206 N:302687.77 E:2932345.31 T-113-12-111 N:302722.13 E:2933029.45
4. PARCEL IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, AND FLOOD ZONE A2 ELEV. 10, FLOOD INSURANCE RATE MAP 230051-0014B EFFECTIVE DATE JULY 17, 1986.
5. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET CITY DATUM.
6. EXISTING FLOATS TAKEN FROM PHOTOS PROVIDED BY CLIENT. EXISTING DOLPHINS TAKEN FROM MAINE OFFICE OF GIS AERIAL PHOTO.
7. BATHYMETRY DATA PROVIDED BY STEELS ASSOCIATES MARINE CONSULTANTS LLC.

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 THE INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-800-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'

REV.5	12/10/19	ADDED PARCELS PURCHASED & LIDAR DATA
REV.4	03/21/19	ADDED SPOT GRADES, TREES & PROPOSED POLES
REV.3	02/26/19	ADDED STRUCTURE IN FORE STREET
REV.2	02/05/19	MISC. FEATURES, CONTOUR AND STREET LINE REVISIONS
REV.1	10/03/16	ADDED SEWER EASEMENT

BOUNDARY & TOPOGRAPHIC SURVEY

AT

58 FORE STREET, PORTLAND, MAINE

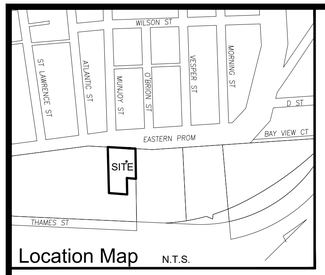
MADE FOR

WOODARD & CURRAN

41 HUTCHINS DRIVE, PORTLAND, MAINE

OWEN HASKELL, INC.
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207) 774-0424
PROFESSIONAL LAND SURVEYORS

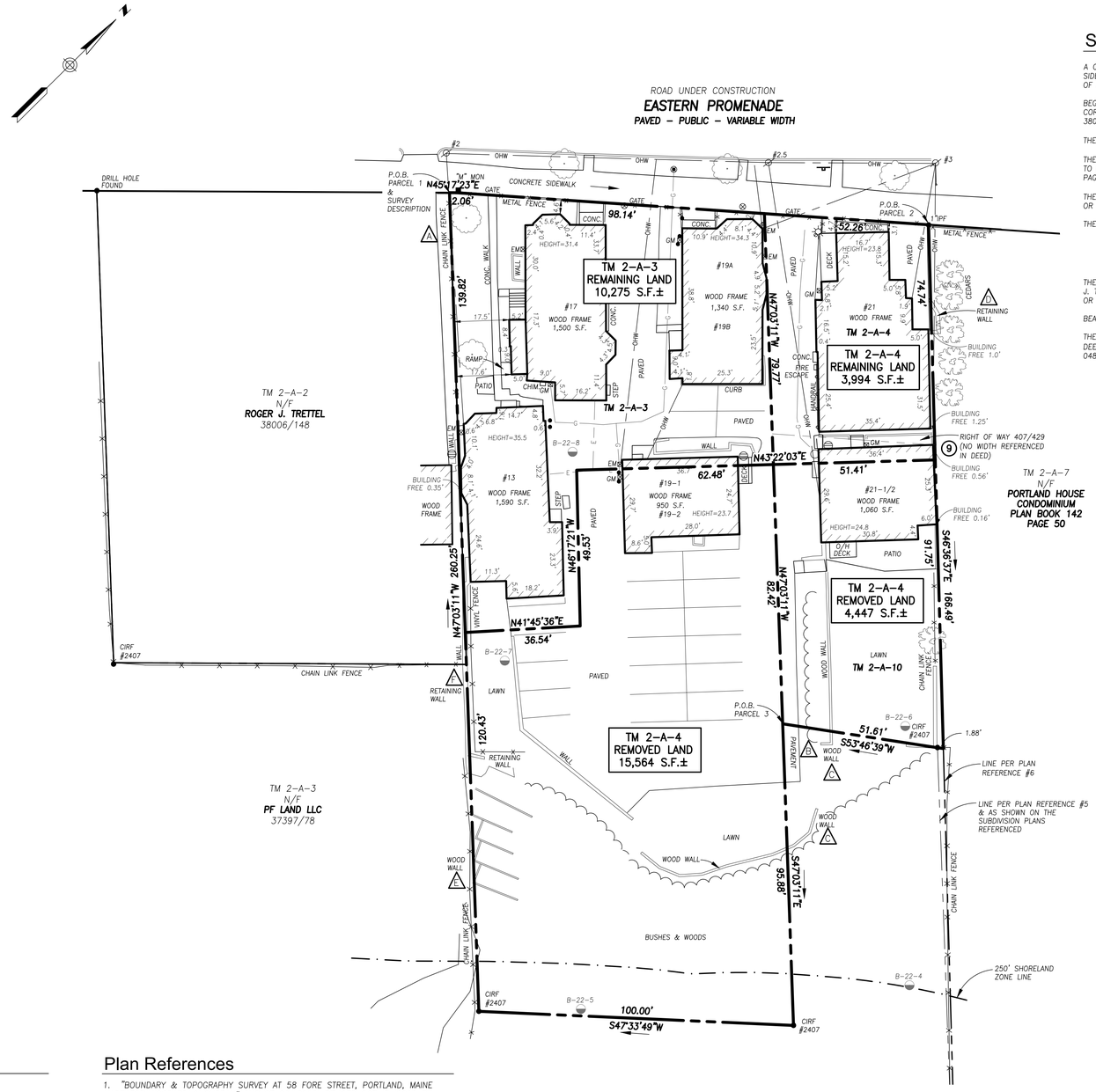
Drwn By	OHI	Date	Job No.
Trace By	JLW	AUGUST 19, 2016	2016-175P
Check By	JWS	Scale	Drwg. No.
Book No.	FILE	1" = 50'	1



Location Map N.T.S.

Legend

- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- EM/GM — ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- GAS VALVE
- WATER VALVE OR SHUTOFF
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- CURB
- FENCE
- OHW — OVERHEAD WIRES
- E — UNDERGROUND POWER
- G — GAS LINE
- N/F — NOW OR FORMERLY
- 000/000 — DEED BOOK / PAGE
- GMF — GRANITE MONUMENT FOUND
- CONC. — CONCRETE
- TM — TAX MAP–BLOCK–LOT
- POSSIBLE ENCROACHMENT
- THRES= — THRESHOLD
- SCHEDULE B EXCEPTION
- MONITORING WELL
- BORING



Survey Description

A CERTAIN LOT OR PARCEL OF LAND WITH THE BUILDING THEREON SITUATED ON THE SOUTHERLY SIDE OF EASTERN PROMENADE IN THE CITY OF PORTLAND, COUNTY OF CUMBERLAND AND STATE OF MAINE BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING ON THE SOUTHERLY SIDELINE OF EASTERN PROMENADE AT THE NORTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF ROGER J. TRETTEL AS DESCRIBED IN DEED BOOK 38006, PAGE 148;

THENCE, N 45°17'23" E ALONG THE SAID SIDELINE OF EASTERN PROMENADE 2.06 FEET;

THENCE, N 48°52'58" E CONTINUING ALONG THE SIDELINE OF EASTERN PROMENADE 150.40 FEET TO LAND NOW OR FORMERLY OF PORTLAND HOUSE CONDOMINIUM AS SHOWN ON PLAN BOOK 142 PAGE 50;

THENCE, S 46°36'37" E ALONG SAID PORTLAND HOUSE CONDOMINIUM 166.49 FEET TO LAND NOW OR FORMERY OF PF LAND LLC AS DESCRIBED IN DEED BOOK 37397, PAGE 78;

THENCE, THE FOLLOWING COURSES AND DISTANCE ALONG LAND OF SAID PF LAND LLC:

S 53°46'39" W A DISTANCE OF 51.61 FEET;
S 47°03'11" E A DISTANCE OF 95.88 FEET;
S 47°33'49" W A DISTANCE OF 100.00 FEET;

THENCE, N 47°03'11" W CONTINUING ALONG LAND OF PF LAND LLC AND LAND OF SAID ROGER J. TRETTEL A DISTANCE OF 260.25 FEET TO THE POINT OF BEGINNING, CONTAINING 34,280 S.F. OR 0.787 ACRES, MORE OR LESS.

BEARING ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE NAD 83.

THE SURVEYED LAND DEPICTED HEREON IS THE SAME AS LAND DESCRIBED IN THE FOLLOWING DEEDS AND IS THE SAME LAND DESCRIBED ON EXHIBIT A IN THE CATIC OWNER'S POLICY NO. OP 04864861 ME AND CONTAIN NO GAPS, GORES OR STRIPS:

1. QUITCLAIM DEED WITHOUT COVENANT FROM KATHERINE C. HALEY AND TIMOTHY J. HALEY, TRUSTEES, UNDER THE DANIEL T. HALEY SR. FAMILY TRUST DATED JANUARY 21, 2006, DATED JANUARY 11, 2007, AND RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 24759, PAGE 67;
2. QUITCLAIM DEED WITHOUT COVENANTS FROM KATHERINE C. HALEY AND TIMOTHY J. HALEY, TRUSTEES, UNDER THE DANIEL T. HALEY SR. FAMILY TRUST DATED JANUARY 21, 2006, DATED JANUARY 11, 2007 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 24759, PAGE 069; AND
3. QUITCLAIM DEED WITHOUT COVENANTS FROM TIMOTHY J. HALEY AND JULIA A. HALEY, SUCCESSOR TRUSTEES, UNDER THE HALEY FAMILY LIVING TRUST DATED FEBRUARY 6, 1997, DATED DECEMBER 4, 2008 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 26503, PAGE 224."

Legal Description

CERTAIN LOTS OR PARCELS OF LAND, TOGETHER WITH ANY BUILDING AND IMPROVEMENT THEREON, SITUATED ON THE SOUTHEASTERLY SIDE OF EASTERN PROMENADE, IN THE CITY OF PORTLAND, CUMBERLAND COUNTY, STATE OF MAINE, BOUNDED AND DESCRIBED AS FOLLOWS:

PARCEL ONE:

A CERTAIN LOT OR PARCEL OF LAND, WITH THE BUILDINGS THEREON, SITUATED ON THE SOUTHEASTERLY SIDE OF THE EASTERN PROMENADE IN SAID PORTLAND, AND BOUNDED AND DESCRIBED AS FOLLOWS, VIZ: BEGINNING ON SAID SIDE OF SAID EASTERN PROMENADE AT THE NORTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF HENRY F. MERRILL, AND RUNNING THENCE SOUTHEASTERLY BY SAID MERRILL LAND AND LAND OF PORTLAND COMPANY TWO HUNDRED FIFTY–FIVE (255) FEET, MORE OR LESS, TO LAND CONVEYED TO JOHN G. MUNROE AND OTHERS TO THE PORTLAND COMPANY BY DEED DATED JANUARY 5, 1904, AND RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS, BOOK 765, PAGE 307; THENCE NORTHEASTERLY BY SAID LAND CONVEYED TO SAID PORTLAND COMPANY AS FORESAID ONE HUNDRED (100) FEET TO OTHER LAND NOW OR FORMERLY OF HENRY F. MERRILL; THENCE NORTHWESTERLY ON A LINE PARALLEL WITH THE FIRST DESCRIBED COURSE TWO HUNDRED FIFTY–FIVE (255) FEET, MORE OR LESS, TO SAID EASTERN PROMANDE; THENCE SOUTHWESTERLY BY SAID EASTERN PROMENADE ONE HUNDRED (100) FEET TO THE PLACE OF BEGINNING.

PARCEL TWO:

BEGINNING AT A POINT ON THE SOUTHEASTERLY SIDE OF SAID EASTERN PROMENADE AT THE NORTHWESTERLY CORNER OF LAND OF WALTER W. DUFFETT AND THIRTY–SIX (36) FEET SOUTHWESTERLY FROM THE DIVIDING LINE BETWEEN THE LAND NOW OR FORMERLY OF WALTER W. DUFFETT AND THE LAND NOW OR FORMERLY OF WILLIAM CURTIS; THENCE SOUTHWESTERLY BY SAID EASTERN PROMENADE, FORTY–NINE (49) FEET, MORE OR LESS, TO LAND FORMERLY BELONGING TO ONE MONROE; THENCE SOUTHEASTERLY BY SAID MONROE'S LAND SEVENTY (70) FEET, MORE OR LESS, TO LAND NOW OR FORMERLY OF CYRUS COLE; THENCE NORTHEASTERLY BY SAID COLE'S LAND, FORTY–NINE (49) FEET, MORE OR LESS, TO SAID DUFFETT'S LAND; THENCE NORTHWESTERLY BY SAID DUFFETT'S LAND, SEVENTY (70) FEET, MORE OR LESS, TO THE POINT BEGUN AT.

PARCEL THREE:

BEGINNING AT A POINT IN A SOUTHEASTERLY DIRECTION FROM THE EASTERN PROMENADE IN THE NORTHEASTERLY SIDE OF LAND NOW OR FORMERLY OWNED BY HEIRS OF J. MONROE, A DISTANCE ONE HUNDRED AND SIXTY–TWO (162) FEET FROM THE POINT OF INTERSECTION OF SAID SIDE LINE OF THE MONROE LAND WITH THE SOUTHEASTERLY SIDE LINE OF SAID EASTERN PROMENADE, AND FROM THIS POINT EXTENDING IN A NORTHEASTERLY DIRECTION ABOUT FIFTY (50) FEET ALONG THE NORTHWESTERLY SIDE LINE OF LAND SOLD TO HENRY MERRILL ET ALS. BY DEED DATED JUNE 29, 1898, RECORDED IN CUMBERLAND REGISTRY OF DEEDS IN BOOK 661, PAGE 176, AND TO THE SOUTHWESTERLY SIDE OF LAND SOLD TO WALTER W. DUFFETT BY DEED DATED JUNE 29, 1898, RECORDED IN SAID REGISTRY OF DEEDS IN BOOK 661, PAGE 175; THENCE BY SAID SOUTHWESTERLY SIDE LINE OF THE LAND SO CONVEYED TO WALTER W. DUFFETT AND LAND NOW OR FORMERLY OF MARY DUFFETT TO THE SOUTHEASTERLY SIDE LINE OF LAND NOW OR FORMERLY OF ONE CLARK; THENCE BY THE SAID SOUTHEASTERLY SIDE LINE OF LAND NOW OR FORMERLY OF SAID CLARK, AND BY SAID LINE EXTENDED, TO THE SAID NORTHEASTERLY SIDE LINE OF SAID MONROE LAND; THENCE BY SAID MONROE LAND, IN A SOUTHEASTERLY DIRECTION TO THE POINT OF BEGINNING.

Schedule B Part I Exceptions

CATIC COMMITMENT FILE NO. 21010219 EFFECTIVE DATE: DECEMBER 30, 2021

1 – 8. NON SURVEY

9. RIGHTS AND EASEMENTS RESERVED IN DEED FROM MINNIE E. LEWIS TO JOSHUA S. CLARK DATED FEBRUARY 2, 1874 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 407, PAGE 429 AND REFERENCED IN DEED RECORDED IN BOOK 2828, PAGE 19. –AS SHOWN, EASEMENT MAY NO LONGER BE IN EFFECT DUE TO MERGER OF ESTATES.

10. SUCH STATE OF FACTS INCLUDING NOTES AND PAVEMENT ENCROACHMENT DISCLOSED ON A MORTGAGE LOAN INSPECTION, PREPARED BY NADEAU LAND SURVEYS, DATED NOVEMBER 30, 2021. –SEE REFERENCED PLAN

11 – 12. NON SURVEY

Zoning Information

NONE PROVIDED

Flood Zone Note

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 0014B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

Possible Encroachments

- A — FENCE ENCROACHES ONTO ABUTTER 0.3'±
- B — PAVEMENT ONTO ABUTTER 5'±
- C — WOOD WALLS ONTO ABUTTER 5'–10'±
- D — RETAINING WALL ONTO ABUTTER 3'±
- E — WOOD WALL ONTO ABUTTER 0.5'±
- F — RETAINING WALL ONTO ABUTTER 1'±

SCALE : 1" = 20'

0' 10' 20' 40'

Plan References

1. "BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN" AUGUST 29, 2016, REVISED OCT. 3, 2016 BY OWEN HASKELL, INC.

2. "ALTA/ACSM LAND TITLE SURVEY, 58 FORE STREET, PORTLAND, MAINE MADE FOR PF ONE DEVCO LLC AND PF LAND LLC" BY OWEN HASKELL, INC. DATED MARCH 4, 2020 LAST REVISED NOVEMBER 5, 2020.

3. "SUBDIVISION PLAT, PORTLAND FORESIDE, THAMES STREET & FORE STREET, PORTLAND, MAINE MADE FOR OWNER OF RECORD, CPB2 I LLC," BY OWEN HASKELL INC. DATED FEBRUARY 13, 2020 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 65.

4. "AMENDED SUBDIVISION PLAT, PORTLAND FORESIDE, THAMES STREET AND FORE STREET, PORTLAND MAINE, MADE FOR OWNER OF RECORD, PF ONE DEVCO LLC AND PF LAND LLC" BY OWEN HASKELL, INC. DATED NOVEMBER 20, 2020 AND RECORDED AT CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 220, PAGE 446.

5. "PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR THE PORTLAND COMPANY" BY H.I. & E.C. JORDAN SURVEYORS/OWEN HASKELL, INC. DATED MARCH 26, 1985 REVISED THROUGH MARCH 21, 1996.

6. "PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR PORTLAND HOUSE CONDOMINIUM" BY H.I. & E.C. JORDAN SURVEYORS DATED MAY 31, 1984 RECORDED IN PLAN BOOK 142 PAGE 50.

7. "BOUNDARY AND TOPOGRAPHIC SURVEY, 5 EASTERN PROMENADE, PORTLAND, MAINE FOR: ROGER TRETTEL" MARCH 2021 BY SURVEY, 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.

General Notes

1. OWNER OF RECORD: 21 EASTERN PROM LLC
   254 COMMERCIAL STREET, PORTLAND, MAINE 04101
   CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 39047 PAGE 291

2. LOCUS IS SHOWN AS LOTS 3, 4 & 10 BLOCK A ON CITY OF PORTLAND'S ASSESSORS MAP 2.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.
   CITY POINTS: T–113–80–206 N:302667.77 E:2932345.31
   T–113–12–111 N:302722.13 E:2933029.45

4. THERE ARE 20 REGULAR PARKING SPACES ON SITE.

5. UTILITIES SHOWN ARE OBSERVED EVIDENCE ONLY.

6. NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, BUILDING ADDITIONS, OR RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS WAS OBSERVED.

7. NO PROPOSED CHANGES IN STREET LINES IS KNOWN BY THIS SURVEYOR.

ALTA / NSPS Land Title Survey

13-23 Eastern Promenade
Portland, Cumberland County, Maine
Made For
PF Six Devco LLC
254 Commercial Street, Suite 18, Portland, Maine

Surveyor's Certification

TO: 21 EASTERN PROM LLC, CATIC

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 4, 5, 6(A), 6(B), 7(A), 7(B)(1), 7(B)(2), 7(C), 8, 9, 11(A), 11(B), 13, 15, 18, AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON APRIL 8, 2022.

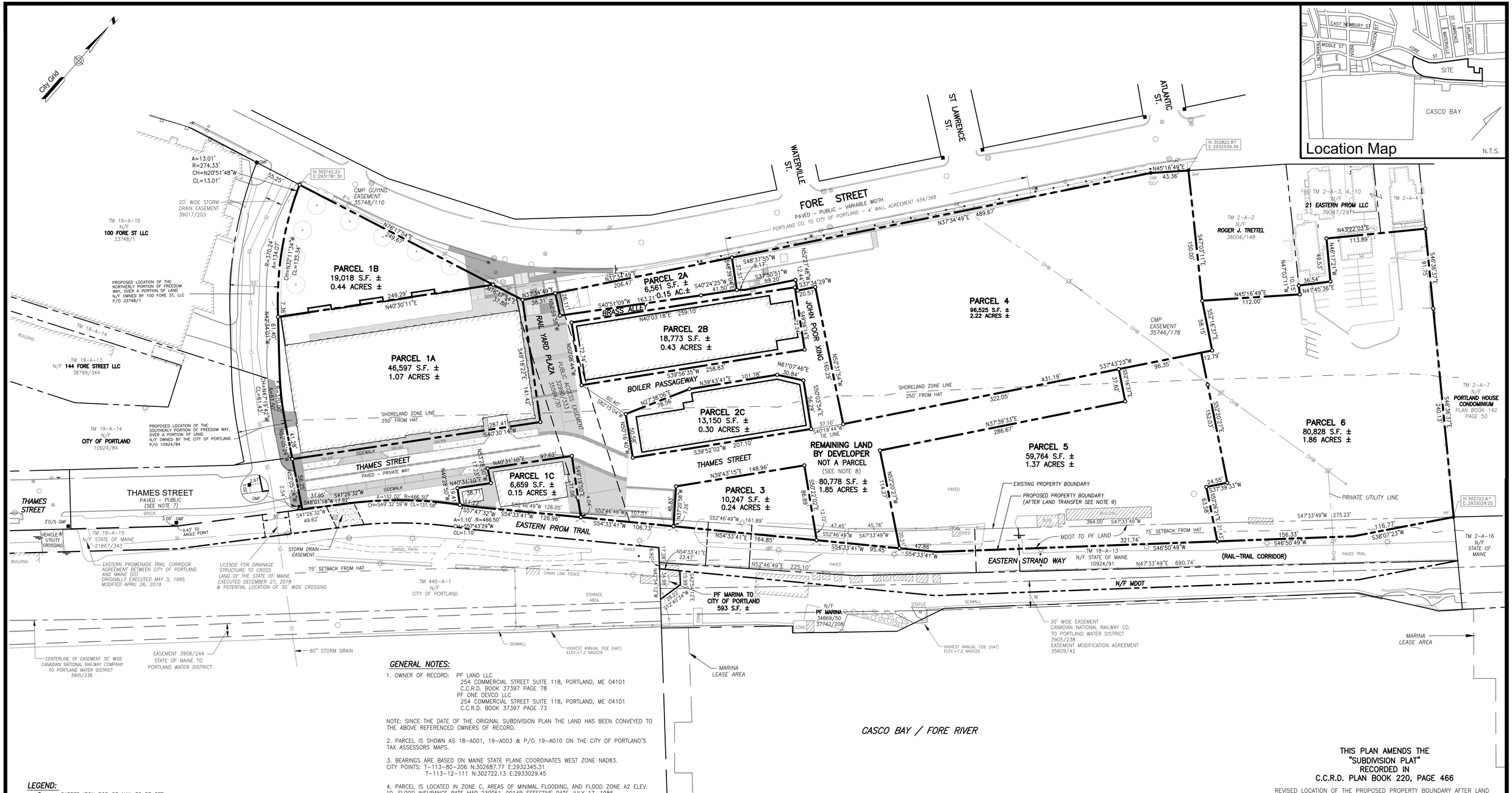
RANDY R. LOUBIER
PROFESSIONAL LAND SURVEYOR NO. 2407

DATE OF PLAT OR MAP: JULY 12, 2022
DATE OF LAST REVISION: OCTOBER 3, 2022

STATE OF MAINE — RANDY R. LOUBIER 2407 — PROFESSIONAL LAND SURVEYOR

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: RRL / JLW	FIELD BOOK: FILE	JOB NO.	2022-042 P
CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO.	1



GENERAL NOTES:

1. OWNER OF RECORD: PF LAND LLC
254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
C.C.R.D. BOOK 37397 PAGE 78
PF ONE DEVCO LLC
254 COMMERCIAL STREET SUITE 118, PORTLAND, ME 04101
C.C.R.D. BOOK 37397 PAGE 73

NOTE: SINCE THE DATE OF THE ORIGINAL SUBDIVISION PLAN THE LAND HAS BEEN CONVEYED TO THE ABOVE REFERENCED OWNERS OF RECORD.

2. PARCEL IS SHOWN AS 18–A001, 19–A003 & P/O 19–A010 ON THE CITY OF PORTLAND'S TAX ASSESSORS MAPS.

3. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATES WEST ZONE NAD83.
CITY POINTS: T–113–80–206 N:302687.77 E:2932345.31
T–113–12–111 N:302722.13 E:2933029.45

4. PARCEL IS LOCATED IN ZONE C, AREAS OF MINIMAL FLOODING, AND FLOOD ZONE A2 ELEV. 10, FLOOD INSURANCE RATE MAP 230051–0014B EFFECTIVE DATE JULY 17, 1986.

5. BENCH MARK: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) – TIDAL BENCHMARK. BENCH MARK STAMPING: NO. 3 1971 ELEVATION 11.02 FEET CITY DATUM.

6. PARCEL IS LOCATED IN THE B6 URBAN COMMERCIAL BUSINESS ZONE AND PARTIALLY IN THE EWPZ WATERFRONT ZONE AS SHOWN ON THE CITY OF PORTLAND ZONING MAP.

7. THAMES STREET IS NOT PART OF THIS SUBDIVISION. THAMES STREET EXTENSION IS AN ACCEPTED CITY STREET AS OF THE DATE OF 9/29/2022. REFERENCE IS ALSO MADE TO AN ACCESS LICENSE FROM THE CITY OF PORTLAND TO PF ONE DEVCO LLC, PF LAND LLC & PF MARINA LLC RECORDED IN DEED BOOK 37398, PAGE 112.

8. THE "REMAINING LAND BY DEVELOPER" SHALL REMAIN PRIVATE PROPERTY AND SHALL BE UTILIZED TO PROVIDE ACCESS AND UTILITIES TO THE PARCELS SHOWN AS A PRIVATE WAY.

9. THE PROPOSED PROPERTY BOUNDARY IS THE SUBJECT OF THE EXCHANGE AGREEMENT DATED AS OF JUNE 21, 2017 BETWEEN THE CITY OF PORTLAND, PF LAND LLC, PF DEVCO LLC, PF MARINA AND THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION, A COPY OF WHICH IS ON RECORD WITH THE CITY OF PORTLAND. UNTIL THE EXCHANGE IS COMPLETED, THE SOUTHERN BOUNDARY OF PARCELS 1C, 3 AND 5 AND THE SOUTHERN BOUNDARY OF THE AREA "REMAINING LAND BY DEVELOPER" IS THE EXISTING PROPERTY BOUNDARY. AFTER THE EXCHANGE IS COMPLETED, THE SOUTHERN BOUNDARY OF PARCELS 1C, 3 AND 5 AND THE SOUTHERN BOUNDARY OF THE AREA "REMAINING LAND BY DEVELOPER" WILL BE THE PROPOSED PROPERTY BOUNDARY.

10. BUILDINGS SHOWN ON PARCELS 1A & 1C ARE TAKEN FROM APPROVED SITE PLANS FOR THIS PROJECT.

LEGEND:

- CAPPED IRON ROD OR NAIL TO BE SET
- IRON PIPE OR ROD FOUND
- MONUMENT FOUND
- UTILITY POLE
- MANHOLE
- ELECTRIC/GAS METER
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- LIGHT POLE
- FENCE
- CURB
- GUARDRAIL
- IPF/IRF IRON PIPE OR ROD FOUND
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK / PAGE

SCALE : 1" = 50'
0' 25' 50' 100'

APPROVED BY THE
CITY OF PORTLAND PLANNING BOARD

DATE

PLAN REFERENCES:

1. *LAND TITLE SURVEY & SUBDIVISION PLAN IN PORTLAND, MAINE U.S.A. MADE FOR THE TRUST FOR PUBLIC LAND, THE CITY OF PORTLAND, THE MAINE DEPARTMENT OF TRANSPORTATION, THE CANADIAN NATIONAL RAILWAY COMPANY DATED FEB. 19, 1993, REV. 9 11/04/96 BY OWEN HASKELL, INC. AND RECORDED IN PLAN BOOK 193, PAGE 187.*

2. *RECORDING PLAT OCEAN GATEWAY MADE FOR THE CITY OF PORTLAND AND STATE OF MAINE, BY OWEN HASKELL, INC, DATED AUGUST 4, 2004, RECORDED IN PLAN BOOK 204, PAGE 622–624*

3. *BOUNDARY & TOPOGRAPHY SURVEY AT 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. AUGUST 29, 2016, REVISED THROUGH FEB. 2019.*

4. *EXHIBIT PLAN PARCELS TO BE CONVEYED 58 FORE STREET, PORTLAND, MAINE MADE FOR WOODARD & CURRAN BY OWEN HASKELL, INC. DATED MARCH 21, 2018.*

5. *TOPOGRAPHIC SURVEY 100 FORE STREET MADE FOR JONATHAN COHEN BY OWEN HASKELL, INC DATED DECEMBER 4, 2017 REVISED THROUGH 12/17/18.*

6. *ALTA/NSPS LAND TITLE SURVEY, 13–23 EASTERN PROMENADE, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR PF SIX DEVCO LLC DATED MAY 19, 2022 REVISED JUNE 27, 2022 BY OWEN HASKELL, INC.*

CERTIFICATE:

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 CURRENT STANDARDS OF PRACTICE.

9/06/2023
DATE

RANDY R. LOUBIER, PLS #2407

THIS PLAN AMENDS THE "SUBDIVISION PLAT" RECORDED IN C.C.R.D. PLAN BOOK 220, PAGE 466

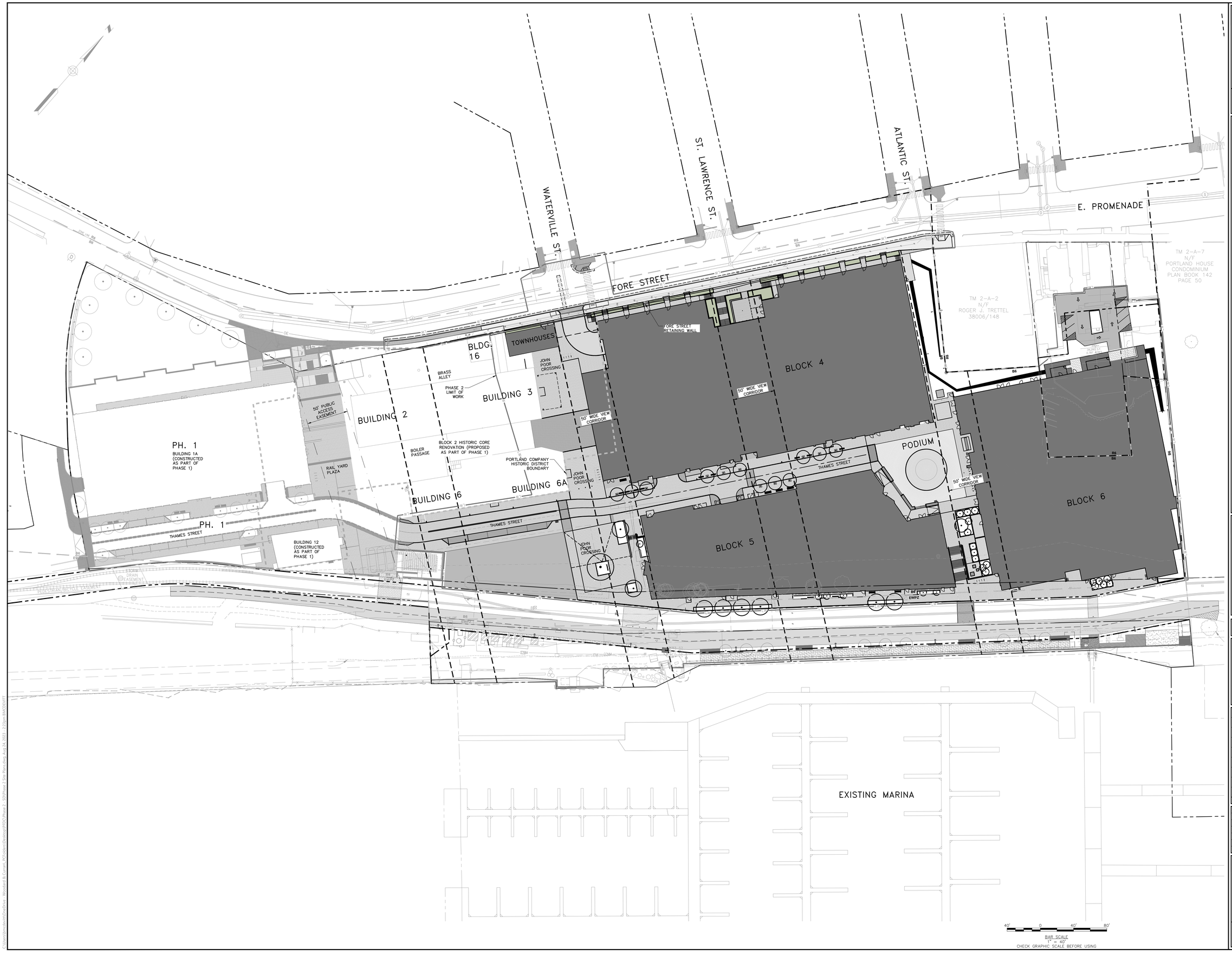
REVISED LOCATION OF THE PROPOSED PROPERTY BOUNDARY AFTER LAND TRANSFER; ADDED PF MARINA PARCEL TO CITY OF PORTLAND OF 593 S.F.; REVISED LOTS 4 & 5; ADDED LOT 6.

Second Amended Subdivision Plat
Portland Foreside
Thames Street & Fore Street
Portland, Maine
Made for Owner of Record
PF One Devco LLC & PF Land LLC
254 Commercial St. Suite 118, Portland, ME 04101

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, UNIT 10, FALMOUTH, MAINE 04105 207.774.0424

DRAWN BY: RRL / JLW	DATE: SEPT. 6, 2023	JOB NO. 2019-013 P
CHECKED BY: RRL	SCALE: 1" = 50'	DRWG. NO. SP-B

30x42
PLOT SCALE: 100 = 1'-0"



Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER
Lauren J. Swett

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:

CIVIL
OVERALL SITE PLAN

DRAWING NO:

C-1

SHEET: 1 OF 1

C:\Users\bmcdevitt\OneDrive - Woodard & Curran_PC\Folders\Desktop\PFDC\Phase 2 - SD\Phase 2 Site Plans.dwg, Aug 24, 2023 - 2:23pm BMCDEVITT

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

AUGUST 2023

NOT FOR CONSTRUCTION



PROJECT LOCATION MAP

DRAWING INDEX		
SHEET NO.	**SHEET TITLE**	**SHEET NAME**
1	G-000	COVER
2	G-001	GENERAL NOTES, LEGEND & ABBREVIATIONS
3	C-001	EXISTING CONDITIONS
4	C-002	DEMOLITION PLAN
5	C-100	SITE PLAN - 1
6	C-101	SITE PLAN - 2
7	C-102	GRADING & DRAINAGE PLAN - 1
8	C-103	GRADING & DRAINAGE PLAN - 2
9	C-104	UTILITY PLAN - 1
10	C-105	UTILITY PLAN - 2
11	C-106	ROAD PROFILE
12	C-107	PIPE & STRUCTURE TABLES
13	C-200	CIVIL DETAILS - 1
14	C-201	CIVIL DETAILS - 2
15	C-202	CIVIL DETAILS - 3
16	C-203	CIVIL DETAILS - 4
17	C-204	CIVIL DETAILS - 5
18	C-205	CIVIL DETAILS - 6
19	C-206	CIVIL DETAILS - 7
20	C-207	FORE STREET DETAILS



SITE LOCATION MAP

SOURCE: USGS TOPO QUADRANGLE

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

Lauren J. Swett

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 COVER.dwg

DRAWING TITLE:

CIVIL COVER

DRAWING NO:

G-000

SHEET: 1 OF 20

C:\Users\lswett\OneDrive - Woodard & Curran_PC\Desktop\PFDC\Phase 2 - SD\Phase 2 Cover.dwg, Aug 24, 2023 - 8:48am, BMCDIVITT

30x42
PLOT SCALE: 100 = 1'-0"

CIVIL GENERAL NOTES

1. SITE AND TOPOGRAPHIC DATA COMPILED FROM MULTIPLE PLANS PREPARED BY OWEN HASKELL, INC. DATED 6/27/2022. SITE DATA SUPPLEMENTED BY PHASE 1 DESIGN PLANS AND RECORD DRAWINGS.
2. VERTICAL DATUM IS REFERENCED TO CITY DATUM WITH ONE FOOT CONTOUR INTERVALS. CITY DATUM IS +0.02 FT NGVD 1929. HORIZONTAL DATUM IS REFERENCED TO STATE PLANE NAD 1983 (FEET), MAINE WEST ZONE.
3. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATION TO OR DEVIATION FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION: TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS, SIZE, LOCATION, AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
4. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 811 AT LEAST 72 HOURS PRIOR TO EXCAVATION IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY CODES.
5. PROPERLY PROTECT AND DO NOT DISTURB PROPERTY IRONS AND MONUMENTS. IF DISTURBED, THE PROPERTY MONUMENT SHALL BE RESET AT THE CONTRACTOR'S EXPENSE BY A LICENSED LAND SURVEYOR ACCEPTABLE TO THE CITY. PROPERTY MONUMENTS SHALL BE RESET IN ACCORDANCE WITH CITY OF PORTLAND STANDARDS.
6. DO NOT PARK, IMPEDE ACCESS TO, OR STORE EQUIPMENT ON ADJACENT CITY OR PRIVATELY OWNED LOTS, UNLESS PERMISSION HAS BEEN GRANTED IN ADVANCE IN WRITING BY CITY AND/OR LAND OWNER.
7. PRIOR TO CONSTRUCTION, A PRECONSTRUCTION MEETING SHALL BE HELD AT THE PROJECT SITE WITH THE CONTRACTOR, ENGINEER, CITY OF PORTLAND DEVELOPMENT REVIEW COORDINATOR, CITY OF PORTLAND DEPARTMENT OF PUBLIC WORKS REPRESENTATIVE, AND OWNER TO REVIEW THE CONSTRUCTION SCHEDULE AND CRITICAL ASPECTS OF THE SITE WORK. AT THAT TIME, THE SITE/BUILDING CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A DETAILED CONSTRUCTION SCHEDULE TO THE ATTENDING CITY REPRESENTATIVE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE A MUTUALLY AGREEABLE TIME FOR THE PRECONSTRUCTION MEETING.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE SITE DRAWINGS, INCLUDING BUT NOT LIMITED TO ALL UTILITIES, STORM INFRASTRUCTURE, SIGNS, UTILITY POLES, FENCES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH THE GOVERNING AUTHORITY'S SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COSTS SHALL BE INCURRED BY THE CONTRACTOR.
9. LAND OUTSIDE THE PROPOSED LIMIT OF WORK SHALL NOT BE DISTURBED BY THE CONTRACTOR. ANY LAND OUTSIDE LIMIT OF WORK DISTURBED BY CONTRACTOR SHALL BE RESTORED BY CONTRACTOR AT NO EXPENSE TO OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY FOR THE WORK.
11. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY CODES, REGULATIONS, LEGAL REQUIREMENTS, PERMIT CONDITIONS, ETC.
12. THE CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKWAYS, STREETS, PAVEMENTS, CURBING, TREES, PLANTINGS, LAWN, FENCING TO REMAIN ON OR OFF THE PREMISES, AND SHALL REPAIR AND REPLACE AT HIS/HER OWN EXPENSE, AS DIRECTED BY THE ENGINEER, ANY ITEMS DAMAGED AS A RESULT OF THE CONTRACTOR'S WORK.
13. THE CONTRACTOR SHALL PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING CODES AND REGULATIONS.
14. SAWCUTS IN EXISTING PAVEMENT SHALL BE SMOOTH AND STRAIGHT. EXISTING PAVEMENT SHALL BE SAWCUT AND BUTTED TO THE NEW PAVEMENT. NO FEATHERING OF PAVEMENT WILL BE PERMITTED.
15. WORK WITHIN PUBLIC RIGHT-OF-WAY SHALL COMPLY WITH APPLICABLE CITY OF PORTLAND AND STATE REQUIREMENTS.
16. ALL CURB DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND AND SHALL CONFORM TO CITY OF PORTLAND SPECIFICATIONS. COST IS INCIDENTAL TO CONTRACT.
17. ALL FULL DEPTH PAVEMENT REPLACEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL STANDARDS.
18. ALL WORK WITHIN THE RIGHT OF WAY OF CITY STREETS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY TRAFFIC ENGINEER. THE CONTRACTOR SHALL SUBMIT A PROPOSED TRAFFIC CONTROL PLAN TO THE TRAFFIC ENGINEER AT LEAST 7 DAYS BEFORE BEGINNING CONSTRUCTION IN ANY STREET. THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE SUBJECT TO APPROVAL BY THE TRAFFIC ENGINEER, WHO MAY ATTACH SPECIAL CONDITIONS TO, OR REQUIRE MODIFICATIONS OF, THE TRAFFIC CONTROL PLAN. WORK SHALL NOT BEGIN UNTIL THE PLAN IS APPROVED BY THE TRAFFIC ENGINEER.
19. THE CONTRACTOR SHALL OBTAIN A CITY STREET OPENING PERMIT BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR WILL ALSO BE REQUIRED TO HAVE A CURRENT EXCAVATOR'S LICENSE IN THE CITY.
20. ALL WORK IN THE PUBLIC R.O.W. SHALL BE COMPLETED IN ACCORDANCE WITH THE CITY'S TECHNICAL MANUAL ARTICLES VI, VII, AND IX OF CHAPTER 25-STREETS, SIDEWALKS, AND OTHER PUBLIC PLACES OF THE CITY OF PORTLAND CODE OF ORDINANCES.
21. ALL SEWER CONSTRUCTION IN THE PUBLIC WAY SHALL BE COMPLETED IN ACCORDANCE WITH ARTICLE II OF CHAPTER 24-SEWERS OF THE CITY OF PORTLAND CODE OF ORDINANCES.
22. CONTACT CITY OF PORTLAND ARBORIST AND ENGINEER PRIOR TO CUTTING ROOTS, TRIMMING BRANCHES, OR DISTURBING TREES WITHIN THE R.O.W. THAT NOT HAVE BEEN NOTED FOR REMOVAL ON THE PLANS.
23. IF IMPORTED FILL MATERIAL IS REQUIRED, IT SHALL BE CERTIFIED IN WRITING BY CONTRACTOR AS NON-CONTAMINATED, CLEAN FILL SUITABLE FOR THE INTENDED USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTING OF ENVIRONMENTAL PARAMETERS AS OUTLINED IN THE PROJECT SPECIFICATIONS.
24. RESTORE ALL AREAS DISTURBED BY CONTRACTOR'S OPERATIONS TO ORIGINAL FINISH (GRAVEL, PAVEMENT, RIPRAP, GRASS, ETC.) UNLESS OTHERWISE NOTED ON PLANS. RESTORATION OF ALL AREAS DAMAGED BY CONTRACTOR SHALL BE INCIDENTAL TO THE PROJECT.
25. ALL MATERIAL SHALL BE FURNISHED BY CONTRACTOR UNLESS OTHERWISE NOTED.
26. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS PRIOR TO START OF CONSTRUCTION.
27. RESTRICT ACCESS TO SITE THROUGH THE USE OF APPROPRIATE SIGNAGE, BARRIERS, FENCES, ETC. SITE SHALL BE LEFT WITH APPROPRIATE SAFETY MEASURES IN PLACE DURING NON-WORKING HOURS. NO TRENCH SHALL BE LEFT OPEN DURING NON-WORKING HOURS. SITE SAFETY IS THE RESPONSIBILITY OF CONTRACTOR, DURING BOTH WORKING AND NON-WORKING HOURS.
28. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS. PERMIT APPLICATIONS SHALL BE SUBMITTED WITH ADEQUATE TIME SO AS NOT TO DELAY CONSTRUCTION.
29. CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THESE PLANS AND THE LATEST EDITION OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES MANUAL. KEEP ALL STREETS FREE OF DUST, MUD, AND DEBRIS. STREETS AND WALKWAYS SHALL BE SWEPT REGULARLY, AND TEMPORARY CONSTRUCTION ENTRANCES SHALL BE UTILIZED DURING CONSTRUCTION.
30. CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN ACCORDANCE WITH REQUIREMENTS OUTLINED WITHIN THE MAINE CONSTRUCTION GENERAL PERMIT. CONTRACTOR SHALL FILE A NOTICE OF TERMINATION WITH PHOTOGRAPHS AND REQUIRED ATTACHMENTS TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION UPON COMPLETION OF THE PROJECT. A DRAFT OF THE NOTICE WILL BE PROVIDED TO THE OWNER AND THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMISSION. A COPY OF THE NOTICE CAN BE OBTAINED AT WWW.MAINE.GOV/DEP/LAND/STORMWATER/CONSTRUCTION.HTML.
31. CONTRACTOR SHALL MAINTAIN EROSION CONTROL AND STORMWATER POLLUTION PREVENTION SYSTEMS IN COMPLIANCE WITH THE REQUIREMENTS OF THE MAINE CONSTRUCTION GENERAL PERMIT (MCGP). CONTRACTOR SHALL CONDUCT AND MAINTAIN RECORDS OF EROSION CONTROL INSPECTIONS PER THE NOTICE OF INTENT TO COMPLY WITH THE MAINE CONSTRUCTION GENERAL PERMIT. CONTRACTOR SHALL PREPARE AND SUBMIT A NOTICE OF TERMINATION TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, UPON COMPLETION OF THE CONSTRUCTION PROJECT. SUBMIT A COPY OF THE INSPECTION RECORDS AND THE NOTICE OF TERMINATION TO THE OWNER AND ARCHITECT.
32. THE UTILITY LOCATIONS SHOWN IN PLAN AND PROFILE ARE APPROXIMATE AND REQUIRE FIELD VERIFICATION BY THE CONTRACTOR. CONTACT THE ENGINEER AND OWNER IMMEDIATELY UPON DISCOVERING ANY CONFLICTS WITH EXISTING AND PROPOSED UTILITY LOCATIONS. NOT ALL EXISTING UTILITIES ARE SHOWN ON PLANS.
33. CONTRACTOR SHALL CLEAN AND/OR FLUSH ALL MANHOLES, CATCH BASINS, AND ASSOCIATED PIPING AFTER THE WORK HAS BEEN COMPLETED.
34. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITY WITH UTILITY COMPANIES. EMERGENCY SERVICES AND CITY. NOTIFY UTILITY COMPANIES WITHIN 48 HOURS OF WORK ACTIVITY ADJACENT TO THOSE UTILITIES.
35. CONTRACTOR SHALL SEQUENCE THE WORK SO AS TO MAINTAIN UTILITY SERVICES FOR EXISTING OPERATIONS ON AND ADJACENT TO THE SITE. CONTRACTOR SHALL PROVIDE A PLAN FOR TEMPORARY UTILITY SERVICES OR AS REQUIRED. THE PLAN SHALL BE STAMPED BY A PROFESSIONAL ENGINEER AND SUBMITTED TO OWNER. ENGINEER AND UTILITY FOR ACCEPTANCE A MINIMUM OF 14 DAYS PRIOR TO START OF UTILITY WORK.
36. EXISTING FACILITIES (I.E. SIGNS, POLES, LIGHT POSTS, ETC.) SHALL BE REMOVED AND PROTECTED DURING CONSTRUCTION. OWNER RETAINS RIGHT TO KEEP ANY AND ALL REMOVED FACILITIES. CONTRACTOR SHALL DISPOSE OF ANY REMOVED FACILITY AT THE REQUEST OF CITY AT CONTRACTOR'S EXPENSE.
37. ALL TREES NOT NOTED TO BE REMOVED OR RELOCATED SHALL BE PROTECTED BY CONTRACTOR DURING CONSTRUCTION.
38. A COMPLETE SET OF "RECORD" DRAWINGS THAT REFLECT ANY AND ALL MODIFICATIONS TO THE SANITARY SEWER SYSTEM, STORM SEWER SYSTEM AND ANY OTHER UTILITY INSTALLATIONS OR ALTERATIONS WITHIN THE PROJECT LIMITS SHALL BE SUBMITTED TO THE CITY OF PORTLAND. THESE DRAWINGS SHALL BE SUBMITTED IN BOTH DIGITAL (ACAD) AND HARD COPY FORMAT AS DEFINED IN THE SPECIFICATIONS PRIOR TO PAYMENT OF FINAL RETAINAGE.
39. ALL UTILITY SERVICES AND MAINS ARE APPROXIMATE AS SHOWN. CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING SERVICES AND MAINS AND RELOCATE AS REQUIRED TO COMPLETE WORK. CONTRACTOR SHALL COORDINATE WORK WITH THE CITY OF PORTLAND, PORTLAND WATER DISTRICT, UNITIL, CMP, AND ANY OTHER UTILITY OWNERS AND PROPERTY OWNERS.
40. WORK IS PROPOSED IN CLOSE PROXIMITY TO EXISTING UTILITIES. CONTRACTOR SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT PROTECTION PLAN FOR CROSSING 33" SANITARY SEWER FORCE MAIN, STAMPED BY PROFESSIONAL ENGINEER PRIOR TO START OF WORK.
41. CAPPED PIPE STUB LOCATIONS SHALL BE MARKED WITH EMBEDDED STAKE AND A MINIMUM OF THREE TIES SHALL BE RECORDED. EMBEDDED STAKE SHALL BE 2X4 WITH PK NAIL DRIVEN IN TOP. LENGTH AS REQUIRED TO SPAN FROM TOP OF PIPE TO 6" BELOW GRADE. LOCATION AND ELEVATION OF PIPE STUB SHALL BE PROVIDED. WARNING TAPE AND WIRE SHALL BE INSTALLED OVER PIPE STUBS IN ACCORDANCE WITH SPECIFICATIONS.
42. ALL SIGNAGE SHALL CONFORM WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)
43. ACTIVITIES THAT HAVE THE POTENTIAL TO DISTURB SOIL SUCH AS UTILITY AND SUBSURFACE STRUCTURE INSTALLATION/RELOCATION WORK, FOUNDATION INSTALLATION, GRADING, PAVING, AND LANDSCAPING SHALL BE CONDUCTED IN ACCORDANCE WITH THE PROJECT SOIL MANAGEMENT PLAN. APPLICABLE SOIL MANAGEMENT PROCEDURES INCLUDE SITE CONTROLS AND CONSTRUCTION MEASURES TO REDUCE EXPOSURE TO SOIL DURING CONSTRUCTION, AS WELL AS TO FACILITATE THE PROPER HANDLING, STORAGE, CHARACTERIZATION, TRANSPORT, ONSITE REUSE, AND/OR OFFSITE REUSE, OR DISPOSAL, OF EXCESS SOIL THAT MAY BE GENERATED DURING CONSTRUCTION.
44. SOIL SAMPLING AND ANALYSIS FOR THE PROPOSED LIMIT OF WORK WAS COMPLETED IN JULY 2022. THESE PLANS SHOW LOCATIONS OF SOIL SAMPLING WITHIN THE PROJECT AREA. SOIL DATA AND THE ASSOCIATED SOIL MANAGEMENT PLAN WILL BE PROVIDED WHEN THE ANALYSIS IS COMPLETED.

CIVIL LEGEND

EXISTING		PROPOSED
	CONTOUR (1' INTERVAL)	
	CONTOUR (INDEX)	
S	SANITARY SEWER	S
FM	FORCEMAIN	FM
SD	STORM DRAIN	SD
UD	UNDERDRAIN	UD
W	WATER LINE	W
E	UNDERGROUND ELECTRIC	E
COMM	UNDERGROUND TELECOMMUNICATIONS	COMM
G	GAS LINE	G
OE	OVERHEAD ELECTRIC	
AS	ABANDONED SEWER	
AW	ABANDONED WATER LINE	
	PROPERTY LINE	
	RIGHT OF WAY	
	EASEMENT	
	EDGE OF VEGETATION	
X X	FENCE	
	CENTERLINE	
	RETAINING WALL	
	STONEWALL	
	CURB	
	EDGE OF PAVEMENT	
	EDGE OF GRAVEL	
	GUARDRAIL	
	RAILROAD TRACKS	
	DRAINAGE DITCH / SWALE	
	SEDIMENT BARRIER	
LW	LIMIT OF WORK	LW
	PAVER AREA	
	BRICK SIDEWALK	
	BITUMINOUS PAVEMENT	
	PORTLAND COMPANY HISTORIC DISTRICT BOUNDARY	
	MUNJOY HILL HISTORIC DISTRICT BOUNDARY	

CIVIL LEGEND

EXISTING		PROPOSED
S	SANITARY SEWER MANHOLE	
CO	CLEAN OUT	CO
D	DRAINAGE MANHOLE	
	FIELD INLET CATCH BASIN	
E	ELECTRICAL MANHOLE	EMH
T	TELECOMMUNICATIONS MANHOLE	CMH
TELE BOX	TELEPHONE STAND BOX	
G	GAS METER BOX	G
	GAS VENT	
	GAS GATE	
	TRANSFORMER	TRANS.
	UTILITY POLE	
	UTILITY POLE WITH GUY	
	LIGHTPOST	
	WATER GATE	
	CURB STOP	
	REDUCER	
	COUPLING	
	WATER SHUT OFF VALVE	
	HYDRANT	
W	WATER METER BOX	W
	THRUST BLOCK	
	PROPERTY MONUMENT	
MB	MAIL BOX	
	STREET AND MISCELLANEOUS SIGNS	
FP	FLAGPOLE	
XXX.XX	SPOT ELEVATION	XXX.XX
	TREE/SHRUB	
TP-#	TEST PIT	
WC-XX	SOIL SAMPLE LOCATION	

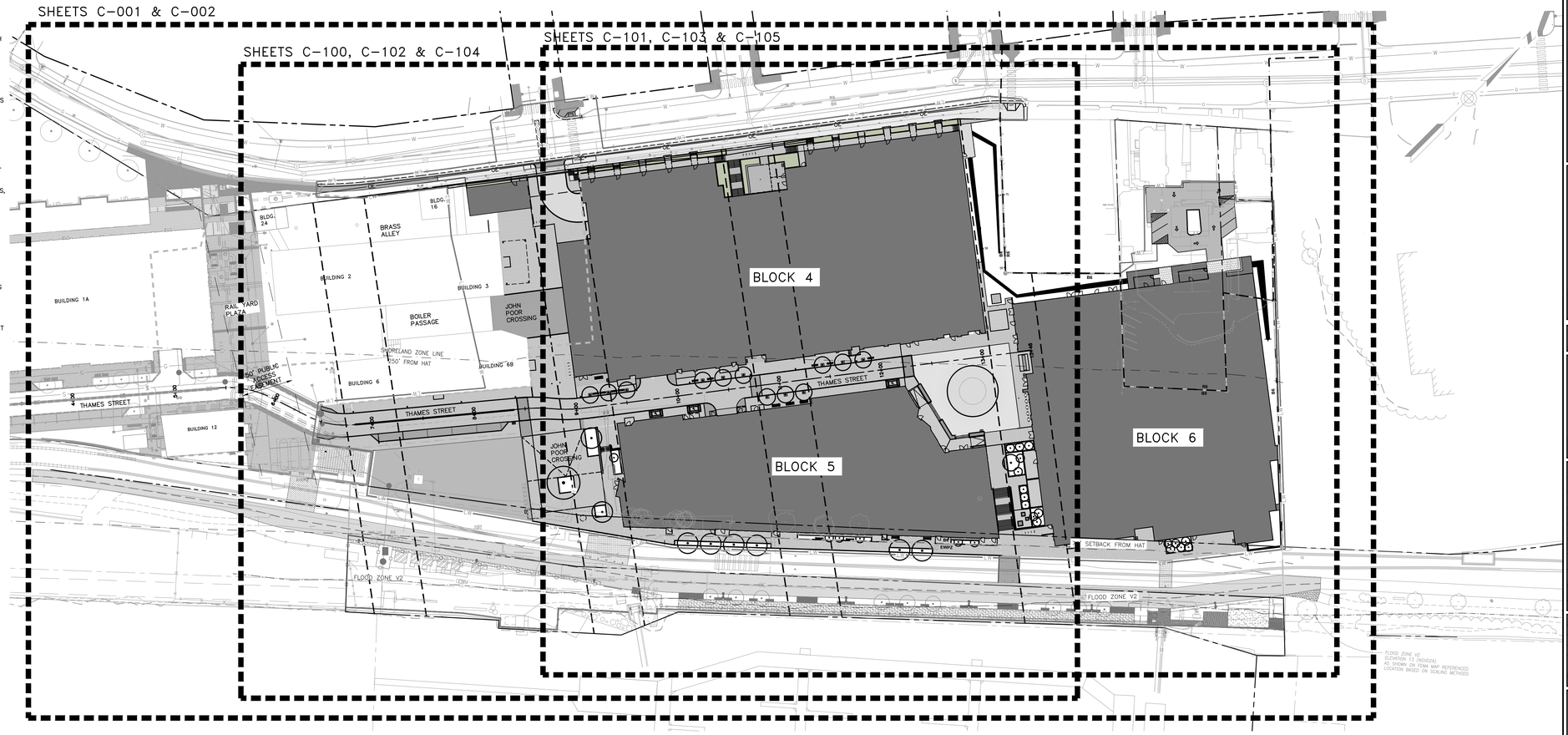
CIVIL ABBREVIATIONS

&	AND	N.I.C.	NOT IN CONTRACT
A.G.	ABOVE GROUND	NO.	NUMBER
		NR	NO REFUSAL
BC	BOTTOM OF CURB	N.T.S.	NOT TO SCALE
BIT	BITUMINOUS		
BW	BOTTOM OF WALL	OE	OVERHEAD ELECTRIC
B/W	BETWEEN	OH	OVERHEAD
CB	CATCH BASIN	±	PLUS OR MINUS
CI	CAST IRON	LLS	LICENSED LAND SURVEYOR
CMP	CENTRAL MAINE POWER	PROP.	PROPOSED
CMP	CORRUGATED METAL PIPE	PT.	POINT
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE
DI	DUCTILE IRON	R.O.W.	RIGHT-OF-WAY
DIA.	DIAMETER	RCP	REINFORCED CONCRETE PIPE
DMH	DRAIN MANHOLE	REINF.	REINFORCED
DTL.	DETAIL	REQ'D	REQUIRED
E	UNDERGROUND ELECTRICAL	S	SLOPE (FT./FT.)
EL.	ELEVATION	S	SEWER
E.O.P.	EDGE OF PAVEMENT	SD	STORM DRAIN
EXIST.	EXISTING	SMH	SEWER MANHOLE
		SCH	SCHEDULE
FF	FINISH FLOOR	STA.	STATION
FM	FORCEMAIN		
FT	FOOT/FEET	TS	TOP OF STAIRS
		TW	TOP OF WALL
G	GAS MAIN	TYP.	TYPICAL
GS	GAS SERVICE		
GALV.	GALVANIZED	UP	UTILITY POLE
GRAN.	GRANITE		
		VC	VITRIFIED CLAY
HDPE	HIGH DENSITY POLYETHYLENE	VIT.	VITRIFIED CLAY
HYD	HYDRANT		
		W	WEST
INV.	INVERT	W	WATER
		W/	WITH
LF	LINEAR FEET	W	WATERMAIN
		WS	WATER SERVICE
MAX.	MAXIMUM	WV	WATER VALVE
MDOT	MAINE DEPARTMENT OF TRANSPORTATION		
MIN.	MINIMUM		
MON	MONUMENT		

SHEETS C-001 & C-002

SHEETS C-100, C-102 & C-104

SHEETS C-101, C-103 & C-105



OVERALL SITE PLAN

SCALE: 1"=50'

50' 0 50' 100'

BAR SCALE
1" = 50'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#
#	#	#
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:

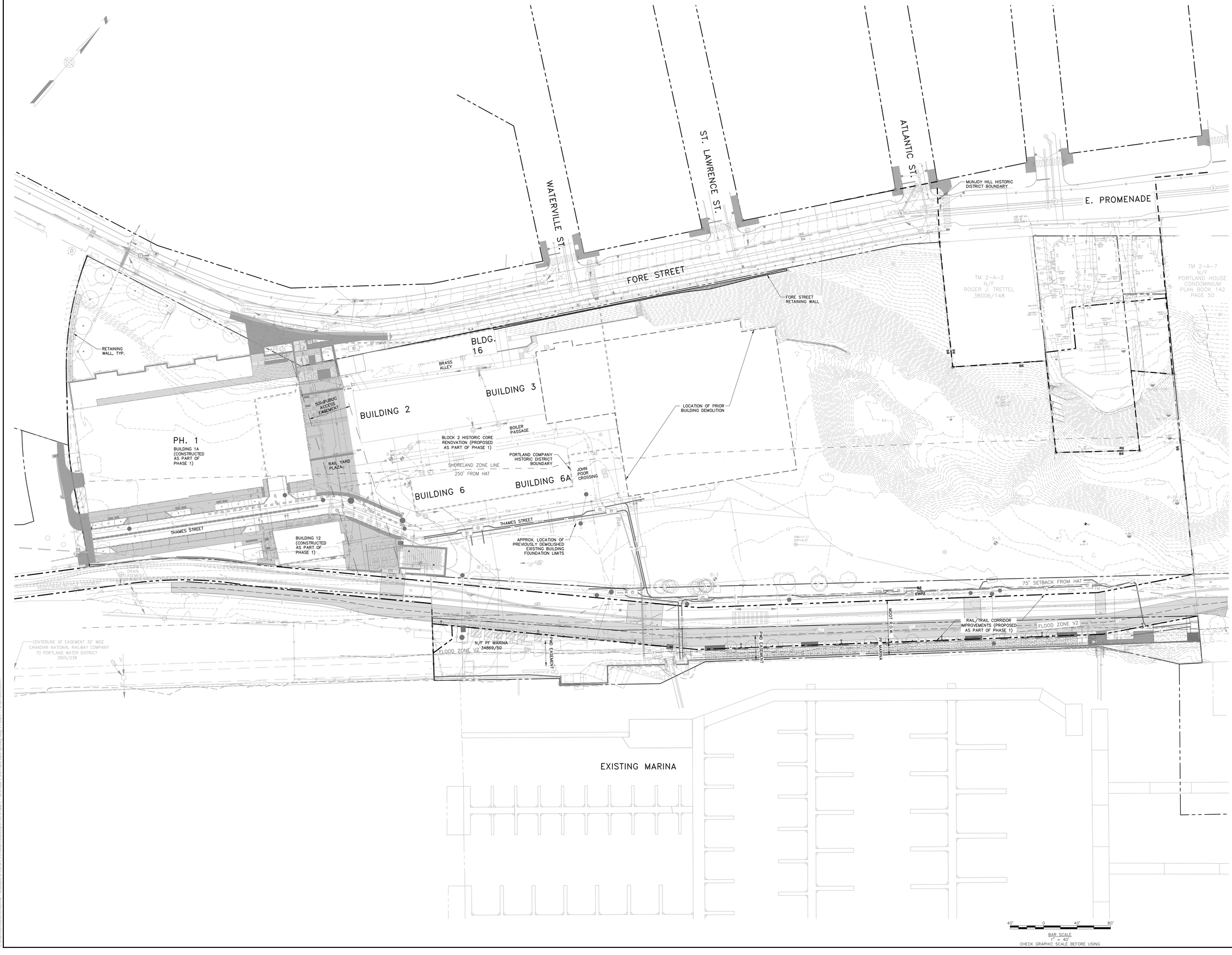
CIVIL
GENERAL NOTES, LEGEND & ABBREVIATIONS

DRAWING NO:

G-001

SHEET: 2 OF 20

30x42
PLOT SCALE: 100 = 1'-0"



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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:

CIVIL
EXISTING CONDITIONS

DRAWING NO:

C-001

SHEET: 3 OF 20

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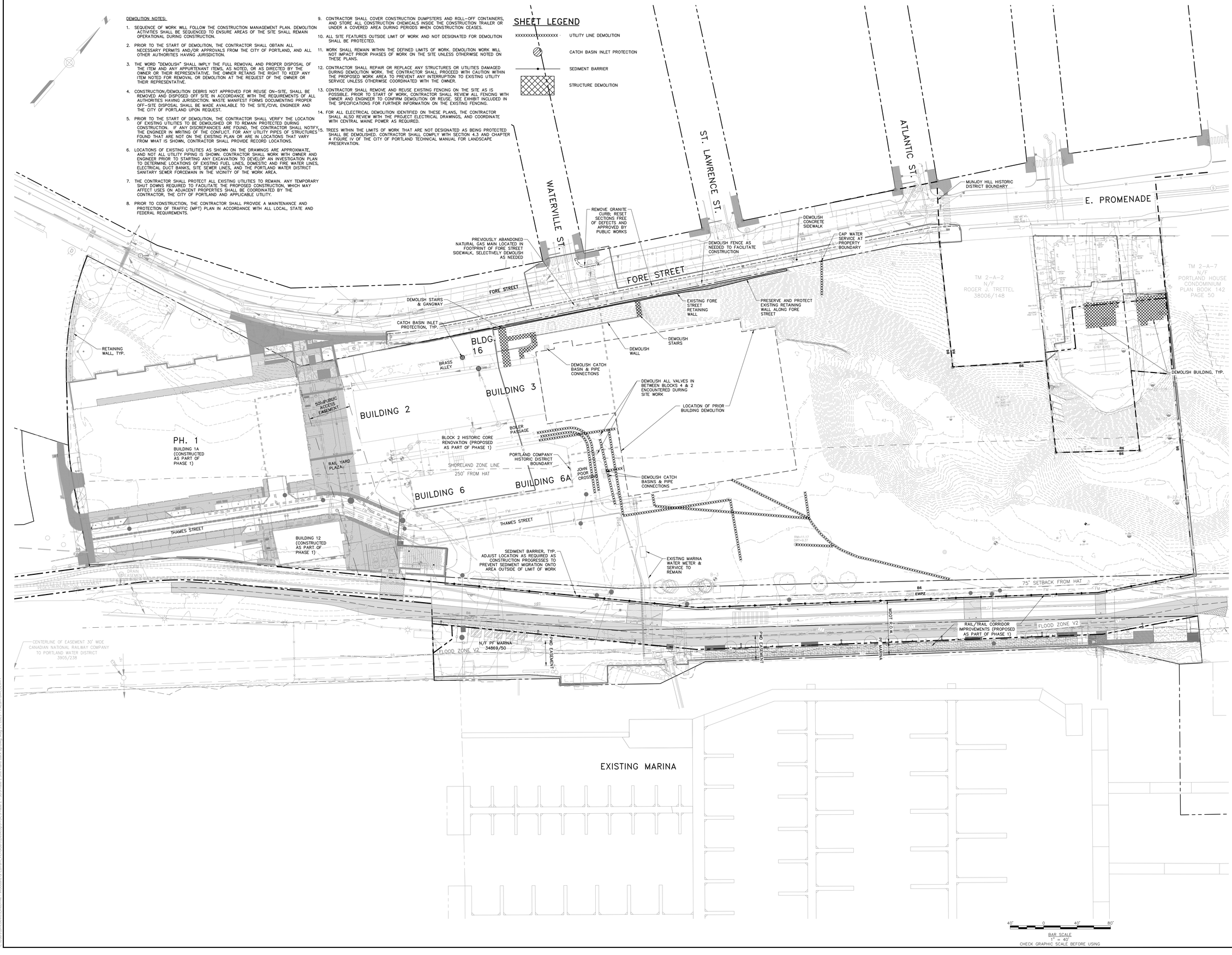
30x42
PLOT SCALE: 100 = 1'-0"

DEMOLITION NOTES:

1. SEQUENCE OF WORK WILL FOLLOW THE CONSTRUCTION MANAGEMENT PLAN. DEMOLITION ACTIVITIES SHALL BE SEQUENCED TO ENSURE AREAS OF THE SITE SHALL REMAIN OPERATIONAL DURING CONSTRUCTION.
2. PRIOR TO THE START OF DEMOLITION, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND/OR APPROVALS FROM THE CITY OF PORTLAND, AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
3. THE WORD "DEMOLISH" SHALL IMPLY THE FULL REMOVAL AND PROPER DISPOSAL OF THE ITEM AND ANY APPURTENANT ITEMS, AS NOTED, OR AS DIRECTED BY THE OWNER OR THEIR REPRESENTATIVE. THE OWNER RETAINS THE RIGHT TO KEEP ANY ITEM NOTED FOR REMOVAL OR DEMOLITION AT THE REQUEST OF THE OWNER OR THEIR REPRESENTATIVE.
4. CONSTRUCTION/DEMOLITION DEBRIS NOT APPROVED FOR REUSE ON-SITE, SHALL BE REMOVED AND DISPOSED OFF SITE IN ACCORDANCE WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION. WASTE MANIFEST FORMS DOCUMENTING PROPER OFF-SITE DISPOSAL SHALL BE MADE AVAILABLE TO THE SITE/CIVIL ENGINEER AND THE CITY OF PORTLAND UPON REQUEST.
5. PRIOR TO THE START OF DEMOLITION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES TO BE DEMOLISHED OR TO REMAIN PROTECTED DURING CONSTRUCTION. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY, THE ENGINEER IN WRITING OF THE CONFLICT. FOR ANY UTILITY PIPES OF STRUCTURES FOUND THAT ARE NOT ON THE EXISTING PLAN OR ARE IN LOCATIONS THAT VARY FROM WHAT IS SHOWN, CONTRACTOR SHALL PROVIDE RECORD LOCATIONS.
6. LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE DRAWINGS ARE APPROXIMATE, AND NOT ALL UTILITY PIPING IS SHOWN. CONTRACTOR SHALL WORK WITH OWNER AND ENGINEER PRIOR TO STARTING ANY EXCAVATION TO DEVELOP AN INVESTIGATION PLAN TO DETERMINE LOCATIONS OF EXISTING FUEL LINES, DOMESTIC AND FIRE WATER LINES, ELECTRICAL DUCT BANKS, SITE SEWER LINES, AND THE PORTLAND WATER DISTRICT SANITARY SEWER FORCEMAIN IN THE VICINITY OF THE WORK AREA.
7. THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES TO REMAIN. ANY TEMPORARY SHUT DOWNS REQUIRED TO FACILITATE THE PROPOSED CONSTRUCTION, WHICH MAY AFFECT USES ON ADJACENT PROPERTIES SHALL BE COORDINATED BY THE CONTRACTOR, THE CITY OF PORTLAND AND APPLICABLE UTILITY.
8. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE A MAINTENANCE AND PROTECTION OF TRAFFIC (MPT) PLAN IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. CONTRACTOR SHALL COVER CONSTRUCTION DUMPSTERS AND ROLL-OFF CONTAINERS, AND STORE ALL CONSTRUCTION CHEMICALS INSIDE THE CONSTRUCTION TRAILER OR UNDER A COVERED AREA DURING PERIODS WHEN CONSTRUCTION CEASES.
10. ALL SITE FEATURES OUTSIDE LIMIT OF WORK AND NOT DESIGNATED FOR DEMOLITION SHALL BE PROTECTED.
11. WORK SHALL REMAIN WITHIN THE DEFINED LIMITS OF WORK. DEMOLITION WORK WILL NOT IMPACT PRIOR PHASES OF WORK ON THE SITE UNLESS OTHERWISE NOTED ON THESE PLANS.
12. CONTRACTOR SHALL REPAIR OR REPLACE ANY STRUCTURES OR UTILITIES DAMAGED DURING DEMOLITION WORK. THE CONTRACTOR SHALL PROCEED WITH CAUTION WITHIN THE PROPOSED WORK AREA TO PREVENT ANY INTERRUPTION TO EXISTING UTILITY SERVICE UNLESS OTHERWISE COORDINATED WITH THE OWNER.
13. CONTRACTOR SHALL REMOVE AND REUSE EXISTING FENCING ON THE SITE AS IS POSSIBLE. PRIOR TO START OF WORK, CONTRACTOR SHALL REVIEW ALL FENCING WITH OWNER AND ENGINEER TO CONFIRM DEMOLITION OR REUSE. SEE EXHIBIT INCLUDED IN THE SPECIFICATIONS FOR FURTHER INFORMATION ON THE EXISTING FENCING.
14. FOR ALL ELECTRICAL DEMOLITION IDENTIFIED ON THESE PLANS, THE CONTRACTOR SHALL ALSO REVIEW WITH THE PROJECT ELECTRICAL DRAWINGS, AND COORDINATE WITH CENTRAL MAINE POWER AS REQUIRED.
15. TREES WITHIN THE LIMITS OF WORK THAT ARE NOT DESIGNATED AS BEING PROTECTED SHALL BE DEMOLISHED. CONTRACTOR SHALL COMPLY WITH SECTION 4.3 AND CHAPTER 4 FIGURE IV OF THE CITY OF PORTLAND TECHNICAL MANUAL FOR LANDSCAPE PRESERVATION.

SHEET LEGEND

- XXXXXXXXXXXXXXXXX · UTILITY LINE DEMOLITION
- CATCH BASIN INLET PROTECTION
- SEDIMENT BARRIER
- STRUCTURE DEMOLITION



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STATE OF MAINE
LAUREN JANE SWETT
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PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:
CIVIL
DEMOLITION PLAN

DRAWING NO:
C-002
SHEET: 4 OF 20

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30x42
PLOT SCALE: 100 = 1'-0"

NOTES:
1. SEE LANDSCAPE PLANS FOR SITE SURFACE MATERIAL ASSOCIATED WITH LANDSCAPED AREAS, PATIOS, AND NON-BITUMINOUS WALKWAYS & ROADWAYS, PLANTING PLANS AND SITE FURNISHINGS.

2. UTILITY & DRAINAGE STRUCTURES NOT SHOWN FOR CLARITY, SEE GRADING & DRAINAGE & UTILITY PLAN FOR MORE INFORMATION.

3. RESET GRANITE CURB SECTIONS ON FORE STREET THAT ARE FREE OF DEFECTS, INCLUDING BUT NOT LIMITED TO CHIPPING AND CRACKING. ANY CURBING TO BE RESET SHALL BE INSPECTED AND APPROVED BY CITY OF PORTLAND PUBLIC WORKS PRIOR TO INSTALLATION.

WATERVILLE ST.
ST. LAWRENCE ST.
FORE STREET
EXISTING MONUMENT, LOCATION APPROXIMATE; VERIFY LOCATION, AND DO NOT DISTURB
COORDINATE WITH CITY OF PORTLAND PRIOR TO COMPLETING FORE STREET STRIPING AND INSTALLATION OF ANY SIGNAGE
REMOVE EXISTING CURB, PROVIDE FLUSH GRANITE CURB
DETECTABLE WARNING TABLE, TYP.
PROVIDE 15' LONG TIPDOWN CURB
SAWCUT & PROVIDE BITUMINOUS PAVEMENT, TYP.
PROVIDE 7' LONG TIPDOWN CURB
VERTICAL GRANITE CURB, TYP.
MATCH EXISTING BRICK SIDEWALK
BRICK SIDEWALK, TYP.
EXISTING BELOW GRADE BUILDING 15 LIMIT
BLDG. 16
TOWNHOUSES
DRIVEWAY APRON AT FORE STREET, TYP. SEE DETAILS ON SHEET C-207
FORE STREET RETAINING WALL
ENTRANCE STAIR, SEE STRUCTURAL AND LANDSCAPE PLANS
RAMPED PARKING GARAGE ENTRANCE TO LEVEL 4
PAVER PLAZA AREA
PORTLAND COMPANY HISTORIC DISTRICT BOUNDARY
50' WIDE VIEW CORRIDOR
BLOCK 4
BUILDING 2
BUILDING 3
BUILDING 6
BUILDING 6B
SHORELAND ZONE LINE
250' FROM HAT
BIKE RACK, SEE LANDSCAPE PLANS
SITE LANDSCAPING, SEE LANDSCAPE PLANS
BENCH, SEE LANDSCAPE PLANS
LIGHT POLE, TYP. SEE LANDSCAPE PLANS
SHARED STREET, SEE NOTE 1
PARKING - 3 SPACES
24' TYP.
PH. 1
TEMPORARY CONSTRUCTION FENCING, TO BE RELOCATED AS NECESSARY TO MAINTAIN SITE SECURITY
FUTURE BLOCK 3 INTERIM BITUMINOUS PAVEMENT (TEMPORARY CONDITION)
PAVER PLAZA AREA
75' SETBACK FROM HAT
MDOT PROPERTY
PW MAINTAINED PROPERTY
PWD EASEMENT
FLOOD ZONE V2
EXISTING MARINA
SET NEW MONUMENT PER DETAIL, COORDINATE FINAL LOCATION WITH CITY OF PORTLAND
PROVIDE ADA CURB RAMP WITH DETECTABLE WARNING TABLE, TYP.
PROVIDE GRANITE RADIUS CORNER "BUG", TYP.
MATCH EXISTING CONCRETE DRIVEWAY
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
RETAINING WALL, SEE GEOTECHNICAL PLANS
SAFETY RAILING, SEE LANDSCAPING PLANS
REFER TO SHEET C-101
B6
R6
PODIUM
BLOCK 6
PLAZA AREA
STONE CURB, TYP. SEE LANDSCAPE PLANS
TEMPORARY CONSTRUCTION FENCE
EWPZ
REFER TO SHEET C-101

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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PE SEAL:
STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE
PHASE 2

REV	MM/DD/YY	DESCRIPTION
#	#	#

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
SITE PLAN - 1

DRAWING NO:
C-100
SHEET: 5 OF 20

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30x42
PLOT SCALE: 100 = 1'-0"

NOTES:
1. SEE LANDSCAPE PLANS FOR SITE SURFACE MATERIAL ASSOCIATED WITH LANDSCAPED AREAS, PATIOS, AND NON-BITUMINOUS WALKWAYS & ROADWAYS, PLANTING PLANS AND SITE FURNISHINGS.
2. UTILITY & DRAINAGE STRUCTURES NOT SHOWN FOR CLARITY, SEE GRADING & DRAINAGE & UTILITY PLAN FOR MORE INFORMATION.
3. RESET GRANITE CURB SECTIONS ON FORE STREET THAT ARE FREE OF DEFECTS, INCLUDING BUT NOT LIMITED TO CHIPPING AND CRACKING. ANY CURBING TO BE RESET SHALL BE INSPECTED AND APPROVED BY CITY OF PORTLAND PUBLIC WORKS PRIOR TO INSTALLATION.

REFER TO SHEET C-100

ATLANTIC ST.

FORE STREET

E. PROMENADE

BRICK SIDEWALK, TYP.

UTILITY POLE, TYP.

VERTICAL GRANITE CURB, TYP.

SITE LANDSCAPING, SEE LANDSCAPE PLANS

SAWCUT & PROVIDE BITUMINOUS PAVEMENT, TYP.

ADA CURB RAMP, TYP.

MATCH EXISTING BRICK SIDEWALK

COORDINATE WITH CITY OF PORTLAND PRIOR TO COMPLETING FORE STREET STRIPING AND INSTALLATION OF ANY SIGNAGE

ENTRANCE STAIR, SEE STRUCTURAL & LANDSCAPE PLANS

FORE STREET RETAINING WALL

50' WIDE VIEW CORRIDOR

BLOCK 4

BLOCK 5

BLOCK 6

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

TM 2-A-4

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

TM 2-A-10

RETAINING WALL, SEE GEOTECHNICAL PLANS

BITUMINOUS PAVEMENT

LOAM & SEED

LOAM & SEED 0.787 ACRES

BENCH, TYP. SEE LANDSCAPE PLANS

LIGHT POLE, TYP. SEE LANDSCAPE PLANS

ENTRANCE STAIR, SEE STRUCTURAL & LANDSCAPE PLANS

SHARED STREET

PODIUM STRUCTURE CONNECTING BLOCK 4 AND BLOCK 6 SEE STRUCTURES SEE STRUCTURAL PLANS

50' WIDE VIEW CORRIDOR

PAVER PLAZA AREA

SITE LANDSCAPING, SEE LANDSCAPE PLANS

ENTRANCE STAIR, SEE STRUCTURAL AND LANDSCAPE PLANS

BIKE RACK, TYP. SEE LANDSCAPE PLANS

WASTE RECEPTACLE, TYP. SEE LANDSCAPE PLANS

SHORELAND ZONE LINE
250' FROM HAT

75' SETBACK FROM HAT

EWPZ

STONE CURB, TYP. SEE LANDSCAPE PLANS

TEMPORARY CONSTRUCTION FENCING, TO BE RELOCATED AS NECESSARY TO MAINTAIN SITE SECURITY

FLOOD ZONE V2

MOORING PROPERTY LINE

EXISTING MARINA

REFER TO SHEET C-100

BAR SCALE
1" = 20'
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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
SITE PLAN - 2

DRAWING NO:
C-101
SHEET: 6 OF 20

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
WATERVILLE ST.
ST. LAWRENCE ST.
RESET CATCH BASIN RIM AS NECESSARY
MATCH EXISTING SIDEWALK GRADE
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
FORE STREET RETAINING WALL
PROVIDE GRANITE CATCH BASIN INLET HEADSTONE, TYP. SEE DETAILS ON SHEET C-207
TOWNHOUSES
BLDG. 16
BUILDING 2
BUILDING 3
BUILDING 6B
BUILDING 6
SHORELAND ZONE LINE
250' FROM HAT
BLOCK 4
FF ELEV. 17.75
BLOCK 5
BLOCK 6
PODIUM
APPROXIMATE EXTENT OF BELOW GRADE PODIUM
TRENCH DRAIN, SEE DETAILS
PIPE SD67 BELOW TRENCH DRAIN
SUBSURFACE R-TANK, SEE DETAIL
75' SETBACK FROM HAT
MDOT PROPERTY
PF MARINA PROPERTY
PWD EASEMENT
FLOOD ZONE V2
EXISTING MARINA
CONNECT DMH14 TO PREVIOUSLY INSTALLED 24" OUTFALL
REFER TO SHEET C-103
REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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Lauren J. Swett

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CLIENT INFO:

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PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:

CIVIL
GRADING & DRAINAGE PLAN - 1

DRAWING NO:

C-102

SHEET: 7 OF 20

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30x42
PLOT SCALE: 100 = 1'-0"

REFER TO SHEET C-102

FORE STREET

ATLANTIC ST.

E. PROMENADE

FORE STREET RETAINING WALL

MATCH EXISTING SIDEWALK GRADE

TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148

TM 2-A-4

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

BLOCK 4
FF ELEV. 17.75

BLOCK 5

BLOCK 6

SHORELAND ZONE LINE
250' FROM HAT

75' SETBACK FROM HAT

PODIUM STRUCTURE CONNECTING BLOCK 6 AND BLOCK 4 STRUCTURES; SEE STRUCTURAL PLANS

APPROXIMATE EXTENT OF BELOW GRADE PODIUM

SHARED STREET, NOT IN CONTRACT

EWPZ

FLOOD ZONE V2

TWO (2) 6'x8' FILTERRA UNITS

CONNECT ROOF DRAINS TO FILTERRA UNITS

CONNECT CAPPED 24" STORM DRAIN PIPE TO NEW DMH

MDOT PROPERTY

PF MARINA PROPERTY

EASEMENT

EXISTING MARINA

REFER TO SHEET C-102

REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

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JOB NO:	227007
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SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:
CIVIL
GRADING & DRAINAGE PLAN - 2

DRAWING NO:
C-103
SHEET: 8 OF 20

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30x42
PLOT SCALE: 100 = 1'-0"

FORE STREET
WATERVILLE ST.
ST. LAWRENCE ST.
FINAL FORE STREET UTILITY POLE LOCATIONS TO BE COORDINATED WITH CMP
FORE STREET RETAINING WALL
TM 2-A-2
N/F
ROGER J. TRETTEL
38006/148
REFER TO SHEET C-105
BLDG. 16
TOWNHOUSES
GAS METER
6" SANITARY SEWER
12" DI WATER SERVICE ENTRY; WATER RPZ & BACKFLOW PREVENTER INSTALLED INSIDE BUILDING
6" WATER SERVICE WITH VALVE & HYDRANT
HYDRANT, TYP.
SUBSURFACE TRANSFORMER VAULT, TYP.
PAD MOUNTED TRANSFORMER LOCATION
BLOCK 4
BLOCK 6
BUILDING 2
BUILDING 3
CAP 4" SANITARY SEWER FOR FUTURE CONNECTION
CAP 6" SANITARY SEWER FOR FUTURE CONNECTION
CAP 4" SANITARY SEWER FOR FUTURE CONNECTION
PROVIDE VALVE & CAP AT ALL GAS STUBS, TYP.
GAS METER
12" DI WATER
ELECTRICAL VAULT, TYP.
COMMUNICATIONS VAULT, TYP
PROVIDE 2" BLOW-OFF VALVE & THRUST BLOCK AT ALL WATER STUBS, TYP.
CONDUITS FOR ELECTRICAL & COMMUNICATIONS
CAP 6" SANITARY SEWER FOR FUTURE CONNECTION
CAP 4" SANITARY SEWER FOR FUTURE CONNECTION
6" SANITARY SEWER
OIL WATER SEPARATOR
O/W SEP. 2
6" SANITARY SEWER
6" SANITARY SEWER
HYDRANT, TYP.
12" DI WATER SERVICE
6" SANITARY SEWER
6" GAS SERVICE
6" SANITARY SEWER
APPROXIMATE EXTENT OF BELOW GRADE PODIUM
ELECTRICAL AND TELECOMMUNICATIONS SERVICE ENTRY
PODIUM
SHORELAND ZONE LINE
250' FROM HAT
BUILDING 6B
CAP 4" SANITARY SEWER FOR FUTURE CONNECTION
GAS METER
BUILDING 6
6" WATER SERVICE W/ VALVE & HYDRANT
EARTHEN RAMP
PROVIDE 2" BLOW-OFF VALVE & THRUST BLOCK AT ALL WATER STUBS, TYP.
CONNECT TO EXISTING WATER MAIN, PROVIDE THRUST BLOCK
CONNECT TO EXISTING FORCEMAIN
CONNECT TO EXISTING VAULTS, SEE SITE ELECTRICAL PLANS
BELOW GRADE STORMWATER STORAGE
CONNECT TO EXISTING WATER MAIN
BLOCK 5
6" SANITARY SEWER
6" SANITARY SEWER
SANITARY SEWER PUMP STATION, SEE DETAIL
PUMP STATION
75' SETBACK FROM HAT
ELECTRICAL CONDUIT
B6
EWPZ
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FLOOD ZONE V2
PHASE 1
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30x42
PLOT SCALE: 100 = 1'-0"

REFER TO SHEET C-104

FORE STREET

FORE STREET RETAINING WALL

BLOCK 4

BLOCK 5

BLOCK 6

E. PROMENADE

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N/F
ROGER J. TRETTEL
38006/148

TM 2-A-4

TM 2-A-7
N/F
PORTLAND HOUSE
CONDOMINIUM
PLAN BOOK 142
PAGE 50

TM 2-A-10

TM 2-A-1
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PF LAND LLC
37397/78

R6
B6

B6

PAD MOUNTED
TRANSFORMER LOCATION

TRANS

AREA=
34,280 S.F.
0.787 ACRES

SHORELAND ZONE LINE
250' FROM HAT

75' SETBACK FROM HAT

FLOOD ZONE V2

EWPZ

PODIUM

APPROXIMATE
EXTENT OF
BELOW GRADE
PODIUM

ELECTRICAL
AND
TELECOMMUNICATIONS
SERVICE ENTRY

12" DI WATER
SERVICE

8" GAS
SERVICE

6" SANITARY
SEWER

HYDRANT,
TYP.

SMH 1

O/W SEP. 2

PROVIDE 2" BLOW-OFF
VALVE & THRUST BLOCK
AT ALL WATER STUBS, TYP.

SUBSURFACE
TRANSFORMER
VAULT, TYP.

ELECTRICAL
VAULT, TYP.

COMMUNICATIONS
VAULT, TYP.

8" PVC SEWER

CONNECT TO
PREVIOUSLY
INSTALLED SMH11

PUE
EASEMENT

EXISTING MARINA

REFER TO SHEET C-104

REFER TO SHEET C-107 FOR PIPE & STRUCTURE SCHEDULES

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE
DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

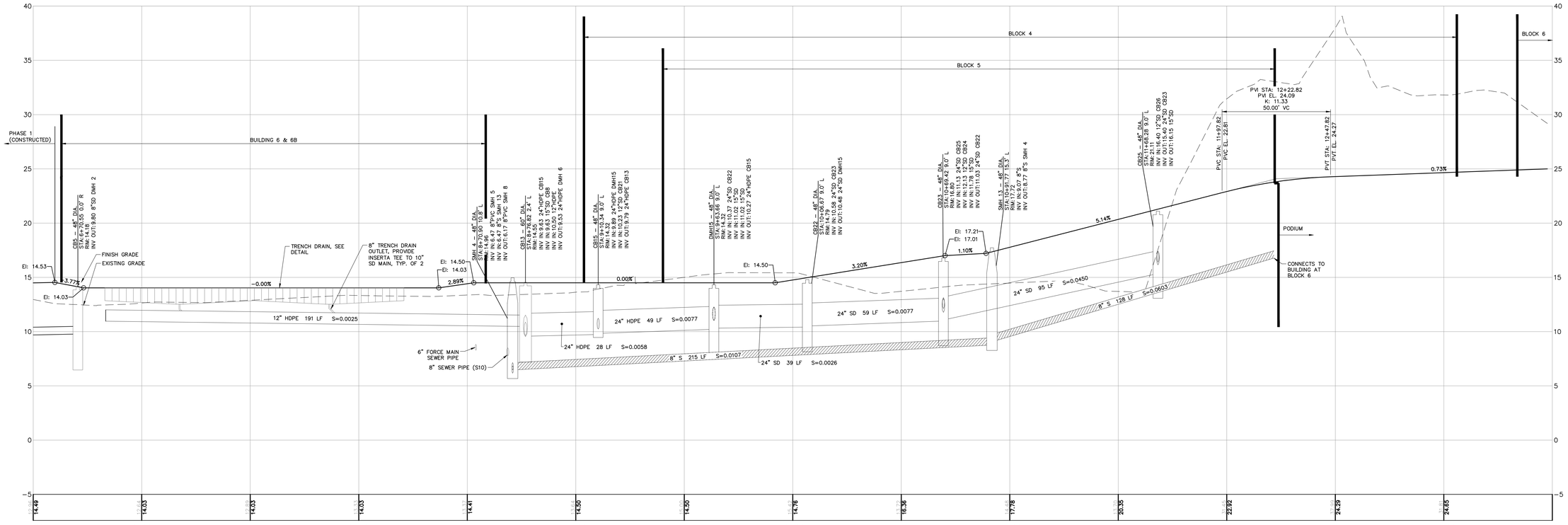
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS BACK*.dwg

DRAWING TITLE:
CIVIL
UTILITY PLAN - 2

DRAWING NO:
C-105
SHEET: 10 OF 20

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THAMES STREET PROFILE STA. 6+50 TO STA. 13+50

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

20' 0 20' 40'
BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
ROAD PROFILE

DRAWING NO:
C-106
SHEET: 11 OF 20

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STORMWATER STRUCTURES

STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STRUCTURE LOCATION
AD38	15"	12.70		9.73/10"SD /AD39	N: 302304.36 E: 2932605.30
AD39	15"	12.70	9.14/10"SD /AD38	9.04/10"SD /AD40	N: 302384.13 E: 2932691.33
AD40	15"	12.70	8.84/10"SD /AD39	8.74/10"SD /AD41	N: 302411.36 E: 2932720.73
AD41	15"	12.70	7.85/10"SD /AD40	7.75/10"SD /AD42	N: 302440.54 E: 2932751.76
AD42	15"	12.70	7.42/10"SD /AD41	7.32/10"SD /AD43	N: 302485.98 E: 2932799.59
AD43	15"	12.70	7.08/10"SD /AD42	6.98/10"SD /DMH14	N: 302518.62 E: 2932834.47
AD45	15"	12.70	7.02/12"SD /AD46	6.92/12"SD /DMH14	N: 302558.60 E: 2932877.07
AD46	15"	12.55	7.52/12"SD /AD47	7.42/12"SD /AD45	N: 302594.26 E: 2932915.52
AD47	15"	12.60	8.03/12"SD /AD48	7.93/12"SD /AD46	N: 302631.96 E: 2932955.80
AD48	15"	12.89	8.50/12"SD /AD51	8.40/12"SD /AD47	N: 302671.11 E: 2932985.90
AD49	15"	18.80	14.28/12"SD /AD50	14.00/12"SD /AD51	N: 302722.71 E: 2933025.00
AD50	15"	18.75	14.48/12"SD /FILTERRA 1	14.38/12"SD /AD49	N: 302736.43 E: 2933010.70
AD51	15"	15.75	8.80/12"SD /AD49	8.60/12"SD /AD48	N: 302700.37 E: 2933008.07
CB7	4'	14.58	9.92/12"SD/FI13 9.92/10"SD/ 9.92/6"SD/	9.82/15"SD/CB8	N: 302377.61 E: 2932357.66
CB8	4'	14.51	9.75/15"SD/CB7	9.64/15"SD/CB13	N: 302349.86 E: 2932393.71
CB13*	5'	14.55	9.63/24"HDPE/CB15 9.63/15"SD/CB8 10.50/12"HDPE/	9.53/24"HDPE/DMH 6	N: 302315.95 E: 2932428.67
CB15*	4'	14.32	9.89/24"HDPE/DMH15 10.23/12"SD/CB21	9.79/24"HDPE/CB13	N: 302343.90 E: 2932446.12
CB21	4'	14.32		10.32/12"SD/CB15	N: 302332.91 E: 2932460.35
CB22	4'	14.79	10.58/24"SD/CB23	10.48/24"SD/DMH15	N: 302420.17 E: 2932504.97
CB23	4'	16.80	11.13/24"SD/CB25 12.13/12"SD/CB24 11.78/15"SD/	11.03/24"SD/CB22	N: 302469.85 E: 2932543.29
CB24	4'	16.80		12.22/12"SD/CB23	N: 302458.85 E: 2932557.55
CB25	4'	21.11	16.40/12"SD/CB26	15.40/24"SD/CB23 16.15/15"SD/	N: 302548.12 E: 2932603.69
CB26	4'	21.11		16.49/12"SD/CB25	N: 302537.12 E: 2932617.94
CB27	4'	12.57		9.43/12"SD/RTANK INLET7	N: 302242.76 E: 2932487.52
CB28	4'	12.54		9.41/12"SD/RTANK INLET8	N: 302288.33 E: 2932511.58
DMH 6	8'x6'	13.23	9.39/24"HDPE/CB13	9.39/15"SD/RTANK INLET6 9.39/15"SD/RTANK INLET4 9.39/15"SD/RTANK INLET5	N: 302298.68 E: 2932448.43
DMH 7	4'	14.88	10.28/10"SD/FI12 10.28/4"SD/	10.18/10"SD/FI13	N: 302428.10 E: 2932282.83
DMH 10	5'	11.21	7.20/24"HDPE/JELLYFISH 2	7.10/24"HDPE/DMH 8	N: 302109.23 E: 2932452.84
DMH 11	5'	19.58	7.82/24"HDPE/DMH 12	7.82/24"HDPE/JELLYFISH 2	N: 302189.52 E: 2932543.53
DMH 12*	5'	12.98	7.82/24"SD/RTANK OUTLET2	7.82/24"HDPE/DMH 11	N: 302249.93 E: 2932517.81
DMH14*	4'	12.50	6.78/10"SD /AD43 6.78/12"SD /AD45 6.78/12"SD /DMH16	6.68/24"HDPE/DMH13	N: 302546.58 E: 2932862.68
DMH15	4'	14.32	10.37/24"SD/CB22 11.02/15"SD/ 11.02/15"SD/	10.27/24"HDPE/CB15	N: 302386.12 E: 2932478.69
DMH16	4'	12.80	7.00/10"SD / 7.00/10"SD /	6.90/12"SD /DMH14	N: 302548.04 E: 2932840.22
FI11	2'	14.77		10.44/10"SD/FI12	N: 302401.24 E: 2932259.44
FI12	2'	14.77	10.38/10"SD/FI11 10.38/4"SD/	10.33/10"SD/DMH 7	N: 302418.33 E: 2932272.62
FI13	2'	14.58	10.08/10"SD/DMH 7	10.03/12"SD/CB7	N: 302407.81 E: 2932318.40
FILTERRA 1	6'x4'	18.60	14.50/12"SD /RD1	14.50/12"SD /AD50	N: 302734.55 E: 2933007.09
FILTERRA 2	6'x4'	18.60	14.50/12"SD /RD2	14.50/12"SD /	N: 302729.46 E: 2933013.68
JELLYFISH 2	8'x8'	11.75	7.71/24"HDPE/DMH 11	7.71/24"HDPE/DMH 10	N: 302175.58 E: 2932525.68

*STRUCTURES INSTALLED AS PART OF WATERFRONT AND UTILITIES ENABLEMENT PHASE

STORMWATER PIPES

PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
SD13	24" SD	10'	0.0000
SD28	24" HDPE	92'	0.0055
SD37	4" SD	17'	0.1534
SD38	15" SD	44'	0.0002
SD39	4" SD	18'	0.1017
SD40	15" SD	41'	0.0016
SD43	6" SD	41'	0.0619
SD44	12" SD	47'	0.0025
SD45	10" SD	38'	0.0027
SD46	4" SD	4'	0.0131
SD47	10" SD	11'	0.0045
SD48	4" SD	17'	0.1219
SD49	10" SD	20'	0.0031
SD56	10" SD	51'	0.0504
SD57	12" SD	14'	0.0064
SD58	24" SD	39'	0.0026
SD59	24" HDPE	24'	0.0057
SD60	15" SD	7'	0.0000
SD61	15" SD	7'	0.0000
SD62	24" HDPE	16'	0.0070
SD63	24" HDPE	33'	0.0053
SD65	15" SD	7'	0.0000
SD77	24" HDPE	49'	0.0077
SD109	24" SD	59'	0.0077
SD110	12" SD	14'	0.0064
SD111	24" SD	95'	0.0450
SD112	12" SD	14'	0.0064
SD113	15" SD	11'	0.0119
SD114	15" SD	12'	0.0108
SD115	15" SD	11'	0.0390
SD116	10" SD	116'	0.0051
SD117	10" SD	39'	0.0052
SD118	10" SD	41'	0.0215
SD119	10" SD	65'	0.0051
SD120	10" SD	47'	0.0051
SD122	10" SD	37'	0.0054
SD123	12" SD	3'	0.0116
SD124	12" SD	2'	0.0133
SD125	12" SD	16'	0.0087
SD126	12" SD	51'	0.0077
SD127	12" SD	54'	0.0077
SD128	12" SD	48'	0.0077
SD129	12" SD	35'	0.0028
SD133	12" SD	19'	0.0061
SD134	10" SD	17'	0.0056
SD135	10" SD	5'	0.0072

SEWER STRUCTURES

STRUCTURE TABLE					
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO	STRUCTURE LOCATION
O/W SEP. 2	4'	10.57	9.85/6"S/	9.55/6"S/	N: 302406.84 E: 2932470.01
PS	4'	12.67	4.64/8"S :/SMH 8 3.65/8"S /SMH 9	7.52/6"FM/SMH 1	N: 302230.60 E: 2932494.34
SMH 5	4'	14.73	7.61/6"S/SMH 6 7.61/6"S/	7.31/8"S /SMH 4	N: 302366.88 E: 2932355.51
SMH 6	4'	14.80	8.74/4"S/SMH 14	8.44/6"S/SMH 5	N: 302417.32 E: 2932294.57
SMH 9	4'	11.06	4.09/8"S :/SMH 15	3.79/8"S /PS	N: 302235.54 E: 2932507.25
SMH 10	4'	12.45	7.12/8"S /SMH 11	6.82/8"PVC/SMH 15	N: 302382.29 E: 2932684.33
SMH 11	4'	12.65	9.69/8"PVC/SMH 16	9.39/8"S /SMH 10	N: 302530.61 E: 2932842.74
SMH 13	4'	17.72	9.07/8"S/	8.77/8"S/SMH 4	N: 302491.43 E: 2932551.91
SMH 14	4'	14.85	9.20/4"S/	8.90/4"S/SMH 6	N: 302419.99 E: 2932279.32
SMH 15	4'	11.81	5.53/8"PVC/SMH 10	5.23/8"S /SMH 9	N: 302298.43 E: 2932595.62
SMH 16	4'	12.02	10.36/8"S/ 10.50/6"FM/	10.06/8"PVC/SMH 11	N: 302555.87 E: 2932867.25

SEWER PIPES

PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
S6	4" S	11'	0.0142
S7	6" S	75'	0.0111
S8	8" S	76'	0.0111
S9	8" S	10'	0.0148
S11	8" S	77'	0.0110
S14	4" S	29'	0.0112
S15	6" S	22'	0.0105
S16	4" S	11'	0.0105
S17	4" S	7'	0.0105
S18	4" S	22'	0.0105
S24	4" S	6'	0.0105
S33	6" S	41'	0.0110
S34	8" S	215'	0.0107
S35	8" S	128'	0.0603
S42	6" S	9'	0.0114
S43	8" S	104'	0.0109
S44	8" S	213'	0.0107
S47	6" S	10'	0.0116
S48	6" S	8'	0.0105
S50	6" S	8'	0.0105
S51	6" S	8'	0.0105
S52	4" S	14'	0.0105
S53	6" S	10'	0.0105
S54	6" S	10'	0.0116
S55	8" PVC	118'	0.0109
S56	8" S	23'	0.0114
S57	8" PVC	31'	0.0118

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LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

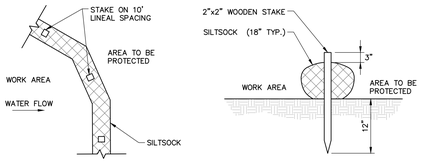
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JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:
CIVIL
PIPE & STRUCTURE TABLE

DRAWING NO:
C-107
SHEET: 12 OF 20

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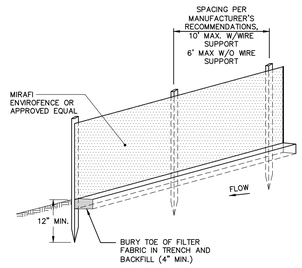


PLAN VIEW SECTION

NOTE:

1. WHEN STAKING IS NOT POSSIBLE, HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SEDIMENT BARRIER TO HELP STABILIZE DURING RAINFALL/RUNOFF EVENTS.

SILT SOCK
N.T.S.



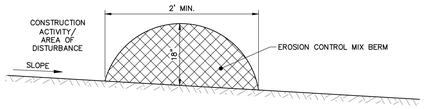
NOTES:

- 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.

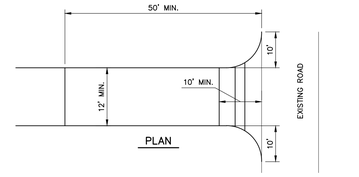
SEDIMENT BARRIER – SILTATION FENCE DETAIL
N.T.S.



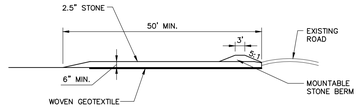
NOTES:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE PROJECT SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.
2. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND 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.
   - THE PH SHOULD FALL BETWEEN 5.0 AND 8.0.

EROSION CONTROL MIX BERM
N.T.S.



PLAN



PROFILE

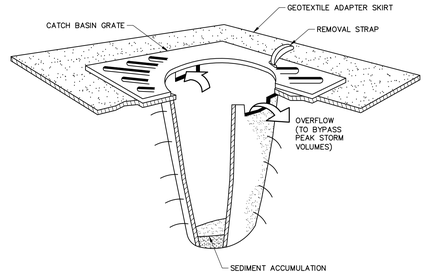
NOTES:

- CONSTRUCTION ENTRANCES MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- WHEEL WASH PITS MAY ALSO BE USED, IF APPROVED.

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:

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 SEDIMENT CONTROL NOTES

Temporary Erosion Control

Contractor shall prepare and submit a soil erosion and water pollution control plan to engineer.

Measure	Dates For Use	Timing, Activity, and Location
Sediment 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 daily, and maintain and repair as necessary.

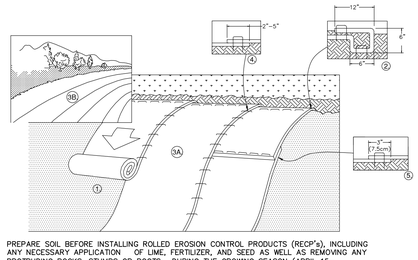
Permanent Erosion Control:

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.



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED AS WELL AS REMOVING ANY PROTRUDING ROCKS, NUMPS OR ROOTS. DURING THE GROWING SEASON (APRIL 15– SEPTEMBER 15) USE RECP'S ON THE BASE OF GRASSED WATERWAYS, SOIL SLOPES HAVNG A GRADE GREATER THAN 15%, OR ANYWHERE WHERE HAY MULCH HAS PROVEN TO BE INEFFECTIVE AT CONTROLLING SHEET EROSION. RECP'S ARE A MANUFACTURED COMBINATION OF MULCH AND NETTING DESIGNED TO PREVENT EROSION AND RETAIN SOIL MOISTURE. FOR OVER WINTER PROTECTION, APPLY RECP'S ON THE BASE AND SIDE SLOPES OF GRASSED WATERWAYS AND ON SLOPES STEEPER THAN AN 8% GRADE.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP's WIDTH. NOTE: *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.
6. UNTIL GRASS IS ABUNDANT, INSPECT PERIODICALLY AND AFTER EACH RAINSTORM TO CHECK FOR EROSION. IMMEDIATELY REPAIR AND ADD MORE MULCH UNTIL GRASSES ARE FIRMLY ESTABLISHED. DO NOT MOW THE FIRST YEAR.

ROLLED EROSION CONTROL MATTING
N.T.S.

EROSION AND SEDIMENT 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, CATCHBASIN SEDIMENT COLLECTION BAGS AND GEOTEXTILE FILTER BAGS. PERMANENT MEASURES INCLUDE PERMANENT VEGETATION OR PAVING.

GENERAL

A. THE PROJECT SHALL CONFORM WITH THE STANDARDS OF THE MAINE CONSTRUCTION GENERAL PERMIT.
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. HTTP://MAINE.GOV/DEP/BLWQ/DOCSTAND/ESCBMPS/
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 PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE ASPHALT BINDER COURSE.
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 6 INCHES. IN COMPACTED AREAS TILL 2–3" OF COMPOST INTO UPPER 8" OF DISTURBED SOIL AND THEN APPLY 6 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. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 3:1 OR AS OTHERWISE NOTED. 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.
L. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURE UPON STABILIZATION OF PROJECT AREA & COST SHALL BE INCIDENTAL TO CONTRACT.

WNTER CONDITIONS

A. WNTER CONSTRUCTION IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1 THROUGH APRIL 1. IF AREAS WITHIN THE CONSTRUCTION AREA ARE NOT STABILIZED WTH 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.

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PE SEAL:



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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

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DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

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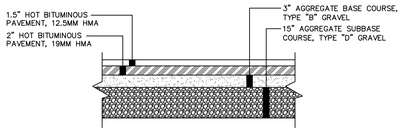
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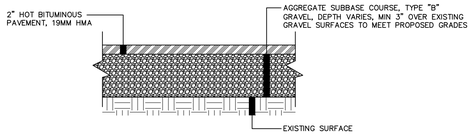
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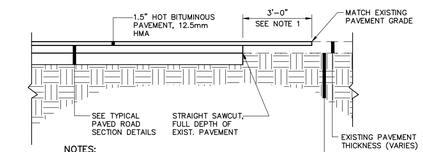
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THAMES ST. PAVED ROAD & SITE PAVEMENT SECTION
N.T.S.



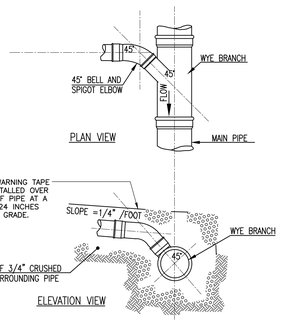
TEMPORARY PAVEMENT SECTION
N.T.S.



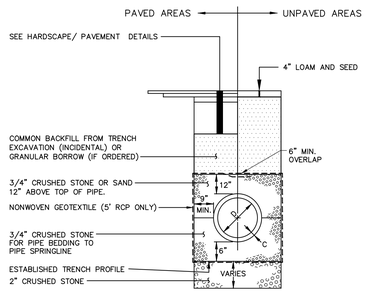
NOTES:

1. GRIND EXISTING PAVEMENT, TO 1.5" 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 PAVED ROAD SECTION DTLS. FOR TRENCH REPAIR REQUIREMENTS.

PAVEMENT BUTT JOINT DETAIL
N.T.S.

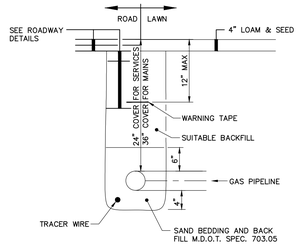


TYPICAL LATERAL WYE CONNECTION DETAILS
N.T.S.

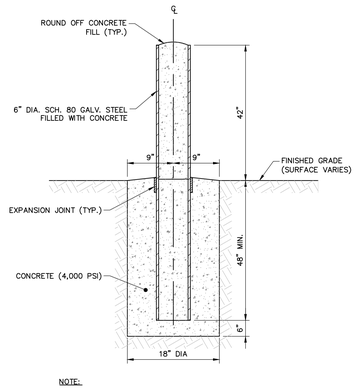


NOTES:
DEPTH & TYPE OF PAVEMENT & AGGREGATE COURSES SHALL BE PER PLANS.
SEE CIVIL & LANDSCAPING PAVEMENT DETAILS.

TYPICAL STORMDRAIN/ SEWER PIPE TRENCH INSTALLATION
N.T.S.



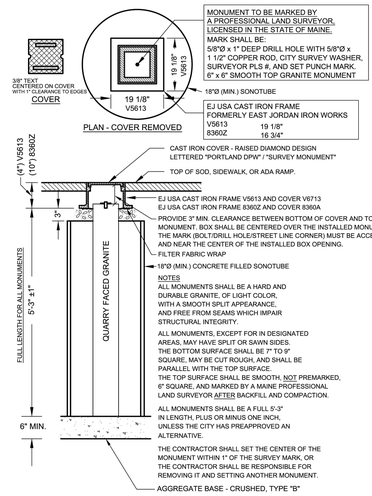
NATURAL GAS PIPE
N.T.S.



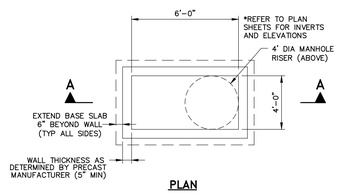
NOTE:

1. ALL BOLLARDS SHALL BE PAINTED. COLOR SELECTED BY OWNER.

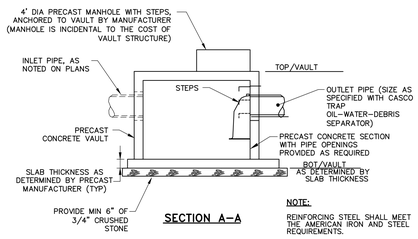
6" DIA. SECURITY BOLLARD
N.T.S.



GRANITE STREET MONUMENTS – NEW OR REPLACEMENT
N.T.S.



PLAN



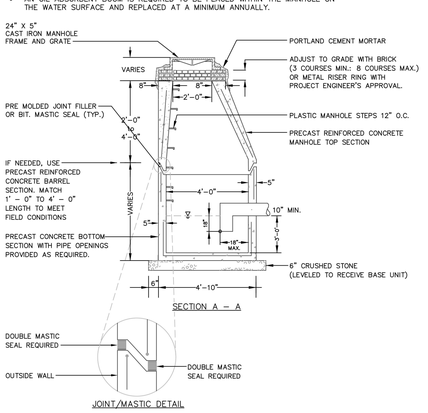
SECTION A–A

NOTE:
REINFORCING STEEL SHALL MEET THE AMERICAN IRON AND STEEL REQUIREMENTS.

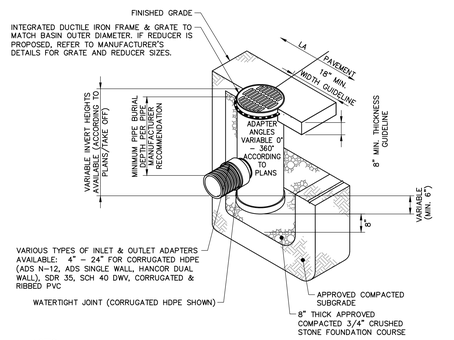
PRECAST 8'X6' CONCRETE VAULT
N.T.S.

NOTES:

- FOR USE IN PARTIALLY OR TOTALLY ENCLOSED PARKING GARAGES, AUTOMOTIVE REPAIR FACILITIES OR ANY OTHER PROPOSED STRUCTURE WHERE DEEMED APPROPRIATE BY THE CITY ENGINEER.
- DISCHARGE SHALL BE TO SANITARY SEWER.
- A VENT PIPE MAY BE REQUIRED THAT HAS A VERTICAL OUTLET OFF TO THE SIDE OF THE STRUCTURE.
- AN OIL ABSORBENT BOOM IS REQUIRED TO BE PLACED WITHIN THE MANHOLE ON THE WATER SURFACE AND REPLACED AT A MINIMUM ANNUALLY.



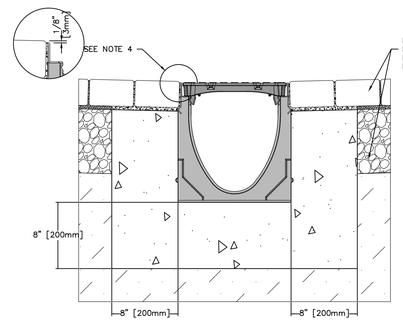
OIL / GRIT SEPARATOR
N.T.S.



NOTES:

1. INSTALL BASIN IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
2. PRODUCT SHALL BE NYLOPLAST DRAIN BASIN MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS (ADS) OR APPROVED EQUAL.
3. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.
4. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70–50–05.
5. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTORATIONS.
6. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC.
7. ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°.

AREA DRAIN
N.T.S.



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS.
ENGINEERING ADVICE MAY BE REQUIRED.
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE
AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL
AND CONCRETE SURROUND. ENGINEERING ADVICE MAY BE REQUIRED.
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

TRENCH DRAIN DETAIL
N.T.S.

SPECIFICATION CLAUSE

K200 KLASSIKDRAIN 'DRAINLOK' LOAD CLASS C

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE K200 CHANNEL SYSTEM WITH GALVANIZED STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST–IN GALVANIZED STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:
COMPRESSIVE STRENGTH: 14,000 PSI
FLEXURAL STRENGTH: 4,000 PSI
TENSILE STRENGTH: 1,500 PSI
WATER ABSORPTION: 0.07%
FROST PROOF YES
DILUTE ACID AND ALKALI RESISTANT YES
B117 SALT SPRAY TEST COMPLIANT YES

THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT–IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'DRAINLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

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PE SEAL:
STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER
Lauren J. Swett

NOT FOR CONSTRUCTION

CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

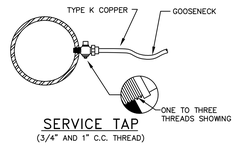
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DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
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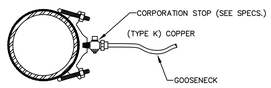
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CIVIL DETAILS - 2

DRAWING NO:
C-201
SHEET: 14 OF 20

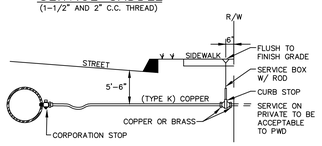
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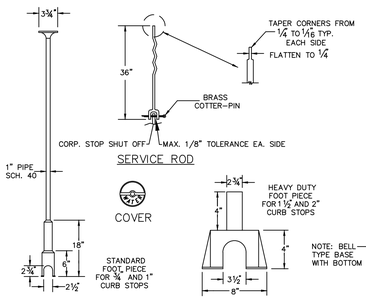
SERVICE TAP
(3/4" AND 1" C.C. THREAD)



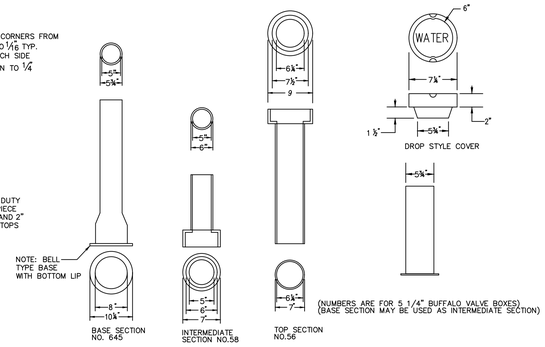
SERVICE SADDLE
(1-1/2" AND 2" C.C. THREAD)



TYPICAL SERVICE CONNECTION
N.T.S.

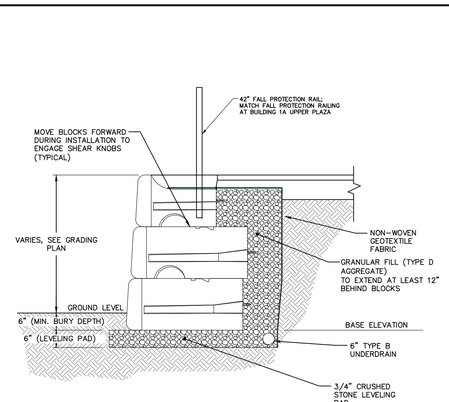


NOTE : ANY EXTENSION OF SERVICE BOX REQUIRES:
1) 1" FEMALE IRON PIPE COUPLING
2) 1" THREADED PIPE
(THIS IS TO BE A NON-WELDED, TWO PIECE ARRANGEMENT. SLIP ON ADAPTERS ARE NOT PERMISSIBLE.)



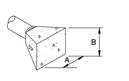
(NUMBERS ARE FOR 6 1/4" BUFFALO VALVE BOXES)
(BASE SECTION MAY BE USED AS INTERMEDIATE SECTION)

VALVE BOX & COVER
N.T.S.

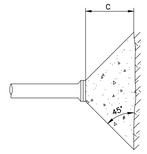


NOTE: PREFAB CONCRETE GRAVITY BLOCK WALL SHALL BE PER SUPPLEMENTAL SPECIFICATION SECTION 32 32 23.13, PREFAB CONCRETE GRAVITY BLOCK WALL DETAIL IS FOR REFERENCE PURPOSES TO AID IN LAYOUT AND DEVELOPMENT OF MANUFACTURER DETAILS. WALL MANUFACTURER SHALL PROVIDE FINAL WALL DESIGN AND CALCULATIONS, STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MAINE. REFER TO SUPPLEMENTAL SPECIFICATION SECTION 32 32 23.13 FOR ADDITIONAL REQUIREMENTS.

SEGMENTED RETAINING WALL DETAIL
N.T.S.



DEAD END ISOMETRIC VIEW

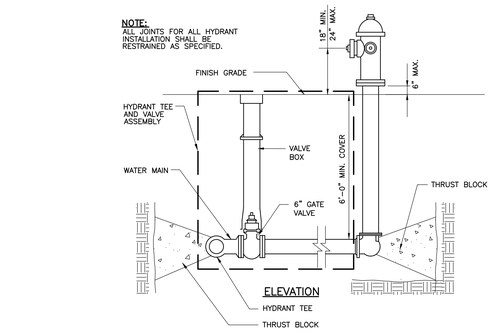


DEAD END PLAN VIEW

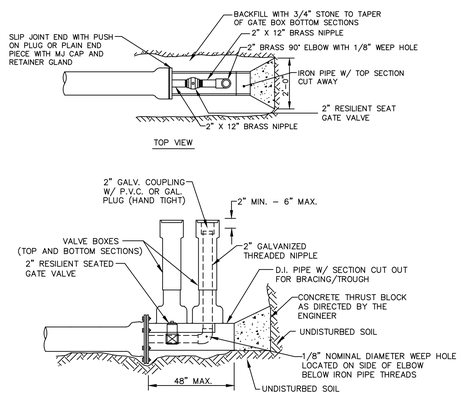
TABLE 1: 12" FITTINGS			
SOIL TYPE	TEES & PLUGS		
	A	B	C
SOFT CLAY	72"	36"	30"
SAND	36"	30"	18"
GRAVEL	30"	24"	12"

NOTES:
1. CONCRETE FOR ALL THRUST BLOCKS TO BE MINIMUM 3,000 PSI., 28 DAY STRENGTH, TYPE I/II 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 PIPE PRESSURE OF 110 PSI.

TYPICAL THRUST BLOCK DETAIL
N.T.S.



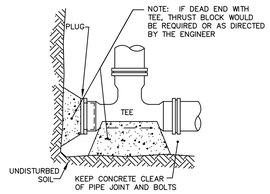
TYPICAL HYDRANT ASSEMBLY DETAIL
N.T.S.



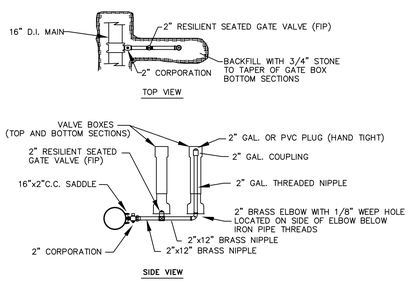
STANDARD 2" BLOW OFF
N.T.S.



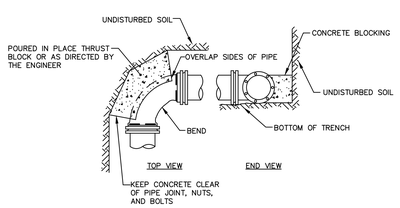
TOP VIEW



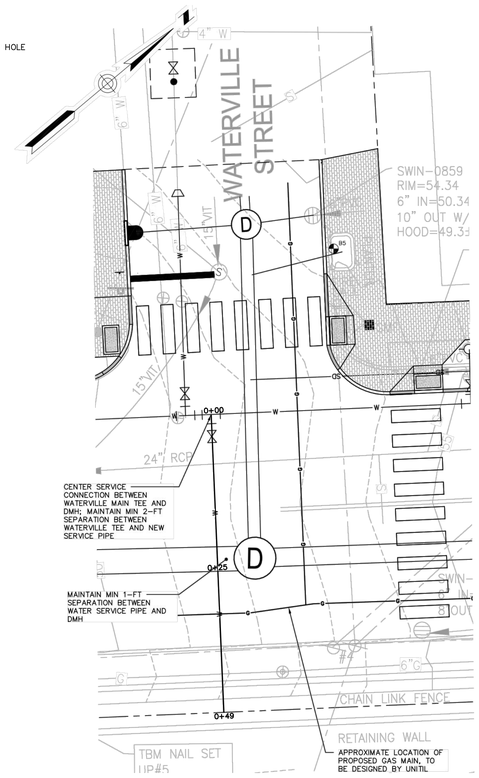
STANDARD TEE BLOCKING
N.T.S.

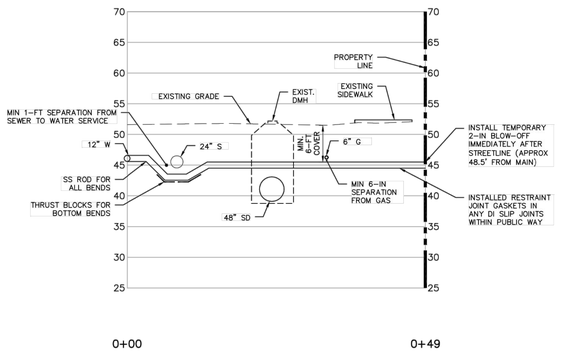


SIDE-ARM BLOW-OFF
4" & LARGER MAINS
N.T.S.



STANDARD BEND BLOCKING
N.T.S.





PROFILE STA. 0+00 TO STA. 0+49

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=10'

FORE STREET WATER LINE INSTALLATION PLAN & PROFILE
SCALE: 1"=10'

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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CLIENT INFO:
PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

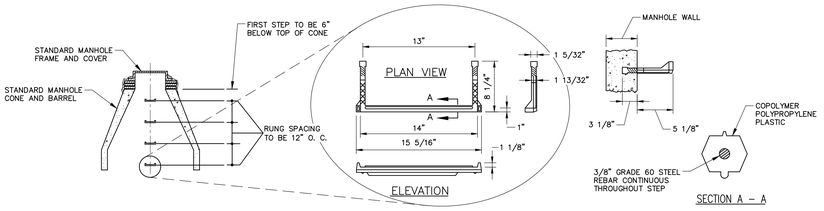
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SCALE:	AS NOTED
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CIVIL
CIVIL DETAILS - 3

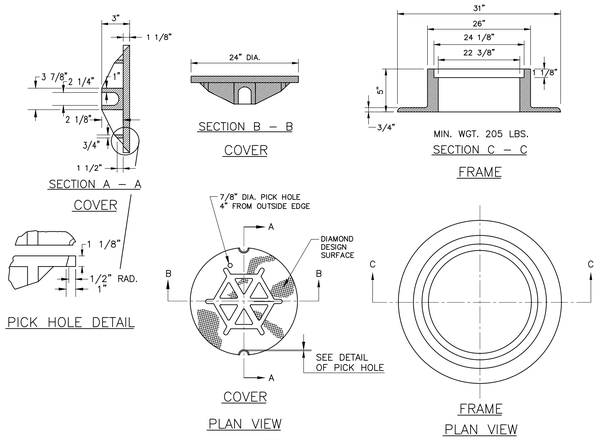
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C-202
SHEET: 15 OF 20

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PLASTIC MANHOLE STEPS

N.T.S.



NOTE:

FOR ALL CROSS COUNTRY MANHOLES (LAWN AREAS), USE PAM REXUS MANHOLE COVERS BY CERTAINTEED.

TYPE "A" CAST IRON MANHOLE COVER AND FRAME

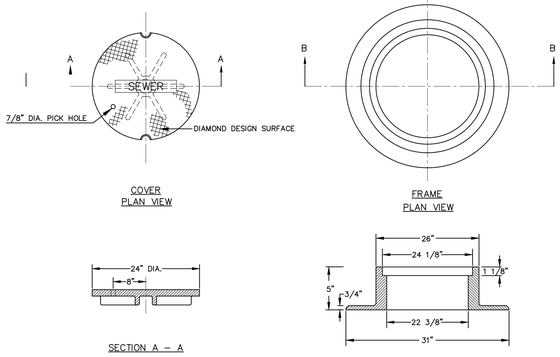
N.T.S.

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.

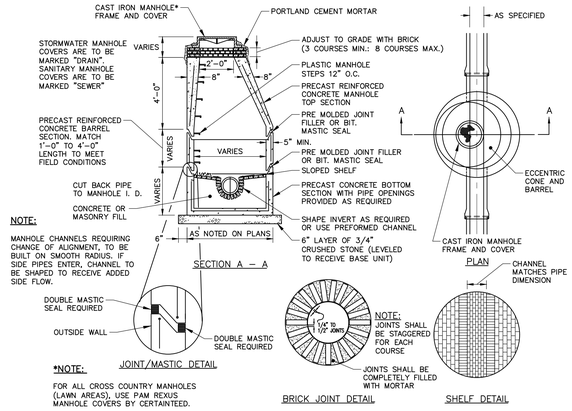
NOTE:
ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER.

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 COVER AND FRAME

N.T.S.

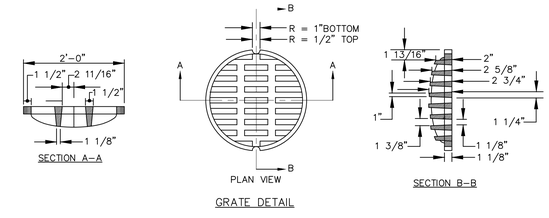


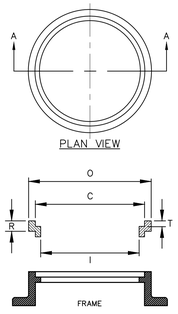
*NOTE:

FOR ALL CROSS COUNTRY MANHOLES (LAWN AREAS), USE PAM REXUS MANHOLE COVERS BY CERTAINTEED.

PRECAST CONCRETE MANHOLE

N.T.S.

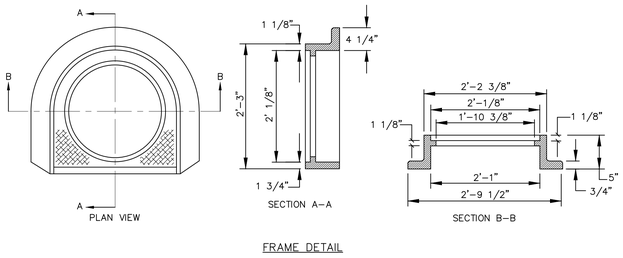




SIZE	C	R	T	O	I	Wt.
R241 1/2	24	1 1/2	1 1/8	26 1/4	22 1/2	60
R242	24	2	1 1/8	26 1/4	22 1/2	80
R242 1/2	24	2 1/2	1 1/8	26 1/4	22	100
R243	24	3	1 1/8	26 1/4	22	120

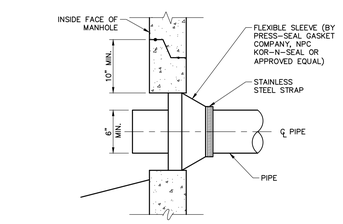
MANHOLE RISER RING

N.T.S.



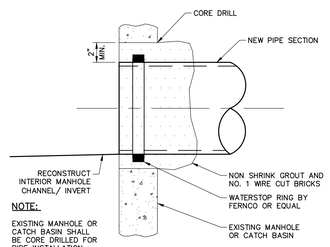
CATCH BASIN FRAME & GRATE

N.T.S.



NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL

N.T.S.

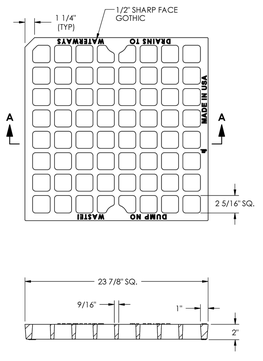


NOTE:

EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION

NEW PIPE TO EXISTING STRUCTURE

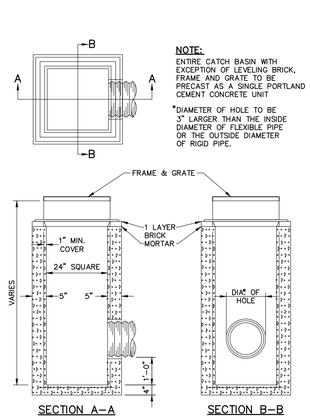
N.T.S.



NOTE: 5520M GRATE BY EJ OR APPROVED EQUAL

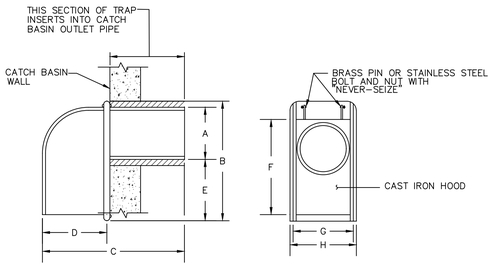
FIELD INLET GRATE

N.T.S.



FIELD INLET

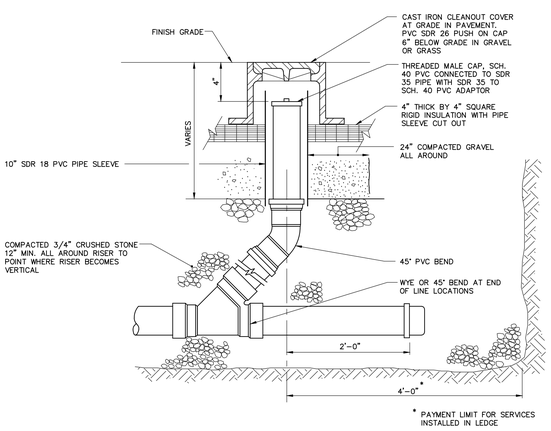
N.T.S.



SIZE	A	B	C	D	E	F	G	H
6 in.	5 1/2"	13 3/8"	13 3/4"	5 3/8"	5 7/8"	11 5/8"	8 1/2"	7 1/4"
8 in.	7 1/2"	15"	15 3/8"	5 1/2"	5 3/8"	13 3/4"	8 3/4"	9 3/8"
10 in.	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12 in.	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"

CASCO TRAP

N.T.S.



CLEANOUT DETAIL

N.T.S.

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800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

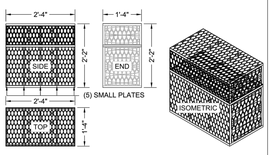
REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
CIVIL DETAILS - 4

DRAWING NO:
C-203
SHEET: 16 OF 20

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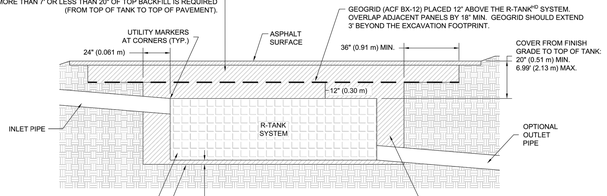
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR
HEIGHT = 25.98 IN. (660 MM)	COVER REQUIREMENTS
TANK VOLUME = 6.67 CF	**MATERIAL:**
STORAGE VOLUME = 6.33 CF	100% RECYCLED POLYPROPYLENE
VOID INTERNAL VOLUME: 95%	**SMALL PLATES REQUIRED:**
VOID SURFACE AREA: 90%	5/SEGMENT, 10/MODULE

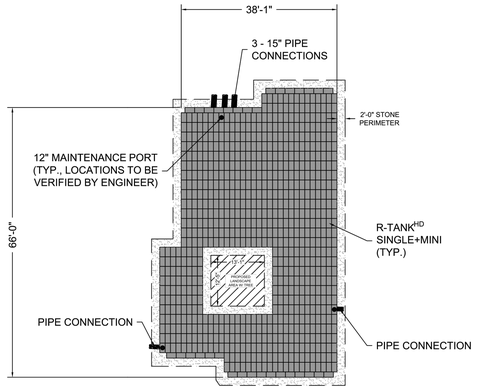
SINGLE + MINI R-TANK^{HD} - MODULE DETAIL

TOTAL COVER: 20" MINIMUM AND 84" MAXIMUM. FIRST 12" MUST BE FREE DRAINING BACKFILL (SPEC SECTION 2.03B): STONE <1.5" OR SOIL (USCS CLASS GW, GP, SW OR SP). ADDITIONAL FILL MAY BE STRUCTURAL FILL (SPEC SECTION 2.03C): STONE OR SOIL (USCS CLASS SM, SP, SW, GM, GP OR GW) WITH MAX CLAY CONTENT<10%, MAX 25% PASSING NO. 200 SIEVE, AND MAX PLASTICITY INDEX OF 4 A MIN. 12" COVER MUST BE MAINTAINED BETWEEN BACKFILL EQUIPMENT AND THE TOP OF THE R-TANK™ SYSTEM AT ALL TIMES. TOTAL HEIGHT OF TOP BACKFILL SHOULD NOT EXCEED 7'. CONTACT FERGUSON WATERWORKS IF MORE THAN 7' OR LESS THAN 20" OF TOP BACKFILL IS REQUIRED (FROM TOP OF TANK TO TOP OF PAVEMENT).

NOTES:
1. FOR COMPLETE MODULE DATA, SEE APPROPRIATE R-TANK^{HD} MODULE SHEET .
2. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, 2014 WITH 2015 AND 2016 INTERIM REVISIONS.
3. PRE-TREATMENT STRUCTURES NOT SHOWN.
4. FOR INFILTRATION APPLICATIONS, GEOTEXTILE ENVELOPING R-TANK SHALL BE ACF M200 (PER SPEC SECTION 2.02A) AND BASE SHALL BE 4" MIN. UNCOMPACTED FREE DRAINING BACKFILL, (SPEC SECTION 2.03A) TO PROVIDE A LEVEL BASE. SURFACE MUST BE SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK^{HD} FOOTPRINT.

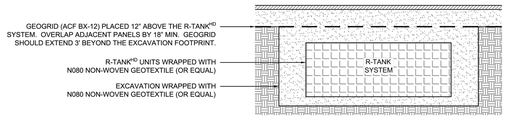


R-TANK^{HD} & HS-20 LOADS - SECTION VIEW



SUBSURFACE R–TANK #2

N.T.S.

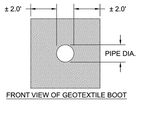


SUBSURFACE R–TANK SECTION

N.T.S.

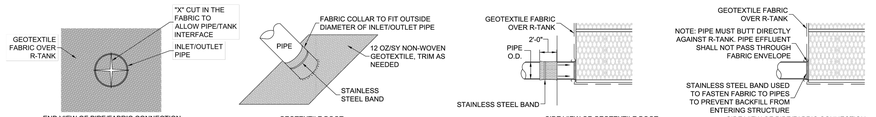
NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.



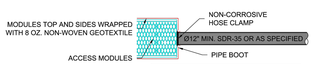
FRONT VIEW OF GEOTEXTILE BOOT

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



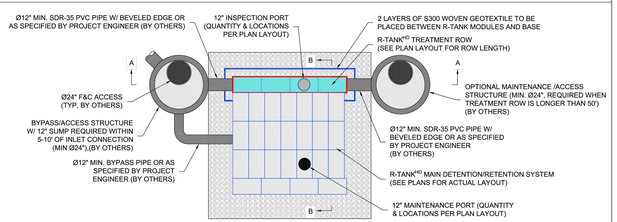
END VIEW OF PIPE/FABRIC CONNECTION | GEOTEXTILE BOOT | SIDE VIEW OF GEOTEXTILE BOOT | SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

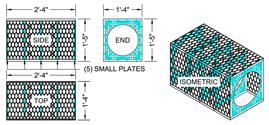


TYPICAL PIPE CONNECTION DETAIL

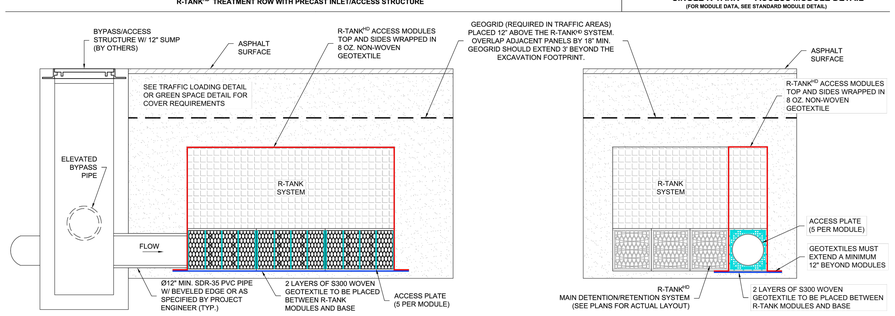
NOTE:
IF PIPE CONNECTING TO TREATMENT ROW IS LARGER THAN Ø12" SDR-35, IT SHALL BE ABUTTED FLUSH TO END PLATE AND SEALED WITH A PIPE BOOT.



R-TANK^{HD} TREATMENT ROW WITH PRECAST INLET/ACCESS STRUCTURE



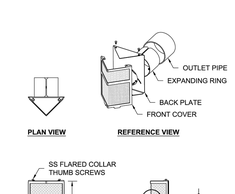
SINGLE R-TANK^{HD} - ACCESS MODULE DETAIL
(FOR MODULE DATA, SEE STANDARD MODULE DETAIL)



R-TANK^{HD} TREATMENT ROW SECTION A-A | **R-TANK^{HD} TREATMENT ROW SECTION B-B**

R–TANK GENERAL DETAILS

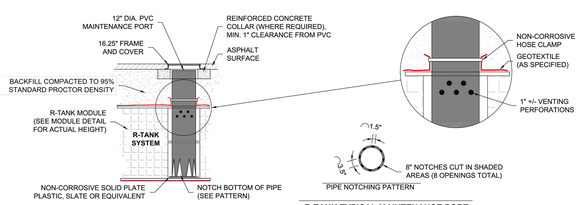
N.T.S.



PIPE DIA. (A)	STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
6"	4.00"	8.50"	10.00"	10.00"
8"	6.00"	11.00"	12.25"	11.50"
12"	8.00"	16.00"	15.50"	15.50"
15"	8.00"	16.00"	21.50"	18.50"
18"	8.00"	16.00"	28.00"	21.50"

STORMRING CPS PRETREATMENT DETAIL

NOTES
1. THIS PORT IS USED TO PUMP WATER INTO THE SYSTEM AND RE-SUSPEND ACCUMULATED SEDIMENT SO THAT IT MAY BE PUMPED OUT.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANKRD, R-TANK^{CD} AND R-TANK^{SD} MAY BE USED IN TRAFFIC APPLICATIONS.
4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
5. IF MAINTENANCE PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



R-TANK TYPICAL MAINTENANCE PORT

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

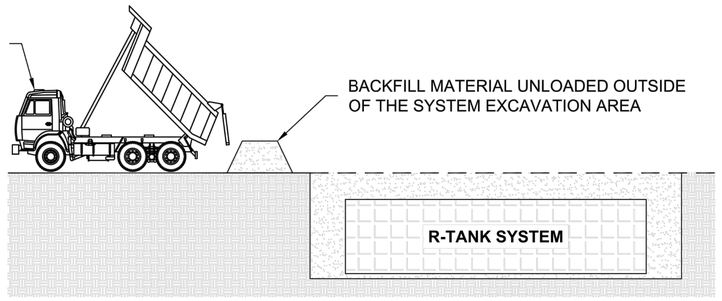
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SCALE:	AS NOTED
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DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

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CIVIL
CIVIL DETAILS - 5

DRAWING NO:
C-204
SHEET: 17 OF 20

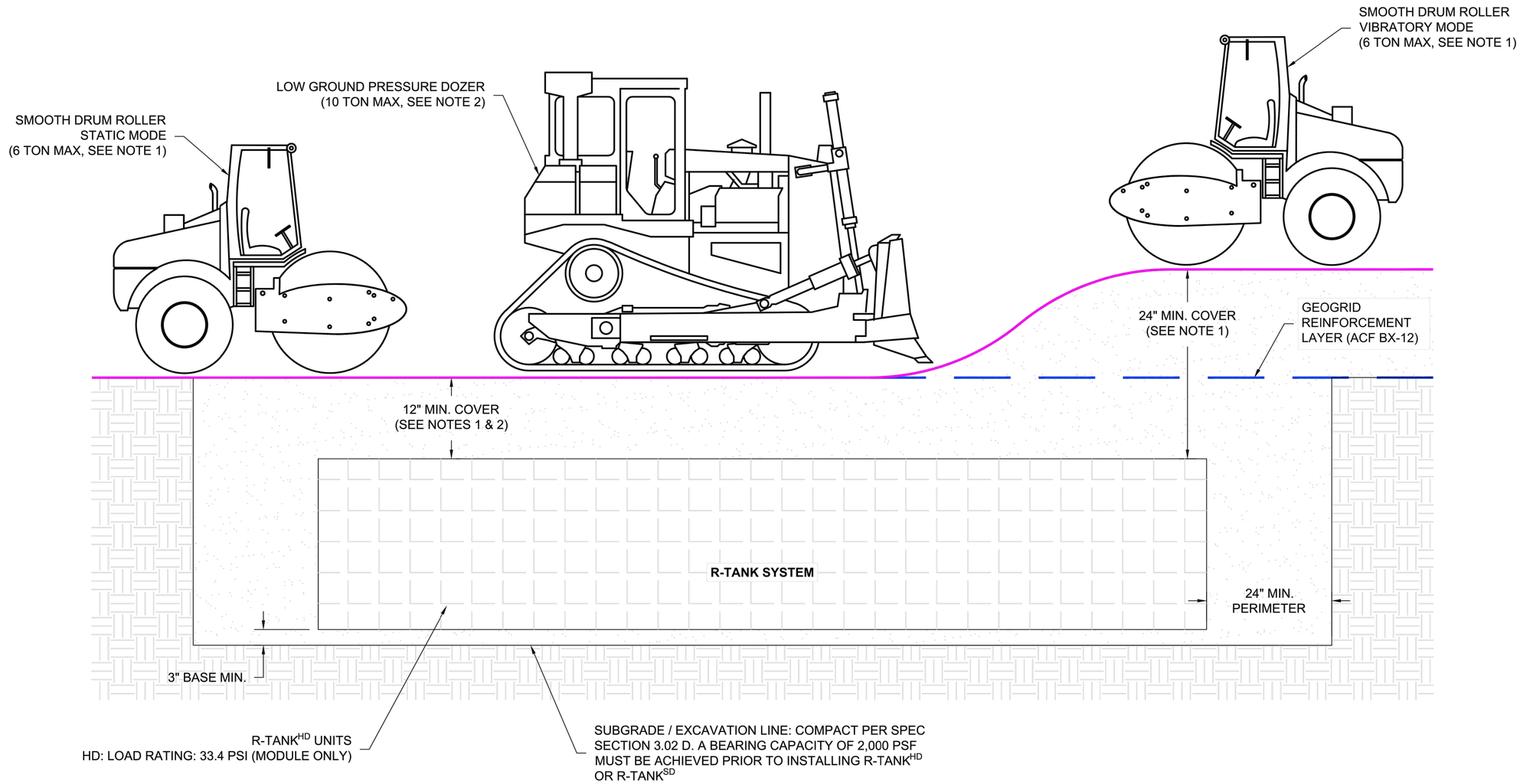
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DUMP TRUCK DETAIL (SEE NOTE 3)

NOTES:

1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B2) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

R–TANK SPECIFICATIONS
N.T.S.

Woodard & Curran
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | www.woodardcurran.com

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

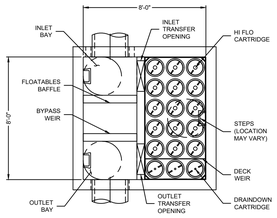
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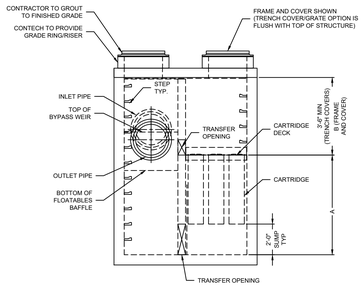
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CIVIL DETAILS - 6

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SHEET: 18 OF 20

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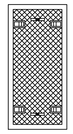
PLAN VIEW
(TOP SLAB NOT SHOWN FOR CLARITY)



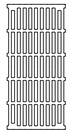
ELEVATION VIEW



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



24" TRENCH COVER
(LENGTH VARIES)
N.T.S.

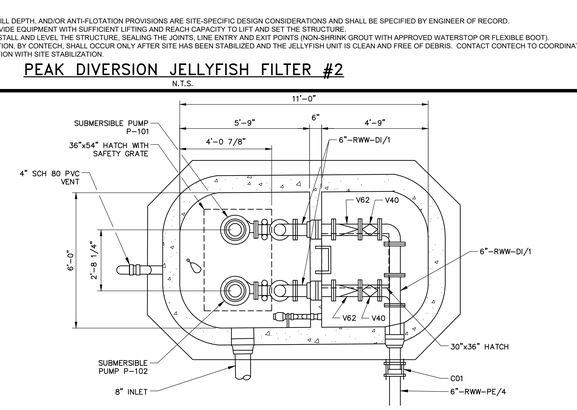


24" TRENCH GRATE
(LENGTH VARIES)
N.T.S.

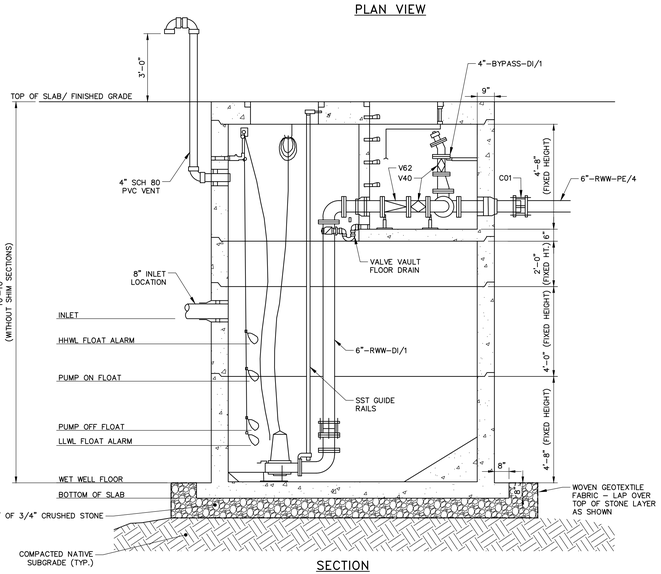
GENERAL NOTES:
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.ContechES.com
3. JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 LOAD RATING AND BE CAST WITH THE CONTECH LOGO.
5. STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-918, AND AASHTO LOAD FACTOR DESIGN METHOD.
6. OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
7. THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
8. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

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 STRUCTURE.
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
D. CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.

PEAK DIVERSION JELLYFISH FILTER #2
N.T.S.



PLAN VIEW



SECTION

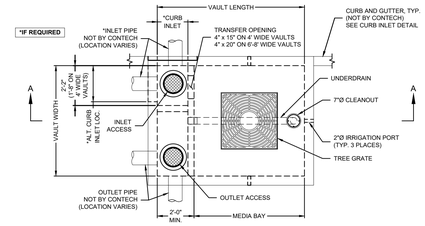
PUMPS	
MANUFACTURER	ZOELLER
MODEL	X62 HD
NUMBER OF PUMPS	TWO (2)
PUMP EQUIP TAGS	P–101 & P–102
PUMP TYPE	SUBMERSIBLE SOLIDS HANDLING
MAXIMUM SOLIDS SIZE	3 INCH
FLOW CAPACITY (PER PUMP)	500 GPM
TOTAL DYNAMIC HEAD (PER PUMP)	17.6 FT.
MOTOR HORSEPOWER (MAX.)	5 HP
POWER SUPPLY	208V/3PH/60HZ *NOTE: PROVIDE TRANSFER SWITCH FOR CONNECTION TO EMERGENCY POWER ⚠
PUMP CONFIGURATION	LEAD–STANDBY
DRIVE TYPE	CONSTANT SPEED
ELECTRICAL HAZARD AREA	CLASS 1, DIVISION 1 (XP)
DISCHARGE CONNECTION	6 INCH (FLANGED)
PUMPED FLUID	RAW WASTEWATER (UNSCREENED)
BASE TYPE	BASE/DISCHARGE ELBOW
EFFICIENCY (MIN.)	50%
PUMP VENDOR CONTROL PANEL	YES

PUMP STATION	
MANUFACTURER	ONELIFT
MODEL	RC611
HEIGHT (TOP TO FLOOR)	12'–10"
DISCHARGE SIZE	6 INCH
BYPASS CONNECTION	4 INCH D.I.
INTERIOR PIPING	D.I.
PIPE SUPPORTS	STAINLESS STEEL
H2S CONCRETE PROTECTION	YES
EXTERIOR DAMPROOFING	YES
HATCH LOAD	H20
ACCESS	ALUMINUM LADDER
VENTING	4 INCH PVC
CONTROL PANEL	PROVIDE LOOSE
JUNCTION BOX LOCATION	INTERIOR FLOAT ONLY

ELEVATIONS	
PUMP STATION PART	ELEVATION
FINISHED GRADE	12.44
TOP OF SLAB	12.44
DISCHARGE PIPE INVERT	7.52
INLET PIPE INVERT	6.80 ⚠
HHWL FLOAT ALARM	5.80
PUMP ON FLOAT	5.47
PUMP OFF FLOAT	3.47
LLWL FLOAT ALARM	2.00
WET WELL FLOOR	–0.04

VALVE & COUPLING SCHEDULE	
ID (V##)	VALVE/ COUPLING TYPE
V40	METALLIC PLUG VALVE (FLANGED)
V62	METALLIC SWNG CHECK VALVE
C01	SLEEVE TYPE COUPLINGS

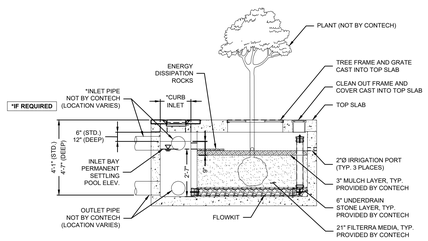
PEAK DIVERSION JELLYFISH FILTER #1
N.T.S.



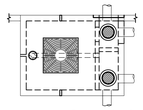
PLAN VIEW

FTPD CONFIGURATION (OPTIONS: DEEP "-D", THROAT INLET "-T", PIPE INLET "-P", PIPE AND THROAT INLET "-PT")									
MODEL NAME	PART NUMBER	AVAILABILITY	MEDIA AREA (SF)	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX. CURB OPENING	*MAX. BYPASS FLOW (CFS) STD / DEEP	INLET/ OUTLET ACCESS DIA.	TREE GRATE QTY. AND SIZE
FTPD 6x8 (6x10 VAULT)	FTPD0608	ALL (EXCEPT CA, TX)	48	6 x 8	6 x 10	1'-8"	1.4 / 4.6	12"/12"	(1) 4' x 4'

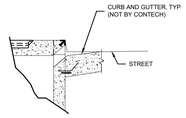
*MAX. BYPASS FLOW IS INTERNAL WEIR FLOW. CAPACITIES SHOWN ARE FOR STANDARD DEPTH AND DEEP (-D), RESPECTIVELY. SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE CURB INLET FLOW CAPACITY.



SECTION A-A
(STANDARD DEPTH SHOWN)



ALTERNATE ORIENTATION

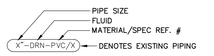


CURB INLET DETAIL

FILTERRA PEAK DIVERSION
N.T.S.

PIPE MATERIALS

CI/X – CAST IRON PIPE
CU/1 – COPPER PIPE & TUBING
DI/1 – DUCTILE IRON PIPE (FLANGED)
DI/2 – DUCTILE IRON PIPE (MECHANICAL JOINT)
DI/3 – DUCTILE IRON (PUSH–ON JOINT)
DI/4 – DUCTILE IRON (RIGID GROOVED END)
PVC/1 – PVC PIPE (SOCKET WELDED – SCH. 80)
PVC/2 – PVC TUBING
PVC/3 – PVC DOUBLE CONTAINMENT PIPE
PVC/4 – PVC PIPE (CPVC)
PVC/5 – PVC PIPE (BURIED SDR 35)
PVC/6 – PVC PIPE (BURIED SDR 18)
PVC/7 – PVC PIPE (SOCKET WELDED – SCH. 40)
SS/1 – STAINLESS STEEL PIPE (SCH. 10S)
SS/2 – STAINLESS STEEL PIPE (SCH. 40)
SS/3 – STAINLESS STEEL TUBING
SS/4 – STAINLESS STEEL HOSE
CS/1 – CARBON STEEL PIPE
CS/2 – TEFLON LINED STEEL PIPE (FLANGED)
PE/1 – POLYETHYLENE PIPING (SOCKET WELDED)
PE/2 – POLYETHYLENE TUBING (HIGH DENSITY)
PE/3 – POLYETHYLENE TUBING (LOW DENSITY)
PE/4 – POLYETHYLENE PIPING (BURIED) – DR–11
PE/5 – POLYETHYLENE PIPING (BURIED STORM DRAIN)



PIPING NOTES:

1. FLUID DESIGNATION
   A.RAW = RAW WASTE WATER
2. PROVIDE DUCTILE IRON PIPING IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 13 – PROCESS PIPE. PROVIDE HIGH DENSITY POLYETHENE IN ACCORDANCE WITH SPECIFICATION SECTION 33 31 23.02 – SANITARY SEWERAGE FORCE MAINS.
3. AFTER INSTALLATION IS COMPLETE ALL PIPING SYSTEMS SHALL BE PRESSURE TESTED. ALL LEAKS OR OTHER ASSOCIATED DEFECTS SHALL BE CORRECTED AND THE PIPING SHALL BE RETESTED AT NO ADDITIONAL COST TO THE OWNER. REFER TO SPECIFICATION SECTION 40 05 13 "PROCESS PIPE AND FITTINGS" FOR ADDITIONAL INFORMATION AND REQUIREMENTS. PE/5 – POLYETHYLENE PIPING (BURIED STORM DRAIN)

VALVE & COUPLING NOTES:

1. PROVIDE VALVE IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 23 – PROCESS VALVES.
2. PROVIDE PIPE COUPLINGS IN ACCORDANCE WITH SPECIFICATION SECTION 40 05 14 – PROCESS PIPE COUPLINGS AND CONNECTORS.

PUMP STATION PLAN, SECTION & NOTES
N.T.S.

PUMP STATION NOTES:

1. MECHANICAL GENERAL NOTES:
   a. PIPING, VALVES, AND COUPLINGS WITHIN PUMP STATION STRUCTURE TO BE PROVIDED BY PUMP STATION MANUFACTURER UP TO THE C01 COUPLING OUTSIDE OF PUMP STATION. EXTERIOR PIPING AND C01 COUPLING TO BE PROVIDED BY CONTRACTOR.
   b. PROVIDE A MINIMUM 6" CLEAR BETWEEN PIPE PENETRATIONS AND PRECAST STRUCTURE JOINTS.
   c. FILL ALL BOLT AND LIFTING POCKETS WITH NON–SHRINK GROUT FOR CORROSION PREVENTION.
   d. PROVIDE TWO COATS OF BITUMINOUS DAMP–PROOFING ON ENTIRE EXTERIOR OF STRUCTURES BELOW GRADE.
   e. ALL PRECAST STRUCTURES SHALL BE HYDROSTATICALLY TESTED PER (ACI 350.1–01), CHAPTER 2, HST–VI0. HYDROSTATIC TESTING SHALL BE WITNESSED BY ENGINEER. ALL HYDROSTATIC TESTING SHALL BE COMPLETED TO THE SATISFACTION OF ENGINEER PRIOR TO BACKFILL OF STRUCTURES. REFER TO SPECIFICATION 03 41 26 FOR ADDITIONAL DETAILS. PROVIDE ALL LABOR, WATER, PUMPING EQUIPMENT, PIPING AND RELATED APPURTENANCES FOR TESTING. WASTEWATER SHALL NOT BE USED FOR TESTING. PROVIDE DISPOSAL OF TEST WATER.
   f. PROVIDE 304 STAINLESS STEEL PIPE SUPPORTS IN VALVE VAULT. ALL OTHER HARDWARE SHALL BE 316 STAINLESS STEEL.
   g. SOME VALVE HANDWHEEL ACTUATORS HAVE BEEN OMITTED FOR CLARITY.
   h. PROVIDE A TWO PART EPOXY COATING (PRIME & FINISH COAT) FOR ALL DUCTILE IRON PIPING AND FITTINGS INSIDE WET WELL AND VALVE VAULT. PRIME COAT SHALL BE TNEMEC N69F OR EQUAL AND FINISH COAT SHALL BE TNENEC N69 OR EQUAL.
2. PUMP INSTALLATION:
   a. INSTALL THE PUMPS AND MOTORS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND AS DIRECTED ON SITE BY THE MANUFACTURER'S REPRESENTATIVE AND/OR ENGINEER. CORRECT INSTALLATION AND ASSEMBLY OF THE EQUIPMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY. INSTALL ALL PUMPS AND APPURTENANCES IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND WITH THE MANUFACTURERS' INSTALLATION INSTRUCTION MANUAL.
   b. ALL APPURTENANCES REQUIRED FOR A COMPLETE AND OPERATING PUMPING SYSTEM SHALL BE PROVIDED, INCLUDING BUT NOT LIMITED TO SUCH ITEMS AS PIPING, CONDUIT, VALVES, WALL SLEEVES, WALL PIPES, CONCRETE FOUNDATIONS, ANCHORS, GROUTING, POWER SUPPLY, AND CONTROLS.
3. PUMP FACTORY TESTING:
   a. THE MANUFACTURER'S STANDARD FACTORY HYDROSTATIC AND PERFORMANCE TESTS SHALL BE PERFORMED ON EACH OF THE OTHER PUMPING UNITS INCLUDED IN THIS SECTION IN ACCORDANCE WITH THE LATEST EDITION OF THE HYDRAULIC INSTITUTE STANDARDS. THE TESTING SHALL INCLUDE BUT IS NOT LIMITED TO THE FOLLOWING:
      i. A FINAL INSPECTION OF THE IMPELLER, MOTOR RATING, AND ELECTRICAL CONNECTIONS FOR COMPLIANCE WITH PURCHASE ORDER.
      ii. A DRY RUN TEST TO VERIFY CORRECT ROTATION AND MECHANICAL INTEGRITY. THE ENTIRE UNIT SHALL BE CHECKED FOR EXCESSIVE VIBRATION. THE UNIT SHALL ALSO BE BALANCED.
      iii. A MOTOR AND CABLE INSULATION TEST OR INSPECTION FOR MOISTURE CONTENT AND INSULATION DEFECTS.
      iv. A TEST OF THE PUMP MOTOR (RUN FOR 5 MINUTES AT FULL LOAD) TO VERIFY ELECTRICAL DATA MEASUREMENTS. ALL ELECTRICAL DATA SHALL BE REGISTERED AS PART OF DOCUMENTATION
   b. A QUALITY CONTROL CHECK FORM SHOWING THE FACTORY TEST RESULTS AND THAT EACH PUMP SUCCESSFULLY PASSED FACTORY TESTS SHALL BE PROVIDED BY THE MANUFACTURER.
4. PUMP FIELD TESTING
   a. PRIOR TO ACCEPTANCE, AN OPERATIONAL TEST OF ALL PUMPS, DRIVERS, AND CONTROL SYSTEMS SHALL BE PERFORMED TO DETERMINE IF THE INSTALLED EQUIPMENT MEETS THE PURPOSE AND INTENT OF THE SPECIFICATIONS. TEST SHALL DEMONSTRATE THAT THE EQUIPMENT IS NOT ELECTRICALLY, MECHANICALLY, STRUCTURALLY, OR OTHERWISE DEFECTIVE; IS IN SAFE AND SATISFACTORY OPERATING CONDITION; AND CONFORMS WITH THE SPECIFIED OPERATING CHARACTERISTICS. PRIOR TO APPLYING ELECTRICAL POWER TO ANY MOTOR DRIVEN EQUIPMENT, THE DRIVE TRAIN SHALL BE ROTATED BY HAND TO DEMONSTRATE FREE OPERATION OF ALL MECHANICAL PARTS. TESTS SHALL INCLUDE CHECKS FOR EXCESSIVE VIBRATION, LEAKS IN ALL PIPING AND SEALS, CORRECT OPERATION OF CONTROL SYSTEMS, PROPER ALIGNMENT, AND POWER CONSUMPTION.
   b. PROVIDE ALL THE REQUIREMENTS TO CONDUCT A PROPER FIELD TEST WHICH INCLUDE BUT ARE NOT LIMITED TO: POWER, WATER, FACILITIES, LABOR, MATERIALS, SUPPLIES AND TEST INSTRUMENTS.
   c. IN THE PRESENCE OF THE MANUFACTURER'S REPRESENTATIVE, THE CONTRACTOR SHALL TEST AND INSPECT "ALL" NECESSARY CONTROLS WHICH INCLUDE BUT ARE NOT LIMITED TO ALL PUMP ON/OFF SET POINTS, ALARM SET POINTS AND INTERLOCKS (HIGH TEMPERATURE AND MOISTURE) REQUIRED FOR THE PUMPING UNITS TO FUNCTION PROPERLY WITHOUT CAUSING DAMAGE TO THE EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE SHALL PROVIDE THE CONTRACTOR AND ENGINEER WITH THE NECESSARY SET POINTS IN WRITING PRIOR TO THE SITE ACCEPTANCE TEST VISIT AS INDICATED IN THE SUBMITTALS. INITIAL TESTING OF THE PUMPS SHALL BE WITH WATER. WASTEWATER SHALL NOT BE USED FOR INITIAL TESTING.
   d. FIELD TESTING SHALL DEMONSTRATE THAT ALL CONTROLS AND SYSTEMS FUNCTION PROPERLY. A SUCCESSFUL FIELD TEST SHALL INCLUDE "CONTINUOUS" OPERATION OF EACH PUMP FOR A MINIMUM PERIOD OF THREE (3) HOURS WITHOUT ALARMS OR SHUT DOWNS, EXCEPT AS INTENDED FOR TESTING.
   e. IF THE EQUIPMENT DOES NOT SUCCESSFULLY PASS THE TESTS LISTED ABOVE, THE MANUFACTURER SHALL REPAIR THE EQUIPMENT AND PERFORM THE TESTS AGAIN UNTIL PASSING THE TESTS SUCCESSFULLY. IF ANY DEFICIENCIES ARE REVEALED DURING ANY TEST, SUCH DEFICIENCIES SHALL BE CORRECTED, AND THE TESTS SHALL BE RECONDUCTED AT NO ADDITIONAL COST TO THE OWNER.
5. PUMP MANUFACTURER'S SERVICES:
   a. SERVICES OF A MANUFACTURER'S REPRESENTATIVE WHO IS EXPERIENCED IN THE INSTALLATION, ADJUSTMENT, AND OPERATION OF THE EQUIPMENT SPECIFIED SHALL BE PROVIDED. THE ON–SITE MAN DAYS LISTED BELOW ARE EXCLUSIVE OF TRAVEL TIME AND DO NOT RELIEVE THE OBLIGATION TO PROVIDE SUFFICIENT SERVICE TO PLACE THE EQUIPMENT INTO SATISFACTORY OPERATION.
   b. THE MANUFACTURER'S REPRESENTATIVE SHALL SUPERVISE THE INSTALLATION, ADJUSTMENT, AND TESTING OF THE EQUIPMENT. THE MANUFACTURER'S REPRESENTATIVE SHALL BE PRESENT FOR A PERIOD OF NOT LESS THAN ONE (1) ON–SITE MAN DAY (TOTAL) TO INSPECT THE INSTALLED EQUIPMENT, SUPERVISE THE INITIAL TEST RUN, AND TO PROVIDE INSTRUCTION TO THE PLANT PERSONNEL.
   c. THE MANUFACTURER'S REPRESENTATIVE SHALL MAKE ALL NECESSARY ADJUSTMENTS AND SETTINGS TO THE CONTROLS. IN PARTICULAR, SERVICE ENGINEER SHALL VERIFY THE CONTROL SET POINTS FOR EACH PUMP AS WELL AS PROPER ROTATIONAL DIRECTION.
   d. A FIELD TRAINING COURSE SHALL BE PROVIDED FOR DESIGNATED OPERATING AND MAINTENANCE STAFF MEMBERS. TRAINING SHALL BE PROVIDED IN CONJUNCTION WITH THE VISIT FROM THE MANUFACTURER'S REPRESENTATIVE. THE TRAINING SHALL START AFTER THE SYSTEM IS FUNCTIONALLY COMPLETE BUT PRIOR TO FINAL ACCEPTANCE TESTS. FIELD TRAINING SHALL COVER ALL OF THE ITEMS CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS, INCLUDING NORMAL OPERATIONS, TROUBLE–SHOOTING, MAINTENANCE, LUBRICATION, AND OTHER RELATED WORK.

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Woodard & Curran
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Portland, Maine 04102
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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
CIVIL DETAILS - 7

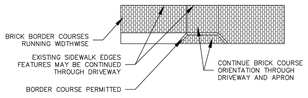
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SHEET: 19 OF 20

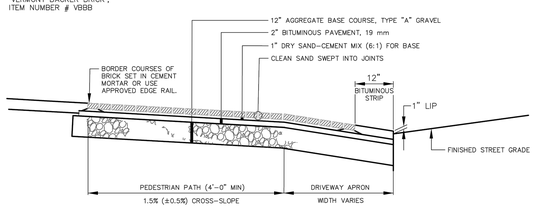
BRICKS TO BE USED:

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

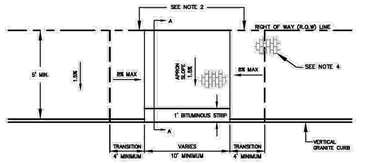
BRICK ORIENTATION DETAIL





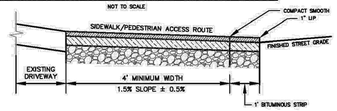
BRICK DRIVEWAY APRON WITH BITUMINOUS BASE

NOT TO SCALE



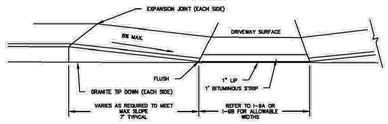
DRIVEWAY APRON AT CONSTRAINED SIDEWALK LAYOUT

NOT TO SCALE



SECTION A-A

NOT TO SCALE



NOTES:

1. MATCH EXISTING GRADE AT R.O.W LINE. WHERE REQUIRED TO MEET A.D.A. AND DRIVEWAY APRON SLOPE REQUIREMENTS, A CONSTRUCTION EASEMENT MAY BE REQUIRED.
2. SIDEWALK TRANSITION SLOPE SHALL NOT EXCEED 8.33% RAMP LENGTH SHALL ACCOMMODATE THIS CONSTRAINT UP TO 15 FOOT RAMP LENGTH OR AS OTHERWISE REQUIRED BY ADA STANDARDS.
3. MOUNTABLE CURB (SEE DETAIL I-15) OR INCREASE IF BITUMINOUS LIP IS PREFERRED TO MAINTAIN SIDEWALK GRADE THROUGH APRON.
4. ALL MATERIALS IN ROW TO COMPLY WITH CITY'S SIDEWALK & DRIVEWAY MATERIAL POLICY. BRICK IN DRIVEWAY APRONS, WHERE APPLICABLE, SHALL BE ORIENTED IN THE SAME WAY AS THE ADJACENT BRICK SIDEWALK.

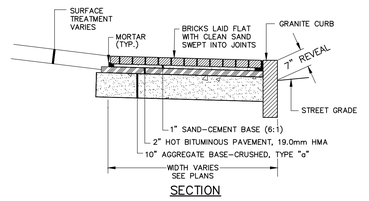
DRIVEWAY APRON AT CONSTRAINED SIDEWALKS

NOT TO SCALE

BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA, OR APPROVED EQUAL.
LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK, OR APPROVED EQUAL.

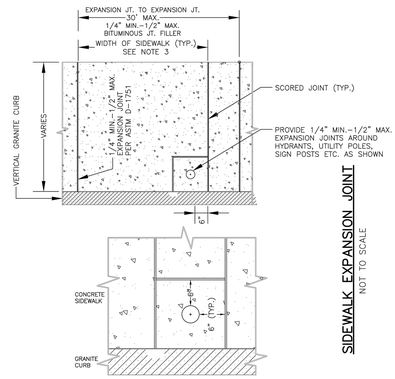
REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS.
SPECIFICATION NUMBER:
"VERMONT BACKER BRICK",
ITEM NUMBER # VBBB,
OR APPROVED EQUAL



SECTION

BRICK SIDEWALK DETAIL AT CITY R.O.W.

N.T.S.



SIDEWALK EXPANSION JOINT

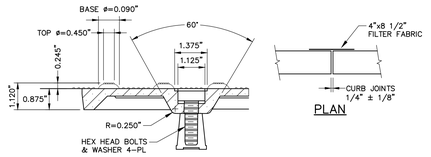
NOT TO SCALE

CONCRETE SIDEWALK JOINT NOTES:

1. EXPANSION JOINTS SHALL BE LOCATED WHERE SIDEWALK ABUTS DRIVEWAYS, CURB OR OTHER ADJACENT STRUCTURES.
2. SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS, NOT TO EXCEED 30 LINEAR FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/4" MIN.-1/2" MAX. IN THICKNESS AND SHALL EXTEND THE FULL LENGTH/DEPTH OF THE CONCRETE.
3. THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS. THE DEPTH OF SCORING SHALL BE AT LEAST ONE QUARTER OF THICKNESS OF THE SLABS (1" TYP.). SCORED JOINTS MUST BE COMPLETED AS PART OF THE FINISHING PROCESS. SAW CUTTING OF JOINTS IS NOT ALLOWED. SCORED JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATIONS:
   A. IN LOCATIONS TO ENSURE BLOCK UNITS DO NOT EXCEED 36 SQUARE FEET.
   B. AT THE SPACING THAT MATCHES ADJACENT TIP DOWN CURB
   C. EXTENSION OF EXPANSION JOINTS LOCATED AT HYDRANTS & UTILITY POLES.
4. ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4" RADIUS EDGING TOOL.
5. CONCRETE SHALL BE FINISHED BY MEANS OF A FLOAT, STEEL TROWELED AND BROOMED WITH A FINE BRUSH IN A TRANSVERSE DIRECTION.

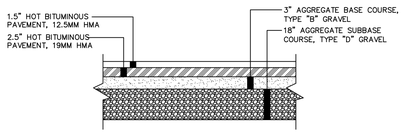
SIDEWALK EXPANSION JOINT

NOT TO SCALE



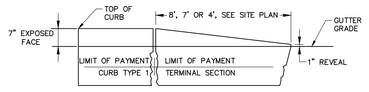
BOLT DETAIL

PLAN



FORE ST. PAVED ROAD SECTION

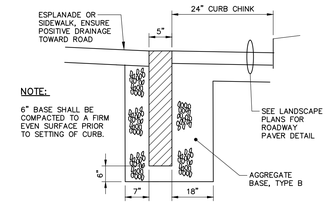
N.T.S.



TERMINAL SECTION TYPE "1"

TERMINAL CURB SECTION

N.T.S.

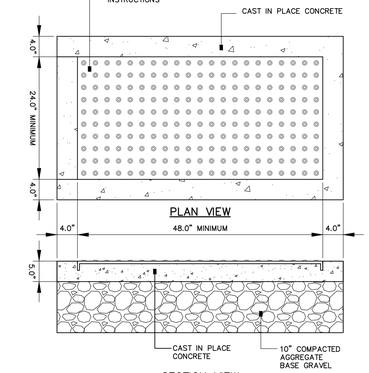


SECTION

TYPICAL FLUSH CURB INSTALLATION

N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02



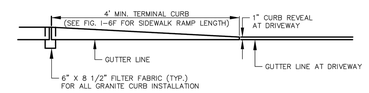
SECTION VIEW

SIDEWALK RAMP DETECTABLE WARNING

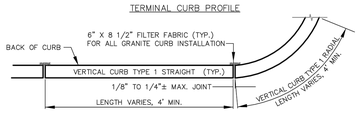
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NOTES:

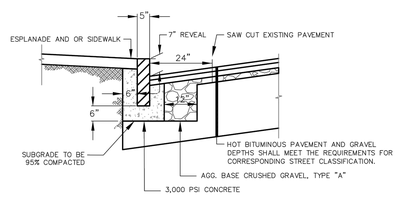
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM 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 AND CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDING 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.



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW

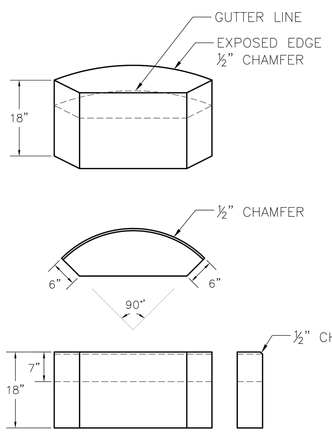


VERTICAL GRANITE CURB CROSS SECTION

NOTES:
1. INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
2. THE MINIMUM HEIGHT OF THE CONCRETE BACKING SHALL BE 10-INCHES OR TO THE BOTTOM OF THE HOT MIX ASPHALT PAVEMENT, WHICHEVER IS GREATER, MEASURED FROM THE BOTTOM OF CURB.
3. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
4. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB IN R.O.W.

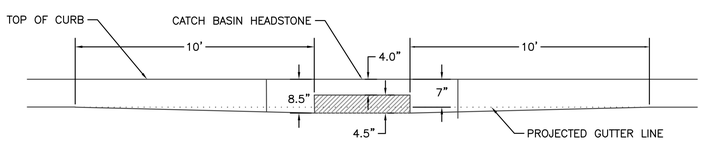
N.T.S.



GRANITE RADIUS CORNER "BUG"

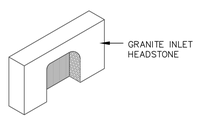
NOT TO SCALE

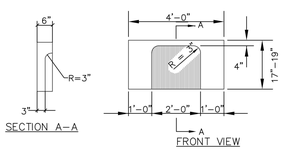
NOTE:
DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT



TYPICAL PAVEMENT GRADING FOR CATCH BASIN INLETS

NOT TO SCALE





4' GRANITE HEADSTONE FOR CATCH BASIN INLET

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PE SEAL:

STATE OF MAINE
LAUREN JANE SWETT
No. 12284
LICENSED PROFESSIONAL ENGINEER
Lauren J. Swett

NOT FOR CONSTRUCTION

CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

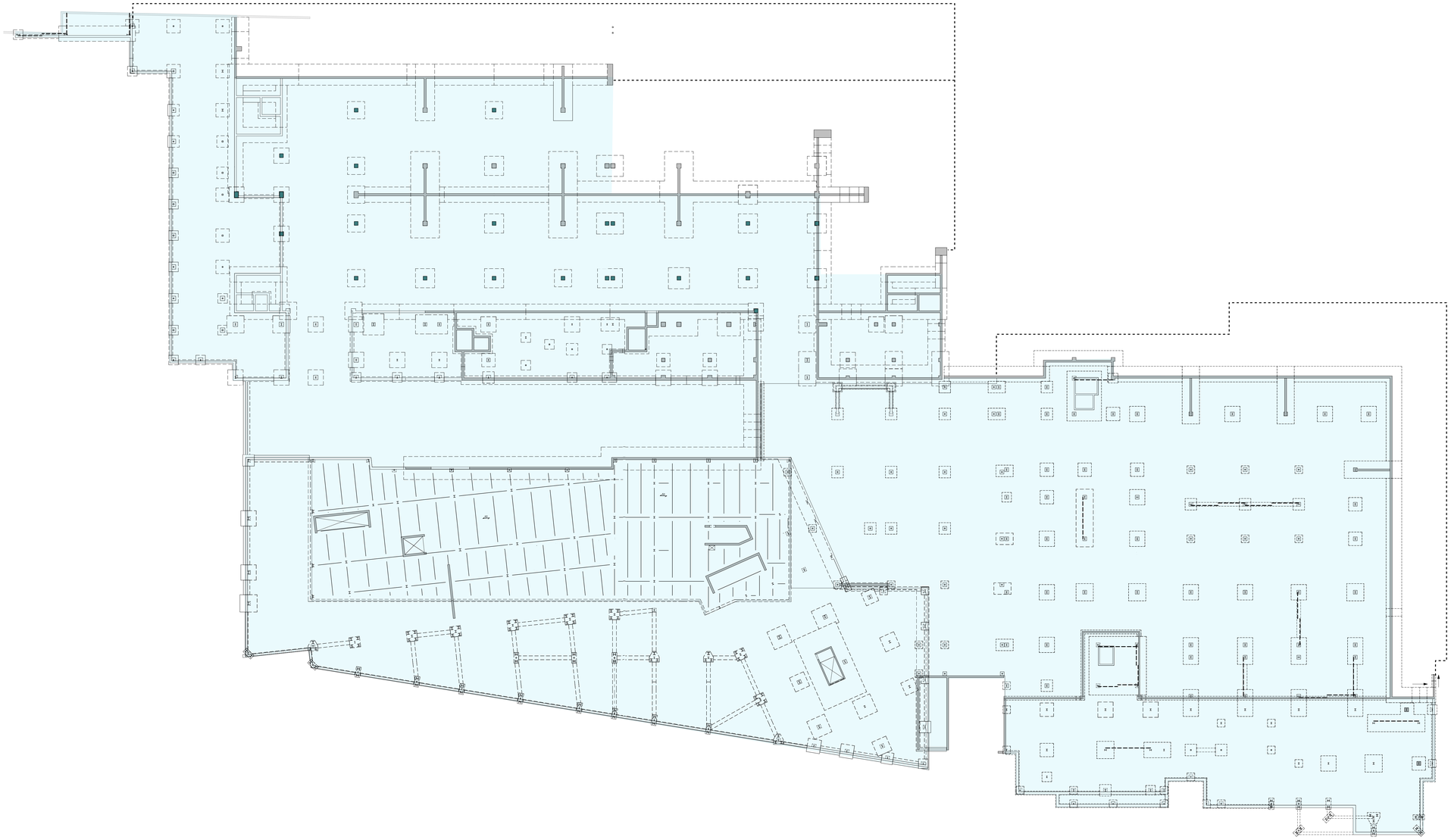
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DATE:	AUGUST 2023
SCALE:	AS NOTED
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 DETAILS .dwg

DRAWING TITLE:
CIVIL
FORE STREET DETAILS

DRAWING NO:
C-207
SHEET: 20 OF 20

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REFER TO INDIVIDUAL BLOCKS
FOR ADDITIONAL DETAILS

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f 617.478.0321
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MEP ENGINEER
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GEOTECH ENGINEER
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OWNER'S CONSULTANT

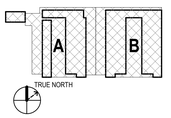
LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1060

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

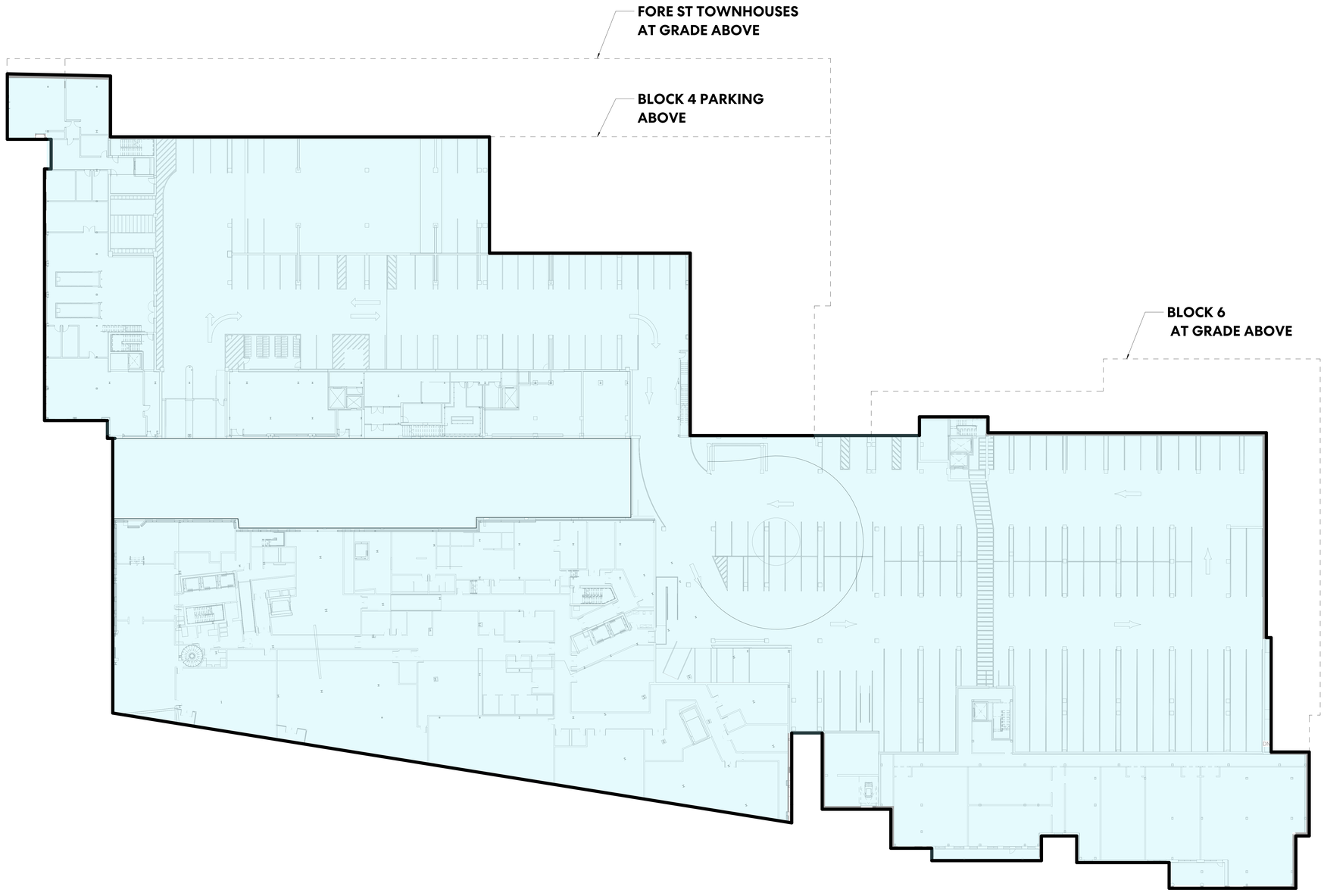
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LEVEL 1/ FOUNDATION PLAN

SHEET NUMBER

S1.1

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1 BLOCK 4, 5 & 6 FOUNDATION PLAN
3/64" = 1'-0"

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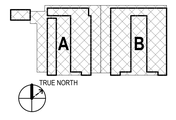
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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Job Number		157111
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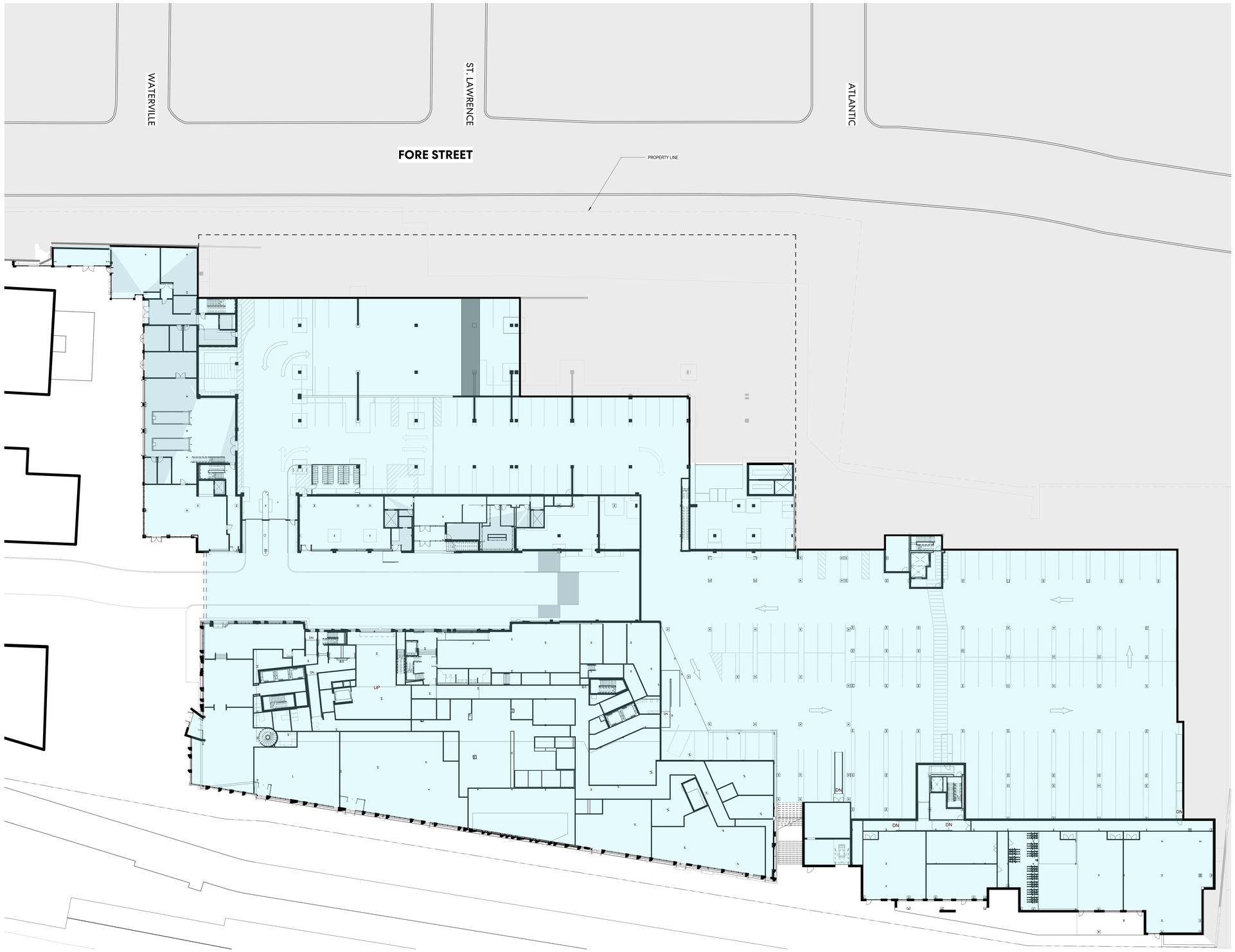
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BLOCK 4, 5 & 6 FOUNDATION PLAN

SHEET NUMBER

SA-001

8/4/2023 8:03:15 AM
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1 PERMIT SITE PLAN - LEVEL 01
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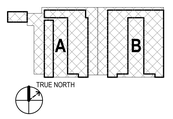
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DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

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Job Number		157111
Checked		Checker
Approved		Approver

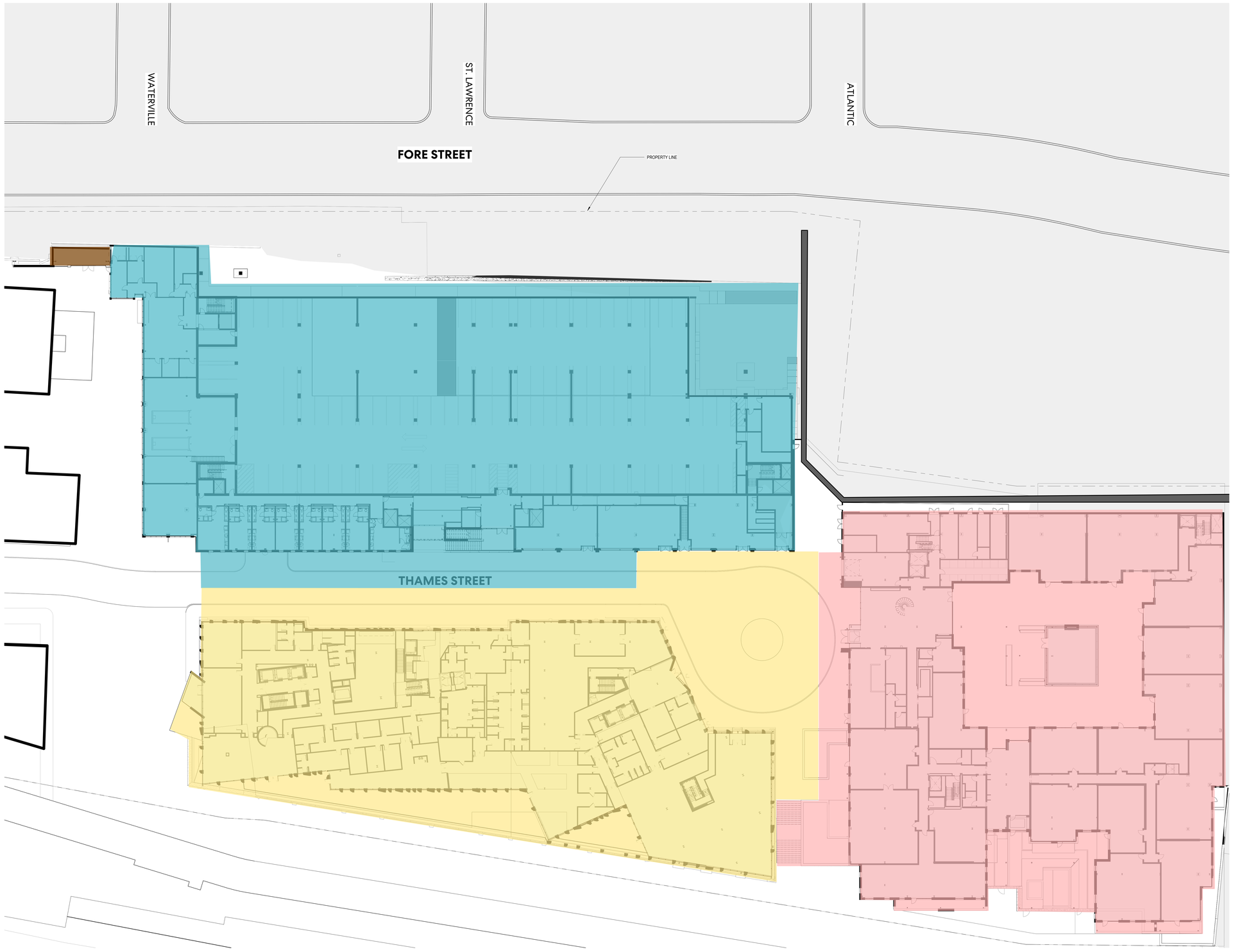
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PERMIT SITE PLAN - LEVEL 01

SHEET NUMBER

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1 PERMIT SITE PLAN - LEVEL 02
3/64" = 1'-0"

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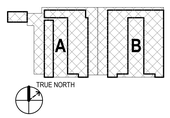
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Job Number		157111
Checked		Checker
Approved		Approver

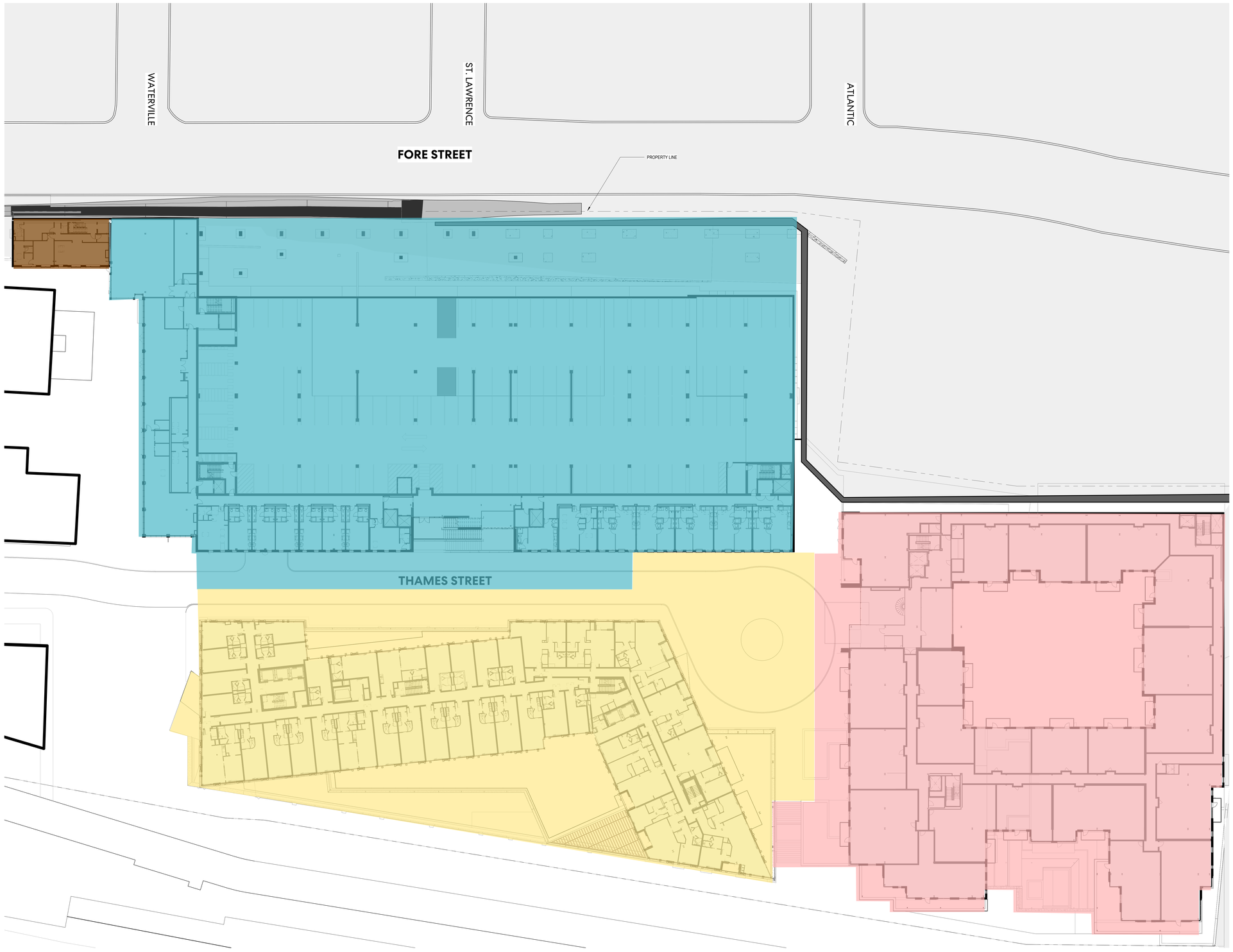
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PERMIT SITE PLAN - LEVEL 02

SHEET NUMBER

MU-002

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1 PERMIT SITE PLAN - LEVEL 03
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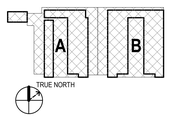
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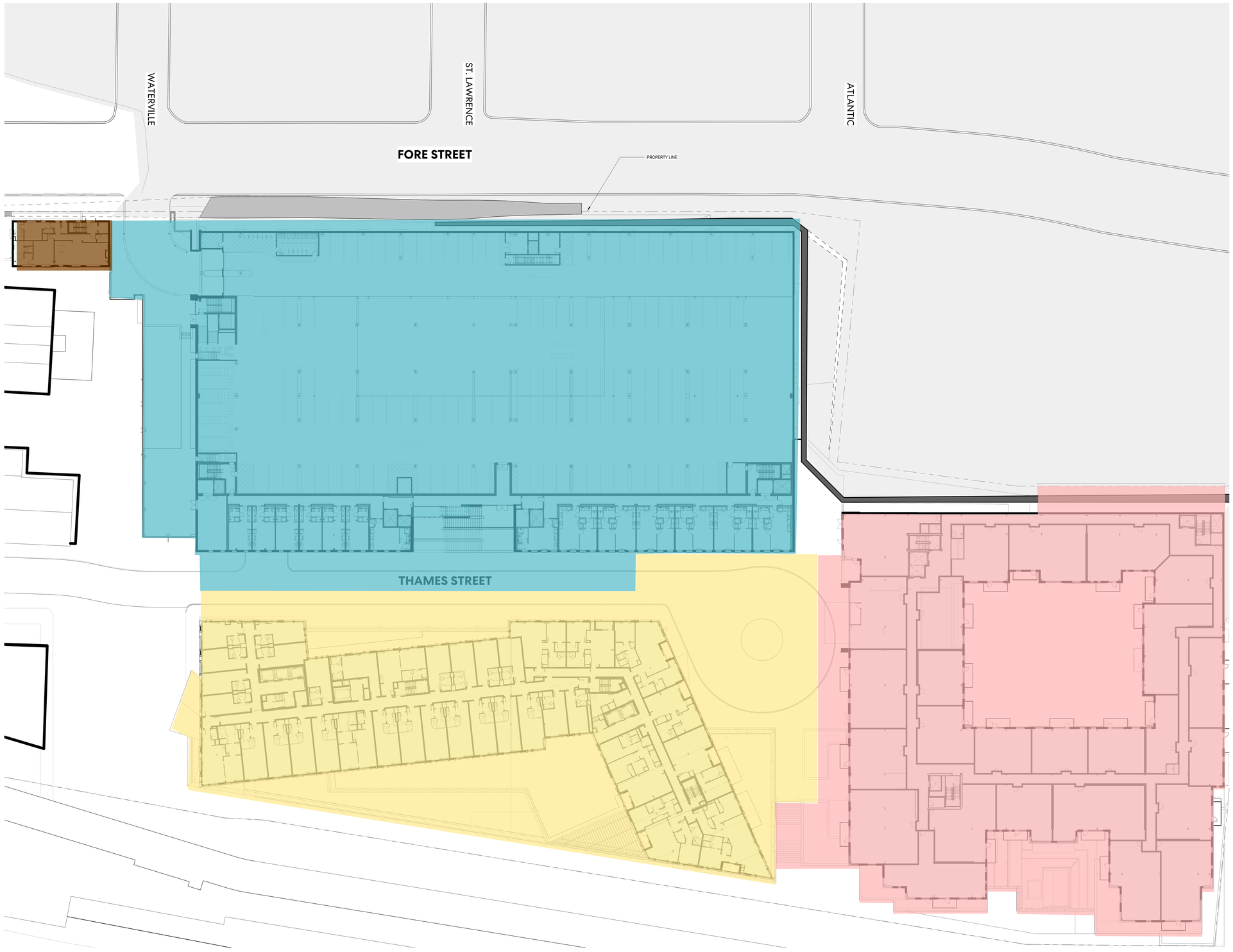
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PERMIT SITE PLAN - LEVEL 03

SHEET NUMBER

MU-003

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1 PERMIT SITE PLAN - LEVEL 04
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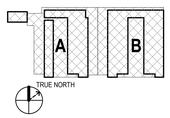
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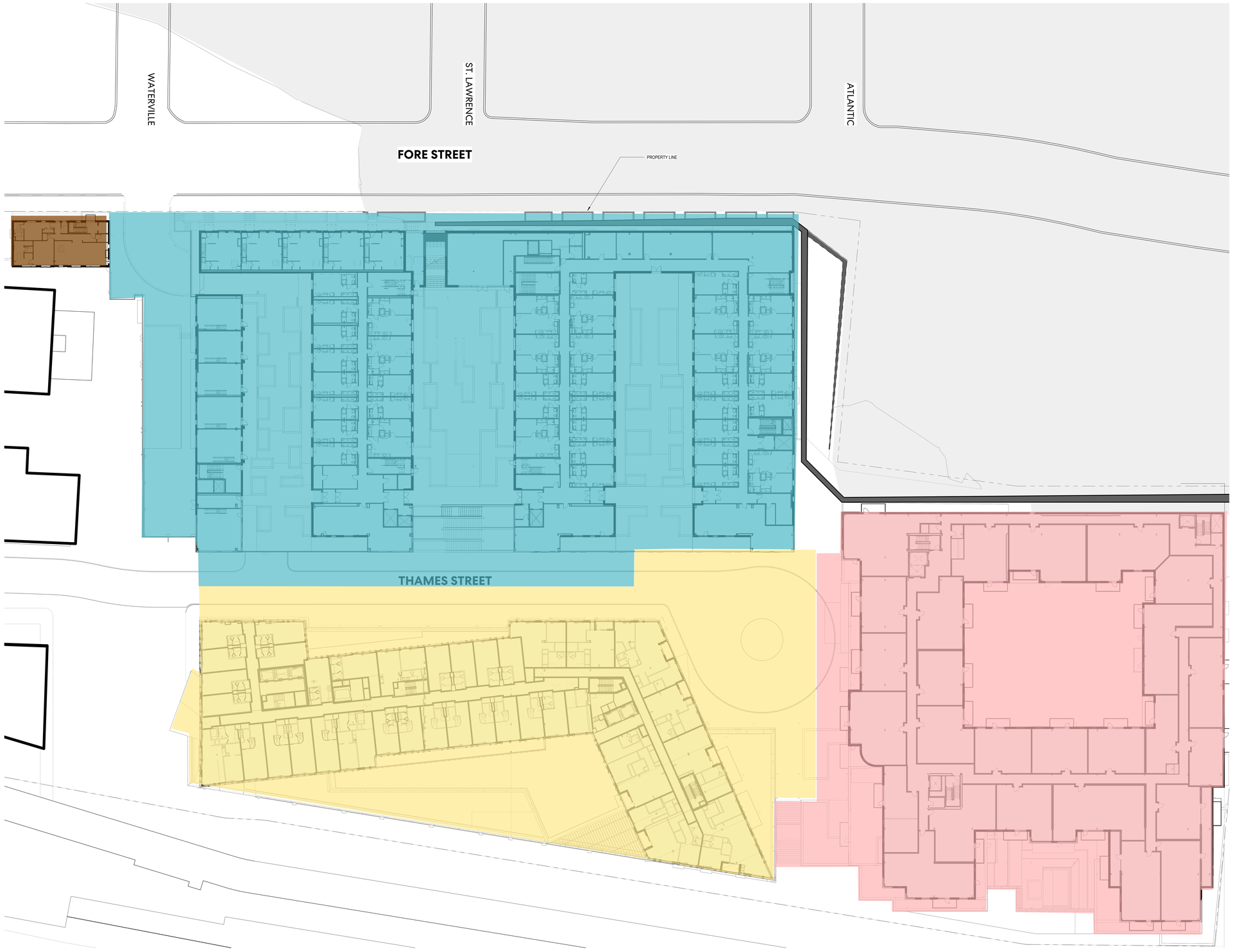
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SHEET NUMBER

MU-004

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1 PERMIT SITE PLAN - LEVEL 05
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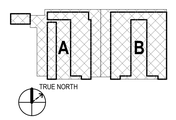
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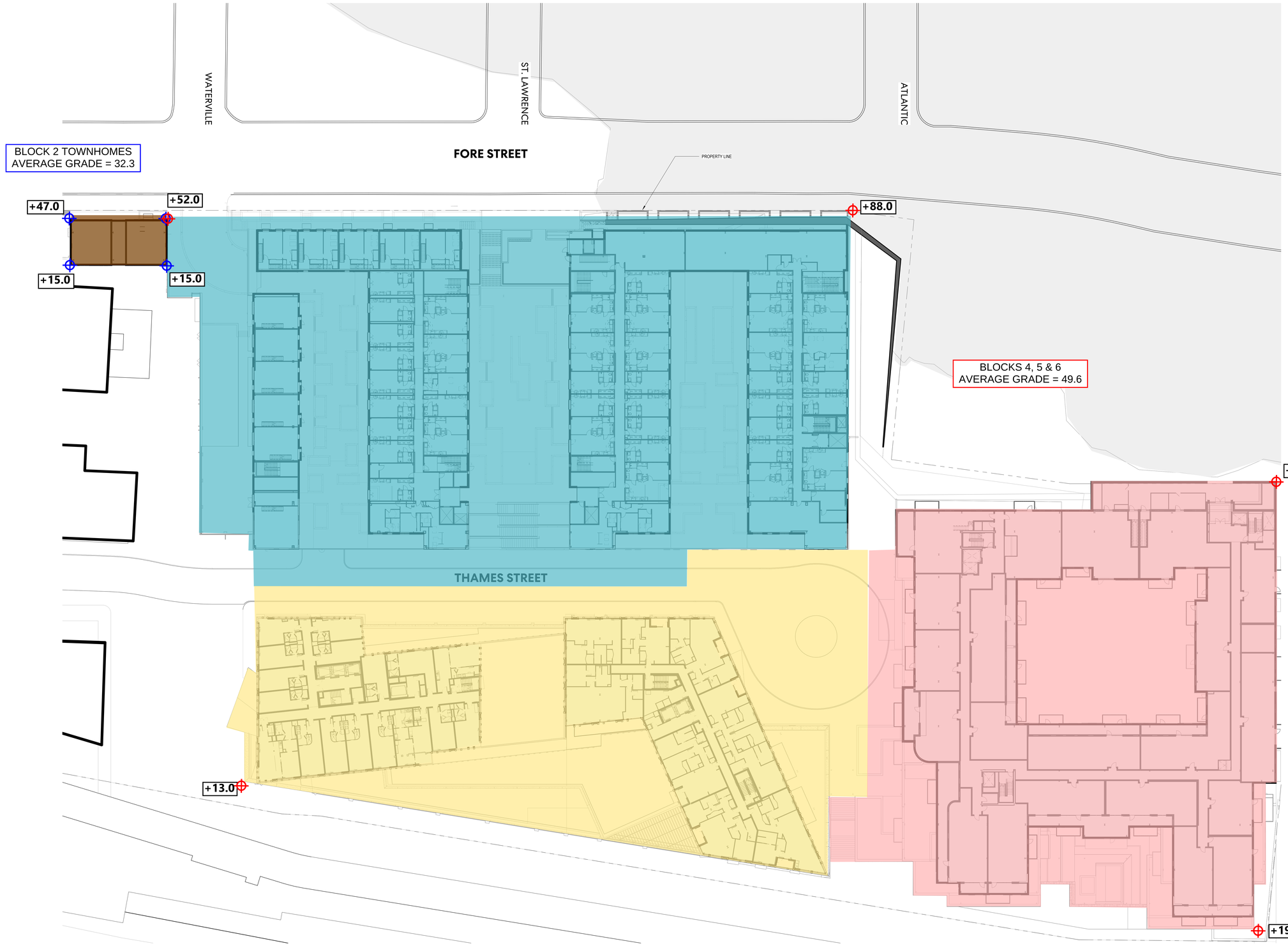
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PERMIT SITE PLAN - LEVEL 05

SHEET NUMBER

MU-005

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1 PERMIT SITE PLAN - LEVEL 06
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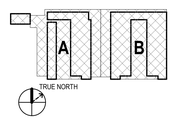
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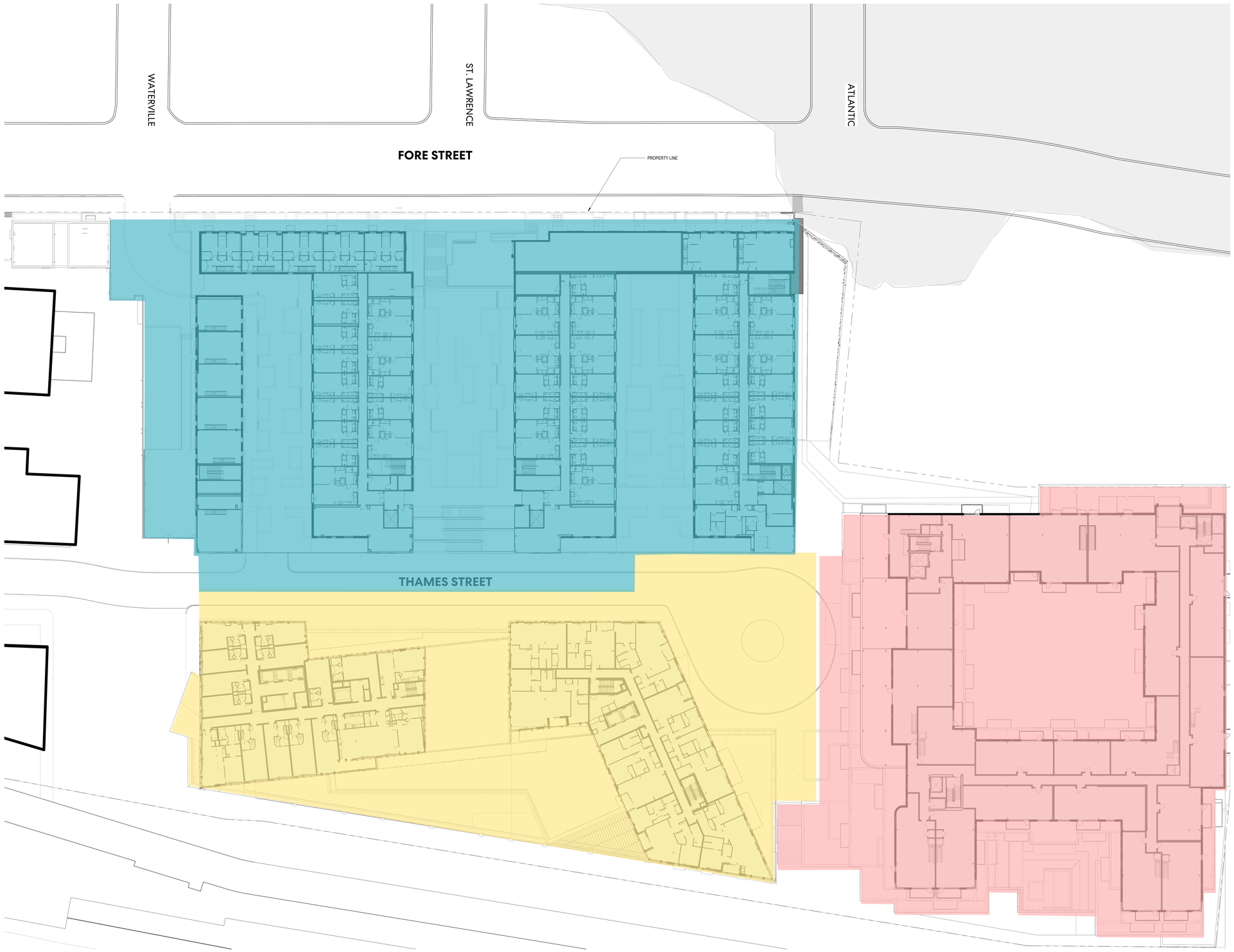
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PERMIT SITE PLAN - LEVEL 06

SHEET NUMBER

MU-006

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1 PERMIT SITE PLAN - LEVEL 07
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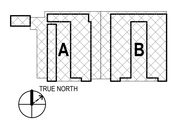
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Job Number		157111
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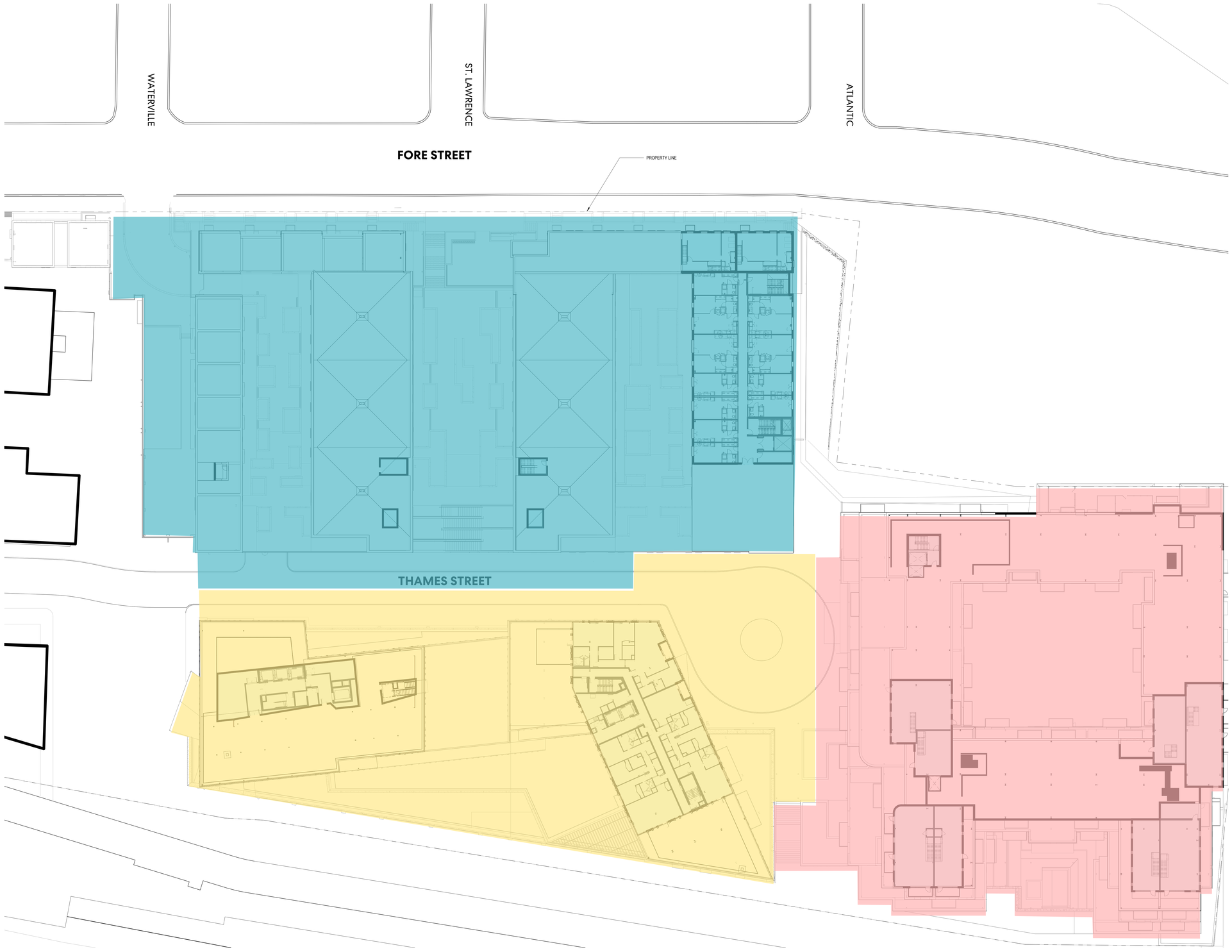
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PERMIT SITE PLAN - LEVEL 07

SHEET NUMBER

MU-007

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1 PERMIT SITE PLAN - LEVEL 08
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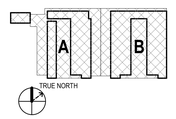
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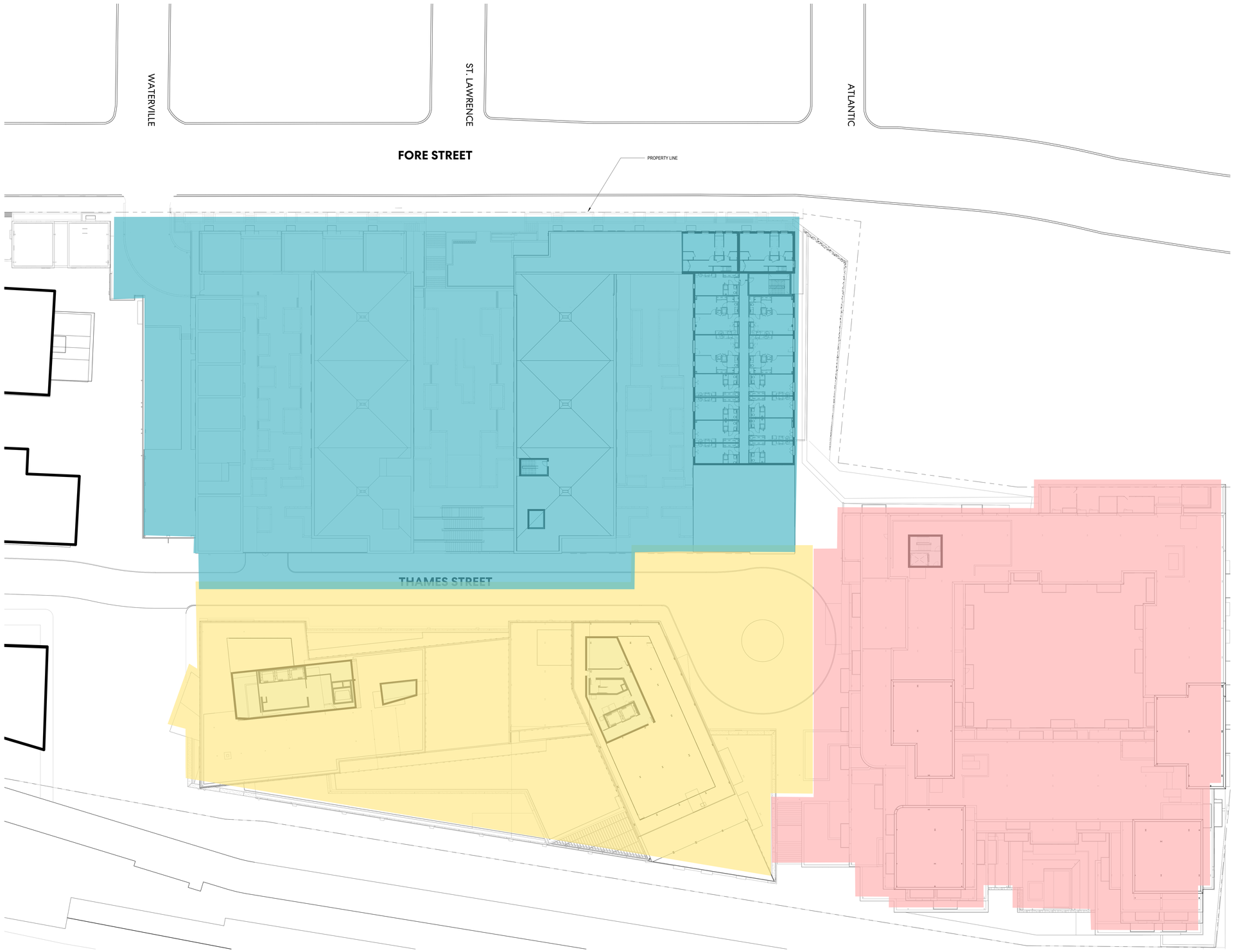
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PERMIT SITE PLAN - LEVEL 08

SHEET NUMBER

MU-008

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1 PERMIT SITE PLAN - LEVEL 09
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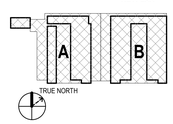
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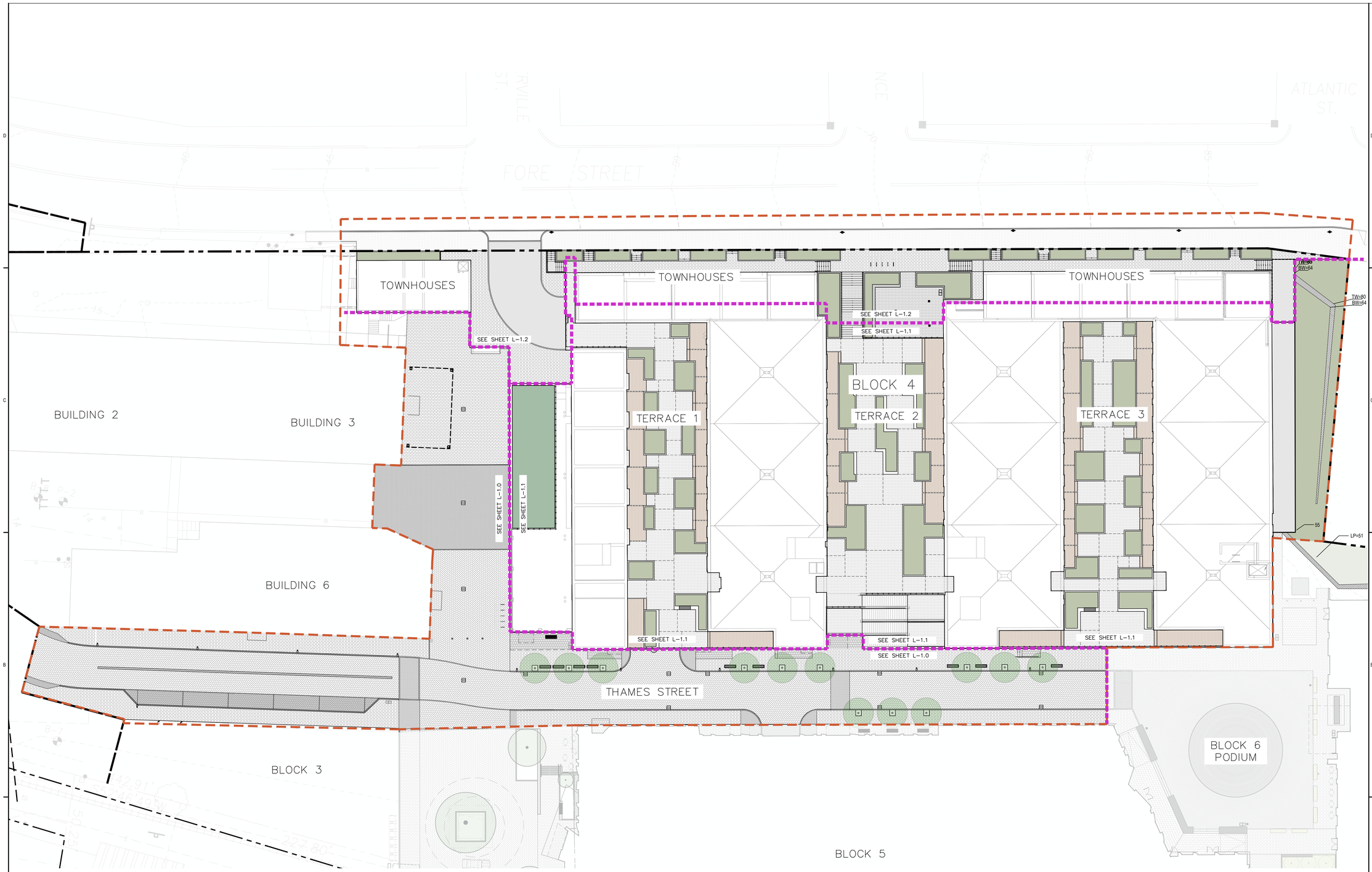
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PERMIT SITE PLAN - LEVEL 09

SHEET NUMBER

MU-009

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LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- SHEET DELINEATION

SCALE: 1"=20'
0 10' 20' 40'
NORTH

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MARK	ISSUE	DATE
1	PERMIT UPDATES	8/18/2023

COORDINATION DRAWING

MAY 10, 2023

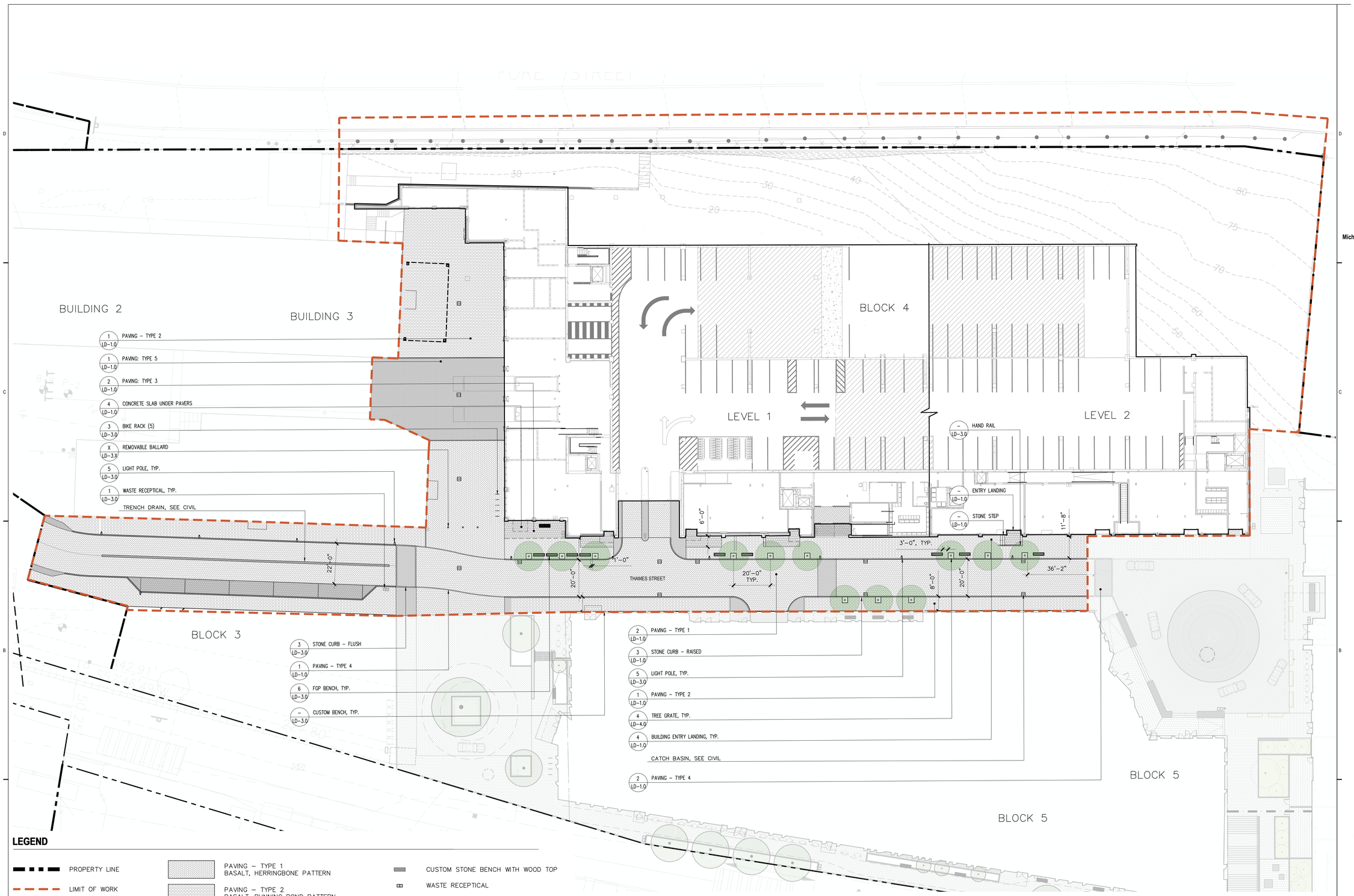
Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

TITLE

BLOCK 4 - LANDSCAPE REFERENCE PLAN

SHEET NUMBER

L-0.0



LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- OVERHEAD
- PROPOSED TREE
- PAVING – TYPE 1 BASALT, HERRINGBONE PATTERN
- PAVING – TYPE 2 BASALT, RUNNING BOND PATTERN
- PAVING – TYPE 3 RUNNING BOND PATTERN
- PAVING – TYPE 4 STONE SETTS
- PAVING – TYPE 5 ASPHALT PAVERS, RUNNING BOND PATTERN
- PAVING – TYPE 6 STONE SETTS, SINGLE ROW
- STONE CURB – RAISED
- STONE CURB – FLUSH
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- REMOVABLE BOLLARD
- BIKE RACK
- LIGHT POLE
- TREE GRATE
- HAND RAIL
- CONCRETE SLAB BELOW PAVERS

GENERAL NOTES:
1.

SCALE: 1"=20' 0 10' 20' 40' NORTH

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Michael Boucher Landscape Architecture
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Freeport, Maine
t 207.865.1080

STAMP

PROJECT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

COORDINATION DRAWING

MAY 10, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

TITLE

Landscape Layout and Materials Plan - Thames Street

SHEET NUMBER

L-1.0

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LEGEND

- WOODEN ENTRY STOOP
- STONE PAVERS OVER STRUCTURE
- GREEN ROOF SYSTEM
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- AMENITY GRILL
- PRIVACY SCREEN
- BIKE RACK
- FGP BENCH
- CIP CONCRETE RETAINING WALL
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=20'
0 10' 20' 40'
NORTH

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

PERMIT SET

JUNE 23, 2023

Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

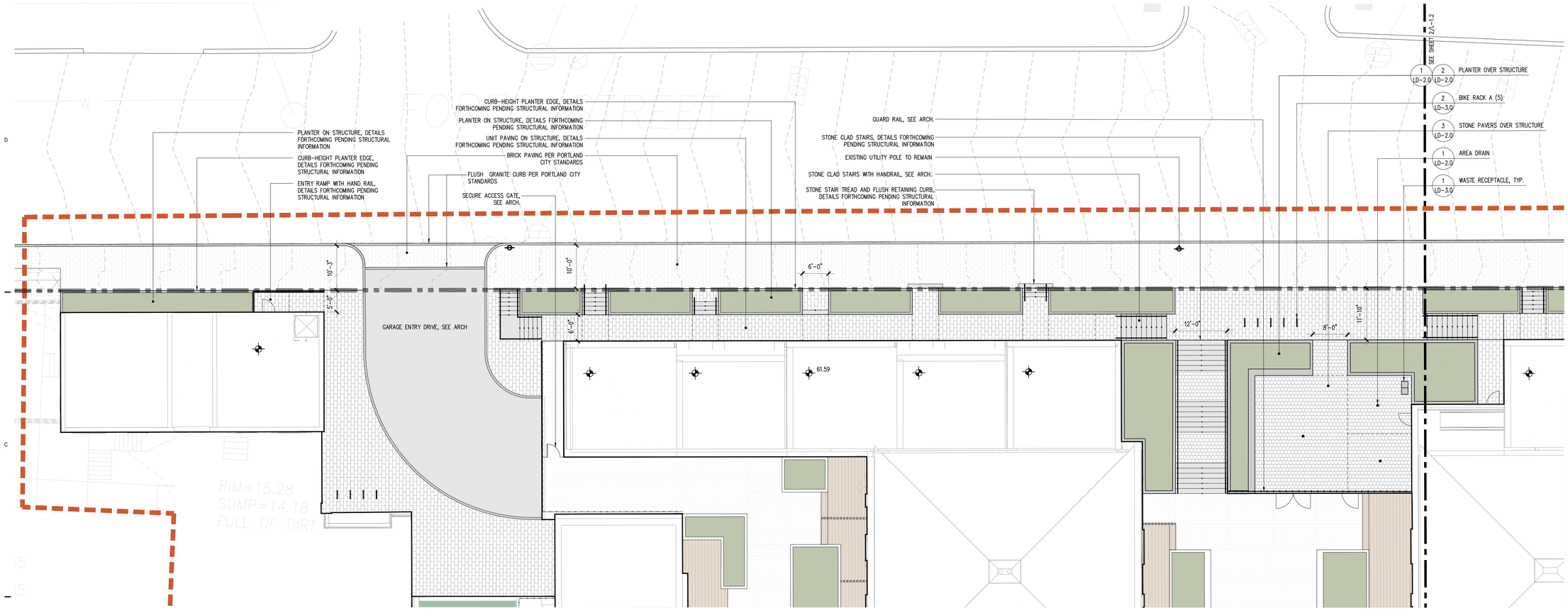
TITLE

Landscape Layout and Materials Plan - Courtyard Level

SHEET NUMBER

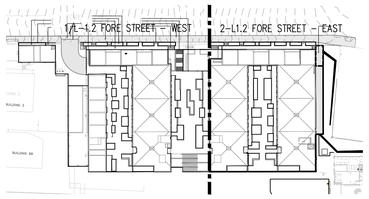
L-1.1

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1 FORE STREET - WEST
1"=10'

KEY PLAN

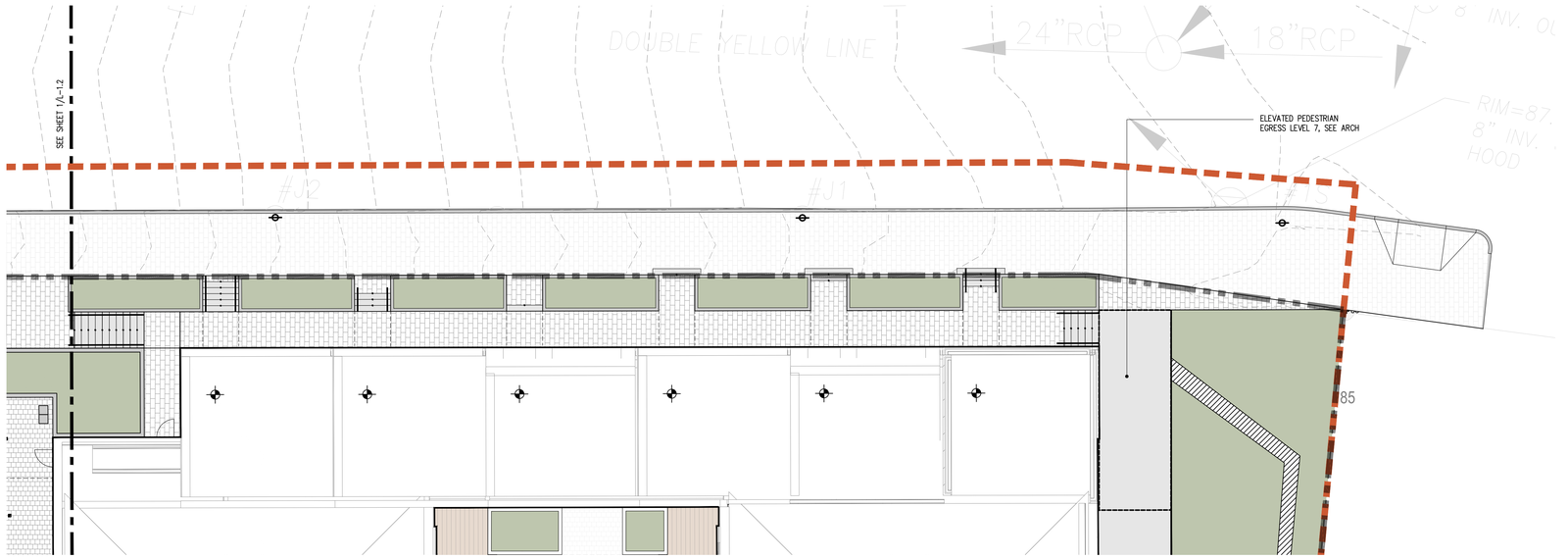


LEGEND

- BRICK PAVERS PER PORTLAND CITY STANDARD
- UNIT PAVERS OVER STRUCTURE
- STONE PAVERS OVER STRUCTURE
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- STONE CLAD RETAINING WALL
- BIKE RACK
- FGP BENCH
- WASTE RECEPTACLE
- HAND RAIL AT STAIRS
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE

GENERAL NOTES

1. FOR ALL PROPOSED SITEWORK WITHIN THE ROW, REFER TO CIVIL DRAWINGS FOR DETAILS.



2 FORE STREET - EAST
1"=10'

SCALE: 1"=10'
0 15' 10' 20'
NORTH

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PROJECT

FORESIDE DEVELOPMENT

KEYPLAN

MARK	ISSUE	DATE
1	PERMIT UPDATES	8/18/2023

PERMIT SET

AUGUST 23, 2023

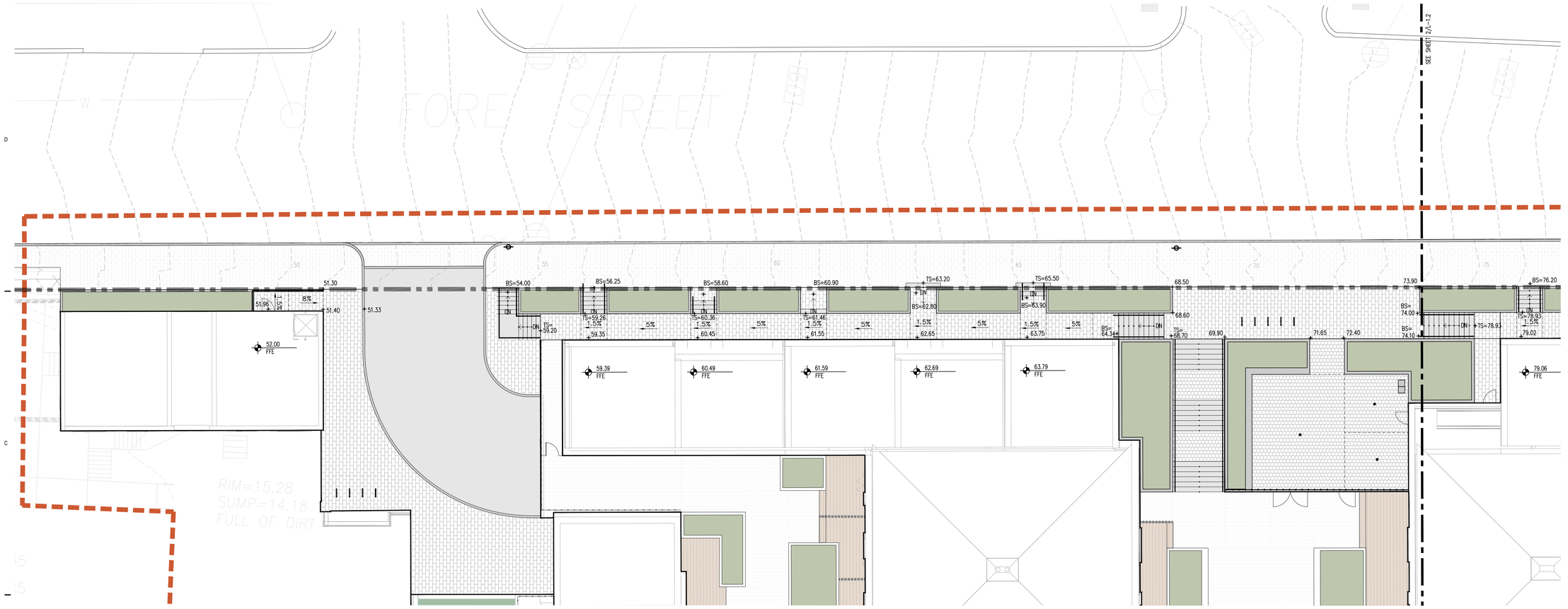
Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

TITLE

Landscape Layout and Materials Plan - Fore Street

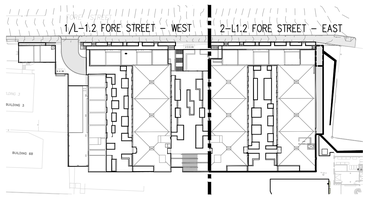
SHEET NUMBER

L-1.2



1 FORE STREET - WEST
1"=10'

KEY PLAN

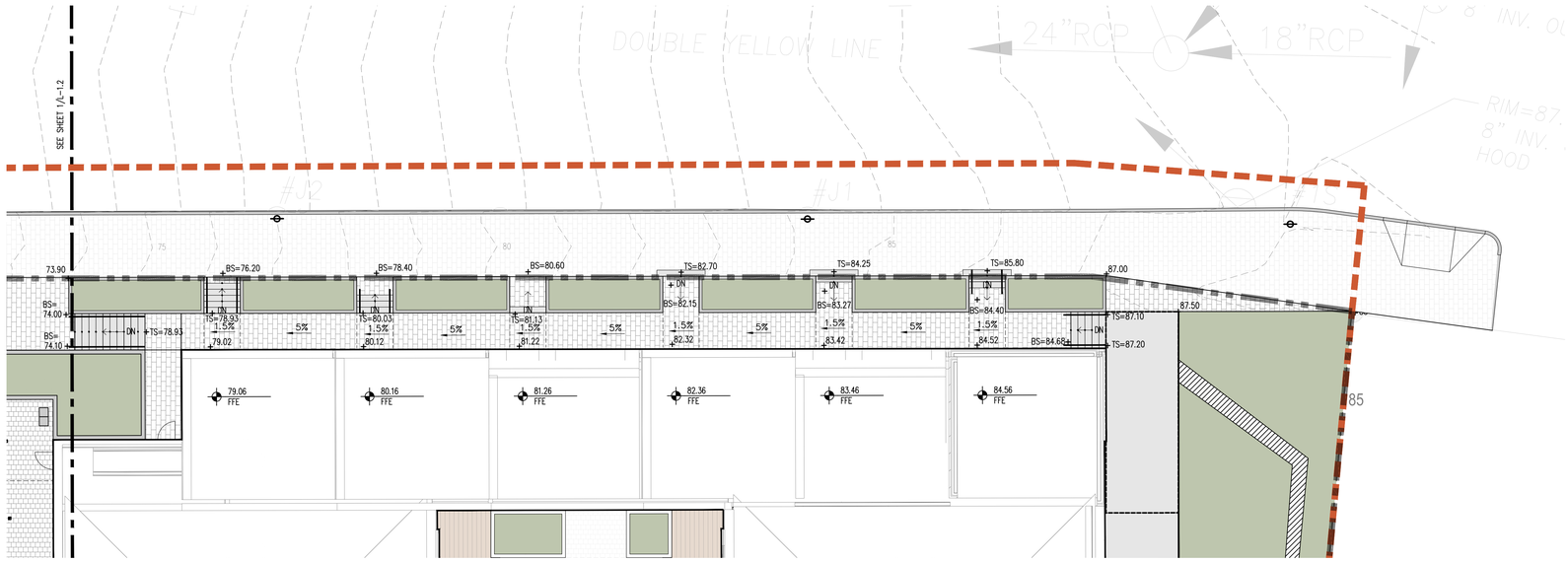


LEGEND

- BRICK PAVERS PER PORTLAND CITY STANDARD
- UNIT PAVERS OVER STRUCTURE
- STONE PAVERS OVER STRUCTURE
- PLANTING AREA
- CIP CONCRETE PLANTER WALL WITH STONE VENEER
- STONE CLAD RETAINING WALL
- BIKE RACK
- FGP BENCH
- WASTE RECEPTACLE
- HAND RAIL AT STAIRS
- GUARD RAIL
- LIMIT OF WORK
- PROPERTY LINE

GENERAL NOTES

1. FOR ALL PROPOSED SITEWORK WITHIN THE ROW, REFER TO CIVIL DRAWINGS FOR DETAILS.



2 FORE STREET - EAST
1"=10'

SCALE: 1"=10'
0 15' 10' 20'
NORTH

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PROJECT

FORESIDE DEVELOPMENT

KEYPLAN

MARK	ISSUE	DATE
1	PERMIT UPDATES	8/18/2023

PERMIT SET

AUGUST 23, 2023

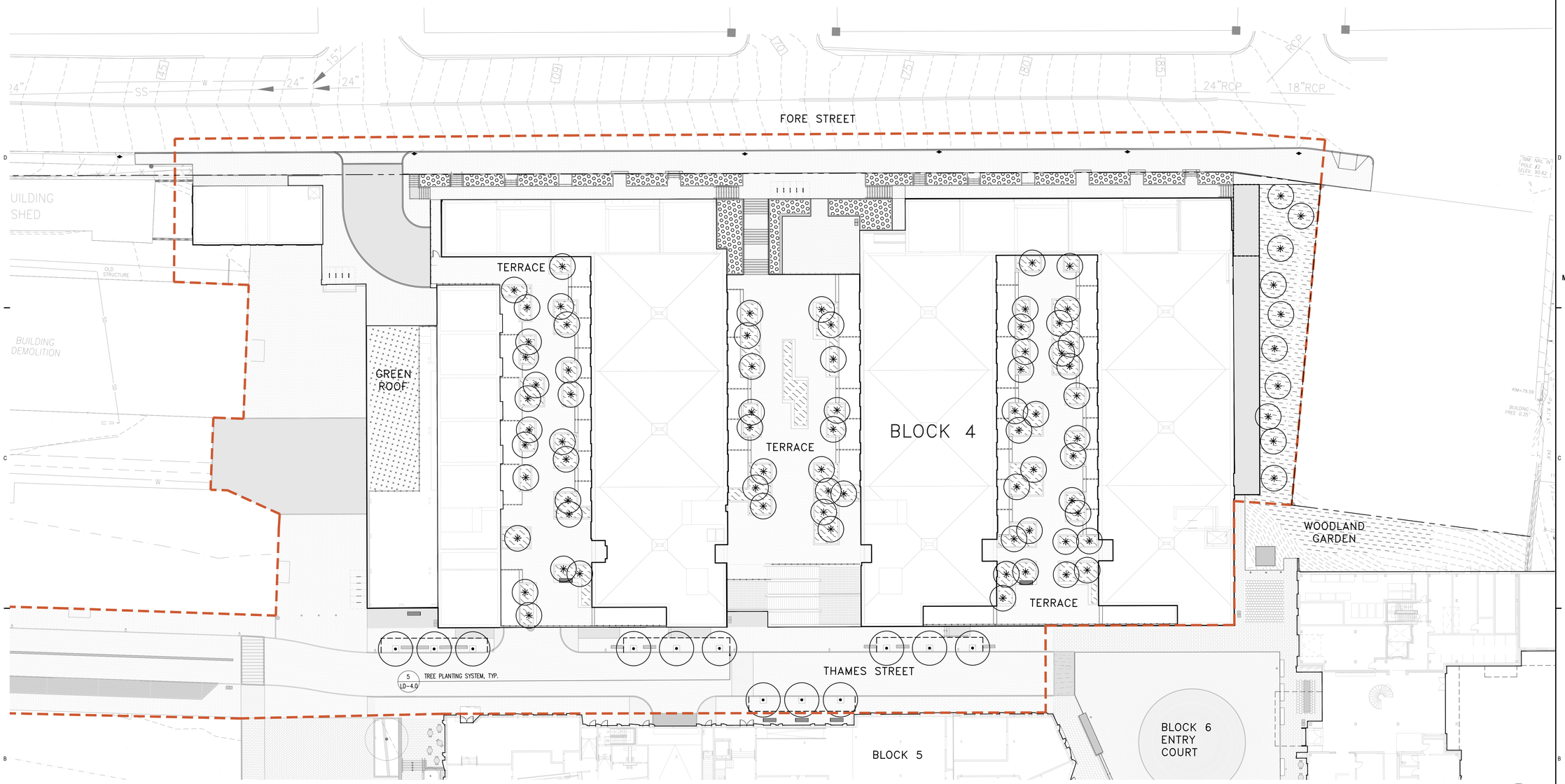
Job Number	XXXXXXX
Drawn	SMG
Checked	JP
Approved	MB

TITLE

Landscape Grading Plan - Fore Street

SHEET NUMBER

L-1.4



LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- EXTENTS OF SUBSURFACE TREE PLANTING SYSTEM

PLANTING NOTES:
1. ALL TREES PLANTED ALONG THAMES STREET ARE TO BE PROVIDED WITH A SUBSURFACE TREE PLANTING SOIL CELL SYSTEM, BY BLUE GREEN URBAN. SEE 5/LD–4.0

PLANTING SCHEDULE LG-202

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
STREET TREES								
			ACER RUBRUM 'KARPICK'	RED MAPLE KARPICK	4–5" CAL.	B+B	PER PLAN	
			GLEDITSIA TRICANTHOS VAR. INERMIS	HONEY LOCUST	4–5" CAL.	B+B	PER PLAN	
			QUERCUS PALUSTRIS	PIN OAK	4–5" CAL.	B+B	PER PLAN	
PATIO-SCALE TREES								
			AMELANCHIER CANADENSIS	SERVICEBERRY	1.5–2" CAL.	B+B	PER PLAN	
			ACER SPICATUM	MOUNTAIN MAPLE	1.5–2" CAL.	CONT.	PER PLAN	
			CARPINUS CAROLINIANA	AMERICAN HORNBEAM	1.5–2" CAL.	CONT.	PER PLAN	

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TERRACE PLANTERS SHRUB & GROUNDCOVER PALETTE - ON STRUCTURE								
			ACTEA RACEMOSA	BLACK COHOSH	–	CONT.	–	
			ANEMONE CANADENSIS	CANADA WINDFLOWER	–	CONT.	–	
			CLETHRA ALINIFOLIA	SWEET PEPERBUSH	–	CONT.	–	
			COMPTONIA PEREDRINA	SWEETFERN	–	CONT.	–	
			EURYBIA MACROPHYLLA	LARGE–LEAFED ASTER	–	CONT.	–	
			GERANIUM MACULATUM	SPOTTED CRANESBILL	–	CONT.	–	
			OSMUNDA CINNAMOMEA	CINNAMON FERN	–	CONT.	–	
			POLYGONATUM COMMITATUM	SOLOMON'S SEAL	–	CONT.	–	
			POLYSTICHUM ARCOSTOCHOIDES	CHRISTMAS FERN	–	CONT.	–	
			RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	–	CONT.	–	

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
GREENROOF PALETTE - ON STRUCTURE								
			GREEN ROOF PLANT MIX, TBD.	–	–	CONT.	–	
STREET PLANTING PALETTE - ON STRUCTURE								
			MYRICA PENNSYLVANICA	SWEETGALE	–	CONT.	–	
					–	CONT.	–	
			RHUS AROMATICA 'GRO–LOW'	GRO–LOW FRAGRANT SUMAC	–	CONT.	–	
WOODLAND GARDEN PALETTE								
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	–	CONT.	–	
			EURYBIA MACROPHYLLA	LARGE–LEAFED ASTER	–	CONT.	–	
			KALMIA LATIFOLIA	MOUNTAIN LAUREL	–	CONT.	–	

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PROJECT

FORESIDE DEVELOPMENT

KEYPLAN

MARK	ISSUE	DATE
1	PERMIT UPDATES	8/16/2023

COORDINATION DRAWING

AUGUST 23, 2023

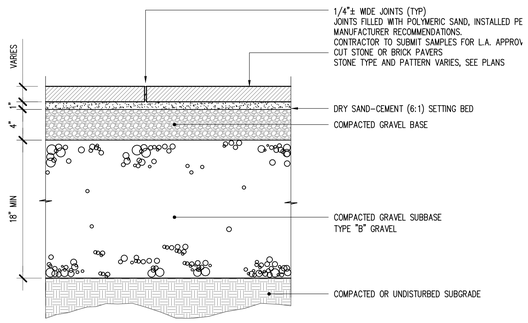
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Drawn	SMG
Checked	JP
Approved	MB

TITLE

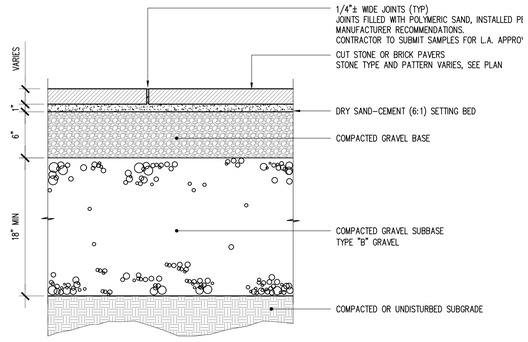
BLOCK 4 - PLANTING PLAN

SHEET NUMBER

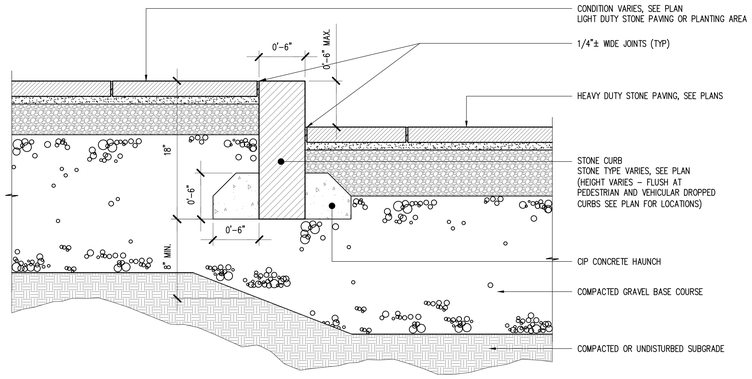
L-2.0



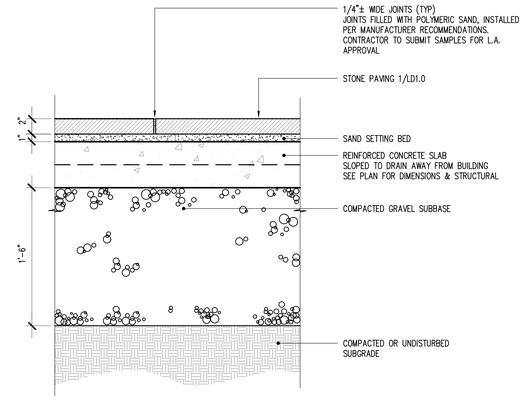
1 LIGHT DUTY STONE PAVING
1 1/2" = 1'-0"



2 HEAVY-DUTY STONE PAVING
1 1/2" = 1'-0"



3 STONE CURB
1 1/2" = 1'-0"



4 BUILDING ENTRY LANDING
1 1/2" = 1'-0"

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PROJECT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

FEBRUARY 03, 2023

Job Number	157087.000
Drawn	TH
Checked	JP
Approved	XXX

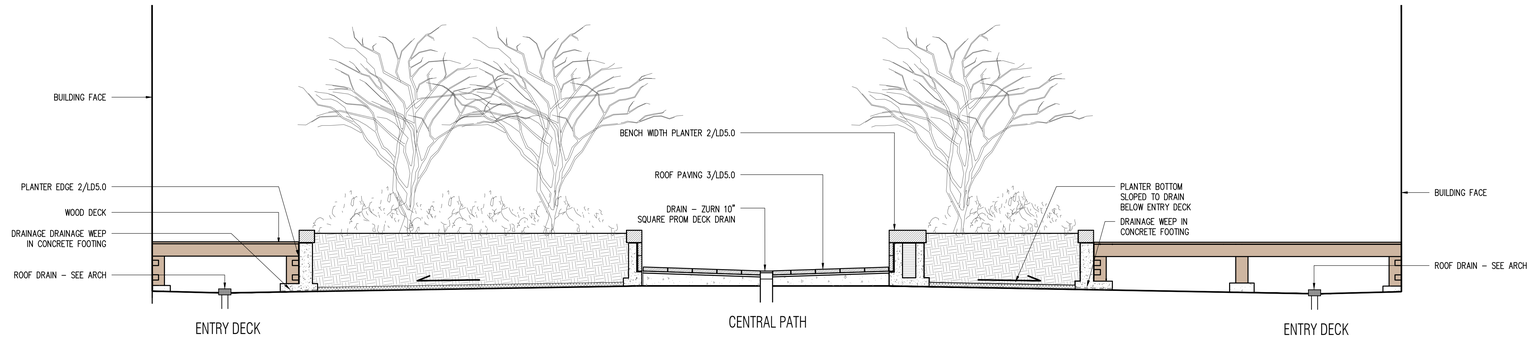
TITLE

SITE DETAILS

SHEET NUMBER

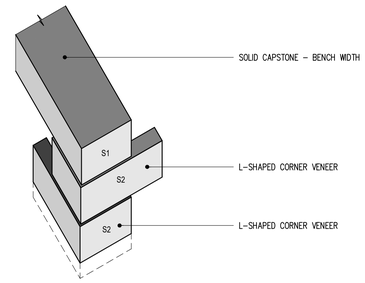
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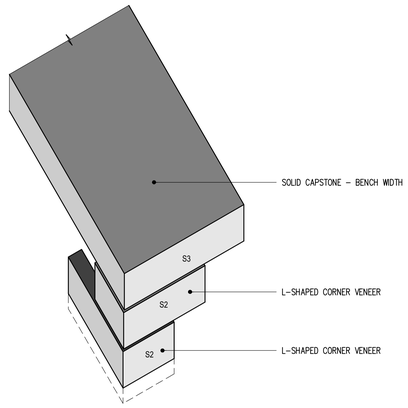


1 COURTYARD SECTION

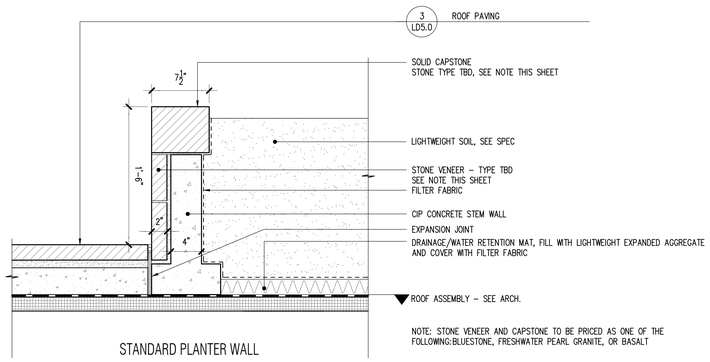
1" = 30'



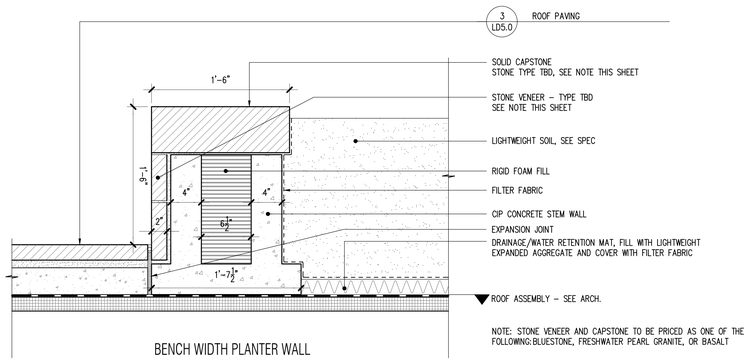
PLANTER CORNER DETAIL



BENCH/PLANTER CORNER DETAIL



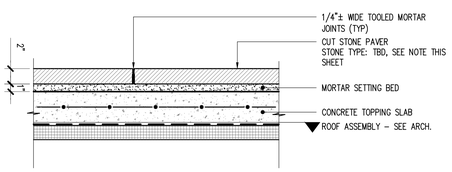
STANDARD PLANTER WALL



BENCH WIDTH PLANTER WALL

2 ROOF TOP PLANTER DETAILS

3/4" = 1'-0"



3 ROOF PAVING DETAIL

1-1/2" = 1'-0"

NOTE:
STONE TYPE FOR COURTYARD PAVING AND PLANTER VENEER OPTIONS FOR PRICING FOR CLIENT REVIEW AND EVALUATION
- BLUESTONE
- FRESHWATER PEARL GRANITE
- BASALT

ALL OPTIONS SAWN AND FLAMED FINISH

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PROJECT

FORESIDE DEVELOPMENT

PFDC - BLOCK 4: HARBOR HILL

PROJECT ADDRESS

254 Commercial Street, Suite 118, Portland, ME 04101

KEYPLAN

MARK	ISSUE	DATE

DESIGN DEVELOPMENT

FEBRUARY 03, 2023

Job Number	157087.000
Drawn	TH
Checked	JP
Approved	XXX

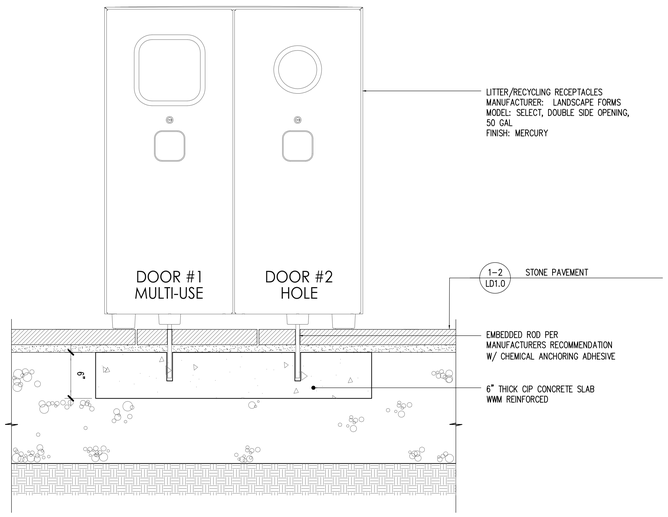
TITLE

COURTYARD DETAILS

SHEET NUMBER

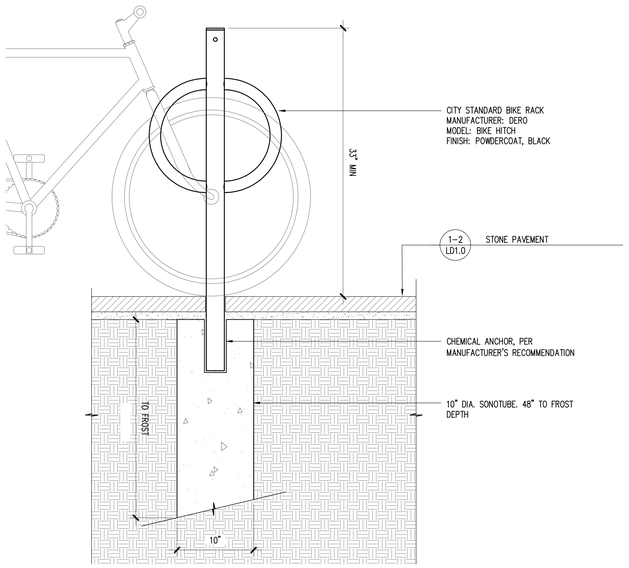
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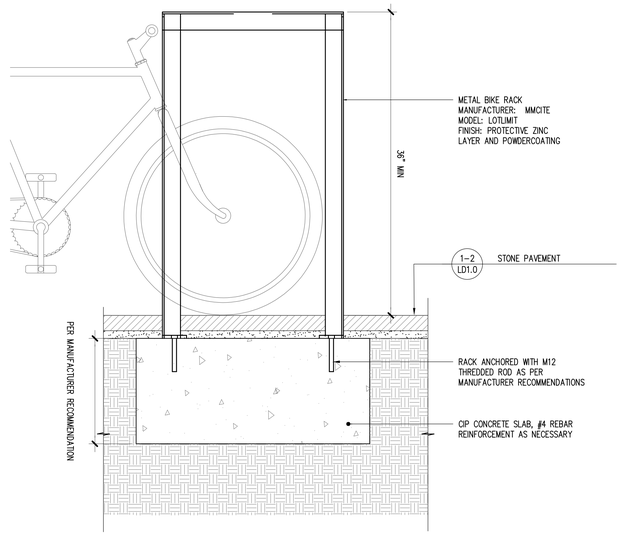
1 LITTER/RECYCLING RECEPTACLE ATTACHMENT

1 1/2" = 1'-0"



2 BIKE RACK A

1 1/2" = 1'-0"



3 BIKE RACK B

1 1/2" = 1'-0"

4 STEEL BOLLARD MOUNTING DETAIL (YG2 & YG5)

1-1/2"=1'-0"

5 LIGHT POLE FOUNDATION

1/2"=1'-0"

6 FGP BENCH

1 1/2" = 1'-0"

7 STONE BOLLARD

1"=1'-0"

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Checked	JP
Approved	XXX

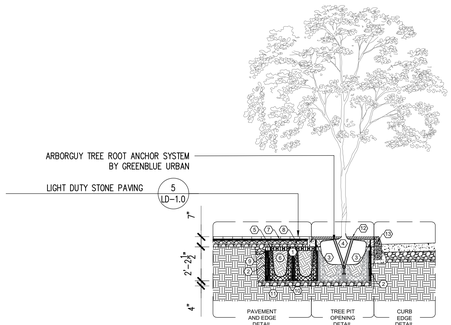
TITLE

SITE FURNISHINGS

SHEET NUMBER

LD-3.0

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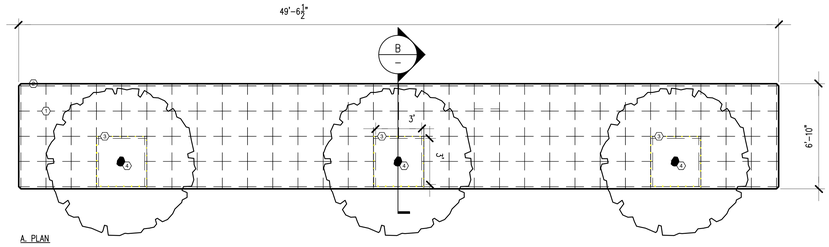


B. SECTION

ARBORSYSTEM URBAN TREE PLANTING SYSTEM
BY BLUEGREEN URBAN

1. ROOTSPACE 600 SERIES SOIL CELL SYSTEM (24" DEPTH)
2. ROOTSTOP 600 ROOT AND MOISTURE
3. REROOT 300 RIBBED ROOT BARRIER (12" DEPTH)
4. TREE/ROOTBALL
5. COMBIGRID GEOCOMPOSITE FABRIC/GRID
6. PLANTING SOIL
7. PAVEMENT
8. AGGREGATE BASE
9. COMPACTED BACKFILL
11. COMPACTED NATIVE SUBGRADE
12. TREE GRATE
13. STONE CURB

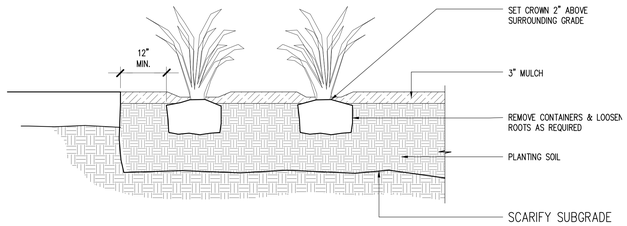
NOTE: IRRIGATION SYSTEM TO BE DESIGNED BY OTHERS FOR LANDSCAPE ARCHITECT REVIEW AND APPROVAL



A. PLAN

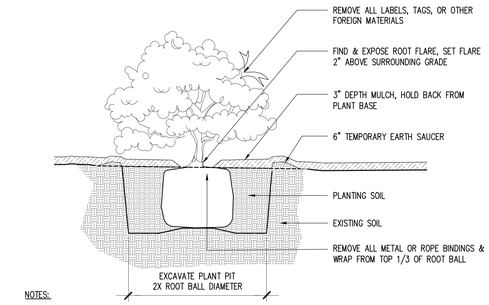
5 GREEN BLUE URBAN TREE PLANTING SYSTEM

1/4" = 1'-0"



4 GROUNDCOVER PLANTING DETAIL

1/2" = 1'-0"

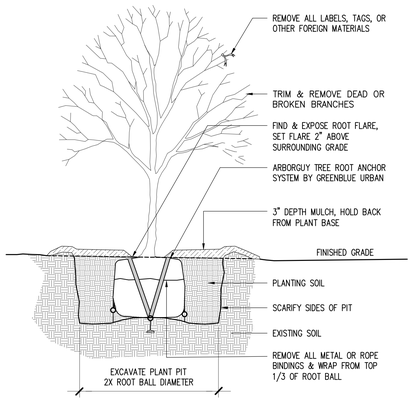


NOTES:

1. SET SHRUB PLUMB.
2. SECURE SHRUB AS MAY BE REQUIRED ACCORDING TO SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

2 SHRUB PLANTING DETAIL

1/2" = 1'-0"

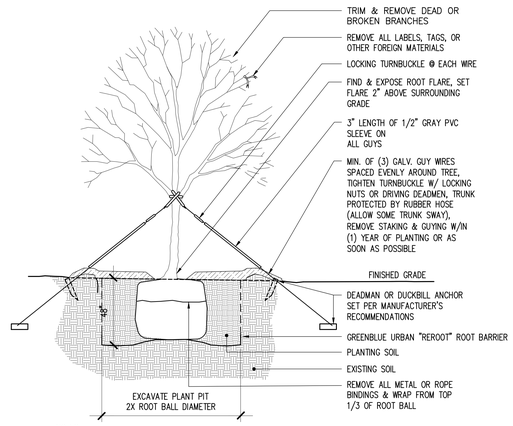


NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

3 TREE PLANTING & ANCHORING DETAIL

1/2" = 1'-0"



NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

1 TREE PLANTING & STAKING DETAIL

1/2" = 1'-0"

Perkins&Will

225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
www.perkinswill.com

CONSULTANTS

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Woodard & Curran
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Portland, ME 04102
t 207.774.2112

STRUCTURAL ENGINEER
Thornton Tomasetti
14 York Street, Suite 201
Portland, ME 04101
t +1 207.245.6062

MEP ENGINEER
Allied Engineering, Inc.
160 Veranda St, Portland,
ME 04103
t +1 207.221.2260

OWNER'S CONSULTANT

LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1080

STAMP

PROJECT

FORESIDE/ DEVELOPMENT

KEYPLAN

MARK	ISSUE	DATE
1	PERMIT UPDATES	8/18/2023

Job Number
Drawn
Checked
Approved

TITLE

PLANTING DETAILS

SHEET NUMBER

LD-4.0



ARCHITECT / LANDSCAPE ARCHITECT

MARVEL

145 HUDSON STREET, FLR.3 NEW YORK, NY 10013

212.616.0420

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PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101

STRUCTURAL ENGINEER / PARKING
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14 YORK ST, STE 201, PORTLAND, ME 04101

MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119

ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103

CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102

LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032

LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018

LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011

SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001

CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018

ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036

ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110

FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY

POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY

TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
1	10.14.2022	SCHEMATIC DESIGN
2	05.12.2023	DESIGN DEVELOPMENT
3	08.18.2023	PERMIT REVISIONS

NOT FOR CONSTRUCTION

BUILDING 3

BUILDING 5

BLOCK 4

THAMES STREET

BLOCK 3

BLOCK 5

BLOCK 6

LEVEL 2

LEVEL 1

SEE SHEETS LG-101, LG-201

SEE SHEETS LG-102, LG-202

MARINA FACILITY

NARROW GAUGE RAIL CORRIDOR

PORTLAND TRAIL

WATERFRONT

MARINA

SCALE: 1"=20'
0 10' 20' 40'
NORTH

PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

LANDSCAPE REFERENCE PLAN

SCALE: 1" = 20'

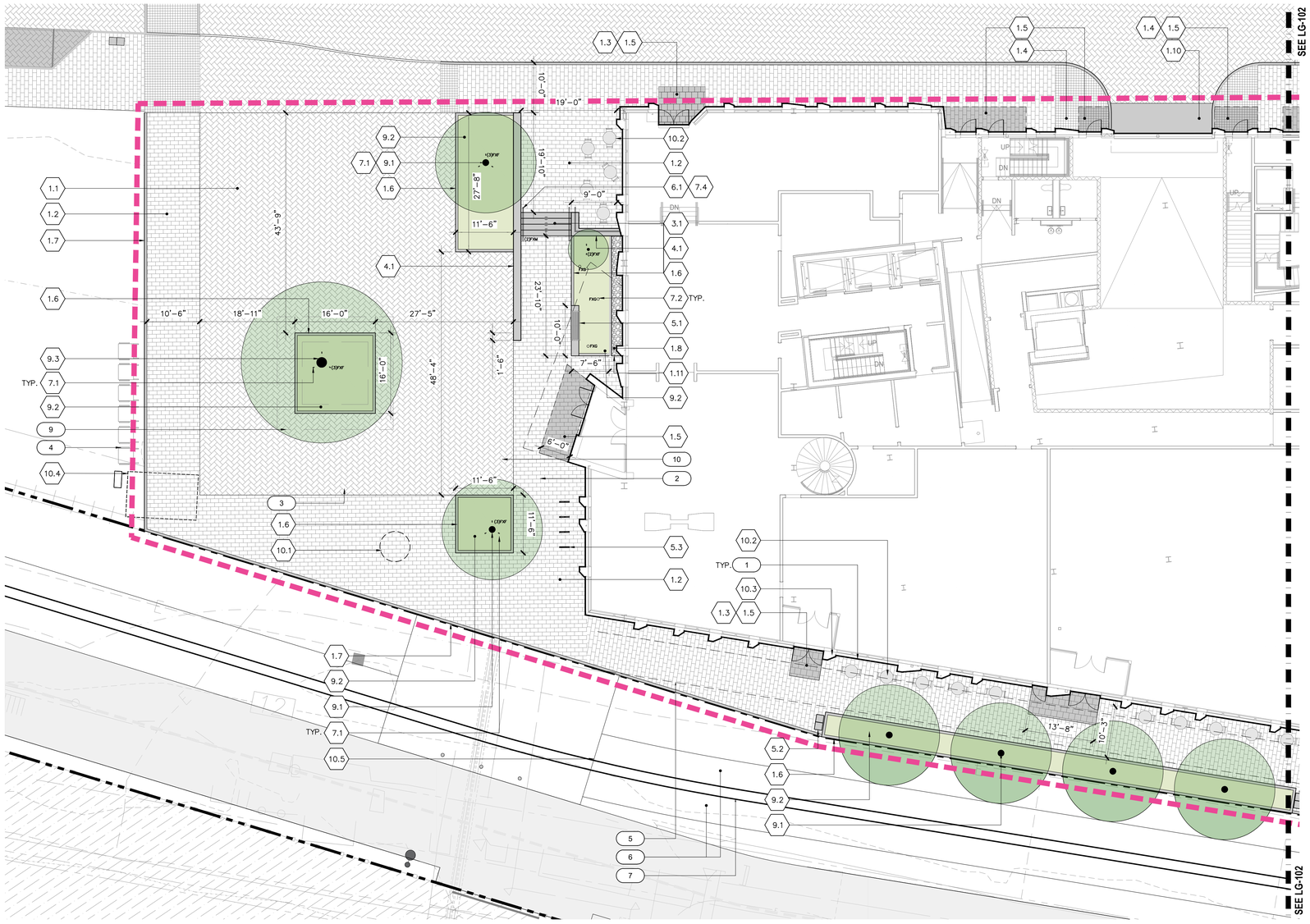
DRAWING #:

LG-000

JOB #:

4/17/2023 8:12:42 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



LEGEND

- PLANTING AREA
- CONCRETE UNIT PAVERS – TYPE 1 HERRINGBONE PATTERN. 120 MM THICK, 200MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 2 RUNNING BOND PATTERN. 120 MM THICK, 200MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 3 RUNNING BOND PATTERN. 120 MM THICK, 400MM X 600MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 4 120 MM THICK, 100MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- CONCRETE SLAB BELOW PAVERS

DETAIL KEYNOTES

			DETAIL / SHEET	RELATED DETAILS	SPEC SECTION
1.0	**PAVEMENTS, RAMPS, CURBS**				
	1.1	CONCRETE UNIT PAVERS TYPE 1: HERRINGBONE PATTERN	2/LGD–100		
	1.2	CONCRETE UNIT PAVERS TYPE 2: RUNNING BOND PATTERN	2/LGD–100		
	1.3	CONCRETE UNIT PAVERS TYPE 3: RUNNING BOND PATTERN	2/LGD–100		
	1.4	CONCRETE UNIT PAVERS TYPE 4	2/LGD–100		
	1.5	CONCRETE SLAB BELOW PAVERS	8/LGD–100		
	1.6	STONE CURB AT PLANTER	4/LGD–100		
	1.7	FLUSH STONE CURB AT PAVING	1/LGD–100		
	1.8	GRAVEL MULCH	1/LGD–200		
	1.9	STONE–CLAD RAMP	6/LGD–200		
	1.10	P.I.P. CONCRETE PAVING	5/LGD–100		
	1.11	METAL EDGING AT GRAVEL MULCH	1/LGD–200		
2.0	**JOINTING**				
	2.1	EXPANSION JOINT	–		
	2.2	CONTROL JOINT	–		
3.0	**STEPS**				
	3.1	STONE VENEER STAIRS TYPE 1	3/LGD–100		
	3.2	STONE VENEER STAIRS TYPE 2	9/LGD–200	3/LGD–100	
4.0	**SITE WALLS/ EMBANKMENTS**				
	4.1	STONE VENEER RETAINING WALL	7/LGD–100		
	4.2	STONE VENEER RETAINING WALL ON STRUCTURE, 3'–6" WIDE	7/LGD–200	7/LGD–100	
5.0	**SITE FURNITURE**				
	5.1	CUSTOM STONE SEATWALL WITH WOOD TOP	6/LGD–300		
	5.2	WASTE RECEPTICAL	1/LGD–300		
	5.3	BIKE RACK	2/LGD–300		
6.0	**RAILINGS, BARRIERS, FENCING**				
	6.1	HANDRAIL AT STAIRS, TYPE 1	6/LGD–100		
	6.2	HANDRAIL AT WALL, TYPE 1	9/LGD–100	6/LGD–100	
	6.3	HANDRAIL TYPE 2	6,8/LGD–200	6/LGD–100	
7.0	**SITE LIGHTING**				
	7.1	STAKE MOUNTED LED TREE UPLIGHT	SEE SCHED.		
	7.2	SURFACE MOUNTED LED GARDEN BOLLARD AREA LIGHT	SEE SCHED.		
	7.3	FULLY RECESSED LED STEP LIGHT	SEE SCHED.		
	7.4	RECESSED LINEAR LED HANDRAIL LIGHT	SEE SCHED.		
8.0	**DRAINAGE**				
	REFER TO CIVIL DRAWINGS				
9.0	**PLANTING AND LANDSCAPE**				
	9.1	TREE	1,4/LGD–400		
	9.2	PLANTING AREA	2,3/LGD–400		
	9.3	TREE PLANTING IN PAVEMENT SUPPORT SYSTEM	9/LGD–400		
10.0	**MISCELLANEOUS FEATURES**				
	10.1	KIOSK	OFCI		
	10.2	CAFE SEATING PROVIDED BY TENANT			
	10.3	ARCHITECTURAL PIER	SEE ARCH		
	10.4	SEWER PUMP STRUCTURE	SEE CIVIL		
	10.5	RAIL CROSSING	SEE CIVIL		

KEYNOTES NOTES

1. FOR PRICING ELEMENTS WITH DETAILS THAT ARE FORTHCOMING, REFER TO SIMILAR DETAILS, PROVIDED IN THE "RELATED DETAILS" COLUMN.

ADD ALTERNATES

#1. ACCEPTABLE PRODUCTS FOR PRICING (CUT AND THERMALLED)
- 1.a. PAVER TYPE 1 PEDESTRIAN: BASALT; DIMENSIONS: 8" X 12" X 2"
- 1.b. PAVER TYPE 2 VEHICULAR: ASHTON GRAY GRANITE BY JC STONE; DIMENSIONS 8" X 12" X 2"
- 1.c. PAVER TYPE 3: BASALT; DIMENSIONS 12" X 18" X 2"
- 1.d. PAVER TYPE 4: BASALT; DIMENSIONS 4" X 4" X 4"
- 1.e. SEE DETAILS X–X/LGD–200

#
2. ACCEPTABLE PRODUCTS FOR PRICING
- 2.a. PAVER TYPES 1,3,4: VIRGINIA MIST, CUT AND THERMAL FINISH TO SAME DIMENSIONS AS ADD ALT 1
- 2.b. PAVER TYPE 2: FULL DEPTH, HEAVY DUTY ASPHALT PAVING
- 2.c. SEE DETAILS X–X/LGD–200

EXTERIOR LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMP	WATT	VOLT	MFR.
FXF	STAKE–MOUNTED LED TREE UPLIGHT	1091LM 3000K LED	13W	PER EE	BK LIGHTING
FXG	SURFACE MOUNTED LED GARDEN BOLLARD AREA LIGHT W 360 DISTRIBUTION	915LM 3000K LED	20W	PER EE	TARGETTI
FXJ	FULLY RECESSED LED STEP LIGHT	269LM 3000K LED	6W	LV/PER EE	SISTEMALUX
FXM	RECESSED LINEAR LED HANDRAIL LIGHT	152LM 3000K LED	27W	LV/PER EE	BK LIGHTING

KEYNOTES

1. PAVING EXTENDS BETWEEN ARCHITECTURAL EMBELLISHMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING OUTLINE.
2. HOTEL VALET STAND TO BE LOCATED WITHIN THIS VICINITY. FINAL LOCATION TO BE DETERMINED BY THE CLIENT. VALET STAND TO BE PROVIDED BY THE HOTEL.
3. MARINA DROP–OFF AREA.
4. MARINA CART STORAGE AREA. FINAL LOCATION TO BE DETERMINED WITH THE DEVELOPMENT OF B3 DESIGN.
5. MAINTENANCE VEHICLE CLEAR ACCESS PATH.
6. MATERIAL IN NARROW GAUGE RAIL BED PER MNGRR.
7. NARROW GAUGE RAILROAD TRACKS.
8. PAVING EXTENDS BETWEEN ARCHITECTURAL EMBELLISHMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING OUTLINE.
9. PAVING SUPPORT SYSTEM EXTENDS APPROXIMATELY 5' BEYOND PLANTER OPENING IN SUBSURFACE STORMWATER SYSTEM. SEE CIVIL DRAWINGS FOR EXTENTS OF SUBSURFACE STORMWATER SYSTEM. INDIVIDUAL PAVING SUPPORT CELLS ARE APPROXIMATELY 19" DEEP AND ARE PROVIDED BY BLUEGREEN URBAN.
10. HOTEL DROP OFF.

NORTH

SCALE: 1"=10'
0 5' 10' 20'

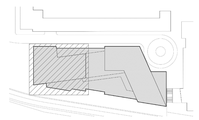


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
39 W 38TH ST, 7TH FL, NEW YORK, NY 10018
LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
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CODE / ACCESSIBILITY CONSULTANT
CCI
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ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
1	10.14.2022	SCHEMATIC DESIGN
2	05.12.2023	DESIGN DEVELOPMENT
3	08.18.2023	PERMIT REVISIONS

NOT FOR CONSTRUCTION



PLOT PLAN

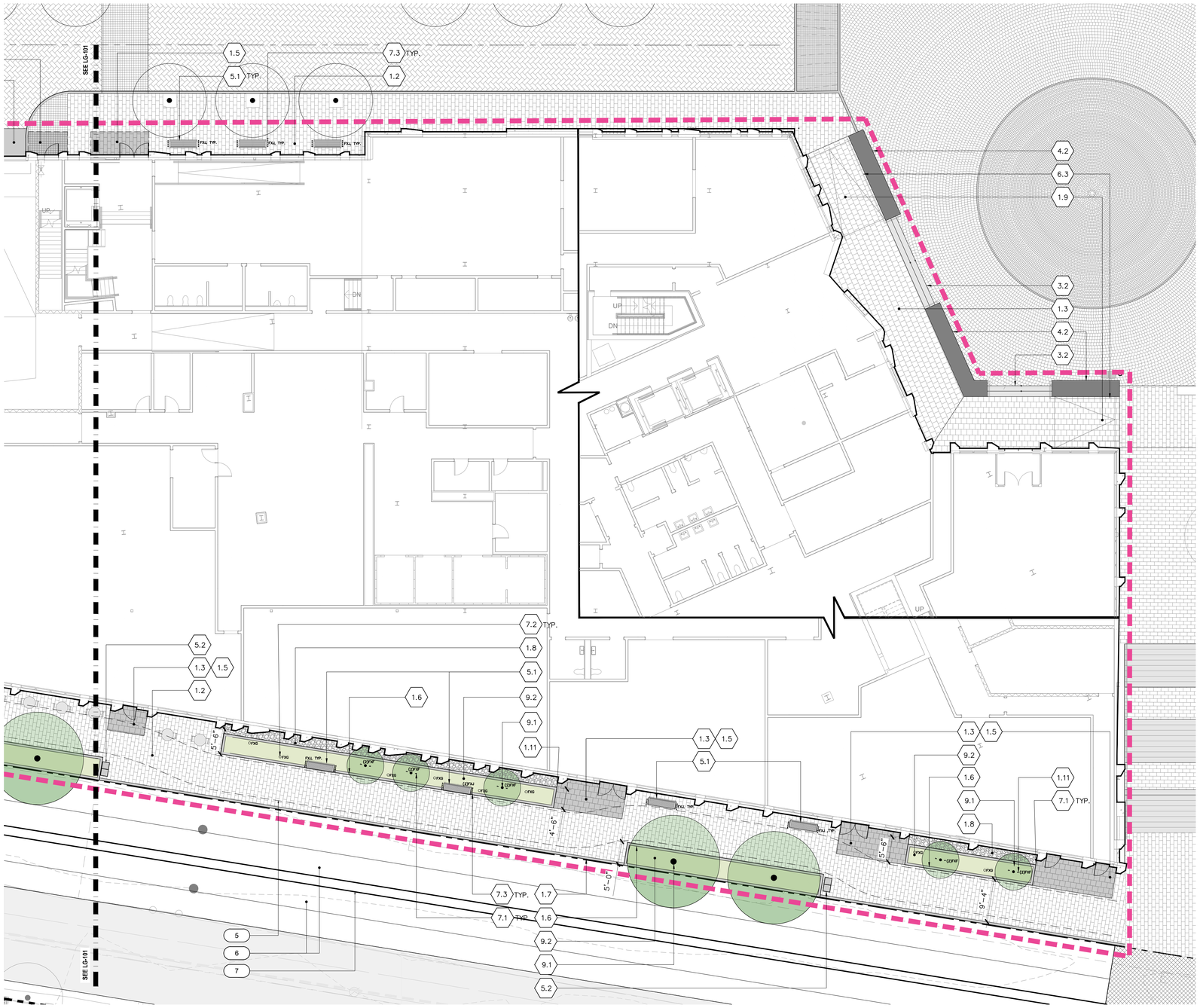
2230
PORTLAND FORESIDE B5
PORTLAND, ME

LAYOUT AND MATERIALS PLAN

SCALE: 1" = 10'

DRAWING #:
LG-101

JOB #:



LEGEND

- PLANTING AREA
- CONCRETE UNIT PAVERS – TYPE 1 HERRINGBONE PATTERN. 120 MM THICK, 200MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 2 RUNNING BOND PATTERN. 120 MM THICK, 200MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 3 RUNNING BOND PATTERN. 120 MM THICK, 400MM X 600MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
- CONCRETE UNIT PAVERS – TYPE 4 120 MM THICK, 100MM X 400MM PORTLAND PLAZA STONE. CUSTOM COLOR TBD.
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- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- CONCRETE SLAB BELOW PAVERS

DETAIL KEYNOTES

			DETAIL / SHEET	RELATED DETAILS	SPEC SECTION
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	1.1	CONCRETE UNIT PAVERS TYPE 1: HERRINGBONE PATTERN	2/LGD–100		
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	1.5	CONCRETE SLAB BELOW PAVERS	8/LGD–100		
	1.6	STONE CURB AT PLANTER	4/LGD–100		
	1.7	FLUSH STONE CURB AT PAVING	1/LGD–100		
	1.8	GRAVEL MULCH	1/LGD–200		
	1.9	STONE–CLAD RAMP	6/LGD–200		
	1.10	P.I.P. CONCRETE PAVING	5/LGD–100		
	1.11	METAL EDGING AT GRAVEL MULCH	1/LGD–200		
2.0	**JOINTING**				
	2.1	EXPANSION JOINT	–		
	2.2	CONTROL JOINT	–		
3.0	**STEPS**				
	3.1	STONE VENEER STAIRS TYPE 1	3/LGD–100		
	3.2	STONE VENEER STAIRS TYPE 2	9/LGD–200	3/LGD–100	
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	5.1	CUSTOM STONE SEATWALL WITH WOOD TOP	6/LGD–300		
	5.2	WASTE RECEPTICAL	1/LGD–300		
	5.3	BIKE RACK	2/LGD–300		
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	6.2	HANDRAIL AT WALL, TYPE 1	9/LGD–100	6/LGD–100	
	6.3	HANDRAIL TYPE 2	6,8/LGD–200	6/LGD–100	
7.0	**SITE LIGHTING**				
	7.1	STAKE MOUNTED LED TREE UPLIGHT	SEE SCHED.		
	7.2	SURFACE MOUNTED LED GARDEN BOLLARD AREA LIGHT	SEE SCHED.		
	7.3	FULLY RECESSED LED STEP LIGHT	SEE SCHED.		
	7.4	RECESSED LINEAR LED HANDRAIL LIGHT	SEE SCHED.		
8.0	**DRAINAGE**				
	REFER TO CIVIL DRAWINGS				
9.0	**PLANTING AND LANDSCAPE**				
	9.1	TREE	1,4/LGD–400		
	9.2	PLANTING AREA	2,3/LGD–400		
	9.3	TREE PLANTING IN PAVEMENT SUPPORT SYSTEM	9/LGD–400		
10.0	**MISCELLANEOUS FEATURES**				
	10.1	KIOSK	OFCI		
	10.2	CAFE SEATING PROVIDED BY TENANT			
	10.3	ARCHITECTURAL PIER	SEE ARCH		
	10.4	SEWER PUMP STRUCTURE	SEE CIVIL		
	10.5	RAIL CROSSING	SEE CIVIL		

KEYNOTES NOTES

1. FOR PRICING ELEMENTS WITH DETAILS THAT ARE FORTHCOMING, REFER TO SIMILAR DETAILS, PROVIDED IN THE "RELATED DETAILS" COLUMN.

EXTERIOR LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LAMP	WATT	VOLT	MFR.
FXF	STAKE–MOUNTED LED TREE UPLIGHT	1091LM 3000K LED	13W	PER EE	BK LIGHTING
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FXM	RECESSED LINEAR LED HANDRAIL LIGHT	152LM 3000K LED	27W	LV/PER EE	BK LIGHTING

ADD ALTERNATES

1. ACCEPTABLE PRODUCTS FOR PRICING (CUT AND THERMALLED)
   - 1.a. PAVER TYPE 1 PEDESTRIAN: BASALT; DIMENSIONS: 8" X 12" X 2"
   - 1.b. PAVER TYPE 2 VEHICULAR: ASHTON GRAY GRANITE BY JC STONE; DIMENSIONS 8" X 12" X 2"
   - 1.c. PAVER TYPE 3: BASALT; DIMENSIONS 12" X 18" X 2"
   - 1.d. PAVER TYPE 4: BASALT; DIMENSIONS 4" X 4" X 4"
   - 1.e. SEE DETAILS X–X/LGD–200

#

2. ACCEPTABLE PRODUCTS FOR PRICING
   - 2.a. PAVER TYPES 1,3,4: VIRGINIA MIST, CUT AND THERMAL FINISH TO SAME DIMENSIONS AS ADD ALT 1
   - 2.b. PAVER TYPE 2: FULL DEPTH, HEAVY DUTY ASPHALT PAVING
   - 2.c. SEE DETAILS X–X/LGD–200

KEYNOTES

1. PAVING EXTENDS BETWEEN ARCHITECTURAL EMBELLISHMENTS, REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING OUTLINE.
2. HOTEL VALET STAND TO BE LOCATED WITHIN THIS VICINITY. FINAL LOCATION TO BE DETERMINED BY THE CLIENT. VALET STAND TO BE PROVIDED BY THE HOTEL.
3. MARINA DROP–OFF AREA.
4. MARINA CART STORAGE AREA. FINAL LOCATION TO BE DETERMINED WITH THE DEVELOPMENT OF B3 DESIGN.
5. MAINTENANCE VEHICLE CLEAR ACCESS PATH.
6. MATERIAL IN NARROW GAUGE RAIL BED PER MNGRR.
7. NARROW GAUGE RAILROAD TRACK.
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9. PAVING SUPPORT SYSTEM EXTENDS APPROXIMATELY 5' BEYOND PLANTER OPENING IN SUBSURFACE STORMWATER SYSTEM. SEE CIVIL DRAWINGS FOR EXTENTS OF SUBSURFACE STORMWATER SYSTEM. INDIVIDUAL PAVING SUPPORT CELLS ARE APPROXIMATELY 19" DEEP AND ARE PROVIDED BY BLUEGREEN URBAN.
10. HOTEL DROP OFF.

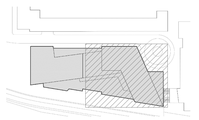


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
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254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
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ENCLOSURE
RWDI
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WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
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LIGHTING CONSULTANT
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100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
1	10.14.2022	SCHEMATIC DESIGN
2	05.12.2023	DESIGN DEVELOPMENT
3	08.18.2023	PERMIT REVISIONS

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

LAYOUT AND MATERIALS PLAN

SCALE: 1" = 10'

DRAWING #:
LG-102

JOB #:

NORTH

SCALE: 1"=10'
0 5' 10'

4/17/2023 8:12:42 PM MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD

PLANTING SCHEDULE - LG 201

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
•	AC	1	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5 CAL.	B+B	PER PLAN	
	BA	6	BETULA ALLEGHENIENSIS	YELLOW BIRCH	33% 5" CAL. / 66% 3" CAL.	B+B	PER PLAN	
	QR	1	QUERCUS RUBRA	RED OAK	8" CAL.	B+B	PER PLAN	
SHRUB & GROUNDCOVER PALETTE TOTAL AREA= 1,145 SF								
			ARCTOSTAPHYLOS UVA-URSI	COMMON BEARBERRY	#1	CONT.	42" O.C.	
			ARONIA MELANOCARPA	CHOKEBERRY	#10	CONT.	42" O.C.	
			ASTER 'WOODS BLUE'	WOOD'S BLUE ASTER	#1	CONT.	12" O.C.	
			ACHILLEA MILLEFOLIUM	YARROW	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#1	CONT.	12" O.C.	
			OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#10	CONT.	42" O.C.	
			MYRICA PENNSYLVANICA	SWEETGALE	#10	CONT.	42" O.C.	
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	#1	CONT.	12" O.C.	

PLANTING NOTES

1. PLANT QUANTITIES HAVE BEEN PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR; HOWEVER, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL QUANTITIES INDICATED ON PLANS.

NORTH

SCALE: 1"=10'
0 5' 10' 20'

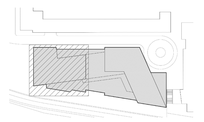


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

PLANTING PLAN

SCALE: 1" = 10'

DRAWING #:
LG-201

JOB #:



LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD

PLANTING SCHEDULE - LG 202

SYMBOL	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
●	CA	5	AMELANCHIER CANADENSIS	SERVICEBERRY	1.5 CAL.	B+B	PER PLAN	
●	BA	2	BETULA ALLEGHENIENSIS	YELLOW BIRCH	3" CAL.	B+B	PER PLAN	
SHRUB & GROUNDCOVER PALETTE TOTAL AREA= 805 SF								
			ARCTOSTAPHYLOS UVA-URSI	COMMON BEARBERRY	#1	CONT.	42" O.C.	
			ARONIA MELANOCARPA	CHOKEBERRY	#10	CONT.	42" O.C.	
			ASTER 'WOODS BLUE'	WOOD'S BLUE ASTER	#1	CONT.	12" O.C.	
			ACHILLEA MILLEFOLIUM	YARROW	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#1	CONT.	12" O.C.	
			OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#10	CONT.	42" O.C.	
			MYRICA PENNSYLVANICA	SWEETGALE	#10	CONT.	42" O.C.	
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	#1	CONT.	12" O.C.	

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0 5' 10' 20'

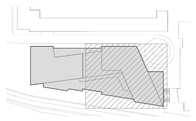


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212.616.0420

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PLOT PLAN

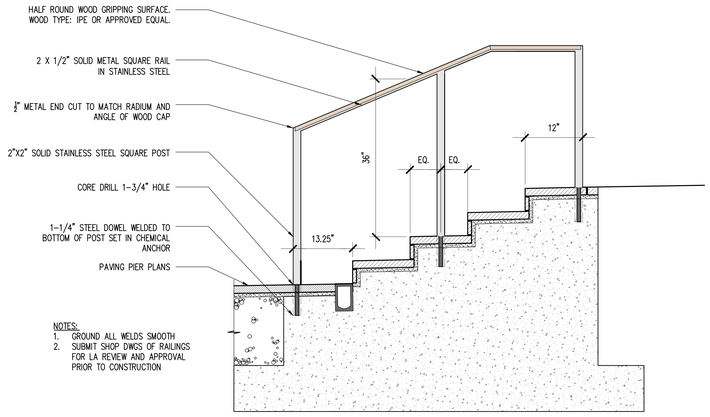
2230
PORTLAND FORESIDE B5
PORTLAND, ME

PLANTING PLAN

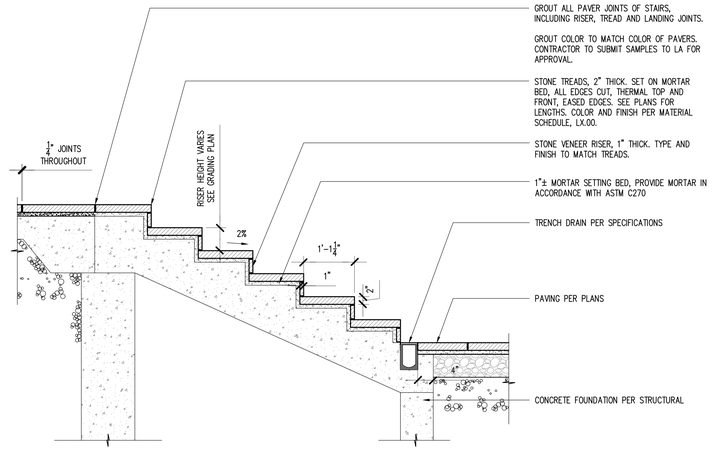
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DRAWING #:
LG-202

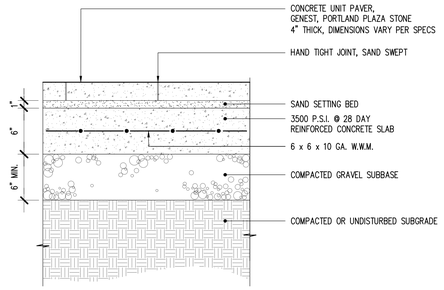
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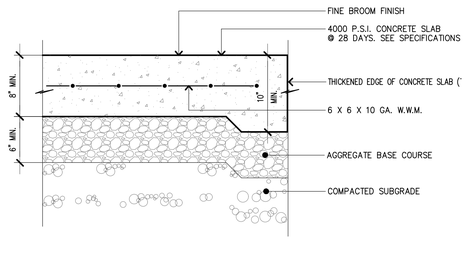
6 HANDRAIL AT STAIRS, TYPE 1
3/4" = 1'-0"



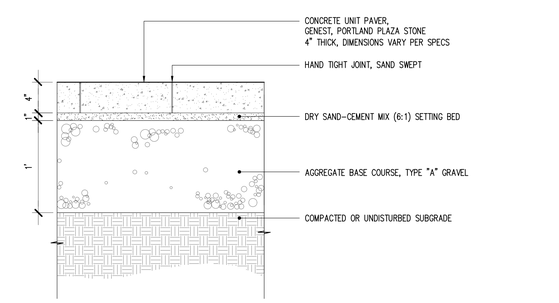
3 STONE VENEER STAIRS, TYPE 1
3/4" = 1'-0"



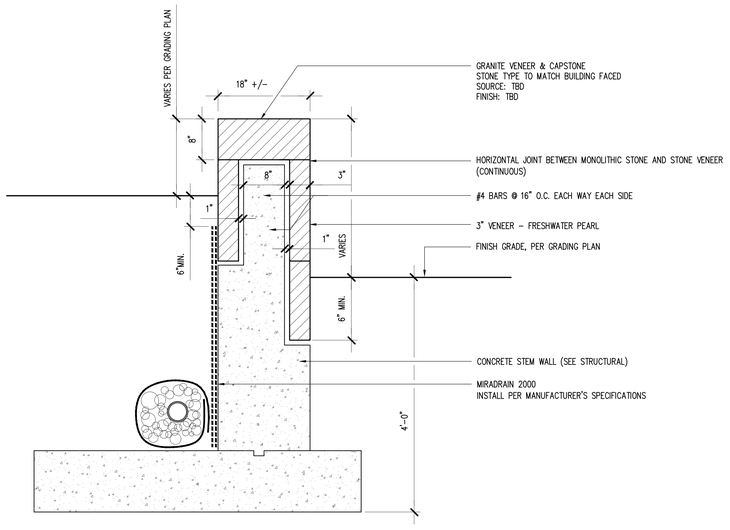
8 CONCRETE SLAB BELOW PAVERS
1 1/2" = 1'-0"



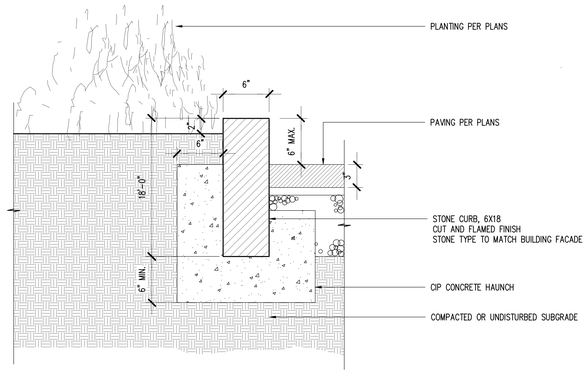
5 P.I.P. CONCRETE PAVING



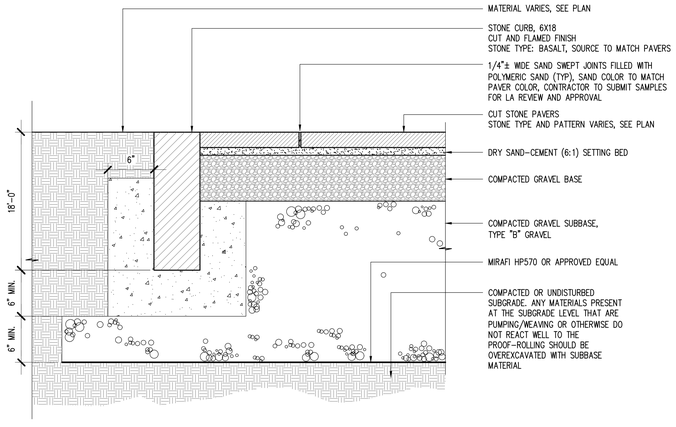
2 CONCRETE UNIT PAVING
1 1/2" = 1'-0"



7 STONE VENEER RETAINING WALL
1" = 1'-0"



4 STONE CURB AT PLANTER
1 1/2" = 1'-0"



1 FLUSH STONE CURB AT PAVING
1 1/2" = 1'-0"



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MARVEL
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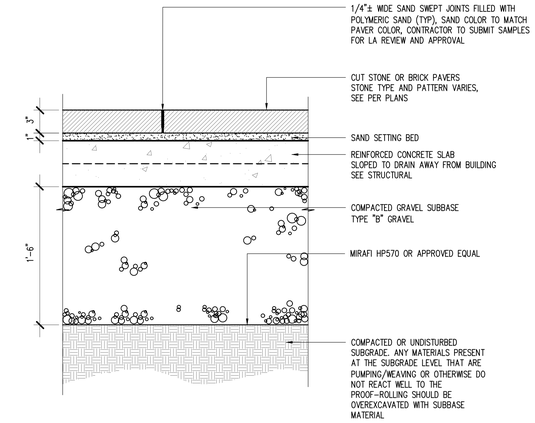
PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

SITE DETAILS

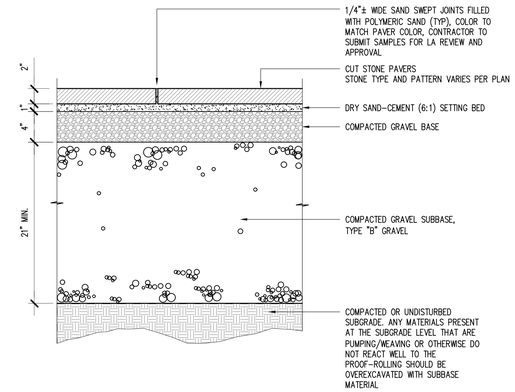
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DRAWING #:
LGD-100

JOB #:

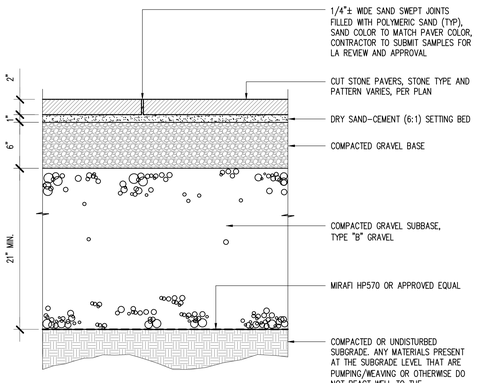


3 CONCRETE SLAB BELOW STONE PAVERS



5 LIGHT DUTY STONE PAVING FOR ADD ALTERNATES 1 &2

1 1/2" = 1'-0"

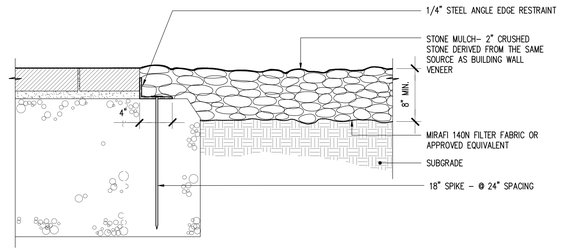


NOTES:

1. SUBGRADE PREPARATION AND PROTECTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY DISTURBANCE THAT OCCURS AS A RESULT OF THEIR MEANS AND METHODS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
2. FINAL EXCAVATIONS MADE TO THE DESIGN SUBGRADE LEVEL SHALL BE COMPLETED USING SMOOTH-BLADED EQUIPMENT TO LIMIT SOIL DISTURBANCE AT SUBGRADE LEVEL. EXCAVATION EQUIPMENT THAT IS OUTFITTED WITH A "TOOTHED" BUCKET OR A "TOOTHED" BUCKET WITH A FLAT PLATE WELDED ACROSS THE "TEETH" ARE NOT PERMITTED.
3. THE USE OF THE BACK OF THE EXCAVATOR BUCKET TO "SMOOTH" OR "SMEAR" SUBGRADE SURFACES IS NOT PERMITTED
4. PREVENT WATER FROM ACCUMULATING ON SURFACES TO REDUCE THE POSSIBILITY OF SOIL DISTURBANCE. SURFACES THAT BECOME DISTURBED DUE TO WATER INFILTRATION SHOULD BE EXCAVATED, STABILIZED AND/OR REPLACED.
5. THE CONCTRACTOR SHALL, TO THE EXTEND POSSIBLE, LIMIT EQUIPMENT AND CONSTRUCTION WORKER TRAFFIC ON THE EXPOSED SUBGRADE SURFACES.
6. GRANULAR SUBGRADE SURFACES SHALL BE PROOFROLLED WITH A STATIC OR VIBRATORY SMOOTH-DRUM ROLLER UNTIL FIRM PRIOR TO FILL PLACEMENT IF THE SOIL APPEARS DRY AND NO "FREE" WATER IS OBSERVED. TO MINIMIZE DISTURBANCE THE POTENTIAL FOR DISTURBANCE, MARINE SILT/CLAY AND GRANULAR SOILS WITH "FREE" WATER EXPOSED AT SUBGRADE LEVEL SHOULD NOT BE PROOFROLLED. AFTER PROOF-ROLLING, IT MAY BE NECESSARY TO REMOVE WEAK, DISTURBED OR OTHERWISE UNACCEPTABLE SOILS AS DESCRIBED ABOVE. IF OVER-EXCAVATION AND REPLACEMENT BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT IS PLACED 12-IN. THICK (MAXIMUM) LOOSE LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.
7. IF ENCOUNTERED AT THE SUBGRADE LEVEL, THE CONTRACTOR SHALL REMOVE DEBRIS, TOPSOIL, ORGANIC SOIL OR OTHER UNSUITABLE MATERIAL PRESENT. IF OVER-EXCAVATION BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE EXCAVATED MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT SHALL BE PLACED IN 12-INCH THICK (MAXIMUM) LOOS LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.

4 HEAVY-DUTY STONE PAVING FOR ADD ALTERNATES 1&2

1 1/2" = 1'-0"



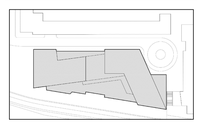
1 GRAVEL MULCH

ARCHITECT / LANDSCAPE ARCHITECT
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PLOT PLAN

2230

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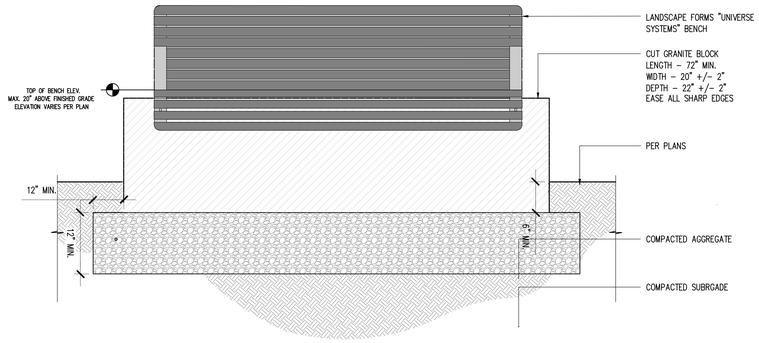
SITE DETAILS

SCALE: AS NOTED

DRAWING #:
LGD-200

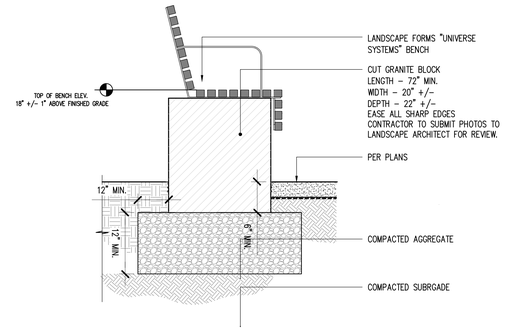
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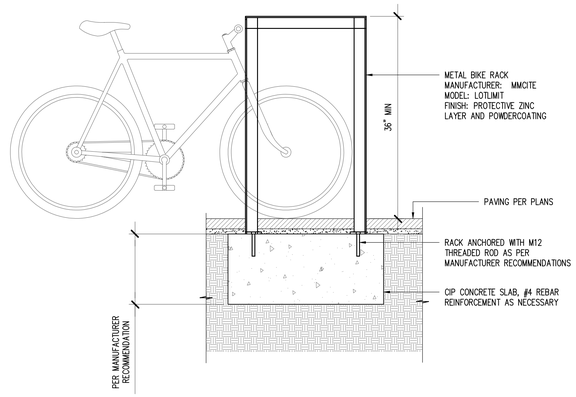
4/17/2023 8:12:42 PM MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



6 CUSTOM STONE SEATWALL WITH WOOD TOP

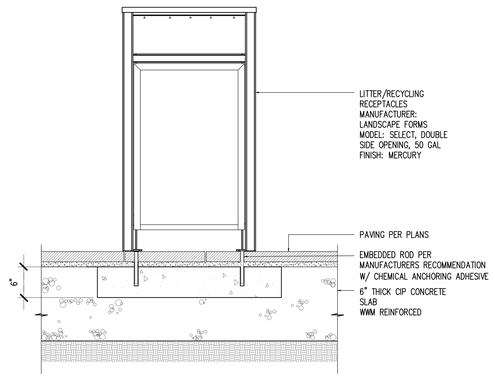
1" = 1'–0"





2 BIKE RACK

1" = 1'–0"



1 WASTE RECEPTACLE

1" = 1' – 0"

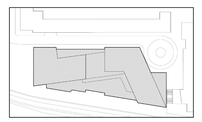


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212.616.0420

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STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
1608 WALNUT ST, STE 1603, PHILA., PA 19103
CIVIL ENGINEER
WOODARD & CURRAN
41 HUTCHINS DR, PORTLAND, ME 04102
LANDSCAPE ARCHITECT (STREETSCAPE)
MBLA
457 US RTE 1, STE 2, FREEPORT, ME 04032
LEAD INTERIOR DESIGNER
WORKSHOP/APD
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LIGHTING CONSULTANT
FISHER MARANTZ STONE
22 W 19TH ST, FL 6, NEW YORK, NY 10011
SUSTAINABILITY
ATELIER TEN
104 W 29TH ST, 8TH FL, NEW YORK, NY 10001
CODE / ACCESSIBILITY CONSULTANT
CCI
215 W 40TH ST, FL 10, NEW YORK, NY 10018
ACOUSTICAL CONSULTANT
LONGMAN LINDSEY
200 W41ST ST, STE1100, NEW YORK, NY 10036
ELEVATOR CONSULTANT
VDA
100 SUMMER ST, STE 1600, BOSTON, MA 02110
FOOD SERVICE
ROMANO GATLAND
1 HUNTINGTON QUAD #2C03, MELVILLE, NY
POOL
LOTHROP / AQUATECTONIC
333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
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2	05.12.2023	DESIGN DEVELOPMENT

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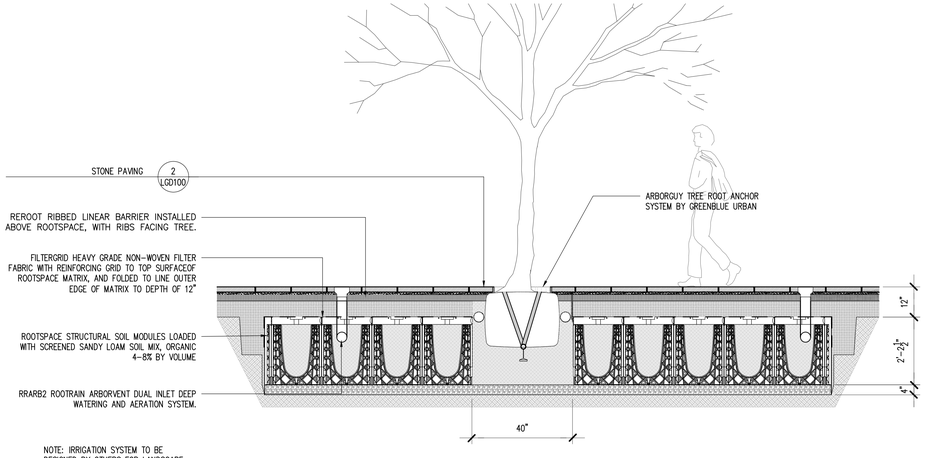
PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

SITE FURNISHING DETAILS

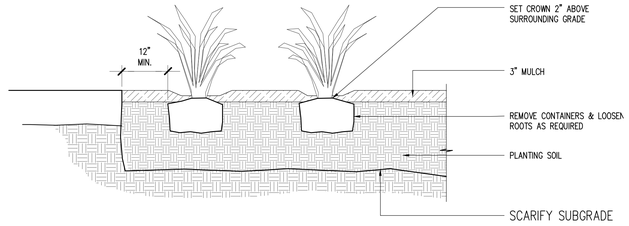
SCALE: AS NOTED

DRAWING #:
LGD-300
of
JOB #:



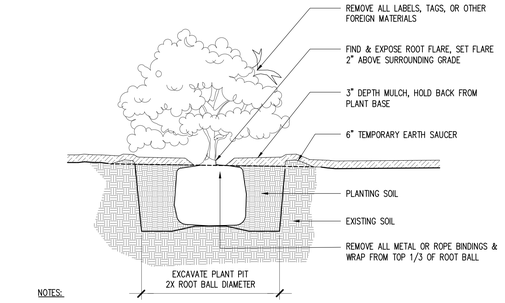
9 TREE PLANTING IN PAVEMENT SUPPORT SYSTEM

1/2" = 1'-0"



3 GROUNDCOVER PLANTING DETAIL

1/2" = 1'-0"

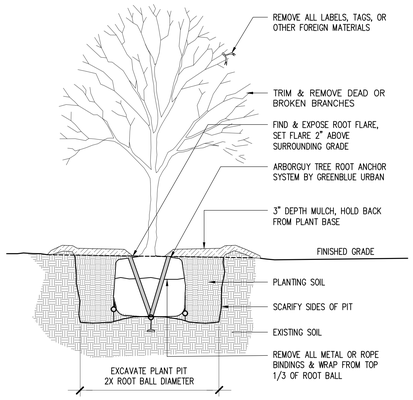


NOTES:

1. SET SHRUB PLUMB.
2. SECURE SHRUB AS MAY BE REQUIRED ACCORDING TO SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

2 SHRUB PLANTING DETAIL

1/2" = 1'-0"

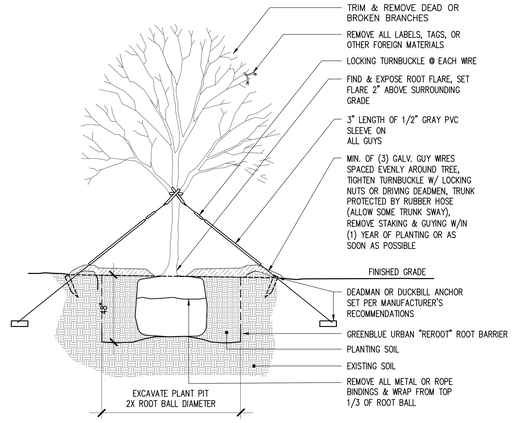


NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

4 TREE PLANTING & ANCHORING DETAIL

1/2" = 1'-0"



NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.

1 TREE PLANTING & STAKING DETAIL

1/2" = 1'-0"

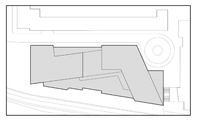


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REV	DATE	DESCRIPTION
1	10.14.2022	SCHEMATIC DESIGN
2	05.12.2023	DESIGN DEVELOPMENT

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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

PLANTING DETAILS

SCALE: AS NOTED

DRAWING #:
LGD-400

JOB #:



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FORESIDE/

THE CHANNEL MARK°

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2.210338.0

PDFC – BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
08/23/23
PERMIT UPDATES

LANDSCAPE REFERENCE PLAN

L0.0

LEVEL 1

LEVEL 2

LEVEL 2

LEVEL 1

SEE SHEET L1.2

3 LD3.0 BICYCLE RACKS, TYP.

2 LD3.0 BENCH – TYP.

2 LD2.0 HEAVY DUTY STONE PAVING

3 LD1.0 CONCRETE SLAB UNDER PAVING AT ALL DOORWAYS

1 LD3.0 WASTE RECEPTACLE, TYP.

STONE CURB AT PLANTER

CIP RETAINING WALL WITH STONE VENEER, SEE STRUCTURAL

FILTERRA BIOFILTRATION SYSTEM, SEE CIVIL

RIPRAP AT TOE OF SLOPE, SEE CIVIL

LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- HEAVY DUTY STONE PAVING RUNNING BOND PATTERN
- LIGHT–DUTY STONE PAVING RUNNING BOND PATTERN
- CONCRETE SLAB BELOW PAVERS
- PLANTING AREA
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- STONE BOLLARD
- SURFACE–MOUNTED BOLLARD
- BIKE RACK
- LIGHT POLE

GENERAL NOTES:
1. –

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
05/17/23
PERMITTING

LAYOUT AND MATERIALS PLAN – LEVEL 1

L1.1

TRANSORMER

1 LD3.0 WASTE RECEPTACLE

7 LD2.0 HEAVY DUTY STONE PAVERS ON STRUCTURE

7 LD2.0 HEAVY DUTY STONE PAVERS ON STRUCTURE

PLAZA LIGHT FIXTURE POLE

2 LD2.0 CUSTOM BENCH

PLAZA LIGHT FIXTURE POLE

PRE-FABRICATED PLANTER

PLAZA LIGHT FIXTURE POLE

1 LD3.0 WASTE RECEPTACLE

STONE CLAD PLANTER WALL

PRIVACY SCREEN

PRIVACY SCREEN

STONE-CLAD STAIRS

WOOD-CLAD BENCHES

SEE SHEET L1.1

LEVEL 2

LEVEL 2

UP

DN

LEGEND

- LIMIT OF WORK
- PROPERTY LINE
- MATCHLINE
- OVERHEAD
- PROPOSED TREE
- HEAVY DUTY STONE PAVING RUNNING BOND PATTERN
- HEAVY-DUTY STONE PAVING STONE SETTS
- LIGHT-DUTY STONE PAVING RUNNING BOND PATTERN
- CONCRETE SLAB BELOW PAVERS
- PLANTING AREA
- CUSTOM STONE BENCH WITH WOOD TOP
- WASTE RECEPTICAL
- LIGHT POLE
- BIKE RACK

GENERAL NOTES:
1. –

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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REV 1 LIGHTING UPDATE 01/20/23

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05/17/23
PERMITTING

LAYOUT AND MATERIALS PLAN – PODIUM

L1.2



LEGEND

- PROPERTY LINE
- LIMIT OF WORK
- OVERHEAD
- PROPOSED TREE
- BOARD–FORMED CONCRETE WALL
- WOOD–SLAT PRIVACY SCREEN
- PLANTING AREA,SEE L2.0, L2.3
- PEDESTAL PAVERS ON STRUCTURE

GENERAL NOTES:

1. ALL PREFABRICATED METAL PLANTER UNITS ARE TO BE TOUNERSOL SITEWORKS WILSHIRE PLANTERS IN POWDER–COATED STEEL, OR APPROVED EQUAL.
2. FOR POOL TERRACE LAYOUT AND HARDSCAPE MATERIALS SELECTIONS, SEE ARCHITECTURAL DRAWINGS. FOR PLANTING AT POOL TERRACE, SEE L2.3.
3. ALL PLANTER WALLS TO BE 4" THICK BOARDFORM CONCRETE. ALL PRIVACY WALLS TO BE 8" THICK BOARDFORM CONCRETE.
4. WATER FEATURES ARE TO BE CIRCULATING SYSTEMS AND INCLUDE CIP CONCRETE BOARDFORM BASES WITH CUSTOM METAL INSERT, A PUMP.AND RESERVOIR.
5. FOR CONSERVATORY LAYOUT AND SELECTION,, SEE ARCHITECTURAL DRAWINGS.

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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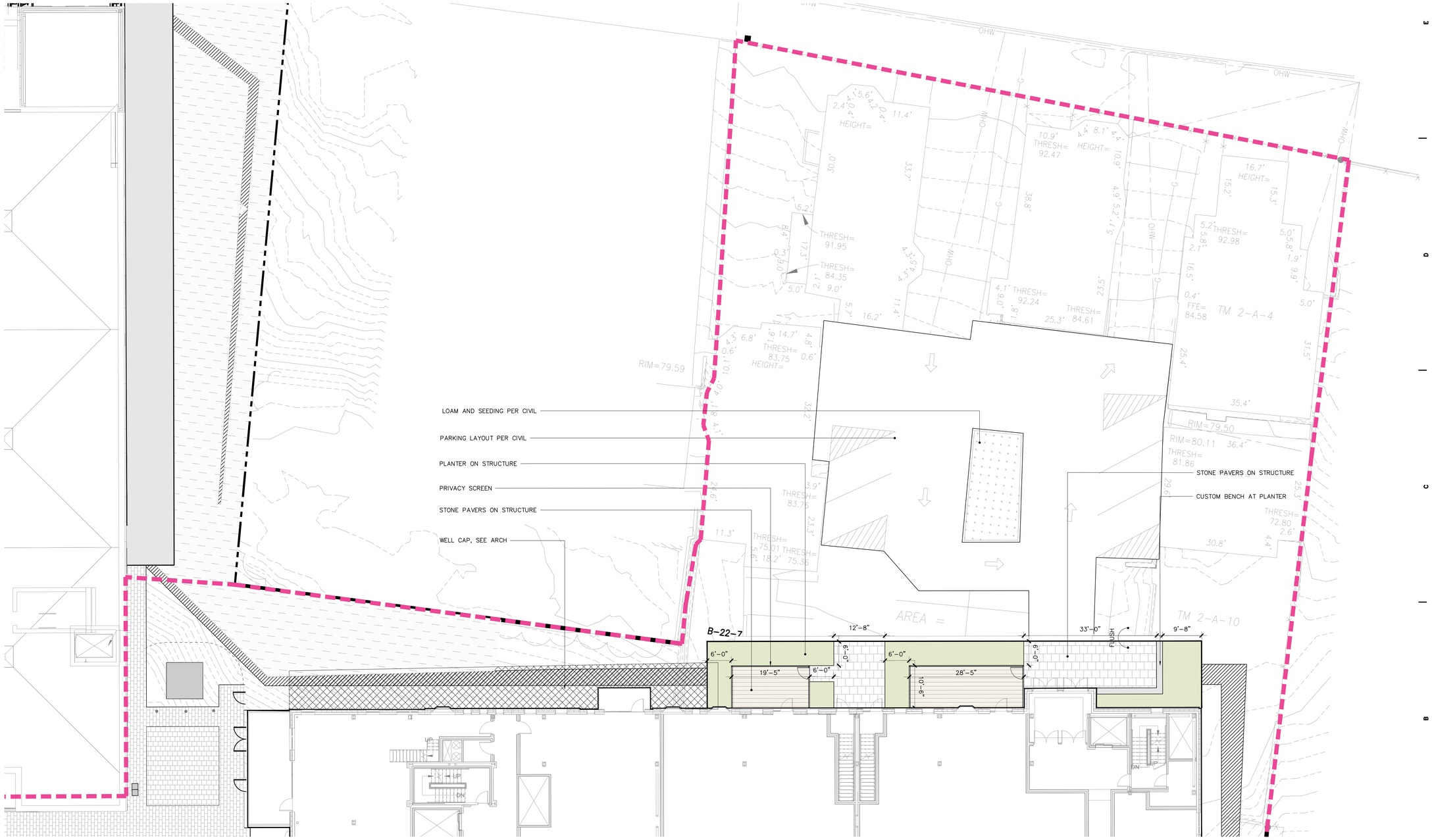
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58 FORE ST
PORTLAND, ME 04101

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05/17/23
PERMITTING

LAYOUT AND MATERIALS PLAN – LEVEL 2 COURTYARDS

L1.3



LEGEND

- LIGHT DUTY STONE PAVERS ON STRUCTURE
- PEDESTAL PAVERS ON STRUCTURE
- PLANTING AREA
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=10'
0 5' 10' 20'
NORTH

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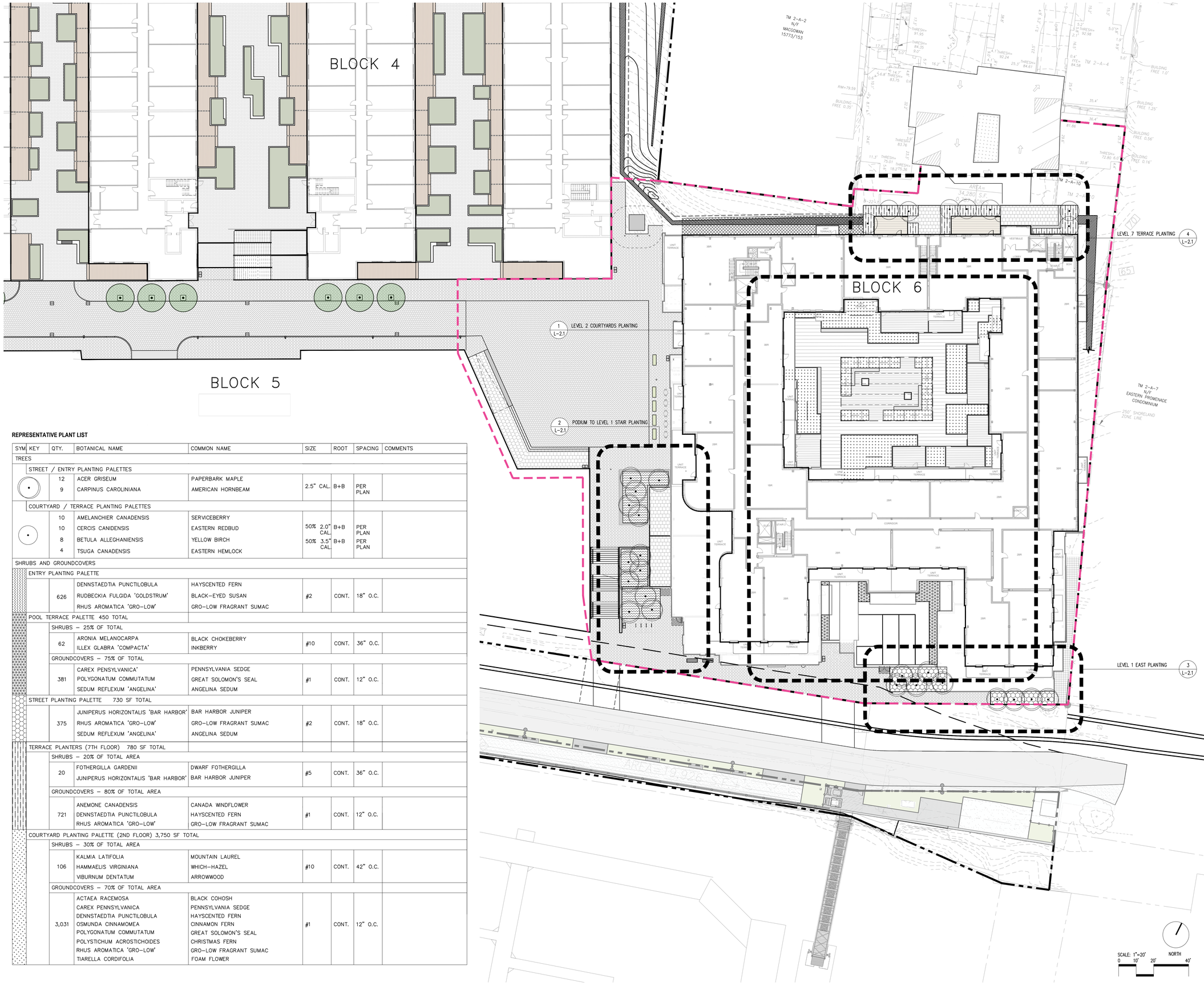
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08/23/23
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LAYOUT AND MATERIALS PLAN – LEVEL 7 TERRRACE

L1.4



REPRESENTATIVE PLANT LIST

SYM	KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
TREES								
		STREET / ENTRY PLANTING PALETTES						
		12	ACER GRISEUM	PAPERBARK MAPLE	2.5" CAL.	B+B	PER PLAN	
		9	CARPINUS CAROLINIANA	AMERICAN HORNBEAM				
		COURTYARD / TERRACE PLANTING PALETTES						
		10	AMELANCHIER CANADENSIS	SERVICEBERRY	50% 2.0" CAL.	B+B	PER PLAN	
		10	CERCIS CANIDENSIS	EASTERN REDBUD				
		8	BETULA ALLEGHANIENSIS	YELLOW BIRCH	50% 3.5" CAL.	B+B	PER PLAN	
		4	TSUGA CANADENSIS	EASTERN HEMLOCK				
SHRUBS AND GROUNDCOVERS								
		ENTRY PLANTING PALETTE						
		626	DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	#2	CONT.	18" O.C.	
			RUDBECKIA FULGIDA 'GOLDSTRUM'	BLACK-EYED SUSAN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
		POOL TERRACE PALETTE 450 TOTAL						
			SHRUBS - 25% OF TOTAL					
		62	ARONIA MELANOCARPA	BLACK CHOKEBERRY	#10	CONT.	36" O.C.	
			ILLEX GLABRA 'COMPACTA'	INKBERRY				
			GROUNDCOVERS - 75% OF TOTAL					
		381	CAREX PENSYLVANICA'	PENNSYLVANIA SEDGE	#1	CONT.	12" O.C.	
			POLYGONATUM COMMUTATUM	GREAT SOLOMON'S SEAL				
			SEDUM REFLEXUM 'ANGELINA'	ANGELINA SEDUM				
		STREET PLANTING PALETTE 730 SF TOTAL						
		375	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#2	CONT.	18" O.C.	
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
			SEDUM REFLEXUM 'ANGELINA'	ANGELINA SEDUM				
		TERRACE PLANTERS (7TH FLOOR) 780 SF TOTAL						
			SHRUBS - 20% OF TOTAL AREA					
		20	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	#5	CONT.	36" O.C.	
			JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER				
			GROUNDCOVERS - 80% OF TOTAL AREA					
		721	ANEMONE CANADENSIS	CANADA WINDFLOWER	#1	CONT.	12" O.C.	
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
		COURTYARD PLANTING PALETTE (2ND FLOOR) 3,750 SF TOTAL						
			SHRUBS - 30% OF TOTAL AREA					
		106	KALMIA LATIFOLIA	MOUNTAIN LAUREL	#10	CONT.	42" O.C.	
			HAMMAELIS VIRGINIANA	WHICH-HAZEL				
			VIBURNUM DENTATUM	ARROWWOOD				
			GROUNDCOVERS - 70% OF TOTAL AREA					
		3,031	ACTAEA RACEMOSA	BLACK COHOSH	#1	CONT.	12" O.C.	
			CAREX PENNSYLVANICA	PENNSYLVANIA SEDGE				
			DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN				
			OSMUNDA CINNAMOMEA	CINNAMON FERN				
			POLYGONATUM COMMUTATUM	GREAT SOLOMON'S SEAL				
			POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN				
			RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC				
			TIARELLA CORDIFOLIA	FOAM FLOWER				

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FORESIDE/

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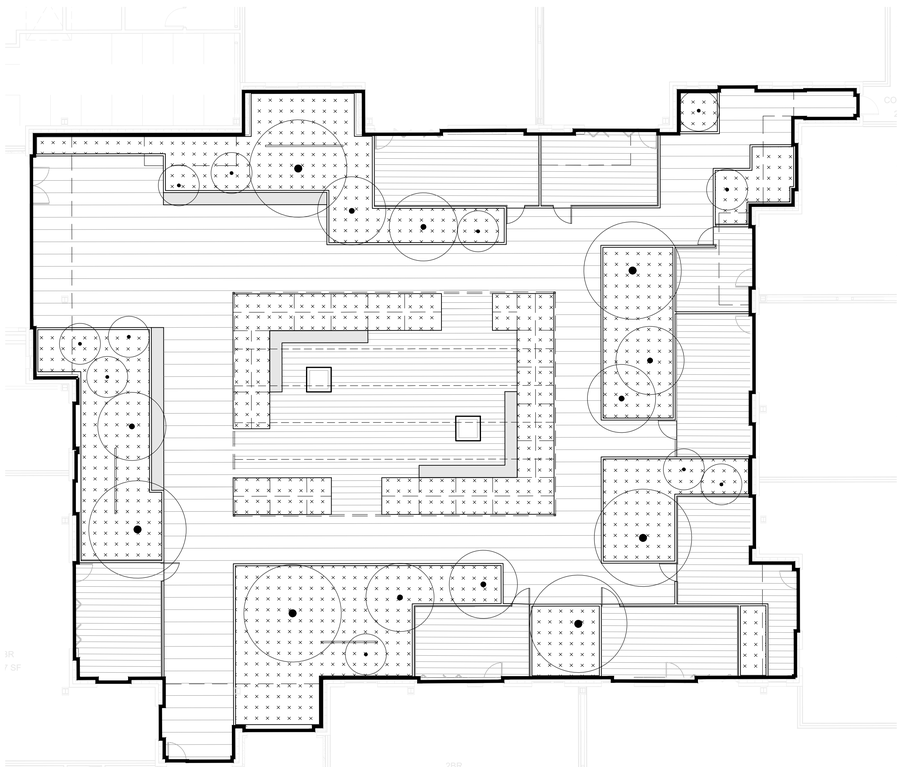
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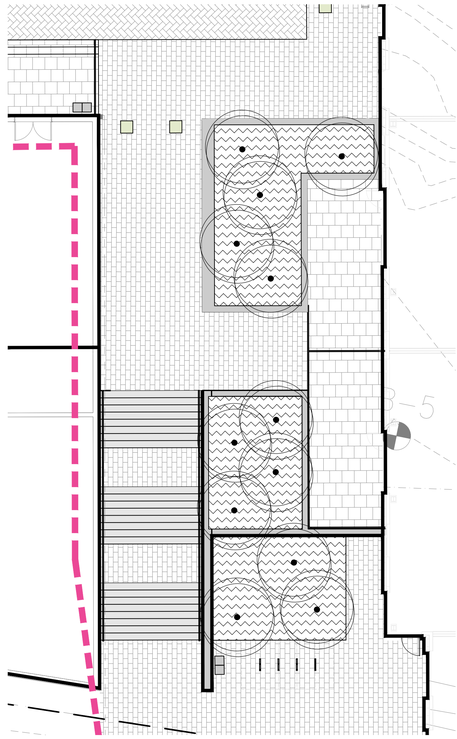
ISSUE
11/18/22
< DESIGN DEVELOPMENT

PLANTING REFERENCE PLAN

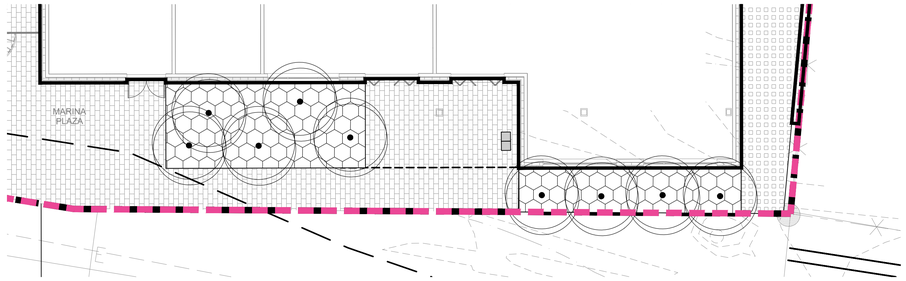
L2.0



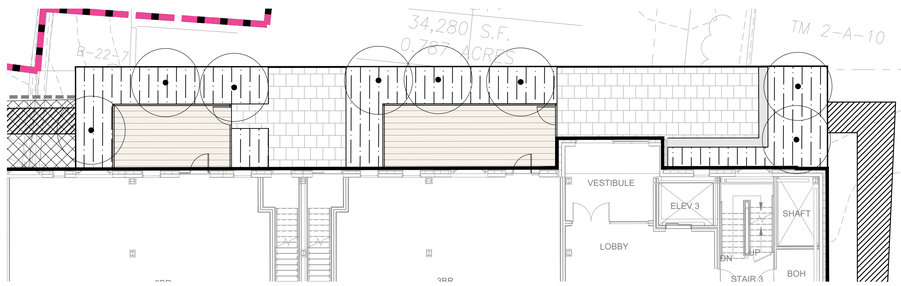
1 LEVEL 2 COURTYARDS PLANTING
1"=10'



2 PODIUM TO LEVEL 1 STAIR PLANTING
1"=10'



3 LEVEL 1 EAST PLANTING
1"=10'



4 LEVEL 7 TERRACE PLANTING
1"=10'

LEGEND

- ENTRY PLANTING PALETTE
- POOL TERRACE PALETTE
- STREET PLANTING PALETTE
- TERRACE PLANTERS
- COURTYARD PLANTING PALETTE
- PROPOSED TREE
- LIMIT OF WORK
- PROPERTY LINE

SCALE: 1"=10' 0 5' 10' 20' NORTH

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FORESIDE/

THE CHANNEL MARK°

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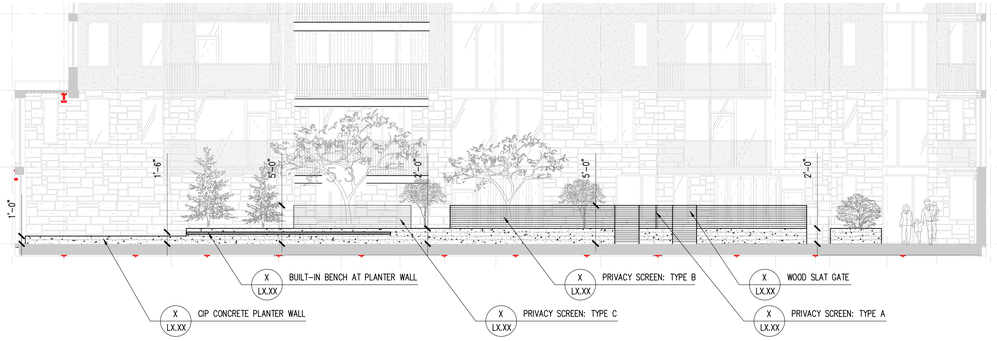
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PORTLAND, ME 04101

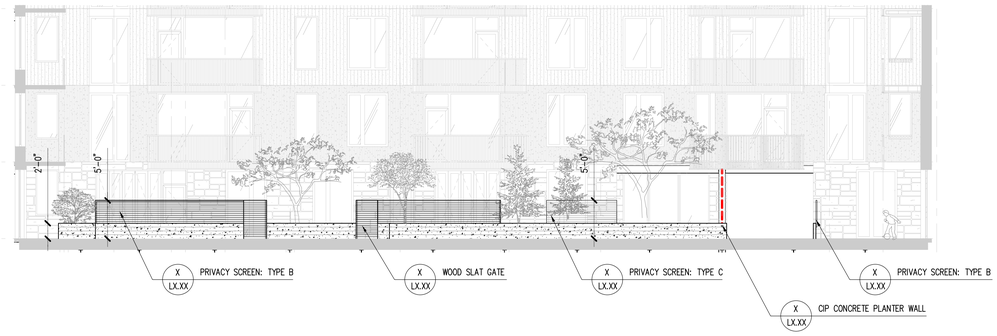
ISSUE
11/18/22
< DESIGN DEVELOPMENT

PLANTING DETAIL PLANS

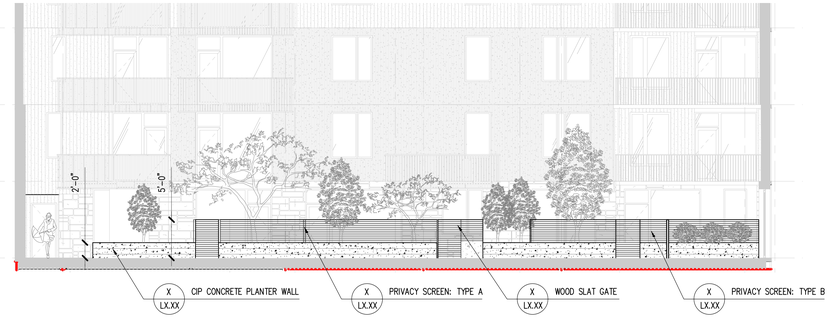
L2.1



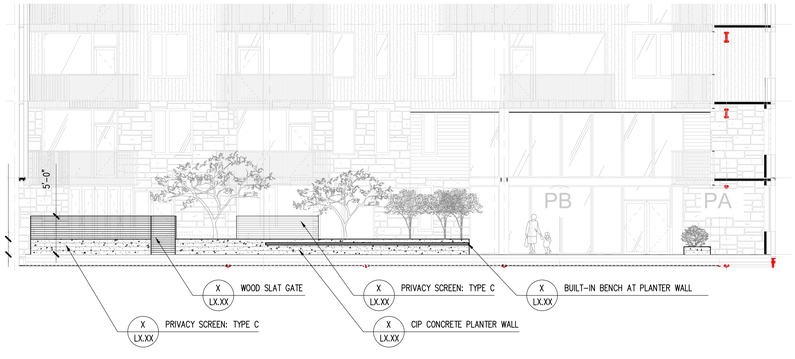
1 COURTYARD LANDSCAPE ELEVATION - LOOKING NORTH
1/8" = 1'-0"



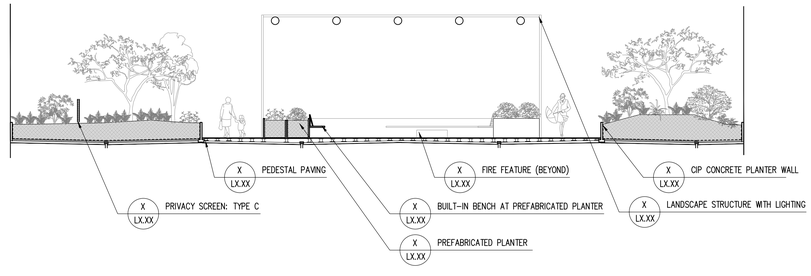
2 COURTYARD LANDSCAPE ELVATION - LOOKING SOUTH
1/8" = 1'-0"



3 COURTYARD LANDSCAPE ELEVATION - LOOKING EAST
1/8" = 1'-0"



4 COURTYARD LANDSCAPE ELEVATION - LOOKING WEST
1/8" = 1'-0"



5 CONCEPTUAL COURTYARD CROSS SECTION-ELEVATION
1/8" = 1'-0"

0 4' 8' 16'

Baskervill

FORESIDE7

THE CHANNEL MARK

BASKERVILL P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2.210338.0

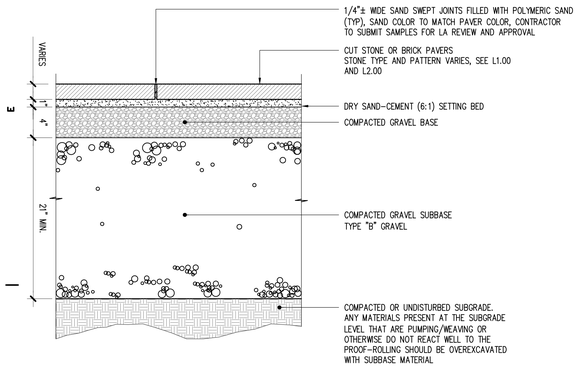
PDFC – BLOCK 6:
THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

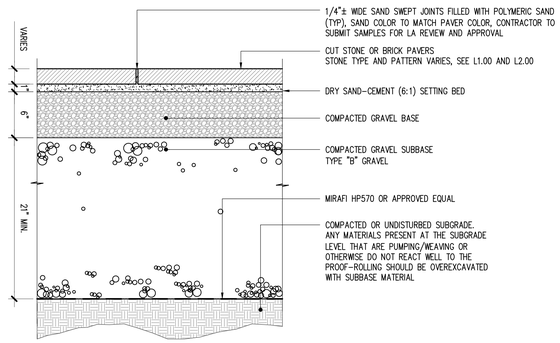
ISSUE
11/18/22
DESIGN DEVELOPMENT

COURTYARD SECTIONS AND ELEVATIONS

L3.0

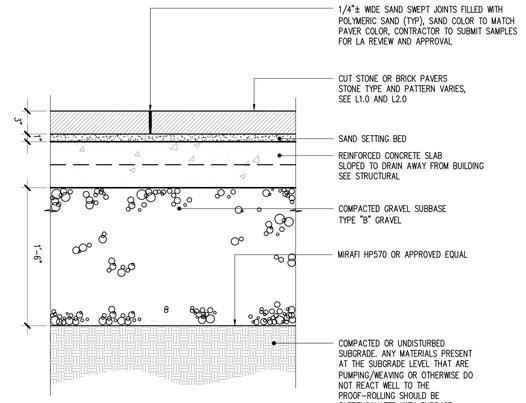


1 LIGHT DUTY STONE PAVING
1 1/2" = 1'-0"



2 HEAVY-DUTY STONE PAVING
1 1/2" = 1'-0"

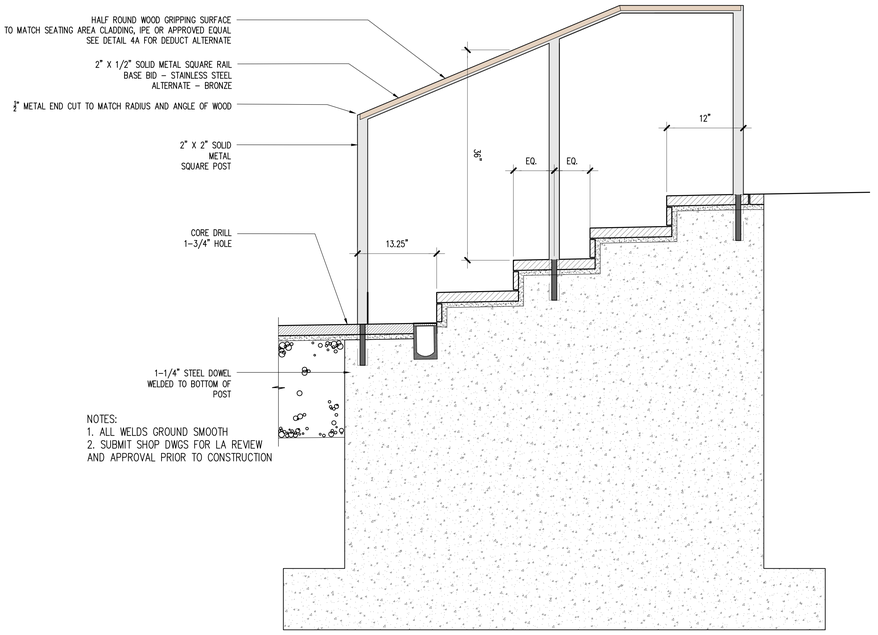
NOTE:
A. SUBGRADE PREPARATION AND PROTECTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND ANY DISTURBANCE THAT OCCURS AS A RESULT OF THEIR MEANS AND METHODS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
B. FINAL EXCAVATIONS MADE TO THE DESIGN SUBGRADE LEVEL SHALL BE COMPLETED USING SMOOTH-BLADED EQUIPMENT TO LIMIT SOIL DISTURBANCE AT SUBGRADE LEVEL. EXCAVATION EQUIPMENT THAT IS OUTFITTED WITH A "TOOTHED" BUCKET OR A "TOOTHED" BUCKET WITH A FLAT PLATE WELDED ACROSS THE "TEETH" ARE NOT PERMITTED.
C. THE USE OF THE BACK OF THE EXCAVATOR BUCKET TO "SMOOTH" OR "SMEAR" SUBGRADE SURFACES IS NOT PERMITTED
D. PREVENT WATER FROM ACCUMULATING ON SURFACES TO REDUCE THE POSSIBILITY OF SOIL DISTURBANCE. SURFACES THAT BECOME DISTURBED DUE TO WATER INFILTRATION SHOULD BE EXCAVATED, STABILIZED AND/OR REPLACED.
E. THE CONCTRACTOR SHALL, TO THE EXTEND POSSIBLE, LIMIT EQUIPMENT AND CONSTRUCTION WORKER TRAFFIC ON THE EXPOSED SUBGRADE SURFACES.
F. GRANULAR SUBGRADE SURFACES SHALL BE PROOFROLLED WITH A STATIC OR VIBRATORY SMOOTH-DRUM ROLLER UNTIL FIRM PRIOR TO FILL PLACEMENT IF THE SOIL APPEARS DRY AND NO "FREE" WATER IS OBSERVED. TO MINIMIZE DISTURBANCE THE POTENTIAL FOR DISTURBANCE, MARINE SILT/CLAY AND GRANULAR SOILS WITH "FREE" WATER EXPOSED AT SUBGRADE LEVEL SHOULD NOT BE PROOFROLLED. AFTER PROOF-ROLLING, IT MAY BE NECESSARY TO REMOVE WEAK, DISTURBED OR OTHERWISE UNACCEPTABLE SOILS AS DESCRIBED ABOVE. IF OVER-EXCAVATION AND REPLACEMENT BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT IS PLACED 12-IN. THICK (MAXIMUM) LOOSE LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.
G. IF ENCOUNTERED AT THE SUBGRADE LEVEL, THE CONTRACTOR SHALL REMOVE DEBRIS, TOPSOIL, ORGANIC SOIL OR OTHER UNSUITABLE MATERIAL PRESENT. IF OVER-EXCAVATION BELOW THE DESIGN SUBGRADE LEVEL IS REQUIRED, THE EXCAVATED MATERIAL SHALL BE REPLACED WITH SUBBASE MATERIAL THAT SHALL BE PLACED IN 12-INCH THICK (MAXIMUM) LOOS LIFTS AND COMPACTED TO 95 PERCENT (MINIMUM) OF THE MATERIALS MAXIMUM DRY DENSITY.



3 STONE PAVING AT LANDING
1 1/2" = 1'-0"

4 PAVING EDGE
1 1/2" = 1'-0"

5 PLANTING CURB, BASALT
1 1/2" = 1'-0"



6 HANDRAIL AT STAIRS
1 1/2" = 1'-0"

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PROJECT NUMBER
2.210338.0

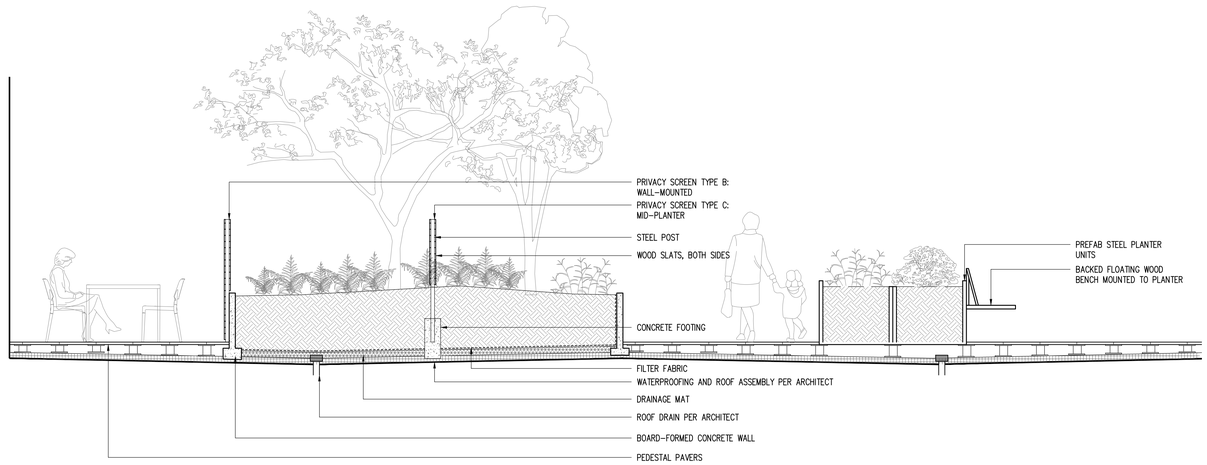
PDFC - BLOCK 6:
THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

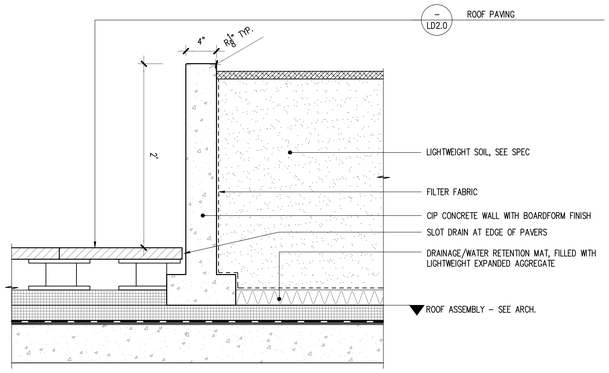
ISSUE
10/18/22
< DESIGN DEVELOPMENT

SITE DETAILS

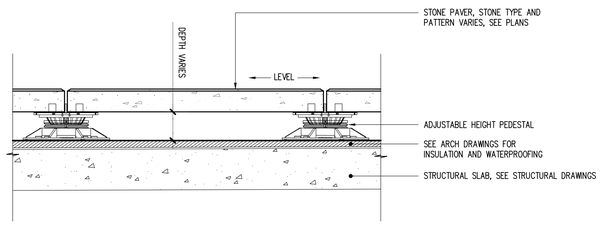
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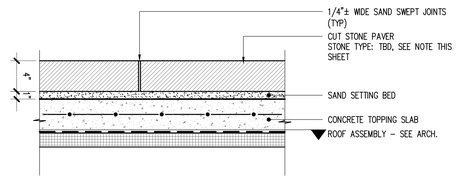
1 COURTYARD SECTION
1" = 30'



2 CIP PLANTER WALL
1-1/2" = 1'-0"



3 ROOF PAVING DETAIL - PEDESTAL
1-1/2" = 1'-0"



7 ROOF PAVING DETAIL - HEAVY DUTY STONE PAVING
1-1/2" = 1'-0"

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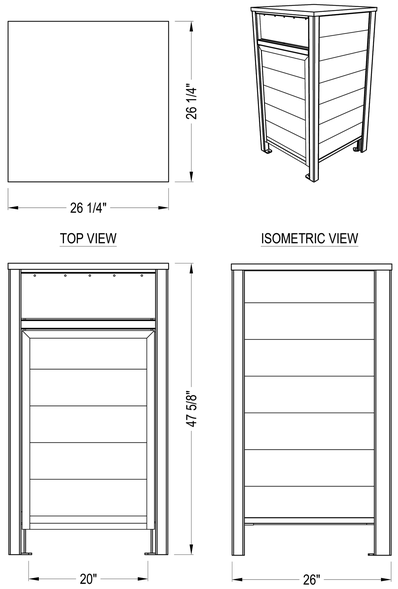
PDFC – BLOCK 6:
THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

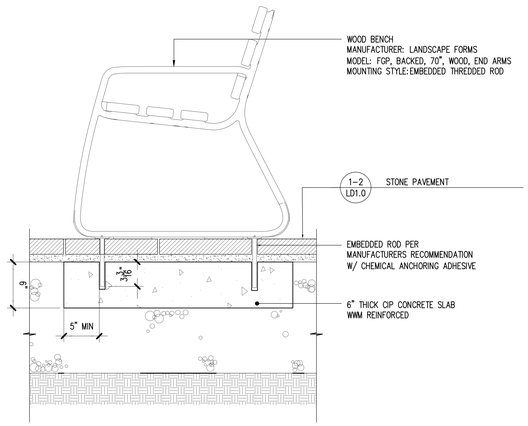
ISSUE
10/18/22
< DESIGN DEVELOPMENT

ROOFTOP COURTYARD DETAILS

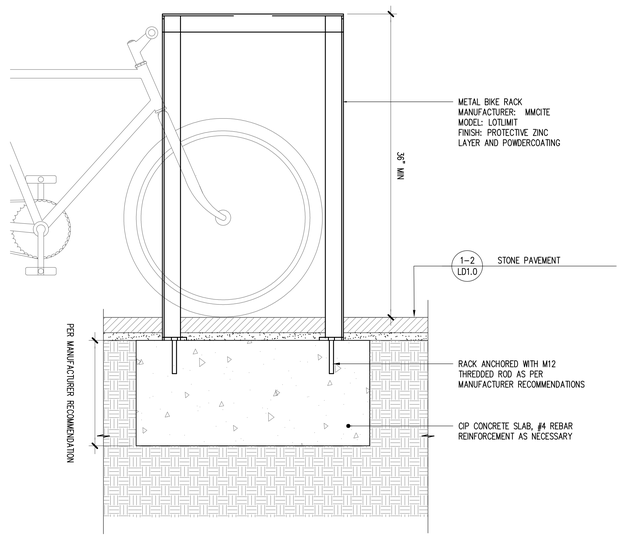
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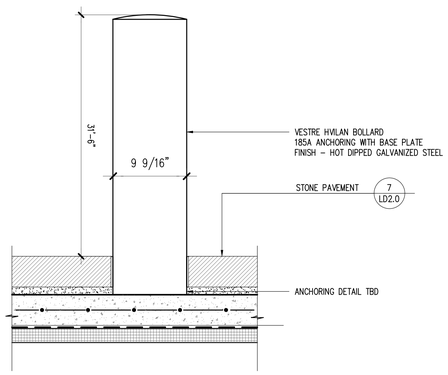
1 WISHBONE - URBAN FORM LARGE CAPACITY WASTE RECEPTACLE
NTS



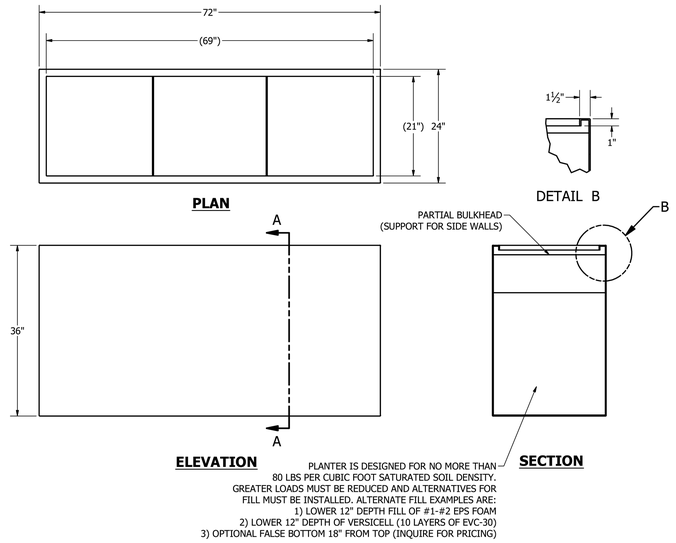
2 FGP BENCH
1 1/2" = 1'-0"



3 BIKE RACK B
1 1/2" = 1'-0"



4 SECURITY BOLLARD
1 1/2" = 1'-0"



5 TOURNESOL WILSHIRE PLANTER
NTS

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THE CHANNEL MARK°

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PROJECT NUMBER
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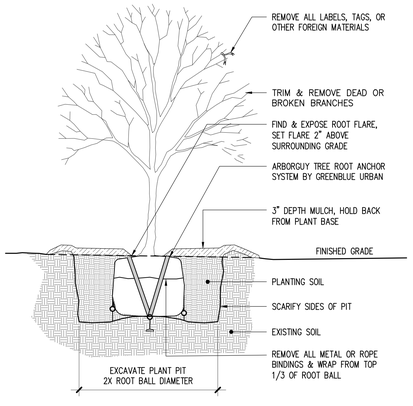
PDFC – BLOCK 6:
THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
11/18/22
DESIGN DEVELOPMENT

SITE FURNISHING DETAILS

LD3.0

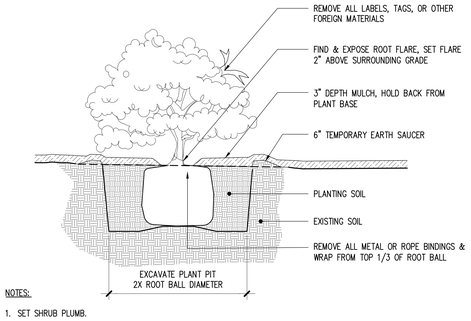


NOTES:

1. SET TREE PLUMB.
2. SECURE TREE AS REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

1 TREE PLANTING & STAKING DETAIL

1/2" = 1'-0"

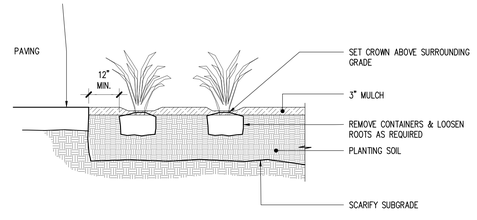


NOTES:

1. SET SHRUB PLUMB.
2. SECURE SHRUB AS MAY BE REQUIRED ACCORDING TO SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

2 SHRUB PLANTING DETAIL

1/2" = 1'-0"



3 GROUNDCOVER PLANTING DETAIL

1/2" = 1'-0"

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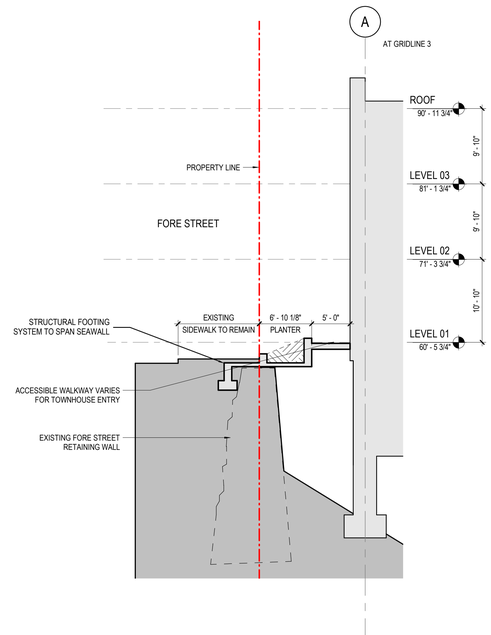
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THE CHANNEL MARK

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PORTLAND, ME 04101

ISSUE
11/18/22
DESIGN DEVELOPMENT

PLANTING DETAILS

LD4.0

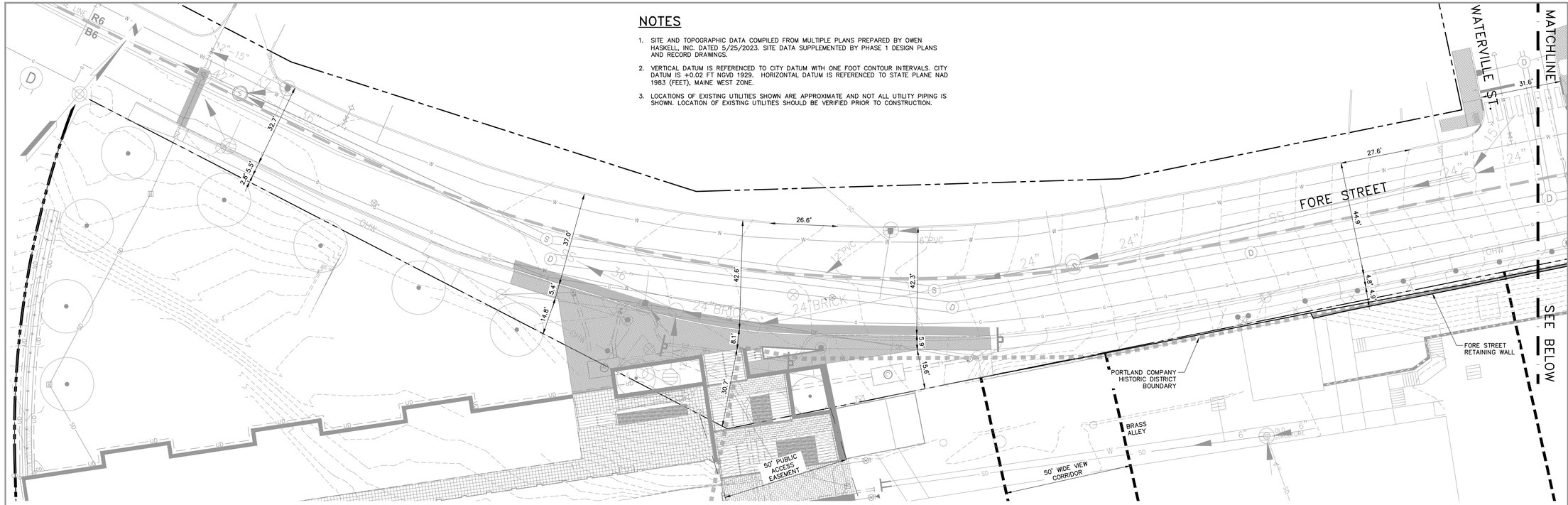


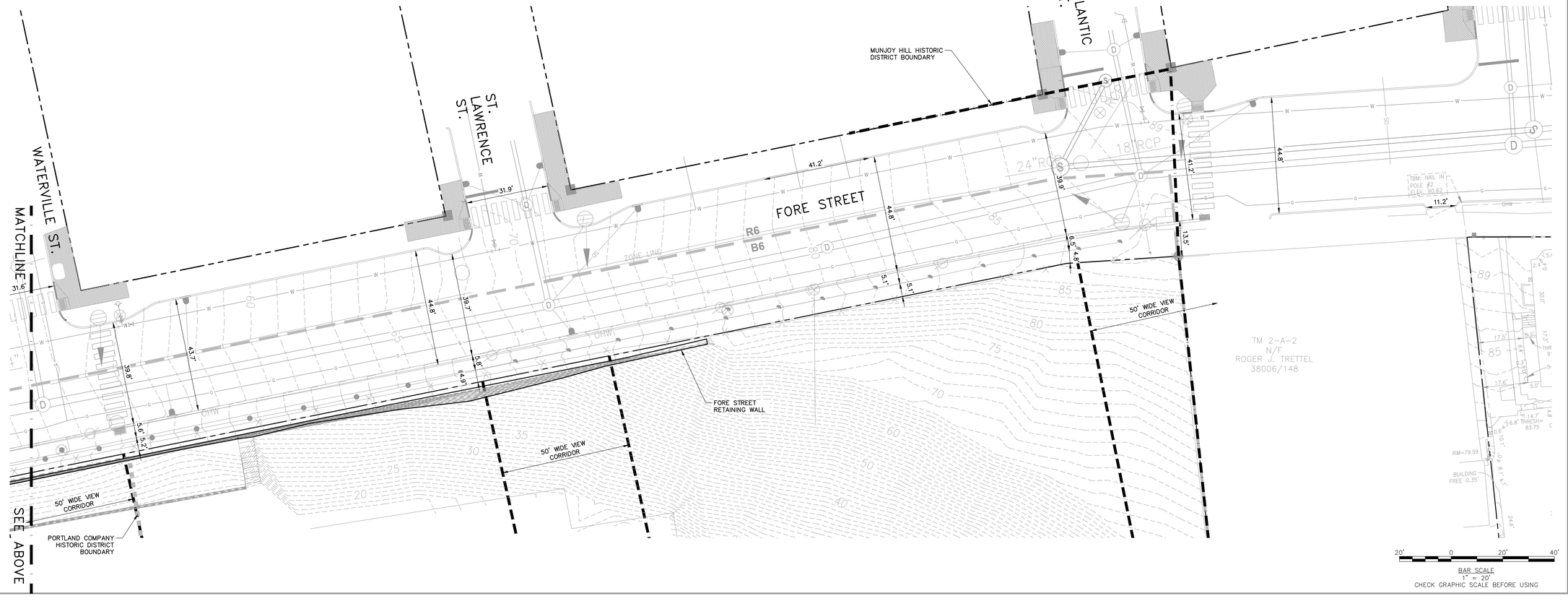
FORE STREET @ SEAWALL
ACCESSIBLE WALKWAY
2 1/8" = 1'-0"

PROPERTY LINE

NOTES

1. SITE AND TOPOGRAPHIC DATA COMPILED FROM MULTIPLE PLANS PREPARED BY OWEN HASKELL, INC. DATED 5/25/2023. SITE DATA SUPPLEMENTED BY PHASE 1 DESIGN PLANS AND RECORD DRAWINGS.
2. VERTICAL DATUM IS REFERENCED TO CITY DATUM WITH ONE FOOT CONTOUR INTERVALS. CITY DATUM IS +0.02 FT NGVD 1929. HORIZONTAL DATUM IS REFERENCED TO STATE PLANE NAD 1983 (FEET), MAINE WEST ZONE.
3. LOCATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE AND NOT ALL UTILITY PIPING IS SHOWN. LOCATION OF EXISTING UTILITIES SHOULD BE VERIFIED PRIOR TO CONSTRUCTION.





BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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Portland, Maine 04102
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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	1"=20'
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:

CIVIL
FORE STREET
EXISTING CONDITIONS

DRAWING NO:

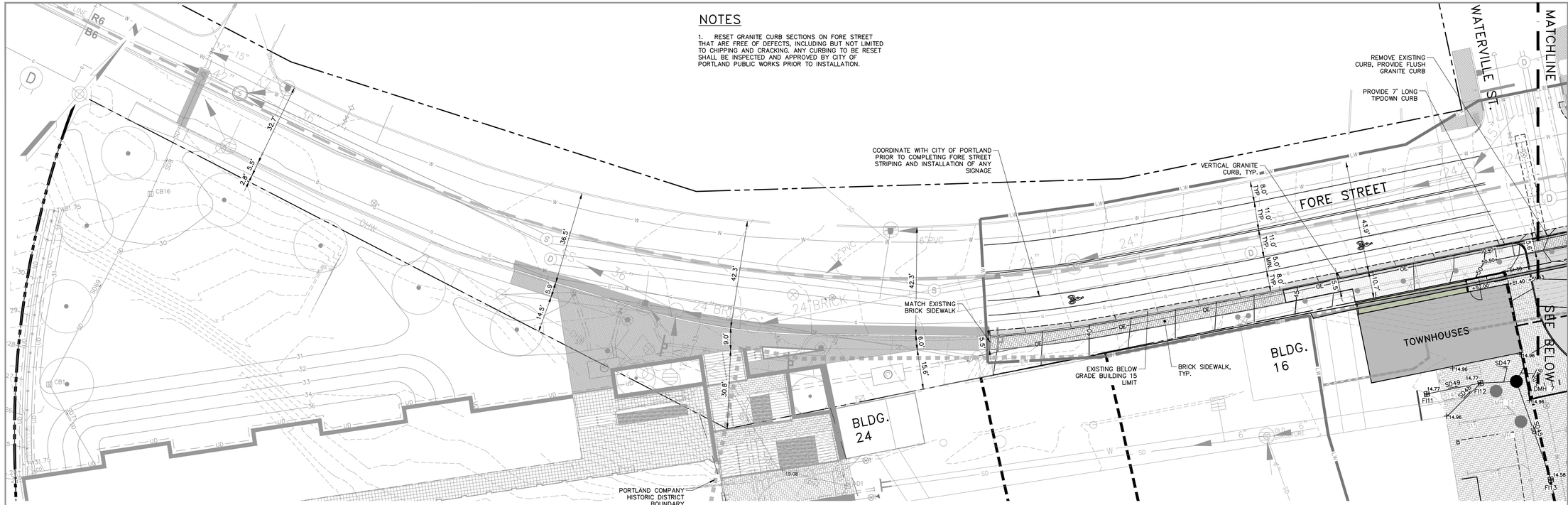
FIG. 1

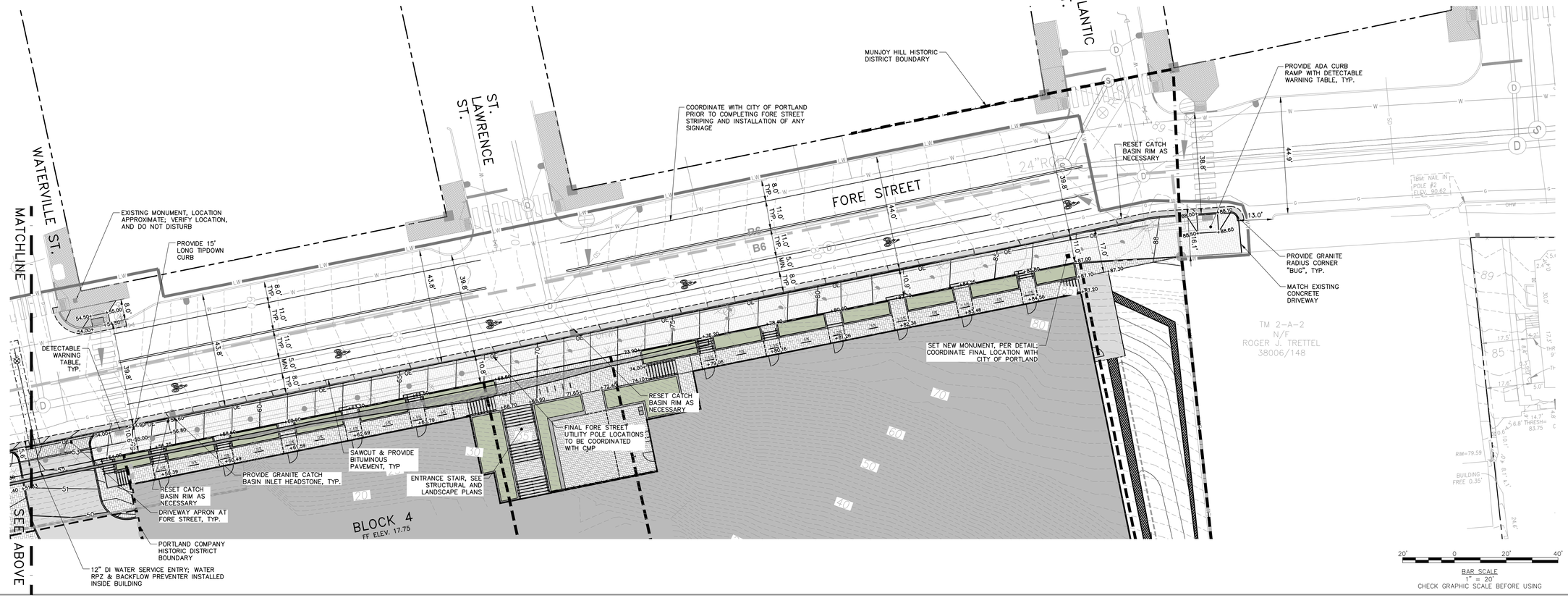
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24x36

NOTES

1. RESET GRANITE CURB SECTIONS ON FORE STREET THAT ARE FREE OF DEFECTS, INCLUDING BUT NOT LIMITED TO CHIPPING AND CRACKING. ANY CURBING TO BE RESET SHALL BE INSPECTED AND APPROVED BY CITY OF PORTLAND PUBLIC WORKS PRIOR TO INSTALLATION.





BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

PHASE 2

REV	MM/DD/YY	DESCRIPTION

JOB NO:	227007
DATE:	AUGUST 2023
SCALE:	1"=20'
DESIGNED BY:	ANL
DRAWN BY:	BCM
CHECKED BY:	LJS
FILENAME:	PHASE 2 SITE PLANS.dwg

DRAWING TITLE:

CIVIL
FORE STREET
PROPOSED IMPROVEMENTS

DRAWING NO:

FIG. 2

C:\Users\bmcdevitt\OneDrive - Woodard & Curran_PCFolders\Desktop\PEDC\Phase 2 - SD\Phase 2 Site Plans.dwg, Sep 06, 2023 - 4:39pm BMCDEVITT

LUMINAIRE SCHEDULE

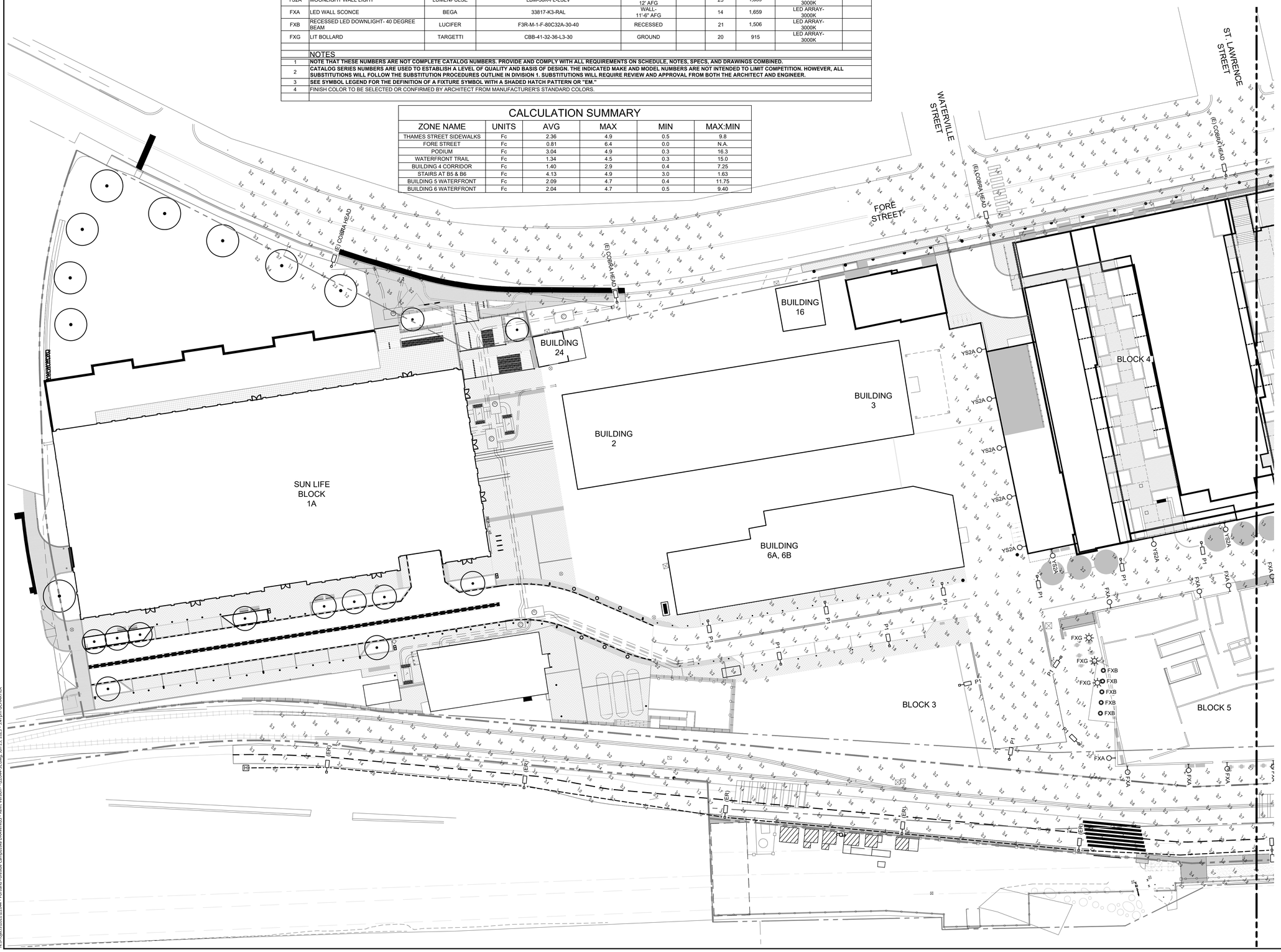
TYPE	DESCRIPTION	MFR	CATALOG SERIES NUMBER SEE NOTES 1 & 2	MOUNTING, U.N.O.	VOLTS	LAMP			KEY NOTES
						WATTS	DELIVERED LUMENS	TYPE	
P1	PEDESTRIAN POLE LIGHT	HOLOPHANE	GELB3-P303-30K-BG3	POLE- 16'-0"		28	3,385	LED ARRAY- 3000K	
FX1	LED FRAMING PROJECTOR	WE-EF	FLC210	POLE- SEE PLAN		28	1,154	LED ARRAY- 3000K	
FX2	CATERNARY-SUPPORTED LINEAR LED	STRUCTURA	CORDE-8-L30-MO-CAT/S	CATERNARY- SEE PLAN		24	2,034	LED ARRAY- 3000K	
FX3	LED WALLPACK	BEGA	22 386	WALL- 12' AFG		22.9	2,352	LED ARRAY- 3000K	
FX4	ENCAPSULATED LED STAIR LIGHT	Q-TRAN	LL3SW-1.5-30-ENC-STD-TL	STAIR RISER		1.5W/ft.	67 lum/ft.	LED ARRAY- 3000K	
FX5	MICRO LED DOWNLIGHT	SISTEMALUX	S3321-W-REM-19	CANOPY		2.19	132	LED ARRAY- 3000K	
FX6	DECORATIVE POLE LIGHT	BEGA	77 208	POLE- SEE PLAN		40	2,674	LED ARRAY- 3000K	
FX7	LIT BOLLARD	FORMS+ SURFACES	HELIO M30/K4	GROUND		34	604	LED ARRAY- 3000K	
YS2A	MOONLIGHT WALL LIGHT	LUMENPULSE	LBM-30K-FL-LSLV	WALL- 12' AFG		25	1,839	LED ARRAY- 3000K	
FXA	LED WALL SCONCE	BEGA	33817-K3-RAL	WALL- 11'-6" AFG		14	1,659	LED ARRAY- 3000K	
FXB	RECESSED LED DOWNLIGHT- 40 DEGREE BEAM	LUCIFER	F3R-M-1-F-80C32A-30-40	RECESSED		21	1,506	LED ARRAY- 3000K	
FXG	LIT BOLLARD	TARGETTI	CBB-41-32-36-L3-30	GROUND		20	915	LED ARRAY- 3000K	

NOTES

1. **NOTE THAT THESE NUMBERS ARE NOT COMPLETE CATALOG NUMBERS. PROVIDE AND COMPLY WITH ALL REQUIREMENTS ON SCHEDULE, NOTES, SPECS, AND DRAWINGS COMBINED.**
2. **CATALOG SERIES NUMBERS ARE USED TO ESTABLISH A LEVEL OF QUALITY AND BASIS OF DESIGN. THE INDICATED MAKE AND MODEL NUMBERS ARE NOT INTENDED TO LIMIT COMPETITION. HOWEVER, ALL SUBSTITUTIONS WILL FOLLOW THE SUBSTITUTION PROCEDURES OUTLINE IN DIVISION 1. SUBSTITUTIONS WILL REQUIRE REVIEW AND APPROVAL FROM BOTH THE ARCHITECT AND ENGINEER.**
3. **SEE SYMBOL LEGEND FOR THE DEFINITION OF A FIXTURE SYMBOL WITH A SHADED HATCH PATTERN OR "EM."**
4. FINISH COLOR TO BE SELECTED OR CONFIRMED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

CALCULATION SUMMARY

ZONE NAME	UNITS	AVG	MAX	MIN	MAX:MIN
THAMES STREET SIDEWALKS	Fc	2.36	4.9	0.5	9.8
FORE STREET	Fc	0.81	6.4	0.0	N.A.
PODIUM	Fc	3.04	4.9	0.3	16.3
WATERFRONT TRAIL	Fc	1.34	4.5	0.3	15.0
BUILDING 4 CORRIDOR	Fc	1.40	2.9	0.4	7.25
STAIRS AT B5 & B6	Fc	4.13	4.9	3.0	1.63
BUILDING 5 WATERFRONT	Fc	2.09	4.7	0.4	11.75
BUILDING 6 WATERFRONT	Fc	2.04	4.7	0.5	9.40



PROJECT NORTH

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Structural Mechanical Electrical Commissioning
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Portland, Maine 04103
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F: 207.221.2266
Web: www.allied-eng.com

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PORTLAND, MAINE

WATERFRONT IMPROVEMENTS & UTILITY ENABLEMENT PHASE

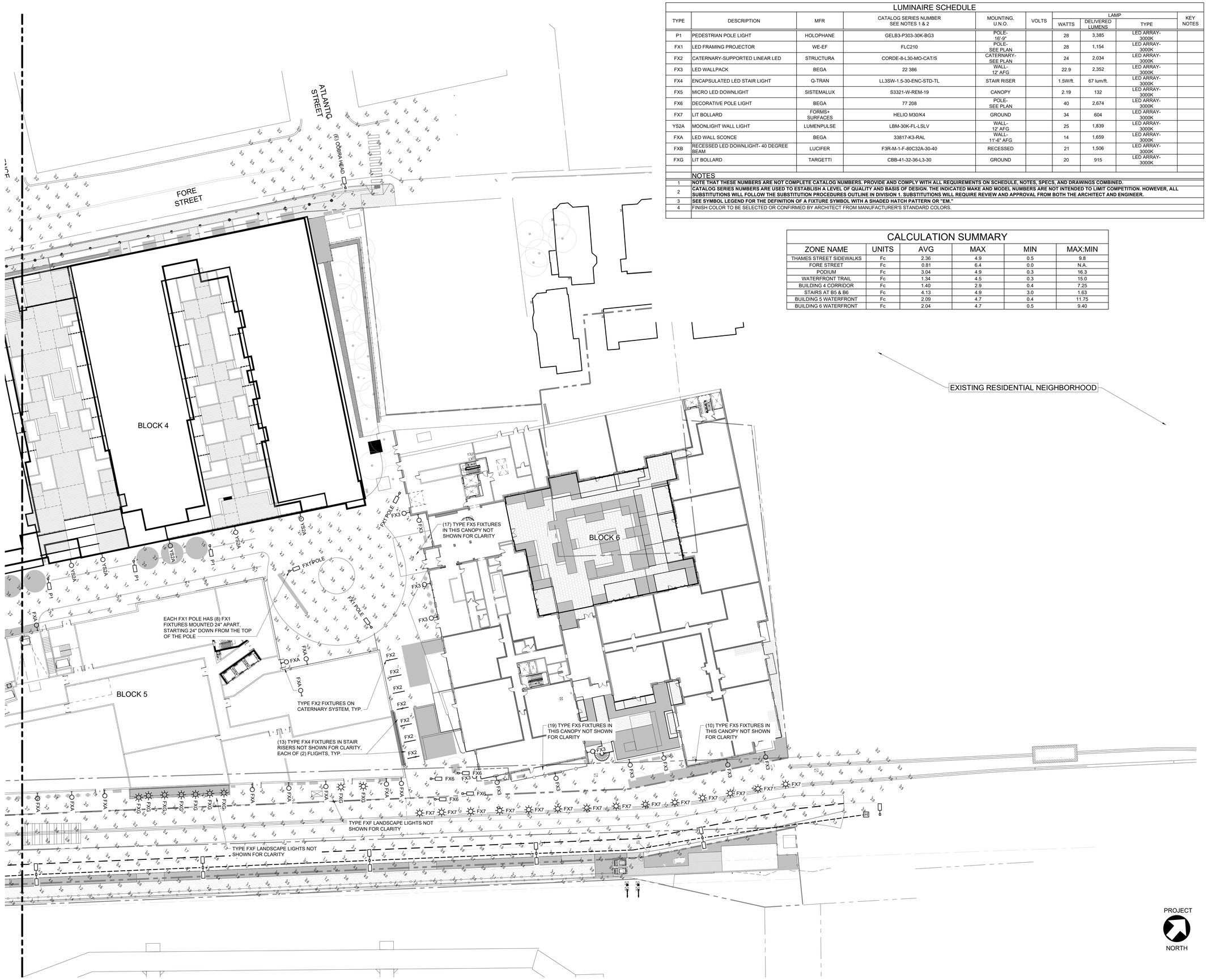
REV	MM/DD/YY	DESCRIPTION
9	6/23/23	ELECTRICAL UPDATES
8	2/28/23	ELECTRICAL UPDATES
7	1/13/23	ELECTRICAL UPDATES
6	12/13/22	ELECTRICAL UPDATES
5	11/23/22	ELECTRICAL UPDATES
4	10/28/22	ELECTRICAL UPDATES
3	10/19/22	ELECTRICAL UPDATES
2	09/16/22	ELECTRICAL UPDATES
1	08/22/22	CONSTRUCTION DOCUMENTS

JOB NO:	227007
DATE:	JULY 2022
SCALE:	AS NOTED
DESIGNED BY:	BTG
DRAWN BY:	GMC
CHECKED BY:	BTG
FILENAME:	22044-SL.dwg

DRAWING TITLE:
ELECTRICAL SITE PART PLAN- SITE LIGHTING PHOTOMETRICS

DRAWING NO:
SL-110
SHEET: 28 OF 37

N:\Projects\2022\22044 - Portland Foreside Campus\4x DRAWINGS - Revit Version - 22044-SL.dwg, Jun 23, 2023 - 3:47pm, GCHARTIER



LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MFR	CATALOG SERIES NUMBER SEE NOTES 1 & 2	MOUNTING, U.N.O.	VOLTS	LAMP			KEY NOTES
						WATTS	DELIVERED LUMENS	TYPE	
P1	PEDESTRIAN POLE LIGHT	HOLOPHANE	GELB3-P303-30K-BG3	POLE-16'-9"		28	3,385	LED ARRAY-3000K	
FX1	LED FRAMING PROJECTOR	WE-EF	FLC210	POLE-SEE PLAN		28	1,154	LED ARRAY-3000K	
FX2	CATERNARY-SUPPORTED LINEAR LED	STRUCTURA	CORDE-8-L30-MO-CAT/S	CATERNARY-SEE PLAN		24	2,034	LED ARRAY-3000K	
FX3	LED WALLPACK	BEGA	22 386	WALL-12' AFG		22.9	2,352	LED ARRAY-3000K	
FX4	ENCAPSULATED LED STAIR LIGHT	Q-TRAN	LL3SW-1.5-30-ENC-STD-TL	STAIR RISER		1.5W/ft.	67 lum/ft.	LED ARRAY-3000K	
FX5	MICRO LED DOWNLIGHT	SISTEMALUX	S3321-W-REM-19	CANOPY		2.19	132	LED ARRAY-3000K	
FX6	DECORATIVE POLE LIGHT	BEGA	77 208	POLE-SEE PLAN		40	2,674	LED ARRAY-3000K	
FX7	LIT BOLLARD	FORMS+ SURFACES	HELIO M30/K4	GROUND		34	604	LED ARRAY-3000K	
YS2A	MOONLIGHT WALL LIGHT	LUMENPULSE	LBM-30K-FL-LSLV	WALL-12' AFG		25	1,839	LED ARRAY-3000K	
FXA	LED WALL SCONCE	BEGA	33817-K3-RAL	WALL-11'-6" AFG		14	1,659	LED ARRAY-3000K	
FXB	RECESSED LED DOWNLIGHT- 40 DEGREE BEAM	LUCIFER	F3R-M-1-F-80C32A-30-40	RECESSED		21	1,506	LED ARRAY-3000K	
FXG	LIT BOLLARD	TARGETTI	CBB-41-32-36-L3-30	GROUND		20	915	LED ARRAY-3000K	

NOTES

1	**NOTE THAT THESE NUMBERS ARE NOT COMPLETE CATALOG NUMBERS. PROVIDE AND COMPLY WITH ALL REQUIREMENTS ON SCHEDULE, NOTES, SPECS, AND DRAWINGS COMBINED.**
2	**CATALOG SERIES NUMBERS ARE USED TO ESTABLISH A LEVEL OF QUALITY AND BASIS OF DESIGN. THE INDICATED MAKE AND MODEL NUMBERS ARE NOT INTENDED TO LIMIT COMPETITION. HOWEVER, ALL SUBSTITUTIONS WILL FOLLOW THE SUBSTITUTION PROCEDURES OUTLINE IN DIVISION 1. SUBSTITUTIONS WILL REQUIRE REVIEW AND APPROVAL FROM BOTH THE ARCHITECT AND ENGINEER.**
3	**SEE SYMBOL LEGEND FOR THE DEFINITION OF A FIXTURE SYMBOL WITH A SHADED HATCH PATTERN OR "EM."**
4	FINISH COLOR TO BE SELECTED OR CONFIRMED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS.

CALCULATION SUMMARY

ZONE NAME	UNITS	AVG	MAX	MIN	MAX:MIN
THAMES STREET SIDEWALKS	Fc	2.36	4.9	0.5	9.8
FORE STREET	Fc	0.81	6.4	0.0	N.A.
PODIUM	Fc	3.04	4.9	0.3	16.3
WATERFRONT TRAIL	Fc	1.34	4.5	0.3	15.0
BUILDING 4 CORRIDOR	Fc	1.40	2.9	0.4	7.25
STAIRS AT B5 & B6	Fc	4.13	4.9	3.0	1.63
BUILDING 5 WATERFRONT	Fc	2.09	4.7	0.4	11.75
BUILDING 6 WATERFRONT	Fc	2.04	4.7	0.5	9.40

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CLIENT INFO:

PORTLAND FORESIDE DEVELOPMENT COMPANY
PORTLAND, MAINE

WATERFRONT IMPROVEMENTS & UTILITY ENABLEMENT PHASE

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N:\Projects\2022\22044 - Portland Foreside Campus\4a PRAWINGS - Revit Version - \22044-SL.dwg, Jan 23, 2023 - 3:47pm, GCHARTIER

01- Atlantic

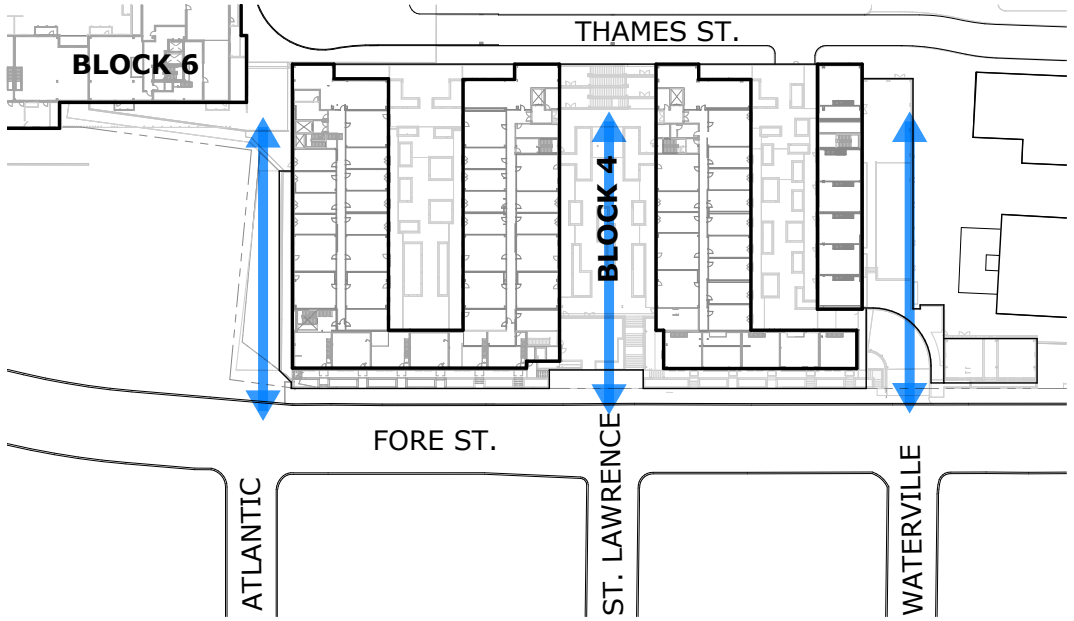


02- ST. Lawrence



03- Waterville





View Corridors



Atlantic Street View Corridor



Fore Street @ St. Lawrence Street

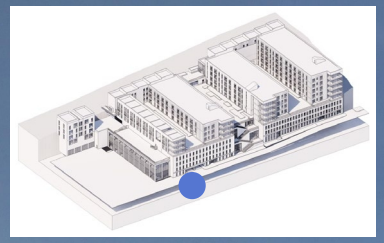


Courtyard Trees: "Amelanchier"

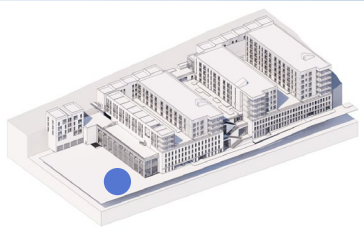
- A native, patio style tree with open type canopy
- Mature height approx. 12 feet (courtyard approx. 10 feet below Fore Street elevation)
- Located in planters towards edges of public courtyard



Fore Street @ Waterville & B2 Townhouses



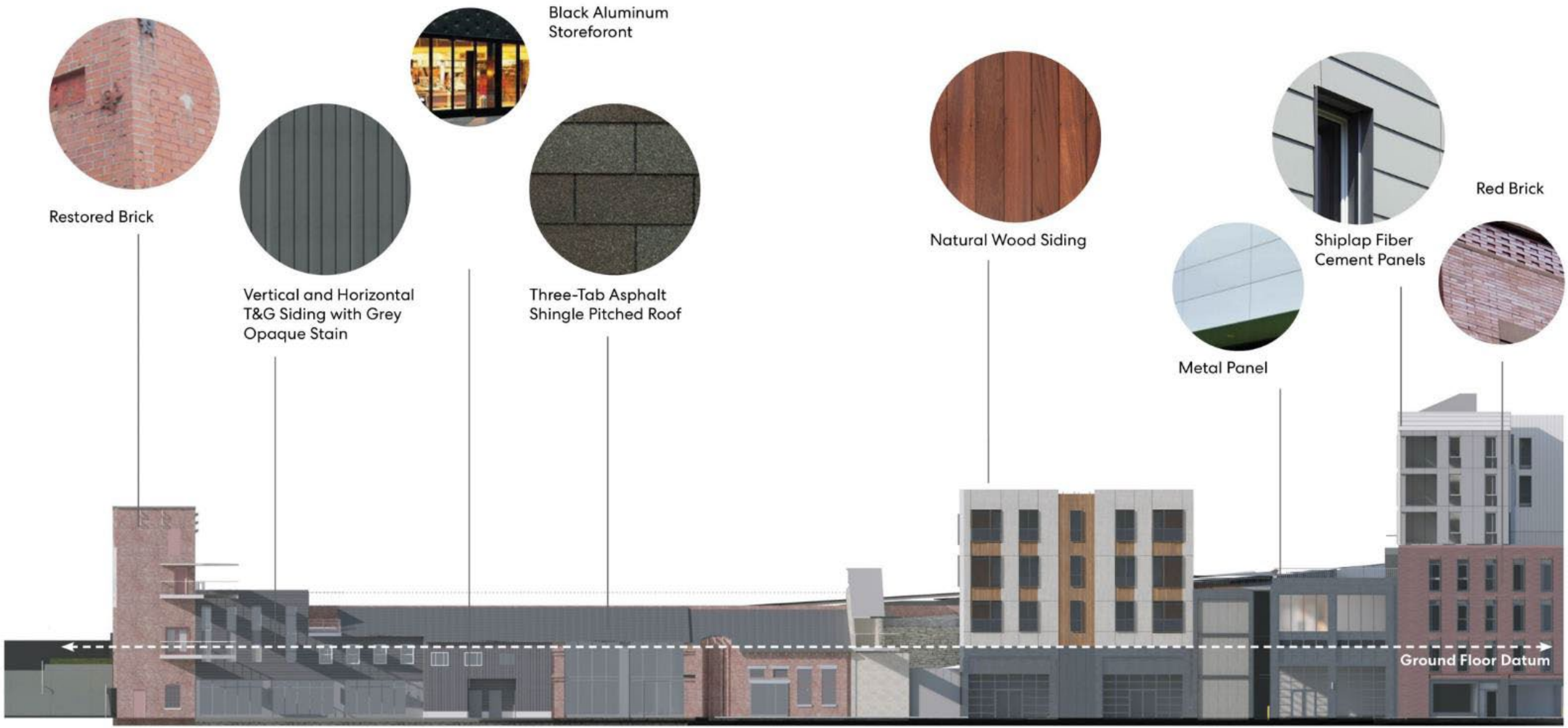
Thames Street looking East



John Poor Crossing



Boiler Passage


Restored Brick
Vertical and Horizontal T&G Siding with Grey Opaque Stain
Black Aluminum Storeforont
Three-Tab Asphalt Shingle Pitched Roof
Natural Wood Siding
Metal Panel
Shiplap Fiber Cement Panels
Red Brick
Ground Floor Datum



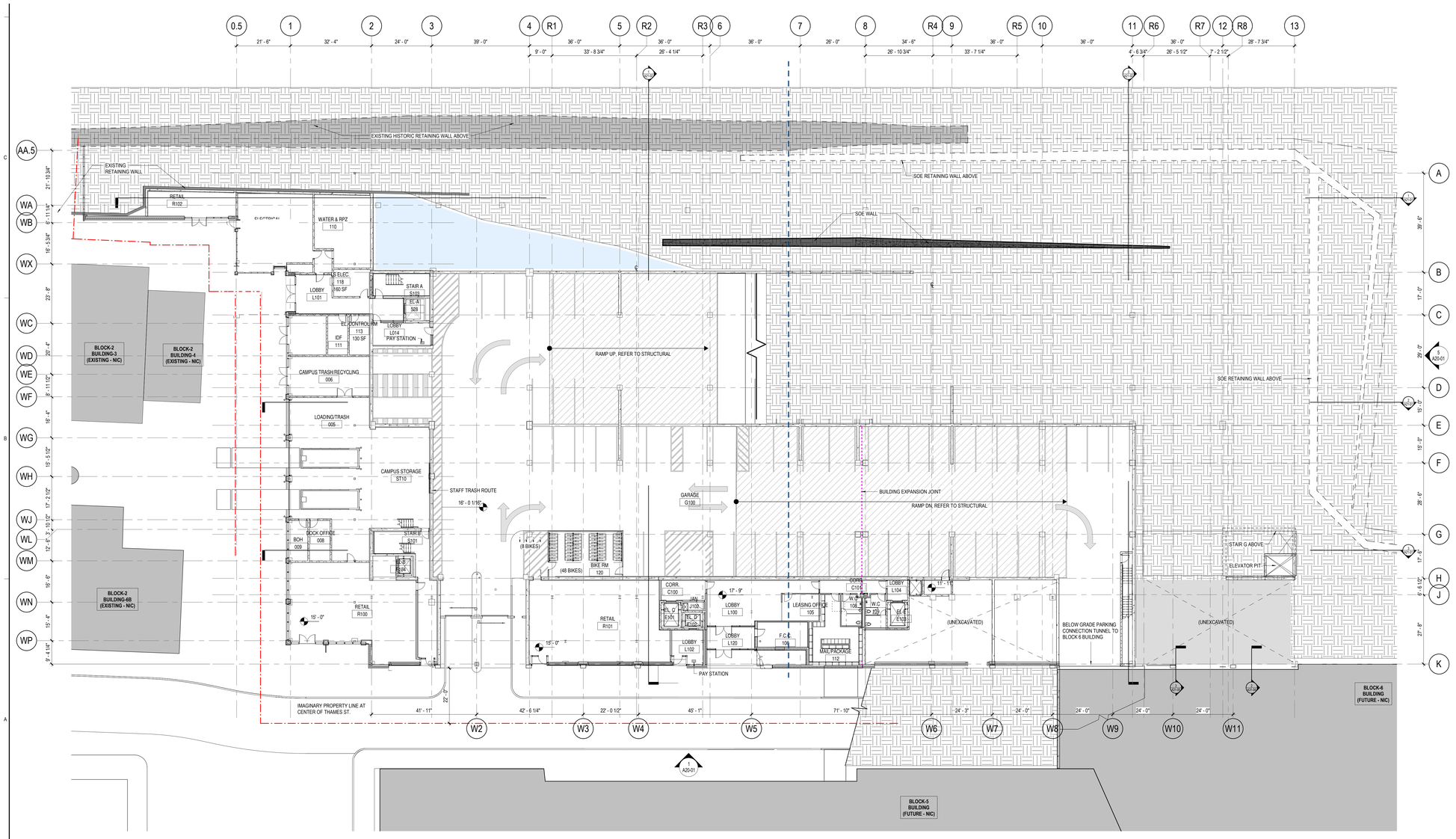
John Poor Crossing



John Poor Crossing Portland Company HD Entry



Fore Street Overlook & Portland Company HD access



1 OVERALL LEVEL 01 PLAN

1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
- CREVASSE SPACES (OPEN TO AIR, ADJACENT OR BELOW BUILDING SPACE - APPROXIMATE FOR DIAGRAMMATIC CLARITY)
- EXISTING HISTORIC SEAWALL
- SUPPORT OF EXCAVATION (SOE)
- 1t — DOOR TAG
- A11 — WALL TYPE TAG
- INTERCOM LOCATION
- CARD READER LOCATION
- TV — TV OUTLET LOCATION
- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
3. TYPICAL RESIDENTIAL UNIT DEMISING PARTITIONS ARE TYPE " W10 " UNLESS NOTED OTHERWISE
4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " Q20 " UNLESS NOTED OTHERWISE
5. ALL CMU EXCEPT BOH SPACES TO RECEIVE M21 WALL TYPE DRYWALL
6. TYPICAL INTERIOR PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE
7. PARTITION DIMENSIONS ARE TO FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.

KEYNOTES

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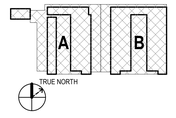
LANDSCAPE ARCHITECT
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t 207.865.1060

PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

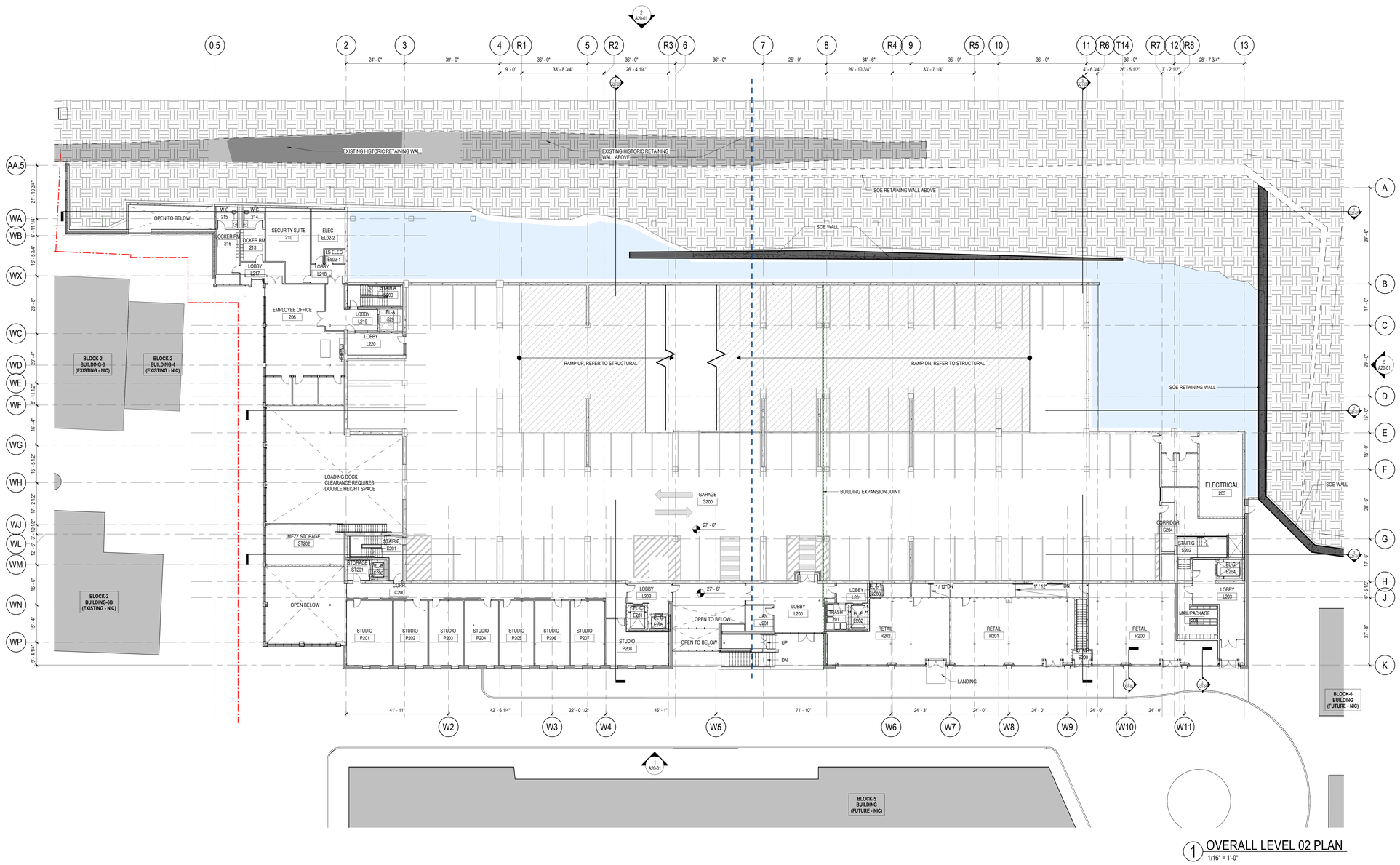
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OVERALL PLAN - LEVEL 01

SHEET NUMBER

A10-01

6/22/2023 1:25:16 PM
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Res_INT.rvt



1 OVERALL LEVEL 02 PLAN

1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
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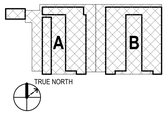
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FORESIDE DEVELOPMENT

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254 COMMERCIAL ST
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KEYPLAN



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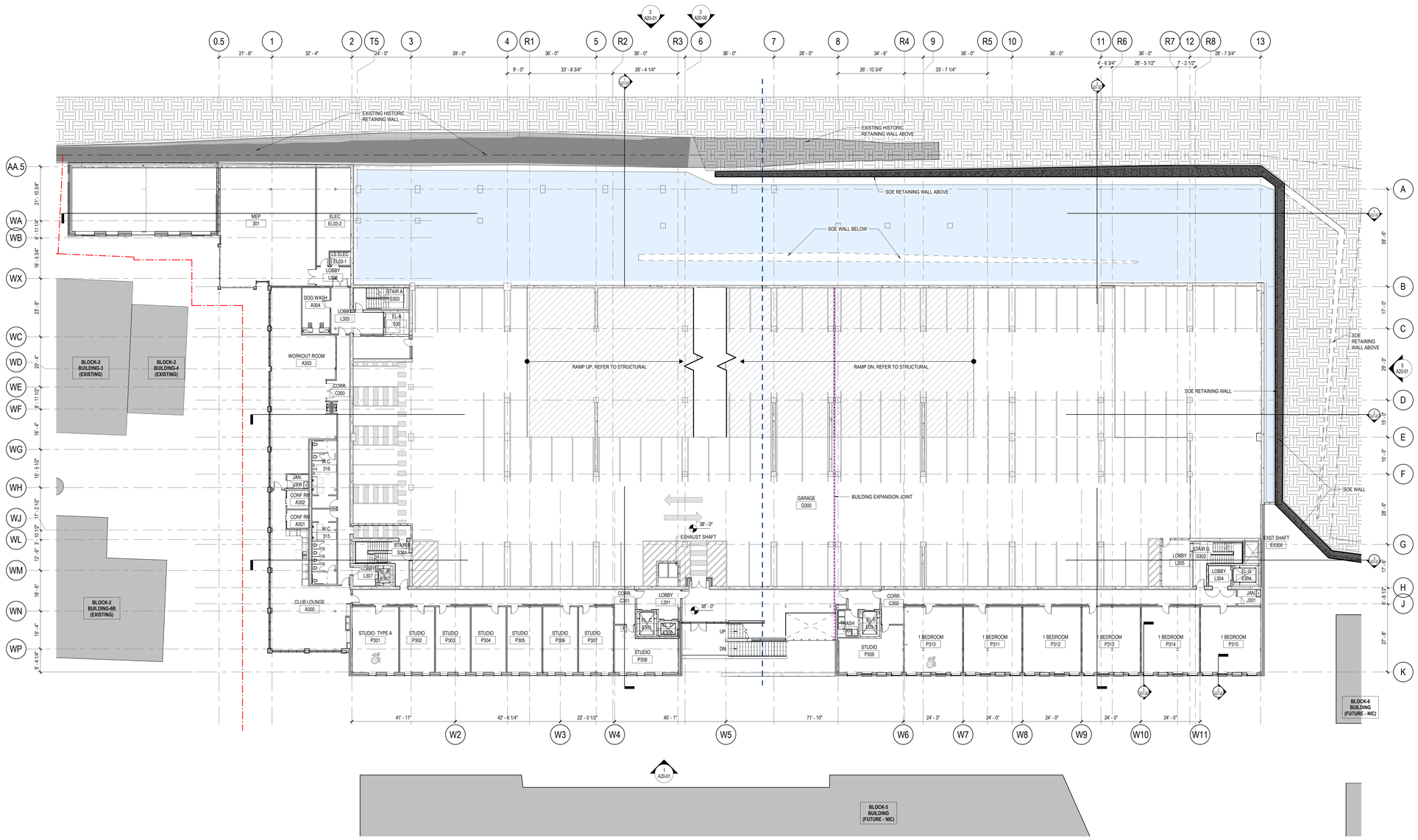
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OVERALL PLAN - LEVEL 02

SHEET NUMBER

A10-02

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1 OVERALL LEVEL 03 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
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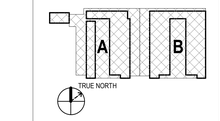
LANDSCAPE ARCHITECT
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Freeport, Maine
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PROJECT

FORESIDE DEVELOPMENT

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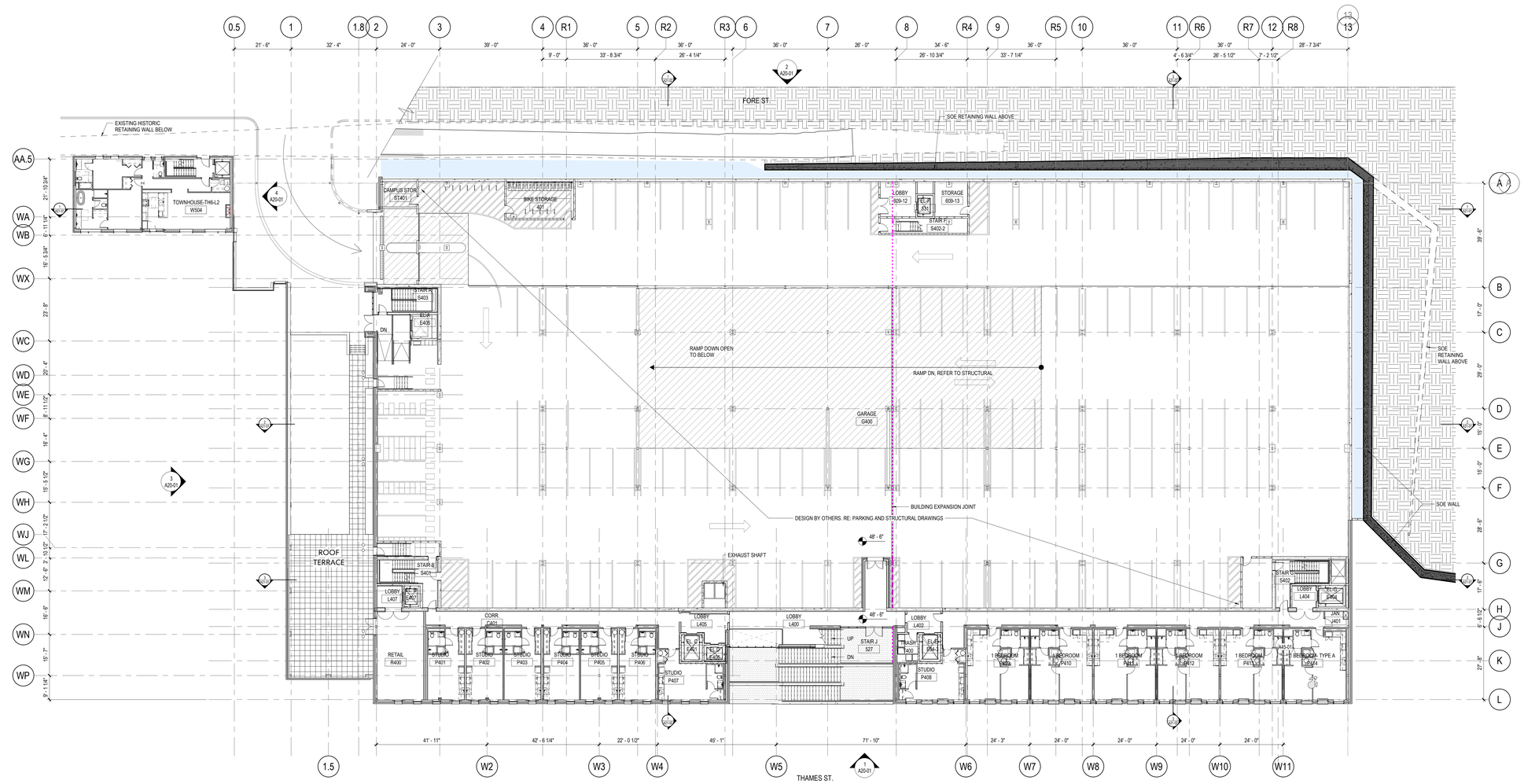
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OVERALL PLAN - LEVEL 03

SHEET NUMBER

A10-03

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1 OVERALL LEVEL 04 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

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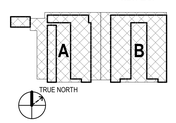
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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Approved		Approver

TITLE

OVERALL PLAN - LEVEL 04

SHEET NUMBER

A10-04

6/22/2023 1:38:52 PM
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1 OVERALL LEVEL 05 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
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FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
3. TYPICAL RESIDENTIAL UNIT DEMISING PARTITIONS ARE TYPE " W10 " UNLESS NOTED OTHERWISE
4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " Q20 " UNLESS NOTED OTHERWISE
5. ALL CMU EXCEPT BOH SPACES TO RECEIVE M21 WALL TYPE DRYWALL
6. TYPICAL INTERIOR PARTITIONS ARE TYPE " A41 " UNLESS NOTED OTHERWISE
7. PARTITION DIMENSIONS ARE TO FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.

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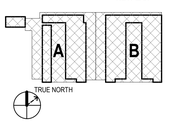
LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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Approved		Approver

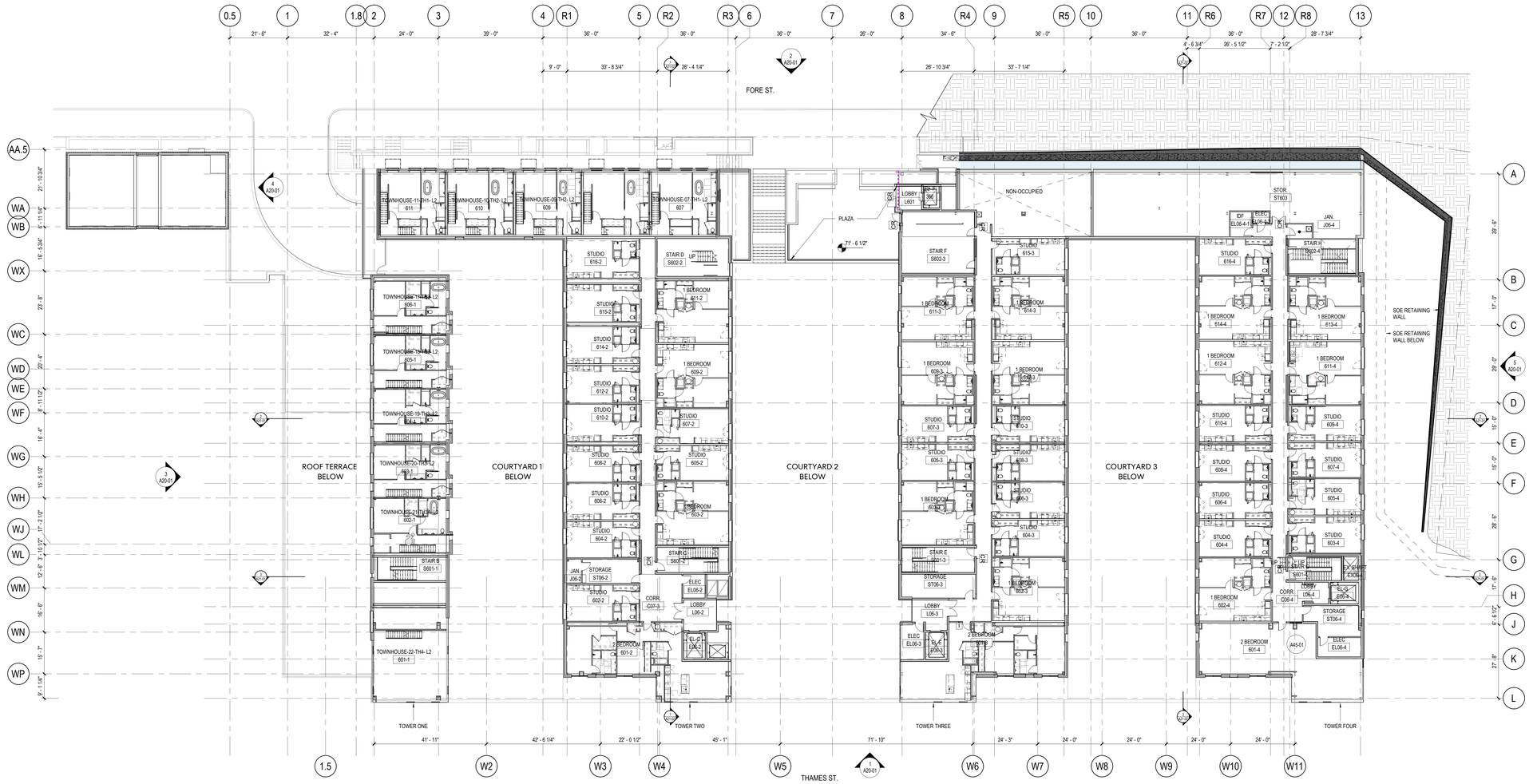
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OVERALL PLAN - LEVEL 05

SHEET NUMBER

A10-05

6/22/2023 4:45:39 PM
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Res_INT.rvt



1 OVERALL LEVEL 06 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
- CREVASSE SPACES (OPEN TO AIR, ADJACENT OR BELOW BUILDING SPACE - APPROXIMATE FOR DIAGRAMMATIC CLARITY)
- EXISTING HISTORIC SEAWALL
- SUPPORT OF EXCAVATION (SOE)
- 1t — DOOR TAG
- A11 — WALL TYPE TAG
- INTERCOM LOCATION
- CARD READER LOCATION
- TV — TV OUTLET LOCATION
- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

1. REFER TO CODE COMPLIANCE DRAWINGS G00-SERIES FOR FIRE RATING REQUIREMENTS
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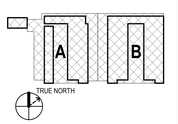
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PROJECT

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DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
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OVERALL PLAN - LEVEL 06

SHEET NUMBER

A10-06

6/22/2023 4:45:43 PM
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1 OVERALL LEVEL 07 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- SOIL
- SLOPED PARKING SPEED RAMP
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- A11 — WALL TYPE TAG
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- WALL DUPLEX OUTLET LOCATION
- GFI — WALL DUPLEX OUTLET LOCATION, GFI
- S — LIGHT SWITCH LOCATION
- FIRE EXTINGUISHER/ CABINET

FLOOR PLAN GENERAL NOTES

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2. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES
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4. TYPICAL RESIDENTIAL UNIT CORRIDOR PARTITIONS ARE TYPE " C20 " UNLESS NOTED OTHERWISE
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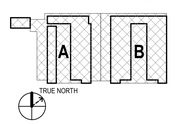
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PROJECT

FORESIDE DEVELOPMENT

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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

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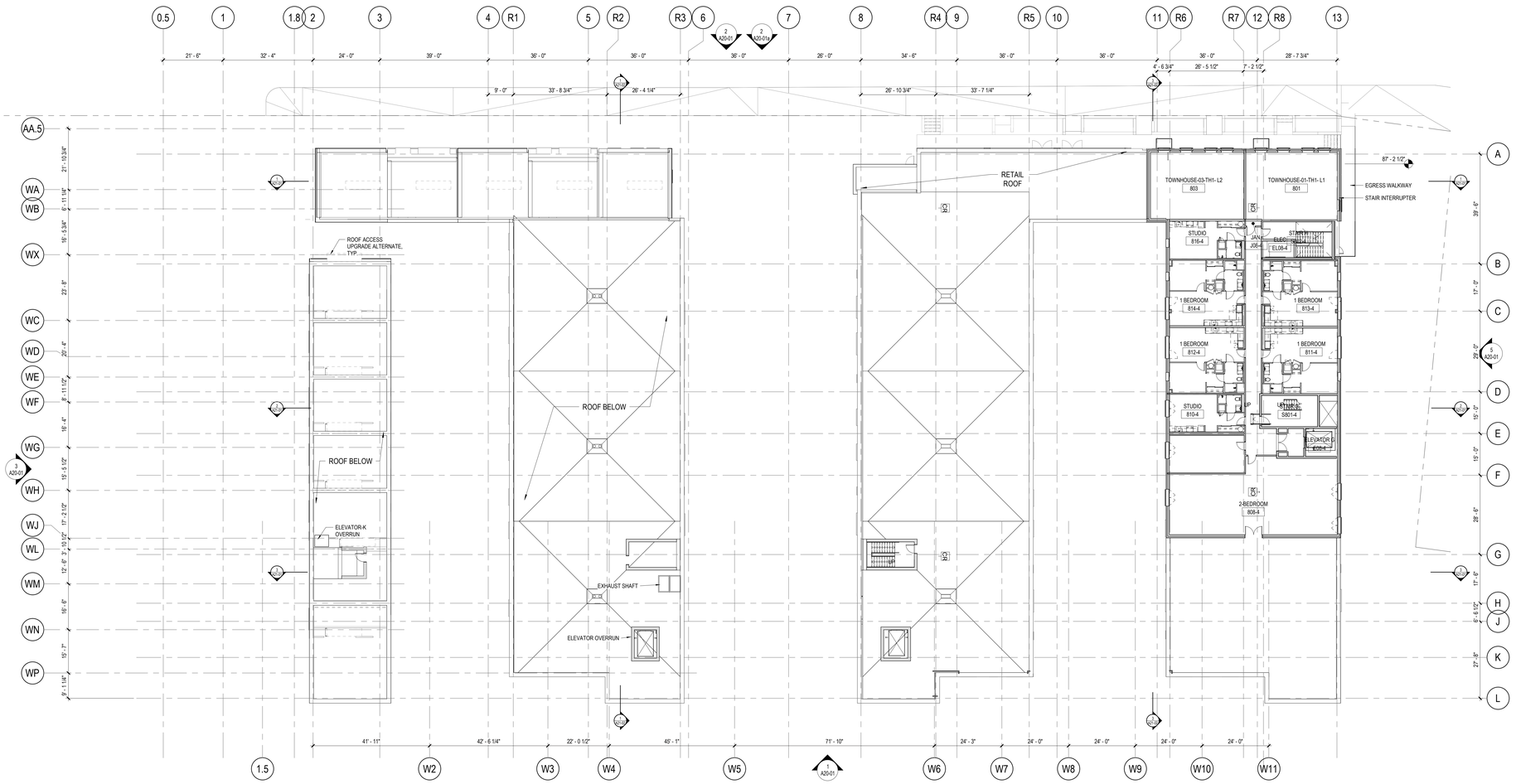
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OVERALL PLAN - LEVEL 07

SHEET NUMBER

A10-07

9/6/2023 17:31:59
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Has_INT.rvt



1 OVERALL LEVEL 08 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
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- S — LIGHT SWITCH LOCATION
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FLOOR PLAN GENERAL NOTES

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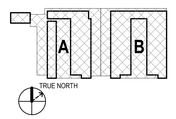
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PROJECT

FORESIDE DEVELOPMENT

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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

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Job Number		157111
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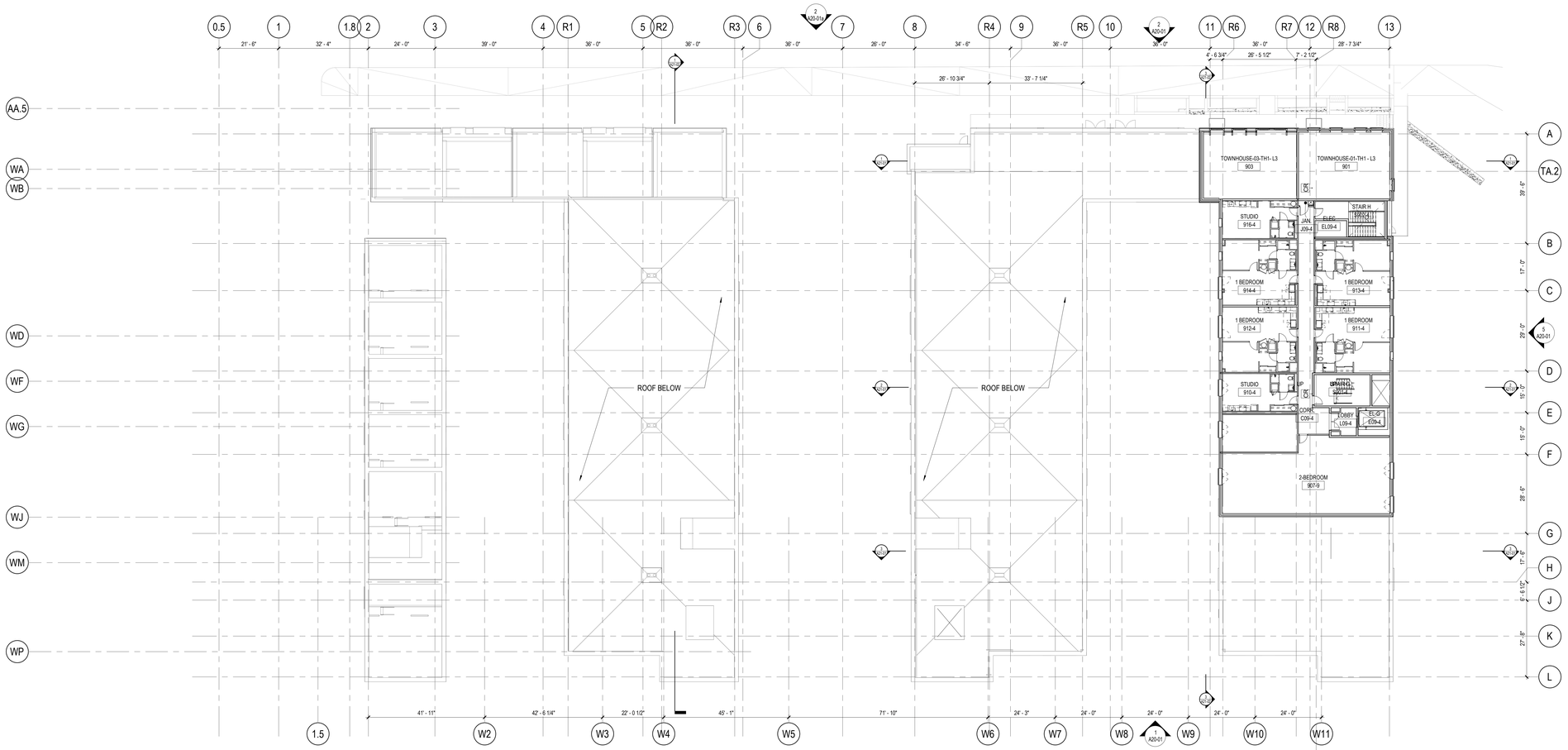
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OVERALL PLAN - LEVEL 08

SHEET NUMBER

A10-08

9/6/2023 17:32:00
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Res_ANT.rvt



1 OVERALL LEVEL 09 PLAN
1/16" = 1'-0"

FLOOR PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- 30 MIN FIRE/SMOKE PARTITION
- 1-HOUR FIRE PARTITION
- 1-HOUR FIRE BARRIER
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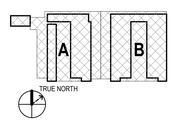
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PROJECT

FORESIDE DEVELOPMENT

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PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
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TITLE

OVERALL PLAN - LEVEL 09

SHEET NUMBER

A10-09

9/6/2023 17:32:02
Autodesk Docs://PFDC Block Four/ARCH-PFDC_B4-Res_INT.rvt

2"
1"
1/2"
0

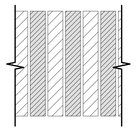
FACE BRICK TYPE DESCRIPTIONS

TYPE		DESCRIPTION	LOCATION
1a	MEDIUM IRONSPOT #46 (RED TONE)	ROMAN BRICK SIZE, RUNNING BOND. NO BRICK PROJECTIONS	FORE ST TOWNHOUSES, THAMES ST WRAPPER
1b		ROMAN BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	THAMES ST STOREFRONT HEADER & PUNCHED...
1c		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, ALTERNATING 1" PROJECTIONS	FORE ST TOWNHOUSE CORNICE
2a	MANGANESE IRONSPOT SMOOTH (GRAY TONE)	ROMAN BRICK SIZE, RUNNING BOND. NO BRICK PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK BASE
2b		AMBASSADOR BRICK SIZE, SINGLE SOLDIER COURSE, NO PROJECTIONS	LEVEL 5 COURTYARD TERRACE BRICK HEAD

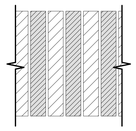
NOTES:
1. REFER TO OVERALL ELEVATIONS AND ENLARGED EXTERIOR ELEVATIONS FOR EXTENTS OF BRICK TYPES.
2. STANDARD MODULAR BRICK SIZE AT SOLDIER COURSE LOCATIONS, INDICATED ON ELEVATIONS.
3. BRICK SOLDIER COURSE HEADERS ABOVE WINDOWS AS INDICATED ON ELEVATIONS.
4. TYPICAL BRICK LOADING LOCATIONS INDICATED ON ENLARGED ELEVATIONS (RELIEF ANGLE AT EVERY OTHER LEVEL, DEAD LOADING AT STRUCTURAL SLABS).
5. SEE ILLUSTRATIVE BRICK COURSING DIAGRAM ON A20-01 FOR MORE INFORMATION.

Unit

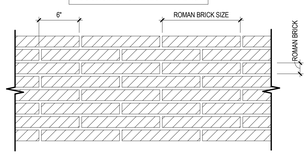
SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1c



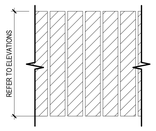
SINGLE SOLDIER COURSE WITH 1" PROJECTION TYPE 1b



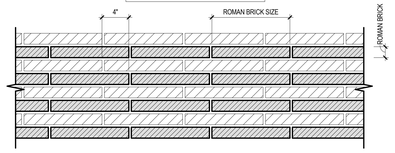
COURSING FOR BRICK TYPE 1a

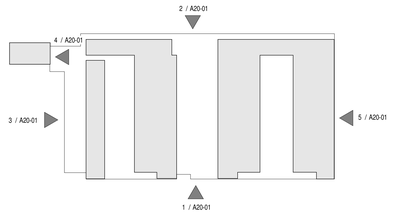


SINGLE SOLDIER COURSE TYPE 2b



COURSING FOR BRICK TYPE 2a

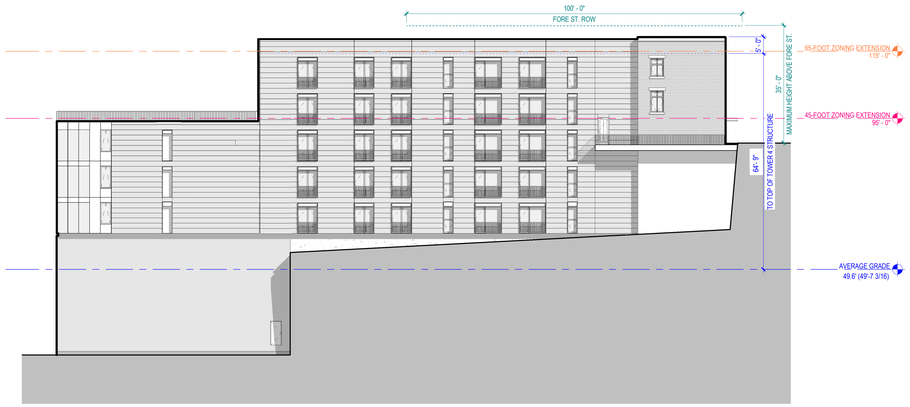




FACE BRICK

FACE BRICK WITH 1" PROJECTION

REFER TO FACE BRICK TYPE DESCRIPTIONS FOR MORE INFORMATION



5 OVERALL ELEVATION - EAST
1/16" = 1'-0"



4 OVERALL ELEVATION - B2 EAST
1/16" = 1'-0"

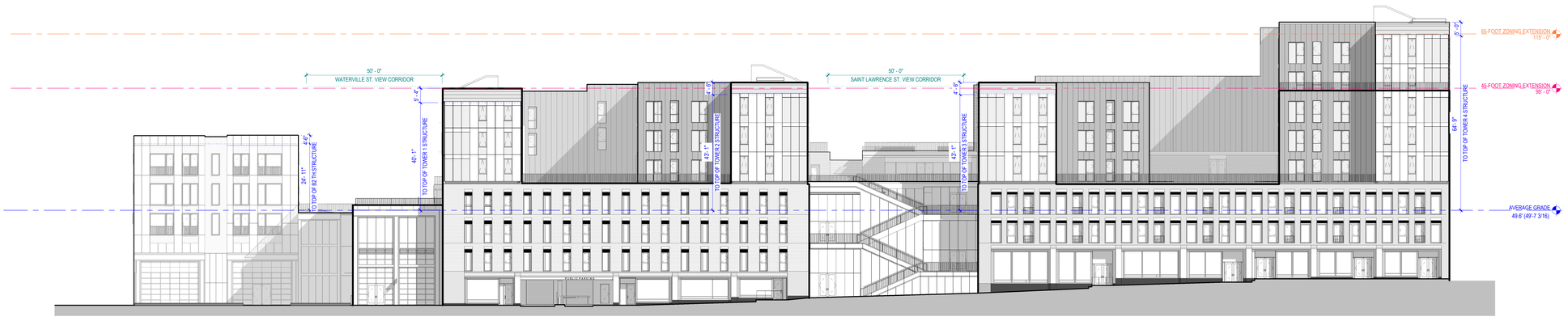
6 BRICK BONDING ELEVATIONS
1 1/2" = 1'-0"



3 OVERALL ELEVATION - WEST
1/16" = 1'-0"



2 OVERALL ELEVATION - NORTH
1/16" = 1'-0"



1 OVERALL ELEVATION - SOUTH
1/16" = 1'-0"

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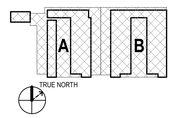
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PFDC HARBOR HILL
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KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023

ISSUE CHART

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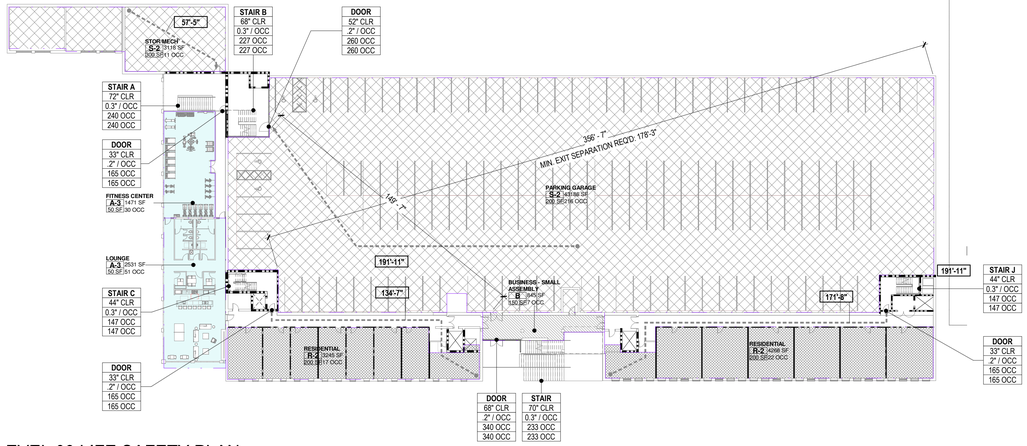
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OVERALL ELEVATIONS

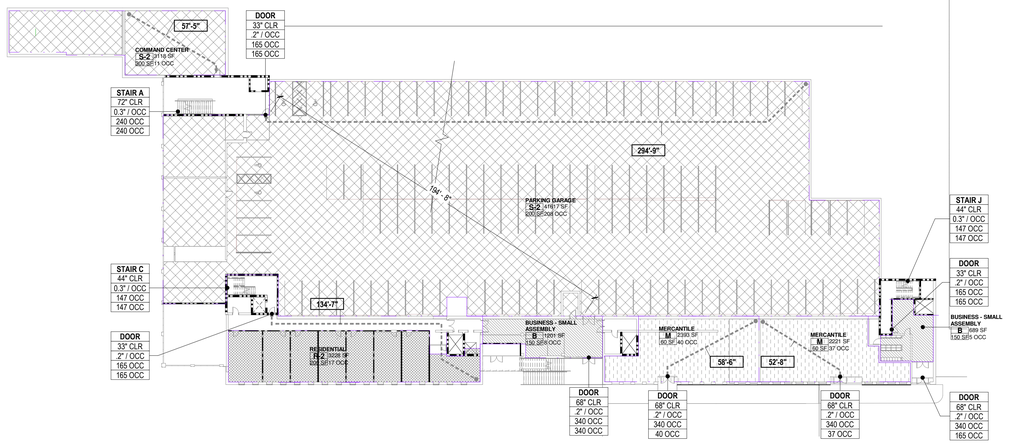
SHEET NUMBER

A20-01

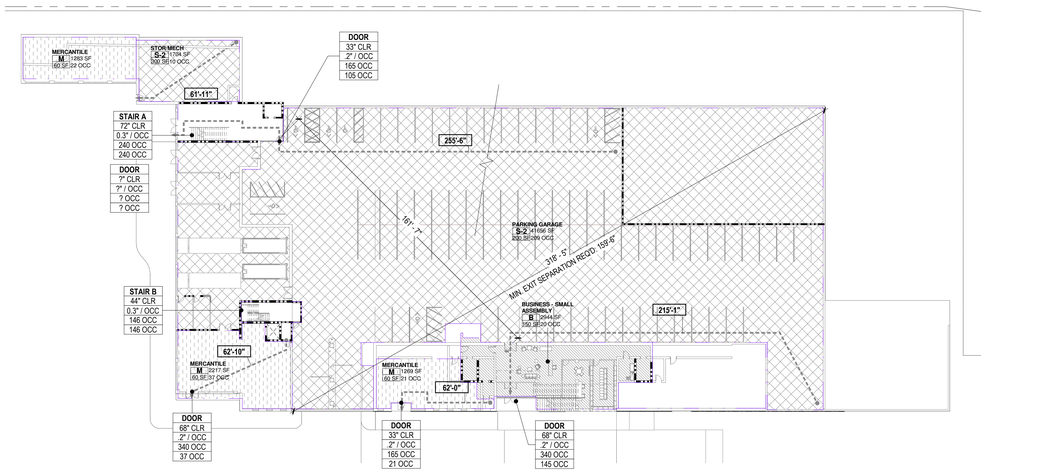
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7 LEVEL 03 LIFE SAFETY PLAN
1/32" = 1'-0"



6 LEVEL 02 LIFE SAFETY PLAN
1/32" = 1'-0"



5 LEVEL 01 LIFE SAFETY PLAN
1/32" = 1'-0"

CODE COMPLIANCE PLAN GENERAL NOTES

1. ALL WORK IS TO BE DONE IN ACCORDANCE WITH APPLICABLE CODES.
2. FINAL LOCATIONS OF ALL LIFE SAFETY DEVICES AND FIXTURES ARE SUBJECT TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION.

CODE COMPLIANCE PLAN LEGEND

- NON-FIRE-RATED SMOKE PARTITION
- EXISTING NON-FIRE-RATED SMOKE PARTITION
- SMOKE BARRIER 1-HOUR FIRE RATING
- EXISTING SMOKE BARRIER. 1-HOUR FIRE RATING.
- 1-HOUR FIRE PARTITION
- 1.5-HOUR FIRE PARTITION
- 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- EXISTING 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS
- 3-HOUR FIRE WALL
- EXISTING 3-HOUR FIRE WALL
- EXIT SIGN
- FEC — FIRE EXTINGUISHER & CABINET (SCREENED IF EXISTING)
- FE — FIRE EXTINGUISHER (SCREENED IF EXISTING)
- FEC — FIRE EXTINGUISHER & CABINET SURFACE MOUNTED (SCREENED IF EXISTING)
- OCC OCC — DOOR EXIT WIDTH
- 20 MIN — FIRE RATING OF DOOR IN MINUTES
- NOT IN CONTRACT
- 999'-11" — LONGEST ROUTE TO AN EXIT
- 999'-11" — MAXIMUM OVERALL DIAGONAL DISTANCE
- 999'-11" — EXIT SEPARATION
- 999'-11" — COMMON PATH OF EGRESS TRAVEL / DEAD END

DOOR	STAIR	
72" CLR	48" CLR	EGRESS COMPONENT
0.2"/OCC	0.3"/OCC	CLEAR WIDTH - PROVIDED
360 OCC	160 OCC	OCCUPANCY FACTOR
100 OCC	100 OCC	OCCUPANCY CAPACITY - MAXIMUM
		OCCUPANCY CAPACITY - PROVIDED

BUSINESS — B — 6240 SF — 150 SF/ 42 OCC
- FUNCTION OF SPACE
- OCCUPANCY GROUP
- AREA
- OCCUPANTS
- OCCUPANT LOAD FACTOR

PROJECT DATA & CODE REFERENCES

PROJECT LOCATION:	PORTLAND, MAINE.
AUTHORITY HAVING JURISDICTION:	PERMITTING & INSPECTIONS DEPARTMENT, CITY OF PORTLAND, ME
PROJECT DESCRIPTION:	NEW CORE & SHELL CONSTRUCTION OF A 9 STORY HOUSING AND RETAIL BUILDING WITH 3 LEVELS OF PARKING GARAGE.
APPLICABLE CODES:	
BUILDING CODE:	2018 IBC, MAINE UNIFORM BUILDING AND ENERGY CODE (MUBEC) - BASED ON INTERNATIONAL BUILDING CODE - 2015 EDITION
FIRE CODE:	2018 NFPA 1
LIFE SAFETY:	2018 NFPA 101
ACCESSIBILITY:	2015 IBC CHAPTER 11, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN.
ELECTRICAL:	2020 NATIONAL ELECTRIC CODE (NFPA 70)
MECHANICAL:	2015 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE:	MAINE STATE INTERNAL PLUMBING CODE/2021 UPC
ENERGY:	2021 INTERNATIONAL ENERGY AND CONSERVATION CODE AND ASHRAE 90.1 (2016 EDITION)

GENERAL CODE SUMMARY

USES & OCCUPANCY CLASSIFICATION

GROUP A-2, ASSEMBLY	RESTAURANT, NIGHTCLUB, BARS
GROUP A-3, ASSEMBLY	TERRACES, MEETING ROOMS W/ OCCUPANT LOAD >50
GROUP B, BUSINESS	LOBBIES, OFFICES, TERRACES, MEETING ROOMS W/ OCCUPANT LOAD >50
GROUP M, MERCANTILE	LEVEL 1 & 2 RETAIL
GROUP R-2, RESIDENTIAL	APARTMENTS
GROUP S-1, MODERATE HAZARD STORAGE	COMBUSTABLE STORAGE
LOW HAZARD STORAGE (S-2)	PARKING GARAGE, MEP SPACES, NON-COMBUSTABLE STORAGE

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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL

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PORTLAND, ME 04101

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
SEPTEMBER 16, 2022

Job Number	157111
Drawn	Author
Checked	Checker
Approved	Approver

TITLE

CODE COMPLIANCE PLANS

SHEET NUMBER

G01-01

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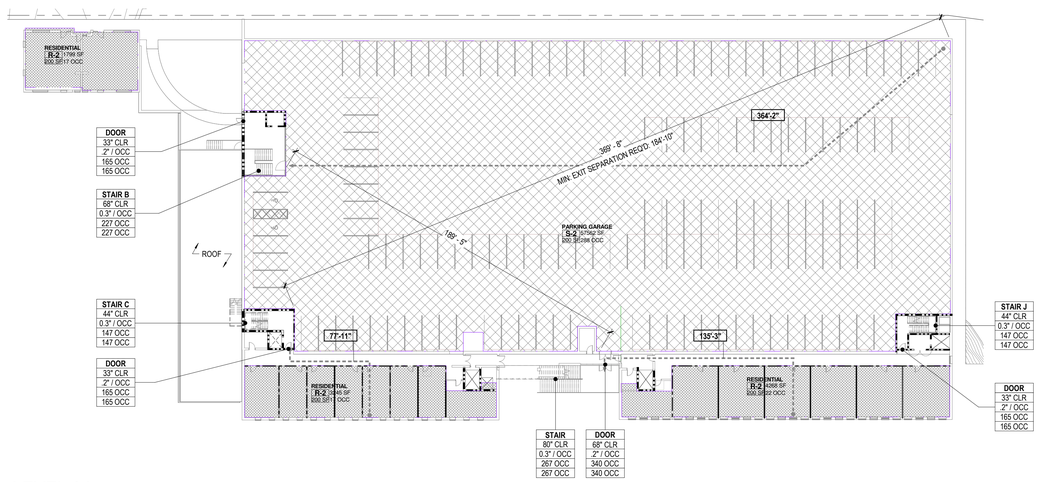
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3 LEVEL 06
1/32" = 1'-0"



2 LEVEL 05
1/32" = 1'-0"



1 LEVEL 04
1/32" = 1'-0"

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360 OCC	160 OCC	OCCUPANCY CAPACITY - MAXIMUM
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EGRESS COMPONENT

BUSINESS — B — 6240 SF — FUNCTION OF SPACE
150 SF — 42 OCC — OCCUPANCY GROUP / AREA / OCCUPANTS / OCCUPANT LOAD FACTOR

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PROJECT

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PORTLAND, ME 04101

FORESIDE DEVELOPMENT

KEYPLAN

ISSUE CHART

MARK	ISSUE	DATE

Job Number 157111

TITLE

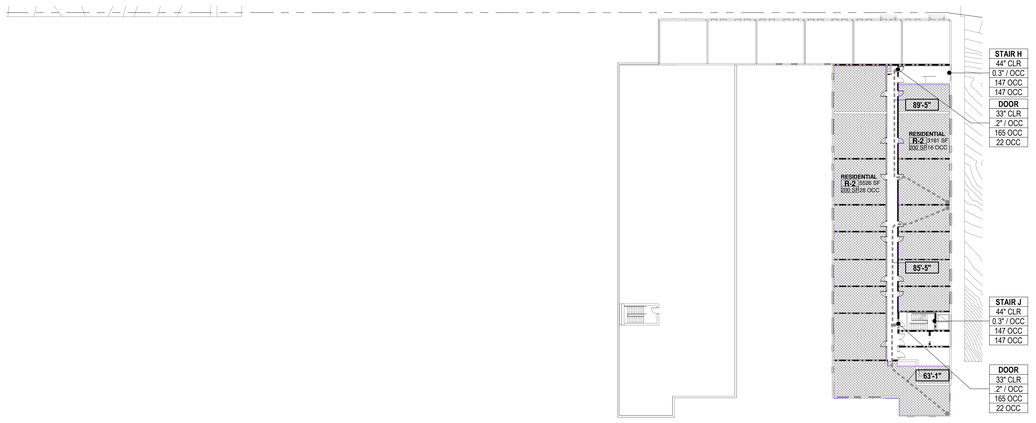
CODE COMPLIANCE PLANS

SHEET NUMBER

G01-02

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3 LEVEL 09
1/32" = 1'-0"



2 LEVEL 08
1/32" = 1'-0"



1 LEVEL 07
1/32" = 1'-0"

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BUSINESS — FUNCTION OF SPACE
B — OCCUPANCY GROUP
6240 SF — AREA
150 SF/42 OCC — OCCUPANTS
OCCUPANT LOAD FACTOR

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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL

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PORTLAND, ME 04101

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
SEPTEMBER 16, 2022

Job Number	157111
Drawn	Author
Checked	Checker
Approved	Approver

TITLE

CODE COMPLIANCE PLANS

SHEET NUMBER

G01-03

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FORE ST.

BRICK PAVERS

FORE ST. TOWNHOUSES

WARM GRAY BRICK

ZINC TONE METAL ROOF

BLACK METAL/ WINDOW FRAMES

VISION GLASS/ TRANSPARENT GLAZING

FORE ST. RETAIL

WARM GRAY BRICK

GRAY METAL PANELS

BLACK METAL/ WINDOW FRAMES

VISION GLASS/ TRANSPARENT GLAZING

FORE ST. TOWNHOUSES

WARM GRAY BRICK

ZINC TONE METAL ROOF

BLACK METAL/ WINDOW FRAMES

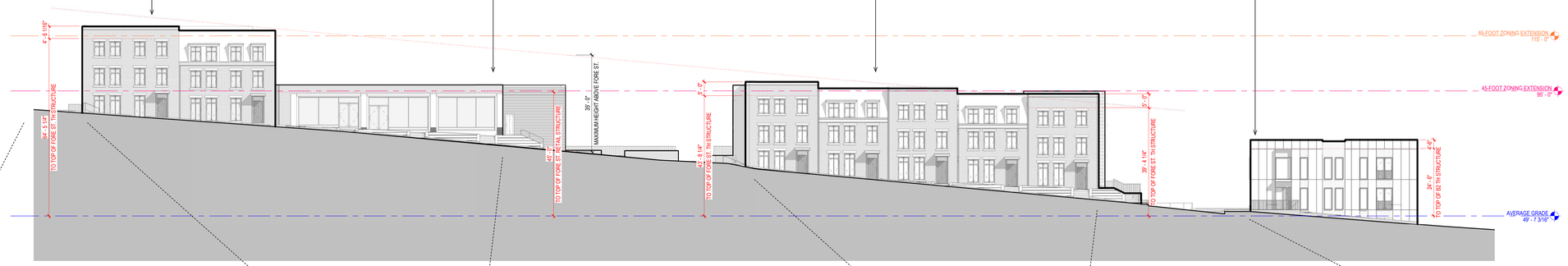
VISION GLASS/ TRANSPARENT GLAZING

BLOCK 2 TOWNHOUSES

FIBER CEMENT PANELS- GRAY

NATURAL WOOD SIDING

VISION GLASS/ TRANSPARENT GLAZING



2 OVERALL ELEVATION - NORTH
1/16" = 1'-0"



01 - ATLANTIC



02 - ST. LAWRENCE



03 - WATERVILLE

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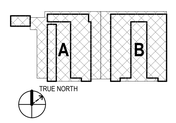
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PROJECT

FORESIDE DEVELOPMENT

PFDC HARBOR HILL
254 COMMERCIAL ST
SUITE 118
PORTLAND, ME 04101

KEYPLAN



DESIGN DEVELOPMENT
FEBRUARY 24, 2023
ISSUE CHART

NO	ISSUE	DATE
Job Number		157111
Checked		Checker
Approved		Approver

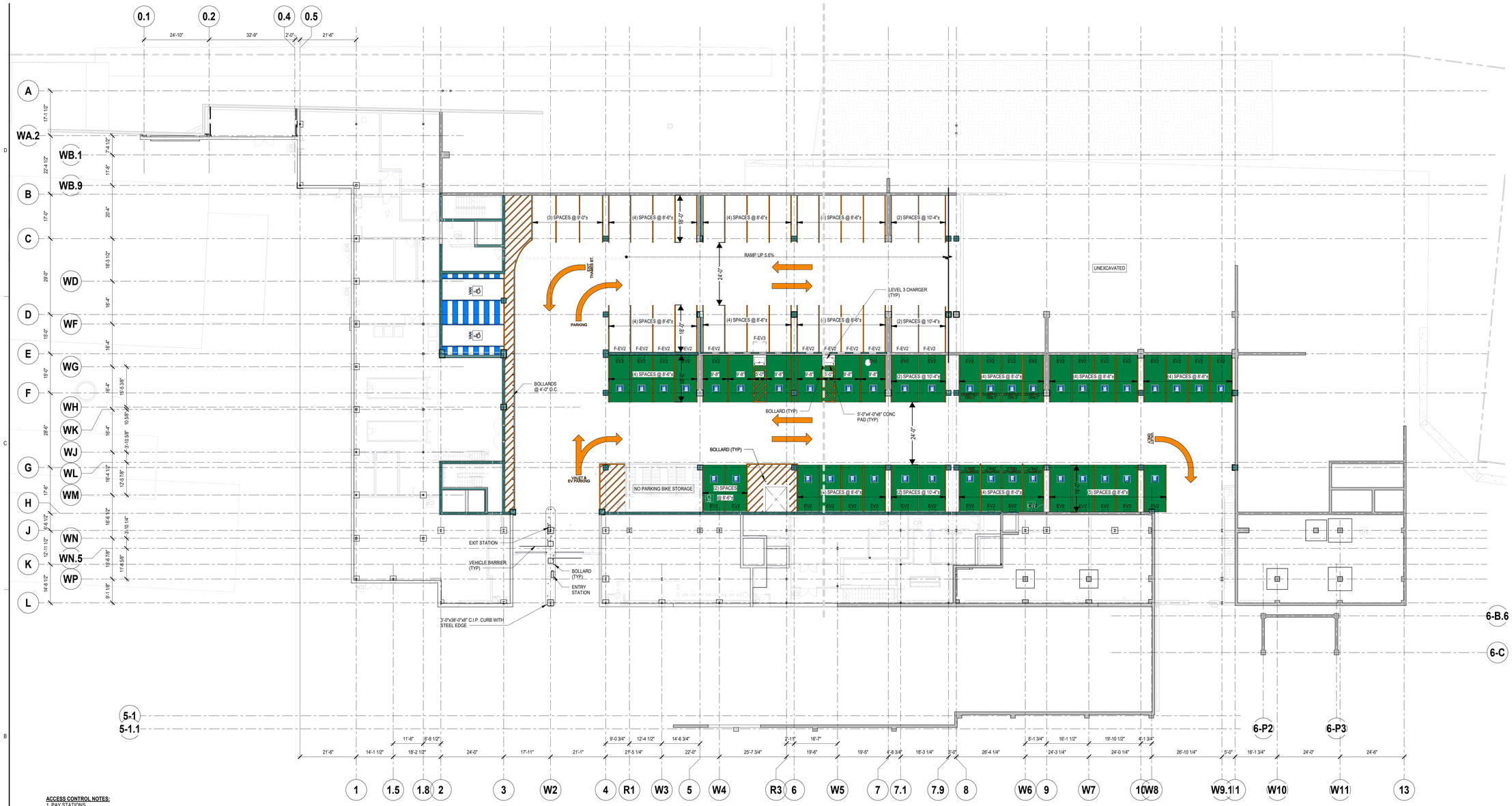
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OVERALL ELEVATIONS Copy 1

SHEET NUMBER

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ACCESS CONTROL NOTES:
1. PAY STATIONS
A. 6 REQUIRED, CREDIT CARD ONLY.
B. PROVIDE VOIP INTERCOM TO EACH UNIT.
C. ADA COMPLIANT.
D. CALCULATE AND DISPLAYS PARKING FEES.
E. PRINTS PATRON RECEIPTS ON DEMAND.
F. RETURNS VALIDATED TICKETS.

2. ENTRY STATIONS
A. 2 REQUIRED
B. INTEGRATED INTERCOM
C. HIGH SPEED TICKET ISSUANCE.
D. SUPPORT TICKET-LESS ENTRY.
E. HIGH RESOLUTION TOUCH SCREEN.
F. CONTROLS BARRIER GATE.

3. VEHICLE BARRIERS
A. 4 REQUIRED
B. ARTICULATED – MUST MAINTAIN 8'-2" CLEARANCE.
C. BREAKAWAY FLANGE.
D. REAL TIME MONITORING AND CONTROL.
E. REMOTE DIAGNOSTICS.
F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
A. 2 REQUIRED
B. INTEGRATED INTERCOM.
C. IN-LANE TICKET PROCESSING AND PAY STATION.
D. CALCULATES AND DISPLAYS PARKING FEE.
E. PRINTS RECEIPTS ON DEMAND.
F. SUPPORT TICKET-LESS EXIT.
G. HIGH RESOLUTION TOUCH SCREEN.
H. CONTROLS BARRIER GATE.

5. LPR/AVI CAMERAS
A. 4 REQUIRED
B. ABLE TO OPERATE VEHICLE BARRIERS AND OVERHEAD COILING GATES DURING OFF HOURS.
C. CAMERAS TO INCLUDE AT A MINIMUM: CAMERA PROCESSOR, CABLE/CONNECTOR(S), CLIENT/SERVER ARCHITECTURE, BRACKET MOUNT ASSEMBLIES. CAMERAS SHALL BE VANDAL PROOF.
D. THE CAMERAS MUST BE CAPABLE OF PRODUCING MULTIPLE LICENSE PLATE IMAGES WITH VARYING FLASH, SHUTTER AND GAIN SETTINGS TO ENSURE A HIGH-QUALITY IMAGE REGARDLESS OF WEATHER OR LIGHTING CONDITIONS.

6. FACILITY MANAGEMENT SYSTEM OF SERVER, TASK OR SUBSYSTEM COMPUTERS AND WORKSTATIONS PROVIDING ON-LINE MONITORING AND CNOTROL OF ALL PARCS DEVICES VIA INDEPENDENT DEDICATED TCP/IP NETWORK.
A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

7. ACCURACY: PROVIDE THE FOLLOWING MINIMUM ACCURACY LEVELS.
A. TICKET READING: 99.5%
B. FEE CALCULATION: 99.5%
C. TRANSACTION COUNTS: 99.5%

LEVEL 1 PARKING PLAN
1/16"=1'-0"

SIZE	QTY
HC	0
HC VAN	2
REGULAR	72
TOTAL	74

PARKING NOTES:
1. PROVIDE BOLLARS AT ALL LEVEL 3 EVI AND PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 25 BOLLARDS PER LEVEL.
2. PAINTED LINES:
a. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
b. PAINT EV STATIONS WITH GREEN PAINT AND EV SYMBOL 3'x3'.
c. PARKING STALLS 4" WIDE x18FT LONG
d. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
e. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
f. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
g. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.

3. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
4. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6.
5. PROVIDE HEADACHE BARS AT EACH ENTRANCE AND AT THE START OF THE RAMP UP FROM LEVEL 1. 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

GARAGE PARKING COUNT

LEVEL	TYP SPACES	COMPACT SPACES	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	64	8	0	2	74	45 SPACES REQUIRE WAIVER, SMALLS 8'-8"
LEVEL 2	93	16	2	0	111	65 SPACES REQUIRE WAIVER, SMALLS 8'-6"
LEVEL 3	110	16	5	0	131	86 SPACES REQUIRE WAIVER, SMALLS 8'-6"
LEVEL 4	106	16	5	0	127	81 SPACES REQUIRE WAIVER, SMALLS 8'-6"
TOTAL GARAGE SPACES	373	56	12	2	443	

REQUIRED ADA PARKING 2% FOR 500-1000 SPACES - 10 SPACES REQUIRED.
1/6 REQUIRED TO BE VAN ACCESSIBLE - 2 REQUIRED.

EV CHARGING STATIONS

	VOLTAGE (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	51 EV2	55 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	4 EV3	2 F-EV3

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT (PROGRESS) 2/24/23

THESE DRAWINGS ARE NOT COMPLETE. DESIGN IS STILL IN PROGRESS. CONTRACTOR SHALL CARRY APPROPRIATE CONTINGENCY

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PROJECT
FORESIDE DEVELOPMENT
BLOCK FOUR
PROJECT ADDRESS ENTERED HERE

KEYPLAN
TRUE NORTH

MARK	ISSUE	DATE

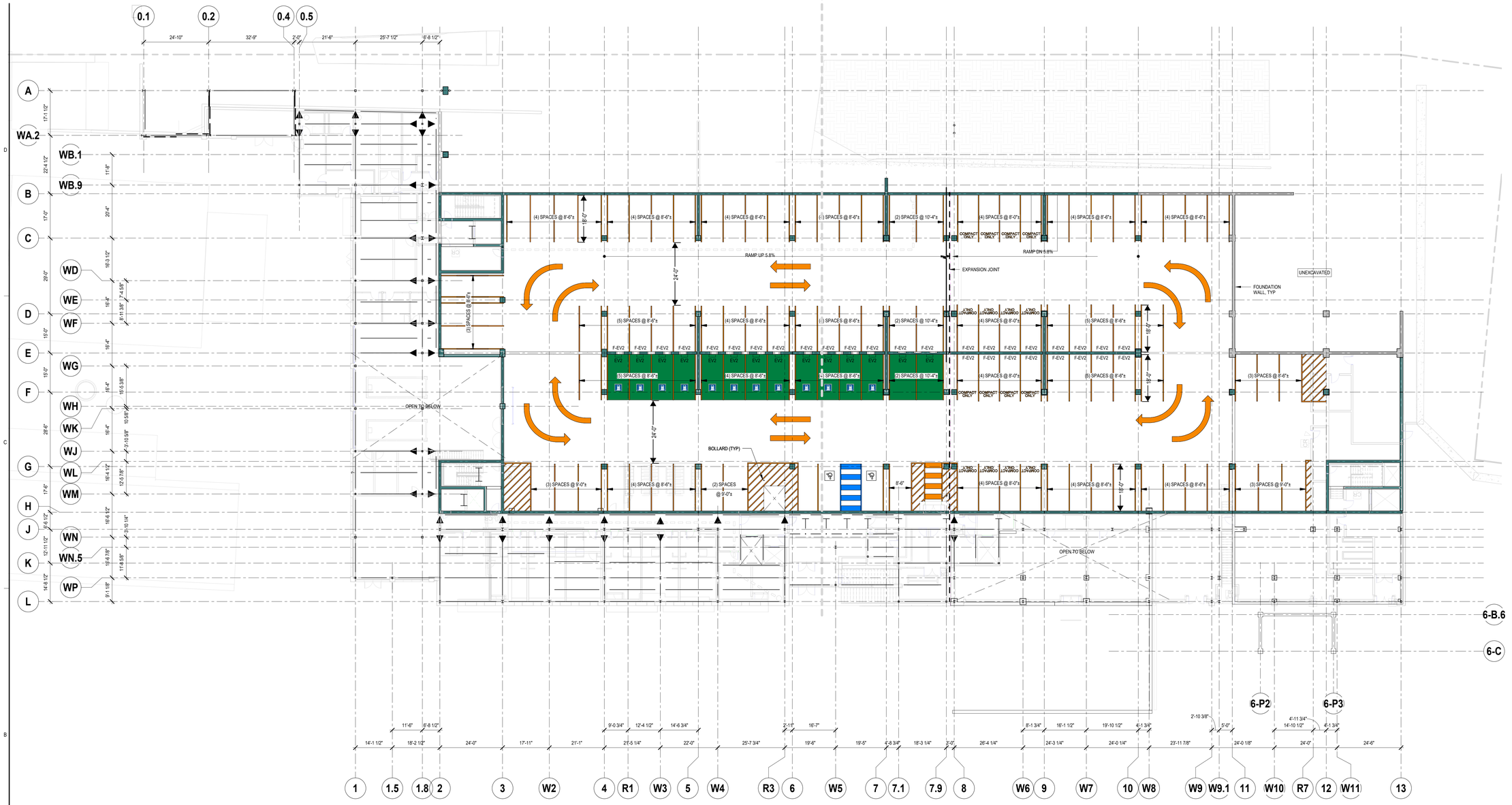
DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

TITLE
LEVEL 1 PARKING PLAN

SHEET NUMBER
PK1.1

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LEVEL 2 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	2
HC VAN	0
REGULAR	109
TOTAL	111

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PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

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ENTERED HERE

KEYPLAN

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2/24/23

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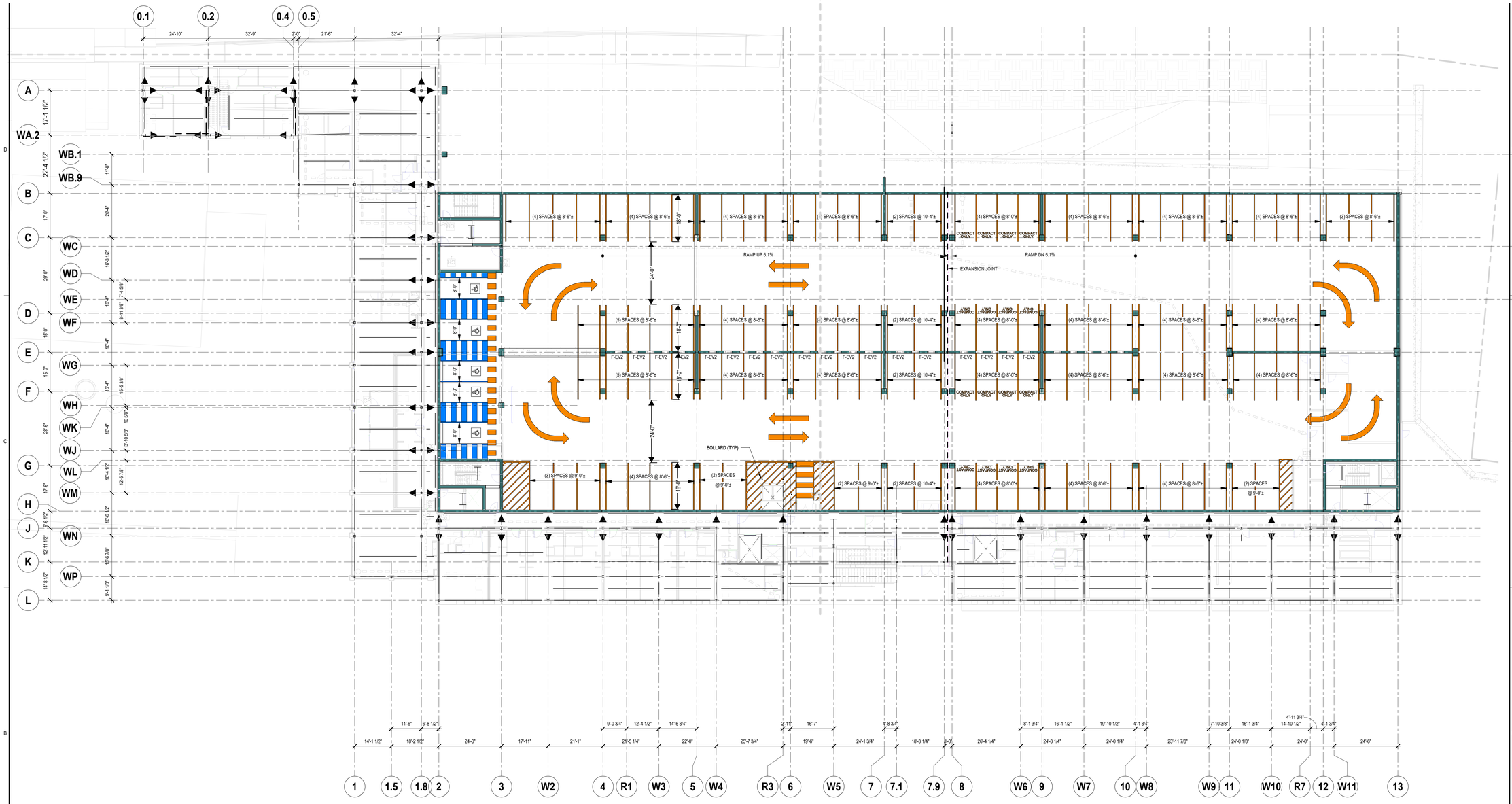
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LEVEL 2 PARKING PLAN

SHEET NUMBER

PK1.2

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LEVEL 3 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	5
HC VAN	0
REGULAR	126
TOTAL	131

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DESIGN DEVELOPMENT (PROGRESS) 2/24/23

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LANDSCAPE ARCHITECT
Michael Boucher Landscape Architecture
457 US Route 1 Suite 2
Freeport, Maine
t 207.865.1080

PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS
ENTERED HERE

KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

Job Number	TTP22728
Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

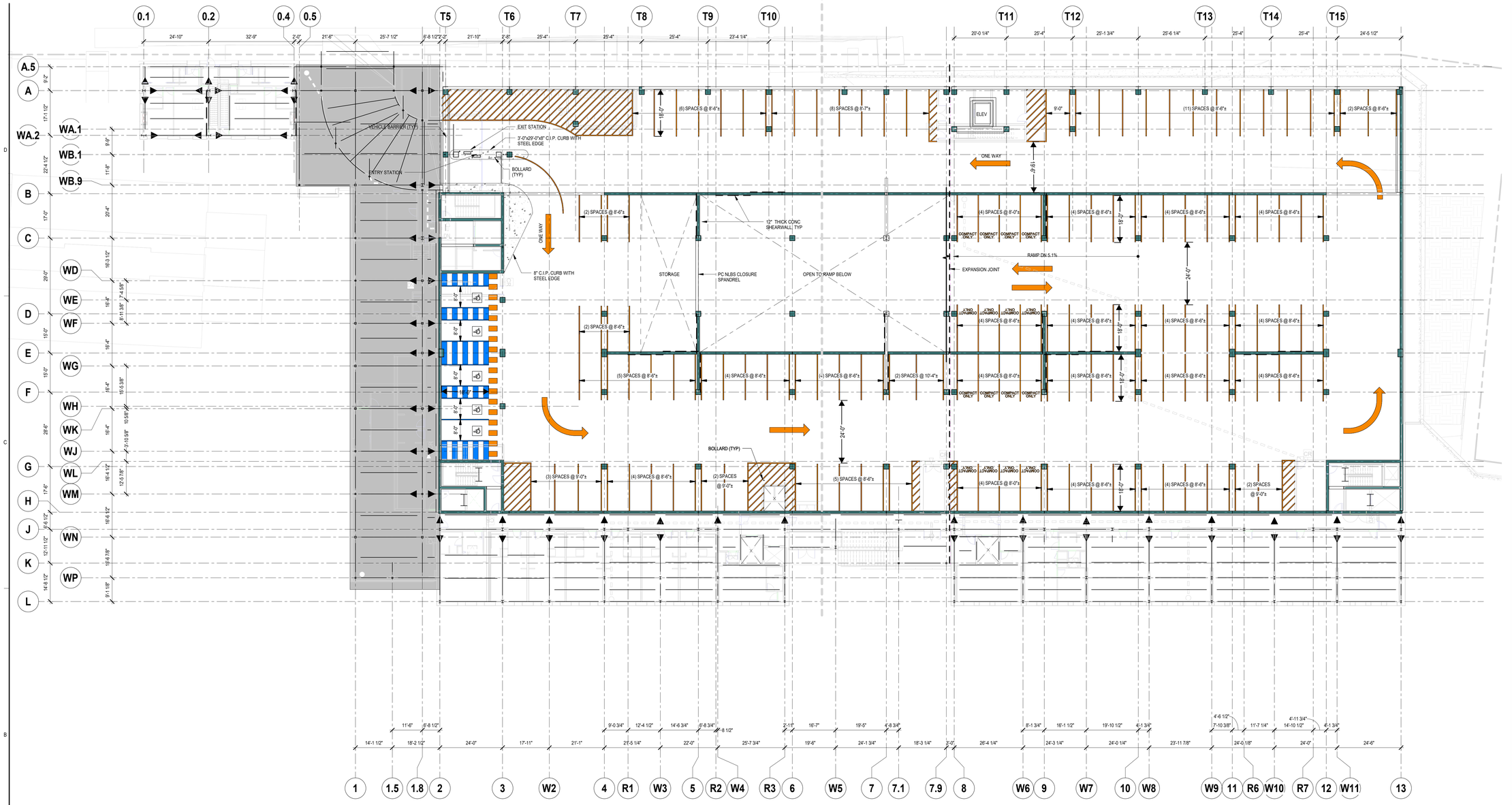
TITLE

LEVEL 3 PARKING PLAN

SHEET NUMBER

PK1.3

5/23/2023 11:23:55 AM Autodesk Docs://FFDC Block Four/TT-P22728-58 FORE BLOCK 4 PC PS-R22-CENTRAL.rvt



LEVEL 4 PARKING PLAN

1/16"=1'-0"

SIZE	QTY
HC	5
HC VAN	0
REGULAR	122
TOTAL	127

NOT FOR CONSTRUCTION
DESIGN DEVELOPMENT (PROGRESS) 2/24/23

THESE DRAWINGS ARE NOT COMPLETE. DESIGN IS STILL IN PROGRESS. CONTRACTOR SHALL CARRY APPROPRIATE CONTINGENCY

Perkins&Will

225 Franklin Street, Suite 1100
Boston, MA 02110
t 617.478.0300
www.perkinswill.com

CONSULTANTS

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41 Hutchins Dr
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Portland, ME 04101
t +1 207.245.6062

MEP ENGINEER
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160 Veranda St, Portland,
ME 04103
t +1 207.221.2260

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t 207.865.1080

PROJECT

FORESIDE DEVELOPMENT

BLOCK FOUR

PROJECT ADDRESS
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KEYPLAN

TRUE NORTH

MARK	ISSUE	DATE

DESIGN DEVELOPMENT
2/24/23

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Drawn	CHF/CGW
Checked	JBB/TMN
Approved	

TITLE

LEVEL 4 PARKING PLAN

SHEET NUMBER

PK1.4

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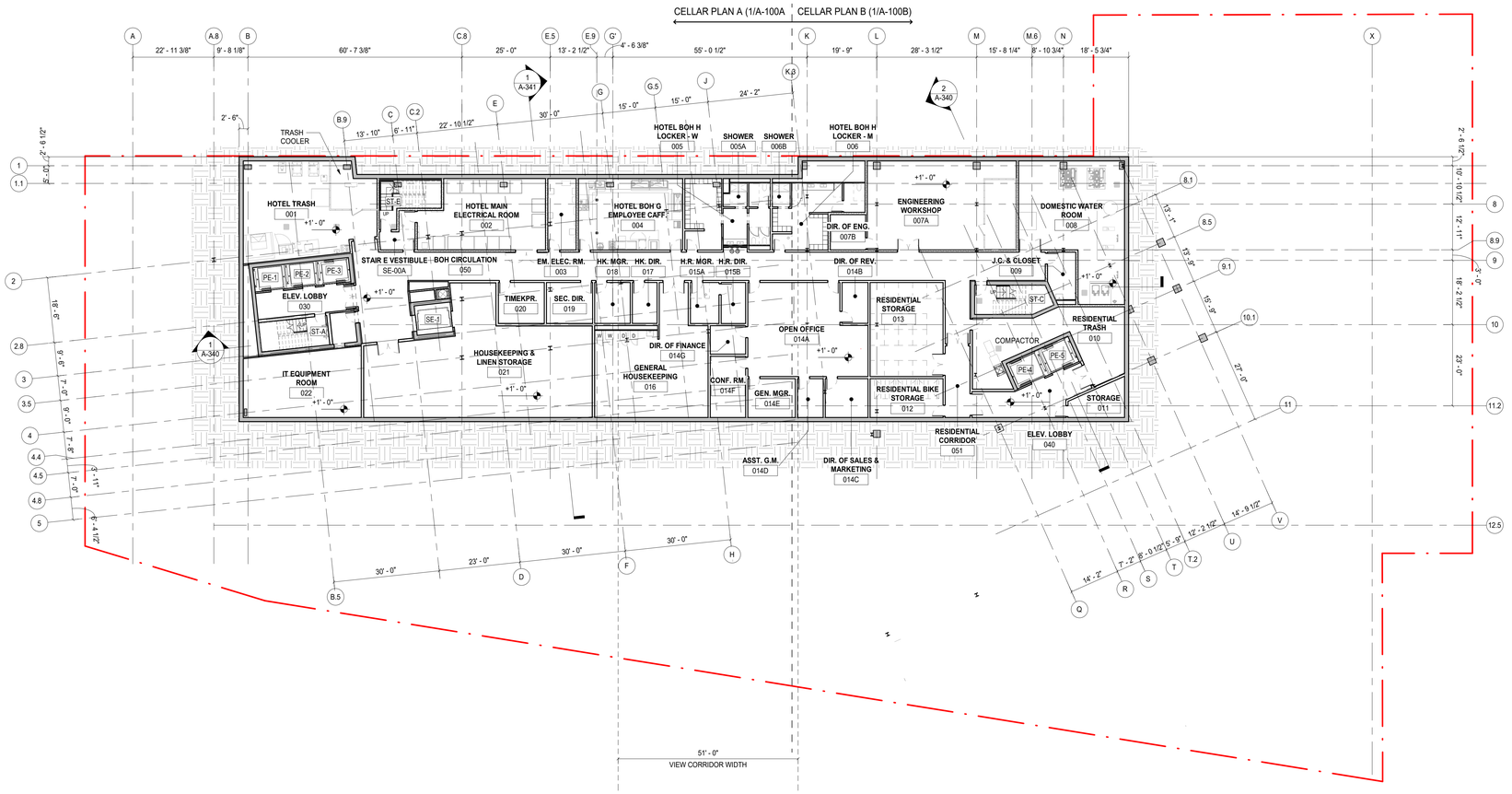



FITNESS
THE PROMENADE


CONDO
CONDO


RETAIL


THE PROMENADE



1 CELLAR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

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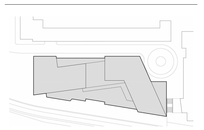


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145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
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275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
	05.12.2023	DESIGN DEVELOPMENT
	08.09.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

CELLAR OVERALL PLAN

SCALE: As indicated

DRAWING #:

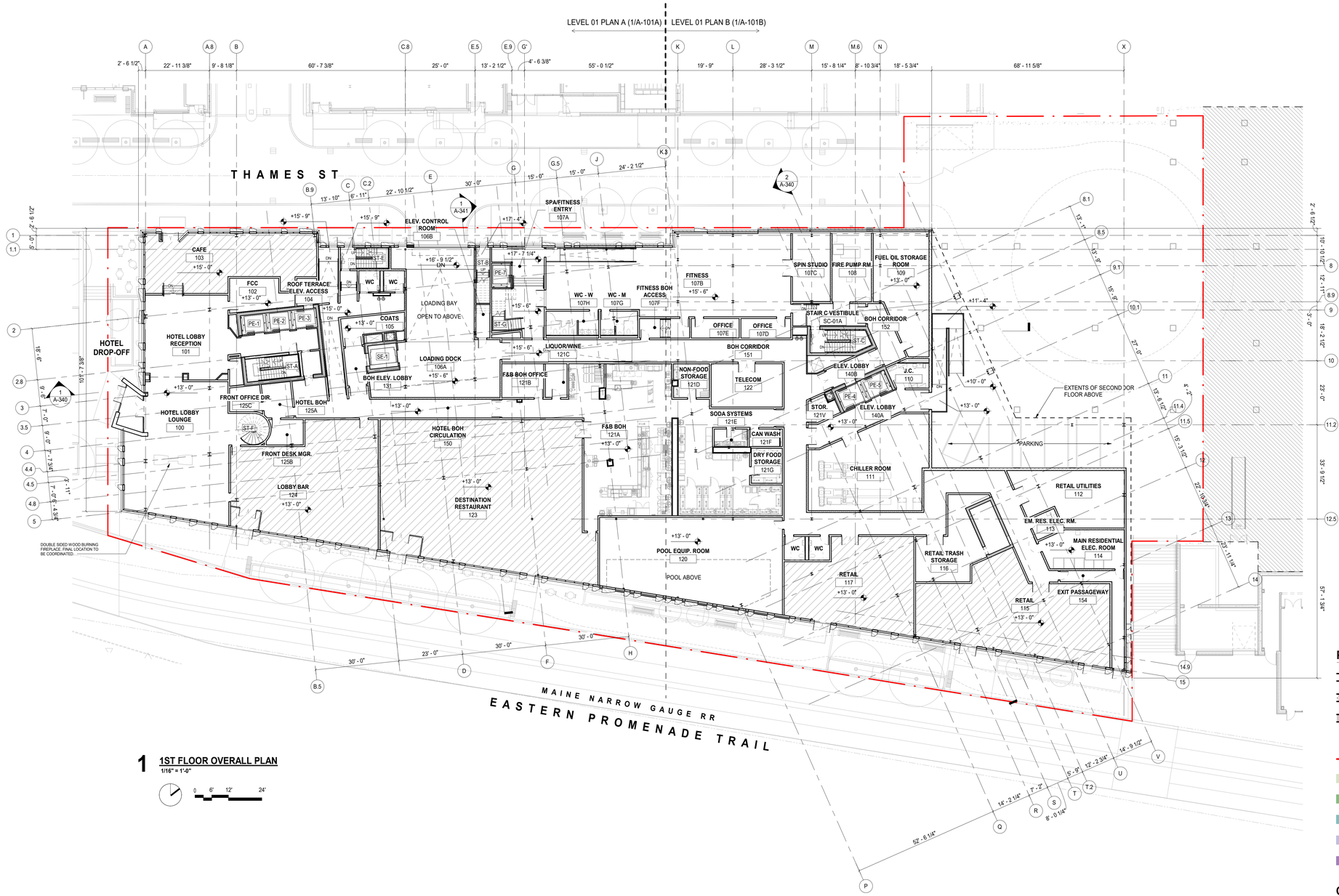
A-100

___ of ___

JOB #:

5/12/2023 6:25:00 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 1ST FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
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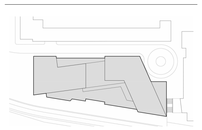


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REV	DATE	DESCRIPTION
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	05.12.2023	DESIGN DEVELOPMENT
	08.09.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

1ST FLOOR OVERALL PLAN

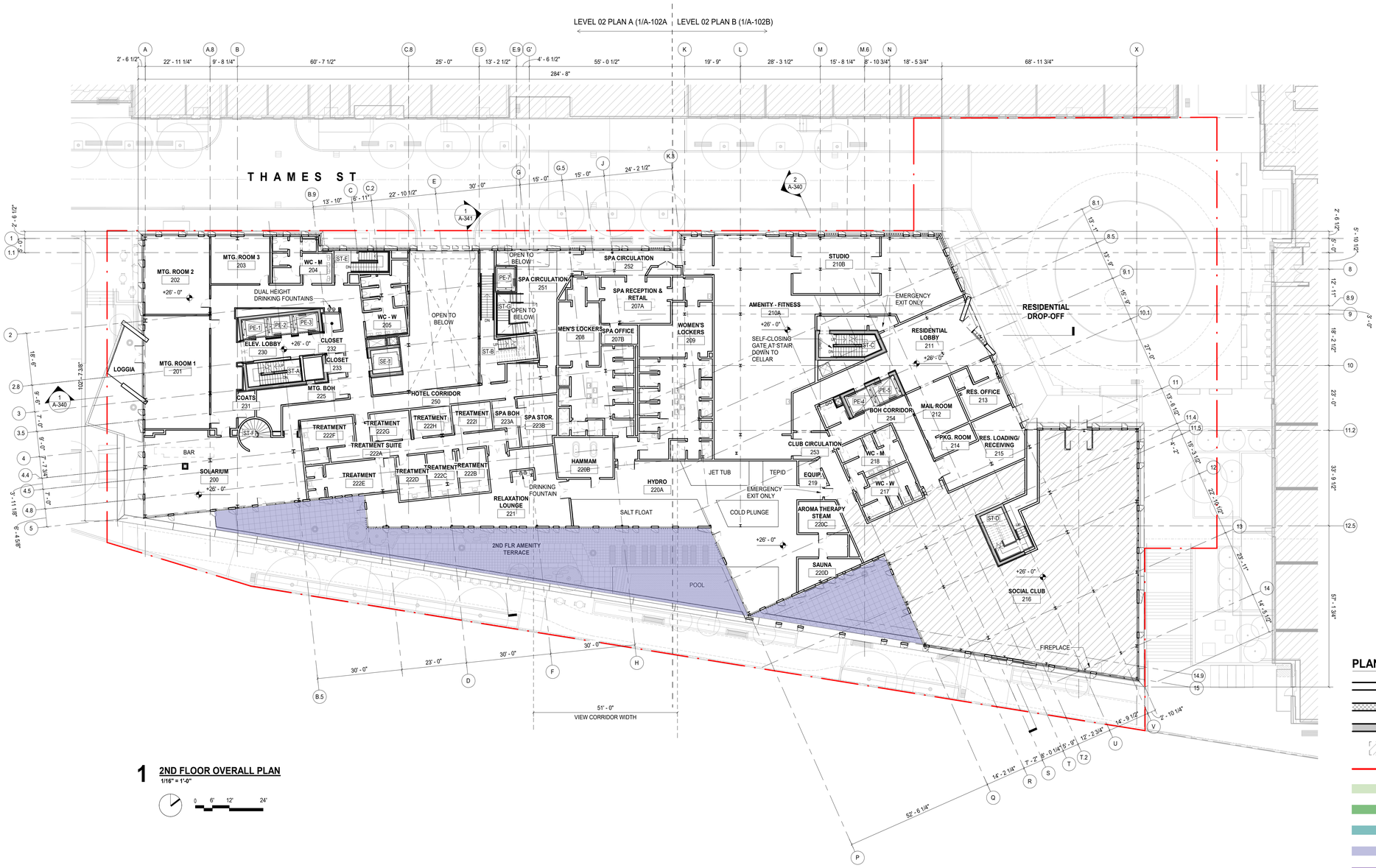
SCALE: As indicated

DRAWING #:

A-101

___ of ___

JOB #:



1 2ND FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
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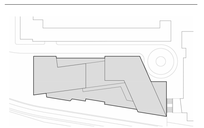


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

CLIENT
PORTLAND FORESIDE
254 COMM. ST, STE 118, PORTLAND, ME 04101
STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
14 YORK ST, STE 201, PORTLAND, ME 04101
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REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
	05.12.2023	DESIGN DEVELOPMENT
	08.09.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

2ND FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:

A-102

of

JOB #:

5/12/2023 6:25:25 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 3RD FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
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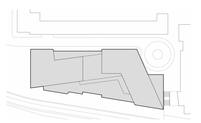


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PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

3RD FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:

A-103

___ of ___

JOB #:

5/12/2023 6:26:38 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 4TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6' 12' 24'

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
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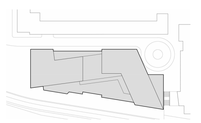


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STRUCTURAL ENGINEER / PARKING
THORNTON TOMASETTI
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MEP/FP
WSP
250 W 34TH ST, 5TH FL, NEW YORK, NY 10119
ENCLOSURE
RWDI
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SUSTAINABILITY
ATELIER TEN
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CCI
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FOOD SERVICE
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POOL
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333 WESTCHESTER AVE, WHITE PLAINS, NY
TECHNOLOGY
SHEN, MILSOM & WILKE
275 MADISON AVE, FL 14, NEW YORK, NY 10016

REV	DATE	DESCRIPTION
	10.14.2022	SCHEMATIC DESIGN
	05.12.2023	DESIGN DEVELOPMENT
	08.09.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

4TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-104
___ of ___
JOB #:

5/12/2023 6:25:49 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 5TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

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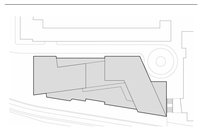


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212.616.0420

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PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

5TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-105
____ of ____
JOB #:

5/12/2023 6:26:00 PM
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 6TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"



ARCHITECT / LANDSCAPE ARCHITECT

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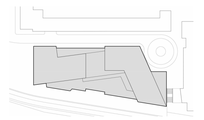
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NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

6TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:

A-106

___ of ___

JOB #:

5/12/2023 6:26:13 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 7TH FLOOR OVERALL PLAN

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
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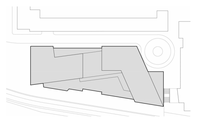


ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420

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REV	DATE	DESCRIPTION
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	08.09.2023	SITE PLAN APPLICATION

NOT FOR CONSTRUCTION



PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

7TH FLOOR OVERALL PLAN

SCALE: As indicated

DRAWING #:
A-107
___ of ___
JOB #:

5/12/2023 6:26:24 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 8TH FLOOR OVERALL PLAN (HOTEL)

1/16" = 1'-0"

0 6" 12" 24"

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
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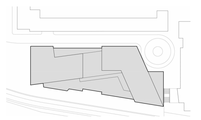


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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

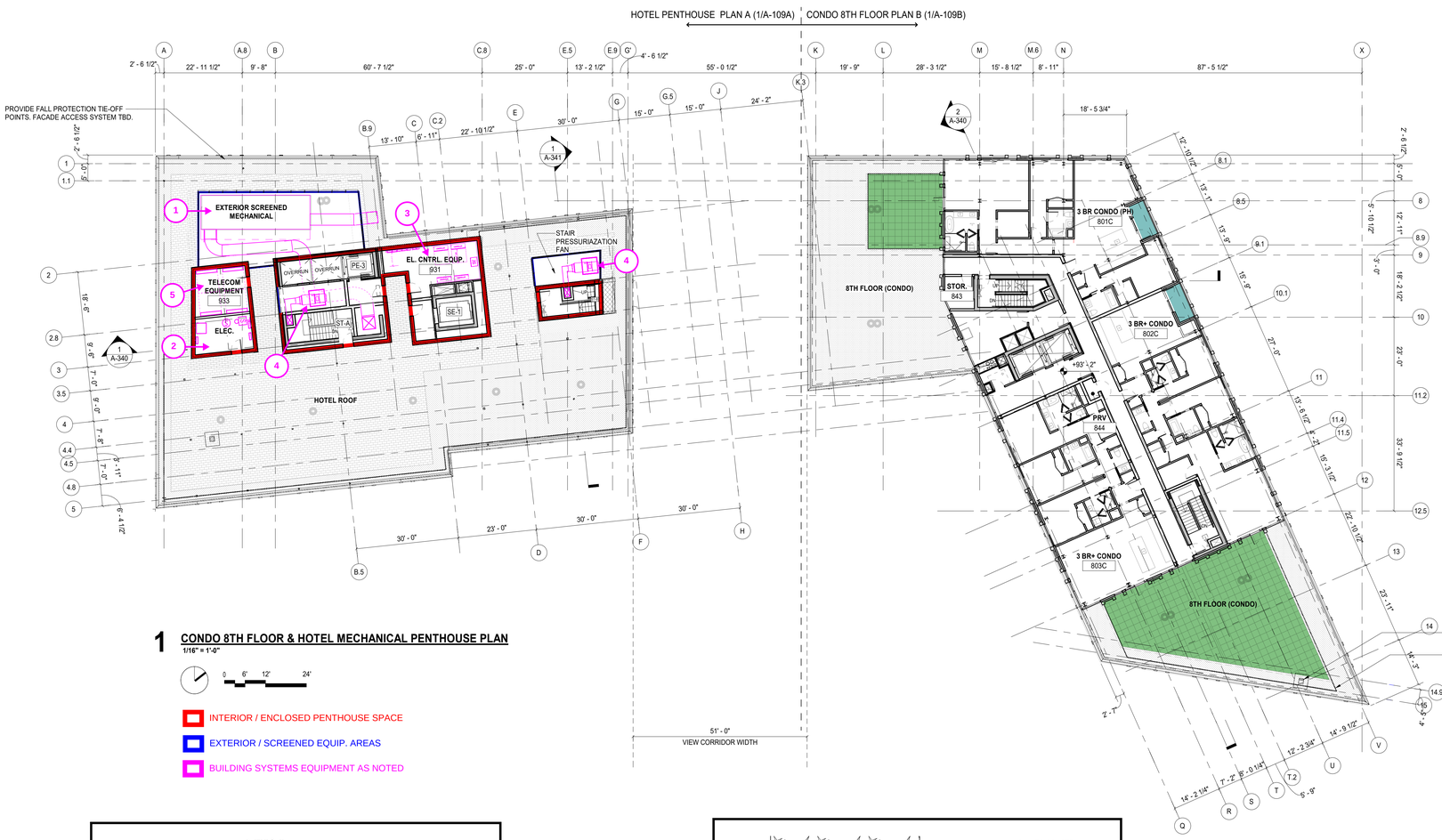
8TH FLOOR OVERALL PLAN (HOTEL)

SCALE: As indicated

DRAWING #:
A-108
___ of ___
JOB #:

5/12/2023 6:26:36 PM

MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1 CONDO 8TH FLOOR & HOTEL MECHANICAL PENTHOUSE PLAN

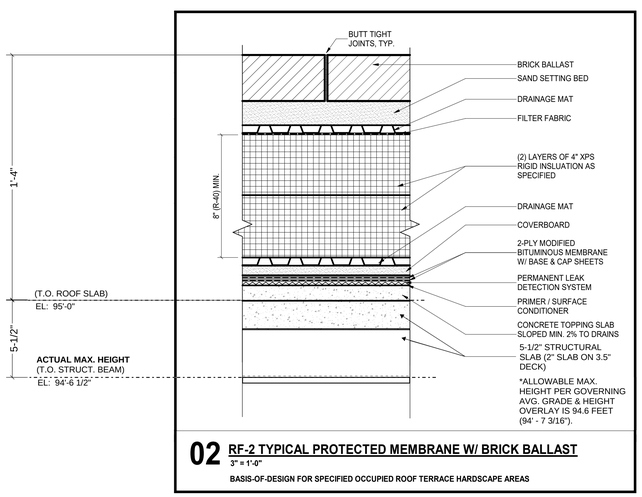
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INTERIOR / ENCLOSED PENTHOUSE SPACE

EXTERIOR / SCREENED EQUIP. AREAS

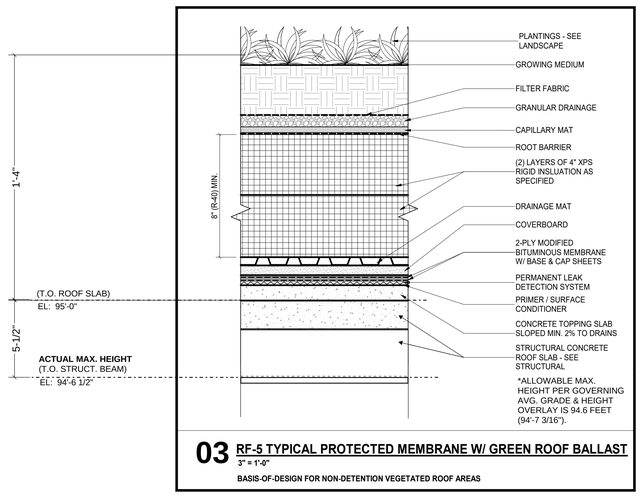
BUILDING SYSTEMS EQUIPMENT AS NOTED



02 RF-2 TYPICAL PROTECTED MEMBRANE W/ BRICK BALLAST

3" = 1'-0"

BASIS-OF-DESIGN FOR SPECIFIED OCCUPIED ROOF TERRACE HARDSCAPE AREAS



03 RF-5 TYPICAL PROTECTED MEMBRANE W/ GREEN ROOF BALLAST

3" = 1'-0"

BASIS-OF-DESIGN FOR NON-DETENTION VEGETATED ROOF AREAS

BUILDING OPERATING EQUIPMENT KEYNOTE LEGEND:

1 - AIR HANDLING UNIT TO PROVIDE OUTSIDE (FRESH) AIR TO ENTIRE BUILDING. AIR HANDLING UNIT LOCATED AT ROOF LEVEL TO PROVIDE ENHANCED OUTDOOR AIR QUALITY TO OCCUPANTS. LOCATION AT HIGH ROOF AVOIDS DISRUPTION OF VIEWS AND NOISE TO GUESTS BELOW AND AVOIDS IMPACTING THE PEDESTRIAN EXPERIENCE AT LOWER FLOORS. THE HIGH ROOF LOCATION ALSO CONTRIBUTES TO THE RESILIENCY OF THE BUILDING IN A FLOOD EVENT.

2 - ELECTRICAL DISTRIBUTION TO SUPPORT ROOFTOP EQUIPMENT. MUST BE LOCATED IMMEDIATELY ADJACENT TO ASSOCIATED ROOFTOP EQUIPMENT FOR PROPER MAINTENANCE AND OPERATION.

3 - ELEVATOR CONTROL EQUIPMENT NEEDS TO BE LOCATED IMMEDIATELY ADJACENT TO THE ELEVATOR SHAFTS FOR PROPER OPERATION. CONTROL EQUIPMENT IS OPTIMALLY LOCATED AT THE TOP OF THE SHAFTS TO CONTRIBUTE TO THE RESILIENCY OF THE BUILDING IN FLOOD EVENTS.

4 - STAIRWAY PRESSURIZATION FAN, REQUIRED BY CODE TO MAINTAIN SAFE EGRESS DURING FIRE CONDITION. EQUIPMENT LOCATED ON ROOF TO PROVIDE PROPER OPERATION.

5 - TELECOM EQUIPMENT IS REQUIRED TO BE PLACED EVERY SEVERAL FLOORS OF THE BUILDING, INCLUSIVE OF THE ROOF, TO PROPERLY SERVE ALL FLOORS AND BUILDING OCCUPANTS BELOW.

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7. ALL DOORS WITHIN FIRE-RATED PARTITIONS SHALL BE LABELED. FIRE-RATED DOORS SHALL BE EQUIPPED WITH RATED HARDWARE. RATED DOORS ALONG EGRESS ROUTES AND WITHIN INTERIOR EXIT STAIRWAYS ARE TO BE LABELED, SELF-CLOSING, AND EQUIPPED WITH FIRE EXIT DEVICE HARDWARE.
8. ALL CORRIDOR WALLS SEPARATING APARTMENTS FROM CORRIDOR TO BE 1 HR FIRE PARTITIONS.
9. ALL DEMISING WALLS SEPARATING APARTMENTS TO BE TYPE 'D1' UON.
10. PROVIDE WALL PROTECTION RAILS, IMPACT RESISTANT WALL COVERINGS, AND CORNER GUARDS IN ALL BACK OF HOUSE CORRIDORS. SEE SPECIFICATIONS.
11. GLASS GUARDRAILS TO BE PROVIDED AT ALL OCCUPIABLE TERRACES AND BALCONIES, INCLUDING JULIET BALCONIES. PROVIDE LAMINATED GLASS WITH SENTRYGLAS INTERLAYER AND STAINLESS STEEL BASE SHOE. THE GLASS BALUSTER PANELS SHALL BE TESTED TO REMAIN IN PLACE AS A BARRIER FOLLOWING IMPACT OR GLASS BREAKAGE IN ACCORDANCE WITH ASTM E2353.

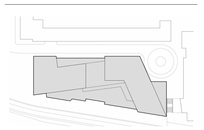


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MEP/FP
WSP
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REV	DATE	DESCRIPTION
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NOT FOR CONSTRUCTION



PLOT PLAN

2230

PORTLAND FORESIDE B5

PORTLAND, ME

8TH FLOOR OVERALL PLAN (CONDO)

SCALE: As indicated

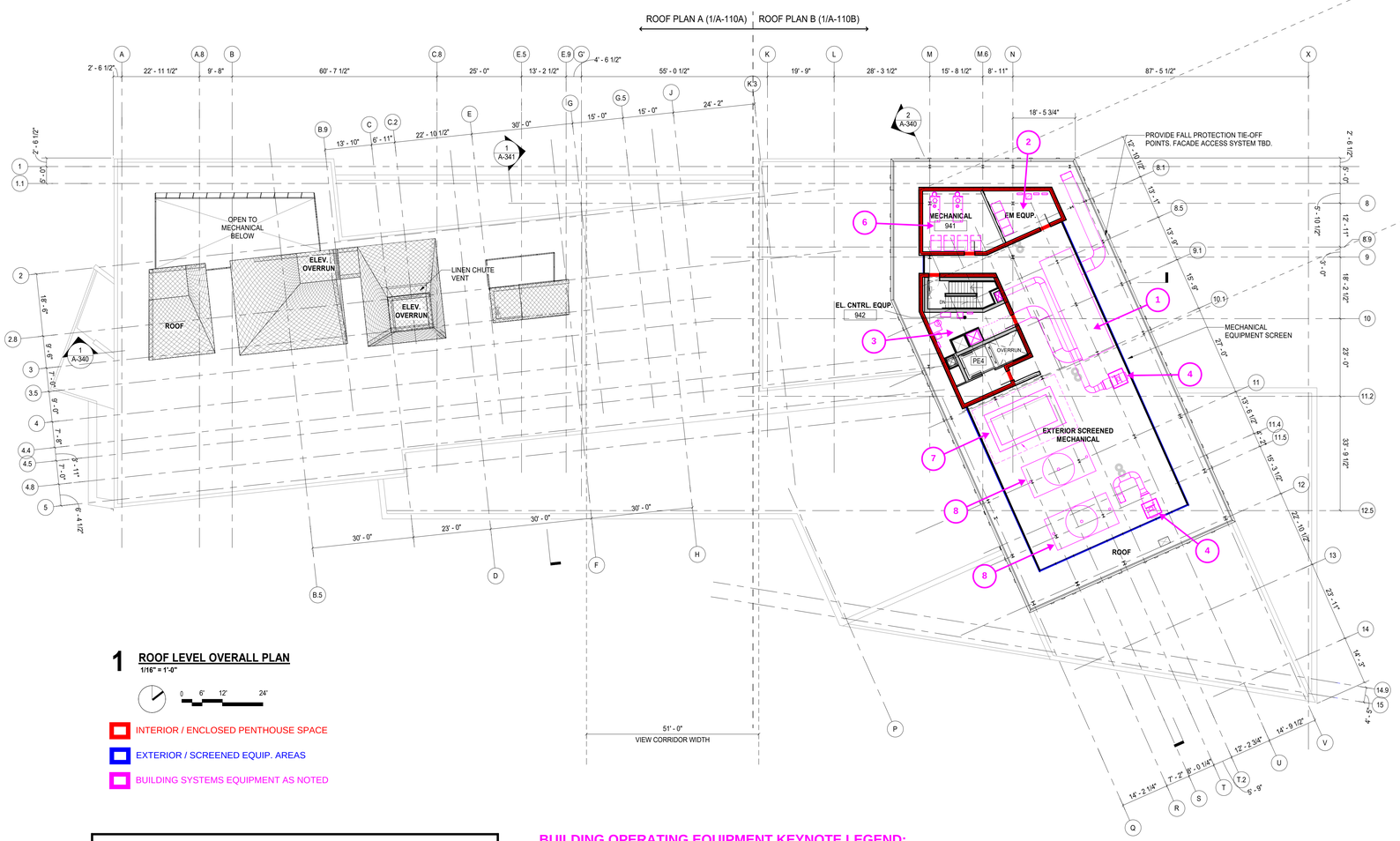
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A-109

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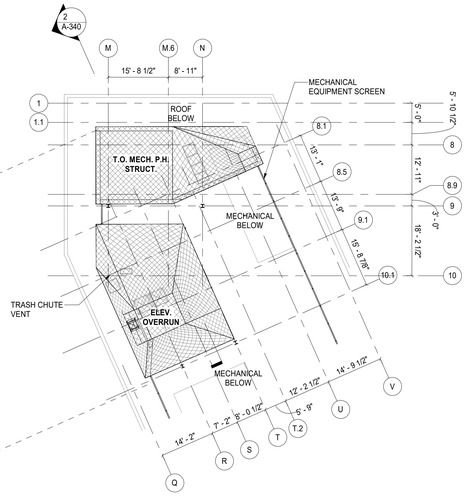
1 ROOF LEVEL OVERALL PLAN
1/16" = 1'-0"

0 6' 12' 24'

INTERIOR / ENCLOSED PENTHOUSE SPACE

EXTERIOR / SCREENED EQUIP. AREAS

BUILDING SYSTEMS EQUIPMENT AS NOTED



2 T.O. BULKHEAD PLAN (CONDO)
1/16" = 1'-0"

02 RF-1 TYPICAL MODIFIED BITUMEN ROOF ASSEMBLY
3" = 1'-0"

TYPICAL FOR NON-OCCUPIED AND MECHANICAL EQUIP. ROOF AREAS

BUILDING OPERATING EQUIPMENT KEYNOTE LEGEND:

1 - AIR HANDLING UNIT TO PROVIDE OUTSIDE (FRESH) AIR TO ENTIRE BUILDING. AIR HANDLING UNIT LOCATED AT ROOF LEVEL TO PROVIDE ENHANCED OUTDOOR AIR QUALITY TO OCCUPANTS. LOCATION AT HIGH ROOF AVOIDS DISRUPTION OF VIEWS AND NOISE TO GUESTS BELOW AND AVOIDS IMPACTING THE PEDESTRIAN EXPERIENCE AT LOWER FLOORS. THE HIGH ROOF LOCATION ALSO CONTRIBUTES TO THE RESILIENCY OF THE BUILDING IN A FLOOD EVENT.

2 - ELECTRICAL DISTRIBUTION TO SUPPORT ROOFTOP EQUIPMENT. MUST BE LOCATED IMMEDIATELY ADJACENT TO ASSOCIATED ROOFTOP EQUIPMENT FOR PROPER MAINTENANCE AND OPERATION.

3 - ELEVATOR CONTROL EQUIPMENT NEEDS TO BE LOCATED IMMEDIATELY ADJACENT TO THE ELEVATOR SHAFTS FOR PROPER OPERATION. CONTROL EQUIPMENT IS OPTIMALLY LOCATED AT THE TOP OF THE SHAFTS TO CONTRIBUTE TO THE RESILIENCY OF THE BUILDING IN FLOOD EVENTS.

4 - STAIRWAY PRESSURIZATION FAN, REQUIRED BY CODE TO MAINTAIN SAFE EGRESS DURING FIRE CONDITION. EQUIPMENT LOCATED ON ROOF TO PROVIDE PROPER OPERATION.

5 - TELECOM EQUIPMENT IS REQUIRED TO BE PLACED EVERY SEVERAL FLOORS OF THE BUILDING, INCLUSIVE OF THE ROOF, TO PROPERLY SERVE ALL FLOORS AND BUILDING OCCUPANTS BELOW.

6 - HOT WATER BOILER PLANT LOCATED AT ROOF TO MINIMIZE DISTANCES COMBUSTION FLUES NEED TO TRAVEL TO GET TO ROOF LEVEL. LOCATION AT ROOF CONTRIBUTES TO RESILIENCY OF BUILDING IN FLOOD EVENTS.

7 - EMERGENCY GENERATOR TO BE PROVIDED IN ENCLOSURE. EQUIPMENT IS LOCATED AT ROOF TO MINIMUZE GENERATOR EXHAUST STACK ROUTING. LOCATION ON HIGH ROOF IS OPTIMAL TO AVOID VISUAL AND NOISE DISRUPTION TO RESIDENTS AND PEDESTRIANS AT LOWER LEVELS. HIGH ROOF LOCATION ALSO CONTRIBUTES TO RESILIENCY OF BUILDING IN FLOOD EVENTS.

8 - COOLING TOWERS REQUIRED TO BE OUTSIDE IN OPEN AIR IN ORDER TO FUNCTION PROPERLY AND PROVIDE COOLING FOR BUILDING. LOCATION ON HIGH ROOF IS OPTIMAL TO AVOID VISUAL AND NOISE DISRUPTION TO RESIDENTS AND PEDESTRIANS AT LOWER LEVELS. HIGH ROOF LOCATION ALSO CONTRIBUTES TO RESILIENCY OF BUILDING IN FLOOD EVENTS.

PLAN LEGEND

- FRAMED GWB PARTITION
- CMU PARTITION
- STRUCTURAL CONCRETE WALL
- WHITE BOX SPACE
- PARCEL LINE
- SHARED RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL TERRACE
- PRIVATE RESIDENTIAL BALCONY
- SHARED HOTEL TERRACE
- PRIVATE HOTEL TERRACE

GENERAL PLAN NOTES

1. REFER TO SHEET **A-020-A-021** FOR PARTITION TYPES.
2. REFER TO SHEET **G-010** FOR PROJECT SUMMARY + GENERAL NOTES
3. REFER TO SHEET **G-015** FOR GRAPHIC SYMBOLS AND ABBREVIATIONS.
4. REFER TO SHEET **G-020/G-021/G-022** FOR ACCESSIBILITY NOTES AND DIAGRAMS.
5. SEE A-020 TO A-40 SERIES AND NOTED DETAILS FOR WALL, FLOOR, AND CEILING ASSEMBLIES.
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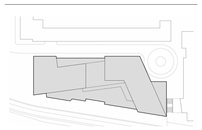


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PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

ROOF PLAN

SCALE: As indicated

DRAWING #:
A-110
of
JOB #:

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1 SOUTHEAST ELEVATION

1/16" = 1'-0"

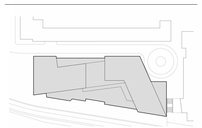
GENERAL ELEVATION NOTES

1. FLOOR-TO-FLOOR DIMENSIONS ARE TO TOP OF FINISHED FLOOR.
2. CLEAR FLOOR-TO-FLOOR DIMENSIONS ARE APPROXIMATE AND WILL BE IMPACTED BY FLOOR AND CEILING FINISHES, WHICH ARE NOT KNOWN AT THIS TIME.
3. REFER TO SHEET A-400 FOR ADDITIONAL INFORMATION ON FACADE WALL TYPES.

ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- GL-3 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

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PLOT PLAN

2230

PORTLAND FORESIDE B5
PORTLAND, ME

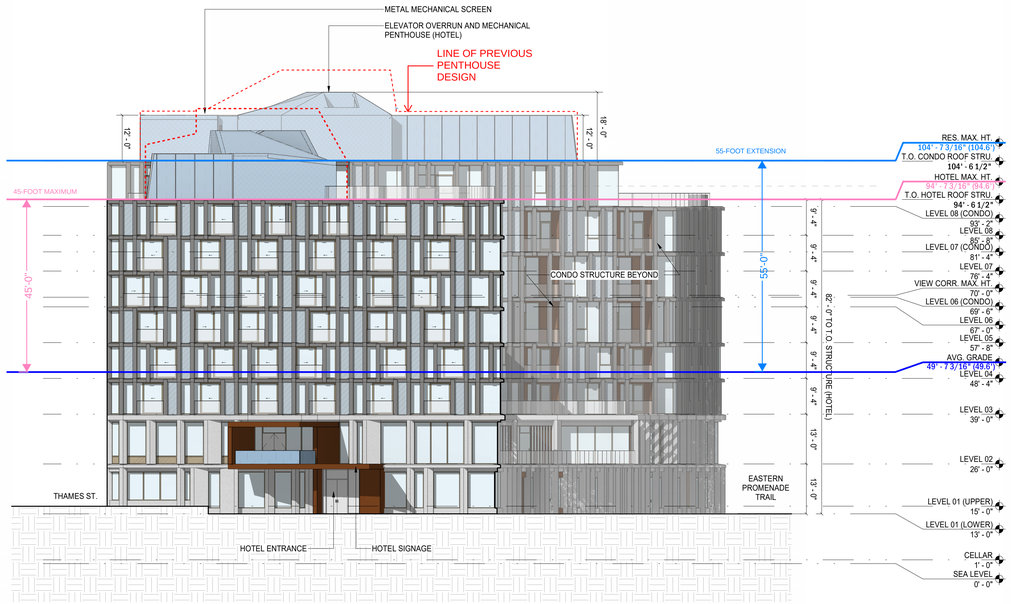
BUILDING ELEVATIONS

SCALE: As indicated

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A-310
of ___
JOB #:

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1 **SOUTHWEST ELEVATION**
1/16" = 1'-0"



2 **NORTHWEST ELEVATION**
1/16" = 1'-0"

GENERAL ELEVATION NOTES

1. FLOOR-TO-FLOOR DIMENSIONS ARE TO TOP OF FINISHED FLOOR.
2. CLEAR FLOOR-TO-FLOOR DIMENSIONS ARE APPROXIMATE AND WILL BE IMPACTED BY FLOOR AND CEILING FINISHES, WHICH ARE NOT KNOWN AT THIS TIME.
3. REFER TO SHEET A-400 FOR ADDITIONAL INFORMATION ON FACADE WALL TYPES.

ELEVATIONS LEGEND

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- GFRC-1 CLADDING PANEL
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- MTL-8 FIXED METAL LOUVER
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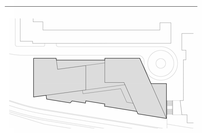


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PLOT PLAN
2230
PORTLAND FORESIDE B5
PORTLAND, ME

BUILDING ELEVATIONS

SCALE: As indicated

DRAWING #:
A-311
___ of ___
JOB #:



1 **NORTH ELEVATION (CONDO)**
1/16" = 1'-0"

GENERAL ELEVATION NOTES

1. FLOOR-TO-FLOOR DIMENSIONS ARE TO TOP OF FINISHED FLOOR.
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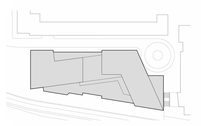


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PLOT PLAN

2230
PORTLAND FORESIDE B5
PORTLAND, ME

BUILDING ELEVATIONS

SCALE: As indicated

DRAWING #:
A-312
___ of ___
JOB #:

PROJECT INFORMATION

PROJECT DESCRIPTION
NEW CONSTRUCTION 8-STORY MIXED USE HOTEL (R1) WITH ADDITIONAL R2 RESIDENTIAL CONDOMINIUMS, ASSEMBLY SPACES, BUSINESS SPACES, AND MERCANTILE SPACES.
PROPOSED BUILDING LOT IS PARTIALLY WITHIN FEMA AE FLOODPLAIN ZONE PER 1986 EFFECTIVE MAP.
PROPOSED BUILDING ISCOMPRISED OF A R1 HOTEL WITH (128) GUEST ROOMS ON FLOORS 3-8, R2 MULTIFAMILY RESIDENTIAL WITH (43) CONDOMINIUMS ON FLOORS 3-8, HOTEL AMENITY SPACES AND RESIDENTIAL LOBBY SPACES ON THE 2ND FLOOR, AND HOTEL LOBBY, RETAIL, AND OTHER MERCANTILE SPACES ON THE GROUND FLOOR.

SECTION 1. ZONING INFORMATION
A. ZONING DISTRICT: B6
B. PARCEL:
BLOCK 5 PORTLAND FORESIDE DEVELOPMENT SITE = Area 48,029 S.F.
C. LANDMARK: NO
D. SHORELAND ZONING OVERLAY APPLIES

SECTION 2. APPLICATIONS FILED SEPARATELY
A. ELEVATOR
C. FIRE ALARM
D. SIDEWALK SHED
E. MECHANICAL
F. PLUMBING
G. UNDERGROUND PLUMBING
H. ELECTRICAL
I. SPRINKLERS/STANDPIPE
J. S.O.E. (SHEETING, SHORING, AND BRACING)
K. EMERGENCY POWER SYSTEMS (GENERATORS)
L. FLOOD HAZARD DEVELOPMENT APPLICATION
M. SHORELAND ZONING REVIEW
N. SITE PLAN APPLICATION

INSPECTION ITEMS

OWNER WILL ENGAGE AND PAY FOR A SPECIAL INSPECTOR AND AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL INSPECTION AND TESTING AS SPECIFIED ON THE APPLICABLE SECTIONS OF THE MBC, CHAPTER 17, SECTION 1705. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PRIOR NOTICE FOR COMPLETION OF INSPECTIONS.

1. AS INDICATED IN THE DRAWINGS
2. SPECIAL INSPECTIONS PER MBC-1705 LISTED BELOW
3. ENERGY CODE PROGRESS INSPECTION PER 2021 IECC SECTION C105.1 LISTED BELOW

SPECIAL INSPECTIONS

STRUCTURAL STEEL	BC 1705.2
CONCRETE CONSTRUCTION	BC 1705.3
CONCRETE - WELDING OF REINFORCING BARS	BC 1705.3.1
CONCRETE - MATERIAL TESTS	BC 1705.3.2
SOILS	BC 1705.6
DRIVEN DEEP FOUNDATIONS	BC 1705.7
CAST-IN-PLACE DEEP FOUNDATIONS	BC 1705.8
FABRICATED ITEMS	BC 1705.10
WIND RESISTANCE	BC 1705.11
SEISMIC RESISTANCE	BC 1705.12
SPRAYED FIRE-RESISTANT MATERIALS	BC 1705.14
MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	BC 1705.15
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1705.17
TESTING FOR SMOKE CONTROL	BC 1705.18

PROGRESS INSPECTION ITEMS

FOOTING AND FOUNDATION -	BC 110.3.1
CONCRETE SLAB AND UNDER-FLOOR INSPECTION -	BC 110.3.2
LOWEST FLOOR ELEVATION -	BC 110.3.3
FRAME INSPECTION -	BC 110.3.4
LATH, GYPSUM BOARD AND GYPSUM PANEL PRODUCT -	BC 110.3.5
FIRE AND SMOKE-RESISTANT PENETRATIONS -	BC 110.3.6
ENERGY EFFICIENCY INSPECTIONS - (SEE 2021 IECC REQUIRED INSPECTIONS BELOW)	BC 110.3.7
SPECIAL INSPECTIONS - (PER MBC CHAPTER 17 AS LISTED ABOVE)	BC 110.3.9
FINAL INSPECTION -	BC 110.3.10

ENERGY CODE PROGRESS INSPECTION - COMMERCIAL BUILDINGS

FOOTING AND FOUNDATION INSULATION -	C105.2.1
THERMAL ENVELOPE -	C105.2.2
PLUMBING SYSTEM -	C105.2.3
MECHANICAL SYSTEM -	C105.2.4
ELECTRICAL SYSTEM -	C105.2.5
FINAL INSPECTION -	C105.2.6

ACCESSIBLE MEANS OF EGRESS

ACCESSIBLE SPACES MUST BE PROVIDED WITH NOT LESS THAN ONE ACCESSIBLE MEANS OF EGRESS (IBC 1009.1). WHERE MORE THAN ONE MEANS OF EGRESS IS REQUIRED FROM AN ACCESSIBLE SPACE, EACH ACCESSIBLE PORTION OF THE SPACE MUST BE SERVED BY NOT LESS THAN TWO ACCESSIBLE MEANS OF EGRESS.

AN ELEVATOR IS REQUIRED TO SERVE AS AN ACCESSIBLE MEANS OF EGRESS. THE REQUIRED ELEVATOR USED AS AN ACCESSIBLE MEANS OF EGRESS MUST COMPLY WITH THE EMERGENCY OPERATIONS AND SIGNALING DEVICE REQUIREMENTS OF SECTION 2.27 OF ASME A17.1/CSA B44

ON FLOOR LEVELS THAT CONTAIN ASSEMBLY AND STORAGE OCCUPANCIES, TWO ACCESSIBLE SPACES SEPARATED BY SMOKE-TIGHT CONSTRUCTION WILL BE PROVIDED.

A TWO-WAY VOICE COMMUNICATION SYSTEM THAT COMPLIES WITH THE REQUIREMENTS OF 1009.8.1 AND 1009.8.2 MUST BE PROVIDED ON EACH ELEVATOR LANDING SERVING EACH ELEVATOR OR BANK OF ELEVATORS ON EACH ACCESSIBLE FLOOR THAT IS ONE OR MORE STORIES ABOVE OR BELOW THE LEVEL OF EXIT DISCHARGE (IBC 1009.8, LSC 7.2.12.1.1)

SMOKE & CARBON DIOXIDE DETECTORS

1. SMOKE DETECTORS SHALL BE INSTALLED AS REQUIRED BY SECTION 907.1 OF 2015 INTERNATIONAL BUILDING CODE AND IN ACCORDANCE WTH NFPA 72.
2. CARBON MONOXIDE DETECTORS SHALL BE INSTALLED AS REQUIRED BY 908.7 OF 2015 INTERNATIONAL BUILDING CODE AND IN ACCORDANCE WITH SECTION 5307.5.2 OF THE INTERNATIONAL FIRE CODE.
3. DETECTORS SHALL BE EITHER IONIZATION CHAMBER OR PHOTOELECTRIC TYPE AND TO COMPLY WITH RS 17-11
4. UNITS TO BE LISTED BY AN ACCEPTABLE TESTING LABORATORY, SUCH AS:
   A. UNDERWRITER'S LABORATORY, NORTHBROOK,ILLINOIS,MEA LAB ;
   B. CANADIAN STANDARD ASSOCIATION, ONTARIO, CANADA,
   C. UNDERWRITER'S LAB. OF CANADA ONTARIO, MEA LAB.
5. UNITS SHALL BE INSTALLED IN AREAS DESIGNATED IN PLANS; THEY SHALL BE LOCATED ON OR NEAR THE CEILING AND WITHIN 15'-0" OF ANY ROOMS USED FOR SLEEPING PURPOSES; FOR DWELLING UNITS WITH MULTIPLE LEVELS, WHEN ANY LEVEL HAS ONLY ONE MEANS OF EGRESS, UNITS SHALL BE PROVIDED AT ALL LEVELS.
6. SMOKE DETECTORS SHALL BE INSTALLED AS FOLLOWS:
   A. CEILING MOUNT - CLOSEST EDGE OF UNIT SHALL BE MINIMUM OF 4" FROM ANY WALL.
   B. WALL MOUNT - CLOSEST EDGE OF UNIT SHALL BE A MINIMUM OF 6" AND A MAXIMUM OF 12" FROM THE CEILING.

BUILDING CODE SUMMARY

CODE REVIEW: MAINE UNIFORM BUILDING CODE (MBC)
CONSTRUCTION CLASS: TYPE IB
FIRE RESISTANCE RATING: THE FIRE RESISTANCE RATING OF BUILDING ELEMENTS SHALL BE DETERMINED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN ASTM E 119 OR IN ACCORDANCE WITH MBE SECTION 703.3.

CONSTRUCTION CLASS IB (PER TABLE 601)	REQUIRED	PROVIDED	NOTES
PRIMARY STRUCTURAL FRAME	2	2	COMPLIES
BEARING WALLS EXTERIOR INTERIOR	 2 2	 2 2	COMPLIES
NONBEARING WALLS AND PARTITIONS EXTERIOR	SEE TABLE 602	COMPLIES	COMPLIES
NONBEARING WALLS AND PARTITIONS INTERIOR	0	0	COMPLIES
FLOOR CONSTRUCTION AND SECONDARY MEMBERS	2	2	COMPLIES
ROOF CONSTRUCTION AND SECONDARY MEMBERS	1	1	COMPLIES

ALSO COMPLIES WITH MBC 705.5,705.6

NOTE MBC SECTION 705.5: THE REQUIRED FIRE-RESISTANCE RATING OF EXTERIOR WALLS WITH A FIRE SEPARATION DISTANCE OF GREATER THAN 10 FEET SHALL BE RATED FOR EXPOSURE TO FIRE FROM THE INSIDE. THE REQUIRED FIRE-RESISTANCE RATING OF EXTERIOR WALLS WITH A FIRE SEPARATION DISTANCE OF LESS THAN OR EQUAL TO 10 FEET SHALL BE RATED FOR EXPOSURE TO FIRE FROM BOTH SIDES.

ALL WORK DONE UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS, DRAWINGS AND ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

- MAINE UNIFORM BUILDING CONDE (MBC) BASED ON 2015 INTERNATIONAL BC
- MAINE FIRE PREVENTION CODE (MFPC)
- 2018 NFPA 1 - FIRE CODE (FC)
- 2018 NFPA 101 - LIFE SAFETY CODE (LSC)
- ENERGY: 2021 INTERNATIONAL ENERGY AND CONSERVATION CODE (IECC)
- ELECTRICAL: NATIONAL ELECTRIC CODE 2020.
- MECHANICAL: 2015 INTERNATIONAL MECHANICAL CODE (IMC).
- PLUMBING: UNIFORM PLUMBING CODE 2021.
- ACCESSIBILITY: CHAPTER 11, 2015 INTERNATIONAL BUILDING CODE, AND ANSI A117.1-2009 / 2010 ADAA.

TABLES 504.3, 504.4, & 506.2 - ALLOWABLE BUILDING HEIGHTS, NUMBER OF STORIES, AND BUILDING AREAS BUILDING CLASSIFICATION TYPE IB CONSTRUCTION:

A-2	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
A-3	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
B	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
M	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
R-1	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
R-2	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL
S-1	HEIGHT: 180'	NUMBER OF STORIES: 12	AREA: UL

TYPE IB CONSTRUCTION AS PER MBC 602.1 AND IN COMPLIANCE WITH MBC 602.2 PER MBC 508.3.3 NON SEPERATED OCCUPANCIES. SEPARATION. NO SEPARATION IS REQUIRED BETWEEN OCCUPANCIES.

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE

FIRE SEPARATION DISTANCE	TYPE OF CONSTRUCTION	OCCUPANCY	OCCUPANCY
	IB	F-1,M,S-1	A,B,E,F-2,I,R,S-2,U
< 5		2	1
≥ 5 TO <10		1	1
≥ 10 TO <30		1	1
≥ 30		0	0

TABLE 803.11 - INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	SPRINKLERED		
	EXIT ENCLOSURES AND EXIT PASSAGEWAYS	CORRIDORS	ROOMS AND ENCLOSED SPACES
A-1 & A-2	B	B	C
A-3, A-4, A-5	B	B	C
B, E, M, R-1	B	C	C
R-2	C	C	C
S	C	C	C

TABLE 1004.1.1 - MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

USE	OCCUPANT LOAD FACTOR SF/OCC
STORAGE / MECHANICAL	300 (GROSS)
EXERCISE ROOMS W/ EQUIPMENT	50 (GROSS)
EXERCISE ROOMS W/ OUT EQUIPMENT	15 (NET)
ASSEMBLY: - CHAIRS, CONCENTRATED - TABLES & CHAIRS, NON-CONCENTRATED	 7 (NET) 15 (NET)
RESIDENTIAL	200 (GROSS)
GUESTROOMS	200 (GROSS)
BAR/KITCHEN	100 (GROSS)
BUSINESS	100 (GROSS)
MERCANTILE	30 (GROSS)
POOL	50 (GROSS)
POOL DECK	15 (NET)

FOR MIXED USES, SUM OF ALL OF THE LOADS WILL BE ROUNDED UP TO THE NEXT WHOLE NUMBER

TABLE 1020.1 - INTERIOR CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY INTERIOR CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (HOURS) WITH SPRINKLER SYSTEM
A,B,E,F,M,S,U	GREATER THAN 30	0
R	GREATER THAN 10	0.5

TABLE 1020.2 - MINIMUM CORRIDOR WIDTH

USE/OCCUPANCY	MINIMUM WIDTH
ACCESS TO AND UTILIZATION OF MECHANICAL, PLUMBING, OR ELECTRICAL SYSTEMS OR EQUIPMENT	36 INCHES
WITHIN A DWELLING UNIT	36 INCHES
ANY FACILITY NOT LISTED ABOVE SERVING AN OCCUPANT LOAD LESS THAN 50	36 INCHES
ANY FACILITY NOT LISTED ABOVE SERVING AN OCCUPANT LOAD MORE THAN 50	44 INCHES

TABLE 1020.4 - MAXIMUM PERMITTED DEAD END CORRIDOR LENGTH

USE GROUP	DISTANCE
A	20 FEET
A, M, S, R-1, R-2	50 FEET

TABLE 1017.2 - EXIT ACCESS TRAVEL DISTANCE (& LSC 28.2.6)

OCCUPANCY	FEET (SPRINKLERED)
A	250 FEET
R-1 HOTEL	250 FEET FROM ANY POINT IN A GUESTROOM TO AN EXIT 125 FEET FROM ANY POINT IN A GUESTROOM TO A CORRIDOR 200 FEET FROM THE CORRIDOR DOOR TO NEAREST EXIT
R-2 CONDOS	250 FEET FROM ANY POINT IN A UNIT TO AN EXIT 125 FEET FROM ANY POINT IN A UNIT TO A CORRIDOR DOOR 200 FEET FROM THE CORRIDOR DOOR TO NEAREST EXIT
S-1	250 FEET
B	300 FEET
M	250 FEET

BC 1005.3 - EXIT CAPACITY

STAIRWAYS	OTHER EGRESS COMPONENTS
0.30 INCHES/PERSON	0.20 INCHES/PERSON

THE EXIT CAPACITY FOR STAIRS WIDER THAN 44 INCHES IS PERMITTED TO BE CALCULATED USING THE FOLLOWING EQUATION:

CAPACITY = 146.7+ (X−44), WHERE X IS THE WIDTH OF THE STAIR.
0.218

NUMBER OF EXITS

NOT LESS THAN TWO REMOTE INDEPENDENT EXITS MUST SERVE EVERY STORY (IBC TABLE 1006.3.2). A MINIMUM OF THREE EXITS OR ACCESS TO EXITS MUST BE PROVIDED WHEN THE OCCUPANT LOAD IS BETWEEN 500 – 1000 PERSONS. A MINIMUM OF FOUR EXITS OR ACCESS TO EXITS MUST BE PROVIDED WHEN THE OCCUPANT LOAD OF A STORY EXCEEDS 1,000 PERSONS.

TWO EXIT ACCESS DOORS MUST BE PROVIDED FROM EVERY ROOM OR SPACE HAVING AN OCCUPANT LOAD OR COMMON PATH WITHIN THE SPACE, WHICH IS IN EXCESS OF THAT SHOWN BELOW PER MBC TABLE 1006.2.1, LSC TABLE A7.6:

OCCUPANCY	MINIMUM 2 MEANS OF EGRESS REQUIRED	
	IF OCCUPANT LOAD GREATER THAN	OR COMMON PATH IF TRAVEL GREATER THAN
A	49	75
S, MECH/ELEC	29	100
B	49	100
R-1 HOTEL	10	75
R-2 CONDO	20	125
M	49	75

EXIT REMOTENESS

EXIT DOORS MUST BE PLACED A DISTANCE APART NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED WHERE TWO EXITS ARE REQUIRED FROM A ROOM OR SPACE. ADDITIONAL EXITS OR EXIT ACCESS DOORWAYS MUST BE ARRANGED A REASONABLE DISTANCE APART SO THAT IF ONE BECOMES BLOCKED, THE OTHERS WILL BE AVAILABLE (IBC 1007.1.1 EXCEPTION 2, IBC 1007.1.2).

IN ADDITION, EXIT STAIRWAY ENCLOSURES IN HIGH-RISE BUILDINGS MUST BE PLACED A DISTANCE OF ONE-FOURTH THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED, OR 30 FEET, WHICHEVER IS LESS (IBC 403.5.1).

THIS MUST BE MEASURED IN A STRAIGHT LINE BETWEEN THE NEAREST POINTS OF THE EXIT STAIRWAY ENCLOSURES. THE EXIT REMOTENESS DISTANCE REQUIREMENT IS IN ADDITION TO THE ONE-THIRD DIAGONAL RULE.

EXIT DISCHARGE

EXITS MUST DISCHARGE DIRECTLY TO THE EXTERIOR OF THE BUILDING. HOWEVER, A MAXIMUM OF 50% OF THE REQUIRED NUMBER OF EXITS AND 50% OF THE REQUIRED EXIT CAPACITY MAY DISCHARGE THROUGH THE BUILDING AT THE LEVEL OF EXIT DISCHARGE (IBC 1028.1, LSC 7.7.2). WHERE EXIT DISCHARGE IS PROVIDED THROUGH A PROTECTED AREA ON THE LEVEL OF EXIT DISCHARGE, THE FOLLOWING WILL BE MET:

- THE PROTECTED AREA MUST PROVIDE AN UNOBSTRUCTED PATH TO AN EXTERIOR EXIT DOOR AND SUCH EXIT MUST BE READILY VISIBLE AND IDENTIFIABLE FROM THE POINT OF TERMINATION OF THE ENCLOSURE.
- THE PROTECTED AREA MUST BE SEPARATED FROM AREAS BELOW BY CONSTRUCTION CONFORMING TO THE FIRE-RESISTANCE RATING FOR THE EXIT ENCLOSURE.
- THE PROTECTED AREA MUST BE FULLY SPRINKLERED.

EXIT SIGNS AND EVACUATION SIGNAGE

EXITS, OTHER THAN MAIN EXTERIOR EXIT DOORS THAT OBVIOUSLY AND CLEARLY ARE IDENTIFIABLE AS EXITS, MUST BE MARKED BY AN APPROVED SIGN THAT IS READILY VISIBLE FROM ANY DIRECTION OF EXIT ACCESS (IBC 1013.1, LSC 7.10.1.2.1).

EXIT SIGNS MUST BE LOCATED SUCH THAT NO POINT IN AN EXIT ACCESS CORRIDOR OR EXIT PASSAGEWAY IS MORE THAN 100 FEET, OR THE LISTED VIEWING DISTANCE OF THE SIGN, WHICHEVER IS LESS, FROM THE NEAREST VISIBLE EXIT SIGN (IBC 1013.1, LSC 7.10.1.5.2).

LOW-LEVEL EXIT SIGNS ARE REQUIRED TO BE PROVIDED IN GROUP R-1 OCCUPANCIES IN AREAS SERVING GUEST ROOMS (IBC 1013.2, LSC 7.10.1.6). THE BOTTOM OF THE SIGN CANNOT BE LESS THAN 10 INCHES NOR MORE THAN 18 INCHES ABOVE THE FLOOR LEVEL. THE SIGN MUST BE FLUSH MOUNTED TO THE DOOR OR WALL. WHERE MOUNTED ON THE WALL, THE EDGE OF THE SIGN MUST BE WITHIN 4 INCHES OF THE DOOR FRAME ON THE LATCH SIDE.

EMERGENCY LIGHTING

EMERGENCY LIGHTING FACILITIES MUST BE ARRANGED TO PROVIDE INITIAL ILLUMINATION THAT IS NOT LESS THAN AN AVERAGE OF 1 FOOTCANDLE AND, AT ANY POINT, NOT LESS THAN 0.1 FOOTCANDLE, MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL (IBC 1008.3.5, LSC 7.9.2.1.1). A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40 TO 1 MUST NOT BE EXCEEDED. THE EMERGENCY POWER SYSTEM MUST PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND MUST CONSIST OF STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR (IBC 1008.3.4, LSC 7.9.2.1.2)

LUMINOUS EGRESS PATH MARKINGS

LUMINOUS EGRESS PATH MARKINGS MUST BE PROVIDED IN HIGH-RISE BUILDINGS IN ACCORDANCE WITH SECTION 1025 FOR CERTAIN OCCUPANCIES (403.5.5). THOSE OCCUPANCIES INCLUDE GROUP A, B, M, OR R-1.AS SUCH, THE BUILDING'S INTERIOR EXIT STAIRS EXIT PASSAGEWAYS MUST BE PROVIDED WITH LUMINOUS EGRESS PATH MARKINGS IN ACCORDANCE WITH IBC 1025. LUMINOUS EGRESS PATH MARKINGS ARE NOT REQUIRED TO BE PROVIDED ON THE LEVEL OF EXIT DISCHARGE IN LOBBIES THAT SERVE AS PART OF THE EXIT PATH IN ACCORDANCE WITH SECTION 1028.1, EXCEPTION 1.

ADDITIONAL HIGHRISE BUILDING PROVISIONS

STRUCTURAL INTEGRITY OF INTERIOR EXIT STAIRWAYS AND ELEVATOR HOISTWAY ENCLOSURES

INTERIOR EXIT STAIRWAYS AND ELEVATOR HOISTWAY ENCLOSURES LOCATED IN HIGH-RISE BUILDINGS CLASSIFIED OF RISK CATEGORY III OR IV MUST BE PROVIDED WITH IMPACT RESISTANCE SHAFTS PER IBC SECTION 1604.5 (IBC 403.2.3).

CONCRETE OR MASONRY WALLS ARE DEEMED TO SATISFY THE STRUCTURAL INTEGRITY REQUIREMENTS OUTLINED ABOVE (IBC 403.2.3.3). ANY OTHER WALL ASSEMBLY THAT PROVIDES IMPACT RESISTANCE EQUIVALENT TO THAT REQUIRED BY SECTION 403.2.3.1 AND 403.2.3.2 FOR HARD BODY IMPACT CLASSIFICATION LEVEL 3, AS MEASURED BY THE TEST METHODS DESCRIBED IN ASTM C1629/C1629M IS PERMITTED (IBC 403.2.3.4).

FIRE COMMAND CENTER

A FIRE COMMAND CENTER (FCC) ROOM FOR FIRE DEPARTMENT OPERATIONS MUST BE PROVIDED IN ALL HIGH-RISEBUILDINGS (IBC 403.4.6, LSC 11.8.6). THE FCC MUST BE SEPARATED FROM ADJACENT SPACES BY 1-HOUR FIRE BARRIERS AND DESIGNED IN ACCORDANCE WITH IBC SECTION 911 AND LSC SECTION 11.8.6.2. THE FCC MUST BE AT LEAST 200 SQ. FT. IN AREA WITH A MINIMUM DIMENSION OF 10 FEET (IBC 911.1.3)

STAIRWAY VIDEO MONITORING

APPROVED VIDEO MONITORING EQUIPMENT MUST BE PROVIDED FOR ALL EXIT STAIRS ABOVE THE LEVEL OF EXIT DISCHARGE IN ALL HIGH-RISE BUILDINGS WITH AN OCCUPANT LOAD GREATER THAN 4,000 (LSC 11.8.8.1.1). VIDEO MONITORING LOCATIONS MUST NOT EXCEED BUILDING HEIGHT INTERVALS OF 5-STORIES. EACH TOWER INDIVIDUALLY WILL NOT HAVE AN OCCUPANT LOAD NOT MORE THAN 4,000 PERSONS THUS STAIRWAY VIDEO MONITORING IS NOT REQUIRED.

ELEVATOR HOISTWAY PROTECTION

ELEVATOR HOISTWAY PROTECTION IS REQUIRED IN HIGH-RISE BUILDINGS AT ELEVATORS THAT CONNECT MORE THAN THREE STORIES THAT ARE REQUIRED TO BE ENCLOSED IN A SHAFT ENCLOSURE (IBC 3006.2). ELEVATOR HOISTWAY PROTECTION WILL CONSIST OF ONE OF THE FOLLOWING DESIGN OPTIONS (IBC 3006.3):

- ELEVATOR LOBBIES – THE ELEVATOR LOBBY ENCLOSURE MUST SEPARATE THE ELEVATOR SHAFT ENCLOSURE FROM THE FLOOR AND MAY BE CONSTRUCTED OF SMOKE PARTITIONS IN FULLY SPRINKLERED BUILDINGS. THE DOOR OPENINGS IN THE ELEVATOR LOBBY MUST BE SMOKE AND DRAFT CONTROL DOORS (IBC 710.5.2.2) AND SELF OR AUTOMATIC-CLOSING (IBC 710.5.2.3, 716.5.9). DUCT AND AIR TRANSFER OPENINGS IN THE ELEVATOR LOBBY MUST BE PROTECTED IN ACCORDANCE WITH IBC 717.5.4.1 TO LIMIT THE FREE PASSAGE OF SMOKE.
- HOISTWAY PRESSURIZATION – PRESSURIZE THE ELEVATOR SHAFTS IN ACCORDANCE WITH IBC SECTION 909.21. ELEVATOR SHAFT PRESSURIZATION SYSTEMS MUST MAINTAIN A MINIMUM POSITIVE PRESSURE OF 0.10 INCHES OF WATER AND MAXIMUM PRESSURE OF 0.25 INCHES OF WATER WITH RESPECT TO THE ADJACENT OCCUPIED SPACE.
- ADDITIONAL DOORS LOCATED AT EACH ELEVATOR HOISTWAY DOOR OPENING IN ACCORDANCE WITH SECTION 3002.6. SUCH DOORS MUST COMPLY WITH THE SMOKE AND DRAFT CONTROL DOOR ASSEMBLY REQUIREMENTS IN SECTION 716.5.3.1 WHEN TESTED IN ACCORDANCE WITH UL 1784 WITHOUT AN ARTIFICIAL BOTTOM SEAL.

FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLERS

AUTOMATIC SPRINKLERS MUST BE PROVIDED THROUGHOUT HIGH-RISE BUILDINGS (IBC 403.3, LSC 11.8.3.1). THE SPRINKLER SYSTEM MUST BE DESIGNED IN ACCORDANCE WITH NFPA 13, INSTALLATION OF SPRINKLER SYSTEMS, 2016 EDITION.

STANDPIPE SYSTEM

A CLASS III WET STANDPIPE SYSTEM IS REQUIRED THROUGHOUT ALL BUILDINGS WHERE THE HIGHEST FLOOR IS MORE THAN 30-FT ABOVE THE LOWEST LEVEL OF FIRE DEPARTMENT ACCESS (IBC 403.4.3, 905.3.1, LSC 11.8.3.2). IN FULLY SPRINKLERED BUILDINGS, A CLASS I STANDPIPE SYSTEM IS PERMITTED IN LIEU OF A CLASS III SYSTEM (IBC 905.3.1 EXCEPTION 1).

FIRE ALARM SYSTEM

AN EMERGENCY VOICE/ALARM COMMUNICATION FIRE ALARM SYSTEM DESIGNED IN ACCORDANCE WITH IBC SECTION 907.5.2.2 MUST BE PROVIDED IN ALL HIGH-RISE BUILDINGS (IBC 403.4.4, LSC 11.8.4.1). THE FIRE ALARM SYSTEM MUST BE DESIGNED IN ACCORDANCE WITH NFPA 72, NATIONAL FIRE ALARM CODE, AND 2016 EDITION.

SMOKE DETECTION

SMOKE DETECTORS CONNECTED TO THE FIRE ALARM SYSTEM WILL BE PROVIDED WHERE REQUIRED BASED ON BUILDING OCCUPANCIES PER IBC 907.2. SMOKE DETECTION IS DESIGNED IN ACCORDANCE WITH NFPA 72, NATIONAL FIRE ALARM CODE 2016 EDITION.

CARBON MONOXIDE

CARBON MONOXIDE DETECTION MUST BE PROVIDED IN GROUP R, RESIDENTIAL OCCUPANCIES IN SLEEPING UNITS (915.1.1). CARBON MONOXIDE DETECTION DEVICES ARE PERMITTED TO BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE SLEEPING UNIT WHERE THE SLEEPING UNIT OR ITS ATTACHED BATHROOM DOES NOT CONTAIN A FUEL-BURNING APPLIANCE AND IS NOT SERVED BY A FORCED AIR FURNACE (IBC 915.2.2).

SMOKE CONTROL SYSTEMS - STAIR PRESSURIZATION

EVERY REQUIRED INTERIOR EXIT STAIRWAY SERVING FLOORS MORE THAN 75 FEET ABOVE THE LOWEST LEVEL OF FIRE DEPARTMENT VEHICLE ACCESS MUST COMPLY WITH REQUIREMENTS FOR SMOKEPROOF ENCLOSURES IN ACCORDANCE WITH IBC SECTION 1023.11 AND LSC 7.2.3 OR MUST BE PRESSURIZED IN ACCORDANCE WITH IBC SECTION 909.20 (IBC 403.5.4, LSC 11.8.2.3).

SMOKE REMOVAL

A SMOKE REMOVAL SYSTEM FOR POST-FIRE SALVAGE OPERATIONS IS REQUIRED AS A HIGH-RISE BUILDING (IBC 403.4.7). THE SMOKE REMOVAL SYSTEM WILL BE EQUIPPED WITH NATURAL OR MECHANICAL VENTILATION.

FIRE DEPARTMENT COMMUNICATION SYSTEM

EMERGENCY RESPONDER RADIO COVERAGE DESIGNED IN ACCORDANCE WITH NFPA 72 WILL BE PROVIDED THROUGHOUT THE BUILDING (IBC 403.4.5, LSC 11.8.4.2.2).

EMERGENCY POWER

AN EMERGENCY POWER SYSTEM WILL BE PROVIDED FOR THE FOLLOWING SYSTEMS (IBC 403.4.8.4, LSC 11.8.5):

- EXIT SIGNS AND MEANS OF EGRESS ILLUMINATION REQUIRED BY CHAPTER 10
- ELEVATOR CAR LIGHTING
- EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS.
- AUTOMATIC FIRE DETECTION SYSTEMS.
- FIRE ALARM SYSTEM.
- ELECTRICALLY POWERED FIRE PUMPS.

A STANDBY POWER SYSTEM WILL BE PROVIDED FOR THE FOLLOWING SYSTEMS (IBC 403.4.8.3, LSC 11.8.5.3.4):

- POWER AND LIGHTING FOR THE FIRE COMMAND CENTER
- VENTILATION AND AUTOMATIC FIRE DETECTION EQUIPMENT FOR SMOKEPROOF ENCLOSURES
- FIRE SERVICE ACCESS ELEVATORS
- JOCKEY PUMP
- STAIRWAY VIDEO MONITORING (IF PROVIDED)
- ELEVATOR RECALL AND EMERGENCY OPERATION. WHERE A COMMON OPERATING SYSTEM CONTROLS TWO OR MORE ELEVATORS, ALL OF THE ELEVATORS MUST AUTOMATICALLY TRANSFER TO STANDBY POWER WITHIN 60 SECONDS AFTER FAILURE OF NORMAL POWER WHERE THE STANDBY POWER IS SUFFICIENT CAPACITY TO OPERATE ALL THE ELEVATORS AT THE SAME TIME. WHERE IT IS NOT SUFFICIENT, ALL ELEVATORS MUST TRANSFER TO STANDBY POWER IN SEQUENCE, RETURN TO THE DESIGNATED LANDING AND DISCONNECT FROM THE STANDBY POWER SOURCE. AFTER ALL THE ELEVATORS HAVE BEEN RETURNED TO THE DESIGNATED LEVEL, AT LEAST ONE ELEVATOR MUST REMAIN OPERABLE FROM THE STANDBY POWER SOURCE (IBC 3003.1.3).

GENERAL NOTES

1. ALL WORK AND MATERIALS FURNISHED SHALL COMPLY WITH THE MAINE UNIFORM BUILDING, FIRE, PLUMBING, MECHANICAL AND FUEL GAS CODES, THE STATE OF MAINE REGULATIONS, THE REGULATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS, NATIONAL FIRE PROTECTIVE ASSOCIATION REQUIREMENTS AND ALL FEDERAL, STATE, AND MUNICIPAL AUTHORITIES HAVING JURISDICTION OVER THE WORK.
2. BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK, EACH TRADE SHALL VERIFY ALL MEASUREMENTS WITH AT THE BUILDING AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SAME. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THE MEASUREMENTS INDICATED ON THE DRAWINGS; ANY DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION AND CLARIFICATION BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEVIATION FROM THE CONTRACT DOCUMENTS.
3. ALL OF THE ARCHITECT'S DRAWINGS AND CONSTRUCTION NOTES ARE COMPLEMENTARY AND WHAT IS CALLED FOR BE EITHER WILL BE BINDING AS IF CALLED FOR BY ALL; ANY WORK SHOWN OR REFERRED TO ON ANY ONE DRAWING SHALL BE PROVIDED AS THOUGH SHOWN ON ALL DRAWINGS.
4. THE WORK TO BE PERFORMED CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, FEES, MATERIALS, AND SERVICES IN

PART I.1: FACADE DESIGN INTENT, MATERIALS & IMAGERY

Exterior Elevation - Southeast



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - Southwest



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - Northwest



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
- MTL-7 METAL BULKHEAD CLADDING
- MTL-9 METAL MECHANICAL SCREEN WALL
- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Elevation - North



ELEVATIONS LEGEND

- GLAZING (IGU-1, TYP.)
- MTL-4 REFLECTIVE INFILL PANEL
- GFRC-1 CLADDING PANEL
- GFRC-2 TEXTURED GFRC INFILL PANEL
- ST-1 GRANITE CLADDING
- MTL-8 FIXED METAL LOUVER
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- WD-1 WOOD RAINSCREEN & SOFFIT CLADDING
- WD-2 SLATTED WOOD SCREEN
- MTL-5 WEATHERING STEEL
- MTL-6 CHAMPAGNE ANODIZED ALUMINUM

Exterior Material Palette



1. CORTEN STEEL

2. GRANITE
JC STONE, SMOOTH (1/64”-1/16” VARIATION) AND SOMEWHAT ROUGH (1/16”-1/4” VARIATION)

3. METAL INFILL

4. WOOD INFILL

5. GLAZING

6. WINDOW FRAME

7. REFELCTIVE INFILL PANEL

8. GFRC RIBBED INFILL PANEL

9. GFRC

10. COPPER

W1- Formed GFRC Basis-of-Design: Reider Formparts



Colour collections

greyscale	pietra	bricky	timber
polar white	cotton	coralline	larch
off-white	vanilla	terracotta	oak
ivory	sahara	oxide red	walnut
silvergrey	sandstone	burgundy	ebony
chrome	almond	merlot	terra
anthracite			
liquid black			

ACCENT/INFILL

STICK MEMBERS

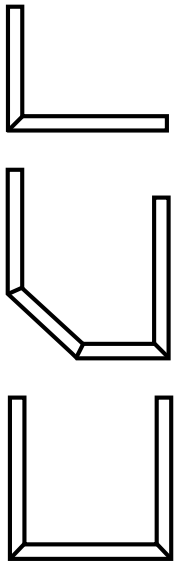
TYPICAL PANEL DEPTHS
VERTICAL MEMBERS: 1’-1”
HORIZONTAL MEMBERS: 0’-10”

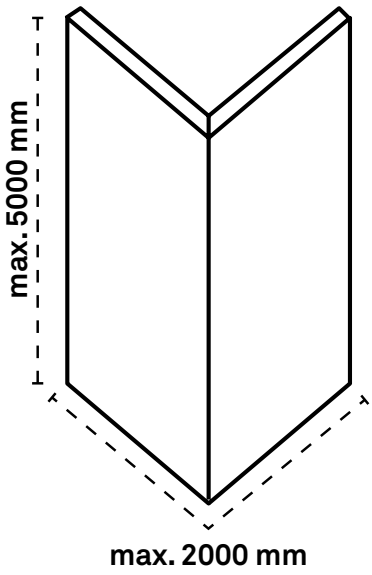


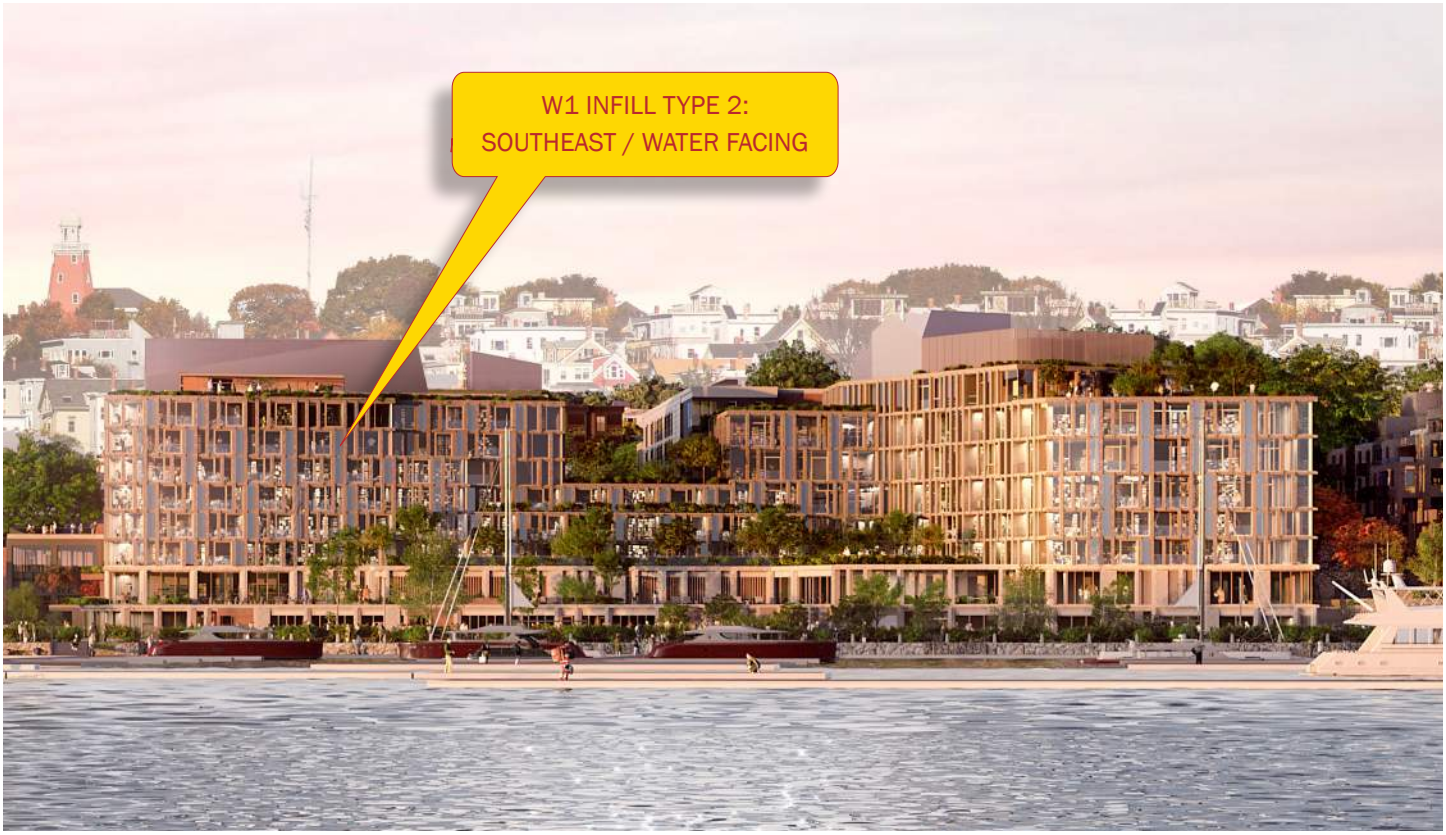
ACCENT/ INFILL TEXTURE



STICK MEMBER TEXTURE






W1 INFILL TYPE 2:
SOUTHEAST / WATER FACING


W1 INFILL TYPE 2:
SOUTHWEST / CITY FACING
THE PROMENADE

W1- Infill Type 2 Basis-of-Design Information

GLASS RAINSCREEN FACADE SYSTEMS

Glass Facades Home | **QC***glass* / **QC***glass-solar* / **QC***glass-digital*

QC*glass* is a unframed glass rainscreen facade system. With the 3/8″ joint and no perimeter metal the system gives you a very clean monolithic facade.

The large variety of glass types available reflect your unique building design aesthetic. From low iron, acid etching other custom finishes we provide a full array of design options.

Our glass is heat strengthened or laminated to meet building codes and is also available in silk screen, enameled or coated applications. For projects and applications large and small, decorative or highly engineered QC*glass* offers a full spectrum of design options.





W1- Infill Type 2 ALTERNATE Basis-of-Design Information



W2- Granite Cladding Basis-of-Design Information





W- 2 Granite Facade Sources - JC Stone

Split-faced



Split-faced stone has been broken by a hydraulic splitter to a specific size, producing a natural look. This finish is mostly used for veneer. It exhibits a natural, quarry texture with untrimmed edges. Split-faced stone generally has a flat back and uneven front surface. The surface evenness varies with the stone type. Faces can be convex, concave or flat. Split-faced finishes come in a number of variations including flat-plane and rough-plane. Flat-plane surface roughness can vary from somewhat rough (1/16-1/4") to rough (1/4-2"). Rough-plane surface roughness can vary from rough to very rough (>2"). While fabrication can be machine-made, hand-made versions are generally considered more attractive. Rockfaced finishes can look similar to split-faced.





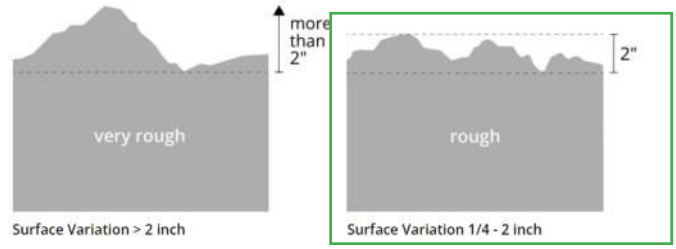
Rock Faced



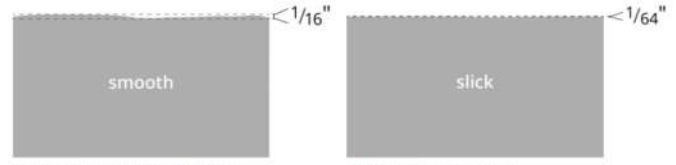
A rustic finish for veneer stone created with a split or chiseled face, and dressed along the stone's perimeter to produce convex projection. This finish is most often used on the sawn edge of the stone to make it look like a natural cleft or split-face surface. It's created with a hammer and chisel, across the face of the stone, resulting in a natural look. Surface roughness can vary from rough (1/4-2") to very rough (>2") depending on the process. Other chiseled patterns include point stalk, pillowed and pineapple. While fabrication can be machine-aided, hand-made versions are generally considered to be more attractive.

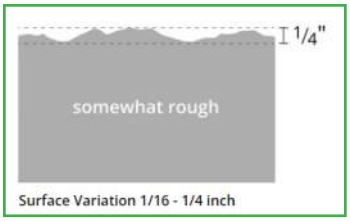






1% - 5% AT SPECIAL MOMENTS





95% AT TYPICAL CONDITIONS

W-2 Granite Cladding Infill Cladding Types





KEBONY CLADDING

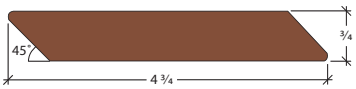




Kebony **Clear**

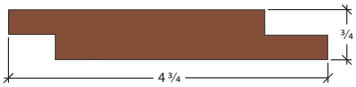


Art.Nr. **2436** **RAP Rhombus Cladding**
Kebony Clear RAP ¾ x 4 ¾ in



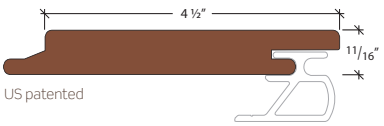


Art.Nr. **2453** **90° Shiplap Cladding**
Kebony Clear RAP ¾ x 4 ¾ in



Special profile:
Climate-Shield® Rain Screen System
Kebony Clear RAP 4 ½ x 11/16 in

NEW

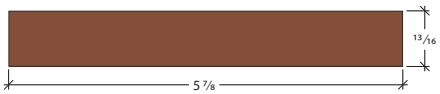


US patented

Kebony **Character**

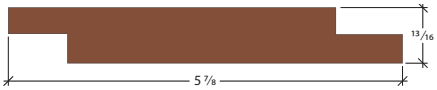


Art.Nr. **1234** **Rectangular Cladding**
Kebony Character 13/16 x 5 7/8 in





Art.Nr. **2216** **90° Shiplap Cladding**
Kebony Character 13/16 x 5 7/8 in





The Kebony® technology gives a deep rich brown color. After exposure to sun and rain the wood develops a natural silver-gray patina. Original color can be maintained using UV protection oils.

Kebony is a natural wood product for outdoor applications and its appearance will therefore be influenced by local environmental conditions over time.

Color changes and checking, or small surface cracks, will occur due to natural weathering. The manufacturer cannot be held liable for any of such variations in color and surface appearance as this will not influence durability and overall performance of the product.

All products are FSC®-certified.

170207 www.tuaj.no

POHL BRONZE

The color spectrum of POHL Bronze* ranges from reddish to gold to brownish shades. The selection of the alloy, polish, patination and finish has a fundamental impact on the final appearance of a surface and adds to the wide range of options possible in a collaboration with POHL.

With a special patination, the natural weathering process of the brass oxidation is recreated. If a layer of wax is applied for protection, the material is allowed to age naturally, where-as the application of varnish seals the look and feel of the surface.

MATERIAL THICKNESS	1 mm to 4 mm
SEALING	Wax | Varnish
PANEL SIZE	1220 mm x 6000 mm Other sizes on request

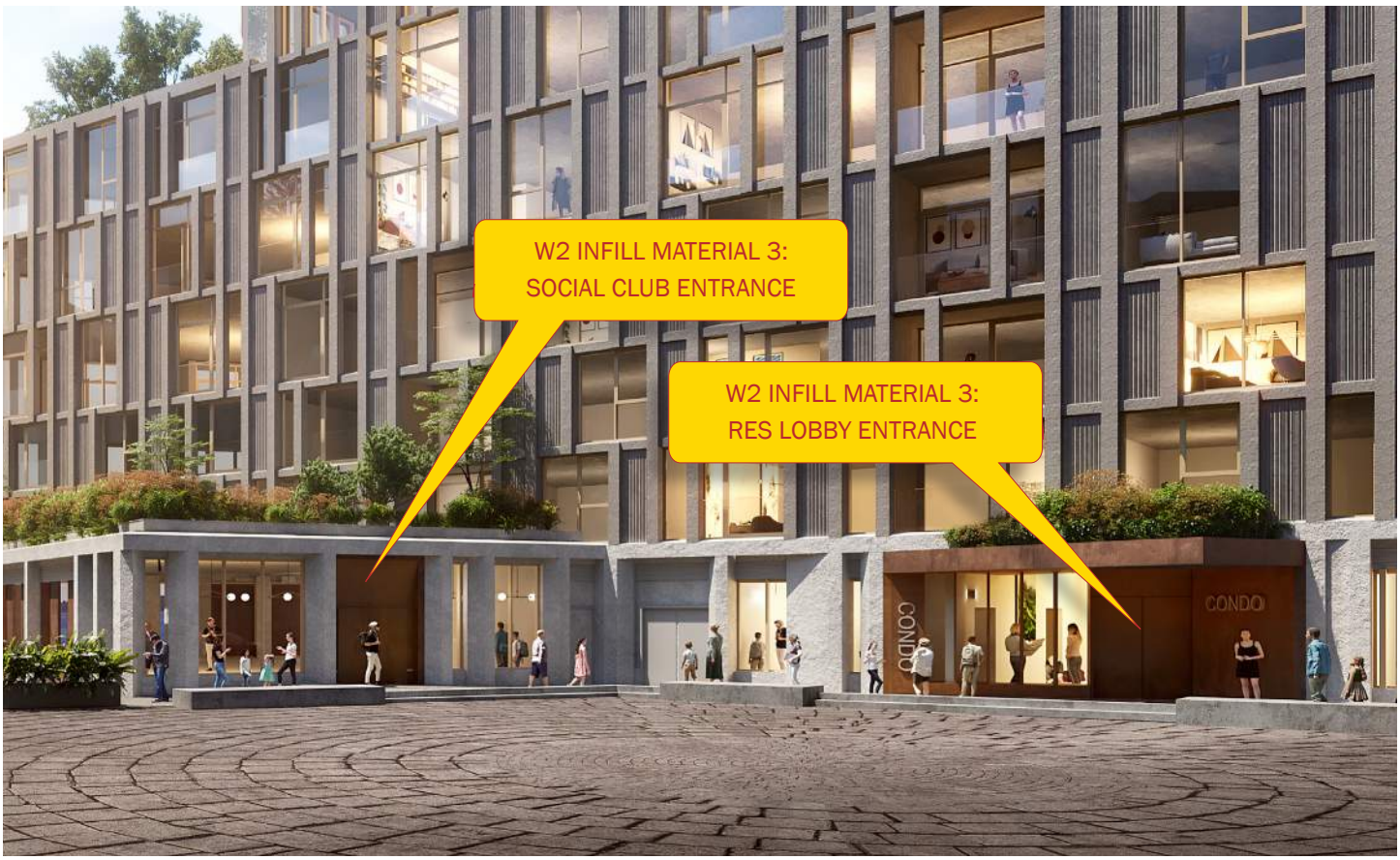

POHL Bronze Light Vibration


POHL Bronze Natural

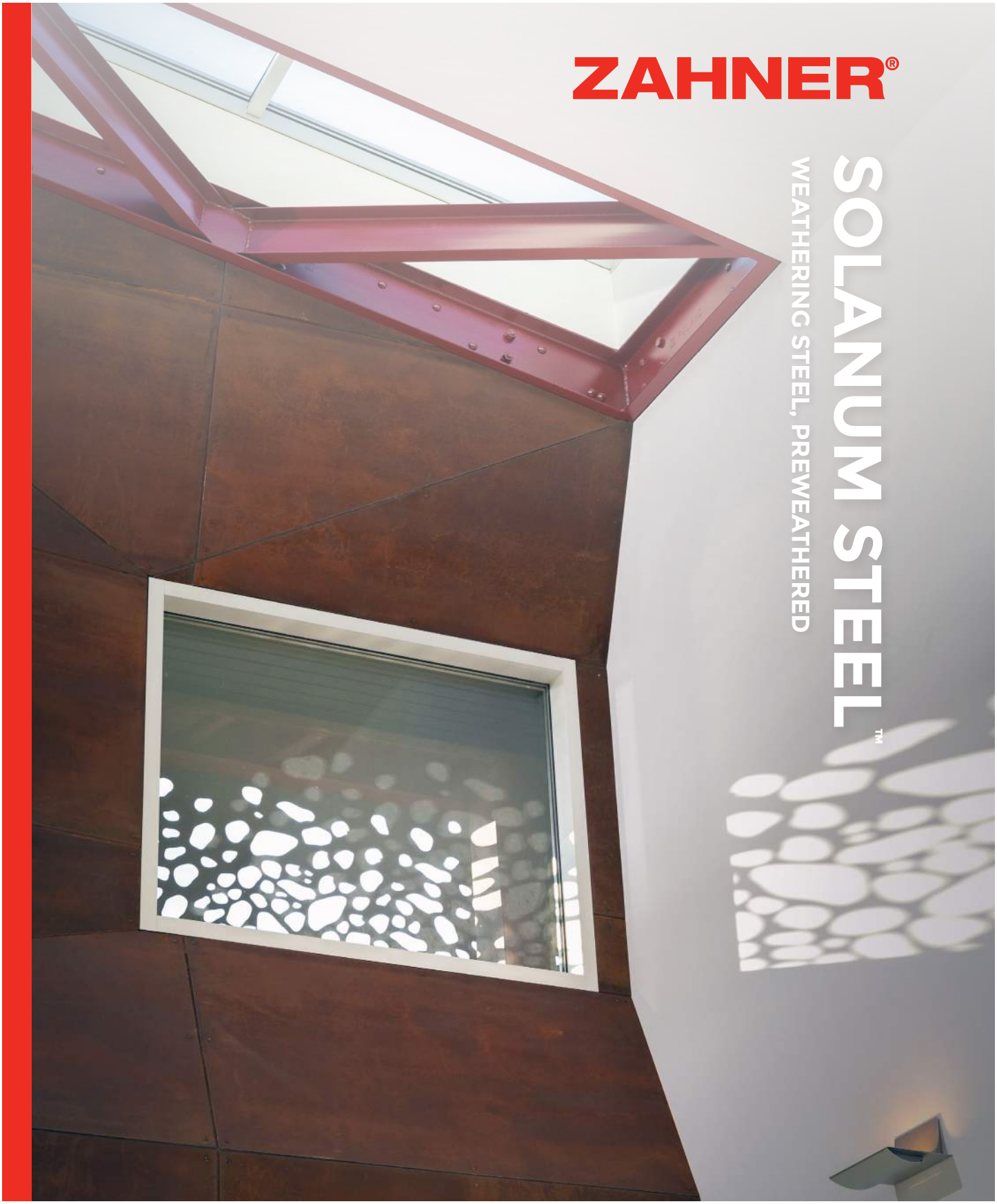

POHL Bronze Dark Hairline

W-2 Granite Cladding Infill Type 3 Locations





W-2 Granite Cladding Infill Type 3 Basis-of-Design



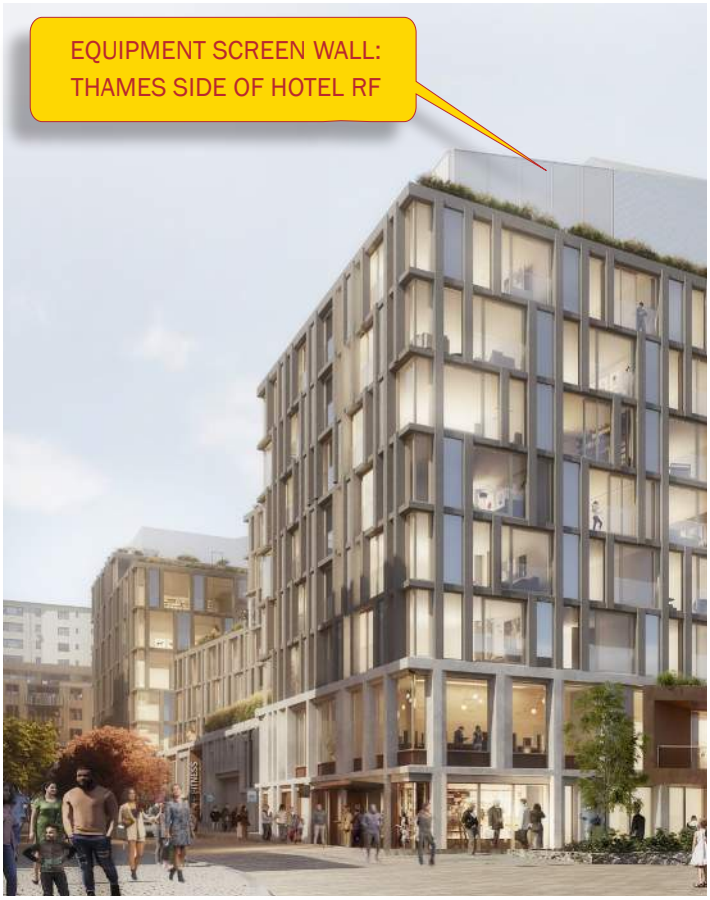
W-3 Roof Bulkhead Cladding B.O.D. Options

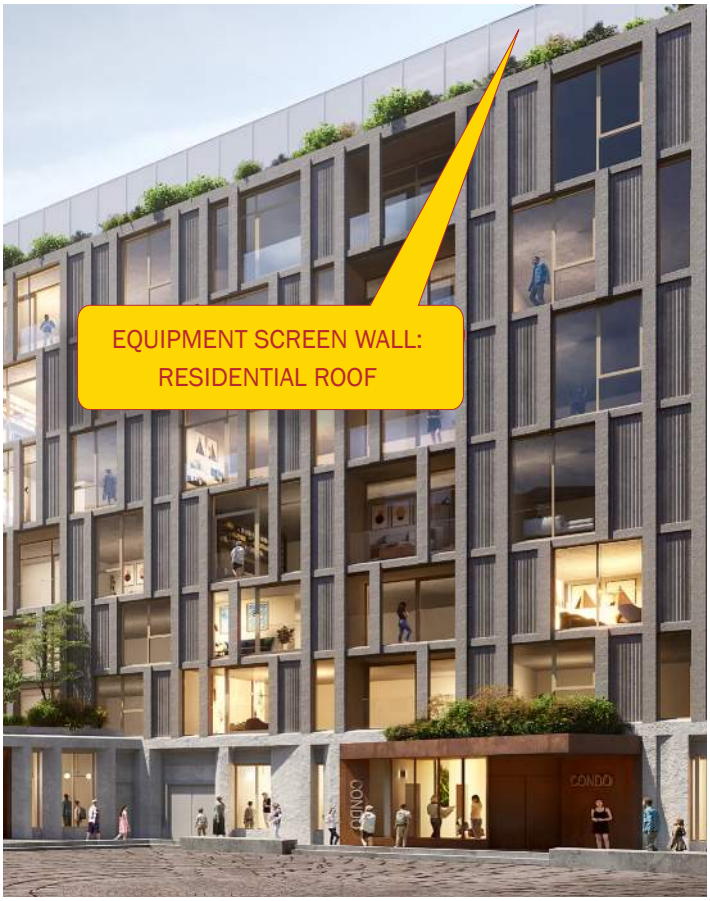




Exterior Roof Equipment Screen Locations







AMIGUARD® 7000 Series High



AMIGUARD® 7100 High Security Mesh



AMIGUARD® 7100 High Security Mesh

Samples shown in 1:1

AMICOAT™ Standard Colors for AMIGUARD® 6000 & 7000 Security Meshes

RAL 1013 Oyster White	RAL 1013 Gray Beige	RAL 3001 Signal Red	RAL 3009 Oxide Red	RAL 5001 Green Blue	RAL 5005 Signal Blue
RAL 6000 Patina Green	RAL 6005 Moss Green	RAL 6026 Opal Green	RAL 6028 Pine Green	RAL 7012 Basalt Gray	RAL 7044 Silk Gray
RAL 8017 Chocolate Brown	RAL 8019 Gray Brown	RAL 9005 Jet Black	RAL 9016 Traffic White		






FITNESS
THE PROMENADE


CONDO
CONDO


RETAIL


THE PROMENADE





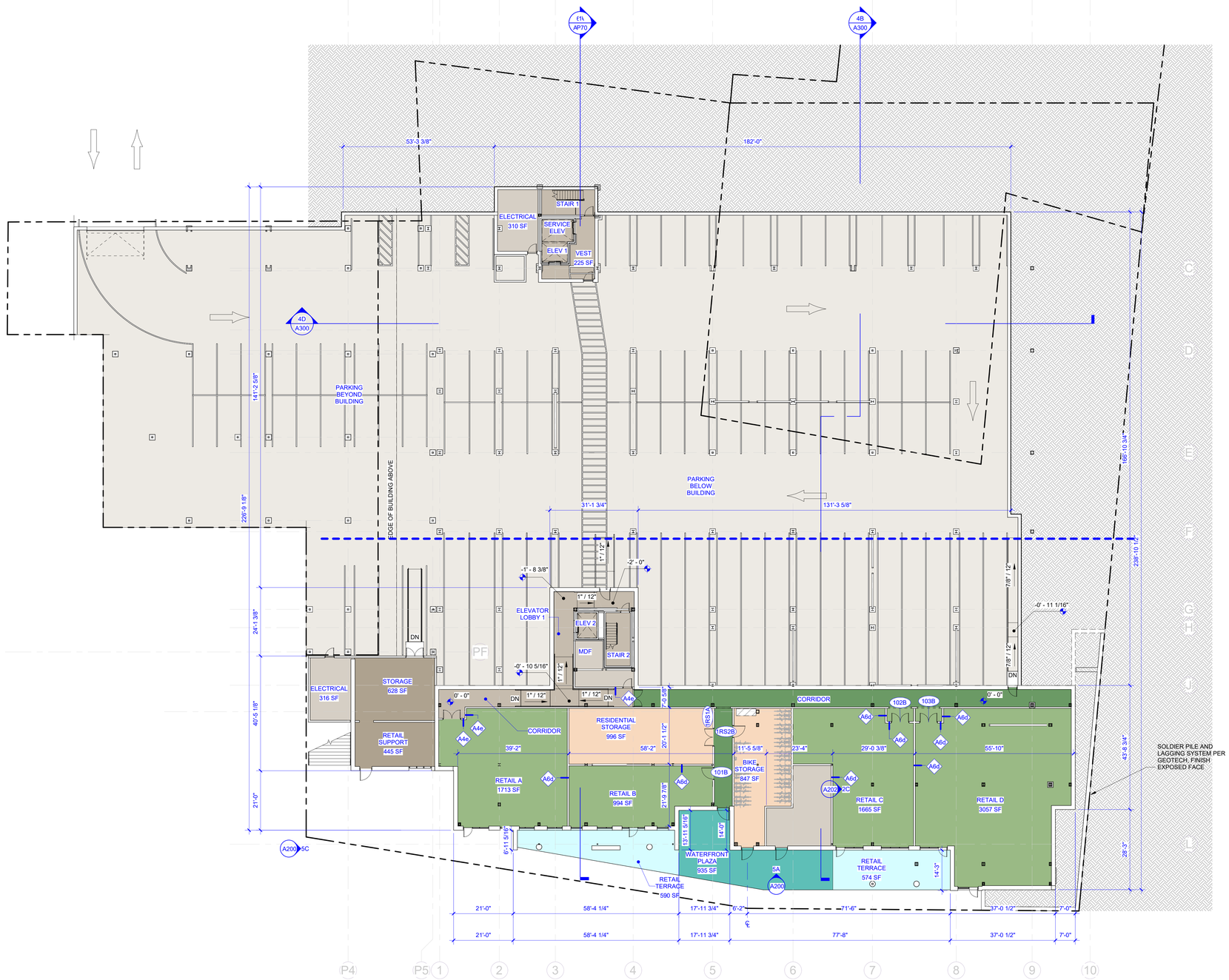
THE CHANNEL MARK | Portland Foreside Block 6 | View from Thames Street | January 5, 2023



THE CHANNEL MARK | Portland Foreside Block 6 | View from Eastern Promenade Trail | January 5, 2023

AREA/UNIT TYPE

- SITE - OUTDOOR SPACE
- RETAIL
- RETAIL - ACCESS SPACE
- RETAIL - OUTDOOR SPACE
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - PARKING
- COMMON SPACE - AMENITY



5A LEVEL 1 (MARINA/PROMENADE) - PLAN

SCALE: 1/16" = 1'-0"

Baskervill

FORESIDE/

THE CHANNEL MARK°

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE
08/30/2023 - SITE PLAN REVISIONS

PROJECT NORTH

LEVEL 1 - OVERALL PLAN

A111

LEVEL 2 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 2		
204	2BR	1057 SF
204 T	UNIT TERRACE	286 SF
205	2BR	1419 SF
205 T	UNIT TERRACE	339 SF
207	3BR	1870 SF
207 T	UNIT TERRACE	395 SF
208	3BR	1752 SF
208 T	UNIT TERRACE	309 SF
209	1BR	1045 SF
209 T	UNIT TERRACE	102 SF
211	2BR	1310 SF
211 T	UNIT TERRACE	157 SF
212	2BR	1096 SF
212 T	UNIT TERRACE	230 SF
213	1BR	1061 SF
213 T	UNIT TERRACE	116 SF
214	2BR	1218 SF
214 T	UNIT TERRACE	268 SF
215	2BR	1502 SF
215 T	UNIT TERRACE	205 SF
216	2BR	1387 SF
216 T1	UNIT TERRACE	151 SF
217	3BR	1815 SF
217 T	UNIT TERRACE	259 SF
218	2BR	1706 SF
218 T	UNIT TERRACE	308 SF
219	2BR	1382 SF
219 T	UNIT TERRACE	280 SF
220	2BR	1662 SF
220 T	UNIT TERRACE	152 SF
221	3BR	2061 SF
221 T	UNIT TERRACE	230 SF
223	3BR	1826 SF
223 T	UNIT TERRACE	325 SF
		29281 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
17

LEVEL 2 - COMMON SPACE SCHEDULE

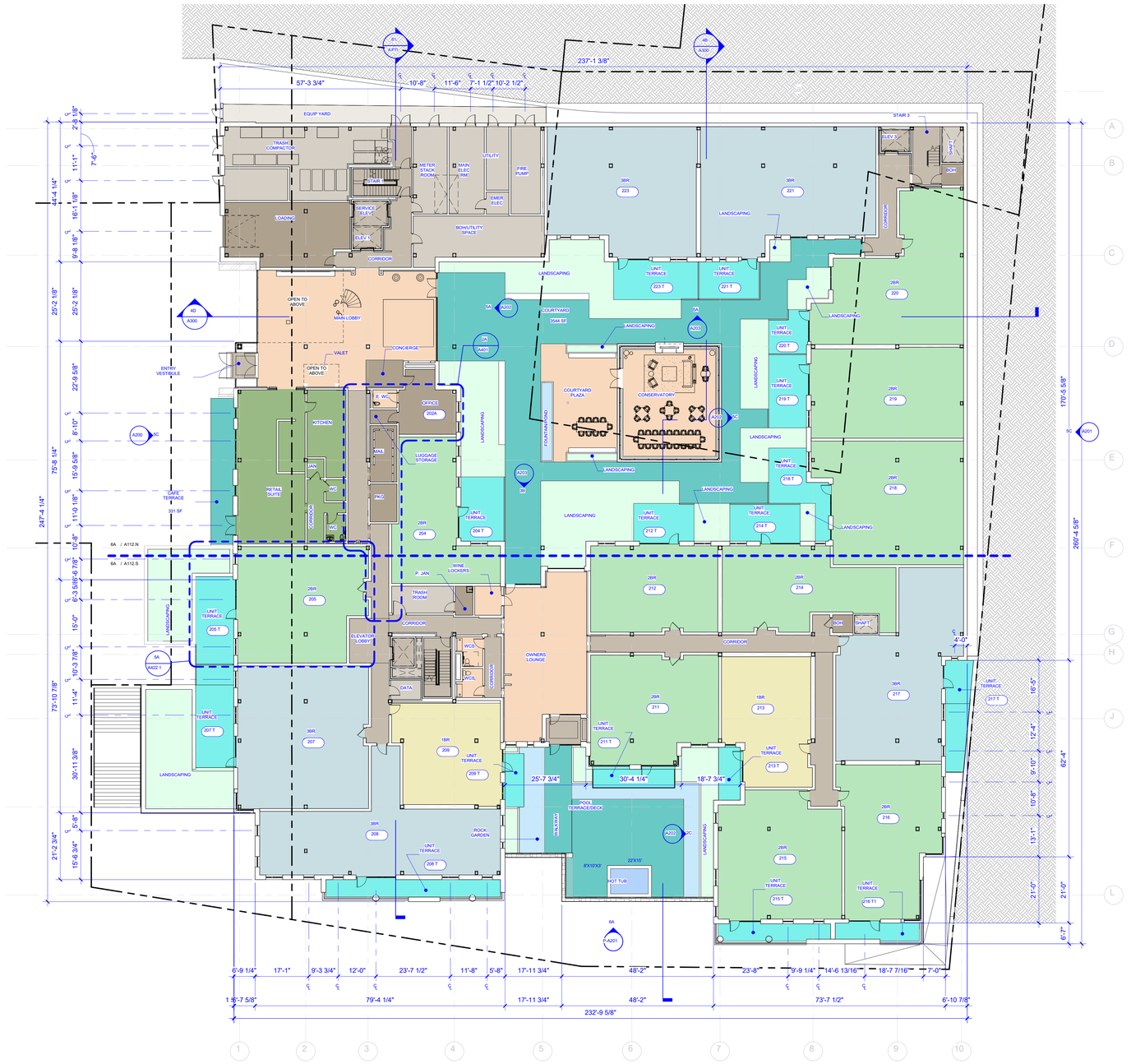
SPACE TYPE	AREA
LEVEL 2	
COMMON SPACE - ACCESS	3422 SF
COMMON SPACE - AMENITY	4972 SF
COMMON SPACE - BOH	1589 SF
COMMON SPACE - OUTDOOR	5150 SF
COMMON SPACE - UTILITIES	3046 SF
COMMON SPACE - UTILITIES (OUTDOOR)	561 SF
	18741 SF

UNIT TYPE & SELLEABLE SF

UNIT TYPE	COUNT	SQUARE FOOTAGE
1BR	17	15070.7 SF
2BR	108	129928 SF
3BR	23	40022.9 SF
PENTHOUSE	8	17184.6 SF
UNIT BALCONY	118	8557.7 SF
UNIT TERRACE - LARGE	16	8113.8 SF
UNIT COUNT WITHIN RZ ZONE = 22	290	218877.7 SF

AREA/UNIT TYPE

- SITE - LANDSCAPING
- SITE - WATER POOL
- SITE - WATER LOW
- RETAIL
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - UTILITIES (OUTDOOR)
- COMMON SPACE - AMENITY
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

ISSUE

06/22/2023 - PROGRESS PRINT

4A LEVEL 2 (STREET LEVEL) - PLAN

SCALE: 1/16" = 1'-0"

LEVEL 2 - OVERALL PLAN

A112

LEVEL 3 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 3		
302	2BR	908 SF
302 T	UNIT BALCONY	73 SF
303	3BR	1647 SF
303 T	UNIT BALCONY	73 SF
304	2BR	1112 SF
304 T	UNIT BALCONY	73 SF
305	2BR	1254 SF
305 T	UNIT BALCONY	75 SF
307	3BR	1873 SF
307 T	UNIT BALCONY	73 SF
308	2BR	1371 SF
308 T	UNIT TERRACE - LARGE	658 SF
309	2BR	1433 SF
309 T	UNIT BALCONY	70 SF
310	2BR	931 SF
310 T	UNIT BALCONY	73 SF
311	2BR	1014 SF
311 T	UNIT BALCONY	74 SF
312	2BR	921 SF
312 T	UNIT BALCONY	73 SF
313	3BR	1754 SF
313 T	UNIT BALCONY	73 SF
314	2BR	930 SF
314 T	UNIT BALCONY	73 SF
315	2BR	1282 SF
315 T	UNIT TERRACE - LARGE	638 SF
316	2BR	1365 SF
316 T1	UNIT TERRACE	175 SF
317	3BR	1531 SF
317 T	UNIT BALCONY	69 SF
318	2BR	1308 SF
318 T	UNIT BALCONY	76 SF
319	2BR	1709 SF
319 T	UNIT BALCONY	70 SF
320	2BR	1550 SF
320 T1	UNIT BALCONY	73 SF
320 T2	UNIT BALCONY	73 SF
321	2BR	1483 SF
321 T	UNIT BALCONY	70 SF
322	2BR	1493 SF
322 T	UNIT BALCONY	70 SF
323	1BR	961 SF
323 T	UNIT BALCONY	70 SF
324	3BR	1733 SF
324 T	UNIT TERRACE	124 SF
		32535 SF

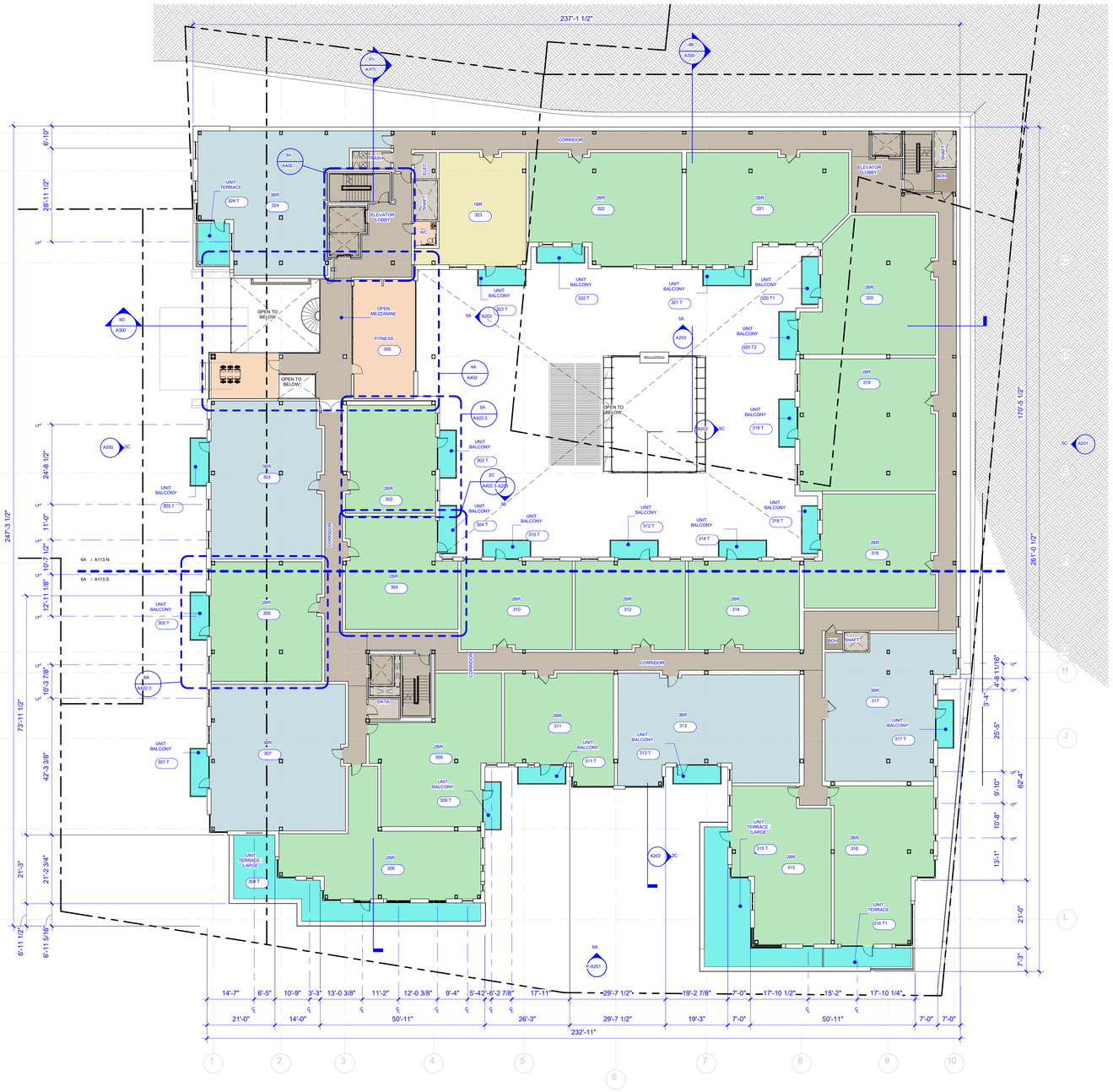
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
22

LEVEL 3 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 3	
COMMON SPACE - ACCESS	5803 SF
COMMON SPACE - AMENITY	1021 SF
COMMON SPACE - BOH	76 SF
COMMON SPACE - UTILITIES	313 SF
	7213 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - AMENITY
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 3 - PLAN

SCALE: 1/16" = 1'-0"

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23218-0400

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST.
PORTLAND, ME 04101

ISSUE
06/22/2023 - PROGRESS PRINT

LEVEL 3 - OVERALL PLAN

A113

LEVEL 4 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 4		
400	2BR	1091 SF
400 T	UNIT BALCONY	75 SF
401	2BR	1381 SF
401 T	UNIT TERRACE	84 SF
402	2BR	908 SF
402 T	UNIT BALCONY	73 SF
403	3BR	1643 SF
403 T	UNIT BALCONY	75 SF
404	2BR	1112 SF
404 T	UNIT BALCONY	73 SF
405	2BR	1254 SF
405 T	UNIT BALCONY	75 SF
407	3BR	1873 SF
407 T	UNIT BALCONY	73 SF
408	2BR	1371 SF
408 T	UNIT BALCONY	74 SF
409	2BR	1437 SF
409 T	UNIT BALCONY	73 SF
410	2BR	933 SF
410 T	UNIT BALCONY	73 SF
411	2BR	1014 SF
411 T	UNIT BALCONY	74 SF
412	2BR	918 SF
412 T	UNIT BALCONY	73 SF
413	3BR	1755 SF
413 T	UNIT BALCONY	73 SF
414	2BR	932 SF
414 T	UNIT BALCONY	73 SF
415	2BR	1276 SF
415 T1	UNIT BALCONY	73 SF
416	2BR	1373 SF
416 T1	UNIT BALCONY	73 SF
417	2BR	1099 SF
417 T	UNIT BALCONY	69 SF
418	1BR	762 SF
418 T	UNIT BALCONY	74 SF
419	1BR	706 SF
419 T	UNIT BALCONY	73 SF
420	2BR	1418 SF
420 T	UNIT BALCONY	73 SF
421	2BR	1112 SF
421 T	UNIT BALCONY	73 SF
422	1BR	966 SF
422 T	UNIT BALCONY	73 SF
423	2BR	1482 SF
423 T	UNIT BALCONY	73 SF
424	2BR	1488 SF
424 T	UNIT BALCONY	70 SF
425	1BR	1004 SF
425 T	UNIT BALCONY	73 SF
426	2BR	1545 SF
426 T	UNIT TERRACE	145 SF
		33838 SF

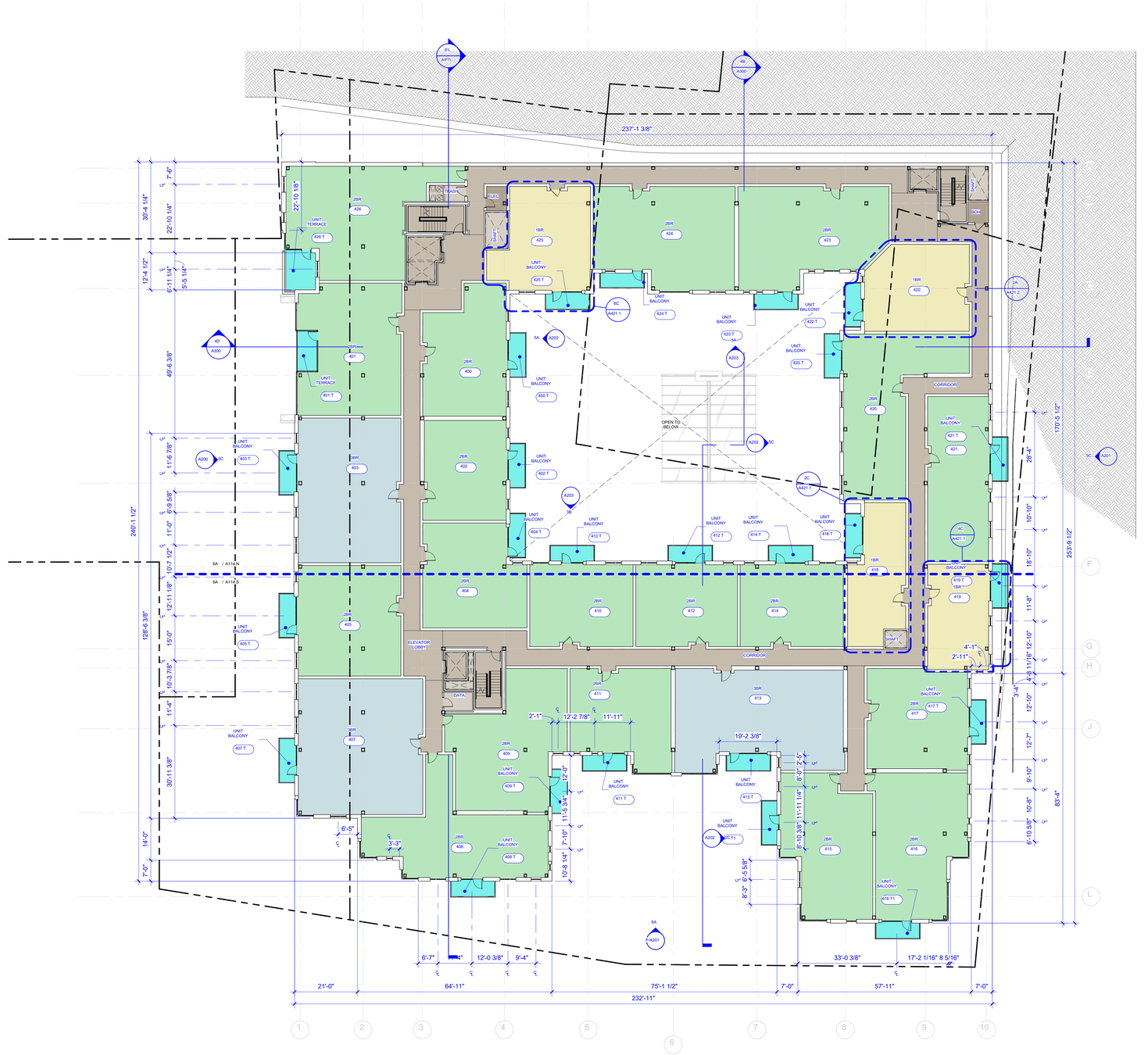
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
26

LEVEL 4- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 4	
COMMON SPACE - ACCESS	5608 SF
COMMON SPACE - BOH	104 SF
COMMON SPACE - UTILITIES	95 SF
	5808 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 4 - PLAN

SCALE: 1/16" = 1'-0"

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PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST.
PORTLAND, ME 04101

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LEVEL 4 - OVERALL PLAN

A114

LEVEL 5 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 5		
500	2BR	1092 SF
500 T	UNIT BALCONY	73 SF
501	2BR	919 SF
501 T	UNIT TERRACE	194 SF
502	2BR	914 SF
502 T	UNIT BALCONY	73 SF
503	2BR	951 SF
503 T	UNIT TERRACE	216 SF
504	2BR	1112 SF
504 T	UNIT BALCONY	73 SF
505	2BR	1424 SF
505T1	UNIT TERRACE	94 SF
508	3BR	1522 SF
508 T1	UNIT TERRACE	129 SF
508 T2	UNIT BALCONY	74 SF
509	2BR	1296 SF
509 T	UNIT TERRACE	112 SF
510	2BR	932 SF
510 T	UNIT BALCONY	73 SF
511	2BR	1015 SF
511 T	UNIT BALCONY	74 SF
512	2BR	919 SF
512 T	UNIT BALCONY	73 SF
513	3BR	1755 SF
513 T	UNIT BALCONY	73 SF
514	2BR	932 SF
514 T	UNIT BALCONY	73 SF
515	2BR	1275 SF
515 T1	UNIT BALCONY	73 SF
516	2BR	1373 SF
516 T1	UNIT BALCONY	73 SF
517	2BR	1100 SF
517 T	UNIT BALCONY	69 SF
518	1BR	762 SF
518 T	UNIT BALCONY	74 SF
519	1BR	706 SF
519 T	UNIT BALCONY	73 SF
520	2BR	1417 SF
520 T	UNIT BALCONY	73 SF
521	2BR	1112 SF
521 T	UNIT BALCONY	73 SF
522	1BR	966 SF
522 T	UNIT BALCONY	73 SF
523	2BR	1483 SF
523 T	UNIT BALCONY	73 SF
524	2BR	1494 SF
524 T	UNIT BALCONY	70 SF
525	1BR	999 SF
525 T	UNIT BALCONY	73 SF
526	2BR	1544 SF
526 T	UNIT TERRACE	157 SF
		31371 SF

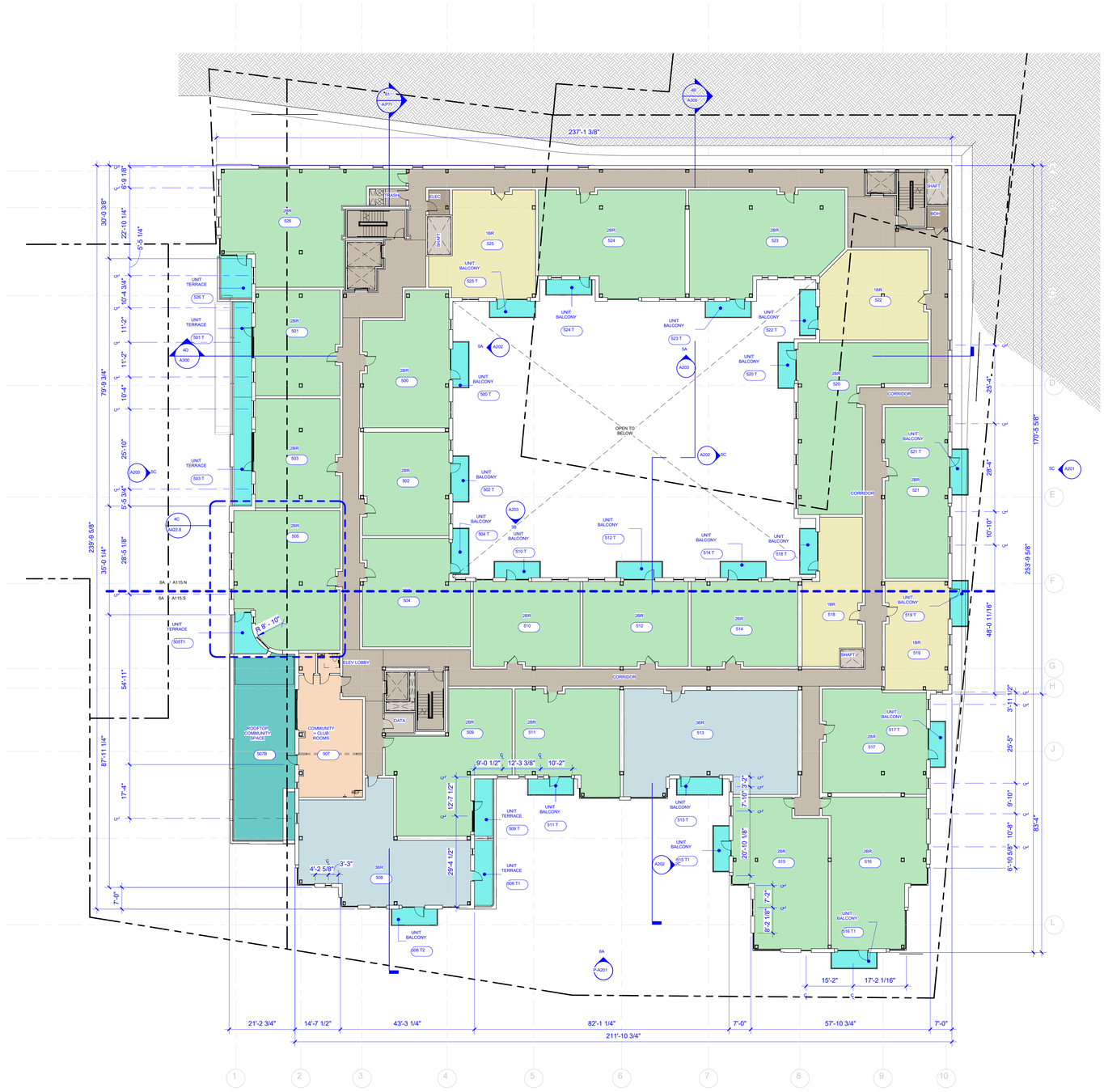
UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
25

LEVEL 5- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
COMMON SPACE - ACCESS	5632 SF
COMMON SPACE - AMENITY	826 SF
COMMON SPACE - BOH	104 SF
COMMON SPACE - OUTDOOR	1182 SF
COMMON SPACE - UTILITIES	59 SF
	7803 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - AMENITY
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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4A LEVEL 5 - PLAN

SCALE: 1/16" = 1'-0"

LEVEL 5 - OVERALL PLAN

A115

LEVEL 6 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 6		
600	2BR	1092 SF
600 T	UNIT BALCONY	73 SF
601	2BR	919 SF
601 T	UNIT BALCONY	73 SF
602	2BR	908 SF
602 T	UNIT BALCONY	73 SF
603	2BR	951 SF
603 T	UNIT BALCONY	73 SF
604	2BR	1112 SF
604 T	UNIT BALCONY	73 SF
605	2BR	1423 SF
605 T	UNIT BALCONY	69 SF
607	2BR	981 SF
607 T	UNIT TERRACE	73 SF
608	2BR	1376 SF
608 T	UNIT BALCONY	74 SF
609	2BR	1295 SF
609 T	UNIT BALCONY	70 SF
610	2BR	932 SF
610 T	UNIT BALCONY	73 SF
611	2BR	1013 SF
611 T	UNIT BALCONY	74 SF
612	2BR	919 SF
612 T	UNIT BALCONY	73 SF
613	3BR	1714 SF
613 T	UNIT BALCONY	73 SF
614	2BR	932 SF
614 T	UNIT BALCONY	73 SF
615	2BR	1092 SF
615 T1	UNIT TERRACE	194 SF
615T2	UNIT BALCONY	74 SF
616	2BR	1178 SF
616 T1	UNIT TERRACE	175 SF
616 T2	UNIT BALCONY	73 SF
617	2BR	871 SF
617 T	UNIT TERRACE	200 SF
618	1BR	762 SF
618 T	UNIT BALCONY	74 SF
619	1BR	707 SF
619 T	UNIT BALCONY	73 SF
620	2BR	1412 SF
620 T	UNIT BALCONY	73 SF
621	2BR	1112 SF
621 T	UNIT BALCONY	73 SF
622	1BR	968 SF
622 T	UNIT BALCONY	73 SF
623	2BR	1483 SF
623 T	UNIT BALCONY	73 SF
624	2BR	1489 SF
624 T	UNIT BALCONY	70 SF
625	1BR	995 SF
625 T	UNIT BALCONY	73 SF
626	2BR	1544 SF
626 T	UNIT BALCONY	74 SF
		31565 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
26

LEVEL 6- COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 6	
COMMON SPACE - ACCESS	5629 SF
COMMON SPACE - BOH	49 SF
COMMON SPACE - UTILITIES	114 SF
	5793 SF

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



4A LEVEL 6 - PLAN

SCALE: 1/16" = 1'-0"

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LEVEL 6 - OVERALL PLAN

A116

LEVEL 7 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 7		
702	2BR	1332 SF
702 T	UNIT BALCONY	63 SF
703	2BR	919 SF
703 T	UNIT BALCONY	73 SF
704	3BR	1516 SF
704 T	UNIT TERRACE	444 SF
705	2BR	1003 SF
705 T	UNIT BALCONY	73 SF
706	1BR	1019 SF
706 T	UNIT TERRACE	77 SF
707	2BR	1060 SF
707 T	UNIT TERRACE - LARGE	273 SF
708	2BR	1125 SF
708 T1	UNIT TERRACE - LARGE	600 SF
708 T2	UNIT TERRACE	108 SF
709	2BR	1161 SF
709 T	UNIT TERRACE	157 SF
710	2BR	1400 SF
710 T	UNIT TERRACE	423 SF
711	2BR	1076 SF
711 T	UNIT TERRACE - LARGE	383 SF
713	2BR	1235 SF
713 T	UNIT TERRACE - LARGE	354 SF
714	2BR	1447 SF
714 T1	UNIT TERRACE	248 SF
715	2BR	1014 SF
715 T	UNIT TERRACE	156 SF
716	2BR	1012 SF
716 T1	UNIT TERRACE	153 SF
717	2BR	871 SF
717 T	UNIT BALCONY	73 SF
719	3BR	1612 SF
719 T	UNIT BALCONY	73 SF
720	2BR	1424 SF
720 T	UNIT BALCONY	73 SF
721	2BR	1314 SF
721 T	UNIT BALCONY	73 SF
722	3BR	1656 SF
722 T1	UNIT TERRACE	232 SF
722 T2	UNIT BALCONY	73 SF
723	3BR	1707 SF
723 T1	UNIT TERRACE	240 SF
723 T2	UNIT BALCONY	70 SF
		29392 SF

LEVEL 7 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 7	
COMMON SPACE - ACCESS	4650 SF
COMMON SPACE - BOH	94 SF
COMMON SPACE - OUTDOOR	839 SF
COMMON SPACE - UTILITIES	95 SF
	5678 SF

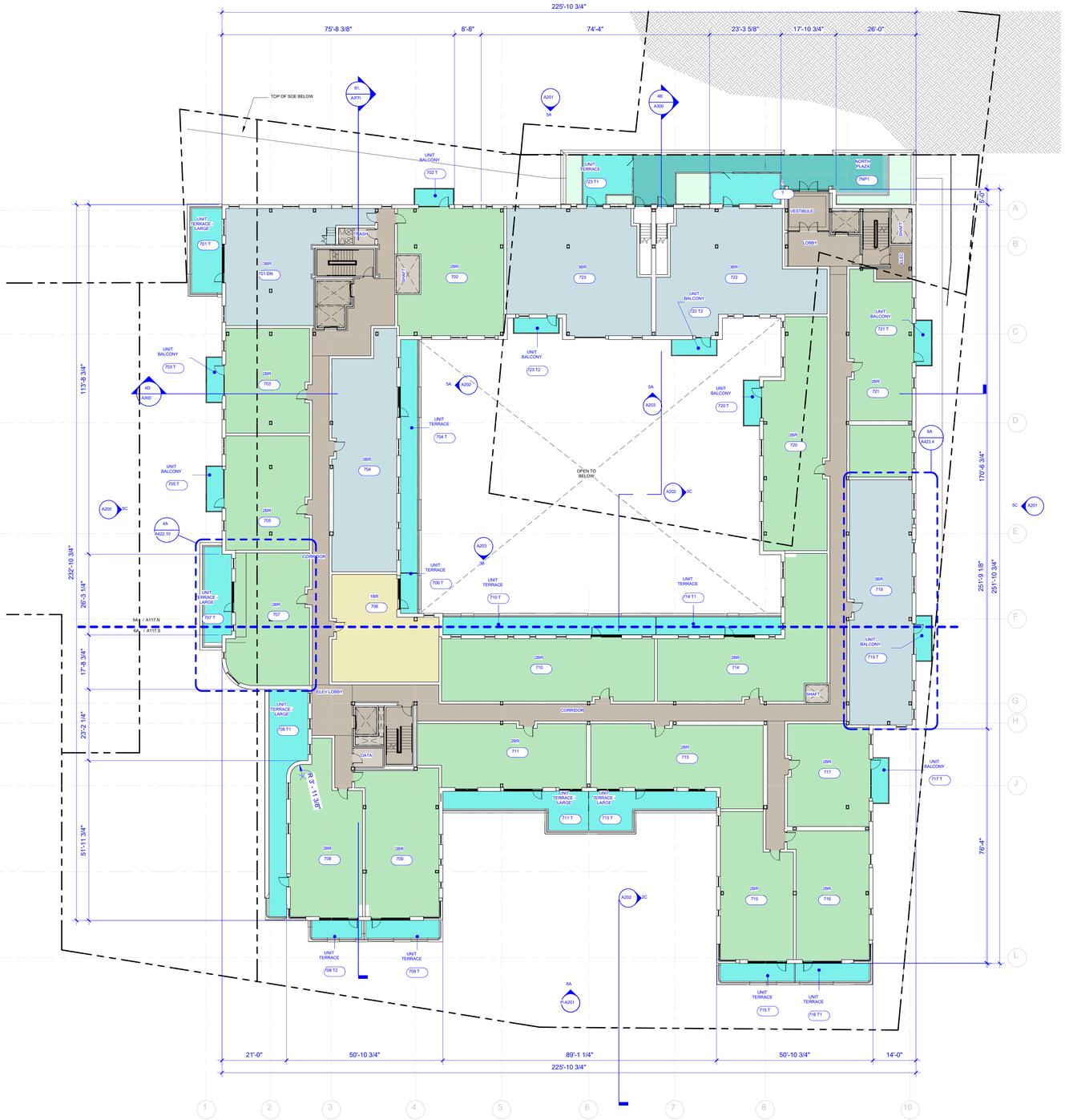
LEVEL 7 - MULTI STORY UNIT

NO	SPACE	LEVEL	AREA
701			
701 DN	3BR	LEVEL 7	1241 SF
701 UP	3BR	LEVEL 8	593 SF
2			1834 SF
701 T	UNIT TERRACE - LARGE	LEVEL 7	294 SF
701 RT	UNIT TERRACE - LARGE	LEVEL 8	610 SF
2			904 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)
21

AREA/UNIT TYPE

- SITE - LANDSCAPING
- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- COMMON SPACE - OUTDOOR
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - OUTDOOR SPACE



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4A LEVEL 7 - PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

LEVEL 7 - OVERALL PLAN

A117

LEVEL 8 - UNIT SCHEDULE

NO	SPACE	AREA
LEVEL 8		
802	2BR	1367 SF
802 T	UNIT BALCONY	63 SF
803	2BR	1009 SF
803 RT	UNIT TERRACE - LARGE	1159 SF
817	2BR	870 SF
817 T	UNIT BALCONY	73 SF
820	2BR	1424 SF
820 T	UNIT BALCONY	73 SF
822	3BR	1763 SF
822 T1	UNIT BALCONY	73 SF
823	3BR	1809 SF
823 T1	UNIT BALCONY	73 SF
		9757 SF

LEVEL 8 - COMMON SPACE SCHEDULE

SPACE TYPE	AREA
LEVEL 8	
COMMON SPACE - ACCESS	3966 SF
COMMON SPACE - BOH	94 SF
COMMON SPACE - UTILITIES	59 SF
	4119 SF

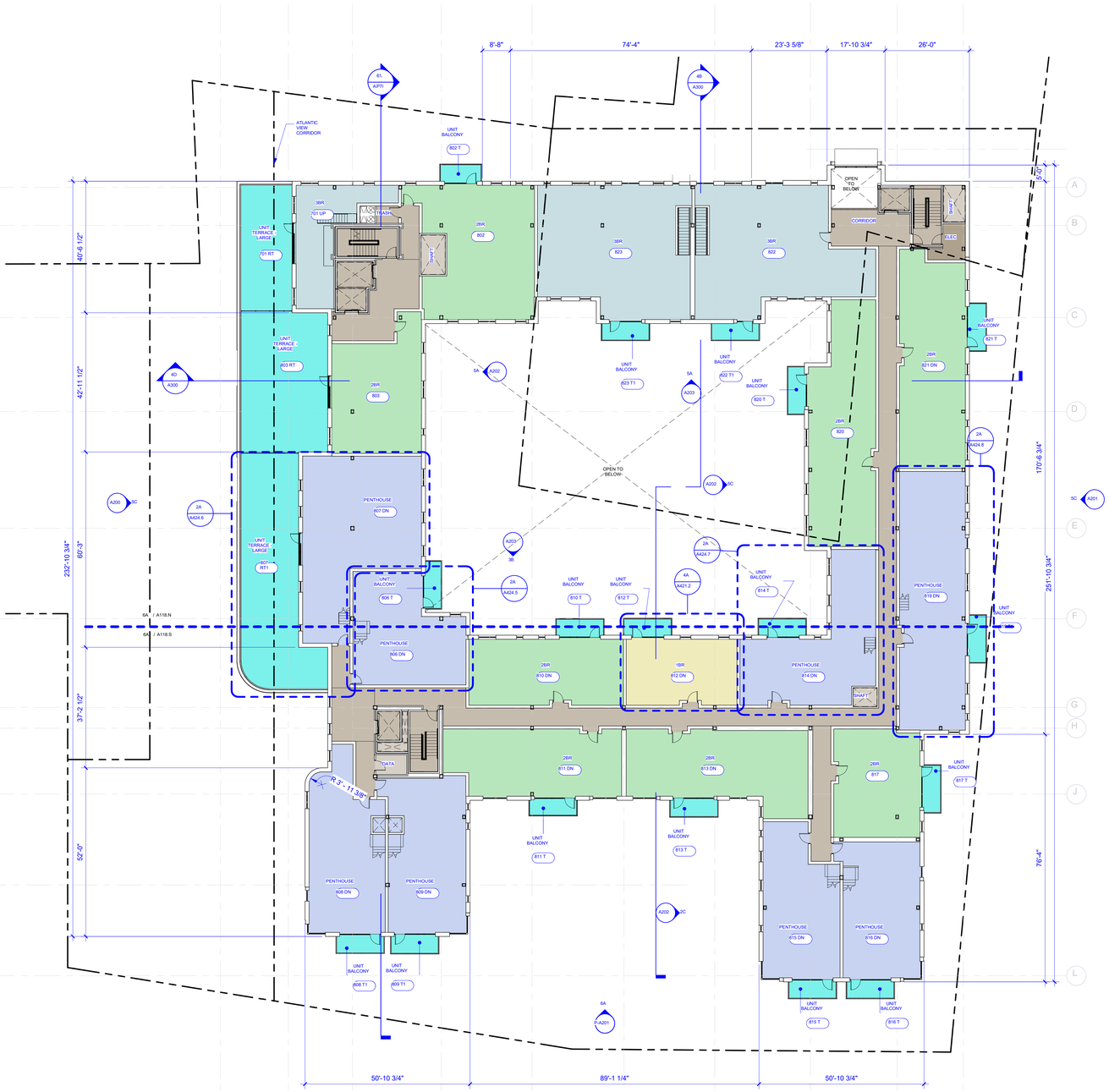
LEVEL 8 - MULTI STORY UNITS

NO	SPACE	LEVEL	AREA
806			
806 DN	PENTHOUSE	LEVEL 8	1029 SF
806 UP	PENTHOUSE	LEVEL 9	596 SF
2			1626 SF
806 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
807 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
806 T	UNIT BALCONY	LEVEL 8	70 SF
806 RT1	UNIT TERRACE - LARGE	LEVEL 9	292 SF
808 T4	UNIT BALCONY	LEVEL 9	63 SF
808 T3	UNIT BALCONY	LEVEL 9	63 SF
6			488 SF
807			
807 DN	PENTHOUSE	LEVEL 8	1607 SF
807 UP	PENTHOUSE	LEVEL 9	1220 SF
2			2827 SF
807 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
807 RT1	UNIT TERRACE - LARGE	LEVEL 8	1383 SF
2			1383 SF
808			
808 DN	PENTHOUSE	LEVEL 8	1131 SF
808 UP	PENTHOUSE	LEVEL 9	1104 SF
2			2234 SF
808 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
808 T3	UNIT TERRACE	Not Placed	Not Placed
808 T2	UNIT TERRACE	Not Placed	Not Placed
808 T1	UNIT BALCONY	LEVEL 8	74 SF
4			74 SF
809			
809 DN	PENTHOUSE	LEVEL 8	1165 SF
809 UP	PENTHOUSE	LEVEL 9	785 SF
2			1950 SF
809 RT2	UNIT ROOF TERRACE	Not Placed	Not Placed
809 T2	UNIT TERRACE	Not Placed	Not Placed
809 T1	UNIT BALCONY	LEVEL 8	75 SF
809 RT	UNIT TERRACE - LARGE	LEVEL 9	285 SF
4			359 SF
810			
810 DN	2BR	LEVEL 8	958 SF
1			958 SF
810 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
810 T	UNIT BALCONY	LEVEL 8	71 SF
2			71 SF
811			
811 DN	2BR	LEVEL 8	1075 SF
1			1075 SF
811 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
811 T	UNIT BALCONY	LEVEL 8	67 SF
2			67 SF
812			
812 DN	1BR	LEVEL 8	685 SF
1			685 SF
812 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
812 T	UNIT BALCONY	LEVEL 8	72 SF
2			72 SF
813			
813 DN	2BR	LEVEL 8	1235 SF
1			1235 SF
813 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
813 T	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF
814			
814 DN	PENTHOUSE	LEVEL 8	1179 SF
814 UP	PENTHOUSE	LEVEL 9	777 SF
2			1956 SF
814 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
814 T	UNIT BALCONY	LEVEL 8	72 SF
2			72 SF
815			
815 DN	PENTHOUSE	LEVEL 8	1014 SF
815 UP	PENTHOUSE	LEVEL 9	634 SF
2			1648 SF
815 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
815 T2	UNIT TERRACE	Not Placed	Not Placed
815 T	UNIT BALCONY	LEVEL 8	73 SF
815 RT	UNIT TERRACE - LARGE	LEVEL 9	517 SF
816 RT2	UNIT TERRACE - LARGE	LEVEL 9	215 SF
814 RT	UNIT TERRACE - LARGE	LEVEL 9	204 SF
819 T2	UNIT BALCONY	LEVEL 9	73 SF
7			1083 SF
816			
816 DN	PENTHOUSE	LEVEL 8	1012 SF
816 UP	PENTHOUSE	LEVEL 9	958 SF
2			1970 SF
816 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
816 T2	UNIT TERRACE	Not Placed	Not Placed
816 T	UNIT BALCONY	LEVEL 8	73 SF
816 RT1	UNIT TERRACE - LARGE	LEVEL 9	249 SF
4			322 SF
819			
819 DN	PENTHOUSE	LEVEL 8	1613 SF
819 UP	PENTHOUSE	LEVEL 9	1361 SF
2			2974 SF
819 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
819 T1	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF
821			
821 DN	2BR	LEVEL 8	1313 SF
1			1313 SF
821 RT	UNIT ROOF TERRACE	Not Placed	Not Placed
821 T	UNIT BALCONY	LEVEL 8	73 SF
2			73 SF

UNITS TOTAL FOR LEVEL (CONDITIONED SPACE)

AREA/UNIT TYPE

- COMMON SPACE - BOH
- COMMON SPACE - ACCESS
- COMMON SPACE - UTILITIES
- UNIT-ONE BEDROOM
- UNIT - TWO BEDROOM
- UNIT - THREE BEDROOM
- UNIT - PENTHOUSE
- UNIT - OUTDOOR SPACE



4A LEVEL 8 - PLAN

SCALE: 1/16" = 1'-0"

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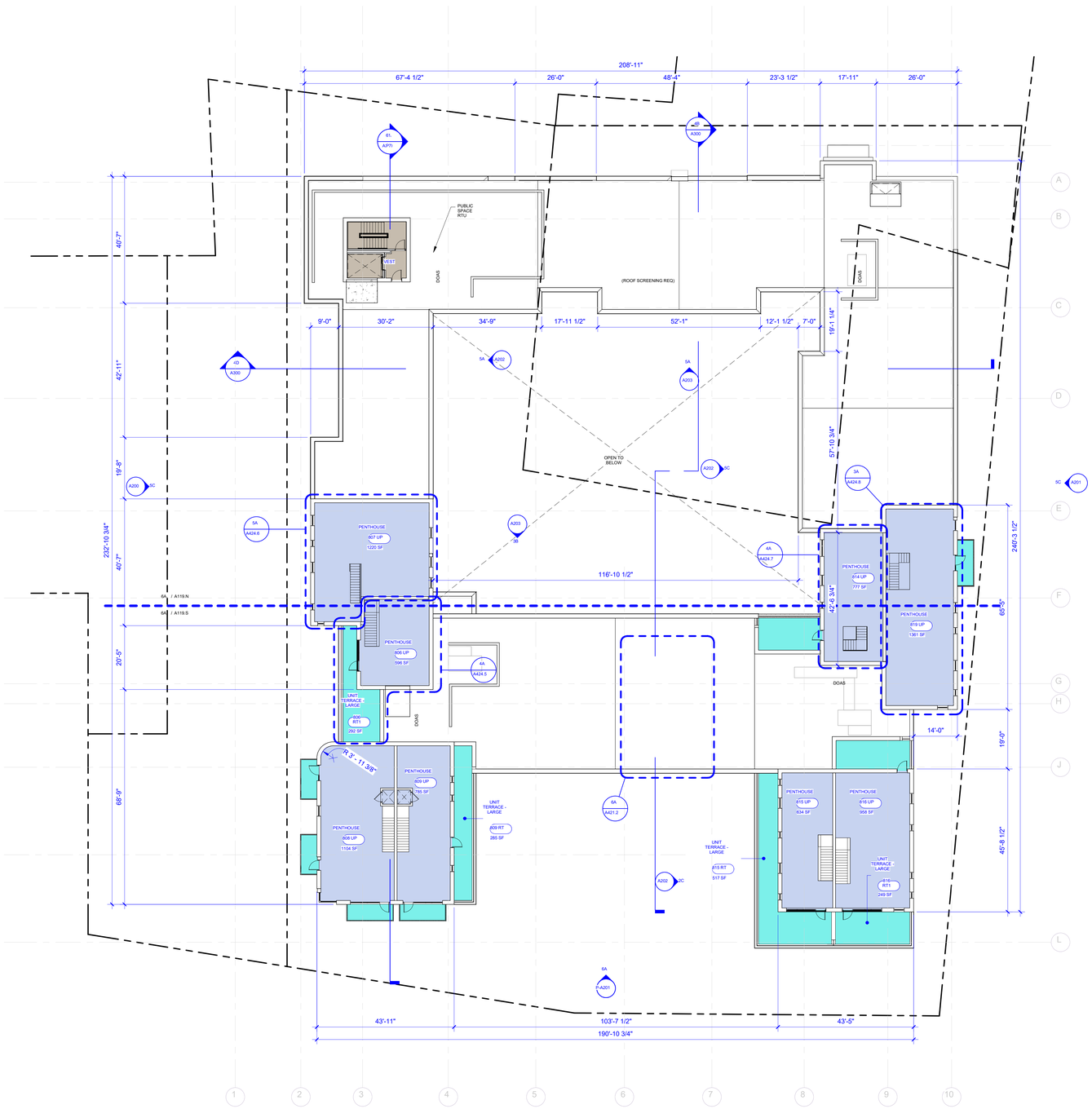
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LEVEL 8 - OVERALL PLAN

A118

AREA/UNIT TYPE

- COMMON SPACE - ACCESS
- UNIT - PENTHOUSE
- UNIT - OUTDOOR SPACE



4A LEVEL 9 (ROOF) - PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

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FORESIDE/

THE CHANNEL MARK°

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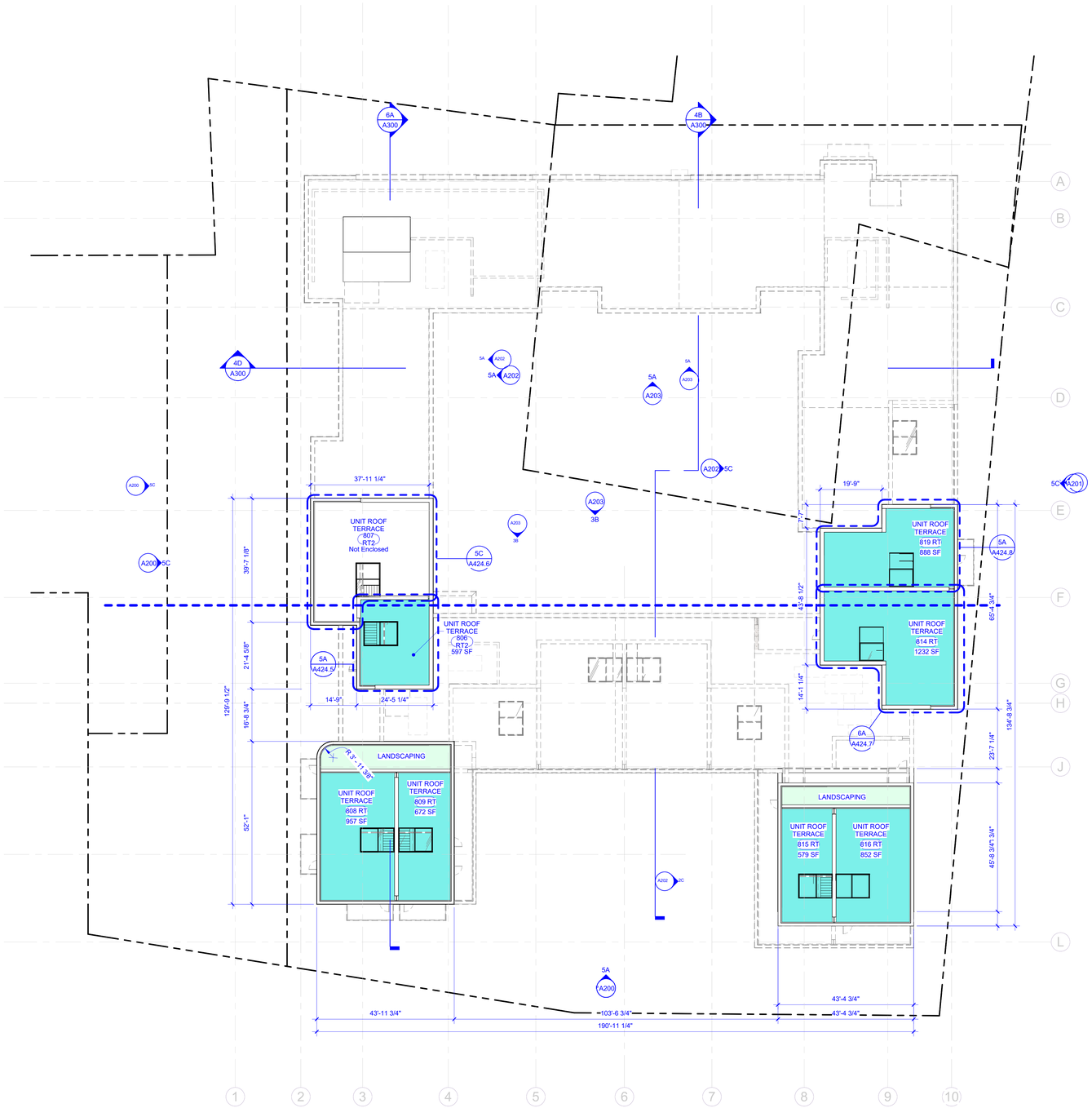
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LEVEL 9 - OVERALL PLAN

A119



4A LEVEL 10 - (ROOF) PLAN

SCALE: 1/16" = 1'-0" DRAWING REF: A200

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LEVEL 10 - PLAN

A120

EXTERIOR FINISH LEGEND

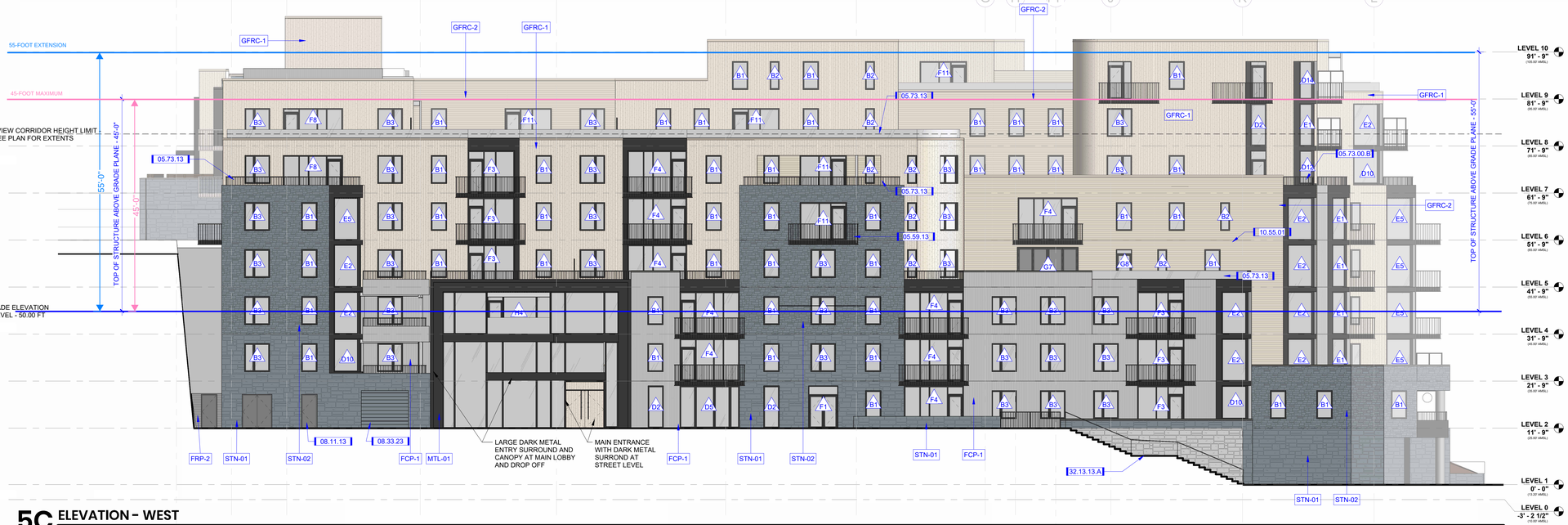
FINISH NO.	MATERIAL	MANUFACTURER	STYLE NAME / NO.	COLOR	SIZE	DESCRIPTION / REMARKS
CONCRETE						
CONC-01	CONCRETE					EXPOSED POURED IN PLACE CONCRETE
EXTERIOR FLOORING						
CT-01	PORCELAIN PAVER		WOOD LOOK		LARGE FORMAT - RECTILINEAR	AT POOL AND ROOF TERRACES
CT-02	PORCELAIN PAVER		STONE LOOK		LARGE FORMAT - PLANK	AT POOL AND ROOF TERRACES
PS-01	PEDASTAL PAVER SYSTEM	HANOVER PAVERS	GRIDLOC ON PEDASTAL PAVERS			WEIGHTED
PS-02	PAVERS	PER LANDSCAPE			VARIED	ABOVE PODIUM
MASONRY						
STN-01	STONE		GRANITE		LARGE FORMAT	CAVITY WALL VENEER
STN-02	STONE		GRANITE		LEDGESTONE	CAVITY WALL VENEER
METAL						
MTL-01	ALUMINUM FRAMED DOOR / WINDOW SYSTEM	WASAU		DARK BRONZE		THERMALLY BROKEN
MTL-02	ALUMINUM PANEL	ATAS	BELEVEDERE	FACTORY FINISHED		ROOF EQUIPMENT SCREEN AND BELOW GRADE FACADE
MTL-03	ALUMINIUM RAILING SYSTEM	SAPPHIRE BALCONIES LIMITED	CUSTOM PREFABRICATED BALCONY	FACTORY FINISHED		VERTICAL PICKET RAILING WITH NARROW PROFILE

EXTERIOR FINISH LEGEND

FINISH NO.	MATERIAL	MANUFACTURER	STYLE NAME / NO.	COLOR	SIZE	DESCRIPTION / REMARKS
MTL-04	GLASS GUARDRAIL	WESHAMPTON ARCHITECTURAL GLASS	BOTTOM SHOE	FINISH TO MATCH MTL-01	48" PANELS	GLASS PANEL RAILING WITH ALUMINUM MOUNT SYSTEM
MTL-05	MODULAR BALCONY	LEVOLUX	SERENITI BALCONY	FINISH TO MATCH MTL-01	15' X 5'	THERMALLY BROKEN ATTACHMENT, RAILED ALLUM DECKING, AND EDGE DRAINAGE
PAINT						
PNT-01	ELASTOMERIC COATING			COLOR TO MATCH MTL-01		ALL EXPOSED STEEL
RAINSCREEN PANEL						
FCP-1	FIBER CEMENT PANEL	SWISS PEARL	GRAVIAL	GRANITE 624		CONCEALED ATTACHEMENT SYSTEM
GFRC-1	GLASSFIBER REINFORCED CONCRETE SLAT	RIEDER	ÖKO SKIN STRIPES	COLOR/FINISH MIX IN COORDINATION WITH MFR: VANILLA NS04, SAHARA NS01, SANDSTONE NS02, ALMOND NS05, & LARCH TI02 IN MATT, FERRO LIGHT, AND FERRO	70mm, 147mm, 302m	CONCEALED ATTACHEMENT SYSTEM; VERTICAL ORIENTATION
GFRC-2	GLASSFIBER REINFORCED CONCRETE SLAT	RIEDER	ÖKO SKIN STRIPES	COLOR/FINISH MIX IN COORDINATION WITH MFR: VANILLA NS04, SAHARA NS01, SANDSTONE NS02, ALMOND NS05, & LARCH TI02 IN MATT, FERRO LIGHT, AND FERRO	70mm, 147mm, 302m	CONCEALED ATTACHEMENT SYSTEM; HORIZONTAL ORIENTATION

KEYNOTES

05.59.13	MODULAR ALUMINUM BALCONY, BOD: AS SHOWN IN SCHEDULE BALCONY WITH RAILED ALUMINIUM BALUSTRADE, NON COMBUSTIBLE DECKING, AND EDGE DRAINAGE
05.73.00.B	PREFINISHED ALUMINUM GUARDRAIL TO MATCH MODULAR BALCONIES
05.73.13	GLASS GUARDRAIL IN ALUMINUM SHOE
07.44.53	FRP COLUMN WRAP; MOUNTED VERTICALLY
07.62.00.A	ALUMINUM COPING WITH KYNAR FINISH SEE SECTION 07 6200
08.11.13	PAINTED HOLLOW METAL DOOR AND FRAME SEE SHEETS A8-01, A8-02, AND SECTION 08 1113
08.33.23	GLASS PANEL ENTRY AND STOREFRONT, TYP
10.55.01	ADAPTIVE OUTDOOR SHADE STRUCTURE, BOD: LANDSCAPE FORMS UPFIT
31 32 36	SOE PER CIVIL DRAWINGS
32.13.13.A	GRAND EXTERIOR STAIR PER LANDSCAPE DRAWINGS



5C ELEVATION - WEST

SCALE: 3/32" = 1'-0" DRAWING REF: A111



5A ELEVATION - SOUTH

SCALE: 3/32" = 1'-0" DRAWING REF: A111

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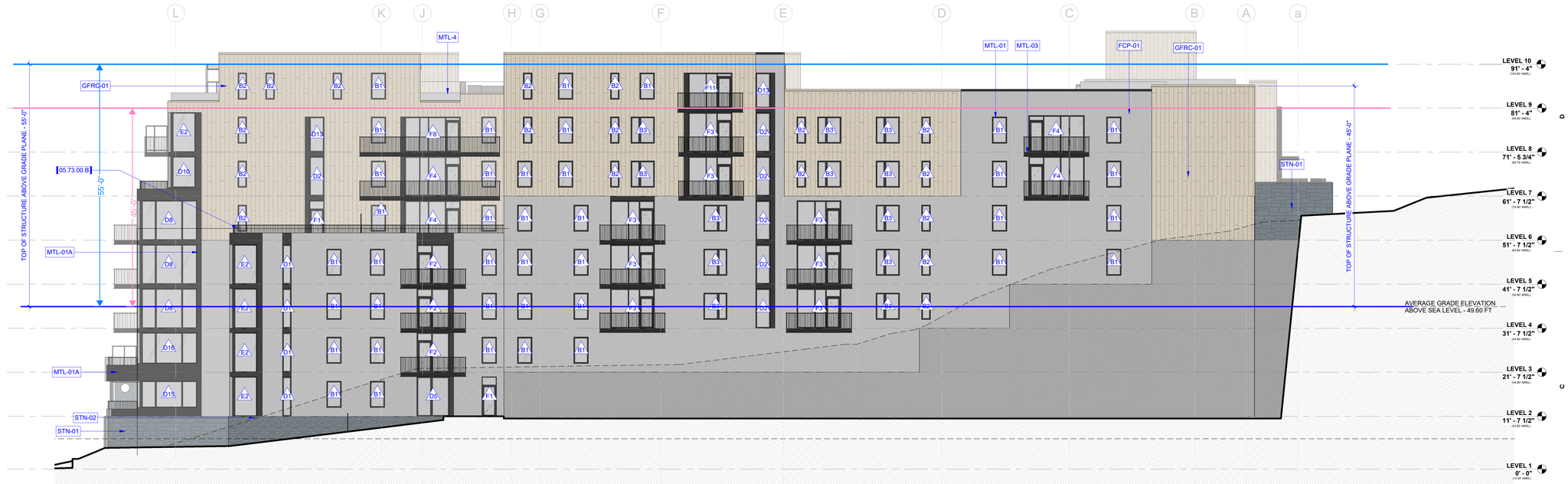
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08/30/2023 -
SITE PLAN REVISIONS

EXTERIOR ELEVATIONS
A200

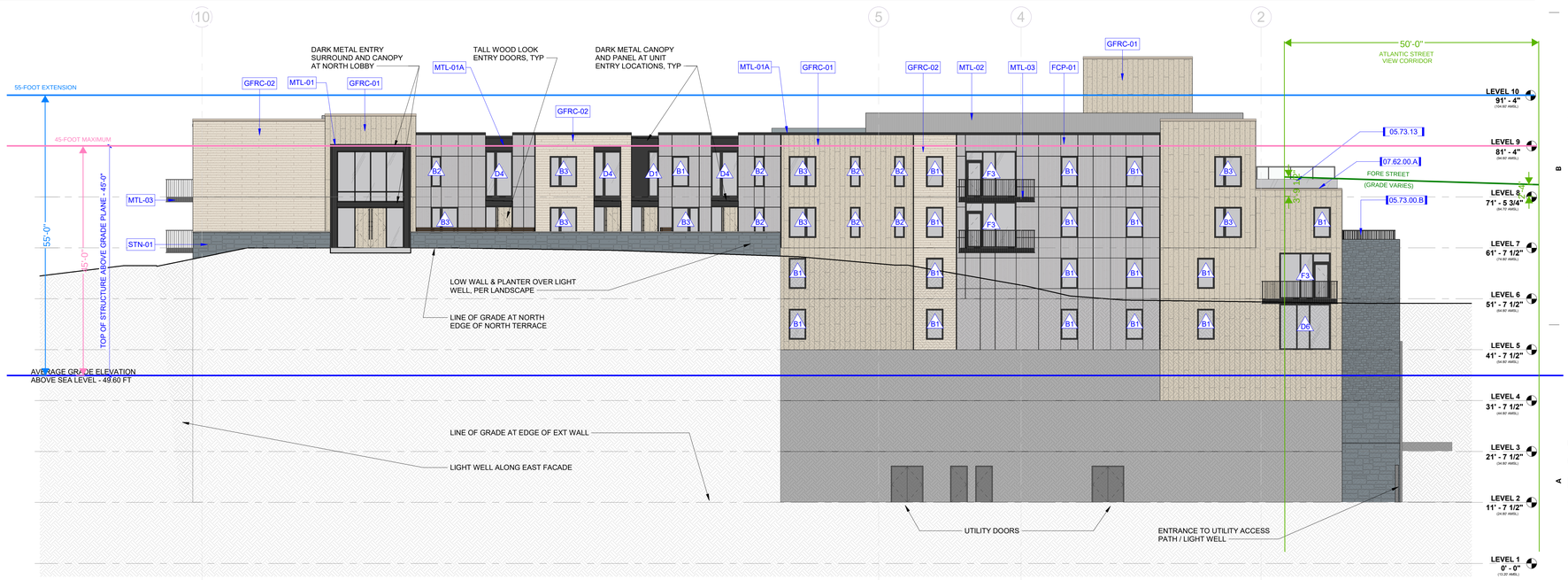
KEYNOTES

05.73.00.B	PREFINISHED ALUMINUM GUARDRAIL TO MATCH MODULAR BALCONIES
05.73.13	GLASS GUARDRAIL IN ALUMINUM SHOE
07.62.00.A	ALUMINUM COPING WITH KYNAR FINISH SEE SECTION 07 6200



5C ELEVATION - EAST

SCALE: 3/32" = 1'-0" DRAWING REF: A112



5A ELEVATION - NORTH

SCALE: 3/32" = 1'-0" DRAWING REF: A117

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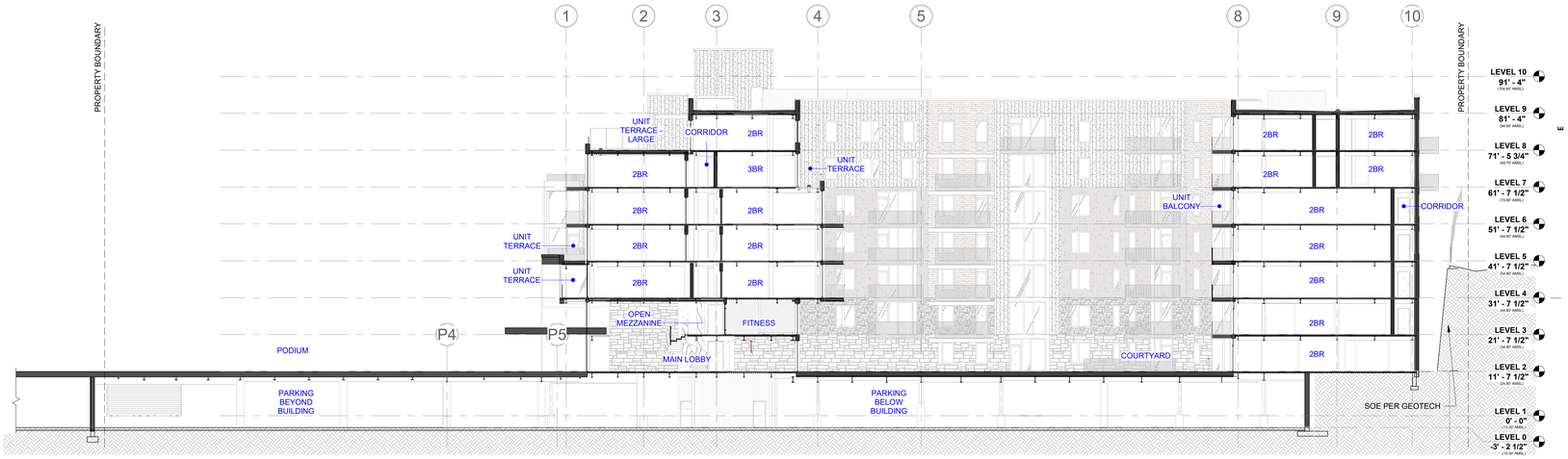
PROJECT NUMBER
2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

58 FORE ST
PORTLAND, ME 04101

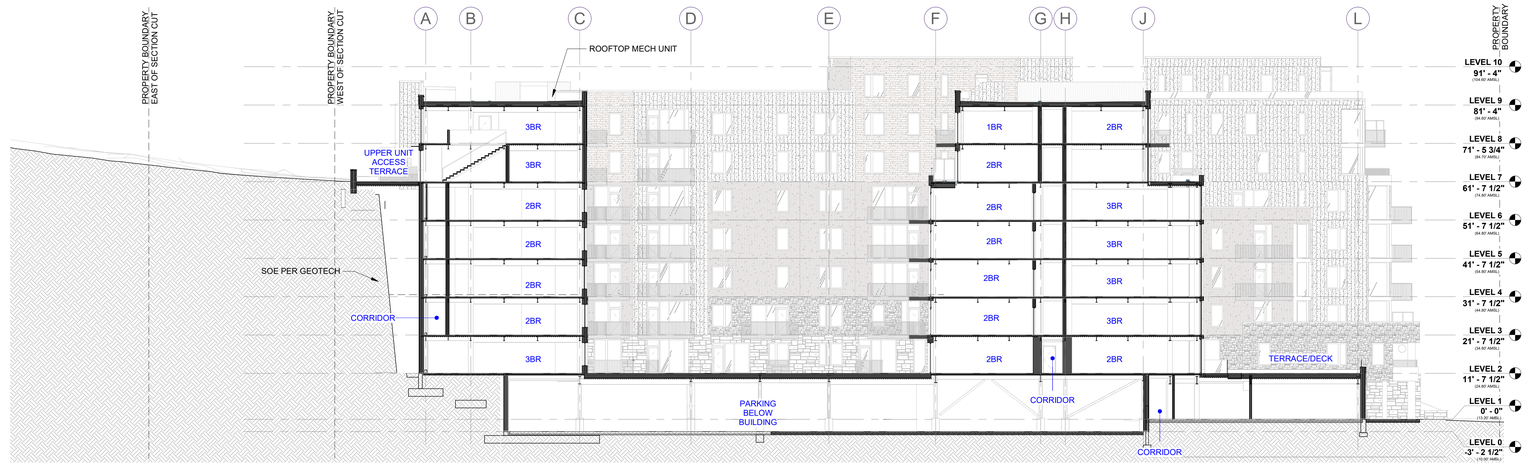
ISSUE
07/14/2023 - APPENDIX B HP PACKAGE REVISIONS

EXTERIOR ELEVATIONS
A201



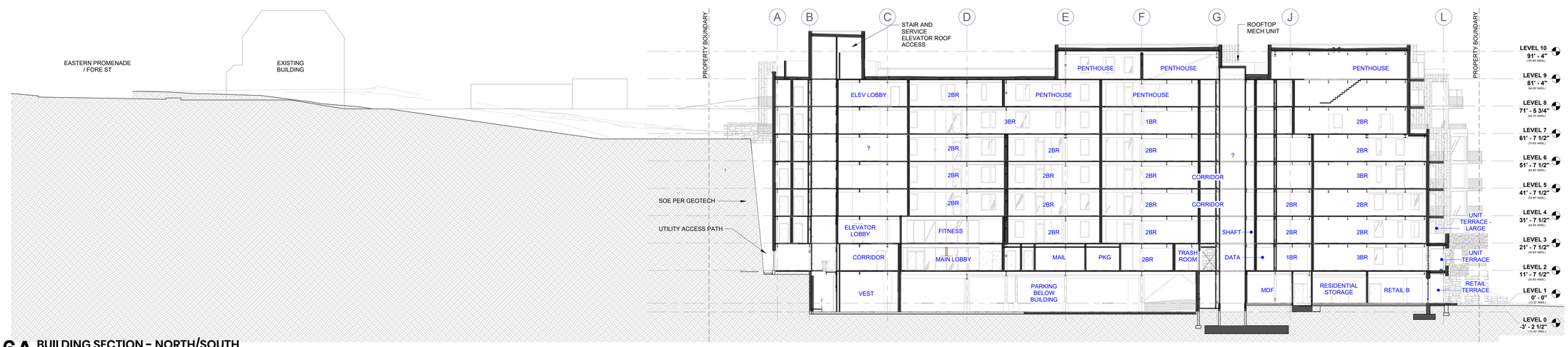
4D BUILDING SECTION - EAST/WEST AT COURTYARD

SCALE: 1/16" = 1'-0" DRAWING REF: A111



4B BUILDING SECTION - NORTH/SOUTH AT COURTYARD

SCALE: 1/16" = 1'-0" DRAWING REF: A111



6A BUILDING SECTION - NORTH/SOUTH

SCALE: 1/16" = 1'-0" DRAWING REF: A111

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PROJECT NUMBER
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PFDC - BLOCK 6: THE CHANNEL MARK

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ISSUE
08/15/2023 - SITE PLAN APPLICATION REV

OVERALL BUILDING SECTIONS

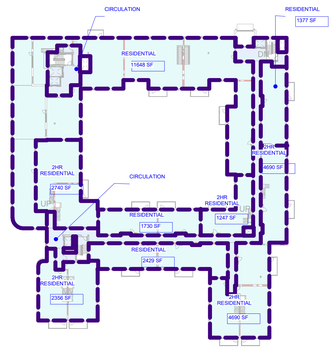
A300

OCCUPANCY SCHEDULE

NAME	FUNCTION OF SPACE	AREA	OCC LOAD FACTOR	GROSS / NET / FIXED	TABULAR OCC
LEVEL 1					
BOH	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	361 SF	300	SF GROSS	2
STORAGE	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	4173 SF	300	SF GROSS	14
MERCANTILE	MERCANTILE	7558 SF	60	SF GROSS	132
ENCLOSED GARAGE UNDER BUILDING	PARKING GARAGES	33747 SF	200	SF GROSS	169
CIRCULATION	UNASSIGNED	3190 SF	0		
		49029 SF			
LEVEL 2					
STORAGE	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	2068 SF	300	SF GROSS	7
TRASH	ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM	1936 SF	300	SF GROSS	7
AMENITY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	1520 SF	15	SF NET	102
COURTYARD	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	5283 SF	15	SF NET	341
LOBBY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	2126 SF	15	SF NET	142
OFFICE	BUSINESS	440 SF	150	SF GROSS	3
MERCANTILE	MERCANTILE	1718 SF	60	SF GROSS	29
RESIDENTIAL	RESIDENTIAL	29344 SF	200	SF GROSS	147
DECK	SKATING RINKS, SWIMMING POOLS - DECKS	459 SF	15	SF GROSS	31
POOL	SKATING RINKS, SWIMMING POOLS - RINK & POOL	349 SF	50	SF GROSS	7
CIRCULATION	UNASSIGNED	4808 SF	0		
COVERED EXTERIOR	UNASSIGNED	193 SF	0		
		50244 SF			
LEVEL 3					
AMENTIY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	321 SF	15	SF NET	22
FITENSS	EXERCISE ROOMS	701 SF	50	SF GROSS	15
RESIDENTIAL	RESIDENTIAL	32750 SF	200	SF GROSS	164
CIRCULATION	UNASSIGNED	6851 SF	0		
		40622 SF			
LEVEL 4					
RESIDENTIAL	RESIDENTIAL	33250 SF	200	SF GROSS	167
CIRCULATION	UNASSIGNED	6645 SF	0		
		39895 SF			
LEVEL 5					
AMENTIY	ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)	2001 SF	15	SF NET	134
RESIDENTIAL	RESIDENTIAL	31288 SF	200	SF GROSS	157
CIRCULATION	UNASSIGNED	6558 SF	0		
		39846 SF			
LEVEL 6					
RESIDENTIAL	RESIDENTIAL	31250 SF	200	SF GROSS	157
CIRCULATION	UNASSIGNED	6588 SF	0		
		37838 SF			
LEVEL 7					
RESIDENTIAL	RESIDENTIAL	31644 SF	200	SF GROSS	159
CIRCULATION	UNASSIGNED	5578 SF	0		
		37222 SF			
LEVEL 8					
2HR RESIDENTIAL	RESIDENTIAL	11033 SF	200	SF GROSS	56
RESIDENTIAL	RESIDENTIAL	17183 SF	200	SF GROSS	86
CIRCULATION	UNASSIGNED	4725 SF	0		
		32941 SF			
LEVEL 9					
2HR RESIDENTIAL	RESIDENTIAL	7772 SF	200	SF GROSS	39
RESIDENTIAL	RESIDENTIAL	3478 SF	200	SF GROSS	18
CIRCULATION	UNASSIGNED	395 SF	0		
		11645 SF			
LEVEL 10					
2HR RESIDENTIAL	RESIDENTIAL	7219 SF	200	SF GROSS	37
		7219 SF			
Grand total: 73		346501 SF		TOTAL OCC = 2,344	

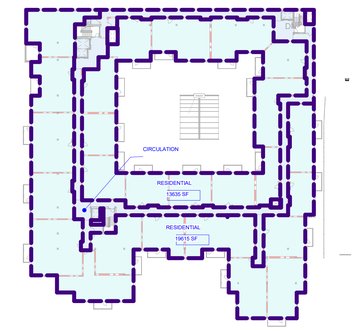
FUNCTION OF SPACE COLOR LEGEND

- ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT ROOM
- ASSEMBLY WITHOUT FIXED SEATS - UNCONCENTRATED (TABLES & CHAIRS)
- BUSINESS
- MERCANTILE
- EXERCISE ROOM
- RESIDENTIAL
- SKATING RINKS, SWIMMING POOLS - DECKS
- SKATING RINKS, SWIMMING POOLS - RINK & POOL
- UNASSIGNED
- PARKING GARAGE



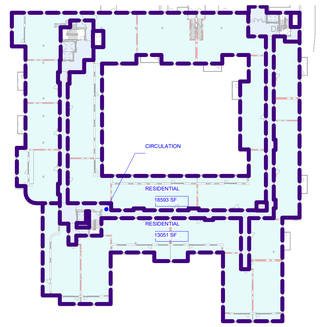
2D LEVEL 8

SCALE: 1" = 50'-0" DRAWING REF: A200



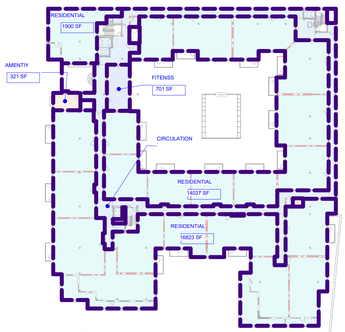
1D LEVEL 4

SCALE: 1" = 50'-0" DRAWING REF: A200



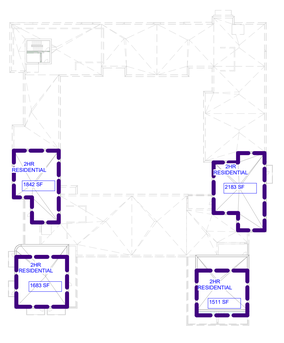
2C LEVEL 7

SCALE: 1" = 50'-0" DRAWING REF: A200



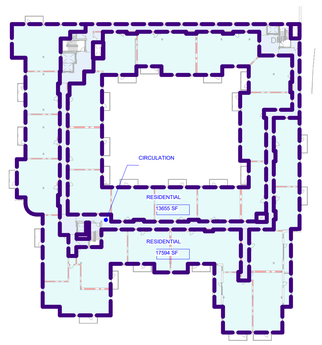
1C LEVEL 3

SCALE: 1" = 50'-0" DRAWING REF: A200



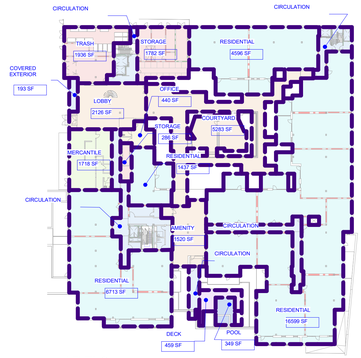
3B LEVEL 10

SCALE: 1" = 50'-0" DRAWING REF: A200



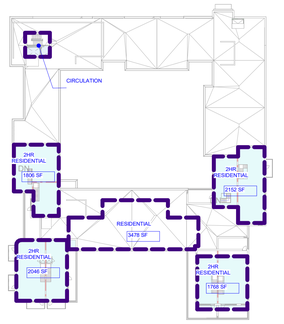
2B LEVEL 6

SCALE: 1" = 50'-0" DRAWING REF: A200



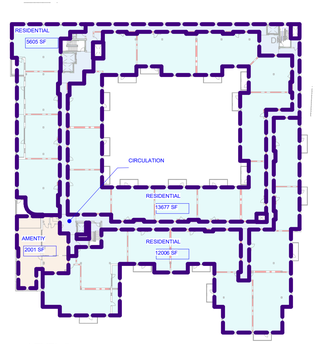
1B LEVEL 2

SCALE: 1" = 50'-0" DRAWING REF: A200



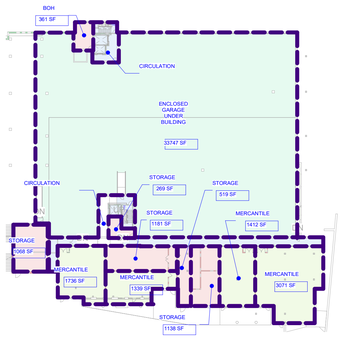
3A LEVEL 9

SCALE: 1" = 50'-0" DRAWING REF: A200



2A LEVEL 5

SCALE: 1" = 50'-0" DRAWING REF: A200



1A LEVEL 1

SCALE: 1" = 50'-0" DRAWING REF: A200

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2.210338.0

PFDC - BLOCK 6: THE CHANNEL MARK

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ISSUE

06/22/2023 - PROGRESS PRINT

CODE CALCULATED OCCUPANCY AND AREA PLANS

G001

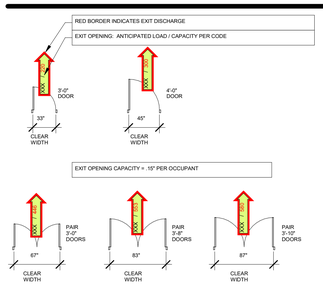
EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 1 - GARAGE PATH A	
COMMON PATH OF EGRESS TRAVEL	29'-6"
PATH OF CHOICE	139'-3"
	168'-9"
LEVEL 1 - RETAIL A	
COMMON PATH OF EGRESS TRAVEL	8'-4"
PATH OF CHOICE	30'-11"
	39'-3"
LEVEL 1 - RETAIL B	
COMMON PATH OF EGRESS TRAVEL	20'-6"
PATH OF CHOICE	87'-0"
	107'-6"
LEVEL 1 - RETAIL C	
COMMON PATH OF EGRESS TRAVEL	25'-9"
PATH OF CHOICE	40'-2"
	65'-11"
LEVEL 1 - RETAIL D	
COMMON PATH OF EGRESS TRAVEL	53'-6"
PATH OF CHOICE	40'-2"
	93'-8"
LEVEL 2 - EXIT PATH 'A'	
PATH OF CHOICE	240'-11"
	240'-11"
LEVEL 2 - EXIT PATH 'B'	
COMMON PATH OF EGRESS TRAVEL	109'-5"
PATH OF CHOICE	74'-7"
	184'-0"

FIRE PROTECTION & ALARM DEVICES (906 -908)

- FE — FIRE EXTINGUISHER BRACKET MOUNTED
- FEC — FIRE EXTINGUISHER CABINET (RECESSED/ SEMI RECESSED)
- V — FIRE ALARM STROBE ONLY, + 80" SYNCHRONIZED 15 CANDELA UNLESS OTHERWISE NOTED
- SD — FIRE ALARM PHOTOELECTRIC SMOKE DETECTOR CEILING MOUNTED
- F — FIRE ALARM PULL STATION, +48"
- F — FIRE ALARM HORN/STROBE DEVICE, +80" SYNCHRONIZED 15 CANDELA UNLESS OTHERWISE NOTED
- SD — FIRE ALARM PHOTOELECTRIC DUCT SMOKE DETECTOR HOUSING WITH SENSOR AND REMOTE LED/ALARM TEST STATION

EXIT DISCHARGE CAPACITY (SPRINKLERED)



EXIT / EGRESS SYMBOLS

- EP — EXIT PASSAGEWAY (1024)
- EXIT ACCESS CORRIDOR (1020)
- DIRECTIONAL ILLUMINATED EXIT SIGN (1013)
- ELEV — ELEVATOR (3001)
- HE — HORIZONTAL EXIT (1026)
- EAS — EXIT ACCESS (1016)
- IES — INTERIOR EXIT STAIRWAY (1023)

LIFE SAFETY GENERAL NOTES

1. BASIS OF DESIGN BUILDING COMPONENTS RATING ASSEMBLIES
   - A. UL X017 - 2-HR COLUMN ENCLOSURE GYP
   - B. UL U493 - 1-2HR DEMISING WALL
   - C. UL U305 - 1HR WALL
   - D. UL U415 - 2-HR SHAFT WALL
   - E. UL N501 - 2HR BEAM ENCLOSURE GYP
   - F. UL D704 - 2HR BEAM AND DECK SPRAY APPLIED
2. FIRE EXTINGUISHER CABINETS SHALL BE LOCATED SO THAT THE MAXIMUM TRAVEL DISTANCE SHALL NOT EXCEED 75'-0" (906.3).
3. MINIMUM EGRESS WIDTH PER OCCUPANT AT STAIRS = 0.3" PER OCCUPANT MINIMUM EGRESS WIDTH PER OCCUPANT AT ALL OTHER EGRESS COMPONENTS = 0.15" PER OCCUPANT. (1005.3.2)
4. A FIRE RATED ASSEMBLY AND SMOKE BARRIER ASSEMBLY SHALL BE STENCILED WITH THE RELEVANT DESIGNATION AS FOLLOWS (703.7):
   - 3-INCH TALL LETTERS IN RED INK OR PAINT
   - APPLIED AT ALL CONCEALED LOCATIONS (EG., ABOVE CEILING AND INSIDE ELEVATOR SHAFTS) @ 8'-0" OC MAX.

PARTITION DESIGNATIONS (705-710)

NON-RATED PARTITION

707 FIRE BARRIERS

1 HR FIRE BARRIER

2 HR FIRE BARRIER

HORIZONTAL ASSEMBLIES (711)

NOTE:
ALL RATED CONSTRUCTION IS ALSO SMOKE RESISTIVE CONSTRUCTION

1 HR RATED ROOF/FLOOR ASSEMBLY

1-HR FIRE BARRIER CEILING

2 HR RATED ROOF/FLOOR ASSEMBLY

TRAVEL DISTANCE LIMITATIONS (1017)

EXIT ACCESS TRAVEL DISTANCE (1017.2)

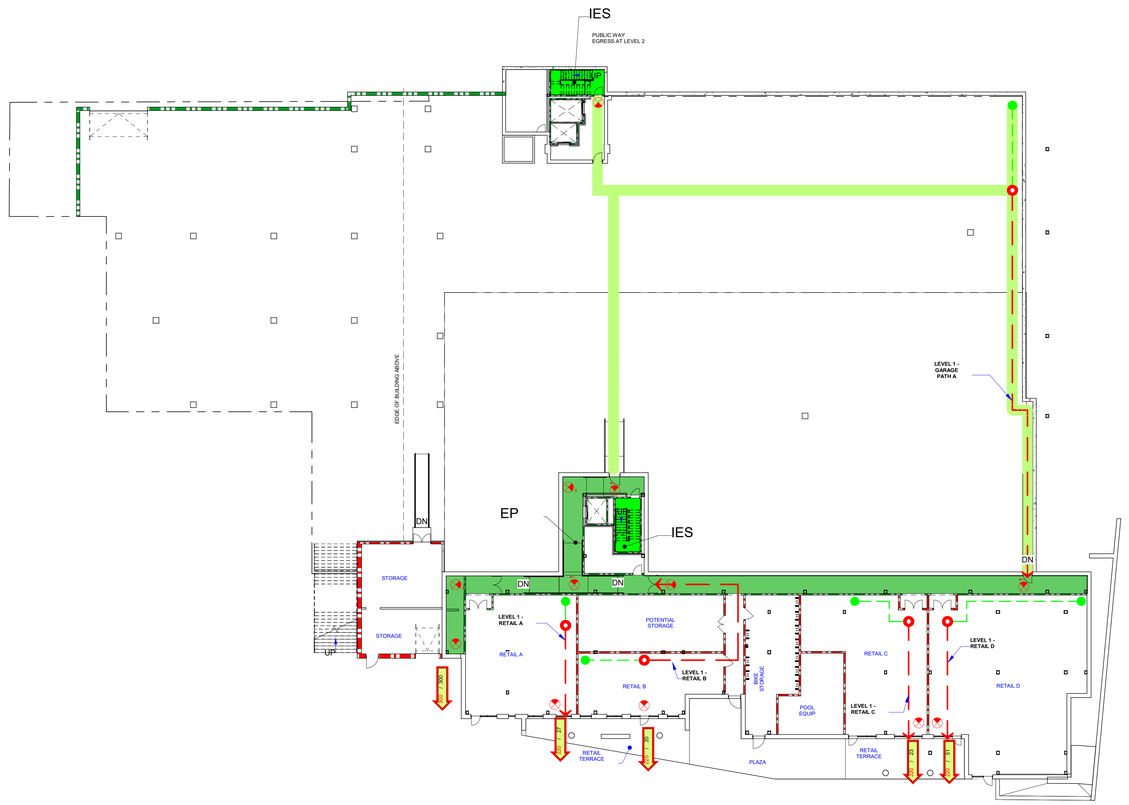
(USE GROPUS A, M, R = 250' MAX)	USE GROUP R = 125'-0" MAX
(USE GROUP B = 300' MAX)	USE GROUP A, B & M = 75'-0" MAX
(USE GROUP S1 & S2 = 400' MAX)	USE GROUP S1 & S2 = 100'-0" MAX

POINT OF EGRESS CHOICE — PATH OF CHOICE — COMMON PATH (1006.2.1)



6A LEVEL 2 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 1 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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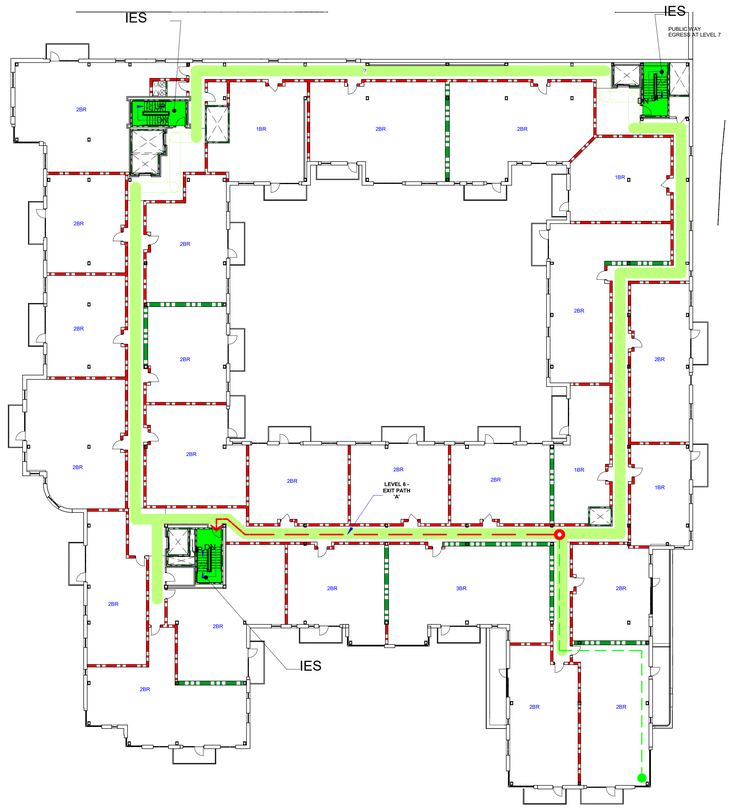
ISSUE
06/22/2023 - PROGRESS PRINT

LIFE SAFETY LEGEND & LIFE SAFETY PLANS

G002

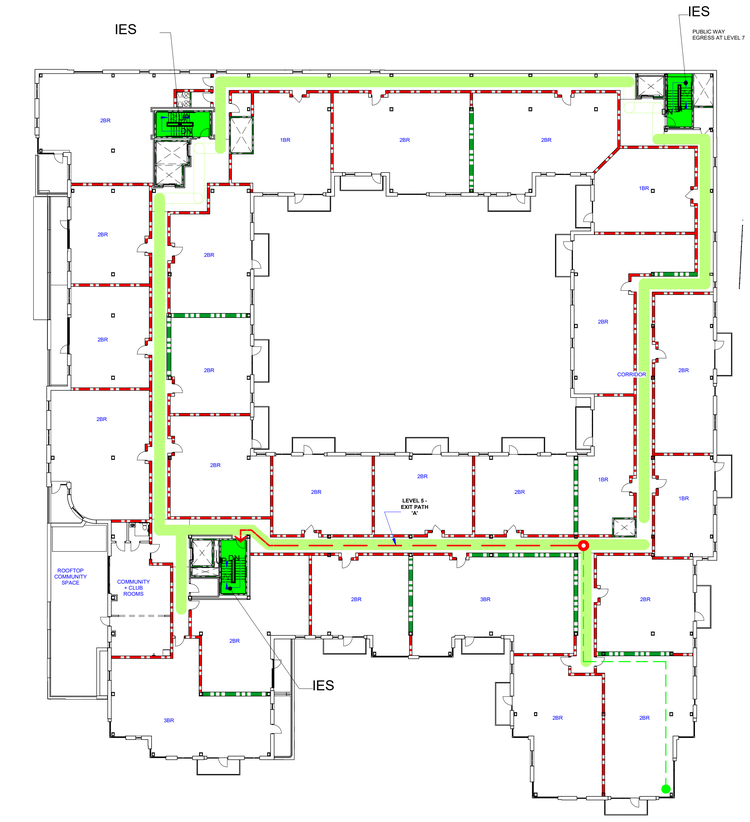
EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 3 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	112'-5"
PATH OF CHOICE	125'-8"
	238'-1"
LEVEL 4 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	112'-8"
PATH OF CHOICE	125'-7"
	238'-3"
LEVEL 5 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	113'-4"
PATH OF CHOICE	124'-9"
	238'-1"
LEVEL 6 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	113'-4"
PATH OF CHOICE	124'-9"
	238'-1"



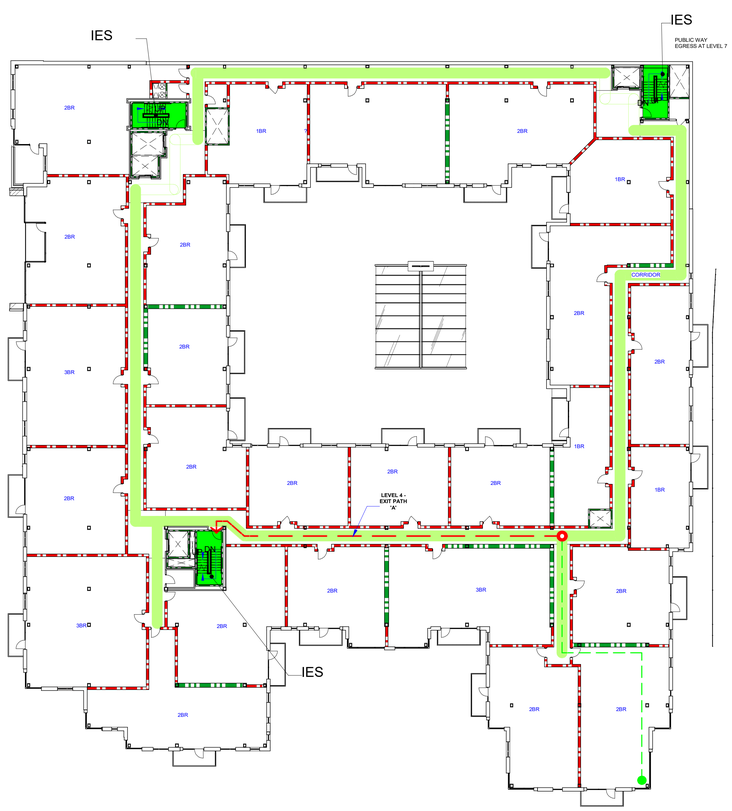
5C LEVEL 6 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3C LEVEL 5 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



5A LEVEL 4 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 3 - LEFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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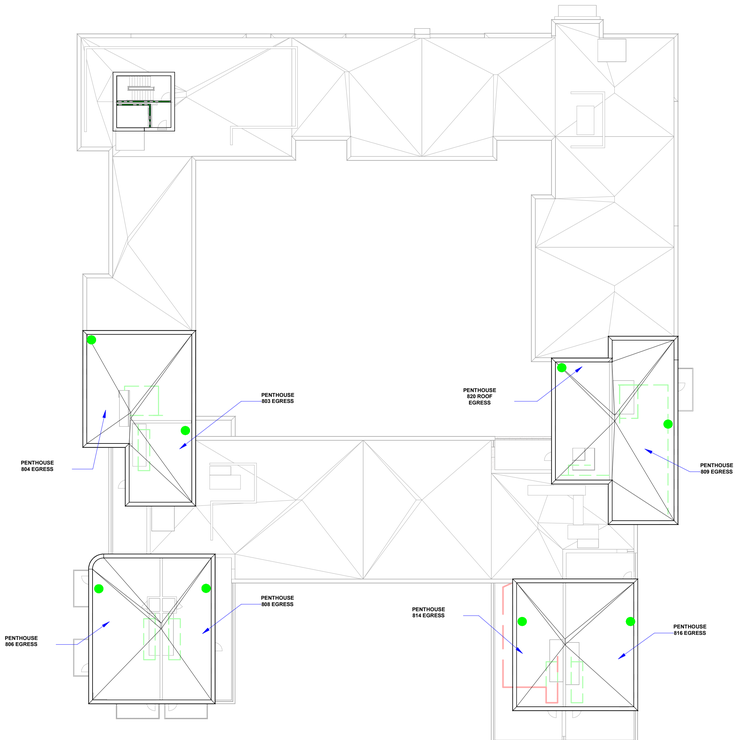
ISSUE
06/22/2023 - PROGRESS PRINT

LIFE SAFETY PLANS

G003

EGRESS PATH DISTANCES

TYPE	PATH OF EGRESS
LEVEL 7 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	106'-0"
PATH OF CHOICE	124'-9"
	230'-9"
LEVEL 8 - EXIT PATH 'A'	
COMMON PATH OF EGRESS TRAVEL	40'-4"
PATH OF CHOICE	125'-8"
	166'-0"
PENTHOUSE 803 EGRESS	
COMMON PATH OF EGRESS TRAVEL	110'-1"
	110'-1"
PENTHOUSE 804 EGRESS	
COMMON PATH OF EGRESS TRAVEL	89'-3"
	89'-3"
PENTHOUSE 806 EGRESS	
COMMON PATH OF EGRESS TRAVEL	116'-9"
	116'-9"
PENTHOUSE 808 EGRESS	
COMMON PATH OF EGRESS TRAVEL	127'-9"
	127'-9"
PENTHOUSE 809 EGRESS	
COMMON PATH OF EGRESS TRAVEL	118'-2"
	118'-2"
PENTHOUSE 814 EGRESS	
COMMON PATH OF EGRESS TRAVEL	124'-5"
	124'-5"
PENTHOUSE 816 EGRESS	
COMMON PATH OF EGRESS TRAVEL	121'-2"
	121'-2"
PENTHOUSE 820 2ND FLR EGRESS	
COMMON PATH OF EGRESS TRAVEL	125'-7"
	125'-7"
PENTHOUSE 820 ROOF EGRESS	
COMMON PATH OF EGRESS TRAVEL	116'-6"
	116'-6"
Terrace Test Line	
PATH OF CHOICE	124'-9"
	124'-9"



5C LEVEL 10 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3C LEVEL 9 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



5A LEVEL 8 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200



3A LEVEL 7 - LIFE SAFETY PLAN

SCALE: 3/64" = 1'-0" DRAWING REF: A200

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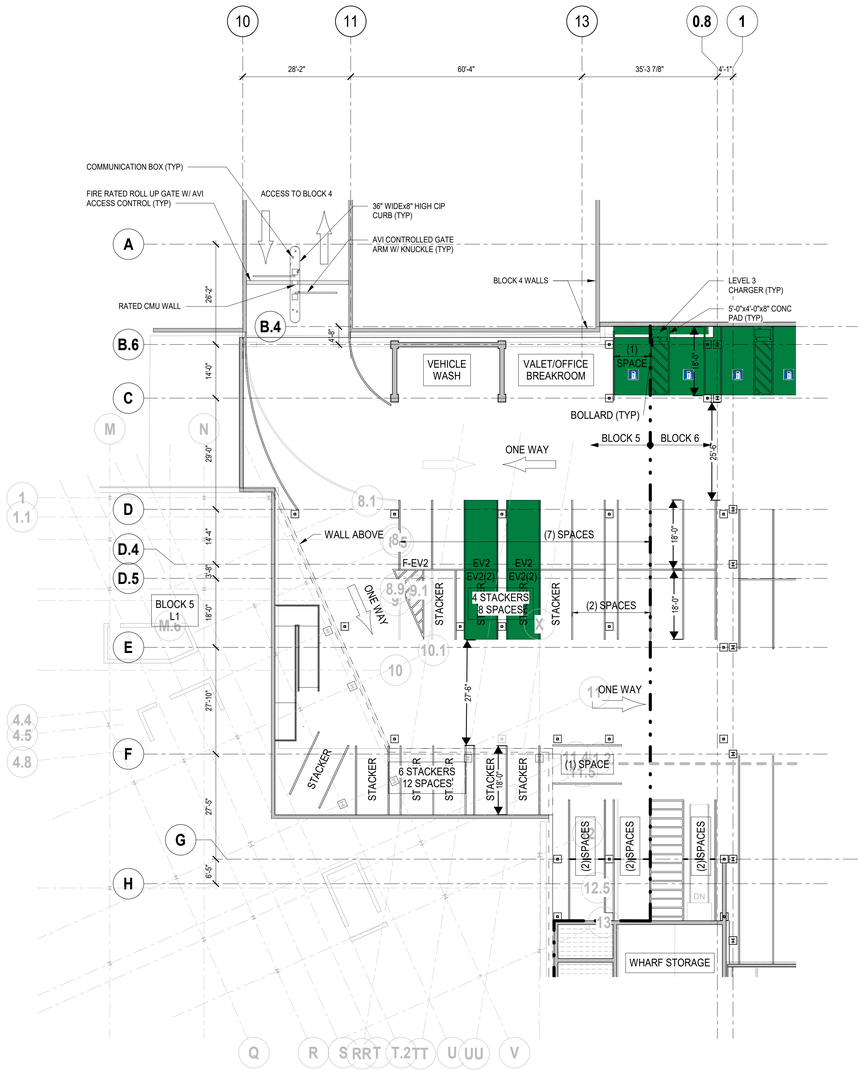
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LIFE SAFETY PLANS

G004



ARCHITECT / LANDSCAPE ARCHITECT
MARVEL
145 HUDSON STREET, FLR.3 NEW YORK, NY 10013
212.616.0420



LEVEL 1 PARKING PLAN

1/16"=1'-0"

NOTES:
1. PARKING SPACES TO BE 8'-6"x18'-0", TYP U.N.O.
2. PROVIDE BOLLARS AT PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 12 BOLLARDS.
3. PAINTED LINES:
   - A. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
   - B. PARKING STALLS 4" WIDE x18FT LONG
   - C. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
   - D. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
   - E. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
   - F. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.
4. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
5. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6. MAINTAIN 11'-7" CLEAR AT STACKER EQUIPMENT AND 12'-6 FOR VEHICLES. NOTE SOME BEAMS WILL BE LOWER THAN THIS AND INTENT IS STACKER ARE SPACED BETWEEN BEAMS.
6. PROVIDE HEADACHE BARS AT EACH ENTRANCE 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

BLOCK 5 GARAGE PARKING COUNT

LEVEL	TYP SPACES	STACKERS (TOTAL SPACES)	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	15	20	0	0	35	VALET PARKING
TOTAL GARAGE SPACES	15	20	0	0	35	

EV CHARGING STATIONS				
	VOLTAGE (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	6 EV2	1 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	1 EV3	0 F-EV3

1. SYSTEM TO BE COMPATIBLE WITH BLOCK 4.

2. ENTRY STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM
   - C. SUPPORT TICKETLESS ENTRY.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

3. VEHICLE BARRIERS
   - A. 2 REQUIRED
   - B. ARTICULATED – MUST MAINTAIN 8'-2" CLEARANCE.
   - C. BREAKAWAY FLANGE.
   - D. REAL TIME MONITORING AND CONTROL.
   - E. REMOTE DIAGNOSTICS.
   - F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
   - G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM.
   - C. SUPPORT TICKETLESS EXIT.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

5. LPR/AVI CAMERAS
   - A. 2 REQUIRED
   - B. ABLE TO OPERATE VEHICLE BARRIERS AND OVERHEAD COILING GATES.
   - C. CAMERAS TO INCLUDE AT A MINIMUM: CAMERA PROCESSOR, CABLE/CONNECTOR(S), CLIENT/SERVER ARCHITECTURE, BRACKET MOUNT ASSEMBLIES. CAMERAS SHALL BE VANDAL PROOF.
   - D. THE CAMERAS MUST BE CAPABLE OF PRODUCING MULTIPLE LICENSE PLATE IMAGES WITH VARYING FLASH, SHUTTER AND GAIN SETTINGS TO ENSURE A HIGH-QUALITY IMAGE REGARDLESS OF WEATHER OR LIGHTING CONDITIONS.

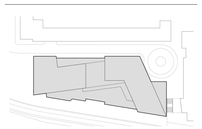
6. FACILITY MANAGEMENT SYSTEM OF SERVER, TASK OR SUBSYSTEM COMPUTERS AND WORKSTATIONS PROVIDING ON-LINE MONITORING AND CONTROL OF ALL PARCS DEVICES VIA INDEPENDENT DEDICATED TCP/IP NETWORK.
   A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

7. ACCURACY: PROVIDE THE FOLLOWING MINIMUM ACCURACY LEVELS.
   - A. TRANSACTION COUNTS: 99.5%

8. MOTORIZED OVERHEAD COILING GRILLES
   - A. 24 REQUIRED
   - B. TYPE 316 STAINLESS STEEL.
   - C. PROVIDE INTERFACE WITH PARKING ACCESS CONTROL SYSTEMS.
   - D. PROVIDE STAINLESS STEEL SHROUDS.
   - E. ASSUME 12FT WIDTHS AND INDIVIDUAL GRILLES AT EXITS AND ENTRANCES.
   - F. PROVIDE FIRE SEPARATION PER ARCH REQUIREMENTS.

STACKER NOTES:
1. PROVIDE 100% GALVANIZED STEEL UNITS.
2. UNITS TO BE SELF STANDING AND SELF SUPPORTING.
3. LIFT TO BE HYDRAULIC.
4. PROVIDE SOLID PLATFORMS.
5. PROVIDE ELECTRONIC LOCK SYSTEM, TRAVEL HEIGHT PROTECTION STOP, AND AUTOMATIC SHUT OFF.
6. MINIMUM WIDTH 8'-6".
7. BOD PARKLIFT 265 BY HARDING STEEL, INC., U.N.O.

NOT FOR CONSTRUCTION



PLOT PLAN

P22872.00

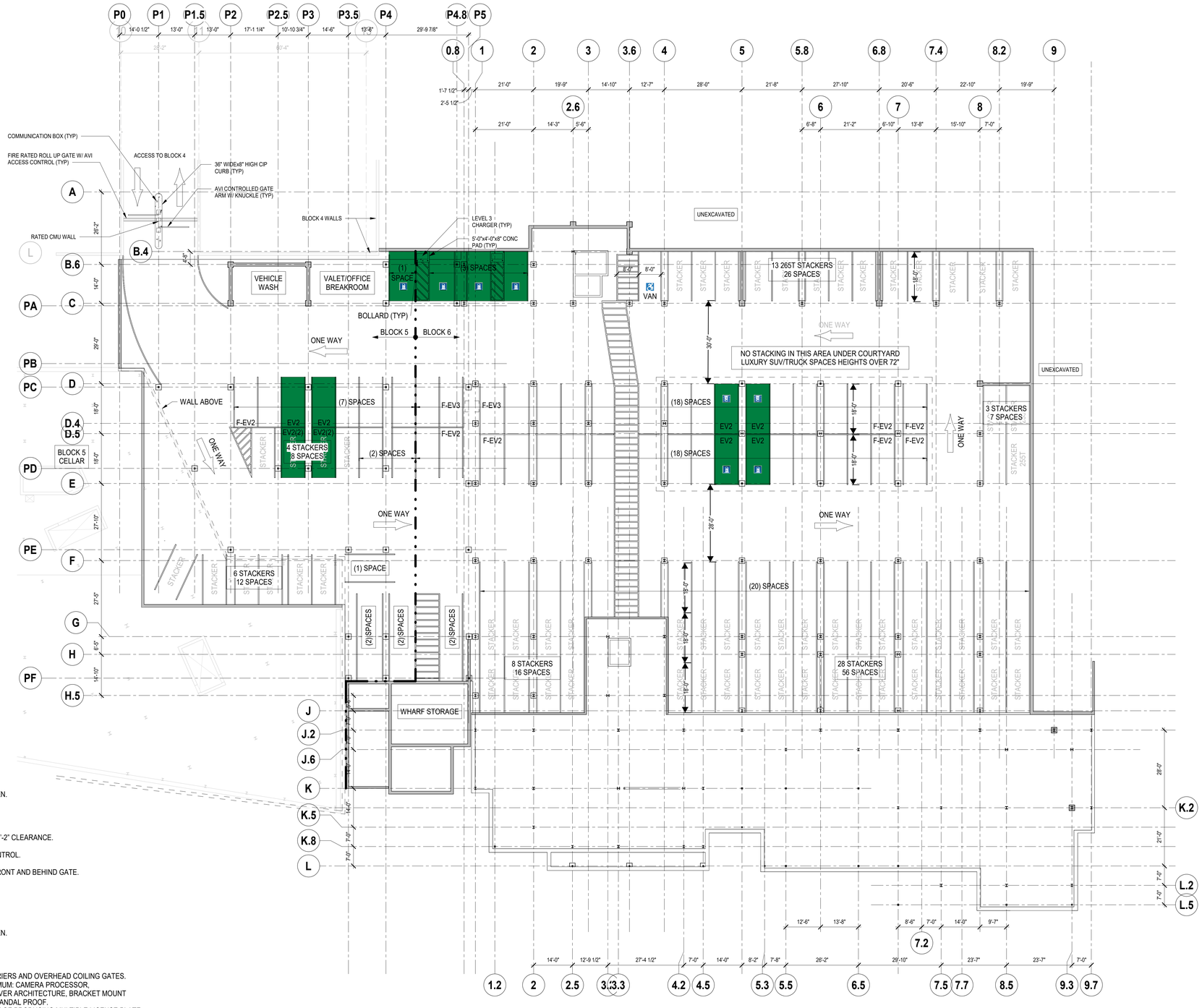
PORTLAND FORESIDE BLOCK 5
PORTLAND, ME

LEVEL 1 PARKING PLAN

SCALE: As indicated

DRAWING #:
PS1.0
of ___
JOB #:

5/23/2023 9:24:57 AM
MARVEL ARCHITECTS, LANDSCAPE ARCHITECTS, URBAN DESIGNERS, PLLC



1. SYSTEM TO BE COMPATIBLE WITH BLOCK 4.

2. ENTRY STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM
   - C. SUPPORT TICKETLESS ENTRY.
   - D. HIGH RESOLUTION TOUCH SCREEN.
   - E. CONTROLS BARRIER GATE.

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   - F. VEHICLE DETECTION LOOPS IN FRONT AND BEHIND GATE.
   - G. LPR AND/OR AVI ACTIVATED.

4. EXIT STATIONS
   - A. 1 REQUIRED
   - B. INTEGRATED INTERCOM.
   - C. SUPPORT TICKETLESS EXIT.
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   A. PROVIDE CAPACITY FOR REMOTE MONITORING OF ALL EQUIPMENT.

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STACKER NOTES:
1. PROVIDE 100% GALVANIZED STEEL UNITS.
2. UNITS TO BE SELF STANDING AND SELF SUPPORTING.
3. LIFT TO BE HYDRAULIC.
4. PROVIDE SOLID PLATFORMS.
5. PROVIDE ELECTRONIC LOCK SYSTEM, TRAVEL HEIGHT PROTECTION STOP, AND AUTOMATIC SHUT OFF.
6. MINIMUM WIDTH 8'-6".
7. BOD PARKLIFT 265 BY HARDING STEEL, INC., U.N.O.

LEVEL 1 PARKING PLAN

1/16"=1'-0"

NOTES:
1. PARKING SPACES TO BE 8'-6"x18'-0", TYP U.N.O.
2. PROVIDE BOLLARS AT PARCS EQUIPMENT AND PEDESTRIAN AREAS. ASSUME 12 BOLLARDS.
3. PAINTED LINES:
   - A. PAINT ACCESSIBLE SPACES WITH BLUE PAINT AND PROVIDE ADA SYMBOL 3'x3'.
   - B. PARKING STALLS 4" WIDE x18FT LONG
   - C. PROVIDE DIRECTIONAL ARROWS AND 12" TEXT AT EACH END OF BAY AND IN THE MIDDLE OF TRAVEL LANES.
   - D. DIAGONAL STRIPED AREAS SHALL BE 4" WIDE @ 12" O.C.
   - E. PROVIDE ALL TEXT IN SPACES AT 12" HIGH (NO PARKING, COMPACT SPACE. ETC.)
   - F. PROVIDE WHITE AND YELLOW PAINT FOR LINE WORK.
4. PROVIDE 1/2x6 BENT PLATE PROTECT FOR ALL DRAIN LINES, ELECTRICAL CONDUIT, STANDPIPES OR FIRE PROTECTION PIPE VERTICALLY PENETRATING THROUGH PARKING STALLS OR TRAVEL LANES.
5. MAINTAIN 7'-0" CLEAR AT ALL DRIVE LANES AND PARKING STALLS (TYP). PROVIDE 8'-2" CLEAR TO AND FROM VAN ACCESSIBLE SPACES AND THE DRIVE LANE TO BLOCK 6. MAINTAIN 11'-7" CLEAR AT STACKER EQUIPMENT AND 12'-6 FOR VEHICLES. NOTE SOME BEAMS WILL BE LOWER THAN THIS AND INTENT IS STACKER ARE SPACED BETWEEN BEAMS.
6. PROVIDE HEADACHE BARS AT EACH ENTRANCE 6" DIAMETER WITH CLEARANCES NOTED ON EACH BAR.

BLOCK 6 GARAGE PARKING COUNT

LEVEL	TYP SPACES	STACKERS (TOTAL SPACES)	ACCESSIBLE SPACES	VAN ACCESSIBLE SPACES	LEVEL TOTAL	NOTES
LEVEL 1	61	104	0	1	166	VALET PARKING
TOTAL GARAGE SPACES	61	104	0	1	166	

EV CHARGING STATIONS

	VOLTAG E (V)	CHARGING LOAD (KW)	CURRENT	FUTURE
LEVEL 2 1-PHASE AC	208 OR 240	2.5-19.2	4 EV2	6 F-EV2
LEVEL 3 1-PHASE DC	208 OR 240	75	3 EV3	2 F-EV3

Baskervill

FORESIDE/

Thornton Tomasetti
Thornton Tomasetti, Inc.
14 York Street, Suite 201
Portland, ME 04101
T:207.245.6060 F:207.245.6061

BASKERVILL, P.O. BOX 400, RICHMOND, VA 23218-0400

NOT FOR CONSTRUCTION

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PROJECT NUMBER
P22757.00

PFDC-PORTLAND FORESIDE BLOCK 6

58 FORE STREET
PORTLAND, ME

ISSUE
4/14/2023 -

LEVEL 1 PARKING PLAN

PS1.0

Public Comment on 58 Fore St. Project, 9-8-23

Assigned to me Subscribe

1 view

Roger Trettel <rogertrettel@gmail.com> Sep 8, 2023, 2:36:38 PM (2 days ago)
to planning@portlandmaine.gov, planningboard@portlandmaine.gov, Charles Tetelman, Sandra Guay, Keith Richard, kkraft

Dear Chair Mazur and Planning Board -

I am owner of 5 Eastern Promenade and direct abutter to the 58 Fore Street project. Please read the attached expert opinion letter from my consultant, global engineering firm Tetra Tech, Inc., providing its expert opinion regarding the way the 58 Fore St. project applicant and City planning staff are misinterpreting the base grade and allowable height calculation issue. Please note upon reading the letter, that Tetra Tech did not access the site and utilized data points and mapping provided by the applicant for its calculations. One data point in particular, the northwest corner of the Block 4 building foundation (labeled 52 feet), is measured by the applicant from the top of the historic retaining wall. This cannot be utilized as a building foundation point and thus a true corner foundation point would actually be directly adjacent to the vertical wall at the ground surface, at least 30 feet lower. This one change substantially changes the base grade of the Block 4 building individually, as well as the entire 3-building block if continued to be improperly treated as one building.

This one issue cascades through the entire project with regard to code compliance, building design, historic district impact, and overall impact to the Munjoy Hill community and eastern waterfront zone, and should be further investigated by the City to come to a responsible, defensible conclusion.

Thank you for the opportunity to comment.

Sincerely,

Roger Trettel

Owner, 5 Eastern Promenade

TETRA TECH

May 24, 2023

City of Portland
Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

Attn: Planning Board

Re: Miscalculation of Average Grade
Level III Site Plan and Subdivision – 58 Fore Street
Portland Foreside Development Company

Dear Planning Board Members:

Based on our review of the above-referenced submission, it appears the Applicant continues to either miscalculate or misrepresent average grade for proposed structures on Parcel 4 ("Block 4"), Parcel 5 ("Block 5"), and Parcel 6 ("Block 6"). The proposed building elevations note average grade *singularly* as **elevation 50.0** despite there effectively being three buildings on separate parcels of land with substantially different surrounding grades. The average grade noted has no discernible relevance to the buildings proposed and no reasonably justifiable supporting calculations were found for the value. Furthermore, the calculations provided are clearly and unjustifiably skewed to result in a higher elevation than would otherwise reasonably be determined.

The City of Portland Land Use Code (March 2022) clearly and logically specifies average grade as being calculated at the corners of the foundation of the proposed structure. Common practice for determining average grade requires weighting selected foundation corners relative to the length of building foundation. The attached figures show how applying common practice and using existing elevations at the principal foundation corners results in the substantially different average grade calculation of **elevation 39.5** for the Block 4 structure, **elevation 14.8** for the Block 5 structure, and **elevation 36.3** for Block 6 structure. A substantially different average grade calculation would be the result whether calculated using the four principal foundation corners or equidistant points along the foundation.

Any building height measured from the average grade of elevation 50.0 is simply unsupportable and inconsistent with the relatively clear intent expressed in the City of Portland Land Use Code (March 2022).

Very truly yours,

Sean P. Reardon, PE
Vice President

Matthew W. Moyen, PE
Senior Project Manager

Attachments: Figure 1 – Civil Average Grade Figure Markup

Cc: Roger Trettel

Tetra Tech
Marlborough Technology Park, 100 Nickerson Road, Marlborough, MA 01752
Tel 508.786.2200 Fax 508.786.2201 tetratech.com



N

Figure 1
05-24-23

Source: Civil Average Grade Figure prepared by Woodard & Curran dated April 2023

Public Comments to Planning Board - Sept. 12 Hearing

Subscribe

0 views

Rich Hooks Wayman <rich.hookswayman@voanne.org> 11:04 AM (5 hours ago)

to Christine Grimando, planningboard@portlandmaine.gov

Dear Ms. Grimando and the Portland Planning Board:

Please find attached my public comments regarding the Foreside Development application process that will be reviewed at a public hearing tomorrow, Tuesday, September 12th. Unfortunately, I will not be able to attend the hearing due to work travel commitments.

Please, let me know if you have any questions or concerns. I may be reached at 207-400-6070 (cell).

Thank you for your public service to Portland.

peace - Rich Hooks Wayman

Richard A. Hooks Wayman
President & CEO
VOA Northern New England
207-373-1140 (ext. 204) | 207-400-6070 (cell)
rich.hookswayman@voanne.org | www.voanne.org
Pronouns: he, him, his
Great Place to Work Certified TM

This transmission contains information that may be confidential. It has been prepared for the sole and exclusive use of the intended recipient and on the basis agreed with that person. If you are not the intended recipient of the message (or authorized to receive it for the intended recipient), you should notify us immediately; you should delete it from your system and may not disclose its contents to anyone else. Thank you.

Rich Hooks Wayman
51 Roaring Brook Road
Portland, ME 04103
rich.hookswayman@voanne.org
207-400-6070 (cell)

September 11, 2023

Via Email:
Portland Planning Board
Maggie Stanley, Chair
C/O Christine Grimando, Director
City of Portland Planning & Urban Development
389 Congress Street
Portland, ME 04101
cdg@portlandmaine.gov
planningboard@portlandmaine.gov

RE: **Portland Foreside Development Company**
58 Fore Street/Mixed Use of Blocks 4, 5, and 6
Major Site Plan Review Application

Dear Madam Chair and Board Members:

I am a resident of the City of Portland. I also have the honor of serving as the President and CEO for VOA Northern New England, a regional housing and social services nonprofit organization. I regret that I will be unable to attend the public hearing on September 12, 2023 in person. I will be traveling for work and on a flight during the hearing time on Tuesday evening.

As a concerned citizen of Portland, I wish to object to the recent Portland Foreside Development Company's Level III Site Plan and Subdivision application and Inclusionary Zoning Conditional Use application for a mixed-use development of Blocks 4, 5, and 6. The amended application and plans violate the City of Portland's Consolidated Plan and its values.

Our city continues to be in the midst of a housing crisis with growing numbers of unsheltered persons living in encampments and professionals finding few options for affordable housing. During this time, a development project the size and scope of the Foreside Development (originally valued at over $440M) should be examined from our identified affordable housing development and equity goals. We are morally and ethically obliged to ensure that all new developments in our city are equitably assessable to all members of our communities. The Foreside Development plans intentionally exclude those in poverty and will result in racial disparities.

1. **The reduction in housing production goals should not be permitted given our city's housing crisis.**

The 58 Fore Street Master Development Plan was unanimously approved by the Portland Planning Board (Project ID: 2016-224) on December 22, 2016, to redevelop and revitalize the 10.7-acres, formerly held by the Portland Company Complex, into a mixed-use development. The Master Development Plan approval included up to 638 residential dwelling units for the site. The Foreside development is held to all City requirements, and the affordable housing requirements for this site are based on the standards in effect at the time of their Master Development Plan approval. In this case,

(a) 10% of all dwelling units on the site must be either workforce housing for rent, at 100% of AMI, or
(b) workforce housing for sale at 120% AMI.
(c) Alternatively, the applicant may contribute funds to the City's Housing Trust Current Inclusionary Zoning requirements set the total % to 25% of projects of 10 dwelling units or more at 80% of AMI.

The developer's current application has reduced the goal from 638 housing units to 533 units. With the application for Blocks 4, 5, and 6, 444 dwelling units are proposed with an 'anticipated' future development of 89 units.

- Block 4 will have 247 residential units (including 225 apartments and 22 three story townhomes)
- Block 5 will have 43 residential units (condos)
- Block 6 will have 154 residential units (condos)
- an 'anticipated' (not sure if this is guaranteed) future development of 89 units.

This represents a decrease of 105 units from the MDP. Further, this will reduce the number of proposed affordable units from 63 to 53 units.

The Developer noted in their application: "The decrease is primarily a result of refinement of the design beyond master plan level. In other words, gross square footage estimates are made during master planning based on an assumed floor area efficiency, and these can be on the conservative side. As design has advanced and adjustments are made to comply with zoning and building constraints, the total number of dwelling units has decreased."

I recognize the need to abide by zoning requirements, however, this explanation is vague and fails to offer any alternative that could sustain the original housing goals of 638 units. In a development site of over 10 acres in our city, the developer should be asked to articulate and justify why its housing production goals are being reduced but its hotel and commercial spaces remain untouched. At a time when over 200 tents dot the landscape of our city by persons

experiencing homelessness, I would encourage the Planning Board to deny any request that decreases the originally proposed number of housing units.

2. **The Foreside Development's amendment to the Master Plan intentionally excludes all low-income citizens, will create racial disparities in housing, and fails to meet the values in the City's Consolidated Plan.**

The City's current Comprehensive Plan (Portland's Plan 2030) articulates a vision of Portland's values and provides a framework for all decision-making revolving around the values, goals, and strategies of the City over the next decade**.** Portland's Plan 2030 identifies the following values in its vision statement:

Equitable

- We (City) will remain **an open and inclusive city**, celebrating diversity and providing a welcoming and safe place for residents and visitors alike.
- The benefits and costs of our City will be **born fairly** across the entire City.
- We will incorporate the **needs of all our residents in planning for our future**.

Dynamic:

- We will **welcome new residents** into our community because they enrich and sustain our city.

Secure:

- We will be **committed to accessible housing** and healthy food for all our residents.
- We will strive to create a resilient economy through innovation, investment, and **commitment to diversity**.

Authentic:

- We **will invest in and support our local economy**.

Connected:

- We will foster **accessible linkages** between where we live, work, shop, and play. (emphasis added)

The City's Consolidated Plan said it was "a comprehensive plan to guide decision making in our community for the next 10+ years" and sets "standards by which future planning and policy efforts will be measured." If these words are to be believed, then the proposed Amendment to the Foreside Development must be denied by the Planning Board. The developer must find ways to incorporate housing for the lowest-income households and the most vulnerable among us.

As noted above, the MDP was subject to City's affordable housing requirements in 2016:

(a) 10% of all dwelling units on the site must be either workforce housing for rent, at 100% of AMI, or
(b) workforce housing for sale at 120% AMI.

(c) Alternatively, the applicant may contribute funds to the City's Housing Trust Current Inclusionary Zoning requirements set the total % to 25% of projects of 10 dwelling units or more at 80% of AMI.

Based on correspondences with Mary Davis, Interim Director of the City's Housing and Economic Development Department and a memo to the Planning Board dated August 11, 2023 from Charles Tetelman from the City's Planning and Urban Development Department, it is my understanding that the Developer has proposed the following:

- For Block 4 (199 units), the applicant has indicated they would create workforce units
- For Block 5 (43 units), the applicant has indicated they would include workforce units
- For Block 6 (154 units), the applicant has indicated they would pay the fee-in-lieu
- Hotel- 128 guest rooms would pay the fee-in-lieu

This will mean that in a new $440M development, of the 553 new units of housing developed, only 55 will be produced for sale for workforce populations**. There will be no affordable rental housing produced in this massive project.** This is extremely troubling given the city's current affordable housing crisis. For the Planning Board to consider approving this plan that shuts off access to low-income renters is callous and a violation of the City's values.

Of the units that will be sold to 'workforce' populations, workforce housing is defined as those households making more than 120% of AMI in Portland (more than $90,000 per year). The result will be a development only accessible to the wealthy and upper-middle class in our City.

I do know that the City Planning staff also noted that some of the development area may be obligated to meet the city's new standard of providing 25% of units as affordable. The August 11th memo from Planning Department staff to the Board noted:

"Prior to the public hearing, staff will need to confirm the total number of workforce housing units required for the project to comply with the City's Inclusionary Zoning requirements. Portions of the project located within the B-6 zone, which falls within the boundary of the 2016 MDP approval, are required to provide a minimum of 10% of units as workforce housing units. Any portion of any unit that is located within the R-6 zone; which falls outside of the 2016 MDP boundary, and is therefore not vested under the 2016 Land Use Code, is required to meet the current inclusionary zoning requirement, which is 25%."

However, even these increased obligations will not ensure that the Foreside Development is accessible to those living below the poverty line. Housing constructed to meet 60%, 80%, or 100% AMI (which is typically accomplished with low-income housing tax credits) is <u>not affordable to low-income households unless the unit also has either a project-based rental assistance (HUD) or a tenant moves in that has a tenant-based rental assistance voucher</u>. Unfortunately, most people living in deep poverty do not have access to rental assistance vouchers.

Accordingly, the Foreside Development will exclude and price out the following community members without a rental assistance:

- persons on public assistance (TANF is $928 per months for a family of three when given a housing supplement grant),
- homeless persons,
- disabled individuals on SSI ($914 per month),
- those on General Assistance,
- older persons on limited social security, and
- new immigrant or refugee families and persons that have no income.

This redevelopment's lack of affordable housing for the lowest income persons is a violation of Portland's Plan 2023 which ensures that new planning meets the 'needs of all our residents.'

The Foreside Development will also produce racial disparities in housing. Additionally, because the Foreside Development intentionally excludes low-income and poverty citizens, it will also result in racial disparities. In Portland in 2017, 53.2% of Black and African American children lived in poverty as compared to 14.5% of their white child neighbors. Further, 37% of American Indians, 35% of Black households, 24% of Hispanic Households, and 19% of two or more races live in poverty in 2021 as compared to just 8% of white residents. The lack of affordable housing will disproportionately burdened and negatively impact minority racial groups who are more likely to live under the poverty line in Portland. Accordingly, the Foreside Development is overtly discriminatory against Black, Indigenous, and People of Color (BIPOC).

We are creating a new community on the East End and none of its housing will be accessible to extremely low-income households and will result in racial disparities. It's difficult for me to understand how the Planning Board could approve this Mast Development Plan amendment given its wholesale exclusion of the most vulnerable members of our community.

This development violates our basic values of fairness, inclusion, and equity. A vote for these plans will result in an elitist, upper-class neighborhood. Only the wealthy and upper-middle class are entitled to housing with a water view in Portland.

Justice, equity, and good urban planning demand a better housing plan for our city. Thank you for considering my remarks and for your public service to our community.

Sincerely,

Richard A. Hooks Wayman

Rich Hooks Wayman
rich.hookswayman@voanne.org

Bates Street Rezoning to B-2b
17 and 25 Bates Street
Map Amendment
ZN-002413-2023
Troy Huynh, Applicant

Submitted to:	Portland Planning Board	**Prepared By:**	Maya Balassa
Public Hearing Date:	September 12, 2023	**Date:**	September 8, 2023

I. INTRODUCTION

Troy Huynh is seeking a zoning map amendment to change the zoning at 17 and 25 Bates Street from R-P Residence Professional zone to B-2 Community Business zone (Figure 1). The action is being sought to facilitate the development of a mixed-use building with ground floor commercial and residential units on the upper floors. The proposed zoning map amendment aims to allow a broader range of uses, including commercial and higher density residential, than is currently allowed in the R-P zone, which aligns more closely with the City's vision for this area, identified as a priority node in *Portland's Plan 2030*.

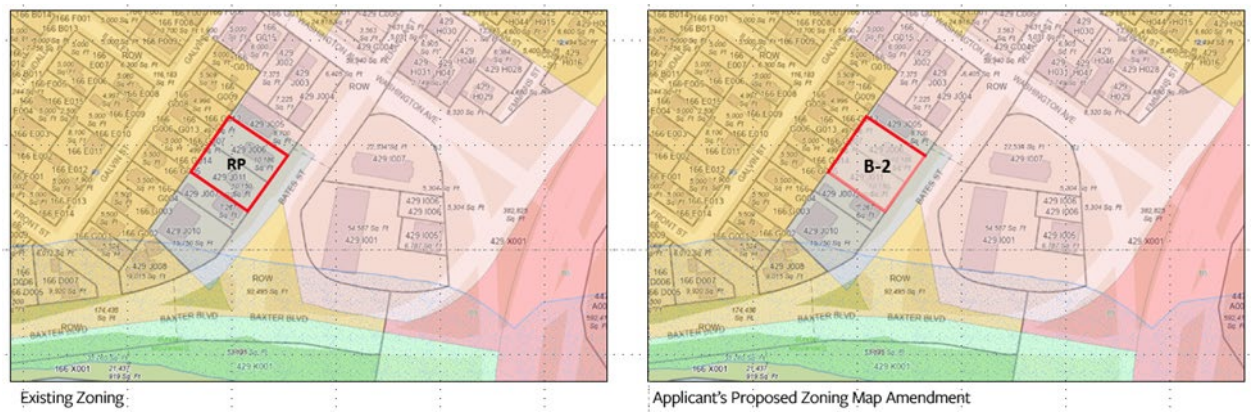


Figure 1: Existing zoning map (left) and applicant's proposed zoning map amendment to B-2 (right)

At the Planning Board's June 27th workshop, staff recommended that the Board consider rezoning the applicant's parcels and extend the proposed zoning map amendment boundary to encompass 25 additional parcels, as shown in Figure 2 below (27 total, including the applicant's two parcels). The City further recommended that these parcels be rezoned to B-2b Community Business, as opposed to B-2, though both zones, B-2 and B-2b, were found by staff to be appropriate and generally consistent with Portland's Plan 2030. The City's recommendation is due to slight differences between the dimensional and use standards for the two zones, with those of the B-2b being better aligned with the Future Land Use Plan's vision for this prominent City node, specifically with respect to urban form. The Planning Board was supportive of the expansion as proposed by staff. As a result, this report will focus on the extended zoning map amendment boundary to B-2b and its compatibility with the City's Comprehensive Plan.

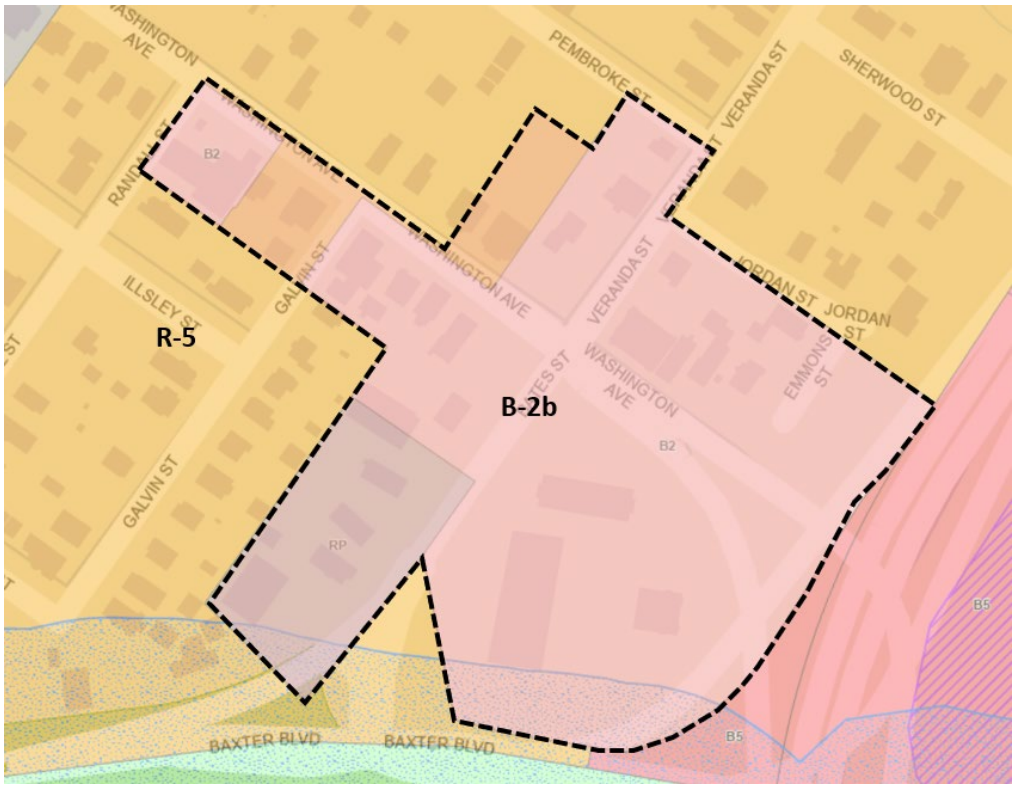


Figure 2: Proposed zoning map amendment for consideration

The Planning and Urban Development Department mailed 153 notices advertising this meeting to property owners within 500 feet of the City-recommended proposed zoning map amendment boundary. A legal advertisement ran in the August 31 and September 5, 2023 editions of the *Portland Press Herald*.

Applicant:	Troy Huynh
Applicant Representatives:	Sam Lebel; Acorn Engineering

II. REQUIRED REVIEWS

Review	*Applicable Standards*
Consistency with Portland's Comprehensive Plan	Portland's Plan 2030

III. PROJECT DATA

Existing Zoning	RP Residence Professional
Proposed Zoning	B-2b Community Business

IV. BACKGROUND & EXISTING CONDITIONS



Figure 3: View of 17 and 25 Bates Street

The two applicant owned parcels are (429 J011 and 429 J006), are approximately 20,300 square feet (0.47 acres) combined and zoned R-P Residence Professional. Today, the property is in residential use, with two, one-story residential apartment buildings occupying the site. The site is bounded by Bates Street to the east, an auto service center to the north, and residential uses to the west and south. Immediately east of the site is a three-story retail plaza and commercial office complex.

The applicant's parcels are bordered by the R-5 Residential zone to the west and south and B-5 Business zone to the southeast, beyond I-295. A Recreation Open Space (ROS) zone is mapped to the south along Baxter Blvd. The intersection of Washington Avenue, Bates Street, and Veranda Street is zoned B-2; the cluster of parcels in B-2 at this node contains a variety of uses including, residential (single to 20+ family), retail, restaurant, office business, auto dealership and auto service station.

The B-5 Business zone southeast of the collection of parcels along Washington Avenue beyond I-295, went to a public hearing with the Planning Board to be rezoned to B-5 from the I-M Moderate Impact Industrial zone on November 22, 2022 to facilitate the construction of a mixed-use campus development for The Roux Institute. The zoning map amendment was adopted by the City Council on February 6, 2023, Order 126-22/23.

As part of the City's Better Bikeways Initiative, the City is proposing to transform Baxter Boulevard, Washington Avenue and Veranda Street by creating safer biking and walking crossings at and across Baxter Boulevard and Washington Avenue, and adding bike lanes on Bates and Veranda streets. The City held a public meeting on the proposed changes on May 24th. Based on feedback received at that meeting the city is conducting additional analysis to inform final layouts.

The area is accessible to public transit. There are five METRO bus stops within a quarter mile of 17 and 25 Bates Street. Route 9B runs along Washington Avenue, which runs from downtown Portland to North Deering, and route 7 runs along Veranda Street, which runs from Portland to Falmouth.

V. PREVIOUS WORKSHOPS

A Planning Board workshop was held on June 27, 2023 for this project. At the workshop Planning Staff provided the Board and public with an overview of the applicant's proposed zoning map amendment. Additionally, staff recommended that the Board consider expanding the zoning boundary and rezoning all property within the boundary, including the applicant's two parcels, to B-2b as opposed to B-2. The Board was supportive of this recommendation by staff. Board members questioned whether the existing low-impact industrial building with retail component, formerly occupied by Botto's Bakery, would be impacted by the proposed rezoning. In response, staff confirmed that the B-2b zone allows low-impact industrial uses less than 10,000 square feet with a retail component, and therefore any future tenant would not be prohibited from utilizing the existing warehousing space, which is below the 10,000 square foot threshold. Additionally, the Board requested that staff confirm that the proposed zoning map amendment would not impact the existing Auto Service Station located at 5 Bates Street. Expansion of auto service stations in existence as of 11/15/1999 are permitted as a conditional use in the B-2b zone. According to assessor's data, 5 Bates Street is occupied by an auto service garage (Chip's Service Center), which was constructed in 1985. Therefore, the existing auto service station would be permitted to expand as a conditional use under the B-2b zone provisions as specified in Table 6-C footnote 4.

There were several members of the public who commented at the workshop and expressed concerns around the uses and dimensional standards allowed in the B-2 and B-2b. Abutters raised concerns regarding the introduction of big box stores and other larger-scale commercial uses along a street that abuts a residential neighborhood. One resident expressed an interest in seeing more neighborhood-oriented businesses, similar to the existing restaurants along Veranda Street. Residents also requested additional justification for staff's proposed expansion. In response, staff informed the Board and public that the existing R-P zone is not a residential zone and noted that the change to B-2b would bring several non-conforming uses into compliance with zoning. Further, staff also noted that Washington Avenue features direct public transit access, and contains a variety of different commercial uses that support the surrounding neighborhoods. The B-2b zone is intended to support walkability and neighborhood compatible business.

VI. APPLICANT'S CONCEPTUAL DEVELOPMENT PROPOSAL

The proposed rezoning of 17 Bates Street and 25 Bates Street to B-2b would facilitate the development of a mixed-use commercial and residential development as shown in Figure 3 below. The development contemplated at 17 and 25 Bates Street in this application is conceptual at this stage and no site plan application has yet been submitted. Should the proposed rezoning be approved by the City Council, a site plan application, addressing all applicable land use standards, would be required to be submitted by the applicant to facilitate the development of this project.

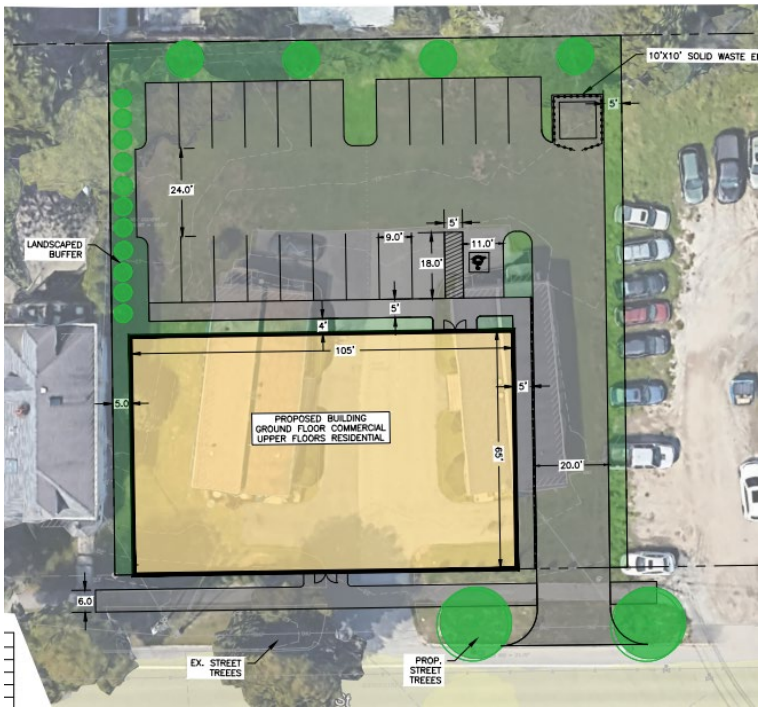


Figure 4: Conceptual proposal for the redevelopment of 17 and 25 Bates Street

VII. PROPOSED ZONING MAP AMENDMENT

The proposed zoning map amendment before the Planning Board is to change an existing RP Residence Professional Zone, R-5 Residential Zone, and B-2 Community Business zone to a B-2b Community Business zone as shown in Figure 3 below:



Existing Zoning

Proposed Zoning Map Amendment Boundary RP, R-5, B-2 to B-2b

Figure 5: Existing Zoning (left) Proposed Zoning Map Amendment Boundary (Right)

In addition to the applicant's parcels (429 J006001, 429 J011001) the expanded zoning map amendment boundary would include 25 additional contiguous parcels (27 total). An analysis of each parcel is provided in Table 1. The proposed rezoning to B-2b would not bring any existing properties within the boundary into non-conformity and would result in 523 and 521 Washington Avenue being brought into conformance with zoning. The B-2b zone is more permissive in regards to lot area, lot area per dwelling unit, height, and

impervious surface ratio than the R-P and R-5 zones and would allow single-family, two-family, and multi-family dwellings as a permitted use.

***Table 1** provides the addresses, CBL, zone, and use for the parcels proposed by Planning staff to be rezoned to B-2b.*

TABLE 1: PROPOSED PARCELS TO BE REZONED TO B-2B

Address	CBL	Zone	Use	Permitted in existing zone	Permitted in B-2b
970 Baxter Blvd	429 I001001	B-2	Office Business	Yes	Yes
476 Washington Ave	429 I005001	B-2	5 to 10 Family	Yes	Yes
484 Washington Ave	429 I006001	B-2	Accessory Parking	Yes	Yes
500 Washington Ave	429 I007001	B-2	Office Business/Retail	Yes	Yes
5 Bates St	429 J004001	B-2	Auto service station	Conditional Use	Conditional Use
522 Washington Ave	429 J003001	B-2	Office Business	Yes	Yes
526 Washington Ave	429 J002001	B-2	Multi-Use Residential	Yes	Yes
532 Washington Ave	166 G015001	B-2	Two Family	Yes	Yes
536 Washington Ave	166 G011001	B-2	Retail Services	Yes	Yes
550 Washington Ave	166 F003001	B-2	Retail Services	Yes	Yes
513 Washington Ave	429 C004001	B-2	Auto dealership	Conditional Use	Conditional Use
14 Veranda St	429 C006001	B-2	Retail Services	Yes	Yes
18 Veranda St	429 C007001	B-2	Retail Services	Yes	Yes
9 Veranda St	429 H030001	B-2	Retail Services	Yes	Yes
505 Washington Ave	429 H031001	B-2	11 to 20 Family (12)	Yes	Yes

501 Washington Ave	429 H047001	B-2	Retail Services	Yes	Yes
9 Jordan St	429 H046001	B-2	Four Family	Yes	Yes
10 Emmons St	429 H029001	B-2	Single Family	Yes	Yes
14 Emmons St	429 H028001	B-2	Two Family	Yes	Yes
542 Washington Ave	166 F006001	R-5	Four Family	Conditional Use	Yes
548 Washington Ave	166 F005001	R-5	Two Family	Yes	Yes
523 and 521 Washington St	429 C006001	R-5	11 to 20 Family	No	Yes
41 Bates St	429 J010001	RP	Office Business	Yes	Yes
29 Bates St	429 J007001	RP	Three Family	Conditional Use	Yes
25 Bates St	429 J011001	RP	Two Family	Yes	Yes
17 Bates St	429 J006001	RP	Two Family	Yes	Yes
13 Bates St	429 J005001	RP/B-2	Vacant Land	Yes	Yes

ZONING ANALYSIS

A. Overview of Zoning Purpose Statements Existing Versus Proposed Zoning

The area proposed to be rezoned includes property in the R-P Residence Professional Zone, the R-5 Residential zone and the B-2 Community Business zone. The purpose statement for each zone is listed below:

Existing zones:

R-P Residence Professional: *"to provide appropriate location for the development and operation of low-intensity business uses, including offices on or near major arterials, that are compatible in scale, density and use with surrounding and adjacent residential neighborhoods; or to serve as a transition or buffer zone between residential and more intensive nonresidential zones."*

B-2 Community Business: *"To provide appropriate locations for the development and operation of community centers offering a mixture of commercial uses, housing, and services serving the adjoining neighborhoods and the larger community. The variety, sites, and intensity of the permitted commercial uses in the B-2 zone are intended to be greater than those permitted in the B-1/B-1b zones. The zone provides a broad range of goods and services with a mixture of large and small buildings, such as grocery stores, shops and services located in major shopping centers and along arterial streets. Such establishments should be readily accessible by automobile, by pedestrians and by bicycle. Development in the B-2 zone should relate to the surrounding neighborhoods by design, orientation, and circulation patterns. The zone should provide locations for moderate to high-density housing in urban neighborhoods along arterials."*

R-5 Residential: *"to provide appropriate areas of the city for medium-density residential development characterized by single-family, two-family and low-intensity multifamily dwellings on individual lots; to ensure the stability of established medium-density neighborhoods by controlling*

residential conversions; and to provide for planned residential unit development on substantially-sized parcels."

Proposed Zone:

B-2b Community Business: *"To provide neighborhood and community retail, business and service establishments that are oriented to and built close to the street. The B-2b zone is appropriate in areas where a more compact urban development pattern exists or where a neighborhood-compatible commercial district is established which exhibits a pedestrian scale and character. Such locations may include the peninsula and other arterials and intersections with an existing urban or neighborhood-oriented building pattern. The B-2b should provide locations for moderate to high-density housing in urban neighborhoods along arterials."*

B. Discussion of Zoning Amendments

Use Analysis

R-P Residence Professional to B-2b Community Business

Even though the parcels zoned R-P abut R-5 residential along the rear of their properties, the context along Bates Street and at the intersection of Washington Avenue and Bates Street does not match the intention of the RP. Across the street from the line of RP zoned parcels is a multi-use multi-story building containing offices and retail. The intersection of Bates Street Veranda Street, and Washington Avenue exhibits a pedestrian scale and character with an existing urban and neighborhood-building pattern. Buildings are generally oriented towards the street and built close to the lot lines with larger commercial, mixed-use, and residential buildings fronting onto Bates Street, Veranda Street and Washington Avenue. The connection and proximity to Washington Avenue, an identified priority corridor in Portland's Plan 2030, and utilized as a major commuter road into Portland's downtown with excellent access to public transit and nearby trail connections, makes it better suited for the B-2b Community Business zone, which is targeted to not only support neighborhood retail, business and services, but is dimensioned to support a neighborhood scale and encourage walkability.

Permitted uses in the RP zone are specified in Table 6-D of the Land Use Code. The RP zone allows any residential use permitted in the nearest residential zone. In this instance the nearest residential zone is the R-5 Residential Zone. The R-5 zone allows single- and two-family dwellings and allows multi-family as a conditional use only within a non-residential structure existing as of January 1, 1984 and requires 3,000 square feet of land area per dwelling unit. Additionally, the RP zone allows funeral homes, general offices, studios for artists and craftspeople, parks and open, solar energy system, and utility substations. The R-P zone does not allow a number of neighborhood and community retail and business establishments such as retail or restaurants. Whereas, the B-2b zone is intended provide opportunities for mixed-use development and neighborhood and community-oriented business establishments. The B-2b allows single and two-family dwellings as well as multi-family dwellings. In addition, the B-2b zone allows a number of commercial uses outlined in Table 2 below.

R-5 Residential to B-2b Community Business

The three parcels currently zoned as R-5, that are recommended to be rezoned to B-2b by Planning staff, are four-family, two-family, and multi-family residential buildings. Two family residential is permitted in both the R-5 and B-2b zones. However, multi-family residential is a conditional use in the R-5. Multi-family residential buildings are permitted in the B-2b. These parcels are also located along Washington Avenue, immediately abutting a METRO bus stop for route 9A and, if rezoned, would connect two existing B-2 zoned parcels with the larger contiguous grouping of B-2 zoned parcels located to the south along Washington

Avenue. These two isolated B-2 parcels are occupied by the now vacant Botto's Bakery building, which consists of a retail storefront and commercial kitchen, which is considered a low-impact industrial use.

Differences Between the B-2 and B-2b Community Business Zones

There are several differences between the B-2 and B-2b zones. In regards to use, the B-2b zone is less permissive. The B-2b zone does not permit adult business establishments or low impact industrial uses greater than 10,000 square feet, whereas these uses are permitted within the B-2 zone. However, the B-2b zone does allow low-impact industrial uses less than 10,000 square feet with a retail component only. Registered marijuana dispensary and marijuana retail stores are a conditional use in the B-2b, but are permitted in the B-2. Auto service stations are a conditional use in the B-2 zone and prohibited in the B-2b zone, though the B-2b zone does permit the expansion of auto service stations that were in existence as of 11/15/1999 as a conditional use.

***Table 2** provides a comparison of the permitted uses between existing and proposed zone. Uses marked with a 'P', are permitted uses in the zone. A 'C' indicates a conditional use, otherwise uses are not permitted. The differences between B-2 and B-2b are highlighted in blue.*

TABLE 2: PERMITTED AND CONDITIONAL USES IN B-2 and B-2b		B-2	B-2b
Residential	Single-family dwellings	P	P
	Two-family dwellings	P	P
	Multi-family dwellings	P	P
	Combined Living/working spaces	P	P
	Lodging houses	P	P
	Clinics	P	P
	Lodging houses	P	P
Institutional	Elementary, middle, and secondary schools	P	P
	Governmental uses	P	P
	Long-term and extended care facilities	P	P
	Intermediate care facilities	P	P
	Places of assembly (<10,000 SF)	P	P
	Places of assembly (>10,000 SF)	P	P
	Preschool facilities	P	P
	Post-secondary schools	P	P
Commercial & Other	Adult business establishments	P	
	Auto, boat, related dealerships	C	C
	Auto service stations	C	C
	Bars	P	P
	Bed and breakfasts	P	P
	Funeral homes	P	P
	General offices (all square feet)	P	P
	Hostels	P	P
	Marijuana retail stores	P	C
	Registered marijuana dispensary	P	C

	Restaurants	P	P
	Retail (all square feet)	P	P
	Small-scale marijuana caregiver	P	P
	Theater and performance halls	P	P
	Veterinary services	P	P
	Communication studios	P	P
	Dairies	P	P
	Laboratory and research facilities	C	C
	Low-impact industrial (<10,000 square feet)	P	P
	Low-impact industrial (>10,000 square feet)	P	P
	Printing and publishing	P	P
	Repair services	P	P
	Studios for artists and craftspeople	P	P
	Warehousing, storage, and distribution	C	C
	Parks and open space	P	P
	Solar energy systems (minor)	P	P
	Utility substations	P	P
	Wind energy systems (minor)	C	C

Dimensional Analysis

RP

The existing R-P Residence Professional zone requires that residential uses meet the dimensional requirements of the nearest residential zone. In this instance, the nearest residential zone is the R-5 Residential Zone. The R-5 zone limits residential density by requiring a minimum of 3,000 square feet of lot area per dwelling unit and further requires a minimum lot area of 6,000 square feet for all residential uses. Maximum height in the R-5 zone is 35 feet. For non-residential uses, the R-P zone requires a minimum lot area of 6,000 square feet, and 60 feet of street frontage. Front setbacks are required to be 20 feet or the average depth of adjacent front yards. Rear setbacks are required to be 20 feet, and side setbacks are required to be 10 feet for one-story buildings, 12 feet for two-story buildings, and 14 feet for buildings greater than two stories. The maximum permitted building height is 45 feet and the maximum impervious surface ratio is 70%. In comparing the RP and B-2b zones' maximum heights, the only differences are the B-2b zone allows buildings up to 45 feet or 50 feet if the first floor is in commercial use, a difference of five feet. It should be noted that affordable housing density and dimensional bonus as described in Section 18.2.4 of the Land Use Code are applicable in both the RP and B-2b zones.

B-2 versus B-2b

In comparing the B-2 and B-2b Community Business zones' dimensional requirements, the only differences are in the maximum height allowed and impervious surface ratio. The maximum height for both zones is 45 ft, or 50 feet if the first floor is in commercial use, however in the B-2 zone, lots larger than five acres are permitted to increase height up to 65 feet in exchange for increasing the building's setbacks. As there are no lots larger than five acres in this proposed rezoning area, the only relevant difference is the impervious surface ratio. The B-2 zone permits a maximum of 80% imperious area, while the B-2b permits up to 90% impervious surface.

Both of these zones would permit the conceptual development at 17 & 25 Bates Street, and the requested zoning amendment would not result in any new non-conformity, as both the B-2 and B-2b zones are more permissive than both the R-P and R-5 zones.

Table 3 provides a comparison of the dimensional requirements between the B-2 and B-2b zones

TABLE 3: Zoning Requirements by Use	B-2	B-2b
Lot area (min.)	None	None
Lo area per dwelling unit off-peninsula (min.)	1,000 SF, except 435 if active street frontage	1,000 SF, except 435 if active street frontage
Lot area per rooming unit off-peninsula (min)	350 SF	350 SF
Street frontage (min)	20 ft.	20 ft.
Front setback (max)	10 ft.	10 ft.
Structure height – **off-peninsula** (max.)	45 ft., except 50 ft if first floor is in commercial use, or 65 ft. on lots >5 ac. If required side and rear setbacks are increased by 1 foot for each foot of height over 45 ft.	45 ft., except 50 ft if first floor is in commercial use
Rear setback – principal (min)	10 ft.	10 ft.
Rear setback – accessory (min)	5ft.	5 ft.
Side setback – principal (min)	None	None
Side setback – accessory (min)	5 ft.	5 ft.
Stepbacks (above 35 ft when property abuts a residential zone) (min)	Side: 5 ft. Rear: 15 ft.	Side: 5 ft. Rear: 15 ft.
Floor area	Laboratory and research facilities, warehousing, 10,000 SF	Laboratory and research facilities, warehousing, 10,000 SF
Impervious surface ratio (max)	Residential: None Other uses: 80%	Residential: None Other uses: 90%

VIII. COMPREHENSIVE PLAN ANALYSIS

Portland's Plan 2030

Comprehensive Plan goals and policies relevant to the proposed zoning map amendment are included below.

Several aspects of the proposed map amendment are consistent with the goals and objectives of Portland's Plan 2030. The Comprehensive Plan highlights the importance of increasing housing opportunities and for supporting interspersed nodes around the city for concentrated mixed-use activity as a way to support complete neighborhoods. In Portland's Plan 2030, this area is highlighted as a priority node for further evaluation and potential investment to serve neighborhood needs.



Figure 1: Visions of Portland's Plan 2030

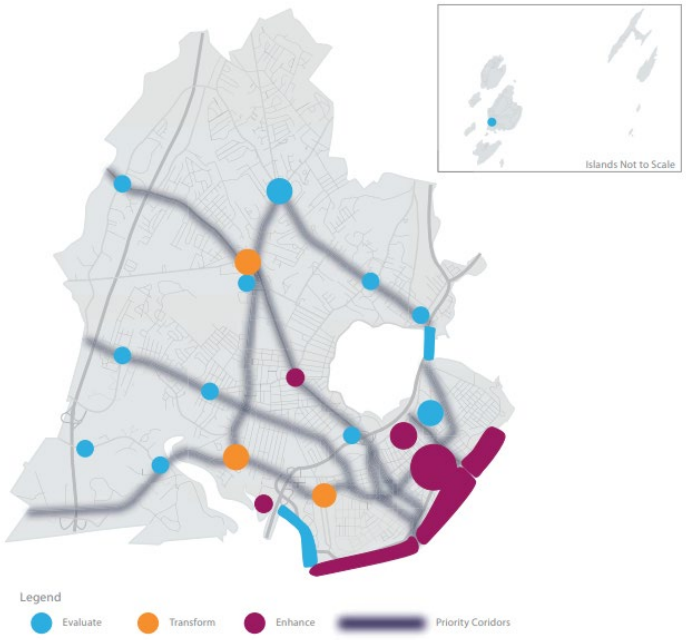


Figure 2 Portland's Plan 2030 Priority Nodes and Corridors

The proposed map amendment would allow for the development of a mixed-use project that would provide additional housing and commercial activity within a key City node, that is convenient to a range of services and amenities, as well as public transportation.

Relevant Comprehensive Plan goals have been excerpted below:

Housing:

- Increase, preserve, and modify the overall supply of housing city-wide to meet the needs, preferences and financial capabilities of all Portland residents.
- Pursue policies to enable people who work in Portland to have the option to live in Portland.
- State Goal: To encourage and promote affordable decent, housing opportunities for all Maine citizens.
- Evaluate whether current zoning allows for new development consistent with historic patterns of form, density, and/or use, as whether it allows for priority in growth areas.
- Future Land Use – Evaluate Nodes: Evaluate the area near the Washington Avenue, Veranda/Bates Street intersection as an area to be assessed for its ability to address neighborhood needs and serve as centers for complete neighborhoods (pg. 84)

Economic

- Create economic prosperity by growing Portland's tax and employment base.
- Respect that our unique quality of place is key to our current and future economic success.
- Value and nurture Portland-based businesses.

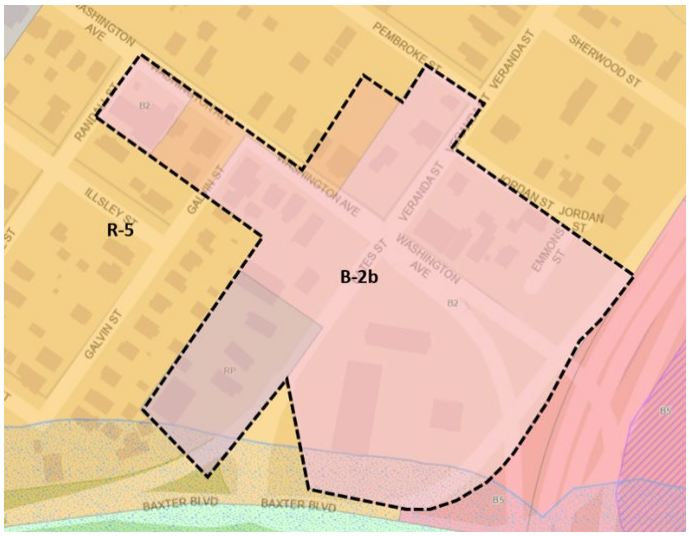
IX. PUBLIC COMMENT

No written public comments have been received as of September 6, 2023.

A neighborhood meeting was held by the applicant on May 2, 2023, at GPCOG 970 Baxter Blvd., suite 201 at 5pm. There were five attendees, who raised concerns around potential parking and stormwater impacts that may result from the requested zoning amendment.

X. PROPOPOSED MOTIONS

1. On the basis of materials submitted by the applicant, the City of Portland Land Use Code, Portland's Comprehensive Plan, public comment, and the information provided in the public hearing on September 12, 2023 for the application ZN-002413-2022, and/or other findings, the Planning Board finds that the proposed zoning map amendment **[is/is not]** consistent with the Comprehensive Plan for the city of Portland; therefore, the Planning Board **[recommends/does not recommend]** to the City Council adoption of the Zoning Map Amendment as shown in the map below and include lots CBLs 429 I001001, 429 I005001, 429 I006001, 429 I007001, 429 J004001, 429 J003001, 429 J002001, 166 G015001, 166 G011001, 166 F003001, 429 C004001, 429 C006001, 429 C007001, 429 H030001, 429 H031001, 429 H047001, 429 H046001, 429 H029001, 429 H028001, 166 F006001, 166 F005001, 429 J010001, 429 J007001, 429 J011001, 429 J006001, 429 J005001, 429 C006001 to be rezoned to B-2b.



XI. ATTACHMENTS

APPLICANT'S SUBMITTAL

A. Cover Letter
B. Vicinity Map
C. Zoning Map
D. Amendment Checklist
E. Deed
F. Concept Site Plan
G. Neighborhood Meeting
H. Use Map

ACORN ENGINEERING, INC.

Planning & Urban Development Department
Attn: Matthew Grooms, Development Review Manager
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

April 10, 2023

Subject: Zoning Map Amendment – 17-25 Bates Street Redevelopment

Matt:

On behalf of Troy Huynh, we are pleased to submit this map amendment for the approximate 0.47-acre combined parcel located at 17 and 25 Bates Street (Tax Map: 429/J/006 & 429/J/011) in the East Deering neighborhood. The parcels are within the R-P district (Residence Professional Zone) and are proposed to be re-zoned to the B-2 district (Business Community Zone).

The current use of these parcels are two (2) one-story residential buildings with a designation of "Two Family". Abutting uses are as follows:

- North – automobile repair shop and storage lot
- South – three-family residential and office building
- West – single family residential lots
- East – three-story office buildings

The proposed zone change is consistent with the City's Comprehensive Plan, is in the vicinity of an existing B-2 zone, and will allow the project to develop a new mixed-use building with commercial and residential offerings. With an approved map amendment by City Council, the project would be subject to the Major Site Plan process with the Planning Board.

We look forward to your review of this project – if you have any questions regarding these application materials, please do not hesitate to reach out.

Sincerely,

Samuel J. Lebel, P.E.
Project Manager
Acorn Engineering, Inc.

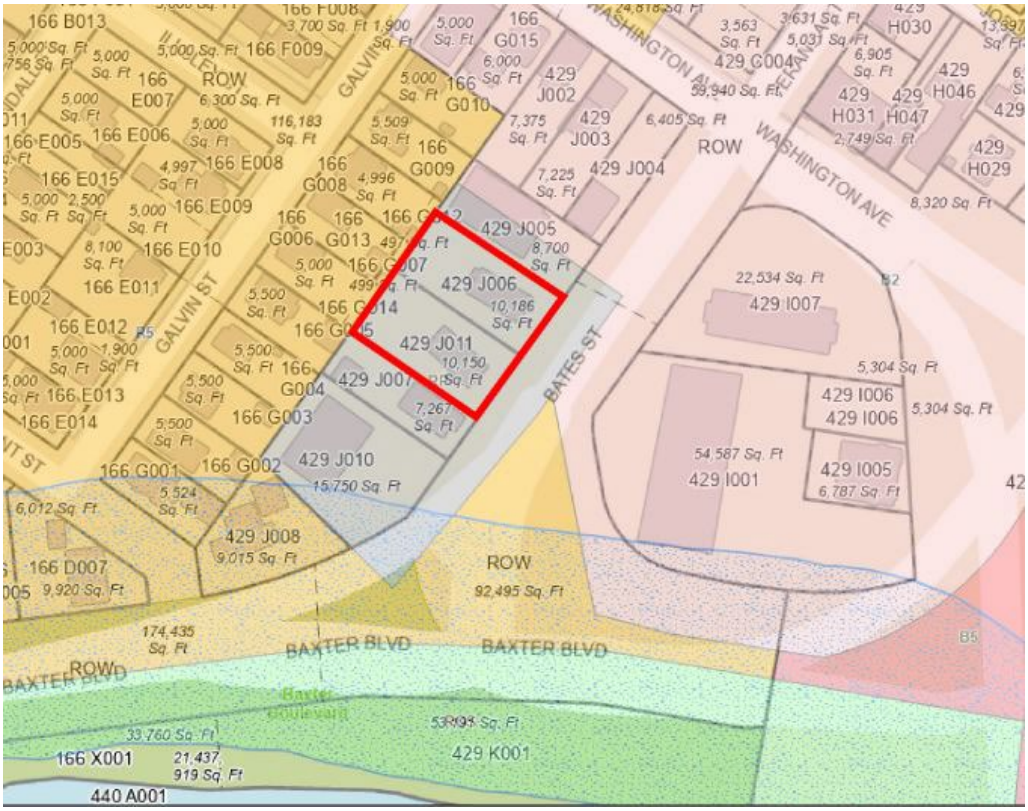
Consistency with Portland's Zone Purpose Statements & Comprehensive Plan

This document provides an analysis of the consistency of the zone change request with Portland's Zone Purpose Statements and the goals of Portland's Comprehensive Plan.

This map amendment helps implement goals and strategies outlined in Portland's Chapter 14 Zone Purpose Statements and *Portland's Plan 2030*. The proposed development will use smart growth principles and will likely include ground-level commercial space with upper level housing units. The zone change will considerably increase the allowable residential density on the parcel while allowing for a variety of light commercial uses to occupy the site.

The parcel is located within a relatively small section (4 1/2 parcels) of the R-P zone for which the zone designation is out of character with the current uses of the parcels. Only one out of five parcels has a use designation of "low intensity business" consistent with the Chapter 14-5.4 Zone Purpose Statements for the R-P zone. Three of the parcels, two of which are the lots associated with this application, are multi-family residential uses, and one lot is unoccupied and used as car storage for the adjacent auto repair shop.

The parcels associated with this application are close to, but don't directly abut the B-2 zone. This is due to parcel 429 J005, the unoccupied parcel mentioned above which is directly adjacent to 17 Bates Street (429 J006), being half in the B-2 Zone and half in the R-P, as illustrated by the City's online GIS mapping, shown below. This parcel is not currently under site control.



The B-2 zone is intended to provide a "mixture of commercial uses, housing, and services serving the adjoining neighborhoods and the larger community." This zone makes more sense for the parcels in question being on a major arterial road and close to other housing, goods and services, and the METRO line. Conversely, the R-P zone is intended for the "development and operation of low-intensity business uses, including offices."

Specifically, this map change helps achieve the following Plan goals:

Housing

- ✓ Increase, preserve, and modify the overall supply of housing city-wide to meet the needs and preferences of all Portland residents.

- ✓ Encourage additional contextually appropriate housing density in and proximate to neighborhood centers, concentrations of services, and transit nodes and corridors as a means of supporting complete neighborhoods.

Facilities & Services

- ✓ Make fiscal stability a factor in land use planning by considering both public investments and potential gains in the City's tax base when planning for a sustainable future for the city, while recognizing that not all land use decisions will be driven by the fiscal impacts of the development produced.

In summary, this map change is fully consistent with Portland's Chapter 14-5.4 "Zone Purpose Statements" as well as the City's Comprehensive Plan.

Section 1

Vicinity Map



THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

DRAWING NO.
LOCATION/TOPO MAP

FILE:	1195
DATE:	2/26/23
JN:	1195
SCALE:	NTS
DESIGN BY:	TAL
DRAWN BY:	AWG
CHECKED BY:	WHS

ACORN ENGINEERING, INC
ACORN ENGINEERING, INC. P.O. BOX 3372
PORTLAND, MAINE 04104 (207) 775-2655

DRAWING NAME:
VICINITY MAP

PROJECT NAME:
17-25 BATES STREET REDEVELOPMENT

CLIENT:
TROY HUYNH

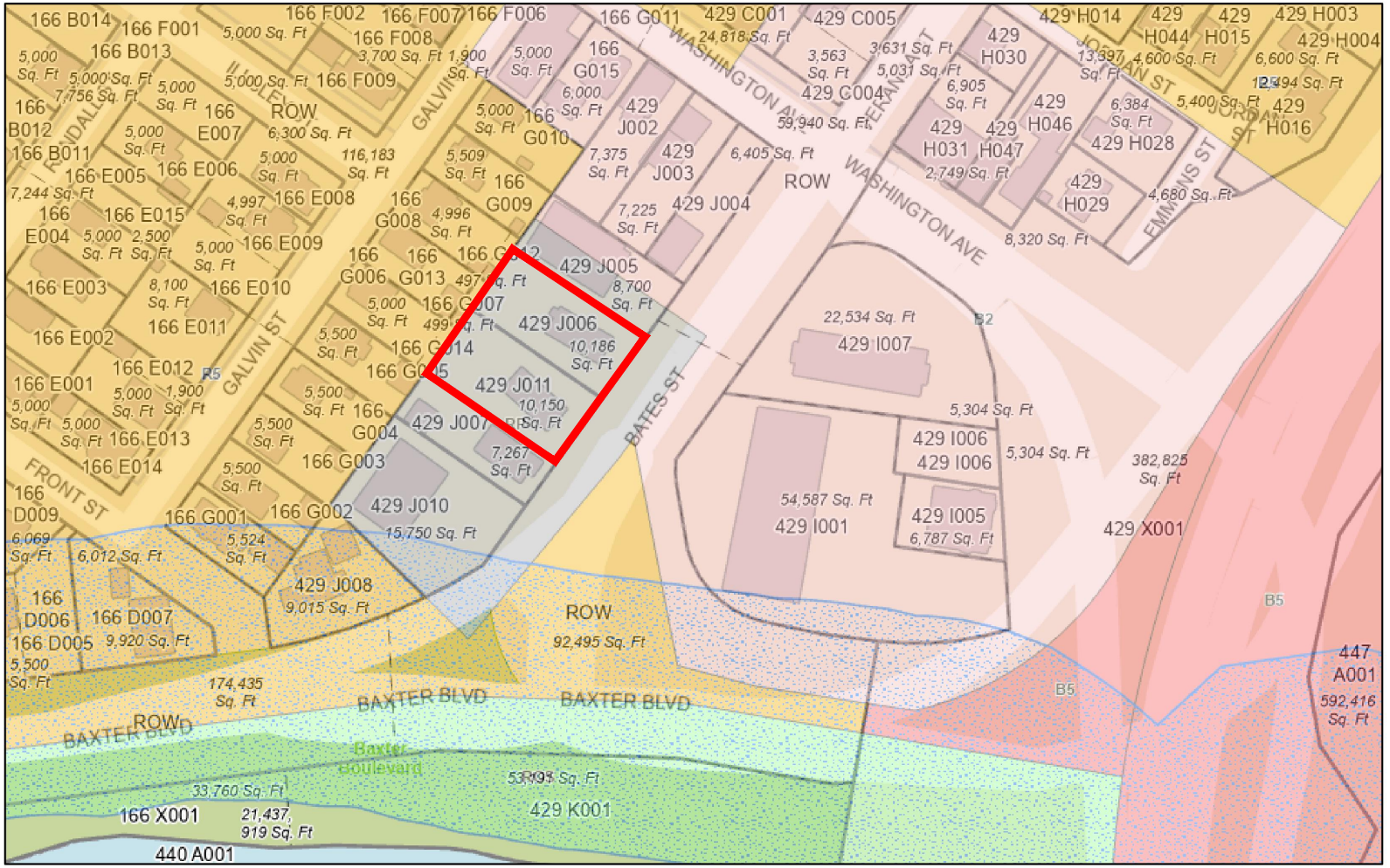
ISSUED FOR	BY	DATE
MAP AMENDMENT	TAL	2/26/23

Section 2

Zoning Map

NOTES:
1. ZONING INFORMATION OBTAINED FROM CITY OF PORTLAND ZONING MAP. ADOPTED 12/28/22

ArcGIS Web Map



2/21/2023, 8:52:16 AM

Zoning
- R5 Residential
- RP Residential Professional
- B2 Business Community
- IM Industrial - Moderate Impact
- ROS Recreation Open Space
- Shoreland Overlay Zone
- parcels
- Tax

1:1,501

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

City of Portland, DPS

Web AppBuilder for ArcGIS
City of Portland, Maine

ISSUED FOR	BY DATE
MAP AMENDMENT	TAL 2/26/23

DRAWING NAME: PROPOSED MAP AMENDMENT

PROJECT NAME: 17-25 BATES STREET REDEVELOPMENT

CLIENT: TROY HUYNH

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC. P.O. BOX 3372 PORTLAND, MAINE 04104 (207) 775-2655

FILE:	1195
DATE:	2/26/2023
JN:	1195
SCALE:	AS NOTED
DESIGN BY:	TAL
DRAWN BY:	AWG
CHECKED BY:	WHS

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DRAWING NO.

EX-02

Section 3

Map Amendment Checklist

CITY OF PORTLAND
Planning & Urban Development Department

MAP AMENDMENT SUBMISSION CHECKLIST * Please submit each document and drawing as a separate PDF file * Please submit all drawings in a 24 x 36 sheet size * Please confirm each item by electronically checking the boxes to the left for each document/drawing	
GENERAL APPLICATION DOCUMENTS	
☑	**Project Description** • Cover Letter with detailed project description
☑	**Consistency with Comprehensive Plan** • Analysis of the consistency of the zone change request with the goals, policies and land use plan of Portland's Comprehensive Plan.
☑	**Completed Checklist – Map Amendment Application** **(this document)**
☑	**Right, Title and Interest** • Deeds, leases, or purchase and sales agreements
PLANS	
☑	**Vicinity Map**
☑	**Proposed Map Amendment** (please use the Portland zoning map as a reference)
☑	**Site Plan (if applicable)** Provide a site plan of the property showing existing and proposed improvements, including such features as buildings, parking, driveways, walkways, landscape and property boundaries.

Section 4

Deed

Do Not Write Above This Line – For Registry Use Only

DEED OF DISTRIBUTION BY PERSONAL REPRESENTATIVE

(Intestate)

KNOW ALL PERSONS BY THESE PRESENTS

TRUNG HUYNH, also known as Troy Huynh, of Scarborough, Cumberland County, Maine, duly appointed and acting Personal Representatives of THE ESTATE OF TRUC HUYNH, deceased, as shown by the probate records of Cumberland County, Maine, Docket #2022-0992, by the powers conferred by law, and every other power, in distribution of the estate grants to TRUNG HUYNH, also known as TROY HUYNH, of Scarborough, Maine, whose mailing address is 5 Hampton Circle, Scarborough, Maine 04074, being the person entitled to distribution, the real property in Portland, Cumberland County, Maine, situated on Bates Street, in the City of Portland, County of Cumberland, and State of Maine, bounded and described as follows:

> Beginning on the northerly side of Bates Street at a point distant two hundred eighty and four hundredths (280.04) feet, more or less, southwesterly from the intersection of the northerly side of Bates Street with the Southwesterly line of Washington Avenue; thence Southwesterly by said Bates Street seventy (70) feet, more or less, to the land sold by Walter P. Vincent to the Northern New England Conference of Seventh Day Adventists, Inc., on July 28, 1947, as shown by a deed recorded in the Cumberland County Registry of Deeds in Book 1879, Page 289; thence northwesterly by said Conference land, one hundred forty-five and four tenths (145.4) feet, more or less, to the southwesterly corner of the premises hereby conveyed; thence northeasterly seventy (70) feet, more or less, to the land now or formerly of Scott N. Howland; thence southeasterly by said Howland land one hundred forty-five (145) feet, more or less, to said Bates Street, at the point of beginning.

MEANING AND INTENDING to describe and convey and hereby conveying all those same premises conveyed by Hans Alma, Personal Representative of the Estate of Lucy Marmanillo Gore, to Truc T. Huynh by Personal Representative's Deed of Sale dated December 8, 2017 and recorded in the Cumberland County Registry of Deeds in Book 34525, Page 278.

In accordance with 18-C MRS §901 *et seq.* the Decedent's parents and other siblings, who are his heirs at law pursuant to 18-C MRS §2-103, have filed written renunciations with the Personal Representative, disclaiming their interest in the above-described real property.

WITNESS the hand and seal of TRUNG HUYNH, Personal Representative of the Estate of Truc Huynh, on this tenth day of January, 2023.

SIGNED, SEALED AND DELIVERED
in the presence of

Kristine Dedley

~~Trung Huynh, a/k/a~~ Troy Huynh
Personal Representative of the
Estate of Truc Huynh

STATE OF MAINE
CUMBERLAND, ss

Date: 1/10/23

Then personally appeared the above-named Trung Huynh, also known as Troy Huynh, in his capacity as Personal Representatives of the Estate of Truc Huynh and acknowledged the foregoing instrument as his free act and deed in said capacity.

Before me,

Brenda M. Buchanan

~~Notary Public~~ ATTORNEY AT LAW

BRENDA M. BUCHANAN
Printed Name MAINE BAR #7042

Commission Expires: N/A

Received
Recorded Register of Deeds
Jan 10,2023 02:27:11P
Cumberland County
Jessica M. Spaulding



SPACE AND BULK STANDARDS		
B-2 ZONE	REQUIRED	PROVIDED
ALLOWABLE RESIDENTIAL DENSITY	435 SF PER DU*	TBD
MINIMUM STREET FRONTAGE	20'	135'
FRONT YARD SETBACK	10' MAX	0'
SIDE YARD SETBACK	NONE	5'
REAR YARD SETBACK	10'	80'
MAXIMUM BUILDING HEIGHT	50'	<50'
IMPERVIOUS SURFACE RATIO	~90%	80%

*ACTIVE STREET FRONTAGE

10 0 10 20

SCALE: 1" = 10'

CONCEPT

ISSUED FOR	BY DATE
CLIENT REVIEW	SJL 4/4/23

SITE PLAN

CONCEPT SITE PLAN

DRAWING NAME:

PROJECT NAME:

CLIENT:

TROY HUYNH
5 HAMPTON CIRCLE, SCARBOROUGH, MAINE 04074

ACORN ENGINEERING, INC.

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P.O. BOX 3257
PO BOX 3257, PORTLAND, MAINE 04104
(207) 775-2655

FILE:	1195_CIVIL
JN:	1195
SCALE:	AS NOTED
DESIGNED BY:	CMH
DRAWN BY:	CMH
CHECKED BY:	TAL

DRAWING NO.

EXH

ACORN ENGINEERING, INC.

Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

May 8, 2023

Subject: 17-25 Bates Street Map Amendment Neighborhood Meeting

I, Sam Lebel, hereby certify that a neighborhood meeting was held on May 2, 2023 at GPCOG 970 Baxter Blvd., Suite 201, in Portland at 5:00 pm.

I also certify that on April 19, 2023, 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.

2. Residents on the "interested parties" list.

Sincerely,

Sam Lebel

Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.

Included with this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

Sign-in Sheet **Participants:**

Name	Email
Helen White	Helenwhite38@gmail.com
Heather Bennet	Bennett.heather@gmail.com
Jim Wicholar	Jnicholas9@yahoo.com
John Wensman	jkwensman@gmail.com
Justin Crabtree	30galvinst@gmail.com

Sign-in Sheet **Applicants:**

Name	Email
Troy Huynh	troynotary@gmail.com
Sam Lebel	slebel@acorn-engineering.com
Andrew Godfrey	agodfrey@acorn-engineering.com
Nancy O'Sullivan	office@acorn-engineering.com

17-25 Bates Street Redevelopment

Neighborhood Meeting Minutes

May 02th, 2023 / 5:00 pm
970 Baxter Blvd, Suite 201, Portland, ME

Project Team Attendees:

Troy Huynh (TH): Client/Presenter

Sam Lebel (SL): Civil Engineer/Presenter (Acorn Engineering)

Andrew Godfrey (AG): Civil Engineer/Note Taker (Acorn Engineering)

Meeting started at approximately 5:05 pm.

Presentation:

Sam Lebel introduced project team and meeting process.

Troy Huynh:

- Introduced himself to neighbors.
- Background history on the property in question and his family.
- Gave his preliminary vision for the site to contain a restaurant and housing units.

Sam Lebel:

- Neighborhood Meeting is a City requirement for a Major Site Plan Application.
- Sign-in sheet will become public record along with the meeting minutes taken by AG.
- Explained that this meeting was for a zoning map amendment, and that there will be further meetings to discuss aspects of the site plan review.
- Gave a presentation of the map zone amendment proposal.
    - R-P existing overview
    - B-2 proposed overview
    - Key differences in land use and space/bulk
    - Concept plan overview with 3-4 story building along front property line

Comments, Questions & Answers:

Please note that the following questions and answers were not recorded verbatim and aim to represent and summarize the actual questions, answers, and discussion that took place at the meeting.

Q: Does this proposal go to the Zoning Board of Appeals? Or City staff? Are they allowed to change any zone?

SL: Staff hear the proposal and make a recommendation to the Planning Board who makes a recommendation to City Council. The recommendation is typically more favorable for transforming a smaller zone like the R-P which is isolated. Staff and the board take many different important points of stakeholders into consideration making the recommendation and approval. They may choose to increase the proposed map amendment boundary if they feel the B-2 zone is more appropriate than the current R-P segment on either side of the subject parcel.

Q: I'm curious how the parking for the site will play out, with a potentially 4-story building and restaurant, it doesn't appear that the plan shows enough parking. Concern about overcrowding with parking already exists within the neighborhood with the new Front Street development likely the make things even more crowded.

SL: Overall it is a balancing act with providing parking. Theoretically this project would not be required to provide parking given its proximity to a METRO stop. The City's policy is headed towards model where people don't always rely on single occupancy vehicles within the city. There are multi-modal opportunities available within the area and there is no on-street parking on Bates Street. This location here is not downtown Portland, butit's also not the Maine Mall, so there will need to be a compromise found for the necessary parking. We think we've found that with 15-20 parking off-street parking spaces, but will study it more during the Site Plan application should this map amendment be approved.

Q: Would there be a potential to use the office parking lot across Bates Street during the evening?

SL: That lot is currently private parking. It would work in concept from the stand-point that during the evening the office workers have left the parking open. It may be something that we explore, but up to the private landowners.

Q: Have you heard anything about the Roux Institute, and will this proposal be affected in any way by that proposal?

SL: I have not heard plans that would influence this project.

Q: The neighborhood is mostly wet soils, I am assuming you'll be taking care of stormwater runoff from the site?

SL: Yes, the site will be designed so that runoff is cooled, treated, and detained according to the regulations and will not impact abutting properties. We will run an in depth analysis during the site plan process.

Q: What is the timeline for the project and upcoming meetings? Do notifications get mailed for those?

SL: There will likely be four public/neighborhood meetings, beginning with the zone map amendment in late May and possibly going to Planning Board in June. Notifications will be mailed for each of the meetings. Overall, this neighborhood meeting is first, followed by one or two Planning Board workshops, and then two City Council meetings before it's voted on.

AG: You will be able to participate in those meetings and make comments and suggestions for the board to consider.

TH: There is no absolute timeline for the project. Our family runs the Phover Maine restaurant in Westbrook now and would really like to bring a sister restaurant to this Portland neighborhood We would also like to name the building or restaurant in honor of my brother Truc.

Q: Are the housing units anticipated to be condominiums?

TH: It's still undecided at this time, we would ideally like to keep the same type of affordable housing that currently exists on site.

The meeting concluded at approximately 5:45 pm.

The abovementioned material was as interpreted and recorded from handwritten notes. Please note and relay any discrepancies or disputed information in the recorded minutes to the below address so that they can be reviewed, revised, and resubmitted, as necessary.

Recorded by,

Andrew Godfrey

Andrew Godfrey, E.I
Design Engineer, Acorn Engineering, Inc.
agodfrey@acorn-engineering.com

ACORN ENGINEERING, INC.

Dear Neighbor: April 19, 2023

On behalf of Troy Huynh, we are pleased to invite you to a neighborhood meeting on Tuesday, May 2, 2023, to discuss a proposed map amendment for the approximate 0.47-acre parcel located at 17-25 Bates Street (Tax Map 429/J/011 & 429/J/006). The parcel is currently within the Residence Professional (R-P) zoning district and is proposed to be rezoned into the Community Business (B-2) zoning district. The zone change will allow for the opportunity to establish a commercial use on active street frontage the ground floor with housing units on the floor(s) above. The size of the building is yet to be determined, but is planned to be situated against the property line closest to Bates Avenue. With an approved map amendment by City Council, the project would then be subject to the Major Site Plan process with the Planning Board.

Meeting Location: GPCOG – 970 Baxter Blvd, Suite 201, Portland, ME 04103
Meeting Date/Time: Tuesday, May 02, 2023 at 5:00pm

A sign-in sheet will be circulated, and a record of the meeting will be taken. Both the sign-in sheet and record will be submitted to the Planning Board. If you have any questions, please call (207) 775-2655.

Sincerely,

Sam Lebel

Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.

Note: Under the City of Portland land use code, an applicant for a major site plan, master development plan, subdivision of over five lots, or zoning map amendment is required to hold a neighborhood meeting within 30 days of an application being deemed complete and no less than seven calendar days before a public hearing. Should you wish to offer additional comments on this proposed development, you may forward them by e-mail to planning@portlandmaine.gov or by mail to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101.

LEGEND

EXISTING ZONING BOUNDARY PROPOSED TO BE REVISED

PROPOSED NEW ZONING BOUNDARY LINES

EXISTING ZONING BOUNDARY LINE TO REMAIN

RANDAL STREET
FRONT STREET
ILLSLEY STREET
WASHINGTON AVE
PEMBROKE STREET
GALVIN STREET
BAXTER BOULEVARD
BATES STREET
VERANDA STREET
BACK COVE

SINGLE FAMILY
TWO FAMILY
VACANT LAND
BENEVOLENT & CHARITABLE
EX. B2 ZONE
RETAIL SERVICES (BOITO'S BAKERY)
PR. ZONING BOUNDARY, TYP.
FOUR FAMILY
EX. R5 ZONE TO PR. B2 ZONE
AUXILIARY BUILDINGS
RETAIL SERVICES (BELLPORT PROPERTY MANAGEMENT)
MULTI-USE RESIDENTIAL
11 TO 20 FAMILY
THREE FAMILY
OFFICE BUSINESS (RON L. BEAULIE & COMPANY)
PR. RESIDENTIAL BUILDING W/ COMMERCIAL GROUND FLOOR
EX. RP ZONE TO PR. B2 ZONE
EX. R5 ZONE
OFFICE BUSINESS (GREEN TREE REALTY, HOMERIVER GROUP PORTLAND MAINE PROPERTY MANAGEMENT)
RETAIL SERVICES (CHIP'S SERVICE CENTER)
EX. ZONING BOUNDARY TO BE REVISED, TYP
APPROXIMATE ABUTTING PROPERTY LINE, TYP.
RETAIL SERVICES (PORTLAND MOTOR SALES, VERANDA NOODLE BAR, BEALS OLD FASHIONED ICE CREAM)
RETAIL SERVICES (VERANDA THAI)
RETAIL SERVICES (HOWIE'S PUB)
EX. B5 ZONE
EX. ROS ZONE
EX. PORTLAND GIS ZONING BOUNDARY LINE, TYP.
OFFICE BUSINESS (HDR, GPCOG)
OFFICE BUSINESS (ACORN ENGINEERING, INC., OTHERSIDE DINER, FLOAT HARDER, APSARA NAILS)
PARKING LOT
5 TO 10 FAMILY
GOVERNMENTAL

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CONCEPT

ISSUED FOR	BY DATE
PLANNING BOARD PUBLIC HEARING	SJL 8/5/23

DRAWING NAME: PROPERTY USE EXHIBIT

PROJECT NAME: CONCEPT SITE PLAN

CLIENT: TROY HUYNH
5 HAMPTON CIRCLE, SCARBOROUGH, MAINE 04074

ACORN ENGINEERING, INC.
ACORN ENGINEERING, INC
P.O. BOX 3372 PORTLAND, MAINE 04104
(207) 775-2655

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FILE:	1195_CIVIL
JN:	1195
SCALE:	AS NOTED
DESIGNED BY:	CMH
DRAWN BY:	CMH
CHECKED BY:	TAL

DRAWING NO.
EXH

PC 1

Bates Street Rezoning 0 views

Cheryl Leeman <cal4161@yahoo.com>
to Planning Board

TO: Chairman Mazer and Planning Board Members
FROM: Cheryl Leeman
DATE: September 10, 2023
SUBJECT: Zoning Map Amendment for 17 & 25 Bates Street

Simply stated, the zone change to a B-2b seems premature prior to a Planning Board recommendation and city council approval neighborhood.

- Public engagement has just begun on the proposed ReCode changes.
- The neighborhood was originally noticed on a change to a site specific B-2 zone as seen on the online “Vicinity Map” (B-2b
- The residents do NOT understand the difference between the original B-2 from the proposed B-2b.
- Noticing to the neighborhood was inadequate for inclusivity of all who will be impacted by the B-2b change.
- NO “neighborhood” meeting has been held on the proposed change from B-2 to B-2b which could see substantive changes

  1.) Elimination of density limits and 100% build to percentage plus reductions in setback requirements.

  2.) Increase in height from 45 ft to 65 ft (or more with allowances)

  3.) Removes distinction between on-peninsula and off-peninsula in the Dimensional Standards.

  4.) In the ReCode Evaluation document it states the B-2 “appears to primarily address levels of commercial intensity dimensional characteristic of the B-2b.

The neighborhood recognizes that change is coming, however, we would like to have input into the process, have our voices hea

Reply all Reply to author Forward