

PLANNING BOARD

Tuesday, May 14, 2024 at 4:30 PM
Hybrid Meeting, Room 24 (Ground Level
of City Hall) and Zoom



MEMBERS

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

The Planning Board invites the public to 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://www.portlandmaine.gov/602/Agendas-Minutes> to view memos and reports which will be posted by the end of the day on the Friday before the Planning Board meeting. 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

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AGENDA:

WORKSHOP - 4:30 PM

- i. Major Site Plan; 1001 Westbrook Street (Jetport Parking Expansion); City of Portland, Applicant. The Planning Board will hold a hybrid workshop to consider a proposal to expand surface parking at the Portland International Jetport. The project would involve the construction of 5.5 acres of new surface parking area, distributed across two separate lots, with a total capacity for 684 vehicles. This project is subject to both Site Location of Development (SLOD) review, as well as Natural Resource Protection Act (NRPA) review with Maine DEP. The subject property is zoned AB Airport Business 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-002853-2024.

- ii. Major Site Plan; 9 Boyd Street; COMB Block Phase One, LP and Portland Housing Development Corporation, Co-Applicants. The Planning Board will hold a hybrid workshop to consider a proposal to demolish two existing residential buildings, with 40 residential units, in order to facilitate the construction of a new 50-unit residential building, with 45 affordable units and 5 market rate units. Other site improvements include the reconstruction of sidewalks along the property frontage, construction of a retaining wall to create more usable open space on the property, utility upgrades, and division of the parcel to create two buildable lots. The subject property totals 1.54 acres, is zoned R-6 Residential, and is within the R-7 Overlay 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-002845-2024.
- iii. Technical Manual; Section 6, Erosion and Sedimentation Control; City of Portland, Applicant. The Planning Board will hold a hybrid workshop to consider a proposal to update Section 6 of the City of Portland Technical Manual, related to Erosion and Sedimentation Control requirements for new development. These updates are being made to meet a requirement from the City's Stormwater permit issued by the DEP. Besides the permit requirement, the goal is to strengthen and better align our regulatory mechanisms with our current development review process and conditions and other initiatives, including an updated Chapter 32 Stormwater Ordinance, to limit the impact of discharges to the City's brooks, rivers, and harbor. The draft amendments and all other application materials will be available on the City's Agenda Center for this meeting.

PUBLIC HEARING - 6:30 PM

- 1. **ROLL CALL AND DECLARATION OF QUORUM**
- 2. **COMMUNICATION AND REPORTS**
- 3. **REPORT OF ATTENDANCE AT THE MEETING HELD ON APRIL 23, 2024. ATTENDANCE WILL BE ADDED AS SOON AS IT IS FINALIZED.**
- 4. **REPORTS OF DECISIONS AT THE MEETING HELD ON APRIL 23, 2024. REPORT OF DECISIONS WILL BE ADDED AS SOON AS THEY ARE FINALIZED.**
- 5. **NEW BUSINESS**
 - i. Major Site Plan; 64 Pine Street, 64 Pine Street, LLC, Applicant. The Planning Board will hold a hybrid public hearing to consider a major site plan application intended to facilitate the development of a mixed-use development with nine residential units, mechanical stacked parking for 18 vehicles, and a 1,282 square foot retail space. The project site totals 9,920 square feet, is located predominantly in the B-1 Neighborhood Business zone, with the rear of the property being located in the R-6 Residential zone. The property is also located within the West End Historic District and is subject to Certificate of Appropriateness review by the Historic Preservation Board. A project and plan summary are available for viewing on the city's CSS Portal (<https://css.portlandmaine.gov/>) by referencing Plan Number PL-002678-2023.

To: Chair Mazer and Members of the Portland Planning Board
From: Zach Powell, Senior Planner
Date: May 10, 2024
Re: 1001 Westbrook Street (Portland International Jetport Long-Term Parking Expansion)
Applicant: Paul Bradbury, CEO, Portland International Jetport
Project ID: PL-002853-2024
Meeting Date: May 14, 2024

I. INTRODUCTION

Portland International Jetport has submitted a Major Site Plan application to facilitate the expansion of an existing short-term paved parking lot and unpaved surface parking area to create a paved parking lot with 684 long-term parking spaces. As part of the proposed development, a 1.9-megawatt battery storage system is also proposed to be installed. The parking lot expansion was envisioned as an intermediate-term project, detailed in the 2018 [Portland International Jetport Sustainability Airport Master Plan](#).

The Applicant has submitted a Site Location of Development (SLOD) amendment to permit L-13760 and NRPA permit, which is still in review by the Maine Department of Environmental Protection (Maine DEP). An Army Corps of Engineers General Permit application has also been submitted for the proposed fill of the two wetlands (±8,618 square feet) on the project site. The project falls under an existing Traffic Movement Permit (TMP) for the Terminal Expansion, which was approved by the Planning Board in 2008.



Figure 1: Rendered site plan of the proposed surface parking lot & battery storage.

The Planning and Urban Development Department mailed 33 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the May 2nd and 3rd editions of the *Portland Press Herald*.

Applicant: Paul Bradbury, CEO, Portland International Jetport
Representing Agent: Owens McCullough, Sebago Technics

II. REQUIRED REVIEW & WAIVER REQUEST

Review	Applicable Standards
Major Site Plan Review	Section 14.6
Waiver Request	Applicable Standard
Establish Level 1-ready charging stations along the perimeter of the parking lot & install Level 1 charging stations in the off-site structured parking garage.	Technical Manual Section 1.14 – New structured and surface parking lots of five or more spaces shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces.

III. PROJECT DATA

Existing Zoning	AB (Airport Business)		
Existing Use	Off-Street Parking (Surface) (102 paved automobile spaces; 300 unpaved automobile spaces); Undeveloped Land		
Proposed Use	Off-Street Parking (Surface)	684 automobile spaces	
Property Size	42,976 SF (0.98 acres)		
	<i>Existing</i>	<i>Proposed</i>	<i>Net Change</i>
Automobile Parking Spaces	402 spaces 102 paved 300 unpaved	684 paved spaces	+282 spaces + 582 paved spaces - 310 unpaved spaces
Bicycle Parking Spaces	0 spaces	0 spaces	No change
Curb Cuts	3 (1 blocked)	3	No change
Trees in Streetscape	±55	85	±30

IV. EXISTING CONDITIONS

The project site is centrally located on the Portland International Jetport campus and occupies half of a city block at 0.98 acres in area. The site is bounded to the north by Jetport Boulevard, to the South by Loop Road, to the East by Westbrook Street, and to the West by International Parkway. The site is immediately adjacent to a hotel and proximate to other surface and structured parking for the Jetport and undeveloped land.

The site contains a mixture of paved short-term surface automobile spaces (102) (shown in yellow in **Figure 2**), unpaved long-term valet surface parking spaces (300) (shown in orange in **Figure 2**), informal vehicle storage, and undeveloped land. The Jetport also has an additional 2,821 parking spaces with 2,338 on-site long-term parking spaces, and 483 off-site long-term parking spaces, located in South Portland, as shown in **Figure 2**.

The undeveloped portion of the site contains two wetlands totaling ±8,618 square feet and 169 trees >10" at diameter breast height. Two sculptures from the public art piece [Glimpse](#) (2011) are located along the site's frontage on Loop Road as shown in **Figure 3**.

The site has three curb cuts, and sidewalks are provided along the frontages of International Parkway and Loop Road. Bicycle lanes are located along the International Parkway & Jetport Boulevard frontages of the site.

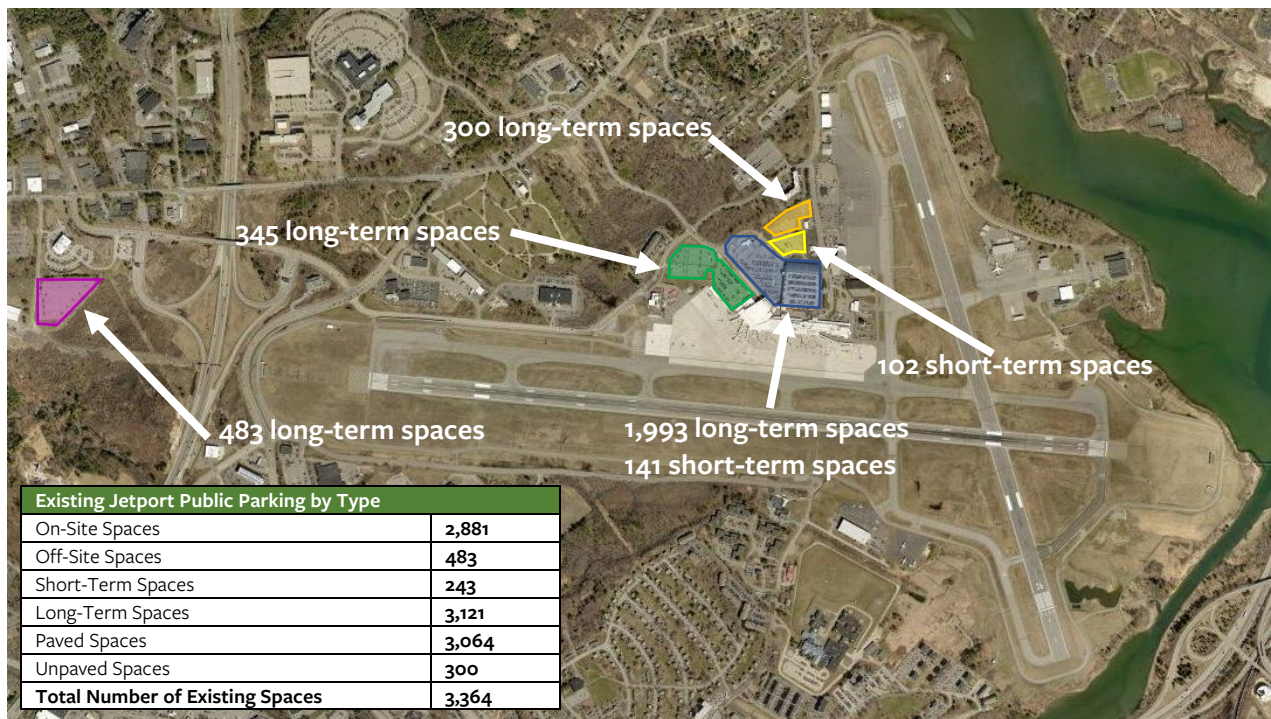


Figure 2: Aerial image showing public parking areas for the Jetport. Off-site parking includes a 483-space long-term parking lot in South Portland (shown in pink). On-site parking includes 300 long-term valet parking spaces (shown in orange), structured parking with 1,993 long-term and 141 short-term parking spaces (shown in blue), 345 long-term surface parking spaces (shown in green), and 102 short-term surface parking spaces (shown in yellow).

The project site is currently served by public transit with METRO Route #5, with a stop located ~710 feet from the southern boundary of the project site.



Figure 3: View looking west from Loop Road at two of the sculptures from the public art piece *Glimpse* (2011) that are located on the project site.

V. RIGHT, TITLE & INTEREST

The property owner is the City of Portland and the Applicant has submitted deeds (**Attachment C**) verifying that all three properties are under common ownership.

The 2018 [Portland International Jetport Sustainability Airport Master Plan](#) identified the acquisition of the area shown in yellow in **Figure 4** to be an intermediate priority of the airport. [Order 81-21/22](#) was unanimously approved by the City Council on November 1, 2021 to purchase that portion of land in yellow that was previously used as a private valet parking service.

VI. FINANCIAL & TECHNICAL CAPACITY

The Applicant has submitted a letter (**Attachment H**) listing the unrestricted cash fund balance for the Jetport of \$39.1 million dollars, with the proposed project anticipated to cost \$8 million dollars. Supporting information has been supplied related to the technical capacity of Sebago Technics in **Attachment I**.



Figure 4: Aerial image showing the project site boundary (in blue) and private land purchased as part of a recommended intermediate priority of the Portland International Jetport Sustainability Airport Master Plan (in yellow).

VII. PROPOSED DEVELOPMENT

The applicant is proposing to pave the existing ±1.65-acre unpaved parking area and repave an existing short-term paved lot with 102 spaces (cell phone lot) to create two paved parking lots with 684 long-term parking spaces. The proposed development would create a 684-space surface automobile parking lot. The clearing of the northwestern portion of the site would include the removal of 161 trees >10" at diameter breast height (DBH) and the filling of two wetlands totaling ±8,618 square feet. Of the trees being removed, 21 are Ash trees, which, based upon a site inspection by City Arborist Mark Reiland, the majority of these trees are infected with Emerald Ash Borer.

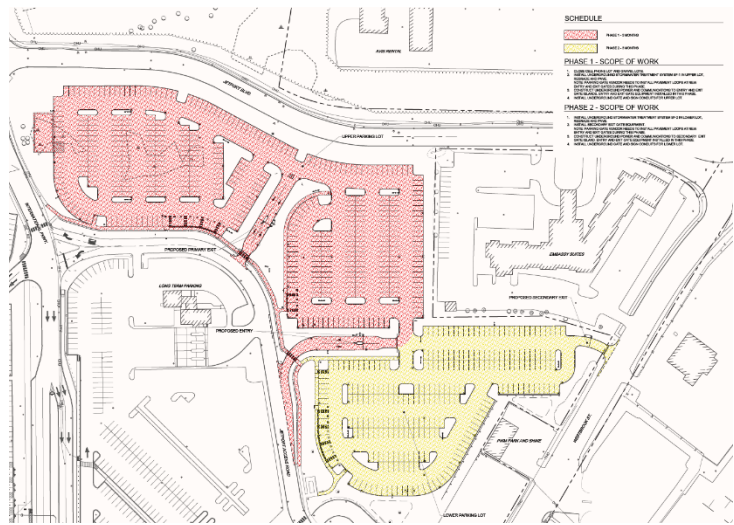


Figure 5: Phasing Plan with Phase 1 (in red) and Phase 2 (in yellow) each anticipated to take three months to complete.

Existing parking areas are proposed to be redeveloped and regraded, with new subsurface utility and stormwater infrastructure being installed. A 1.9-megawatt lithium-ion battery is proposed to be installed on the western portion of the site, which will be screened with a combination of fencing and landscaping. As part of the Applicant's waiver request from the minimum EV parking standards, the Applicant is proposing to

make spaces along the perimeter of the site Level 1 EV-ready and establish Level 1 EV charging stations inside the existing structured parking garage. The waiver request justifies this proposal, stating that the nature of the long-term parking does not necessitate the speed of a Level 2 or 3 charger.

Construction is proposed in two phases, as shown in **Figure 5**. Each phase is anticipated to take three months and would start with the western portion of the site (shown in red) and then progress to the eastern portion of the site (shown in yellow).

All existing curb cuts would be updated as part of the proposed project, with vehicles entering from Loop Road to pay stations and exiting either onto Loop Road or Westbrook Street.

The two existing pieces from *Glimpse* are proposed to be removed from the site. City Staff, in coordination with the artist Wendy Klemperer, are working to develop plans for the removal, storage, and relocation of the sculptures.

Proposed landscaping for the site includes 105 deciduous and 71 coniferous trees, and a combination of 851 perennials & shrubs.

VIII. ZONING ANALYSIS

The site is located in the A-B (Airport Business) zone. The purpose of the A-B zone is to provide:

...an area for the development of airport-related enterprises. Appropriate uses permitted in this zone are those customarily associated with the operation of the airport terminal and individual airlines and accessory use to provide for the comfort and convenience of the airport's patrons and employees.

The zoning dimensional requirements are permissive and are intended to allow for a variety of commercial and industrial uses that are supportive of the functions of the Jetport, while including setback restrictions from the adjacent Stroudwater neighborhood to minimize negative impacts.

As submitted, the application is consistent with applicable A-B zoning standards as shown below in **Table 1**.

Table 1: Applicable Dimensional Requirements			
Dimensional Standard	Requirement	Proposed	Determination
Minimum Lot Area	20,000 square feet	358,094 square feet	Complies
Minimum Street Frontage	50 feet	1,450.17 feet	Complies
Maximum Impervious Surface Ratio	70%	48%	Complies

IX. STAFF REVIEW

A. Site Plan Review Standards Section 14.6

Section 14.6 of the City's Land Use Code establishes standards under which Site Plan applications must be reviewed. Per this section, Site Plans shall adhere to the following requirements:

Section 14.6.1. Transportation Standards

A. Impact on Surrounding Street Systems

Staff Comment: City reviewers have requested that the entrance (shown in **Figure 6**) be reconfigured to a T-entrance to discourage speeding and conflicts between pedestrians and motorists, and confirm sight distance for ingress and egress out of the parking lot. The Jetport was the subject of a TMP in 2008 as part of the terminal expansion. Since the proposed parking lot falls within the capacity of this permit, Staff is requesting confirmation that the conditions of approval of the TMP (Attachment 3) have been satisfied.

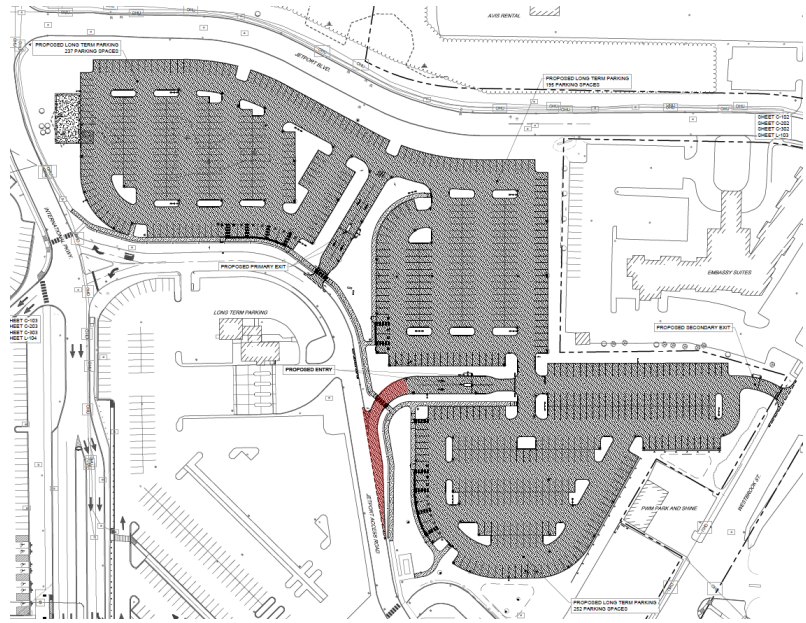


Figure 6: Site plan highlighting parking lot entrance requested to be reconfigured to a T-entrance (in red).

B. Access and Circulation

Staff Comment: Given the proposed size of the parking lot and the increase in pedestrian trips to the terminal, City staff has requested an internal sidewalk (Minimum width: 6 feet) that connects to the sidewalk along the frontage of the site, with an increased width of 8 feet for sidewalks along the frontage of the site.

§14.6.1(B)(3)(a) of the Land Use Code requires sidewalks along all frontages. However, no sidewalks or waiver requests are proposed for Jetport Boulevard. Planning Staff encourage the Applicant to coordinate with the Department of Public Works to determine if the Department is supportive of sidewalks along Jetport Boulevard.

C. Public Transit Access

Staff Comment: Given that an existing transit shelter is located within the airport terminal that is less than ¼ mile from the project site, the project is not required to install a transit shelter.

D. Parking

Staff Comment: Automobile and bicycle parking requirements are not explicitly listed for airports within Article 19 of the Land Use Code and will be determined by the Planning Board.

All proposed spaces and aisles meet the minimum dimensional requirements.

A waiver request has been submitted to allow the use of Level 1 chargers for the parking lot instead of Level 2 or 3. §1.14 of the Technical Manual allows the Planning Board to establish EV parking requirements on the basis of an EV parking demand study developed by a qualified professional using industry best practices and accounting for future EV demand. As part of the Planning Board's review of the application, Planning Staff has requested the submission of a parking demand study to eliminate or reduce the significance of the submitted waiver request.

In addition to these trees, existing trees & shrubs <10" DBH along Westbrook Street are proposed to be retained, but preservation measures for these trees & shrubs are not included in application materials. The City is requesting that the applicant detail how the proposed site design limits disturbance to and removal of existing trees to the extent practicable, and how they intend to preserve trees identified for preservation, through the course of construction.

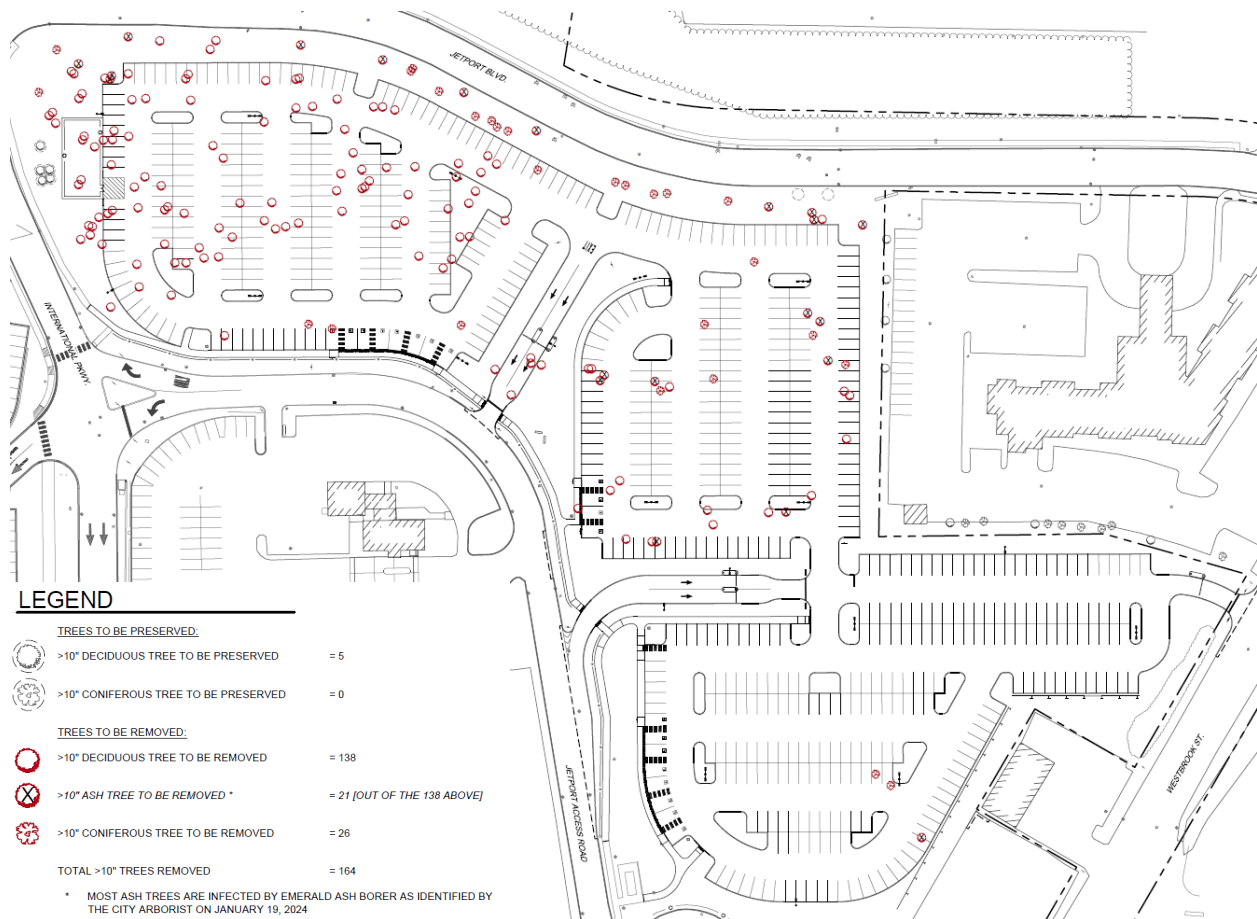


Figure 8: Tree removal plan, which proposes the removal of 164 trees >10" DBH and retention of 5 trees >10" DBH.

C. Site Landscaping and Buffers

Staff Comment: As submitted, the landscape plan does not provide sufficient detail to determine whether the proposed plan complies with the landscaping, parking, and vehicle display lot landscaping & street tree requirements for plantings.

Staff have requested updates to the landscape plan to:

- Show property boundaries for the entirety of the project area;
- Include a legend that uses distinct symbology for shrubs and perennials to assess compliance with §14.6.2(C)(3) of the Land Use Code;
- Provides size & notes for shrubs and perennials & grasses to confirm compliance with §4.7.6 of the Technical Manual; and

- Document the existing trees & shrubs along Westbrook Street proposed to be retained, protection measures for the landscaping during construction, and whether any of the trees are proposed to be counted towards meeting street tree requirements.

D. Water Quality, Stormwater Management, and Erosion Control

Staff Comment: The project proposes the use of two Contech stormfilters with storage to manage stormwater on-site. Consulting Stormwater Engineer Lauren Swett has requested additional information on this system.

Additional information has also been requested on proposed electrical utility lines for lighting and the battery storage to confirm that there are no conflicts with stormwater infrastructure, how the design of the detention tanks accounts for changes in slope, confirm the appropriateness of landscaping selections on steep slopes, and sediment barrier locations across both phases.

The submitted design proposes directly discharging treated stormwater into Casco Bay and a waiver of the Maine DEP Chapter 500 Flooding Standard has been requested as part of the review of the SLOD amendment. To meet the City of Portland stormwater requirements, the applicant will be required to submit a corresponding flooding waiver.

Section 14.6.3. Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans

Staff Comment: On November 21, 2016, the City Council accepted the Portland International Jetport Sustainable Airport Master Plan (Order 88-16/17). The 2018 [Portland International Jetport Sustainability Airport Master Plan](#) identified the acquisition of the central and eastern portion of the project site to be an intermediate priority of the airport. [Order 81-21/22](#) was unanimously approved by the City Council on November 1, 2021 to purchase the land, which was previously used as a private valet parking service.

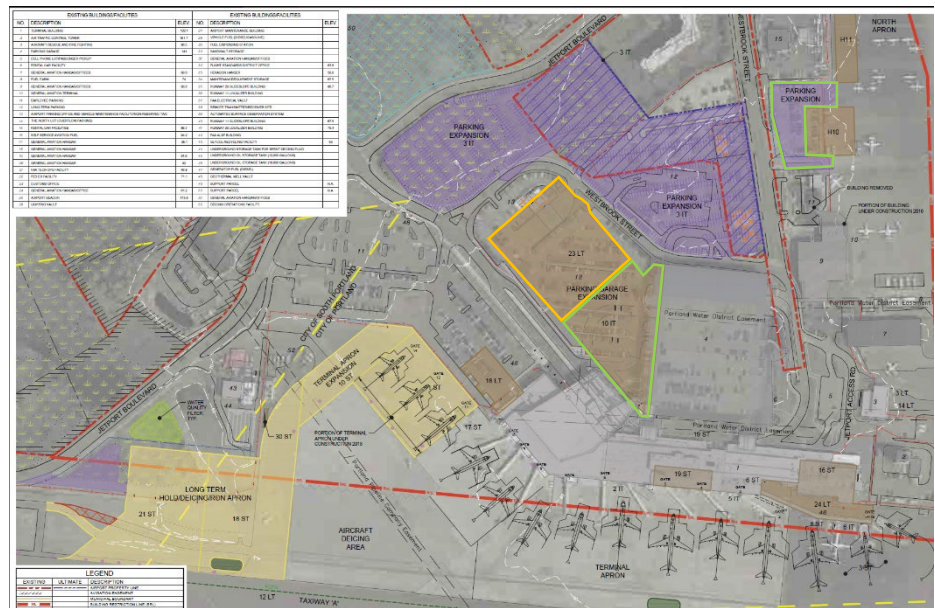


Figure 9: Development plan from *Portland International Jetport Sustainability Airport Master Plan* showing short, intermediate, and long-term development projects.

The subject project is listed as an intermediate-term project in the Master Plan (**Figure 9**). An additional surface parking expansion on the eastern side of Westbrook Street and a partial expansion of the parking garage are also listed as intermediate-term projects (outlined in green). A second parking expansion is also proposed as a long-term project (outlined in orange).

B. Public Safety and Fire Prevention

Staff Comment: Entry and exit gates are proposed at least 30 feet from the City right-of-way and include Knox boxes to allow for emergency vehicle access.

Given that there will be an increase in the number of pedestrians walking from the proposed long-term parking lot to the terminal, DPW has requested a signage plan/ wayfinding program that directs pedestrians to use safe & direct pedestrian facilities from the parking lot to the terminal.

C. Public Utilities

Staff Comment: Electricity for the parking lots is proposed to be provided through existing underground service with the Jetport, but is not shown in the utility plans. It is unclear whether the proposed utility lines would create conflicts with the proposed stormwater detention tanks.

Connections to the City's storm drain are proposed, along with a waiver request to discharge directly to the Fore River. Two treatment & temporary detention tanks are proposed to discharge stormwater at the same or reduced volume as compared with the existing condition.

Section 14.6.4. Site Design Standards**A. Massing, Ventilation, and Wind Impact**

Staff Comment: Not applicable. The proposed application does not propose a structure that would create massing, ventilation, or wind impacts.

B. Shadows

Staff Comment: Not applicable. The proposed application does not propose a structure that would create a significant shadow.

C. Snow and Ice Loading

Staff Comment: The parking lot proposes two snow storage areas. The proposed snow storage areas are not proportional to the size of the proposed parking lot. Additional information should be provided on existing snow removal for the Jetport and if other portions of the Jetport campus/off-site locations are used for snow storage.

D. View Corridors

Staff Comment: Not applicable, since the site is not located along a view corridor.

E. Historic Resources

Staff Comment: The proposed development is not located within or within 100 feet of a local historic district, landmark, cemetery, or landscape. A copy of the application has been referred to the Maine Historic Preservation Commission (MHPC) for a Section 106 consultation and MHPC has determined that the project will have no impact on historic properties.

F. Exterior Lighting

Staff Comment: The proposed application does not comply with the following site lighting standards of §12.3 of the Technical Manual:

- Surface parking average illuminance (0.8 fc required | 1.9 proposed)

- Surface parking uniformity ratio (3:1 required | 3.8:1 proposed)
- Surface parking maximum illuminance (4 fc required | 4.8 proposed)
- Maximum lumens for fixture (20,600 maximum | 21,466-23,445 proposed)

As part of updating the application, please note that increased illuminance is permitted within a 10-foot perimeter of the credit card kiosks (Average: 10 fc | Maximum: 20 fc).

The following information on each fixture is required by §12.6 of the Technical Manual to be submitted as part of the lighting plan:

- Manufacturer information & cutoff characteristics
- Lamp source type
- Hours each fixture will be operated & type of timing devices used to control the hours set for illumination
- Cut sheets for each of the fixtures that include photographs

Existing street lighting along the City right-of-way complies with the standards of Section 10 of the Technical Manual.

G. Noise and Vibration

Staff Comment: Not applicable. The site does not propose the installation of utility equipment that will result in negative noise or vibration levels out of compliance with City requirements.

H. Signage and Wayfinding

Staff Comment: Updated signage is proposed to direct drivers to the parking lot from Loop Road.

As mentioned under Public Safety and Fire Prevention, City staff has requested a signage plan that directs pedestrians to use safe & direct pedestrian facilities to the terminal.

Sign permits will be required to be submitted to confirm compliance with Article 20 of the Land Use Code.

I. Design Standards

Staff Comment: Not applicable. The proposed development is not subject to the standards of the Design Manual.

X. NEIGHBORHOOD MEETING & PUBLIC COMMENT

As of the writing of this report, three written public comments have been received which focus on conflicts between the proposed project and City plans, objections to the wetland fill associated with the project, and promotion of additional parking through other solutions. The Applicant held a Neighborhood Meeting on April 11, 2024 and 26 members of the public attended (**Attachment DD**). Comments raised at the Neighborhood Meeting will be discussed by the Applicant team at the May 13th workshop.

The Applicant has established a project webpage as part of the Jetport website (<https://portlandjetport.org/parking-lot-expansion-information>), which includes an [audio recording](#) from an earlier neighborhood meeting on the project on December 12, 2023.

XI. NEXT STEPS

- Address Board and Staff Comments
- Schedule a Subsequent Planning Board meeting.

XII. ATTACHMENTSStaff Attachments

1. Zoning & Site Plan Worksheet
2. City Staff Comments
3. 2008 Terminal Expansion Traffic Movement Permit Conditions of Approval

Applicant's Documents

- A. Cover Letter
- B. Major Site Plan Checklist
- C. Right, Title, and Interest
- D. Evidence of Approvals
- E. Zoning Analysis Table
- F. Conformity with Land Use Ordinance
- G. Waiver Table
- H. Financial Capacity
- I. Technical Capacity
- J. Impact on Surrounding Streets
- K. Access and Circulation
- L. Public Transit
- M. Off-Street Parking
- N. Preservation of Natural Features
- O. Landscape Preservation
- P. Site Landscaping and Buffers
- Q. Water Quality, Stormwater & Erosion Control
- R. Consistency with Master Plans
- S. Public Safety and Fire Prevention
- T. Availability and Adequacy of Public Utilities
- U. Massing, Ventilation, and Wind Impacts
- V. Shadows
- W. Snow and Ice Loading
- X. View Corridor
- Y. Historic Resources
- Z. Exterior Lighting
- AA. Noise and Vibration
- BB. Signage and Wayfinding
- CC. Zone-Related Design Standards
- DD. April 11 Public Meeting Sign-In Sheet
- EE. April 11 Public Meeting Presentation Materials

Plans

- P1. Cover Sheet
- P2. Notes & Legend
- P3. Demolition Plan
- P4. Overall Site Plan
- P5. Site Plan (1 of 3)
- P6. Site Plan (2 of 3)
- P7. Site Plan (3 of 3)
- P8. Overall Grading Plan
- P9. Grading Plan (1 of 3)
- P10. Grading Plan (2 of 3)
- P11. Grading Plan (3 of 3)
- P12. Overall Utility Plan
- P13. Utility Plan (1 of 3)
- P14. Utility Plan (2 of 3)
- P15. Utility Plan (3 of 3)
- P16. Pipe and Structure Data Tables
- P17. Overall Landscape Plan
- P18. Tree Removal & Preservation Plan
- P19. Landscape Plan (1 of 3)
- P20. Landscape Plan (2 of 3)
- P21. Landscape Plan (3 of 3)
- P22. Construction Sequence Plan
- P23. Erosion Control Notes
- P24. Erosion Control Details
- P25. Site Details (1 of 6)
- P26. Site Details (2 of 6)
- P27. Site Details (3 of 6)
- P28. Site Details (4 of 6)
- P29. Site Details (5 of 6)
- P30. Site Details (6 of 6)
- P31. Site Photometrics Plan

Public Comment

- PC1: Stroudwater Neighborhood Association (April 29, 2024)
- PC2: Loretta Edes (May 9, 2024)
- PC3: Helen Silverstein (May 10, 2024)



General Comments

- Application materials include conflicting information on the proposed limits of project disturbance and scope of work. The site plan set only includes work south of Jetport Boulevard, while the submitted wetlands assessment & soil survey include a surface parking lot with 105 spaces on the northern side of Jetport Boulevard. The Applicant shall submit a response that:
 - Confirms whether the 105 spaces north of Jetport Boulevard are included as part of this phase of development
 - Confirms whether any site preparation activities for the 105 spaces shown north of Jetport Boulevard are included as part of this phase of development
 - Describes, if the 105 spaces north of Jetport Boulevard are not included as part of the proposed phase of development, whether the spaces were originally contemplated as part of this phase of development, what factors resulted in the spaces to be removed from this phase, and if there is a contemplated date/year where a separate application will be submitted for the 105 spaces.
- Staff have provided comments on this application under the presumption that the 105 spaces north of Jetport Boulevard are not included as part of this application. If the 105 spaces north of Jetport Boulevard or site preparation activities for the lot are proposed to be included as part of this application, updated application materials will need to be submitted to reflect the limits of project disturbance and additional comments from City Staff & Third-Party Reviewers will be provided.
- As part of the Jetport's Sustainable Airport Master Plan, expansion of the existing structured garage is proposed over an existing surface parking area is identified as a future project. Given that the application has stated the Jetport's short- and long-term needs for additional on-site parking, submit an assessment prepared by a licensed engineer confirming that the design of the proposed surface lot permits for a future conversion to a structured parking facility.
- The proposed project will result in the relocation of two sculptures from the public art piece Glimpse. As part of the review of the site plan application, coordination with the Public Art Committee, the artist, and City staff is required to determine how the sculptures will be uninstalled, stored during construction, and where & how they will be reinstalled. Coordinate with Sean King (sking@portlandmaine.gov) to determine next steps on the relocation process.

Zoning Use Review (Article 6)

Use Permissions (Table 6-E)

Proposed Use	Permitted, Conditional or Accessory Use	Zone	Use Std
Off-street parking	Permitted	A-B	None

Zoning Dimensional Review (Article 7)

Dimensional Standards (Table 7-G)

Standard	Requirement	Proposed	Finding
Lot area (min.)	20,000 square feet	358,094 square feet	Complies
Street frontage (min.)	50 feet	1,450.17 feet	Complies
Lot width (min.)	50 feet	Not Applicable	Not Applicable
Front Setback (min.)	20 feet along Westbrook Street	Not Applicable	Not Applicable
Rear Setback (min.)	None	Not Applicable	Not Applicable
Side Setback (min.)	None	Not Applicable	Not Applicable
Structure height (max.)	75 feet	Not Applicable	Not Applicable
Impervious surface ratio (max.)	70%	48%	Complies

Site Plan Review Standards (Sec. 14.6)

Transportation Standards (Sec. 14.6.1)

Standard	Discussion	Finding
Impact on Surrounding Street Systems	Overview: City reviewers have provided comments in Attachment 2 speaking to reconfiguring the entrance to a T-intersection and confirming sight distance for ingress and egress out of the parking lot. The Jetport was the subject of a TMP in 2008 as part of the terminal expansion. Since the proposed parking lot falls within the capacity of this permit, Staff is requesting confirmation that the conditions of approval of the TMP (Attachment 3) have been satisfied. Updates Requested - Update the application materials to provide a T-intersection entrance to the parking lot that meets the requirements of the Technical Manual - Provide sight distance measurements for each of the ingress and egress points of the parking lot. - Submit confirmation that all of the conditions for the 2008 Terminal expansion TMP were satisfied.	Not met
Access and Circulation	Overview: Given the proposed size of the parking lot and the increase in pedestrian trips to the terminal, City staff has requested an internal sidewalk (Minimum width: 6 feet) that connects to the sidewalk along the frontage of the site and an increased width of 8 feet for sidewalks along the frontage of the site. Sidewalks are required to be provided along all frontages. No sidewalks or waiver requests are proposed for Jetport Boulevard. Updates Requested - Update application materials to include a ≥6-foot wide internal sidewalk that connects to the sidewalk along the frontage of the site. - Update application materials of provide ≥8-foot wide sidewalks along the frontage of the site. - Update application materials to include a sidewalk along Jetport Boulevard or submit a waiver request.	Not met

Public Transit Access	Overview: Given that an existing transit shelter is located within the airport terminal that is less than ¼ mile from the project site, the project is not required to install a transit shelter.	Met
Parking	Overview: Automobile and bicycle parking requirements are not explicitly listed for airports within Article 19 of the Land Use Code and will be determined by the Planning Board. All proposed spaces and aisles meet the minimum dimensional requirements. A waiver request has been submitted to allow the use of Level 1 chargers for the parking lot instead of Level 2 or 3. §1.14 of the Technical Manual allows the Planning Board to establish EV parking requirements on the basis of an EV parking demand study developed by a qualified professional using industry best practices and accounting for future EV demand. As part of the Planning Board's review of the application, submission of a parking demand study may eliminate or reduce the significance of the submitted waiver request. Updates Requested: Submit an EV parking demand study that meets the requirements of §1.14 of the Technical Manual	Not met
Transportation Demand Management	Overview: The Jetport has an existing TDM plan for the 2008 terminal expansion and the proposed project does not meet a threshold for creating a separate TDM plan. As a friendly reminder, the annual reporting form for the TDM plan is due on May 15th to Bruce Hyman.	No action at this time
Environmental Quality Standards (Sec. 14.6.2)		
Standard	Discussion	Finding
Preservation of Significant Natural Features	Overview: The proposed application proposes impacts to two wetlands (±8,618 square feet in area). A supporting assessment has been submitted that assesses the significance of the wetlands using functions & values established by the U.S. Army Corps of Engineers (ACOE). Based on the assessment, the Wetlands are not significant according to ACOE standards. Regardless of the significance of the wetlands to the ACOE, wetlands are identified as a significant natural feature in §14.6.2.(A) of the Land Use Code. Where complete preservation of significant natural features substantially compromises the development of the site, an applicant can submit a waiver request to reduce this requirement provided that there is demonstrated compliance with state and federal regulations and preservation measures are implemented to the extent practicable. A waiver request and supporting justification have not been submitted. The project area does not propose development within a habitat block. Updates Requested Update the application to either not impact significant natural resources on the site or submit a waiver request and supporting justification that meets the standards of §14.6.2.(A)(3) of the Land Use Code.	Not met

<i>Landscape Preservation</i>	Overview: The subject application proposes to remove the majority (164) of trees >10" Diameter Breast Height (DBH) within the project area, while 5 trees are proposed to be preserved. Some of the Ash trees proposed to be removed have been infected by Emerald Ash Borers. A number of existing, non-infected trees > 10" DBH or Hemlocks identified by the City Forester proposed to be removed are located within or close to landscaped island areas and have the potential to be preserved. In addition to these trees, existing trees & shrubs <10" DBH along Westbrook Street are proposed to be retained, but preservation measures for these trees & shrubs are not included in application materials. Demonstration of how the submitted design & construction management plan is limiting disturbance & removal of existing trees (e.g., use of compact parking spaces, modified footprint, etc.) is not included in the submitted application materials. Updates Requested • Submit supporting materials, including, but not limited to a narrative & alternative parking layout considered, that demonstrate how the proposed layout minimizes disturbance & removal of existing trees to the greatest extent practicable. • Update application materials to demonstrate protection measures for existing trees and shrubs along Westbrook Street proposed to be retained.	Not met
<i>Site Landscaping and Buffers</i>	Overview: As submitted, the landscape plan does not provide sufficient detail to determine whether the proposed plan complies with the landscaping, parking, and vehicle display lot landscaping & street tree requirements for plantings. Updates Requested • Update the landscape plan to: ○ Show property boundaries for the entirety of the project area ○ Include a legend that uses distinct symbology for shrubs and perennials to assess compliance with §14.6.2(C)(3) of the Land Use Code ○ Provides size & notes for shrubs and perennials & grasses to confirm compliance with §4.7.6 of the Technical Manual ○ Document the existing trees & shrubs along Westbrook Street proposed to be retained, protection measures for the landscaping during construction, and whether any of the trees are proposed to be counted towards meeting street tree requirements.	Not met
<i>Water Quality, Stormwater Management and Erosion Control</i>	Overview: The project proposes the use of two Contech stormfilters with storage to manage stormwater on-site. Consulting Stormwater Engineer Lauren Swett has requested additional information on this system. Additional information has been requested on proposed utilities & potential conflicts, detention tanks and changes in slope, landscaping on steep slopes, and erosion control across phases.	Not met

	The submitted design proposed directly discharging treated stormwater into Casco Bay and a waiver request has been submitted as part of the review of the SLOD amendment to meet Chapter 500 standards. As part of meeting the City of Portland standards, a corresponding waiver request shall be submitted for review to the City as part of meeting the City's standards of the Technical Manual. <u>Updates Requested</u> - Update the application to address comments raised by Lauren Swett in Attachment 2. - Submit a waiver request for directly discharging treated stormwater into Casco Bay as part of meeting the City's stormwater standards.	
Public Infrastructure and Community Safety Standards (Sec. 14.6.3)		
Standard	Discussion	Finding
Consistency with City Master Plans	<u>Overview:</u> On November 21, 2016, City Council accepted the Portland International Jetport Sustainable Airport Master Plan (Order 88-16/17). The Master Plan recommends strategies to improve the sustainability of the Jetport for operations and capital improvements. The subject project was included in the plan as an interim capital improvement. The Plan states that as of 2017, all capital improvement projects will use the Sustainability Action Evaluation Tool to identify opportunities to incorporate sustainability enhancements into the project, along with a life cycle cost analysis for the implementation of sustainability alternatives. The submitted application does not include copies of these assessments for the proposed project. Where feasible, City staff encourage the integration of sustainability enhancements, including, but not limited to ones identified in Table 7A of the Master Plan into the proposed project. <u>Updates Requested</u> - Submit a copy of Sustainability Action Evaluation Tool in Excel format - Submit a copy of the completed Sustainability Action Evaluation Tool for the subject project, including any corresponding life cycle cost analyses for sustainability alternatives.	Not met
Public Safety and Fire Prevention	<u>Overview:</u> Entry and exit gates are proposed at least 30 feet from the City right-of-way and include Knox boxes to allow for emergency vehicle access. Given there will be an increase in pedestrians walking from the proposed long-term parking lot to the terminal, DPW has requested a signage plan/ wayfinding program that directs pedestrians to use safe & direct pedestrian facilities from the parking lot to the terminal. <u>Updates Requested</u> Submit a pedestrian signage plan/wayfinding program that shows a proposed pedestrian circulation route and signage from the proposed parking lot to the terminal.	Not met
Public Utilities	<u>Overview:</u> Electricity for the parking lots is proposed to be provided through existing underground service with the Jetport, but is not shown in the utility plans. It is unclear on whether the proposed utility lines would create conflicts with the proposed stormwater detention tanks.	Not met

	Connections to the City's storm drain are proposed, along with a waiver request to discharge directly to the Fore River. Two treatment & temporary detention tanks are proposed to discharge stormwater at the same or better rates than existing conditions. <u>Updates Requested</u> Update the site plan set to show the proposed electrical lines to be installed for lighting, entrance & exit gates, and the battery storage area.	
Site Design Standards (Sec. 14.6.4)		
Standard	Discussion	Finding
Massing, Ventilation and Wind Impact	<u>Overview:</u> Not applicable. The proposed application does not propose a structure that would create massing, ventilation, or wind impacts.	Not applicable
Shadow	<u>Overview:</u> Not applicable. The proposed application does not propose a structure that would create a shadow.	Not applicable
Snow and Ice Loading	<u>Overview:</u> The parking lot proposes two snow storage areas. The proposed snow storage areas are not proportional to the size of the proposed parking lot. Additional information should be provided on existing snow removal for the Jetport and if other portions of the Jetport campus/off-site locations are used for snow storage. <u>Updates Requested</u> Update narrative to describe how snow storage is currently handled for the Jetport and whether snow would be removed to an alternate location within the Jetport/at an off-site location in addition to the two proposed snow storage areas.	Not met
View Corridors	<u>Overview:</u> Not applicable. The proposed application is not located along a view corridor.	Not applicable
Historic Resources	<u>Overview:</u> The proposed development is not located within or within 100 feet of a local historic district, landmark, cemetery, or landscape. A copy of the application has been referred to the Maine Historic Preservation Commission (MHPC) for a Section 106 consultation and MHPC has determined that the project will have no impact on historic properties.	Met
Exterior Lighting	<u>Overview:</u> The proposed application does not comply with the following site lighting standards of §12.3 of the Technical Manual: - Surface parking average illuminance (0.8 fc required 1.9 proposed) - Surface parking uniformity ratio (3:1 required 3.8:1 proposed) - Surface parking maximum illuminance (4 fc required 4.8 proposed) - Maximum lumens for fixture (20,600 maximum 21,466-23,445 proposed) As part of updating the application, please note that increased illuminance is permitted within a 10-foot perimeter of the credit card kiosks (Average: 10 fc Maximum: 20 fc). The following information on each fixture is required by §12.6 of the Technical Manual to be submitted as part of the lighting plan: - Manufacturer information & cutoff characteristics - Lamp source type - Hours each fixture will be operated & type of timing devices used to control the hours set for illumination	Not met

	- Cut sheets for each of the fixtures that include photographs Existing street lighting along the City right-of-way complies with the standards of Section 10 of the Technical Manual. <u>Updates Requested</u> - Update application materials to meet the standards of §12.3 of the Technical Manual - Submit information on each proposed fixture to meet the standards of §12.6 of the Technical Manual.	
Noise and Vibration	<u>Overview:</u> Not applicable. The site does not propose the installation of utility equipment that will result in negative noise or vibration.	Not applicable
Signage and Wayfinding	<u>Overview:</u> Updated signage is proposed to direct drivers to the parking lot from Loop Road. As mentioned under <i>Public Safety and Fire Prevention</i>, City staff has requested a signage plan that directs pedestrians to use safe & direct pedestrian facilities to the terminal. Sign permits will be required to be submitted to confirm compliance with Article 20 of the Land Use Code.	Not met
Design Standards	<u>Overview:</u> Not applicable. The proposed development is not subject to standards of the Design Manual.	Not applicable



Zachary Powell <zpowell@portlandmaine.gov>

1001 Westbrook Street - Jetport Parking Comments

Lauren Swett <lswett@woodardcurran.com>

Mon, Apr 22, 2024 at 1:38 PM

To: Zachary Powell <zpowell@portlandmaine.gov>

Hi Zach,

My comments for the proposed Jetport parking project are as follows:

- The proposed project is required to comply with MaineDEP Chapter 500 and City of Portland Technical Manual Section 5 standards for stormwater management. I have the following comments on the proposed stormwater management systems.
 - It is my understanding that the proposed improvements will be part of a site that currently has an existing Site Location of Development permit that would be modified by the proposed project. This existing permit has previously been reviewed by the MaineDEP, so I would anticipate that the MaineDEP would continue to review amendments and ultimately grant approval of the amendments.
 - Basic Standards – The project is generally providing for erosion and sedimentation control in accordance with the Basic Standards.
 - Erosion control measures are shown on the grading plans. The Applicant has also provided a Construction Phasing plan. I would suggest using this plan to incorporate erosion control systems relative to the proposed phasing. This could impact sediment barrier locations as well as potentially create the need for multiple construction entrances.
 - General Standards – The project is proposing to utilize Contech Stormfilters with associated below-grade storage to provide for stormwater treatment. This system is an approved proprietary stormwater BMP.
 - I've reviewed the provided calculations for stormwater management areas, and while I believe the system is meeting the standard for the amount of treatment required, I would ask the Applicant to clarify some of their calculations. There is no discussion of redevelopment to account for the reconstruction of existing paved and gravel areas into new paved areas; instead it appears that the entire treated area is accounted for considering these areas as new impervious and new landscaped. There are existing impervious areas noted as "to remain" that are not receiving treatment, and it appears that these areas are all outside of the project area, and will not be impacted by the proposed work. Can the Applicant please confirm that this interpretation of the calculations is correct?
 - The Applicant has included a written plan to cover construction and post-construction stormwater maintenance. The proposed Stormfilter systems have been included as part of the post-construction plan, but the subsurface detention systems should also be added with reference to the use of the inspection risers that have been proposed. A stormwater maintenance agreement will be required to include both the Stormfilters and the subsurface detention systems.
 - Flooding Standards – The project discharges to the Fore River, which would qualify the project for a waiver of the Flooding Standard.
 - MaineDEP will review this SLOD amendment, and is anticipated to grant the waiver through that approval. It is noted that the proposed project has been modeled and will not increase stormwater flows.
- I would recommend that some additional information be included relative to the proposed below-grade storage system to ensure accurate evaluation of the systems for conflicts and to assist with construction.

- The below-grade storage should be shown on the grading plan – there is a proposed change in grade across each section of parking lot, and this should be accounted for in how the storage piping will need to be installed with a slope and/or with variations in cover.
- In the details provided for the below-grade storage, it was not clear how the proposed inlet and outlet pipes will be connected, specifically, how their inverts compare to the inverts of the storage pipes themselves. I also didn't see inverts or depth of cover for the proposed storage pipes. This is needed for construction and to ensure that there are no conflicts (see later comment on lighting infrastructure).
- Additional information should be provided on the plan view plans for the proposed stone drip edge. The location of the system is provided on the utility plan with the proposed piping, but I do not see the system shown on the grading, landscaping, or site plan to show the extent of the proposed stone. The detail includes standard minimum dimensions, but I'd suggest showing the extent of the stone on the plans to ensure it does not conflict with proposed landscaping.
- Some areas of landscaping are shown in areas with relatively steep proposed and existing slopes. The Applicant should confirm that the the proposed plantings are appropriate for the sloped areas and note how it will interact with proposed erosion control blanket shown on the grading plans in these areas.
- The utility plans do not show any proposed underground utility lines connecting to the proposed battery storage area. The schematic location plan included in the project description shows the existing CMP-owned circuit connecting to the battery area. The concrete pad is surrounded by fairly extensive proposed plantings. Any utility connection work required in the area should be shown to help avoid conflicts.
- The utility plans also do not show proposed electric utility lines associated with lighting or electric and communications lines associated with the parking lot entrances. Light poles are proposed within stormwater treatment system areas. I'd recommend showing conduit to ensure that there will not be conflict with any of the other below-grade systems. As noted earlier, more detail is needed to confirm the depths of the proposed stormwater storage systems to ensure there is not a conflict with the installation.
- The vertical granite curb detail included in the plans includes aggregate base course embedment. The City's Technical Manual now includes a requirement for concrete embedment. This should be provided for any curbing within City streets.
- The Applicant has noted that they have submitted a NRPA permit to the MaineDEP for the proposed wetland impacts. The Applicant has provided a copy of their wetland study, which includes a note "the cumulative extent of previous approved wetland impacts is relevant to determining the applicable Tier of NRPA permitting." Can the Applicant clarify if there are cumulative wetland impacts that have been considered on this site?

I apologize that it took so long to get these back to you. A lot of my comments are more on the "general engineering" type of things that need to be corresponded between types of plans to make sure it can be built properly. A lot of comments, but generally they've done a good job, it's a BIG site. If you have any questions, let me know, I'm in the office all afternoon.

Thanks,

Lauren

Lauren Swett, PE*

Technical Manager | Principal



 207.558.3763  207.219.3591  woodardcurran.com

 lswett@woodardcurran.com

 12 Mountfort St, Portland, ME 04101



*Licensed in Maine, New Hampshire, and Georgia



Zachary Powell <zpowell@portlandmaine.gov>

1001 Westbrook Street Parking Lot - Traffic Review Comments

Tom Errico <thomas.errico@tylin.com>

Mon, Apr 8, 2024 at 2:25 PM

To: "zpowell@portlandmaine.gov" <zpowell@portlandmaine.gov>

Cc: Janine Ba <janineba@portlandmaine.gov>, Jeremiah Bartlett <JBartlett@portlandmaine.gov>

Hi Zack – I have reviewed the application materials and have the following traffic review comments.

- The proposed project is proposing three driveway curb cuts and if the abutting streets are classified as public streets, a waiver for the number of driveways may be required.
- The Traffic Movement Permit issued for the Terminal Expansion noted the following. The applicant shall provide documentation that the current TMP is valid.
 - *As related to conditions of approval numbered 2, 3, and 4 associated with the Traffic Movement Permit, at such time as the Jetport reaches enplanements of 1.1 million for 2 out of 4 years the Jetport shall have used the capacity under the Traffic Movement Permit and shall be required to submit an updated Traffic Movement Permit Application to the City.*
- The applicant shall confirm that all requirements of the TMP were met.
- I concur with comments from DPW regarding pedestrian facility issues.
- Sight distance measurements shall be provided at proposed driveway locations.

Please contact me if you have any questions.

Best regards,

Tom Errico, P.E.

NE TRAFFIC ENG. DIRECTOR

T +1 207.347.4354

M +1 207.400.0719

TYLin

12 Northbrook Drive
Building A, Suite One
Falmouth, ME 04105, United States

TYLin.com





Zachary Powell <zpowell@portlandmaine.gov>

PL-002853-2024 1001 Westbrook Street DPW Comments

Janine Ba <janineba@portlandmaine.gov>

Mon, Apr 8, 2024 at 11:36 AM

To: Zachary Powell <zpowell@portlandmaine.gov>

Cc: Keith Gray <kgray@portlandmaine.gov>, Justin Pellerin <jrp@portlandmaine.gov>, Benjamin Pearson <bnp@portlandmaine.gov>, Lauren Swett <lswett@woodardcurran.com>, Tom Errico <thomas.errico@tylin.com>

Zachary,

Below are DPW's comments for PL-002853-2024 [1001 Westbrook Street](#). Let me know if you have any questions.

PL-002853-2024**[1001 Westbrook Street](#)****DPW Development Review Comments****04/08/2024**

- DPW Transportation
 - The applicant shall provide internal pedestrian circulation (walkways for the users) throughout the parking lots and connect to the existing route to the airport terminal. The parking lot internal sidewalk width shall be a minimum of 6 feet and the external sidewalk width shall be 8 feet.
 - The applicant shall provide a pedestrian circulation route and signage plan from parking to the airport terminal.
 - The entrance to the parking lot off of Jetport Access Road shall be designed as a T intersection with a commercial driveway to provide a safer crossing for pedestrians.
- DPW Water Resources
 - No comments at this time.

--
Janine Ba
Project Engineer
City of Portland Department of Public Works
[212 Canco Rd. Suite B](#)
[Portland, ME 04103](#)
janineba@portlandmaine.gov
Desk: 207-874-8463
Cell: 207-245-2074

**MOTIONS AS PRESENTED AND VOTED BY THE PLANNING BOARD ON AUGUST
12, 2009 FOR THE PORTLAND JETPORT EXPANSION**

On the basis of plans and materials submitted by the applicant and on the basis of information contained in Planning Report #16-09 and Planning Board Report #19-09 and on the basis of materials submitted under the request for reconsideration, and memorandum dated August 6, 2009, and materials and testimony of the August 12, 2009 public hearing relevant to standards for site plan regulations, the Planning Board finds that with the imposition of conditions the plan is in conformance with the site plan standards of the City of Portland Land Use Code and the Traffic Movement Permit, subject to the following conditions of approval:

Conditions of Approval:

1. Stormwater
Prior to issuance of a Building Permit the applicant shall receive approval from the MDEP for all stormwater systems.
2. International Parkway/Jetport Boulevard Intersection
 - A. The applicant shall install traffic improvement signs and pavement markings at the intersection within six months from the date of Planning Board approval. The improvements shall be subject to the approval of the Department of Public Services.
 - B. A feasibility study shall be conducted that reviews options to address the anticipated capacity issues of the intersection within a year from the date of Planning Board approval. The potential mitigation options reviewed shall include: a full traffic signal warrant study conducted according to the MUCTD and MaineDOT requirements and coordinated with the Department of Public Services, construction of a roundabout, construction of a realigned intersection, maintaining a two-way STOP sign control and adding intersection capacity to attain acceptable levels of service.
 - C. Prior to issuance of a Certificate of Occupancy permit, the applicant shall implement all recommendations from the feasibility study.
3. Congress Street/Westbrook Street Intersection
 - A. The applicant shall contribute \$10,600 towards the installation of street improvements identified by the Department of Public Services. Specific improvements as represented by the applicant shall include:
 - i. Pedestrian countdown device;
 - ii. A crosswalk with colored stamping, as approved by the Historic Preservation Department; and
 - iii. Install a sidewalk between the Westbrook St. and Waldo St. with a crosswalk if the right-of-way is owned by the city.

- B. The applicant shall install video detection equipment or contribute \$9,400 for such installation in accordance with the Department of Public Services.
 - C. Prior to the Certificate of Occupancy the applicant shall ensure that all identified traffic mitigation measures are fully funded and implemented by this project through a financial contribution no less than \$20,000.
4. Johnson Road/Turnpike Connector/Turnpike Northbound Ramps
- A. Prior to issuance of a Certificate of Occupancy the applicant shall be responsible for interconnecting traffic signals at the Johnson Road/Jetport Boulevard/Turnpike Connector, Turnpike Connector/Turnpike NB Ramps, Turnpike Connector/SB Ramps, and Congress Street/Turnpike Connector/Hutchins Drive intersections. Work shall include installing necessary equipment, conducting traffic counts, and developing and inputting timing plans to allow for coordination, and field adjusting once all work has been completed.
 - B. Prior to issuance of a Certificate of Occupancy the applicant shall be responsible for constructing an eastbound right turn lane on the connector for right turning vehicles onto I-95 NB ramp. The length shall be the maximum allowable without requiring widening of the I-95 overpass.
5. Enplanements
- As related to conditions of approval numbered 2, 3, and 4 associated with the Traffic Movement Permit, at such time as the Jetport reaches enplanements of 1.1 million for 2 out of 4 years the Jetport shall have used the capacity under the Traffic Movement Permit and shall be required to submit an updated Traffic Movement Permit Application to the City.
6. Travel Demand Management Plan
- A. The applicant shall submit an annual TDM report for review and approval by the Planning Authority, with an initial report submitted within 12 months following the issuance of the Certificate of Occupancy for Terminal Expansion. The report shall summarize the current program elements and participation in the program.
 - B. Prior to the issuance of a Certificate of Occupancy, as part of the TDM, the applicant shall report to the Planning Board the steps taken to publicize that the preferred route taken to the Jetport are Congress St./Jetport Exit 46 from the Turnpike and the Westbrook Street/Jetport Exit 3 from 295 and other steps to increase public awareness in promoting these routes including but not limited to the following:

- i. Alteration of the Jetport Directions Web page;
- ii. Signage at the 5B exit informing drivers the “Best Route to Jetport” is Exit 3; and
- iii. Inclusion of the preferred route in all marketing launching the “new, improved” Jetport.

7. Trail

The applicant will use good faith efforts to obtain FAA approval for location of a trail along the Fore River from Yellowbird Lane to the South Portland City line, which approval need not encompass an easement or permanent encumbrance upon the Jetport property and may be revocable if deemed necessary for future Jetport improvements, and shall pursue such approval with the FAA at offices of higher authority than the New England Region Office, or, failing approval of a trail in said location, shall pursue FAA approval for the alternate trail connection location as presented to the Planning Board by the applicant and depicted on Board A (unlabeled) at the August 11, 2009 public hearing, and shall dedicate such trail via easement to the City or City designee, subject to any FAA requirements related thereto. If FAA approval is not obtained for such trail location, then applicant shall submit one further alternate location for such trail in a location acceptable to the FAA if such location can be determined, and if no such location can be agreed upon after best efforts, then no such trail or easement shall be required.

8. North/South Runway

If the applicant decides to implement a proposal for expansion of the north/south runway, the applicant shall return to the Planning Board for review of that expansion concerning impacts to adjacent property owners and its affect on capacity of the airport facilities within the City of Portland.

9. Noise Compatibility Program

The Jetport shall comply with its adopted noise compatibility program approved by the FAA, as it may be revised from time to time.

Vote passed 4 in favor (Lewis, Patterson, Lowry, Tevanian) – 1 opposed (Silk)

March 15, 2024
19059

Mr. Matt Grooms
City of Portland
Office of Planning and Urban Development
Congress Street
Portland, ME 04101

Site Plan Application – Portland International Jetport Parking Expansion

Dear Matt:

On behalf of the City of Portland, Sebago Technics Inc. is pleased to submit the enclosed application for Site Plan review of a parking lot expansion at the Portland International Jetport. The proposed project is to be located within the Jetport campus near the intersection of Jetport Boulevard and International Parkway. The subject area is identified as City parcel number 210AA007, 210AA006001, and 210AA002001. The project area is comprised of previously developed and undeveloped land and is approximately 13 acres. The site is bounded by a hotel to the East, airport parking and facilities to the west and south, Jetport Blvd and vacant City owned land to the north. The project area is located within the City of Portland's Airport Business Zone.

The project will be comprised of an expansion of the existing Jetport parking areas with an approximately 240,000 s.f. long-term parking area. The project proposes the construction of two paved parking lots which will provide 684 long-term parking spaces. One of the proposed new lots will convert an existing cell phone lot and gravel valet lot for use as long term parking. This lot will be comprised of 248 standard and 8 ADA compliant parking spaces. The second lot is proposed to include 416 standard and 12 ADA compliant parking spaces. The project in total will provide a net increase of 282 new parking spaces. The proposed parking lots are to be accessed from the Terminal Loop Road that connects to Jetport Boulevard and International Parkway. All means of access and egress will be controlled with credit card kiosks. The project also includes the construction of a concrete pad for a proposed battery storage system to optimize energy usage through battery storage in off-peak times. Please see the information sheets included with this letter for information regarding the battery storage system.

The applicant is proposing to provide 56 Level 1 EV equipped parking spaces within the existing parking garage and will install the infrastructure for a future 141 Level 1 EV parking spaces in

the proposed surface lots. The applicant has requested a waiver from the City requirement of Level 2 or higher charging stations as the parking lots are to be utilized for long-term parking.

The project will result in the creation of a net increase of 4.58 acres of developed area and a net increase of 2.85 acres of new impervious. The overall stormwater management system for the project will consist of catch basins and two (2) subsurface drainage systems. The two (2) subsurface drainage systems will provide water quality treatment with upstream detention designated to the long-term parking lots. Since the Jetport discharges to the Fore River, the applicant will be pursuing a waiver of the Flooding Standard pursuant to MDEP Rules, Chapter 500(4)(F)(3)(b).

The proposed parking expansion will result in approximately 8,618 s.f. of wetland impacts. The project is undergoing Site Law and NRPA review by the Maine DEP.

Thank you for your time and attention to this project. We look forward to discussing the project further with staff and the Planning Board.

Sincerely,

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read "Owen A. McCullough". The signature is fluid and cursive, with the first name "Owen" being the most prominent.

Owens McCullough, P.E., LEED-AP
Senior Vice President, Strategy & Client Development

cc: Paul Bradbury, P.E., Airport Director

Battery Storage System

Portland International Jetport (“PWM”) plans to install a 1.9-megawatt (“MW”) lithium-ion battery storage system (“BSS”) on its property in Portland, Maine. The BSS will be financed, owned, and operated by PWM. The BSS project will help advance Maine’s clean energy policies and ambitious grid decarbonization efforts. In June 2021, Governor Mills signed Public Law 2021 Chapter 298 (LD 528 - An Act To Advance Energy Storage in Maine). This bipartisan legislation directs multiple important steps to advance energy storage development throughout Maine and sets goals for 300 MW of installed energy storage capacity in the state by the end of 2025 and 400 MW of installed energy storage capacity in the state by the end of 2030. PWM’s BSS project will support Maine’s efforts to meet these goals.

PWM will charge the BSS from Central Maine Power Company’s power grid during periods of high renewable generation in Maine’s electricity supply mix and will discharge the BSS to reduce the terminal’s grid demand during high-demand periods on CMP’s local system. This operations strategy will help soak up widespread intermittent solar generation being developed throughout Maine, will help reduce stress on CMP’s grid infrastructure during high-demand periods, and will help displace higher-emitting electric generation sources in the state’s supply mix during high-demand periods.

In addition to helping reduce greenhouse gas emissions in Maine’s electricity supply mix and reduce stress on CMP’s distribution and transmission system during periods of high demand, the BSS will be configured to enable PWM to utilize the system as a backup power resource in the event of a grid outage. The BSS has a nameplate energy capacity of five megawatt-hours, meaning the system will be able to provide several hours of uninterrupted power to the terminal in the event of a grid outage. For normal operating conditions, the BSS is designed to be non-exporting. The electricity discharged by the BSS will only be used to reduce the terminal’s onsite electric load and the system will have protective relaying schemes to ensure that no power discharged from the BSS can be sent to CMP’s local grid.

Figures 1 and 2 below show the proposed location of the BSS on PWM’s property at the intersection of International Parkway and Jetport Boulevard. The BSS will be located adjacent to the new surface lot being developed by PWM. Figure 3 presents the preliminary layout of the BSS components within the system’s fence line. The BSS will have security fencing and lighting.

Ameresco, Inc. will be constructing and maintaining the BSS and will utilize battery modules manufactured by Tesla. The BSS will be maintained in accordance with industry leading practices for ongoing preventative checks and performance monitoring. The BSS’ technical specifications and warranty guarantees are provided in the attached document titled ‘Portland Jetport Tesla Megapack 2 XL Datasheet’. An overview of the BSS’ safety features and design is provided in the attached document titled ‘Portland Jetport Tesla Megapack 2 XL Safety Overview’. This safety documentation, along with the protective relaying scheme detailed in the attached electrical one-line diagram, demonstrates the project will satisfy all utility interconnection, permitting, and safety requirements.

The BSS is in the advanced stage of CMP’s interconnection study process. CMP has determined that the BSS can interconnect and operate in parallel with its local distribution system without any grid upgrades. PWM is awaiting the final review results from ISO New England that will determine whether the project requires a transmission-level interconnection study. Following this decision, PWM will be engaging local permitting authorities within the City of Portland to begin educating key local stakeholders, including Portland Fire Department, on the BSS’ design, safety features, fire protection, and protocols in the event

of an emergency. This engagement will be collaborative with the aim of supporting a local permitting process that meets the needs of all key stakeholders.

Figure 1. Location of Proposed Battery Storage System



Figure 2. Preliminary Layout of Battery Storage System & Associated Utilities

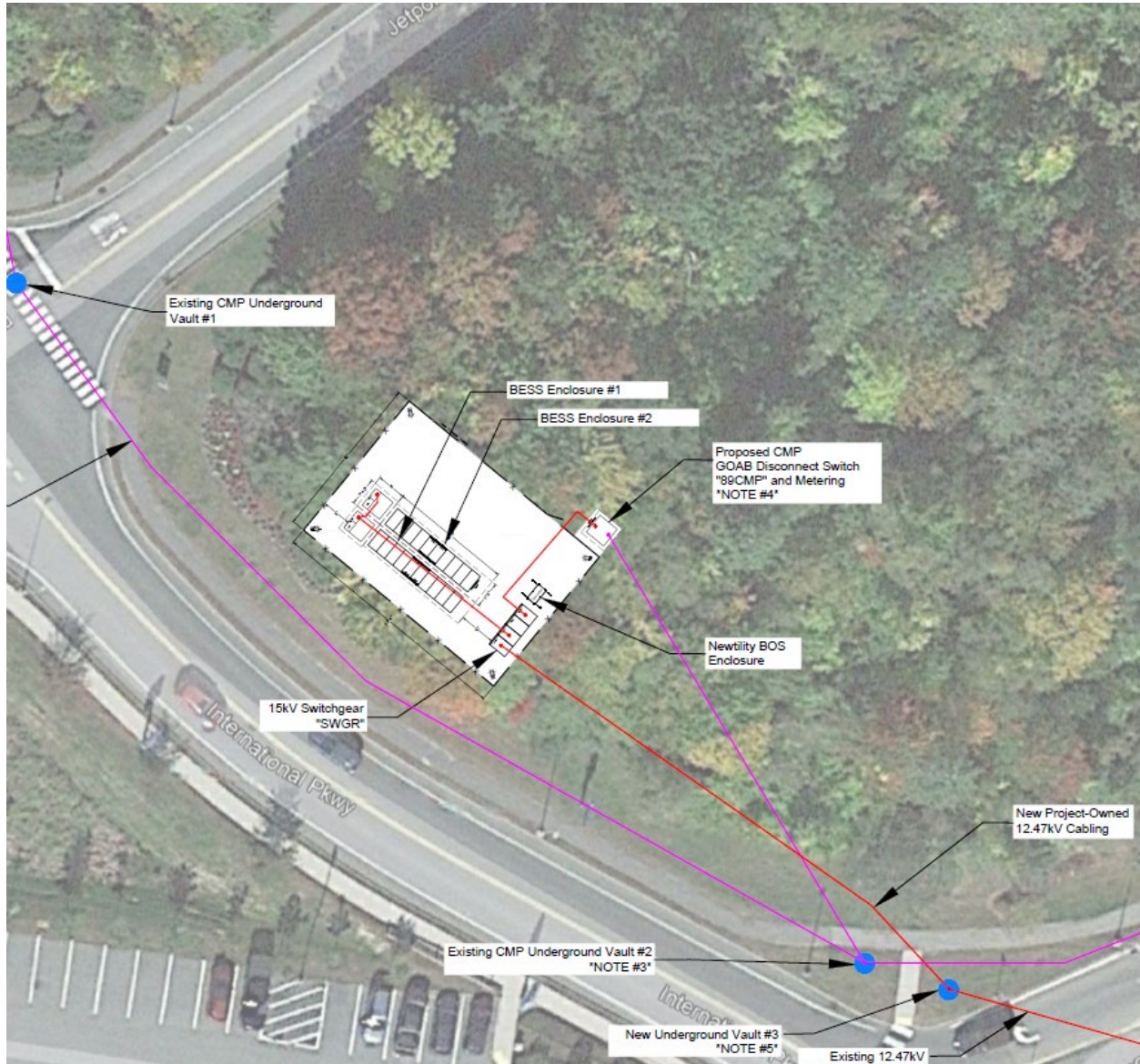
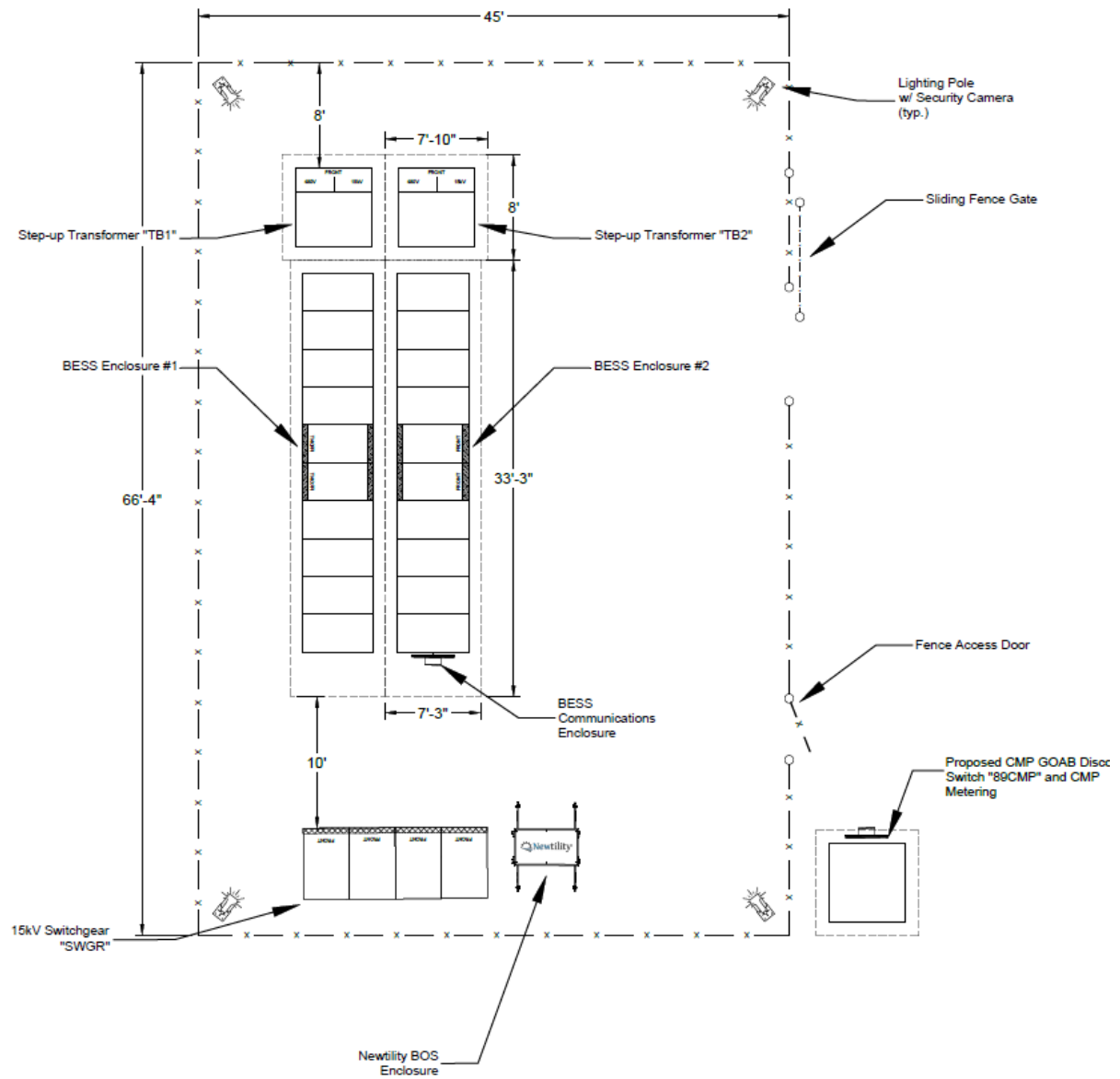
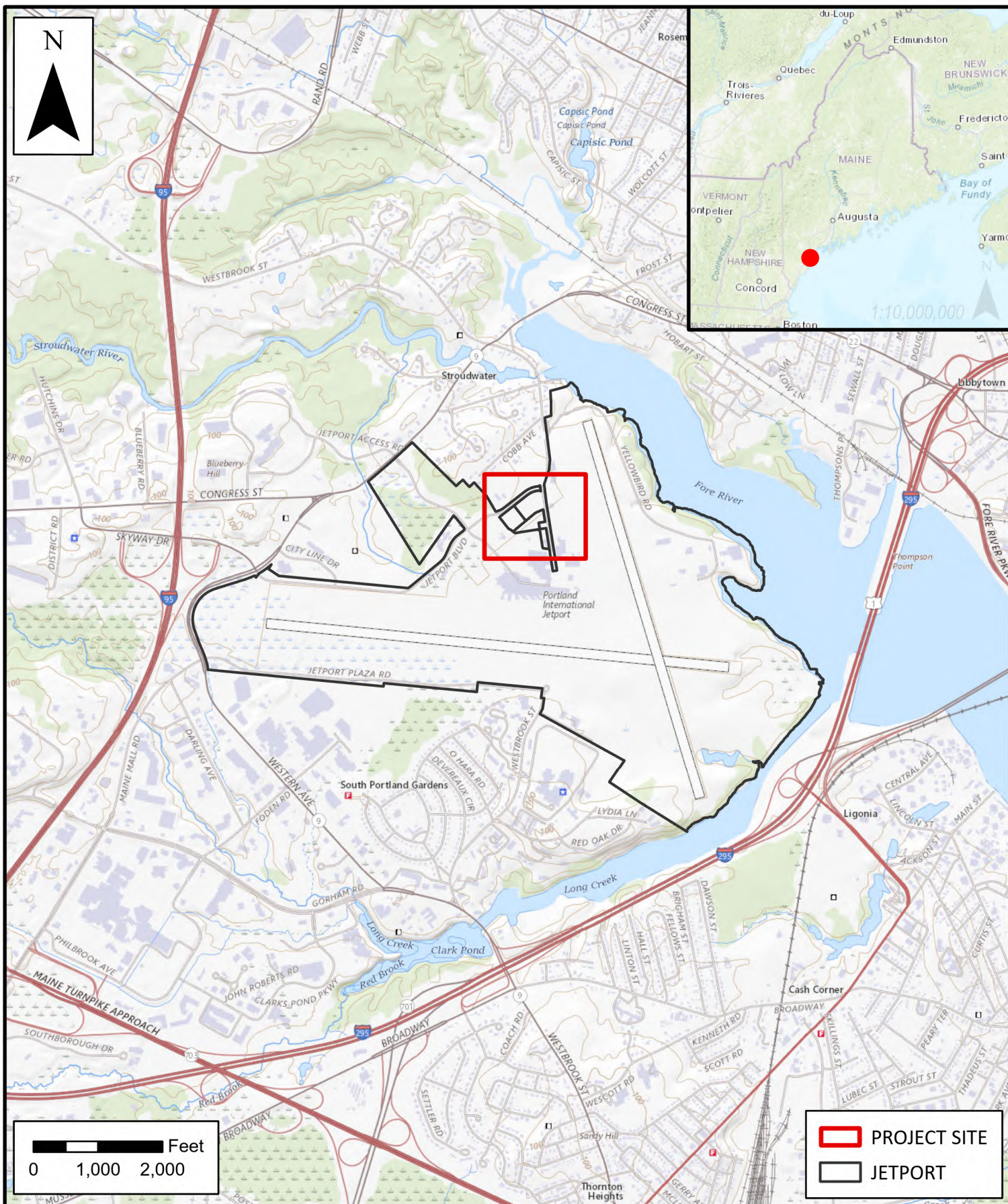


Figure 3. Preliminary Layout of Battery Storage System Components





SEBAGO
TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel: 207-200-2100

LOCATION MAP JETPORT PARKING

LOCATION:
1001 WESTBROOK ST
PORTLAND, ME

INFORMATION:

MAINE GEOLIBRARY
USGS QUADRANGLE

SCALE: 1:24,000

DATE: 2/29/2024

Noise and Vibration 14-14.6.4 (G)

Not applicable. The proposed project involves the construction of two parking lots and the site design does not include heating, ventilation, and air conditioning equipment. The parking lots are to be located within the existing airport campus and any noise generated will be consistent with allowable amounts for the area. Any proposed noise levels at the property line will be consistent with the allowed amounts noted in the City of Portland ordinance.

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

Signage and Wayfinding 14-14.6.4 (H)

1. Signage location and scale will be in compliance with the City Ordinance and consistent with existing signage at the Jetport. Wayfinding signs will be utilized to direct vehicular traffic to the parking lot entrance and as needed of internal circulation within the lots.
2. All on-site directional traffic signage will be sited in such a way as to not adversely affect visibility at intersections or offsite.

Please see the plan set for signage placement and proportions.

DLN: 1002140172253

QUITCLAIM DEED WITH COVENANT
Maine Statutory Short Form

KNOW ALL BY THESE PRESENTS THAT **TOYE AIRPORT PARK, LLC**, a Maine limited liability company with a place of business in the City of South Portland, County of Cumberland, State of Maine, for consideration paid, grants to the **CITY OF PORTLAND**, a Maine municipal corporation with a principal office at 389 Congress Street, Portland, Maine 04101, with **QUITCLAIM COVENANT**, the land, together with any improvements thereon, located in the City of Portland, County of Cumberland, and State of Maine more particularly described in **Exhibit A** attached hereto and made a part hereof.

IN WITNESS WHEREOF, the said TOYE AIRPORT PARK, LLC has caused this instrument to be signed and sealed this 16th day of November, 2021.

WITNESS:

TOYE AIRPORT PARK, LLC

By

Thomas A. Toye, III

Sole Member

STATE OF MAINE
COUNTY OF CUMBERLAND

November 16, 2021

Then personally appeared the above named Thomas A. Toye, III, in his said capacity, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said limited liability company, before me.

Drew A. Anderson
Attorney at Law/Notary Public

Printed Name

MAINE REAL ESTATE TAX-Paid

**EXHIBIT A
TO
TOYE AIRPORT PARK, LLC DEED**

City of Portland Assessor's reference as Map 208, Block A, Lots 5, 6 & 7 and Map 210A, Block A, Lot 2, which properties are located in the City of Portland, County of Cumberland and State of Maine and are more particularly bounded and described as follows:

PARCEL ONE (Tax Map 208, Block A, Lot 6):

A certain lot or parcel of land with the buildings thereon, situated in Portland, on the westerly side of Westbrook Street, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a stake on the west side of said Westbrook Street North four and one-half degrees East (N 4 ½° E) eight hundred six (806) feet from Abner Gould's corner; thence South seventy-four and one-half degrees West (S 74 ½° W) along the line of land now or formerly of Nellie R. Johnson one hundred six and fifty-seven hundredths (106.57) feet to a point; thence from said point North four and one-half degrees East (N 4 ½° E) and parallel with said Westbrook Street eighty-six (86) feet to a point; thence from said last mentioned point in an easterly direction and at right angles to the last described bound one hundred (100) feet to a point on the westerly side of Westbrook Street; thence from said point on the Westerly side of Westbrook Street South four and one-half degrees West (S 4 ½° W) along the side of said Westbrook Street fifty (50) feet to the point of beginning.

TOGETHER with that property conveyed by the City of Portland to Toye Airport Park, LLC, dated November 16, 2001 and recorded in said Registry of Deeds in Book 16971, Page 193 described as Parcel 2 and further bounded and described as follows:

A certain lot or parcel of land on the westerly side of Westbrook Street, in the City of Portland, County of Cumberland, State of Maine, being shown as "Area to be Conveyed to Thomas Toye, III" on a plan of land titled "Survey Plot Plan of Land to be Conveyed" for Dufresne-Henry, Inc. dated 11-15-01 by Sebago Technics, Inc., said parcel being more particularly bounded and described as follows:

Beginning at a 5/8-inch capped iron rebar at the southeasterly corner of land now or formerly of Thomas A. Toye, III by deed recorded at the Cumberland County Registry of

Deeds in Book 10097, Page 17;

Thence S 08°-54'-54" E, by and along said Westbrook Street, a distance of 11.71 feet to a point;

Thence S 55°-13'-45" W, passing through land of the Grantor, a distance of 21.88 feet to a point;

Thence N 83°-28'-06" W, passing through land of the Grantor, a distance of 22.38 feet to a point on the southerly line of said land of Toye, said point being the easterly corner of "Area A to be Conveyed";

Thence N 60°-44'-36" E, by and along said Toye, a distance of 44.00 feet to the point of beginning.

Meaning and intending to describe a certain lot or parcel of land containing 403 square feet, more or less, and being shown as "Land to be Conveyed to Thomas Toye III" on a plan of land titled "Survey Plot Plan of Land to be Conveyed" for Dufresne-Henry, Inc., dated through 11-15-01 by Sebago Technics, Inc.

EXCEPTED from the above property is that property conveyed by Toye Airport Park, LLC to the City of Portland by Warranty Deed, dated November 16, 2001 and recorded in the Cumberland County Registry of Deeds in Book 16971, Page 184 described as Parcel 1.

NOTE: The first course in the first described parcel of land has been incorrectly described as running North seventy-four and one-half degrees West (N 74 ½° W) dating back to at least 1909.

PARCEL TWO (Tax Map 208, Block A, Lot 7):

A certain lot or parcel of land, situated on the westerly side of Westbrook Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows: Beginning on the westerly sideline of Westbrook Street at the northeasterly corner of land conveyed by Sarah D. Rich to Raymond L. Cousins, by deed dated August 28, 1922, and recorded in the Cumberland County Registry of Deeds in Book 1115, Page 5; thence northerly by the westerly sideline of Westbrook Street one hundred (100) feet to the southeasterly corner of land conveyed by Sarah D. Rich to Catherine M. Lindell, by deed dated September 28, 1929, and recorded in said Registry of Deeds in Book 1333, Page 260; thence westerly at right angles with Westbrook Street and by said Lindell land one hundred (100) feet to land conveyed by Sarah D. Rich to Isaac H. Fairweather; thence

southerly parallel with Westbrook Street and by said Fairweather land one hundred (100) feet to the northwesterly corner of said Cousins land; thence easterly by said Cousins land and at right angles with Westbrook Street one hundred (100) feet to the point of beginning, containing 10,000 square feet, or less.

PARCEL THREE (Tax Map 208, Block A, Lot 5):

A certain lot or parcel of land, with the buildings thereon, situated on the westerly side of Westbrook Street, in Portland, in the County of Cumberland and State of Maine, and bounded and described as follows:

Beginning at a point on said westerly side of Westbrook Street, distant northerly one hundred (100) feet from the point of intersection of said westerly side of Westbrook Street with the northerly sideline of a certain lot or parcel of land conveyed to Raymond L. Cousins by deed dated August 28, 1922, and recorded in said Registry of Deeds in Book 1115, Page 5; thence running northerly along said westerly side of Westbrook Street a distance of one hundred fifty (150) feet to a point; thence running westerly and along a line at right angles to said westerly side of Westbrook Street a distance of one hundred (100) feet to a point; thence running southerly and along a line parallel to said westerly sideline of said street a distance of one hundred fifty (150) feet to a point; thence running easterly and on a line again at right angles to said westerly side of said street a distance of one hundred (100) feet to a point of beginning.

TOGETHER with that property conveyed by the City of Portland to Toye Airport Park, LLC, dated November 16, 2001 and recorded in said Registry of Deeds in Book 16971, Page 193 described as Parcel 1 and further bounded and described as follows:

A certain lot or parcel of land situated on the westerly side of, but not adjacent to, Westbrook Street, in the City of Portland, County of Cumberland, State of Maine, and being depicted as "Area to be Conveyed to Thomas Toye III" on a plan of land titled "Survey Plot Plan of Land to be Conveyed" for Dufresne-Henry, Inc., dated through November 15, 2001 by Sebago Technics, Inc. (the "Plan"), said parcel being more particularly bounded and described as follows:

Beginning at the northwesterly corner of land now or formerly of Toye Airport Park, LLC, by deed recorded in the Cumberland County Registry of Deeds in Book 15957, Page 160, at land of the Grantor;

Thence S 08°-54'-54" E, by and along said land of Toye Airport Park, LLC, a distance of 17.43 feet to a point;

Thence N 78°-54'-06" W, passing through land of the Grantor, a distance of 50.84 feet to a point in the southerly line of other land of Thomas A. Toye III recorded in said Registry of Deeds in Book 6290, Page 27;

Thence N 81°-02'-37" E, by and along said other lands of Toye, a distance of 47.77 feet to the point of beginning.

Meaning and intending to describe a certain triangular parcel of land containing 416 square feet, more or less, and depicted as "Area to be Conveyed to Thomas Toye III" on a plan of land titled "Survey Plot Plan of Land to be Conveyed" for Dufresne-Henry, Inc., dated through 11-15-01, by Sebago Technics, Inc.

PARCEL FOUR (Tax Map 210A, Block A, Lot 2):

A certain lot or parcel of land, with the buildings thereon, situated in Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point on the westerly side of Westbrook Street, said point being distant northerly along said westerly side of said Westbrook Street 774.36 feet from the northerly terminus of the discontinuance of said Street by the County Commissioners as defined in Docket 1175 and dated January, 1957, on file in the office of said County Commissioners, Portland, Maine, said point being the northerly corner of land of the Norman Realty Holding Corporation; thence North eighty-two degrees forty-four minutes West (N 82° 44' W) by land of said Norman Realty Holding Corporation and at right angles to the said westerly sideline of said Westbrook Street a distance of 100.00 feet to a point; thence South seven degrees sixteen minutes West (S 7° 16' W) on a line parallel to and distant 100.00 feet westerly of the said westerly sideline of said Westbrook Street and at right angles to the last described course a distance of 100.00 feet to a point; thence North eighty-two degrees forty-four minutes West (N 82° 44' W) by land conveyed by Bertram J. Fairweather to the City of Portland by Warranty Deed dated August 30, 1967 and recorded in the Cumberland County Registry of Deeds in Book 3009, Page 666 and at right angles to the last-described course a distance of Four Hundred Seventy (470) Feet, more or less, to land as conveyed to John A. and Lorena A. Knight by deed dated May 26, 1955 and recorded in said Registry of Deeds in Book 2231, Page 116; thence North sixty-six degrees thirty-five and one-half minutes East (N 66° 35½' E) by land now or formerly of said Knight a distance of Five Hundred Twelve and One-Half (512½) Feet to a point; thence North eighty-one degrees fifty-two and one-half minutes East (N 81° 52½' E) by land of said Knight a distance of one hundred thirty-four (134) feet, more or less, to the westerly sideline of said Westbrook Street; thence South seven degrees sixteen minutes West (S 7° 16' W) by the westerly sideline of said Westbrook Street a distance of One Hundred Ninety-Seven (197) Feet, more or less, to said land of said Norman Realty

Holding Corporation and the point of beginning, containing 1.78 acres, more or less.

Together with a right-of-way fifteen (15) feet in width lying to the west of a line distant 100.00 feet westerly and parallel to the said westerly sideline of said Westbrook Street and to extend Two Hundred Twenty-Five (225) Feet to the south from the most southerly boundary line of the parcel above described and conveyed to the Grantee, within which a septic tank effluent drain may be maintained, repaired and replaced so long as said drain may be needed to serve the premises herein described and conveyed to the Grantee.

Also the Grantor herein conveys and assigns to the Grantee any rights it may have as a result of the provision in the deed from Bertram J. Fairweather to the City of Portland, dated August 30, 1967 and recorded in said Registry of Deeds in Book 3009, Page 666, whereby the City of Portland agreed that should there be constructed within a period of not more than ten (10) years from the date of said deed, a public airport access road, crossing the land therein conveyed to the City to a point on Congress Street; said City will convey to the assigns of the Grantor a right-of-way twenty (20) feet in width extending from the land herein above conveyed to this Grantee in a location lying to the South of the division line between the land now or formerly of John A. and Lorena A. Knight and extending in a westerly direction by said division line to the easterly sideline of said future airport access road, it being understood and agreed that such a right-of-way when granted shall be for the purpose of travel only and for no other purpose and that no building, structure or other encumbrance of any nature shall be placed, erected or maintained therein.

The above-described premises together with the rights of way are all and the same as reserved and covenanted by said Fairweather and City of Portland in the aforesaid 1967 deed between said parties.

EXCEPTED from the above property is that property conveyed by Toye Airport Park, LLC to the City of Portland by Warranty Deed, dated November 16, 2001 and recorded in the Cumberland County Registry of Deeds in Book 16971, Page 184 described as Parcel Two.

Meaning and intending to convey and hereby conveying the remaining premises as described in the Quitclaim Deed Without Covenant from Thomas A. Toye to Toye Airport Park, LLC, dated January 8, 2001 and recorded in said Registry of Deeds in Book 15957, Page 160 and the same premises as described in the Quitclaim Deed from the City of Portland to Toye Airport Park, LLC, dated November 16, 2001 and recorded in said Registry of Deeds in Book 16971, Page 193.

DLN: 1002140172279

QUITCLAIM DEED WITH COVENANT
Maine Statutory Short Form

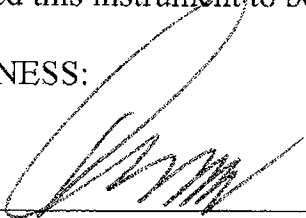
MAINE REAL ESTATE TAX-Paid

KNOW ALL BY THESE PRESENTS THAT **TOYE REALTY HOLDINGS III, LLC**, a Maine limited liability company with a place of business in the City of South Portland, County of Cumberland, State of Maine, for consideration paid, grants to the **CITY OF PORTLAND**, a Maine municipal corporation with a principal office at 389 Congress Street, Portland, Maine 04101, with **QUITCLAIM COVENANT**, the land, together with any improvements thereon, located in the City of Portland, County of Cumberland, and State of Maine more particularly described in **Exhibit A** attached hereto and made a part hereof.

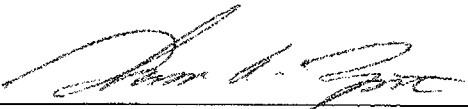
IN WITNESS WHEREOF, the said TOYE REALTY HOLDINGS III, LLC has caused this instrument to be signed and sealed this 16th day of November, 2021.

WITNESS:

TOYE REALTY HOLDINGS III, LLC



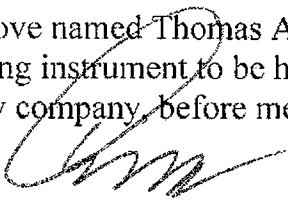
By


Thomas A. Toye, III
Sole Member

STATE OF MAINE
COUNTY OF CUMBERLAND

November 16, 2021

Then personally appeared the above named Thomas A. Toye, III, in his said capacity, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said limited liability company, before me.


Attorney at Law/Notary Public

Drew A. Anderson
Printed Name

**EXHIBIT A
TO
TOYE REALTY HOLDINGS III, LLC DEED**

The property known as 0 Jetport Boulevard, together with any improvements thereon, situated in the City of Portland, Cumberland County and State of Maine, and currently identified by the City of Portland Assessor's reference as Map 210A, Block A, Lot 6, more particularly bounded and described as follows:

A certain lot or parcel of land situated on the southeasterly side of a strip of land now or formerly owned by the City of Portland, said strip running southwesterly from the westerly sideline of Westbrook Street, so called, in the City of Portland, County of Cumberland, State of Maine as shown on Standard Boundary Survey of Thomas A. Toye Property, Westbrook Street, Portland, Maine for Toye Realty Holdings LLC, dated November 27, 2000 and recorded in the Cumberland County Registry of Deeds in Plan Book 201, Page 22, being more particularly bounded and described as follows:

Beginning at a 5/8 inch capped iron rebar set on the northwesterly sideline of land now or formerly owned by the City of Portland by a deed dated August 30, 1967 and recorded in said Registry of Deeds in Book 3009, Page 666, said rebar being located N 50°-10'-25" E, a distance of 25.51 feet from a found 1¼ inch iron pipe found 12 inches high;

Thence N 38°-04'-35" W, by and along land now or formerly owned by the City of Portland by a deed dated February 4, 1991 and recorded in said Registry of Deeds in Book 9492, Page 231, a distance of 307.77 feet to a 5/8 inch capped iron rebar set on the southeasterly sideline of land now or formerly owned by the City of Portland by a deed recorded in said Registry of Deeds in Book 13434, Page 266;

Thence N 51°-55'-25" E, by and along said land of the City of Portland, a distance of 287.17 feet to a 5/8 inch capped iron rebar set at the northwesterly corner of land now or formerly owned by Portland Jetport Title Corp. by a deed dated June 10, 1991 and recorded in said Registry of Deeds in Book 9684, Page 257;

Thence S 38°-04'-35" E, by and along said land of Portland Jetport Title Corp., a distance of 299.0 feet to a 5/8 inch capped iron rebar set on the northwesterly sideline of land now or formerly owned by Thomas A. Toye III by a deed dated November 1, 1982 and recorded in said Registry of Deeds in Book 6290, Page 27;

Thence S 50°-10'-25" W, by and along said land of Thomas Toye and land of the City of Portland, a total distance of 287.30 feet to the point of beginning.

This property is subject to any easements of record.

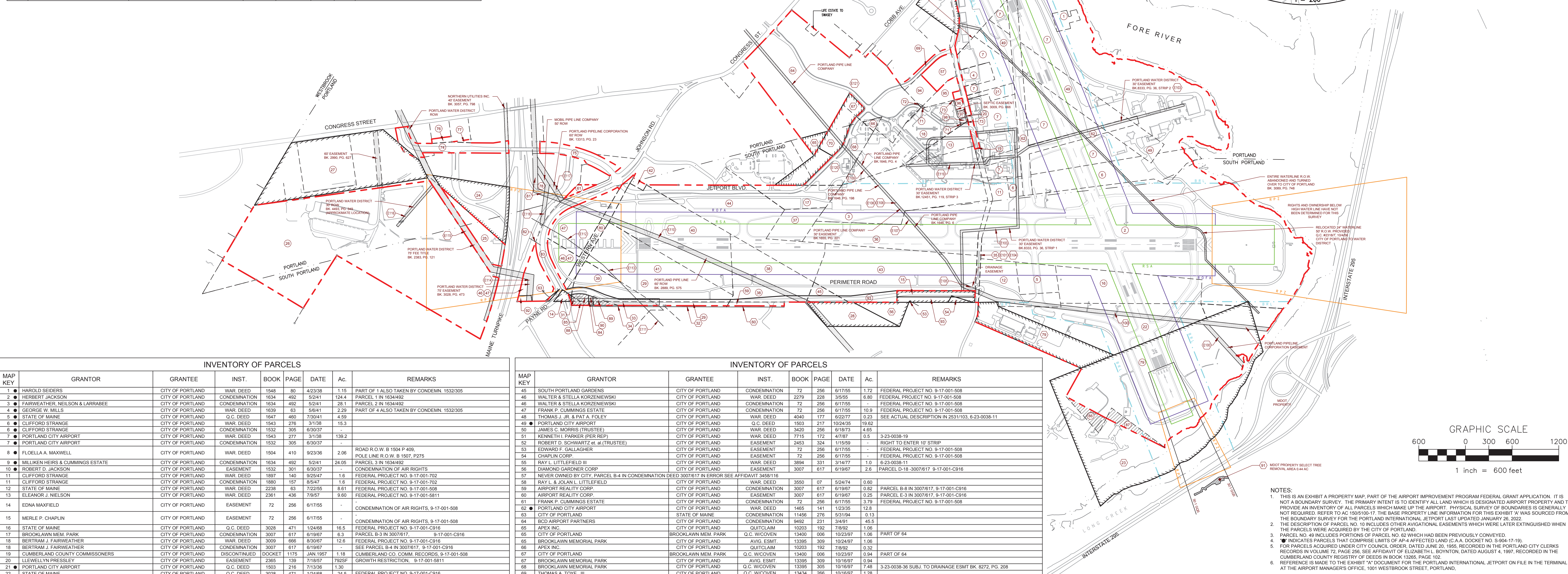
EXCEPTED from the above property is that property conveyed by Toye Realty Holdings III, LLC to the City of Portland, dated November 16, 2001 and recorded in said Registry of Deeds in Book 16971, Page 190.

Meaning and intending to convey and hereby conveying the remaining property described in the Release Deed from Toye Realty Holdings, LLC to Toye Realty Holdings III, LLC, dated January 8, 2001 and recorded in said Registry of Deeds in Book 15976, Page 325.

TOYT110/1608103

EASEMENTS ON AIRPORT PROPERTY							
MAP KEY	GRANTOR	GRANTEE	BOOK/PAGE PLAN NO.	INSTRUMENT	DATE	AREA	REMARKS
E100	STATE OF MAINE	PORTLAND PIPE LINE CORPORATION	3052/785	INDENTURE	09/14/68		
E101	CITY OF PORTLAND	PORTLAND GAS AND LIGHT COMPANY	2462/254	QUIT CLAIM	03/24/69		
E103	CITY OF PORTLAND	PORTLAND WATER DISTRICT	8533/36	EASEMENT	07/09/68		
E104	CITY OF PORTLAND	PORTLAND WATER DISTRICT	2318/11	EASEMENT	10/05/56		
E105	CITY OF PORTLAND	CHAPLIN CORPORATION	2392/289	QUIT CLAIM	01/17/58		DRAINAGE
E106	CITY OF PORTLAND	PORTLAND PIPE LINE COMPANY	1655/221	EASEMENT	10/09/41		
E107	BURTON DENSMORE & GERTRUDE L. DENSMORE	PORTLAND PIPE LINE COMPANY	1646/6	EASEMENT	07/14/41		SEE KEY MAP NO. 36
E108	WALTER C. & ELEANOR JOHNSON NIELSEN NELLIE R. JOHNSON	PORTLAND PIPE LINE COMPANY	1640/198	EASEMENT	10/03/41		SEE KEY MAP NO. 3
E109	ISSAC FAIRWEATHER	PORTLAND PIPE LINE COMPANY	1646/4	EASEMENT	07/14/41		SEE KEY MAP NO. 18
E110	CITY OF PORTLAND	PORTLAND PIPE LINE CORPORATION	2689/575	EASEMENT	04/20/65		SEE KEY MAP NO. 61, 47, 40, 38 & 45
E111	WILFRED A. HAY, TRUSTEE OF CLINTON C. PHINNEY	SOCONY-VACUUM OIL COMPANY, INC.	1916/392	EASEMENT	07/03/48		SEE KEY MAP NO. 39
E112	FRANK P. CUMMINGS, TRUSTEE OF LEON F. CUMMINGS	SOCONY-VACUUM OIL COMPANY, INC.	1891/137	EASEMENT	12/19/47		SEE KEY MAP NO. 47 (20 FOOT WIDTH)
E113	FRANCIS B. EVANS	SOCONY-VACUUM OIL COMPANY, INC.	1943/446	EASEMENT	01/31/49		SEE KEY MAP NO. 41
E114	CITY OF PORTLAND	PORTLAND WATER DISTRICT	3028/473	INDENTURE	01/31/68		SEE KEY MAP NO. 46
E115	EDWARD S. FINKS AND DOROTHY L. FINKS	PORTLAND WATER DISTRICT	2383/121	WAR. DEED	11/12/57		SEE KEY MAP NO. 25 & 26
E116	CITY OF PORTLAND	PORTLAND WATER DISTRICT	4493/349	EASEMENT	09/14/79		SEE KEY MAP NO. 26 & 27
E117	CITY OF PORTLAND	PORTLAND PIPE LINE CORPORATION	1333/123	EASEMENT	09/10/97		SEE KEY MAP NO. 78
E118	CITY OF PORTLAND	MOBIL PIPE LINE COMPANY	1508/1259	INDENTURE	10/01/99		SEE KEY MAP NO. 78
E119	CITY OF PORTLAND	PORTLAND WATER DISTRICT	1245/1119	EASEMENT	04/16/96		
E120	CITY OF PORTLAND	CENTRAL MAINE POWER	2851/244	EASEMENT	09/08/10		
E121	CITY OF PORTLAND	CENTRAL MAINE POWER	2851/243	EASEMENT	09/08/10		

LEGEND		
EXISTING	FUTURE	ITEM
		RUNWAY PROTECTION ZONE
		EASEMENT (AVIATION)
		AIRPORT PROPERTY LINE
		CITY LINE
		BUILDING RESTRICTION LINE (BRL)
		RUNWAY OBSTACLE FREE AREA (ROFA)
		RUNWAY SAFETY AREA (RSA)
		LOT LINES
		RIGHT OF WAY EASEMENTS-UTILITIES
		MEMORANDUM OF AGREEMENT (MOA) FOR ACCESS
		PROPERTY PARCEL
		EASEMENT PARCEL / MOA AREA



INVENTORY OF PARCELS							
MAP KEY	GRANTOR	GRANTEE	INST.	BOOK	PAGE	DATE	Ac.
1	HAROLD SEIDERS	CITY OF PORTLAND	WAR. DEED	1548	80	4/23/38	1.15
2	HERBERT JACKSON	CITY OF PORTLAND	CONDEMNATION	1634	402	5/24/41	124.4
3	FAIRWEATHER, NELSON & LARRABEE	CITY OF PORTLAND	CONDEMNATION	1634	492	5/24/41	28.1
4	GEORGE W. MILLS	CITY OF PORTLAND	WAR. DEED	1639	63	5/6/41	2.29
5	STATE OF MAINE	CITY OF PORTLAND	Q.C. DEED	1647	460	7/20/41	4.59
6	CLIFFORD STRANGE	CITY OF PORTLAND	WAR. DEED	1543	276	3/1/38	15.3
7	CLIFFORD STRANGE	CITY OF PORTLAND	CONDEMNATION	1532	305	6/30/37	-
8	PORTLAND CITY AIRPORT	CITY OF PORTLAND	WAR. DEED	1543	277	3/1/38	139.2
9	PORTLAND CITY AIRPORT	CITY OF PORTLAND	CONDEMNATION	1532	305	6/30/37	-
10	ROBERT D. JACKSON	CITY OF PORTLAND	WAR. DEED	1552	301	5/26/37	49
11	CLIFFORD STRANGE	CITY OF PORTLAND	WAR. DEED	1897	140	9/25/47	1.6
12	STATE OF MAINE & GEORGE HUTCHINS	CITY OF PORTLAND	WAR. DEED	2238	63	7/22/55	9.61
13	ELEANOR J. NIELSON	CITY OF PORTLAND	WAR. DEED	2381	436	7/9/57	9.60
14	EDNA MAXFIELD	CITY OF PORTLAND	EASEMENT	72	256	6/17/55	-
15	MERLE P. CHAPLIN	CITY OF PORTLAND	EASEMENT	72	256	6/17/55	-
16	STATE OF MAINE	CITY OF PORTLAND	Q.C. DEED	3028	471	1/24/68	16.5
17	BROOKLAWN MEM. PARK	CITY OF PORTLAND	CONDEMNATION	3007	617	6/19/67	12.6
18	BERTRAM J. FAIRWEATHER	CITY OF PORTLAND	WAR. DEED	3009	666	6/30/67	12.6
19	BERTRAM J. FAIRWEATHER	CITY OF PORTLAND	CONDEMNATION	3007	617	6/19/67	-
20	CUMBERLAND COUNTY COMMISSIONERS	CITY OF PORTLAND	DISCONTINUED	DOCKET 1175	JAN 1957	1.18	-
21	LLEWELLYN PRESSLEY	CITY OF PORTLAND	EASEMENT	2365	139	7/18/57	782SF
22	PORTLAND CITY AIRPORT	CITY OF PORTLAND	Q.C. DEED	1503	216	1/13/36	1.39
23	STATE OF MAINE	CITY OF PORTLAND	Q.C. DEED	3028	471	1/24/68	24.5
24	HARRY HARMON & GEORGE HUTCHINS	CITY OF PORTLAND	EASEMENT	3028	469	1/24/68	9.6
25	EDWARD S. & DOROTHY L. FINKS	CITY OF PORTLAND	WAR. DEED	2457	262	2/13/59	4.30
26	EDWARD S. & DOROTHY L. FINKS	CITY OF PORTLAND	WAR. DEED	2457	262	2/13/59	86.09
27	CITY OF PORTLAND	W.H. NICHOLS CO.	WAR. DEED	2990	627	4/4/67	28.77
28	BERGEN ASSOCIATES INC.	CITY OF PORTLAND	EASEMENT	3007	617	6/19/67	5.62
29	ADC BUILDING FUND INC.	CITY OF PORTLAND	CONDEMNATION	3007	617	6/19/67	1.01
30	OTIS J. & DOROTHY J. AUGUST	CITY OF PORTLAND	WAR. DEED	3509	306	9/17/76	2.25
31	ADC BUILDING FUND INC.	CITY OF PORTLAND	CONDEMNATION	3007	617	6/17/67	0.11
32	ADC BUILDING FUND INC.	CITY OF PORTLAND	EASEMENT	3007	617	6/17/67	0.21
33	ADC BUILDING FUND INC.	CITY OF PORTLAND	CONDEMNATION	3007	617	6/17/67	1.31
34	ADC BUILDING FUND INC.	CITY OF PORTLAND	EASEMENT	3007	617	6/17/67	0.32
35	CUMBERLAND COUNTY COMMISSIONERS	CITY OF PORTLAND	DISCONTINUED	21	226	1955	2.30
36	BURTON DENSMORE	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
37	BURTON DENSMORE	CITY OF PORTLAND	WAR. DEED	2257	189	9/13/55	5.22
38	BROOKLAWN MEM. PARK	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
39	CLINTON C. PHINNEY & ROBERT D. SCHWARTZ	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
40	CLINTON C. PHINNEY & ROBERT D. SCHWARTZ	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
41	CLINTON C. PHINNEY & ROBERT D. SCHWARTZ	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
42	CLINTON C. PHINNEY & ROBERT D. SCHWARTZ	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
43	CLINTON C. PHINNEY & ROBERT D. SCHWARTZ	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
44	CHRISTIAN KRAGELLUND	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-

INVENTORY OF PARCELS							
MAP KEY	GRANTOR	GRANTEE	INST.	BOOK	PAGE	DATE	Ac.
45	SOUTH PORTLAND GARDENS	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	1.72
46	WALTER & STELLA KORZENIEWSKI	CITY OF PORTLAND	WAR. DEED	2279	228	3/5/55	6.80
47	WALTER & STELLA KORZENIEWSKI	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
48	FRANK P. CUMMINGS ESTATE	CITY OF PORTLAND	CONDEMNATION	72	256	6/17/55	-
49	THOMAS J. JR. & PAT A. FOLEY	CITY OF PORTLAND	WAR. DEED	4040	177	6/22/77	0.23
50	PORTLAND CITY AIRPORT	CITY OF PORTLAND	Q.C. DEED	1503	217	10/24/35	19.62
51	JAMES S. MORRIS (TRUSTEE)	CITY OF PORTLAND	WAR. DEED	3420	256	6/18/73	4.65
52	KENNETH I. PARKER (PIR REP)	CITY OF PORTLAND	WAR. DEED	1715	172	4/7/67	0.5
53	ROBERT D. SCHWARTZ et al (TRUSTEE)	CITY OF PORTLAND	EASEMENT	2453	324	11/15/59	-
54	EDWARD F. GALLAGHER	CITY OF PORTLAND	EASEMENT	72	256	6/17/55	-
55	CHAPLIN CORP.	CITY OF PORTLAND	EASEMENT	72	256	6/17/55	-
56	RAY L. LITTLEFIELD III	CITY OF PORTLAND	WAR. DEED	3894	331	3/14/77	1.0
57	DIAMOND GARDNER CORP.	CITY OF PORTLAND	EASEMENT	3007	617	6/19/67	2.6
58	NEVER OWNED BY CITY. PARCEL B-4 IN CONDEMNATION DEED 3007/617 IN ERROR SEE AFFIDAVIT 3458/116	CITY OF PORTLAND	WAR. DEED	3550	07	5/24/74	0.60
59	RAY L. & JOHAN L. LITTLEFIELD	CITY OF PORTLAND	CONDEMNATION	3007	617	6/19/67	0.62
60	AIRPORT REALTY CORP.	CITY OF PORTLAND	EASEMENT	3007	617	6/19/67	0.25
61	AIRPORT REALITY CORP.	CITY OF PORTLAND	EASEMENT	72	256	6/17/55	3.79
62	PORTLAND CITY AIRPORT	CITY OF PORTLAND	WAR. DEED	1465	141	1/23/35	12.8
63	STATE OF MAINE	CITY OF PORTLAND	Q.C. DEED	11468	276	5/31/84	0.13
64	BOB AIRPORT PARTNERS	CITY OF PORTLAND	CONDEMNATION	9452	231	3/4/57	46.5
65	APEX INC.	CITY OF PORTLAND	QUITCLAIM	10203	192	7/8/92	1.06
66	CITY OF PORTLAND	BROOKLAWN MEM. PARK	Q.C. W/COVEN	13400	006	10/23/97	1.06
67	BROOKLAWN MEMORIAL PARK	CITY OF PORTLAND	AVIG. ESMT.	13395	309	10/24/97	1.06
68	APEX INC.	CITY OF PORTLAND	QUITCLAIM	10203	192	7/8/92	0.32
69	CITY OF PORTLAND	BROOKLAWN MEM. PARK	Q.C. W/COVEN	13400	006	10/23/97	0.94
70	BROOKLAWN MEMORIAL PARK	CITY OF PORTLAND	AVIG. ESMT.	13395	309	10/16/97	0.94
71	TOYE AIRPORT PARK LLC	CITY OF PORTLAND	WAR. DEED	16971	184	11/19/01	0.06
72	STATE OF MAINE	CITY OF PORTLAND	Q.C. W/COVEN	15805	296	10/24/00	1.48
73	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	QUITCLAIM	16971	193	11/19/01	0.02
74	MAINE TURNPIKE AUTHORITY	CITY OF PORTLAND	Q.C. W/COVEN	21040	64	3/31/04	5.14
75	MAINE TURNPIKE AUTHORITY	CITY OF PORTLAND	Q.C. W/COVEN	21040	64	3/31/04	3.47
76	MAINE TURNPIKE AUTHORITY	CITY OF PORTLAND	Q.C. W/COVEN	21040	74	3/31/04	0.37
77	MAINE TURNPIKE AUTHORITY	CITY OF PORTLAND	Q.C. W/COVEN	21040	74	3/31/04	0.13
78	CITY OF PORTLAND	MAINE TURNPIKE AUTHORITY	Q.C. W/COVEN	21040	60	3/31/04	4.95
79	STATE OF MAINE	CITY OF PORTLAND	RELEASE DEED	17126	328	12/26/01	70.4
80	STATE OF MAINE	CITY OF PORTLAND	RELEASE	17126	328	12/26/01	70.4
81	PORTLAND PIPE LINE CORPORATION	CITY OF PORTLAND	VACATION	19510	56	6/06/03	-
82	MOBIL PIPE LINE COMPANY	CITY OF PORTLAND	RELEASE	14138	238	9/10/98	-
83	BURTON DENSMORE	CITY OF PORTLAND	RELEASE	15681	274	10/01/99	-
84	CITY OF SOUTH PORTLAND	CITY OF PORTLAND	RELEASE	23141	42	8/01/05	2.32
85	CITY OF SOUTH PORTLAND	CITY OF PORTLAND	RELEASE	23141	238	9/15/05	-
86	CITY OF PORTLAND	STATE OF MAINE	CONDEMNATION	24337	300	9/05/06	1.44
87	STATE OF MAINE	CITY OF PORTLAND	CONDEMNATION	24337	300	9/05/06	1.44
88	JETPORT PROPERTIES, LLC	CITY OF PORTLAND	LEASE	26698	194	12/07/07	0.77
89	JETPORT PROPERTIES, LLC	CITY OF PORTLAND	LEASE	26698	194	12/07/07	0.40
90	CITY OF PORTLAND	CITY OF PORTLAND	EASEMENT	26698	194	12/07/07	0.16
91	STATE OF MAINE	CITY OF PORTLAND	RELEASE	17126	328	12/26/01	70.4
92	CITY OF PORTLAND	DULUTH HOLDINGS, INC.	LEASE (15 YEAR)	-	-	7/16/18	-
93	CITY OF PORTLAND	CITY OF SOUTH PORTLAND	EASEMENT	23141	44	12/12/05	8.70
94	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	Q.C. W/COVEN	38899	52	11/16/21	2.00
95	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	Q.C. W/COVEN	38899	51	11/16/21	1.78
96	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	Q.C. W/COVEN	38899	52	11/16/21	0.34
97	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	Q.C. W/COVEN	38899	51	11/16/21	0.23
98	CITY OF PORTLAND	TOYE AIRPORT PARK LLC	Q.C. W/COVEN	38899	50	11/16/21	6.18

8	ADDED MAP KEY PARCELS 94 THRU 98 AND ADJUSTED OIL PIPELINE EASEMENT	03.11.22	LA	DDA
7	MAP KEY PARCEL # 92 ADDED 2-23-18 FAA APPROVAL DATE FOR NON AERONAUTICAL USE	04.17.19	LA	DDA
6	ADDED ILS CRITICAL AREAS TO ALP AND RE-POSTED WITH EXHIBIT A TO FAA OEAAA	09.27.18	LA	DDA
5	SUBMITTED TO CITY WITH FINAL MASTER PLAN DOCUMENT	07.09.18	LA	DDA
4	POSTED ALP SET TO FAA OEAAA STUDY #2018-ANE-22-NRA	01.12.18	LA	DDA
3	SUBMITTED TO FAA FOR APPROVAL	11.29.17	LA	DDA
2	ISSUED DRAFT ALP TO CITY AND FAA	11.17.16	LA	DDA
1	CITY OF PORTLAND SUBMITTED TO CLIENT FOR REVIEW	07.26.16	LA	DDA
REV	DESCRIPTION	DATE	BY	APP'D
REVISIONS				
THE CONTENTS OF THIS PLAN DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCORDING TO THIS DOCUMENT THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.				
PORTLAND INTERNATIONAL JETPORT EXHIBIT 'A' PORTLAND, MAINE				
PLANNED BY: Dwight Anderson / Amie Gray / Steve Benson DETAILED BY: Lori Anthony APPROVED BY: Dwight Anderson FILE NAME: STANTEC-EXHIBIT_A				
March 2022				
SHEET EXHIBIT 'A'				

Zone Related Design Standards 14-14.6.4 (I)

Not applicable.

The proposed project has been designed in accordance with the City Technical Manual and the airport master plan.

Please see the plan set.

Evidence of State or Federal Approvals

The proposed project will require permits from the Maine Department of Environmental Protection and the Army Corps of Engineers. Applications were submitted to the Maine Department of Environmental Protection and the Army Corps of Engineers for review on February 29, 2024. Proof of approvals will be forwarded upon receipt.

Neighborhood Meeting Sign-In Sheet

April 11, 2024

Proposed Parking Expansion at the Portland Jetport Major Site Plan Review

Applicant and Design Team in Attendance

Name	E-mail
1. Owens McCullough, Sebago Technics	omccullough@sebagotechnics.com
2. Tanner F. Goodine, EI – Sebago Technics	tgoodine@sebagotechnics.com
3. Cole Peters	cpeters@sebagotechnics.com
4. Paul Bradbury - Portland Int'l Jetport (PWM)	phb@portlandmaine.gov
5. Amy Bell Segal - Sebago Technics	absegal@sebagotechnics.com
6.	
7.	

Members of the Public in Attendance

NAME	Address	E-mail
NIM IOVINE	50 PORTLAND	PORTLANDNATIVE@MAINE
FRED FALLER	1443 Westbrook St.	FFaller@verizon.net
Ellen Faller	1443 Westbrook St	efaller@verizon.net
Jan Stenberg	25 Stroudwater Rd	jensen.88@gmail.com
LORETTA EDES	127 FENWAY ST	LORETTA.ALLEN.EDES@GMAIL.COM
WILLIAM EDES	"	N/A
Angela Wheaton	30 Partridge	AngelaJWheaton@yahoo.com
Brewster Harding	1168 Westbrook St	brewster.harding@gmail.com
Barry Dang	35 Tide Mill	barry.f.dang.com
Dolores Testa	50 Cobb Ave	doloresladd@Gmail.com
Martha Cleary	37 Cobb Ave	marthacleary207@gmail.com
Woody Howard	28 Roundabout Lane	gibwoody@aol.com

E-mail

Portland, Maine



Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) AB Airport

All Projects:

	Required	Proposed
Lot Size	20,000 sf	n/a
Area Per Dwelling Unit	---	n/a
Minimum Street Frontage	50 ft	n/a
Front Yard Minimum	---	n/a
Front Yard Maximum	---	n/a
Rear Yard	---	n/a
Yard Right	---	n/a
Yard Left	---	n/a
Side Street Setback	---	n/a
Step Back	---	n/a
Maximum Lot Coverage	---	n/a
Minimum Lot Coverage	---	n/a
Maximum Height	75ft/45ft	n/a
Open Space	---	n/a
Maximum Impervious Area	70%	48%
Pavement Setback	---	n/a
Floor Area Ratio	na	none
Off Street Parking Spaces	---	282 net increase
Loading Bays	na	none
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

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

Affordable Housing Density Bonuses (if applicable)

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

PWM Public Informational Meeting Proposed Parking Expansion

April 11, 2024 at 6:00 pm



***Maine's
Home
Airport.***

Agenda

- Welcome – Paul Bradbury
- Air Service Trends at PWM – Paul Bradbury
- Proposed Parking Project Review – Paul Bradbury & Owens McCollough, Sebago Technics
- Questions & Answers
- Close

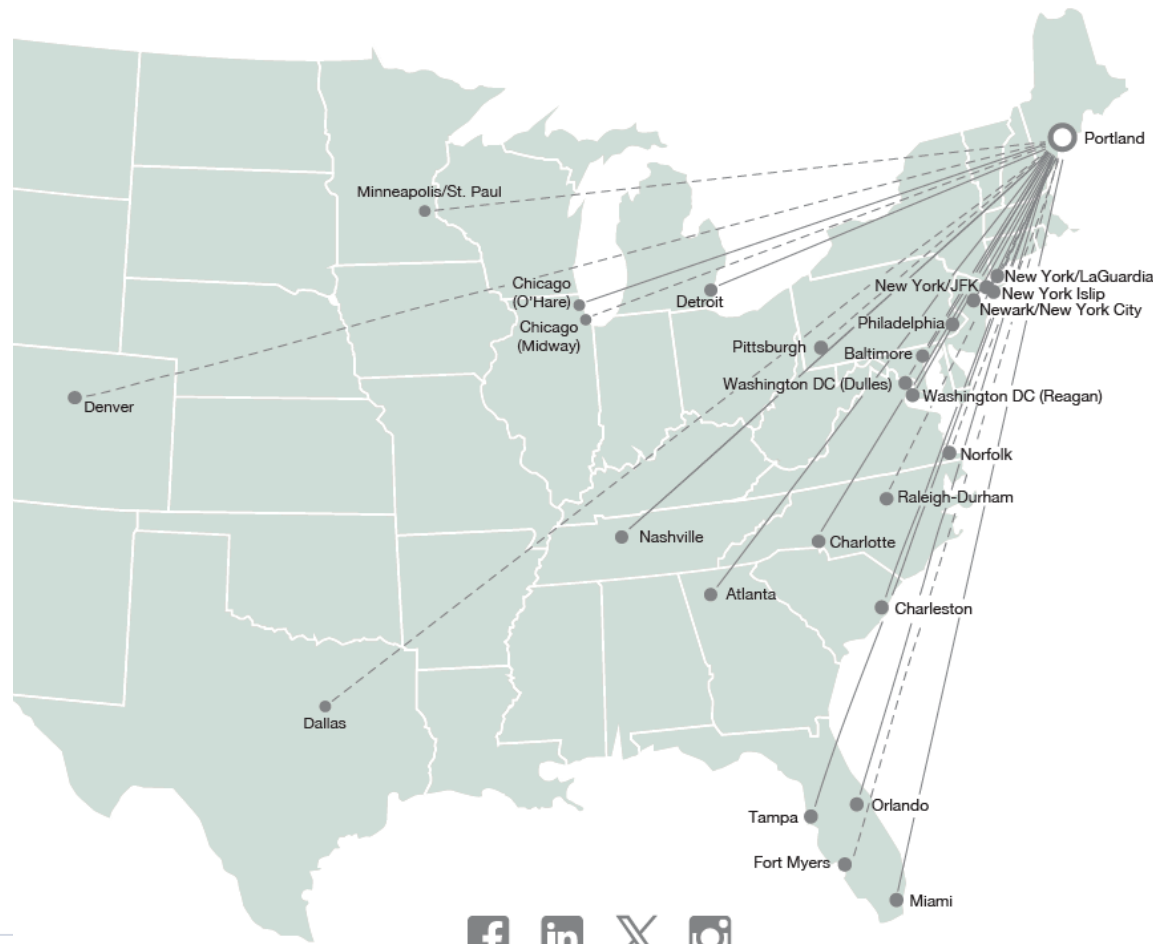




AT A GLANCE



NON-STOP DESTINATIONS



--- Seasonal Flights



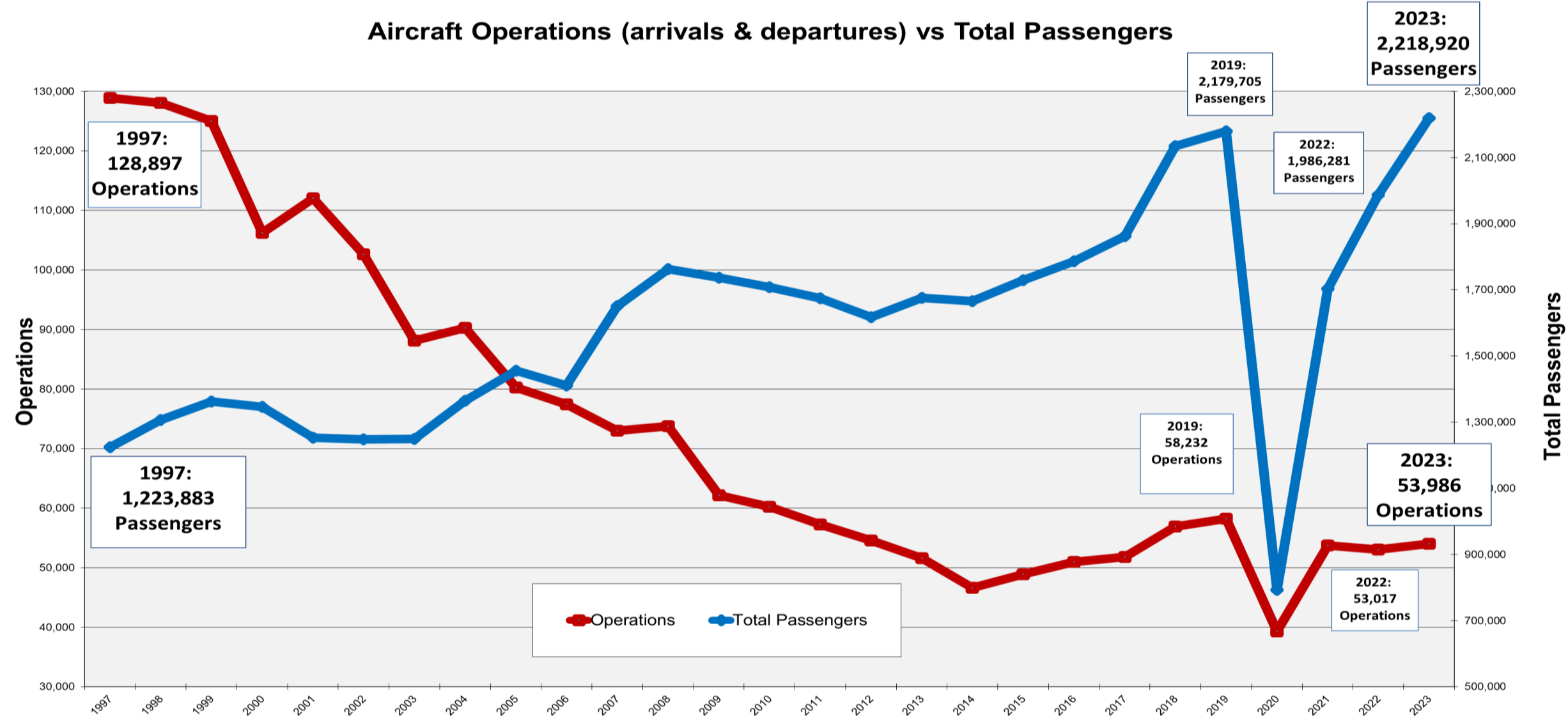
NON-STOP SERVICE

*Seasonal Service

Atlanta	DELTA
Baltimore/Washington	Southwest
Charleston	Breeze
Charlotte	American Airlines
Chicago Midway	* Southwest
Chicago O'Hare	American Airlines UNITED
Dallas	* American Airlines
Denver	* UNITED
Detroit	DELTA
Fort Myers	* Breeze
Miami	* American Airlines
Minneapolis/St. Paul	* DELTA * sun country airlines
Nashville	Southwest
Newark/New York City	UNITED
New York Islip	* Breeze
New York/JFK	* jetBlue DELTA
New York/LaGuardia	American Airlines DELTA
Norfolk	* Breeze
Orlando	FRONTIER Breeze
Philadelphia	American Airlines
Pittsburgh	* Breeze
Raleigh-Durham	* FRONTIER
Tampa	Breeze
Washington Dulles	UNITED
Washington Reagan	American Airlines

PWM Air Service Trends

Aircraft Operations (arrivals & departures) vs Total Passengers



From 1997 to 2019 operations are down **54.8%** and total passengers are up **78.1%**.
For 2023 Operations are **7.3%** below 2019 levels and total passengers are **1.8%** above 2019 levels.

What Changed?

1997 Aircraft:

- Beechcraft: 19 seats
- Saab 340: 34 seats
- ERJ 135: 37 seats
- ERJ 140: 44 seats
- Dornier 328: 45 seats
- CRJ: 50 seats
- B737-300: 126 seats
- MD80: 142 seats

**Average seats per flight:
57.5**



What Changed?

2023 Aircraft:

- E-145: 50 seats
- E-170: 65 seats
- E-175: 76 seats
- CRJ 900: 76 seats
- A220: 137 seats
- A319: 126 seats
- A320: 150 seats
- A320neo: 186 seats
- A321: 230 seats
- A321neo: 240 seats
- B737- 700: 143 seats
- B737-800: 175 seats
- B737-900: 179 seats
- B737-Max 9: 179 seats

Average seats per flight:

110.7

A321neo



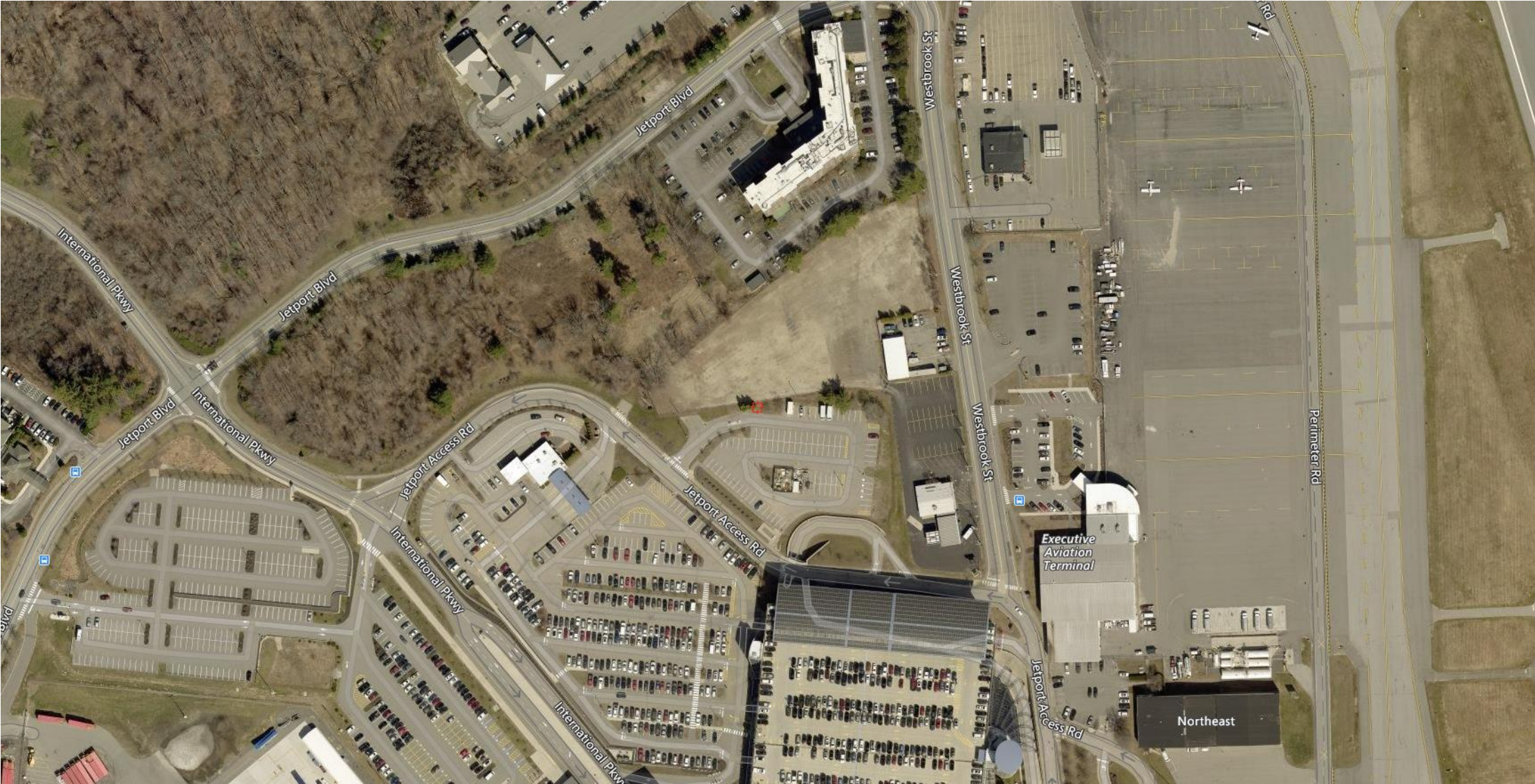
A220



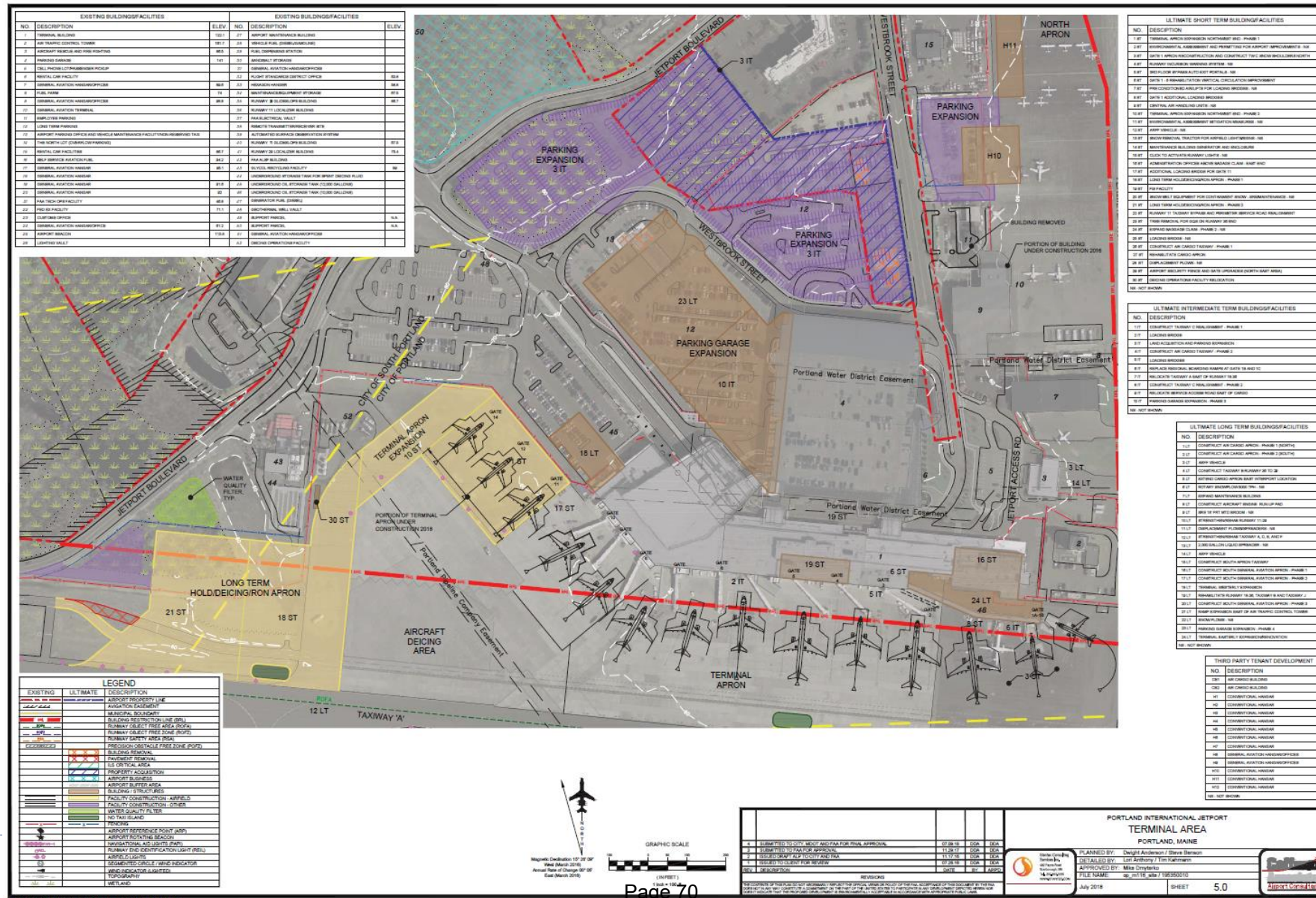
B737



Proposed Parking Project



Proposed Parking Project



AREA PLAN SURFACE PARKING EXPANSION PROJECT

SEBAGO
TECHNICAL
CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
March 25, 2024

PWM
Portland International Jetport

**Maine's
Home
Airport.**

- **Two-Paved Parking Lots**
- **Reconfigures Existing Parking Lots and New Parking Lot Construction**
- **Consistent with Parking Masterplan**
- **Current Total Long -Term Parking: 3,223**
- **Displaced Parking: 402 Spaces (Valet and Cell Phone Lot)**
- **Total Parking Construction Shown: 684**
- **Net Increase: 282 Spaces**
- **56 Level 1 EV Parking**
- **141 Level 1 EV Ready**

SURFACE PARKING EXPANSION PROJECT

■ PARKING PLAN



Wetland Mapping



SEBAGO
TECHNICS

WWW.SEBAGOTECHNICS.COM

75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

0 100 200 300
Feet
1" = 100' when printed at 11 x 17

INFORMATION: MAINE GEOLIBRARY
2020 USGS LIDAR TOPOGRAPHY
2021 SPRING ORTHOIMAGERY

THIS IS NOT A BOUNDARY SURVEY.
WETLAND FEATURES WERE DELINEATED
USING GPS TECHNOLOGY CAPABLE OF SUB-METER ACCURACY.

FIGURE 1: NATURAL RESOURCES MAP

TAX MAP 210A, LOTS B-1 & A-7

LOCATION:
JETPORT BOULEVARD
PORTLAND, ME

DATE: 7/10/2023
PROJECT NUMBER: 19059
19059.aprx

AREA OF INTEREST (AOI)
TOWN BOUNDARY
CATCH BASIN
CULVERT OUTLET
- 24" RCP
DELINEATED
WETLAND
BOUNDARY
WETLANDS
WITHIN AOI
2' CONTOUR
10' CONTOUR

Map Projection : NAD 1983 StatePlane Maine West FIPS 1802 Feet

Questions?

Site Plan Standards Assessment

The Proposed project has been designed to be in compliance with the site plan standards as outlined in 14.6 of the land use code. Please see the submittal materials for how each of the specific standards are met.

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.
Technical Manual Section 1: Transportation Systems and Street Design Standards 1.14 Electric Vehicle Infrastructure	New structured and surface parking lots of five or more spaces shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces	The applicant proposed to provide Level 1 charging stations as discussed in the pre-application meeting	the proposed parking lots are for long term parking only. Level 2 and 3 EV are utilized for quick vehicle recharge and are not suitable for long term parking areas.

Financial Capability

The proposed project is being funded through the Jetport unrestricted fund balance. Please see the attached letter regarding the unrestricted cash fund balance.



**Maine's
Home
Airport.**

PAUL H. BRADBURY, P.E.

AIRPORT DIRECTOR

ZACHARY R. SUNDQUIST, A.A.E.

ASSISTANT AIRPORT DIRECTOR

February 27, 2024

Mr. Owens McCullough, PE
Senior Vice President
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, ME 04106

Subject: Portland International Jetport Surface Parking Expansion Project Funding

Dear Mr. McCullough:

The Portland International Jetport's unrestricted cash fund balance as of June 30, 2023 (the close of its prior fiscal year) was \$39.1 million. Based on the current engineering estimate of \$8 million for the surface parking lot expansion the Jetport intends to fully fund this project out of its unrestricted cash reserves.

Please feel free to contact me if you have any questions or require any additional information.

Best regards,

A handwritten signature in blue ink, appearing to read "Paul H. Bradbury", is written over a light blue horizontal line.

Paul H. Bradbury, P.E.
Airport Director
Portland International Jetport

Technical Capability

The Jetport has contracted with Sebago Technics Inc. for design and permitting services.

Sebago Technics, Inc. (STI) is a multi-disciplinary engineering firm that offers a wide range of services specializing in land development, planning, permitting, and engineering design services. We maintain a staff of multi-disciplinary professionals to provide services in the areas of general civil engineering, road and utility infrastructure design, construction management, permitting, landscape architecture, soil science, wetlands science, land surveying, and environmental services. Over the years, we have found our depth of service to be a key element in meeting the customer's needs with timely and responsive services.

AMY BELL SEGAL, RLA

Senior Project Manager/Senior Landscape Architect



In the course of her 30 year career, Amy has worked on a great variety of projects in the public and private sectors across Maine and New England. Her work has included site planning, permitting and construction management for residential, commercial, institutional, and industrial properties as well as recreation, trail, and community planning. She has earned a wonderful reputation through great work, relationships and communication.

EXPERIENCE



- **Portland Tree Canopy Project, Portland, ME:** Working with Parks and Forestry Staff to plan and implement tree planting strategies to increase the canopy within Bayside and Downtown neighborhoods.
- Working with Left Turn Enterprises to develop **Lakeside Norway**, a 6-acre four season event and recreation center and new brewery for Norway Brewing Company on Lake Penneesseewassee within the Downtown Gateway Area.
- **Arthur P. Girard Columbarium Garden, Westbrook, ME:** Conceptual design through construction documentation for a 400 niche columbarium garden in Woodlawn Cemetery. The Garden includes public and veterans sections, extensive landscaping, and a pergola for outdoor funeral services.
- **Red Cross Park Renovation, Greenville, ME:** Master Plan for renovation of 6-acre park on Moosehead Lake that provides swimming and boating access. Plan includes shoreland stabilization, improved parking, accessibility, playspace, trails, and a pump track. Park applying for funding through the Land & Water Conservation Fund Grant program.
- **Evergreen Cemetery Expasion, Rangeley, ME:** Master Plan for a multi generation expansion for Town-owned cemetery. Highlights of initial phases include a 500 in ground plots, 250 cremains plots, columbarium niche walls and a gathering space that overlooks Rangeley Lake and the western mountains.

Prior to her employment with Sebago Technics, Amy's experience includes:

- **Scarborough Municipal Campus Master Plan:** Developed in collaboration with Town Staff, the Master Plan provides short, medium and long-term planning strategies for balancing future development and recreational open space needs with environmental limitations.
- **Waterfront Zoning Study, Portland, ME:** Worked with Portland Planning Dept. to develop 3D Modeling analysis, height massing study, and evaluate viewshed impacts of proposed zoning changes within the WPDZ.
- **Portland Observatory Zoning Study, Greater Portland Landmarks:** Developed 3D Modeling analysis and height massing study of potential development surrounding historic structure.
- **Tannery Site Concept Master Plan, Camden, ME:** Concept Plan to guide the redevelopment of a brownfield site into a community park with space for a farmer's market, festivals, concerts, and an adventure playground along the Riverwalk Trail and Megunticook River.
- **Bonney Park, Androscoggin Riverwalk, Riverpark, Moulton Park Rail Trail, and Little Andy Park, Auburn, ME:** A series of linked open spaces along the Androscoggin River. Design, permitting, and construction management.

EDUCATION



BSLA, Cornell University
Denmark International Study
Program, 1992

REGISTRATIONS

Maine Licensed Landscape Architect
#2265
CLARB Certified
Maine DOT LPA Certified 2019 - 2023

SPECIAL TRAINING

MeDEP Low Impact Development
Stormwater BMP training
Courses in ADA standards, Complete
Streets, Sustainable Sites (ASLA LEED equiv)

PROFESSIONAL EMPLOYMENT

2020 - Present: Sebago Technics, Inc.
South Portland, ME

1992 - 2020: TJD&A
Landscape Architects & Planners
Yarmouth, ME

1988 - 1992: Bell & Spina Architects
Camillus, NY



OWENS A. MCCULLOUGH, PE, LEED-AP

Senior Vice President of Strategy & Client Development



Mr. McCullough joined Sebago Technics in August of 1987 and is the Senior Vice President of Strategy and Client Development. He is responsible for the overall coordination and management of engineering, quality control, budgeting, planning and providing technical assistance to project managers and technical staff. His experience includes a broad range of civil engineering projects for both public and private clients including the related disciplines of surveying and landscape architecture. Mr. McCullough oversees the project's progress and monitors budgets, schedules, and client satisfaction.

In addition to his management responsibilities, Mr. McCullough is a Senior Project Manager. He works with municipal clients on public works projects, which include engineering review services, inspections, land planning, site and civil design, solid waste transfer and disposal, street reconstruction, utility system designs, airport engineering, SLODA/NRPA Permitting, site plan reviews, design-build projects, stormwater management/erosion control, construction specifications and regulatory agency applications.

Mr. McCullough also provides technical design and project management on private sector projects to include small and large-scale retail, municipal, commercial and industrial projects. These projects involve grading/drainage and utility design, public presentations and regulatory permitting. The extent and diversity of projects that Mr. McCullough has been involved with has provided him with a well-balanced technical and working knowledge within the municipal and private sectors.

EXPERIENCE



- **Managed Three General Services Contracts** (1993–1996, 2000–2004 and 2014–current) along with project specific general consulting - City of Portland, ME.
- **Managed a General Services Contract** (1996 through 2007 and 2014 - current) - Portland International Jetport.
- **Lead Design Team & Environmental Investigations** for Baxter Boulevard North Storage Conduit Storage Project (2012-2013), a 2 Million Gallon CSO Storage Project.
- **Roadway Engineering and General Consulting** - Gorham, Casco, Portland and Raymond, ME.
- **Landfill Closings** for the Town of Raymond, Fryeburg, Gorham, Naples, Winterport and City of Portland, ME.
- **Site Feasibility Assessment, Land Planning and Regulatory Permitting** for a new marine ramp on Cliff Island in Casco Bay.
- **Lewiston Auburn Water Pollution Control Authority:** Served as owner's technical advisor and consultant for the strategic planning and preparation of Design-Build RFP for a new 2.1 Million Gallon CSO Storage Facility.
- Led the planning, design, bidding, and construction for a new **Municipal Services Facility in the City of South Portland.**
- **City of Biddeford LAP Sidewalk Project** - Owens provided design and construction administration, and inspection services of this 0.5 ± mile sidewalk in Biddeford, ME.
- Led the planning, design, bidding, and construction for a new **Municipal Services Facility in the City of Westbrook.**
- **Lead Project Team** for Investigations and regulatory coordination to secure a VRAP at the former Plan-it recycling facility in Gorham, ME.
- **Facilities Planning** - Led Team and provided consultation for evaluations of the South Portland Police Station, Hamlin School, Cash Corner Fire Station, & O'Neil Street site redevelopment.
- **Maine Turnpike Authority York Toll Plaza** (2017-2018). Led the environmental investigation and secured the Maine NRPA and USACOE Individual Permits.
- Served as an expert witness for **Portland Air Freight** during litigation and subsequently prepared corrective design plan with construction administration for a Freight Terminal Facility.
- **Back Cove South Storage CSO Facility** - Project Manager for alternative planning and preparation of a Business Case Evaluation.

CERTIFICATIONS

Maine DOT Local Project Administration
Recertification, 2023

LEED Accredited Professional

EDUCATION



University of Colorado, Denver, CO
B.S., Civil Engineering, 1987

REGISTRATIONS

Professional Engineer: Maine #7122
LEED Accredited Professional

MEMBERSHIPS

ACEC Maine – Board of Directors
President (2016-2017)
National Director 2018-2019

Rotary International

American Society of Civil Engineers

Former – Town of Gorham, Maine, Appeals
Board, Member and Chairman

Former - Town of Limington, Maine,
Planning Board, Member and Chairman

MEREDA Public Policy Committee

RECOGNITION

2013 ACEC Engineering Excellence Award,
Baxter Boulevard South Storage Conduit



TANNER F. GOODINE, EI

Civil Engineer



Mr. Goodine joined Sebago Technics, Inc., (STI) in March of 2021. Tanner graduated from the University of Maine with a degree in Civil Engineering. He has experience in construction with the Lane Corporation and in project design and inspection with Walsh Associates. He has served as a Resident Project Representative, permitted and designed projects and performed surveys using GPS. While at Sebago Technics, Tanner has served as a full-time construction inspector, performed erosion control inspections in both Maine and New Hampshire, and helped with design while not in the field.

EXPERIENCE



Bowdoin College Athletic Fields – Brunswick, ME – The project, situated in the Mare Brook Watershed in Brunswick—an Urban Impaired Watershed—involved three artificial turf fields and two natural grass fields. As the lead engineer on the project, Tanner oversaw site grading beyond the field boundaries, as well as stormwater design, and federal, state, and local permitting. This resulted in the three turf fields serving as self-treating BMPs, along with a 33,000 sq ft. subsurface stormwater detention and treatment system. The stormwater design met the Urban Impaired Stream Standard set by Maine DEP, and it even generated an excess of credits, signifying that the project not only met but exceeded expectations, further enhancing the quality of life in the watershed.

Portland Transportation Center Parking Lot Reconstruction & Stormwater Improvements – Full-time resident inspections and construction administration for the construction of a 3-acre parking lot and 17,000 square foot subsurface sand filter stormwater system along Thompson's Point in Portland, ME.

Boothbay Harbor Route 27 Sidewalk – Full-time resident inspections on a Locally Administered Project (LAP) of the construction of approximately 0.25 miles of paved sidewalk extension on Route 27 in Boothbay Harbor, ME.

Somerset Street & Kennebec Street Redesign, Portland, ME – Provided full-time resident inspections and construction administration for both the Somerset Street & Kennebec Street redevelopment projects for the City of Portland, ME.

3rd Party Inspections & Town Engineer Reviews for Wells, Cape Elizabeth, and Rye, NH – Performed weekly construction inspections as a third-party reviewer for Maine DEP to inspect stormwater and erosion control measures as well as performed engineering peer reviews for the Towns of Wells and Cape Elizabeth, ME, and Rye, NH.

Clifford Park, Boothbay, ME – Designed and provided construction administration for the redevelopment of a municipal park and three sports fields in Boothbay, ME. The project provided the area with an updated little league field, two multi-purpose recreational fields, stormwater and municipal utility improvements.

Shawnee Peak Parking Development – Provided engineering design and construction administration for the construction of a 2-acre parking lot and two underdrained soil filters in a critical watershed in Bridgton, ME.

EDUCATION



University of Maine - Orono, ME
B.S., Civil Engineering
2020

CERTIFICATIONS

Erosion and Sediment Control
Certification Program

Local Project Administration (LPA)

OSHA-10



Impact on Surrounding Street Systems 14-14.6.1 (A)

The proposed project will not create or aggravate any significant hazard to safety on the surrounding street network nor will it substantially increase congestion on any street which is already at a level of service below Level "D". In designing the proposed layout of the project considerable attention has been placed on vehicular circulation and possible impacts to the surrounding area.

The proposed project involves the construction of 240,000 s.f. of additional parking within the Jetport campus to better serve the current customers.

Access and Circulation 14-14.6.1 (B)

1. In general

- a. The proposed project involves the development of a new surface parking lot to service the existing users of the Portland Jetport. The additional parking area has been designed to work within the existing internal vehicular circulation of the Jetport campus.
- b. The proposed development site is partially comprised of an undeveloped area, an existing paved lot, and an existing gravel lot located in the Jetport campus. The proposed project will result in improvements to campus parking and has been designed to have sidewalks that connect to existing sidewalks to allow for better pedestrian circulation to and from the main terminal building.
- c. All points of access and egress to the parking lot have been located to avoid conflicts with existing turning movements and traffic flows.

2. Loading and servicing

Not applicable. The proposed project involves the construction of a surface parking lot.

3. Curb and sidewalks

The proposed project site has been designed to include sidewalks. All proposed improvements will be designed based to the standards of the City Technical Manual.

Please see the plan set for more detailed information regarding vehicular and pedestrian circulation.

Public Transit 14-14.6.1(C)

1. A transit shelter is not required.

The proposed surface lot is to be located within the existing Portland Jetport campus which has a bus stop located at the Ground Transportation Booth near the airport baggage claim. The proposed surface lot will be utilized by Jetport customers who arrive at the site via car. The lot will not be utilized by mass transit users; therefore an additional transit shelter is not being proposed.

2. Not applicable

Off-Street Parking 14-14.6.1 (D)

1. *Vehicular Parking:* The proposed project involves the construction of a surface parking lot which will provide 684 parking spaces. All parking will be designed in accordance with the requirements outlined in the city code. Please refer to the plan set for parking layout information.

Existing Surface Parking (Provided by Standard Parking)

Parking Garage Long Term	1,993 spaces
Pink Lot	483 spaces
Surface Long Term	345 Spaces
Sub-total	2,821 spaces
Valet Parking	300 spaces
Cell Phone Lot	102
Total w/ Valet Parking	3,223 with Vallet Parking

New Built Condition Parking Summary

Parking Garage Long Term	1,993 spaces
Pink Lot	483 spaces
Surface Long Term	345 Spaces
Sub-total	2,821 spaces
New Long-Term Parking including displaced Valet Parking	684 spaces
Total	3,505
Net Increase	282 Spaces

2. *Bicycle Parking:* No additional bicycle racks are proposed with these improvements. The Jetport has a designated area for bicycle parking located on the north and south ends of the terminal.
3. *Snow Storage:* The proposed project is located on the Portland Jetport campus which has an existing snow removal plan. Snow storage areas have been provided on the plans. Sidewalks will be cleared of snow in accordance with the Jetport maintenance plan.
4. *Electric Vehicle charging:* The applicant proposes to provide EV charging stations within the existing airport parking garage and to construct the new surface lot to be EV ready along the perimeter parking spaces of the two lots.

EV parking requirements for the site:

20% EV = 56 spaces

50% capable = 141 spaces

The applicant has requested a waiver for the Level 2 requirement as outlined in the Technical Manual, as the lots are to be utilized for long-term parking therefore making a Level 1 charging station more appropriate.

Preservation of Significant Natural Features 14-14.6.2(A)

The project site does not include any significant natural features. The proposed project area is comprised of existing gravel and bituminous parking areas and a previously undeveloped area of the Portland Jetport campus. The project will result in approximately 8,618 sf of wetland impacts.

Please see the attached wetlands report and the plan set for the existing conditions plan.

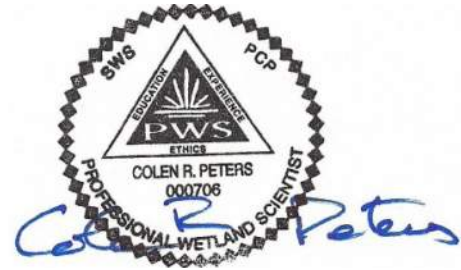
Wetland Delineation

To: Owens McCullough, P.E. Project Manager

From: Cole Peters, PWS

Date: July 10, 2023

Project: 19059- Portland Jetport Parking Expansion



A field delineation of jurisdictional wetlands has been completed at the Portland International Jetport on both sides of Jetport Boulevard, northeast of International Parkway (Figure 1). The Federal Emergency Management Agency (FEMA) has prepared Flood Insurance Rate Maps (FIRM) for this part of Portland (Community Panel Number 230051 0012C, effective date 12/8/1998). No part of the area reviewed occurs within a FEMA designated 100-year floodplain (Zone A, AE). The City of Portland Zoning Map (June 24, 2022) identifies the area including the Site as the Airport Business (AB) District and no part of the area reviewed is subject to the City's Shoreland Zoning Ordinance.

Wetland Delineation:

Wetland boundaries were delineated at the Site by Cole Peters, PWS, and Anna Biddle, LSS, on May 31, 2023 with sequentially numbered pink flagging. The flagging was then located with a sub-meter accuracy global position system (GPS) unit to depict these boundaries on Figure 1.

Evidence indicative of wetland from three parameters – vegetation, soils and hydrology – was used to identify and delineate the wetlands in accordance with the 1987 *US Army Corps of Engineers Wetland Delineation Manual* and the subsequent *Regional Supplement to the US Army Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (January 2012). With the exception of unusual or atypical situations, evidence of wetland must be exhibited by all three parameters for an area or position to be designated as wetland. Characteristics of the delineated wetland are described below.

The freshwater wetland community on the Site is dominated by trees and shrubs that include: red maple (*Acer rubrum*), speckled alder (*Alnus incana*), arrowwood (*Viburnum recognitum*), glossy buckthorn (*Frangula alna*), and winterberry holly (*Ilex verticillata*). In open areas and the herbaceous understory are: meadowsweet (*Spiraea latifolia*), bluejoint (*Calamagrostis canadensis*), tussock sedge (*Carex stricta*), and royal, cinnamon and sensitive ferns (*Osmunda regalis*, *Osmundastrum cinnamomeum*, *Onoclea sensibilis*). All of these plants are identified as "Obligate" (OBL), "Facultative Wetland" (FACW) or "Facultative" (FAC) indicators of wetland by the 2016, *State of Maine National Wetland Plant List* prepared by the US Army Corps of Engineers and are therefore hydrophytes.

Dominant vegetation throughout upland areas of the Site consists of: white pine (*Pinus strobus*), northern red oak (*Quercus rubra*), trembling aspen (*Populus tremuloides*), Tatarian honeysuckle (*Lonicera tatarica*), Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*), and bracken fern (*Pteridium aquilinum*). All of these plants are classified as "Facultative Upland" (FACU) or are not indicative of wetland, and when in predominance are indicative of upland.

The medium intensity soil survey prepared by the USDA Natural Resource Conservation Service (NRCS) indicates the poorly drained Swanton (Sz) Series occurs beneath wetlands delineated at the Site. The fine sandy loam of the Sz Series is designated as hydric and indicative of wetlands. A hand auger was also used to evaluate soils in areas delineated as wetlands. At sampling locations in areas dominated by hydrophytes, characteristics were representative of hydric soil indicator criteria F3: Depleted Matrix.

Hydrology is considered to be the “driving force” of wetlands (Mitch and Gosselink, 1986) and inherently is responsible for the adaptation of certain vegetation (hydrophytes) and the development of specific soil characteristics (hydric) indicative of wetlands. At the time of the survey, evidence of wetland hydrology observed at the Site included: localized standing water, saturated soils, sediment deposits, water-stained leaves, and drainage patterns indicative of wetlands.

The National Wetland Inventory (NWI) makes use of *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et. al, 1979) to differentiate types of wetlands. With this system, freshwater wetlands are classified based on dominant plant type as: Palustrine Forested (PFO), Palustrine Scrub-Shrub (PSS), Palustrine Emergent (PEM), Palustrine Open Water (POW), or Palustrine Unconsolidated Bottom (PUB). Wetlands classified by this system as PFO or PSS are more commonly known of as swamps whereas PEM typically represent marshes or meadows. POW and PUB generally lack vegetation and correspond to pond.

On the southeast side of Jetport Boulevard, deciduous trees generally dominate the two small isolated areas of deciduous forested wetlands (Photos 1, 2) (Figure 1) that are designated as PFO1 by the NWI Classification System. PFO1 wetland also occurs on the opposite side of Jetport Boulevard along International Parkway (Photo 3). The narrow, linear, parallel configuration of wetland indicate it was previously ditched, potentially for agriculture. Another area of wetland to the northeast borders the landscaped edge of Jetport Boulevard and extends onto adjoining property to the north (Photo 4). The wetland is dominated by a mixture of deciduous trees and shrubs designated by NWI as PFO1/PSS1. Based on depth, water near Jetport Boulevard in this wetland is likely to be permanent, potentially due to the absence of a drainage outlet.

Vernal Pools:

Vernal pools (VPs) are defined by the Maine Department of Environmental Protection (MDEP) as: “a natural, temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish” (Chapter 335 §9). “Significant vernal pools” (SVPs) are recognized by the presence of fairy shrimp (*Eubrandhipus* spp.), or more than 40 wood frog (*Rana sylvatica*) egg masses or at least 10 blue spotted salamander (*Ambystoma laterale*) or 20 spotted salamander (*A. maculatum*) egg masses. VPs documented to be used by state-listed rare, endangered, or threatened species such as Blanding’s turtles (*Emydoidea blandingii*), spotted turtles (*Clemmys guttata*), ringed boghaunter dragonflies (*Williamsoni linterni*), Eastern ribbon snakes (*Thamnophis sauritus*), wood turtles (*Clemmys insculpta*), four-toed salamanders (*Hemidactylium scutalum*), swamp darner dragonflies (*Epiaeschna heros*), and comet darner dragonflies (*Anax longipes*), are also considered to be SVPs (Ch 335 §9B 1-4).

Under the provisions of Section 404 of the federal Clean Water Act, the US Army Corps of Engineers (USACE) regulates activities in “waters of the United States” including VPs, which are defined by the USACE New England District in the State of Maine General Permit (GP, reissued on October 14, 2020). The NED definition, while very similar to MDEP’s, does not reference “natural” and does not recognize

or differentiate SVPs based on number of indicator species egg masses. Instead, the GP definition states: “VPs are depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending on landscape position and parent material(s). In most years, VPs support one or more of the following obligate species: wood frog (*Rana sylvatica*), spotted salamander (*Ambystoma maculatum*), blue spotted salamander (*A. laterale*) fairy shrimp (*Eubrandhipus* spp.). However, they should preclude sustainable populations of predatory fish.”

West of Penobscot Bay and southward from Augusta to Fryeburg, the Maine Department of Inland Fisheries and Wildlife (MDIFW) recommends evidence of VP indicator species egg masses be observed on separate dates during periods established for wood frogs (April 10th to April 25th) and spotted salamanders (April 20th to May 10th). Potential vernal pools (**PVPs**) can be identified outside (before/after) the recommended survey period, but are not necessarily indicative of regulatory jurisdiction. During the recommended survey periods VP and SVP characteristics are to be documented on MDIFW data forms and located with submeter accuracy GPS in order to identify the portion of Critical Terrestrial Habitat (**CTH**) within 250 feet around an SVP referred to as *Significant Vernal Pool Habitat* (**SVPH** Ch 335 §9A (7)).

Vernal pool surveys were conducted at the Site on April 11, and 23, 2023. Depressions do not occur in the three areas of PFO1 wetland for ponding of surface water to a depth and duration that is suitable for the occurrence of any form of vernal pool or indicator species egg masses. Ponded water in the PFO1/PSS1 wetland is suggestive of a vernal pool however, no amphibian indicator egg masses were observed here during either survey date. During the second survey, a solitary mallard (*Anas platyrhynchos*) drake was feeding in the pool.

Regulatory Assessment:

Activities in and adjacent to wetlands are regulated by the MDEP under the provisions of the Natural Resources Protection Act (NRPA) and associated Permit by Rule (Chapter 305), Wetland and Waterbodies Protection (Chapter 310) and Significant Wildlife Habitat (Chapter 335) Rules. Certain characteristics are relevant to whether a wetland is regulated as a “wetland of special significance” (WOSS).

Wetlands at the Site:

- do not contain a “critically imperiled (S1)” (Ch 310 §3F) or an “imperiled (S2)” (Ch 310 §3L) community as defined by the Natural Areas Program;
- do not contain significant wildlife habitat (38 MRSA §480-B (10) mapped by MDIFW;
- are not located within 250 feet of a “coastal wetland” (38 MRSA §480-B (2));
- are not located within 250 feet of a “great pond” (38 MRSA §465-A);
- do not contain more than 20,000 square feet of open water or aquatic or emergent marsh vegetation;
- do not occur in a 100-year floodplain mapped by the Federal Emergency Management Agency (FEMA) (38 MRSA §480-B(2-D));
- are not a “peatland” (Ch 310 §3P); and

- do not occur within 25 feet of a “river, stream or brook” (38 MRSA §480-B (9)).

Wetlands at the Site are therefore not “wetlands of special significance” (WOSS- Ch 310 §4A (1-8)).

Typically, activities requiring alteration of less than 4,300 square feet of non-WOSS wetland would be a “minor alteration” and would not require a NRPA permit (38 M.R.S.A. §480 Q (17)). In excess of this but less than 15,000 square feet would require a Tier 1 permit and a Tier 2 permit would be necessary for impacts between 15,000 square feet and an acre (43,560 square feet). The cumulative extent of previous approved wetland impacts is relevant to determining the applicable Tier of NRPA permitting. Excluding specific activities authorized by Permit by Rule (PBR - Chapter 305) provisions of the NRPA, activities exceeding one acre would require a Tier 3 permit.

Wetlands at the Site are also regulated by the US Army Corps of Engineers as “*waters of the United States*” under the provisions of Section 404 of the Clean Water Act. To authorize minimal-impact activities in wetlands, including placement of fill, the Corps makes use of a General Permit (GP) for the State of Maine. Such impacts to wetlands are broken down into two permit categories under the GP based on the following area thresholds: Category 1 – less than 15,000 square feet and Category 2 – 15,000 square feet to three acres. Activities eligible for Category 1 activities can be authorized with a Self-Verification Notification (SVN) Form submitted to the Corps. Category 2 activities are reviewed in conjunction with the US Fish and Wildlife Service, and the US Environmental Protection Agency and as appropriate the National Marine Fisheries Services, and require an application and written approval from the Corps of Engineers.



Photograph 1: Southwestward view of the 2,810± sq ft isolated forested wetland (PFO1) with International Parkway in the background.



Photograph 2: Eastward view of the 5,820± isolated forested wetland (PFO1) with the Loop Road at center-right.



Photograph 3 Westward down gradient view of the forested wetland (PFO1) on the north side of Jetport Boulevard that appears to have been historically ditched.



Photograph 4: Northward view of ponded water in the deciduous forested and scrub shrub (PFO1/PSS1) wetland on the north side of Jetport Boulevard. No amphibian egg masses indicative of vernal pools were observed in the wetland during surveys conducted on April 11 and 21, 2023.



 WWW.SEBAGOTECHNICS.COM 75 John Roberts Rd. - Suite 4A South Portland, ME 04106 Tel. 207-200-2100	 1" = 100' when printed at 11 x 17	FIGURE 1: NATURAL RESOURCES MAP TAX MAP 210A, LOTS B-1 & A-7		 AREA OF INTEREST (AOI) TOWN BOUNDARY CATCH BASIN CULVERT OUTLET - 24" RCP DELINEATED WETLAND BOUNDARY WETLANDS WITHIN AOI 2' CONTOUR 10' CONTOUR
	INFORMATION: MAINE GEOLIBRARY 2020 USGS LIDAR TOPOGRAPHY 2021 SPRING ORTHOIMAGERY THIS IS NOT A BOUNDARY SURVEY. WETLAND FEATURES WERE DELINEATED USING GPS TECHNOLOGY CAPABLE OF SUB-METER ACCURACY.	LOCATION: JETPORT BOULEVARD PORTLAND, ME	DATE: 7/10/2023 PROJECT NUMBER: 19059 19059.aprx	

Page 06

Map Projection : NAD 1983 StatePlane Maine West FIPS 1802 Feet

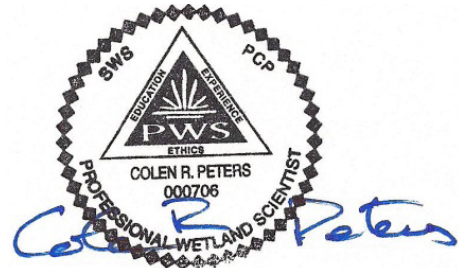
Wetland Functional Assessment

To: Owens McCullough, P.E. Project Manager

From: Cole Peters, PWS

Date: February 5, 2024

Project: 19059- Portland Jetport Parking Expansion



Parking expansion at the Portland International Jetport (PWM) will require 8,625 sq ft (0.198 acre) of wetland impact (the "Project"). Locations of impact are identified on the Grading Plan (Sheet C-203) with respective extents of the two areas which range between 2,807 and 5,818 sq ft (0.064 to 0.133 acre).

Surface drainage at this part of PWM is generally to the southwest toward an unnamed perennial tributary of the Stroudwater River. The mixed deciduous forested wetland (PFO1) at the Site occurs in the upper watershed of this stream more than approximately 900 ft from a defined stream channel (Figure 1). Wetland to be impacted by the Project lacks characteristics indicative of a "freshwater wetland of special significance" (Chapter 310 §4-A (1–8)).

A field delineation of jurisdictional wetlands has been completed at PWM on both sides of Jetport Boulevard, northeast of International Parkway (Figure 1). The Federal Emergency Management Agency (FEMA) has prepared Flood Insurance Rate Maps (FIRM) for this part of Portland (Community Panel Number 230051 0012C, effective date 12/8/1998). No part of the area reviewed occurs within a FEMA designated 100-year floodplain (Zone A, AE). The City of Portland Zoning Map (June 24, 2022) identifies the area including the Site as the Airport Business (AB) District and no part of the area reviewed is subject to the City's Shoreland Zoning Ordinance.

An assessment of wetland functions and values that will be lost or degraded is necessary for alterations exceeding 15,000 square feet, in a freshwater wetland not of special significance (Chapter 310 §5-C (6)(a)(ii)). The functional assessment presented below is based on field observations during the wetland delineation, referenced maps and other relevant, published information.

Functional Assessment Method:

A Descriptive Approach to assessing wetland functions and values described in a September 1999 supplement (the Supplement)¹ to *The Highway Methodology Workbook* by the New England Division of the U.S. Army Corps of Engineer (Corps) is an assessment method accepted by Maine Department of Environmental Protection (MDEP). Functions and values of wetlands at the Site are evaluated by this method and are discussed below.

The Supplement indicates "*Wetland functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society*". Wetland functions relate to the ecological significance of wetland properties without regard to subjective values. Wetland functions are generally considered to be the

¹ US Army Corps of Engineers, New England District, 1999. *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*, NAEPP-360-1-30A, 32 pgs.

result of biologic, geologic, hydrologic, biogeochemical, and/or physical processes that occur or take place in a wetland. Functions attributed to wetlands include the following:

- Groundwater Recharge/Discharge
- Floodflow Alteration (Storage & Desynchronization)
- Fish and Shellfish Habitat
- Sediment/Toxicant/Pathogen Retention
- Nutrient Removal/Retention/Transformation
- Production (Nutrient) Export
- Sediment/Shoreline Stabilization; and
- Wildlife Habitat

Wetland values are generally considered to be benefits derived from either these functions or other characteristics of a wetland. Perceived values arise from the functional ecological processes exhibited by wetlands but are determined also by human perceptions, the location of a specific wetland, the human pressures on a wetland, and the extent of the resource (Mitsch and Gosselink 2000)². The value of a specific function, or combination thereof, is based on human judgment of the worth, merit, quality, or importance attributed to those functions. Values attributed to wetlands include the following:

- Recreation
- Education/Scientific Value
- Uniqueness/Heritage
- Visual Quality/Aesthetics; and
- Threatened or Endangered Species Habitat

The functions and values identified above may vary slightly in terminology, but encompass all the functions identified in, and addressed by, the Natural Resource Protection Act (NRPA) Wetland Protection Rules. As defined in these Rules, “functions” are:

The roles wetlands serve which are of value to society or the environment, including but not limited to, flood storage, flood water conveyance, ground water recharge and discharge, erosion control, wave attenuation, water quality protection, scenic and aesthetic use, food chain support, fisheries, wetland plant habitat, aquatic habitat and wildlife habitat (Chapter 310 §3J).

A basic concept presented by the Supplement is an identification of “Considerations/Qualifiers” that can be used as indicators or descriptors of the presence of specific functions or values. From as few as three to as many as 32 of these Considerations/Qualifiers are identified in Appendix A of the Supplement for each of the respective wetland functions and values. These Considerations/Qualifiers therefore become a checklist or outline of indicators of functions and values for wetland scientists to observe, compare against, and structure assessments. The Supplement indicates these Considerations are intended to be flexible and are ultimately based on “best professional judgment.”

Site Wetland Functions and Values:

Functions and values of the wetland to be impacted by the Project are dependent on, and influenced by, various physical characteristics at the Site, which are indicative of relative levels of function and value.

² Mitch, W.J., and Gosselink, J.G., 2000. *Wetlands* (3rd ed.), Van Nostrand Reinhold Company, NY, 920 pgs.

These include size and proximity of wetlands to ongoing development activity, geologic setting, soil characteristics, presence and duration of hydrology, landscape position, and wetland cover type. Consequently, the effects of changes to these physical characteristics are evaluated in assessing whether an activity or project impacts wetland-specific functions and values.

Considerations/Qualifiers listed in Appendix A of the Supplement and observed in impacted wetlands at the Site are recorded for individual functions and values on the accompanying Wetland Function-Value Evaluation Form. The significance of these Considerations/Qualifiers to functions and values associated with these wetlands are discussed below and on the attached data form.

- **Groundwater Recharge/Discharge** – The Maine Geological Survey has not designated the unconsolidated deposits beneath the Site as a Significant Sand and Gravel Aquifer on this part of the Portland West Quadrangle (MGS Open-File No. 99-11). Recharge of underlying groundwater by the wetlands is therefore limited. No evidence of groundwater discharge was observed in the wetlands.
- **Floodflow Alteration (Storage and Desynchronization)** – Wetland where the Project is proposed does not occur in a 100-year floodplain mapped by the Federal Emergency Management Agency on the most recent Flood Insurance Rate Maps (Community Panel Number 230051 0012C, effective date 12/8/1998), for this part of Portland.
- **Fish and Shellfish Habitat** – Habitat for fish and shellfish does not occur in the non-riparian PFO wetland.
- **Sediment/Toxicant/Pathogen Retention** – This form of water quality improvement prevents degradation of water quality and *“relates to the effectiveness of the wetland as a trap for sediments, toxicants or pathogens in runoff from surrounding uplands or upstream eroding wetland areas”* (USACE NED, 1999). Wetlands have intrinsic abilities to modify or trap a wide spectrum of water-borne substances commonly considered pollutants or contaminants (Hammer, 1997)³. Wetlands at the Site provide this function to a limited extent, however this benefit to water quality improvement is generally constrained due to the absence of sources impacting water quality.
- **Nutrient Removal/Retention/Transformation** – *“This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries”* (USACE NED, 1999). Retention time in the wetland is influenced by physical characteristics of the wetland basin, and by the edaphic (soils), micro topographic, and vegetative conditions within the wetland. Wetlands at the Site provide this function to a limited extent, however this benefit to water quality improvement is generally constrained due to the absence of sources impacting water quality.
- **Production (Nutrient) Export** – *“This function relates to the effectiveness of a wetland to produce food or usable products for humans or other living organisms”* (USACE NED, 1999). No export can occur from the closed isolated depressions dominated by woody vegetation that lacks berries, fruit, nuts or other mast.

³ Hammer, D.A., 1997. *Creating Freshwater Wetlands* (2nd ed.), Lewis Publishers, NY, 406 pgs.

- **Sediment/Shoreline Stabilization** – This function is typically associated with wetland areas that stabilize streambanks and shorelines of waterbodies from erosion and is therefore not provided by the wetland to be impacted.
- **Wildlife Habitat** – “*This function considers the effectiveness of a wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge*” (USACE NED, 1999). The forested wetland at the Site provides habitat cover for transitory wildlife that may travel through the area but the small, localized areas of wetlands do not provide habitat for most “wetland dependent wildlife” such as beaver, mink, muskrat, otter, and waterfowl. Although the August 2016 Portland Beginning with Habitat Map prepared MDIFW identifies presence of endangered New England Cottontail (NEC, *Sylvilagus transitionalis*) habitat in this part of the Jetport and the residential neighborhood to the northwest, based on previous work at PWM coordinated with MDIFW, the vegetative cover where work is proposed does not provide suitable habitat for NEC. Based on spring 2023 surveys conducted during the recommended period, significant vernal pools do not occur at the Site.
- **Recreation** – Wetlands support many types of direct recreation including hunting, trapping, fishing, wildlife watching, nature photography, berry picking, picnicking, hiking, walking, and boating (Hammer, 1997). Trails or other evidence of recreational use do not exist in the PFO1 wetland. This wetland value will not be impaired by the proposed Project.
- **Educational/Scientific Value** – The wetland does not contain attributes, nor does it occur in a location that merits being the topic and destination of school field trips. It is unknown whether scientific studies or research by students have taken place in the wetland but is unlikely.
- **Uniqueness/Heritage** – The PFO1 wetland at the Site is typical of one of the most common wetland types in southern Maine. This wetland type is not a critically imperiled (S1) or imperiled (S2) wetland community.
- **Visual Quality/Aesthetics** – Aesthetics, one of the most subjective values attributed to wetlands, generally is heightened by distant views or vistas with bodies of water. No open water or areas offering significant vistas are in the wetland.
- **Endangered Species Habitat** – The wetlands at the Site are not known to contain any federal or state-listed endangered or threatened species. As determined from the Portland Beginning with Habitat Map, no Rare or Exemplary Plant and Natural Communities tracked by the Maine Natural Areas Program (MNAP) in its Biological and Conservation Data system occur at the Site.

Conclusions:

As described above, all five values commonly attributed to wetlands are essentially absent from wetlands at the Site and therefore there is no effect or loss to result from the 8,625 sq ft (0.198 acre) of direct wetland impacts by placement of fill. In addition, three of the eight functions attributed to wetlands – Groundwater Recharge/Discharge, Fish and Shellfish Habitat, and Sediment Shoreline Protection – are also absent or not provided by wetlands at the Site and will also not be affected.

As justified by the absence of site-specific “Considerations/Qualifiers” indicative of the functions, the remaining five wetland functions at the Site are less than high or moderate quality.



Photo 1 – Wetlands that are to be impacted by the Project are located in the small patch of undeveloped woods in the upper right corner of this northward view across the Jetport Boulevard–International Parkway (left to right) intersection.



Photo 2 – Eastward view of the smaller (2,807 sq ft) isolated (no connection to surface drainage) PFO1 wetland located along the north side of International Parkway with the PWM terminal and existing long term parking area in the background.



Photo 3 – Eastward view of the larger (5,818 sq ft) isolated PFO1 wetland located near the center of the small patch of undeveloped woods, with the existing long term overnight parking lot in the background.

Total Area of Wetland: **8,624 sq ft** Human made? **No**Is wetland part of a wildlife corridor? **No** Or a "habitat island"? **No**Latitude: **43°39'00.46** Longitude: **70°18'50.09"**Adjacent land use: **Portland International Jetport (PWM)**Distance to nearest roadway or other development: **< 20 ft**Prepared by: **Cole Peters, PWS** Date: **8/24/2023**Dominant wetland systems present: **PFO1**Contiguous undeveloped buffer zone present: **None**Wetland Impact Type: **Fill - 8,624 sq ft (0.198 ac)**Is the wetland a separate hydraulic system? **Yes, Isolated basin**If not, where does the wetland lie in the drainage basin? **High/Top**Evaluation based on: Office- **Yes** Field- **Yes**How many tributaries contribute to the wetland? **None**Wildlife & vegetation diversity/abundance **(See accompanying report)**Corps manual wetland delineation completed: **Yes**

Function/Value	Suitability		#	PF	Comments-Rationales (Reference #)
	Y	N			
Groundwater Recharge/Discharge		X		---	The wetland does not occur on/over an MGS-designated Sand & Gravel Aquifer and groundwater recharge is limited by low permeability soils. No evidence of groundwater discharge was observed at the Site.
Floodflow Alteration		X		---	The wetland is in an isolated basin with a small catchment area and is not in a FEMA designated floodplain.
Fish and Shellfish Habitat		X		---	N/A- No stream or waterbody present.
Sediment/Toxicant Retention	X			No	Toxicant sources in the small watershed adjacent to wetland are not abundant.
Nutrient Removal	X			No	Nutrient sources in the small watershed adjacent to wetland are not abundant.
Production Export		X		---	No stream occurs within the wetland for downgradient export.
Sediment/Shoreline stabilization		X		--	N/A- Applies to wetlands along a streambank or shoreline.
Wildlife Habitat		X		---	Minimal wildlife habitat is provided by the wetland which is bordered on three sides by Jetport Drive, International Parkway and Loop Road that all lead to parking areas surrounding the terminal for Maine's busiest airport approximately 650 feet away.
Recreation		X		---	N/A- The forested wetland provides no recreational use.
Educational/Scientific		X		---	N/A- Site is undistinctive and not near schools.
Uniqueness/Heritage		X		---	N/A- PFO1 is a very common wetland type throughout southern Maine.
Visual Quality/Aesthetics		X		---	N/A- The forested wetland lacks a vista and is not discernably distinguishable from adjoining upland woods.
Endangered Species Habitat		X		---	No record or evidence observed.
Other				---	



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



MELANIE LOYZIM
COMMISSIONER

February 9, 2024

Paul Bradbury
Portland International Jetport
1001 Westbrook Street
Portland, ME 04102

Re: Vernal Pool Significance Determination, Pool ID # 5273–Portland

Dear Paul Bradbury:

Vernal pools are temporary to semi-permanent wetlands occurring in shallow depressions that typically fill during the spring and dry during the summer or in drought years. They provide important breeding and foraging habitat for a wide variety of specialized wildlife species including several rare, threatened, and endangered species.

After conducting a field survey at your request, it has been determined that the vernal pool identified above on your property is NOT SIGNIFICANT because either: 1. the feature does not meet the definition of a vernal pool under the Significant Wildlife Habitat rules, 06-096 CMR 335(9) or 2. the vernal pool does not meet the biological standards for exceptional wildlife use of the Significant Wildlife Habitat rules, 06-096 CMR 335(9)(B). Therefore, activities within 250 feet of the pool are not regulated under the Natural Resources Protection Act (NRPA) unless there are other protected natural resources nearby such as streams or freshwater wetlands. I have attached a copy of the database printout that verifies the State's findings with respect to your survey.

I want to also advise you that the pool area on your property can be considered a freshwater wetland and therefore direct pool alterations may require permitting under the NRPA.

If you have any questions or need further clarification, please contact Mark Stebbins at 207-592-4810 or email at: Mark.N.Stebbins@maine.gov

Sincerely,

Robert Wood
Director, Bureau of Land Resources

cc. town file

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
207-941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Friday, February 09, 2024

IFW's Pool ID: 5273 Twp: Portland

UTM Coordinates of Pool Center: 394121 E, 4833920 N

Observer's ID: VP-1

ProjectType: 19059-PWM parking

Landowner: Paul Bradbury - Portland International Jetport

Contact: Cole Peters - Sebago Technics, Inc

1001 Westbrook Street

75 John Roberts Road, Suite 4A

Portland, ME 04102

South Portland, ME 04106

(207) 756-8029 phb@portlandmaine.gov

(207) 200-2100 Cpeters@sebagotechnics.com

Survey Date: 4/11/2023

Additional Survey Dates: 04/21/2023

IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the vernal pool definition

IFW Comments:

Landscape Preservation 14-14.6.2 (B)

1. The proposed project site consists of previously developed parking lots and an undeveloped wooded area; existing tree species within the wooded area include Ash, Maple, Oak, Birch, Aspen, Pine, Spruce, and Hemlock. Trees not impacted by the project will be protected throughout construction. The proposed project has a comprehensive landscaping plan that includes extensive buffers along road frontages, and a variety of canopy trees and plantings dispersed throughout the new parking lot.
2. Proposed removals are identified on the site demolition and tree removal drawings, and new plantings are presented on the landscape plans. Where applicable, protection measures outlined in the standards of the City Technical Manual will be utilized.
3. Trees ten (10) inches or larger diameter at breast height (DBH) within the project area have been located and documented as required. On January 19, 2024, Sebago Technics visited the site with City Arborist Mark Reiland to review the proposed project and the extent of tree removal and opportunities for tree preservation. During the review, the City Arborist noted numerous Ash trees (*Fraxinus species*) along Jetport Boulevard displaying signs of Emerald Ash Borer infestation and damage. Ash trees are the predominant deciduous street tree present along both sides of Jetport Boulevard, planted as part of a previous landscape scheme for the site. The landscape plan proposes to remove the infested Ash Trees along the south side of Jetport Boulevard adjacent to the proposed parking lot. The City Arborist also noted a few Hemlock trees (*Tsuga canadensis*) closest to the intersection of Jetport Boulevard and International Parkway, while not identified to be removed, would likely not thrive the change in sunlight and exposure to the parking lot. The landscape plan proposes to replace the Hemlocks with native evergreen trees. No mature feature trees as described in the Technical Manual were found on site.
4. Waivers are not requested, and a contribution to the City of Portland Tree Fund described in the Technical Manual is not necessary or proposed.

Please see the plan set for the proposed landscaping plans.

Site Landscaping and Buffers 14-14.6.2(C)

The proposed project has been designed to comply with the applicable landscape and buffering requirements of the City Ordinance. The project is located in the A-B zone.

1. Landscaping.

- a. Landscape plans are provided within the plan set, identifying proposed plantings and existing trees to remain. The proposed plantings include a mixture of deciduous trees, evergreen trees, shrubs, perennials, and grasses. Diverse buffers are proposed along the perimeter of the project, with enhanced plantings around the entrance and exits of the new parking lot; canopy trees are proposed within most of the internal parking lot islands. Parking lot islands located above the subsurface stormwater infrastructure do not have proposed trees. Native species have been incorporated into the planting design, and most trees can be found on the City of Portland Recommended Tree List and/or have been recommended by the City Arborist.

2. Buffers.

- a. Loading and service areas are not included in this project. The proposed battery storage will be screened by evergreen trees and evergreen shrubs; additionally, fencing will be provided around the perimeter of the battery storage.
- b. The proposed project abuts the Residential 1 Zone along Jetport Boulevard. A fifteen (15) foot wide buffer consisting of evergreen trees, deciduous trees, and understory plantings is proposed along the south side of Jetport Boulevard Road to buffer views of the parking lot from abutting property.

3. Parking and vehicle display lot landscaping.

- a. The applicant is required to provide one (1) tree and three (3) shrubs for every five (5) parking spaces. The proposed surface parking lot has 684 (434 new) parking spaces, which will require 137 trees and 411 shrubs. The applicant is proposing 177 trees and 552 shrubs.
- b. Landscape islands have been distributed between parking stalls so that uninterrupted pavement does not exceed 40 parking spaces.

4. Street Trees.

- a. Street Trees are proposed along Jetport Boulevard, Loop Road, and Westbrook Street. The spacing of street trees varies due to numerous factors, including utility conflicts and other site constraints. Proposed street trees include species identified on the City of Portland Recommended Tree List.

Please see the plan set for the proposed landscaping plans.

Water Quality, Stormwater Management, and Erosion Control 14-14.6.2(D)

1. The subject site is comprised of a partially developed area (an existing paved lot and a gravel lot) and an undeveloped area. The proposed plan has been designed to meet the applicable City standards for stormwater management to minimize to the extent practicable the total area of impervious surface on site, as well as the volume and rate of runoff from the lot.

Please see the stormwater management plan.

2. The proposed project has been designed to be in compliance with the stormwater management standards of the City Technical Manual. Please see the stormwater management plan.
3. The proposed development does not propose any stormwater infiltration or other practices that would be expected to pose a risk of groundwater contamination either during or post-construction. Please see the plan set and the stormwater management plan.



STORMWATER MANAGEMENT REPORT

For

PORTLAND INTERNATIONAL JETPORT PORTLAND, MAINE

Prepared for:

Portland International Jetport
1001 Westbrook Street
Portland, ME 04101

Prepared by:

Sebago Technics, Inc.
75 John Roberts Rd, Suite 4A
South Portland, ME 04106

February, 2024

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Appendices

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**STORMWATER MANAGEMENT REPORT
PORTLAND INTERNATIONAL JETPORT
PORTLAND, ME**

1. Introduction

This Stormwater Management Plan Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modification in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

The project will require a major site plan approval from the City of Portland along with an amendment to the Site Location of Development Act (SLODA) permit (L-13760) and a Natural Resources Protection Act (NRPA) permit through the Maine Department of Environmental Protection (DEP) due to wetland impacts and a related permit through the US Army Core of Engineers (USACE).

The City of Portland zoning maps indicate the property is zoned "Airport Business" with the allowed uses including "parking lots and garages" (Sec. 14-197.1. Permitted uses) and a maximum impervious surface ratio of 70% (City Order No. 295-88, 5-23-88).

2. Existing Conditions

The project site is located at the Portland International Jetport (PWM) and is owned by the City of Portland. The entire acreage for the property is approximately 666 acres with 473 acres of airfield area and 193 acres of area beyond the airfield.

The project site for the proposed development is located near the intersection of Jetport Boulevard and International Parkway. There is an existing paved cellphone lot as well as an existing gravel lot located off Loop Road in the southern section of the project site. The gravel lot drains to the south on the surface of the lot as there is no storm drain network or water quality treatment within this lot. The stormwater runoff from the surface enters a grass swale between the lots and eventually drains to a catch basin near the southeastern corner of the cellphone lot. The northern section of the site consists of undeveloped, wooded land. The project site is approximately 13 acres.

The slopes range from 0% to 8% throughout the entire project site with the lowest approximate elevation of 52 FT and the highest approximate elevation of 90 FT.

The site is tributary to the Fore River, which is considered a major river segment. The site is not located within an urban impaired stream or lake-most at risk watershed according to Chapter 502 of the Maine DEP regulations.

The proposed development area of the site is not located in an identified flood zone per the FEMA Flood Insurance Rate Map.

3. Soils

Soil characteristics were obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey completed by Sebago Technics. The Hydrologic Groups (HSG) of the soils is classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
BuB	Lamoine silt loam	3-8	C/D
Gp	Gravel pits	N/A	N/A
PbB	Paxton fine sandy loam	3-8	C
Sn	Scantic silt loam	0-3	D
Sz	Swanton fine sandy loam	0-3	C/D
WmB	Windsor loamy sand	0-8	A

Hydrologic Soil Group boundaries are delineated on the Watershed Map. A copy of the Class D Intensity Soil Survey is included as Appendix 4.

4. Proposed Site Improvements

The proposed development will consist of two (2) paved parking lots: the lower lot and the upper lot. The upper and lower lots together are proposed to consist of 684 long- term parking spaces. There are landscaped islands proposed in each of the lots.

In total, the proposed site improvements result in 7.24 acres of disturbed area and 7.24 acres of proposed developed area, which consists of 5.64 acres of new impervious area and 1.60 acres of new landscaped or vegetated area.

Lower Lot

The lower lot is proposed to be located where the existing paved cellphone and valet gravel lots currently exist. There is a proposed entrance on Loop Road and exit on Westbrook Street. There is also an internal connecting road from the lower lot to the upper lot. The lower lot is proposed to consist of eight (8) ADA- compliant parking spaces and 248 standard parking spaces. The lower lot is proposed to be treated by one (1) Contech Stormfilter BMP with upstream CMP Pipe Detention. The total area tributary to the treatment system is equal to 105,340 SF (2.42 Ac), which includes approximately 90,030 SF (2.07 Ac) of impervious area.

Upper Lot

The upper lot is proposed to be located northwest of the lower lot, bounded by Jetport Boulevard to the northeast and Loop Road to the southwest. The entrance to the upper lot is the same as the lower lot on Loop Road with an exit onto Loop Road. The upper lot is proposed to consist of twelve (12) ADA-compliant parking spaces and 416 standard parking spaces. The upper lot is proposed to be treated by one (1) Contech Stormfilter BMP with upstream CMP Pipe Detention. The total area of the lot is approximately 180,210 SF (4.14 Ac), which includes approximately 146,080 SF (3.35 Ac) of impervious area.

The overall stormwater management system for the project will consist of catch basins and two (2) subsurface drainage systems. The two (2) subsurface drainage systems will be water quality treatment systems with upstream detention designated to the long-term parking lots. Since the Jetport discharges to the Fore River, the applicant will be pursuing a waiver of the Flooding Standard pursuant to MDEP Rules, Chapter 500(4)(F)(3)(b).

5. Existing Conditions Model

The existing conditions watershed plan consists of nine (9) subcatchments labeled 1S through 9S in the HydroCAD model. Four (4) locations were identified as Points of Analyses (POA) for comparing peak runoff rates. Please refer to the Existing Conditions HydroCAD model and Existing Conditions Watershed Plan. The overall drainage area included in the model is equal to 11.88 acres.

POA-1 is located near the intersection of Loop Road and Westbrook Street and represents the discharge pipe of existing catch basin B-32A. For the specific study point, there are five (5) existing catch basins that capture the stormwater runoff of the contributing watersheds. Watersheds 1S, 2S, 3S, 4S, 6S, and 8S contribute to POA-1 with an overall runoff area of approximately 9.06 acres.

POA-2 is located along Westbrook Street at an existing drainage manhole (WS-DMH-2). Watershed 5S contributes to this study point with a runoff area of approximately 0.82 acres.

POA-3 is located on an abutting property at an existing catch basin. Watershed 9S contributes to this study point with a runoff area of approximately 0.36 acres.

POA-4 is located along Loop Road at an existing drainage manhole (unlabeled). Watershed 7S contributes to this study point with a runoff area of approximately 1.64 acres.

6. Proposed Conditions Model

The proposed conditions consists of the same overall watershed area as the existing conditions, however, the pre-development subcatchments have been broken into smaller

watersheds as a result of the proposed development. The total area in the proposed conditions model remains unchanged from the existing conditions model at 11.88 acres.

POA1: Subcatchments 1S, 2.1S, 3.1S thru 3.7S, 4.1S thru 4.8S, 6.1S, and 8.1S thru 8.12S are tributary to POA-1 with an overall tributary area of 10.21 acres. The increase in tributary area is a result of the proposed development and alteration of drainage patterns to convey and treat stormwater to the two (2) subsurface drainage systems.

Subcatchments 8.2S thru 8.12S are tributary to Stormfilter Treatment Unit #1 (SF-1), represented by nodes 8.83P, 8.84P, and 8.85P. 8.83P represents the water quality detention of the Stormfilter, while 8.84P represents the peak flow detention of the upstream storage configuration. 8.85P represents the 18" discharge pipe that combines the water quality discharge and peak detention flow, which eventually drains to POA-1.

Subcatchments 3.1S thru 3.7S and 4.2S thru 4.8S are tributary to Stormfilter Treatment Unit #2 (SF-2), represented by nodes 3.32P, 3.33P, and 3.34P. 3.32P represents the water quality detention of the Stormfilter, while 3.33P represents the peak flow detention of the upstream storage configuration. 3.34P represents the 24" discharge pipe that combines the water quality discharge and peak detention flow, which eventually drains to POA-1.

Subcatchment 1S remains unchanged from the existing condition. Subcatchment 2.1S represents existing conditions subcatchment 2S that has been altered as a result of the proposed project through the change in land cover type and altered grading and drainage patterns. Subcatchment 6.1S represents the existing conditions subcatchment 6S that has been altered as a result of the proposed project through grading and land cover changes. Subcatchment 8.1S represents the remainder of existing conditions subcatchment 8S that remains largely unchanged from the existing condition and does not drain to SF-1. Subcatchments 1S, 2.1S, 6.1S and 8.1S are tributary to existing conditions catch basin B-34, represented by node 2P, which eventually drains to POA-1.

POA-2: Subcatchment 5.1S is tributary to POA-2 with an overall tributary area of 0.47 acres. 5.1S represents the remainder of existing conditions subcatchment 5S that continues to drain to POA-2. 5.1S is the result of the alterations to subcatchment 9S in the proposed development, which consists of grading and conveyance of stormwater to be attenuated and treated by SF-2.

POA-3: Subcatchment 9.1S is tributary to POA-3 with an overall tributary area of 0.16 acres. 9.1S represents the remainder of existing conditions subcatchment 9S that continues to drain to POA-3. 9.1S is the result of the alterations to subcatchment 9S in the proposed development, which consists of grading and conveyance of stormwater to be attenuated and treated by SF-1.

POA-4: Subcatchment 7.1S is tributary to POA-4 with an overall tributary area of 1.02 acres. 7.1S represents the remainder of existing conditions subcatchment 7S that continues to

drain to the existing conditions drain manhole that is represented by node 7P in the existing and proposed conditions models.

7. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

Since the project will disturb more than one (1) acre of land area, MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. We have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance and Housekeeping Plan (Appendix 3) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

General Standard - Chapter 500, Section 4(C)

Since the project will create more than one (1) acre of impervious surface, MDEP General Standards apply, which require a project's stormwater management system to include treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. The General Standards require treatment of no less than 95% of the site's created impervious area and no less than 80% of the site's created developed area (landscaped area and impervious area combined). To mitigate the changes in hydrologic patterns due to the development of this project, two (2) Contech Stormfilter Treatment BMP's have been implemented into the stormwater management infrastructure. Filtration BMPs are very effective at removing a wide range of pollutants through the use of organic soil filter media.

The Best Management Practices (two (2) subsurface drainage systems) have been designed and sized in accordance with DEP BMP standards contained within Chapter 500 and the BMP Manual. Sizing calculations can be found in Appendix 1. Through the use of the aforementioned BMP's 96.0% of new impervious area and 90.5% of new developed area will be receiving treatment. This meets the requirements for the Maine DEP General Standards.

It is worth noting that in the proposed condition, the redevelopment of the area occupied by the existing gravel and cellphone lots will provide greater water quality than in the existing condition. As described above, in the existing condition, the existing gravel parking lot has no storm drain network to drain the runoff and is not treated prior to entering the Jetport storm drain network. It contributes untreated, turbulent stormwater runoff to the existing system. In the proposed condition, with the implementation of the proposed BMP's, the system will remove pollutants, cool the water, and provide attenuation to the stormwater runoff of the area. This will mitigate impacts to the Fore River Watershed from an area that is already developed.

Flooding Standard - Chapter 500, Section 4(F)

Since the planned project will create more than three (3) acres of impervious surface, MDEP Flooding Standards must be met. The Flooding Standard requires a project's stormwater management system detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2, 10, and 25-year frequencies such that the peak flows of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project. The project is located within the direct watershed of the Fore River, which is a major river segment. Therefore, the project qualifies for a waiver from the Flooding Standard as defined in MDEP's Chapter 500, Section 4(F)-3(a). As stated above, the majority of the proposed developed area discharges to the existing stormdrain network. Therefore, the project was designed to treat and attenuate stormwater discharge so the pipe capacity of the existing stormdrain network was not increased or exceeded.

A runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations.

HydroCAD Stormwater Analysis

Runoff curve numbers were determined for each of the watersheds by measuring the area of each hydrologic soil group within each type of land cover. The type of land cover was determined based on survey data, field reconnaissance and aerial photography. Times of concentration were determined from site topographic maps in accordance with SCS procedures.

The 24-hour rainfall values utilized in the hydrologic model were obtained from Appendix H of MDEP's Chapter 500: Stormwater Management (effective date August 2015). Rainfall values for Cumberland SE County are listed in the table below.

Storm Frequency Precipitation (in./24 hr) Cumberland SE County	
2-year	3.1
10-year	4.6
25-year	5.8

The following table presents the results of the peak runoff calculations at the analysis points for the existing and proposed conditions.

Peak Runoff Rate Summary Table			
Analysis Point	Storm Event	Existing Conditions (cfs)	Proposed Conditions (cfs)
POA-1	2-year	12.9	9.0
	10-year	20.7	15.0
	25-year	27.0	19.8
POA-2	2-year	2.3	1.2
	10-year	3.5	1.9
	25-year	4.5	2.5
POA-3	2-year	0.6	0.3
	10-year	1.2	0.5
	25-year	1.6	0.7
POA-4	2-year	2.3	2.3
	10-year	3.8	3.6
	25-year	5.0	4.6

The HydroCAD Data output sheets from this analysis are appended to this report (Appendix 2) along with the Stormwater Management Plans (Appendix 5). The model predicts that the peak runoff rates in the proposed condition at Points of Analyses 1, 2, 3, & 4 are at or below existing condition runoff rates for the 2, 10, and 25-year storm events with implementation of the proposed stormwater management practices.

8. Summary

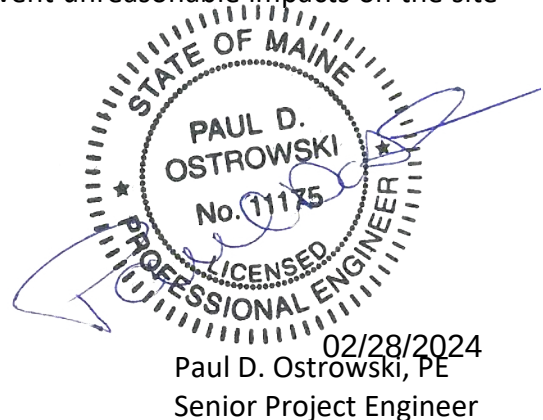
The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. Stormwater BMP's provide treatment to 96.0% (95% required) of impervious areas, and 90.5% (80% required) of the total developed area. Runoff discharging from the site in the proposed condition will be at or below existing conditions for the 2, 10, and 25-year storm events at points of analyses 1, 2, 3, & 4. Additionally, erosion and sedimentation controls along with associated maintenance and housekeeping procedures have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by:

SEBAGO TECHNICS, INC.



Tanner F. Goodine, EI
Civil Engineer
TFG/PDO



Appendix 1

Stormwater Quality Calculations

Job #19059: Portland International Jetport (PWM) Parking Expansion

TOTAL NEW IMPERVIOUS AREA (S.F.)	245,865	TOTAL DEVELOPED AREA (S.F.)	315,633
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	236,110	TOTAL AREA RECEIVING TREATMENT (S.F.)	285,550
% OF IMPERVIOUS AREA RECEIVING TREATMENT	96.0%	% OF AREA RECEIVING TREATMENT	90.5%

December 13, 2023

Tanner Goodine, EI
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, ME 04106

RE: Portland Jetport Parking (Contech Reference No. 777919)
Review of StormFilter Design

To whom it may concern,

The purpose of this letter is to document Contech Engineered Solutions review of the plans and the proposed application of the StormFilter Media Filtration System water quality unit for your project.

Contech Engineered Solutions (Contech) has reviewed the StormFilter (SF) design for this project. We believe the SF configuration to be an appropriate water quality solution for this site.

The SF system with Phosphosorb (Psorb) media cartridges is approved for use by MEDEP meeting the General Standard of the Stormwater rules (Chapter 500) if designed, installed, and maintained in accordance with the provisions noted in the February 24, 2023 approval letter from the MEDEP.

The StormFilter system is designed in accordance with the maximum drain down rate of 1.67 gallons per minute per square foot of filter surface area (18.79 gpm per 27" cartridge). Additionally, the StormFilter is designed with an upstream water quality volume (WQv) detention system to retain, route and treat the entire WQ event flow from the contributing drainage area to the treatment unit. The resultant volume from the WQ event storm is detained in the upstream detention to an elevation below any bypass flow paths resulting in a routed storm event volume through the SF cartridges with a required emptying time of 24 to 48 hours.

Due to the extended detention time upstream of the SF in the WQv detention system, Contech assumes sedimentation of the larger solids at an estimated 50 percent reduction of the total suspended solids prior to the treatment by the StormFilter vault.

StormFilter 1: The engineer of record provided a drainage area of 4.14 acres, of which 3.35 acres is impervious. In order to adequately treat the runoff from this area, Contech recommends an offline StormFilter Vault 8'x11' (model SF0811) with quantity 18 x 27" Phosphosorb cartridges based on sediment mass loading design methodology.

StormFilter 2: The engineer of record provided a drainage area of 2.42 acres, of which 2.07 acres is impervious. In order to adequately treat the runoff from this area, Contech recommends an offline StormFilter 96" diameter Manhole (model SFMH96) with quantity 11 x 27" Phosphosorb cartridges based on sediment mass loading design methodology.

The SF system requires a hydraulic headwater condition to fully immerse the media and activate the cartridge float valve. For 27" SF cartridges, this headwater condition is 3.05 ft above SF outlet invert. This is achieved by the either physical inlet to outlet pipe elevation drop or an upstream WQ detention filling during the WQ storm flow to the required SF float valve activation elevation.

The WQv is routed through the SF vault and the detention system WQ outlet control shall be designed by the Engineer of Record to drain down in 24 to 48 hours after the beginning of the storm resulting in a cumulative treated WQv.

It is recommended to have the site detention system storage designed to store the WQv and flood control volume separately with the two parts of the detention system separated by a weir to ensure that the WQv is captured for treatment prior to overflowing into the flood control detention.

Our systems require periodic maintenance to continue operating properly. Given typical runoff pollutant loading rates, Contech recommends maintenance inspections on an annual basis.

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,

A handwritten signature in black ink that reads "David Adams". The script is fluid and cursive.

David Adams, PE
Contech Engineered Solutions, LLC.
(207) 885-6191
dadams@conteches.com

StormFilter Design Calculation

CONTECH Stormwater Solutions Inc. Engineer:
Date

DRA
12/1/2023

Site Information

Project Name	Portland Jetport Parking
Project State	ME
Project Location	Portland
Site Designation	Lot 1
Drainage Area, Ad	4.14 ac
Impervious Area, Ai	3.35 ac
Pervious Area, Ap	0.78
% Impervious	81 %
Runoff Coefficient, Rc	0.78

Upstream Detention System

Detention pretreatment credit	50%
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Mass loading calculations

Mean Annual Rainfall, P	49 in
Agency required % removal	80%
Percent Runoff Capture	90%
Mean Annual Runoff, V_t	516,267 ft ³
Event Mean Concentration of Pollutant, EMC	75 mg/l
Annual Mass Load, M_{total}	2,416 lbs

Water Quality Volume

90% Rainfall Depth	1.00 in
Volume to be treated	0.269 ac-ft
Volume to be treated by filters	11,707 ft ³

Filter System

Filtration brand	StormFilter
Specific Flow Rate	1.00 gpm/ft ²
Cartridge height	27 in

Number of cartridges - mass loading

Mass removed by pretreatment system, M_{pre}	1,208 lbs
Mass load to filters after pretreatment, M_{pass1}	1,208 lbs
Mass to be captured by filters, M_{filter}	966 lbs
Allowable Cartridge Flow rate, Q_{cart}	11.25 gpm
Mass load per cartridge, M_{cart} (lbs)	54 lbs
Number of Cartridges required, N_{mass}	18 ea
Treatment Capacity	0.451 cfs

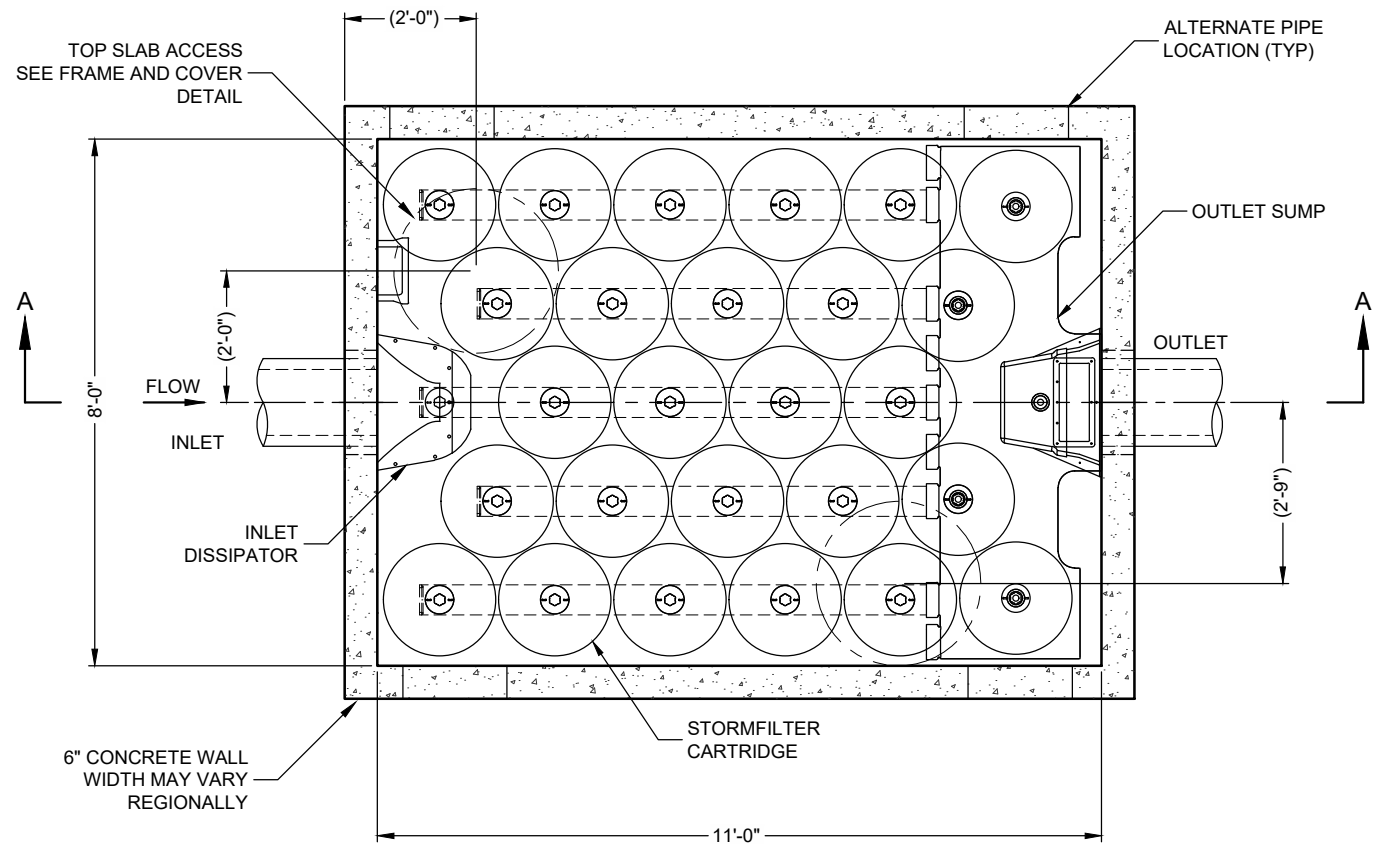
Determine Critical Sizing Value

Method to Use:	MASS-LOADING
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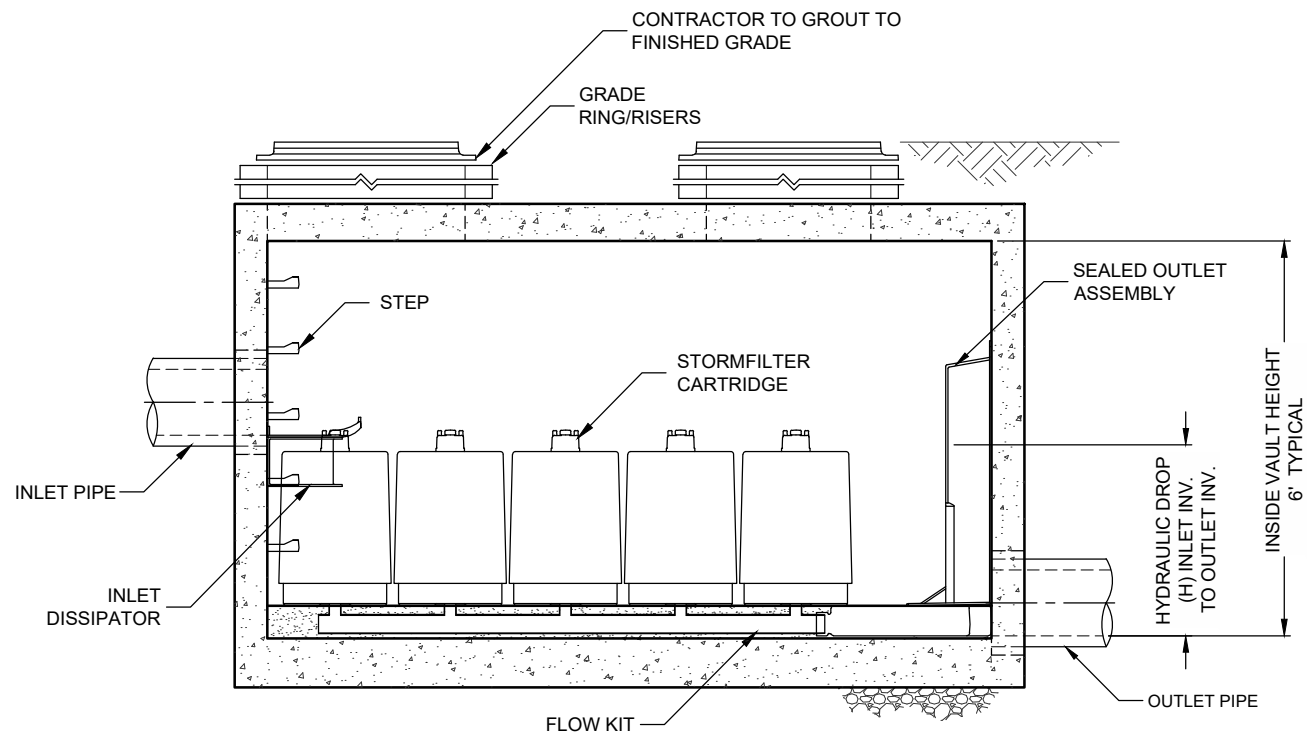
SUMMARY

Treatment Flow Rate (cfs)	0.451
Cartridge Flow Rate (gpm)	11.25
Number of Cartridges	18

I:\STORMWATER\COMMOPS\10 STORMFILTER\40 STANDARD DRAWINGS\VAULT\DWG\SF0811-DTL SEALED OUTLET RISER.DWG 8/10/2021 2:40 PM



PLAN VIEW
VAULT STYLE: OUTLET SUMP (NIB)



SECTION A-A



THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,302,625; 6,524,496; 6,707,627; 6,986,167; 6,827,636; 6,849,048; RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

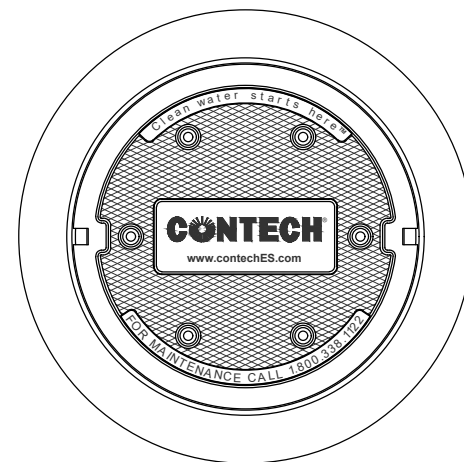
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (26). VAULT STYLE OPTIONS INCLUDE INLET BAY (17), INLET BAY/OUTLET BAY (12), OUTLET BAY (21), FULL HEIGHT BAFFLE WALL (17). STORMFILTER 8X11 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

UPSTREAM RIM ELEVATION	*
DOWNSTREAM RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
- STORMFILTER STRUCTURE SHALL BE PRECAST CONFORMING TO ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER VAULT (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLE VAULT.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH
ENGINEERED SOLUTIONS LLC

www.contechES.com

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069

800-338-1122

513-645-7000

513-645-7993 FAX

SF0811
STORMFILTER
STANDARD DETAIL

StormFilter Design Calculation

CONTECH Stormwater Solutions Inc. Engineer:
Date

DRA
12/1/2023

Site Information

Project Name	Portland Jetport Parking
Project State	ME
Project Location	Portland
Site Designation	Lot 2
Drainage Area, Ad	2.42 ac
Impervious Area, Ai	2.07 ac
Pervious Area, Ap	0.35
% Impervious	85 %
Runoff Coefficient, Rc	0.82

Upstream Detention System

Detention pretreatment credit	50%
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Mass loading calculations

Mean Annual Rainfall, P	49 in
Agency required % removal	80%
Percent Runoff Capture	90%
Mean Annual Runoff, V_t	317,144 ft ³
Event Mean Concentration of Pollutant, EMC	75 mg/l
Annual Mass Load, M_{total}	1,484 lbs

Water Quality Volume

90% Rainfall Depth	1.00 in
Volume to be treated	0.165 ac-ft
Volume to be treated by filters	7,191 ft ³

Filter System

Filtration brand	StormFilter
Specific Flow Rate	1.00 gpm/ft ²
Cartridge height	27 in

Number of cartridges - mass loading

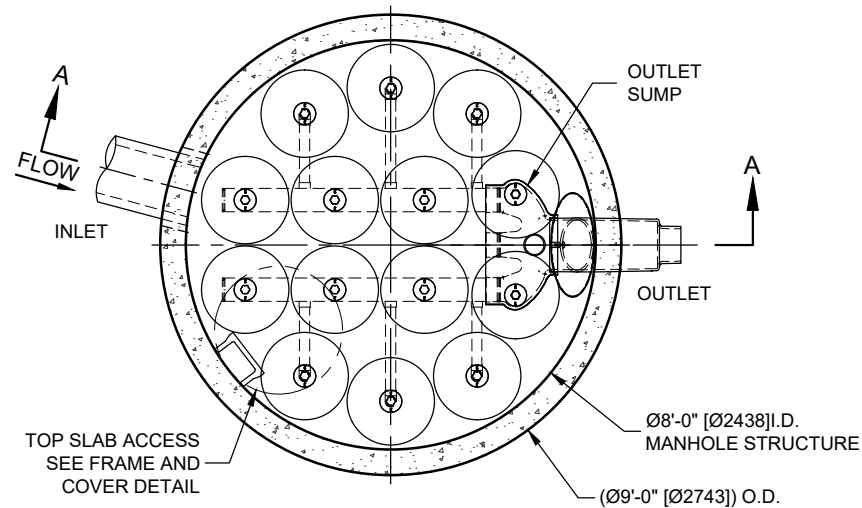
Mass removed by pretreatment system, M_{pre}	742 lbs
Mass load to filters after pretreatment, M_{pass1}	742 lbs
Mass to be captured by filters, M_{filter}	594 lbs
Allowable Cartridge Flow rate, Q_{cart}	11.25 gpm
Mass load per cartridge, M_{cart} (lbs)	54 lbs
Number of Cartridges required, N_{mass}	11 ea
Treatment Capacity	0.276 cfs

Determine Critical Sizing Value

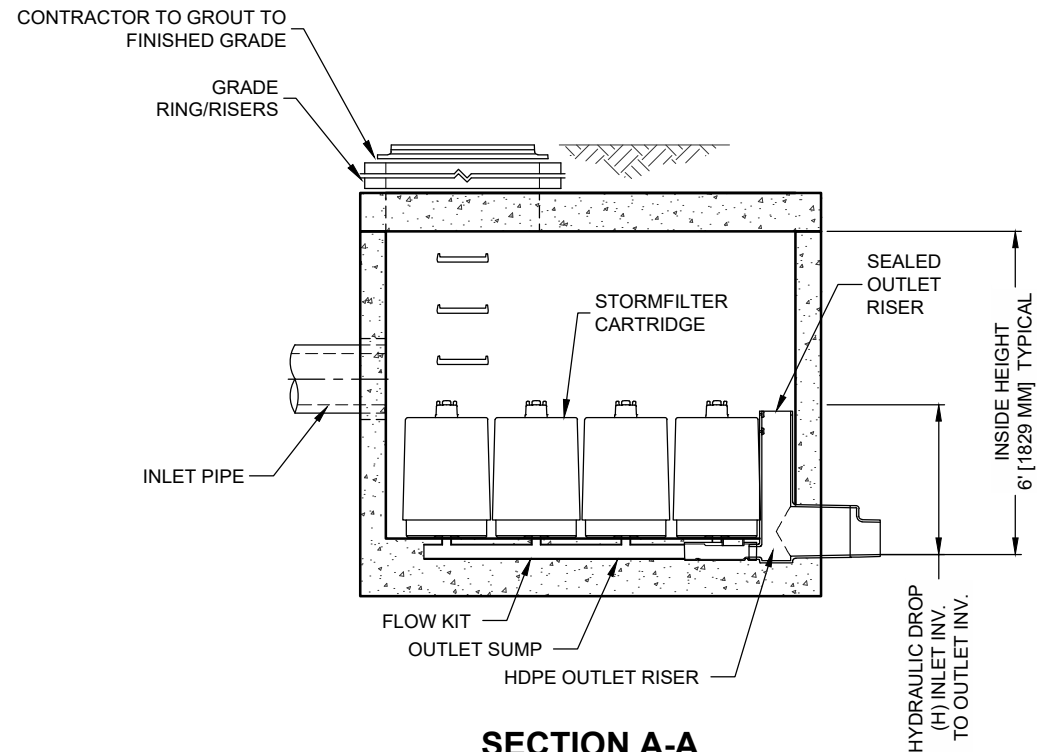
Method to Use:	MASS-LOADING
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SUMMARY

Treatment Flow Rate (cfs)	0.276
Cartridge Flow Rate (gpm)	11.25
Number of Cartridges	11



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 43A



SECTION A-A



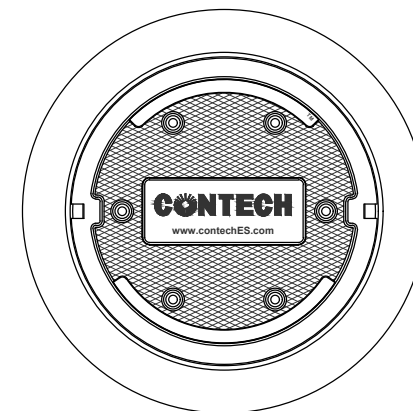
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (14). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 14 CARTRIDGES. Ø8'-0" [2438 mm] MANHOLE STORMFILTER PEAK HYDRAULIC CAPACITY IS 1.8 CFS [51 L/s] . IF THE SITE CONDITIONS EXCEED 1.8 CFS [51 L/s] AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m ²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs) [L/s]	*
PEAK FLOW RATE (cfs) [L/s]	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*
MEDIA TYPE (PERLITE, ZPG, PSORB)	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*
---------------	---

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
- STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
- CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

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SFMH96
STORMFILTER
STANDARD DETAIL

19059 - POST

Type III 24-hr WQ SF-1 Rainfall=1.20"

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Summary for Pond 8.83P: WQ DET & SF-1

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 0.83" for WQ SF-1 event
 Inflow = 3.7 cfs @ 12.09 hrs, Volume= 12,434 cf
 Outflow = 0.7 cfs @ 12.52 hrs, Volume= 12,434 cf, Atten= 80%, Lag= 26.3 min
 Primary = 0.5 cfs @ 12.52 hrs, Volume= 12,311 cf
 Secondary = 0.3 cfs @ 12.52 hrs, Volume= 123 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 68.62' @ 12.52 hrs Surf.Area= 1,115 sf Storage= 4,521 cf

Plug-Flow detention time= 93.2 min calculated for 12,434 cf (100% of inflow)
 Center-of-Mass det. time= 93.2 min (880.1 - 786.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	10.00'W x 111.50'L x 8.00'H Field A 8,920 cf Overall - 5,504 cf Embedded = 3,416 cf x 0.0% Voids
#2A	62.50'	5,504 cf	CMP Round 96 x 5 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +1.50' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		5,504 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	62.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.50' / 62.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	60.60'	Tube/Siphon/Float Valve X 18.00 0.586" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@63.35'
#3	Primary	60.60'	12.0" Round 12" Stormfilter Outlet L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 60.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	68.58'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

Primary OutFlow Max=0.5 cfs @ 12.52 hrs HW=68.62' (Free Discharge)

 ↑ **3=12" Stormfilter Outlet** (Passes 0.5 cfs of 8.2 cfs potential flow)

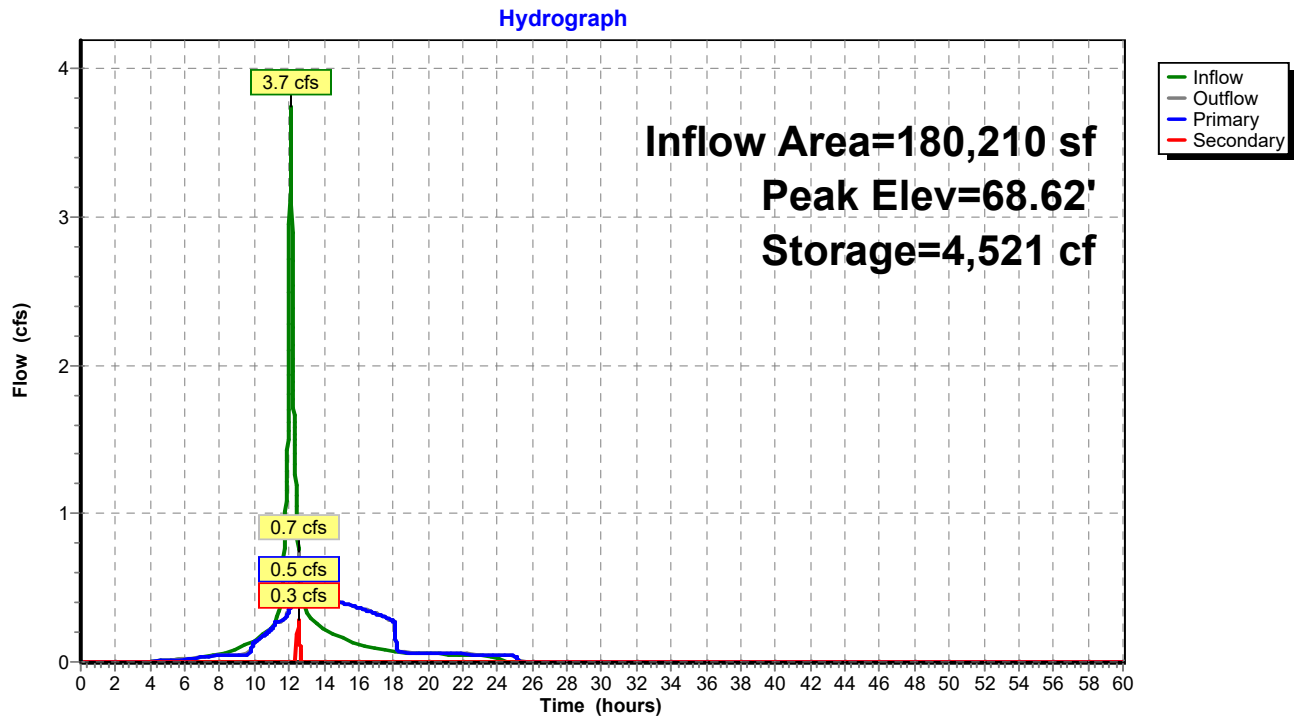
 ↑ **2=Tube/Siphon/Float Valve** (Orifice Controls 0.5 cfs @ 13.64 fps)

 ↑ **1=Culvert** (Passes 0.5 cfs of 9.0 cfs potential flow)

Secondary OutFlow Max=0.2 cfs @ 12.52 hrs HW=68.62' (Free Discharge)

 ↑ **4=Custom Weir/Orifice** (Weir Controls 0.2 cfs @ 0.69 fps)

Pond 8.83P: WQ DET & SF-1



19059 - POST

Type III 24-hr WQ SF-2 Rainfall=1.15"

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Summary for Pond 3.32P: WQ DET & SF-2

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth = 0.82" for WQ SF-2 event
 Inflow = 2.2 cfs @ 12.09 hrs, Volume= 7,215 cf
 Outflow = 0.3 cfs @ 12.59 hrs, Volume= 7,215 cf, Atten= 85%, Lag= 30.1 min
 Primary = 0.3 cfs @ 12.59 hrs, Volume= 7,195 cf
 Secondary = 0.0 cfs @ 12.59 hrs, Volume= 20 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 62.41' @ 12.59 hrs Surf.Area= 1,634 sf Storage= 2,580 cf

Plug-Flow detention time= 87.6 min calculated for 7,214 cf (100% of inflow)
 Center-of-Mass det. time= 87.6 min (874.4 - 786.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	8.00'W x 204.25'L x 9.00'H Field A 14,706 cf Overall - 10,166 cf Embedded = 4,540 cf x 0.0% Voids
#2A	60.00'	10,166 cf	CMP Round 96 x 9 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +14.25' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		10,166 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	60.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.00' / 59.95' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	57.70'	Tube/Siphon/Float Valve X 11.00 0.668" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@60.45'
#3	Primary	57.70'	12.0" Round 12" Stormfilter Outlet L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.70' / 57.60' S= 0.0077 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	62.40'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 2.40 2.48 2.56 2.64 2.72 2.80 2.88 2.96 3.04 3.12 3.20 3.28 3.36 3.44 3.52 3.60 3.68 3.76 3.84 3.92 4.00 4.08 4.16 4.24 4.32 4.40 4.48 4.56 4.64 4.72 4.80 4.88 4.96 5.04 5.12 5.20 5.28 5.36 5.44 5.52 5.60 5.68 5.76 5.84 5.92 6.00 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 7.33 7.40 7.46 7.52 7.58 7.63 7.68 7.72 7.77 7.80 7.84 7.87 7.90 7.92 7.94 7.96 7.97 7.99 7.99 8.00 8.00 8.00 7.99 7.99 7.97 7.96 7.94 7.92 7.90 7.87 7.84 7.80 7.77 7.72 7.68 7.63 7.58 7.52 7.46 7.40 7.33 7.26 7.18 7.10 7.02 6.93 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59

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Type III 24-hr WQ SF-2 Rainfall=1.15"

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0.00

Primary OutFlow Max=0.3 cfs @ 12.59 hrs HW=62.41' (Free Discharge)

↑ **3=12" Stormfilter Outlet** (Passes 0.3 cfs of 6.1 cfs potential flow)

↑ **2=Tube/Siphon/Float Valve** (Orifice Controls 0.3 cfs @ 10.45 fps)

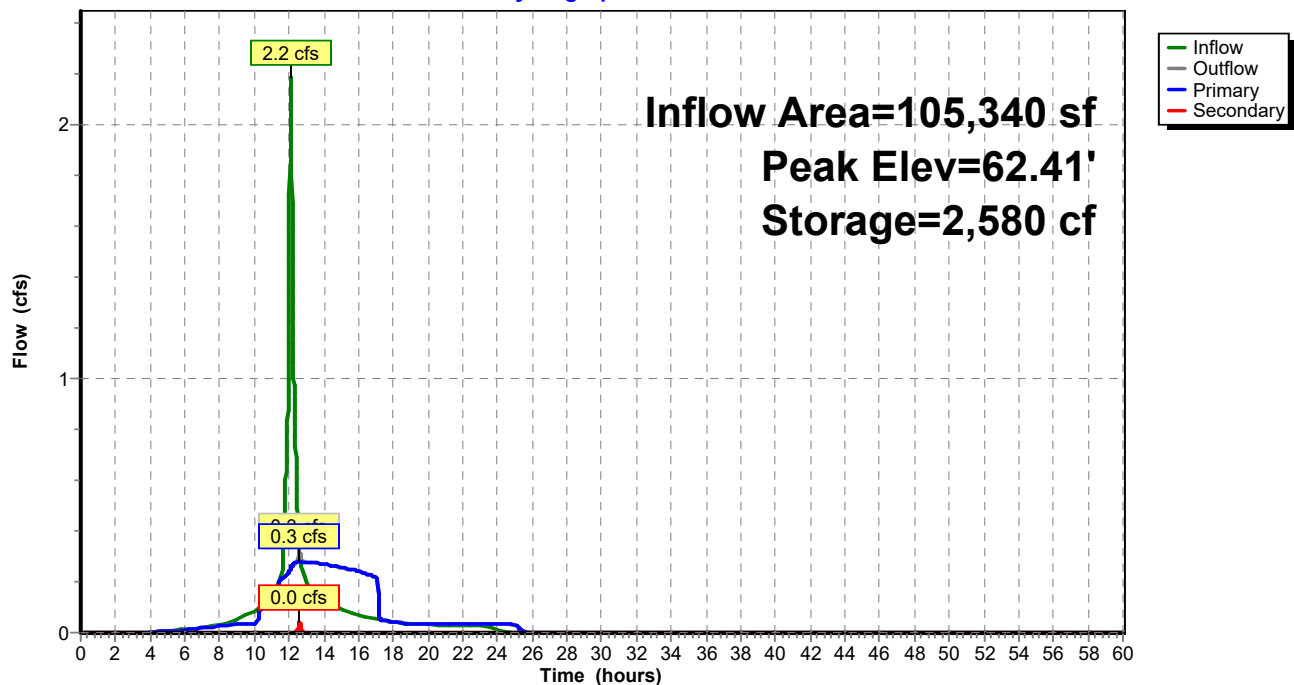
↑ **1=Culvert** (Passes 0.3 cfs of 5.2 cfs potential flow)

Secondary OutFlow Max=0.0 cfs @ 12.59 hrs HW=62.41' (Free Discharge)

↑ **4=Custom Weir/Orifice** (Weir Controls 0.0 cfs @ 0.33 fps)

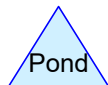
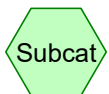
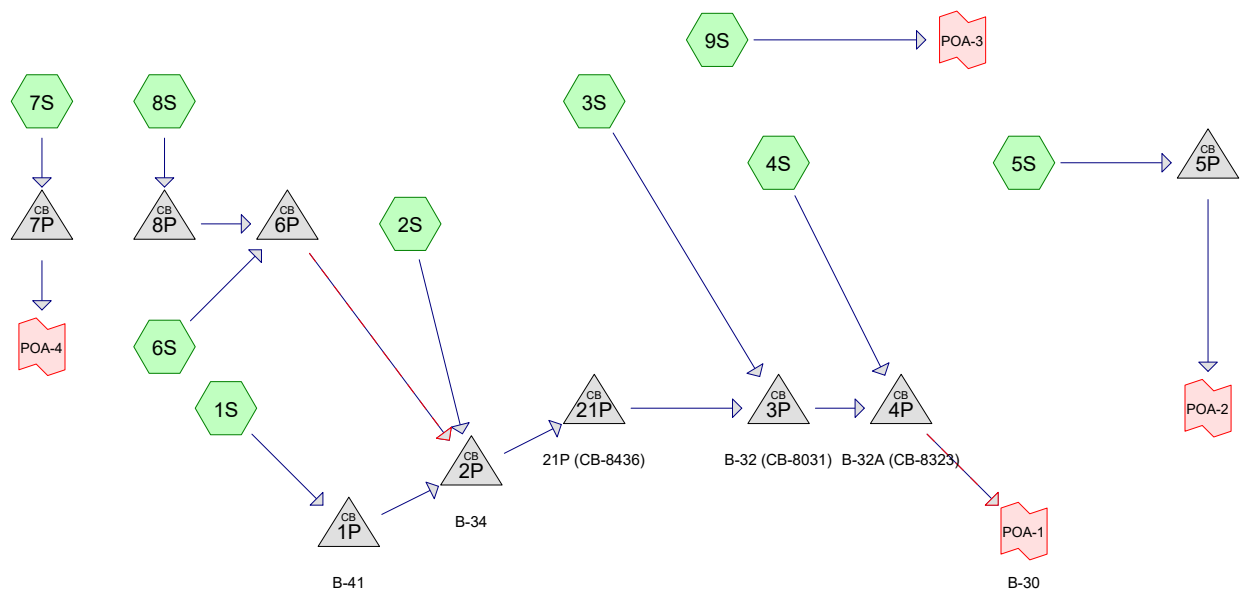
Pond 3.32P: WQ DET & SF-2

Hydrograph



Appendix 2A

Existing Conditions HydroCAD Summary



Routing Diagram for 19059 - PRE
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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=2.82" Tc=6.0 min CN=WQ Runoff=2.4 cfs 8,185 cf
Subcatchment2S:	Runoff Area=23,550 sf 62.59% Impervious Runoff Depth=2.43" Tc=6.0 min CN=WQ Runoff=1.4 cfs 4,761 cf
Subcatchment3S:	Runoff Area=107,470 sf 32.46% Impervious Runoff Depth=2.04" Flow Length=835' Tc=33.4 min CN=WQ Runoff=3.0 cfs 18,233 cf
Subcatchment4S:	Runoff Area=80,650 sf 29.23% Impervious Runoff Depth=2.58" Flow Length=480' Tc=7.8 min CN=WQ Runoff=4.9 cfs 17,338 cf
Subcatchment5S:	Runoff Area=35,560 sf 28.26% Impervious Runoff Depth=2.62" Tc=6.0 min CN=WQ Runoff=2.3 cfs 7,757 cf
Subcatchment6S:	Runoff Area=63,780 sf 67.70% Impervious Runoff Depth=2.37" Flow Length=280' Tc=14.5 min CN=WQ Runoff=2.9 cfs 12,622 cf
Subcatchment7S:	Runoff Area=71,445 sf 40.30% Impervious Runoff Depth=2.05" Flow Length=460' Tc=25.7 min CN=WQ Runoff=2.3 cfs 12,219 cf
Subcatchment8S:	Runoff Area=84,725 sf 9.68% Impervious Runoff Depth=1.36" Flow Length=505' Tc=27.8 min CN=WQ Runoff=1.7 cfs 9,571 cf
Subcatchment9S:	Runoff Area=15,800 sf 0.00% Impervious Runoff Depth=1.53" Tc=6.0 min CN=83 Runoff=0.6 cfs 2,011 cf
Pond 1P: B-41	Peak Elev=58.76' Inflow=2.4 cfs 8,185 cf 18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=2.4 cfs 8,185 cf
Pond 2P: B-34	Peak Elev=59.25' Inflow=6.7 cfs 35,138 cf 18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=6.7 cfs 35,138 cf
Pond 3P: B-32 (CB-8031)	Peak Elev=57.21' Inflow=8.1 cfs 53,372 cf 24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=8.1 cfs 53,372 cf
Pond 4P: B-32A (CB-8323)	Peak Elev=57.69' Inflow=12.9 cfs 70,710 cf Primary=12.9 cfs 70,710 cf Secondary=0.0 cfs 0 cf Outflow=12.9 cfs 70,710 cf
Pond 5P:	Peak Elev=60.88' Inflow=2.3 cfs 7,757 cf 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=2.3 cfs 7,757 cf
Pond 6P:	Peak Elev=64.44' Inflow=4.1 cfs 22,193 cf Primary=4.1 cfs 22,193 cf Secondary=0.0 cfs 0 cf Outflow=4.1 cfs 22,193 cf
Pond 7P:	Peak Elev=66.07' Inflow=2.3 cfs 12,219 cf 12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=2.3 cfs 12,219 cf

19059 - PRE*Type III 24-hr 2-YR Rainfall=3.10"*

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Pond 8P:

Peak Elev=64.34' Inflow=1.7 cfs 9,571 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0189 '/' Outflow=1.7 cfs 9,571 cf

Pond 21P: 21P (CB-8436)

Peak Elev=57.37' Inflow=6.7 cfs 35,138 cf
24.0" Round Culvert n=0.013 L=90.0' S=0.0029 '/' Outflow=6.7 cfs 35,138 cf

Link POA-1: B-30

Inflow=12.9 cfs 70,710 cf
Primary=12.9 cfs 70,710 cf

Link POA-2:

Inflow=2.3 cfs 7,757 cf
Primary=2.3 cfs 7,757 cf

Link POA-3:

Inflow=0.6 cfs 2,011 cf
Primary=0.6 cfs 2,011 cf

Link POA-4:

Inflow=2.3 cfs 12,219 cf
Primary=2.3 cfs 12,219 cf

Total Runoff Area = 517,820 sf Runoff Volume = 92,697 cf Average Runoff Depth = 2.15"
61.97% Pervious = 320,900 sf 38.03% Impervious = 196,920 sf

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 1S:

Runoff = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf, Depth= 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 1.4 cfs @ 12.09 hrs, Volume= 4,761 cf, Depth= 2.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
14,740	98	Paved parking, HSG D
730	96	Gravel surface, HSG D
8,080	84	50-75% Grass cover, Fair, HSG D
23,550		Weighted Average
8,810		37.41% Pervious Area
14,740		62.59% Impervious Area

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

Summary for Subcatchment 3S:

Runoff = 3.0 cfs @ 12.44 hrs, Volume= 18,233 cf, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
34,880	98	Paved parking, HSG D
7,880	96	Gravel surface, HSG D
2,770	84	50-75% Grass cover, Fair, HSG D
58,940	83	Woods, Poor, HSG D
3,000	77	Woods, Poor, HSG C
107,470		Weighted Average
72,590		67.54% Pervious Area
34,880		32.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5	100	0.0150	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.8	250	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.6	100	0.0300	2.79		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
0.1	10	0.0100	1.50		Shallow Concentrated Flow, D-E Grassed Waterway Kv= 15.0 fps
0.1	25	0.0200	2.87		Shallow Concentrated Flow, E-F Paved Kv= 20.3 fps
0.1	10	0.0200	2.12		Shallow Concentrated Flow, F-G Grassed Waterway Kv= 15.0 fps
0.7	170	0.0400	4.06		Shallow Concentrated Flow, G-H Paved Kv= 20.3 fps
0.5	170	0.0100	5.90	4.63	Pipe Channel, H-I 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
33.4	835	Total			

Summary for Subcatchment 4S:

Runoff = 4.9 cfs @ 12.11 hrs, Volume= 17,338 cf, Depth= 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
23,570	98	Paved parking, HSG D
46,780	96	Gravel surface, HSG D
10,300	84	50-75% Grass cover, Fair, HSG D
80,650		Weighted Average
57,080		70.77% Pervious Area
23,570		29.23% Impervious Area

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Type III 24-hr 2-YR Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	20	0.0400	0.07		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	180	0.0350	3.01		Shallow Concentrated Flow, B-C
					Unpaved Kv= 16.1 fps
2.2	280	0.0200	2.12		Shallow Concentrated Flow, C-D
					Grassed Waterway Kv= 15.0 fps
7.8	480	Total			

Summary for Subcatchment 5S:

Runoff = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
* 10,050	98	Paved parking, HSG D
22,320	96	Gravel surface, HSG D
3,190	84	50-75% Grass cover, Fair, HSG D
35,560		Weighted Average
25,510		71.74% Pervious Area
10,050		28.26% Impervious Area

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

Summary for Subcatchment 6S:

Runoff = 2.9 cfs @ 12.19 hrs, Volume= 12,622 cf, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
37,150	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
640	96	Gravel surface, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
11,820	77	Woods, Poor, HSG C
63,780		Weighted Average
20,600		32.30% Pervious Area
43,180		67.70% Impervious Area

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Type III 24-hr 2-YR Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7S:

Runoff = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
28,795	98	Paved parking, HSG D
4,120	79	50-75% Grass cover, Fair, HSG C
38,530	83	Woods, Poor, HSG D
71,445		Weighted Average
42,650		59.70% Pervious Area
28,795		40.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	110	0.0225	0.08		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	90	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.1	10	0.0150	1.84		Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
25.7	460	Total			

Summary for Subcatchment 8S:

Runoff = 1.7 cfs @ 12.39 hrs, Volume= 9,571 cf, Depth= 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
8,205	98	Paved parking, HSG D
10,390	83	Woods, Poor, HSG D
66,130	77	Woods, Poor, HSG C
84,725		Weighted Average
76,520		90.32% Pervious Area
8,205		9.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	110	0.0300	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.9	180	0.0075	0.43		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	35	0.1000	1.58		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
0.5	180	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
27.8	505	Total			

Summary for Subcatchment 9S:

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 2,011 cf, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
15,800	83	Woods, Poor, HSG D
15,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 2.82" for 2-YR event
 Inflow = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf
 Outflow = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.76' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900

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Type III 24-hr 2-YR Rainfall=3.10"

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Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 '/' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.4 cfs @ 12.08 hrs HW=58.76' (Free Discharge)↑**1=Culvert** (Barrel Controls 2.4 cfs @ 3.26 fps)**Summary for Pond 2P: B-34**

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 2.04" for 2-YR event
 Inflow = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf
 Outflow = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 59.25' @ 12.11 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.7 cfs @ 12.11 hrs HW=59.25' (Free Discharge)↑**1=Culvert** (Inlet Controls 6.7 cfs @ 3.80 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 314,365 sf, 42.79% Impervious, Inflow Depth = 2.04" for 2-YR event
 Inflow = 8.1 cfs @ 12.13 hrs, Volume= 53,372 cf
 Outflow = 8.1 cfs @ 12.13 hrs, Volume= 53,372 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.1 cfs @ 12.13 hrs, Volume= 53,372 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.21' @ 12.13 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.1 cfs @ 12.13 hrs HW=57.21' (Free Discharge)↑**1=Culvert** (Barrel Controls 8.1 cfs @ 3.66 fps)

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 2.15" for 2-YR event
 Inflow = 12.9 cfs @ 12.12 hrs, Volume= 70,710 cf
 Outflow = 12.9 cfs @ 12.12 hrs, Volume= 70,710 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.9 cfs @ 12.12 hrs, Volume= 70,710 cf
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.69' @ 12.12 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 ' S= 0.0054 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=12.9 cfs @ 12.12 hrs HW=57.69' (Free Discharge)↑**1=Culvert** (Inlet Controls 12.9 cfs @ 4.11 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=55.52' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)**Summary for Pond 5P:**

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 2.62" for 2-YR event
 Inflow = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf
 Outflow = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.88' @ 12.08 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.3 cfs @ 12.08 hrs HW=60.88' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.3 cfs @ 2.52 fps)

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Summary for Pond 6P:

Inflow Area = 148,505 sf, 34.60% Impervious, Inflow Depth = 1.79" for 2-YR event
 Inflow = 4.1 cfs @ 12.23 hrs, Volume= 22,193 cf
 Outflow = 4.1 cfs @ 12.23 hrs, Volume= 22,193 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.1 cfs @ 12.23 hrs, Volume= 22,193 cf
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.44' @ 12.23 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.1 cfs @ 12.23 hrs HW=64.44' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.1 cfs @ 5.19 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=62.08' (Free Discharge)↑**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)**Summary for Pond 7P:**

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 2.05" for 2-YR event
 Inflow = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf
 Outflow = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.07' @ 12.36 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.3 cfs @ 12.36 hrs HW=66.07' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.3 cfs @ 2.87 fps)

Summary for Pond 8P:

Inflow Area = 84,725 sf, 9.68% Impervious, Inflow Depth = 1.36" for 2-YR event
 Inflow = 1.7 cfs @ 12.39 hrs, Volume= 9,571 cf
 Outflow = 1.7 cfs @ 12.39 hrs, Volume= 9,571 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.7 cfs @ 12.39 hrs, Volume= 9,571 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 64.34' @ 12.39 hrs
 Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.50'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.50' / 62.18' S= 0.0189 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.7 cfs @ 12.39 hrs HW=64.34' (Free Discharge)
 ↑1=Culvert (Inlet Controls 1.7 cfs @ 2.46 fps)

Summary for Pond 21P: 21P (CB-8436)

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 2.04" for 2-YR event
 Inflow = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf
 Outflow = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.7 cfs @ 12.11 hrs, Volume= 35,138 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.37' @ 12.11 hrs
 Flood Elev= 67.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 90.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.62' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.7 cfs @ 12.11 hrs HW=57.37' (Free Discharge)
 ↑1=Culvert (Barrel Controls 6.7 cfs @ 3.73 fps)

Summary for Link POA-1: B-30

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 2.15" for 2-YR event
 Inflow = 12.9 cfs @ 12.12 hrs, Volume= 70,710 cf
 Primary = 12.9 cfs @ 12.12 hrs, Volume= 70,710 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 2.62" for 2-YR event
Inflow = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf
Primary = 2.3 cfs @ 12.08 hrs, Volume= 7,757 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 15,800 sf, 0.00% Impervious, Inflow Depth = 1.53" for 2-YR event
Inflow = 0.6 cfs @ 12.09 hrs, Volume= 2,011 cf
Primary = 0.6 cfs @ 12.09 hrs, Volume= 2,011 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 2.05" for 2-YR event
Inflow = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf
Primary = 2.3 cfs @ 12.36 hrs, Volume= 12,219 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=4.31" Tc=6.0 min CN=WQ Runoff=3.6 cfs 12,507 cf
Subcatchment2S:	Runoff Area=23,550 sf 62.59% Impervious Runoff Depth=3.86" Tc=6.0 min CN=WQ Runoff=2.2 cfs 7,569 cf
Subcatchment3S:	Runoff Area=107,470 sf 32.46% Impervious Runoff Depth=3.40" Flow Length=835' Tc=33.4 min CN=WQ Runoff=5.0 cfs 30,468 cf
Subcatchment4S:	Runoff Area=80,650 sf 29.23% Impervious Runoff Depth=4.05" Flow Length=480' Tc=7.8 min CN=WQ Runoff=7.5 cfs 27,187 cf
Subcatchment5S:	Runoff Area=35,560 sf 28.26% Impervious Runoff Depth=4.09" Tc=6.0 min CN=WQ Runoff=3.5 cfs 12,119 cf
Subcatchment6S:	Runoff Area=63,780 sf 67.70% Impervious Runoff Depth=3.78" Flow Length=280' Tc=14.5 min CN=WQ Runoff=4.5 cfs 20,090 cf
Subcatchment7S:	Runoff Area=71,445 sf 40.30% Impervious Runoff Depth=3.42" Flow Length=460' Tc=25.7 min CN=WQ Runoff=3.8 cfs 20,353 cf
Subcatchment8S:	Runoff Area=84,725 sf 9.68% Impervious Runoff Depth=2.56" Flow Length=505' Tc=27.8 min CN=WQ Runoff=3.3 cfs 18,052 cf
Subcatchment9S:	Runoff Area=15,800 sf 0.00% Impervious Runoff Depth=2.81" Tc=6.0 min CN=83 Runoff=1.2 cfs 3,706 cf
Pond 1P: B-41	Peak Elev=59.00' Inflow=3.6 cfs 12,507 cf 18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=3.6 cfs 12,507 cf
Pond 2P: B-34	Peak Elev=60.86' Inflow=10.9 cfs 58,219 cf 18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=10.9 cfs 58,219 cf
Pond 3P: B-32 (CB-8031)	Peak Elev=57.96' Inflow=13.4 cfs 88,687 cf 24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=13.4 cfs 88,687 cf
Pond 4P: B-32A (CB-8323)	Peak Elev=59.43' Inflow=20.7 cfs 115,873 cf Primary=20.4 cfs 115,836 cf Secondary=0.3 cfs 37 cf Outflow=20.7 cfs 115,873 cf
Pond 5P:	Peak Elev=61.19' Inflow=3.5 cfs 12,119 cf 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=3.5 cfs 12,119 cf
Pond 6P:	Peak Elev=70.56' Inflow=7.0 cfs 38,143 cf Primary=6.5 cfs 37,911 cf Secondary=0.5 cfs 231 cf Outflow=7.0 cfs 38,143 cf
Pond 7P:	Peak Elev=67.08' Inflow=3.8 cfs 20,353 cf 12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=3.8 cfs 20,353 cf

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Pond 8P:

Peak Elev=65.25' Inflow=3.3 cfs 18,052 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0189 '/' Outflow=3.3 cfs 18,052 cf

Pond 21P: 21P (CB-8436)

Peak Elev=57.91' Inflow=10.9 cfs 58,219 cf
24.0" Round Culvert n=0.013 L=90.0' S=0.0029 '/' Outflow=10.9 cfs 58,219 cf

Link POA-1: B-30

Inflow=20.7 cfs 115,873 cf
Primary=20.7 cfs 115,873 cf

Link POA-2:

Inflow=3.5 cfs 12,119 cf
Primary=3.5 cfs 12,119 cf

Link POA-3:

Inflow=1.2 cfs 3,706 cf
Primary=1.2 cfs 3,706 cf

Link POA-4:

Inflow=3.8 cfs 20,353 cf
Primary=3.8 cfs 20,353 cf

Total Runoff Area = 517,820 sf Runoff Volume = 152,052 cf Average Runoff Depth = 3.52"
61.97% Pervious = 320,900 sf 38.03% Impervious = 196,920 sf

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Summary for Subcatchment 1S:

Runoff = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 2.2 cfs @ 12.08 hrs, Volume= 7,569 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
14,740	98	Paved parking, HSG D
730	96	Gravel surface, HSG D
8,080	84	50-75% Grass cover, Fair, HSG D
23,550		Weighted Average
8,810		37.41% Pervious Area
14,740		62.59% Impervious Area

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

Summary for Subcatchment 3S:

Runoff = 5.0 cfs @ 12.44 hrs, Volume= 30,468 cf, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
34,880	98	Paved parking, HSG D
7,880	96	Gravel surface, HSG D
2,770	84	50-75% Grass cover, Fair, HSG D
58,940	83	Woods, Poor, HSG D
3,000	77	Woods, Poor, HSG C
107,470		Weighted Average
72,590		67.54% Pervious Area
34,880		32.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5	100	0.0150	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.8	250	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.6	100	0.0300	2.79		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
0.1	10	0.0100	1.50		Shallow Concentrated Flow, D-E Grassed Waterway Kv= 15.0 fps
0.1	25	0.0200	2.87		Shallow Concentrated Flow, E-F Paved Kv= 20.3 fps
0.1	10	0.0200	2.12		Shallow Concentrated Flow, F-G Grassed Waterway Kv= 15.0 fps
0.7	170	0.0400	4.06		Shallow Concentrated Flow, G-H Paved Kv= 20.3 fps
0.5	170	0.0100	5.90	4.63	Pipe Channel, H-I 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
33.4	835	Total			

Summary for Subcatchment 4S:

Runoff = 7.5 cfs @ 12.11 hrs, Volume= 27,187 cf, Depth= 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
23,570	98	Paved parking, HSG D
46,780	96	Gravel surface, HSG D
10,300	84	50-75% Grass cover, Fair, HSG D
80,650		Weighted Average
57,080		70.77% Pervious Area
23,570		29.23% Impervious Area

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Type III 24-hr 10-YR Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	20	0.0400	0.07		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	180	0.0350	3.01		Shallow Concentrated Flow, B-C
					Unpaved Kv= 16.1 fps
2.2	280	0.0200	2.12		Shallow Concentrated Flow, C-D
					Grassed Waterway Kv= 15.0 fps
7.8	480	Total			

Summary for Subcatchment 5S:

Runoff = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
* 10,050	98	Paved parking, HSG D
22,320	96	Gravel surface, HSG D
3,190	84	50-75% Grass cover, Fair, HSG D
35,560		Weighted Average
25,510		71.74% Pervious Area
10,050		28.26% Impervious Area

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

Summary for Subcatchment 6S:

Runoff = 4.5 cfs @ 12.19 hrs, Volume= 20,090 cf, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
37,150	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
640	96	Gravel surface, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
11,820	77	Woods, Poor, HSG C
63,780		Weighted Average
20,600		32.30% Pervious Area
43,180		67.70% Impervious Area

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Type III 24-hr 10-YR Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7S:

Runoff = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf, Depth= 3.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
28,795	98	Paved parking, HSG D
4,120	79	50-75% Grass cover, Fair, HSG C
38,530	83	Woods, Poor, HSG D
71,445		Weighted Average
42,650		59.70% Pervious Area
28,795		40.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	110	0.0225	0.08		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	90	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.1	10	0.0150	1.84		Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
25.7	460	Total			

Summary for Subcatchment 8S:

Runoff = 3.3 cfs @ 12.39 hrs, Volume= 18,052 cf, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
8,205	98	Paved parking, HSG D
10,390	83	Woods, Poor, HSG D
66,130	77	Woods, Poor, HSG C
84,725		Weighted Average
76,520		90.32% Pervious Area
8,205		9.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	110	0.0300	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.9	180	0.0075	0.43		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	35	0.1000	1.58		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
0.5	180	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
27.8	505	Total			

Summary for Subcatchment 9S:

Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,706 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
15,800	83	Woods, Poor, HSG D
15,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 4.31" for 10-YR event
 Inflow = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf
 Outflow = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.00' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900

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Type III 24-hr 10-YR Rainfall=4.60"

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Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 '/' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.6 cfs @ 12.08 hrs HW=59.00' (Free Discharge)↑**1=Culvert** (Barrel Controls 3.6 cfs @ 3.57 fps)**Summary for Pond 2P: B-34**

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 3.38" for 10-YR event
 Inflow = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf
 Outflow = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.86' @ 12.12 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.8 cfs @ 12.12 hrs HW=60.86' (Free Discharge)↑**1=Culvert** (Inlet Controls 10.8 cfs @ 6.14 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 314,365 sf, 42.79% Impervious, Inflow Depth = 3.39" for 10-YR event
 Inflow = 13.4 cfs @ 12.26 hrs, Volume= 88,687 cf
 Outflow = 13.4 cfs @ 12.26 hrs, Volume= 88,687 cf, Atten= 0%, Lag= 0.0 min
 Primary = 13.4 cfs @ 12.26 hrs, Volume= 88,687 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.96' @ 12.26 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=13.4 cfs @ 12.26 hrs HW=57.96' (Free Discharge)↑**1=Culvert** (Barrel Controls 13.4 cfs @ 4.37 fps)

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 3.52" for 10-YR event
 Inflow = 20.7 cfs @ 12.12 hrs, Volume= 115,873 cf
 Outflow = 20.7 cfs @ 12.12 hrs, Volume= 115,873 cf, Atten= 0%, Lag= 0.0 min
 Primary = 20.4 cfs @ 12.12 hrs, Volume= 115,836 cf
 Secondary = 0.3 cfs @ 12.12 hrs, Volume= 37 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 59.43' @ 12.12 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 ' S Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.4 cfs @ 12.12 hrs HW=59.42' (Free Discharge)↑**1=Culvert** (Inlet Controls 20.4 cfs @ 6.48 fps)**Secondary OutFlow** Max=0.3 cfs @ 12.12 hrs HW=59.42' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.3 cfs @ 0.52 fps)**Summary for Pond 5P:**

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 4.09" for 10-YR event
 Inflow = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf
 Outflow = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.19' @ 12.08 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 ' S Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.5 cfs @ 12.08 hrs HW=61.19' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.5 cfs @ 2.93 fps)

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 6P:

Inflow Area = 148,505 sf, 34.60% Impervious, Inflow Depth = 3.08" for 10-YR event
 Inflow = 7.0 cfs @ 12.23 hrs, Volume= 38,143 cf
 Outflow = 7.0 cfs @ 12.23 hrs, Volume= 38,143 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.5 cfs @ 12.23 hrs, Volume= 37,911 cf
 Secondary = 0.5 cfs @ 12.23 hrs, Volume= 231 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.56' @ 12.23 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.5 cfs @ 12.23 hrs HW=70.56' (Free Discharge)↑**1=Culvert** (Barrel Controls 6.5 cfs @ 8.23 fps)**Secondary OutFlow** Max=0.5 cfs @ 12.23 hrs HW=70.56' (Free Discharge)↑**2=Broad-Crested Rectangular Weir**(Weir Controls 0.5 cfs @ 0.70 fps)**Summary for Pond 7P:**

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 3.42" for 10-YR event
 Inflow = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf
 Outflow = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.08' @ 12.34 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.8 cfs @ 12.34 hrs HW=67.08' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.8 cfs @ 4.78 fps)

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Summary for Pond 8P:

Inflow Area = 84,725 sf, 9.68% Impervious, Inflow Depth = 2.56" for 10-YR event
 Inflow = 3.3 cfs @ 12.39 hrs, Volume= 18,052 cf
 Outflow = 3.3 cfs @ 12.39 hrs, Volume= 18,052 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.3 cfs @ 12.39 hrs, Volume= 18,052 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.25' @ 12.39 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.50'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.50' / 62.18' S= 0.0189 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.3 cfs @ 12.39 hrs HW=65.25' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.3 cfs @ 4.26 fps)**Summary for Pond 21P: 21P (CB-8436)**

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 3.38" for 10-YR event
 Inflow = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf
 Outflow = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.9 cfs @ 12.12 hrs, Volume= 58,219 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.91' @ 12.12 hrs

Flood Elev= 67.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 90.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.62' S= 0.0029 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=10.9 cfs @ 12.12 hrs HW=57.91' (Free Discharge)↑**1=Culvert** (Barrel Controls 10.9 cfs @ 4.23 fps)**Summary for Link POA-1: B-30**

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 3.52" for 10-YR event
 Inflow = 20.7 cfs @ 12.12 hrs, Volume= 115,873 cf
 Primary = 20.7 cfs @ 12.12 hrs, Volume= 115,873 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf
Primary = 3.5 cfs @ 12.08 hrs, Volume= 12,119 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 15,800 sf, 0.00% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,706 cf
Primary = 1.2 cfs @ 12.09 hrs, Volume= 3,706 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 3.42" for 10-YR event
Inflow = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf
Primary = 3.8 cfs @ 12.34 hrs, Volume= 20,353 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=5.50" Tc=6.0 min CN=WQ Runoff=4.5 cfs 15,975 cf
Subcatchment2S:	Runoff Area=23,550 sf 62.59% Impervious Runoff Depth=5.02" Tc=6.0 min CN=WQ Runoff=2.9 cfs 9,856 cf
Subcatchment3S:	Runoff Area=107,470 sf 32.46% Impervious Runoff Depth=4.53" Flow Length=835' Tc=33.4 min CN=WQ Runoff=6.7 cfs 40,604 cf
Subcatchment4S:	Runoff Area=80,650 sf 29.23% Impervious Runoff Depth=5.23" Flow Length=480' Tc=7.8 min CN=WQ Runoff=9.6 cfs 35,138 cf
Subcatchment5S:	Runoff Area=35,560 sf 28.26% Impervious Runoff Depth=5.28" Tc=6.0 min CN=WQ Runoff=4.5 cfs 15,635 cf
Subcatchment6S:	Runoff Area=63,780 sf 67.70% Impervious Runoff Depth=4.93" Flow Length=280' Tc=14.5 min CN=WQ Runoff=5.9 cfs 26,203 cf
Subcatchment7S:	Runoff Area=71,445 sf 40.30% Impervious Runoff Depth=4.55" Flow Length=460' Tc=25.7 min CN=WQ Runoff=5.0 cfs 27,091 cf
Subcatchment8S:	Runoff Area=84,725 sf 9.68% Impervious Runoff Depth=3.60" Flow Length=505' Tc=27.8 min CN=WQ Runoff=4.7 cfs 25,399 cf
Subcatchment9S:	Runoff Area=15,800 sf 0.00% Impervious Runoff Depth=3.91" Tc=6.0 min CN=83 Runoff=1.6 cfs 5,143 cf
Pond 1P: B-41	Peak Elev=59.18' Inflow=4.5 cfs 15,975 cf 18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=4.5 cfs 15,975 cf
Pond 2P: B-34	Peak Elev=62.76' Inflow=14.3 cfs 77,433 cf 18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=14.3 cfs 77,433 cf
Pond 3P: B-32 (CB-8031)	Peak Elev=58.77' Inflow=17.9 cfs 118,037 cf 24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=17.9 cfs 118,037 cf
Pond 4P: B-32A (CB-8323)	Peak Elev=59.66' Inflow=27.0 cfs 153,175 cf Primary=21.1 cfs 149,393 cf Secondary=5.8 cfs 3,782 cf Outflow=27.0 cfs 153,175 cf
Pond 5P:	Peak Elev=61.57' Inflow=4.5 cfs 15,635 cf 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=4.5 cfs 15,635 cf
Pond 6P:	Peak Elev=70.69' Inflow=9.5 cfs 51,602 cf Primary=6.5 cfs 48,670 cf Secondary=3.0 cfs 2,932 cf Outflow=9.5 cfs 51,602 cf
Pond 7P:	Peak Elev=68.28' Inflow=5.0 cfs 27,091 cf 12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=5.0 cfs 27,091 cf

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Pond 8P:

Peak Elev=66.50' Inflow=4.7 cfs 25,399 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0189 '/' Outflow=4.7 cfs 25,399 cf

Pond 21P: 21P (CB-8436)

Peak Elev=58.59' Inflow=14.3 cfs 77,433 cf
24.0" Round Culvert n=0.013 L=90.0' S=0.0029 '/' Outflow=14.3 cfs 77,433 cf

Link POA-1: B-30

Inflow=27.0 cfs 153,175 cf
Primary=27.0 cfs 153,175 cf

Link POA-2:

Inflow=4.5 cfs 15,635 cf
Primary=4.5 cfs 15,635 cf

Link POA-3:

Inflow=1.6 cfs 5,143 cf
Primary=1.6 cfs 5,143 cf

Link POA-4:

Inflow=5.0 cfs 27,091 cf
Primary=5.0 cfs 27,091 cf

Total Runoff Area = 517,820 sf Runoff Volume = 201,043 cf Average Runoff Depth = 4.66"
61.97% Pervious = 320,900 sf 38.03% Impervious = 196,920 sf

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 1S:

Runoff = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf, Depth= 5.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 2.9 cfs @ 12.08 hrs, Volume= 9,856 cf, Depth= 5.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
14,740	98	Paved parking, HSG D
730	96	Gravel surface, HSG D
8,080	84	50-75% Grass cover, Fair, HSG D
23,550		Weighted Average
8,810		37.41% Pervious Area
14,740		62.59% Impervious Area

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

Summary for Subcatchment 3S:

Runoff = 6.7 cfs @ 12.44 hrs, Volume= 40,604 cf, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
34,880	98	Paved parking, HSG D
7,880	96	Gravel surface, HSG D
2,770	84	50-75% Grass cover, Fair, HSG D
58,940	83	Woods, Poor, HSG D
3,000	77	Woods, Poor, HSG C
107,470		Weighted Average
72,590		67.54% Pervious Area
34,880		32.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.5	100	0.0150	0.07		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.8	250	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.6	100	0.0300	2.79		Shallow Concentrated Flow, C-D Unpaved Kv= 16.1 fps
0.1	10	0.0100	1.50		Shallow Concentrated Flow, D-E Grassed Waterway Kv= 15.0 fps
0.1	25	0.0200	2.87		Shallow Concentrated Flow, E-F Paved Kv= 20.3 fps
0.1	10	0.0200	2.12		Shallow Concentrated Flow, F-G Grassed Waterway Kv= 15.0 fps
0.7	170	0.0400	4.06		Shallow Concentrated Flow, G-H Paved Kv= 20.3 fps
0.5	170	0.0100	5.90	4.63	Pipe Channel, H-I 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
33.4	835	Total			

Summary for Subcatchment 4S:

Runoff = 9.6 cfs @ 12.11 hrs, Volume= 35,138 cf, Depth= 5.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
23,570	98	Paved parking, HSG D
46,780	96	Gravel surface, HSG D
10,300	84	50-75% Grass cover, Fair, HSG D
80,650		Weighted Average
57,080		70.77% Pervious Area
23,570		29.23% Impervious Area

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Type III 24-hr 25-YR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	20	0.0400	0.07		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	180	0.0350	3.01		Shallow Concentrated Flow, B-C
					Unpaved Kv= 16.1 fps
2.2	280	0.0200	2.12		Shallow Concentrated Flow, C-D
					Grassed Waterway Kv= 15.0 fps
7.8	480	Total			

Summary for Subcatchment 5S:

Runoff = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf, Depth= 5.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
* 10,050	98	Paved parking, HSG D
22,320	96	Gravel surface, HSG D
3,190	84	50-75% Grass cover, Fair, HSG D
35,560		Weighted Average
25,510		71.74% Pervious Area
10,050		28.26% Impervious Area

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

Summary for Subcatchment 6S:

Runoff = 5.9 cfs @ 12.19 hrs, Volume= 26,203 cf, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
37,150	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
640	96	Gravel surface, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
11,820	77	Woods, Poor, HSG C
63,780		Weighted Average
20,600		32.30% Pervious Area
43,180		67.70% Impervious Area

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Type III 24-hr 25-YR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7S:

Runoff = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf, Depth= 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
28,795	98	Paved parking, HSG D
4,120	79	50-75% Grass cover, Fair, HSG C
38,530	83	Woods, Poor, HSG D
71,445		Weighted Average
42,650		59.70% Pervious Area
28,795		40.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.5	110	0.0225	0.08		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
2.4	90	0.0150	0.61		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.1	10	0.0150	1.84		Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
25.7	460	Total			

Summary for Subcatchment 8S:

Runoff = 4.7 cfs @ 12.39 hrs, Volume= 25,399 cf, Depth= 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
8,205	98	Paved parking, HSG D
10,390	83	Woods, Poor, HSG D
66,130	77	Woods, Poor, HSG C
84,725		Weighted Average
76,520		90.32% Pervious Area
8,205		9.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	110	0.0300	0.09		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
6.9	180	0.0075	0.43		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.4	35	0.1000	1.58		Shallow Concentrated Flow, C-D Woodland Kv= 5.0 fps
0.5	180	0.0100	5.90	4.63	Pipe Channel, D-E 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
27.8	505	Total			

Summary for Subcatchment 9S:

Runoff = 1.6 cfs @ 12.09 hrs, Volume= 5,143 cf, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
15,800	83	Woods, Poor, HSG D
15,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 5.50" for 25-YR event
 Inflow = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf
 Outflow = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.18' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900

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Type III 24-hr 25-YR Rainfall=5.80"

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Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 '/' Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.5 cfs @ 12.08 hrs HW=59.18' (Free Discharge)↑**1=Culvert** (Barrel Controls 4.5 cfs @ 3.77 fps)**Summary for Pond 2P: B-34**

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 4.49" for 25-YR event
 Inflow = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf
 Outflow = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf, Atten= 0%, Lag= 0.0 min
 Primary = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.76' @ 12.12 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=14.3 cfs @ 12.12 hrs HW=62.76' (Free Discharge)↑**1=Culvert** (Inlet Controls 14.3 cfs @ 8.07 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 314,365 sf, 42.79% Impervious, Inflow Depth = 4.51" for 25-YR event
 Inflow = 17.9 cfs @ 12.26 hrs, Volume= 118,037 cf
 Outflow = 17.9 cfs @ 12.26 hrs, Volume= 118,037 cf, Atten= 0%, Lag= 0.0 min
 Primary = 17.9 cfs @ 12.26 hrs, Volume= 118,037 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.77' @ 12.26 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.9 cfs @ 12.26 hrs HW=58.77' (Free Discharge)↑**1=Culvert** (Inlet Controls 17.9 cfs @ 5.70 fps)

Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 4.65" for 25-YR event
 Inflow = 27.0 cfs @ 12.12 hrs, Volume= 153,175 cf
 Outflow = 27.0 cfs @ 12.12 hrs, Volume= 153,175 cf, Atten= 0%, Lag= 0.0 min
 Primary = 21.1 cfs @ 12.12 hrs, Volume= 149,393 cf
 Secondary = 5.8 cfs @ 12.12 hrs, Volume= 3,782 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 59.66' @ 12.12 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 ' S= 0.0054 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=21.1 cfs @ 12.12 hrs HW=59.65' (Free Discharge)

↑**1=Culvert** (Inlet Controls 21.1 cfs @ 6.73 fps)

Secondary OutFlow Max=5.8 cfs @ 12.12 hrs HW=59.65' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.8 cfs @ 1.46 fps)

Summary for Pond 5P:

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 5.28" for 25-YR event
 Inflow = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf
 Outflow = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.57' @ 12.08 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.5 cfs @ 12.08 hrs HW=61.56' (Free Discharge)

↑**1=Culvert** (Inlet Controls 4.5 cfs @ 3.68 fps)

Appendix 2B

Proposed Conditions HydroCAD Summary

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-YR	Type III 24-hr		Default	24.00	1	3.10	2
2	10-YR	Type III 24-hr		Default	24.00	1	4.60	2
3	25-YR	Type III 24-hr		Default	24.00	1	5.80	2

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=2.82" Tc=6.0 min CN=WQ Runoff=2.4 cfs 8,185 cf
Subcatchment2.1S:	Runoff Area=29,840 sf 69.86% Impervious Runoff Depth=2.49" Tc=6.0 min CN=WQ Runoff=1.8 cfs 6,180 cf
Subcatchment3.1S:	Runoff Area=1,450 sf 62.07% Impervious Runoff Depth=2.28" Tc=6.0 min CN=WQ Runoff=0.1 cfs 276 cf
Subcatchment3.2S:	Runoff Area=4,400 sf 52.27% Impervious Runoff Depth=2.13" Tc=6.0 min CN=WQ Runoff=0.2 cfs 782 cf
Subcatchment3.3S:	Runoff Area=7,500 sf 87.33% Impervious Runoff Depth=2.67" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,670 cf
Subcatchment3.4S:	Runoff Area=5,170 sf 90.14% Impervious Runoff Depth=2.72" Tc=6.0 min CN=WQ Runoff=0.3 cfs 1,170 cf
Subcatchment3.5S:	Runoff Area=7,350 sf 88.71% Impervious Runoff Depth=2.69" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,650 cf
Subcatchment3.6S:	Runoff Area=7,080 sf 100.00% Impervious Runoff Depth=2.87" Tc=6.0 min CN=98 Runoff=0.5 cfs 1,692 cf
Subcatchment3.7S:	Runoff Area=6,280 sf 87.10% Impervious Runoff Depth=2.67" Tc=6.0 min CN=WQ Runoff=0.4 cfs 1,397 cf
Subcatchment4.1S:	Runoff Area=30,540 sf 50.79% Impervious Runoff Depth=2.24" Flow Length=135' Tc=12.1 min CN=WQ Runoff=1.4 cfs 5,709 cf
Subcatchment4.2S:	Runoff Area=11,860 sf 82.50% Impervious Runoff Depth=2.65" Tc=6.0 min CN=WQ Runoff=0.8 cfs 2,615 cf
Subcatchment4.3S:	Runoff Area=10,630 sf 88.66% Impervious Runoff Depth=2.69" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,386 cf
Subcatchment4.4S:	Runoff Area=11,040 sf 83.15% Impervious Runoff Depth=2.61" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,399 cf
Subcatchment4.5S:	Runoff Area=5,620 sf 62.10% Impervious Runoff Depth=2.28" Tc=6.0 min CN=WQ Runoff=0.3 cfs 1,069 cf
Subcatchment4.6S:	Runoff Area=9,090 sf 87.90% Impervious Runoff Depth=2.68" Tc=6.0 min CN=WQ Runoff=0.6 cfs 2,031 cf
Subcatchment4.7S:	Runoff Area=6,020 sf 100.00% Impervious Runoff Depth=2.87" Tc=6.0 min CN=98 Runoff=0.4 cfs 1,439 cf

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Subcatchment4.8S:	Runoff Area=11,850 sf 90.00% Impervious Runoff Depth=2.71" Tc=6.0 min CN=WQ Runoff=0.8 cfs 2,680 cf
Subcatchment5.1S:	Runoff Area=20,660 sf 50.80% Impervious Runoff Depth=2.24" Tc=6.0 min CN=WQ Runoff=1.2 cfs 3,863 cf
Subcatchment6.1S:	Runoff Area=50,370 sf 83.84% Impervious Runoff Depth=2.65" Flow Length=280' Tc=14.5 min CN=WQ Runoff=2.5 cfs 11,130 cf
Subcatchment7.1S:	Runoff Area=45,290 sf 74.03% Impervious Runoff Depth=2.45" Flow Length=425' Tc=11.4 min CN=WQ Runoff=2.3 cfs 9,250 cf
Subcatchment8.10S:	Runoff Area=8,440 sf 92.00% Impervious Runoff Depth=2.74" Tc=6.0 min CN=WQ Runoff=0.6 cfs 1,930 cf
Subcatchment8.11S:	Runoff Area=26,900 sf 87.62% Impervious Runoff Depth=2.68" Tc=6.0 min CN=WQ Runoff=1.7 cfs 6,001 cf
Subcatchment8.12S:	Runoff Area=2,340 sf 100.00% Impervious Runoff Depth=2.87" Tc=6.0 min CN=98 Runoff=0.2 cfs 559 cf
Subcatchment8.1S:	Runoff Area=13,930 sf 49.61% Impervious Runoff Depth=2.02" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,349 cf
Subcatchment8.2S:	Runoff Area=19,350 sf 84.44% Impervious Runoff Depth=2.63" Tc=6.0 min CN=WQ Runoff=1.2 cfs 4,238 cf
Subcatchment8.3S:	Runoff Area=48,240 sf 91.04% Impervious Runoff Depth=2.73" Tc=6.0 min CN=WQ Runoff=3.2 cfs 10,974 cf
Subcatchment8.4S:	Runoff Area=22,420 sf 78.10% Impervious Runoff Depth=2.53" Tc=6.0 min CN=WQ Runoff=1.4 cfs 4,727 cf
Subcatchment8.5S:	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth=1.33" Tc=6.0 min CN=80 Runoff=0.3 cfs 1,004 cf
Subcatchment8.6S:	Runoff Area=11,120 sf 70.91% Impervious Runoff Depth=2.42" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,242 cf
Subcatchment8.7S:	Runoff Area=5,080 sf 35.43% Impervious Runoff Depth=1.87" Tc=6.0 min CN=WQ Runoff=0.2 cfs 792 cf
Subcatchment8.8S:	Runoff Area=9,920 sf 83.06% Impervious Runoff Depth=2.61" Tc=6.0 min CN=WQ Runoff=0.6 cfs 2,155 cf
Subcatchment8.9S:	Runoff Area=17,310 sf 96.50% Impervious Runoff Depth=2.81" Tc=6.0 min CN=WQ Runoff=1.2 cfs 4,059 cf
Subcatchment9.1S:	Runoff Area=6,800 sf 0.00% Impervious Runoff Depth=1.47" Tc=6.0 min CN=WQ Runoff=0.3 cfs 832 cf

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Type III 24-hr 2-YR Rainfall=3.10"

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Pond 1P: B-41

Peak Elev=58.76' Inflow=2.4 cfs 8,185 cf
18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=2.4 cfs 8,185 cf

Pond 2.11P: 21P (CB-8436)

Peak Elev=57.49' Inflow=7.4 cfs 66,525 cf
24.0" Round Culvert n=0.013 L=80.0' S=0.0024 '/' Outflow=7.4 cfs 66,525 cf

Pond 2.1P:

Peak Elev=57.59' Inflow=7.4 cfs 66,525 cf
24.0" Round Culvert n=0.013 L=40.0' S=0.0032 '/' Outflow=7.4 cfs 66,525 cf

Pond 2P: B-34

Peak Elev=59.27' Inflow=6.8 cfs 27,844 cf
18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=6.8 cfs 27,844 cf

Pond 3.11P:

Peak Elev=66.16' Inflow=0.3 cfs 1,057 cf
12.0" Round Culvert n=0.013 L=30.0' S=0.0117 '/' Outflow=0.3 cfs 1,057 cf

Pond 3.1P:

Peak Elev=67.45' Inflow=0.1 cfs 276 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Outflow=0.1 cfs 276 cf

Pond 3.2P:

Peak Elev=67.04' Inflow=0.2 cfs 782 cf
12.0" Round Culvert n=0.013 L=80.0' S=0.0109 '/' Outflow=0.2 cfs 782 cf

Pond 3.31P:

Peak Elev=62.55' Inflow=2.5 cfs 8,636 cf
24.0" Round Culvert n=0.013 L=42.0' S=0.0119 '/' Outflow=2.5 cfs 8,636 cf

Pond 3.32P: WQ DET & SF-2

Peak Elev=62.81' Storage=3,180 cf Inflow=6.8 cfs 23,255 cf
Primary=0.3 cfs 13,778 cf Secondary=6.3 cfs 9,478 cf Outflow=6.6 cfs 23,255 cf

Pond 3.33P: PEAK DET

Peak Elev=62.04' Storage=8,295 cf Inflow=6.3 cfs 9,478 cf
Outflow=0.1 cfs 9,478 cf

Pond 3.34P:

Peak Elev=57.80' Inflow=0.4 cfs 23,255 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0102 '/' Outflow=0.4 cfs 23,255 cf

Pond 3.35P:

Peak Elev=57.35' Inflow=7.8 cfs 89,780 cf
24.0" Round Culvert n=0.013 L=25.0' S=0.0028 '/' Outflow=7.8 cfs 89,780 cf

Pond 3.3P:

Peak Elev=63.64' Inflow=2.5 cfs 8,636 cf
18.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=2.5 cfs 8,636 cf

Pond 3.4P:

Peak Elev=66.58' Inflow=0.3 cfs 1,170 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0160 '/' Outflow=0.3 cfs 1,170 cf

Pond 3.5P:

Peak Elev=64.85' Inflow=0.9 cfs 3,047 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=0.9 cfs 3,047 cf

Pond 3.6P:

Peak Elev=64.19' Inflow=1.4 cfs 4,739 cf
15.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=1.4 cfs 4,739 cf

Pond 3.7P:

Peak Elev=65.16' Inflow=0.4 cfs 1,397 cf
12.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.4 cfs 1,397 cf

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Pond 3P: B-32 (CB-8031)Peak Elev=57.17' Inflow=7.8 cfs 89,780 cf
24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=7.8 cfs 89,780 cf**Pond 4.21P:**Peak Elev=67.52' Inflow=0.8 cfs 2,615 cf
15.0" Round Culvert n=0.013 L=82.0' S=0.0121 '/' Outflow=0.8 cfs 2,615 cf**Pond 4.2P:**Peak Elev=68.67' Inflow=0.8 cfs 2,615 cf
15.0" Round Culvert n=0.013 L=104.0' S=0.0100 '/' Outflow=0.8 cfs 2,615 cf**Pond 4.3P:**Peak Elev=66.43' Inflow=1.5 cfs 5,001 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0158 '/' Outflow=1.5 cfs 5,001 cf**Pond 4.4P:**Peak Elev=68.38' Inflow=0.7 cfs 2,399 cf
12.0" Round Culvert n=0.013 L=83.0' S=0.0169 '/' Outflow=0.7 cfs 2,399 cf**Pond 4.5P:**Peak Elev=69.41' Inflow=0.3 cfs 1,069 cf
12.0" Round Culvert n=0.013 L=122.0' S=0.0213 '/' Outflow=0.3 cfs 1,069 cf**Pond 4.6P:**Peak Elev=66.65' Inflow=1.6 cfs 5,500 cf
18.0" Round Culvert n=0.013 L=77.0' S=0.0169 '/' Outflow=1.6 cfs 5,500 cf**Pond 4.7P:**Peak Elev=64.71' Inflow=2.0 cfs 6,938 cf
18.0" Round Culvert x 2.00 n=0.013 L=22.0' S=0.0227 '/' Outflow=2.0 cfs 6,938 cf**Pond 4.81P:**Peak Elev=64.20' Inflow=4.3 cfs 14,619 cf
24.0" Round Culvert n=0.013 L=15.0' S=0.0267 '/' Outflow=4.3 cfs 14,619 cf**Pond 4.8P:**Peak Elev=64.36' Inflow=2.2 cfs 7,680 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0100 '/' Outflow=2.2 cfs 7,680 cf**Pond 4P: B-32A (CB-8323)**Peak Elev=57.12' Inflow=9.0 cfs 95,489 cf
Primary=9.0 cfs 95,489 cf Secondary=0.0 cfs 0 cf Outflow=9.0 cfs 95,489 cf**Pond 5P:**Peak Elev=60.59' Inflow=1.2 cfs 3,863 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.2 cfs 3,863 cf**Pond 6P:**Peak Elev=63.56' Inflow=3.0 cfs 13,479 cf
Primary=3.0 cfs 13,479 cf Secondary=0.0 cfs 0 cf Outflow=3.0 cfs 13,479 cf**Pond 7P:**Peak Elev=66.08' Inflow=2.3 cfs 9,250 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=2.3 cfs 9,250 cf**Pond 8.10P:**Peak Elev=69.73' Inflow=0.6 cfs 1,930 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0367 '/' Outflow=0.6 cfs 1,930 cf**Pond 8.111P:**Peak Elev=68.67' Inflow=1.9 cfs 6,560 cf
18.0" Round Culvert n=0.013 L=160.0' S=0.0103 '/' Outflow=1.9 cfs 6,560 cf**Pond 8.11P:**Peak Elev=70.69' Inflow=1.7 cfs 6,001 cf
15.0" Round Culvert n=0.013 L=144.0' S=0.0122 '/' Outflow=1.7 cfs 6,001 cf

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Pond 8.12P:	Peak Elev=70.97' Inflow=0.2 cfs 559 cf 12.0" Round Culvert n=0.013 L=120.0' S=0.0121 '/' Outflow=0.2 cfs 559 cf
Pond 8.21P:	Peak Elev=71.51' Inflow=1.2 cfs 4,238 cf 24.0" Round Culvert n=0.013 L=100.0' S=0.0240 '/' Outflow=1.2 cfs 4,238 cf
Pond 8.22P:	Peak Elev=69.27' Inflow=2.6 cfs 8,965 cf 24.0" Round Culvert n=0.013 L=30.0' S=0.0133 '/' Outflow=2.6 cfs 8,965 cf
Pond 8.2P:	Peak Elev=74.27' Inflow=1.2 cfs 4,238 cf 18.0" Round Culvert n=0.013 L=120.0' S=0.0183 '/' Outflow=1.2 cfs 4,238 cf
Pond 8.3P:	Peak Elev=69.24' Inflow=6.1 cfs 20,942 cf 24.0" Round Culvert n=0.013 L=45.0' S=0.0178 '/' Outflow=6.1 cfs 20,942 cf
Pond 8.4P:	Peak Elev=70.65' Inflow=1.4 cfs 4,727 cf 15.0" Round Culvert n=0.013 L=40.0' S=0.0163 '/' Outflow=1.4 cfs 4,727 cf
Pond 8.5P:	Peak Elev=74.76' Inflow=0.3 cfs 1,004 cf 12.0" Round Culvert n=0.013 L=50.0' S=0.0220 '/' Outflow=0.3 cfs 1,004 cf
Pond 8.6P:	Peak Elev=71.73' Inflow=0.7 cfs 2,242 cf 15.0" Round Culvert n=0.013 L=60.0' S=0.0200 '/' Outflow=0.7 cfs 2,242 cf
Pond 8.7P:	Peak Elev=68.12' Inflow=7.0 cfs 23,976 cf 30.0" Round Culvert n=0.013 L=57.0' S=0.0114 '/' Outflow=7.0 cfs 23,976 cf
Pond 8.81P:	Peak Elev=67.63' Inflow=9.4 cfs 32,121 cf 36.0" Round Culvert n=0.013 L=13.0' S=0.0192 '/' Outflow=9.4 cfs 32,121 cf
Pond 8.82P:	Peak Elev=66.85' Inflow=11.3 cfs 38,681 cf 36.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=11.3 cfs 38,681 cf
Pond 8.83P: WQ DET & SF-1	Peak Elev=69.22' Storage=4,933 cf Inflow=11.3 cfs 38,681 cf Primary=0.5 cfs 22,563 cf Secondary=10.8 cfs 16,118 cf Outflow=11.2 cfs 38,681 cf
Pond 8.84P: Peak DET-1	Peak Elev=64.90' Storage=12,614 cf Inflow=10.8 cfs 16,118 cf Outflow=1.0 cfs 16,118 cf
Pond 8.85P:	Peak Elev=61.11' Inflow=1.4 cfs 38,681 cf 18.0" Round Culvert n=0.013 L=226.0' S=0.0084 '/' Outflow=1.4 cfs 38,681 cf
Pond 8.8P:	Peak Elev=70.92' Inflow=0.6 cfs 2,155 cf 15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=0.6 cfs 2,155 cf
Pond 8.96P:	Peak Elev=59.11' Inflow=1.4 cfs 38,681 cf 18.0" Round Culvert n=0.013 L=80.0' S=0.0311 '/' Outflow=1.4 cfs 38,681 cf
Pond 8.9P:	Peak Elev=70.24' Inflow=1.7 cfs 5,989 cf 12.0" Round Culvert n=0.013 L=18.0' S=0.0361 '/' Outflow=1.7 cfs 5,989 cf

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Pond 8P:

Peak Elev=61.06' Inflow=0.7 cfs 2,349 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=0.7 cfs 2,349 cf

Link POA-1: B-30

Inflow=9.0 cfs 95,489 cf
Primary=9.0 cfs 95,489 cf

Link POA-2:

Inflow=1.2 cfs 3,863 cf
Primary=1.2 cfs 3,863 cf

Link POA-3:

Inflow=0.3 cfs 832 cf
Primary=0.3 cfs 832 cf

Link POA-4:

Inflow=2.3 cfs 9,250 cf
Primary=2.3 cfs 9,250 cf

Total Runoff Area = 517,820 sf Runoff Volume = 109,434 cf Average Runoff Depth = 2.54"
22.92% Pervious = 118,690 sf 77.08% Impervious = 399,130 sf

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 1S:

Runoff = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf, Depth= 2.82"
 Routed to Pond 1P : B-41

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2.1S:

Runoff = 1.8 cfs @ 12.08 hrs, Volume= 6,180 cf, Depth= 2.49"
 Routed to Pond 2P : B-34

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
20,845	98	Paved parking, HSG D
8,995	84	50-75% Grass cover, Fair, HSG D
29,840		Weighted Average
8,995		30.14% Pervious Area
20,845		69.86% Impervious Area

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

Summary for Subcatchment 3.1S:

Runoff = 0.1 cfs @ 12.09 hrs, Volume= 276 cf, Depth= 2.28"
 Routed to Pond 3.1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
550	80	>75% Grass cover, Good, HSG D
900	98	Paved parking, HSG D
1,450		Weighted Average
550		37.93% Pervious Area
900		62.07% Impervious Area

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

Summary for Subcatchment 3.2S:

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 782 cf, Depth= 2.13"
 Routed to Pond 3.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
2,100	80	>75% Grass cover, Good, HSG D
2,300	98	Paved parking, HSG D
4,400		Weighted Average
2,100		47.73% Pervious Area
2,300		52.27% Impervious Area

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

Summary for Subcatchment 3.3S:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,670 cf, Depth= 2.67"
 Routed to Pond 3.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
950	80	>75% Grass cover, Good, HSG D
6,550	98	Paved parking, HSG D
7,500		Weighted Average
950		12.67% Pervious Area
6,550		87.33% Impervious Area

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

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 3.4S:

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,170 cf, Depth= 2.72"
 Routed to Pond 3.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
510	80	>75% Grass cover, Good, HSG D
4,660	98	Paved parking, HSG D
5,170		Weighted Average
510		9.86% Pervious Area
4,660		90.14% Impervious Area

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

Summary for Subcatchment 3.5S:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,650 cf, Depth= 2.69"
 Routed to Pond 3.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
6,520	98	Paved parking, HSG D
830	80	>75% Grass cover, Good, HSG D
7,350		Weighted Average
830		11.29% Pervious Area
6,520		88.71% Impervious Area

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

Summary for Subcatchment 3.6S:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,692 cf, Depth= 2.87"
 Routed to Pond 3.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

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

Summary for Subcatchment 3.7S:

Runoff = 0.4 cfs @ 12.08 hrs, Volume= 1,397 cf, Depth= 2.67"
 Routed to Pond 3.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
810	80	>75% Grass cover, Good, HSG D
5,470	98	Paved parking, HSG D
6,280		Weighted Average
810		12.90% Pervious Area
5,470		87.10% Impervious Area

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

Summary for Subcatchment 4.1S:

Runoff = 1.4 cfs @ 12.16 hrs, Volume= 5,709 cf, Depth= 2.24"
 Routed to Pond 4P : B-32A (CB-8323)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
12,790	98	Paved parking, HSG D
15,030	84	50-75% Grass cover, Fair, HSG D
2,720	98	Roofs, HSG D
30,540		Weighted Average
15,030		49.21% Pervious Area
15,510		50.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	110	0.0150	0.15		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.0	25	0.3300	8.62		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
12.1	135	Total			

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 4.2S:

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf, Depth= 2.65"
 Routed to Pond 4.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
9,785	98	Paved parking, HSG D
2,075	84	50-75% Grass cover, Fair, HSG D
11,860		Weighted Average
2,075		17.50% Pervious Area
9,785		82.50% Impervious Area

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

Summary for Subcatchment 4.3S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,386 cf, Depth= 2.69"
 Routed to Pond 4.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
1,205	80	>75% Grass cover, Good, HSG D
9,425	98	Paved parking, HSG D
10,630		Weighted Average
1,205		11.34% Pervious Area
9,425		88.66% Impervious Area

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

Summary for Subcatchment 4.4S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,399 cf, Depth= 2.61"
 Routed to Pond 4.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
1,860	80	>75% Grass cover, Good, HSG D
9,180	98	Paved parking, HSG D
11,040		Weighted Average
1,860		16.85% Pervious Area
9,180		83.15% Impervious Area

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

Summary for Subcatchment 4.5S:

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 1,069 cf, Depth= 2.28"
 Routed to Pond 4.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
2,130	80	>75% Grass cover, Good, HSG D
3,490	98	Paved parking, HSG D
5,620		Weighted Average
2,130		37.90% Pervious Area
3,490		62.10% Impervious Area

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

Summary for Subcatchment 4.6S:

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,031 cf, Depth= 2.68"
 Routed to Pond 4.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
7,990	98	Paved parking, HSG D
1,100	80	>75% Grass cover, Good, HSG D
9,090		Weighted Average
1,100		12.10% Pervious Area
7,990		87.90% Impervious Area

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

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 4.7S:

Runoff = 0.4 cfs @ 12.08 hrs, Volume= 1,439 cf, Depth= 2.87"
 Routed to Pond 4.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
6,020	98	Paved parking, HSG D
6,020		100.00% Impervious Area

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

Summary for Subcatchment 4.8S:

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 2,680 cf, Depth= 2.71"
 Routed to Pond 4.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
10,665	98	Paved parking, HSG D
1,185	80	>75% Grass cover, Good, HSG D
11,850		Weighted Average
1,185		10.00% Pervious Area
10,665		90.00% Impervious Area

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

Summary for Subcatchment 5.1S:

Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf, Depth= 2.24"
 Routed to Pond 5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
* 10,495	98	Paved parking, HSG D
10,165	84	50-75% Grass cover, Fair, HSG D
20,660		Weighted Average
10,165		49.20% Pervious Area
10,495		50.80% Impervious Area

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Type III 24-hr 2-YR Rainfall=3.10"

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

Summary for Subcatchment 6.1S:

Runoff = 2.5 cfs @ 12.19 hrs, Volume= 11,130 cf, Depth= 2.65"
 Routed to Pond 6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
36,200	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
50,370		Weighted Average
8,140		16.16% Pervious Area
42,230		83.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D
					12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'
					n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7.1S:

Runoff = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf, Depth= 2.45"
 Routed to Pond 7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
31,245	98	Paved parking, HSG D
11,760	79	50-75% Grass cover, Fair, HSG C
2,285	98	Unconnected pavement, HSG D
45,290		Weighted Average
11,760		25.97% Pervious Area
33,530		74.03% Impervious Area
2,285		6.81% Unconnected

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Type III 24-hr 2-YR Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0200	0.17		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.10"
0.7	75	0.0150	1.84		Shallow Concentrated Flow, B-C Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
11.4	425	Total			

Summary for Subcatchment 8.10S:

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 1,930 cf, Depth= 2.74"
Routed to Pond 8.10P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
675	80	>75% Grass cover, Good, HSG D
7,765	98	Paved parking, HSG D
8,440		Weighted Average
675		8.00% Pervious Area
7,765		92.00% Impervious Area

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

Summary for Subcatchment 8.11S:

Runoff = 1.7 cfs @ 12.08 hrs, Volume= 6,001 cf, Depth= 2.68"
Routed to Pond 8.11P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
3,330	80	>75% Grass cover, Good, HSG D
23,570	98	Paved parking, HSG D
26,900		Weighted Average
3,330		12.38% Pervious Area
23,570		87.62% Impervious Area

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

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 8.12S:

Runoff = 0.2 cfs @ 12.08 hrs, Volume= 559 cf, Depth= 2.87"
 Routed to Pond 8.12P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
2,340	98	Paved parking, HSG D
2,340		100.00% Impervious Area

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

Summary for Subcatchment 8.1S:

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 2,349 cf, Depth= 2.02"
 Routed to Pond 8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG D
2,655	74	>75% Grass cover, Good, HSG C
4,365	80	>75% Grass cover, Good, HSG D
13,930		Weighted Average
7,020		50.39% Pervious Area
6,910		49.61% Impervious Area

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

Summary for Subcatchment 8.2S:

Runoff = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf, Depth= 2.63"
 Routed to Pond 8.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
3,010	80	>75% Grass cover, Good, HSG D
16,340	98	Paved parking, HSG D
19,350		Weighted Average
3,010		15.56% Pervious Area
16,340		84.44% Impervious Area

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Type III 24-hr 2-YR Rainfall=3.10"

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

Summary for Subcatchment 8.3S:

Runoff = 3.2 cfs @ 12.08 hrs, Volume= 10,974 cf, Depth= 2.73"
 Routed to Pond 8.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
4,320	80	>75% Grass cover, Good, HSG D
43,920	98	Paved parking, HSG D
48,240		Weighted Average
4,320		8.96% Pervious Area
43,920		91.04% Impervious Area

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

Summary for Subcatchment 8.4S:

Runoff = 1.4 cfs @ 12.08 hrs, Volume= 4,727 cf, Depth= 2.53"
 Routed to Pond 8.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
4,910	80	>75% Grass cover, Good, HSG D
17,510	98	Paved parking, HSG D
22,420		Weighted Average
4,910		21.90% Pervious Area
17,510		78.10% Impervious Area

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

Summary for Subcatchment 8.5S:

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 1,004 cf, Depth= 1.33"
 Routed to Pond 8.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
9,090	80	>75% Grass cover, Good, HSG D
9,090		100.00% Pervious Area

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

Summary for Subcatchment 8.6S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,242 cf, Depth= 2.42"
 Routed to Pond 8.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
3,235	80	>75% Grass cover, Good, HSG D
7,885	98	Paved parking, HSG D
11,120		Weighted Average
3,235		29.09% Pervious Area
7,885		70.91% Impervious Area

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

Summary for Subcatchment 8.7S:

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 792 cf, Depth= 1.87"
 Routed to Pond 8.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
3,280	80	>75% Grass cover, Good, HSG D
1,800	98	Paved parking, HSG D
5,080		Weighted Average
3,280		64.57% Pervious Area
1,800		35.43% Impervious Area

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

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment 8.8S:

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,155 cf, Depth= 2.61"
 Routed to Pond 8.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
1,680	80	>75% Grass cover, Good, HSG D
8,240	98	Paved parking, HSG D
9,920		Weighted Average
1,680		16.94% Pervious Area
8,240		83.06% Impervious Area

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

Summary for Subcatchment 8.9S:

Runoff = 1.2 cfs @ 12.08 hrs, Volume= 4,059 cf, Depth= 2.81"
 Routed to Pond 8.9P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
605	80	>75% Grass cover, Good, HSG D
16,705	98	Paved parking, HSG D
17,310		Weighted Average
605		3.50% Pervious Area
16,705		96.50% Impervious Area

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

Summary for Subcatchment 9.1S:

Runoff = 0.3 cfs @ 12.09 hrs, Volume= 832 cf, Depth= 1.47"
 Routed to Link POA-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-YR Rainfall=3.10"

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Type III 24-hr 2-YR Rainfall=3.10"

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Area (sf)	CN	Description
4,800	83	Woods, Poor, HSG D
2,000	80	>75% Grass cover, Good, HSG D
6,800		Weighted Average
6,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 2.82" for 2-YR event
 Inflow = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf
 Outflow = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.4 cfs @ 12.08 hrs, Volume= 8,185 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.76' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.4 cfs @ 12.08 hrs HW=58.76' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 2.4 cfs @ 3.26 fps)

Summary for Pond 2.11P: 21P (CB-8436)

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf
 Outflow = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.49' @ 12.10 hrs
 Flood Elev= 68.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.69' S= 0.0024 ' S= 0.0024 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.4 cfs @ 12.10 hrs HW=57.49' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 7.4 cfs @ 3.72 fps)

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Pond 2.1P:

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf
 Outflow = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.4 cfs @ 12.10 hrs, Volume= 66,525 cf
 Routed to Pond 2.11P : 21P (CB-8436)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.59' @ 12.10 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.01'	24.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.01' / 55.88' S= 0.0032 ' S= 0.0032 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.4 cfs @ 12.10 hrs HW=57.59' (Free Discharge)↑**1=Culvert** (Barrel Controls 7.4 cfs @ 3.80 fps)**Summary for Pond 2P: B-34**

Inflow Area = 128,980 sf, 80.23% Impervious, Inflow Depth = 2.59" for 2-YR event
 Inflow = 6.8 cfs @ 12.10 hrs, Volume= 27,844 cf
 Outflow = 6.8 cfs @ 12.10 hrs, Volume= 27,844 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.8 cfs @ 12.10 hrs, Volume= 27,844 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 59.27' @ 12.10 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 ' S= 0.0116 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.8 cfs @ 12.10 hrs HW=59.27' (Free Discharge)↑**1=Culvert** (Inlet Controls 6.8 cfs @ 3.84 fps)**Summary for Pond 3.11P:**

Inflow Area = 5,850 sf, 54.70% Impervious, Inflow Depth = 2.17" for 2-YR event
 Inflow = 0.3 cfs @ 12.09 hrs, Volume= 1,057 cf
 Outflow = 0.3 cfs @ 12.09 hrs, Volume= 1,057 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.3 cfs @ 12.09 hrs, Volume= 1,057 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 66.16' @ 12.09 hrs

Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.85'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.85' / 65.50' S= 0.0117 ' S= 0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.3 cfs @ 12.09 hrs HW=66.16' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.3 cfs @ 1.50 fps)**Summary for Pond 3.1P:**

Inflow Area = 1,450 sf, 62.07% Impervious, Inflow Depth = 2.28" for 2-YR event
Inflow = 0.1 cfs @ 12.09 hrs, Volume= 276 cf
Outflow = 0.1 cfs @ 12.09 hrs, Volume= 276 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.1 cfs @ 12.09 hrs, Volume= 276 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.45' @ 12.09 hrs

Flood Elev= 72.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.30'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.30' / 65.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.1 cfs @ 12.09 hrs HW=67.45' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.1 cfs @ 1.05 fps)**Summary for Pond 3.2P:**

Inflow Area = 4,400 sf, 52.27% Impervious, Inflow Depth = 2.13" for 2-YR event
Inflow = 0.2 cfs @ 12.09 hrs, Volume= 782 cf
Outflow = 0.2 cfs @ 12.09 hrs, Volume= 782 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.09 hrs, Volume= 782 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.04' @ 12.09 hrs

Flood Elev= 70.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.77'	12.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.77' / 65.90' S= 0.0109 ' S= 0.0109 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.2 cfs @ 12.09 hrs HW=67.04' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.2 cfs @ 1.39 fps)**Summary for Pond 3.31P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 2.64" for 2-YR event
 Inflow = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf
 Outflow = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.55' @ 12.08 hrs

Flood Elev= 70.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.80'	24.0" Round Culvert L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.80' / 61.30' S= 0.0119 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.5 cfs @ 12.08 hrs HW=62.55' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.5 cfs @ 2.33 fps)**Summary for Pond 3.32P: WQ DET & SF-2**

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth = 2.65" for 2-YR event
 Inflow = 6.8 cfs @ 12.08 hrs, Volume= 23,255 cf
 Outflow = 6.6 cfs @ 12.10 hrs, Volume= 23,255 cf, Atten= 2%, Lag= 1.1 min
 Primary = 0.3 cfs @ 12.10 hrs, Volume= 13,778 cf
 Routed to Pond 3.34P :
 Secondary = 6.3 cfs @ 12.10 hrs, Volume= 9,478 cf
 Routed to Pond 3.33P : PEAK DET

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.81' @ 12.10 hrs Surf.Area= 1,634 sf Storage= 3,180 cf

Plug-Flow detention time= 55.9 min calculated for 23,251 cf (100% of inflow)

Center-of-Mass det. time= 55.9 min (819.3 - 763.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	8.00'W x 204.25'L x 9.00'H Field A 14,706 cf Overall - 10,166 cf Embedded = 4,540 cf x 0.0% Voids
#2A	60.00'	10,166 cf	CMP Round 96 x 9 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +14.25' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		10,166 cf	Total Available Storage

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Type III 24-hr 2-YR Rainfall=3.10"

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	60.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.00' / 59.95' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	57.70'	Tube/Siphon/Float Valve X 11.00 0.668" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@60.45'
#3	Primary	57.70'	12.0" Round 12" Stormfilter Outlet L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.70' / 57.60' S= 0.0077 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	62.40'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 2.40 2.48 2.56 2.64 2.72 2.80 2.88 2.96 3.04 3.12 3.20 3.28 3.36 3.44 3.52 3.60 3.68 3.76 3.84 3.92 4.00 4.08 4.16 4.24 4.32 4.40 4.48 4.56 4.64 4.72 4.80 4.88 4.96 5.04 5.12 5.20 5.28 5.36 5.44 5.52 5.60 5.68 5.76 5.84 5.92 6.00 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 7.33 7.40 7.46 7.52 7.58 7.63 7.68 7.72 7.77 7.80 7.84 7.87 7.90 7.92 7.94 7.96 7.97 7.99 7.99 8.00 8.00 8.00 7.99 7.99 7.97 7.96 7.94 7.92 7.90 7.87 7.84 7.80 7.77 7.72 7.68 7.63 7.58 7.52 7.46 7.40 7.33 7.26 7.18 7.10 7.02 6.93 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

Primary OutFlow Max=0.3 cfs @ 12.10 hrs HW=62.81' (Free Discharge)

3=12" Stormfilter Outlet (Passes 0.3 cfs of 6.4 cfs potential flow)

2=Tube/Siphon/Float Valve (Orifice Controls 0.3 cfs @ 10.88 fps)

1=Culvert (Passes 0.3 cfs of 5.7 cfs potential flow)
Secondary OutFlow Max=6.3 cfs @ 12.10 hrs HW=62.81' (Free Discharge)

4=Custom Weir/Orifice (Weir Controls 6.3 cfs @ 2.08 fps)
Summary for Pond 3.33P: PEAK DET

Inflow	=	6.3 cfs @	12.10 hrs,	Volume=	9,478 cf
Outflow	=	0.1 cfs @	13.71 hrs,	Volume=	9,478 cf, Atten= 98%, Lag= 96.2 min
Primary	=	0.1 cfs @	13.71 hrs,	Volume=	9,478 cf

Routed to Pond 3.34P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 62.04' @ 13.71 hrs Surf.Area= 8,258 sf Storage= 8,295 cf

Plug-Flow detention time= 616.5 min calculated for 9,476 cf (100% of inflow)
 Center-of-Mass det. time= 616.7 min (1,357.2 - 740.6)

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Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	63.00'W x 124.00'L x 8.00'H Field A 62,496 cf Overall - 38,152 cf Embedded = 24,344 cf x 0.0% Voids
#2A	60.00'	38,152 cf	CMP Round 96 x 30 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +16.00' x 50.27 sf x 6 rows 63.00' Header x 50.27 sf x 1 = 3,166.7 cf Inside
#3	60.00'	3,217 cf	CMP Round 96 x 3 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +4.00' x 50.27 sf x 1 rows
		41,368 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#2	Primary	65.50'	0.5' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	63.50'	36.0" W x 6.0" H Vert. CAPACITY ORIFICE C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.1 cfs @ 13.71 hrs HW=62.04' (Free Discharge)

- 1=DRAINDOWN ORIFICE (Orifice Controls 0.1 cfs @ 6.73 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)
 3=CAPACITY ORIFICE (Controls 0.0 cfs)

Summary for Pond 3.34P:

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth = 2.65" for 2-YR event
 Inflow = 0.4 cfs @ 13.56 hrs, Volume= 23,255 cf
 Outflow = 0.4 cfs @ 13.56 hrs, Volume= 23,255 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.4 cfs @ 13.56 hrs, Volume= 23,255 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.80' @ 13.56 hrs
 Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	24.0" Round Culvert L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 56.87' S= 0.0102 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=0.4 cfs @ 13.56 hrs HW=57.80' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.4 cfs @ 1.46 fps)**Summary for Pond 3.35P:**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 2.60" for 2-YR event
 Inflow = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf
 Outflow = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf, Atten= 0%, Lag= 0.0 min
 Primary = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf
 Routed to Pond 3P : B-32 (CB-8031)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.35' @ 12.10 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.69'	24.0" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.69' / 55.62' S= 0.0028 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=7.8 cfs @ 12.10 hrs HW=57.35' (Free Discharge)↑**1=Culvert** (Barrel Controls 7.8 cfs @ 3.79 fps)**Summary for Pond 3.3P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 2.64" for 2-YR event
 Inflow = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf
 Outflow = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.5 cfs @ 12.08 hrs, Volume= 8,636 cf
 Routed to Pond 3.31P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 63.64' @ 12.08 hrs

Flood Elev= 69.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	18.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.80' / 62.30' S= 0.0111 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.5 cfs @ 12.08 hrs HW=63.64' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.5 cfs @ 2.46 fps)

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Summary for Pond 3.4P:

Inflow Area = 5,170 sf, 90.14% Impervious, Inflow Depth = 2.72" for 2-YR event
 Inflow = 0.3 cfs @ 12.08 hrs, Volume= 1,170 cf
 Outflow = 0.3 cfs @ 12.08 hrs, Volume= 1,170 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.3 cfs @ 12.08 hrs, Volume= 1,170 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.58' @ 12.08 hrs

Flood Elev= 69.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 65.45' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.3 cfs @ 12.08 hrs HW=66.57' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.3 cfs @ 1.53 fps)**Summary for Pond 3.5P:**

Inflow Area = 13,630 sf, 87.97% Impervious, Inflow Depth = 2.68" for 2-YR event
 Inflow = 0.9 cfs @ 12.08 hrs, Volume= 3,047 cf
 Outflow = 0.9 cfs @ 12.08 hrs, Volume= 3,047 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.9 cfs @ 12.08 hrs, Volume= 3,047 cf
 Routed to Pond 3.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.85' @ 12.08 hrs

Flood Elev= 68.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.30'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.30' / 63.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.9 cfs @ 12.08 hrs HW=64.85' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.9 cfs @ 1.99 fps)**Summary for Pond 3.6P:**

Inflow Area = 20,710 sf, 92.08% Impervious, Inflow Depth = 2.75" for 2-YR event
 Inflow = 1.4 cfs @ 12.08 hrs, Volume= 4,739 cf
 Outflow = 1.4 cfs @ 12.08 hrs, Volume= 4,739 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.08 hrs, Volume= 4,739 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 64.19' @ 12.08 hrs

Flood Elev= 69.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.55'	15.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.55' / 63.05' S= 0.0111 ' S= 0.0111 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.4 cfs @ 12.08 hrs HW=64.19' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.4 cfs @ 2.15 fps)**Summary for Pond 3.7P:**

Inflow Area = 6,280 sf, 87.10% Impervious, Inflow Depth = 2.67" for 2-YR event
Inflow = 0.4 cfs @ 12.08 hrs, Volume= 1,397 cf
Outflow = 0.4 cfs @ 12.08 hrs, Volume= 1,397 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.4 cfs @ 12.08 hrs, Volume= 1,397 cf
Routed to Pond 3.5P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.16' @ 12.08 hrs

Flood Elev= 68.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.80'	12.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.80' / 64.40' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.4 cfs @ 12.08 hrs HW=65.16' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.4 cfs @ 1.61 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 2.60" for 2-YR event
Inflow = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf
Outflow = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.8 cfs @ 12.10 hrs, Volume= 89,780 cf
Routed to Pond 4P : B-32A (CB-8323)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.17' @ 12.10 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 ' S= -0.0036 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=7.8 cfs @ 12.10 hrs HW=57.17' (Free Discharge)↑**1=Culvert** (Barrel Controls 7.8 cfs @ 3.61 fps)**Summary for Pond 4.21P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 2.65" for 2-YR event
 Inflow = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf
 Outflow = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf

Routed to Pond 4.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.52' @ 12.08 hrs

Flood Elev= 72.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.05'	15.0" Round Culvert L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.05' / 66.06' S= 0.0121 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.8 cfs @ 12.08 hrs HW=67.52' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.8 cfs @ 1.83 fps)**Summary for Pond 4.2P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 2.65" for 2-YR event
 Inflow = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf
 Outflow = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.8 cfs @ 12.08 hrs, Volume= 2,615 cf

Routed to Pond 4.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.67' @ 12.08 hrs

Flood Elev= 72.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.20'	15.0" Round Culvert L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.20' / 67.16' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.8 cfs @ 12.08 hrs HW=68.67' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.8 cfs @ 1.83 fps)

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Summary for Pond 4.3P:

Inflow Area = 22,490 sf, 85.42% Impervious, Inflow Depth = 2.67" for 2-YR event
 Inflow = 1.5 cfs @ 12.08 hrs, Volume= 5,001 cf
 Outflow = 1.5 cfs @ 12.08 hrs, Volume= 5,001 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.5 cfs @ 12.08 hrs, Volume= 5,001 cf
 Routed to Pond 4.8P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.43' @ 12.08 hrs

Flood Elev= 70.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.81'	18.0" Round Culvert L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.81' / 64.15' S= 0.0158 ' S= 0.0158 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.5 cfs @ 12.08 hrs HW=66.43' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.5 cfs @ 2.11 fps)**Summary for Pond 4.4P:**

Inflow Area = 11,040 sf, 83.15% Impervious, Inflow Depth = 2.61" for 2-YR event
 Inflow = 0.7 cfs @ 12.08 hrs, Volume= 2,399 cf
 Outflow = 0.7 cfs @ 12.08 hrs, Volume= 2,399 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.7 cfs @ 12.08 hrs, Volume= 2,399 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.38' @ 12.08 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.90'	12.0" Round Culvert L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.90' / 66.50' S= 0.0169 ' S= 0.0169 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.7 cfs @ 12.08 hrs HW=68.38' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.86 fps)**Summary for Pond 4.5P:**

Inflow Area = 5,620 sf, 62.10% Impervious, Inflow Depth = 2.28" for 2-YR event
 Inflow = 0.3 cfs @ 12.09 hrs, Volume= 1,069 cf
 Outflow = 0.3 cfs @ 12.09 hrs, Volume= 1,069 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.3 cfs @ 12.09 hrs, Volume= 1,069 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 69.41' @ 12.09 hrs

Flood Elev= 72.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.10'	12.0" Round Culvert L= 122.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.10' / 66.50' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.3 cfs @ 12.09 hrs HW=69.41' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.3 cfs @ 1.50 fps)**Summary for Pond 4.6P:**

Inflow Area = 25,750 sf, 80.23% Impervious, Inflow Depth = 2.56" for 2-YR event
 Inflow = 1.6 cfs @ 12.08 hrs, Volume= 5,500 cf
 Outflow = 1.6 cfs @ 12.08 hrs, Volume= 5,500 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.6 cfs @ 12.08 hrs, Volume= 5,500 cf
 Routed to Pond 4.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.65' @ 12.08 hrs

Flood Elev= 70.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	18.0" Round Culvert L= 77.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 64.70' S= 0.0169 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.6 cfs @ 12.08 hrs HW=66.65' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.6 cfs @ 2.17 fps)**Summary for Pond 4.7P:**

Inflow Area = 31,770 sf, 83.98% Impervious, Inflow Depth = 2.62" for 2-YR event
 Inflow = 2.0 cfs @ 12.08 hrs, Volume= 6,938 cf
 Outflow = 2.0 cfs @ 12.08 hrs, Volume= 6,938 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.0 cfs @ 12.08 hrs, Volume= 6,938 cf
 Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.71' @ 12.08 hrs

Flood Elev= 69.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.20'	18.0" Round Culvert X 2.00 L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.20' / 63.70' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=2.0 cfs @ 12.08 hrs HW=64.71' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.0 cfs @ 1.91 fps)**Summary for Pond 4.81P:**

Inflow Area = 66,110 sf, 85.55% Impervious, Inflow Depth = 2.65" for 2-YR event
 Inflow = 4.3 cfs @ 12.08 hrs, Volume= 14,619 cf
 Outflow = 4.3 cfs @ 12.08 hrs, Volume= 14,619 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.3 cfs @ 12.08 hrs, Volume= 14,619 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.20' @ 12.08 hrs

Flood Elev= 69.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	24.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.20' / 62.80' S= 0.0267 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.2 cfs @ 12.08 hrs HW=64.20' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.2 cfs @ 2.69 fps)**Summary for Pond 4.8P:**

Inflow Area = 34,340 sf, 87.00% Impervious, Inflow Depth = 2.68" for 2-YR event
 Inflow = 2.2 cfs @ 12.08 hrs, Volume= 7,680 cf
 Outflow = 2.2 cfs @ 12.08 hrs, Volume= 7,680 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.2 cfs @ 12.08 hrs, Volume= 7,680 cf
 Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.36' @ 12.08 hrs

Flood Elev= 68.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.65'	24.0" Round Culvert L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.65' / 63.30' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.2 cfs @ 12.08 hrs HW=64.35' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.2 cfs @ 2.26 fps)

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Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 2.57" for 2-YR event
 Inflow = 9.0 cfs @ 12.11 hrs, Volume= 95,489 cf
 Outflow = 9.0 cfs @ 12.11 hrs, Volume= 95,489 cf, Atten= 0%, Lag= 0.0 min
 Primary = 9.0 cfs @ 12.11 hrs, Volume= 95,489 cf
 Routed to Link POA-1 : B-30
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link POA-1 : B-30

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.12' @ 12.11 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 ' S= 0.0054 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=9.0 cfs @ 12.11 hrs HW=57.12' (Free Discharge)↑**1=Culvert** (Barrel Controls 9.0 cfs @ 4.57 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=55.52' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)**Summary for Pond 5P:**

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 2.24" for 2-YR event
 Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf
 Outflow = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf
 Routed to Link POA-2 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.59' @ 12.09 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.09 hrs HW=60.58' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 2.06 fps)

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Summary for Pond 6P:

Inflow Area = 64,300 sf, 76.42% Impervious, Inflow Depth = 2.52" for 2-YR event
 Inflow = 3.0 cfs @ 12.17 hrs, Volume= 13,479 cf
 Outflow = 3.0 cfs @ 12.17 hrs, Volume= 13,479 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.0 cfs @ 12.17 hrs, Volume= 13,479 cf
 Routed to Pond 2P : B-34
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 63.56' @ 12.17 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.0 cfs @ 12.17 hrs HW=63.56' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.0 cfs @ 3.76 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=62.08' (Free Discharge)↑**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)**Summary for Pond 7P:**

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 2.45" for 2-YR event
 Inflow = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf
 Outflow = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf
 Routed to Link POA-4 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.08' @ 12.15 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.3 cfs @ 12.15 hrs HW=66.08' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.3 cfs @ 2.89 fps)

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Summary for Pond 8.10P:

Inflow Area = 8,440 sf, 92.00% Impervious, Inflow Depth = 2.74" for 2-YR event
 Inflow = 0.6 cfs @ 12.08 hrs, Volume= 1,930 cf
 Outflow = 0.6 cfs @ 12.08 hrs, Volume= 1,930 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.6 cfs @ 12.08 hrs, Volume= 1,930 cf
 Routed to Pond 8.9P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.73' @ 12.08 hrs

Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.30'	12.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.30' / 68.75' S= 0.0367 ' S= 0.0367 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.6 cfs @ 12.08 hrs HW=69.73' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.6 cfs @ 1.75 fps)**Summary for Pond 8.111P:**

Inflow Area = 29,240 sf, 88.61% Impervious, Inflow Depth = 2.69" for 2-YR event
 Inflow = 1.9 cfs @ 12.08 hrs, Volume= 6,560 cf
 Outflow = 1.9 cfs @ 12.08 hrs, Volume= 6,560 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.9 cfs @ 12.08 hrs, Volume= 6,560 cf
 Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.67' @ 12.08 hrs

Flood Elev= 74.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.95'	18.0" Round Culvert L= 160.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.95' / 66.30' S= 0.0103 ' S= 0.0103 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.9 cfs @ 12.08 hrs HW=68.67' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.9 cfs @ 2.28 fps)**Summary for Pond 8.11P:**

Inflow Area = 26,900 sf, 87.62% Impervious, Inflow Depth = 2.68" for 2-YR event
 Inflow = 1.7 cfs @ 12.08 hrs, Volume= 6,001 cf
 Outflow = 1.7 cfs @ 12.08 hrs, Volume= 6,001 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.7 cfs @ 12.08 hrs, Volume= 6,001 cf
 Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 70.69' @ 12.08 hrs

Flood Elev= 73.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.95'	15.0" Round Culvert L= 144.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.95' / 68.20' S= 0.0122 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.7 cfs @ 12.08 hrs HW=70.69' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.7 cfs @ 2.31 fps)**Summary for Pond 8.12P:**

Inflow Area = 2,340 sf, 100.00% Impervious, Inflow Depth = 2.87" for 2-YR event
Inflow = 0.2 cfs @ 12.08 hrs, Volume= 559 cf
Outflow = 0.2 cfs @ 12.08 hrs, Volume= 559 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.08 hrs, Volume= 559 cf
Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.97' @ 12.08 hrs

Flood Elev= 74.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.75'	12.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.75' / 69.30' S= 0.0121 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.08 hrs HW=70.97' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.2 cfs @ 1.26 fps)**Summary for Pond 8.21P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 2.63" for 2-YR event
Inflow = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf
Outflow = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf
Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.51' @ 12.08 hrs

Flood Elev= 76.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	24.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 68.60' S= 0.0240 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=1.2 cfs @ 12.08 hrs HW=71.51' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 1.93 fps)**Summary for Pond 8.22P:**

Inflow Area = 41,770 sf, 81.04% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 2.6 cfs @ 12.08 hrs, Volume= 8,965 cf
 Outflow = 2.6 cfs @ 12.08 hrs, Volume= 8,965 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.6 cfs @ 12.08 hrs, Volume= 8,965 cf
 Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.27' @ 12.08 hrs

Flood Elev= 75.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.50'	24.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.50' / 68.10' S= 0.0133 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=2.6 cfs @ 12.08 hrs HW=69.27' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.6 cfs @ 2.35 fps)**Summary for Pond 8.2P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 2.63" for 2-YR event
 Inflow = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf
 Outflow = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.08 hrs, Volume= 4,238 cf
 Routed to Pond 8.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 74.27' @ 12.08 hrs

Flood Elev= 79.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	18.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 73.70' / 71.50' S= 0.0183 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.2 cfs @ 12.08 hrs HW=74.26' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 2.02 fps)

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Summary for Pond 8.3P:

Inflow Area = 99,100 sf, 78.48% Impervious, Inflow Depth = 2.54" for 2-YR event
 Inflow = 6.1 cfs @ 12.08 hrs, Volume= 20,942 cf
 Outflow = 6.1 cfs @ 12.08 hrs, Volume= 20,942 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.1 cfs @ 12.08 hrs, Volume= 20,942 cf
 Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.24' @ 12.08 hrs

Flood Elev= 74.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	24.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.00' / 67.20' S= 0.0178 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.1 cfs @ 12.08 hrs HW=69.24' (Free Discharge)↑**1=Culvert** (Inlet Controls 6.1 cfs @ 2.99 fps)**Summary for Pond 8.4P:**

Inflow Area = 22,420 sf, 78.10% Impervious, Inflow Depth = 2.53" for 2-YR event
 Inflow = 1.4 cfs @ 12.08 hrs, Volume= 4,727 cf
 Outflow = 1.4 cfs @ 12.08 hrs, Volume= 4,727 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.08 hrs, Volume= 4,727 cf
 Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.65' @ 12.08 hrs

Flood Elev= 75.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	15.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.35' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.4 cfs @ 12.08 hrs HW=70.64' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.4 cfs @ 2.16 fps)**Summary for Pond 8.5P:**

Inflow Area = 9,090 sf, 0.00% Impervious, Inflow Depth = 1.33" for 2-YR event
 Inflow = 0.3 cfs @ 12.09 hrs, Volume= 1,004 cf
 Outflow = 0.3 cfs @ 12.09 hrs, Volume= 1,004 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.3 cfs @ 12.09 hrs, Volume= 1,004 cf
 Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 74.76' @ 12.09 hrs

Flood Elev= 77.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.45'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.45' / 73.35' S= 0.0220 ' S= 0.0220 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.3 cfs @ 12.09 hrs HW=74.76' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.3 cfs @ 1.51 fps)**Summary for Pond 8.6P:**

Inflow Area = 11,120 sf, 70.91% Impervious, Inflow Depth = 2.42" for 2-YR event
Inflow = 0.7 cfs @ 12.08 hrs, Volume= 2,242 cf
Outflow = 0.7 cfs @ 12.08 hrs, Volume= 2,242 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.7 cfs @ 12.08 hrs, Volume= 2,242 cf
Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.73' @ 12.08 hrs

Flood Elev= 75.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	15.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.30' / 70.10' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.7 cfs @ 12.08 hrs HW=71.73' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.76 fps)**Summary for Pond 8.7P:**

Inflow Area = 115,300 sf, 75.85% Impervious, Inflow Depth = 2.50" for 2-YR event
Inflow = 7.0 cfs @ 12.08 hrs, Volume= 23,976 cf
Outflow = 7.0 cfs @ 12.08 hrs, Volume= 23,976 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.0 cfs @ 12.08 hrs, Volume= 23,976 cf
Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.12' @ 12.08 hrs

Flood Elev= 73.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.90'	30.0" Round Culvert L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.90' / 66.25' S= 0.0114 ' S= 0.0114 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

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Primary OutFlow Max=7.0 cfs @ 12.08 hrs HW=68.11' (Free Discharge)↑**1=Culvert** (Inlet Controls 7.0 cfs @ 2.96 fps)**Summary for Pond 8.81P:**

Inflow Area = 150,970 sf, 79.60% Impervious, Inflow Depth = 2.55" for 2-YR event
 Inflow = 9.4 cfs @ 12.08 hrs, Volume= 32,121 cf
 Outflow = 9.4 cfs @ 12.08 hrs, Volume= 32,121 cf, Atten= 0%, Lag= 0.0 min
 Primary = 9.4 cfs @ 12.08 hrs, Volume= 32,121 cf
 Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.63' @ 12.08 hrs

Flood Elev= 74.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	36.0" Round Culvert L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 66.00' S= 0.0192 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=9.4 cfs @ 12.08 hrs HW=67.63' (Free Discharge)↑**1=Culvert** (Barrel Controls 9.4 cfs @ 4.34 fps)**Summary for Pond 8.82P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 11.3 cfs @ 12.08 hrs, Volume= 38,681 cf
 Outflow = 11.3 cfs @ 12.08 hrs, Volume= 38,681 cf, Atten= 0%, Lag= 0.0 min
 Primary = 11.3 cfs @ 12.08 hrs, Volume= 38,681 cf
 Routed to Pond 8.83P : WQ DET & SF-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.85' @ 12.08 hrs

Flood Elev= 75.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	36.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.25' / 65.10' S= 0.0214 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=11.3 cfs @ 12.08 hrs HW=66.85' (Free Discharge)↑**1=Culvert** (Barrel Controls 11.3 cfs @ 4.25 fps)

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Summary for Pond 8.83P: WQ DET & SF-1

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 11.3 cfs @ 12.08 hrs, Volume= 38,681 cf
 Outflow = 11.2 cfs @ 12.09 hrs, Volume= 38,681 cf, Atten= 0%, Lag= 0.5 min
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 22,563 cf
 Routed to Pond 8.85P :
 Secondary = 10.8 cfs @ 12.09 hrs, Volume= 16,118 cf
 Routed to Pond 8.84P : Peak DET-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.22' @ 12.09 hrs Surf.Area= 1,115 sf Storage= 4,933 cf

Plug-Flow detention time= 61.1 min calculated for 38,674 cf (100% of inflow)
 Center-of-Mass det. time= 61.1 min (826.7 - 765.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	10.00'W x 111.50'L x 8.00'H Field A 8,920 cf Overall - 5,504 cf Embedded = 3,416 cf x 0.0% Voids
#2A	62.50'	5,504 cf	CMP Round 96 x 5 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +1.50' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		5,504 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	62.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.50' / 62.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	60.60'	Tube/Siphon/Float Valve X 18.00 0.586" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@63.35'
#3	Primary	60.60'	12.0" Round 12" Stormfilter Outlet L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 60.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	68.58'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

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Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=69.21' (Free Discharge)↑ **3=12" Stormfilter Outlet** (Passes 0.5 cfs of 8.5 cfs potential flow)↑ **2=Tube/Siphon/Float Valve** (Orifice Controls 0.5 cfs @ 14.13 fps)↑ **1=Culvert** (Passes 0.5 cfs of 9.4 cfs potential flow)**Secondary OutFlow** Max=10.7 cfs @ 12.09 hrs HW=69.21' (Free Discharge)↑ **4=Custom Weir/Orifice** (Weir Controls 10.7 cfs @ 2.65 fps)**Summary for Pond 8.84P: Peak DET-1**

Inflow = 10.8 cfs @ 12.09 hrs, Volume= 16,118 cf
 Outflow = 1.0 cfs @ 12.66 hrs, Volume= 16,118 cf, Atten= 91%, Lag= 34.0 min
 Primary = 1.0 cfs @ 12.66 hrs, Volume= 16,118 cf
 Routed to Pond 8.85P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.90' @ 12.66 hrs Surf.Area= 10,780 sf Storage= 12,614 cf

Plug-Flow detention time= 576.8 min calculated for 16,118 cf (100% of inflow)

Center-of-Mass det. time= 576.8 min (1,316.4 - 739.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	98.00'W x 110.00'L x 8.00'H Field A 86,240 cf Overall - 50,064 cf Embedded = 36,176 cf x 0.0% Voids
#2A	62.50'	50,064 cf	CMP Round 96 x 45 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L 45 Chambers in 9 Rows 96.00' Header x 50.27 sf x 1 = 4,825.5 cf Inside
		50,064 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	6.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	66.00'	36.0" W x 12.0" H Vert. OVERFLOW ORIFICE C= 0.600 Limited to weir flow at low heads
#3	Primary	62.50'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#4	Primary	64.50'	6.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.0 cfs @ 12.66 hrs HW=64.90' (Free Discharge)↑ **1=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)↑ **2=OVERFLOW ORIFICE** (Controls 0.0 cfs)↑ **3=DRAINDOWN ORIFICE** (Orifice Controls 0.2 cfs @ 7.32 fps)↑ **4=Orifice/Grate** (Orifice Controls 0.8 cfs @ 2.02 fps)

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Summary for Pond 8.85P:

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf
 Outflow = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf
 Routed to Pond 8.96P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.11' @ 12.66 hrs

Flood Elev= 73.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.50'	18.0" Round Culvert L= 226.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.50' / 58.60' S= 0.0084 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.4 cfs @ 12.66 hrs HW=61.11' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.4 cfs @ 2.10 fps)**Summary for Pond 8.8P:**

Inflow Area = 9,920 sf, 83.06% Impervious, Inflow Depth = 2.61" for 2-YR event
 Inflow = 0.6 cfs @ 12.08 hrs, Volume= 2,155 cf
 Outflow = 0.6 cfs @ 12.08 hrs, Volume= 2,155 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.6 cfs @ 12.08 hrs, Volume= 2,155 cf
 Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.92' @ 12.08 hrs

Flood Elev= 75.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.50'	15.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.50' / 70.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.6 cfs @ 12.08 hrs HW=70.92' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.6 cfs @ 1.74 fps)**Summary for Pond 8.96P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 2.58" for 2-YR event
 Inflow = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf
 Outflow = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.66 hrs, Volume= 38,681 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Type III 24-hr 2-YR Rainfall=3.10"

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Peak Elev= 59.11' @ 12.66 hrs

Flood Elev= 68.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.50'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.50' / 56.01' S= 0.0311 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.4 cfs @ 12.66 hrs HW=59.11' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.4 cfs @ 2.10 fps)**Summary for Pond 8.9P:**

Inflow Area = 25,750 sf, 95.03% Impervious, Inflow Depth = 2.79" for 2-YR event
Inflow = 1.7 cfs @ 12.08 hrs, Volume= 5,989 cf
Outflow = 1.7 cfs @ 12.08 hrs, Volume= 5,989 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.7 cfs @ 12.08 hrs, Volume= 5,989 cf
Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.24' @ 12.08 hrs

Flood Elev= 73.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.40'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.40' / 68.75' S= 0.0361 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.7 cfs @ 12.08 hrs HW=70.24' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.7 cfs @ 2.46 fps)**Summary for Pond 8P:**

Inflow Area = 13,930 sf, 49.61% Impervious, Inflow Depth = 2.02" for 2-YR event
Inflow = 0.7 cfs @ 12.09 hrs, Volume= 2,349 cf
Outflow = 0.7 cfs @ 12.09 hrs, Volume= 2,349 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.7 cfs @ 12.09 hrs, Volume= 2,349 cf
Routed to Pond 6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.06' @ 12.09 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.58'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.58' / 59.88' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.7 cfs @ 12.09 hrs HW=61.06' (Free Discharge)

↑1=Culvert (Inlet Controls 0.7 cfs @ 1.86 fps)

Summary for Link POA-1: B-30

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 2.57" for 2-YR event
Inflow = 9.0 cfs @ 12.11 hrs, Volume= 95,489 cf
Primary = 9.0 cfs @ 12.11 hrs, Volume= 95,489 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 2.24" for 2-YR event
Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf
Primary = 1.2 cfs @ 12.09 hrs, Volume= 3,863 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 6,800 sf, 0.00% Impervious, Inflow Depth = 1.47" for 2-YR event
Inflow = 0.3 cfs @ 12.09 hrs, Volume= 832 cf
Primary = 0.3 cfs @ 12.09 hrs, Volume= 832 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 2.45" for 2-YR event
Inflow = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf
Primary = 2.3 cfs @ 12.15 hrs, Volume= 9,250 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=4.31" Tc=6.0 min CN=WQ Runoff=3.6 cfs 12,507 cf
Subcatchment2.1S:	Runoff Area=29,840 sf 69.86% Impervious Runoff Depth=3.92" Tc=6.0 min CN=WQ Runoff=2.9 cfs 9,759 cf
Subcatchment3.1S:	Runoff Area=1,450 sf 62.07% Impervious Runoff Depth=3.67" Tc=6.0 min CN=WQ Runoff=0.1 cfs 444 cf
Subcatchment3.2S:	Runoff Area=4,400 sf 52.27% Impervious Runoff Depth=3.50" Tc=6.0 min CN=WQ Runoff=0.4 cfs 1,282 cf
Subcatchment3.3S:	Runoff Area=7,500 sf 87.33% Impervious Runoff Depth=4.13" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,584 cf
Subcatchment3.4S:	Runoff Area=5,170 sf 90.14% Impervious Runoff Depth=4.18" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,803 cf
Subcatchment3.5S:	Runoff Area=7,350 sf 88.71% Impervious Runoff Depth=4.16" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,547 cf
Subcatchment3.6S:	Runoff Area=7,080 sf 100.00% Impervious Runoff Depth=4.36" Tc=6.0 min CN=98 Runoff=0.7 cfs 2,575 cf
Subcatchment3.7S:	Runoff Area=6,280 sf 87.10% Impervious Runoff Depth=4.13" Tc=6.0 min CN=WQ Runoff=0.6 cfs 2,161 cf
Subcatchment4.1S:	Runoff Area=30,540 sf 50.79% Impervious Runoff Depth=3.65" Flow Length=135' Tc=12.1 min CN=WQ Runoff=2.3 cfs 9,281 cf
Subcatchment4.2S:	Runoff Area=11,860 sf 82.50% Impervious Runoff Depth=4.11" Tc=6.0 min CN=WQ Runoff=1.2 cfs 4,061 cf
Subcatchment4.3S:	Runoff Area=10,630 sf 88.66% Impervious Runoff Depth=4.16" Tc=6.0 min CN=WQ Runoff=1.1 cfs 3,683 cf
Subcatchment4.4S:	Runoff Area=11,040 sf 83.15% Impervious Runoff Depth=4.06" Tc=6.0 min CN=WQ Runoff=1.1 cfs 3,733 cf
Subcatchment4.5S:	Runoff Area=5,620 sf 62.10% Impervious Runoff Depth=3.68" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,721 cf
Subcatchment4.6S:	Runoff Area=9,090 sf 87.90% Impervious Runoff Depth=4.14" Tc=6.0 min CN=WQ Runoff=0.9 cfs 3,139 cf
Subcatchment4.7S:	Runoff Area=6,020 sf 100.00% Impervious Runoff Depth=4.36" Tc=6.0 min CN=98 Runoff=0.6 cfs 2,189 cf

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Subcatchment4.8S:	Runoff Area=11,850 sf 90.00% Impervious Runoff Depth=4.18" Tc=6.0 min CN=WQ Runoff=1.2 cfs 4,130 cf
Subcatchment5.1S:	Runoff Area=20,660 sf 50.80% Impervious Runoff Depth=3.65" Tc=6.0 min CN=WQ Runoff=1.9 cfs 6,279 cf
Subcatchment6.1S:	Runoff Area=50,370 sf 83.84% Impervious Runoff Depth=4.11" Flow Length=280' Tc=14.5 min CN=WQ Runoff=3.8 cfs 17,267 cf
Subcatchment7.1S:	Runoff Area=45,290 sf 74.03% Impervious Runoff Depth=3.87" Flow Length=425' Tc=11.4 min CN=WQ Runoff=3.6 cfs 14,605 cf
Subcatchment8.10S:	Runoff Area=8,440 sf 92.00% Impervious Runoff Depth=4.22" Tc=6.0 min CN=WQ Runoff=0.8 cfs 2,967 cf
Subcatchment8.11S:	Runoff Area=26,900 sf 87.62% Impervious Runoff Depth=4.14" Tc=6.0 min CN=WQ Runoff=2.7 cfs 9,278 cf
Subcatchment8.12S:	Runoff Area=2,340 sf 100.00% Impervious Runoff Depth=4.36" Tc=6.0 min CN=98 Runoff=0.2 cfs 851 cf
Subcatchment8.1S:	Runoff Area=13,930 sf 49.61% Impervious Runoff Depth=3.35" Tc=6.0 min CN=WQ Runoff=1.2 cfs 3,893 cf
Subcatchment8.2S:	Runoff Area=19,350 sf 84.44% Impervious Runoff Depth=4.08" Tc=6.0 min CN=WQ Runoff=1.9 cfs 6,581 cf
Subcatchment8.3S:	Runoff Area=48,240 sf 91.04% Impervious Runoff Depth=4.20" Tc=6.0 min CN=WQ Runoff=4.8 cfs 16,889 cf
Subcatchment8.4S:	Runoff Area=22,420 sf 78.10% Impervious Runoff Depth=3.97" Tc=6.0 min CN=WQ Runoff=2.1 cfs 7,410 cf
Subcatchment8.5S:	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth=2.55" Tc=6.0 min CN=80 Runoff=0.6 cfs 1,929 cf
Subcatchment8.6S:	Runoff Area=11,120 sf 70.91% Impervious Runoff Depth=3.84" Tc=6.0 min CN=WQ Runoff=1.0 cfs 3,554 cf
Subcatchment8.7S:	Runoff Area=5,080 sf 35.43% Impervious Runoff Depth=3.19" Tc=6.0 min CN=WQ Runoff=0.4 cfs 1,351 cf
Subcatchment8.8S:	Runoff Area=9,920 sf 83.06% Impervious Runoff Depth=4.06" Tc=6.0 min CN=WQ Runoff=1.0 cfs 3,353 cf
Subcatchment8.9S:	Runoff Area=17,310 sf 96.50% Impervious Runoff Depth=4.30" Tc=6.0 min CN=WQ Runoff=1.8 cfs 6,203 cf
Subcatchment9.1S:	Runoff Area=6,800 sf 0.00% Impervious Runoff Depth=2.74" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,550 cf

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Type III 24-hr 10-YR Rainfall=4.60"

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Pond 1P: B-41

Peak Elev=59.00' Inflow=3.6 cfs 12,507 cf
18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=3.6 cfs 12,507 cf

Pond 2.11P: 21P (CB-8436)

Peak Elev=58.18' Inflow=12.4 cfs 103,791 cf
24.0" Round Culvert n=0.013 L=80.0' S=0.0024 '/' Outflow=12.4 cfs 103,791 cf

Pond 2.1P:

Peak Elev=58.25' Inflow=12.4 cfs 103,791 cf
24.0" Round Culvert n=0.013 L=40.0' S=0.0032 '/' Outflow=12.4 cfs 103,791 cf

Pond 2P: B-34

Peak Elev=60.68' Inflow=10.5 cfs 43,426 cf
18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=10.5 cfs 43,426 cf

Pond 3.11P:

Peak Elev=66.26' Inflow=0.5 cfs 1,726 cf
12.0" Round Culvert n=0.013 L=30.0' S=0.0117 '/' Outflow=0.5 cfs 1,726 cf

Pond 3.1P:

Peak Elev=67.50' Inflow=0.1 cfs 444 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Outflow=0.1 cfs 444 cf

Pond 3.2P:

Peak Elev=67.12' Inflow=0.4 cfs 1,282 cf
12.0" Round Culvert n=0.013 L=80.0' S=0.0109 '/' Outflow=0.4 cfs 1,282 cf

Pond 3.31P:

Peak Elev=62.75' Inflow=3.8 cfs 13,396 cf
24.0" Round Culvert n=0.013 L=42.0' S=0.0119 '/' Outflow=3.8 cfs 13,396 cf

Pond 3.32P: WQ DET & SF-2

Peak Elev=62.94' Storage=3,395 cf Inflow=10.4 cfs 36,052 cf
Primary=0.3 cfs 17,012 cf Secondary=9.9 cfs 19,040 cf Outflow=10.2 cfs 36,052 cf

Pond 3.33P: PEAK DET

Peak Elev=63.37' Storage=16,581 cf Inflow=9.9 cfs 19,040 cf
Outflow=0.2 cfs 19,039 cf

Pond 3.34P:

Peak Elev=57.81' Inflow=0.5 cfs 36,051 cf
24.0" Round Culvert n=0.013 L=62.0' S=0.0102 '/' Outflow=0.5 cfs 36,051 cf

Pond 3.35P:

Peak Elev=58.01' Inflow=12.8 cfs 139,843 cf
24.0" Round Culvert n=0.013 L=25.0' S=0.0028 '/' Outflow=12.8 cfs 139,843 cf

Pond 3.3P:

Peak Elev=63.89' Inflow=3.8 cfs 13,396 cf
18.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=3.8 cfs 13,396 cf

Pond 3.4P:

Peak Elev=66.66' Inflow=0.5 cfs 1,803 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0160 '/' Outflow=0.5 cfs 1,803 cf

Pond 3.5P:

Peak Elev=65.01' Inflow=1.3 cfs 4,708 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.3 cfs 4,708 cf

Pond 3.6P:

Peak Elev=64.37' Inflow=2.1 cfs 7,283 cf
15.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=2.1 cfs 7,283 cf

Pond 3.7P:

Peak Elev=65.25' Inflow=0.6 cfs 2,161 cf
12.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.6 cfs 2,161 cf

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Type III 24-hr 10-YR Rainfall=4.60"

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Pond 3P: B-32 (CB-8031)

Peak Elev=57.86' Inflow=12.8 cfs 139,843 cf
 24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=12.8 cfs 139,843 cf

Pond 4.21P:

Peak Elev=67.64' Inflow=1.2 cfs 4,061 cf
 15.0" Round Culvert n=0.013 L=82.0' S=0.0121 '/' Outflow=1.2 cfs 4,061 cf

Pond 4.2P:

Peak Elev=68.79' Inflow=1.2 cfs 4,061 cf
 15.0" Round Culvert n=0.013 L=104.0' S=0.0100 '/' Outflow=1.2 cfs 4,061 cf

Pond 4.3P:

Peak Elev=66.59' Inflow=2.2 cfs 7,744 cf
 18.0" Round Culvert n=0.013 L=105.0' S=0.0158 '/' Outflow=2.2 cfs 7,744 cf

Pond 4.4P:

Peak Elev=68.52' Inflow=1.1 cfs 3,733 cf
 12.0" Round Culvert n=0.013 L=83.0' S=0.0169 '/' Outflow=1.1 cfs 3,733 cf

Pond 4.5P:

Peak Elev=69.50' Inflow=0.5 cfs 1,721 cf
 12.0" Round Culvert n=0.013 L=122.0' S=0.0213 '/' Outflow=0.5 cfs 1,721 cf

Pond 4.6P:

Peak Elev=66.83' Inflow=2.5 cfs 8,593 cf
 18.0" Round Culvert n=0.013 L=77.0' S=0.0169 '/' Outflow=2.5 cfs 8,593 cf

Pond 4.7P:

Peak Elev=64.84' Inflow=3.1 cfs 10,783 cf
 18.0" Round Culvert x 2.00 n=0.013 L=22.0' S=0.0227 '/' Outflow=3.1 cfs 10,783 cf

Pond 4.81P:

Peak Elev=64.49' Inflow=6.5 cfs 22,657 cf
 24.0" Round Culvert n=0.013 L=15.0' S=0.0267 '/' Outflow=6.5 cfs 22,657 cf

Pond 4.8P:

Peak Elev=64.54' Inflow=3.4 cfs 11,874 cf
 24.0" Round Culvert n=0.013 L=35.0' S=0.0100 '/' Outflow=3.4 cfs 11,874 cf

Pond 4P: B-32A (CB-8323)

Peak Elev=58.09' Inflow=15.0 cfs 149,124 cf
 Primary=15.0 cfs 149,124 cf Secondary=0.0 cfs 0 cf Outflow=15.0 cfs 149,124 cf

Pond 5P:

Peak Elev=60.77' Inflow=1.9 cfs 6,279 cf
 15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.9 cfs 6,279 cf

Pond 6P:

Peak Elev=64.94' Inflow=4.6 cfs 21,160 cf
 Primary=4.6 cfs 21,160 cf Secondary=0.0 cfs 0 cf Outflow=4.6 cfs 21,160 cf

Pond 7P:

Peak Elev=66.93' Inflow=3.6 cfs 14,605 cf
 12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=3.6 cfs 14,605 cf

Pond 8.10P:

Peak Elev=69.84' Inflow=0.8 cfs 2,967 cf
 12.0" Round Culvert n=0.013 L=15.0' S=0.0367 '/' Outflow=0.8 cfs 2,967 cf

Pond 8.111P:

Peak Elev=68.86' Inflow=2.9 cfs 10,129 cf
 18.0" Round Culvert n=0.013 L=160.0' S=0.0103 '/' Outflow=2.9 cfs 10,129 cf

Pond 8.11P:

Peak Elev=70.91' Inflow=2.7 cfs 9,278 cf
 15.0" Round Culvert n=0.013 L=144.0' S=0.0122 '/' Outflow=2.7 cfs 9,278 cf

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Type III 24-hr 10-YR Rainfall=4.60"

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Pond 8.12P:	Peak Elev=71.02' Inflow=0.2 cfs 851 cf 12.0" Round Culvert n=0.013 L=120.0' S=0.0121 '/' Outflow=0.2 cfs 851 cf
Pond 8.21P:	Peak Elev=71.64' Inflow=1.9 cfs 6,581 cf 24.0" Round Culvert n=0.013 L=100.0' S=0.0240 '/' Outflow=1.9 cfs 6,581 cf
Pond 8.22P:	Peak Elev=69.47' Inflow=4.0 cfs 13,991 cf 24.0" Round Culvert n=0.013 L=30.0' S=0.0133 '/' Outflow=4.0 cfs 13,991 cf
Pond 8.2P:	Peak Elev=74.42' Inflow=1.9 cfs 6,581 cf 18.0" Round Culvert n=0.013 L=120.0' S=0.0183 '/' Outflow=1.9 cfs 6,581 cf
Pond 8.3P:	Peak Elev=69.64' Inflow=9.5 cfs 32,809 cf 24.0" Round Culvert n=0.013 L=45.0' S=0.0178 '/' Outflow=9.5 cfs 32,809 cf
Pond 8.4P:	Peak Elev=70.84' Inflow=2.1 cfs 7,410 cf 15.0" Round Culvert n=0.013 L=40.0' S=0.0163 '/' Outflow=2.1 cfs 7,410 cf
Pond 8.5P:	Peak Elev=74.90' Inflow=0.6 cfs 1,929 cf 12.0" Round Culvert n=0.013 L=50.0' S=0.0220 '/' Outflow=0.6 cfs 1,929 cf
Pond 8.6P:	Peak Elev=71.85' Inflow=1.0 cfs 3,554 cf 15.0" Round Culvert n=0.013 L=60.0' S=0.0200 '/' Outflow=1.0 cfs 3,554 cf
Pond 8.7P:	Peak Elev=68.47' Inflow=10.9 cfs 37,713 cf 30.0" Round Culvert n=0.013 L=57.0' S=0.0114 '/' Outflow=10.9 cfs 37,713 cf
Pond 8.81P:	Peak Elev=68.04' Inflow=14.5 cfs 50,237 cf 36.0" Round Culvert n=0.013 L=13.0' S=0.0192 '/' Outflow=14.5 cfs 50,237 cf
Pond 8.82P:	Peak Elev=67.33' Inflow=17.4 cfs 60,366 cf 36.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=17.4 cfs 60,366 cf
Pond 8.83P: WQ DET & SF-1	Peak Elev=69.45' Storage=5,079 cf Inflow=17.4 cfs 60,366 cf Primary=0.5 cfs 27,880 cf Secondary=16.9 cfs 32,486 cf Outflow=17.4 cfs 60,366 cf
Pond 8.84P: Peak DET-1	Peak Elev=66.00' Storage=21,025 cf Inflow=16.9 cfs 32,486 cf Outflow=2.9 cfs 32,486 cf
Pond 8.85P:	Peak Elev=61.50' Inflow=3.3 cfs 60,366 cf 18.0" Round Culvert n=0.013 L=226.0' S=0.0084 '/' Outflow=3.3 cfs 60,366 cf
Pond 8.8P:	Peak Elev=71.03' Inflow=1.0 cfs 3,353 cf 15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=1.0 cfs 3,353 cf
Pond 8.96P:	Peak Elev=59.50' Inflow=3.3 cfs 60,366 cf 18.0" Round Culvert n=0.013 L=80.0' S=0.0311 '/' Outflow=3.3 cfs 60,366 cf
Pond 8.9P:	Peak Elev=70.67' Inflow=2.6 cfs 9,170 cf 12.0" Round Culvert n=0.013 L=18.0' S=0.0361 '/' Outflow=2.6 cfs 9,170 cf

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Pond 8P:

Peak Elev=61.22' Inflow=1.2 cfs 3,893 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/ Outflow=1.2 cfs 3,893 cf

Link POA-1: B-30

Inflow=15.0 cfs 149,124 cf
Primary=15.0 cfs 149,124 cf

Link POA-2:

Inflow=1.9 cfs 6,279 cf
Primary=1.9 cfs 6,279 cf

Link POA-3:

Inflow=0.5 cfs 1,550 cf
Primary=0.5 cfs 1,550 cf

Link POA-4:

Inflow=3.6 cfs 14,605 cf
Primary=3.6 cfs 14,605 cf

Total Runoff Area = 517,820 sf Runoff Volume = 171,559 cf Average Runoff Depth = 3.98"
22.92% Pervious = 118,690 sf 77.08% Impervious = 399,130 sf

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 1S:

Runoff = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf, Depth= 4.31"
 Routed to Pond 1P : B-41

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2.1S:

Runoff = 2.9 cfs @ 12.08 hrs, Volume= 9,759 cf, Depth= 3.92"
 Routed to Pond 2P : B-34

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
20,845	98	Paved parking, HSG D
8,995	84	50-75% Grass cover, Fair, HSG D
29,840		Weighted Average
8,995		30.14% Pervious Area
20,845		69.86% Impervious Area

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

Summary for Subcatchment 3.1S:

Runoff = 0.1 cfs @ 12.08 hrs, Volume= 444 cf, Depth= 3.67"
 Routed to Pond 3.1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
550	80	>75% Grass cover, Good, HSG D
900	98	Paved parking, HSG D
1,450		Weighted Average
550		37.93% Pervious Area
900		62.07% Impervious Area

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

Summary for Subcatchment 3.2S:

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,282 cf, Depth= 3.50"
 Routed to Pond 3.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,100	80	>75% Grass cover, Good, HSG D
2,300	98	Paved parking, HSG D
4,400		Weighted Average
2,100		47.73% Pervious Area
2,300		52.27% Impervious Area

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

Summary for Subcatchment 3.3S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,584 cf, Depth= 4.13"
 Routed to Pond 3.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
950	80	>75% Grass cover, Good, HSG D
6,550	98	Paved parking, HSG D
7,500		Weighted Average
950		12.67% Pervious Area
6,550		87.33% Impervious Area

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

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 3.4S:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,803 cf, Depth= 4.18"
 Routed to Pond 3.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
510	80	>75% Grass cover, Good, HSG D
4,660	98	Paved parking, HSG D
5,170		Weighted Average
510		9.86% Pervious Area
4,660		90.14% Impervious Area

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

Summary for Subcatchment 3.5S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,547 cf, Depth= 4.16"
 Routed to Pond 3.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,520	98	Paved parking, HSG D
830	80	>75% Grass cover, Good, HSG D
7,350		Weighted Average
830		11.29% Pervious Area
6,520		88.71% Impervious Area

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

Summary for Subcatchment 3.6S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,575 cf, Depth= 4.36"
 Routed to Pond 3.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

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

Summary for Subcatchment 3.7S:

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,161 cf, Depth= 4.13"
 Routed to Pond 3.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
810	80	>75% Grass cover, Good, HSG D
5,470	98	Paved parking, HSG D
6,280		Weighted Average
810		12.90% Pervious Area
5,470		87.10% Impervious Area

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

Summary for Subcatchment 4.1S:

Runoff = 2.3 cfs @ 12.16 hrs, Volume= 9,281 cf, Depth= 3.65"
 Routed to Pond 4P : B-32A (CB-8323)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
12,790	98	Paved parking, HSG D
15,030	84	50-75% Grass cover, Fair, HSG D
2,720	98	Roofs, HSG D
30,540		Weighted Average
15,030		49.21% Pervious Area
15,510		50.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	110	0.0150	0.15		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.0	25	0.3300	8.62		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
12.1	135	Total			

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 4.2S:

Runoff = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf, Depth= 4.11"
 Routed to Pond 4.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
9,785	98	Paved parking, HSG D
2,075	84	50-75% Grass cover, Fair, HSG D
11,860		Weighted Average
2,075		17.50% Pervious Area
9,785		82.50% Impervious Area

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

Summary for Subcatchment 4.3S:

Runoff = 1.1 cfs @ 12.08 hrs, Volume= 3,683 cf, Depth= 4.16"
 Routed to Pond 4.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,205	80	>75% Grass cover, Good, HSG D
9,425	98	Paved parking, HSG D
10,630		Weighted Average
1,205		11.34% Pervious Area
9,425		88.66% Impervious Area

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

Summary for Subcatchment 4.4S:

Runoff = 1.1 cfs @ 12.08 hrs, Volume= 3,733 cf, Depth= 4.06"
 Routed to Pond 4.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
1,860	80	>75% Grass cover, Good, HSG D
9,180	98	Paved parking, HSG D
11,040		Weighted Average
1,860		16.85% Pervious Area
9,180		83.15% Impervious Area

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

Summary for Subcatchment 4.5S:

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,721 cf, Depth= 3.68"
 Routed to Pond 4.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,130	80	>75% Grass cover, Good, HSG D
3,490	98	Paved parking, HSG D
5,620		Weighted Average
2,130		37.90% Pervious Area
3,490		62.10% Impervious Area

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

Summary for Subcatchment 4.6S:

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,139 cf, Depth= 4.14"
 Routed to Pond 4.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
7,990	98	Paved parking, HSG D
1,100	80	>75% Grass cover, Good, HSG D
9,090		Weighted Average
1,100		12.10% Pervious Area
7,990		87.90% Impervious Area

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

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 4.7S:

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,189 cf, Depth= 4.36"
 Routed to Pond 4.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,020	98	Paved parking, HSG D
6,020		100.00% Impervious Area

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

Summary for Subcatchment 4.8S:

Runoff = 1.2 cfs @ 12.08 hrs, Volume= 4,130 cf, Depth= 4.18"
 Routed to Pond 4.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
10,665	98	Paved parking, HSG D
1,185	80	>75% Grass cover, Good, HSG D
11,850		Weighted Average
1,185		10.00% Pervious Area
10,665		90.00% Impervious Area

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

Summary for Subcatchment 5.1S:

Runoff = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf, Depth= 3.65"
 Routed to Pond 5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
* 10,495	98	Paved parking, HSG D
10,165	84	50-75% Grass cover, Fair, HSG D
20,660		Weighted Average
10,165		49.20% Pervious Area
10,495		50.80% Impervious Area

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Type III 24-hr 10-YR Rainfall=4.60"

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

Summary for Subcatchment 6.1S:

Runoff = 3.8 cfs @ 12.19 hrs, Volume= 17,267 cf, Depth= 4.11"
 Routed to Pond 6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
36,200	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
50,370		Weighted Average
8,140		16.16% Pervious Area
42,230		83.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7.1S:

Runoff = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf, Depth= 3.87"
 Routed to Pond 7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
31,245	98	Paved parking, HSG D
11,760	79	50-75% Grass cover, Fair, HSG C
2,285	98	Unconnected pavement, HSG D
45,290		Weighted Average
11,760		25.97% Pervious Area
33,530		74.03% Impervious Area
2,285		6.81% Unconnected

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Type III 24-hr 10-YR Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0200	0.17		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.10"
0.7	75	0.0150	1.84		Shallow Concentrated Flow, B-C Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
11.4	425	Total			

Summary for Subcatchment 8.10S:

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 2,967 cf, Depth= 4.22"
Routed to Pond 8.10P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
675	80	>75% Grass cover, Good, HSG D
7,765	98	Paved parking, HSG D
8,440		Weighted Average
675		8.00% Pervious Area
7,765		92.00% Impervious Area

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

Summary for Subcatchment 8.11S:

Runoff = 2.7 cfs @ 12.08 hrs, Volume= 9,278 cf, Depth= 4.14"
Routed to Pond 8.11P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,330	80	>75% Grass cover, Good, HSG D
23,570	98	Paved parking, HSG D
26,900		Weighted Average
3,330		12.38% Pervious Area
23,570		87.62% Impervious Area

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

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 8.12S:

Runoff = 0.2 cfs @ 12.08 hrs, Volume= 851 cf, Depth= 4.36"
 Routed to Pond 8.12P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
2,340	98	Paved parking, HSG D
2,340		100.00% Impervious Area

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

Summary for Subcatchment 8.1S:

Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,893 cf, Depth= 3.35"
 Routed to Pond 8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG D
2,655	74	>75% Grass cover, Good, HSG C
4,365	80	>75% Grass cover, Good, HSG D
13,930		Weighted Average
7,020		50.39% Pervious Area
6,910		49.61% Impervious Area

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

Summary for Subcatchment 8.2S:

Runoff = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf, Depth= 4.08"
 Routed to Pond 8.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,010	80	>75% Grass cover, Good, HSG D
16,340	98	Paved parking, HSG D
19,350		Weighted Average
3,010		15.56% Pervious Area
16,340		84.44% Impervious Area

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Type III 24-hr 10-YR Rainfall=4.60"

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

Summary for Subcatchment 8.3S:

Runoff = 4.8 cfs @ 12.08 hrs, Volume= 16,889 cf, Depth= 4.20"
 Routed to Pond 8.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,320	80	>75% Grass cover, Good, HSG D
43,920	98	Paved parking, HSG D
48,240		Weighted Average
4,320		8.96% Pervious Area
43,920		91.04% Impervious Area

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

Summary for Subcatchment 8.4S:

Runoff = 2.1 cfs @ 12.08 hrs, Volume= 7,410 cf, Depth= 3.97"
 Routed to Pond 8.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,910	80	>75% Grass cover, Good, HSG D
17,510	98	Paved parking, HSG D
22,420		Weighted Average
4,910		21.90% Pervious Area
17,510		78.10% Impervious Area

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

Summary for Subcatchment 8.5S:

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 1,929 cf, Depth= 2.55"
 Routed to Pond 8.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
9,090	80	>75% Grass cover, Good, HSG D
9,090		100.00% Pervious Area

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

Summary for Subcatchment 8.6S:

Runoff = 1.0 cfs @ 12.08 hrs, Volume= 3,554 cf, Depth= 3.84"
 Routed to Pond 8.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,235	80	>75% Grass cover, Good, HSG D
7,885	98	Paved parking, HSG D
11,120		Weighted Average
3,235		29.09% Pervious Area
7,885		70.91% Impervious Area

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

Summary for Subcatchment 8.7S:

Runoff = 0.4 cfs @ 12.09 hrs, Volume= 1,351 cf, Depth= 3.19"
 Routed to Pond 8.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
3,280	80	>75% Grass cover, Good, HSG D
1,800	98	Paved parking, HSG D
5,080		Weighted Average
3,280		64.57% Pervious Area
1,800		35.43% Impervious Area

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

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 8.8S:

Runoff = 1.0 cfs @ 12.08 hrs, Volume= 3,353 cf, Depth= 4.06"
 Routed to Pond 8.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,680	80	>75% Grass cover, Good, HSG D
8,240	98	Paved parking, HSG D
9,920		Weighted Average
1,680		16.94% Pervious Area
8,240		83.06% Impervious Area

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

Summary for Subcatchment 8.9S:

Runoff = 1.8 cfs @ 12.08 hrs, Volume= 6,203 cf, Depth= 4.30"
 Routed to Pond 8.9P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
605	80	>75% Grass cover, Good, HSG D
16,705	98	Paved parking, HSG D
17,310		Weighted Average
605		3.50% Pervious Area
16,705		96.50% Impervious Area

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

Summary for Subcatchment 9.1S:

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,550 cf, Depth= 2.74"
 Routed to Link POA-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-YR Rainfall=4.60"

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Type III 24-hr 10-YR Rainfall=4.60"

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Area (sf)	CN	Description
4,800	83	Woods, Poor, HSG D
2,000	80	>75% Grass cover, Good, HSG D
6,800		Weighted Average
6,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 4.31" for 10-YR event
 Inflow = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf
 Outflow = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.6 cfs @ 12.08 hrs, Volume= 12,507 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.00' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.6 cfs @ 12.08 hrs HW=59.00' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 3.6 cfs @ 3.57 fps)

Summary for Pond 2.11P: 21P (CB-8436)

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 4.03" for 10-YR event
 Inflow = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf
 Outflow = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.18' @ 12.11 hrs
 Flood Elev= 68.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.69' S= 0.0024 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.4 cfs @ 12.11 hrs HW=58.18' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 12.4 cfs @ 4.29 fps)

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 2.1P:

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 4.03" for 10-YR event
 Inflow = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf
 Outflow = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.4 cfs @ 12.11 hrs, Volume= 103,791 cf
 Routed to Pond 2.11P : 21P (CB-8436)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.25' @ 12.11 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.01'	24.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.01' / 55.88' S= 0.0032 ' S= 0.0032 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.4 cfs @ 12.11 hrs HW=58.24' (Free Discharge)↑**1=Culvert** (Barrel Controls 12.4 cfs @ 4.41 fps)**Summary for Pond 2P: B-34**

Inflow Area = 128,980 sf, 80.23% Impervious, Inflow Depth = 4.04" for 10-YR event
 Inflow = 10.5 cfs @ 12.10 hrs, Volume= 43,426 cf
 Outflow = 10.5 cfs @ 12.10 hrs, Volume= 43,426 cf, Atten= 0%, Lag= 0.0 min
 Primary = 10.5 cfs @ 12.10 hrs, Volume= 43,426 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.68' @ 12.10 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 ' S= 0.0116 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.5 cfs @ 12.10 hrs HW=60.68' (Free Discharge)↑**1=Culvert** (Inlet Controls 10.5 cfs @ 5.93 fps)**Summary for Pond 3.11P:**

Inflow Area = 5,850 sf, 54.70% Impervious, Inflow Depth = 3.54" for 10-YR event
 Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,726 cf
 Outflow = 0.5 cfs @ 12.09 hrs, Volume= 1,726 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 1,726 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Type III 24-hr 10-YR Rainfall=4.60"

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Peak Elev= 66.26' @ 12.09 hrs

Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.85'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.85' / 65.50' S= 0.0117 ' S= 0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=66.26' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.5 cfs @ 1.71 fps)**Summary for Pond 3.1P:**

Inflow Area = 1,450 sf, 62.07% Impervious, Inflow Depth = 3.67" for 10-YR event
Inflow = 0.1 cfs @ 12.08 hrs, Volume= 444 cf
Outflow = 0.1 cfs @ 12.08 hrs, Volume= 444 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.1 cfs @ 12.08 hrs, Volume= 444 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.50' @ 12.08 hrs

Flood Elev= 72.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.30'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.30' / 65.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.1 cfs @ 12.08 hrs HW=67.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.1 cfs @ 1.19 fps)**Summary for Pond 3.2P:**

Inflow Area = 4,400 sf, 52.27% Impervious, Inflow Depth = 3.50" for 10-YR event
Inflow = 0.4 cfs @ 12.09 hrs, Volume= 1,282 cf
Outflow = 0.4 cfs @ 12.09 hrs, Volume= 1,282 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.4 cfs @ 12.09 hrs, Volume= 1,282 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.12' @ 12.09 hrs

Flood Elev= 70.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.77'	12.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.77' / 65.90' S= 0.0109 ' S= 0.0109 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Type III 24-hr 10-YR Rainfall=4.60"

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Primary OutFlow Max=0.4 cfs @ 12.09 hrs HW=67.12' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.4 cfs @ 1.58 fps)**Summary for Pond 3.31P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 4.10" for 10-YR event
 Inflow = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf
 Outflow = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.75' @ 12.08 hrs

Flood Elev= 70.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.80'	24.0" Round Culvert L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.80' / 61.30' S= 0.0119 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.8 cfs @ 12.08 hrs HW=62.75' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.8 cfs @ 2.62 fps)**Summary for Pond 3.32P: WQ DET & SF-2**

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth = 4.11" for 10-YR event
 Inflow = 10.4 cfs @ 12.08 hrs, Volume= 36,052 cf
 Outflow = 10.2 cfs @ 12.10 hrs, Volume= 36,052 cf, Atten= 2%, Lag= 1.0 min
 Primary = 0.3 cfs @ 12.10 hrs, Volume= 17,012 cf
 Routed to Pond 3.34P :
 Secondary = 9.9 cfs @ 12.10 hrs, Volume= 19,040 cf
 Routed to Pond 3.33P : PEAK DET

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.94' @ 12.10 hrs Surf.Area= 1,634 sf Storage= 3,395 cf

Plug-Flow detention time= 48.5 min calculated for 36,046 cf (100% of inflow)

Center-of-Mass det. time= 48.5 min (804.8 - 756.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	8.00'W x 204.25'L x 9.00'H Field A 14,706 cf Overall - 10,166 cf Embedded = 4,540 cf x 0.0% Voids
#2A	60.00'	10,166 cf	CMP Round 96 x 9 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +14.25' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		10,166 cf	Total Available Storage

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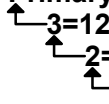
Type III 24-hr 10-YR Rainfall=4.60"

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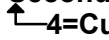
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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	60.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.00' / 59.95' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	57.70'	Tube/Siphon/Float Valve X 11.00 0.668" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@60.45'
#3	Primary	57.70'	12.0" Round 12" Stormfilter Outlet L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.70' / 57.60' S= 0.0077 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	62.40'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 2.40 2.48 2.56 2.64 2.72 2.80 2.88 2.96 3.04 3.12 3.20 3.28 3.36 3.44 3.52 3.60 3.68 3.76 3.84 3.92 4.00 4.08 4.16 4.24 4.32 4.40 4.48 4.56 4.64 4.72 4.80 4.88 4.96 5.04 5.12 5.20 5.28 5.36 5.44 5.52 5.60 5.68 5.76 5.84 5.92 6.00 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 7.33 7.40 7.46 7.52 7.58 7.63 7.68 7.72 7.77 7.80 7.84 7.87 7.90 7.92 7.94 7.96 7.97 7.99 7.99 8.00 8.00 8.00 7.99 7.99 7.97 7.96 7.94 7.92 7.90 7.87 7.84 7.80 7.77 7.72 7.68 7.63 7.58 7.52 7.46 7.40 7.33 7.26 7.18 7.10 7.02 6.93 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

Primary OutFlow Max=0.3 cfs @ 12.10 hrs HW=62.94' (Free Discharge)

3=12" Stormfilter Outlet (Passes 0.3 cfs of 6.5 cfs potential flow)


2=Tube/Siphon/Float Valve (Orifice Controls 0.3 cfs @ 11.03 fps)


1=Culvert (Passes 0.3 cfs of 5.9 cfs potential flow)
Secondary OutFlow Max=9.9 cfs @ 12.10 hrs HW=62.94' (Free Discharge)

4=Custom Weir/Orifice (Weir Controls 9.9 cfs @ 2.40 fps)
Summary for Pond 3.33P: PEAK DET

Inflow	=	9.9 cfs @	12.10 hrs,	Volume=	19,040 cf
Outflow	=	0.2 cfs @	14.65 hrs,	Volume=	19,039 cf, Atten= 98%, Lag= 152.8 min
Primary	=	0.2 cfs @	14.65 hrs,	Volume=	19,039 cf

Routed to Pond 3.34P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 63.37' @ 14.65 hrs Surf.Area= 8,318 sf Storage= 16,581 cf

Plug-Flow detention time= 947.8 min calculated for 19,036 cf (100% of inflow)
 Center-of-Mass det. time= 948.1 min (1,691.2 - 743.1)

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Type III 24-hr 10-YR Rainfall=4.60"

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Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	63.00'W x 124.00'L x 8.00'H Field A 62,496 cf Overall - 38,152 cf Embedded = 24,344 cf x 0.0% Voids
#2A	60.00'	38,152 cf	CMP Round 96 x 30 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +16.00' x 50.27 sf x 6 rows 63.00' Header x 50.27 sf x 1 = 3,166.7 cf Inside
#3	60.00'	3,217 cf	CMP Round 96 x 3 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +4.00' x 50.27 sf x 1 rows
		41,368 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#2	Primary	65.50'	0.5' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	63.50'	36.0" W x 6.0" H Vert. CAPACITY ORIFICE C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.2 cfs @ 14.65 hrs HW=63.37' (Free Discharge)

- 1=DRAINDOWN ORIFICE (Orifice Controls 0.2 cfs @ 8.73 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)
 3=CAPACITY ORIFICE (Controls 0.0 cfs)

Summary for Pond 3.34P:

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth > 4.11" for 10-YR event
 Inflow = 0.5 cfs @ 14.43 hrs, Volume= 36,051 cf
 Outflow = 0.5 cfs @ 14.43 hrs, Volume= 36,051 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.5 cfs @ 14.43 hrs, Volume= 36,051 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 57.81' @ 14.43 hrs
 Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	24.0" Round Culvert L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 56.87' S= 0.0102 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=0.5 cfs @ 14.43 hrs HW=57.81' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.5 cfs @ 1.50 fps)**Summary for Pond 3.35P:**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 4.05" for 10-YR event
 Inflow = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf
 Outflow = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf
 Routed to Pond 3P : B-32 (CB-8031)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.01' @ 12.11 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.69'	24.0" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.69' / 55.62' S= 0.0028 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.8 cfs @ 12.11 hrs HW=58.01' (Free Discharge)↑**1=Culvert** (Barrel Controls 12.8 cfs @ 4.42 fps)**Summary for Pond 3.3P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 4.10" for 10-YR event
 Inflow = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf
 Outflow = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.8 cfs @ 12.08 hrs, Volume= 13,396 cf
 Routed to Pond 3.31P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 63.89' @ 12.08 hrs

Flood Elev= 69.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	18.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.80' / 62.30' S= 0.0111 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.8 cfs @ 12.08 hrs HW=63.89' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.8 cfs @ 2.80 fps)

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Summary for Pond 3.4P:

Inflow Area = 5,170 sf, 90.14% Impervious, Inflow Depth = 4.18" for 10-YR event
 Inflow = 0.5 cfs @ 12.08 hrs, Volume= 1,803 cf
 Outflow = 0.5 cfs @ 12.08 hrs, Volume= 1,803 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.5 cfs @ 12.08 hrs, Volume= 1,803 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.66' @ 12.08 hrs

Flood Elev= 69.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 65.45' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.5 cfs @ 12.08 hrs HW=66.66' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.5 cfs @ 1.71 fps)**Summary for Pond 3.5P:**

Inflow Area = 13,630 sf, 87.97% Impervious, Inflow Depth = 4.15" for 10-YR event
 Inflow = 1.3 cfs @ 12.08 hrs, Volume= 4,708 cf
 Outflow = 1.3 cfs @ 12.08 hrs, Volume= 4,708 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.3 cfs @ 12.08 hrs, Volume= 4,708 cf
 Routed to Pond 3.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.01' @ 12.08 hrs

Flood Elev= 68.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.30'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.30' / 63.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.3 cfs @ 12.08 hrs HW=65.01' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.3 cfs @ 2.26 fps)**Summary for Pond 3.6P:**

Inflow Area = 20,710 sf, 92.08% Impervious, Inflow Depth = 4.22" for 10-YR event
 Inflow = 2.1 cfs @ 12.08 hrs, Volume= 7,283 cf
 Outflow = 2.1 cfs @ 12.08 hrs, Volume= 7,283 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.1 cfs @ 12.08 hrs, Volume= 7,283 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 64.37' @ 12.08 hrs

Flood Elev= 69.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.55'	15.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.55' / 63.05' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.1 cfs @ 12.08 hrs HW=64.37' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.1 cfs @ 2.43 fps)**Summary for Pond 3.7P:**

Inflow Area = 6,280 sf, 87.10% Impervious, Inflow Depth = 4.13" for 10-YR event
Inflow = 0.6 cfs @ 12.08 hrs, Volume= 2,161 cf
Outflow = 0.6 cfs @ 12.08 hrs, Volume= 2,161 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.6 cfs @ 12.08 hrs, Volume= 2,161 cf
Routed to Pond 3.5P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.25' @ 12.08 hrs

Flood Elev= 68.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.80'	12.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.80' / 64.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.6 cfs @ 12.08 hrs HW=65.25' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.6 cfs @ 1.80 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 4.05" for 10-YR event
Inflow = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf
Outflow = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.8 cfs @ 12.11 hrs, Volume= 139,843 cf
Routed to Pond 4P : B-32A (CB-8323)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 57.86' @ 12.11 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=12.8 cfs @ 12.11 hrs HW=57.85' (Free Discharge)↑**1=Culvert** (Barrel Controls 12.8 cfs @ 4.28 fps)**Summary for Pond 4.21P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 4.11" for 10-YR event
 Inflow = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf
 Outflow = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf

Routed to Pond 4.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.64' @ 12.08 hrs

Flood Elev= 72.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.05'	15.0" Round Culvert L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.05' / 66.06' S= 0.0121 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.08 hrs HW=67.64' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 2.06 fps)**Summary for Pond 4.2P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 4.11" for 10-YR event
 Inflow = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf
 Outflow = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.08 hrs, Volume= 4,061 cf

Routed to Pond 4.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.79' @ 12.08 hrs

Flood Elev= 72.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.20'	15.0" Round Culvert L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.20' / 67.16' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.08 hrs HW=68.79' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 2.06 fps)

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Summary for Pond 4.3P:

Inflow Area = 22,490 sf, 85.42% Impervious, Inflow Depth = 4.13" for 10-YR event
 Inflow = 2.2 cfs @ 12.08 hrs, Volume= 7,744 cf
 Outflow = 2.2 cfs @ 12.08 hrs, Volume= 7,744 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.2 cfs @ 12.08 hrs, Volume= 7,744 cf
 Routed to Pond 4.8P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.59' @ 12.08 hrs

Flood Elev= 70.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.81'	18.0" Round Culvert L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.81' / 64.15' S= 0.0158 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.2 cfs @ 12.08 hrs HW=66.59' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.2 cfs @ 2.38 fps)**Summary for Pond 4.4P:**

Inflow Area = 11,040 sf, 83.15% Impervious, Inflow Depth = 4.06" for 10-YR event
 Inflow = 1.1 cfs @ 12.08 hrs, Volume= 3,733 cf
 Outflow = 1.1 cfs @ 12.08 hrs, Volume= 3,733 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.1 cfs @ 12.08 hrs, Volume= 3,733 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.52' @ 12.08 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.90'	12.0" Round Culvert L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.90' / 66.50' S= 0.0169 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.1 cfs @ 12.08 hrs HW=68.52' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.1 cfs @ 2.11 fps)**Summary for Pond 4.5P:**

Inflow Area = 5,620 sf, 62.10% Impervious, Inflow Depth = 3.68" for 10-YR event
 Inflow = 0.5 cfs @ 12.08 hrs, Volume= 1,721 cf
 Outflow = 0.5 cfs @ 12.08 hrs, Volume= 1,721 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.5 cfs @ 12.08 hrs, Volume= 1,721 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 69.50' @ 12.08 hrs

Flood Elev= 72.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.10'	12.0" Round Culvert L= 122.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.10' / 66.50' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.5 cfs @ 12.08 hrs HW=69.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.5 cfs @ 1.71 fps)**Summary for Pond 4.6P:**

Inflow Area = 25,750 sf, 80.23% Impervious, Inflow Depth = 4.00" for 10-YR event
Inflow = 2.5 cfs @ 12.08 hrs, Volume= 8,593 cf
Outflow = 2.5 cfs @ 12.08 hrs, Volume= 8,593 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.5 cfs @ 12.08 hrs, Volume= 8,593 cf
Routed to Pond 4.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.83' @ 12.08 hrs

Flood Elev= 70.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	18.0" Round Culvert L= 77.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 64.70' S= 0.0169 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.5 cfs @ 12.08 hrs HW=66.83' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.5 cfs @ 2.45 fps)**Summary for Pond 4.7P:**

Inflow Area = 31,770 sf, 83.98% Impervious, Inflow Depth = 4.07" for 10-YR event
Inflow = 3.1 cfs @ 12.08 hrs, Volume= 10,783 cf
Outflow = 3.1 cfs @ 12.08 hrs, Volume= 10,783 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.1 cfs @ 12.08 hrs, Volume= 10,783 cf
Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.84' @ 12.08 hrs

Flood Elev= 69.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.20'	18.0" Round Culvert X 2.00 L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.20' / 63.70' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=3.1 cfs @ 12.08 hrs HW=64.84' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.1 cfs @ 2.15 fps)**Summary for Pond 4.81P:**

Inflow Area = 66,110 sf, 85.55% Impervious, Inflow Depth = 4.11" for 10-YR event
 Inflow = 6.5 cfs @ 12.08 hrs, Volume= 22,657 cf
 Outflow = 6.5 cfs @ 12.08 hrs, Volume= 22,657 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.5 cfs @ 12.08 hrs, Volume= 22,657 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.49' @ 12.08 hrs

Flood Elev= 69.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	24.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.20' / 62.80' S= 0.0267 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=6.5 cfs @ 12.08 hrs HW=64.48' (Free Discharge)↑**1=Culvert** (Inlet Controls 6.5 cfs @ 3.05 fps)**Summary for Pond 4.8P:**

Inflow Area = 34,340 sf, 87.00% Impervious, Inflow Depth = 4.15" for 10-YR event
 Inflow = 3.4 cfs @ 12.08 hrs, Volume= 11,874 cf
 Outflow = 3.4 cfs @ 12.08 hrs, Volume= 11,874 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.4 cfs @ 12.08 hrs, Volume= 11,874 cf
 Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.54' @ 12.08 hrs

Flood Elev= 68.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.65'	24.0" Round Culvert L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.65' / 63.30' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=3.4 cfs @ 12.08 hrs HW=64.54' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.4 cfs @ 2.53 fps)

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Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 15.0 cfs @ 12.12 hrs, Volume= 149,124 cf
 Outflow = 15.0 cfs @ 12.12 hrs, Volume= 149,124 cf, Atten= 0%, Lag= 0.0 min
 Primary = 15.0 cfs @ 12.12 hrs, Volume= 149,124 cf
 Routed to Link POA-1 : B-30
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link POA-1 : B-30

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.09' @ 12.12 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.9 cfs @ 12.12 hrs HW=58.09' (Free Discharge)↑**1=Culvert** (Inlet Controls 14.9 cfs @ 4.76 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=55.52' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)**Summary for Pond 5P:**

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 3.65" for 10-YR event
 Inflow = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf
 Outflow = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf
 Routed to Link POA-2 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.77' @ 12.09 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.9 cfs @ 12.09 hrs HW=60.77' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.9 cfs @ 2.36 fps)

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Summary for Pond 6P:

Inflow Area = 64,300 sf, 76.42% Impervious, Inflow Depth = 3.95" for 10-YR event
 Inflow = 4.6 cfs @ 12.16 hrs, Volume= 21,160 cf
 Outflow = 4.6 cfs @ 12.16 hrs, Volume= 21,160 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.6 cfs @ 12.16 hrs, Volume= 21,160 cf
 Routed to Pond 2P : B-34
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.94' @ 12.16 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 ' S= 0.0147 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.6 cfs @ 12.16 hrs HW=64.94' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.6 cfs @ 5.84 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=62.08' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)**Summary for Pond 7P:**

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 3.87" for 10-YR event
 Inflow = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf
 Outflow = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf
 Routed to Link POA-4 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.93' @ 12.15 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.6 cfs @ 12.15 hrs HW=66.92' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.6 cfs @ 4.54 fps)

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Summary for Pond 8.10P:

Inflow Area = 8,440 sf, 92.00% Impervious, Inflow Depth = 4.22" for 10-YR event
 Inflow = 0.8 cfs @ 12.08 hrs, Volume= 2,967 cf
 Outflow = 0.8 cfs @ 12.08 hrs, Volume= 2,967 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.8 cfs @ 12.08 hrs, Volume= 2,967 cf
 Routed to Pond 8.9P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.84' @ 12.08 hrs

Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.30'	12.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.30' / 68.75' S= 0.0367 ' S= 0.0367 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.8 cfs @ 12.08 hrs HW=69.84' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.8 cfs @ 1.97 fps)**Summary for Pond 8.111P:**

Inflow Area = 29,240 sf, 88.61% Impervious, Inflow Depth = 4.16" for 10-YR event
 Inflow = 2.9 cfs @ 12.08 hrs, Volume= 10,129 cf
 Outflow = 2.9 cfs @ 12.08 hrs, Volume= 10,129 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.9 cfs @ 12.08 hrs, Volume= 10,129 cf
 Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.86' @ 12.08 hrs

Flood Elev= 74.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.95'	18.0" Round Culvert L= 160.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.95' / 66.30' S= 0.0103 ' S= 0.0103 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.9 cfs @ 12.08 hrs HW=68.86' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.9 cfs @ 2.57 fps)**Summary for Pond 8.11P:**

Inflow Area = 26,900 sf, 87.62% Impervious, Inflow Depth = 4.14" for 10-YR event
 Inflow = 2.7 cfs @ 12.08 hrs, Volume= 9,278 cf
 Outflow = 2.7 cfs @ 12.08 hrs, Volume= 9,278 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.7 cfs @ 12.08 hrs, Volume= 9,278 cf
 Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 70.91' @ 12.08 hrs

Flood Elev= 73.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.95'	15.0" Round Culvert L= 144.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.95' / 68.20' S= 0.0122 ' S= 0.0122 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.7 cfs @ 12.08 hrs HW=70.91' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.7 cfs @ 2.63 fps)**Summary for Pond 8.12P:**

Inflow Area = 2,340 sf, 100.00% Impervious, Inflow Depth = 4.36" for 10-YR event
Inflow = 0.2 cfs @ 12.08 hrs, Volume= 851 cf
Outflow = 0.2 cfs @ 12.08 hrs, Volume= 851 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.08 hrs, Volume= 851 cf
Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.02' @ 12.08 hrs

Flood Elev= 74.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.75'	12.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.75' / 69.30' S= 0.0121 ' S= 0.0121 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.08 hrs HW=71.02' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.2 cfs @ 1.40 fps)**Summary for Pond 8.21P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 4.08" for 10-YR event
Inflow = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf
Outflow = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf
Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.64' @ 12.08 hrs

Flood Elev= 76.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	24.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 68.60' S= 0.0240 ' S= 0.0240 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=1.9 cfs @ 12.08 hrs HW=71.64' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.9 cfs @ 2.16 fps)**Summary for Pond 8.22P:**

Inflow Area = 41,770 sf, 81.04% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 4.0 cfs @ 12.08 hrs, Volume= 13,991 cf
 Outflow = 4.0 cfs @ 12.08 hrs, Volume= 13,991 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.0 cfs @ 12.08 hrs, Volume= 13,991 cf

Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.47' @ 12.08 hrs

Flood Elev= 75.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.50'	24.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.50' / 68.10' S= 0.0133 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.0 cfs @ 12.08 hrs HW=69.47' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.0 cfs @ 2.65 fps)**Summary for Pond 8.2P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 4.08" for 10-YR event
 Inflow = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf
 Outflow = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.9 cfs @ 12.08 hrs, Volume= 6,581 cf

Routed to Pond 8.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 74.42' @ 12.08 hrs

Flood Elev= 79.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	18.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 73.70' / 71.50' S= 0.0183 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.9 cfs @ 12.08 hrs HW=74.41' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.9 cfs @ 2.27 fps)

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Summary for Pond 8.3P:

Inflow Area = 99,100 sf, 78.48% Impervious, Inflow Depth = 3.97" for 10-YR event
 Inflow = 9.5 cfs @ 12.08 hrs, Volume= 32,809 cf
 Outflow = 9.5 cfs @ 12.08 hrs, Volume= 32,809 cf, Atten= 0%, Lag= 0.0 min
 Primary = 9.5 cfs @ 12.08 hrs, Volume= 32,809 cf
 Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.64' @ 12.08 hrs

Flood Elev= 74.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	24.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.00' / 67.20' S= 0.0178 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=9.5 cfs @ 12.08 hrs HW=69.64' (Free Discharge)↑**1=Culvert** (Inlet Controls 9.5 cfs @ 3.44 fps)**Summary for Pond 8.4P:**

Inflow Area = 22,420 sf, 78.10% Impervious, Inflow Depth = 3.97" for 10-YR event
 Inflow = 2.1 cfs @ 12.08 hrs, Volume= 7,410 cf
 Outflow = 2.1 cfs @ 12.08 hrs, Volume= 7,410 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.1 cfs @ 12.08 hrs, Volume= 7,410 cf
 Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.84' @ 12.08 hrs

Flood Elev= 75.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	15.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.35' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.1 cfs @ 12.08 hrs HW=70.83' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.1 cfs @ 2.46 fps)**Summary for Pond 8.5P:**

Inflow Area = 9,090 sf, 0.00% Impervious, Inflow Depth = 2.55" for 10-YR event
 Inflow = 0.6 cfs @ 12.09 hrs, Volume= 1,929 cf
 Outflow = 0.6 cfs @ 12.09 hrs, Volume= 1,929 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.6 cfs @ 12.09 hrs, Volume= 1,929 cf
 Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 74.90' @ 12.09 hrs

Flood Elev= 77.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.45'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.45' / 73.35' S= 0.0220 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.6 cfs @ 12.09 hrs HW=74.90' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.6 cfs @ 1.81 fps)**Summary for Pond 8.6P:**

Inflow Area = 11,120 sf, 70.91% Impervious, Inflow Depth = 3.84" for 10-YR event
Inflow = 1.0 cfs @ 12.08 hrs, Volume= 3,554 cf
Outflow = 1.0 cfs @ 12.08 hrs, Volume= 3,554 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.0 cfs @ 12.08 hrs, Volume= 3,554 cf
Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.85' @ 12.08 hrs

Flood Elev= 75.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	15.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.30' / 70.10' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.0 cfs @ 12.08 hrs HW=71.85' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.0 cfs @ 1.99 fps)**Summary for Pond 8.7P:**

Inflow Area = 115,300 sf, 75.85% Impervious, Inflow Depth = 3.93" for 10-YR event
Inflow = 10.9 cfs @ 12.08 hrs, Volume= 37,713 cf
Outflow = 10.9 cfs @ 12.08 hrs, Volume= 37,713 cf, Atten= 0%, Lag= 0.0 min
Primary = 10.9 cfs @ 12.08 hrs, Volume= 37,713 cf
Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.47' @ 12.08 hrs

Flood Elev= 73.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.90'	30.0" Round Culvert L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.90' / 66.25' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

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Primary OutFlow Max=10.9 cfs @ 12.08 hrs HW=68.47' (Free Discharge)↑**1=Culvert** (Inlet Controls 10.9 cfs @ 3.37 fps)**Summary for Pond 8.81P:**

Inflow Area = 150,970 sf, 79.60% Impervious, Inflow Depth = 3.99" for 10-YR event
 Inflow = 14.5 cfs @ 12.08 hrs, Volume= 50,237 cf
 Outflow = 14.5 cfs @ 12.08 hrs, Volume= 50,237 cf, Atten= 0%, Lag= 0.0 min
 Primary = 14.5 cfs @ 12.08 hrs, Volume= 50,237 cf

Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.04' @ 12.08 hrs

Flood Elev= 74.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	36.0" Round Culvert L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 66.00' S= 0.0192 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=14.5 cfs @ 12.08 hrs HW=68.04' (Free Discharge)↑**1=Culvert** (Barrel Controls 14.5 cfs @ 4.73 fps)**Summary for Pond 8.82P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 17.4 cfs @ 12.08 hrs, Volume= 60,366 cf
 Outflow = 17.4 cfs @ 12.08 hrs, Volume= 60,366 cf, Atten= 0%, Lag= 0.0 min
 Primary = 17.4 cfs @ 12.08 hrs, Volume= 60,366 cf

Routed to Pond 8.83P : WQ DET & SF-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.33' @ 12.08 hrs

Flood Elev= 75.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	36.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.25' / 65.10' S= 0.0214 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=17.4 cfs @ 12.08 hrs HW=67.32' (Free Discharge)↑**1=Culvert** (Barrel Controls 17.4 cfs @ 4.70 fps)

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Summary for Pond 8.83P: WQ DET & SF-1

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 17.4 cfs @ 12.08 hrs, Volume= 60,366 cf
 Outflow = 17.4 cfs @ 12.09 hrs, Volume= 60,366 cf, Atten= 0%, Lag= 0.4 min
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 27,880 cf
 Routed to Pond 8.85P :
 Secondary = 16.9 cfs @ 12.09 hrs, Volume= 32,486 cf
 Routed to Pond 8.84P : Peak DET-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.45' @ 12.09 hrs Surf.Area= 1,115 sf Storage= 5,079 cf

Plug-Flow detention time= 53.2 min calculated for 60,356 cf (100% of inflow)
 Center-of-Mass det. time= 53.2 min (811.8 - 758.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	10.00'W x 111.50'L x 8.00'H Field A 8,920 cf Overall - 5,504 cf Embedded = 3,416 cf x 0.0% Voids
#2A	62.50'	5,504 cf	CMP Round 96 x 5 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +1.50' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		5,504 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	62.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.50' / 62.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	60.60'	Tube/Siphon/Float Valve X 18.00 0.586" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@63.35'
#3	Primary	60.60'	12.0" Round 12" Stormfilter Outlet L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 60.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	68.58'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

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Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=69.45' (Free Discharge)↑ **3=12" Stormfilter Outlet** (Passes 0.5 cfs of 8.6 cfs potential flow)↑ **2=Tube/Siphon/Float Valve** (Orifice Controls 0.5 cfs @ 14.33 fps)↑ **1=Culvert** (Passes 0.5 cfs of 9.6 cfs potential flow)**Secondary OutFlow** Max=16.9 cfs @ 12.09 hrs HW=69.45' (Free Discharge)↑ **4=Custom Weir/Orifice** (Weir Controls 16.9 cfs @ 3.13 fps)**Summary for Pond 8.84P: Peak DET-1**

Inflow = 16.9 cfs @ 12.09 hrs, Volume= 32,486 cf
 Outflow = 2.9 cfs @ 12.53 hrs, Volume= 32,486 cf, Atten= 83%, Lag= 26.5 min
 Primary = 2.9 cfs @ 12.53 hrs, Volume= 32,486 cf
 Routed to Pond 8.85P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.00' @ 12.53 hrs Surf.Area= 10,780 sf Storage= 21,025 cf

Plug-Flow detention time= 344.9 min calculated for 32,486 cf (100% of inflow)

Center-of-Mass det. time= 344.9 min (1,087.2 - 742.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	98.00'W x 110.00'L x 8.00'H Field A 86,240 cf Overall - 50,064 cf Embedded = 36,176 cf x 0.0% Voids
#2A	62.50'	50,064 cf	CMP Round 96 x 45 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L 45 Chambers in 9 Rows 96.00' Header x 50.27 sf x 1 = 4,825.5 cf Inside
		50,064 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	6.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	66.00'	36.0" W x 12.0" H Vert. OVERFLOW ORIFICE C= 0.600 Limited to weir flow at low heads
#3	Primary	62.50'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#4	Primary	64.50'	6.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.9 cfs @ 12.53 hrs HW=66.00' (Free Discharge)↑ **1=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)↑ **2=OVERFLOW ORIFICE** (Controls 0.0 cfs)↑ **3=DRAINDOWN ORIFICE** (Orifice Controls 0.2 cfs @ 8.89 fps)↑ **4=Orifice/Grate** (Orifice Controls 2.7 cfs @ 5.37 fps)

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Summary for Pond 8.85P:

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf
 Outflow = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf
 Routed to Pond 8.96P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.50' @ 12.53 hrs

Flood Elev= 73.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.50'	18.0" Round Culvert L= 226.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.50' / 58.60' S= 0.0084 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.3 cfs @ 12.53 hrs HW=61.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.3 cfs @ 2.68 fps)**Summary for Pond 8.8P:**

Inflow Area = 9,920 sf, 83.06% Impervious, Inflow Depth = 4.06" for 10-YR event
 Inflow = 1.0 cfs @ 12.08 hrs, Volume= 3,353 cf
 Outflow = 1.0 cfs @ 12.08 hrs, Volume= 3,353 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.0 cfs @ 12.08 hrs, Volume= 3,353 cf
 Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.03' @ 12.08 hrs

Flood Elev= 75.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.50'	15.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.50' / 70.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.0 cfs @ 12.08 hrs HW=71.03' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.0 cfs @ 1.95 fps)**Summary for Pond 8.96P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 4.02" for 10-YR event
 Inflow = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf
 Outflow = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.3 cfs @ 12.53 hrs, Volume= 60,366 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 59.50' @ 12.53 hrs

Flood Elev= 68.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.50'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.50' / 56.01' S= 0.0311 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.3 cfs @ 12.53 hrs HW=59.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.3 cfs @ 2.68 fps)**Summary for Pond 8.9P:**

Inflow Area = 25,750 sf, 95.03% Impervious, Inflow Depth = 4.27" for 10-YR event
Inflow = 2.6 cfs @ 12.08 hrs, Volume= 9,170 cf
Outflow = 2.6 cfs @ 12.08 hrs, Volume= 9,170 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.6 cfs @ 12.08 hrs, Volume= 9,170 cf
Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.67' @ 12.08 hrs

Flood Elev= 73.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.40'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.40' / 68.75' S= 0.0361 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.6 cfs @ 12.08 hrs HW=70.66' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.6 cfs @ 3.32 fps)**Summary for Pond 8P:**

Inflow Area = 13,930 sf, 49.61% Impervious, Inflow Depth = 3.35" for 10-YR event
Inflow = 1.2 cfs @ 12.09 hrs, Volume= 3,893 cf
Outflow = 1.2 cfs @ 12.09 hrs, Volume= 3,893 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.2 cfs @ 12.09 hrs, Volume= 3,893 cf
Routed to Pond 6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.22' @ 12.09 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.58'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.58' / 59.88' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.2 cfs @ 12.09 hrs HW=61.22' (Free Discharge)

↑1=Culvert (Inlet Controls 1.2 cfs @ 2.16 fps)

Summary for Link POA-1: B-30

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 4.02" for 10-YR event
Inflow = 15.0 cfs @ 12.12 hrs, Volume= 149,124 cf
Primary = 15.0 cfs @ 12.12 hrs, Volume= 149,124 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 3.65" for 10-YR event
Inflow = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf
Primary = 1.9 cfs @ 12.09 hrs, Volume= 6,279 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 6,800 sf, 0.00% Impervious, Inflow Depth = 2.74" for 10-YR event
Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,550 cf
Primary = 0.5 cfs @ 12.09 hrs, Volume= 1,550 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 3.87" for 10-YR event
Inflow = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf
Primary = 3.6 cfs @ 12.15 hrs, Volume= 14,605 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Time span=0.00-60.00 hrs, dt=0.01 hrs, 6001 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S:	Runoff Area=34,840 sf 96.15% Impervious Runoff Depth=5.50" Tc=6.0 min CN=WQ Runoff=4.5 cfs 15,975 cf
Subcatchment2.1S:	Runoff Area=29,840 sf 69.86% Impervious Runoff Depth=5.09" Tc=6.0 min CN=WQ Runoff=3.7 cfs 12,667 cf
Subcatchment3.1S:	Runoff Area=1,450 sf 62.07% Impervious Runoff Depth=4.82" Tc=6.0 min CN=WQ Runoff=0.2 cfs 582 cf
Subcatchment3.2S:	Runoff Area=4,400 sf 52.27% Impervious Runoff Depth=4.63" Tc=6.0 min CN=WQ Runoff=0.5 cfs 1,696 cf
Subcatchment3.3S:	Runoff Area=7,500 sf 87.33% Impervious Runoff Depth=5.31" Tc=6.0 min CN=WQ Runoff=0.9 cfs 3,321 cf
Subcatchment3.4S:	Runoff Area=5,170 sf 90.14% Impervious Runoff Depth=5.37" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,313 cf
Subcatchment3.5S:	Runoff Area=7,350 sf 88.71% Impervious Runoff Depth=5.34" Tc=6.0 min CN=WQ Runoff=0.9 cfs 3,271 cf
Subcatchment3.6S:	Runoff Area=7,080 sf 100.00% Impervious Runoff Depth=5.56" Tc=6.0 min CN=98 Runoff=0.9 cfs 3,282 cf
Subcatchment3.7S:	Runoff Area=6,280 sf 87.10% Impervious Runoff Depth=5.31" Tc=6.0 min CN=WQ Runoff=0.8 cfs 2,778 cf
Subcatchment4.1S:	Runoff Area=30,540 sf 50.79% Impervious Runoff Depth=4.80" Flow Length=135' Tc=12.1 min CN=WQ Runoff=3.0 cfs 12,211 cf
Subcatchment4.2S:	Runoff Area=11,860 sf 82.50% Impervious Runoff Depth=5.29" Tc=6.0 min CN=WQ Runoff=1.5 cfs 5,229 cf
Subcatchment4.3S:	Runoff Area=10,630 sf 88.66% Impervious Runoff Depth=5.34" Tc=6.0 min CN=WQ Runoff=1.3 cfs 4,730 cf
Subcatchment4.4S:	Runoff Area=11,040 sf 83.15% Impervious Runoff Depth=5.23" Tc=6.0 min CN=WQ Runoff=1.4 cfs 4,813 cf
Subcatchment4.5S:	Runoff Area=5,620 sf 62.10% Impervious Runoff Depth=4.82" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,257 cf
Subcatchment4.6S:	Runoff Area=9,090 sf 87.90% Impervious Runoff Depth=5.32" Tc=6.0 min CN=WQ Runoff=1.1 cfs 4,034 cf
Subcatchment4.7S:	Runoff Area=6,020 sf 100.00% Impervious Runoff Depth=5.56" Tc=6.0 min CN=98 Runoff=0.8 cfs 2,790 cf

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Subcatchment4.8S:	Runoff Area=11,850 sf 90.00% Impervious Runoff Depth=5.37" Tc=6.0 min CN=WQ Runoff=1.5 cfs 5,299 cf
Subcatchment5.1S:	Runoff Area=20,660 sf 50.80% Impervious Runoff Depth=4.80" Tc=6.0 min CN=WQ Runoff=2.5 cfs 8,261 cf
Subcatchment6.1S:	Runoff Area=50,370 sf 83.84% Impervious Runoff Depth=5.29" Flow Length=280' Tc=14.5 min CN=WQ Runoff=4.9 cfs 22,223 cf
Subcatchment7.1S:	Runoff Area=45,290 sf 74.03% Impervious Runoff Depth=5.03" Flow Length=425' Tc=11.4 min CN=WQ Runoff=4.6 cfs 18,973 cf
Subcatchment8.10S:	Runoff Area=8,440 sf 92.00% Impervious Runoff Depth=5.41" Tc=6.0 min CN=WQ Runoff=1.1 cfs 3,802 cf
Subcatchment8.11S:	Runoff Area=26,900 sf 87.62% Impervious Runoff Depth=5.32" Tc=6.0 min CN=WQ Runoff=3.4 cfs 11,924 cf
Subcatchment8.12S:	Runoff Area=2,340 sf 100.00% Impervious Runoff Depth=5.56" Tc=6.0 min CN=98 Runoff=0.3 cfs 1,085 cf
Subcatchment8.1S:	Runoff Area=13,930 sf 49.61% Impervious Runoff Depth=4.46" Tc=6.0 min CN=WQ Runoff=1.5 cfs 5,180 cf
Subcatchment8.2S:	Runoff Area=19,350 sf 84.44% Impervious Runoff Depth=5.26" Tc=6.0 min CN=WQ Runoff=2.4 cfs 8,477 cf
Subcatchment8.3S:	Runoff Area=48,240 sf 91.04% Impervious Runoff Depth=5.39" Tc=6.0 min CN=WQ Runoff=6.1 cfs 21,654 cf
Subcatchment8.4S:	Runoff Area=22,420 sf 78.10% Impervious Runoff Depth=5.13" Tc=6.0 min CN=WQ Runoff=2.8 cfs 9,590 cf
Subcatchment8.5S:	Runoff Area=9,090 sf 0.00% Impervious Runoff Depth=3.60" Tc=6.0 min CN=80 Runoff=0.9 cfs 2,728 cf
Subcatchment8.6S:	Runoff Area=11,120 sf 70.91% Impervious Runoff Depth=4.99" Tc=6.0 min CN=WQ Runoff=1.3 cfs 4,626 cf
Subcatchment8.7S:	Runoff Area=5,080 sf 35.43% Impervious Runoff Depth=4.30" Tc=6.0 min CN=WQ Runoff=0.6 cfs 1,819 cf
Subcatchment8.8S:	Runoff Area=9,920 sf 83.06% Impervious Runoff Depth=5.23" Tc=6.0 min CN=WQ Runoff=1.2 cfs 4,323 cf
Subcatchment8.9S:	Runoff Area=17,310 sf 96.50% Impervious Runoff Depth=5.49" Tc=6.0 min CN=WQ Runoff=2.2 cfs 7,924 cf
Subcatchment9.1S:	Runoff Area=6,800 sf 0.00% Impervious Runoff Depth=3.82" Tc=6.0 min CN=WQ Runoff=0.7 cfs 2,163 cf

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Pond 1P: B-41

Peak Elev=59.18' Inflow=4.5 cfs 15,975 cf
 18.0" Round Culvert n=0.013 L=15.0' S=0.0100 '/' Outflow=4.5 cfs 15,975 cf

Pond 2.11P: 21P (CB-8436)

Peak Elev=58.94' Inflow=16.6 cfs 133,997 cf
 24.0" Round Culvert n=0.013 L=80.0' S=0.0024 '/' Outflow=16.6 cfs 133,997 cf

Pond 2.1P:

Peak Elev=58.94' Inflow=16.6 cfs 133,997 cf
 24.0" Round Culvert n=0.013 L=40.0' S=0.0032 '/' Outflow=16.6 cfs 133,997 cf

Pond 2P: B-34

Peak Elev=62.26' Inflow=13.4 cfs 56,046 cf
 18.0" Round Culvert n=0.013 L=140.0' S=0.0116 '/' Outflow=13.4 cfs 56,046 cf

Pond 3.11P:

Peak Elev=66.32' Inflow=0.7 cfs 2,279 cf
 12.0" Round Culvert n=0.013 L=30.0' S=0.0117 '/' Outflow=0.7 cfs 2,279 cf

Pond 3.1P:

Peak Elev=67.53' Inflow=0.2 cfs 582 cf
 12.0" Round Culvert n=0.013 L=70.0' S=0.0200 '/' Outflow=0.2 cfs 582 cf

Pond 3.2P:

Peak Elev=67.17' Inflow=0.5 cfs 1,696 cf
 12.0" Round Culvert n=0.013 L=80.0' S=0.0109 '/' Outflow=0.5 cfs 1,696 cf

Pond 3.31P:

Peak Elev=62.89' Inflow=4.9 cfs 17,244 cf
 24.0" Round Culvert n=0.013 L=42.0' S=0.0119 '/' Outflow=4.9 cfs 17,244 cf

Pond 3.32P: WQ DET & SF-2

Peak Elev=63.04' Storage=3,551 cf Inflow=13.2 cfs 46,396 cf
 Primary=0.3 cfs 19,032 cf Secondary=12.7 cfs 27,363 cf Outflow=13.0 cfs 46,396 cf

Pond 3.33P: PEAK DET

Peak Elev=63.81' Storage=19,431 cf Inflow=12.7 cfs 27,363 cf
 Outflow=1.9 cfs 27,359 cf

Pond 3.34P:

Peak Elev=58.19' Inflow=2.2 cfs 46,391 cf
 24.0" Round Culvert n=0.013 L=62.0' S=0.0102 '/' Outflow=2.2 cfs 46,391 cf

Pond 3.35P:

Peak Elev=58.73' Inflow=17.0 cfs 180,388 cf
 24.0" Round Culvert n=0.013 L=25.0' S=0.0028 '/' Outflow=17.0 cfs 180,388 cf

Pond 3.3P:

Peak Elev=64.09' Inflow=4.9 cfs 17,244 cf
 18.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=4.9 cfs 17,244 cf

Pond 3.4P:

Peak Elev=66.72' Inflow=0.7 cfs 2,313 cf
 12.0" Round Culvert n=0.013 L=50.0' S=0.0160 '/' Outflow=0.7 cfs 2,313 cf

Pond 3.5P:

Peak Elev=65.14' Inflow=1.7 cfs 6,050 cf
 12.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=1.7 cfs 6,050 cf

Pond 3.6P:

Peak Elev=64.51' Inflow=2.6 cfs 9,331 cf
 15.0" Round Culvert n=0.013 L=45.0' S=0.0111 '/' Outflow=2.6 cfs 9,331 cf

Pond 3.7P:

Peak Elev=65.32' Inflow=0.8 cfs 2,778 cf
 12.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.8 cfs 2,778 cf

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Pond 3P: B-32 (CB-8031)

Peak Elev=58.56' Inflow=17.0 cfs 180,388 cf
24.0" Round Culvert n=0.013 L=22.0' S=-0.0036 '/' Outflow=17.0 cfs 180,388 cf

Pond 4.21P:

Peak Elev=67.73' Inflow=1.5 cfs 5,229 cf
15.0" Round Culvert n=0.013 L=82.0' S=0.0121 '/' Outflow=1.5 cfs 5,229 cf

Pond 4.2P:

Peak Elev=68.88' Inflow=1.5 cfs 5,229 cf
15.0" Round Culvert n=0.013 L=104.0' S=0.0100 '/' Outflow=1.5 cfs 5,229 cf

Pond 4.3P:

Peak Elev=66.71' Inflow=2.8 cfs 9,959 cf
18.0" Round Culvert n=0.013 L=105.0' S=0.0158 '/' Outflow=2.8 cfs 9,959 cf

Pond 4.4P:

Peak Elev=68.62' Inflow=1.4 cfs 4,813 cf
12.0" Round Culvert n=0.013 L=83.0' S=0.0169 '/' Outflow=1.4 cfs 4,813 cf

Pond 4.5P:

Peak Elev=69.57' Inflow=0.7 cfs 2,257 cf
12.0" Round Culvert n=0.013 L=122.0' S=0.0213 '/' Outflow=0.7 cfs 2,257 cf

Pond 4.6P:

Peak Elev=66.97' Inflow=3.2 cfs 11,104 cf
18.0" Round Culvert n=0.013 L=77.0' S=0.0169 '/' Outflow=3.2 cfs 11,104 cf

Pond 4.7P:

Peak Elev=64.94' Inflow=4.0 cfs 13,894 cf
18.0" Round Culvert x 2.00 n=0.013 L=22.0' S=0.0227 '/' Outflow=4.0 cfs 13,894 cf

Pond 4.81P:

Peak Elev=64.70' Inflow=8.3 cfs 29,152 cf
24.0" Round Culvert n=0.013 L=15.0' S=0.0267 '/' Outflow=8.3 cfs 29,152 cf

Pond 4.8P:

Peak Elev=64.67' Inflow=4.3 cfs 15,258 cf
24.0" Round Culvert n=0.013 L=35.0' S=0.0100 '/' Outflow=4.3 cfs 15,258 cf

Pond 4P: B-32A (CB-8323)

Peak Elev=59.27' Inflow=19.8 cfs 192,599 cf
Primary=19.8 cfs 192,599 cf Secondary=0.0 cfs 0 cf Outflow=19.8 cfs 192,599 cf

Pond 5P:

Peak Elev=60.91' Inflow=2.5 cfs 8,261 cf
15.0" Round Culvert n=0.013 L=50.0' S=0.0100 '/' Outflow=2.5 cfs 8,261 cf

Pond 6P:

Peak Elev=68.61' Inflow=5.9 cfs 27,403 cf
Primary=5.9 cfs 27,403 cf Secondary=0.0 cfs 0 cf Outflow=5.9 cfs 27,403 cf

Pond 7P:

Peak Elev=67.89' Inflow=4.6 cfs 18,973 cf
12.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=4.6 cfs 18,973 cf

Pond 8.10P:

Peak Elev=69.92' Inflow=1.1 cfs 3,802 cf
12.0" Round Culvert n=0.013 L=15.0' S=0.0367 '/' Outflow=1.1 cfs 3,802 cf

Pond 8.111P:

Peak Elev=69.01' Inflow=3.7 cfs 13,009 cf
18.0" Round Culvert n=0.013 L=160.0' S=0.0103 '/' Outflow=3.7 cfs 13,009 cf

Pond 8.11P:

Peak Elev=71.10' Inflow=3.4 cfs 11,924 cf
15.0" Round Culvert n=0.013 L=144.0' S=0.0122 '/' Outflow=3.4 cfs 11,924 cf

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Pond 8.12P:	Peak Elev=71.06' Inflow=0.3 cfs 1,085 cf 12.0" Round Culvert n=0.013 L=120.0' S=0.0121 '/' Outflow=0.3 cfs 1,085 cf
Pond 8.21P:	Peak Elev=71.74' Inflow=2.4 cfs 8,477 cf 24.0" Round Culvert n=0.013 L=100.0' S=0.0240 '/' Outflow=2.4 cfs 8,477 cf
Pond 8.22P:	Peak Elev=69.62' Inflow=5.2 cfs 18,067 cf 24.0" Round Culvert n=0.013 L=30.0' S=0.0133 '/' Outflow=5.2 cfs 18,067 cf
Pond 8.2P:	Peak Elev=74.52' Inflow=2.4 cfs 8,477 cf 18.0" Round Culvert n=0.013 L=120.0' S=0.0183 '/' Outflow=2.4 cfs 8,477 cf
Pond 8.3P:	Peak Elev=70.04' Inflow=12.2 cfs 42,448 cf 24.0" Round Culvert n=0.013 L=45.0' S=0.0178 '/' Outflow=12.2 cfs 42,448 cf
Pond 8.4P:	Peak Elev=70.98' Inflow=2.8 cfs 9,590 cf 15.0" Round Culvert n=0.013 L=40.0' S=0.0163 '/' Outflow=2.8 cfs 9,590 cf
Pond 8.5P:	Peak Elev=75.00' Inflow=0.9 cfs 2,728 cf 12.0" Round Culvert n=0.013 L=50.0' S=0.0220 '/' Outflow=0.9 cfs 2,728 cf
Pond 8.6P:	Peak Elev=71.93' Inflow=1.3 cfs 4,626 cf 15.0" Round Culvert n=0.013 L=60.0' S=0.0200 '/' Outflow=1.3 cfs 4,626 cf
Pond 8.7P:	Peak Elev=68.74' Inflow=14.1 cfs 48,892 cf 30.0" Round Culvert n=0.013 L=57.0' S=0.0114 '/' Outflow=14.1 cfs 48,892 cf
Pond 8.81P:	Peak Elev=68.34' Inflow=18.6 cfs 64,942 cf 36.0" Round Culvert n=0.013 L=13.0' S=0.0192 '/' Outflow=18.6 cfs 64,942 cf
Pond 8.82P:	Peak Elev=67.67' Inflow=22.4 cfs 77,951 cf 36.0" Round Culvert n=0.013 L=7.0' S=0.0214 '/' Outflow=22.4 cfs 77,951 cf
Pond 8.83P: WQ DET & SF-1	Peak Elev=69.63' Storage=5,179 cf Inflow=22.4 cfs 77,951 cf Primary=0.5 cfs 31,184 cf Secondary=21.8 cfs 46,767 cf Outflow=22.3 cfs 77,951 cf
Pond 8.84P: Peak DET-1	Peak Elev=66.56' Storage=25,516 cf Inflow=21.8 cfs 46,767 cf Outflow=7.5 cfs 46,766 cf
Pond 8.85P:	Peak Elev=62.66' Inflow=8.0 cfs 77,951 cf 18.0" Round Culvert n=0.013 L=226.0' S=0.0084 '/' Outflow=8.0 cfs 77,951 cf
Pond 8.8P:	Peak Elev=71.11' Inflow=1.2 cfs 4,323 cf 15.0" Round Culvert n=0.013 L=23.0' S=0.0217 '/' Outflow=1.2 cfs 4,323 cf
Pond 8.96P:	Peak Elev=60.66' Inflow=8.0 cfs 77,951 cf 18.0" Round Culvert n=0.013 L=80.0' S=0.0311 '/' Outflow=8.0 cfs 77,951 cf
Pond 8.9P:	Peak Elev=71.13' Inflow=3.3 cfs 11,726 cf 12.0" Round Culvert n=0.013 L=18.0' S=0.0361 '/' Outflow=3.3 cfs 11,726 cf

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Pond 8P:

Peak Elev=61.35' Inflow=1.5 cfs 5,180 cf
12.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/ Outflow=1.5 cfs 5,180 cf

Link POA-1: B-30

Inflow=19.8 cfs 192,599 cf
Primary=19.8 cfs 192,599 cf

Link POA-2:

Inflow=2.5 cfs 8,261 cf
Primary=2.5 cfs 8,261 cf

Link POA-3:

Inflow=0.7 cfs 2,163 cf
Primary=0.7 cfs 2,163 cf

Link POA-4:

Inflow=4.6 cfs 18,973 cf
Primary=4.6 cfs 18,973 cf

Total Runoff Area = 517,820 sf Runoff Volume = 222,000 cf Average Runoff Depth = 5.14"
22.92% Pervious = 118,690 sf 77.08% Impervious = 399,130 sf

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 1S:

Runoff = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf, Depth= 5.50"
 Routed to Pond 1P : B-41

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
33,500	98	Paved parking, HSG D
1,340	84	50-75% Grass cover, Fair, HSG D
34,840		Weighted Average
1,340		3.85% Pervious Area
33,500		96.15% Impervious Area

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

Summary for Subcatchment 2.1S:

Runoff = 3.7 cfs @ 12.08 hrs, Volume= 12,667 cf, Depth= 5.09"
 Routed to Pond 2P : B-34

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
20,845	98	Paved parking, HSG D
8,995	84	50-75% Grass cover, Fair, HSG D
29,840		Weighted Average
8,995		30.14% Pervious Area
20,845		69.86% Impervious Area

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

Summary for Subcatchment 3.1S:

Runoff = 0.2 cfs @ 12.08 hrs, Volume= 582 cf, Depth= 4.82"
 Routed to Pond 3.1P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
550	80	>75% Grass cover, Good, HSG D
900	98	Paved parking, HSG D
1,450		Weighted Average
550		37.93% Pervious Area
900		62.07% Impervious Area

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

Summary for Subcatchment 3.2S:

Runoff = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf, Depth= 4.63"
 Routed to Pond 3.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
2,100	80	>75% Grass cover, Good, HSG D
2,300	98	Paved parking, HSG D
4,400		Weighted Average
2,100		47.73% Pervious Area
2,300		52.27% Impervious Area

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

Summary for Subcatchment 3.3S:

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,321 cf, Depth= 5.31"
 Routed to Pond 3.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
950	80	>75% Grass cover, Good, HSG D
6,550	98	Paved parking, HSG D
7,500		Weighted Average
950		12.67% Pervious Area
6,550		87.33% Impervious Area

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

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 3.4S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,313 cf, Depth= 5.37"
 Routed to Pond 3.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
510	80	>75% Grass cover, Good, HSG D
4,660	98	Paved parking, HSG D
5,170		Weighted Average
510		9.86% Pervious Area
4,660		90.14% Impervious Area

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

Summary for Subcatchment 3.5S:

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,271 cf, Depth= 5.34"
 Routed to Pond 3.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
6,520	98	Paved parking, HSG D
830	80	>75% Grass cover, Good, HSG D
7,350		Weighted Average
830		11.29% Pervious Area
6,520		88.71% Impervious Area

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

Summary for Subcatchment 3.6S:

Runoff = 0.9 cfs @ 12.08 hrs, Volume= 3,282 cf, Depth= 5.56"
 Routed to Pond 3.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
7,080	98	Paved parking, HSG D
7,080		100.00% Impervious Area

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

Summary for Subcatchment 3.7S:

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 2,778 cf, Depth= 5.31"
 Routed to Pond 3.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
810	80	>75% Grass cover, Good, HSG D
5,470	98	Paved parking, HSG D
6,280		Weighted Average
810		12.90% Pervious Area
5,470		87.10% Impervious Area

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

Summary for Subcatchment 4.1S:

Runoff = 3.0 cfs @ 12.16 hrs, Volume= 12,211 cf, Depth= 4.80"
 Routed to Pond 4P : B-32A (CB-8323)

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
12,790	98	Paved parking, HSG D
15,030	84	50-75% Grass cover, Fair, HSG D
2,720	98	Roofs, HSG D
30,540		Weighted Average
15,030		49.21% Pervious Area
15,510		50.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	110	0.0150	0.15		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.0	25	0.3300	8.62		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
12.1	135	Total			

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 4.2S:

Runoff = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf, Depth= 5.29"
 Routed to Pond 4.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
9,785	98	Paved parking, HSG D
2,075	84	50-75% Grass cover, Fair, HSG D
11,860		Weighted Average
2,075		17.50% Pervious Area
9,785		82.50% Impervious Area

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

Summary for Subcatchment 4.3S:

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,730 cf, Depth= 5.34"
 Routed to Pond 4.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
1,205	80	>75% Grass cover, Good, HSG D
9,425	98	Paved parking, HSG D
10,630		Weighted Average
1,205		11.34% Pervious Area
9,425		88.66% Impervious Area

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

Summary for Subcatchment 4.4S:

Runoff = 1.4 cfs @ 12.08 hrs, Volume= 4,813 cf, Depth= 5.23"
 Routed to Pond 4.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
1,860	80	>75% Grass cover, Good, HSG D
9,180	98	Paved parking, HSG D
11,040		Weighted Average
1,860		16.85% Pervious Area
9,180		83.15% Impervious Area

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

Summary for Subcatchment 4.5S:

Runoff = 0.7 cfs @ 12.08 hrs, Volume= 2,257 cf, Depth= 4.82"
 Routed to Pond 4.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
2,130	80	>75% Grass cover, Good, HSG D
3,490	98	Paved parking, HSG D
5,620		Weighted Average
2,130		37.90% Pervious Area
3,490		62.10% Impervious Area

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

Summary for Subcatchment 4.6S:

Runoff = 1.1 cfs @ 12.08 hrs, Volume= 4,034 cf, Depth= 5.32"
 Routed to Pond 4.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
7,990	98	Paved parking, HSG D
1,100	80	>75% Grass cover, Good, HSG D
9,090		Weighted Average
1,100		12.10% Pervious Area
7,990		87.90% Impervious Area

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

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 4.7S:

Runoff = 0.8 cfs @ 12.08 hrs, Volume= 2,790 cf, Depth= 5.56"
 Routed to Pond 4.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
6,020	98	Paved parking, HSG D
6,020		100.00% Impervious Area

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

Summary for Subcatchment 4.8S:

Runoff = 1.5 cfs @ 12.08 hrs, Volume= 5,299 cf, Depth= 5.37"
 Routed to Pond 4.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
10,665	98	Paved parking, HSG D
1,185	80	>75% Grass cover, Good, HSG D
11,850		Weighted Average
1,185		10.00% Pervious Area
10,665		90.00% Impervious Area

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

Summary for Subcatchment 5.1S:

Runoff = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf, Depth= 4.80"
 Routed to Pond 5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
* 10,495	98	Paved parking, HSG D
10,165	84	50-75% Grass cover, Fair, HSG D
20,660		Weighted Average
10,165		49.20% Pervious Area
10,495		50.80% Impervious Area

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Type III 24-hr 25-YR Rainfall=5.80"

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

Summary for Subcatchment 6.1S:

Runoff = 4.9 cfs @ 12.19 hrs, Volume= 22,223 cf, Depth= 5.29"
 Routed to Pond 6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
36,200	98	Paved parking, HSG D
6,030	98	Roofs, HSG D
1,670	79	50-75% Grass cover, Fair, HSG C
6,470	84	50-75% Grass cover, Fair, HSG D
50,370		Weighted Average
8,140		16.16% Pervious Area
42,230		83.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	100	0.0700	0.13		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
1.0	65	0.0500	1.12		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
0.3	115	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
14.5	280	Total			

Summary for Subcatchment 7.1S:

Runoff = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf, Depth= 5.03"
 Routed to Pond 7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
31,245	98	Paved parking, HSG D
11,760	79	50-75% Grass cover, Fair, HSG C
2,285	98	Unconnected pavement, HSG D
45,290		Weighted Average
11,760		25.97% Pervious Area
33,530		74.03% Impervious Area
2,285		6.81% Unconnected

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Type III 24-hr 25-YR Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0200	0.17		Sheet Flow, A-B Grass: Short n= 0.150 P2= 3.10"
0.7	75	0.0150	1.84		Shallow Concentrated Flow, B-C Grassed Waterway Kv= 15.0 fps
0.7	250	0.0100	5.90	4.63	Pipe Channel, C-D 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
11.4	425	Total			

Summary for Subcatchment 8.10S:

Runoff = 1.1 cfs @ 12.08 hrs, Volume= 3,802 cf, Depth= 5.41"
Routed to Pond 8.10P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
675	80	>75% Grass cover, Good, HSG D
7,765	98	Paved parking, HSG D
8,440		Weighted Average
675		8.00% Pervious Area
7,765		92.00% Impervious Area

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

Summary for Subcatchment 8.11S:

Runoff = 3.4 cfs @ 12.08 hrs, Volume= 11,924 cf, Depth= 5.32"
Routed to Pond 8.11P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
3,330	80	>75% Grass cover, Good, HSG D
23,570	98	Paved parking, HSG D
26,900		Weighted Average
3,330		12.38% Pervious Area
23,570		87.62% Impervious Area

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

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 8.12S:

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,085 cf, Depth= 5.56"
 Routed to Pond 8.12P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
2,340	98	Paved parking, HSG D
2,340		100.00% Impervious Area

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

Summary for Subcatchment 8.1S:

Runoff = 1.5 cfs @ 12.09 hrs, Volume= 5,180 cf, Depth= 4.46"
 Routed to Pond 8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
6,910	98	Paved parking, HSG D
2,655	74	>75% Grass cover, Good, HSG C
4,365	80	>75% Grass cover, Good, HSG D
13,930		Weighted Average
7,020		50.39% Pervious Area
6,910		49.61% Impervious Area

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

Summary for Subcatchment 8.2S:

Runoff = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf, Depth= 5.26"
 Routed to Pond 8.2P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
3,010	80	>75% Grass cover, Good, HSG D
16,340	98	Paved parking, HSG D
19,350		Weighted Average
3,010		15.56% Pervious Area
16,340		84.44% Impervious Area

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Type III 24-hr 25-YR Rainfall=5.80"

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

Summary for Subcatchment 8.3S:

Runoff = 6.1 cfs @ 12.08 hrs, Volume= 21,654 cf, Depth= 5.39"
 Routed to Pond 8.3P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,320	80	>75% Grass cover, Good, HSG D
43,920	98	Paved parking, HSG D
48,240		Weighted Average
4,320		8.96% Pervious Area
43,920		91.04% Impervious Area

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

Summary for Subcatchment 8.4S:

Runoff = 2.8 cfs @ 12.08 hrs, Volume= 9,590 cf, Depth= 5.13"
 Routed to Pond 8.4P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,910	80	>75% Grass cover, Good, HSG D
17,510	98	Paved parking, HSG D
22,420		Weighted Average
4,910		21.90% Pervious Area
17,510		78.10% Impervious Area

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

Summary for Subcatchment 8.5S:

Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,728 cf, Depth= 3.60"
 Routed to Pond 8.5P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
9,090	80	>75% Grass cover, Good, HSG D
9,090		100.00% Pervious Area

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

Summary for Subcatchment 8.6S:

Runoff = 1.3 cfs @ 12.08 hrs, Volume= 4,626 cf, Depth= 4.99"
 Routed to Pond 8.6P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
3,235	80	>75% Grass cover, Good, HSG D
7,885	98	Paved parking, HSG D
11,120		Weighted Average
3,235		29.09% Pervious Area
7,885		70.91% Impervious Area

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

Summary for Subcatchment 8.7S:

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 1,819 cf, Depth= 4.30"
 Routed to Pond 8.7P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
3,280	80	>75% Grass cover, Good, HSG D
1,800	98	Paved parking, HSG D
5,080		Weighted Average
3,280		64.57% Pervious Area
1,800		35.43% Impervious Area

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

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment 8.8S:

Runoff = 1.2 cfs @ 12.08 hrs, Volume= 4,323 cf, Depth= 5.23"
 Routed to Pond 8.8P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
1,680	80	>75% Grass cover, Good, HSG D
8,240	98	Paved parking, HSG D
9,920		Weighted Average
1,680		16.94% Pervious Area
8,240		83.06% Impervious Area

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

Summary for Subcatchment 8.9S:

Runoff = 2.2 cfs @ 12.08 hrs, Volume= 7,924 cf, Depth= 5.49"
 Routed to Pond 8.9P :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
605	80	>75% Grass cover, Good, HSG D
16,705	98	Paved parking, HSG D
17,310		Weighted Average
605		3.50% Pervious Area
16,705		96.50% Impervious Area

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

Summary for Subcatchment 9.1S:

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 2,163 cf, Depth= 3.82"
 Routed to Link POA-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-YR Rainfall=5.80"

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Type III 24-hr 25-YR Rainfall=5.80"

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Area (sf)	CN	Description
4,800	83	Woods, Poor, HSG D
2,000	80	>75% Grass cover, Good, HSG D
6,800		Weighted Average
6,800		100.00% Pervious Area

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

Summary for Pond 1P: B-41

Inflow Area = 34,840 sf, 96.15% Impervious, Inflow Depth = 5.50" for 25-YR event
 Inflow = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf
 Outflow = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.5 cfs @ 12.08 hrs, Volume= 15,975 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 59.18' @ 12.08 hrs
 Flood Elev= 63.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.90'	18.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.90' / 57.75' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.5 cfs @ 12.08 hrs HW=59.18' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 4.5 cfs @ 3.77 fps)

Summary for Pond 2.11P: 21P (CB-8436)

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 5.20" for 25-YR event
 Inflow = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf
 Outflow = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf, Atten= 0%, Lag= 0.0 min
 Primary = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.94' @ 12.11 hrs
 Flood Elev= 68.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.69' S= 0.0024 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=16.6 cfs @ 12.11 hrs HW=58.94' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 16.6 cfs @ 5.27 fps)

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Summary for Pond 2.1P:

Inflow Area = 309,190 sf, 80.71% Impervious, Inflow Depth = 5.20" for 25-YR event
 Inflow = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf
 Outflow = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf, Atten= 0%, Lag= 0.0 min
 Primary = 16.6 cfs @ 12.11 hrs, Volume= 133,997 cf
 Routed to Pond 2.11P : 21P (CB-8436)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.94' @ 12.11 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.01'	24.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 56.01' / 55.88' S= 0.0032 ' S= 0.0032 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=16.6 cfs @ 12.11 hrs HW=58.94' (Free Discharge)↑**1=Culvert** (Inlet Controls 16.6 cfs @ 5.28 fps)**Summary for Pond 2P: B-34**

Inflow Area = 128,980 sf, 80.23% Impervious, Inflow Depth = 5.21" for 25-YR event
 Inflow = 13.4 cfs @ 12.10 hrs, Volume= 56,046 cf
 Outflow = 13.4 cfs @ 12.10 hrs, Volume= 56,046 cf, Atten= 0%, Lag= 0.0 min
 Primary = 13.4 cfs @ 12.10 hrs, Volume= 56,046 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.26' @ 12.10 hrs

Flood Elev= 63.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	18.0" Round Culvert L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 55.88' S= 0.0116 ' S= 0.0116 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=13.4 cfs @ 12.10 hrs HW=62.25' (Free Discharge)↑**1=Culvert** (Inlet Controls 13.4 cfs @ 7.60 fps)**Summary for Pond 3.11P:**

Inflow Area = 5,850 sf, 54.70% Impervious, Inflow Depth = 4.67" for 25-YR event
 Inflow = 0.7 cfs @ 12.08 hrs, Volume= 2,279 cf
 Outflow = 0.7 cfs @ 12.08 hrs, Volume= 2,279 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.7 cfs @ 12.08 hrs, Volume= 2,279 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 66.32' @ 12.08 hrs

Flood Elev= 71.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.85'	12.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.85' / 65.50' S= 0.0117 ' S= 0.0117 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.7 cfs @ 12.08 hrs HW=66.32' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.85 fps)**Summary for Pond 3.1P:**

Inflow Area = 1,450 sf, 62.07% Impervious, Inflow Depth = 4.82" for 25-YR event
Inflow = 0.2 cfs @ 12.08 hrs, Volume= 582 cf
Outflow = 0.2 cfs @ 12.08 hrs, Volume= 582 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.2 cfs @ 12.08 hrs, Volume= 582 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.53' @ 12.08 hrs

Flood Elev= 72.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.30'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.30' / 65.90' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.2 cfs @ 12.08 hrs HW=67.52' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.2 cfs @ 1.27 fps)**Summary for Pond 3.2P:**

Inflow Area = 4,400 sf, 52.27% Impervious, Inflow Depth = 4.63" for 25-YR event
Inflow = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf
Outflow = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.5 cfs @ 12.09 hrs, Volume= 1,696 cf
Routed to Pond 3.11P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.17' @ 12.09 hrs

Flood Elev= 70.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.77'	12.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.77' / 65.90' S= 0.0109 ' S= 0.0109 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=67.17' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.5 cfs @ 1.70 fps)**Summary for Pond 3.31P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 5.27" for 25-YR event
 Inflow = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf
 Outflow = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.89' @ 12.08 hrs

Flood Elev= 70.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	61.80'	24.0" Round Culvert L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 61.80' / 61.30' S= 0.0119 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.9 cfs @ 12.08 hrs HW=62.89' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.9 cfs @ 2.81 fps)**Summary for Pond 3.32P: WQ DET & SF-2**

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth = 5.29" for 25-YR event
 Inflow = 13.2 cfs @ 12.08 hrs, Volume= 46,396 cf
 Outflow = 13.0 cfs @ 12.10 hrs, Volume= 46,396 cf, Atten= 2%, Lag= 0.9 min
 Primary = 0.3 cfs @ 12.10 hrs, Volume= 19,032 cf
 Routed to Pond 3.34P :
 Secondary = 12.7 cfs @ 12.10 hrs, Volume= 27,363 cf
 Routed to Pond 3.33P : PEAK DET

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 63.04' @ 12.10 hrs Surf.Area= 1,634 sf Storage= 3,551 cf

Plug-Flow detention time= 45.1 min calculated for 46,388 cf (100% of inflow)

Center-of-Mass det. time= 45.1 min (797.7 - 752.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	8.00'W x 204.25'L x 9.00'H Field A 14,706 cf Overall - 10,166 cf Embedded = 4,540 cf x 0.0% Voids
#2A	60.00'	10,166 cf	CMP Round 96 x 9 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +14.25' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		10,166 cf	Total Available Storage

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	60.00'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.00' / 59.95' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	57.70'	Tube/Siphon/Float Valve X 11.00 0.668" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@60.45'
#3	Primary	57.70'	12.0" Round 12" Stormfilter Outlet L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.70' / 57.60' S= 0.0077 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	62.40'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 2.40 2.48 2.56 2.64 2.72 2.80 2.88 2.96 3.04 3.12 3.20 3.28 3.36 3.44 3.52 3.60 3.68 3.76 3.84 3.92 4.00 4.08 4.16 4.24 4.32 4.40 4.48 4.56 4.64 4.72 4.80 4.88 4.96 5.04 5.12 5.20 5.28 5.36 5.44 5.52 5.60 5.68 5.76 5.84 5.92 6.00 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 7.33 7.40 7.46 7.52 7.58 7.63 7.68 7.72 7.77 7.80 7.84 7.87 7.90 7.92 7.94 7.96 7.97 7.99 7.99 8.00 8.00 8.00 7.99 7.99 7.97 7.96 7.94 7.92 7.90 7.87 7.84 7.80 7.77 7.72 7.68 7.63 7.58 7.52 7.46 7.40 7.33 7.26 7.18 7.10 7.02 6.93 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

Primary OutFlow Max=0.3 cfs @ 12.10 hrs HW=63.04' (Free Discharge)

3=12" Stormfilter Outlet (Passes 0.3 cfs of 6.6 cfs potential flow)

2=Tube/Siphon/Float Valve (Orifice Controls 0.3 cfs @ 11.13 fps)

1=Culvert (Passes 0.3 cfs of 6.0 cfs potential flow)
Secondary OutFlow Max=12.7 cfs @ 12.10 hrs HW=63.04' (Free Discharge)

4=Custom Weir/Orifice (Weir Controls 12.7 cfs @ 2.61 fps)
Summary for Pond 3.33P: PEAK DET

Inflow	=	12.7 cfs @	12.10 hrs,	Volume=	27,363 cf
Outflow	=	1.9 cfs @	12.58 hrs,	Volume=	27,359 cf, Atten= 85%, Lag= 28.9 min
Primary	=	1.9 cfs @	12.58 hrs,	Volume=	27,359 cf

Routed to Pond 3.34P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 63.81' @ 12.58 hrs Surf.Area= 8,323 sf Storage= 19,431 cf

Plug-Flow detention time= 763.4 min calculated for 27,354 cf (100% of inflow)
 Center-of-Mass det. time= 763.7 min (1,507.1 - 743.4)

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Volume	Invert	Avail.Storage	Storage Description
#1A	60.00'	0 cf	63.00'W x 124.00'L x 8.00'H Field A 62,496 cf Overall - 38,152 cf Embedded = 24,344 cf x 0.0% Voids
#2A	60.00'	38,152 cf	CMP Round 96 x 30 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +16.00' x 50.27 sf x 6 rows 63.00' Header x 50.27 sf x 1 = 3,166.7 cf Inside
#3	60.00'	3,217 cf	CMP Round 96 x 3 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +4.00' x 50.27 sf x 1 rows
		41,368 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#2	Primary	65.50'	0.5' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	63.50'	36.0" W x 6.0" H Vert. CAPACITY ORIFICE C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.9 cfs @ 12.58 hrs HW=63.81' (Free Discharge)

- 1=DRAINDOWN ORIFICE (Orifice Controls 0.2 cfs @ 9.29 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.0 cfs)
 3=CAPACITY ORIFICE (Orifice Controls 1.7 cfs @ 1.79 fps)

Summary for Pond 3.34P:

Inflow Area = 105,340 sf, 85.47% Impervious, Inflow Depth > 5.28" for 25-YR event
 Inflow = 2.2 cfs @ 12.58 hrs, Volume= 46,391 cf
 Outflow = 2.2 cfs @ 12.58 hrs, Volume= 46,391 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.2 cfs @ 12.58 hrs, Volume= 46,391 cf
 Routed to Pond 3.35P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 58.19' @ 12.58 hrs
 Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	57.50'	24.0" Round Culvert L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 57.50' / 56.87' S= 0.0102 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=2.2 cfs @ 12.58 hrs HW=58.19' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.2 cfs @ 2.24 fps)**Summary for Pond 3.35P:**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 5.22" for 25-YR event
 Inflow = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf
 Outflow = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf, Atten= 0%, Lag= 0.0 min
 Primary = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf
 Routed to Pond 3P : B-32 (CB-8031)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.73' @ 12.11 hrs

Flood Elev= 67.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.69'	24.0" Round Culvert L= 25.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.69' / 55.62' S= 0.0028 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=17.0 cfs @ 12.11 hrs HW=58.72' (Free Discharge)↑**1=Culvert** (Inlet Controls 17.0 cfs @ 5.42 fps)**Summary for Pond 3.3P:**

Inflow Area = 39,230 sf, 85.34% Impervious, Inflow Depth = 5.27" for 25-YR event
 Inflow = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf
 Outflow = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.9 cfs @ 12.08 hrs, Volume= 17,244 cf
 Routed to Pond 3.31P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.09' @ 12.08 hrs

Flood Elev= 69.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.80'	18.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.80' / 62.30' S= 0.0111 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.9 cfs @ 12.08 hrs HW=64.09' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.9 cfs @ 3.05 fps)

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Summary for Pond 3.4P:

Inflow Area = 5,170 sf, 90.14% Impervious, Inflow Depth = 5.37" for 25-YR event
 Inflow = 0.7 cfs @ 12.08 hrs, Volume= 2,313 cf
 Outflow = 0.7 cfs @ 12.08 hrs, Volume= 2,313 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.7 cfs @ 12.08 hrs, Volume= 2,313 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.72' @ 12.08 hrs

Flood Elev= 69.85'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 65.45' S= 0.0160 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.7 cfs @ 12.08 hrs HW=66.72' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.83 fps)**Summary for Pond 3.5P:**

Inflow Area = 13,630 sf, 87.97% Impervious, Inflow Depth = 5.33" for 25-YR event
 Inflow = 1.7 cfs @ 12.08 hrs, Volume= 6,050 cf
 Outflow = 1.7 cfs @ 12.08 hrs, Volume= 6,050 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.7 cfs @ 12.08 hrs, Volume= 6,050 cf
 Routed to Pond 3.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.14' @ 12.08 hrs

Flood Elev= 68.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.30'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.30' / 63.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.7 cfs @ 12.08 hrs HW=65.13' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.7 cfs @ 2.46 fps)**Summary for Pond 3.6P:**

Inflow Area = 20,710 sf, 92.08% Impervious, Inflow Depth = 5.41" for 25-YR event
 Inflow = 2.6 cfs @ 12.08 hrs, Volume= 9,331 cf
 Outflow = 2.6 cfs @ 12.08 hrs, Volume= 9,331 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.6 cfs @ 12.08 hrs, Volume= 9,331 cf
 Routed to Pond 3.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 64.51' @ 12.08 hrs

Flood Elev= 69.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.55'	15.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.55' / 63.05' S= 0.0111 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.6 cfs @ 12.08 hrs HW=64.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.6 cfs @ 2.63 fps)**Summary for Pond 3.7P:**

Inflow Area = 6,280 sf, 87.10% Impervious, Inflow Depth = 5.31" for 25-YR event
Inflow = 0.8 cfs @ 12.08 hrs, Volume= 2,778 cf
Outflow = 0.8 cfs @ 12.08 hrs, Volume= 2,778 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.8 cfs @ 12.08 hrs, Volume= 2,778 cf
Routed to Pond 3.5P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 65.32' @ 12.08 hrs

Flood Elev= 68.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.80'	12.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.80' / 64.40' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.8 cfs @ 12.08 hrs HW=65.32' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.8 cfs @ 1.93 fps)**Summary for Pond 3P: B-32 (CB-8031)**

Inflow Area = 414,530 sf, 81.92% Impervious, Inflow Depth = 5.22" for 25-YR event
Inflow = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf
Outflow = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf, Atten= 0%, Lag= 0.0 min
Primary = 17.0 cfs @ 12.11 hrs, Volume= 180,388 cf
Routed to Pond 4P : B-32A (CB-8323)

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.56' @ 12.11 hrs

Flood Elev= 66.13'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.44' / 55.52' S= -0.0036 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=17.0 cfs @ 12.11 hrs HW=58.55' (Free Discharge)↑**1=Culvert** (Inlet Controls 17.0 cfs @ 5.42 fps)**Summary for Pond 4.21P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 5.29" for 25-YR event
 Inflow = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf
 Outflow = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf

Routed to Pond 4.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.73' @ 12.08 hrs

Flood Elev= 72.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.05'	15.0" Round Culvert L= 82.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.05' / 66.06' S= 0.0121 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.5 cfs @ 12.08 hrs HW=67.73' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.5 cfs @ 2.21 fps)**Summary for Pond 4.2P:**

Inflow Area = 11,860 sf, 82.50% Impervious, Inflow Depth = 5.29" for 25-YR event
 Inflow = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf
 Outflow = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.5 cfs @ 12.08 hrs, Volume= 5,229 cf

Routed to Pond 4.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.88' @ 12.08 hrs

Flood Elev= 72.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.20'	15.0" Round Culvert L= 104.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.20' / 67.16' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.5 cfs @ 12.08 hrs HW=68.88' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.5 cfs @ 2.21 fps)

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Summary for Pond 4.3P:

Inflow Area = 22,490 sf, 85.42% Impervious, Inflow Depth = 5.31" for 25-YR event
 Inflow = 2.8 cfs @ 12.08 hrs, Volume= 9,959 cf
 Outflow = 2.8 cfs @ 12.08 hrs, Volume= 9,959 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.8 cfs @ 12.08 hrs, Volume= 9,959 cf
 Routed to Pond 4.8P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.71' @ 12.08 hrs

Flood Elev= 70.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.81'	18.0" Round Culvert L= 105.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.81' / 64.15' S= 0.0158 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.8 cfs @ 12.08 hrs HW=66.71' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.8 cfs @ 2.55 fps)**Summary for Pond 4.4P:**

Inflow Area = 11,040 sf, 83.15% Impervious, Inflow Depth = 5.23" for 25-YR event
 Inflow = 1.4 cfs @ 12.08 hrs, Volume= 4,813 cf
 Outflow = 1.4 cfs @ 12.08 hrs, Volume= 4,813 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.4 cfs @ 12.08 hrs, Volume= 4,813 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.62' @ 12.08 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.90'	12.0" Round Culvert L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.90' / 66.50' S= 0.0169 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.4 cfs @ 12.08 hrs HW=68.62' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.4 cfs @ 2.28 fps)**Summary for Pond 4.5P:**

Inflow Area = 5,620 sf, 62.10% Impervious, Inflow Depth = 4.82" for 25-YR event
 Inflow = 0.7 cfs @ 12.08 hrs, Volume= 2,257 cf
 Outflow = 0.7 cfs @ 12.08 hrs, Volume= 2,257 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.7 cfs @ 12.08 hrs, Volume= 2,257 cf
 Routed to Pond 4.6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 69.57' @ 12.08 hrs

Flood Elev= 72.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.10'	12.0" Round Culvert L= 122.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.10' / 66.50' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.7 cfs @ 12.08 hrs HW=69.57' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.7 cfs @ 1.84 fps)**Summary for Pond 4.6P:**

Inflow Area = 25,750 sf, 80.23% Impervious, Inflow Depth = 5.17" for 25-YR event
Inflow = 3.2 cfs @ 12.08 hrs, Volume= 11,104 cf
Outflow = 3.2 cfs @ 12.08 hrs, Volume= 11,104 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.2 cfs @ 12.08 hrs, Volume= 11,104 cf
Routed to Pond 4.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.97' @ 12.08 hrs

Flood Elev= 70.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.00'	18.0" Round Culvert L= 77.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.00' / 64.70' S= 0.0169 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.2 cfs @ 12.08 hrs HW=66.97' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.2 cfs @ 2.64 fps)**Summary for Pond 4.7P:**

Inflow Area = 31,770 sf, 83.98% Impervious, Inflow Depth = 5.25" for 25-YR event
Inflow = 4.0 cfs @ 12.08 hrs, Volume= 13,894 cf
Outflow = 4.0 cfs @ 12.08 hrs, Volume= 13,894 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.0 cfs @ 12.08 hrs, Volume= 13,894 cf
Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.94' @ 12.08 hrs

Flood Elev= 69.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	64.20'	18.0" Round Culvert X 2.00 L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 64.20' / 63.70' S= 0.0227 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

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Primary OutFlow Max=4.0 cfs @ 12.08 hrs HW=64.93' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.0 cfs @ 2.30 fps)**Summary for Pond 4.81P:**

Inflow Area = 66,110 sf, 85.55% Impervious, Inflow Depth = 5.29" for 25-YR event
 Inflow = 8.3 cfs @ 12.08 hrs, Volume= 29,152 cf
 Outflow = 8.3 cfs @ 12.08 hrs, Volume= 29,152 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.3 cfs @ 12.08 hrs, Volume= 29,152 cf
 Routed to Pond 3.32P : WQ DET & SF-2

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.70' @ 12.08 hrs

Flood Elev= 69.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.20'	24.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.20' / 62.80' S= 0.0267 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.3 cfs @ 12.08 hrs HW=64.70' (Free Discharge)↑**1=Culvert** (Inlet Controls 8.3 cfs @ 3.29 fps)**Summary for Pond 4.8P:**

Inflow Area = 34,340 sf, 87.00% Impervious, Inflow Depth = 5.33" for 25-YR event
 Inflow = 4.3 cfs @ 12.08 hrs, Volume= 15,258 cf
 Outflow = 4.3 cfs @ 12.08 hrs, Volume= 15,258 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.3 cfs @ 12.08 hrs, Volume= 15,258 cf
 Routed to Pond 4.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 64.67' @ 12.08 hrs

Flood Elev= 68.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.65'	24.0" Round Culvert L= 35.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.65' / 63.30' S= 0.0100 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=4.3 cfs @ 12.08 hrs HW=64.67' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.3 cfs @ 2.71 fps)

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Summary for Pond 4P: B-32A (CB-8323)

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 19.8 cfs @ 12.18 hrs, Volume= 192,599 cf
 Outflow = 19.8 cfs @ 12.18 hrs, Volume= 192,599 cf, Atten= 0%, Lag= 0.0 min
 Primary = 19.8 cfs @ 12.18 hrs, Volume= 192,599 cf
 Routed to Link POA-1 : B-30
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link POA-1 : B-30

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 59.27' @ 12.18 hrs

Flood Elev= 59.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.52'	24.0" Round Culvert L= 115.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.52' / 54.90' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Secondary	59.39'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=19.8 cfs @ 12.18 hrs HW=59.27' (Free Discharge)↑**1=Culvert** (Inlet Controls 19.8 cfs @ 6.30 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=55.52' (Free Discharge)↑**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)**Summary for Pond 5P:**

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 4.80" for 25-YR event
 Inflow = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf
 Outflow = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf
 Routed to Link POA-2 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 60.91' @ 12.08 hrs

Flood Elev= 66.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.00'	15.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.00' / 59.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.4 cfs @ 12.08 hrs HW=60.91' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.4 cfs @ 2.56 fps)

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Summary for Pond 6P:

Inflow Area = 64,300 sf, 76.42% Impervious, Inflow Depth = 5.11" for 25-YR event
 Inflow = 5.9 cfs @ 12.16 hrs, Volume= 27,403 cf
 Outflow = 5.9 cfs @ 12.16 hrs, Volume= 27,403 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.9 cfs @ 12.16 hrs, Volume= 27,403 cf
 Routed to Pond 2P : B-34
 Secondary = 0.0 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond 2P : B-34

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.61' @ 12.16 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.9 cfs @ 12.16 hrs HW=68.60' (Free Discharge)↑**1=Culvert** (Barrel Controls 5.9 cfs @ 7.52 fps)**Secondary OutFlow** Max=0.0 cfs @ 0.00 hrs HW=62.08' (Free Discharge)↑**2=Broad-Crested Rectangular Weir**(Controls 0.0 cfs)**Summary for Pond 7P:**

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 5.03" for 25-YR event
 Inflow = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf
 Outflow = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf
 Routed to Link POA-4 :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.89' @ 12.15 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.6 cfs @ 12.15 hrs HW=67.88' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.6 cfs @ 5.87 fps)

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Summary for Pond 8.10P:

Inflow Area = 8,440 sf, 92.00% Impervious, Inflow Depth = 5.41" for 25-YR event
 Inflow = 1.1 cfs @ 12.08 hrs, Volume= 3,802 cf
 Outflow = 1.1 cfs @ 12.08 hrs, Volume= 3,802 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.1 cfs @ 12.08 hrs, Volume= 3,802 cf
 Routed to Pond 8.9P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.92' @ 12.08 hrs

Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.30'	12.0" Round Culvert L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.30' / 68.75' S= 0.0367 ' S= 0.0367 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.1 cfs @ 12.08 hrs HW=69.92' (Free Discharge)

↑1=Culvert (Inlet Controls 1.1 cfs @ 2.11 fps)

Summary for Pond 8.111P:

Inflow Area = 29,240 sf, 88.61% Impervious, Inflow Depth = 5.34" for 25-YR event
 Inflow = 3.7 cfs @ 12.08 hrs, Volume= 13,009 cf
 Outflow = 3.7 cfs @ 12.08 hrs, Volume= 13,009 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.7 cfs @ 12.08 hrs, Volume= 13,009 cf
 Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.01' @ 12.08 hrs

Flood Elev= 74.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.95'	18.0" Round Culvert L= 160.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 67.95' / 66.30' S= 0.0103 ' S= 0.0103 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.7 cfs @ 12.08 hrs HW=69.01' (Free Discharge)

↑1=Culvert (Inlet Controls 3.7 cfs @ 2.77 fps)

Summary for Pond 8.11P:

Inflow Area = 26,900 sf, 87.62% Impervious, Inflow Depth = 5.32" for 25-YR event
 Inflow = 3.4 cfs @ 12.08 hrs, Volume= 11,924 cf
 Outflow = 3.4 cfs @ 12.08 hrs, Volume= 11,924 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.4 cfs @ 12.08 hrs, Volume= 11,924 cf
 Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 71.10' @ 12.08 hrs

Flood Elev= 73.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.95'	15.0" Round Culvert L= 144.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.95' / 68.20' S= 0.0122 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.4 cfs @ 12.08 hrs HW=71.10' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.4 cfs @ 2.88 fps)**Summary for Pond 8.12P:**

Inflow Area = 2,340 sf, 100.00% Impervious, Inflow Depth = 5.56" for 25-YR event
Inflow = 0.3 cfs @ 12.08 hrs, Volume= 1,085 cf
Outflow = 0.3 cfs @ 12.08 hrs, Volume= 1,085 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.3 cfs @ 12.08 hrs, Volume= 1,085 cf
Routed to Pond 8.111P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.06' @ 12.08 hrs

Flood Elev= 74.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.75'	12.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.75' / 69.30' S= 0.0121 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.3 cfs @ 12.08 hrs HW=71.06' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.3 cfs @ 1.49 fps)**Summary for Pond 8.21P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 5.26" for 25-YR event
Inflow = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf
Outflow = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf
Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.74' @ 12.08 hrs

Flood Elev= 76.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	24.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 68.60' S= 0.0240 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

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Primary OutFlow Max=2.4 cfs @ 12.08 hrs HW=71.74' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.4 cfs @ 2.31 fps)**Summary for Pond 8.22P:**

Inflow Area = 41,770 sf, 81.04% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 5.2 cfs @ 12.08 hrs, Volume= 18,067 cf
 Outflow = 5.2 cfs @ 12.08 hrs, Volume= 18,067 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.2 cfs @ 12.08 hrs, Volume= 18,067 cf

Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 69.62' @ 12.08 hrs

Flood Elev= 75.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.50'	24.0" Round Culvert L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.50' / 68.10' S= 0.0133 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.2 cfs @ 12.08 hrs HW=69.62' (Free Discharge)↑**1=Culvert** (Inlet Controls 5.2 cfs @ 2.85 fps)**Summary for Pond 8.2P:**

Inflow Area = 19,350 sf, 84.44% Impervious, Inflow Depth = 5.26" for 25-YR event
 Inflow = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf
 Outflow = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.4 cfs @ 12.08 hrs, Volume= 8,477 cf

Routed to Pond 8.21P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 74.52' @ 12.08 hrs

Flood Elev= 79.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.70'	18.0" Round Culvert L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 73.70' / 71.50' S= 0.0183 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.4 cfs @ 12.08 hrs HW=74.52' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.4 cfs @ 2.44 fps)

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Summary for Pond 8.3P:

Inflow Area = 99,100 sf, 78.48% Impervious, Inflow Depth = 5.14" for 25-YR event
 Inflow = 12.2 cfs @ 12.08 hrs, Volume= 42,448 cf
 Outflow = 12.2 cfs @ 12.08 hrs, Volume= 42,448 cf, Atten= 0%, Lag= 0.0 min
 Primary = 12.2 cfs @ 12.08 hrs, Volume= 42,448 cf
 Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.04' @ 12.08 hrs

Flood Elev= 74.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	24.0" Round Culvert L= 45.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.00' / 67.20' S= 0.0178 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=12.2 cfs @ 12.08 hrs HW=70.04' (Free Discharge)↑**1=Culvert** (Inlet Controls 12.2 cfs @ 3.88 fps)**Summary for Pond 8.4P:**

Inflow Area = 22,420 sf, 78.10% Impervious, Inflow Depth = 5.13" for 25-YR event
 Inflow = 2.8 cfs @ 12.08 hrs, Volume= 9,590 cf
 Outflow = 2.8 cfs @ 12.08 hrs, Volume= 9,590 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.8 cfs @ 12.08 hrs, Volume= 9,590 cf
 Routed to Pond 8.22P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.98' @ 12.08 hrs

Flood Elev= 75.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	15.0" Round Culvert L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.35' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.8 cfs @ 12.08 hrs HW=70.98' (Free Discharge)↑**1=Culvert** (Inlet Controls 2.8 cfs @ 2.66 fps)**Summary for Pond 8.5P:**

Inflow Area = 9,090 sf, 0.00% Impervious, Inflow Depth = 3.60" for 25-YR event
 Inflow = 0.9 cfs @ 12.09 hrs, Volume= 2,728 cf
 Outflow = 0.9 cfs @ 12.09 hrs, Volume= 2,728 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.9 cfs @ 12.09 hrs, Volume= 2,728 cf
 Routed to Pond 8.3P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 75.00' @ 12.09 hrs

Flood Elev= 77.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	74.45'	12.0" Round Culvert L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 74.45' / 73.35' S= 0.0220 ' S= 0.0220 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.9 cfs @ 12.09 hrs HW=75.00' (Free Discharge)↑**1=Culvert** (Inlet Controls 0.9 cfs @ 1.99 fps)**Summary for Pond 8.6P:**

Inflow Area = 11,120 sf, 70.91% Impervious, Inflow Depth = 4.99" for 25-YR event
Inflow = 1.3 cfs @ 12.08 hrs, Volume= 4,626 cf
Outflow = 1.3 cfs @ 12.08 hrs, Volume= 4,626 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.3 cfs @ 12.08 hrs, Volume= 4,626 cf
Routed to Pond 8.7P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.93' @ 12.08 hrs

Flood Elev= 75.15'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.30'	15.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.30' / 70.10' S= 0.0200 ' S= 0.0200 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.3 cfs @ 12.08 hrs HW=71.93' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.3 cfs @ 2.14 fps)**Summary for Pond 8.7P:**

Inflow Area = 115,300 sf, 75.85% Impervious, Inflow Depth = 5.09" for 25-YR event
Inflow = 14.1 cfs @ 12.08 hrs, Volume= 48,892 cf
Outflow = 14.1 cfs @ 12.08 hrs, Volume= 48,892 cf, Atten= 0%, Lag= 0.0 min
Primary = 14.1 cfs @ 12.08 hrs, Volume= 48,892 cf
Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.74' @ 12.08 hrs

Flood Elev= 73.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.90'	30.0" Round Culvert L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.90' / 66.25' S= 0.0114 ' S= 0.0114 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

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Primary OutFlow Max=14.1 cfs @ 12.08 hrs HW=68.74' (Free Discharge)↑**1=Culvert** (Inlet Controls 14.1 cfs @ 3.64 fps)**Summary for Pond 8.81P:**

Inflow Area = 150,970 sf, 79.60% Impervious, Inflow Depth = 5.16" for 25-YR event
 Inflow = 18.6 cfs @ 12.08 hrs, Volume= 64,942 cf
 Outflow = 18.6 cfs @ 12.08 hrs, Volume= 64,942 cf, Atten= 0%, Lag= 0.0 min
 Primary = 18.6 cfs @ 12.08 hrs, Volume= 64,942 cf

Routed to Pond 8.82P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.34' @ 12.08 hrs

Flood Elev= 74.45'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.25'	36.0" Round Culvert L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 66.25' / 66.00' S= 0.0192 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=18.6 cfs @ 12.08 hrs HW=68.34' (Free Discharge)↑**1=Culvert** (Barrel Controls 18.6 cfs @ 4.99 fps)**Summary for Pond 8.82P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 22.4 cfs @ 12.08 hrs, Volume= 77,951 cf
 Outflow = 22.4 cfs @ 12.08 hrs, Volume= 77,951 cf, Atten= 0%, Lag= 0.0 min
 Primary = 22.4 cfs @ 12.08 hrs, Volume= 77,951 cf

Routed to Pond 8.83P : WQ DET & SF-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 67.67' @ 12.08 hrs

Flood Elev= 75.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.25'	36.0" Round Culvert L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.25' / 65.10' S= 0.0214 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=22.3 cfs @ 12.08 hrs HW=67.67' (Free Discharge)↑**1=Culvert** (Barrel Controls 22.3 cfs @ 5.00 fps)

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Summary for Pond 8.83P: WQ DET & SF-1

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 22.4 cfs @ 12.08 hrs, Volume= 77,951 cf
 Outflow = 22.3 cfs @ 12.09 hrs, Volume= 77,951 cf, Atten= 0%, Lag= 0.3 min
 Primary = 0.5 cfs @ 12.09 hrs, Volume= 31,184 cf
 Routed to Pond 8.85P :
 Secondary = 21.8 cfs @ 12.09 hrs, Volume= 46,767 cf
 Routed to Pond 8.84P : Peak DET-1

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs
 Peak Elev= 69.63' @ 12.09 hrs Surf.Area= 1,115 sf Storage= 5,179 cf

Plug-Flow detention time= 48.9 min calculated for 77,938 cf (100% of inflow)
 Center-of-Mass det. time= 48.9 min (803.7 - 754.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	10.00'W x 111.50'L x 8.00'H Field A 8,920 cf Overall - 5,504 cf Embedded = 3,416 cf x 0.0% Voids
#2A	62.50'	5,504 cf	CMP Round 96 x 5 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L Row Length Adjustment= +1.50' x 50.27 sf x 1 rows 8.00' Header x 50.27 sf x 1 = 402.1 cf Inside
		5,504 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	62.50'	12.0" Round Culvert L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 62.50' / 62.50' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 3	60.60'	Tube/Siphon/Float Valve X 18.00 0.586" Diameter, C= 0.600, 0.263" Trickle Diameter Starts@63.35'
#3	Primary	60.60'	12.0" Round 12" Stormfilter Outlet L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 60.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#4	Secondary	68.58'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 6.08 6.16 6.24 6.32 6.40 6.48 6.56 6.64 6.72 6.80 6.88 6.96 7.04 7.12 7.20 7.28 7.36 7.44 7.52 7.60 7.68 7.76 7.84 7.92 8.00 Width (feet) 6.83 6.73 6.63 6.52 6.40 6.28 6.15 6.01 5.87 5.71 5.55 5.38 5.20 5.01 4.80 4.58 4.34 4.08 3.80 3.49 3.14 2.73 2.24 1.59 0.00

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Primary OutFlow Max=0.5 cfs @ 12.09 hrs HW=69.63' (Free Discharge)↑ **3=12" Stormfilter Outlet** (Passes 0.5 cfs of 8.7 cfs potential flow)↑ **2=Tube/Siphon/Float Valve** (Orifice Controls 0.5 cfs @ 14.47 fps)↑ **1=Culvert** (Passes 0.5 cfs of 9.7 cfs potential flow)**Secondary OutFlow** Max=21.8 cfs @ 12.09 hrs HW=69.63' (Free Discharge)↑ **4=Custom Weir/Orifice** (Weir Controls 21.8 cfs @ 3.46 fps)**Summary for Pond 8.84P: Peak DET-1**

Inflow = 21.8 cfs @ 12.09 hrs, Volume= 46,767 cf
 Outflow = 7.5 cfs @ 12.35 hrs, Volume= 46,766 cf, Atten= 66%, Lag= 15.6 min
 Primary = 7.5 cfs @ 12.35 hrs, Volume= 46,766 cf
 Routed to Pond 8.85P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.56' @ 12.35 hrs Surf.Area= 10,780 sf Storage= 25,516 cf

Plug-Flow detention time= 265.4 min calculated for 46,759 cf (100% of inflow)

Center-of-Mass det. time= 265.7 min (1,008.4 - 742.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	62.50'	0 cf	98.00'W x 110.00'L x 8.00'H Field A 86,240 cf Overall - 50,064 cf Embedded = 36,176 cf x 0.0% Voids
#2A	62.50'	50,064 cf	CMP Round 96 x 45 Inside #1 Effective Size= 96.0"W x 96.0"H => 50.27 sf x 20.00'L = 1,005.3 cf Overall Size= 96.0"W x 96.0"H x 20.00'L 45 Chambers in 9 Rows 96.00' Header x 50.27 sf x 1 = 4,825.5 cf Inside
		50,064 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	70.00'	6.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	66.00'	36.0" W x 12.0" H Vert. OVERFLOW ORIFICE C= 0.600 Limited to weir flow at low heads
#3	Primary	62.50'	2.0" Vert. DRAINDOWN ORIFICE C= 0.600 Limited to weir flow at low heads
#4	Primary	64.50'	6.0" W x 6.0" H Vert. Orifice/Grate X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.5 cfs @ 12.35 hrs HW=66.56' (Free Discharge)↑ **1=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)↑ **2=OVERFLOW ORIFICE** (Orifice Controls 4.0 cfs @ 2.40 fps)↑ **3=DRAINDOWN ORIFICE** (Orifice Controls 0.2 cfs @ 9.60 fps)↑ **4=Orifice/Grate** (Orifice Controls 3.2 cfs @ 6.47 fps)

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Summary for Pond 8.85P:

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf
 Outflow = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf
 Routed to Pond 8.96P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 62.66' @ 12.35 hrs

Flood Elev= 73.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.50'	18.0" Round Culvert L= 226.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.50' / 58.60' S= 0.0084 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.0 cfs @ 12.35 hrs HW=62.66' (Free Discharge)↑**1=Culvert** (Inlet Controls 8.0 cfs @ 4.51 fps)**Summary for Pond 8.8P:**

Inflow Area = 9,920 sf, 83.06% Impervious, Inflow Depth = 5.23" for 25-YR event
 Inflow = 1.2 cfs @ 12.08 hrs, Volume= 4,323 cf
 Outflow = 1.2 cfs @ 12.08 hrs, Volume= 4,323 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.2 cfs @ 12.08 hrs, Volume= 4,323 cf
 Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.11' @ 12.08 hrs

Flood Elev= 75.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	70.50'	15.0" Round Culvert L= 23.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.50' / 70.00' S= 0.0217 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.2 cfs @ 12.08 hrs HW=71.11' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.2 cfs @ 2.09 fps)**Summary for Pond 8.96P:**

Inflow Area = 180,210 sf, 81.06% Impervious, Inflow Depth = 5.19" for 25-YR event
 Inflow = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf
 Outflow = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf, Atten= 0%, Lag= 0.0 min
 Primary = 8.0 cfs @ 12.35 hrs, Volume= 77,951 cf
 Routed to Pond 2.1P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Peak Elev= 60.66' @ 12.35 hrs

Flood Elev= 68.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.50'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 58.50' / 56.01' S= 0.0311 ' S= 0.0311 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=8.0 cfs @ 12.35 hrs HW=60.66' (Free Discharge)↑**1=Culvert** (Inlet Controls 8.0 cfs @ 4.51 fps)**Summary for Pond 8.9P:**

Inflow Area = 25,750 sf, 95.03% Impervious, Inflow Depth = 5.46" for 25-YR event
 Inflow = 3.3 cfs @ 12.08 hrs, Volume= 11,726 cf
 Outflow = 3.3 cfs @ 12.08 hrs, Volume= 11,726 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.3 cfs @ 12.08 hrs, Volume= 11,726 cf
 Routed to Pond 8.81P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 71.13' @ 12.08 hrs

Flood Elev= 73.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.40'	12.0" Round Culvert L= 18.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.40' / 68.75' S= 0.0361 ' S= 0.0361 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.3 cfs @ 12.08 hrs HW=71.13' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.3 cfs @ 4.21 fps)**Summary for Pond 8P:**

Inflow Area = 13,930 sf, 49.61% Impervious, Inflow Depth = 4.46" for 25-YR event
 Inflow = 1.5 cfs @ 12.09 hrs, Volume= 5,180 cf
 Outflow = 1.5 cfs @ 12.09 hrs, Volume= 5,180 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.5 cfs @ 12.09 hrs, Volume= 5,180 cf
 Routed to Pond 6P :

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 61.35' @ 12.09 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	60.58'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.58' / 59.88' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.5 cfs @ 12.09 hrs HW=61.35' (Free Discharge)

↑1=Culvert (Inlet Controls 1.5 cfs @ 2.36 fps)

Summary for Link POA-1: B-30

Inflow Area = 445,070 sf, 79.79% Impervious, Inflow Depth = 5.19" for 25-YR event
Inflow = 19.8 cfs @ 12.18 hrs, Volume= 192,599 cf
Primary = 19.8 cfs @ 12.18 hrs, Volume= 192,599 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 20,660 sf, 50.80% Impervious, Inflow Depth = 4.80" for 25-YR event
Inflow = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf
Primary = 2.5 cfs @ 12.08 hrs, Volume= 8,261 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 6,800 sf, 0.00% Impervious, Inflow Depth = 3.82" for 25-YR event
Inflow = 0.7 cfs @ 12.09 hrs, Volume= 2,163 cf
Primary = 0.7 cfs @ 12.09 hrs, Volume= 2,163 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 45,290 sf, 74.03% Impervious, Inflow Depth = 5.03" for 25-YR event
Inflow = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf
Primary = 4.6 cfs @ 12.15 hrs, Volume= 18,973 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

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Summary for Pond 6P:

Inflow Area = 148,505 sf, 34.60% Impervious, Inflow Depth = 4.17" for 25-YR event
 Inflow = 9.5 cfs @ 12.23 hrs, Volume= 51,602 cf
 Outflow = 9.5 cfs @ 12.23 hrs, Volume= 51,602 cf, Atten= 0%, Lag= 0.0 min
 Primary = 6.5 cfs @ 12.23 hrs, Volume= 48,670 cf
 Secondary = 3.0 cfs @ 12.23 hrs, Volume= 2,932 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 70.69' @ 12.23 hrs

Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	62.08'	12.0" Round Culvert L= 300.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 62.08' / 57.67' S= 0.0147 ' S= 0.0147 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	70.50'	12.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.5 cfs @ 12.23 hrs HW=70.69' (Free Discharge)

↑1=Culvert (Barrel Controls 6.5 cfs @ 8.27 fps)

Secondary OutFlow Max=2.9 cfs @ 12.23 hrs HW=70.69' (Free Discharge)

↑2=Broad-Crested Rectangular Weir (Weir Controls 2.9 cfs @ 1.24 fps)

Summary for Pond 7P:

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 4.55" for 25-YR event
 Inflow = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf
 Outflow = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf, Atten= 0%, Lag= 0.0 min
 Primary = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 68.28' @ 12.34 hrs

Flood Elev= 69.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	65.00'	12.0" Round Culvert L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 65.00' / 64.00' S= 0.0100 ' S= 0.0100 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.0 cfs @ 12.34 hrs HW=68.27' (Free Discharge)

↑1=Culvert (Inlet Controls 5.0 cfs @ 6.33 fps)

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Pond 8P:

Inflow Area = 84,725 sf, 9.68% Impervious, Inflow Depth = 3.60" for 25-YR event
 Inflow = 4.7 cfs @ 12.39 hrs, Volume= 25,399 cf
 Outflow = 4.7 cfs @ 12.39 hrs, Volume= 25,399 cf, Atten= 0%, Lag= 0.0 min
 Primary = 4.7 cfs @ 12.39 hrs, Volume= 25,399 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 66.50' @ 12.39 hrs

Flood Elev= 71.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	63.50'	12.0" Round Culvert L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 63.50' / 62.18' S= 0.0189 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.7 cfs @ 12.39 hrs HW=66.50' (Free Discharge)↑**1=Culvert** (Inlet Controls 4.7 cfs @ 6.00 fps)**Summary for Pond 21P: 21P (CB-8436)**

Inflow Area = 206,895 sf, 48.15% Impervious, Inflow Depth = 4.49" for 25-YR event
 Inflow = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf
 Outflow = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf, Atten= 0%, Lag= 0.0 min
 Primary = 14.3 cfs @ 12.12 hrs, Volume= 77,433 cf

Routing by Stor-Ind method, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Peak Elev= 58.59' @ 12.12 hrs

Flood Elev= 67.48'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.88'	24.0" Round Culvert L= 90.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 55.88' / 55.62' S= 0.0029 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.3 cfs @ 12.12 hrs HW=58.59' (Free Discharge)↑**1=Culvert** (Barrel Controls 14.3 cfs @ 4.54 fps)**Summary for Link POA-1: B-30**

Inflow Area = 395,015 sf, 40.02% Impervious, Inflow Depth = 4.65" for 25-YR event
 Inflow = 27.0 cfs @ 12.12 hrs, Volume= 153,175 cf
 Primary = 27.0 cfs @ 12.12 hrs, Volume= 153,175 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-2:

Inflow Area = 35,560 sf, 28.26% Impervious, Inflow Depth = 5.28" for 25-YR event
Inflow = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf
Primary = 4.5 cfs @ 12.08 hrs, Volume= 15,635 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-3:

Inflow Area = 15,800 sf, 0.00% Impervious, Inflow Depth = 3.91" for 25-YR event
Inflow = 1.6 cfs @ 12.09 hrs, Volume= 5,143 cf
Primary = 1.6 cfs @ 12.09 hrs, Volume= 5,143 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Summary for Link POA-4:

Inflow Area = 71,445 sf, 40.30% Impervious, Inflow Depth = 4.55" for 25-YR event
Inflow = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf
Primary = 5.0 cfs @ 12.34 hrs, Volume= 27,091 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-60.00 hrs, dt= 0.01 hrs

Appendix 3

Inspection, Maintenance and Housekeeping Plan



INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

For:

Portland International Jetport (PWM) Parking Expansion
Portland, ME

By:

Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event (0.5" of rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.
2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (0.5" of rainfall).
3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. 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, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed

to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Sediment Barriers:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event (0.5" of rainfall). They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

C. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

D. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains

into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

- 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, and appropriate spill prevention, containment, and response planning and implementation.
- B. 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.
- C. 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.
- D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, 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 must be removed from the ponded area, either through gravity or pumping, and 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.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. The owner shall inspect and maintain the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.
2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the local municipality in the annual report.

A. Vegetated Areas:

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains (>0.5") to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
- Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
- Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
- If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains (>0.5") to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

D. Removal of Winter Sand:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Stormfilter:

- Refer to the Contech – Stormfilter Operation Manual for guidance on required maintenance and inspection.

3. Documentation:

- A. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, as required by the local municipality, provide a completed and signed certification on a form provided by the local municipality, certifying that the person has inspected the BMP(s) and that they are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they required maintenance or repair, including the record of the deficiency and corrective action(s) taken.
- B. A log summarizing the inspections and any corrective action taken must be maintained. 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 controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 1 of this Inspection, Maintenance, and Housekeeping Plan.

- 4. Duration of Maintenance:** Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Portland International Jetport (PWM) Parking Expansion Portland, ME

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the parking expansion at the Portland International Jetport (PWM) in Portland, Maine. The following items shall be checked, cleaned, and maintained on a regular basis as specified in the Maintenance Plan and as described in the sections below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the City of Portland and the Maine DEP. Qualified personnel familiar with the drainage systems and soils shall perform all inspections. A copy of the construction and post-construction maintenance logs are provided.

General Site

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		Inspection Date:	
Project Location:		Current Weather:	
		Date / Amount Last Precip:	
BMP Owner:		Company conducting inspection:	
Owner Mailing Address:		Company Mailing Address	
Owner Phone #:		Company Phone #:	
Owner Email:		Inspector Name:	
		Inspector Email:	
Site Element	Suggested Maintenance (recm'd frequency)	Observations	Inspection Notes/Recommended Action
Vegetated Areas	Inspect Slopes/Embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Remove woody vegetation (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
	Remove accumulated debris from inlet grate		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Stormfilter	Inspect Anually		
Additional Notes/Observations:			

Appendix 4

Subsurface Investigations



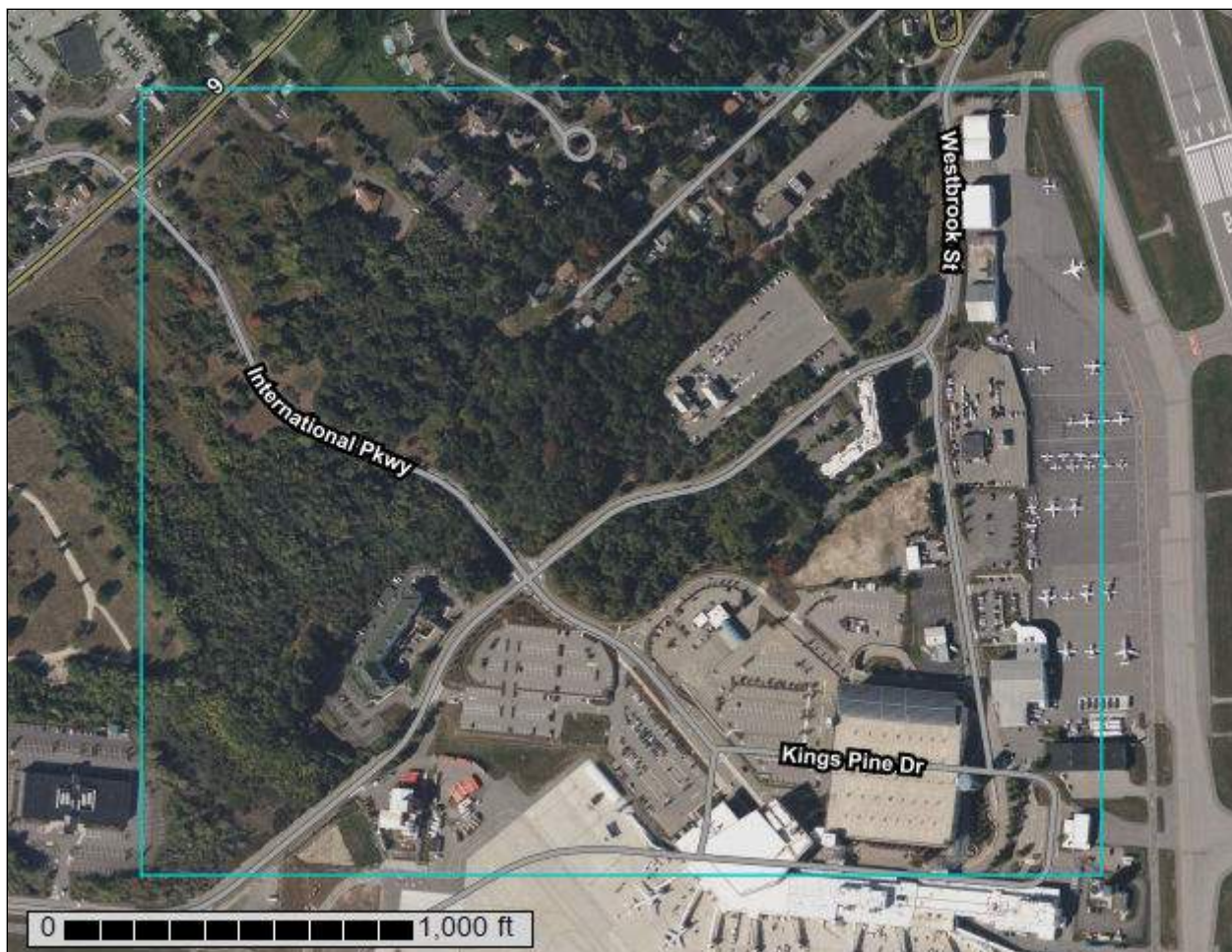
United States
Department of
Agriculture

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



August 14, 2023

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.

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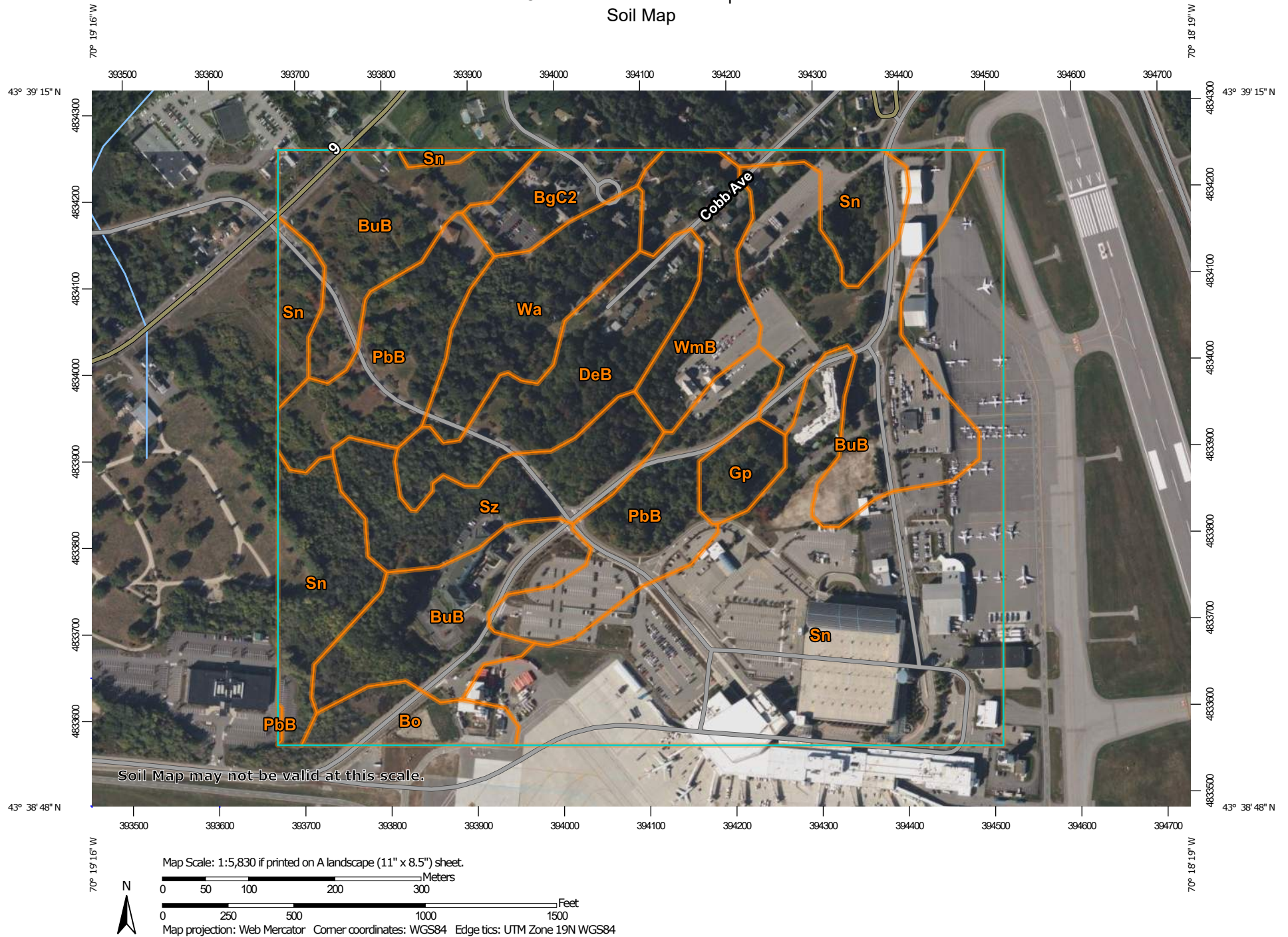
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Soil Map

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.

Custom Soil Resource Report Soil Map



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 19, Aug 30, 2022

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—Oct 7, 2021

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
BgC2	Nicholville very fine sandy loam, 8 to 15 percent slopes	3.6	2.5%
Bo	Biddeford mucky peat, 0 to 3 percent slopes	3.3	2.3%
BuB	Lamoine silt loam, 3 to 8 percent slopes	32.7	22.8%
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	8.9	6.2%
Gp	Gravel pits	2.0	1.4%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	16.1	11.2%
Sn	Scantic silt loam, 0 to 3 percent slopes	54.6	38.0%
Sz	Swanton fine sandy loam	8.3	5.7%
Wa	Walpole fine sandy loam	7.4	5.1%
WmB	Windsor loamy sand, 0 to 8 percent slopes	6.8	4.7%
Totals for Area of Interest		143.6	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

BgC2—Nicholville very fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2yJg6
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict), eskers
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 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: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Bo—Biddeford mucky peat, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t0jn
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Biddeford and similar soils: 82 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biddeford

Setting

Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Parent material: Organic material over glaciomarine deposits

Typical profile

Oe - 0 to 12 inches: mucky peat
Eg - 12 to 16 inches: silt loam
Bg - 16 to 45 inches: silty clay
Cg - 45 to 65 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: F144BY002ME - Marine Terrace Depression, F144BY304ME - Wet Clay Flat
Hydric soil rating: Yes

BuB—Lamoine silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2t0kc

Elevation: 10 to 490 feet

Mean annual precipitation: 33 to 60 inches

Mean annual air temperature: 36 to 52 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Lamoine and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lamoine

Setting

Landform: Marine terraces, river valleys

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Fine glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: silt loam

Bw - 7 to 13 inches: silt loam

Bg - 13 to 24 inches: silty clay loam

Cg - 24 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 6 to 17 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: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: C/D

Ecological site: F144BY401ME - Clay Flat

Hydric soil rating: No

DeB—Deerfield loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xfg9

Elevation: 0 to 1,190 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Kame terraces, outwash plains, outwash terraces, outwash deltas

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand

Bw - 9 to 25 inches: loamy fine sand

BC - 25 to 33 inches: fine sand

Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well 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: About 15 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Sodium adsorption ratio, maximum: 11.0

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: A

Ecological site: F144AY027MA - Moist Sandy Outwash

Hydric soil rating: No

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand

H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

PbB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bljf

Elevation: 0 to 930 feet

Mean annual precipitation: 48 to 50 inches

Mean annual air temperature: 45 to 46 degrees F

Frost-free period: 145 to 155 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 87 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlinoid ridges

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Interfluve, crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam

H2 - 8 to 20 inches: fine sandy loam

H3 - 20 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent

Custom Soil Resource Report

Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Sn—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Scantic and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches

Custom Soil Resource Report

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: D

Ecological site: F144BY304ME - Wet Clay Flat

Hydric soil rating: Yes

Sz—Swanton fine sandy loam

Map Unit Setting

National map unit symbol: blk4

Elevation: 10 to 900 feet

Mean annual precipitation: 36 to 48 inches

Mean annual air temperature: 39 to 46 degrees F

Frost-free period: 90 to 160 days

Farmland classification: Not prime farmland

Map Unit Composition

Swanton and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swanton

Setting

Landform: Outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam

H2 - 9 to 32 inches: fine sandy loam

H3 - 32 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Depth to water table: About 0 to 18 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Custom Soil Resource Report

Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Wa—Walpole fine sandy loam

Map Unit Setting

National map unit symbol: blk7
Elevation: 0 to 540 feet
Mean annual precipitation: 48 to 49 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 145 to 165 days
Farmland classification: Not prime farmland

Map Unit Composition

Walpole and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 20 inches: fine sandy loam
H3 - 20 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

WmB—Windsor loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w2x2

Elevation: 0 to 1,410 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: Farmland of statewide importance

Map Unit Composition

Windsor and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor

Setting

Landform: Outwash terraces, deltas, outwash plains, dunes

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 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 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144BY601ME - Dry Sand

Hydric soil rating: No

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REPORT

19-0714 S

November 16, 2023

Explorations and Geotechnical Engineering Services

Proposed Parking Lot Expansion
Jetport Blvd and Loop Road
Portland, Maine

Prepared For:
Sebago Technics, Inc.
Attention: Owens McCullough, P.E., LEED AP
75 John Roberts Road
South Portland, Maine 04106

Prepared By:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine
T: 207-657-2866

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19-0714 S

November 16, 2023

Sebago Technics, Inc.
Attention: Owens McCullough, P.E., LEED AP
75 Jon Roberts Road
South Portland ME 04106

Subject: Explorations and Geotechnical Engineering Services
Proposed Parking Lots
Jetport Blvd
Portland, Maine

Dear Owens:

In accordance with our revised Proposal, dated October 23, 2023, we have performed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations, and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to earthwork and pavement associated with the proposed construction. Our scope of services included test pit explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

We understand the site consists of four parcels:

- 1) A large, wooded lot located on the northerly side of the Portland Jetport Terminal building and parking garage, between Loop Road and Jetport Blvd. This parcel

is approximately 300 by 800 feet in plan dimensions. Existing grades vary in elevation from approximately 72 to 87 feet.

- 2) A small, wooded lot located on the north side of Jetport Blvd approximately 200 by 300 feet in plan dimensions. Existing grades appear to vary from about elevation 80 to 89.
- 3) A gravel parking lot (Park & Jet Lot) located south of the Embassy Suites hotel and west of Westbrook Street. This parcel is approximately 175 by 400 feet in plan dimensions. Existing grades appear to vary from about elevation 68 to 77.
- 4) A paved parking lot (Cell Phone Lot) located adjacent to the northerly side of Loop Road. This parcel is approximately 170 by 270 feet in plan dimensions. Existing grades appear to vary from about 68 to 71 feet.

We understand development plans call for construction of new paved parking lots on each of these parcels. We understand subsurface stormwater systems are planned in some areas. Based on the plans provided, existing site grades vary from about elevation 68 to 89 feet (southeast to northwest) and finish site pavement grades will vary from about elevation 68 to 89 feet. It appears much of the proposed parking lot area(s) will require up to about 3 feet of tapered cuts and fills to establish proposed pavement grades. A portion of the site, however, located between Jetport Blvd and Loop Road will require tapered cuts varying from greater than 3 to as much as 9+/- feet to establish proposed pavement grades.

Proposed and existing site features are shown on the "Exploration Location Plan" attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Twenty-four test pits (TP-1 through TP-4, TP-6 through TP-9, TP-11 through TP-13, TP-15 through TP-17, TP-19, TP-21 through TP-23, TP-25, TP-27, and TP-29 through TP-32) were made at the site on October 25 and 26, 2023 by Shaw Earthworks, Inc. As requested by STI, certain test pit locations were omitted due to exploration time constraints. The exploration locations were selected and established in the field by STI using GPS methods. The approximate exploration locations are shown on the "Exploration Location Plan" attached in Appendix B. Logs of the explorations and a key

to the notes and symbols used on the logs are attached in Appendix C. The approximate, interpolated elevations shown on the logs were estimated based on topographic information shown on the "Exploration Location Plan".

2.2 Testing

The explorations were made using a small excavator. Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Moisture content test results are noted on the logs. The results of four soil gradation tests are attached in Appendix D.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

The test pits were attempted to depths of either 6 feet or 10 feet (10 feet in possible subsurface stormwater management areas) as directed by STI. Below a surficial layer of forest duff and topsoil with organics or uncontrolled fill, the explorations encountered a subsurface profile generally consisting of native deposits of sand with varying amounts of silt and gravel, some cobbles, and a few small boulders as well as sandy clayey silt and stiff to medium silty clay. An uncontrolled fill consisting of mixed clayey silty sand with some organics and clayey silty sand was encountered at test pits TP-1 and TP-2 (cell phone lot) to depths of about 7 and 2.5 feet respectively. Test pits TP-3, TP-4, TP-6, and TP-7 (gravel Park & Jet lot) encountered about 18 to 30 inches of gravelly sand, some silt (uncontrolled fill) overlying about 6-inches of relic topsoil and/or soils with rootlets overlying native soils. Test pits made in wooded areas encountered tree roots to depths varying from about 1.5 to 2.5 feet below the ground surface. Practical refusal surfaces (probable boulders) were encountered at depths of about 10 and 9 feet at test pits TP-2 and TP-12, respectively.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

The soils encountered at the test pits were moist to wet from the ground surface. Where encountered, saturated soil and groundwater seepage was observed at depths varying from about 3.5 to 9.5 feet below the existing ground surface. Groundwater likely becomes

perched on the relatively impervious clayey silt and silty clay encountered at some of the test pits. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations include:

- All topsoil, soils with roots and organics, buried relic topsoil, uncontrolled fill and disturbed soils must be completely removed from beneath proposed paved areas.
- The soil encountered was generally wet, becoming saturated with depth with groundwater seepage noted in some test pits. Care will need to be taken not to disturb the native soils during construction. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer, and Fall. Rubber tired construction equipment should not operate directly on the native soil subgrades, particularly when wet. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.
- Swales and subsurface drainage systems may be needed in some areas, particularly in deeper planned cut areas.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. All topsoil, soils with roots and organics, buried relic topsoil, uncontrolled fill and disturbed soils must be completely removed from beneath proposed paved areas. The extent of removal should extend 1 foot laterally outward from outside edge of pavement for every 1-foot of excavation depth (1H:1V bearing splay). The over-excavated area should be backfilled with compacted Granular Borrow. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Beneath pipes and utility structures with soft trench bottoms, we recommend over excavating with a smooth-edged bucket and installing at least 1 foot of Underdrain Sand below customary bedding materials wrapped in non-woven geotextile fabric. The depth of customary bedding materials for soft trench bottoms should be at least 12 inches below pipes and 24 inches below structures.

4.3 Excavation and Dewatering

Excavation work will generally encounter topsoil, soils with roots and organics, buried relic topsoil, uncontrolled fills, native granular soils, silty clay, and clayey silt soils. Wet to saturated soils and groundwater should be expected with depth. Care must be exercised during construction to limit disturbance of the subgrade soils. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the subgrades, particularly when wet. Low ground pressure tracked equipment may be needed and temporary haul roads overlying geotextile fabric may be necessary. Final cuts to subgrade should be performed with a smooth-edged bucket to help reduce strength loss from soil disturbance.

Sumping and pumping and/or temporary ditching dewatering techniques should be adequate to control groundwater in excavations. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities, and roadways. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.4 Site Drainage

Surface grades should be sloped away from paved areas for positive surface water drainage. Perimeter drainage swales should be deep enough to help control water from intruding into adjacent pavement subbase/base aggregates. We recommend a deeper swale or groundwater cut-off trench drain be considered beneath the proposed swale located in the proposed deeper cut planned in the area near test pit TP-25 to help control water intrusion beneath adjacent pavemen. The trench drain should follow the MaineDOT specifications for French Drains. The underdrain pipe should consist of 6-inch diameter,

perforated foundation drainpipe bedded in Crushed Stone and wrapped in non-woven geotextile filter fabric. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and backflow.

4.5 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in landscape areas should be non-organic compactable earth meeting the requirements of 2020 MaineDOT Standard Specification 703.18 Common Borrow.

Granular Borrow: Fill to raise grades in paved areas, as well as to repair soft areas, should be sand or silty sand meeting the requirements of 2020 MaineDOT Standard Specification 703.19 Granular Borrow.

Underdrain Sand: Sand used beneath bedding materials in soft trench bottoms should be clean, free-draining sand meeting the requirements of 2020 MaineDOT Standard Specification 703.22 Underdrain Backfill Material Type B.

Crushed Stone: Crushed Stone, used for underdrain aggregate should be washed ¾-inch crushed stone meeting the requirements of 2020 MaineDOT Standard Specification 703.13 Crushed Stone ¾-Inch.

Reuse of Site Soils: The organic soils, soils with roots and silty clay are unsuitable for reuse as fill in paved areas but may be suitable for reuse as Common Borrow in landscape areas, provided they are at a compactable moisture content at the time of reuse. The native granular soils and granular portions of existing fills can likely be re-used as Granular Borrow provided the soil is at a compactable moisture content at the time of re-use.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill

activities should not exceed 12 inches. We recommend that fill and backfill in paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.6 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soil may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades must be protected during freezing conditions.

4.7 Paved Areas

We anticipate paved areas will be subjected primarily to passenger vehicle and light delivery truck traffic. Considering the findings at the explorations and proposed usage, we offer the following pavement section for consideration.

FLEXIBLE (HMA) PAVEMENT SECTION – 2020 MaineDOT Standard Specs	
Pavement Layer	Material Thickness
MaineDOT 9.5 mm Hot Mix Asphalt	1 ½ inches
MaineDOT 12.5 mm Hot Mix Asphalt	2 ½ inches
MaineDOT 703.06 Aggregate Base Type A	3 inches
MaineDOT 703.06 Aggregate Subbase Type D	18 inches

The base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

Frost penetration can be on the order of 4.5 feet in this area. It should be understood that in the absence of full depth excavation of frost susceptible soils below paved areas and subsequent replacement with non-frost susceptible compacted fill, frost penetration into the subgrade will occur and some heaving and distress of pavement must be anticipated.

4.8 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork and pavement recommendations have been properly interpreted and implemented.

A construction materials testing and quality assurance program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, the preparation of pavement subgrades, as well as to provide laboratory and field testing of soil and asphalt construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.

Paul F. Kohler, P.E.
Principal Geotechnical Engineer

PFK:tjb



APPENDIX A

Limitations

This report has been prepared for the exclusive use of Sebago Technics, Inc. for specific application to the proposed parking lots at the Portland Jetport Facility in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures



- LEGEND:**
- APPROXIMATE TEST PIT LOCATION
- NOTES:**
- EXPLORATION LOCATION PLAN WAS PREPARED FROM A SCALE PLAN OF THE SITE PROVIDED SEBAGO TECHNICS, INC., RECEIVED 11/08/2023.
 - THE TEST PIT LOCATIONS WERE SELECTED AND ESTABLISHED IN THE FIELD BY SEBAGO TECHNICS, INC AND PROVIDED ON THE ABOVE REFERENCED PLAN.
 - THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
 - THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.



SEBAGO TECHNICS, INC.
EXPLORATION LOCATION PLAN
PROPOSED PARKING LOTS
PORTLAND JETPORT
JETPORT BLVD AND LOOP ROAD, PORTLAND, MAINE

Job No.:	19-0714	Scale:	1" = 40'
Date:	11/14/2023	Sheet:	1

APPENDIX C

Exploration Logs and Key



TEST PIT LOGS

PROJECT NO.: 19-0714

LOGGED BY: Paul Kohler

CLIENT: Sebago Technics, Inc.

PROJECT: Proposed Parking Lots

LOCATION: Jetport Blvd., Portland, ME

CONTRACTOR:
Shaw Earthworks, Inc.EQUIPMENT:
Takeuchi TB 290

TEST PIT TP- 1

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 67.5' Estimated COMPLETION DEPTH (FT): 10.0
WATER LEVEL DEPTHS (FT): Soils wet, Some seepage at 3.5' REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Grassed Topsoil					
		1.7 Brown clayey SILT and SAND, some organics (Mixed FILL)					
5			▽ 3.5				
		7.0 Stiff brown-gray silty CLAY					
10		Bottom of Exploration at 10.0 feet					

TEST PIT TP- 2

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 71' Estimated COMPLETION DEPTH (FT): 10.0
WATER LEVEL DEPTHS (FT): Soils moist to wet. Free water at 9.5 ft REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Grassed Topsoil					
		1.0 Brown silty SAND, some gravel, trace clay (Mixed Fill)					
		2.5 Very stiff gray-brown silty CLAY					
5							
		8.0 Medium dark gray silty CLAY, boulder at bottom of test pit					
10		Bottom of Exploration at 10.0 feet	▽ 9				

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 19-0714.GPJ SWCE TEMPLATE.GDT 11/16/23



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP- 3

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 69.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): Soils appear saturated below 5 feet REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Brown gravelly SAND some silt; occasional cobbles (Fill)					
		2.5 Buried Topsoil					
		2.6 Brown-orange gravelly SAND, some silt					
5		4.0 Gray-brown gravelly silty SAND					

Bottom of Exploration at 6.0 feet

TEST PIT TP- 4

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 71.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Brown gravelly SAND some silt; occasional cobbles (Fill)					
		1.5 Brown-light brown silty gravelly SAND					
5		3.8 Brown-gray fine to medium SAND some gravel, some silt					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP- 6

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 74' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Brown gravelly SAND some silt (Fill)		1S		4-5	
		1.5 Dark brown silty fine SAND; with rootlets (Probable Fill)					
		3.0 Gray-brown SILT and CLAY					

Bottom of Exploration at 6.0 feet

TEST PIT TP- 7

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 73' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Brown GRAVEL and SAND, some silt (Fill)		1S		0-1	ID 23292S w =6.6 %
		1.5 Buried Topsoil with roots					
		2.0 Gray-brown SILT and CLAY					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP- 8

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 72' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Grassed Topsoil					
		1.5 Gray SILT and fine SAND with roots (probable Buried Topsoil)					
		2.0 Gray-brown fine sandy clayey SILT					

Bottom of Exploration at 6.0 feet

TEST PIT TP- 9

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 73.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil					
		2.0 Gray-brown clayey fine sandy SILT					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714

LOGGED BY: Paul Kohler

CLIENT: Sebago Technics, Inc.

PROJECT: Proposed Parking Lots

LOCATION: Jetport Blvd., Portland, ME

CONTRACTOR:
Shaw Earthworks, Inc.EQUIPMENT:
Takeuchi TB 290

TEST PIT TP-11

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 76.5' Estimated COMPLETION DEPTH (FT): 10.0

WATER LEVEL DEPTHS (FT): Soils wet to saturated below 8'+/-

REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
1.0		Brown silty SAND with gravel, some cobbles					
3.5		Gray-brown SILT and SAND, trace gravel					
6.5		Brown SILT and SAND, trace clay					
8.0		Gray clayey SILT and SAND, some gravel, some cobbles					
10		Bottom of Exploration at 10.0 feet					

TEST PIT TP-12

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 79.5' Estimated COMPLETION DEPTH (FT): 9.0

WATER LEVEL DEPTHS (FT): Soils moist to wet. Saturated below 8'+/-

REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil and organics					
0.7		Brown silty SAND with gravel, some cobbles					
5.0		Gray-brown silty SAND, some gravel, some cobbles Small boulder at bottom of test pit					
		Bottom of Exploration at 9.0 feet					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP-13

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 79.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil					
		0.8 Gray-brown gravelly SILT and fine SAND					
		2.5 Gray SILT and CLAY					

Bottom of Exploration at 6.0 feet

TEST PIT TP-15

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 79' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Grassed Topsoil		1S		3-4	ID 23293S w = 11.2 %
		1.5 Brown, gravelly silty SAND					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP-16

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 77.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
		1.0 Brown, silty SAND, some gravel					
		3.5 Gray-brown gravelly silty SAND					
5							

Bottom of Exploration at 6.0 feet

TEST PIT TP-17

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 78.5' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): Soils appear saturated below 5.8 feet REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
		2.0 Gray-brown silty fine to medium SAND, some gravel					
		5.8 Gray SILT and fine SAND					
5							

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Tyler Demers
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP-19

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 83' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil		1S		3-4	ID 23294S w = 8.5 %
		0.7 Light gray silty fine SAND, some gravel					

Bottom of Exploration at 6.0 feet

TEST PIT TP-21

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 81' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil					
		1.5 Brown gravelly silty SAND					
		3.0 Gray gravelly SILT and fine SAND					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714

LOGGED BY: Paul Kohler

CLIENT: Sebago Technics, Inc.

PROJECT: Proposed Parking Lots

LOCATION: Jetport Blvd., Portland, ME

CONTRACTOR:
Shaw Earthworks, Inc.EQUIPMENT:
Takeuchi TB 290

TEST PIT TP-22

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 80.5' Estimated COMPLETION DEPTH (FT): 9.5
WATER LEVEL DEPTHS (FT): Soils wet to saturated. Slight seepage at 8.5'. REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil					
		1.0 Light brown layered, silty SAND and clayey SILT, some gravel, some cobbles					
		4.5 Gray-brown clayey SILT and SAND, trace gravel, some cobbles					
		8.5 Gray-brown silty SAND with gravel, cobbles					

▽ 8.5

Bottom of Exploration at 9.5 feet

TEST PIT TP-23

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 79' Estimated COMPLETION DEPTH (FT): 6.0
WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
5		Forest Duff / Topsoil					
		1.5 Light brown-gray Silty SAND some gravel; occasional cobbles					
		4.0 Gray, SILT and fine SAND					

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714

LOGGED BY: Tyler Demers

CLIENT: Sebago Technics, Inc.

PROJECT: Proposed Parking Lots

LOCATION: Jetport Blvd., Portland, ME

CONTRACTOR:

Shaw Earthworks, Inc.

EQUIPMENT:

Takeuchi TB 290

TEST PIT TP-25

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 86.5' Estimated COMPLETION DEPTH (FT): 6.0

WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
1.5		Light gray gravelly silty fine SAND					
5							

Bottom of Exploration at 6.0 feet

TEST PIT TP-27

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 83' Estimated COMPLETION DEPTH (FT): 8.0

WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
1.5		Gray gravelly SILT and fine SAND					
5							

Bottom of Exploration at 8.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

**KEY TO NOTES
AND SYMBOLS:**

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

 q_p = Pocket Penetrometer Strength, kips/sq.ft.



TEST PIT LOGS

PROJECT NO.: 19-0714
LOGGED BY: Paul Kohler
CONTRACTOR: Shaw Earthworks, Inc.
EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
PROJECT: Proposed Parking Lots
LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP-29

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 83.5' Estimated COMPLETION DEPTH (FT): 9.5
WATER LEVEL DEPTHS (FT): Soils wet REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
1.0		Light brown gravelly silty SAND, some cobbles					
2.5		Gray-brown silty SAND, trace clay					
5							
7.0		Gray-brown silty SAND, trace clay, some gravel, some cobbles					

Bottom of Exploration at 9.5 feet

TEST PIT TP-30

DATE: 10/26/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 81' Estimated COMPLETION DEPTH (FT): 10.0
WATER LEVEL DEPTHS (FT): Soils moist to wet REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
1.0		Brown silty SAND, some gravel, some cobbles, small boulder					
4.0		Gray-brown SAND. some silt, some gravel					
5							
6.0		Gray-brown silty SAND, trace clay					
10							

Bottom of Exploration at 10.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 19-0714.GPJ SWCE TEMPLATE.GDT 11/16/23



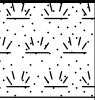
TEST PIT LOGS

PROJECT NO.: 19-0714
 LOGGED BY: Tyler Demers
 CONTRACTOR: Shaw Earthworks, Inc.
 EQUIPMENT: Takeuchi TB 290

CLIENT: Sebago Technics, Inc.
 PROJECT: Proposed Parking Lots
 LOCATION: Jetport Blvd., Portland, ME

TEST PIT TP-31

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 86' Estimated COMPLETION DEPTH (FT): 6.0
 WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Grassed Topsoil					
		1.8 Gray Silty fine to medium SAND some gravel					
		3.0 Gray SILT and fine SAND, trace gravel					
5		5.0 Gray SILT and CLAY		1S		4-5	ID 23295S w = 17.7 %

Bottom of Exploration at 6.0 feet

TEST PIT TP-32

DATE: 10/25/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 85.5' Estimated COMPLETION DEPTH (FT): 6.0
 WATER LEVEL DEPTHS (FT): Soils appear saturated below 4 feet REMARKS:

Depth (feet)	Graphic Log	Stratum Description	H ₂ O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil					
		1.5 Brown silty gravelly SAND					
		2.5 Gray-brown silty fine to medium SAND, some gravel					
5							

Bottom of Exploration at 6.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
 At time of Digging
 At Completion of Digging
 After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

KEY TO NOTES & SYMBOLS

Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

W	-	water content, percent (dry weight basis)
q _u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S _v	-	field vane shear strength, kips/sq. ft.
L _v	-	lab vane shear strength, kips/sq. ft.
q _p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W _L	-	liquid limit - Atterberg test
W _P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ _T	-	total soil weight
γ _B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

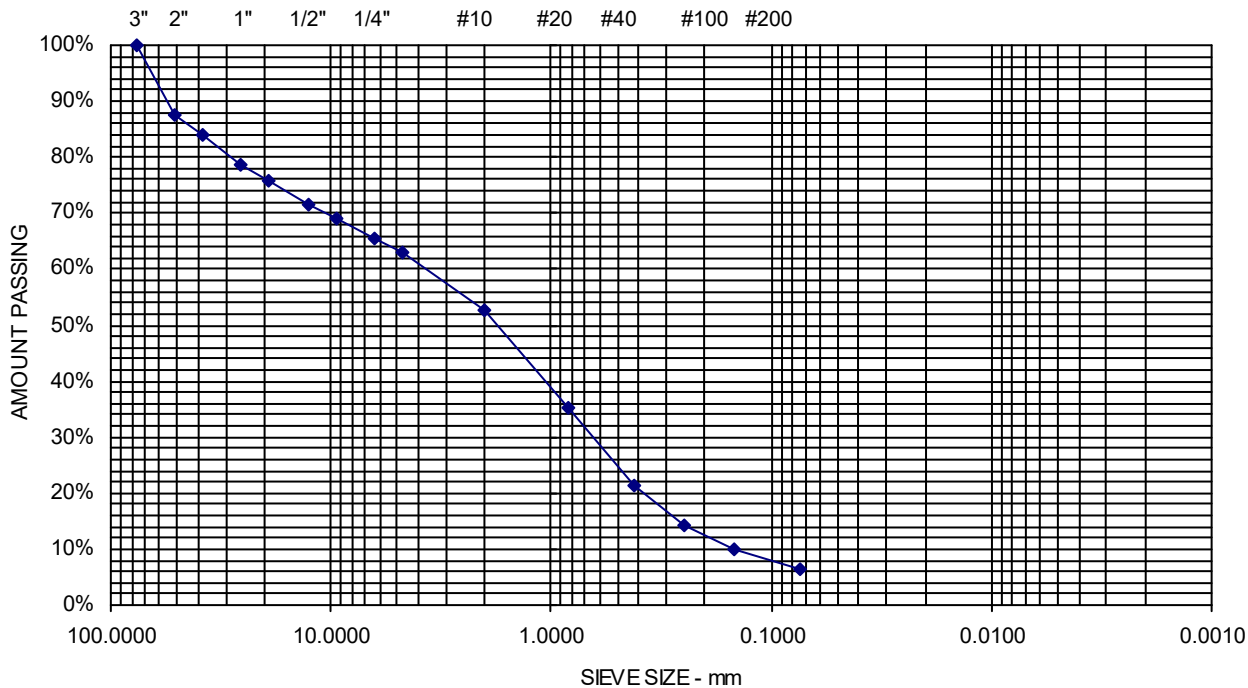
Laboratory Test Results

Project Name PORTLAND ME - PROPOSED JETPORT PARKING LOTS -
EXPLORATIONS AND GEOTECHNICAL ENGINEERING SERVICES
Client SEBAGO TECHNICS, INC.

Project Number 19-0714
Lab ID 23292S
Date Received 10/31/2023
Date Completed 11/8/2023
Tested By BRADLEY GERSCHWILER

Material Source **TP-7, 1S, 0.0'-1.0'**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
75 mm	3"	100	
50 mm	2"	87	
38.1 mm	1-1/2"	84	
25.0 mm	1"	78	
19.0 mm	3/4"	76	
12.5 mm	1/2"	72	
9.5 mm	3/8"	69	
6.3 mm	1/4"	65	
4.75 mm	No. 4	63	37.1% Gravel
2.00 mm	No. 10	53	
850 μm	No. 20	35	
425 μm	No. 40	21	56.6% Sand
250 μm	No. 60	14	
150 μm	No. 100	10	
75 μm	No. 200	6.3	6.3% Fines



Comments: Moisture Content = 6.6%

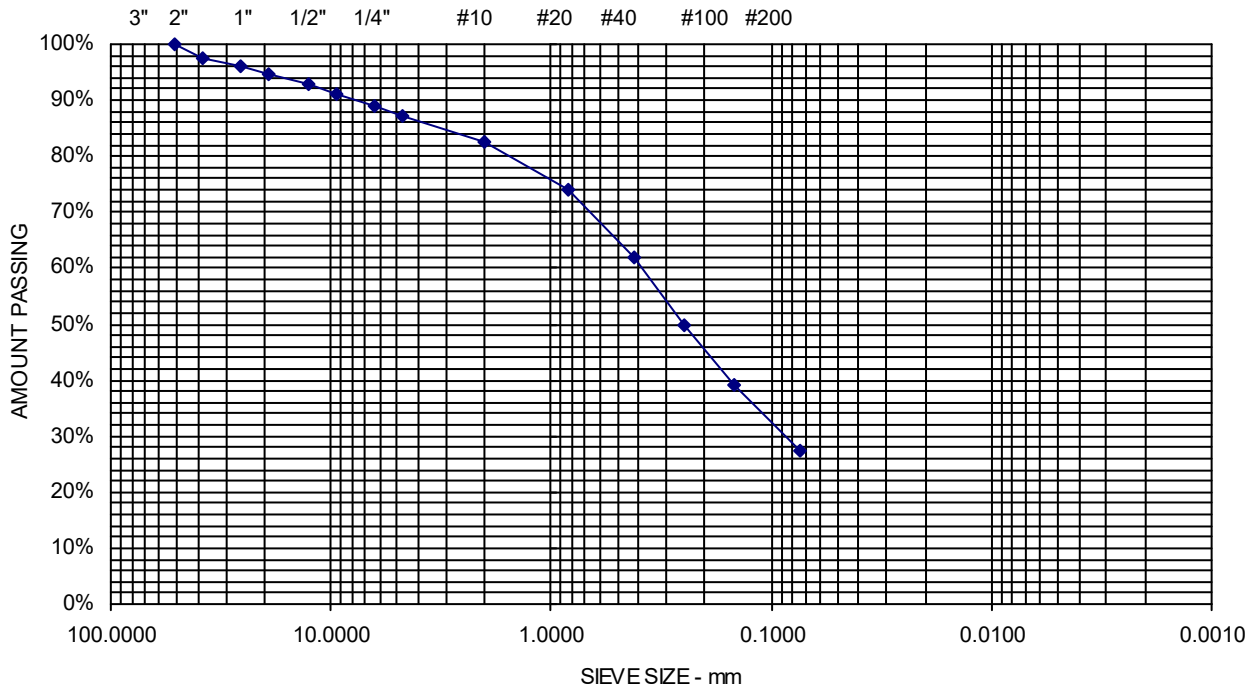
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Project Name PORTLAND ME - PROPOSED JETPORT PARKING LOTS -
EXPLORATIONS AND GEOTECHNICAL ENGINEERING SERVICES
Client SEBAGO TECHNICS, INC.

Project Number 19-0714
Lab ID 23293S
Date Received 10/31/2023
Date Completed 11/8/2023
Tested By BRADLEY GERSCHWILER

Material Source **TP-15, 1S, 3.0'-4.0'**

<u>STANDARD DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
50 mm	2"	100	
38.1 mm	1-1/2"	98	
25.0 mm	1"	96	
19.0 mm	3/4"	95	
12.5 mm	1/2"	93	
9.5 mm	3/8"	91	
6.3 mm	1/4"	89	
4.75 mm	No. 4	87	12.6% Gravel
2.00 mm	No. 10	83	
850 μm	No. 20	74	
425 μm	No. 40	62	59.9% Sand
250 μm	No. 60	50	
150 μm	No. 100	39	
75 μm	No. 200	27.5	27.5% Fines



Comments: Moisture Content = 11.2%

Sheet

Report of Gradation

ASTM C-117 & C-136

Project Name PORTLAND ME - PROPOSED JETPORT PARKING LOTS -
EXPLORATIONS AND GEOTECHNICAL ENGINEERING SERVICES

Client SEBAGO TECHNICS, INC.

Project Number 19-0714

Lab ID 23294S

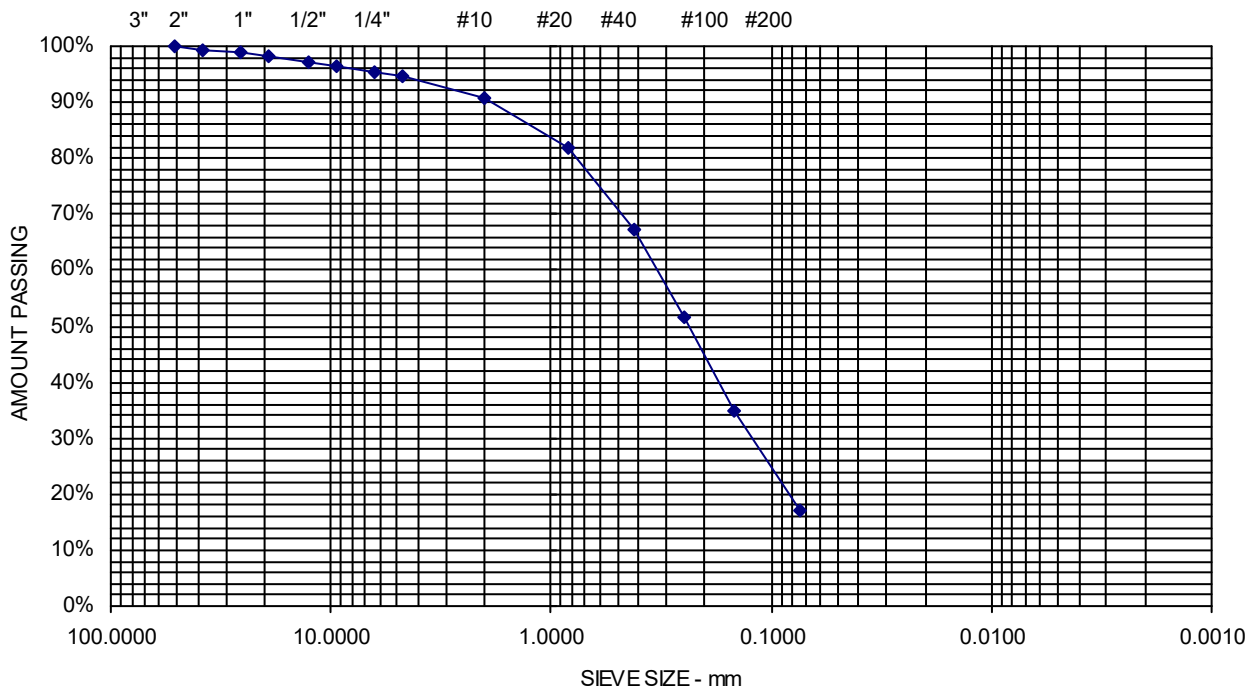
Date Received 10/31/2023

Date Completed 11/8/2023

Tested By BRADLEY GERSCHWILER

Material Source **TP-19, 1S, 3.0'-4.0'**

<u>STANDARD</u> <u>DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
50 mm	2"	100	
38.1 mm	1-1/2"	99	
25.0 mm	1"	99	
19.0 mm	3/4"	98	
12.5 mm	1/2"	97	
9.5 mm	3/8"	96	
6.3 mm	1/4"	95	
4.75 mm	No. 4	95	5.4% Gravel
2.00 mm	No. 10	91	
850 μm	No. 20	82	
425 μm	No. 40	67	77.5% Sand
250 μm	No. 60	52	
150 μm	No. 100	35	
75 μm	No. 200	17.1	17.1% Fines



Comments: Moisture Content = 8.5%

Sheet

Report of Gradation

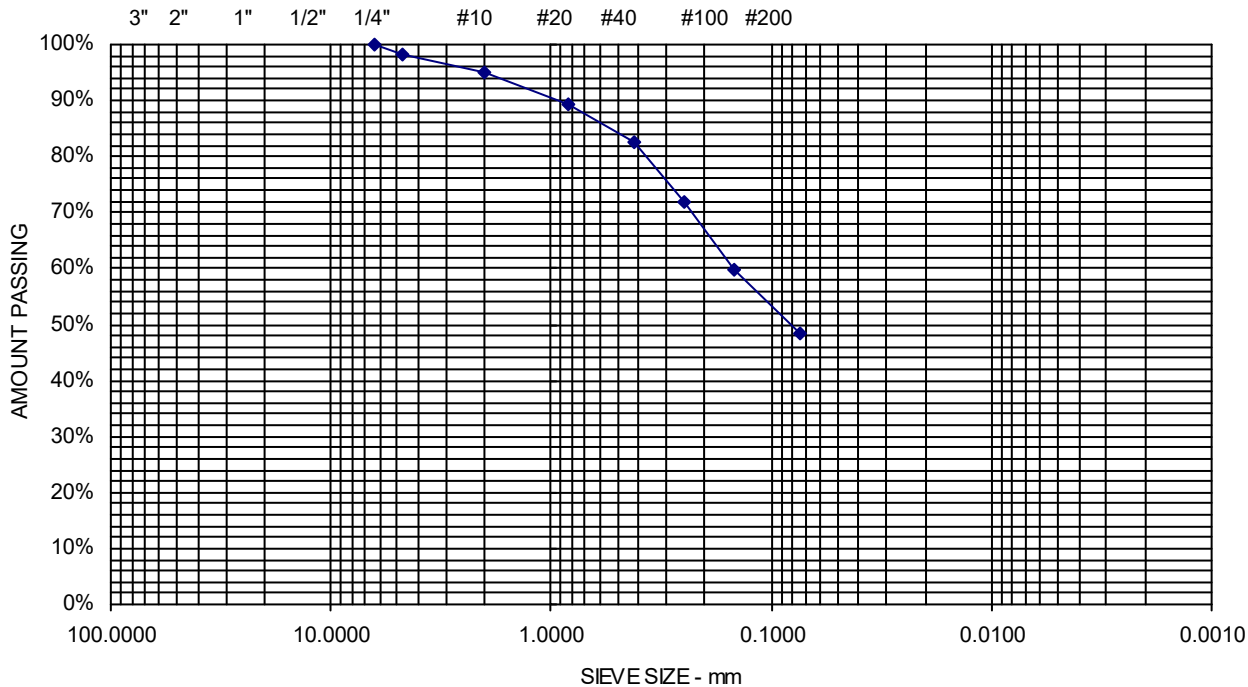
ASTM C-117 & C-136

Project Name PORTLAND ME - PROPOSED JETPORT PARKING LOTS -
 EXPLORATIONS AND GEOTECHNICAL ENGINEERING SERVICES
 Client SEBAGO TECHNICS, INC.

Project Number 19-0714
 Lab ID 23295S
 Date Received 10/31/2023
 Date Completed 11/8/2023
 Tested By BRADLEY GERSCHWILER

Material Source **TP-31, 1S, 4.0'-5.0'**

<u>STANDARD</u> <u>DESIGNATION (mm/μm)</u>	<u>SIEVE SIZE</u>	<u>AMOUNT PASSING (%)</u>	
6.3 mm	1/4"	100	
4.75 mm	No. 4	98	1.9% Gravel
2.00 mm	No. 10	95	
850 μm	No. 20	89	
425 μm	No. 40	83	49.6% Sand
250 μm	No. 60	72	
150 μm	No. 100	60	
75 μm	No. 200	48.5	48.5% Fines



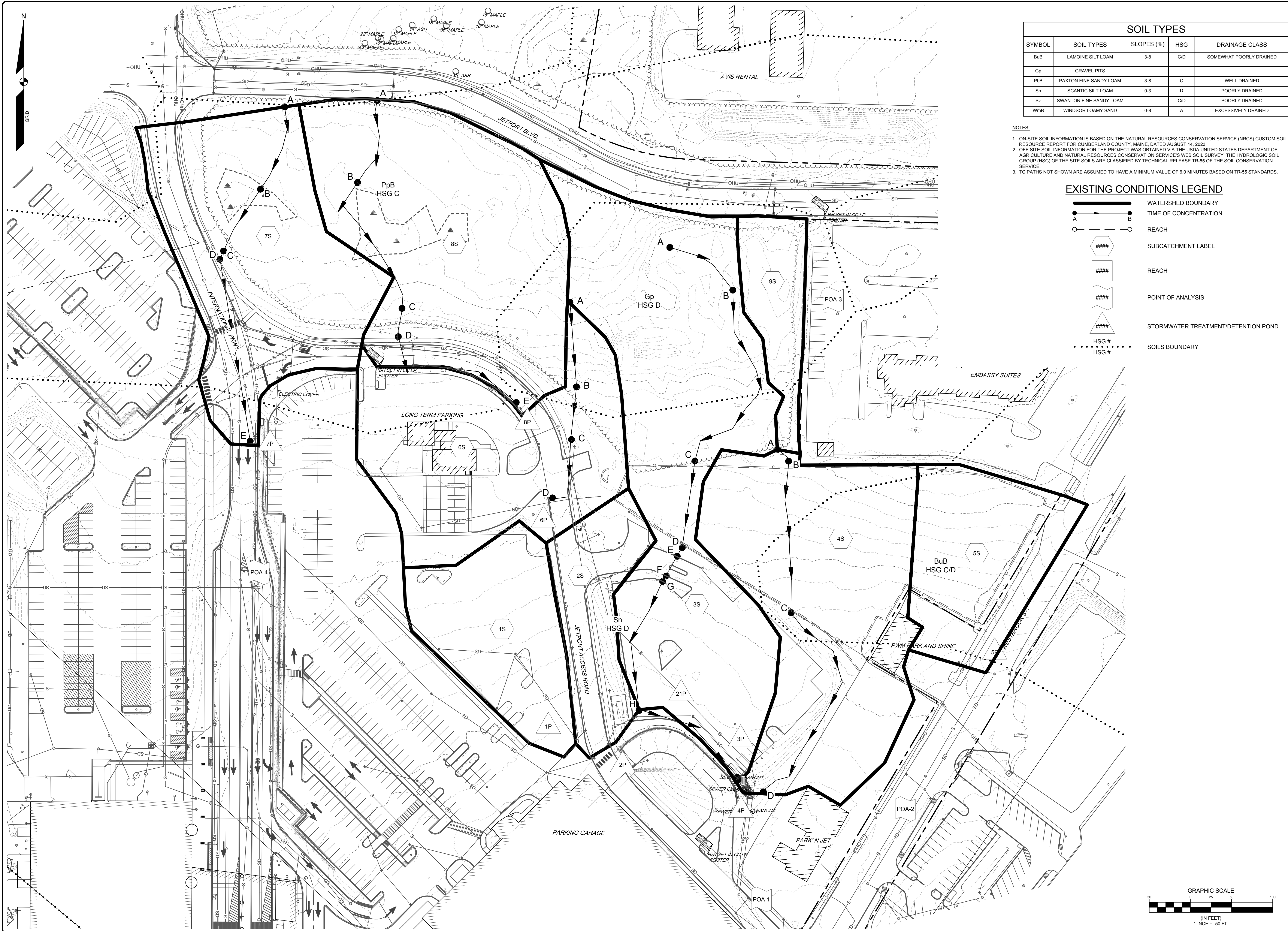
Comments: Moisture Content = 17.7%

Sheet

Appendix 5

Stormwater Management Plans

F:\Projects\190001\190001DWG\Design\19059 SW Pre.dwg - 2/28/2024 12:35 PM - TANNER F. GOODINE



SOIL TYPES				
SYMBOL	SOIL TYPES	SLOPES (%)	HSG	DRAINAGE CLASS
BuB	LAMOINE SILT LOAM	3-8	C/D	SOMEWHAT POORLY DRAINED
Gp	GRAVEL PITS	-	-	-
PbB	PAXTON FINE SANDY LOAM	3-8	C	WELL DRAINED
Sn	SCANTIC SILT LOAM	0-3	D	POORLY DRAINED
Sz	SWANTON FINE SANDY LOAM	-	C/D	POORLY DRAINED
WmB	WINDSOR LOAMY SAND	0-8	A	EXCESSIVELY DRAINED

- NOTES:
- ON-SITE SOIL INFORMATION IS BASED ON THE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) CUSTOM SOIL RESOURCE REPORT FOR CUMBERLAND COUNTY, MAINE, DATED AUGUST 14, 2023.
 - OFF-SITE SOIL INFORMATION FOR THE PROJECT WAS OBTAINED VIA THE USDA UNITED STATES DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY. THE HYDROLOGIC SOIL GROUP (HSG) OF THE SITE SOILS ARE CLASSIFIED BY TECHNICAL RELEASE TR-55 OF THE SOIL CONSERVATION SERVICE.
 - TC PATHS NOT SHOWN ARE ASSUMED TO HAVE A MINIMUM VALUE OF 6.0 MINUTES BASED ON TR-55 STANDARDS.

EXISTING CONDITIONS LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- REACH
- SUBCATCHMENT LABEL
- REACH
- POINT OF ANALYSIS
- STORMWATER TREATMENT/DETENTION POND
- SOILS BOUNDARY

19059 SW Pre.dwg, TAB Existing Conditions

EXISTING CONDITIONS WATERSHED PLAN

OF:
PORTLAND INTL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR:
PORTLAND INTL JETPORT - PWM
CITY OF PORTLAND
1001 WESTBROOK STREET, PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 50'
PROJECT	19059

SHEET 1 OF 2

SEBAGO

TECHNICS

WWW.SEBAGOTECHNICS.COM

75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

REV	BY	DATE	STATUS	ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION
A	PDO	02/29/2024	ISSUE	

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

STATE OF MAINE

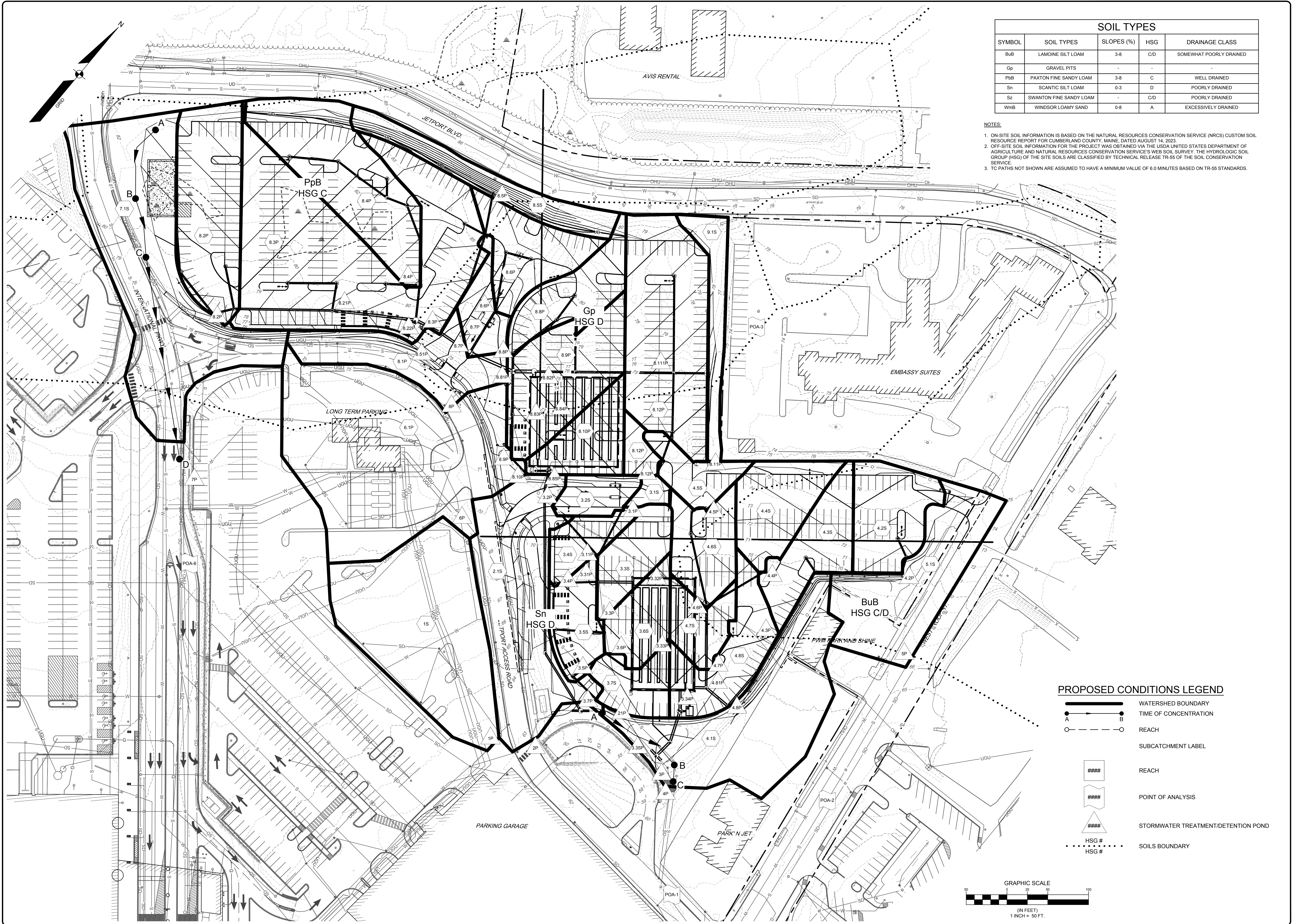
PAUL D. OSTROWSKI

REGISTERED PROFESSIONAL ENGINEER

NO. 11175

02/28/2024

F:\Projects\190001\190059\DWG\Design\19059 SW Post.dwg - 2/28/2024 12:32 PM - TANNER F. GOODINE



SOIL TYPES				
SYMBOL	SOIL TYPES	SLOPES (%)	HSG	DRAINAGE CLASS
BuB	LAMOINE SILT LOAM	3-8	C/D	SOMEWHAT POORLY DRAINED
Gp	GRAVEL PITS	-	-	-
PpB	PAXTON FINE SANDY LOAM	3-8	C	WELL DRAINED
Sn	SCANTIC SILT LOAM	0-3	D	POORLY DRAINED
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19059 SW Post.dwg, TAB Overall Proposed Conditions

PROPOSED CONDITIONS WATERSHED PLAN
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT - PWM
CITY OF PORTLAND
1001 WESTBROOK STREET, PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	08/14/2023
SCALE	1" = 50'
PROJECT	19059

SHEET 2 OF 2

PAUL D. OSTROWSKI PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
NO. 11175
ENGINEER
PROFESSIONAL

02/28/2024

REV	BY	DATE	STATUS
A	PDO	02/28/2024	ISSUE TO MDP FOR SLODA / NRPA PERMIT APPLICATION

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

SEBAGO
TECHNICS

75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100
WWW.SEBAGOTECHNICS.COM

Consistency with City Master Plans 14-14.6.3 (A)

1. The proposed project has been designed to be consistent with the City Master Plans. The proposed improvements involve two surface lots for long-term parking on the Jetport campus. The Portland International Jetport has an existing approved Master Plan that outlines growth within the airport campus. The need for additional parking and the proposed location for new lots is outlined within the Master Plan.
2. There is no existing off premises public infrastructure that requires easements across the property.

Please see the plan set and the Master Plan for additional information.

Public Safety and Fire Prevention 14-14.6.3 (B)

1. The proposed project has been designed following public safety principles for Crime Prevention through Environmental Design:
 - a. The proposed parking lots have been designed to be well lit and visible to the existing surveillance systems in place on the Jetport campus.
 - b. The parking lots have both a gated entrance and exit to ensure only customers of the lots have vehicular access.
 - c. The site has been designed with the appropriate territorial reinforcements to promote a sense of ownership and responsibility. The parking area is gated and there is landscaping and hardscape that denotes the limits of the parking area and its purpose.
2. The proposed project has been designed to provide adequate emergency vehicle access to the site as outlined in the Technical Manual. All gated points are equipped with a knox box to allow emergency vehicles to access the site.

Please see the plan set for the site plans and landscape plans detailing the site features related to this subject.

Availability and Adequacy of Public Utilities 14-14.6.3 (C)

1. The development will not overburden sanitary sewers and storm drains, water lines, or other public infrastructure and utilities.

The proposed project does not include improvements requiring additional water or sewer capacity.

Included in the application is a Stormwater Management Plan detailing the proposed site drainage improvements and stormwater treatment proposed.

2. Electrical service is to be provided underground, from existing service lines at the Jetport. Please see the utility plans.
3. All proposed sanitary sewers, storm drains, water lines or other utilities are designed and are to be constructed in accordance with the applicable provisions of the City Technical manual. No changes to existing water or sewer lines are proposed as part of this project. Please see the utility plan and details for project utility information.
4. The proposed development will be connected to the exiting public sanitary system per City requirements. Please see the utility plan.
5. The proposed project has been designed to provide additional trash receptacles along the new sidewalks. Receptacles will be emptied regularly. Please refer to the site plans.

Please see the site plans for additional information.

Massing, Ventilations and Wind Impact 14-14.6.4 (A)

Not applicable. The proposed project involves the construction of a parking lot. No buildings or significant structures that might result in massing, ventilation, or wind impacts are proposed. Please see the plan set.

Shadows 14-14.6.4 (B)

Not applicable. The proposed project involves the construction of a parking lot and will not result in the generation of shadows that impact surrounding properties.

Snow and Ice Loading 14-14.6.4 (C)

The proposed project does not include structures that could result in snow or ice fall hazards. Snow will be removed from the lot and sidewalks in accordance with the Jetport maintenance plan.

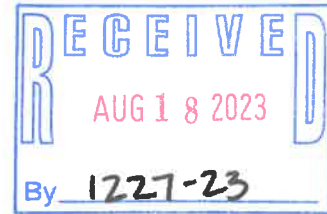
View Corridor 14-14.6.4 (D)

Not applicable. The proposed project involves the construction of two parking lots at the Portland International Jetport.

Historic Resources 14-14.6.4 (E)

1. The proposed project is not located in a designated historic district.
2. The proposed development is located on the Jetport campus and is consistent with airport masterplan.
3. The proposed project area previously developed (partially) site with no known historic or archaeological resources.

Please see the attached review letter from the Maine Historic Preservation Commission.



August 18, 2023

19059

Mr. Kirk F. Mohny, Director, and State Historic Preservation Officer
Maine Historic Preservation Commission
65 State House Station
Augusta, Maine 04333

mhpcprojectreview@maine.gov

Re: Portland International Airport
Parking Lot Expansion and Runway Improvements
1001 Westbrook Street, Portland

Dear Mr. Mohny:

On behalf of our client, Sebago Technics respectfully requests a site review for the proposed improvements at the Portland International Airport in Portland/South Portland. The proposed improvements include the expansion of an existing parking lot (see figure for Project Area A) and the reconfiguration of an existing taxiway (see figure for Project Area B). As part of the site review for permitting and design, we request a review by the Maine Historic Preservation Commission for any properties or structures of historical significance in the proposed site's vicinity.

Improvements to the Project A area include the expansion of an existing surface lot to provide greatly needed additional parking spaces. Improvements in Project Area B will include reconstruction of Taxiways A and F with new taxiway and shoulder pavement and select electrical component replacement/addition including in-pavement taxiway centerline lights, runway guard lights, signs and wiring for the associated taxiways. The taxiway segments to be reconstructed are 75 feet wide and wider at radii leading onto the Runway, with up to 15-foot-wide shoulders which will be widened to up to 30 feet to meet current FAA standards. A new taxiway stub near the mid-point of the existing taxiway stubs E and D is also proposed. All improvements will occur on the existing Jetport campus. Improvements to the taxiway will improve movement within and functionality of the Jetport. There are no proposed additional runways or extensions.

A review of the National Register of Historic Places identified the Stroudwater Neighborhood as being in the vicinity of the Jetport. Included with this neighborhood is the Tate House which was constructed in 1755. The Brooklawn Memorial Cemetery (not listed) which was opened in 1935 is located in the vicinity of the Jetport. Neither of these sites are within the viewshed of the project or are abutters to the proposed improvement areas. Review of the City of Portland/South Portland property records found no abutting or viewshed properties with structures 50+ years of age.

Please see the attached aerial which illustrates the two project areas. If you have any questions, please do not hesitate to contact me at rgabryszewski@sebagotechnics.com or (207) 200-2065. I look forward to hearing from you.

Sincerely,

SEBAGO TECHNICS, INC.



Rebecca Gabryszewski
Senior Team Leader, Entitlements Group

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,
State Historic Preservation Officer
Maine Historic Preservation Commission

8/29/23
Date

MHPC #1227-23

Exterior Lighting 14-14.6.4 (F)

1. Site lighting. All proposed lighting will conform to the lighting standards of the zone and the Technical Manual.
2. Architectural and specialty lighting. Any proposed architectural or specialty lighting will conform to the lighting standards of the Technical Manual.
3. Street lighting. The proposed improvements are within an established airport with existing lighting. Any lighting proposed to replace or enhance the existing lighting will conform to the lighting standards of the Technical Manual.

Please see attached photometric plans for the project site.

The City of Portland's Commitment to the Environment and Community

From *Sustainable Portland (The 2006 Task Force on Sustainability)*

"Our challenge in becoming a sustainable community is to systematically incorporate this vision of sustainability into our everyday decision-making. **Specifically, when faced with decisions, our City government, residents, institutions, and businesses should ask a series of questions: Is this decision good for the environment, the economy, and the community? Is this good for the long-term?** If the answers are "yes," then the decision will move us toward becoming a more sustainable city."

From *Portland' Plan 2030 (the comprehensive plan for the City of Portland)*

https://www.portland.gov/sites/default/files/2020-01/portland2030-avisionforthefuture_visionpdx.pdf

"A proposal in direct contradiction to Portland's Plan would need to be modified to generally conform with the plan or discarded." *The proposed construction is in direct contradiction to Portland 2030*--Portland 2030 -- commits to **protection of wetlands** but proposed construction is on wetlands. --Portland 2030 commits to **increase the urban tree canopy** but proposed construction will destroy acres of trees--Portland 2030 commits to **minimize light and noise pollution** but proposed construction will increase it radically--Portland 2030 commits to **support livability** by improving the quality of life in neighborhoods and. improving the public health of residents but proposed construction will worsen neighborhood quality of life.

The Jetport's Commitment to the Environment and the Community

The 2018 Sustainable Airport Master Plan commits the Jetport to being *an environmentally conscious gateway* that supports and balances aviation activities and *the environmental preservation of the surrounding environs*.

"The Portland International Jetport commits to be a premier New England Airport. We will provide a convenient, safe, and *environmentally conscious gateway* that exceeds our travelers' expectations while reflecting the essence of the Maine experience."

"Making sustainability a part of the core objective of the planning process promotes design, project implementation, and financial decisions that identify ways to reduce energy consumption, environmental impacts, and the Jetport's carbon footprint. By incorporating sustainability issues into the master planning process, the airport can become a more environmentally friendly business place and neighbor. *The plan will benefit all residents of the area by providing a single comprehensive plan which supports and balances aviation activities and the environmental preservation of the surrounding environs.*"

The proposed new Jetport parking construction does not adhere to these principles.

PWM Parking: Executive Summary

Expanded off-site parking will solve current parking problems, and it will provide additional low-cost options for those who prefer it to on-site parking. Parking is never a problem in the summer, when the Jetport is busiest. Data shows that on-site parking fills up only on a few dates (mostly spring break). Off-site parking is also underutilized much of the year, but it fills up more often, even when on-site spots are available. That's probably because many prefer the less-expensive off-site option. And that means that expanded on-site parking will also sit empty most of the year, even when there's unmet demand for off-site parking. Therefore, the preferred solution is to expand off-site parking as proposed in a letter from the Jetport to the City Manager in 2019, but never implemented.

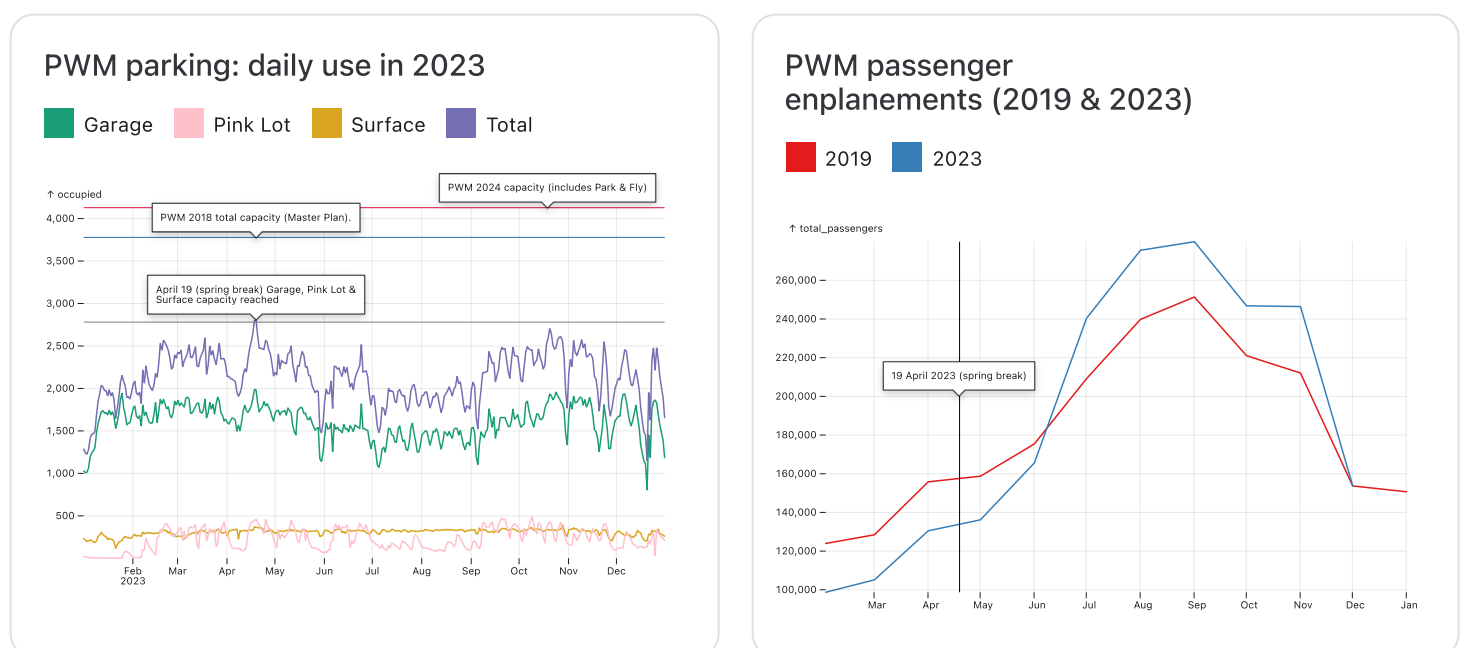
The data shows...

- The Jetport is busiest in the summer.
- Jetport parking NEVER fills in the summer.
- On-site Jetport parking is NOT related to total enplanements.
- On-site parking fills only on isolated days of the year (mostly spring break).
- Off-site parking (Pink Lot) fills even when on-site spaces are available.

Conclusion

Summah people don't use Jetport parking. And many of those who park at the Jetport prefer the cheaper off-site parking. That means that expanded on-site parking will sit empty most of the year, even when off-site parking fills up.

The Data...



Daily Parking: 2023

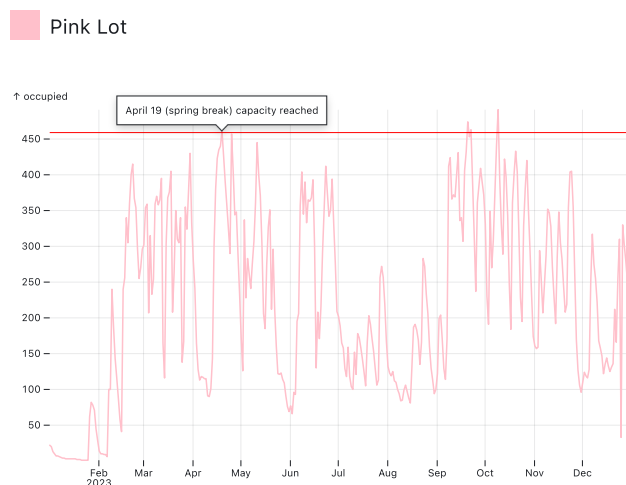
- Daily data plotted for Garage, Surface and Pink Lot only.
- Capacity reached on April 17 (spring break)
- Second busiest day: 20 October
- Garage, Surface & Pink Lot capacity: 2,784
- PWM 2018 total capacity: 3,778 (Master Plan)
- PWM 2024 total capacity: 4,128 (includes Park & Fly)
- City purchased on-site Park & Fly after the Master Plan was published.
- Park & Fly is used for overflow only and sits empty most of the year.
- Data sources: Jetport (excel file) & Master Plan

Total Passengers: 2019 & 2023

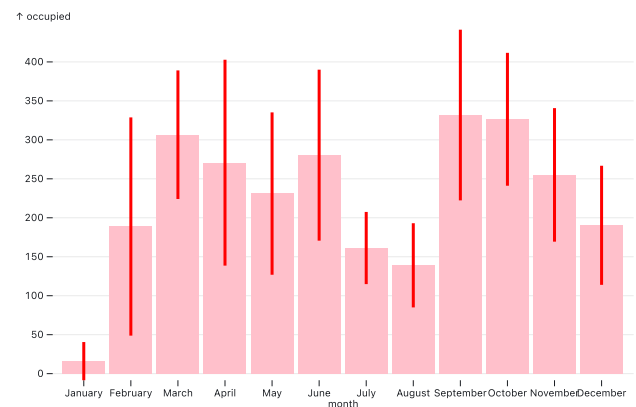
- Jetport is busiest in the summer (largest number of enplanements).
- Summer enplanements exceed pre-pandemic maximum.
- Winter enplanements in 2023 were lower than pre-pandemic.
- Peak parking is unrelated to number of enplanements.
- The spring-break parking crunch occurs when Jetport use is below average.
- Data source: www.portlandjetport.org

The Pink Lot...

Pink Lot daily use



Pink Lot summary statistics by month



The Pink Lot tells the story...

- Pink Lot (off-site) use, like on-site, is NOT related to total enplanements.
- Pink Lot is mostly empty in the summer, when the Jetport is busiest.
- The Pink Lot fills even when on-site lots have space (compare chart above).
- Conjecture: Summah people don't use the Pink Lot, but Mainers do!
- Conclusion: Expanded on-site parking will sit empty most of the year, even when the Pink Lot fills up.

Recommended parking solution...

- Expand Pink Lot or other off-site parking.
- This was proposed in Paul Bradbury's 2019 Letter to the City Manager.
- The 2019 Letter was quoted heavily at the April 2024 public meeting.



Stroudwater Neighborhood Association

PO Box 8672

Portland, Maine 04104

www.stroudwaterassociation.org

April 29, 2024

2024-2025 Trustees

*Michael Archibald
Stroudwater St.*

*Christie Constantine
Roundabout Ln.*

*Diane DiConzo
Penrith Rd.*

*Fred Faller
Westbrook St.*

*Dick Farnsworth
Old Mast Rd.*

*Stephanie Grohs
Old Mast Rd.*

*Woody Howard
28 Roundabout Ln.*

*Kim Keaney
Roundabout Ln.*

*Deborah Napier
Cobb St.*

*Vicky Poole
Kingsmark Ln.*

*David Roberts
Trailhead Way*

*Roy St. Clair
Stroudwater Rd.*

*Carter Waldren
Garrison St.*

*Anne Marie Wilberg
Tide Mill Rd.*

*Charlotte Witt
Garrison St.*

Dear Members of the Portland City Council and the Portland Planning Board:

I'm writing on behalf of the Stroudwater Neighborhood Association (SNA) to express our significant concerns regarding the Portland Jetport's plans to remove trees from a 6.5-acre parcel of land for the purpose of creating paved surface parking. We recognize the Jetport's role as a key enabler of a healthy economy, and we want to see it thrive. We are not opposed to the creation of additional parking spaces to meet current and projected needs. However, we believe that the Jetport can meet its needs while avoiding unnecessary environmental harm.

The SNA respectfully submits two short primers, enclosed.

The first concerns analysis of Jetport parking data which shows that the proposed destruction of woods and wetlands is totally unnecessary. Data shows that real short-term need is for off-site parking, not on-site parking. The relatively inexpensive off-site Pink Lot regularly fills up before the on-site lots. SNA has identified several options for expansion of off-site parking that would accommodate the current need. And those options would provide plenty of opportunity for expansion of the garage, as proposed in the master plan, in a fashion consistent with the City's sustainability goals.

The second demonstrates how the Jetport's proposal is at odds with Portland's Sustainability Masterplan written and adopted in 2018 and the Vision 2030 document. Both documents suggest that environmental concerns must inform any future developments in the City. The Masterplan says that if parking needs to grow, the existing garage should be expanded first with the possibility of paved lots to be considered later. This is a sensible "up" not "out" idea. The Portland Plan 2030 speaks very specifically about making environmental concerns and livability for residents of Portland of primary concern when considering development.

We respectfully request that this process be slowed down to allow for the appropriate level of diligence and scrutiny of the data, and to ensure appropriate public involvement by Portland taxpayers. To assure that Jetport customers have what they need in the short term, we suggest implementation of one or more of the following:

- 1) Take advantage of the written offer from the City of South Portland to help fund Long Term Parking at the nearby malls.
- 2) Implement dynamic pricing to regulate parking demand at different seasons.
- 3) Invest in state-of-the-art signage for all parking facilities so that customers will have up to the minute, accurate information as to where parking is available.
- 4) Relocate rental car agencies to areas to be served by shuttle buses rather than ceding them prime space in the parking garage.

- 5) Restart the process of parking garage expansion, as outlined in the Master Plan, now rather than waiting five years to do so.

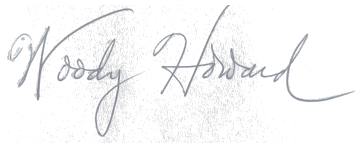
At the core, this matter is a question of asking the City of Portland to respect and engage with the Masterplan and the Vision 2030 that they themselves helped create. If decision makers look the other way concerning this, what's next? Viable alternatives exist, that will not require cutting trees and filling in wetlands. On that note, the SNA disagrees profoundly with the Jetport's consultants concerning the existence of wetland and vernal pools on the area they propose to pave. The Department of Environmental Protection has yet to make a final assessment concerning this, but we have documented a vital population of living creatures occupying these acres.

This is also a most appropriate issue to provoke a greater discussion about increased Public Transportation in this entire region that would include more convenient access to the Jetport and reduce the number of private automobiles going there that need parking.

While problems with sound pollution from the Jet traffic are of concern to the SNA that will remain on our agenda for future discussions with the Jetport and the FAA.

We challenge City leaders to prioritize their long term sustainability goals and climate resilience over short-term thinking that needlessly damages the environment and will detract from the Jetport's charm and character. Please do not abandon years of planning for a sustainable future.

Sincerely,

A handwritten signature in blue ink that reads "Woody Howard". The signature is fluid and cursive, with the first name "Woody" and last name "Howard" clearly distinguishable.

Woody Howard

President, SNA Board of Trustees

Stroudwater Neighborhood Association

<stroudwaterassociation@gma...

2:12 PM (8 minutes

ago)



to publiccomment@portlandmaine.gov, planning@portlandmaine.gov

To the Portland City Council and Portland Planning Board:

Please find attached a letter with related two enclosures, from the Board of Trustees of the Stroudwater Neighborhood Association, concerning the Portland Jetport's parking expansion plans.

Thank you for your attention to this matter. We welcome the opportunity for further dialogue with you.

Sincerely,
SNA Board of Trustees



Zachary Powell <zpowell@portlandmaine.gov>

Comment on "Major Site Plan; 1001 Westbrook Street (Jetport Parking Expansion)"

Zachary Powell <zpowell@portlandmaine.gov>
To: Zachary Powell <zpowell@portlandmaine.gov>

Fri, May 10, 2024 at 9:52 AM

From: Loretta Edes <Unknown>
Date: Thursday, May 9, 2024 at 8:43:16 PM UTC-4
Subject: Comment on "Major Site Plan; [1001 Westbrook Street](#) (Jetport Parking Expansion)"
To: [planni...@portlandmaine.gov](#) <Unknown>

My name and legal address are:

Loretta Edes
[127 fenway St, Portland, ME 04102](#)

My comment:

I am concerned the Jetport has not fully researched viable alternatives to removing wetlands in order to solve a parking problem. Please do not allow the Jetport to destroy wetlands without fully exploring alternatives. Furthermore, the parking garage expansion project will eventually solve issues of not enough parking, so destroying wetlands to temporarily solve a problem that will be solved later is wasteful.

While I can appreciate that the Jetport must provide high levels of customer service (like providing easy parking) to keep fliers using the Jetport, I am confident that other solutions like subsidizing remote parking at the Maine mall would tackle parking overflow needs without materially decreasing flier volumes.

Thank y

Sent from a mobile device



Zachary Powell <zpowell@portlandmaine.gov>

Fwd: Comments RE "Major Site Plan; 1001 Westbrook Street (Jetport Parking Expansion)"

Zachary Powell <zpowell@portlandmaine.gov>
To: Zachary Powell <zpowell@portlandmaine.gov>

Fri, May 10, 2024 at 9:53 AM

From: Helen Silverstein <Unknown>
Date: Friday, May 10, 2024 at 9:02:06 AM UTC-4
Subject: Comments RE "Major Site Plan; [1001 Westbrook Street](#) (Jetport Parking Expansion)"
To: [planni...@portlandmaine.gov](#) <Unknown>

Dear Planning Board,

Thank you so much for taking comments from city residents. My name is Helen Silverstein and my address is [55 Trailhead Way, Portland ME 04102](#). I live with my husband, Marc Silverstein. We have two children and two grandchildren that live just a few minutes away from us, and that is why I am writing you. We are very concerned about protecting the environment for the next generation.

Like most Portlanders, we really appreciate the Jetport and love our proximity to it. Our concern regarding the new parking plans is the potential destruction of wetlands and other environmental issues. Our preference would be an expansion of off site parking.

We really like using the Pink Lot and we wonder if there would be a way to increase less expensive parking like that. It seems that would have less of an environmental impact and also would help keep cost down for parking at a time when many families are needing to watch their budget carefully. Also, in looking at the data, it does seem that off site, less expensive parking is the most in demand.

We hope you will consider halting the on site parking plans and will instead opt for increasing off site parking. This is a more environmentally friendly option that meets the needs of maine families. Every decision counts in our fight to preserve our beautiful city and state as global warming bears down on us.
Thank you so very much for listening.

Many thanks,

Helen Silverstein
Sent from my iPhone

PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION

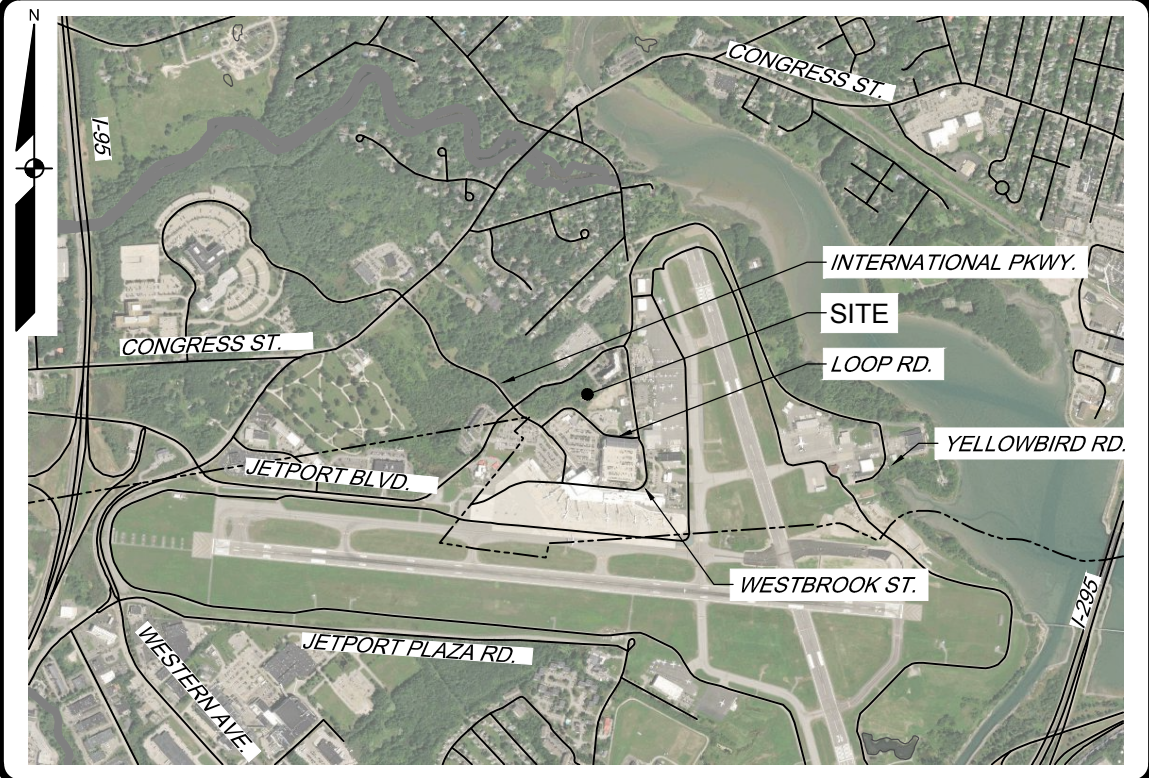
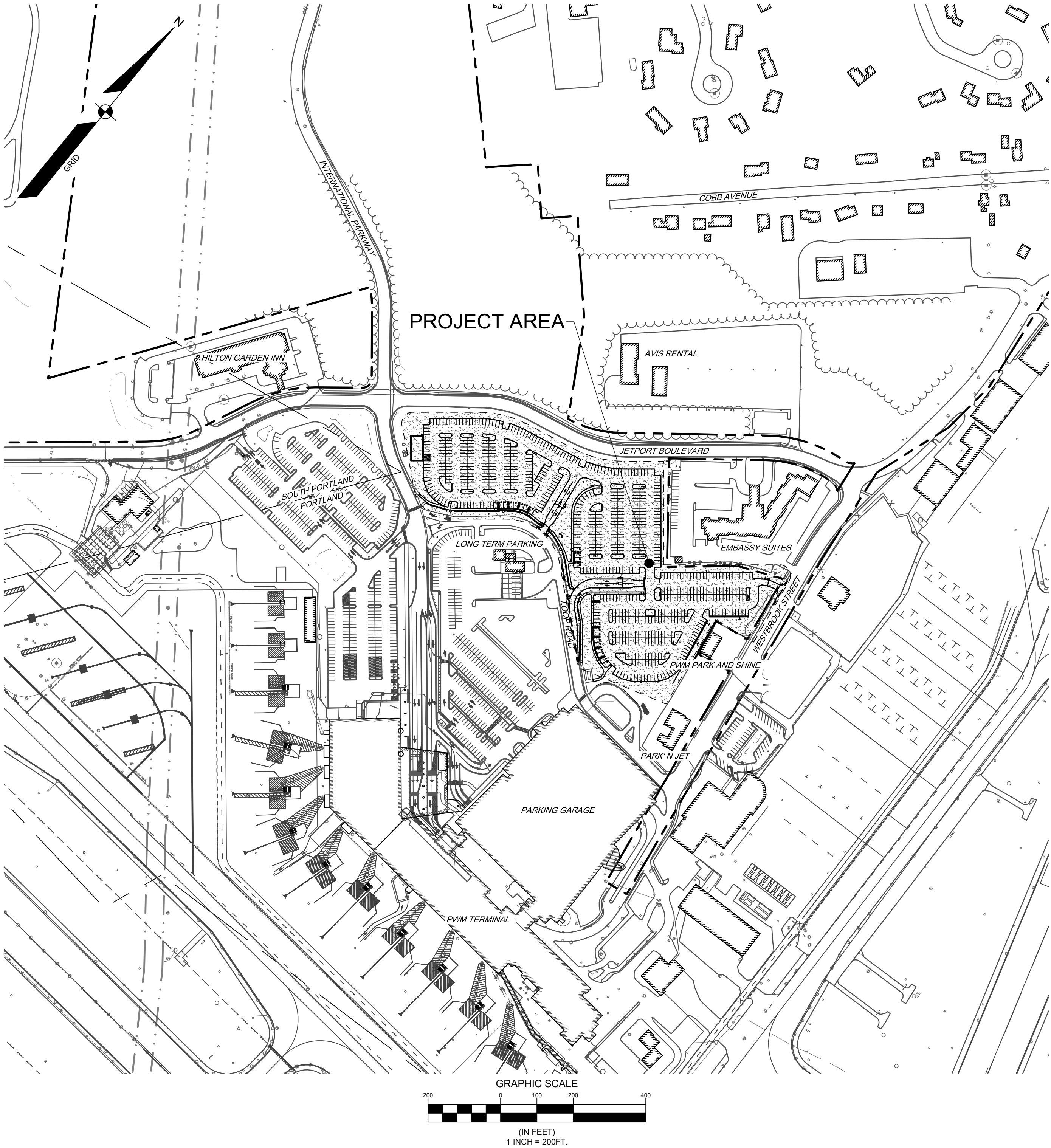
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

APPLICANT:



PORTLAND INTERNATIONAL JETPORT
PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

ENGINEER/SURVEYOR/
LANDSCAPE ARCHITECT:



LOCATION MAP NTS

Sheet List Table

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G-002	NOTES & LEGEND
C-003	DEMOLITION PLAN
C-100	OVERALL SITE PLAN
C-101	SITE PLAN
C-102	SITE PLAN
C-103	SITE PLAN
C-200	OVERALL GRADING PLAN
C-201	GRADING PLAN
C-202	GRADING PLAN
C-203	GRADING PLAN
C-300	OVERALL UTILITY PLAN
C-301	UTILITY PLAN
C-302	UTILITY PLAN
C-303	UTILITY PLAN
C-304	PIPE AND STRUCTURE DATA TABLES
L-100	OVERALL LANDSCAPE PLAN
L-101	TREE REMOVAL & PRESERVATION PLAN
L-102	LANDSCAPE PLAN
L-103	LANDSCAPE PLAN
L-104	LANDSCAPE PLAN
C-400	CONSTRUCTION SEQUENCE PLAN
C-500	EROSION CONTROL NOTES
C-501	EROSION CONTROL DETAILS
C-502	SITE DETAILS
C-503	SITE DETAILS
C-504	SITE DETAILS
C-505	SITE DETAILS
C-506	SITE DETAILS
C-507	SITE DETAILS
1 OF 5	BOUNDARY SURVEY
2 OF 5	BOUNDARY SURVEY
3 OF 5	BOUNDARY SURVEY
4 OF 5	BOUNDARY SURVEY
5 OF 5	BOUNDARY SURVEY
1 OF 1	SITE PHOTOMETRICS PLAN

ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT	
REV. / BY:	DATE:
STATUS:	
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.	

SEBAGO
TECHNICS
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100
WWW.SEAGOTECHNICS.COM

COVER SHEET

OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 200'
PROJECT	19059

SHEET G-001

EXISTING	PROPOSED

1. BOOK AND PAGE CITATIONS SHOWN HEREON REFER TO THE CUMBERLAND COUNTY REGISTRY OF DEEDS.
2. NO MONUMENTS WERE SET AS OF THE DATE OF THIS PLAN.
3. A WRITTEN REPORT OF FINDINGS AND OPINIONS AS REQUIRED BY SECTION 10-A.3.D OF THE TECHNICAL STANDARDS OF PRACTICE OF THE STATE OF MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS WAS NOT PREPARED.
4. THE PURPOSE OF THIS SURVEY WAS TO DEFINE THE PERIMETER BOUNDARY OF THE PORTLAND INTERNATIONAL JETPORT PARCEL AND ACCESSORY PARCELS IN THE VICINITY OF THE JETPORT. INTERIOR PARCEL BOUNDARIES WERE NOT RESEARCHED OR DEFINED EXCEPT WHERE REQUIRED TO DEFINE THE PERIMETER BOUNDARY. EASEMENTS DEPICTED ON THIS PLAN WERE NOT COMPLETELY RESEARCHED OR LOCATED IN THE FIELD BUT SHOW THEIR GENERAL LOCATION RELATIVE TO THE PERIMETER BOUNDARY.
5. CURRENT OWNER:

CITY OF PORTLAND
389 CONGRESS ST.
PORTLAND, MAINE 04101
6. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.
7. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

1. PROTECT EXISTING BOUNDARY LINE MONUMENTATION, IF DISTURBED. EXISTING MONUMENTATION TO BE RESET BY A PROFESSIONAL LAND SURVEYOR.
2. DEMOLITION OF UTILITIES REQUIRING TREE REMOVAL SHALL BE COORDINATED WITH THE OWNER AND IN ACCORDANCE WITH PROJECT PLANS.
3. UTILITY DEMOLITION SHALL BE COMPLETED IN COORDINATION WITH NEW INFRASTRUCTURE. CONTRACTOR SHALL ENSURE EXISTING SURFACE DRAINAGE IS MAINTAINED DURING CONSTRUCTION.
4. EXISTING SEWER AND STORM DRAINAGE INFRASTRUCTURE TO REMAIN ACTIVE DURING CONSTRUCTION AND UPON COMPLETION OF PROJECT. DEMOLITION/CONSTRUCTION ACTIVITIES SHALL NOT INTERFERE OR IMPEDE EXISTING FLOWS. CONTRACTOR SHALL PROVIDE BYPASS PIPING AS REQUIRED DURING SEWER AND STORM DEMOLITION AND NEW CONSTRUCTION. DAMAGE TO EXISTING SEWER INFRASTRUCTURE SHALL BE REPAIRED BY CONTRACTOR AT THEIR EXPENSE.
5. DEMOLITION SHOWN IS FOR MAJOR SITE ELEMENTS TO BE DEMOLISHED. OTHER MINOR DEMOLITION MAY BE REQUIRED AS PART OF CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION. COORDINATE ALL DEMOLITION WORK WITH SITE AND BUILDING DRAINAGES.
6. PRIOR TO ANY DEMOLITION, THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF DEMOLITION PLANS TO THE OWNER. THIS PLAN SHALL SHOW LOCATIONS OF PROPOSED TERMINATIONS AND ANY TEMPORARY SERVICES THAT WILL BE NEEDED.
7. CONTRACTOR REQUIRED TO CONFIRM/MAINTAIN BENCHMARKS. IF IMPACTED CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION/RELOCATION AND COORDINATION WITH PROJECT TEAM.

1. SIDESLOPES SHALL NOT BE STEEPER THAN 3:1 (H:V) EXCEPT AS OTHERWISE IDENTIFIED ON THIS PLAN. ALL SIDESLOPES STEEPER THAN 3:1 (H: V) SHALL BE LINED WITH EROSION CONTROL, BLANKET, OR ADDITIONAL MEASURES AS INDICATED.
2. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL BMPs" MANUAL PUBLISHED BY BUREAU OF LAND AND WATER QUALITY, DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.
3. ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE LOAM AND SEED PER DETAIL.
4. SEE UTILITY DRAWINGS FOR PIPE AND STRUCTURE DATA TABLES.

1. PROVIDE EROSION CONTROL MEASURES PRIOR TO SITE DISTURBANCE.
2. WETLANDS, ASSOCIATED SETBACKS AND STREAM SETBACKS TO BE STAKED BY OWNER PRIOR TO SITE DISTURBANCE.
3. GRADING AND CLEARING LIMITS SHALL NOT ENCHRON ON ADJACENT PROPERTIES UNLESS NOTED OTHERWISE ON THE PLANS.
4. OPEN AREAS SHALL BE LIMITED TO AREAS BEING WORKED IN. THE AREA STRIPPED OF EXISTING VEGETATION AT ANY GIVEN TIME SHALL BE MINIMIZED AND BE PHASED WHERE PRACTICAL SO THAT AREAS ARE REVEGETATED AND PERMANENTLY STABILIZED BEFORE ADDITIONAL AREAS ARE STRIPPED. EXISTING VEGETATION SHALL BE STABILIZED CONSTRUCTION AREAS BY USE OF RIPRAP, SEED, MULCH, OR OTHER GROUND COVER WITHIN ONE WEEK FROM THE TIME IT WAS ACTIVELY WORKED. STABILIZED PLANTING SHALL BE PERFORMED BY THE FORMERLY OWNED OR FORMERLY OWNED STORMWATER BMPS, PLEASE REFER TO DRAINAGE PLANS FOR WATERSHED AREAS.

1. PLANT QUANTITIES SHOWN ON PLANT LISTS ARE FOR CONVENIENCE TO THE CONTRACTOR ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL PLANT MATERIAL INSTALLATION AS SHOWN ON PLANS.
2. SIZE AND GRADING STANDARDS OF PLANT MATERIALS SHALL CONFORM TO THE LATEST EDITION OF "U.S.A. STANDARD FOR NURSERY STOCK," BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
3. ALL PLANT MATERIAL SHALL BE FREE FROM INSECTS AND DISEASE.
4. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING, STAKING OR GUYNING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE BY THE OWNER.
5. PLANT MATERIAL SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR BY THE CONTRACTOR AND A PERIOD OF TWO YEARS THEREAFTER BY THE OWNER FROM DATE OF INSTALLATION. DURING THE ONE YEAR GUARANTEE PERIOD, DEAD PLANT MATERIAL SHALL BE REPLACED AT NO COST TO THE OWNER. AT THE END OF THE ONE YEAR PERIOD, THE CONTRACTOR SHALL OBTAIN FINAL ACCEPTANCE FROM THE OWNER.
6. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
7. EXISTING TREES TO BE PRESERVED WILL BE PROTECTED DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
8. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF THE UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DURING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER.
9. ALL SHRUB BEDS SHALL BE MULCHED WITH 3" CLEAN SHREDDED DARK BROWN BARK MULCH.

1. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION. PROTECT EXISTING ON-SITE SEWER PIPE AND ADJUST MANHOLE RIMS TO GRADE WHERE APPLICABLE.
2. ALL GRAVITY CONDUIT PIPES SHALL BE INSTALLED USING A PIPE LASER AND TARGET SYSTEM TO MAINTAIN MINIMUM 5'-6" OF COVER ABOVE TOP OF WATER SERVICE PIPE.
3. MAINTAIN MINIMUM 5'-6" OF COVER ABOVE TOP OF WATER SERVICE PIPE.
4. MAINTAIN MINIMUM 10 FEET HORIZONTAL SEPARATION BETWEEN WATER SERVICES AND OTHER UTILITIES. MAINTAIN MINIMUM 18 INCHES VERTICAL SEPARATION BETWEEN WATER SERVICES AND OTHER UTILITIES.
5. LOWER OR RAISE WATER SERVICES AS REQUIRED TO MAINTAIN MINIMUM 12 INCH VERTICAL SEPARATION FROM OTHER UTILITIES. WATER SERVICES CROSSING SEWERS SHALL MAINTAIN 12 INCH MINIMUM SEPARATION BETWEEN THE BOTTOM OF WATER LINE AND TOP OF SEWER UNLESS NOTED OTHERWISE ON THE PLANS.
6. PIPE:
 - SEWER PIPE SHALL BE ADS 35 PVC OR APPROVED EQUAL.
 - STORMDRAIN SHALL BE SDR 12 DUAL WALL HDPE PIPE WITH SMOOTH-WALLED INTERIOR OR SPRIGGED EQUAL, UNLESS NOTED OTHERWISE ON THE UTILITY PLANS.
 - WATER PIPE AND FITTINGS SHALL CONFORM TO THE DISTRICT HAVING JURISDICTIONS' SPECIFICATIONS. MAIN WATER SERVICE PIPE SHALL BE DUCTILE IRON, CLASS 52 PUSH-ON PIPE MEETING THE REQUIREMENTS OF AWWA/C900 C11-A12.11 (LATEST REVISION). PIPE SHALL BE 12" UNLESS OTHERWISE SPECIFIED. ALL WATER SERVICE PIPES SHALL BE 12" UNLESS OTHERWISE SPECIFIED. PIPE THICKNESS SPECIFIED, AND COATED TWICE WITH A BITUMINOUS SEAL COATING. PROVIDE THRUST BLOCKS AT ALL WATER SERVICE BENDS.
7. COORDINATE ALL UTILITY LOCATIONS AND INVERTS AT BUILDING TO GRADE WITH ARCHITECTURAL, STRUCTURAL AND PLUMBING DRAWINGS.
8. WATER SERVICE ENTRANCE DESIGNS TO INCLUDE METERS AND BACKFLOW PREVENTERS TO MEET ALL STANDARDS AND REQUIREMENTS OF THE DISTRICT HAVING JURISDICTION.
9. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY GRADE CHANGES THAT WILL IMPACT STORM DRAINAGE INFRASTRUCTURE OR OTHER UTILITIES.
10. UTILITIES WITHIN 5 FEET FROM FACE OF BUILDING ARE COORDINATED ON RELEVANT M.E.P. DRAWINGS. CONTRACTOR SHALL COORDINATE INVERTS, CONNECTIONS AND MATERIALS WITH ALL DRAWINGS.
11. CONTRACTOR SHALL FURNISH AND INSTALL TRENCHING, MATERIALS AND BACKFILL FOR ALL UTILITIES. ELECTRICAL AND TELECOM/DATA PROVIDERS WILL PULL PRIMARY SERVICE TO TRANSFORMER AND PANEL. CONTRACTOR RESPONSIBLE FOR TIMING AND COORDINATION WITH UTILITIES AND DRAWINGS. COORDINATE WITH ELECTRICAL DRAWINGS FOR CONDUIT SCHEDULE, TYPE AND SIZES.
12. COORDINATE ALL WATER RELATED WORK WITH DISTRICT HAVING JURISDICTION.
13. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT OF COURSE GUARANTEED OR WARRANTED. IF THE CONTRACTOR SHALL CONTACT DIG SAFE (811) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
14. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES. CONTRACTOR AND NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.
15. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSa 3500-A. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A CONFLICT DOES OCCUR, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

AC	ACRE
AFG	ABOVE FINISH GRADE
APPROX.	APPROXIMATELY
CB	BOTTOM OF CURB
RCC	BITUMINOUS CONCRETE CURB
BIT	BITUMINOUS
BLDG	BUILDING
BW	BOTTOM OF WALL
CB	CATCH BASIN
CONC	CONCRETE
CONT	CONTINUOUS
DI	DUCTILE IRON
DIA	DIAMETER
DWH	DRAIN MANHOLE
EMW	EACH WAY
ELEV	ELEVATION
FFE	FINISH FLOOR ELEVATION
FIN. GR.	FINISH GRADE
FTG	FOOTING
HDPE	HIGH DENSITY POLYETHYLENE
HGT	HEIGHT
HMA	HOT MIX ASPHALT
INV	INVERT
LF	LINEAR FEET
ON	ON CENTER
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
	RADIUS
R.O.W.	RIGHT OF WAY
S.F.	SQUARE FEET
SCS	SCHEDULE
SCSC	SILIFFORM CONCRETE SLOPED CURB
SCVC	SILIFFORM CONCRETE VERTICAL CURB
SD	STORM DRAIN
SG	SLOPED GRANITE CURB
SMH	SEWER MANHOLE SPECS SPECIFICATIONS
SMG	SALVAGED SLOPED GRANITE CURB
SWG	SALVAGED VERTICAL GRANITE CURB
TC	TOP OF CURB
TG	TOP OF WALL
TYP	TYPICAL
VGC	VERTICAL GRANITE CURB
VF	VERIFY IN FIELD

NOTES & LEGEND

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1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	N/A
PROJECT	19059

SHEET G-002

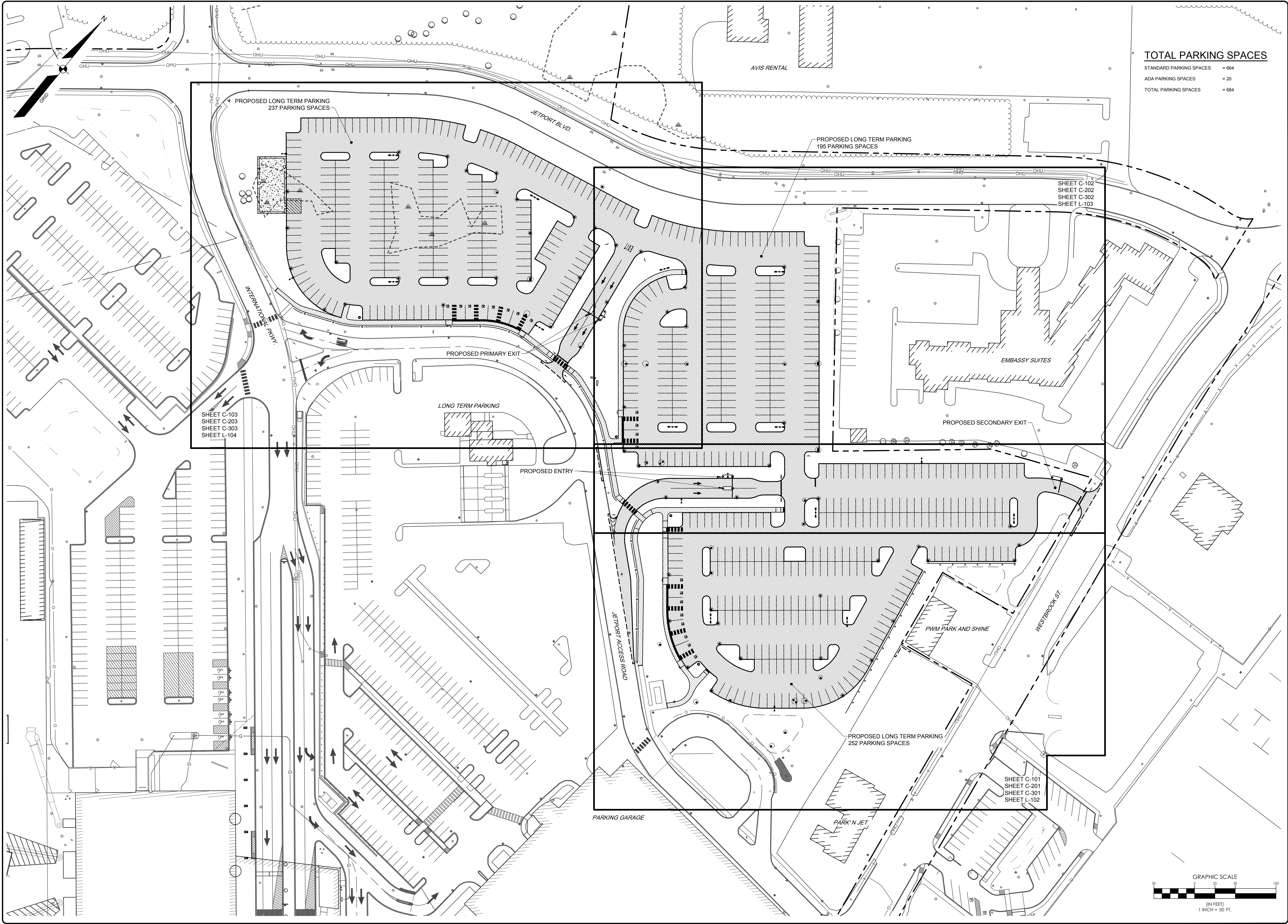
	PDO	03/18/2024	ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A	PDO	02/29/2024	ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION
REV:	BY:	DATE:	STATUS:

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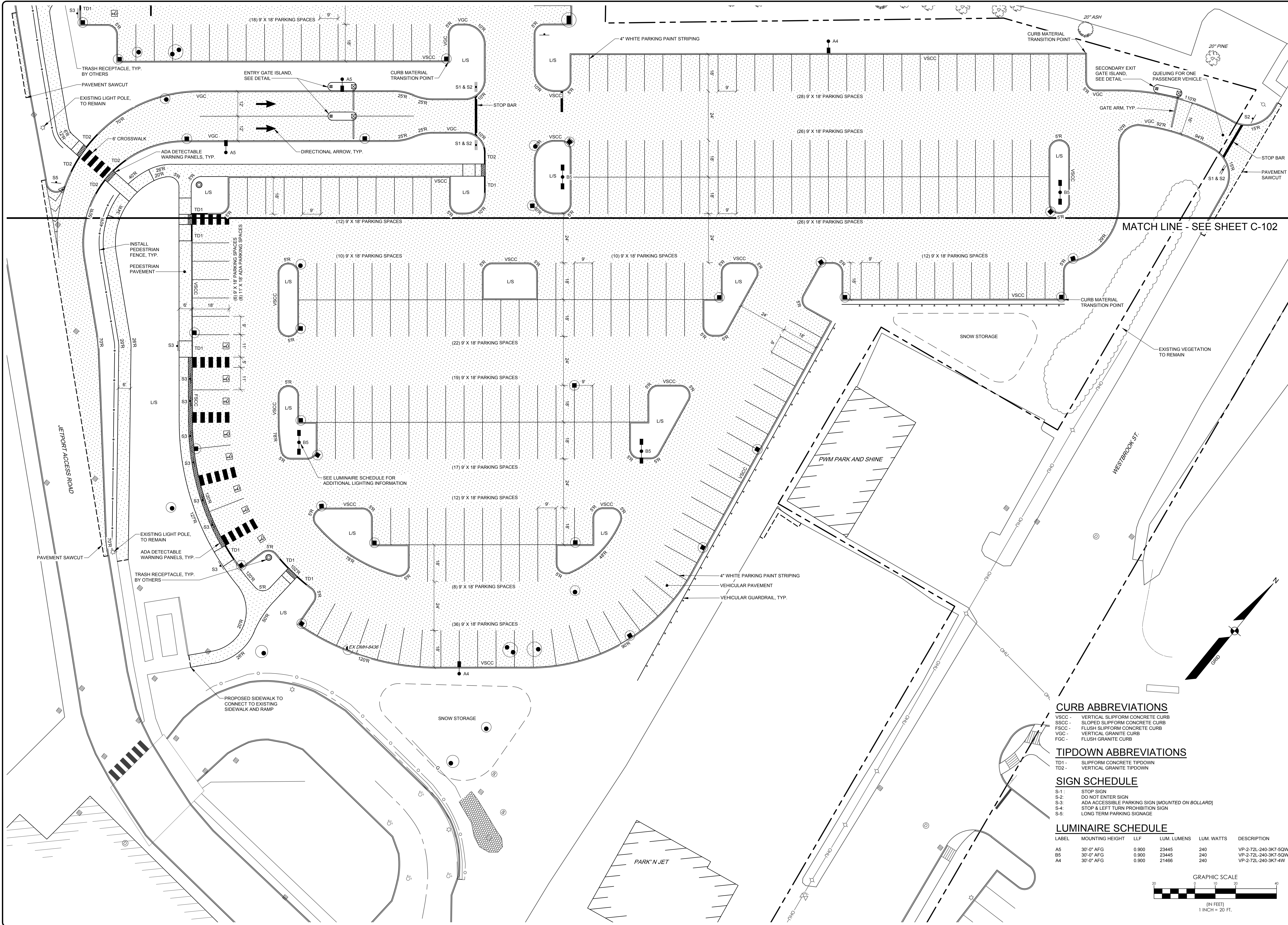
SEBAGO
T E C H N I C S
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

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CURB ABBREVIATIONS

VSCC - VERTICAL SLIPFORM CONCRETE CURB
SSCC - SLOPED SLIPFORM CONCRETE CURB
FSCC - FLUSH SLIPFORM CONCRETE CURB
VGC - VERTICAL GRANITE CURB
FGC - FLUSH GRANITE CURB

TIPDOWN ABBREVIATIONS

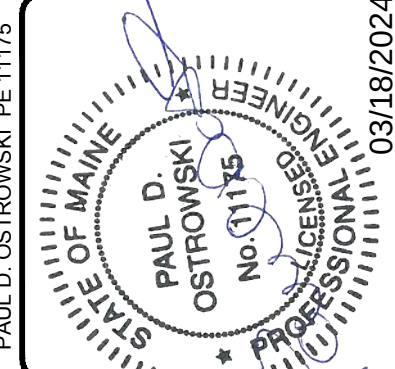
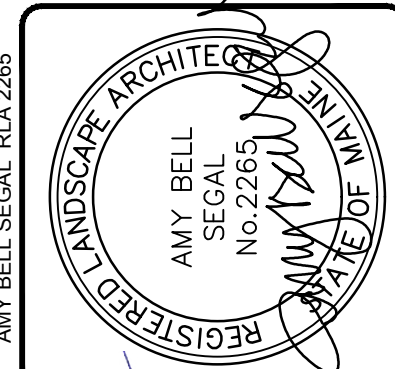
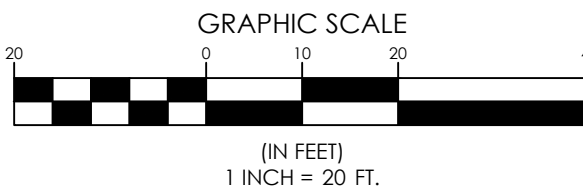
TD1 - SLIPFORM CONCRETE TIPDOWN
TD2 - VERTICAL GRANITE TIPDOWN

SIGN SCHEDULE

S-1 - STOP SIGN
S-2 - DO NOT ENTER SIGN
S-3 - ADA ACCESSIBLE PARKING SIGN (MOUNTED ON BOLLARD)
S-4 - STOP & LEFT TURN PROHIBITION SIGN
S-5 - LONG TERM PARKING SIGNAGE

LUMINAIRE SCHEDULE

LABEL	MOUNTING HEIGHT	LLF	LUM. LUMENS	LUM. WATTS	DESCRIPTION
A5	30'-0" AFG	0.900	23445	240	VP-2-72L-240-3K7-50W
B5	30'-0" AFG	0.900	23445	240	VP-2-72L-240-3K7-50W
A4	30'-0" AFG	0.900	21466	240	VP-2-72L-240-3K7-4W



REV.	BY	DATE	STATUS
B	PDO	03/18/2024	ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A	PDO	02/29/2024	ISSUE TO MDP FOR SLODA / NRPA PERMIT APPLICATION

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SITE PLAN

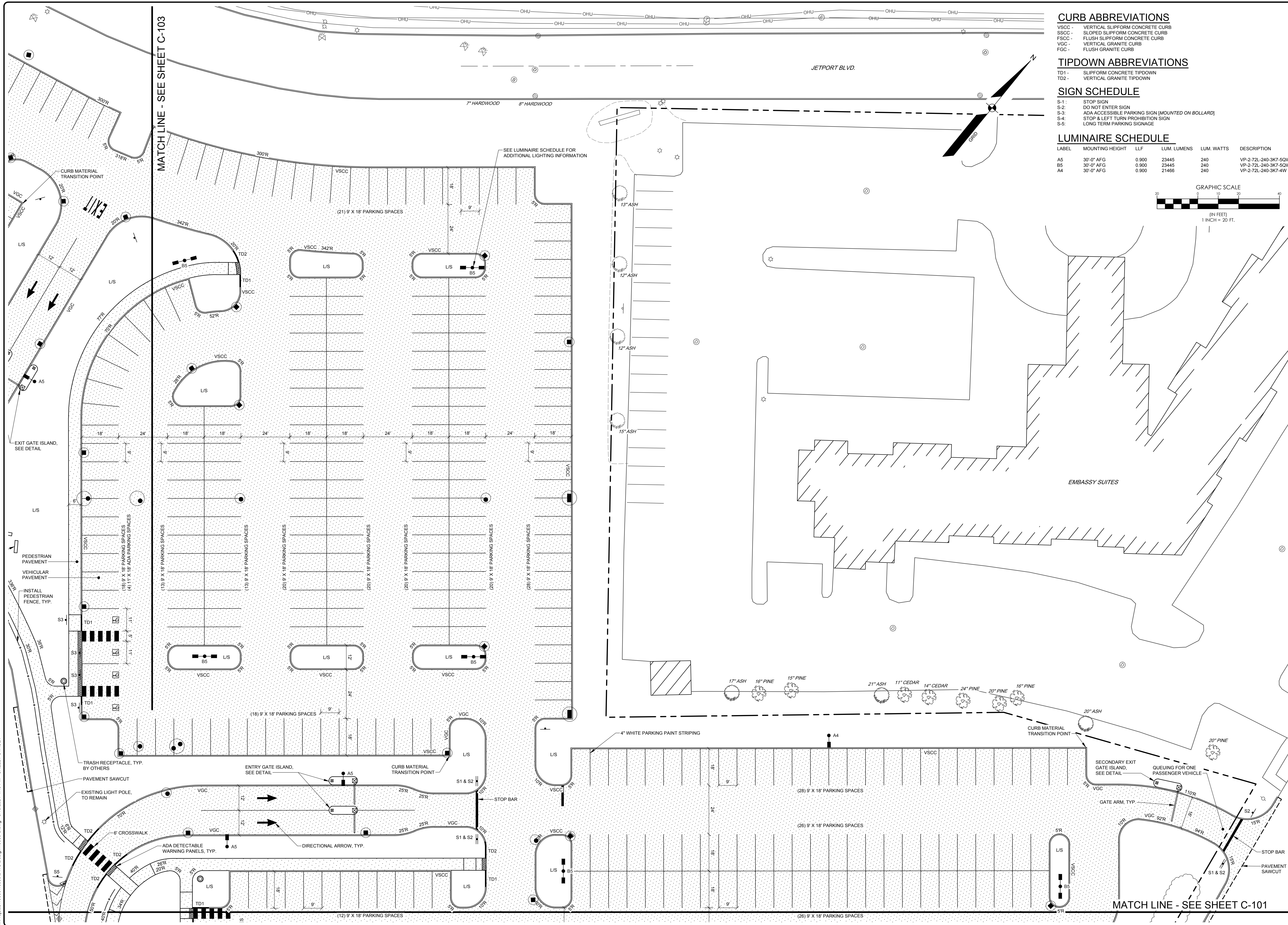
OF: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 20'
PROJECT	19059

SHEET C-101

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CURB ABBREVIATIONS

- VSCC - VERTICAL SLIPFORM CONCRETE CURB
- SSCC - SLOPED SLIPFORM CONCRETE CURB
- FSCC - FLUSH SLIPFORM CONCRETE CURB
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TIPDOWN ABBREVIATIONS

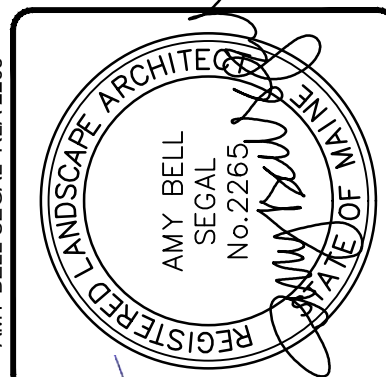
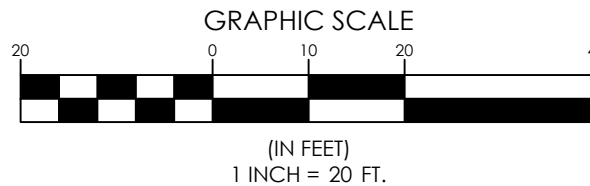
- TD1 - SLIPFORM CONCRETE TIPDOWN
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SIGN SCHEDULE

- S-1 - STOP SIGN
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- S-5 - LONG TERM PARKING SIGNAGE

LUMINAIRE SCHEDULE

LABEL	MOUNTING HEIGHT	LLF	LUM. LUMENS	LUM. WATTS	DESCRIPTION
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A4	30'-0" AFG	0.900	21466	240	VP-2-72L-240-3K7-4W



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SITE PLAN

OF: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 20'
PROJECT	19059

SHEET C-102

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CURB ABBREVIATIONS

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SSCC - SLOPED SLIPFORM CONCRETE CURB
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TIPDOWN ABBREVIATIONS

TD1 - SLIPFORM CONCRETE TIPDOWN
TD2 - VERTICAL GRANITE TIPDOWN

SIGN SCHEDULE

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LUMINAIRE SCHEDULE

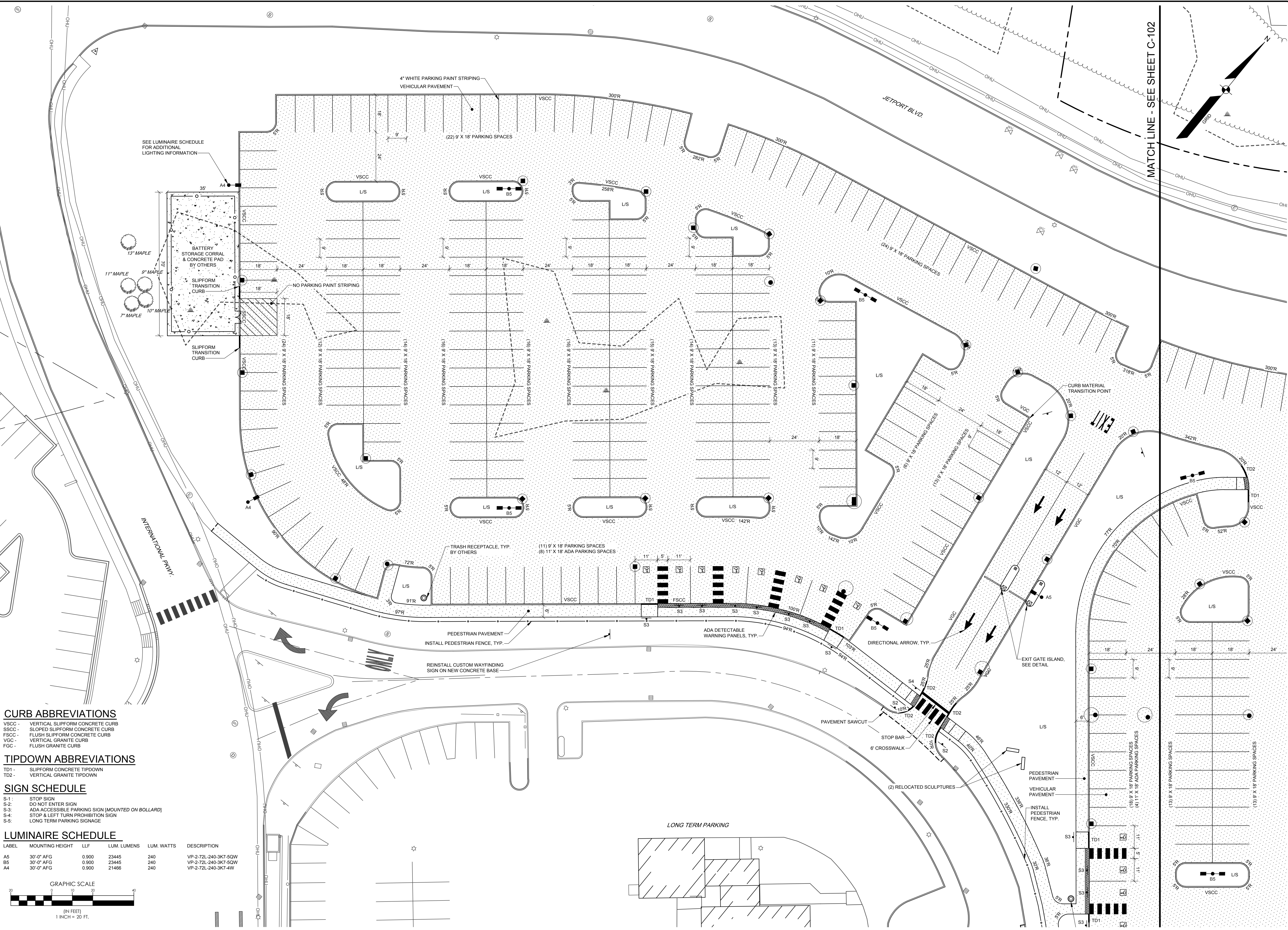
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A4	30'-0" AFG	0.900	21466	240	VP-2-72L-240-3K7-4W

GRAPHIC SCALE



(IN FEET)

1 INCH = 20 FT.



19059 S.dwg, TAB C-103 Site

SITE PLAN

OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

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DRAWN	EPR
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SHEET C-103

SEBAGO
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www.sebagotechnics.com
75 John Roberts Rd.
Sullivan, ME 04106
Tel. 207-200-2100

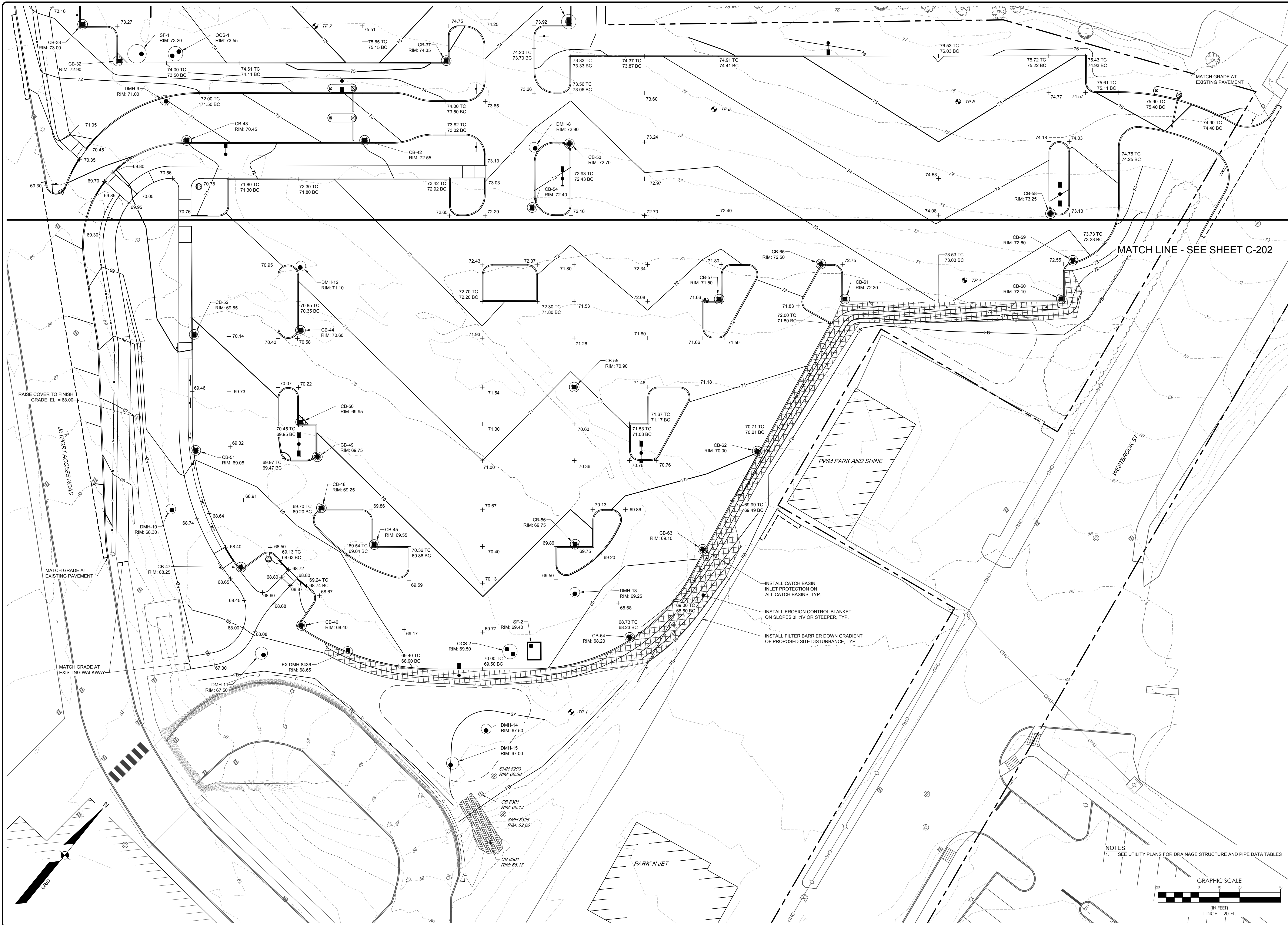
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STATE OF MAINE
REGISTERED PROFESSIONAL ENGINEER
PAUL D. OSTROWSKI
No. 11175
03/18/2024

LANDSCAPE ARCHITECT
REGISTERED
AMY BELL SEGAL
No. 2263
03/18/2024

PAUL D. OSTROWSKI PE 11175
AMY BELL SEGAL RLA 2263

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GRADING PLAN

OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED

TFG

DRAWN

EPR

CHECKED

PDO

DATE

02/29/2024

SCALE

1" = 20'

PROJECT

19059

SHEET C-201

PAUL D. OSTROWSKI

PE 11175

03/18/2024

PAUL D. OSTROWSKI

PE 11175

03/18/2024

ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT

ISSUED TO MDP FOR SLODA / NRPA PERMIT APPLICATION

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SEBAGO

TECHINCS

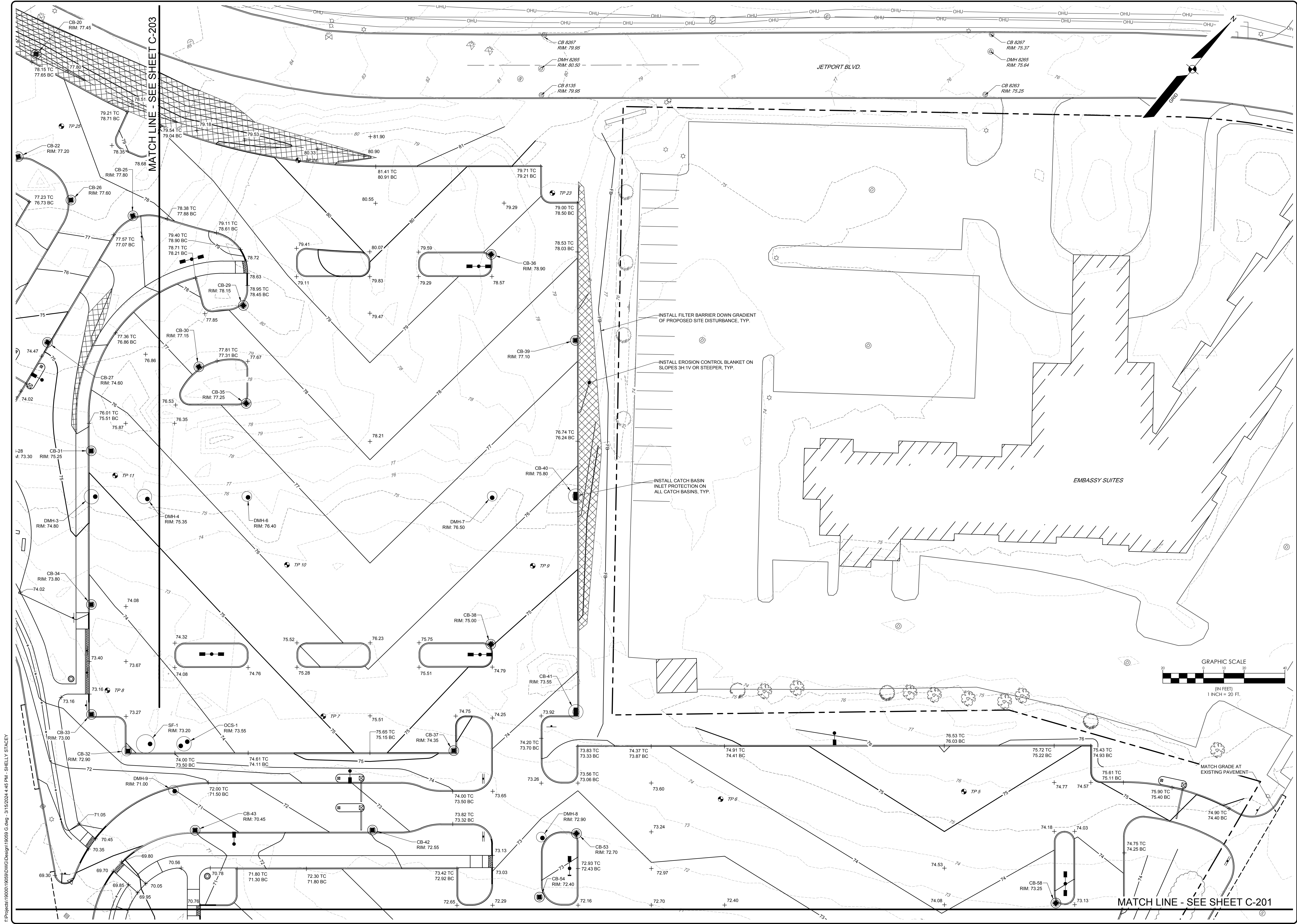
WWW.SEBAGOTECHINCS.COM

75 John Roberts Rd.

Suite 4A

South Portland, ME 04106

Tel. 207-260-2100



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19059_G.dwg, TAB: C-202 Grading

ANY BELL SEGAL R/LA 2285



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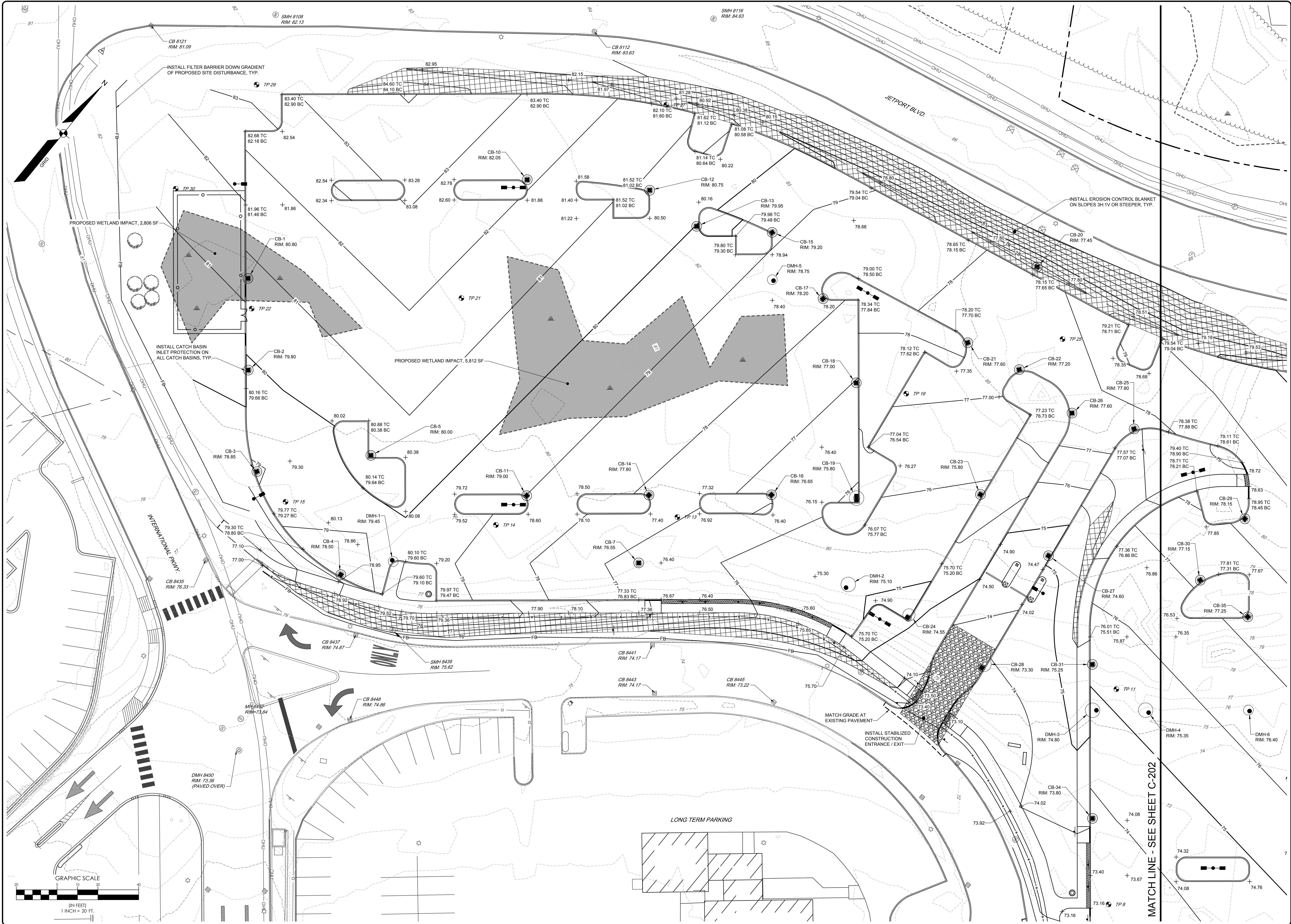
SEBAGO
T E C H N I Q S
www.sebagotechniqs.com
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

GRADING PLAN
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 20'
PROJECT	19059

SHEET C-202

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19059 G.dwg, TAB: C-203 Grading

GRADING PLAN

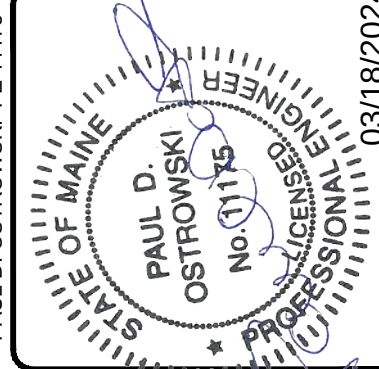
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
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CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
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DATE	02/29/2024
SCALE	1" = 20'
PROJECT	19059

SHEET C-203

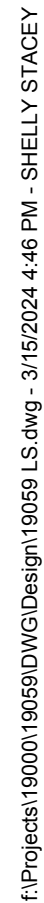
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75 John Roberts Rd.
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Tel. 207-200-2100

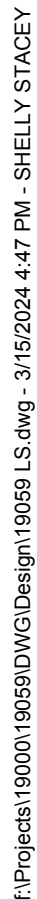
B	PDO	03/18/2024	ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A	PDO	02/29/2024	ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION
REV	BY	DATE	STATUS
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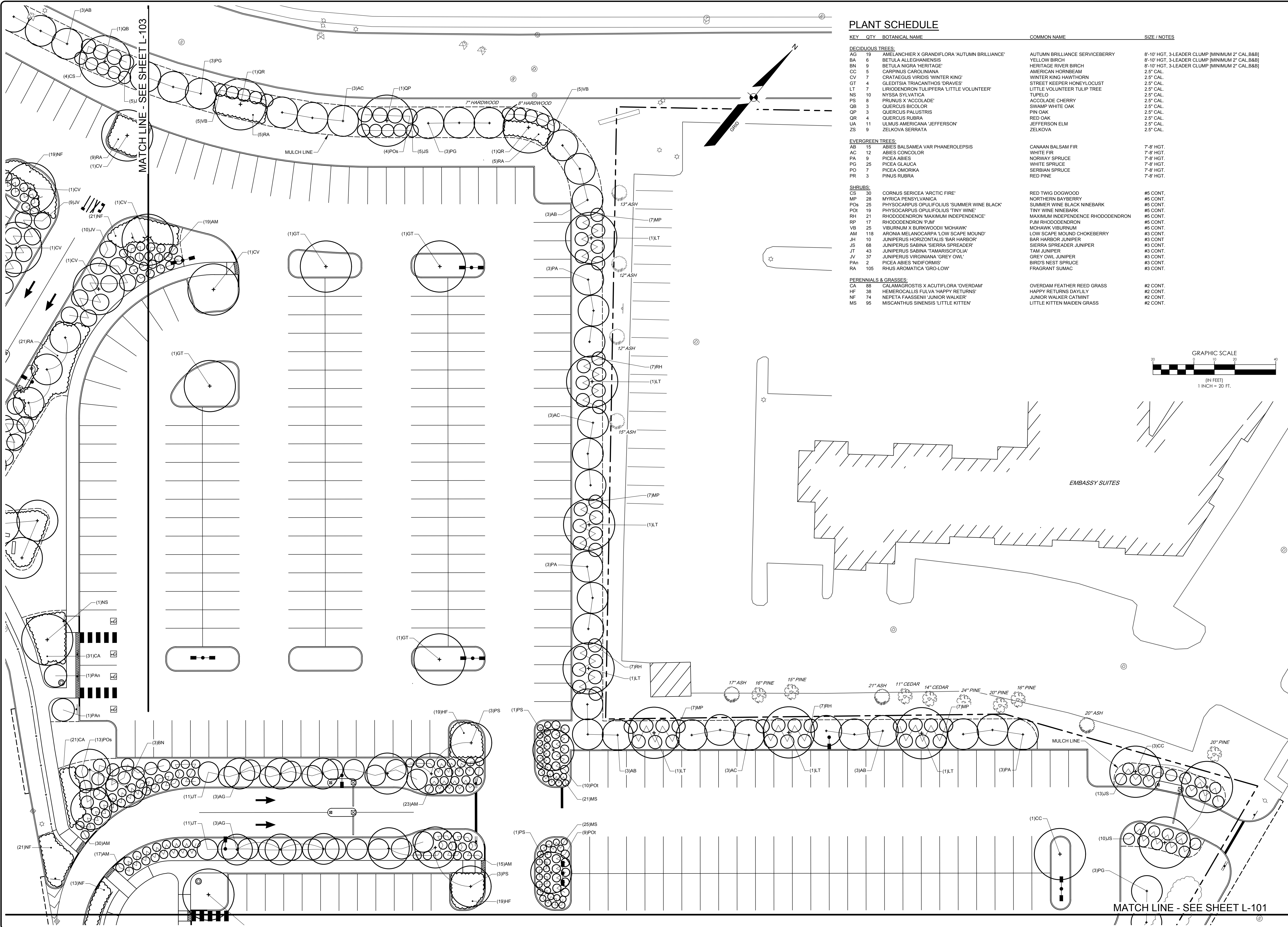
PAUL D. OSTROWSKI PE 11175
ANY BELL SEGAL RLA 2285







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PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE / NOTES
DECIDUOUS TREES:				
AG	19	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL, B&B]
BA	6	BETULA ALLEGHANIENSIS	YELLOW BIRCH	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL, B&B]
BN	9	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL, B&B]
CC	5	CARPINUS CAROLINIANA	AMERICAN HORNBEE	2.5' CAL
CV	7	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	2.5' CAL
GT	4	GLEDITSIA TRIACANTHOS 'DRAVES'	STREET KEEPER HONEYLOCUST	2.5' CAL
LT	7	LIRIODENDRON TULIPIFERA 'LITTLE VOLUNTEER'	LITTLE VOLUNTEER TULIP TREE	2.5' CAL
NS	10	NYSSA SYLVATICA	TUPELO	2.5' CAL
PS	8	PRUNUS X 'ACCOLADE'	ACCOLADE CHERRY	2.5' CAL
QB	3	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5' CAL
QP	3	QUERCUS PALUSTRIS	PIN OAK	2.5' CAL
QR	4	QUERCUS RUBRA	RED OAK	2.5' CAL
UA	11	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2.5' CAL
ZS	9	ZELKOVA SERRATA	ZELKOVA	2.5' CAL
EVERGREEN TREES:				
AB	15	ABIES BALSAMEA VAR PHANEROLEPSIS	CANAAN BALSAM FIR	7'-8' HGT.
AC	12	ABIES CONCOLOR	WHITE FIR	7'-8' HGT.
PA	9	PICEA ABIES	NORWAY SPRUCE	7'-8' HGT.
PG	25	PICEA GLAUC	WHITE SPRUCE	7'-8' HGT.
PO	7	PICEA OMORICA	SERBIAN SPRUCE	7'-8' HGT.
PR	3	PINUS RUBRA	RED PINE	7'-8' HGT.
SHRUBS:				
CS	30	CORNUS SERICEA 'ARCTIC FIRE'	RED TWIG DOGWOOD	#5 CONT.
MP	28	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	#5 CONT.
POB	25	PHYSCARPUS OPULIFOLIUS 'SUMMER WINE BLACK'	SUMMER WINE BLACK NINEBARK	#5 CONT.
POI	19	PHYSCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	#5 CONT.
RH	21	RHODODENDRON 'MAXIMUM INDEPENDENCE'	MAXIMUM INDEPENDENCE RHODODENDRON	#5 CONT.
RP	17	RHODODENDRON 'PJM'	PJM RHODODENDRON	#5 CONT.
VB	25	VIBURNUM X BURKWOODII 'MOHAWK'	MOHAWK VIBURNUM	#5 CONT.
AM	118	ARONIA MELANOCARPA 'LOW SCAPE MOUND'	LOW SCAPE MOUND CHOKEBERRY	#3 CONT.
JH	10	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#3 CONT.
JS	68	JUNIPERUS SABINA 'SIERRA SPREADER'	SIERRA SPREADER JUNIPER	#3 CONT.
JT	43	JUNIPERUS SABINA 'TAMARISCIFOLIA'	TAM JUNIPER	#3 CONT.
JV	37	JUNIPERUS VIRGINIANA 'GREY OWL'	GREY OWL JUNIPER	#3 CONT.
PAn	2	PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE	#3 CONT.
RA	105	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3 CONT.
PERENNIALS & GRASSES:				
CA	88	CALAMAGROSTIS X ACUTIFLORA 'OVERDAM'	OVERDAM FEATHER REED GRASS	#2 CONT.
HF	38	HEMEROCALLIS FULVA 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	#2 CONT.
NF	74	NEPETA FAASSENII 'JUNIOR WALKER'	JUNIOR WALKER CATMINT	#2 CONT.
MS	95	MISCANTHUS SIENSIS 'LITTLE KITTEN'	LITTLE KITTEN MAIDEN GRASS	#2 CONT.

LANDSCAPE ARCHITECT
ANY BELL
SEAL
No. 2263
EXPIRES 12/31/2025
REGISTERED
LANDSCAPE ARCHITECT
STATE OF MAINE

ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A. PDO 02/29/2024
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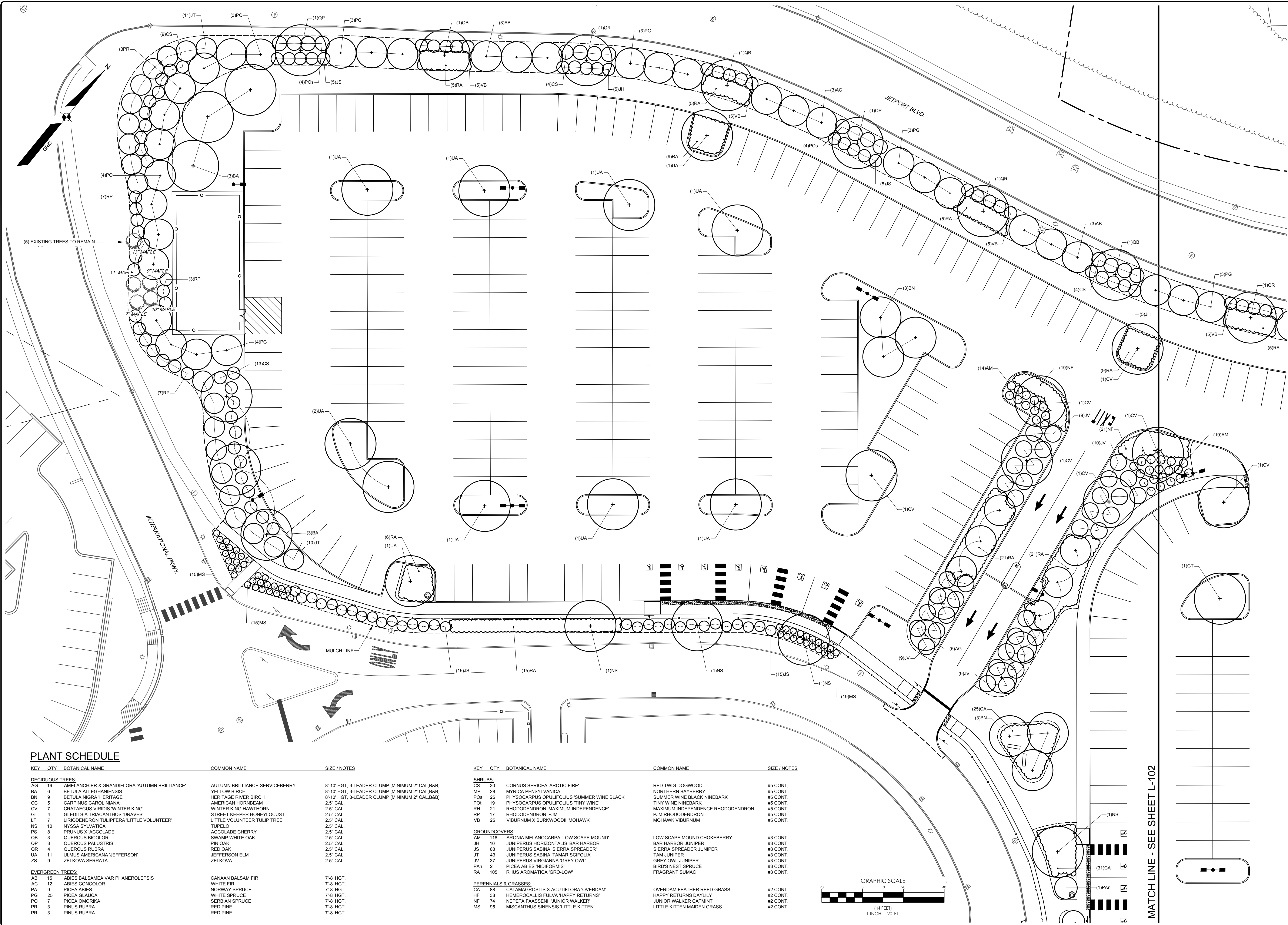
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T E C H N I C S
WWW.SEBAGOTECHINCS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

LANDSCAPE PLAN
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	1" = 20'
PROJECT	19059

SHEET L-103

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PLANT SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE / NOTES
DECIDUOUS TREES:				
BA	6	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL.&B&B]
BN	9	BETULA ALLEGANIENSIS	YELLOW BIRCH	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL.&B&B]
CC	5	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	8'-10' HGT, 3-LEADER CLUMP [MINIMUM 2" CAL.&B&B]
CV	7	CARPINUS CAROLINIANA	AMERICAN HORNBEAM	2.5' CAL.
GT	4	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	2.5' CAL.
LT	7	GLEDITSIA TRIACANTHOS 'DRAVES'	STREET KEEPER HONEYLOCUST	2.5' CAL.
NS	10	LIRIODENDRON TULIPIFERA 'LITTLE VOLUNTEER'	LITTLE VOLUNTEER TULIP TREE	2.5' CAL.
PS	8	NYSSA SYLVATICA	TUPELO	2.5' CAL.
QB	3	PRUNUS X 'ACCOLADE'	ACCOLADE CHERRY	2.5' CAL.
QP	3	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5' CAL.
QR	4	QUERCUS PALUSTRIS	PIN OAK	2.5' CAL.
UA	11	QUERCUS RUBRA	RED OAK	2.5' CAL.
ZS	9	ULMUS AMERICANA 'JEFFERSON'	JEFFERSON ELM	2.5' CAL.
ZS	9	ZELKOVA SERRATA	ZELKOVA	2.5' CAL.
EVERGREEN TREES:				
AB	15	ABIES BALSAMEA VAR PHANEROLEPSIS	CANAAN BALSAM FIR	7'-8' HGT.
AC	12	ABIES CONCOLOR	WHITE FIR	7'-8' HGT.
PA	9	PICEA ABIES	NORWAY SPRUCE	7'-8' HGT.
PG	25	PICEA GLAUCA	WHITE SPRUCE	7'-8' HGT.
PO	7	PICEA OMORICA	SERBIAN SPRUCE	7'-8' HGT.
PR	3	PINUS RUBRA	RED PINE	7'-8' HGT.
PR	3	PINUS RUBRA	RED PINE	7'-8' HGT.

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE / NOTES
SHRUBS:				
CS	30	CORNUS SERICEA 'ARCTIC FIRE'	RED TWIG DOGWOOD	#5 CONT.
MP	28	MYRICA PENNSYLVANICA	NORTHERN BAYBERRY	#5 CONT.
POs	25	PHYSOCARPUS OPULIFOLIUS 'SUMMER WINE BLACK'	SUMMER WINE BLACK NINEBARK	#5 CONT.
POI	19	PHYSOCARPUS OPULIFOLIUS 'TINY WINE'	TINY WINE NINEBARK	#5 CONT.
RH	21	RHODODENDRON 'MAXIMUM INDEPENDENCE'	MAXIMUM INDEPENDENCE RHODODENDRON	#5 CONT.
RP	17	RHODODENDRON 'PJM'	PJM RHODODENDRON	#5 CONT.
VB	25	VIBURNUM X BURKWOODII 'MOHAWK'	MOHAWK VIBURNUM	#5 CONT.
GROUNDCOVERS:				
AM	118	ARONIA MELANOCARPA 'LOW SCAPE MOUND'	LOW SCAPE MOUND CHOKEBERRY	#3 CONT.
JH	10	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#3 CONT.
JS	68	JUNIPERUS SABINA 'SIERRA SPREADER'	SIERRA SPREADER JUNIPER	#3 CONT.
JT	43	JUNIPERUS SABINA 'TAMARISCOFLUX'	TAM JUNIPER	#3 CONT.
JV	37	JUNIPERUS VIRGIANNA 'GREY OWL'	GREY OWL JUNIPER	#3 CONT.
PaN	2	PICEA ABIES 'NIDIFORMIS'	BIRD'S NEST SPRUCE	#3 CONT.
RA	105	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3 CONT.
PERENNIALS & GRASSES:				
CA	88	CALAMAGROSTIS X ACUTIFLORA 'OVERDAM'	OVERDAM FEATHER REED GRASS	#2 CONT.
HF	38	HEMEROCALLIS FULVA 'HAPPY RETURNS'	HAPPY RETURNS DAYLILY	#2 CONT.
NF	74	NEPETA FAASSENII 'JUNIOR WALKER'	JUNIOR WALKER CATMINT	#2 CONT.
MS	95	MISCANTHUS SINEENSIS 'LITTLE KITTEN'	LITTLE KITTEN MAIDEN GRASS	#2 CONT.

LANDSCAPE ARCHITECT
ANY BELL
SEAL
No. 2263
STATE OF MAINE
REGISTERED

ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A. PDO 02/29/2024
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T E C H N I Q S
WWW.SEBAGOTECHNIQS.COM
75 John Roberts Rd.
Sullivan, ME 04106
South Portland, ME 04106
Tel. 207-200-2100

LANDSCAPE PLAN
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED TFG
DRAWN EPR
CHECKED PDO
DATE 02/29/2024
SCALE 1" = 20'
PROJECT 19059

SHEET L-104

EROSION CONTROL MEASURES

PRE-CONSTRUCTION PHASE

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS (SILT FENCE) WILL BE STAKED/INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. THE PLACEMENT OF SEDIMENT BARRIERS SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND DETAILS IN THIS PLAN SET. THIS NETWORK IS TO BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED AT THE INTERSECTION OF THE PROPOSED ENTRANCES AND EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATES OF DISTURBANCE AND COMPLETION OF THE WORK. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE MUNICIPAL STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE MUNICIPALITY THREE DAYS PRIOR TO THE SCHEDULED PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

AREAS UNDERGOING ACTUAL CONSTRUCTION SHALL ONLY EXPOSE THAT AMOUNT OF MINERAL SOIL NECESSARY FOR PROGRESSIVE AND EFFICIENT CONSTRUCTION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD, SUCH AS ACTIVE EXCAVATION AND ACTIVE GRADING. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS ACTIVELY OCCURRING OR CAN BE MULCHED IN THE SAME DAY. OPEN AREAS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL AS SHOWN ON THE DESIGN PLANS AND AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN WITHIN SEVEN (7) DAYS OF DISTURBANCE. AREAS LOCATED WITHIN 100 FEET OF STREAMS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL WITHIN SEVEN (7) DAYS. REFER TO WINTER EROSION CONTROL NOTES FOR THE TREATMENT OF OPEN AREAS AFTER OCTOBER 1ST OF THE CONSTRUCTION YEAR.

THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

EROSION CONTROL APPLICATIONS & MEASURES

THE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET.

1. TEMPORARY MULCHING:

ALL DISTURBED AREAS SHALL BE MULCHED WITH MATERIALS SPECIFIED BELOW PRIOR TO ANY STORM EVENT. ALL DISTURBED AREAS NOT FINAL GRADED WITHIN 14 DAYS SHALL BE MULCHED. DISTURBED AREAS ADJACENT TO NATURAL RESOURCES THAT ARE NOT GRADED WITHIN SEVEN (7) DAYS SHALL BE MULCHED. ALSO, AREAS, WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED, SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. EROSION CONTROL BLANKETS ARE RECOMMENDED TO BE USED AT THE BASE OF GRASSED WATERWAYS AND ON SLOPES GREATER THAN 33%. MULCH ANCHORING SHOULD BE USED ON SLOPES GREATER THAN 5% AFTER SEPTEMBER 15TH OF THE CONSTRUCTION YEAR (SEE WINTER EROSION CONTROL NOTES). TYPES OF MULCH:

HAY OR STRAW: SHALL BE APPLIED AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE).

EROSION CONTROL MIX: SHALL BE PLACED EVENLY AND MUST PROVIDE 100% SOIL COVERAGE. EROSION CONTROL MIX SHALL BE APPLIED SUCH THAT THE THICKNESS ON SLOPES 3:1 OR LESS IS 2 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THE THICKNESS ON SLOPES BETWEEN 3:1 AND 2:1 SHALL BE 4 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THIS SHALL NOT BE USED ON SLOPES GREATER THAN 2:1.

EROSION CONTROL BLANKET: SHALL BE INSTALLED SUCH THAT CONTINUOUS CONTACT BETWEEN THE MAT AND THE SOIL IS OBTAINED. INSTALL BLANKETS AND STAPLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. SOIL STOCKPILES:

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES. SEDIMENT BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO THE STOCKPILE.

3. NATURAL RESOURCES PROTECTION:

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES SHALL BE MULCHED USING TEMPORARY MULCHING (AS DESCRIBED IN PART 1 OF THIS SECTION) WITHIN 7 DAYS OF EXPOSURE OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS (AS DESCRIBED IN PART 4 OF THIS SECTION) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE.

4. SEDIMENT BARRIERS:

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. SEDIMENT BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION.

SILT FENCE: SHALL BE INSTALLED PER THE DETAIL. ON THE PLANS. THE EFFECTIVE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES. IT IS RECOMMENDED THAT SILT FENCE BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL SO AS TO AVOID ADDITIONAL SOIL DISTURBANCE.

HAY BALES: SHALL NOT BE INSTALLED ADJACENT TO WETLAND. INSTALL PER THE DETAIL ON THE PLANS. BALES SHALL BE WIRE-BOUND OR STRING-TIED AND THESE BINDINGS MUST REMAIN PARALLEL WITH THE GROUND SURFACE DURING INSTALLATION TO PREVENT DETERIORATION OF THE BINDINGS. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

EROSION CONTROL MIX: SHALL NOT BE USED ADJACENT TO WETLANDS. INSTALL PER THE DETAIL ON THE PLANS. THE MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. THE MIX COMPOSITION SHALL MEET THE STANDARDS DESCRIBED WITHIN THE MDEP BEST MANAGEMENT PRACTICES. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER. EROSION CONTROL MIX BERMS SHALL NOT BE USED AT THE BOTTOM OF STEEP SLOPES (>8%) OR SLOPES WITH FLOWING WATER.

CONTINUOUS CONTAINED BERM: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THIS SEDIMENT BARRIER IS EROSION CONTROL MIX PLACED WITHIN A SYNTHETIC TUBULAR NETTING AND PERFORMS AS A STURDY SEDIMENT BARRIER THAT WORKS WELL ON HARD GROUND SUCH AS FROZEN CONDITIONS, TRAVELED AREAS OR PAVEMENT. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.

5. TEMPORARY CHECK DAMS:

SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. CHECK DAMS ARE TO BE PLACED WITHIN DITCHES/ SWALES AS SPECIFIED ON THE DESIGN PLANS IMMEDIATELY AFTER FINAL GRADING. CHECK DAMS SHALL BE 2 FEET HIGH. TEMPORARY CHECK DAMS MAY BE REMOVED ONLY AFTER THE ROADWAYS ARE PAVED AND THE VEGETATED SWALE ARE ESTABLISHED WITH AT LEAST 90% OF VIGOROUS PERENNIAL GROWTH. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER REMOVAL OF THE CHECK DAM.

STONE CHECK DAMS: STONE DAMS SHOULD BE CONSTRUCTED OF 2 TO 3 INCH STONE AND PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

HAY BALE CHECK DAMS: BALES SHALL BE WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. HAY BALES SHALL BE PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

MANUFACTURED CHECK DAMS: MANUFACTURED CHECK DAMS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF AUTHORIZED BY THE PROPER LOCAL, STATE OR FEDERAL REGULATING AGENCIES. THESE UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

6. STORMDRAIN INLET PROTECTION:

INLET PROTECTION SHALL BE PLACED AROUND A STORMDRAIN DROP INLET OR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.

HAY BALE DROP INLET PROTECTION: WE DO NOT RECOMMEND THE USE OF HAY BALES AS INLET PROTECTION.

CONCRETE BLOCK AND STONE INLET SEDIMENT FILTER (DROP OR CURB INLET): SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE HEIGHT OF THE CONCRETE BLOCK BARRIER CAN VARY BUT MUST BE BETWEEN 12 AND 24 INCHES TALL. A MINIMUM OF 1 INCH CRUSHED STONE SHALL BE USED.

MANUFACTURED SEDIMENT BARRIERS AND FILTER (DROP OR CURB INLET): MANUFACTURED FILTERS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. STABILIZED CONSTRUCTION ENTRANCE/EXIT:

PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEEPED TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. THE TERM "SWEEP" IS UNDERSTOOD TO MEAN REMOVAL AND RECOVERY OF TRACKED SEDIMENT WITH A STREET SWEEPER, NOT BRUSHING THE MATERIAL INTO SWALES OR STRUCTURES WITH A MECHANICAL BROOM. STABILIZED CONSTRUCTION EXITS SHALL BE CONSTRUCTED IN AREAS SPECIFIED ON THE PLANS AND AS DETAILED ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

DUST CONTROL:

DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATERING TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS. APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND/OR FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEEP IMMEDIATELY AND NOT LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS.

TEMPORARY VEGETATION:

TEMPORARY VEGETATION SHALL BE APPLIED TO DISTURBED AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR PERIODS UP TO 12 MONTHS. THIS PROCEDURE SHOULD BE USED EXTENSIVELY IN AREAS ADJACENT TO NATURAL RESOURCES. SEEDBED PREPARATION AND APPLICATION OF SEED SHALL BE CONDUCTED AS INDICATED IN THE PERMANENT VEGETATION SECTION OF THIS NARRATIVE. SPECIAL SEEDS (FAST GROWING AND SHORT LIVING) SHALL BE SELECTED FROM THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUALS FOR CONTRACTORS AND ENGINEERS. LATEST REVISION. ALTERNATIVE EROSION CONTROL MEASURES SHOULD BE USED IF SEEDING CAN NOT BE DONE BEFORE SEPTEMBER 15TH OF THE CONSTRUCTION YEAR.

PERMANENT VEGETATION:

REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. THE APPLICATION OF SEED SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR, PLEASE REFER TO THE WINTER EROSION CONTROL NOTES FOR MORE DETAIL. REVEGETATION MEASURES SHALL CONSIST OF THE FOLLOWING:

SEEDBED PREPARATION:

- A. FOUR (4) INCHES OF LOAM SHALL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE. LOAM SHALL BE FREE OF SUBSOIL, CLAY LUMPS, STONES AND OTHER OBJECTS OVER 2 INCHES OR LARGER IN ANY DIMENSION, AND WITHOUT WEEDS, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
- B. SOILS TESTS SHALL BE TAKEN AT THE TIME OF SOIL STRIPPING TO DETERMINE FERTILIZATION REQUIREMENTS. SOILS TESTS SHALL BE TAKEN PROMPTLY AS TO NOT INTERFERE WITH THE 14-DAY LIMIT ON SOIL EXPOSURE. BASED UPON TEST RESULTS, SOIL AMENDMENTS SHALL BE INCORPORATED INTO THE SOIL PRIOR TO FINAL SEEDING. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS MAY BE APPLIED AS FOLLOWS:

ITEM	APPLICATION RATE
10-20-20 FERTILIZER (N-P205-K20 OR EQUAL)	18.4 LBS/1,000 S.F.
GROUND LIMESTONE (50% CALCIUM & MAGNESIUM OXIDE)	138 LBS/1,000 S.F.
C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH PROPER EQUIPMENT. ROLL THE AREA TO FIRM THE SEEDBED EXCEPT ON CLAY OR SILTY SOILS OR COARSE SAND.	

APPLICATION OF SEED:

- A. SEEDING SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. GENERALLY A SEED MIXTURE MAY BE APPLIED AS FOLLOWS: (MDOF SEED MIX METHOD #1 - PARK MIXTURE)

SEED TYPE	APPLICATION RATE
CREeping RED FESCUE	1.8 LBS/1,000 S.F. (78.4 LBS/ACRE)
KENTUCKY BLUEGRASS	1.0 LBS/1,000 S.F. (43.6 LBS/ACRE)
CHEWINGS FESCUE	0.60 LBS/1,000 S.F. (26.1 LBS/ACRE)
PERENNIAL RYEGRASS	0.40 LBS/1,000 S.F. (17.4 LBS/ACRE)
ANNUAL RYEGRASS	0.20 LBS/1,000 S.F. (8.70 LBS/ACRE)
TOTAL	4.00 LBS/1,000 S.F. (174.20 LBS/ACRE)

NOTE: A SPECIFIC SEED MIXTURE SHOULD BE CHOSEN TO MATCH THE SOILS COMPOSITION OF THE SITE. VARIOUS AGENCIES CAN RECOMMEND SEED MIXTURES. MDEP RECOMMENDED SEED MIXTURES ARE IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 2016 OR LATEST REVISION.

- B. HYDROSEEDING: SHALL BE CONDUCTED ON PREPARED AREAS WITH SLOPES LESS THAN 2:1. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. RECOMMENDED SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

- C. MULCHING: SHALL COMMENCE IMMEDIATELY AFTER SEED IS APPLIED. REFER TO THE TEMPORARY MULCHING SECTION OF THIS NARRATIVE FOR DETAILS.

SODDING: FOLLOWING SEEDBED PREPARATION, SOD CAN BE APPLIED IN LIEU OF SEEDING IN AREAS WHERE IMMEDIATE VEGETATION IS MOST BENEFICIAL, SUCH AS DITCHES, AROUND STORMWATER DROP INLETS AND AREAS OF AESTHETIC VALUE. SOD SHOULD BE LAID AT RIGHT ANGLES TO THE DIRECTION OF FLOW, STARTING AT THE LOWEST ELEVATION. SOD SHOULD BE ROLLED OR TAMPED DOWN TO EVEN OUT THE JOINTS ONCE LAID DOWN, WHERE FLOW IS PREVALENT THE SOD MUST BE PROPERLY ANCHORED DOWN, IRRIGATE THE SOD IMMEDIATELY AFTER INSTALLATION. IN MOST CASES, SOD CAN BE ESTABLISHED BETWEEN APRIL 1ST AND NOVEMBER 15TH OF THE CONSTRUCTION YEAR, HOWEVER, REFER TO THE WINTER EROSION CONTROL NOTES FOR ANY ACTIVITIES AFTER OCTOBER 1ST.

STANDARDS FOR TIMELY STABILIZATION:

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE MDEP WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) TO BE A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

- A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C) OF THIS STANDARD.
- B. STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).
- C. STABILIZE THE SLOPE WITH WOOD WASTE COMPOST -- THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD WASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOOD WASTE COMPOST, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE CONTRACTOR WILL NOT USE WOOD WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- D. STABILIZE THE SLOPE WITH STONE RIPRAP -- THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE CONTRACTOR WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

- A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C) OF THIS STANDARD.
- B. STABILIZE THE SOIL WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- C. STABILIZE THE SOIL WITH MULCH -- BY NOVEMBER 15 THE CONTRACTOR WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE CONTRACTOR WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

1. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, AND AT LEAST EVERY SEVEN (7) DAYS, THE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES. THE CONTRACTOR SHALL PERFORM REPAIRS NO LATER THAN THE END OF THE NEXT WORKDAY, TO ALLOW CONTINUED PROPER FUNCTIONING OF THE EROSION CONTROL MEASURE. THE CONTRACTOR SHALL PROVIDE THE NECESSARY REGULATING AGENCIES WITH WRITTEN DOCUMENTATION DESCRIBING DATES OF INSPECTIONS AND NECESSARY FOLLOW-UP WORK TO MAINTAIN EROSION CONTROL MEASURES MEETING THE REQUIREMENTS OF THIS PLAN WITHIN SEVEN (7) DAYS.
2. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMI-MONTHLY UNTIL THE SEEDINGS HAVE BEEN ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW-UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

HOUSEKEEPING:

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORMWATER. CONTROLS 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 THOSE MATERIALS. ANY PROTECTION 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 SWEEP 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 DEWATERING: EXCAVATION DEWATERING 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 PONDED 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. 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.
7. UNAUTHORIZED NON-STORMWATER DISCHARGES: THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES SPECIFICALLY LISTED IN THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
- A. WASTEWATER FROM THE WASHOUT OR CLEAN OUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS OR ANY 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.

WINTER EROSION CONTROL MEASURES

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 1 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDER TAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. ALL AREAS SHALL BE CONSIDERED TO BE DENUDE UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOADED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS/1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCES PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA.

PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOOD WASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

ALL AREA SHALL BE CONSIDERED TO BE DENUDE UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOADED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75 LBS/1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW WILL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACE AREAS HAVE BEEN MULCHED WITH HAY OR STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF SEPTEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACK OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORK DAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 5%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5LBS/1000 S.F. ALL AREAS SEED DURING THE WINTER WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS SUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING. SEED TYPE SHALL BE WINTER RYE.

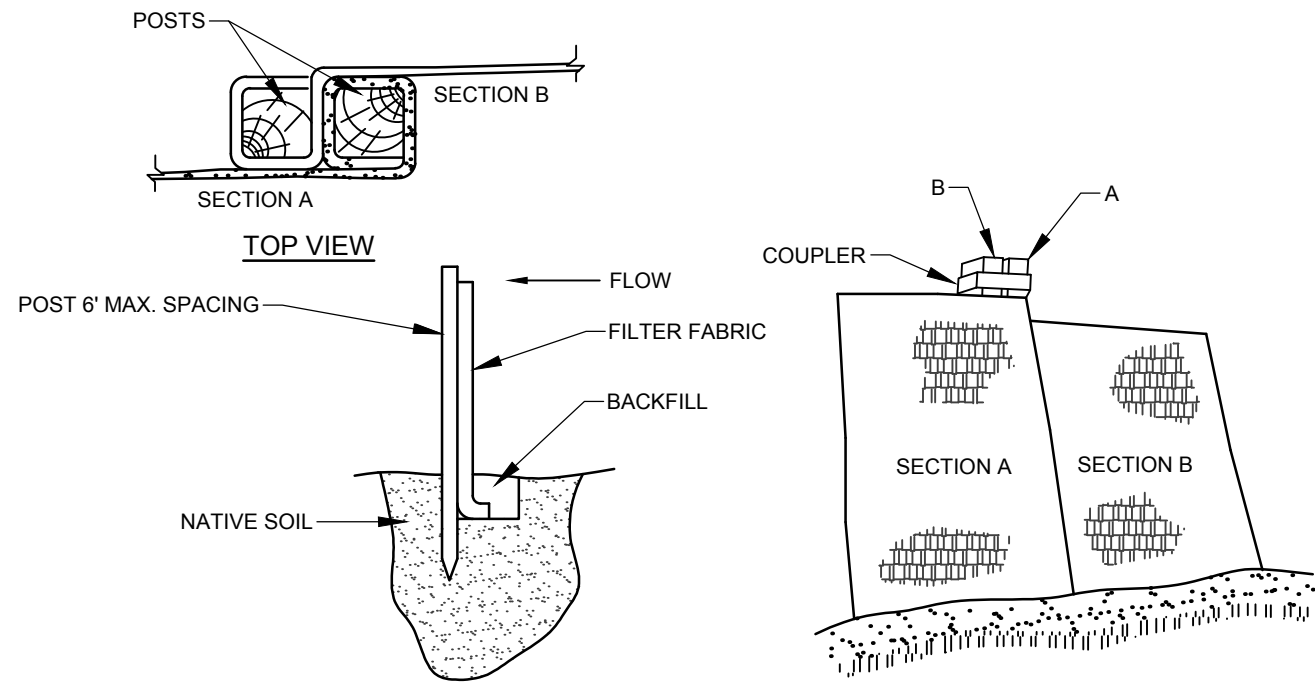
MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AT A MINIMUM, AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS -- THE APPLICANT WILL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 15. THE APPLICANT WILL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL, TO BE GRASS-LINED BY SEPTEMBER 15, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT WILL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS,

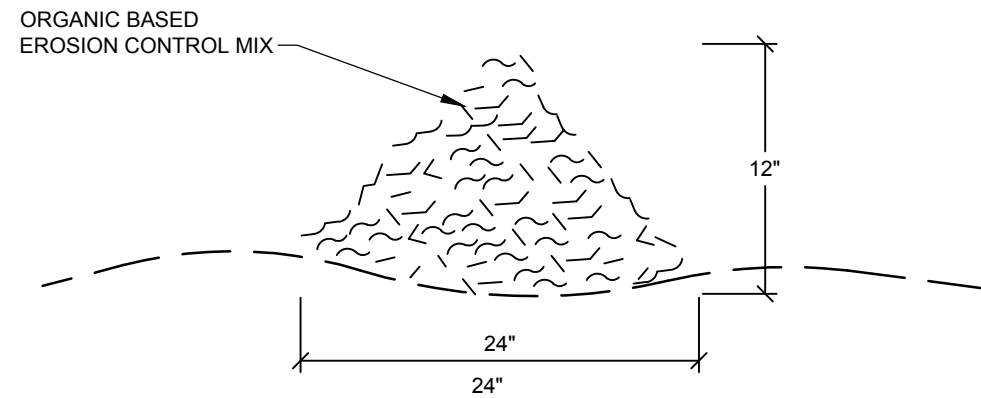
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INSTALLATION:

1. EXCAVATE A 6"x 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH. BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPANIED BY AN INTERCEPTION DITCH.
5. JOIN SECTION AS SHOWN ABOVE.
6. BARRIER SHALL BE MIRAFI SILT FENCE OR EQUAL.

FILTER BARRIER
NOT TO SCALE



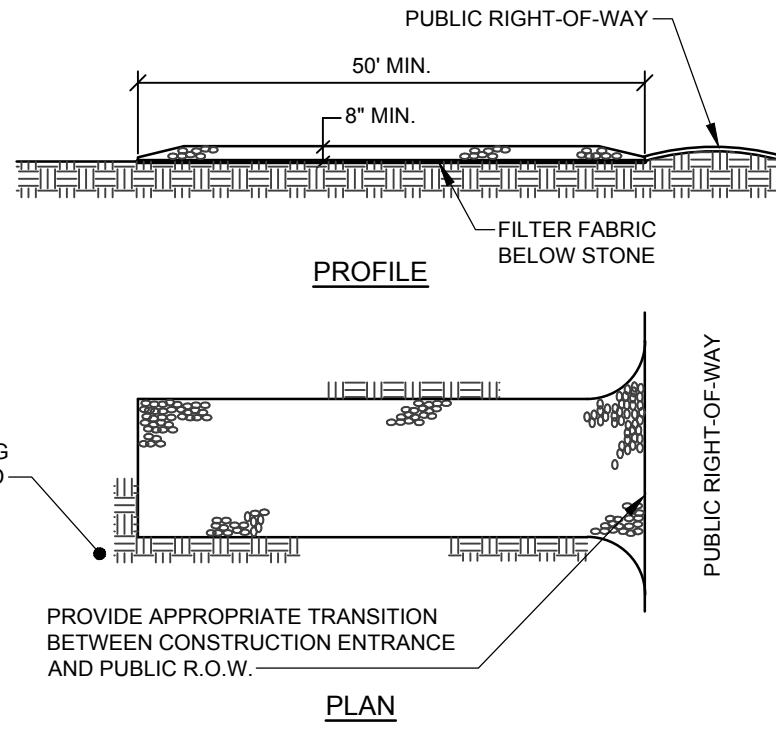
COMPOSITION:

EROSION CONTROL MIX SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH THE MDEP MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL, LAST REVISED 3/2003 OR LATER. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, 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.

INSTALLATION:

1. THE BARRIER MUST BE PLACED ACROSS THE SLOPE, ALONG THE CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED SUCH THAT THE BARRIER MAY LIE NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER
3. THE BARRIER SHALL BE A MINIMUM OF 1 FOOT HIGH (AS MEASURED ON THE UPHILL SIDE) AND 2 FEET WIDE FOR SLOPES LESS THAN 5% IN GRADE AND SHALL BE WIDER TO ACCOMMODATE THE ADDITIONAL RUNOFF.
4. EROSION CONTROL MIX CAN BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED ON THE DESIGN PLANS IN AREAS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM.

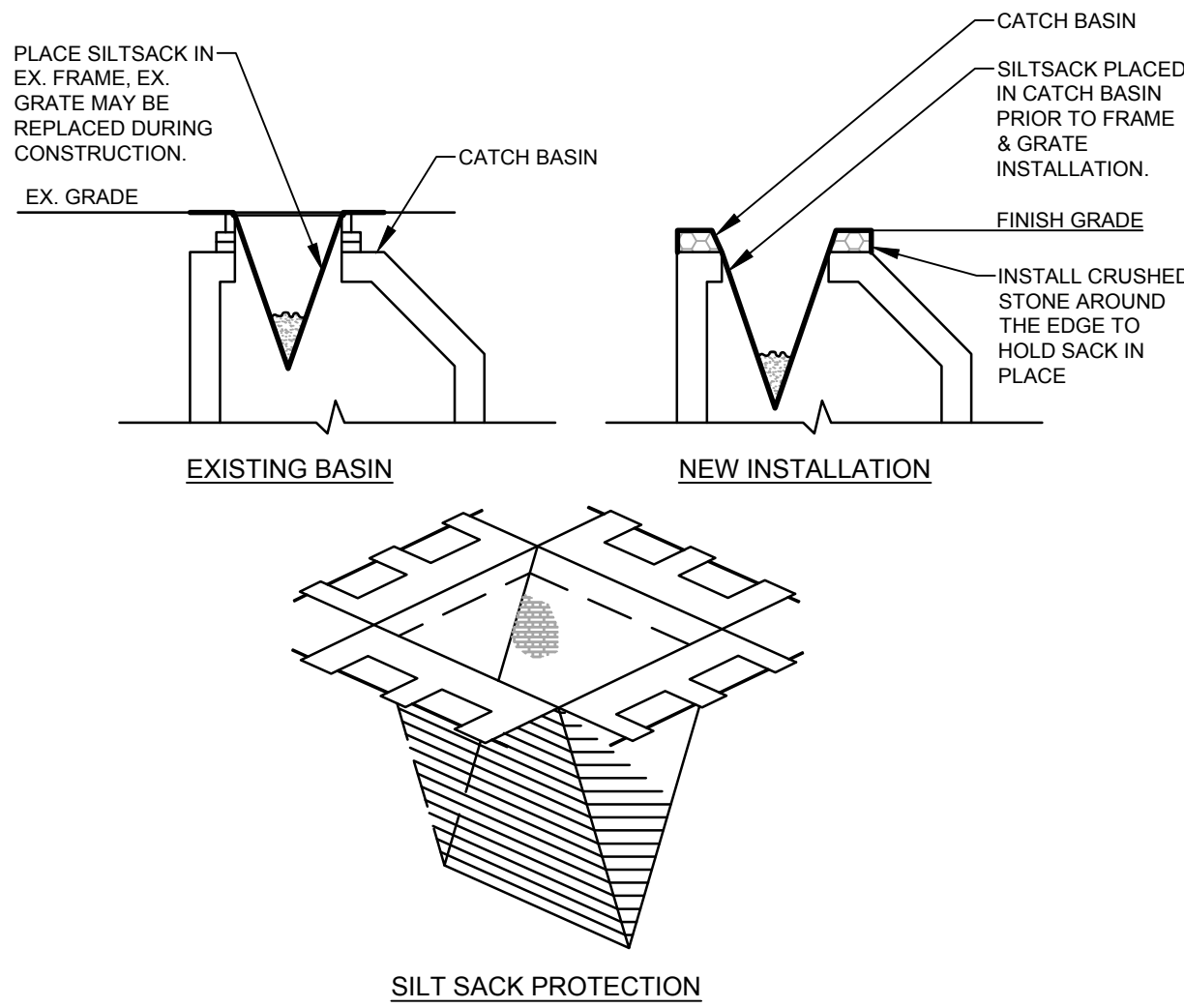
EROSION CONTROL MIX BERM
NOT TO SCALE



NOTES:

1. STONE SIZE- AASHTO DESIGNATION M43, SIZE NO. 2 (2 1/2" TO 1 1/2"). USE CRUSHED STONE.
2. LENGTH- AS SHOWN ON PLANS, MIN. 50 FEET.
3. THICKNESS- NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH- NOT LESS THAN FULL WIDTH OF ALL POINT OF INGRESS OR EGRESS.
5. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



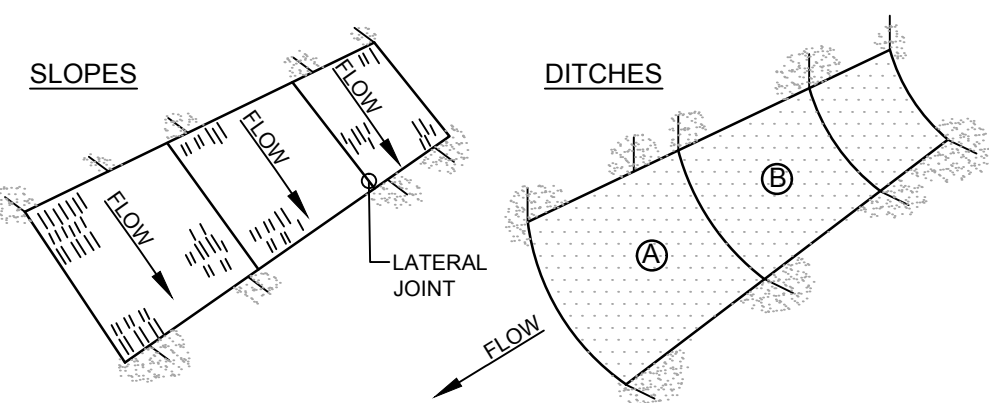
NOTES:

PRIOR TO FINAL GRADING AND PAVING OPERATIONS BEGIN A CATCH BASIN INSERT (SUCH AS A SILT SACK OR A DANDY BAG, I) MUST BE INSTALLED IN EACH BASIN PER MANUFACTURES INSTRUCTIONS. HAY BALES SHOULD BE REMOVED ONCE INSERTS ARE INSTALLED.

CATCH BASIN PROTECTION DETAIL
NOT TO SCALE

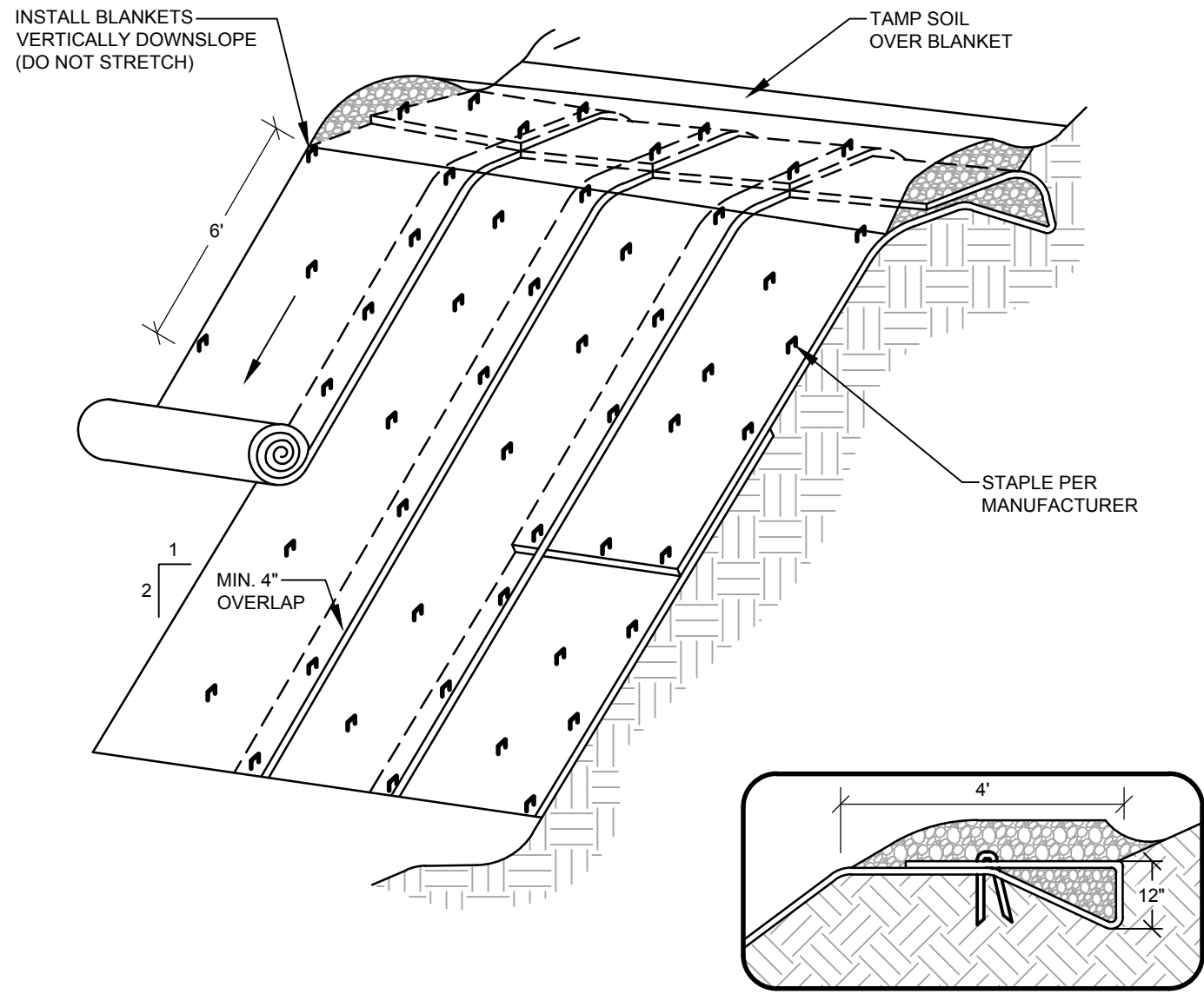
CONSTRUCTION SPECIFICATIONS

1. THE SOIL SURFACE SHOULD BE FINELY GRADED AND SMOOTH FOR THE BLANKET TO HAVE DIRECT CONTACT WITH THE SOIL AND TO PREVENT UNDERMINING. EROSION CONTROL BLANKETS PERFORM BEST ON LOAMY SOILS AND SHOULD NOT BE USED ON ROCKY SITES OR SHALLOW SOILS.
2. SEED SHOULD BE SOWN BEFORE INSTALLING THE EROSION CONTROL BLANKET.
3. ALWAYS UNROLL THE BLANKET DOWNHILL WITHOUT STRETCHING AND ANCHOR THE UPSLOPE EDGE IN A 12 INCH DEEP TRENCH THAT IS BACKFILLED AND TAMPED.
4. OVERLAP SHINGLE STYLE A MINIMUM OF 12 INCHES AT THE TOP OF EACH ROW AND 4 INCHES AT THE EDGES OF PARALLEL ROWS. ANCHOR ALONG THE OVERLAP WITH A MAXIMUM SPACING OF 3 FEET OR AS REQUIRED BY THE MANUFACTURER.

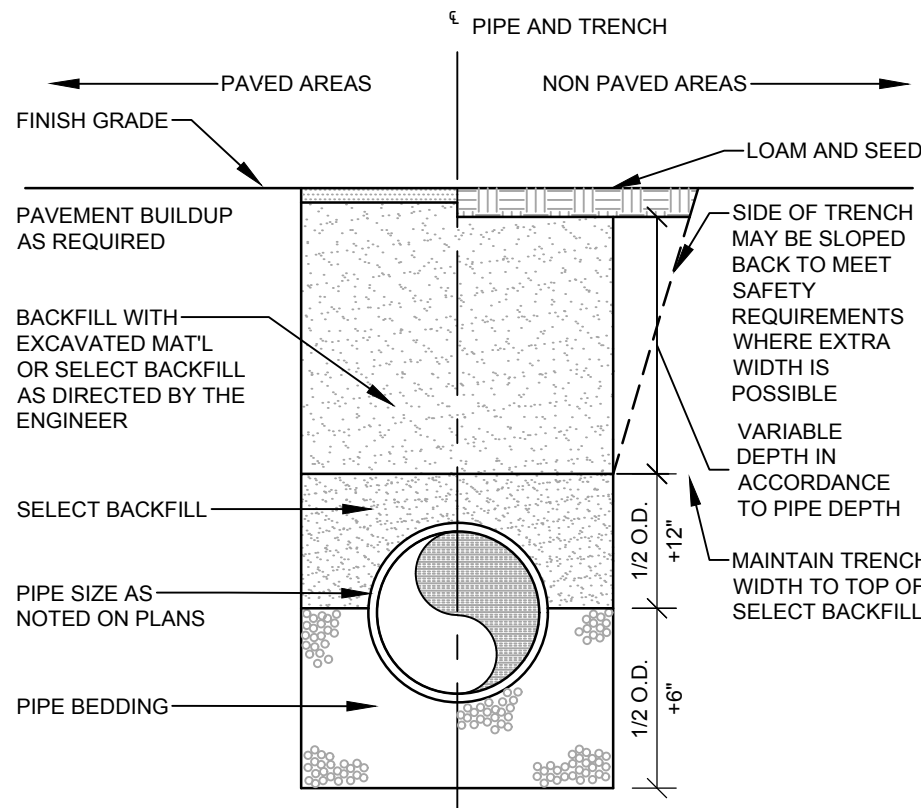


NOTES:

1. BURY THE TOP END OF THE MESH MATERIAL IN A 6" TRENCH AND BACKFILL AND TAMP. TRENCHING SECURE END WITH STAPLES AT 6" SPACING, 4" DOWN FROM EXPOSED END.
2. FLOW DIRECTION JOINTS TO HAVE UPPER END OF LOWER STRIP BURIED WITH UPPER LAYERS OVERLAPPED 4" AND STAPLED. OVERLAP B OVER A.
3. LATERAL JOINTS TO HAVE 4" OVERLAP OF STRIPS. STAPLE 18" ON CENTER.
4. STAPLE OUTSIDE LATERAL EDGE 2" ON CENTER.
5. WIRE STAPLES TO BE MIN OF #11 WIRE 6" LONG AND 1-1/2" WIDE.
6. USE NORTH AMERICAN GREEN DS 150 OR APPROVED EQUAL.



EROSION CONTROL BLANKET
NOT TO SCALE



NOTE:
ALL BRACING AND SHEETING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL MEET ALL STATE AND O.S.H.A. SAFETY STANDARDS.

TRENCH SECTION
NOT TO SCALE

TRENCH BACKFILL SCHEDULE		
PIPE TYPE	PIPE BEDDING MATERIAL	SELECT BACKFILL
CORRUGATED METAL DUCTILE IRON REINFORCED CONCRETE	MDOT 703.22 TYPE B UD BACKFILL	MDOT 703.22 TYPE B UD BACKFILL
SOLID PVC-SDR 35 HDPE	MDOT 703.13 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL, OR MDOT 703.13 3/4" CRUSHED STONE
PERFORATED PVC-SDR 35 HDPE	MDOT 703.13 3/4" CRUSHED STONE	MDOT 703.22 TYPE B UD BACKFILL, OR MDOT 703.13 3/4" CRUSHED STONE

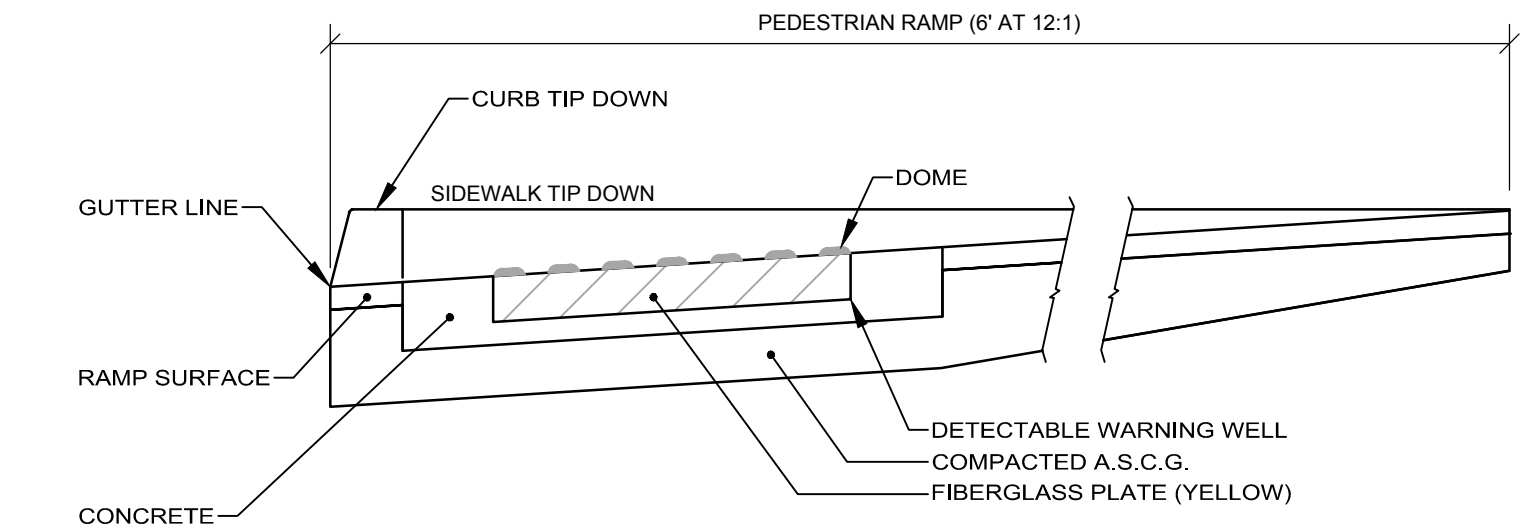
LANDSCAPE ARCHITECT
ANY BELL
SEAL
No. 2265
STATE OF MAINE
PAUL D. OSTROWSKI
No. 11175
PROFESSIONAL
03/18/2024

PAUL D. OSTROWSKI PE 11175
ANY BELL SEGAL RLA 2285

DESIGNED TFG
DRAWN EPR
CHECKED PDO
DATE 02/29/2024
SCALE N/A
PROJECT 19059

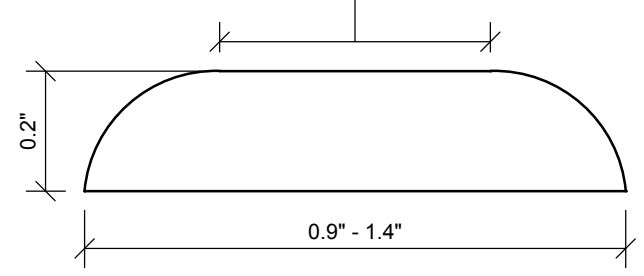
FOR: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

SHEET C-501

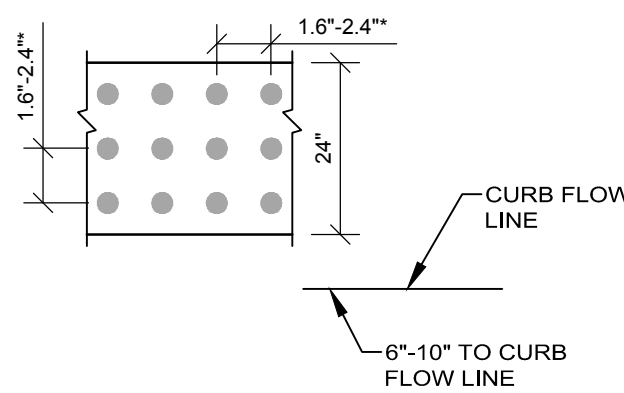


SIDE SECTION VIEW OF
DETECTABLE WARNING, WELL, CURB AND GUTTER

THE TOP DIAMETER OF THE
TRUNCATED DOMES SHALL BE 50%
TO 65% OF THE BASE DIAMETER.



ELEVATION VIEW



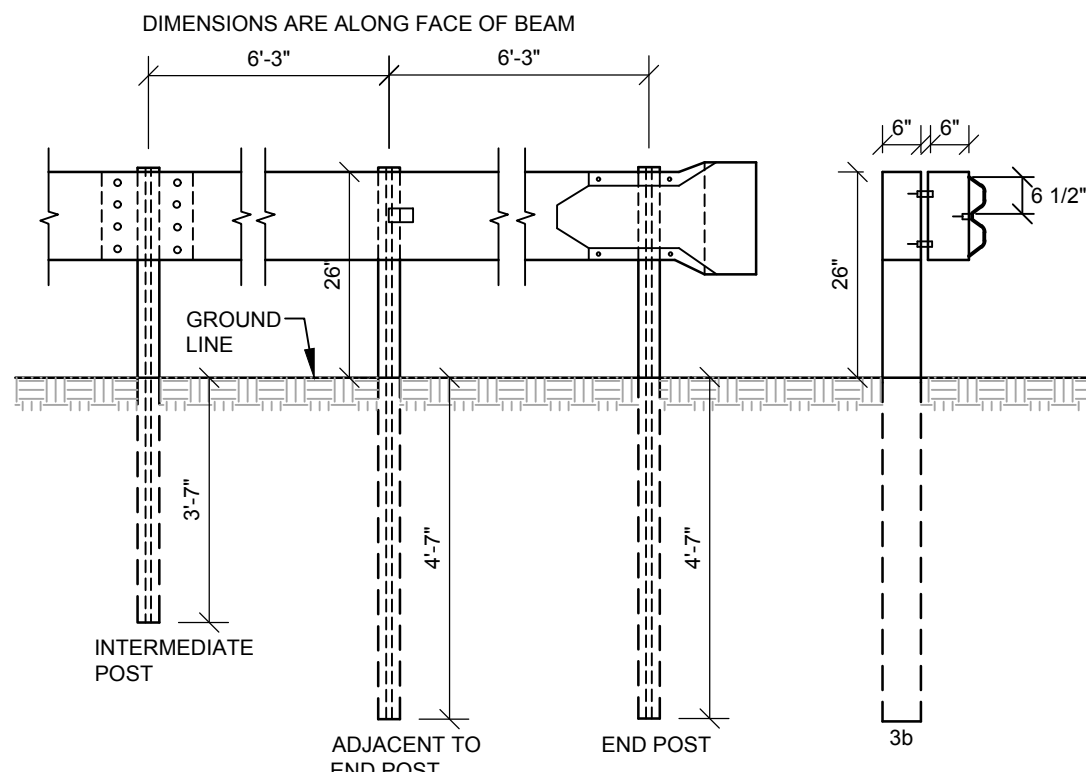
PLAN VIEW

DOMES AND DETECTABLE WARNING DETAILS

NOTE: ALL DETECTABLE WARNING AREAS SHALL START 6" - 10"
FROM THE FLOW LINE OF THE CURB, BE 24" IN DEPTH, AND COVER
THE COMPLETE WIDTH OF THE RAMP AREA ONLY.

TRUNCATED DOME PAVING

NOT TO SCALE

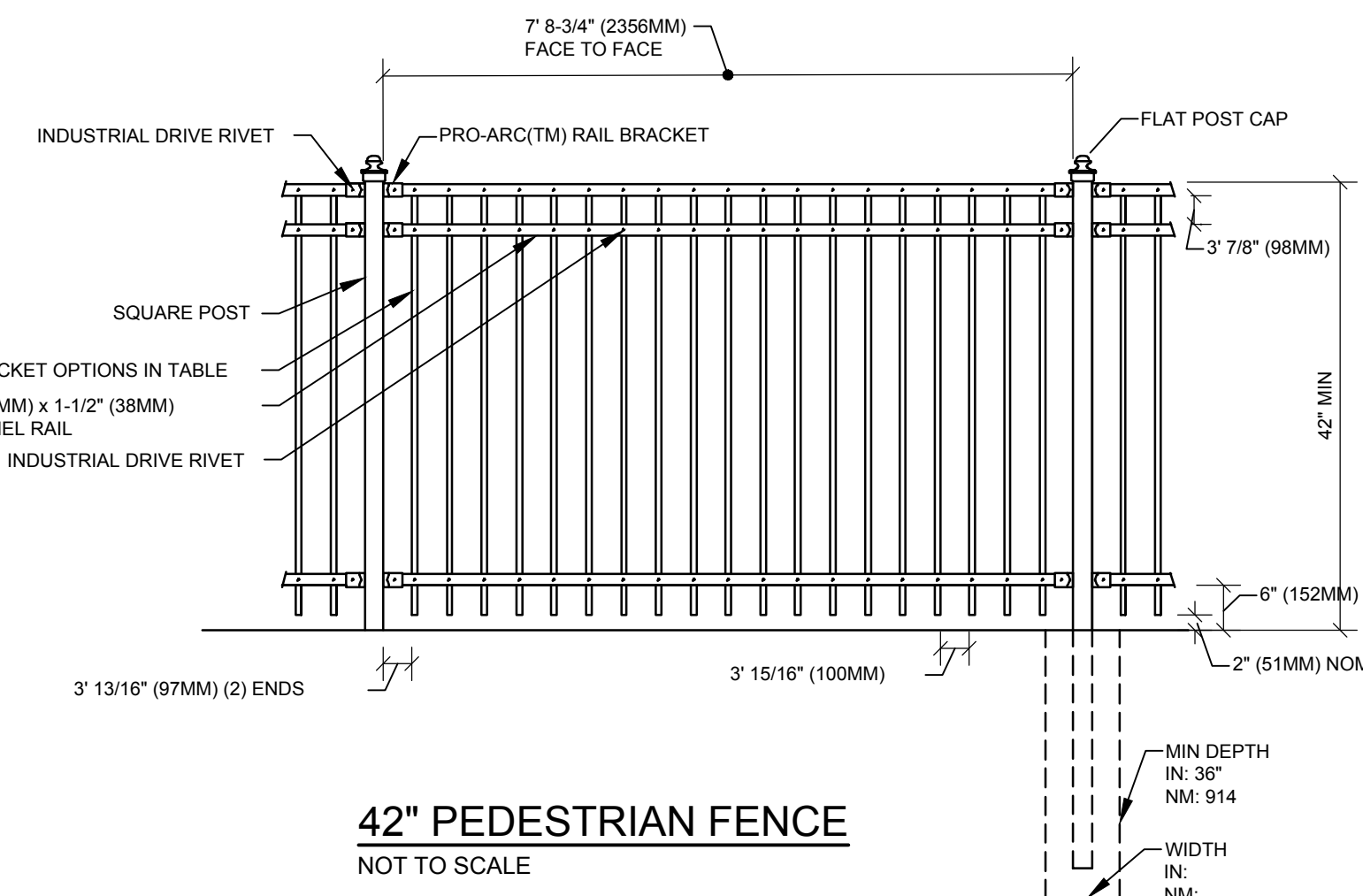


NOTES:

1. INTERMEDIATE POST SPACING SHALL BE 6'-3" UNLESS OTHERWISE SHOWN.
2. POSTS AND OFFSET BRACKETS FOR TYPE 3b GUARD RAIL SHALL BE W 6x9.
3. ALL HOLES IN BEAM TO BE SHOP-PUNCHED BEFORE GALVANIZING.

GUARDRAIL TYPE 3b

NOT TO SCALE



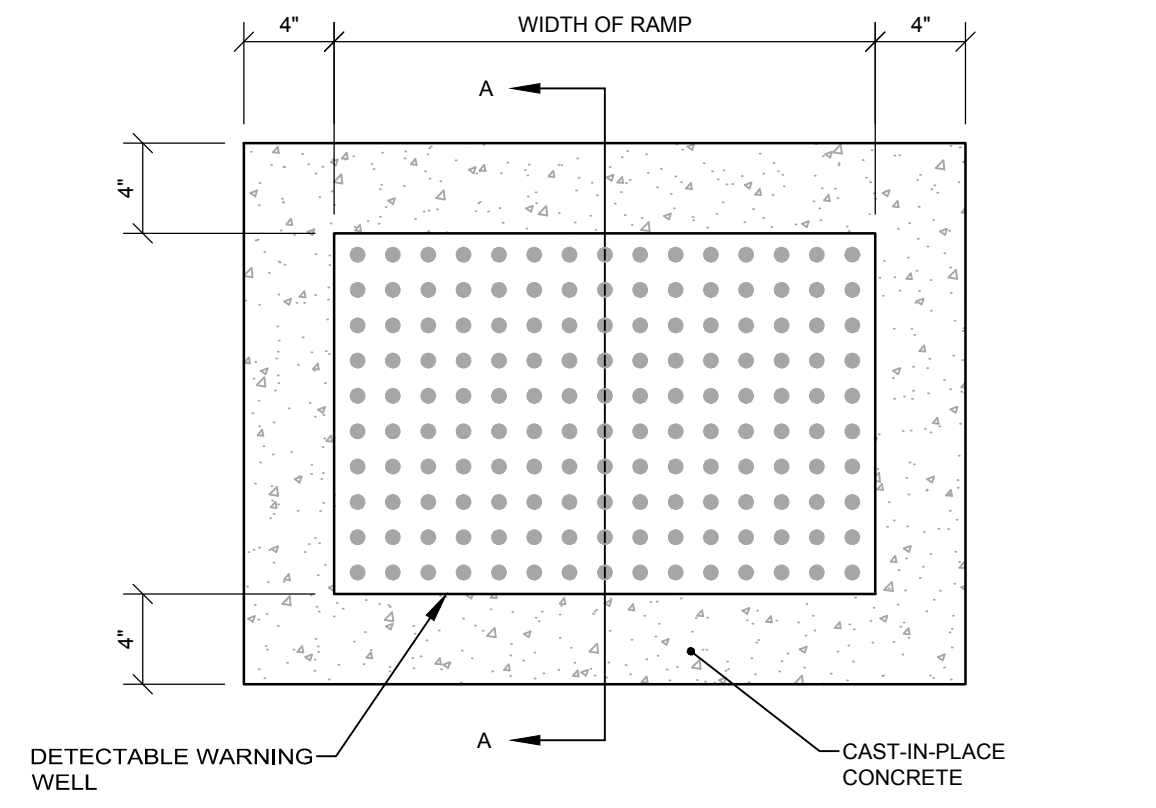
42" PEDESTRIAN FENCE

NOT TO SCALE

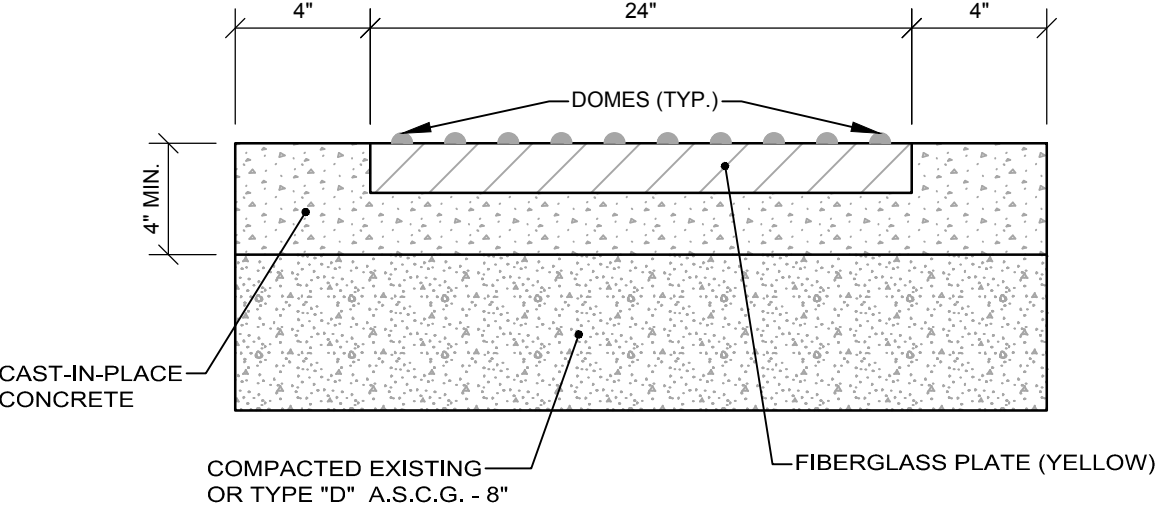
NOTES:

1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. SPECIFICATIONS SHOWN CAN BE CHANGED BY MAST HALCO ONLY.
3. FOOTING WIDTH TO BE (4)X POST WIDTH.
4. FOR MATCHING GATE SEE DRAWING 6-5010M (SINGLE) OR 6-5015M (DOUBLE).
5. IMPERIAL "B" GUARDRAIL BY MASTER HALCO, Co. (1-800-229-5615)
6. ALL SURFACES SHALL BE BLACK POWDER COATED FINISH BY MANUFACTURER.

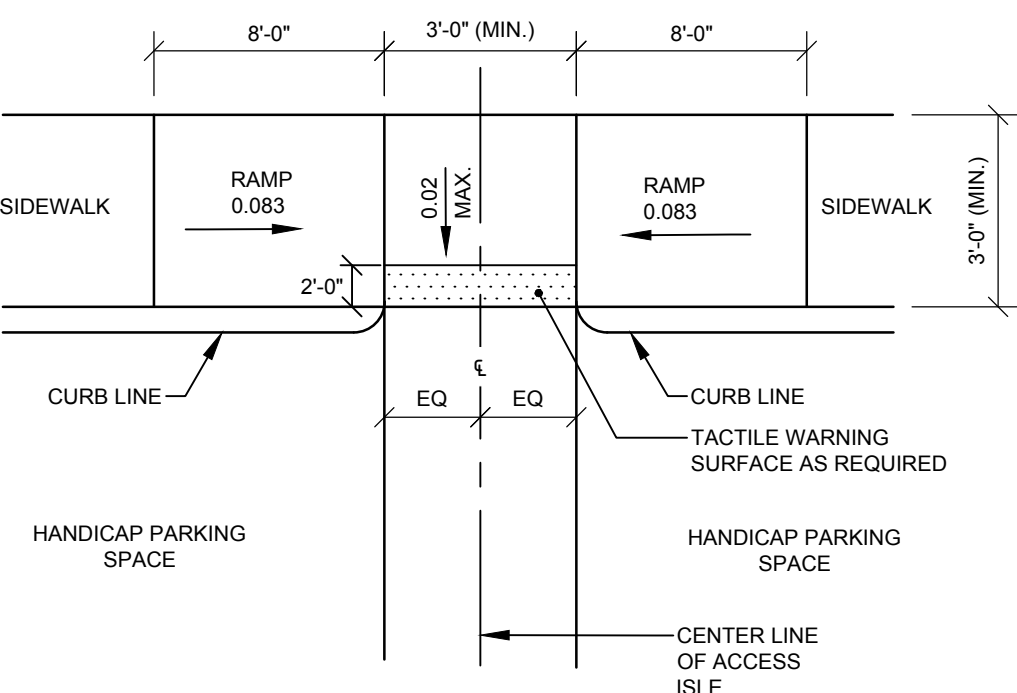
PICKET SIZE	GAUGE
3/4" [19MM]	14 GA



PLAN VIEW OF DETECTABLE WARNING AND WELL

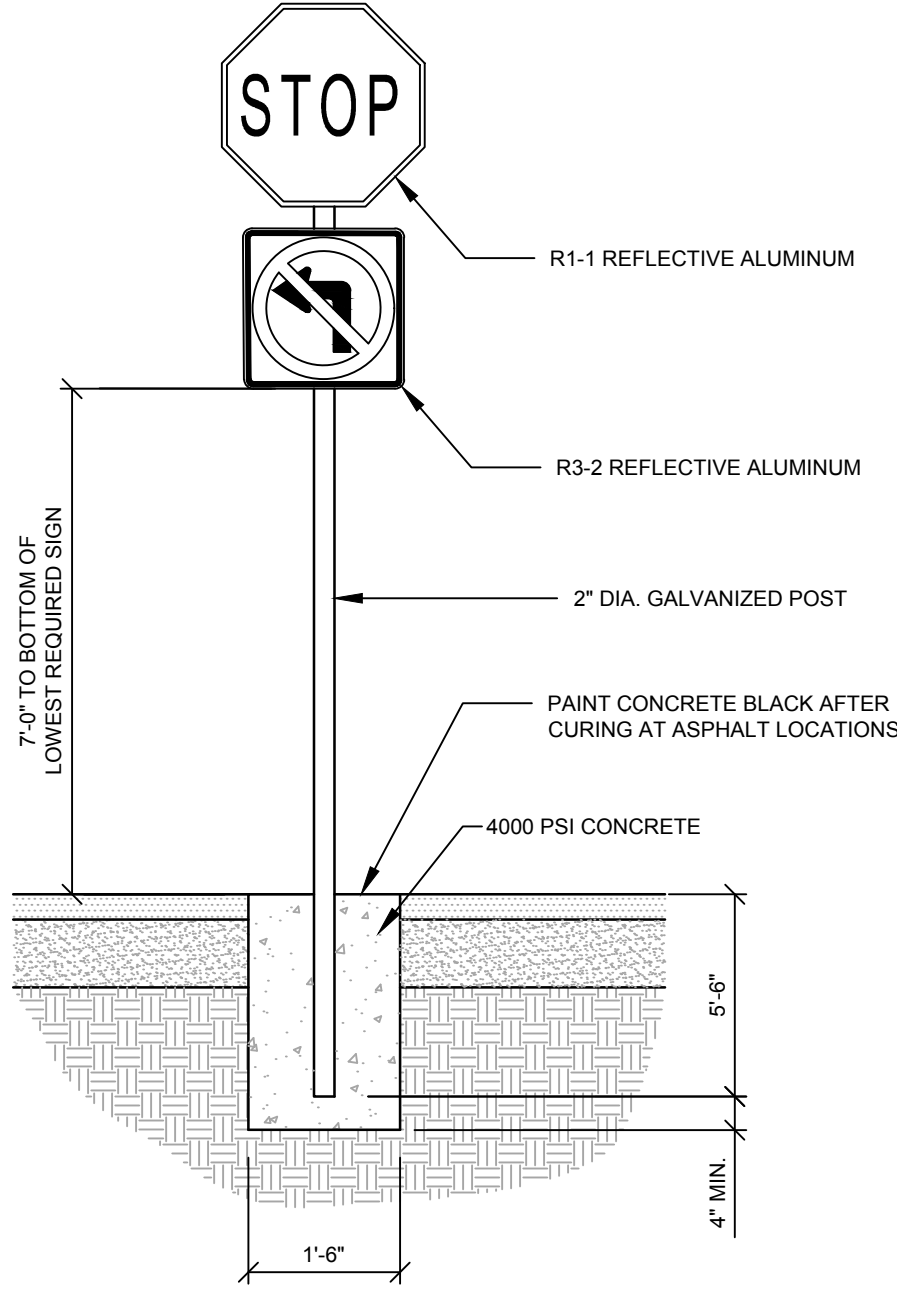


SECTION A-A

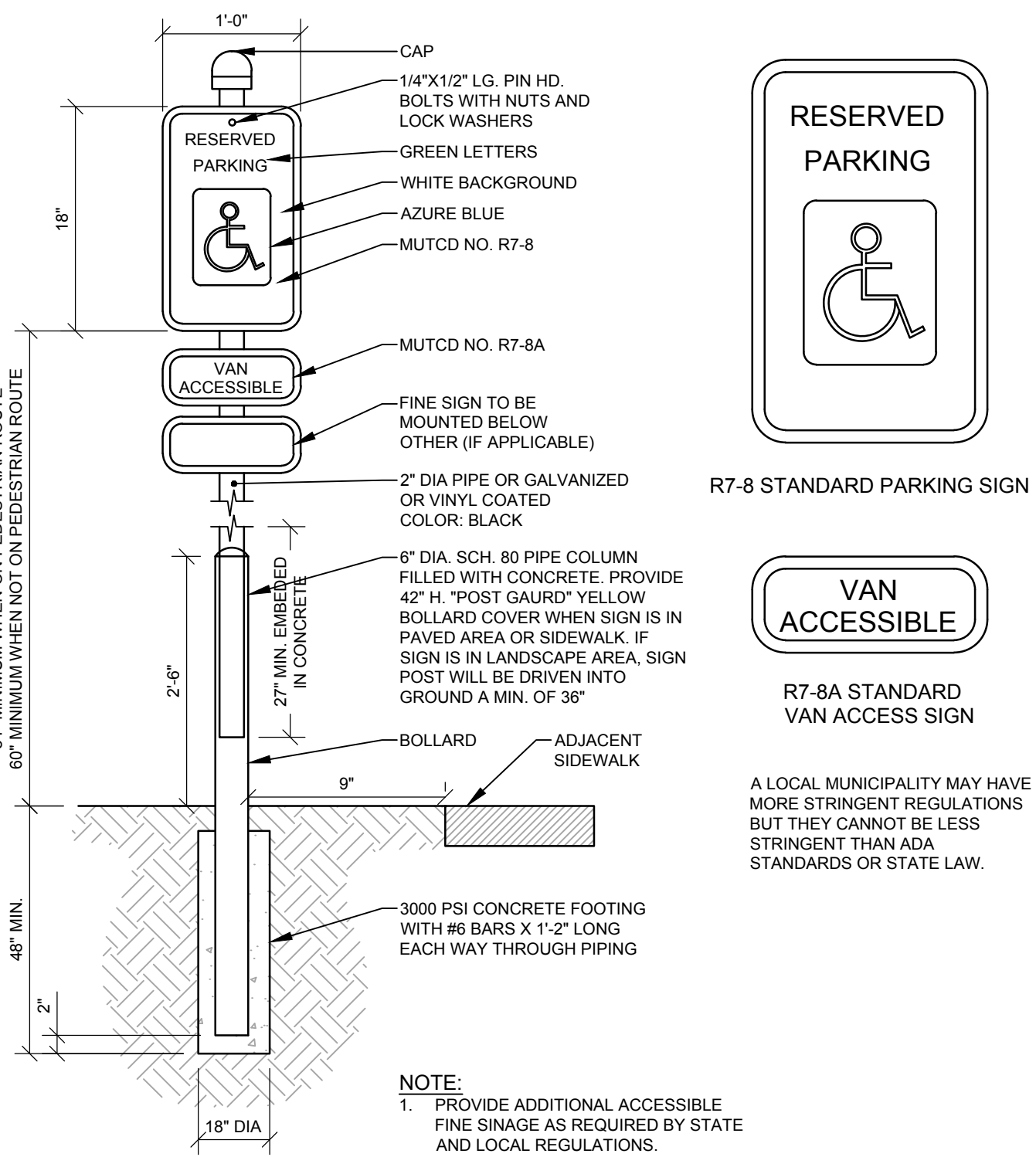


ADA ACCESSIBLE RAMP

NOT TO SCALE



STOP & LEFT TURN PROHIBITION SIGN (S-4)

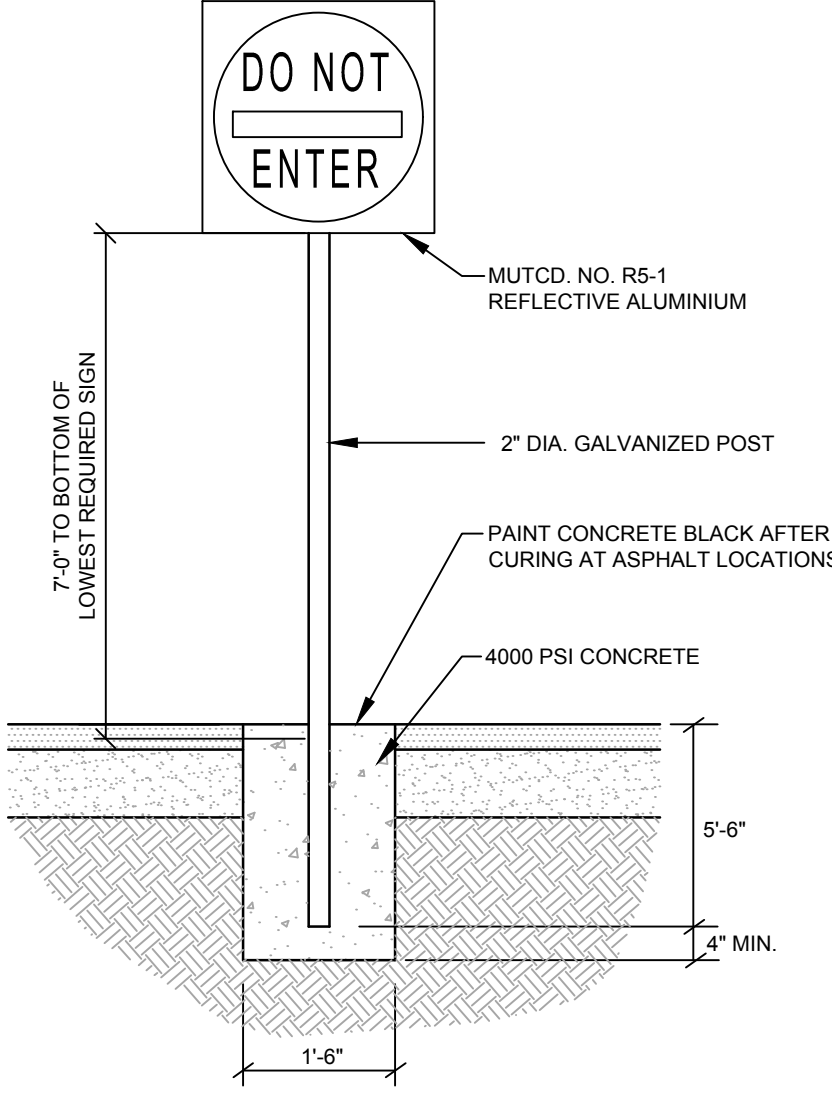


NOTE:

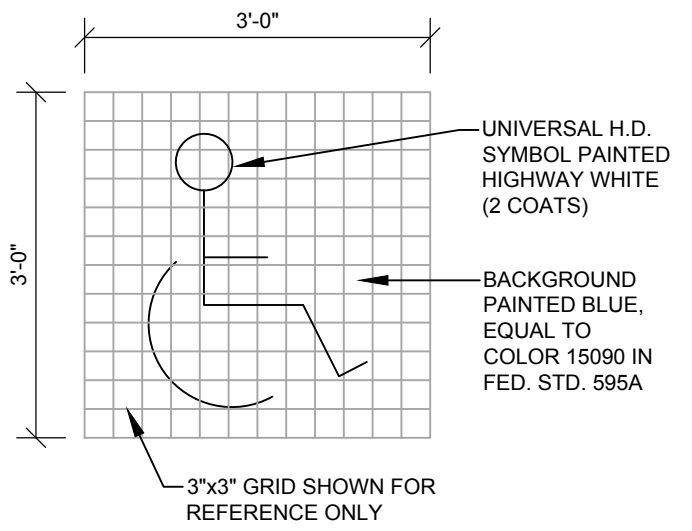
1. PROVIDE ADDITIONAL ACCESSIBLE SIGN PER 25 HC SPACES REQUIRED.
2. PROVIDE "ONE VAN" ACCESSIBLE SIGN PER 25 HC SPACES REQUIRED.
3. WHENEVER POSSIBLE SIGN SHALL BE MOUNTED CENTERED ON PARKING SPACE UNLESS SPECIFIED OTHERWISE.
4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO ORDERING MATERIALS.

RESERVED PARKING SIGN - BOLLARD (S-3)

NOT TO SCALE

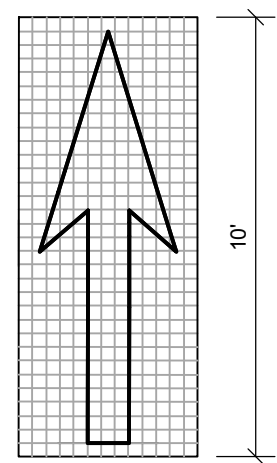


DO NOT ENTER SIGN (S-2)



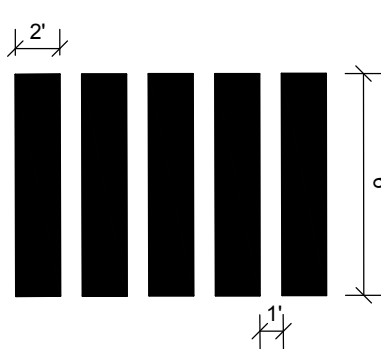
ADA RESERVED PARKING

NOT TO SCALE



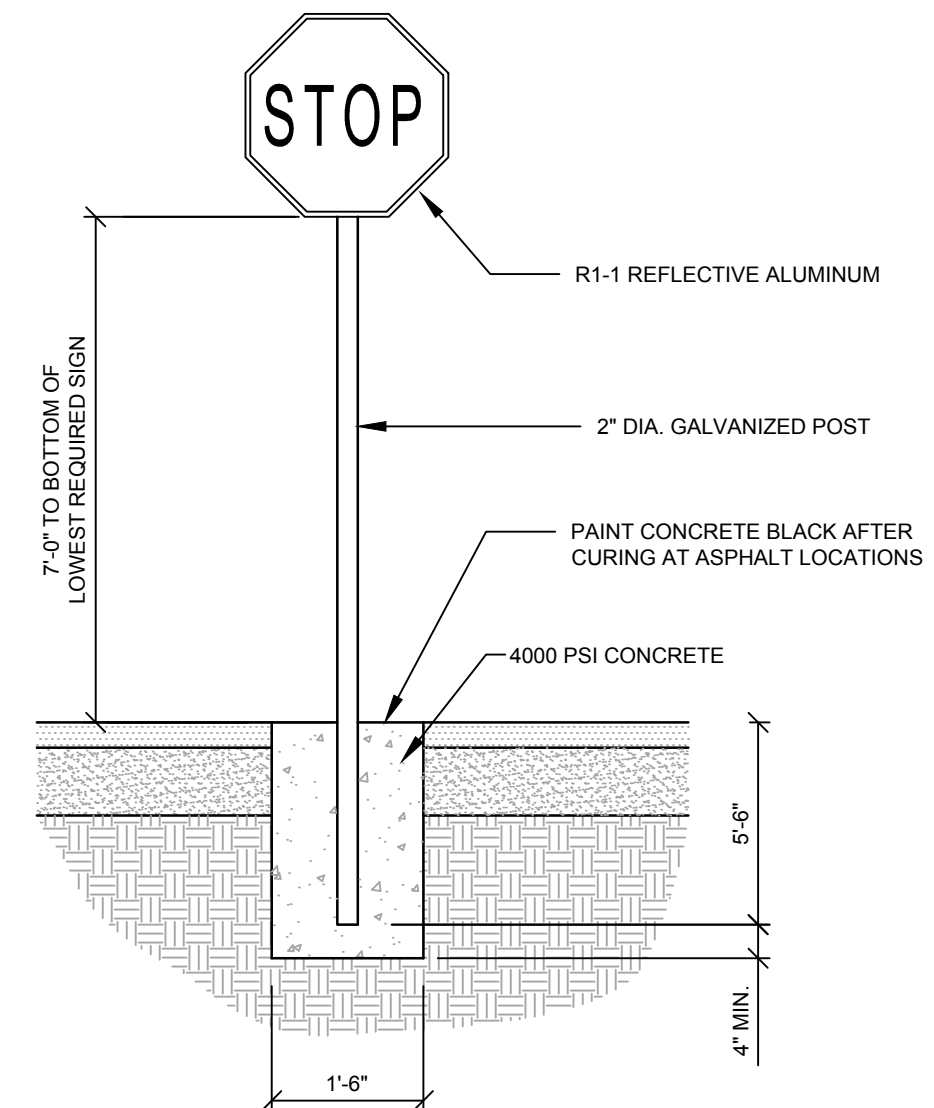
PAVEMENT ARROW DETAIL

NOT TO SCALE



CROSSWALK DETAIL

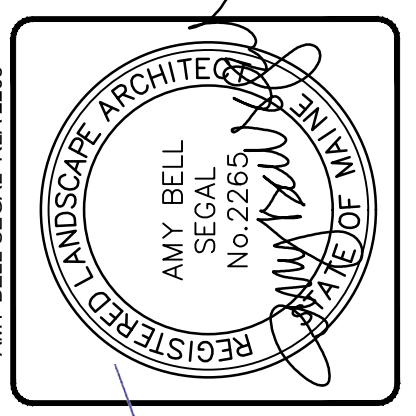
NOT TO SCALE



STOP SIGN (S-1)

PAVEMENT MARKING NOTES

1. ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, U.S. DOT, FHWA, LATEST EDITION.
2. ALL PAVEMENT MARKING LINES SHALL BE PAINT AND 4" WIDE, EXCEPT FOR:
SWSL-12"
SYGL-12"
CROSSWALK BARS - 24"
3. PAVEMENT WORD AND SYMBOL MARKINGS SHALL BE WHITE PAINT.
4. SOLID WHITE STOP LINE SHALL BE A MINIMUM OF 4' BEHIND THE EDGE OF CROSSWALK.



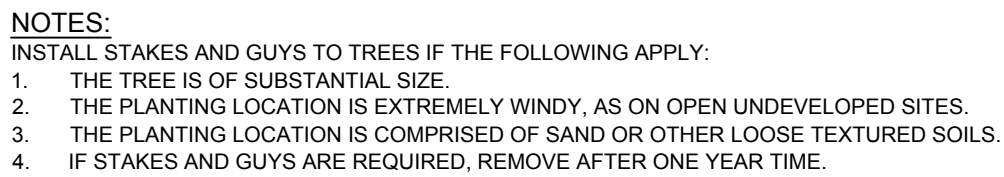
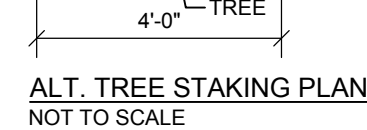
ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT	B	PDO	03/18/2024
ISSUE TO MDP FOR SLODA / NRPA PERMIT APPLICATION	A	PDO	02/29/2024
STATUS:	REV.	BY:	DATE:
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNIQS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNIQS, INC.			



SITE DETAILS	FOR: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION 1001 WESTBROOK STREET PORTLAND, MAINE 04102
FOR: PORTLAND INTERNATIONAL JETPORT PWM CITY OF PORTLAND 1001 WESTBROOK STREET PORTLAND, MAINE 04102	

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	N/A
PROJECT	19059

SHEET C-503



PLANT QUANTITIES SHOWN ON PLANS ARE FOR CONVENIENCE TO THE CONTRACTOR ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL PLANT MATERIALS AND SHALL BE RESPONSIBLE FOR THE FOLLOWING:

1. SIZE AND GRADING STANDARDS FOR PLANT MATERIALS SHALL CONFORM TO THE LATEST EDITION OF "U.S.A. STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.

2. ALL PLANT MATERIALS SHALL BE FREE OF DISEASE AND PESTS.

3. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING METHODS, INCLUDING BUT NOT LIMITED TO: PROPER SITE PREPARATION, GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE BY THE OWNER.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ONE YEAR BY THE CONTRACTOR AND A PERIOD OF TWO YEARS THEREAFTER BY THE OWNER FROM DATE OF INSTALLATION, DURING THE ONE YEAR GUARANTEE PERIOD, DEAD PLANT MATERIAL SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. THE OWNER SHALL HAVE THE RIGHT TO REQUIRE THE CONTRACTOR SHALL OBTAIN FINAL ACCEPTANCE FROM THE OWNER.

5. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM THE SITE PRIOR TO PLANTING.

6. EXISTING TREES TO BE PRESERVED WILL BE PROTECTED DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

7. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF THE UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER.

8. ALL SLOPES SHALL BE MULCHED WITH 3" CLEAN SHEDDED DARK BROWN BARK MULCH.

9. THE CONTRACTOR SHALL PROVIDE 4" LOAM FOR ALL AREAS TO BE SOILED. THE SOIL DEEPED SHALL BE 12" MINIMUM. THE ROLLED THICKNESS OF LOAM, THE LANDSCAPE CONTRACTOR SHALL COORDINATE SUBGRADE PREPARATION WITH THE GENERAL CONTRACTOR PRIOR TO PLACING LOAM.

10. ANY DEBRIS FROM THE SITE SHALL BE REMOVED, INCLUDING PLANT LOCATION, SELECTION, SIZE, QUANTITY OR CONDITION SHALL BE REVIEWED AND APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT (AND MUNICIPAL AUTHORITY, IF APPLICABLE) PRIOR TO INSTALLATION ON SITE.

11. WHEN INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR PERENNIAL PLANTS AND FLOWERING SHRUBS SHALL BE 50% TOPSOIL, 30% TOPSOIL, 20% PARTS SPAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOSTED TOWELL BERMS SHALL BE 12" MINIMUM.

12. DURING CLEANING OF SITE AND PRIOR TO TREE AND SHRUB INSTALLATION, CONTRACTOR SHALL REMOVE INVASIVE PLANTS. AREAS WITH INVASIVE PLANTS SHALL BE IDENTIFIED AND OTHER PLANTING PROPOSED SHALL BE LOAMED AND SEEDED.

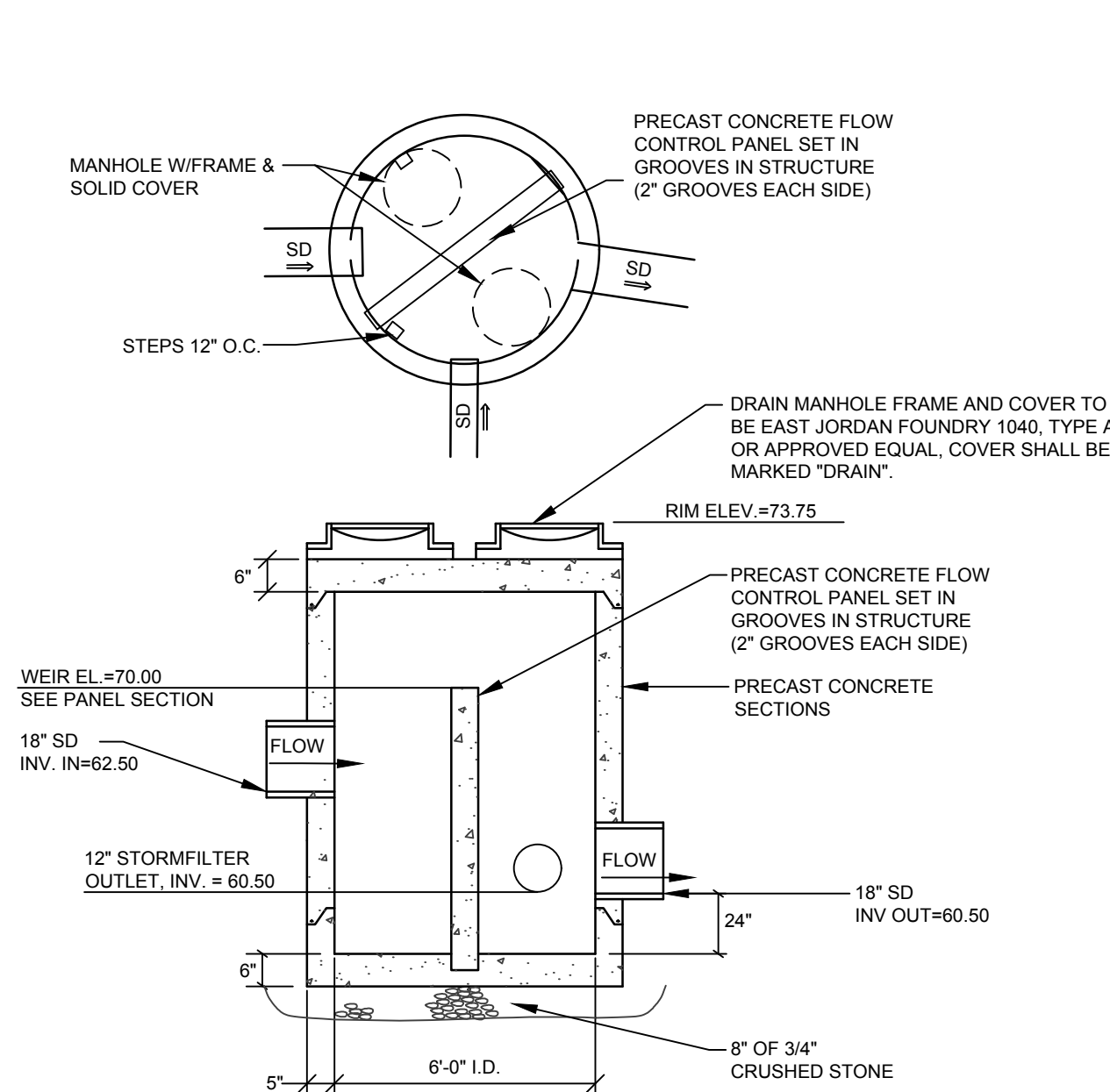
	B	PDO	03/18/2024	ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
	A	PDO	02/29/2024	ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION
	REV.	BY:	DATE:	STATUS:
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S=BAGO
T E C H N I C S
WWW.SBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

SITE DETAILS
OF:
PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR:
PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	N/A
PROJECT	19059

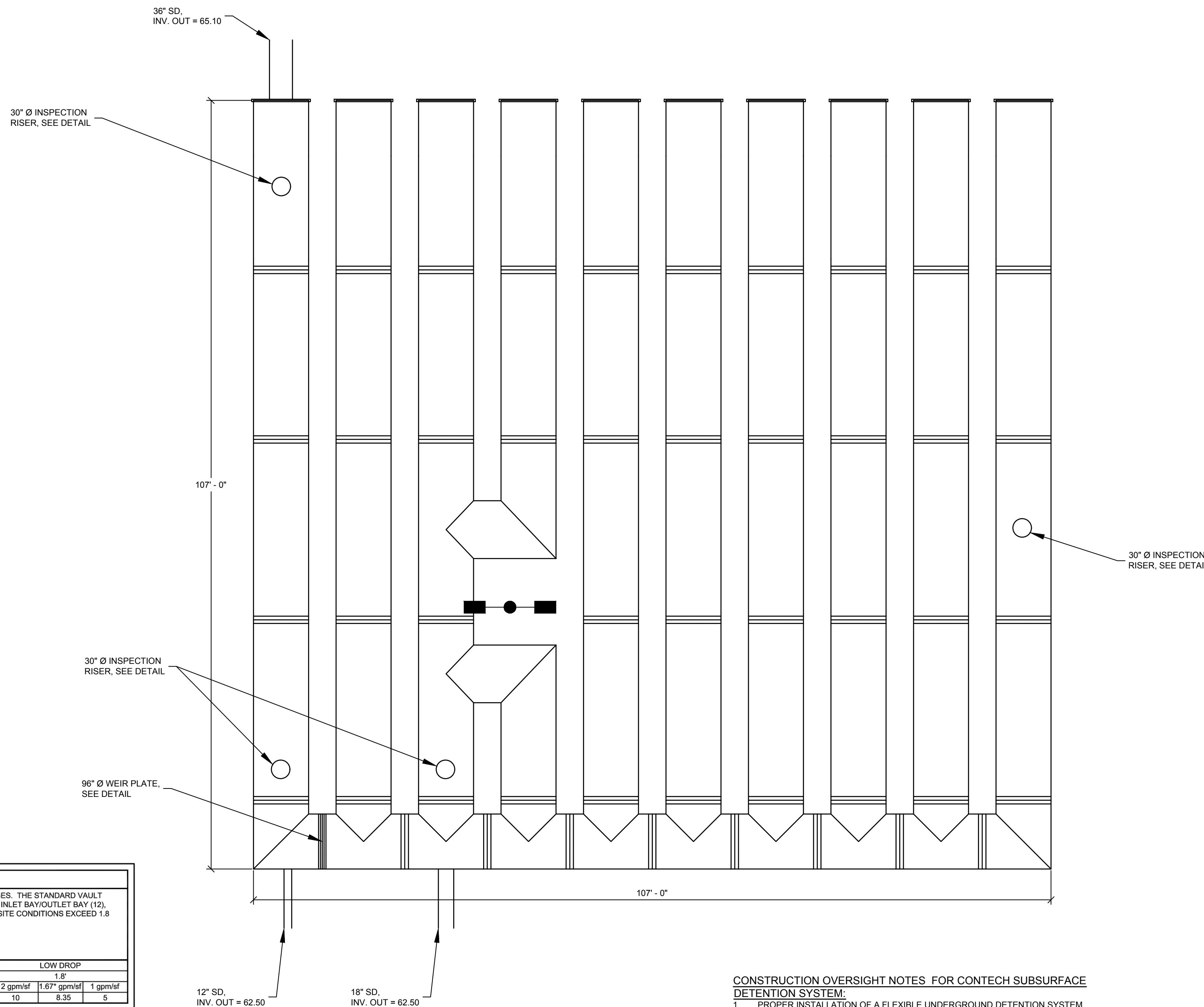
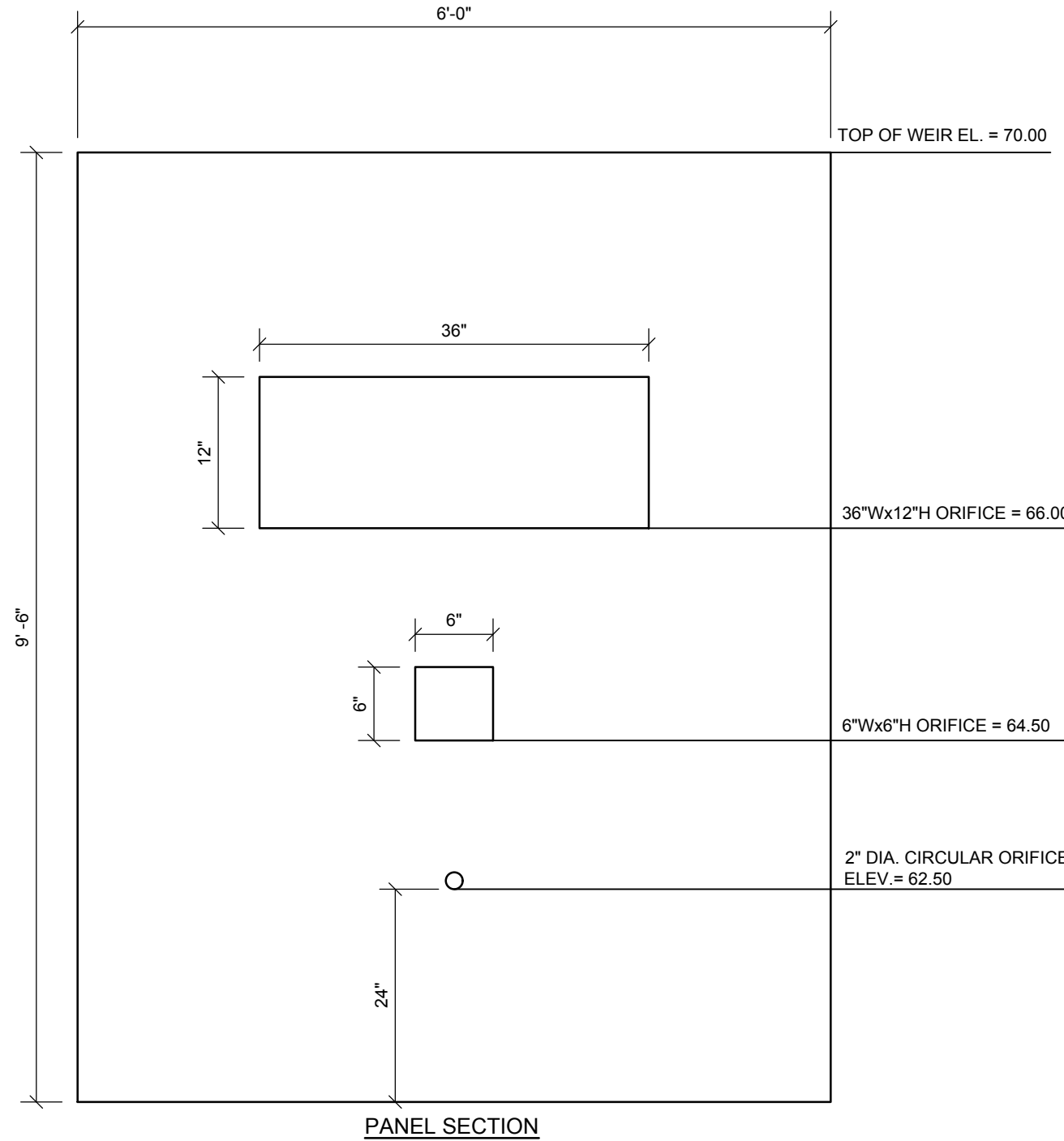
SHEET C-504



- NOTES:
- SUBMIT SHOP DRAWINGS FOR OWNER/ENGINEER APPROVAL.
 - STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.

OUTLET CONTROL STRUCTURE (OCS-1)

NOT TO SCALE

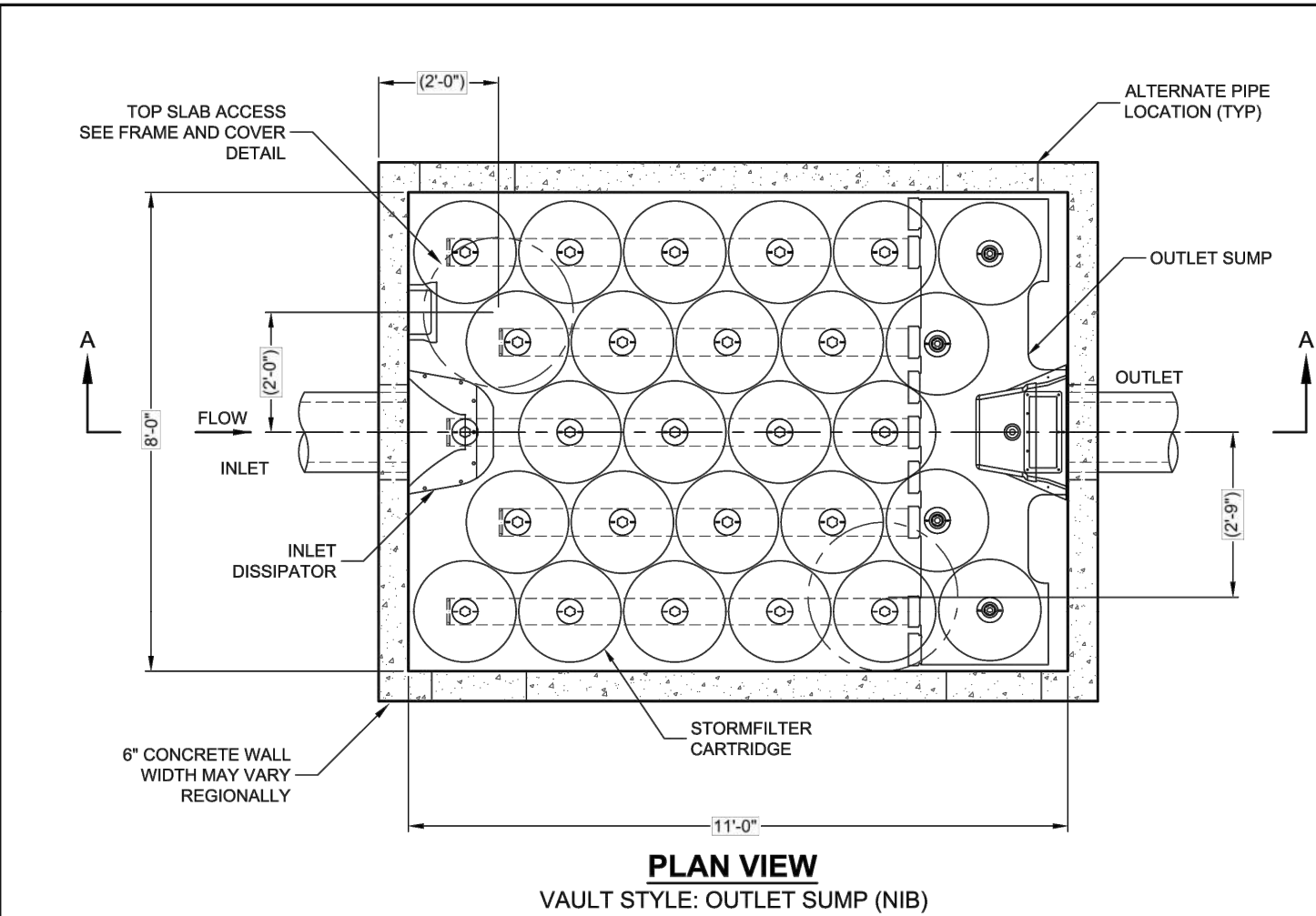
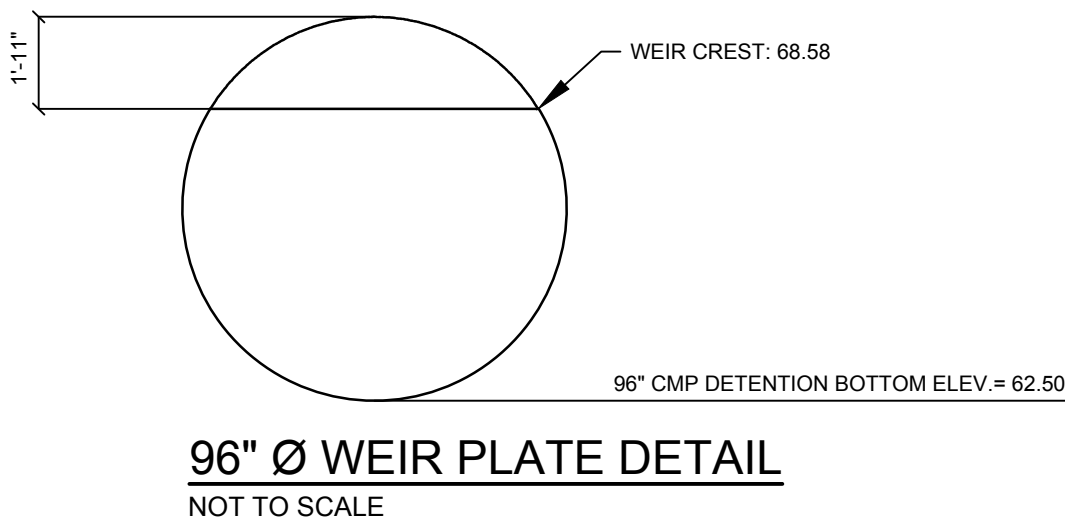


CONSTRUCTION OVERSIGHT NOTES: FOR CONTECH SUBSURFACE DETENTION SYSTEM:

- PROPER INSTALLATION OF A FLEXIBLE UNDERGROUND DETENTION SYSTEM WILL ENSURE LONG-TERM PERFORMANCE. THE CONFIGURATION OF THESE SYSTEMS OFTEN REQUIRES SPECIAL CONSTRUCTION PRACTICES THAT DIFFER FROM CONVENTIONAL FLEXIBLE PIPE CONSTRUCTION. CONTECH ENGINEERED SOLUTIONS STRONGLY SUGGESTS SCHEDULING A PRE-CONSTRUCTION MEETING WITH YOUR LOCAL SALES ENGINEER TO DETERMINE IF ADDITIONAL MEASURES, NOT COVERED IN THE SUBMITTAL DRAWINGS, ARE APPROPRIATE FOR YOUR SITE.
- INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE CONSTRUCTION AND STABILIZATION OF THE PROPOSED SUBSURFACE DETENTION SYSTEM TO BE BUILT ON THE SITE. INSPECTIONS SHALL CONSIST OF AN APPROPRIATE NUMBER OF VISITS TO THE SITE TO INSPECT THE INSTALLATION OF THE SUBSURFACE DETENTION SYSTEM CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO BACKFILL OVER THE SYSTEM.

CONTECH SUBSURFACE DETENTION SYSTEM SF-1

NOT TO SCALE

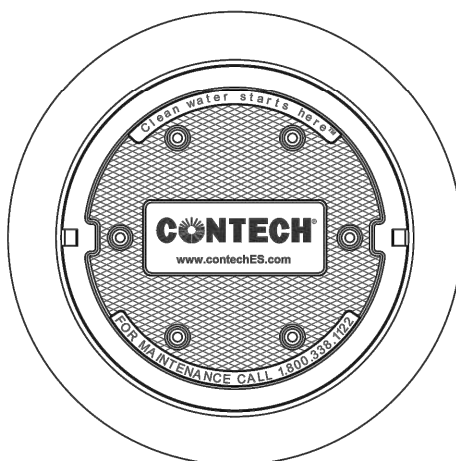


STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (26). VAULT STYLE OPTIONS INCLUDE INLET BAY (17), INLET BAY/OUTLET BAY (12), OUTLET BAY (21), FULL HEIGHT BAFFLE WALL (17). STORMFILTER 0X11 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

CARTRIDGE SELECTION		27"		18"		LOW DROP	
RECOMMENDED HYDRAULIC DROP (ft)		3.05'		2.3'		1.8'	
SPECIFIC FLOW RATE (gpm/ft²)		2 gpm/ft²	1.67 gpm/ft²	1 gpm/ft²	2 gpm/ft²	1.67 gpm/ft²	1 gpm/ft²
CARTRIDGE FLOW RATE (gpm)		22.5	18.75	11.25	15	12.53	7.5

* 1.67 gpm/ft² SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER

(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID	*		
WATER QUALITY FLOW RATE (cfs)	*		
PEAK FLOW RATE (cfs)	*		
RETURN PERIOD OF PEAK FLOW (yrs)	*		
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	*		
NUMBER OF CARTRIDGES REQUIRED	*		
CARTRIDGE FLOW RATE	*		
MEDIA TYPE (PERLITE, ZPS, PSORB)	*		
PIPE DATA:			
INLET PIPE #1	*		
INLET PIPE #2	*		
OUTLET PIPE	*		
UPSTREAM RIM ELEVATION	*		
DOWNSTREAM RIM ELEVATION	*		
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
	*		*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES

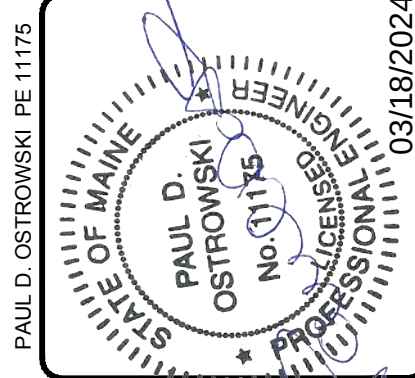
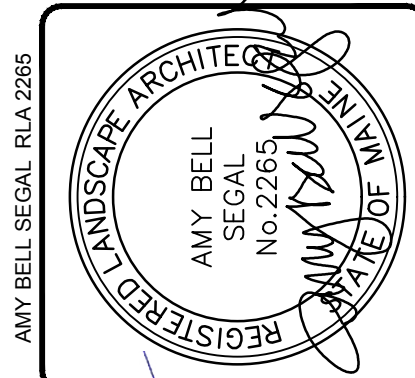
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M208 AND BE CAST WITH THE CONTECH LOGO.
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF-CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 30 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft).
- STORMFILTER STRUCTURE SHALL BE PRECAST CONFORMING TO ASTM C-857 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER VAULT (LIFTING CLUTCHES PROVIDED).
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLY VAULT.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH
ENGINEERED SOLUTIONS LLC
www.contechES.com
3025 Centre Pointe Dr., Suite 100, West Chester, OH 45380
800-338-1122 613-646-7000 613-646-7993 FAX

SF0811
STORMFILTER
STANDARD DETAIL



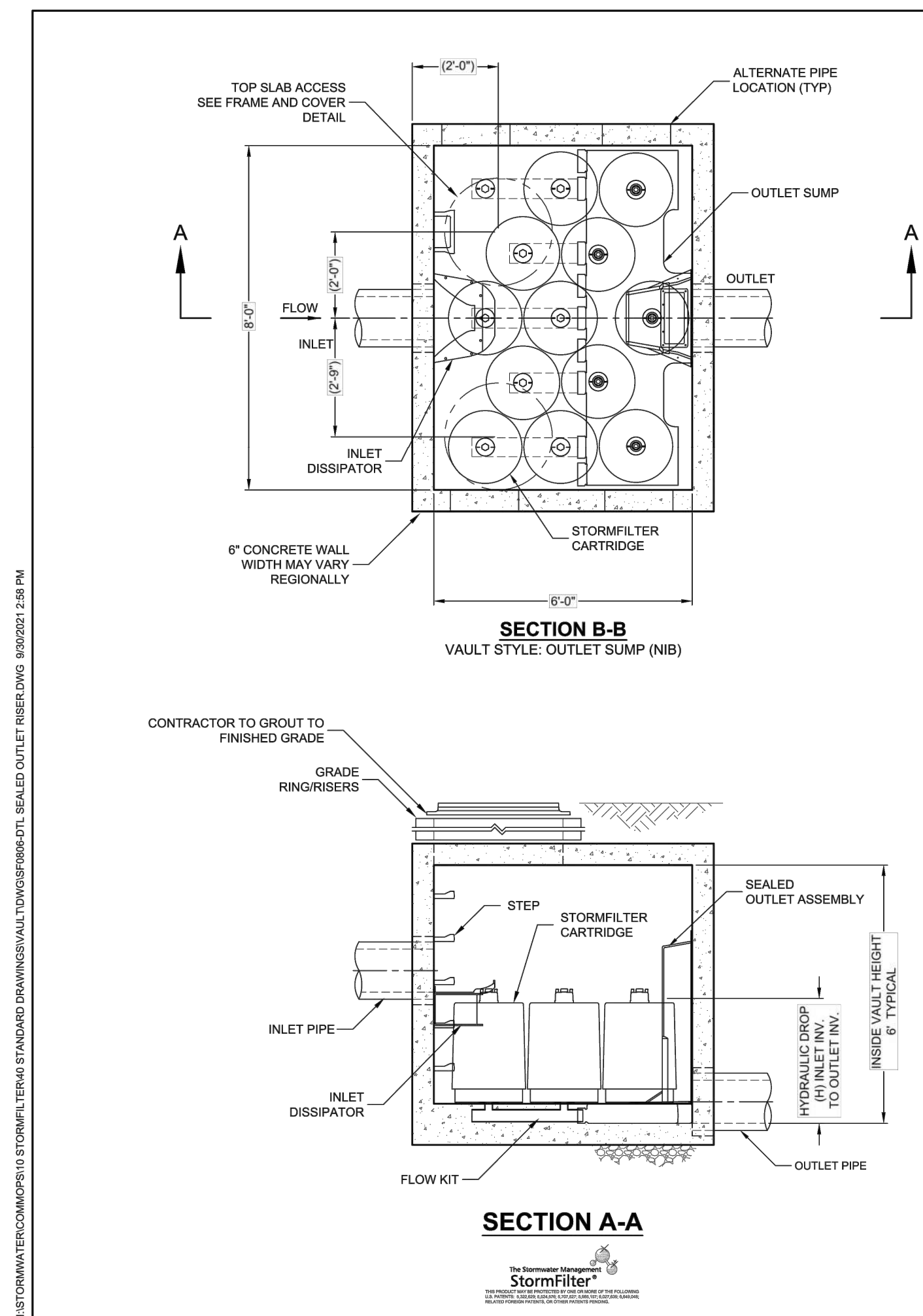
ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT	B	PDO	03/18/2024	STATUS:	
ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION	A	PDO	02/29/2024	DATE:	
REV. BY:					
DATE:					
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SITE DETAILS
OF: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102
FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	N/A
PROJECT	190919

SHEET C-505



STORMFILTER DESIGN NOTES									
STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD VAULT STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (12). VAULT STYLE OPTIONS INCLUDE OUTLET BAY (7). STORMFILTER 8X6 PEAK HYDRAULIC CAPACITY IS 1.8 CFS. IF THE SITE CONDITIONS EXCEED 1.8 CFS AN UPSTREAM BYPASS STRUCTURE IS REQUIRED									
CARTRIDGE SELECTION									
CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67 gpm/sf	1 gpm/sf	2 gpm/sf	1.67 gpm/sf	1 gpm/sf	2 gpm/sf	1.67 gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.75	11.25	15	12.53	7.5	10	8.35	5
* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY									

SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID	*		
WATER QUALITY FLOW RATE (cfs)	*		
PEAK FLOW RATE (cfs)	*		
RETURN PERIOD OF PEAK FLOW (yrs)	*		
CARTRIDGE HEIGHT (27", 18", LOW DROP(LD))	*		
NUMBER OF CARTRIDGES REQUIRED	*		
CARTRIDGE FLOW RATE	*		
MEDIA TYPE (PERLITE, ZPG, PSORB)	*		
PIPE DATA			
INLET PIPE #1	I.E.	MATERIAL	DIAMETER
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
UPSTREAM RIM ELEVATION	*		
DOWNSTREAM RIM ELEVATION	*		
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
	*	*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

- GENERAL NOTES**
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 - DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
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- INSTALLATION NOTES**
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 - CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL VAULT SECTIONS AND ASSEMBLE VAULT.
 - CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
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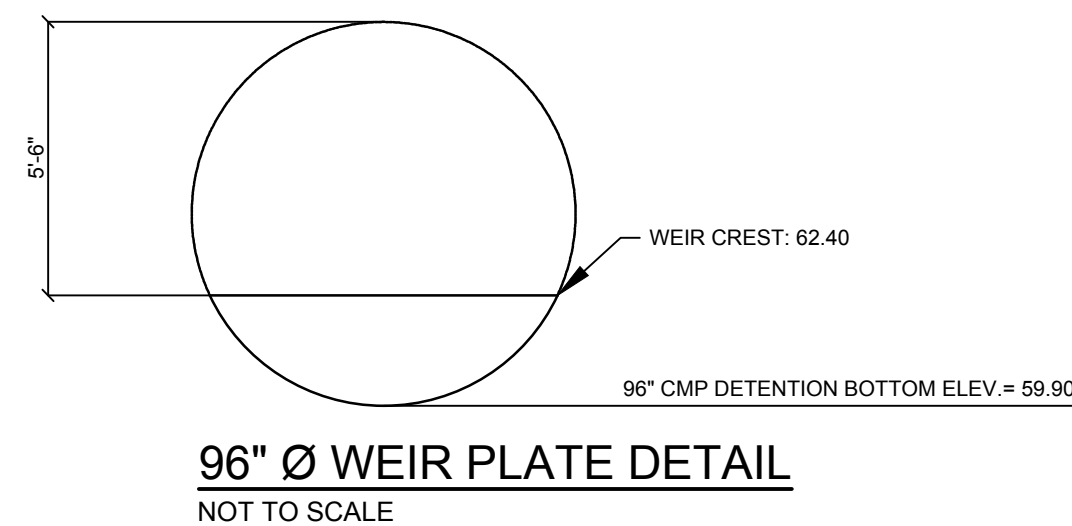
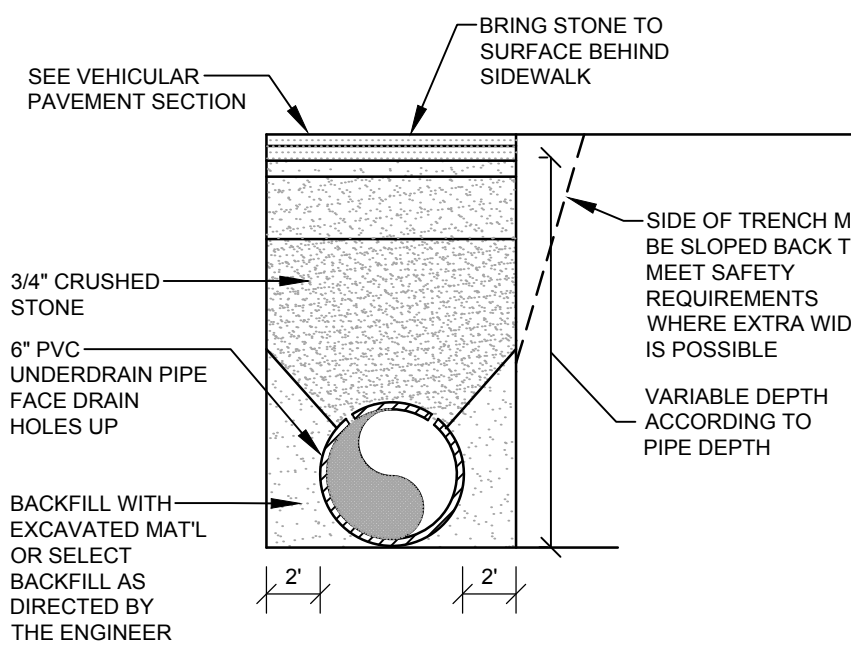
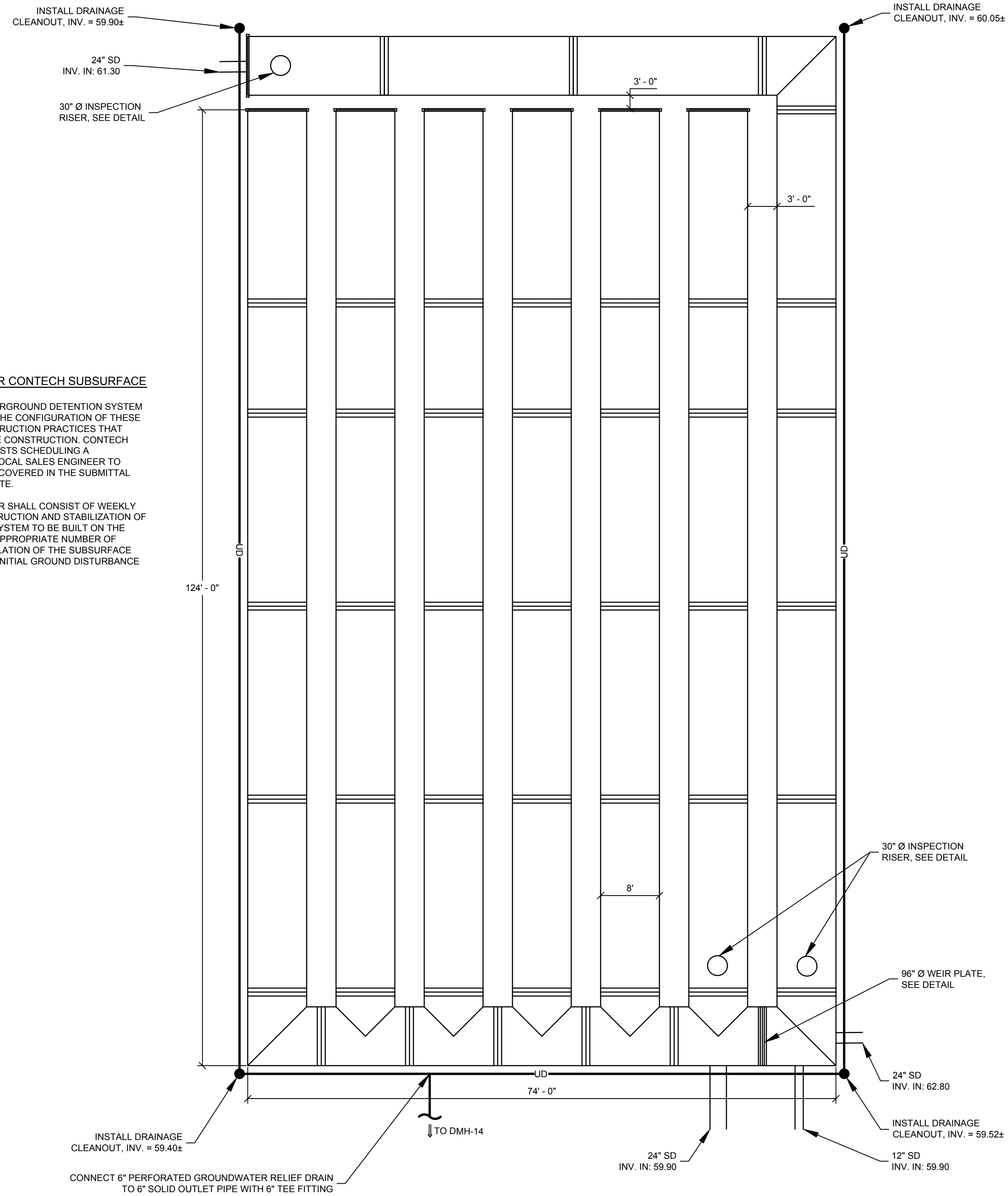
CONTECH
ENGINEERED SOLUTIONS LLC

www.ContechES.com
2025 Centre Pointe Dr., Suite 300, West Chester, OH 45380
800-338-1122 513-645-7000 513-645-7993 FAX

SF806
STORMFILTER
STANDARD DETAIL

CONSTRUCTION OVERSIGHT NOTES FOR CONTECH SUBSURFACE DETENTION SYSTEM:

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- INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE CONSTRUCTION AND STABILIZATION OF THE PROPOSED SUBSURFACE DETENTION SYSTEM TO BE BUILT ON THE SITE. INSPECTIONS SHALL CONSIST OF AN APPROPRIATE NUMBER OF VISITS TO THE SITE TO INSPECT THE INSTALLATION OF THE SUBSURFACE DETENTION SYSTEM CONSTRUCTION FROM INITIAL GROUND DISTURBANCE TO BACKFILL OVER THE SYSTEM.



SITE DETAILS

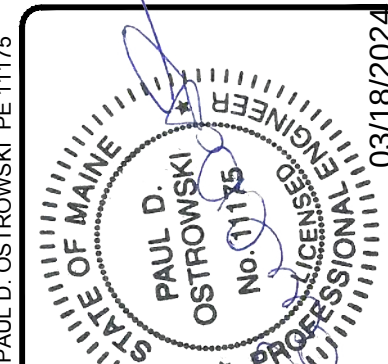
OF: PORTLAND INTERNATIONAL JETPORT PARKING EXPANSION
1001 WESTBROOK STREET
PORTLAND, MAINE 04102

FOR: PORTLAND INTERNATIONAL JETPORT PWM
CITY OF PORTLAND
1001 WESTBROOK STREET PORTLAND, MAINE 04102

DESIGNED	TFG
DRAWN	EPR
CHECKED	PDO
DATE	02/29/2024
SCALE	N/A
PROJECT	19059

SHEET C-506

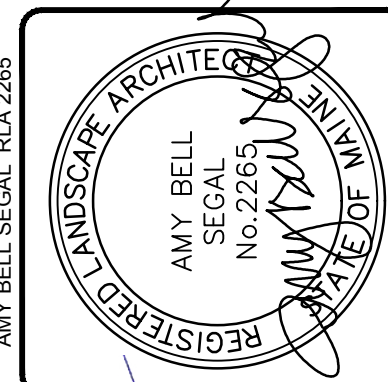
PAUL D. OSTROWSKI PE 11175



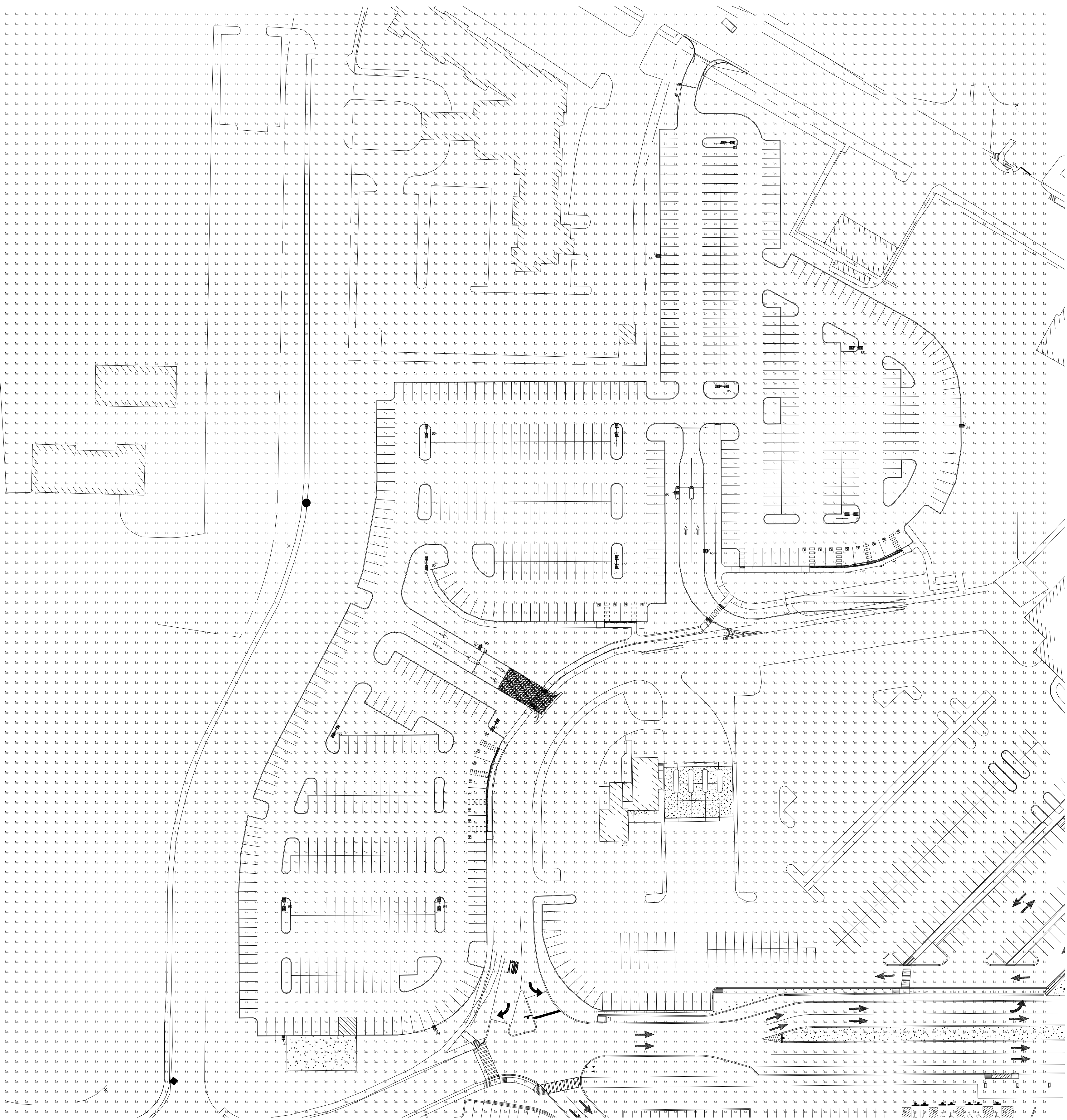
B	PDO	03/18/2024	ISSUED TO CITY FOR MAJOR SITE PLAN AMENDMENT
A	PDO	02/29/2024	ISSUE TO MDEP FOR SLODA / NRPA PERMIT APPLICATION
REV.	BY:	DATE:	STATUS:
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SEBAGO
TECHNICS

WWW.SEAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

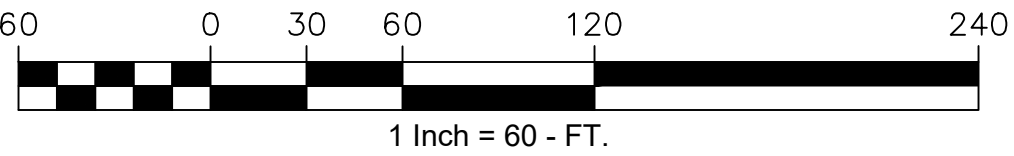


ANY BELL SEGAL RLA 2265



Luminaire Schedule							
Symbol	Qty	Label	Mounting Height	LLF	Lum. Lumens	Lum. Watts	Description
	3	A5	30' - 0" AFG	0.900	23445	240	VP-2-72L-240-3K7-5QW
	12	B5	30' - 0" AFG	0.900	23445	240	VP-2-72L-240-3K7-5QW
	4	A4	30' - 0" AFG	0.900	21466	240	VP-2-72L-240-3K7-4W

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Area	Illuminance	Fc	0.53	4.8	0.0	N.A.	N.A.
Parking Area	Illuminance	Fc	1.90	4.8	0.5	3.80	9.60



1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO CURRENT. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.

2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.

3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

TITLE:

PORTLAND JETWAY
PORTLAND, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

R1: 11/27/23R2: 01/23/24R3: 01/30/24R4: 02/05/24

R5: 02/07/24

Current

DN BY:
DHK
REV BY:
DHK
QUOTE:
N/A

DATE:
11/17/23
DATE:
02/05/24
DRAWING / DESIGN NO.:
A232214R5

CHK BY:
N/A
SCALE:
AS NOTED

Page 429

To: Chair Brandon Mazer & Members of the Planning Board
From: Eric Freeman
Date: April 16, 2024
Re: 9 Boyd Street
Project ID: PL-002845-2024
CBL: CBL 022 H001
Meeting Date: May 14, 2024.

INTRODUCTION

The Portland Housing Authority (PHA) has submitted a Major Site Plan application to construct a six-story, 50-unit affordable housing building with associated site improvements located at 9 Boyd Street in the R-6 zone and the R-7 Compact Residential Overlay. This 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.

The Planning and Urban Development Department mailed 110 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the May 4 and May 7, 2024 edition of the Portland Press Herald.

Applicant: Portland Housing Authority.

Applicant Representatives: Acorn Engineering, Ryan Senatore Architecture



Figure 1: Front elevation of the proposed building as seen from Boyd Street.

REQUIRED REVIEWS

Review	Applicable Standards
Site Plan	Section 14.6

PROJECT DATA

Existing Zoning	R-6 , R-7 Compact Residential Overlay
Property Size	24,403 SF
Existing Use	Four, 10-unit public housing buildings
Proposed Development Program	6-story, 50-unit affordable housing building.

EXISTING CONDITIONS AND SURROUNDING AREA

The existing site is located at the intersection of Oxford and Boyd Streets in the East Bayside Neighborhood. Currently the “COMB” block consists of four, 10-unit multifamily buildings constructed in the late 1960’s that are owned by the Portland Housing Authority. The block also features two small parking lots, grassed open space and mid-block pedestrian connectivity.

The site is located in the vicinity of two recent Portland Housing Authority redevelopment Projects that have added approximately 80 affordable housing units to the neighborhood. The site is at the bottom of a moderately steep grade descending from Cumberland Avenue.



Figure 2: The existing site

PROPOSED DEVELOPMENT

The proposed development involves the demolition of all four existing multifamily buildings and the construction of a six-story, 50-unit affordable housing building with on-site resident amenities, office and community space. This application involves a lot split with the intention that 9 Boyd Street will be the first of a multi-phase project to redevelop the entirety of the “COMB” (Cumberland, Oxford, Mayo, Boyd) block. The building will consist of 45 affordable units and five market rate units. The building will have 10 one-bedroom units, 16 two-bedroom units, 19 three-bedroom units and 5 four-bedroom units.

This application also involves the reconstruction of sidewalks along the project frontage of Oxford & Boyd

Streets using concrete pavers, reconstruction of the existing parking lot on Oxford Street and the construction of retaining walls to account for on-site grade differentials and to create more usable and accessible open space on the parcel. This application will upgrade existing utilities servicing the site and install stormwater detention and treatment facilities to meet the City's stormwater requirements.

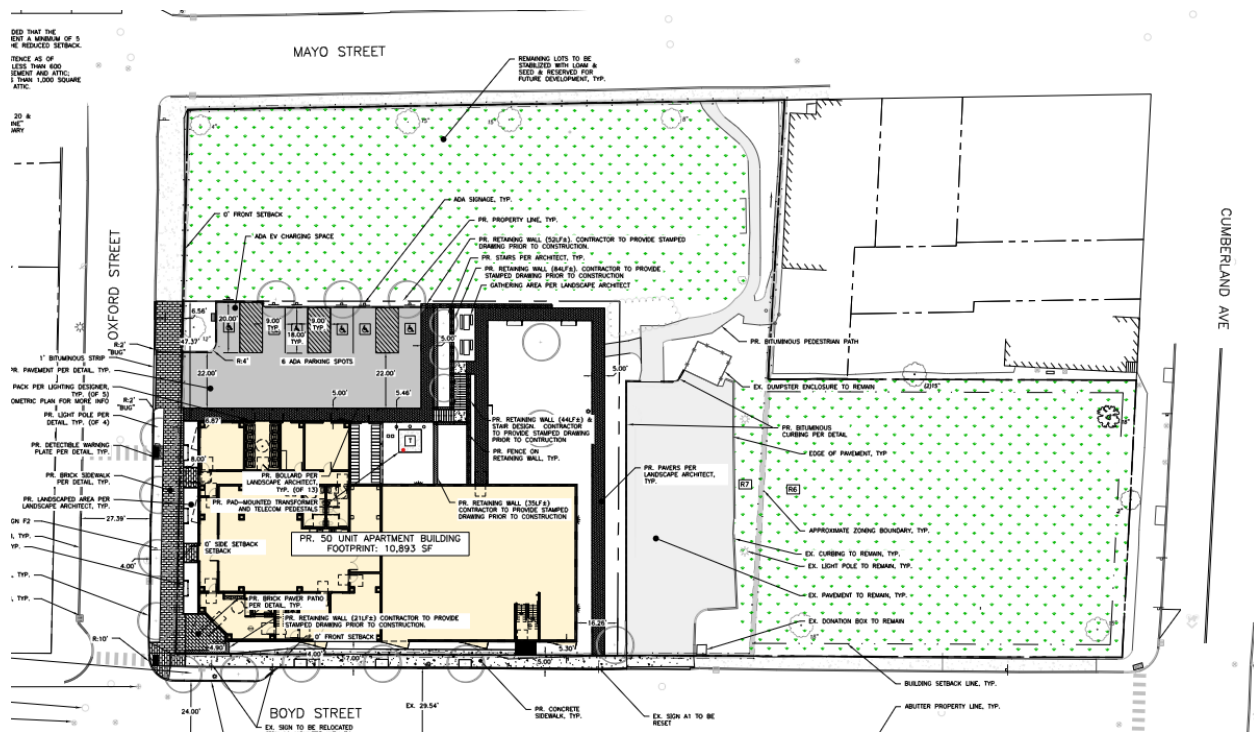


Figure 3: Site Plan

RIGHT, TITLE, & INTEREST

The applicant has demonstrated sufficient right, title and interest to the parcels involved in this application. Portland Housing Development Corporation (PHDC) is the co-applicant and developer, and the Sole Manager of the COMB Block. PHDC is a Maine 501(c)(4) nonprofit corporation and directly affiliated with the Portland Housing Authority.

Full Right, Title and Interest documentation is included as Attachment D

FINANCIAL & TECHNICAL CAPACITY

The applicant intends to submit this application to MaineHousing this fall, for consideration for a 9% allocation award for Low Income Housing Tax Credits (LIHTC). The tax credits would generate equity to help fund the proposed redevelopment. A tax credit investor will be identified if a notice of an award is received.

PHDC has several relationships with banks and will be selecting a bank partner for construction financing. Typical terms are expected for this loan, which would extend the duration of the construction period with interest-only payments at a market-based interest rate typical of such loans.

Full financial capacity documentation is included as attachment G

Acorn Engineering and Ryan Senatore Architecture have demonstrated capacity and experience working on commercial and residential projects of a similar scale. (Attachment H)

ZONING ANALYSIS

The subject properties lie within the Residential-6 (R-6) zone and within the R-7 Compact Residential Overlay zone. The proposed use is a use that is permitted by right within the R-6 / R-7 zone. Relevant sections of the R-7 purpose statements include:

- R-7:** *To encourage and accommodate compact residential development on appropriate locations on the Portland peninsula, pursuant to the New Vision for Bayside and housing plans of the City of Portland. Suitable sites should be within walking distance of downtown or other work places, shopping and community facilities, and have access to public or private off-site parking or transit service. The intent of this zone is to foster increased opportunities for compact living for owners and renters representing a variety of income levels and household types.*

	Required	Proposed
Lot Size	None	24,403 SF
Area Per Dwelling Unit	174 SF	488 SF
Maximum Height (ft)	75 ft.	61 ft.
Rear Setback	10 ft.	47 ft.
Side Setback	5 ft.	7 ft.
Lot Coverage	Up to 100%	44.6%
Landscaped Open Space	20%	25%
Off-street parking spaces	None	6

SITE PLAN STANDARDS (Section 14.6)

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 14.6. Staff comments are below.

1. Transportation Standards (Section 14.6.1)

A. Impact on surrounding street systems

This application proposes to install a curb extension at the intersection of Oxford and Boyd Streets. The curb extension would extend approximately 20 feet along Boyd Street, removing one on-street parking space.

The project is not anticipated to create any significant impact to surrounding streets.

Staff consider this standard to be met.

B. Access and circulation

The applicant proposes to reconstruct sidewalks along Boyd and Oxford Street using concrete pavers. City Staff have had internal discussions regarding sidewalk materials and would request that brick sidewalks be installed as part of this application. Sidewalks will be rebuilt to city standards. Internal sidewalks are provided to allow for site circulation and mid-block permeability. Internal sidewalks will meet ADA standards, providing pedestrian access to and from the building entrances and connect to future project phases. It is anticipated that the loading and servicing of the proposed building will be primarily from the parking area.

Staff consider this standard to be met.

C. Public transit access

This standard is not applicable to this application.

D. Parking

This application will retain the six (6) existing ADA parking spaces to be utilized by the adjacent “Bayside Anchor” Development. The applicant has cited table 19-B to establish a lesser parking requirement for affordable housing regardless of the size of the proposed project. This project is also within ¼ mile of fixed-route transit and is thus not required to provide any on-site vehicular parking. Bicycle parking is provided on-site in a secure room with 20 proposed bicycle spaces.

Staff consider this standard to be met. Met

E. Transportation demand management (TDM)

This application does not exceed 50,000 square feet of total floor area and thus does not require a TDM plan.

Staff finding: Not applicable.

2. Environmental Quality Standards (Section 14.6.2)

A. Preservation of significant natural features

There are no known significant natural features on this site.

Staff consider this standard to be met.

B. Landscape preservation

A total of 4 trees are proposed to be removed. One existing 12” tree will be preserved and incorporated into the site design, adjacent to the driveway entrance on Oxford Street. The applicant has noted that measures will be taken to prevent impacts to existing vegetation during demolition and construction. The proposed plan includes the retention of a 12” caliper Honey Locust on East Oxford Street, the planting of 11 new street trees along Boyd and East Oxford Street.

Staff consider this standard to be met.

C. Site landscaping and buffers

The site's interior will be planted with a mixture of canopy trees, understory trees, shrubs, and accent plantings. A total of 18 trees are being proposed, including 11 new street trees along Boyd and Oxford Streets. The remaining street trees will be provided through a contribution to the City of Portland tree fund.

The project also proposes 30% of the site as open space consisting of 10% hardscape open space and 20% landscaped open space accessible to residents of the building

Staff consider this standard to be met.



Figure 4: Boyd and Oxford Street Elevations

D. Water quality/storm water management/erosion control

The project is required to provide for stormwater management in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 standards for stormwater management. The Applicant has submitted a stormwater management report and a grading and drainage plan to indicate erosion and sedimentation control measures and stormwater treatment for the proposed development. The project is required to provide for stormwater management in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 standards for stormwater management.

The applicant has submitted a full stormwater management plan demonstrating compliance with Section 5 of the Technical manual and Maine DEP chapter 500 standards. The proposed stormwater system will capture runoff from the roof, parking, hardscaped, and landscaped areas and convey to the subsurface detention and treatment BMPs in the parking area before discharging into the storm drain network in Oxford Street. The storm drain network eventually enters back into the combined sewer system downstream of the project area. The stormwater detention will be provided by an R-tank system and treatment will be via a Stormfilter BMP.

Staff consider this standard to be met.

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)

A. Consistency with City Master Plans

There are no long-range plans that apply to this project.

B. Public safety and fire prevention

Emergency vehicles will be able to access the parking area via the driveway on Oxford Street, and they will be able to access the open space portion of the site from the driveway on Boyd Street.

The proposed open space and parking lot on the site are separated from the public way, providing territorial reinforcement to promote a sense of ownership.

Staff consider this standard to be met.

C. Availability and capacity of public utilities

The proposed building will be served via underground electrical conduit, with a riser proposed on the utility pole along Boyd Street across from the project parcel.

Utility providers have been contacted for their ability to serve the proposed project. Central Maine Power and Portland Water district have provided ability to serve letters.

The building will be connecting into the existing sanitary sewer main along Boyd Street.

The proposed building will have an interior trash room which will open directly to the proposed parking lot.

Staff consider this standard to be met.

4. Site Design Standards (Section 14.6.4)

A. Massing, ventilation, and wind impact

The proposed building is 61 ft. in height, which is below the maximum allowable height of 75 ft within the R-7 overlay. The proposed building is of similar height and scale to the existing “Solterra” building located at 58 Boyd Street. Given the building’s size and location there are no anticipated impacts with respect to building massing, ventilation, or wind, associated with this application.

Staff finding: Met.

B. Shadows

No adverse shadow impacts are anticipated with this application.

Staff consider this standard to be met.

C. Snow and ice loading

The proposed building is not anticipated to create snow or ice loading impacts on abutting properties or rights-of-way. The applicant has detailed snow storage locations on included plans.

Staff consider this standard to be met.

D. View corridors

This standard is not applicable to this application.

Staff finding: Not applicable.

E. Historic resources

The proposed building does not lie within a historic district and is not subject to any Historic Preservation reviews. The nearest historical landmark to the project is the Cathedral of Immaculate Conception at 307 Congress St, which is approximately 280' away from the proposed building.

Staff finding: Not applicable.

F. Exterior lighting

The proposed development includes full cutoff / dark sky compliant light fixtures to minimize light spillover.

A full photometric plan was included. Proposed lighting fixtures outlined in the photometric plan meet the standards outlined in Section 12 of the Technical Manual. No architectural or specialty lighting is proposed.

A full photometric plan included as attachment L3

Staff consider this standard to be met.

G. Noise and vibration

HVAC, air handling units, and other necessary equipment will be installed on the building rooftop. Modular water boilers will be located in the mechanical penthouse. Given the location of the building, the placement of HVAC, generators and other equipment is not anticipated to interfere with abutting residential properties.

Staff finding: Met

H. Signage and wayfinding

No wayfinding signage is proposed as part of this application

Staff finding: Met

I. Zoning-related design standards

The project at 9 Boyd Street was reviewed under the Land Use Code section 14.6.4.l.e for multi-family residential development and shall also comply with the following development standards under the Land Use Code section 8.1.4 for R-7 Compact Urban Residential Overlay Zone.

A full design review can be found as attachments 2 and 3

NEIGHBORHOOD MEETING & PUBLIC COMMENT

The applicant held a neighborhood meeting on April 24, 2024 at 5:30 Pm. The in-person meeting was held in the community room at the Solterra building located at 58 Boyd St. Four members of the public were in attendance. Public comment centered on construction phasing and parking.

A full sign-in sheet and meeting minutes are included as attachment T

NEXT STEPS

Staff will continue to review resubmitted plans and documents to ensure the proposed project complies with all applicable standards, and specifically:

1. Address any outstanding Staff comments
2. Address additional comments from the Planning Board.
3. Prepare final plan submission.
4. Schedule and hold planning board public hearing

ATTACHMENTS

Public Comment

None Received

Staff Materials

1. Site Plan Review Worksheet
2. Design Review 04/08/2024
3. Design Review 05/09/2024

Applicants Submittal

- A. Cover Letter
- B. Major Site Plan Checklist
- C. Zoning Assessment
- D. Right, Title & Interest
- E. Easements
- F. Site Plan Standards Assessment
- G. Financial Capacity
- H. Technical Capacity
- I. Waivers
- J. Stormwater Management Report
- K. Erosion and Sedimentation Control
- L. Fire Department Letter
- M. Wastewater Capacity
- N. Lighting
- O. Architectural Design Narrative
- P. Utilities

Q. Construction Management
R. Solid Waste Disposal.
S. Parking Analysis
T. Neighborhood Meeting Certification & Sign-in Sheet
U. Comment Response 05/06/2024
V. Design Response 05/02/2024

Plans

A1-1 First Floor Plan
A2-2 Second Floor Plan
A1-3. Third Floor Plan
A1-4. Fourth Floor Plan
A1-5. Fifth Floor Plan
A1-6. Sixth Floor Plan
A1-7. Roof Plan
A2-0A. South Elevation
A2-0B. South Elevation Colored
A2-1A- West Elevation
A2-1B. West Elevation Colored
A2-2A. North Elevation
A2-2B. North Elevation Colored
A2-3A. East Elevation
A2-3B. East Elevation Colored
A2-4A. East Elevation 2
A2-4B. East Elevation 2 Colored
A3-0. Section
C-01. Cover Sheet & Legend
C-02. General Notes
C-03 Construction Management Plan
C-10. Site Plan
C-20. Utility Plan
C-30. Grading & Drainage Plan
C-40. Site Details 1
C-41. Site Details 2
C-42. Utility Details 1
C-43. Utility Details 2
C-44. Drainage Details 1
C-45. Drainage Details 2.
C-46. Erosion & Sedimentation Control Details
C-47. Erosion & Sedimentation Control Note
D-1. Stormfilter Detail
D-2. R-tank System Overlay
D-3. R-tank System Layout

D-4. R-tank System Details
D-5. R-tank System Details
D-6. R-tank Treatment Row Details
D-7. R-tank Construction
D-8. R-tank Specifications
EX. Survey
EX-A. Open Space Exhibit
L1. Material Plan
L2. Planting Plan
L3. Lighting Plan
L4. Details
L5. Details
M1. Materials Board
P1. – P9. Perspective Images



Site Plan Review Standards (Sec. 14.6)		
Transportation Standards (Sec. 14.6.1)		
Standard	Discussion	Finding
Impact on Surrounding Street Systems	<u>Overview:</u> The applicant proposes to install a curb extension at the intersection of Oxford and Boyd Streets. The curb extension would extend approximately 20 feet along Boyd Street, removing one on-street parking space. The project will not generate 100 or more cars during peak hour; therefore, a Traffic Movement Permit will not be required. The project is not anticipated to create any significant impact to surrounding streets.	Met
	<u>Updates Requested</u> None	
Access and Circulation	<u>Overview:</u> The applicant proposes to reconstruct sidewalks along Boyd and Oxford Street using Brick pavers. Sidewalks will be rebuilt to city standards. Internal sidewalks are provided to allow for site circulation and mid-block permeability. Internal sidewalks will meet ADA standards, providing pedestrian access to and from the building entrances and connect to future project phases It is anticipated that the loading and servicing of the proposed building will be primarily from the parking area.	Not Met
	<u>Updates Requested</u> - The applicant should consider redesigning the Boyd Street sidewalk to avoid excess deviation and weaving around proposed street tree plantings. - The applicant shall provide a signage plan to ensure any street signage within the right of way that is disturbed as part of construction shall be reset and/or replaced as needed in its current or appropriate location. - The applicant shall design a continuous sidewalk behind the proposed trees (a public easement for the sidewalk will be required). - The applicant shall reduce the proposed curb extension to 4 ft rather than what is currently proposed.	

	The applicant shall consider rebuilding the proposed sidewalk in concrete. DPW will support a waiver for concrete in this area because it meets item 1 of the exception to the Sidewalk Materials policy. <i>(It should be noted that staff are still discussing these items internally)</i>	
Public Transit Access	Overview: Not applicable	Met
	Updates Requested None – Not applicable	
Parking	Overview: This application will retain the six (6) existing ADA parking spaces utilized by the adjacent “Bayside Anchor” Development. The applicant has cited table 19-B to establish a lesser parking requirement for affordable housing regardless of the size of the proposed project, The project is also within ¼ mile of fixed-route transit and is thus not required to provide any on-site vehicular parking. Bicycle parking is provided on-site in a secure room with 20 proposed bicycle spaces.	Not Met
	Updates Requested: The applicant is requesting a waiver from city standards for the width of the parking lot aisle width. From reviewing the site plan, it appears dimensional standards can be met and therefore it is unclear why the layout of the parking lot can’t be modified to comply with standards. At this time staff do not support a waiver.	
Transportation Demand Management	Overview: Not Applicable	Met
	Updates Requested None at this time.	
Environmental Quality Standards (Sec. 14.6.2)		
Standard	Discussion	Finding
Preservation of Significant Natural Features and Landscape Preservation	Overview: 4 trees will be removed due to the scale of the proposed building. One existing 12” tree will be preserved and incorporated into the site design, adjacent to the driveway entrance. The applicant will ensure measures will be taken to prevent impacts to existing vegetation during demolition and construction. The proposed plan includes the retention of a 12” caliper Honey Locust on East Oxford Street, the planting of 11 new street trees along Boyd and East Oxford Street,	Met
	Updates Requested None	

Site Landscaping and Buffers	<u>Overview:</u> The site's interior will be planted with a mix of canopy trees, understory trees, shrubs, and accent plantings. A total of 18 trees are being proposed. The project also proposes 30% of the site as open space consisting of 10% hardscape open space and 20% landscaped open space. <u>Updates Requested</u> The applicant should consider redesigning the Boyd Street sidewalk to avoid excess deviation and weaving around proposed street tree plantings.	Not Met
Water Quality, Stormwater Management and Erosion Control	<u>Overview:</u> The drainage patterns for stormwater draining onto the lot in its pre- development state will generally be maintained post-development. There will be no increase in the volume or rate of stormwater draining from the lot onto adjacent lots or city RoW. This development is subject to Chapter 5 regulations for stormwater management. <u>Updates Requested</u> The project is required to comply with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 regulations for stormwater management. - Basic Standards – The Applicant has provided for erosion and sedimentation control measures as required by the Basic Standards. - General/Flooding Standards – The project is not creating new impervious surface subject to the General or Flooding Standards, and is a redevelopment project as noted below. - Redevelopment Standard – The Applicant is providing a system with a Stormfilter and R-Tanks to provide for treatment of the redeveloped non-roof impervious surface. This system also manages the site to reduce flows from the pre-development to post-development condition. - Future Development – Based on my understanding of what has been submitted, the Applicant has modeled the site considering for future development. This is conservative to show that with the proposed future development, the system has been designed to manage the site's stormwater flows. In the interim condition, undeveloped portions of the site will be planted with grass. I would recommend that the Applicant	Not Met

	coordinate with the City relative to this proposed interim condition with regards to stormwater fees and surface conditions. Depending on the timing of future development, these vegetated areas may not be considered as redevelopment. The City is also working on a revised stormwater management standard - The Applicant is corresponding with Portland Water District and the City of Portland for water and sewer requirements and has noted that confirmation of ability to serve will be provided when received. - The plans should account for pavement replacement on Boyd Street for the locations of the proposed sewer service and the abandonment of the existing water service at the main. - The applicant should specify how much new impervious area and redeveloped area associated with future development phases will be managed by the proposed oversized stormwater BMPs being installed as part of this project phase. It should be noted that the City is currently working on an update to its stormwater standards (section 5 of the technical manual). It's recommended that the applicant size the BMP's such that the treatment/detention volume requirements for future phases will meet the proposed updated standard. This updated standard is likely to be adopted later this year.	
Public Infrastructure and Community Safety Standards (Sec. 14.6.3)		
Standard	Discussion	Finding
Consistency with City Master Plans	<u>Overview:</u> There are no City plans applicable to this application.	Met
	<u>Updates Requested:</u> None	
Public Safety and Fire Prevention	<u>Overview:</u> Access to the site has been designed to provide adequate emergency vehicle access to the site.	Met
	<u>Updates Requested</u> None.	
Public Utilities	<u>Overview:</u> The proposed building will be served via underground electrical conduit, with a riser proposed on the utility pole along Boyd Street across from the project parcel. Utility providers have been contacted for their ability to serve the proposed project. Central Maine Power and Portland Water district have provided ability to serve letters. The building will be connect to the existing sanitary sewer main along Boyd Street.	Not Met

	The proposed building will have an interior trash room which will open directly to the proposed parking lot. <u>Updates Requested</u> - Underground electrical conduit and vaults shall be placed behind the curbline of a street per City of Portland, Maine Technical Standards Manual Section 1 Figure I-4 (Utility Locations in Streets). - The proposed bends in the underground electrical conduit may not be feasible and should be reconfigured to minimize roadway crossing distance.	
Site Design Standards (Sec. 14.6.4)		
Standard	Discussion	Finding
Massing, Ventilation and Wind Impact	<u>Overview:</u> The Massing, Ventilation, and Wind impacts of the proposed design should not have an adverse affect on abutting structures due to the Site's openness and large amount of street frontages. <u>Updates Requested</u> None	Met
Shadow	<u>Overview:</u> The the proposed design should not cast shadows on publicly accessible open space as the building is on the North Side of the Street, the community garden is South of the Site. <u>Updates Requested</u> None	Met
Snow and Ice Loading	<u>Overview:</u> There are no snow or ice impacts anticipated with this application. The building features a flat roof and significant open areas for snow storage. <u>Updates Requested</u> None	Met
View Corridors	<u>Overview:</u> Not Applicable <u>Updates Requested</u> None – Not Applicable to this Application as it is not within an established view corridor.	Met
Historic Resources	<u>Overview:</u> Not applicable - The site does not fall within any designated historic districts or historic landscape districts. <u>Updates Requested:</u> None – Not Applicable to this Application	Met
Exterior Lighting	<u>Overview:</u> The proposed development includes full cutoff / dark sky compliant light fixtures to minimize light spillover. A full photometric plan was included. All proposed lighting meets Tech Manual standards. <u>Updates Requested</u>	Met

	None	
Noise and Vibration	<u>Overview:</u> No significant noise or vibration impacts are anticipated with this application. HVAC equipment will be located at the interior of the site away from abutting residential properties	Met
	<u>Updates Requested</u> None	
Signage and Wayfinding	<u>Overview:</u> Not applicable	Met
	<u>Updates Requested</u> None -Not Applicable	
Design Standards	<u>Overview:</u> See attached design review	Met
	<u>Updates Requested</u> See attached design review	

Design Review

Planning and Urban Development Department



Subject: 9 Boyd Street
Zone: R-7
Date of Monday, April 8, 2024
Review: Design Review
Reviewer(s): Sean King (Urban Designer), Eric Freeman (Planner), Ameriz Gamez (Planner)
Project ID: PL-002845-2024

I. DESIGN REVIEW CRITERIA

The project at 9 Boyd Street was reviewed under the Land Use Code section 14.6.4.l.e for multi-family residential development and shall also comply with the following development standards under the Land Use Code section 8.1.4 for R-7 Compact Urban Residential Overlay Zone.

II. APPLICABILITY

The City of Portland Design Manual - Design Standards under (i) MULTIPLE-FAMILY:

(i) STANDARDS. Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts, and emergency shelters shall meet the following standards outlined below in section III. Design Review comments

The City of Portland Land Use Code section 8.1.4 Design Standards for residential development in the R-7 Compact Urban Residential Overlay Zone:

Residential development shall be reviewed by the Planning Board under Article 14. Such development shall also comply with the following development standards. The general intent of these development standards is to achieve an attractive and comfortable city neighborhood environment. Varied and human-scaled building facades are key to making a place "pedestrian-oriented." Building designs should provide a high level of visual interest, without creating a chaotic image. Residences should include design elements that enhance the streetscape and address the street.

III. DESIGN REVIEW COMMENTS: bold text denotes recent updates met, red text denotes standards not met to require resubmission.

MULTIPLE-FAMILY STANDARDS. Multiple-family shall meet the following design standards:

1. *The exterior design of the proposed structure including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and facade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;*

Staff comment: The surrounding context of the neighborhood is comprised of larger footprint, multi-storied residential buildings with multiple residential units per floor, planned residential unit developments with housing types of townhouse and apartments, two-to-three storied multi-family

residential structures on individual parcels and single-family residences. Architectural style varies throughout the neighborhood and generally relates to each building's scale. The proposed development is more directly comparable to the adjacent larger footprint, multi-storied residential buildings that include a flat roof form, façade variation through projections and varied exterior materials to articulate building elements.

The proposed multi-family building is located at the corner of Boyd Street and Oxford Street with placement and orientation towards both streets. The proposed multi-family building incorporates angled projections along the street-facing facades with a clear fenestration pattern that Staff finds appropriate to add visual character to the facades. **The Applicant has proposed additional fenestrations along the ground level at the Boyd Street façade to account for the change in grade along the public sidewalk that Staff finds appropriate to minimize large expanses of blank facade.** In addition, the Applicant has added transom windows above a double door with wall-mounted architectural lighting to distinguish the primary entry at the corner along with a transom window above the secondary building entries that Staff finds appropriate to articulate the building entries.

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;*

Staff comment: Staff finds the building placement along Boyd Street and Oxford Street closely relates to adjacent properties that front the street and provides various entries directly accessible from the public sidewalk for residents. **The development plan includes a transitional space with shrub plantings adjacent to a new continuous sidewalk along Boyd Street and Oxford Street that Staff finds appropriate.**

3. *Open space on the site for all ... multiple-family development shall be integrated into the development site. Such open space in a special needs independent living unit or a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;*

Staff comment: The proposed development includes open space through landscape buffers that create low screening with shrubs from the street and along the edge of the building, a lawn area and seating opportunities on the site and adjacent to the public sidewalk. The proposed development is within a two-block walking distance of Kennedy Park with a playground, recreation fields and walking paths that residents can access for recreational activities beyond the site.

The Applicant is providing communal open space with a primary flexible lawn area that intends to function for periodic programmed events, a mixture of seating and shade trees that Staff finds appropriate. Additional outdoor gathering spaces with seating and planting areas are located adjacent to building entries and towards the rear of the property that Staff finds appropriate as semi-private open space.

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 allocation of windows for each proposed dwelling to be generally appropriate and sufficient storage is proposed within each dwelling unit.**

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets;*

Staff comment: The development proposes to screen all surface parking areas with shrubs at the abutting property and deciduous trees with understory shrubs at Oxford Street that Staff finds acceptable.

6. *Two-family or multi-family dwellings shall not be converted to lodging houses unless all units in the building have been vacant for at least one (1) year prior to the date conversion is sought or unless the individual multiple-family units are less than one thousand (1,000) square feet in size. In no event shall any single-family dwelling in the R-5 or R-6 zone be converted in whole or in part to a lodging house.*

Staff comment: Not applicable as the proposed development does not include a lodging house conversion.

R-7 COMPACT URBAN RESIDENTIAL OVERLAY ZONE: Residential developments shall meet the following design standards:

- A. *Porches and bays should face the street.*

Staff comment: No porches are proposed in the development plan and window bays face both Boyd Street and Oxford Street.

- B. *Primary ground floor residential entries to multi-family buildings must orient to street, not to interior blocks or parking lots. Secondary and upper-floor entries from the interior of a block are acceptable. The front door to single-family homes, duplexes, and townhouses must be visible from the street.*

Staff comment: The primary entry at the corner of Boyd Street and Oxford Street is oriented to the street and secondary entries are also oriented with direct access to the street.

- C. *The design approach shall provide an architecture that will be a visible and permanent expression of the character of the neighborhood.*

Staff comment: The architectural design contributes to the character of the neighborhood with selection of exterior materials with fibercement lap siding of various tones and consistent trim detailing for the windows and roofline. **Staff has recommended that the Applicant provide a physical sample of the proposed exterior facades materials, in particular the porcelain tile at**

the ground-level, Staff will continue to evaluate based on the exterior materials that is more represented throughout the neighborhood.

D. The facade shall be varied and articulated to provide visual interest to pedestrians.

Staff comment: The façade is varied and articulated by the angled bays, **large windows facing the street at the ground level** and articulated entries with a canopy.

E. The design shall reinforce the public realm of the public open space, sidewalks, and streets through appropriately scaled entries, porches, fenestration, landscaping, and architectural details.

Staff comment: The site slopes up towards Congress Street and requires the proposed building to step-up a complete floor level to meet the existing grade. **The Applicant has resubmitted plans that include additional windows and a fenestration pattern along the public sidewalk that Staff finds appropriate.**

F. The design shall provide visual and acoustical privacy between units.

Staff comment: The building design as indicated on the proposed floor plans provides adequate visual and acoustical privacy between all units.

G. The design shall maximize natural light and ventilation within units.

Staff comment: The building design includes windows within each unit that Staff finds allows for natural light, ventilation is per Passivhaus standards in place by the Applicant's energy code requirements.

Design Review

Planning and Urban Development Department



Subject: 9 Boyd Street
Zone: R-7
Date of Monday, April 8, 2024
Review: Design Review
Reviewer(s): Sean King (Urban Designer), Eric Freeman (Planner), Ameriz Gamez (Planner)
Project ID: PL-002845-2024

I. DESIGN REVIEW CRITERIA

The project at 9 Boyd Street was reviewed under the Land Use Code section 14.6.4.l.e for multi-family residential development and shall also comply with the following development standards under the Land Use Code section 8.1.4 for R-7 Compact Urban Residential Overlay Zone.

II. APPLICABILITY

The City of Portland Design Manual - Design Standards under (i) MULTIPLE-FAMILY:

(i) STANDARDS. Two-family, special needs independent living units, multiple-family, lodging houses, bed and breakfasts, and emergency shelters shall meet the following standards outlined below in section III. Design Review comments

The City of Portland Land Use Code section 8.1.4 Design Standards for residential development in the R-7 Compact Urban Residential Overlay Zone:

Residential development shall be reviewed by the Planning Board under Article 14. Such development shall also comply with the following development standards. The general intent of these development standards is to achieve an attractive and comfortable city neighborhood environment. Varied and human-scaled building facades are key to making a place "pedestrian-oriented." Building designs should provide a high level of visual interest, without creating a chaotic image. Residences should include design elements that enhance the streetscape and address the street.

III. DESIGN REVIEW COMMENTS: **bold** text denotes recent updates met, **red** text denotes standards not met to require resubmission.

MULTIPLE-FAMILY STANDARDS. Multiple-family shall meet the following design standards:

1. *The exterior design of the proposed structure including architectural style, façade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and facade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;*

Staff comment: The surrounding context of the neighborhood is comprised of larger footprint, multi-storied residential buildings with multiple residential units per floor, planned residential unit developments with housing types of townhouse and apartments, two-to-three storied multi-family

residential structures on individual parcels and single-family residences. Architectural style varies throughout the neighborhood and generally relates to each building's scale. The proposed development is more directly comparable to the adjacent larger footprint, multi-storied residential buildings that include a flat roof form, façade variation through projections and varied exterior materials to articulate building elements.

The proposed multi-family building is located at the corner of Boyd Street and Oxford Street with placement and orientation towards both streets. The proposed multi-family building incorporates angled projections along the street-facing facades with a clear fenestration pattern that Staff finds appropriate to add visual character to the facades. *Staff has concerns about the ground-level facade to activate the pedestrian environment and recommends additional fenestrations along the Boyd Street facade where office spaces are proposed to create a stronger visual presence towards the corner and reduce the amount of blank facade. Staff recommends the addition of perpendicular retaining seatwalls to allow for additional windows along the ground-level by terracing the grade change up Boyd Street within the private property.*

The primary entry at the corner is angled and recessed with large fenestrations to allow for natural light into the lobby area. Staff finds the primary entry is minimally obscured by the proposed retaining seatwall that follows the front property line and recommends additional articulation at the entry such as a canopy, two way door, architectural lighting and/or change in exterior material. Adjacent multi-storied residential structures incorporate an extended canopy to articulate the primary building entries.

2. *The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;*

Staff comment: Staff finds the building placement along Boyd Street and Oxford Street closely relates to adjacent properties that front the street and provides various entries directly accessible from the public sidewalk for residents. The development plan includes a transitional space with plantings that jog in several locations to account for the proposed street trees, *Staff recommends a continuous brick sidewalk along the Boyd Street frontage to reduce sidewalk maintenance concerns and provide additional sidewalk width.*

In addition, staff recommends the Applicant explore recessed secondary entries that are accessible from the public sidewalk to clearly articulate points of entry for residents.

3. *Open space on the site for all ... multiple-family development shall be integrated into the development site. Such open space in a special needs independent living unit or a multiple-family development shall be designed to complement and enhance the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;*

Staff comment: The proposed development includes open space through landscape buffers that create low screening with shrubs from the street and along the edge of the building, a lawn area and

seating opportunities on the site and adjacent to the public sidewalk. The proposed development is within a two-block walking distance of Kennedy Park with a playground, recreation fields and walking paths that residents can access for recreational activities beyond the site.

Staff finds the open space provided for the fifty residential units is limited and recommends that the Applicant program the common open space, proposed as an open lawn area, to include additional gathering places with seating, shade elements, other outdoor amenities and patio spaces that could function for multiple groups during the same time.

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 allocation of windows for each proposed dwelling to be generally appropriate, however recommends that the Applicant include additional horizontally stacked windows at the street facing façade to reduce the amount of fiber cement panels for a more balanced facade.

In addition, sufficient storage is proposed within each dwelling unit.

5. *The scale and surface area of parking and driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets;*

Staff comment: The development proposes to screen all surface parking areas with shrubs at the abutting property and deciduous trees with understory shrubs at Oxford Street that Staff finds acceptable.

6. *Two-family or multi-family dwellings shall not be converted to lodging houses unless all units in the building have been vacant for at least one (1) year prior to the date conversion is sought or unless the individual multiple-family units are less than one thousand (1,000) square feet in size. In no event shall any single-family dwelling in the R-5 or R-6 zone be converted in whole or in part to a lodging house.*

Staff comment: Not applicable as the proposed development does not include a lodging house conversion.

R-7 COMPACT URBAN RESIDENTIAL OVERLAY ZONE: Residential developments shall meet the following design standards:

- A. *Porches and bays should face the street.*

Staff comment: No porches are proposed in the development plan and window bays face both Boyd Street and Oxford Street.

- B. *Primary ground floor residential entries to multi-family buildings must orient to street, not to interior blocks or parking lots. Secondary and upper-floor entries from the interior of a block are*

acceptable. The front door to single-family homes, duplexes, and townhouses must be visible from the street.

Staff comment: The primary entry at the corner of Boyd Street and Oxford Street is oriented to the street and secondary entries are also oriented with direct access to the street.

- C. *The design approach shall provide an architecture that will be a visible and permanent expression of the character of the neighborhood.*

Staff comment: The architectural design contributes to the character of the neighborhood with selection of exterior materials with fibercement lap siding of various tones. **Staff recommends that the Applicant consider a replacement for the porcelain tile at the ground-level for a exterior material that is more represented throughout the neighborhood.**

- D. *The facade shall be varied and articulated to provide visual interest to pedestrians.*

Staff comment: The façade is varied and articulated by the angled bays and articulated entries with a canopy. **Staff has provided additional recommendations for articulation in section III. Design Comments of the design review memorandum.**

- E. *The design shall reinforce the public realm of the public open space, sidewalks, and streets through appropriately scaled entries, porches, fenestration, landscaping, and architectural details.*

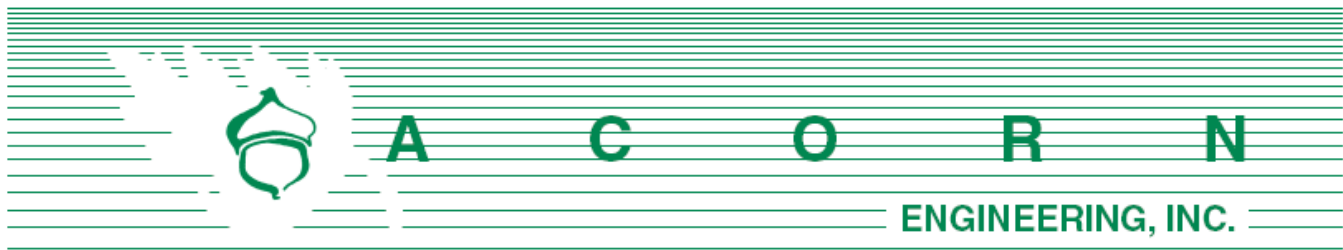
Staff comment: The site slopes up towards Congress Street and requires the proposed building to step-up a complete floor level to meet the existing grade. **Staff recognizes the ground-level façade along Boyd Street as significant, as it faces the street and engages the public realm. Staff requests additional fenestration within the lobby and office spaces to reduce the blank façade along Boyd Street.**

- F. *The design shall provide visual and acoustical privacy between units.*

Staff comment: The building design as indicated on the proposed floor plans provides adequate visual and acoustical privacy between all units.

- G. *The design shall maximize natural light and ventilation within units.*

Staff comment: The building design includes operable windows within each unit, **Staff recommends the Applicant add windows into the living and/or bedroom areas to reduce the amount of fibercement panels where appropriate.**



Planning & Urban Development Department
 Attn: Matthew Grooms, Development Review Service Manager
 City of Portland, Maine
 389 Congress Street, 4th Floor
 Portland, ME 04101

March 13, 2024

Subject: Major Site Plan Application
 70 East Oxford Street, Portland, ME

Mr. Grooms:

On behalf of COMB Block Phase One, LP and Portland Housing Development Corporation (PHDC), we are pleased to submit a Major Site Plan Application for redevelopment in Portland's East Bayside neighborhood. The proposed project is within a 1.53-acre parcel located at 70 East Oxford Street (Chart 22, Block H1, Lot 1), otherwise known as the COMB Block (Cumberland-Oxford-Mayo-Boyd). The parcel is currently within the R6 Residential Zone with an R7 Overlay.

COMB Block Phase One, LP is the applicant and will be the owner of the proposed COMB Block Phase One development. Portland Housing Development Corporation (PHDC) is the co-applicant and developer, and the Sole Manager of the COMB Block Phase One, LP General Partner. PHDC is a Maine 501(c)(4) nonprofit corporation and instrumentality of Portland Housing Authority (current landowner). PHA and PHDC have interlocking Boards and share the mission to preserve and expand affordable housing in Portland, Maine.

The project proposes to demolish the four existing multifamily buildings on the parcel. A division of land is also proposed to split the parcel into two separate lots, a 0.56 acre parcel (Lot 1) and a 0.97 acre parcel (Lot 2). A 50-unit multifamily building is proposed to be constructed on Lot 1, at the corner of Oxford and Boyd Streets. The building will consist of 45 affordable units and 5 market-rate units. In total there will be (10) 1-bedroom, (16) 2-bedroom, (19) 3-bedroom, and (5) 4-bedroom units. The building will also consist of amenities for residents & space for building management on the ground floor. Lot 2 will be stabilized and reserved for potential future development.

Site improvements associated with the project include reconstructed sidewalks along the project frontage of Oxford & Boyd Streets, reconstructing the existing parking lot on site accessed off of Oxford Street, and construction of retaining walls to reduce steep grades and create more usable and accessible open space on the parcel. The parking lot will consist of 6 ADA spaces which currently serve the adjacent Bayside Anchor building, also owned by a Portland Housing Authority related entity. The project will upgrade existing utilities servicing the site and install stormwater detention and treatment facilities to meet the City's stormwater requirements.



The project is subject to a Major Site Plan Development Application and approval from 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,



Peter Heil, P.E.
Project Manager
Acorn Engineering, Inc.

The following documents and drawings will be uploaded onto the City's electronic submission site per the procedure outlined in the application:

Documents:

- Section A: Cover Letter
- Section B: Major Site Plan Checklists
- Section C: Zoning Assessment
- Section D: Right, Title, Interest
- Section E: Easements
- Section F: Site Plan Standards Assessment
- Section G: Financial Capacity
- Section H Technical Capacity
- Section I: Waiver Table
- Section J: Stormwater Management Report
- Section K: Erosion & Sedimentation Control Report
- Section L: Fire Department Letter
- Section M: Wastewater Capacity Letter
- Section N: Lighting
- Section O: Architectural Design Narrative
- Section P: Utility Cover
- Section Q: Construction Management Plan
- Section R: Solid Waste
- Section S: Parking Analysis

Drawings:

- Civil Site Plan Set dated 3/13/24.
- Architectural Plan Set dated 3/13/24.
- Landscaping Plan Set dated 3/13/24.



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		
☒	NA	Project Description Cover letter with detailed project description
☒	NA	Completed Checklist (this document)
☒	NA	Evidence of Right, Title, and Interest Deeds, leases, or purchase and sales agreements
Yes	☒	Evidence of State or Federal Approvals Permits or letters of non-jurisdiction, if applicable
☒	NA	Zoning Assessment (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
☒	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
☒	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
☒	NA	Waiver Requests (see Waiver Table) Written request for waiver describing request and compliance with applicable waiver standards
☒	NA	Financial Capability Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
☒	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) R-7 Compact Residential Overlay

All Projects:

	Required	Proposed
Lot Size	None	24,403 SF
Area Per Dwelling Unit	174 SF/DU	488 SF
Minimum Street Frontage	NONE	315'
Front Yard Minimum	0'	5.30'
Front Yard Maximum	NONE	5.30'
Rear Yard	0'	47.37'
Yard Right	0'	16.26'
Yard Left	0'	6.87'
Side Street Setback	N/A	N/A
Step Back	N/A	See C-10
Maximum Lot Coverage	100%	44.6%
Minimum Lot Coverage	N/A	44.6%
Maximum Height	75'	61.03'
Open Space	N/A	24.9%
Maximum Impervious Area	80%	See C-10
Pavement Setback	N/A	N/A
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces	TBD	6
Loading Bays	N/A	N/A
Other 1		
Other 2		
Other 3		

*Zoning Requirements
per R-7 with affordable
housing bonuses

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	Increase	174 SF/DU	488 SF
Height	Increase	75'	61.03'
Setback Reduction	Decrease	See Sheet C-10	See Sheet C-10
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space	Decrease	0%	24.9%
Explanatory Text 1 (optional): Project proposes 45 affordable housing units			
Explanatory Text 2 (optional): (90% affordable)			
Explanatory Text 3 (optional):			

D. Evidence of Right, Title & Interest

Attached is the deed for the proposed project parcel which gives Portland Housing Authority right, title and interest for the proposed project.

COMB Block Phase One, LP is the applicant and will be the owner of the proposed COMB Block Phase One development. Portland Housing Development Corporation (PHDC) is the co-applicant and developer, and the Sole Manager of the COMB Block Phase One, LP General Partner. PHDC is a Maine 501(c)(4) nonprofit corporation and instrumentality of Portland Housing Authority (current landowner). PHA and PHDC have interlocking Boards and share the mission to preserve and expand affordable housing in Portland, Maine.



THIS INDENTURE, dated as of the **second** day of **June**, 1970, by and between the PORTLAND RENEWAL AUTHORITY, a corporation incorporated and existing under and by virtue of the Private and Special Laws of the State of Maine, 1951, Chapter 217 and Amendments thereto (hereinafter sometimes referred to as the Authority) and the PORTLAND HOUSING AUTHORITY, a public body corporate and politic, duly organized and existing under the laws of the State of Maine and exercising public and essential governmental functions, of said Portland, County of Cumberland and State of Maine (hereinafter sometimes referred to as the "Redeveloper"):

WITNESSETH, That:

WHEREAS the Authority is the owner of the below described parcels of land and is desirous of conveying the same to the Redeveloper; and

WHEREAS the Authority has been duly authorized by virtue of an order by the City Council for the City of Portland which approved and authorized the execution and delivery of a quit claim deed with covenants from the Authority to the Redeveloper, duly passed on **May 4, 1970** and which order became effective on **May 14, 1970** and by virtue of a resolution of the Board of Commissioners of said Authority which approved and authorized the execution and delivery of a quit claim deed with covenants from said Authority to the Redeveloper adopted on **April 23, 1970**; and

WHEREAS the Redeveloper is desirous of purchasing said parcels of land, subject to the encumbrances set forth herein,

NOW, THEREFORE, in consideration of the premises and of the mutual covenants herein contained and of the sum of Nine Thousand Two Hundred Forty (\$9,240.00) Dollars paid by the Redeveloper to the Authority, the receipt whereof upon delivery hereof the Authority hereby acknowledges, the Authority does hereby remise, release, bargain, sell and convey, and forever quitclaim unto the Redeveloper, its successors and assigns, forever, the following described parcels of land:

1. Description of Parcel 38E

A certain lot or parcel of land situated on the northerly sideline of Cumberland Avenue, lying between Boyd Street and Mayo Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Cumberland Avenue and the easterly sideline of Boyd Street; thence northwesterly by the easterly sideline of Boyd Street 158 feet, more or less, to land now or formerly of Arthur H. Wakefield and Eiryl Wakefield; thence in a general easterly direction by the southerly sideline of land now or formerly of said Arthur H. Wakefield et al 110 feet to the southeasterly corner of land of said Wakefield et al; thence northwesterly by the easterly sideline of land of said Arthur H. Wakefield et al 38 feet, more or less, to the southwesterly corner of land now or formerly of Giovina Ferrante; thence in a general easterly direction by the southerly sideline of said Ferrante 111 feet

more or less, to the westerly sideline of Mayo Street; thence in a general southerly direction by the westerly sideline of Mayo Street 53 feet, more or less, to the northeasterly corner of land now or formerly of the Portland Congregation of Jehovah's Witnesses, Inc; thence in a general westerly direction by the northerly sideline of land of said Jehovah's Witnesses Inc., to the northwesterly corner of land of said Jehovah's Witnesses, Inc.; thence in a general southerly direction by the westerly sideline of land of said Jehovah's Witnesses, Inc.; and by land now or formerly of warren DiPietro and Grace DiPietro 144 feet, more or less, to the northerly sideline of Cumberland Avenue; thence in a general westerly direction by the northerly sideline of Cumberland Avenue 110 feet, more or less, to the intersection formed by said northerly sideline of Cumberland Avenue and the easterly sideline of Boyd Street and the point of beginning.

Together with all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises, and including all right, title and interest conveyed in any and to so much of Cumberland Avenue and Fox Street as was acquired by the Portland Renewal Authority as is described in a Statement of Taking dated November 30, 1962, and recorded in Cumberland County Registry of Deeds in Book 2720, page 251. Plan of said area being recorded in said Registry in Plan Book 61, pages 64 and 65.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Hattie Branch by warranty deed dated May 3, 1963, and recorded in Cumberland County Registry of Deeds in Book 2747, Page 180, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by William H. Ham et al, by Warranty Deed dated June 23, 1960, and recorded in Cumberland County Registry of Deeds in Book 2548, page 41, the lot of land conveyed to this Authority by Richard P. Twomey et al by Warranty Deed dated April 25, 1963 and recorded in Cumberland County Registry of Deeds in Book 2744, page 123, the lot of land conveyed to this Authority by Richard P. Twomey et al by Warranty Deed dated March 30, 1962 and recorded in Cumberland County Registry of Deeds in Book 2664, page 370, the lot of land conveyed to this Authority by Gordon T. Taylor et als, by deeds dated June 27, 1963 and recorded in Cumberland County Registry of Deeds in Book 2765, pages 351, 362, 367 and 373, the lot of land conveyed to this Authority by Laurina Ferrante et al by Warranty Deed dated February 10, 1962 and recorded in Cumberland County Registry of Deeds in Book 2660 page 479, and the lot of land conveyed to this Authority by Carmine DiLallo by Administrator's Deed dated October 17, 1967 and recorded in Cumberland County Registry of Deeds in Book 3016, page 339.

2. Description of Parcel 36E

A certain lot or parcel of land, situated on the southerly sideline of Oxford Street adjoining the easterly sideline of Boyd Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the southerly sideline of Oxford Street and the easterly sideline of Boyd Street; thence in a general easterly direction by the southerly

sideline of Oxford Street 145 feet, more or less, to land now or formerly of Gertrude M. Grady; thence in a general southerly direction by the westerly sideline of land of said Gertrude M. Grady 60 feet, more or less, to land now or formerly of Vincent Black and Laurebelle Black; thence in a general westerly direction by the northerly sideline of land of said Vincent Black et al 36.1 feet to land now or formerly of Clyde Harriman and Ethel Harriman; thence in a general northerly direction by the easterly sideline of land of said Clyde Harriman et al 10 feet, more or less to the northeasterly corner of land of said Clyde Harriman et al; thence in a general westerly direction by the northerly sideline of land of said Clyde Harriman et al 108 feet, more or less, to the easterly sideline of Boyd Street; thence in a general northerly direction by the easterly sideline of Boyd Street 47 feet, more or less, to the intersection formed by said easterly sideline of Boyd Street and the southerly sideline of Mayo Street, and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises. Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Arthur W. Simmons by Warranty Deed dated April 1, 1960 and recorded in Cumberland County Registry of Deeds in Book 2531, page 308, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Mitchell D. Goffin by Warranty Deed dated April 1, 1960 and recorded in Cumberland County Registry of Deeds in Book 2531, page 310, the lot of land conveyed to the Portland Renewal Authority by Ralph Amergian by Warranty Deed dated September 17, 1965 and recorded in Cumberland County Registry of Deeds in Book 2922, page 268, and the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Mollie U. Finkelman by Warranty Deed dated May 6, 1960 and recorded in Cumberland County Registry of Deeds in Book 2535, page 479.

3. Description of Parcel 60

A certain lot or parcel of land situated on the southerly sideline of Oxford Street adjoining the westerly sideline of Mayo Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the southerly sideline of Oxford Street and the westerly sideline of Mayo Street; thence in a general westerly direction by the southerly sideline of Oxford Street 33 feet, more or less, to land now or formerly of Gertrude M. Grady; thence in a general southerly direction by the easterly sideline of land of said Grady 75 feet, more or less, to land now or formerly of Vincent Black and Laurebelle Black; thence in a general easterly direction by the northerly sideline of land of said Vincent Black et al 38 feet, more or less to the westerly sideline of Mayo Street; thence in a general northerly direction by the westerly sideline of Mayo Street 75 feet, more or less, to the southerly sideline of Oxford Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Val Valeriani et al, by Warranty Deed dated December 4, 1964, and recorded in Cumberland County Registry of Deeds in Book 2869, page 247.

4. Description of Parcel 26E

A certain lot or parcel of land situated on the northerly sideline of Oxford Street adjoining, in part, the easterly sideline of Boyd Street in the City of Portland, County of Cumberland and State of Maine, being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Oxford Street and the easterly sideline of Boyd Street; thence in a general northerly direction by the easterly sideline of Boyd Street 105 feet, more or less, to land now or formerly of Maria Pesce; thence in a general easterly direction by the southerly sideline of land of said Pesce 110 feet, more or less, to land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general southerly direction by the westerly sideline of land of said Nicholas DiPietro et al 35 feet, more or less, to the southwesterly corner thereof; thence in a general easterly direction by the southerly sideline of land of said Nicholas DiPietro et al 45 feet, more or less, to land now or formerly of Mekail Amergian; thence in a general southerly direction by the westerly sideline of land of said Amergian 70 feet, more or less, to the northerly sideline of Oxford Street; thence in a general westerly direction by the northerly sideline of Oxford Street 90 feet, more or less, to land now or formerly of Charles Rosenbloom; thence in a general northerly direction by the easterly sideline of land of said Rosenbloom 75 feet, more or less, to the north-easterly corner thereof; thence in a general westerly direction by the northerly sideline of land of said Rosenbloom 20 feet, more or less, to the northwesterly corner thereof; thence in a general southerly direction by the westerly sideline of land of said Rosenbloom, 75 feet, more or less to the northerly sideline of Oxford Street; thence in a general westerly direction by the northerly sideline of Oxford Street 31 feet, more or less, to its intersection with the easterly sideline of Boyd Street and the point of beginning.

This conveyance is made, subject to whatever rights the owners of the property at 81-83 Oxford Street may have to use and maintain a sewer line leading from their property to the sewer line in Boyd Street.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Santo DiDonato by Warranty Deed dated April 18, 1962, and recorded in Cumberland County Registry of Deeds in Book 2668, page 147, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now

Portland Renewal Authority) by Bella R. Finkelman et al, by Warranty Deed dated September 21, 1960, and recorded in Cumberland County Registry of Deeds in Book 2564, page 42, the lot of land conveyed to this Authority by Steve A. Notis by Warranty Deed dated November 19, 1965, and recorded in Cumberland County Registry of Deeds in Book 2935, page 229, and the lot of land conveyed to this Authority by Mekail Amerikian et al by Warranty Deed dated June 7, 1966, and recorded in Cumberland County Registry of Deeds in Book 2960, page 403.

5. Description of Parcel 61

A certain lot or parcel of land situated on the westerly sideline of Mayo Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the westerly sideline of Mayo Street, said point being 115 feet northerly of the point of intersection formed by said westerly sideline of Mayo Street and the northerly sideline of Oxford Street, said point also marking the northeasterly corner of land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general westerly direction by the northerly sideline of said Nicholas DiPietro et al 100 feet, more or less, to land now or formerly of Maria Pesce; thence in a general northerly direction by the easterly sideline of land of said Pesce and by land of Frank P. Briggs 45 feet, more or less to land now or formerly of Esther Pearl Hensley; thence in a general easterly direction by the southerly line of said Hensley 100 feet, more or less, to the westerly sideline of Mayo Street; thence in a general southerly direction by the westerly sideline of Mayo Street 45 feet, more or less, to the northeasterly corner of land now or formerly of Nicholas DiPietro et al and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by Paul J. McCormick, Jr. by deed dated December 13, 1961, and recorded in Cumberland County Registry of Deeds in Book 2649, page 346.

6. Description of Parcel 64

A certain lot or parcel of land situated on the northerly sideline of Oxford Street, adjoining the easterly sideline of Smith Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the monument at the junction of the northeasterly side of Smith Street with the northwesterly side of Oxford Street and running thence northwesterly by Smith Street seventy (70) feet to a stake; thence northeasterly and parallel with Oxford Street, seventy-four (74) feet, eleven (11) inches to a stake; thence southeasterly in the rear of the house and adjoining land formerly of Charlotte R. Shaw, seventy (70) feet to Oxford Street; thence southwesterly by said Oxford Street seventy-three (73) feet to the point of beginning.

Also a certain strip of land in the rear of said house; said strip of land is described in the deed recorded in Cumberland County Registry of Deeds in Book 309, Page 466, as being bound and described as follows:

Beginning at a point on the northwesterly sideline of the premises herein above described at a point which is sixty (60) feet northeasterly of Smith Street; thence northwesterly by land formerly of one Orr, thirty (30) feet to land formerly of one Pennell, thence northeasterly by said Pennell land fourteen (14) feet to land formerly of one Shaw; thence southeasterly by said Shaw land thirty (30) feet to the premises hereinabove described; thence southwesterly by said premises fourteen (14) feet to the point of beginning.

Together with a right and easement in common with Margaret F. Mulkern, her heirs and assigns, to use a five (5) foot strip northeasterly of the boundary of land herein conveyed, or described in deed of Margaret F. Mulkern to this Grantor, dated May 16, 1958, recorded in said Registry of Deeds in Book 2411, Page 128.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by YOUR HOME, INC., by Warranty Deed dated November 24, 1965, and recorded in Cumberland County Registry of Deeds in Book 2935, Page 227.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

7. Description of Parcel 29E

A certain lot or parcel of land situated on the northerly sideline of Oxford Street and the westerly sideline of Anderson Street, in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the intersection formed by the northerly sideline of Oxford Street and the westerly sideline of Anderson Street; thence in a general westerly direction by the northerly sideline of Oxford Street 81 feet, more or less, to land now or formerly of Anacam, Inc.; thence in a general northerly direction by the easterly sideline of land of said Anacam, Inc., 100 feet, more or less, to land now or formerly of Pearl E. Flaherty; thence in a general easterly direction by the southerly sideline of land of said Flaherty 81 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 30 feet, more or less, to land now or formerly of Emma Florence Fitts; thence in a general westerly direction by the northerly sideline of land of said Fitts 45 feet, more or less, to the northwesterly corner of land of said Fitts; thence in a general southerly direction by the westerly sideline of land of said Fitts 30 feet, more or less, to the southwesterly corner of land of said Fitts; thence in a general easterly direction by the southerly sideline of land of said Fitts 45 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 38 feet, more or less, to the northerly sideline of Oxford Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Margaret A. Mullen by Warranty Deed dated June 1, 1960, and recorded in Cumberland County Registry of Deeds in Book 2542, page 173, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Peter E. Carpenter by Warranty Deed dated April 8, 1960, and recorded in said Registry in Book 2532, page 145, and the lot of land conveyed to this Authority by Maybelle E. Haley et al by Warranty Deed dated February 25, 1965, and recorded in said Registry in Book 2946, page 11.

8. Description of Parcel 48E

A certain lot or parcel of land situated on the easterly sideline of Smith Street, northerly of Oxford Street, and extending in part to the westerly sideline of Mayo Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the easterly sideline of Smith Street, said point being 100 feet, more or less, northwesterly of the intersection formed by said easterly sideline of Smith Street and the northerly sideline of Oxford Street, said point also marking the northwesterly corner of land now or formerly of Anthony G. Ciazzo and Mary R. Ciazzo; thence in a general northerly direction by the easterly sideline of Smith Street 100 feet, more or less, to land now or formerly of Robert W. Gunn; thence in a general easterly direction by the southerly sideline of land of said Gunn and by land now or formerly of Bronet Sanuk and Margaret L. Sanuk 115 feet, more or less, to the southeasterly corner of land of said Bronet Sanuk et al; thence in a general northerly direction by the easterly sideline of land of said Bronet Sanuk et al 30 feet, more or less, to land now or formerly of Jacob Lamport et al; thence in a general easterly direction by the southerly sideline of land of said Jacob Lamport et al 60 feet, more or less, to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 65 feet, more or less, to land now or formerly of John F. Hughes; thence in a general westerly direction by the northerly sideline of land of said Hughes 84 feet, more or less, to the northwesterly corner thereof; thence in a general southerly direction by the westerly sideline of land of said Hughes and by land now or formerly of Pearl E. Flaherty 62 feet, more or less, to the southwest corner of land of said Flaherty and to a point on the northerly sideline of land now or formerly of Anacam, Inc; thence in a general westerly direction by the northerly sidelines of land now or formerly of Anacam, Inc., of Your Home, Inc., and of Anthony G. Ciazzo and Mary R. Ciazzo 110 feet, more or less, to the easterly sideline of Smith Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot

of land conveyed to this Authority by the Administrator of Veterans' Affairs by deed dated February 13, 1968 and recorded in Cumberland County Registry of Deeds in Book 3030, page 108, the lot of land conveyed to this Authority by Salvatore, Inc., by Warranty Deed dated January 10, 1963, and recorded in Cumberland County Registry of Deeds in Book 2727, page 46, the lot of land conveyed to this Authority by Linwood B. Whitney et al, by Warranty Deed dated November 29, 1962, and recorded in Cumberland County Registry of Deeds in Book 2720, page 49, and the lot of land acquired by the Authority by condemnation action on June 9, 1965.

9. Description of Parcel 18C

A certain lot or parcel of land situated on the northerly sideline of Lancaster Street, adjoining the westerly sideline of Anderson Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at the point of intersection formed by the northerly sideline of Lancaster Street and the westerly sideline of Anderson Street; thence in a general westerly direction by the northerly sideline of Lancaster Street 105 feet, more or less, to land of the Portland Housing Authority; thence in a general northerly direction by the easterly sideline of land of said Portland Housing Authority 80 feet, more or less, to the southerly sideline of Anderson Lane; thence in a general easterly direction by the southerly sideline of Anderson Lane 69 feet, more or less, to land formerly of George Durfee and Mary Pinkham, now of the Portland Housing Authority; thence in a general southerly direction by the westerly sideline of land formerly of said George Durfee et al, on the following three courses: first, in a general southerly direction 23 feet to a point; thence in a general easterly direction 3 feet to a point, and, finally, in a general southerly direction 10 feet to the southwest corner of land formerly of said George Durfee et al; thence in a general easterly direction by the southerly sideline of land formerly of said George Durfee et al 33 feet to the westerly sideline of Anderson Street; thence in a general southerly direction by the westerly sideline of Anderson Street 47 feet, more or less, to the northerly sideline of Lancaster Street and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now the Portland Renewal Authority), by A. Frances Robishaw, by Warranty Deed dated October 4, 1960, and recorded in Cumberland County Registry of Deeds in Book 2566, page 381, and the lot of land conveyed to this Authority by Constantino Piacentini, by Warranty Deed dated February 6, 1964, and recorded in said Registry in Book 2803, page 135.

10. Description of Parcel 12

A certain lot or parcel of land situated on the southerly sideline of Madison Street and lying between Anderson Street and Greenleaf Street, in the City of Portland, County of Cumberland

and State of Maine, and being more particularly described as follows:

Beginning at the corner formed by the intersection of the easterly sideline of Anderson Street with the southerly sideline of Madison Street; thence by said Madison Street N 66° 36' E 239.76 feet to the corner formed by the intersection of the southerly sideline of said Madison Street with the westerly sideline of Greenleaf Street; thence by said Greenleaf Street S 23° 27' 30" E 160.19 feet to the corner formed by the intersection of the westerly sideline of said Greenleaf Street with the northerly sideline of Monroe Street; thence by said Monroe Street S 66° 33' 30" W 239.69 feet to the corner formed by the intersection of the northerly sideline of said Monroe Street with the easterly sideline of said Anderson Street N 23° 29' W 160.36 feet to the point of beginning.

Said above described courses are magnetic and of the date of 1959.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by the County of Cumberland by warranty Deed dated September 7, 1965, and recorded in Cumberland County Registry of Deeds in Book 2920, page 581.

11. Description of Parcel 13E

A certain lot or parcel of land situated on the southerly sideline of Monroe Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly described as follows:

Beginning at a point on the southerly sideline of Monroe Street, said point being distant 80 feet easterly from the point of intersection of said southerly sideline of Monroe Street and the easterly sideline of Anderson Street, said point also marking the northeasterly corner of land now or formerly of Beverly Ann Hayden; thence in a general southerly direction by the easterly sideline of land of said Hayden 100 feet to the northwesterly corner of land now or formerly of Nicholas DiPietro and Katherine DiPietro; thence in a general easterly direction by the northerly sideline of land of said Nicholas DiPietro et al 40 feet to the northeasterly corner thereof; thence in a general southerly direction by the easterly sideline of land of said Nicholas DiPietro 80 feet to the northerly sideline of Oxford Street; thence in a general easterly direction by the northerly sideline of Oxford Street 120 feet, more or less, to the westerly sideline of Greenleaf Street; thence in a general northerly direction by the westerly sideline of Greenleaf Street 83 feet, more or less, to land now or formerly of King Butland; thence in a general westerly direction by the southerly sideline of land of said Butland 80 feet, more or less, to the southwesterly corner thereof; thence in a general northerly direction by the westerly

sideline of land of said Butland 33 feet, more or less, to the northwesterly corner thereof; thence in a general easterly direction by the northerly sideline of land of said Butland 80 feet, more or less, to the westerly sideline of Greenleaf Street; thence in a general northerly direction by the westerly sideline of Greenleaf Street 33 feet, more or less, to land now or formerly of Maurice G. Harding; thence in a general westerly direction by the southerly sidelines of land of said Harding and by land now or formerly of Perley V. Patrick and Alice R. Patrick 80 feet, more or less, to the southwesterly corner of land of said Perley V. Patrick et al; thence in a general northerly direction by the westerly sideline of land of said Perley V. Patrick et al 32 feet, more or less, to the southerly sideline of Monroe Street; thence in a general westerly direction by the southerly sideline of Monroe Street 80 feet, more or less, to land now or formerly of Beverly Ann Hayden and the point of beginning.

Also all right, title and interest, if any, in and to all passageways, lanes, streets or alleys adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying the lot of land conveyed to this Authority by the County of Cumberland by warranty Deed dated September 7, 1965, and recorded in Cumberland County Registry of Deeds in Book 2920, page 585, the lot of land conveyed to this Authority by Helen M. Jones, by Executor's Deed dated February 1, 1963, and recorded in said Registry in Book 2731, page 229, the lot of land conveyed to the Slum Clearance Authority (now Portland Renewal Authority) by Richard C. Payson et al by Quit Claim Deed dated November 3, 1960, and recorded in said Registry in Book 2575, page 167, the lot of land conveyed to this Authority by Annie M. Kelley, by warranty Deed dated November 24, 1961, and recorded in said Registry in Book 2645, page 412, and the lot of land conveyed to this Authority by Roland B. Roberts et al by Warranty Deed dated February 19, 1965, and recorded in said Registry in Book 2881, page 148.

12. Description of Parcel 20P

A certain lot or parcel of land situated on the southerly sideline of Lancaster Street westerly of Boyd Street in the City of Portland, County of Cumberland and State of Maine and being more particularly described as follows:

Beginning at a drill hole at the corner formed by the intersection of the westerly sideline of Boyd Street with the southerly sideline of Lancaster Street; thence from said point of beginning and by said Lancaster Street S $48^{\circ} 56' 21''$ W 152.10 feet to an iron on the easterly sideline of the Franklin Street Arterial Highway; thence by said Franklin Street by a convex curve to the southeast, having a radius of 2,827.79 feet a distance of 112.77 feet measured on the arc thereof to an iron at a point of tangent in said Franklin Street; thence continuing by said Franklin Street S $48^{\circ} 46' 15''$ E 31.98 feet to an iron at the former location of the northerly sideline of Heath Street; thence by said former location of Heath Street N $48^{\circ} 56' 21''$ E 133.15 feet to a drill hole in the westerly sideline of Boyd Street; thence by said Boyd Street N $42^{\circ} 21' 07''$ W 143.75 feet to the point of beginning. Said above described courses are based on true Meridian as determined by the Maine State Highway Commission.

The above described premises are hereby conveyed subject to an easement granted to the City of Portland dated 1970 and recorded in Cumberland County Registry of Deeds in Book , Page

Also all right, title and interest, if any, in and to all passageways, alleys, streets and lanes adjoining, abutting and/or running with the above described premises.

Meaning and intending to convey and hereby conveying a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority), by Sumner G. Whittier as Administrator of Veterans' Affairs, by Quit Claim Deed dated May 25, 1959, and recorded in Cumberland County Registry of Deeds in Book 2474, page 286, the lot of land conveyed to this Authority by Charles Boyd Coleman, by Quit Claim Deed dated January 17, 1962, and recorded in said Registry in Book 2656, Page 324; a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Terese Hubbard, by Warranty Deed dated January 11, 1960, and recorded in said Registry in Book 2520, page 139, a part of the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Leonard Pelletier, by Warranty Deed dated April 7, 1960, and recorded in said Registry in Book 2532, page 147, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by Samuel C. Modes, by Warranty Deed dated October 28, 1959, and recorded in said Registry in Book 2508, page 265, the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority) by V. Grace Wood, by Warranty Deed dated August 4, 1959, and recorded in said Registry in Book 2490, page 354, and the lot of land conveyed to the Slum Clearance and Redevelopment Authority (now Portland Renewal Authority), by Edward L. Delaney, by Warranty Deed dated August 21, 1959, and recorded in said Registry in Book 2494, Page 316.

The above described premises are hereby conveyed subject to the following restrictions, covenants and agreements:

1. The redeveloper, its successors and assigns, will and shall devote the above described premises to the uses specified in the Redevelopment and Renewal Plan for the Bayside Park Urban Renewal Project, Me. R-1, dated the thirteenth day of February, AD 1958, approved by resolution of the Authority and by order of the City Council for the City of Portland under date of November 3, 1958, and duly recorded under date of November 3, 1958, in the Clerk's office for the City of Portland, Maine, in Volume 75, page 325, as amended to date and in accordance with the zoning ordinance for the City of Portland dated December 18, 1961.

2. The Redeveloper, its successors and assigns, will not and shall not devote the premises or any part thereof to any other use than the uses specified for the above described premises in accordance with said Plan, as amended to date or contrary to any of the applicable limitations or requirements of said plan.

3. The Redeveloper, its successors and assigns, will not

and shall not effect any covenant, agreement, lease, or other instrument whereby the property is restricted on the basis of race, creed, color or national origin in the sale, lease or occupancy thereof, and will and shall comply with all Federal, State and local Laws, in effect from time to time, prohibiting discrimination or segregation by reason of race, religion, color or national origin in the sale, lease or occupancy of the property, and further, covenants and agrees not to discriminate on the basis of race, color, creed or national origin in the sale, lease or rental, or in the use or occupancy of the demised property or any improvement erected or to be erected therein, or any part thereof.

4. The Redeveloper, its successors and assigns, will not and shall not devote the premises or any part thereof except in accordance with the following special restrictions, covenants and agreements which are hereby made a part of this Indenture.

a) The Redeveloper shall construct on the premises hereby conveyed a housing project designated to provide housing for low-income families, in accordance with the Annual Contributions Contract as amended from time to time, between the Redeveloper and the Public Housing Administration.

b) The Redeveloper herein, its successors and assigns, shall not convey said premises to any person, firm or corporation other than a public body unless the deed by which such conveyance is effected shall contain the following covenant and restriction:

"This conveyance is subject to all of the restrictions, covenants and agreements contained in the Indenture by which said premises were conveyed to the Portland Housing Authority, and in addition, the Grantee, its successors and assigns shall not reconstruct, demolish or subtract from the buildings and structures now on said land, nor make any additions thereto or extensions thereof without prior written approval of the Portland Renewal Authority, which approval shall not unreasonably be withheld.

"The foregoing, like all of the other covenants contained in the aforesaid Indenture to the Portland

Housing Authority from the Portland Renewal Authority, shall be a covenant running with the land and shall be enforceable in the same manner as prescribed in the original Indenture from the Portland Renewal Authority for the enforcement of the covenants therein contained."

The covenants in this conveyance in Paragraphs 1, 2, 3, and 4 shall be covenants running with the land and covenants to the same effect, which shall be and shall be expressed to be covenants running with the land, shall be contained in any instruments from the Redeveloper or from its successors and assigns to any future Grantee or to its successors and assigns covering the premises or any portion thereof or interest therein. All such covenants shall be enforceable by the Portland Renewal Authority and its successors and assigns.

c) All covenants relating to discrimination as presented in paragraph three (3) of this instrument, shall be covenants running with the land in perpetuity.

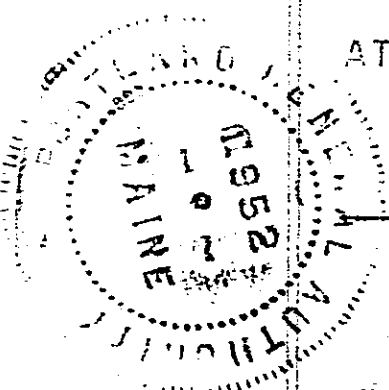
It is intended and agreed that the covenants provided in Paragraphs 1, 2, 3, and 4 shall be covenants running with the land binding to the fullest extent permitted by law and equity for the benefit and in favor of, and enforceable by, the Authority, its successors and assigns, the City, and any successor in interest to the property, or any part thereof, and the owner of any other land (or of any interest in such land) in the project area which is subject to the land use requirements and restrictions of the Urban Renewal Plan and the United States (in the case of the covenant provided in paragraph 3) against the Redeveloper, its successors and assigns, and every successor in interest to the Property or any part thereof or any interest therein, and any party in possession or occupancy of the Property or any part thereof.

TO HAVE AND TO HOLD the same, together with all the privileges and appurtenances thereunto belonging, to the said Portland Housing Authority, its successors and assigns, to its use and behoof forever and the Authority does covenant with the said Portland Housing Authority, its successors and assigns, that it will warrant and forever defend the premises to it the said Portland Housing Authority, its successors and assigns

forever against the lawful claims and demands of all persons claiming by, through or under it.

ATTEST:

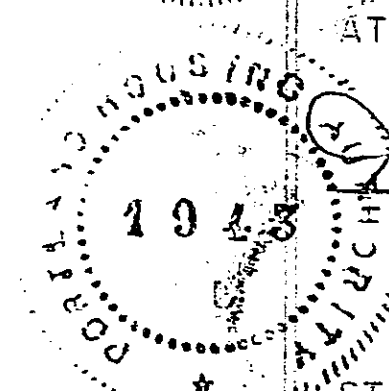
PORTLAND RENEWAL AUTHORITY


Thomas F. Valteau
Thomas F. Valteau
Secretary

By Charles W. Redman, Jr.
Charles W. Redman, Jr.
Chairman

ATTEST:

PORTLAND HOUSING AUTHORITY


George G. Mulligan
George G. Mulligan
Secretary

By Thomas F. Monaghan
Thomas F. Monaghan
Chairman

STATE OF MAINE
COUNTY OF CUMBERLAND, SS

Portland, Maine

On this 1st day of June, 1970, personally appeared Charles W. Redman, Jr., to me personally known, who, being by me duly sworn, did say that he is the Chairman of the Portland Renewal Authority; that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the authority of its commission; and that said Charles W. Redman, Jr. acknowledged said instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

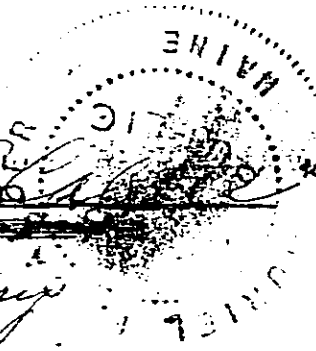
Muriel P. Caldwell
Justice of the Peace
Notary


STATE OF MAINE
COUNTY OF CUMBERLAND, SS

Portland, Maine

On this 1st day of June, 1970, personally appeared Thomas F. Monaghan, to me personally know, who, being by me duly sworn, did say that he is the Chairman of the Portland Housing Authority; that the seal affixed to said instrument is the corporate seal of said corporation, and that said instrument was signed and sealed in behalf of said corporation by the authority of its commission; and that said Thomas F. Monaghan acknowledged said instrument to be his free act and deed in his said capacity and the free act and deed of said corporation.

Before me,

Muriel P. Caldwell
Justice of the Peace
Notary


JUN 2 1970

REGISTRY OF DEEDS, CUMBERLAND COUNTY, MAINE

Received at 1 H 41 M P.M. and recorded in

BOOK 3129 PAGE 374 Seward P. Thayer Register

OPTION TO PURCHASE AND LEASE AGREEMENT
(COMB Block Phase 1 – Land Only)

THIS OPTION TO PURCHASE AND LEASE AGREEMENT (“Agreement”) dated this 11th day of March, 2024, is by and among PORTLAND HOUSING AUTHORITY, a public body corporate and politic organized as Maine municipal housing authority having a mailing address of 970 Baxter Boulevard, Portland, ME 04103 (“PHA”), PORTLAND HOUSING DEVELOPMENT CORPORATION, a Maine nonprofit corporation having a mailing address of 970 Baxter Boulevard, Portland, ME 04103 or its assigns (“PHDC”), and COMB BLOCK PHASE ONE, LP, a Maine limited partnership having a mailing address of 970 Baxter Boulevard, Portland, ME 04103, or its assigns (“LP”).

RECITALS

WHEREAS, PHA is the owner of a certain parcel of land at 20 & 24 Mayo Street and 9 & 25 Boyd Street, Portland, Maine and all improvements, buildings and fixtures presently on said land (the “Property”); and

WHEREAS, PHA has applied to the Department of Housing and Urban Development Special Application Center (“HUD”) for authority to demolish the existing buildings, to remove the Property from the Public Housing Program through a disposition under Section 18 of the United States Housing Act of 1937 (collectively, the “Disposition”), and develop new Project Based Section 8 affordable housing (the “New Project”); and

WHEREAS, in order to facilitate the New Project, PHA wishes to grant to PHDC and option to purchase a portion of the Property approximately shown on the survey attached hereto as **Exhibit A** (the “Premises”) on the terms set forth herein;

WHEREAS, in order to facilitate the financing and development of the New Project using Federal Low Income Housing Tax Credits (“LIHTC”), PHDC wishes to grant to LP an option to lease the Premises through a long-term ground lease on the terms set forth herein (the “Ground Lease”).

NOW, THEREFORE, in consideration of one dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. **Option Period; Exercise of Option.** PHA hereby grants PHDC the option to purchase the Premises (the “Purchase Option”) for a period extending through December 31, 2027 (the “Option Period”). Concurrent with the Purchase Option and for the Option Period, PHDC hereby grants LP an option to lease the Premises (the “Lease Option” and collectively with the Purchase Option, the “Options”).

- a. PHDC and LP may exercise the Options at any time during the Option Period by giving written notice to PHA of their intent to exercise the Option (the “Option Notice”). Said Option Notice shall also serve as notice to PHDC of LP’s desire to exercise the Lease Option. An Option Notice signed by both PHDC and LP and

delivered to PHA by hand or certified mail, return receipt request is sufficient notice of both Options.

- b. The Options and the obligation of PHA, PHDC and LP to perform their respective obligations hereunder shall be conditional upon (i) approval by HUD of Disposition (ii) receipt of all required municipal and state approvals for the development of the New Project; (iii) an award of LIHTC for the New Project.

2. Purchase Price. Subject to adjustment as set forth below, PHDC shall pay PHA a purchase price equal to One Dollar (\$1.00) (the "Purchase Price") plus any additional amount that HUD may require be paid to PHA in connection with the Disposition.

3. Lease Terms. If the Lease Option is exercised, the Ground Lease from PHDC to LP will be for a term of 95 years, with rent due for entire term equal to \$10.00 and all operating expenses to be paid by LP, or such other terms as the lenders and investors for the New Project may require.

4. Closing. If PHDC and LP exercise the Options, closing shall take place at a date, time and location mutually agreed upon by PHA, PHDC and LP ("Closing").

5. Conditions to Closing. If PHDC and LP exercise the Options, the following terms and provisions shall apply:

- a. PHA, PHDC, and LP respective obligations to close on the transactions contemplated herein shall be conditioned upon (i) approval of the Disposition by HUD; (ii) receipt of all required municipal and state approvals for the New Project; (iii) and an award of LIHTC for the New Project.
- b. Title to the Premises shall be conveyed to PHDC by good and sufficient Quitclaim Deed with Covenant, free from encumbrances except provisions of existing building and zoning laws and any covenants and/or easements of record provided same do not interfere with the intended use of the New Project; such real estate taxes for the then current tax period which are not due and payable on the date of delivery of such deed; utility and access easements in common with areas retained by PHA's, and any matters of record which in PHDC and LP's opinion does not interfere with the New Project. PHDC and LP shall notify PHA of any defects in title that would make PHA unable to give title to the Premises as herein stipulated. PHA shall be obligated to proceed in good faith to cure any such title defect(s). If required, the Closing shall be extended to allow PHA time to cure any such title defects, but in no event shall the Closing be extended more than thirty (30) days for such purposes. If a title defect exists, PHDC and LP may elect, by written notice to PHA, either (i) to accept title to the Premises subject to any uncured defects in title or (ii) to terminate the Option, whereupon any extension fee(s) paid by PHDC or LP to PHA shall be immediately refunded to PHDC or LP as the case may be, the obligations of all parties hereunder shall cease, and neither party shall have any claim against the other by reason of this Agreement;
- c. Each party shall pay one-half of the Maine state transfer tax unless one of the parties is exempt, in which case no transfer tax shall be due from the exempt party.

6. Representations.

- a. PHA represents, covenants and warrants to PHDC and LP that:
 - i. PHA is the current owner of the Premises, and, subject to approval by HUD, has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by PHA of the obligations hereunder will not conflict with, or result in breach of any regulation, order, judgment, injunction or decree of any court or governmental authority or any agreement or instrument to which PHA is a party or by which PHA is bound.
 - ii. There are no agreements or contracts affecting the Premises or any use of the Premises that would not be terminable at will by PHDC without penalty from and after the Closing, other than those for which PHA will be seeking approval from HUD in connection with its Disposition application.
- b. PHDC represents, covenants and warrants to PHA and LP that PHDC has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by PHDC of its obligations hereunder: (i) have been duly authorized by all requisite action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of organization of PHDC or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which PHDC is a party or by which it is bound.
- c. LP represents, covenants and warrants to PHA and PHDC that LP has the legal right, power and authority to enter into this Agreement and to perform all of its obligations hereunder, and the execution and delivery of this Agreement and the performance by LP of its obligations hereunder: (i) have been duly authorized by all requisite action; and (ii) will not conflict with, or result in a breach of, any of the terms, covenants and provisions of the by-laws or articles of organization of LP or any law or any regulation, order, judgment, writ, injunction or decree of any court or governmental authority, or any agreement or instrument to which LP is a party or by which it is bound.

7. Notice. Whenever notice is given or required to be given by either of the parties hereto to the other, it shall be deemed to have been given if in writing and mailed by certified or registered mail, return receipt requested, postage prepaid, or hand delivered, addressed to the parties at the address set forth in the first paragraph above or to such other address(es) as either party shall have last designated by like notice in writing. All notices shall be effective upon hand delivery or mailing, whichever first occurs.

8. Further Assurances. The parties agree that up to and after the date of Closing, they shall do such things and execute, acknowledge and deliver any and all additional instruments,

documents and materials as either party may reasonably request to fully effectuate the purposes of this Agreement.

9. Buyer's Access. PHDC and LP and others whom they may designate shall have the right, at all reasonable times, at PHDC or LP's sole cost and expense, risk and hazard, to enter upon the Premises to examine and/or show the same and make, or cause to be made, engineering studies with respect thereto, including, without limitation, surveying, conducting test borings in order to determine sub-soil conditions, and in general conducting all other tests, analysis and studies of the Premises which PHDC or LP deems prudent in connection with the Disposition and the New Project. PHDC or LP (as the case may be) shall restore the Premises following any testing as reasonably as possible to its pre-existing condition, unless otherwise agreed by PHA.

10. Construction of Agreement. This instrument, executed in duplicate, is to be construed as a Maine contract, is to take effect as a sealed instrument, sets forth the entire contract between the parties, is binding upon and inures to the benefit of the parties hereto and their respective heirs, devisees, executors, administrators, successors and assigns, and may be canceled, modified or amended only by a written instrument executed by PHA, PHDC and LP. The captions are used only as a matter of convenience and are not to be considered a part of this Agreement or to be used in determining the intent of the parties to it. Time is of the essence with respect to all dates set forth in this Agreement.

11. Risk of Loss. At all times until Closing, the risk of loss shall remain with PHA.

12. Assignment. PHDC or LP may assign their interest in this Agreement to any party affiliated with PHDC or LP and formed for the purpose of carrying out the New Project.

Remainder of Page Intentionally Blank – Signature Page to Follow

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

PORTLAND HOUSING AUTHORITY

By: [Signature]

Brian Frost

Its: Executive Director

PORTLAND HOUSING DEVELOPMENT CORPORATION

By: [Signature]

Brian Frost

Its: President

COMB BLOCK PHASE ONE, LP

By: **COMB Block Development, LLC**

By: [Signature]

Brian Frost

Its: President

STATE OF MAINE

COUNTY OF CUMBERLAND, SS.

March 11, 2024

Personally appeared the above-named, Brian Frost, Executive Director of Portland Housing Authority, President of Portland Housing Development Corporation, and President of PortHouse, LLC, the general partner of Franklin Towers, LP and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of the foregoing entities.

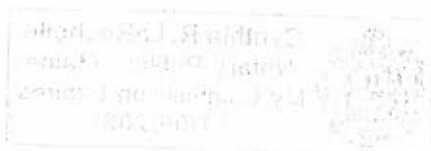
Before me,

[Signature]
Notary Public/Attorney at Law

Printed  Cynthia R. LaRochelle
Notary Public - Maine
My Commission Expires 11/09/2027



EXHIBIT A



E. Summary of Written Easements

Existing Easements:

There are no existing easements shown on the plan titled ALTA / NSPS Land Title Survey dated December 22, 2023, prepared by Owen Haskell, Inc.

Proposed Easements:

There are no proposed easements as part of this project.



F. Site Plan Standards Assessment

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use. Specifically, Article 14, Section 6 - Site Plan Review Standards.

OVERVIEW

The proposed project has been designed to conform to City standards where possible as demonstrated in the following narrative.

14.6.1 Transportation Standards

A. Impact on Surrounding Street Systems:

1. The project will not generate 100 or more cars during peak hour; therefore, a Traffic Movement Permit will not be required. The project is not anticipated to create any significant hazard to safety on the surrounding street network. Vehicular access to the site will be updated per technical manual standards, including providing continued accessible parking for the adjacent Bayside Anchor building. The proposed reconstructed parking area may also be used by vehicles servicing the proposed building.
2. No substantial increase in congestion on any streets is anticipated.

B. Access and Circulation:

1. In general:
 - a. Internal sidewalks are provided to allow for site circulation. Internal sidewalks will be constructed to meet ADA standards, providing pedestrian access to and from the building entrances, public sidewalk system, and the open space on site.
 - b. An internal sidewalk system will provide continuous access to the existing public street/sidewalk system, building entrances, and the open space on site.
 - c. The proposed driveway location will match the existing driveway location. No points of conflicts with turning movements and traffic flows are anticipated.
 - d. The proposed site uses do not require stacking capacity.
2. Loading and Servicing: It is anticipated that the loading and servicing of the proposed building will be primarily from the parking area. Due to the low use of the parking area, no conflicts are anticipated with parking or site circulation.



3. Curb and Sidewalks:

- a. Curbing and sidewalks along project frontages on Boyd and Oxford Streets will be reconstructed to City of Portland standards as shown on C-10 Site Plan.
- b. Since existing sidewalks along project frontages do not meet current City standards, they will be reconstructed to City standards as shown on C-10 Site Plan and details.
- c. Not applicable.
- d. Not applicable.

C. Public Transit Access:

1. The project is not proposed along any existing transit routes, therefore does not need to provide a transit shelter.
2. Not applicable – no transit facilities are proposed.
3. Not applicable – no transit facilities are proposed.

D. Parking:

1. Vehicular parking:

- a. Per table 19-B: Categorical Exceptions to Off-Street Parking Minimum, the Planning Board may establish a lesser parking requirement for affordable housing regardless of the size of the structure. The parking spaces on-site that will be reconstructed as part of the project will serve the adjacent Bayside Anchor buildings, so it is respectfully requested that the board reduce the parking requirement for the project to zero spaces. The project is proposed in an urban area of the city, and is within a walkable distance to many amenities that will be necessary for residents, including being within a walkable distance to existing Metro routes. Portland Housing Authority has an extensive waiting list for families seeking housing, and many of the families do not own vehicles. Therefore, the project will not require parking in order to serve prospective residents.
- b. Not applicable – no parking study is required for the proposed development.
- c. Not applicable – the project will not exceed minimum parking requirements.
- d. The 5 ADA spaces & 1 EV ADA space meet ADA & City design standards. A waiver is being sought to reduce the aisle width from 24' to 22'.



2. Bicycle Parking

- a. Bicycle parking for the proposed development is provided in a dedicated bike room on the east side of the building. The bike room will provide racks for a minimum of 20 bikes, as is required by Table 19-A (2spaces/5 units).
- b. Not applicable – no waiver is sought to reduce the number of bicycle parking spaces on the site.

3. Snow Storage:

- a. Excess snow accumulated during large storm events will be trucked off site.
- b. Excess snow accumulated during large storm events will be trucked off site. to all pedestrian walkways and parking areas remain clear.

4. Electric Vehicle (EV) charging

- a. Of the 6 ADA parking spaces provided, one space shall be constructed with an EV charger to meet the Technical Manual Requirements. Conduit will be installed for an additional 3 spaces to be “EV Ready”.

E. Transportation Demand Management (TDM):

1. A Transportation Demand Management plan is not required for this project.
2. Not applicable – no TDM plan is prepared for the project.

14.6.2 Environmental Quality Standards

A. Preservation of Significant Natural Features:

1. The development shall preserve and protect significant natural features by incorporating them into site design:
 - a. Not applicable - there are no known populations of trees and plants listed on the Official List of Endangered and Threatened Plants in Maine. The area is not listed as habitat of endangered species per the Maine Natural Areas program maps.
 - b. Not applicable - there are no known species appearing on the list of endangered or threatened animal species in the project vicinity.
 - c. Not applicable - the project will not impact any high or moderate value waterfowl and wading bird habitat.
 - d. Not applicable - the project is not located in an aquifer on island.



- e. Not applicable – no waterbodies exist in the project vicinity.
- 2. Not applicable - there are no habitat blocks set aside for preservation in the project vicinity.
- 3. Not applicable – no waiver is being sought for preservation of significant natural features.

B. Landscape Preservation:

- 1. 4 trees will be removed due to the scale of the proposed building. One existing 12" tree will be preserved and incorporated into the site design, adjacent to the driveway entrance. Please refer to the attached landscaping narrative for additional information.
- 2. Adequate protection measures will be taken to protect existing trees and vegetation to be preserved from construction impacts. Tree protection requirements are shown on plan sheet C-42. Please refer to the attached landscaping narrative for additional information.
- 3. Not applicable – the project is not subject to zoning setbacks per R-7 zoning with affordable housing bonus.
- 4. Not applicable – since the project is not subject to zoning setbacks, tree preservation is not required.
- 5. Not applicable – Since the project is not subject to zoning setbacks, tree preservation is not required.

C. Site landscaping and buffers.

Please refer to the attached landscaping narrative for additional information.

D. Water Quality, Stormwater Management and Erosion Control:

- 1. Stormwater
 - a. The drainage patterns for stormwater draining onto the lot in its pre-development state will generally be maintained post-development.
 - b. There will be no increase in volume or rate of stormwater draining from the lot onto adjacent lots or City property. See attached Stormwater Management Report for more information.
 - c. There will be no increase in volume or rate of stormwater entering the city's separated storm drain system. See attached Stormwater Management Report for more information.



2. The development will be subject to Chapter 5, Section II.D. requirements for redevelopment projects. Since greater than 5,000 sf of non-roof impervious area will be redeveloped, the project is subject to General Standards for no less than 50% of the redeveloped area. This requirement is exceeded. Stormwater treatment is provided with a StormFilter proprietary BMP. See attached Stormwater Management Report for more information. Additionally, the project is subject to Basic Standards. See attached Erosion and Sediment Control Report for information on how the project will meet these standards.
3. The development is not anticipated to pose a contamination risk to groundwater during or after construction.

14.6.3 Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans:

1. The project has been designed to be consistent with the City's Zoning Ordinance and off-site infrastructure. Additionally, the project will be consistent with City Council-approved Master Plans and Projects as is shown in the following:
 - a. Bayside Tree Planting Surge: Sidewalks along the project frontage are shown in the ARPA Tree Planting Project as significant to maximum viability for a high need for trees and favorable conditions for tree survival with appropriate infrastructure. As such, street trees will be provided along the streets as required in the City Technical Manual.
2. Not applicable – no off-premises public infrastructure is proposed as part of the project.

B. Public Safety and Fire Prevention:

1. Public Safety Design
 - a. The proposed site design will promote natural surveillance as proposed open spaces are visible from Boyd and Oxford Streets, as well as visible from the proposed building.
 - b. The building will have an adequate lock system to prevent unauthorized access. It is anticipated that Portland Housing Authority will regularly if not continuously have staff at the proposed building who will monitor the site.
 - c. The proposed open space and parking lot on the site are separated from the public way, providing territorial reinforcement to promote a sense of ownership.
2. Emergency vehicles will be able to access the parking area via the driveway on Oxford Street, and they will be able to access the open space portion of the site from the driveway on Boyd Street.



C. Public Utilities:

1. The project will not over-burden City sanitary sewer, storm drains, or other public utilities. An outlet control structure is provided for peak flow control and provide no increase in volume or rate of stormwater draining into the City Storm Drain System. See attached Stormwater Management Report for more information on peak flows. Utility providers have been contacted for their ability to serve the proposed project. Confirmations received are included in this submission in the Utilities section & others will be forwarded to the city upon receipt.
2. The proposed building will be served via underground electrical conduit, with a riser proposed on the utility pole along Boyd Street across from the project parcel.
3. All storm drain, sanitary sewer, and water supply lines will be constructed in accordance with the standards of the Technical Manual.
4. The building will be connect to the existing sanitary sewer main along Boyd Street.
5. The proposed building will have an interior trash room, which will open to the proposed parking lot on the northeast side of the building. The trash will be removed from the building in a timely manner. Storage for recyclable containers shall be separated from trash containers within the trash room.

14.6.4 Site Design Standards

A. Massing, Ventilation and Wind Impact:

1. See Section O. Architectural Design Narrative.
2. See Section O. Architectural Design Narrative.
3. See Section O. Architectural Design Narrative.

B. Shadows: See Section O. Architectural Design Narrative.

C. Snow and Ice Loading: See Section O. Architectural Design Narrative.

D. View Corridors: Not applicable – the proposed development is not within any view corridors identified in the Downtown Vision View Corridor Protection Plan.

E. Historic Resources:

1. Not applicable - there are no known historic landmarks present on site. The site does not fall within any designated historic districts or historic landscape districts.



2. Not Applicable - the proposed development is not within 100' of a historical landmark or district. The nearest historical landmark to the project is the Cathedral of Immaculate Conception at 307 Congress St, which is approximately 280' away from the proposed building.
3. Not applicable - the site does not contain any state or local archeological resources.

F. Exterior Lighting:

1. Site Lighting.
 - a. All proposed lighting shall meet Technical Manual standards. A lighting plan is included within the proposed plan set and lighting cut sheets are provided in a separate section of the application.
 - b. It is not anticipated that any light from the development will adversely impact adjacent residential properties.
2. Architectural and Specialty Lighting.
 - a. No architectural or specialty lighting is anticipated.
 - b. No up-lighting is proposed.
3. Street Lighting: Proposed street lighting shall meet Technical Manual Standards.

G. Noise and Vibration:

1. See Section X. Architectural Design Narrative.

H. Signage and Wayfinding:

1. Signage
 - a. Not applicable.
2. Wayfinding: No wayfinding signage is proposed as part of the development at this time.

I. Design Standards:

1. The project has been designed to meet the standards set forth in R7 Residential Overlay Zone. Please refer to the Site Plan & Zoning Assessment for more information on the zone-specific space & bulk standards, and Section O. Architectural Design Narrative for further info on how the zone-specific standards are met.



March 12, 2024

Mark Reiland - City of Portland Arborist
Parks, Recreation & Facilities
Forestry, Parks & Horticulture
212 Canco Road - Suite A
Portland, ME. 04103

Subject: Tree Removals & COMB Block Redevelopment

Dear Mark,

I am writing to inform you of the planned removal of four existing trees on Oxford Street and Boyd Street. As part of our ongoing planning and site development project at 25 Boyd Street.

The proposed development will consist of the demolition of the 25 Boyd Street building and the construction of a 6-story 50-unit affordable housing building. The phase 1 project plan seeks to maximize the site to provide streetscape enhancements within the public realm along with interior site improvements that address accessibility concerns and provide accessible interior open space for residents. We have assessed the existing conditions and our design team have gone through an extensive planning process. A large part of the initial study was understanding the neighborhood and taking an inventory of the trees onsite. Our inventory has identified 4 existing trees for removal for the phase one development on the corner of East Oxford Street and Boyd Street.

Trees identified for removal are as follows:

East Oxford Street:

1. (1) 15" Zelkova
2. (1) 6" Maple

Internal Site Trees

1. (1) 28" Ash Tree
2. (1) 30" Ash Tree

Our conversations to date have outlined the proposed plans and the existing trees listed above. We understand that there is a desire to try and preserve the 15" Zelkova Tree at the corner of Oxford and Boyd Street. While the design team understands the value of maintaining existing urban tree canopy, the need to address tricky site conditions while providing adequate housing, parking, amenities for the neighborhood, and future residents we believe the best case is to move forward with the removal of the 15" Zelkova. Our team does not take the removal of street trees lightly and the decision to move ahead with the removal request comes after careful

consideration. The proposed plan includes the retention of a 12" caliper Honey Locust on East Oxford Street, the planting of 11 new street trees along Boyd and East Oxford Street, sand based structural soil, streetscape improvements including brick sidewalks, seating, a new traffic calming bump out, and planted esplanade along Oxford Street to match the streetscape along the Bayside Anchor building. The site's interior will be planted with a mix of canopy trees, understory trees, shrubs, and accent plantings. A total of 18 trees are being proposed. The project also proposes 30% of the site as open space consisting of 10% hardscape open space and 20% landscaped open space. The remaining street trees will be provided through a contribution to the city of Portland tree fund. With the planting of the proposed trees and contribution to the tree fund, the application will meet the minimum street tree planting requirements.

Please note that every effort will be made to minimize the environmental impact of this removal process. We are committed to implementing proper tree removal techniques to ensure the safety of our workers, protect surrounding vegetation, and mitigate any potential disruptions.

Additionally, we understand the importance of preserving green spaces and are committed to offsetting the loss of these trees by incorporating new planting initiatives into our site development plans as stated above. Our goal is to maintain a sustainable and environmentally responsible approach throughout the entirety of the project.

We would be happy to meet onsite and discuss the plans further. If you have any questions or concerns regarding this tree removal plan, please do not hesitate to contact me at Dry-la@outlook.com or you can reach me at (603)496-8020. We value your input and are open to discussing any alternative solutions that may align with our project goals while addressing your concerns. We are committed to keeping the community informed throughout the process and working together to create a balance between progress and preserving our natural environment.

Thank you for your attention to this matter. We appreciate your understanding and cooperation as we work towards the successful completion of the COMB block project.

Sincerely,

Braden Drypolcher, Principal
Dry Landscape Architecture, LLC.



G. Financial Capacity

A letter from the Applicant confirming financial capacity is attached to this section.





Financing Capacity COMB Block Phase 1

Portland Housing Development Corporation (PHDC), an instrumentality of Portland Housing Authority (PHA), self-certifies it has the financial capacity and experience to secure financing and complete the redevelopment of COMB Block. Assembly of financing is in the early stages and will be completed within the development timeline based on PHDC's existing relationships and strong track record.

PRE-DEVELOPMENT

PHDC self-finances pre-development expenses with unrestricted funds and is reimbursed at construction loan closing.

CONSTRUCTION FINANCING

PHDC has several relationships with banks and will be selecting a bank partner for construction financing. Typical terms are expected for this loan, which will extend the duration of the construction period with interest-only payments at a market-based interest rate typical of such loans. PHDC has successfully obtained construction financing on multiple projects in recent years, including \$2.5 million at Bayside Anchor (81 E. Oxford St), \$8.2 million at Solterra Apartments (58 Boyd St), and \$12.2 million at Washington Gardens (577 Washington Ave).

LOW INCOME HOUSING TAX CREDIT

In the past five years, PHDC has been awarded eight Low Income Housing Tax Credits (LIHTC) awards for Solterra Apartments, Washington Gardens, Front Street Phases 1 and 2, 337 Cumberland Ave, Equinox Apartment, Winter Landings and Harbor Terrace. These include both 9% and 4% LIHTC deals.

It is expected COMB Block Phase 1 will be submitted this fall to the competition for a 9% allocation award for Low Income Housing Tax Credits (LIHTC) from MaineHousing. The tax credits will generate equity to fund redevelopment. A tax credit investor will be identified after notice of an award.

Our organization is experienced in and knowledgeable of the competitive nature of the LIHTC funding rounds and have maximized our points for this project under the latest Qualified Allocation Plan (QAP).

Planning Board approval by August 2024 will provide COMB Block with additional "readiness" QAP points and is essential for the project to secure a LIHTC award in the upcoming application round.

PERMANENT FINANCING

PHDC will secure an interest-only permanent senior loan for the project from either MaineHousing or a private bank. PHDC has successfully obtained permanent financing or commitments for permanent

financing on multiple projects in recent years, including \$2.6 million at Bayside Anchor, \$8.5 million at 58 Boyd St, \$8.8 million at Washing Gardens, and \$15.2 million at Harbor Terrace.

PHDC anticipates securing Affordable Housing Program (AHP) funds from the Federal Home Loan Bank of Boston.

PHDC anticipates applying for a City Housing Trust Fund award from the City of Portland.

OPERATING SUBSIDY

The COMB Block currently operates as Public Housing. Using HUD's Section 18 Demolition & Disposition program, the project is eligible to receive up to 40 Section 8 Project Based Vouchers (PBVs). The project will benefit from PBVs, guaranteeing that those households will pay no more than 30% of their income towards housing costs.

STAFF EXPERIENCE & CAPACITY

PHDC staff have over 30 years of experience in real estate development, sustainable design, community planning, finance, and construction. They have collectively developed nearly 2,000 affordable homes in their careers. PHDC utilizes private and public financing to renovate PHA's aging multifamily housing stock and create new units of attractive, affordable and workforce housing for Portland residents. Our real estate development team is practiced in environmentally responsible building techniques, smart growth planning and community revitalization. This experience allows PHDC to secure and assemble project financing from a broad range of local, state, and federal sources.

PHDC's new construction and preservation projects provide residents with quality, energy-efficient homes in growing Portland neighborhoods and areas of opportunity. These projects help foster sustainable and diverse and vibrant communities near transit, schools, services, and jobs. PHDC's efforts, in concert with public and private partnerships, encourage community revitalization, create essential affordable housing opportunities, and contribute to a better built environment for future generations.

H. Technical Capacity

A letter from the Applicant summarizing & confirming technical capacity is attached to this section.





Technical Capacity COMB Block Phase 1

Portland Housing Development Corporation (PHDC), an instrumentality of Portland Housing Authority (PHA), has assembled a highly qualified team of professionals for the preparation of this project. All members of this team have significant experience with this type of project and many have worked together on similar projects. The project is being designed by a multi-disciplinary team of design professionals. All members of the design team have proven experience working on projects located in the City of Portland.

PHDC staff have over 30 years of experience in real estate development, sustainable design, community planning, finance, and construction. They have collectively developed nearly 2,000 affordable homes in their careers. PHDC utilizes private and public financing to renovate PHA's aging multifamily housing stock and create new units of attractive, affordable and workforce housing for Portland residents. Our real estate development team is practiced in environmentally responsible building techniques, smart growth planning and community revitalization. This experience allows PHDC to secure and assemble project financing from a broad range of local, state, and federal sources.

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PORTLAND HOUSING AUTHORITY

Owner

970 Baxter Blvd., Portland, ME 04103

207-773-4753

Contact: Brian Frost, Executive Director

COMB BLOCK PHASE ONE, LP**C/O Portland Housing Development Corporation**

Applicant

970 Baxter Blvd., Portland, ME 04103

207-773-4753

Contact: Sarah Tatarczuk, Development Officer

RYAN SENATORE ARCHITECTURE

Architect

500 Congress Street, Suite 2, Portland, ME 04101

Contact: Ryan Senatore, Principal

ACORN ENGINEERING, INC

Civil Engineer

PO Box 3372, Portland, ME 04104

207-775-2655

Contact: Peter Heil, Project Manager

DRY LANDSCAPE ARCHITECTURE, LLC

Landscape Architect

603-496-8020

Contact: Braden Drypolcher, Principal

OWEN HASKELL, INC

Surveyor

390 US Route One, Unit 10, Falmouth, ME 04105

207-774-0424

Contact: Randy Loubier, Professional Land Surveyor

DRUMMOND WOODSUM

Attorney

84 Marginal Way, Suite 600, Portland, ME 04101-2480

207-772-1941

Contact: Gary Vogel

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.
Technical Manual Section 1.10.3	The minimum two-way drive aisle width is 24 feet for standards, right-angle parking.	Reducing the two-way parking lot drive aisle to 22'	Reduced drive aisle width will keep the parking area on the parcel and remove the requirement to get an easement for use on the adjacent parcel. The reduction will reduce impervious area while providing adequate circulation.

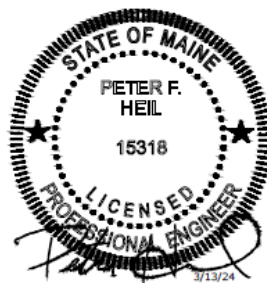
STORMWATER MANAGEMENT **REPORT**

Prepared For:

**COMB Block Phase One, LP
970 Baxter Boulevard
Portland, ME 04103**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104**



March 2024



INTRODUCTION

Acorn Engineering, Inc. has been retained by COMB Block Phase One, LP to provide civil engineering services for the proposed work located at 70 East Oxford Street, Portland, ME 04101. The site is currently comprised of four (4) apartment buildings with surface parking and landscaping. The property consists of approximately 1.53 acres of land near Portland's Franklin Arterial. The proposed project is subject to stormwater treatment due to redevelopment of non-roof impervious area greater than 5,000 sf.

A stormwater analysis was prepared to demonstrate that the project will meet the requirements set forth by Maine DEP Chapter 500 Basic and General Standards and the following requirements from the City of Portland (the City):

- City of Portland Land Use Ordinance Article 14.6.2.D.
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.
- City of Portland Code of Ordinances Chapter 32 – Post-Construction Stormwater Management
- DPW Specific Standard: Provide a minimum detention volume of 1" of rainfall over the entire project redeveloped area being proposed on the parcel with a maximum outflow rate of 0.1 CFS per acre until the storage is maximized.

EXISTING CONDITIONS

The proposed project site is located at 70 East Oxford Street, bounded by Boyd Street, Mayo Street and Cumberland Avenue. An ALTA/NSPS Land Title Survey has been prepared by Owen Haskell, Inc., dated December 22, 2023.

The existing property is covered by approximately 49.6% impervious surfaces including the four (4) apartment buildings, pavement, and concrete.

The project team is not aware of the presence of any existing significant natural features located on the site. Given the urban setting and existing impervious surfaces, a field inventory of significant natural features was not undertaken. The project is not located within a watershed classified as an Urban Impaired Stream.

PROPOSED DEVELOPMENT

The project proposes to demolish the existing (4) buildings located on the parcel of the 70 East Oxford Street development and construct a proposed 50-unit apartment building. The project also includes various parking, utility, and landscape improvements.

The proposed stormwater system will capture runoff from the roof, parking, hardscaped, and landscaped areas and convey to the subsurface detention and treatment BMPs in the parking area before discharging into the storm drain network in Oxford Street. The storm drain



network eventually enters back into the combined sewer system downstream of the project area. The stormwater detention will be provided by an R-tank system and treatment will be via a Stormfilter BMP. Pre-treatment will be provided by treatment rows within the R-tank system.

The project anticipates incorporating Maine DEP approved stormwater Best Management Practices (BMP) to meet the General and Flooding Standards, as well as meeting more stringent DPW standards for discharging into combined sewer systems.

GENERAL STANDARDS – WATER QUALITY

The proposed project was designed to provide primary water quality treatment through the use of a Stormfilter proprietary BMP. This proprietary system is an approved system per Appendix B. of the MDEP Volume III BMPs Technical Design Manual. A design review letter has been provided by the manufacturer, Contech, and is attached to this report as Attachment D of this report. Pretreatment for the system is provided by treatment rows within the R-tank detention system, which is an approved system per Appendix B of the Maine Stormwater BMP Manual. The stormwater treatment BMP is designed to provide treatment per City of Portland Technical Manual, Chapter 5 requirements. The Municipal code states: *“All projects not subject to requirements of an existing Site Law or Stormwater Management Law Permit that include redevelopment of non-roof impervious area greater than 5,000 square-feet and are subject to City of Portland review shall provide stormwater quality treatment in accordance with the General Standards for no less than 50% of the redeveloped impervious area.”*

Treatment Area

The development shall provide water quality treatment in accordance with the DEP Chapter 500 General Standards for no less than 50% of the redeveloped impervious area. The following is a summary of existing and proposed impervious area within the redeveloped portion of the site:

Table 1 – Treatment Area		
Existing Impervious Area	Redeveloped Impervious Area	Redeveloped Impervious Area with Treatment
11,778	17,952	16,958 SF (94.5%)

In addition to the treatment of the redeveloped impervious area, the system is also size to treat additional impervious area for future development on the lot.



Stormfilter Sizing

The proposed Stormfilter BMP sizing is based on flows provided to Contech by Acorn in HydroCAD format. Contech has sized the Stormfilter system to be contained within 60" manhole and consist of (4) 27" Stormfilter cartridges. Please reference the attached Stormfilter Design Review Letter for further sizing information.

Please refer to Table 2 below for the required area calculations.

Table 2 – Total Filter Surface Area, displays the proposed USSF sizing requirement, actual size and the percentage of required area.

Table 2 – Total Filter Surface Area		
	Required Filter Area (SF)	Actual Filter Area (SF)
USSF	1,019	1,040

As shown, the size of the soil filter area will exceed the surface area requirements.

Pre-treatment R-tank Row Sizing

The R-tank stormwater detention system has been designed to incorporate treatment rows that will provide pre-treatment prior to discharging to the Stormfilter treatment BMP. The treatment rows have been sized to be able to handle the flow of the 1 yearr 24-hour storm, accounting for 0.02 cfs per Access Module. The total flow in the system is modeled as 1.86 cfs, requiring 93 R-tank Access Modules. See attached R-tank Design Review Letter for further sizing information.

FLOODING STANDARD – WATER QUANTITY

To meet the City's requirement of limiting the burden on the downstream combined sewer main, the project is subject to provide a minimum detention volume of 1" of rainfall over the entire project redeveloped area being proposed on the parcel with a maximum outflow rate of 0.1 CFS per acre during the design storm event (1 inch, 24-hour). The project will utilize an R-tank stormwater detention system before being discharged to an outlet control structure. The outlet control structure provides an orifice and weir system to control flows to the Stormfilter and also provides a bypass pipe for larger storm events.

See below table for the project redevelopment requirements and calculations for water quality volume.

Table 5 – DPW Detention Volume Requirement			
	Redeveloped Area (SF)	Total Detention Volume Required (CF)	Detention Volume Provided (CF)
R-tank	24,700	2,058	3,752*
* System has been up-sized to provide detention for potential future development			



To meet the 0.1 CFS per acre requirement. A 2" orifice will be installed within the weir of the outlet control structure. The 2" orifice will decrease the flow out of the R-tanks and as a result storage will be provided within the R-tank system. The flow out of the site into the city storm system is 0.08 cfs during the design storm event (1", 24-hour).

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10", 4.60", and 5.80" respectively. Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering to round to the nearest whole number. However due to the small size of the project and the minimal existing flows, the stormwater runoff shall be rounded to the nearest tenth of a cubic feet per second (cfs).

Time of Concentration (Tc)

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each subcatchment into the model. When the calculated Tc was less than six minutes (0.1 hours), a direct entry of six minutes was used as advised by the TR-55 model. Consistent with previous submissions and best practices, the sheet flow length for any Tc path was capped at 100 feet.

Curve Number (CN)

Within the pre-development model, the vegetated areas were considered fair grass, and impervious areas consisted of either roof of existing building or pavement from parking lot.

Pre-Development

- Pavement, Walkways, Roofs – CN 98
- 75% Grass Cover – Good, HSG D – CN 80

Post-Development

- Pavement, Walkways, Roofs – CN 98
- >75% Grass Cover (new landscaping) – Good, HSG D – CN 80

Pre-development Calculations

The pre-development model was broken into two separate subcatchments.

- Subcatchment 1 – This tributary area include the interior and western of the site, which currently surface flows to Oxford Street where it enters the city storm drain system through a catch basin within Oxford Street.
- Subcatchment 2 – This tributary area includes the southern portion of the site and upper parking lot, which is currently caught by a drainage system and discharged to the storm drain system in Boyd Street.
- Subcatchment 3 – This tributary area includes the northeastern edge of the site, which currently surface flows to the Mayo Street gutter and enters the storm drain system through the manhole at the corner of Mayo St and Oxford St.



A pre-development watershed map developed for this project can be viewed in Attachment A and a copy of the HydroCAD calculations is included within Attachment C, of this report. Point of interest flow rates for the two sub catchments outlined above are as follows:

Table 6 – Pre-Development Peak Stormwater Flows			
	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI 1	1.7	2.7	3.6
POI 2	1.2	2.0	2.7
POI 3	0.5	0.9	1.1

Post-development Calculations

The post-development model was broken into three separate sub catchments.

- Subcatchment 1.1 – This tributary area includes the roof of the proposed multifamily building.
- Subcatchment 1.2 - This tributary area includes an area of the site that will be reserved for a future building. It is assumed impervious area.
- Subcatchment 1.3 – This tributary area includes the proposed parking area and landscaped open space in the interior of the site.
- Subcatchment 2.1 – This tributary area includes the southern portion of the site and upper parking lot, which is currently caught by a drainage system and discharged to the storm drain system in Boyd Street. The post-demolition condition is modeled in HydroCAD.
- Subcatchment 3.1 – This tributary area includes the northeastern edge of the site, which will surface flow to the Mayo Street gutter and enters the storm drain system through the manhole at the corner of Mayo St and Oxford St.

Total Peak flow rates for the post-development storm events are as follows:

Table 7 – Post-Development Peak Stormwater Flows			
	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI 1	1.6	2.5	3.5
POI 2	1.1	1.8	2.4
POI 3	0.2	0.3	0.4

The post-development calculations include changes to the land use and the compensation provided by the stormwater BMPs. It should be noted that the project is also reducing the



overall impervious area. As a result, the total peak flow rates in the post development are reduced in comparison to the total predevelopment flow rates for the 2, 10, & 25-year storms.

The following table represents a comparison of pre- development and post-development condition peak runoff rates for the proposed development and tributary area.

Table 9 – Comparison of Peak Flows						
POI	2-Year Storm Event (cfs)		10-Year Storm Event (cfs)		25-Year Storm Event (cfs)	
	Pre	Post	Pre	Post	Pre	Post
POI 1	1.7	1.6	2.7	2.5	3.6	3.5
POI 2	1.2	1.1	2.0	1.8	2.7	2.4
POI 3	0.5	0.2	0.9	0.3	1.1	0.4

A post-development watershed map developed for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment C of this report.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Given the soils information, listed above, no onsite wastewater is proposed; the applicant does not intend to perform a more intense hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/11 are met.

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 1 - “K” Value		
Soils Type	Subsurface	Substratum
Deerfield Loamy Fine Sand	0.17	0.17
Hinckley Loamy Sand	0.17	0.17

The soil “K” value for the soil, listed above, shows a low susceptibility to erosion. The site’s susceptibility to erosion is sourced from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County.



CONCLUSION

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. The proposed project as designed is not anticipated to cause flooding or erosion problems within the subject site, abutters' sites, nor within the right-of-way. Overall, the project will provide an improvement to stormwater runoff and overall management from several perspectives as outlined above.

ATTACHMENTS

Attachment A: Pre-Development Watershed Plan
Attachment B: Post-Development Watershed Plan
Attachment C: HydroCAD Calculations
Attachment D: Stormfilter Design Review Letter
Attachment E: R-tank Design Review Letter
Attachment F: Stormwater Inspection and Maintenance Plan
Attachment G: Medium Intensity Web Soil Survey

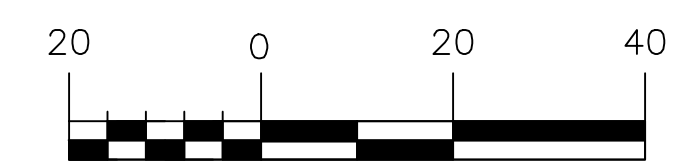
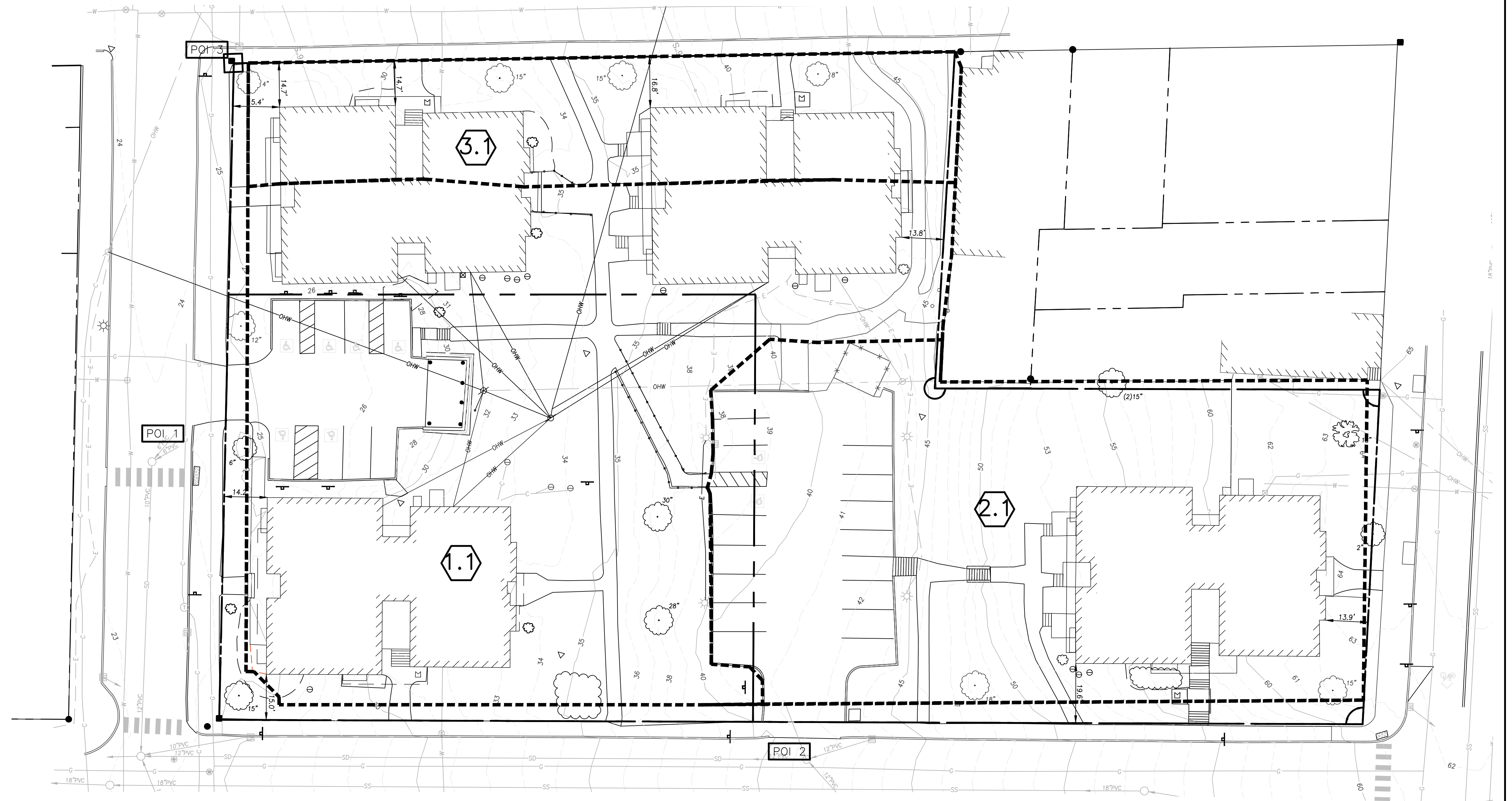


REFER TO STORMWATER REPORT FOR MORE INFORMATION.

SUBCATCHMENT

SUBCATCHMENT EXTENTS

POINT OF INTEREST (POI)



PERMITTING
NOT ISSUED FOR
CONSTRUCTION

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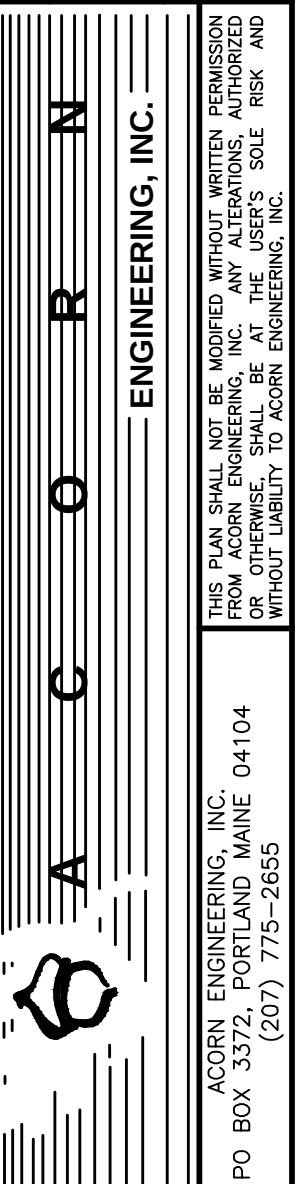
FINE-DEVELOPMENT WATERSHED PLAN

70 EAST OXFORD STREET REDEVELOPMENT

COMB BLOCK PHASE ONE, LP
970 BAXTER BOULEVARD PORTLAND MAINE 04101

70

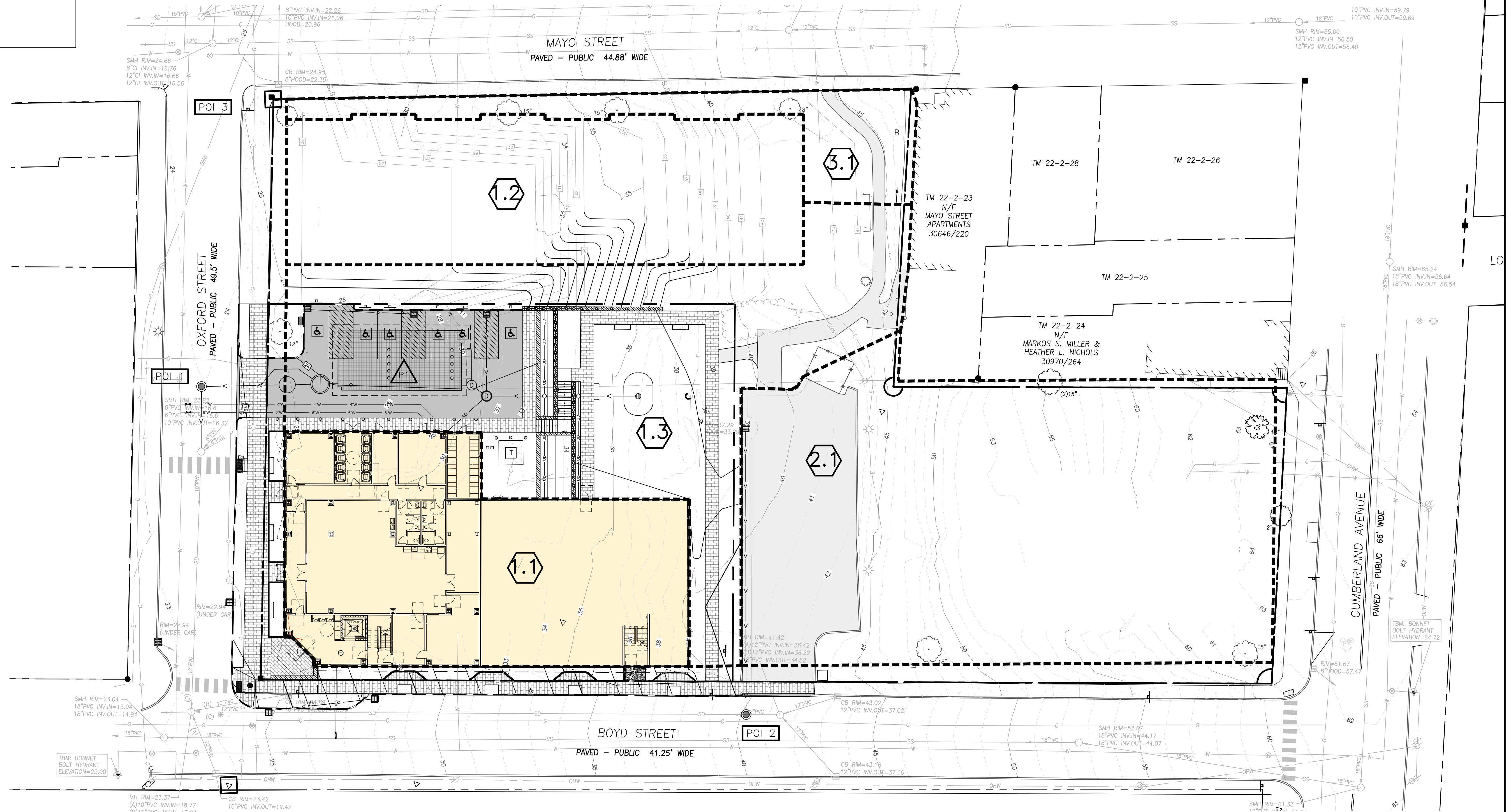
97



1215_CIVIL
1215
AS NOTED
DESIGNED BY: PFH
DRAWN BY: MKT
CHECKED BY: WHS

DRAWING NO.
SW-1

REFER TO STORMWATER REPORT FOR MORE INFORMATION.



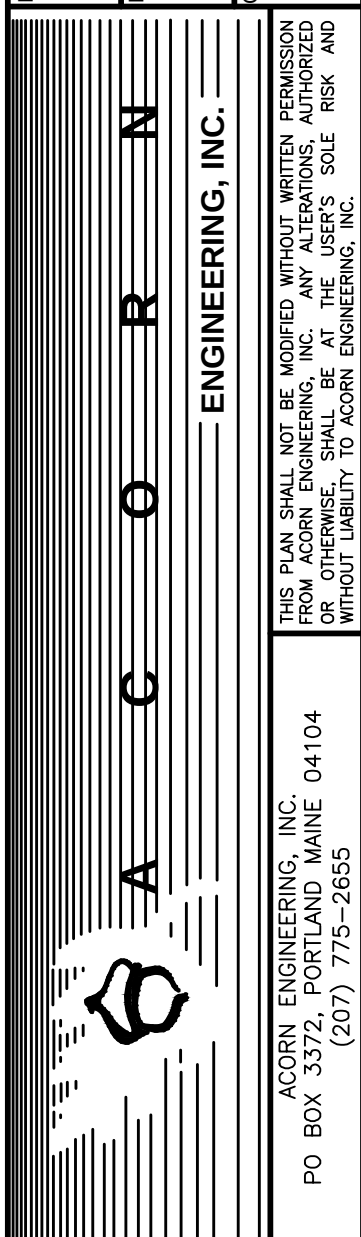
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CONSTRUCTION

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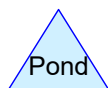
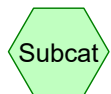
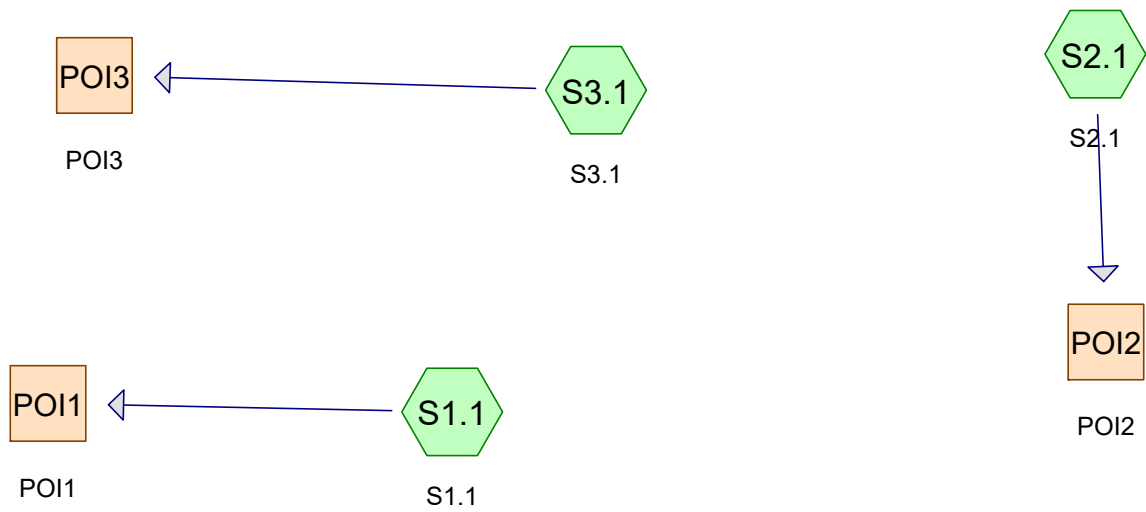
PROJECT NAME: **70 EAST OXFORD STREET REDEVELOPMENT**

CLIENT: **COMB BLOCK PHASE ONE, LP**
970 BAXTER BOULEVARD, PORTLAND, MAINE 04101



FILE:	1215_CIVIL
JN:	1215
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	MKT
CHECKED BY:	WHS

DRAWING NO.
SW-2



Routing Diagram for 1215 Pre-Development
Prepared by HP Inc., Printed 3/13/2024
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1215 Pre-Development

Prepared by HP Inc.

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.686	80	>75% Grass cover, Good, HSG D (S1.1, S2.1, S3.1)
0.440	98	Roofs, HSG D (S1.1, S2.1, S3.1)
0.314	98	Unconnected pavement, HSG D (S1.1, S2.1, S3.1)
1.440	89	TOTAL AREA

1215 Pre-Development

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.440	HSG D	S1.1, S2.1, S3.1
0.000	Other	
1.440		TOTAL AREA

1215 Pre-Development

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.686	0.000	0.686	>75% Grass cover, Good	S1.1, S2.1, S3.1
0.000	0.000	0.000	0.440	0.000	0.440	Roofs	S1.1, S2.1, S3.1
0.000	0.000	0.000	0.314	0.000	0.314	Unconnected pavement	S1.1, S2.1, S3.1
0.000	0.000	0.000	1.440	0.000	1.440	TOTAL AREA	

1215 Pre-Development

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Type III 24-hr 2-YR Rainfall=3.10"

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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 S1.1: S1.1

Runoff Area=29,855 sf 53.01% Impervious Runoff Depth>1.95"
Tc=6.0 min CN=90 Runoff=1.62 cfs 0.111 af

Subcatchment S2.1: S2.1

Runoff Area=23,313 sf 51.22% Impervious Runoff Depth>1.87"
Tc=6.0 min CN=89 Runoff=1.22 cfs 0.083 af

Subcatchment S3.1: S3.1

Runoff Area=9,561 sf 53.34% Impervious Runoff Depth>1.95"
Tc=6.0 min CN=90 Runoff=0.52 cfs 0.036 af

Reach POI1: POI1

Inflow=1.62 cfs 0.111 af
Outflow=1.62 cfs 0.111 af

Reach POI2: POI2

Inflow=1.22 cfs 0.083 af
Outflow=1.22 cfs 0.083 af

Reach POI3: POI3

Inflow=0.52 cfs 0.036 af
Outflow=0.52 cfs 0.036 af

Total Runoff Area = 1.440 ac Runoff Volume = 0.230 af Average Runoff Depth = 1.92"
47.61% Pervious = 0.686 ac 52.39% Impervious = 0.754 ac

1215 Pre-Development

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S1.1: S1.1

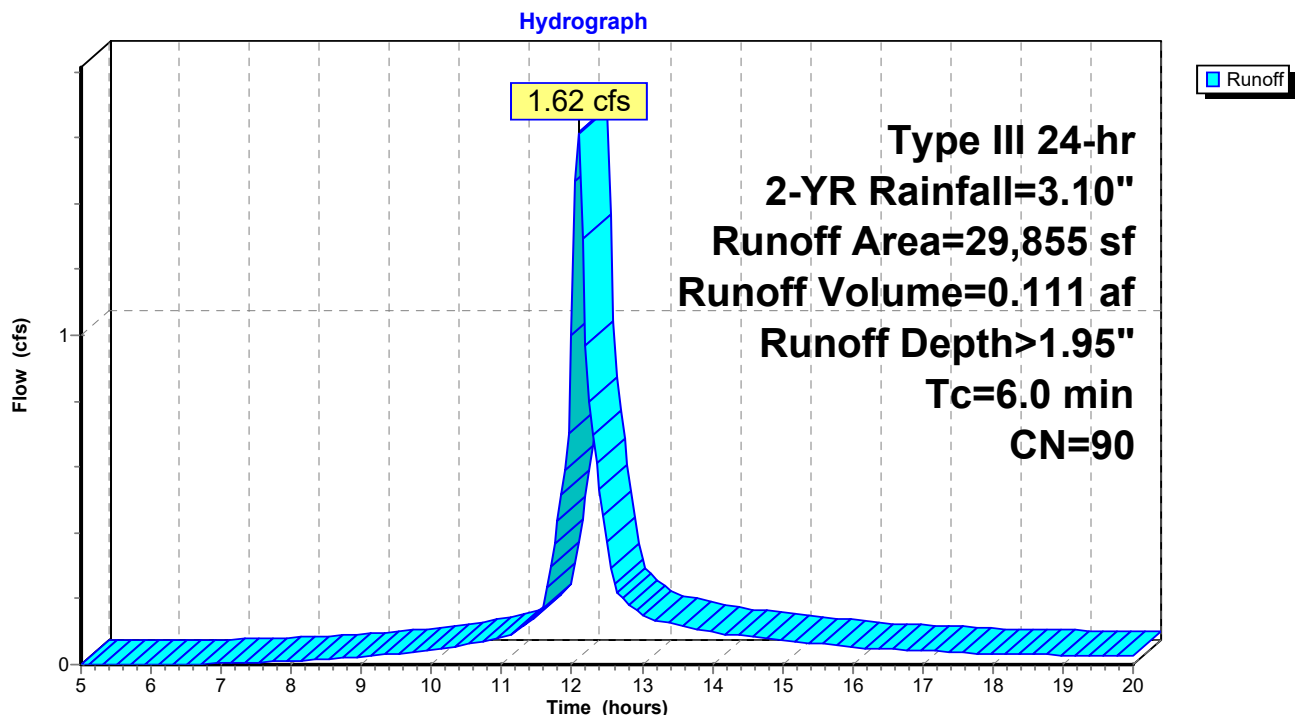
Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.111 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
14,030	80	>75% Grass cover, Good, HSG D
10,101	98	Roofs, HSG D
5,724	98	Unconnected pavement, HSG D
29,855	90	Weighted Average
14,030		46.99% Pervious Area
15,825		53.01% Impervious Area
5,724		36.17% Unconnected

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

Subcatchment S1.1: S1.1



1215 Pre-Development

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Type III 24-hr 2-YR Rainfall=3.10"

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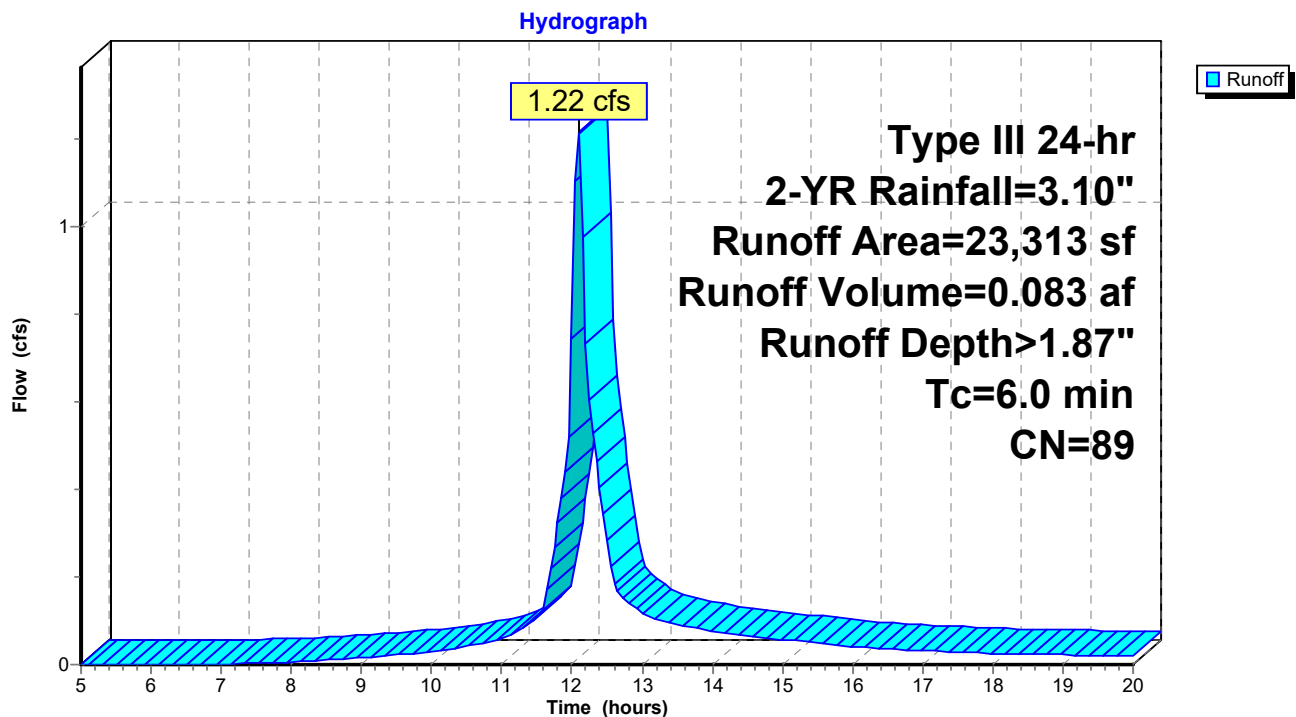
Summary for Subcatchment S2.1: S2.1

Runoff = 1.22 cfs @ 12.09 hrs, Volume= 0.083 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
11,373	80	>75% Grass cover, Good, HSG D
4,899	98	Roofs, HSG D
7,041	98	Unconnected pavement, HSG D
23,313	89	Weighted Average
11,373		48.78% Pervious Area
11,940		51.22% Impervious Area
7,041		58.97% Unconnected

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

Subcatchment S2.1: S2.1

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S3.1: S3.1

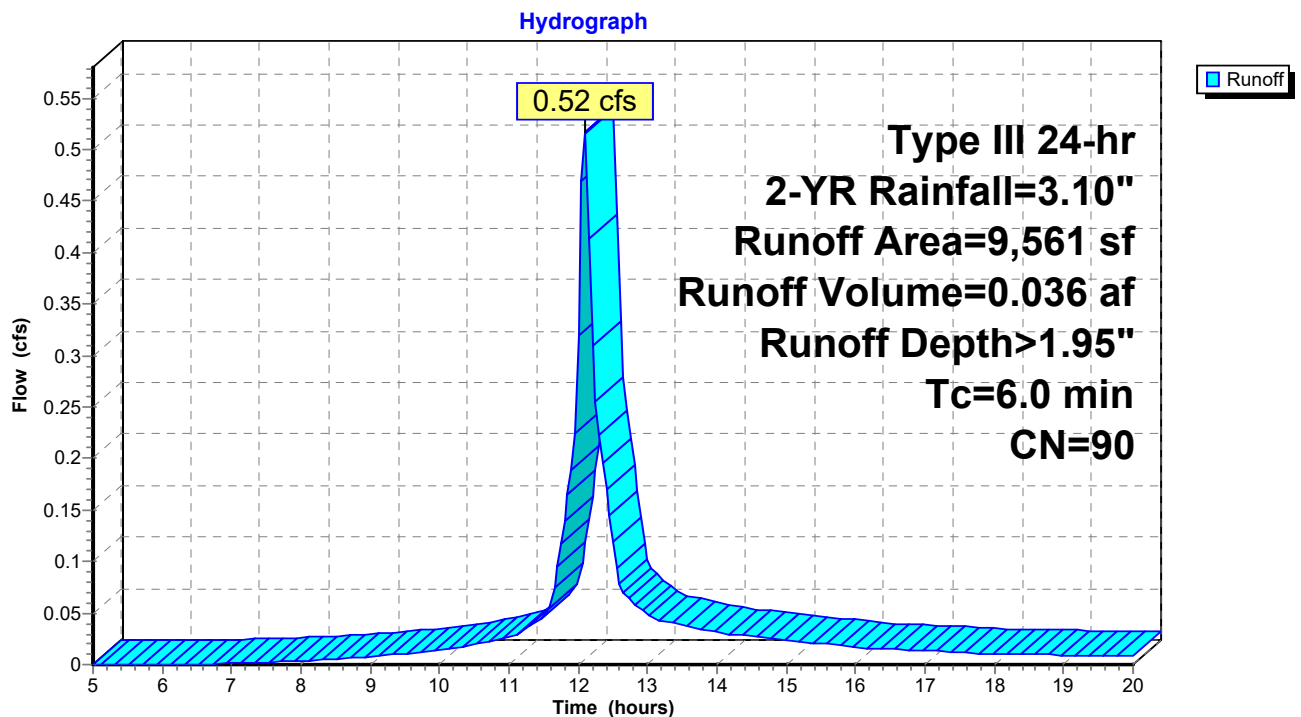
Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
4,461	80	>75% Grass cover, Good, HSG D
4,173	98	Roofs, HSG D
927	98	Unconnected pavement, HSG D
9,561	90	Weighted Average
4,461		46.66% Pervious Area
5,100		53.34% Impervious Area
927		18.18% Unconnected

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

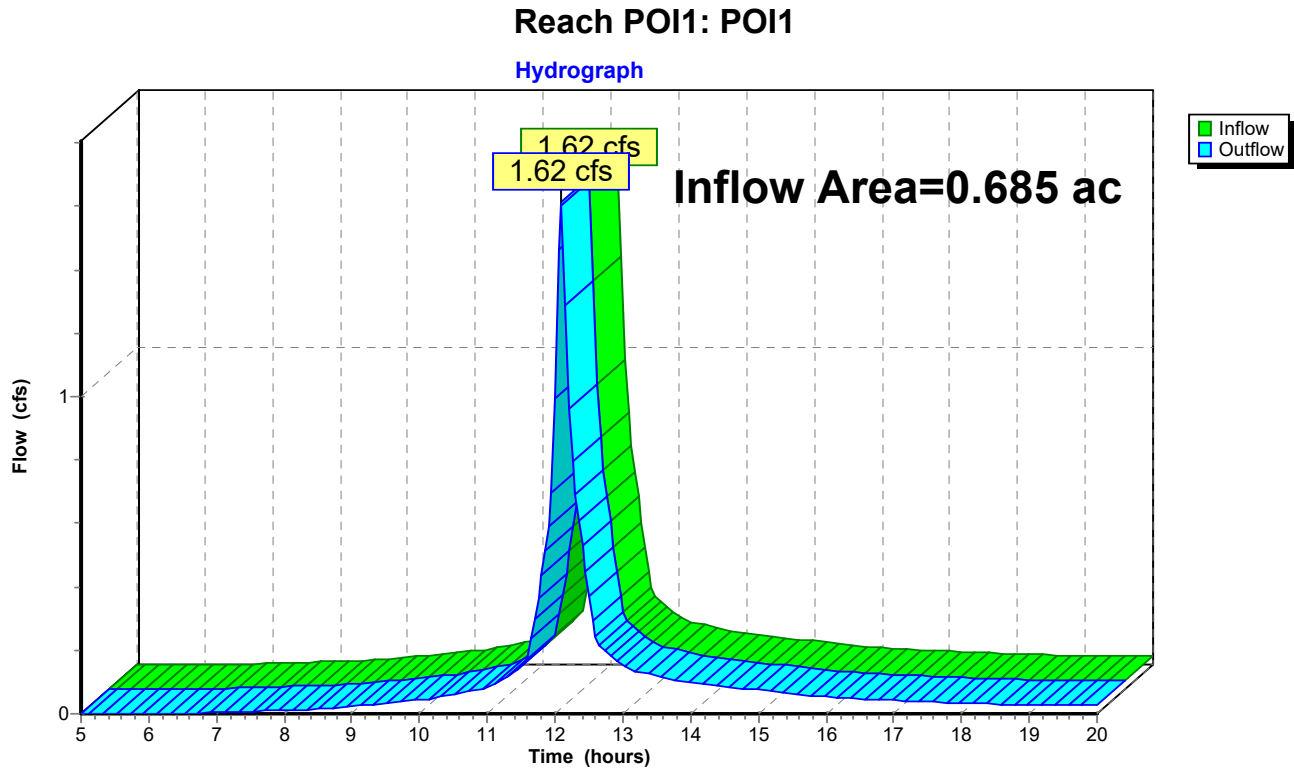
Subcatchment S3.1: S3.1



Summary for Reach POI1: POI1

Inflow Area = 0.685 ac, 53.01% Impervious, Inflow Depth > 1.95" for 2-YR event
 Inflow = 1.62 cfs @ 12.09 hrs, Volume= 0.111 af
 Outflow = 1.62 cfs @ 12.09 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



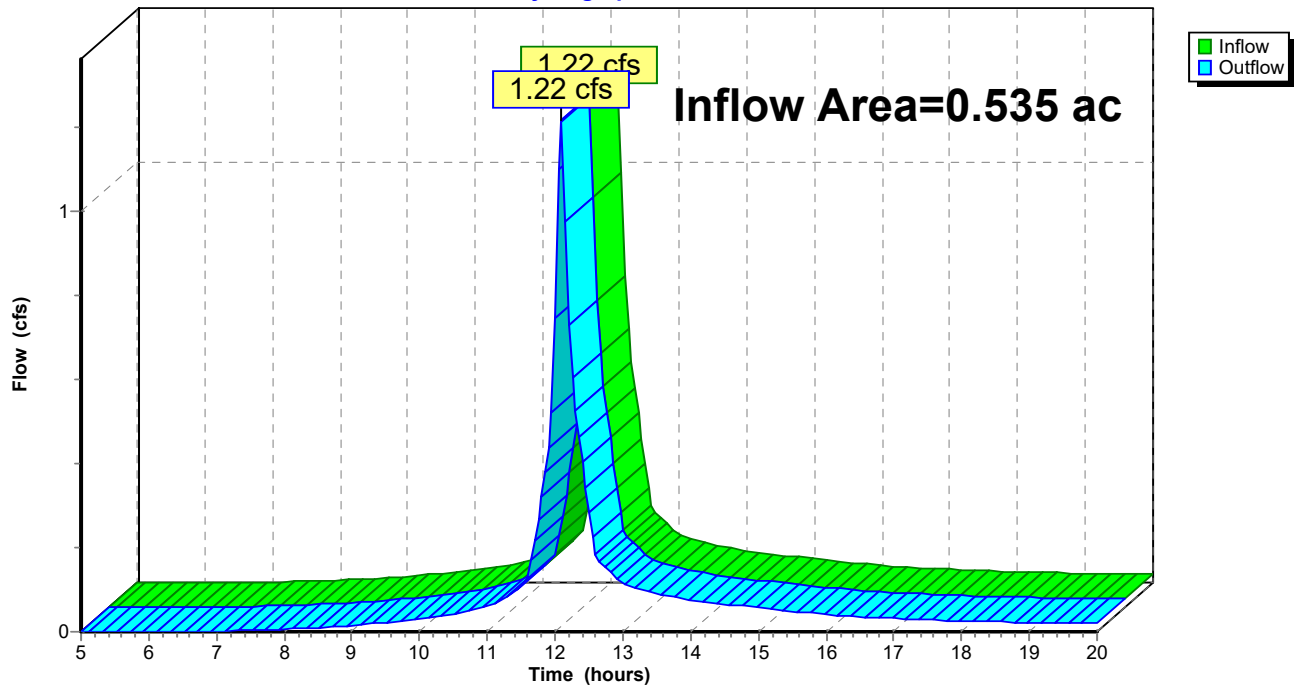
Summary for Reach POI2: POI2

Inflow Area = 0.535 ac, 51.22% Impervious, Inflow Depth > 1.87" for 2-YR event
 Inflow = 1.22 cfs @ 12.09 hrs, Volume= 0.083 af
 Outflow = 1.22 cfs @ 12.09 hrs, Volume= 0.083 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 POI2: POI2

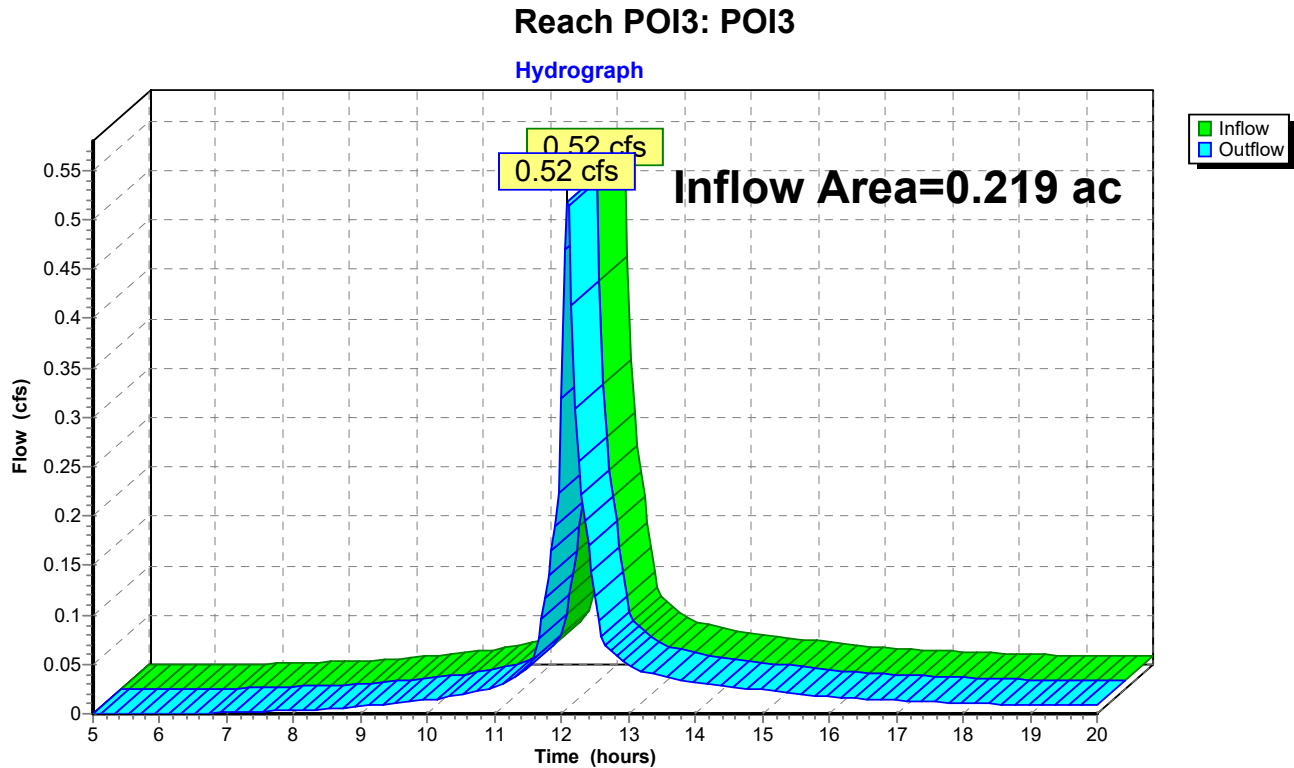
Hydrograph



Summary for Reach POI3: POI3

Inflow Area = 0.219 ac, 53.34% Impervious, Inflow Depth > 1.95" for 2-YR event
Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.52 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



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Type III 24-hr 10-YR Rainfall=4.60"

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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 S1.1: S1.1	Runoff Area=29,855 sf 53.01% Impervious Runoff Depth>3.30" Tc=6.0 min CN=90 Runoff=2.66 cfs 0.188 af
Subcatchment S2.1: S2.1	Runoff Area=23,313 sf 51.22% Impervious Runoff Depth>3.20" Tc=6.0 min CN=89 Runoff=2.03 cfs 0.143 af
Subcatchment S3.1: S3.1	Runoff Area=9,561 sf 53.34% Impervious Runoff Depth>3.30" Tc=6.0 min CN=90 Runoff=0.85 cfs 0.060 af
Reach POI1: POI1	Inflow=2.66 cfs 0.188 af Outflow=2.66 cfs 0.188 af
Reach POI2: POI2	Inflow=2.03 cfs 0.143 af Outflow=2.03 cfs 0.143 af
Reach POI3: POI3	Inflow=0.85 cfs 0.060 af Outflow=0.85 cfs 0.060 af

Total Runoff Area = 1.440 ac Runoff Volume = 0.391 af Average Runoff Depth = 3.26"
47.61% Pervious = 0.686 ac 52.39% Impervious = 0.754 ac

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Type III 24-hr 10-YR Rainfall=4.60"

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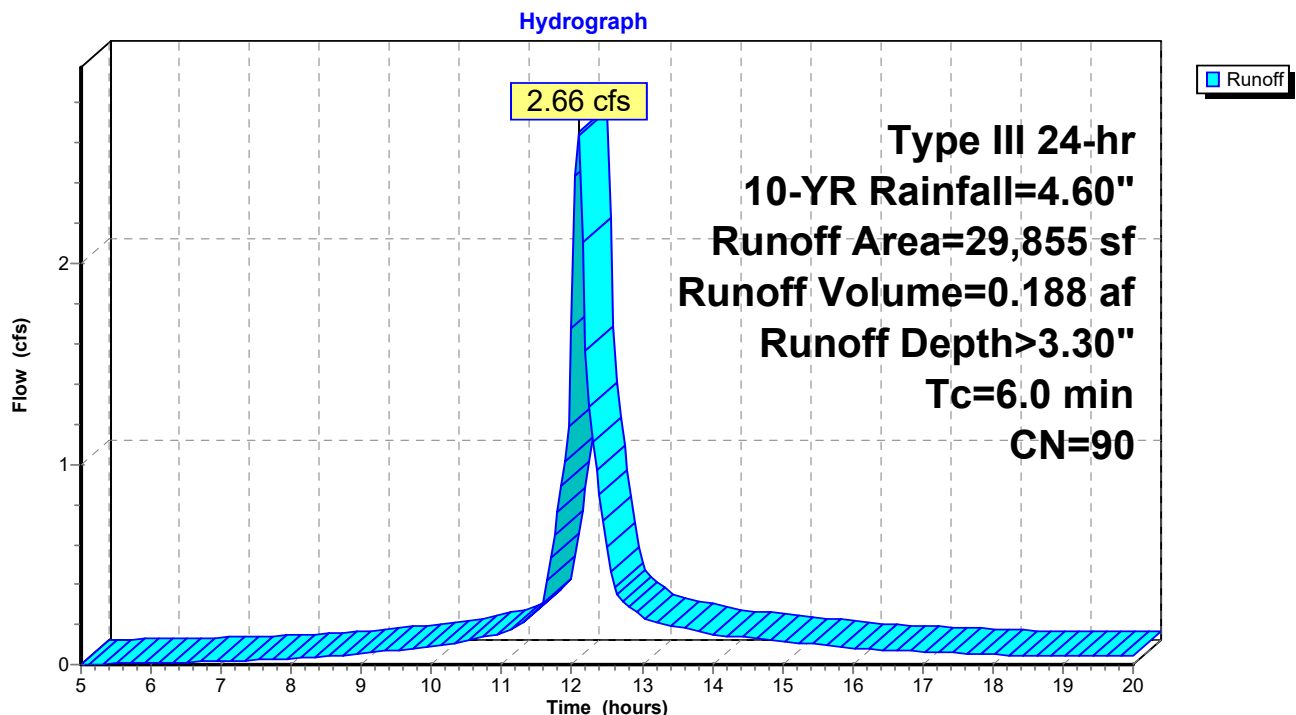
Summary for Subcatchment S1.1: S1.1

Runoff = 2.66 cfs @ 12.09 hrs, Volume= 0.188 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
14,030	80	>75% Grass cover, Good, HSG D
10,101	98	Roofs, HSG D
5,724	98	Unconnected pavement, HSG D
29,855	90	Weighted Average
14,030		46.99% Pervious Area
15,825		53.01% Impervious Area
5,724		36.17% Unconnected

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

Subcatchment S1.1: S1.1

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment S2.1: S2.1

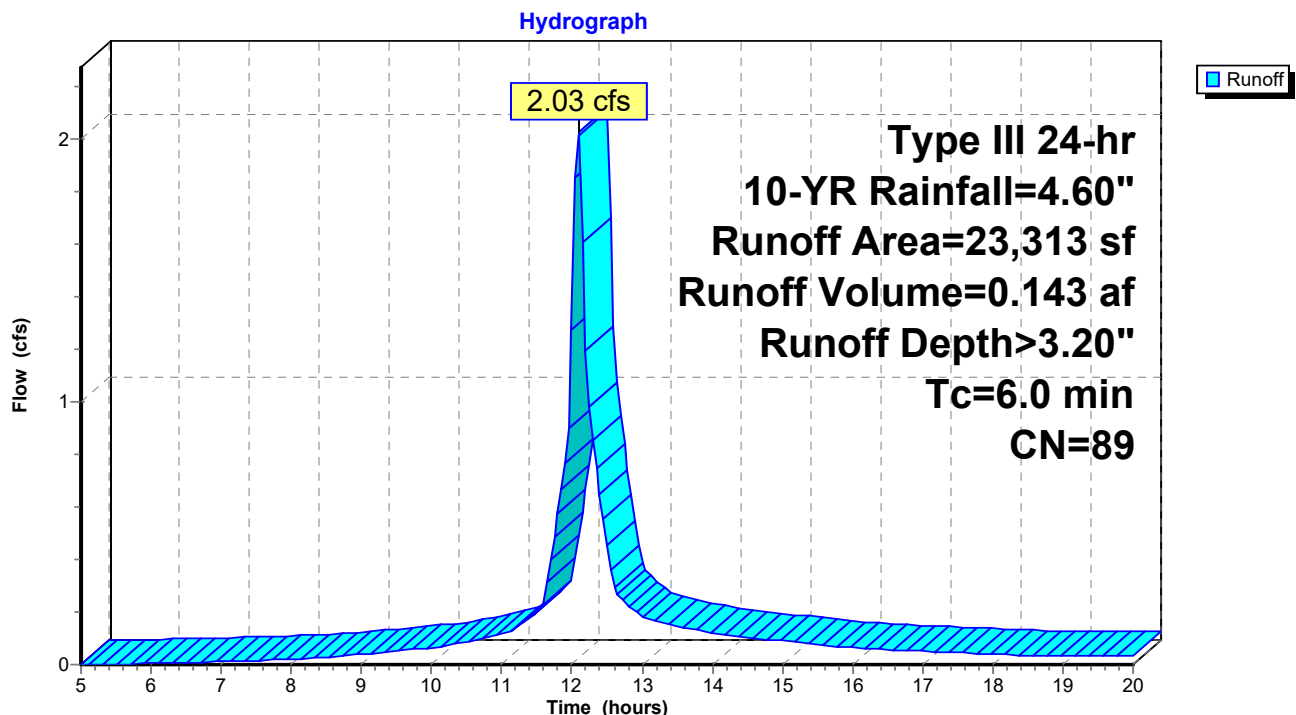
Runoff = 2.03 cfs @ 12.09 hrs, Volume= 0.143 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
11,373	80	>75% Grass cover, Good, HSG D
4,899	98	Roofs, HSG D
7,041	98	Unconnected pavement, HSG D
23,313	89	Weighted Average
11,373		48.78% Pervious Area
11,940		51.22% Impervious Area
7,041		58.97% Unconnected

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

Subcatchment S2.1: S2.1



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Type III 24-hr 10-YR Rainfall=4.60"

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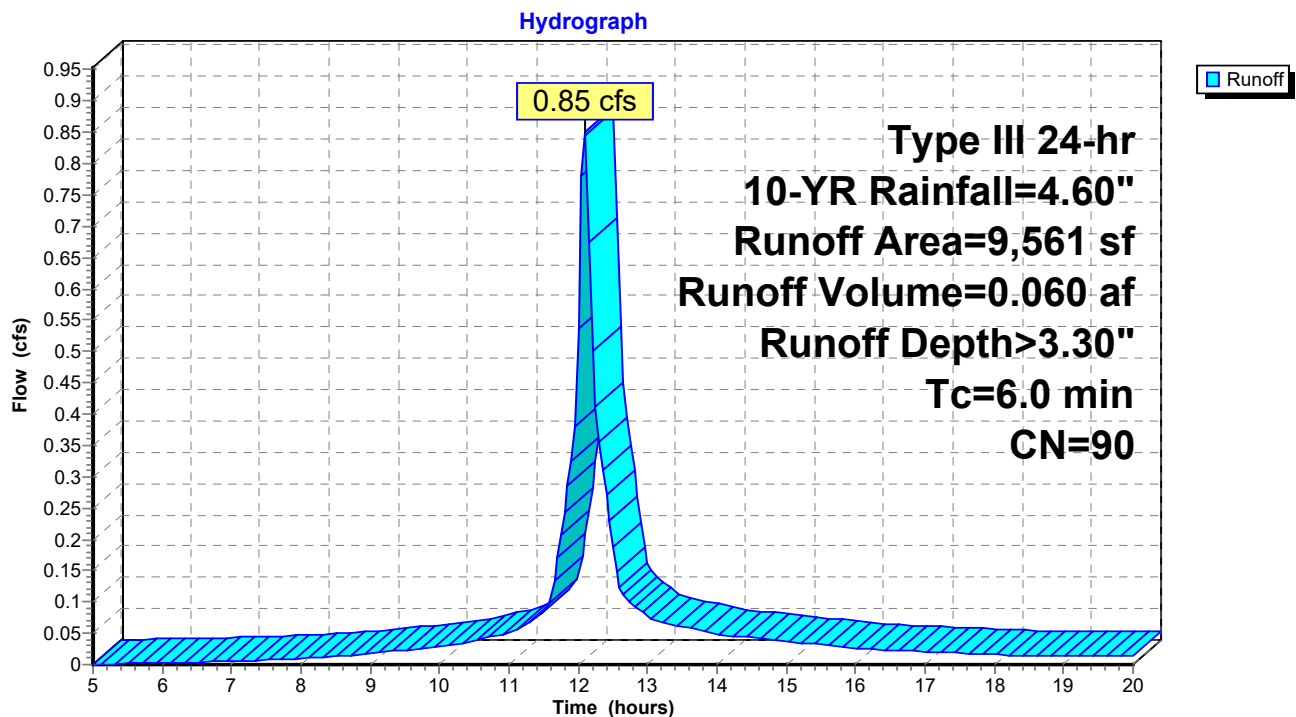
Summary for Subcatchment S3.1: S3.1

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,461	80	>75% Grass cover, Good, HSG D
4,173	98	Roofs, HSG D
927	98	Unconnected pavement, HSG D
9,561	90	Weighted Average
4,461		46.66% Pervious Area
5,100		53.34% Impervious Area
927		18.18% Unconnected

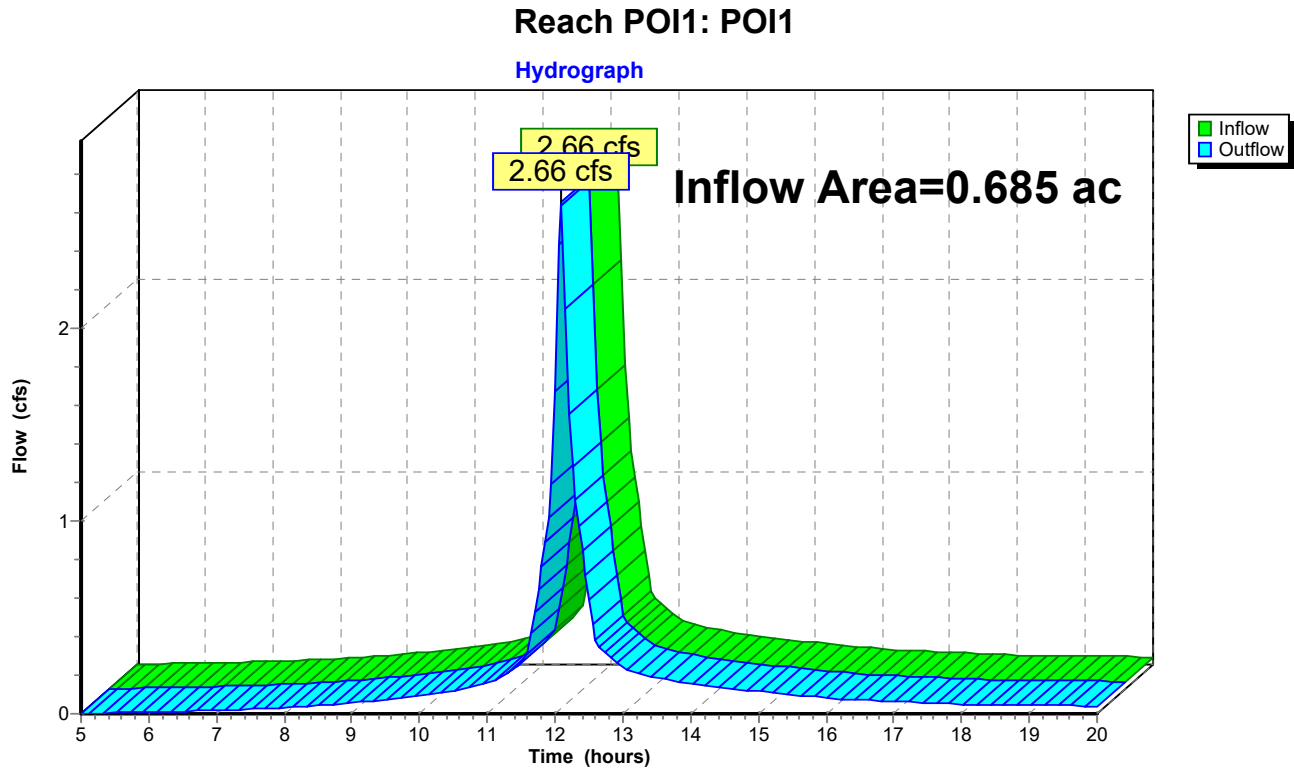
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, DIRECT ENTRY

Subcatchment S3.1: S3.1

Summary for Reach POI1: POI1

Inflow Area = 0.685 ac, 53.01% Impervious, Inflow Depth > 3.30" for 10-YR event
Inflow = 2.66 cfs @ 12.09 hrs, Volume= 0.188 af
Outflow = 2.66 cfs @ 12.09 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min

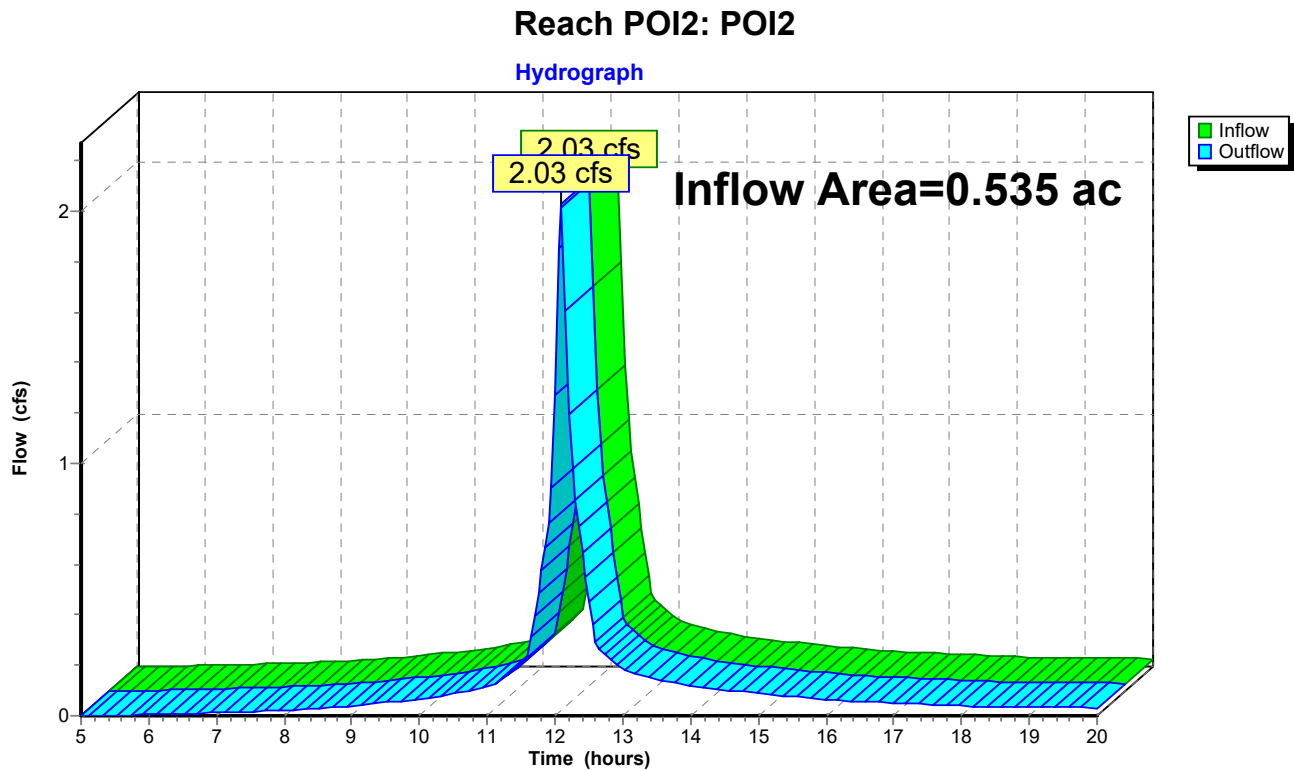
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Reach POI2: POI2

Inflow Area = 0.535 ac, 51.22% Impervious, Inflow Depth > 3.20" for 10-YR event
Inflow = 2.03 cfs @ 12.09 hrs, Volume= 0.143 af
Outflow = 2.03 cfs @ 12.09 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min

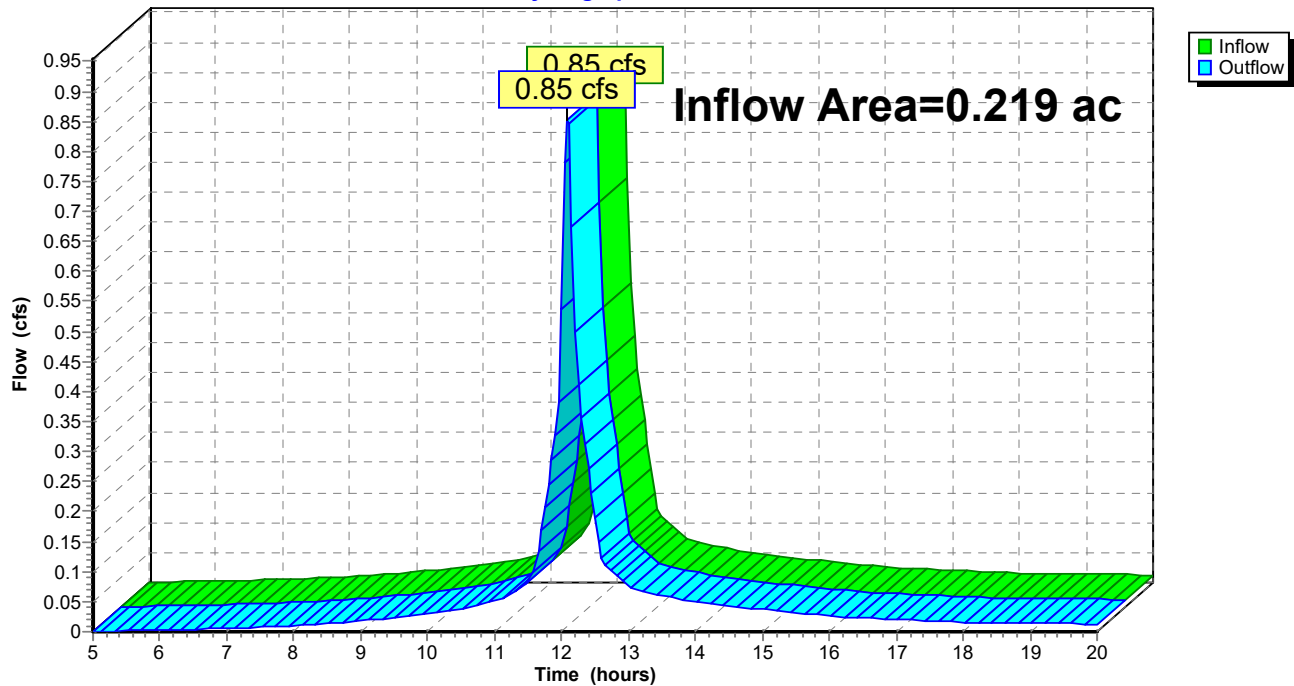
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Reach POI3: POI3

Inflow Area = 0.219 ac, 53.34% Impervious, Inflow Depth > 3.30" for 10-YR event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.060 af
Outflow = 0.85 cfs @ 12.09 hrs, Volume= 0.060 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 POI3: POI3**Hydrograph**

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Type III 24-hr 25-YR Rainfall=5.80"

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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 S1.1: S1.1	Runoff Area=29,855 sf 53.01% Impervious Runoff Depth>4.40" Tc=6.0 min CN=90 Runoff=3.49 cfs 0.251 af
Subcatchment S2.1: S2.1	Runoff Area=23,313 sf 51.22% Impervious Runoff Depth>4.29" Tc=6.0 min CN=89 Runoff=2.68 cfs 0.191 af
Subcatchment S3.1: S3.1	Runoff Area=9,561 sf 53.34% Impervious Runoff Depth>4.40" Tc=6.0 min CN=90 Runoff=1.12 cfs 0.080 af
Reach POI1: POI1	Inflow=3.49 cfs 0.251 af Outflow=3.49 cfs 0.251 af
Reach POI2: POI2	Inflow=2.68 cfs 0.191 af Outflow=2.68 cfs 0.191 af
Reach POI3: POI3	Inflow=1.12 cfs 0.080 af Outflow=1.12 cfs 0.080 af

Total Runoff Area = 1.440 ac Runoff Volume = 0.523 af Average Runoff Depth = 4.36"
47.61% Pervious = 0.686 ac 52.39% Impervious = 0.754 ac

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Type III 24-hr 25-YR Rainfall=5.80"

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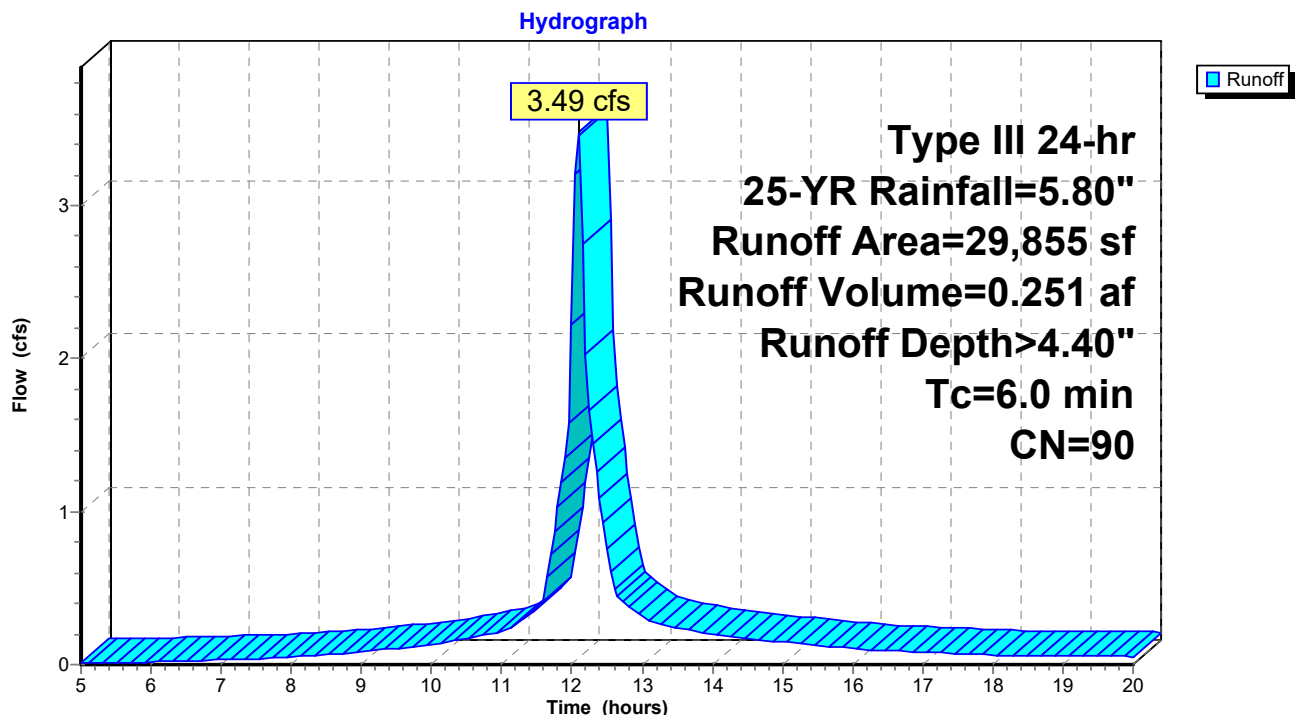
Summary for Subcatchment S1.1: S1.1

Runoff = 3.49 cfs @ 12.09 hrs, Volume= 0.251 af, Depth> 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
14,030	80	>75% Grass cover, Good, HSG D
10,101	98	Roofs, HSG D
5,724	98	Unconnected pavement, HSG D
29,855	90	Weighted Average
14,030		46.99% Pervious Area
15,825		53.01% Impervious Area
5,724		36.17% Unconnected

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

Subcatchment S1.1: S1.1

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Type III 24-hr 25-YR Rainfall=5.80"

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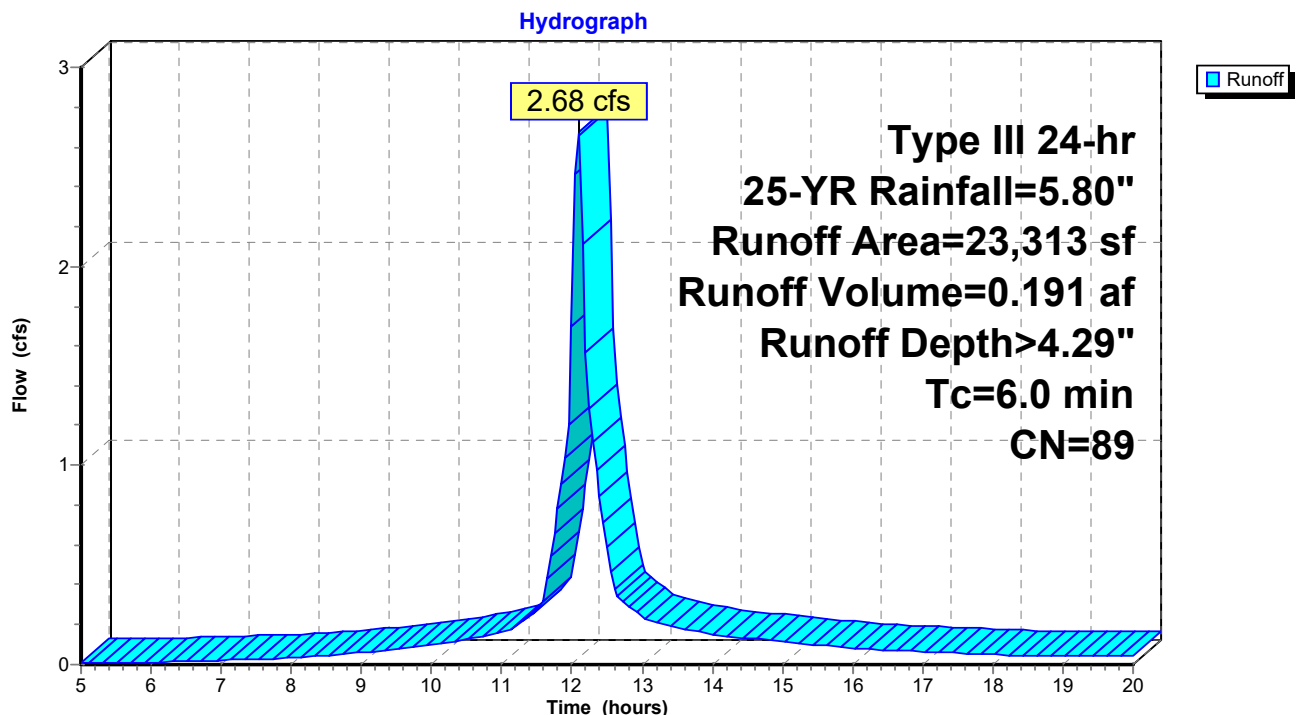
Summary for Subcatchment S2.1: S2.1

Runoff = 2.68 cfs @ 12.09 hrs, Volume= 0.191 af, Depth> 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
11,373	80	>75% Grass cover, Good, HSG D
4,899	98	Roofs, HSG D
7,041	98	Unconnected pavement, HSG D
23,313	89	Weighted Average
11,373		48.78% Pervious Area
11,940		51.22% Impervious Area
7,041		58.97% Unconnected

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

Subcatchment S2.1: S2.1

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Type III 24-hr 25-YR Rainfall=5.80"

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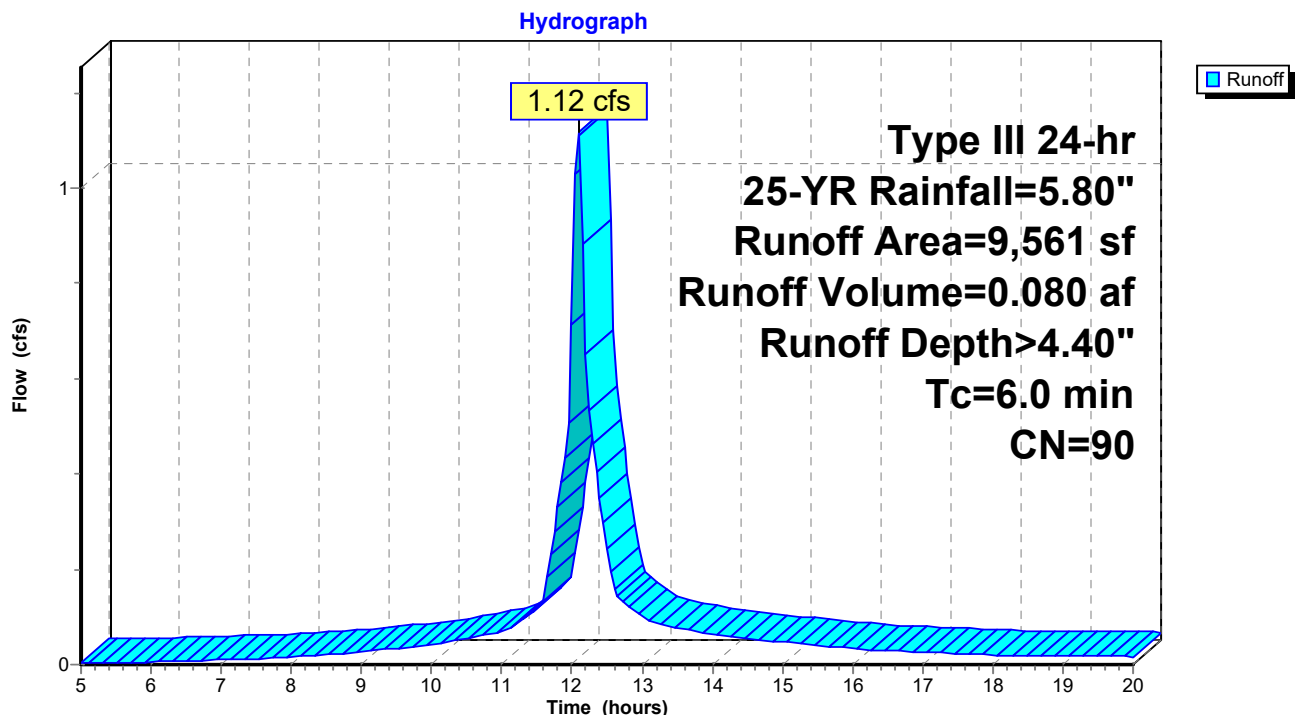
Summary for Subcatchment S3.1: S3.1

Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.080 af, Depth> 4.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,461	80	>75% Grass cover, Good, HSG D
4,173	98	Roofs, HSG D
927	98	Unconnected pavement, HSG D
9,561	90	Weighted Average
4,461		46.66% Pervious Area
5,100		53.34% Impervious Area
927		18.18% Unconnected

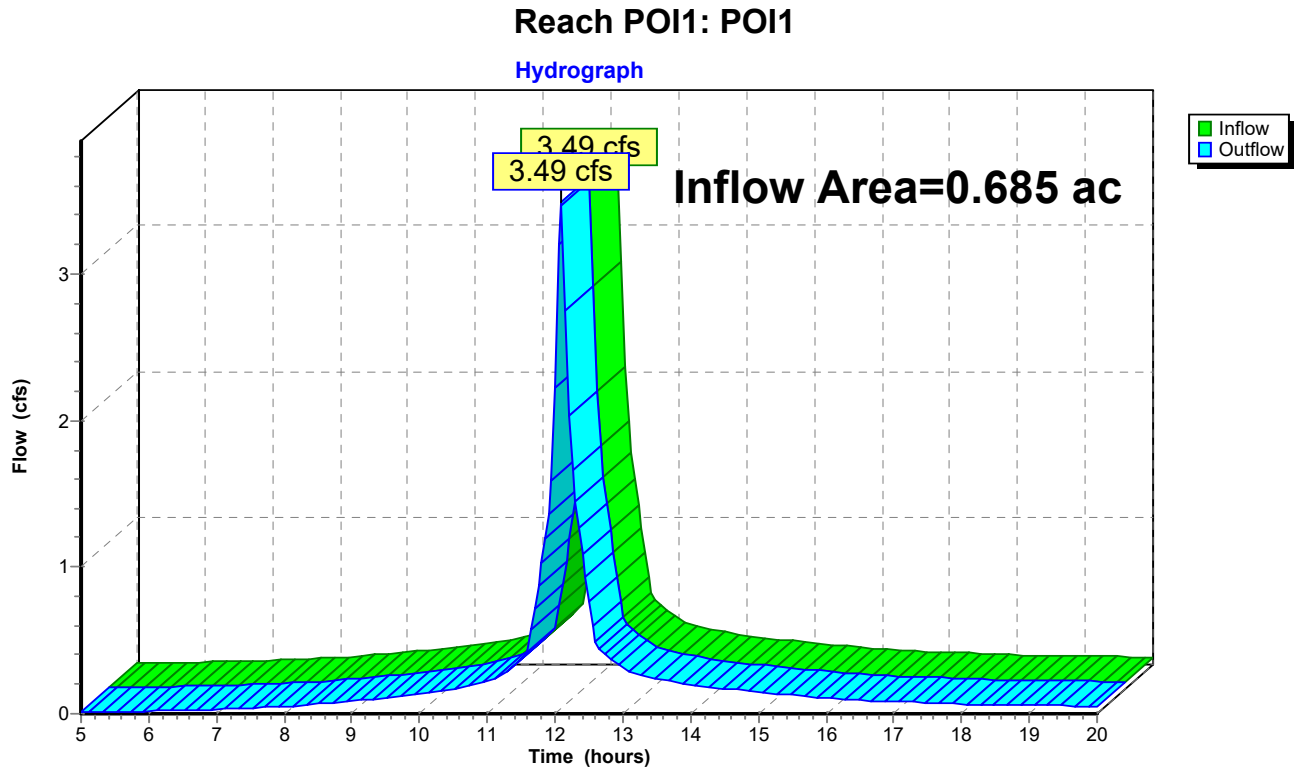
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, DIRECT ENTRY

Subcatchment S3.1: S3.1

Summary for Reach POI1: POI1

Inflow Area = 0.685 ac, 53.01% Impervious, Inflow Depth > 4.40" for 25-YR event
Inflow = 3.49 cfs @ 12.09 hrs, Volume= 0.251 af
Outflow = 3.49 cfs @ 12.09 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min

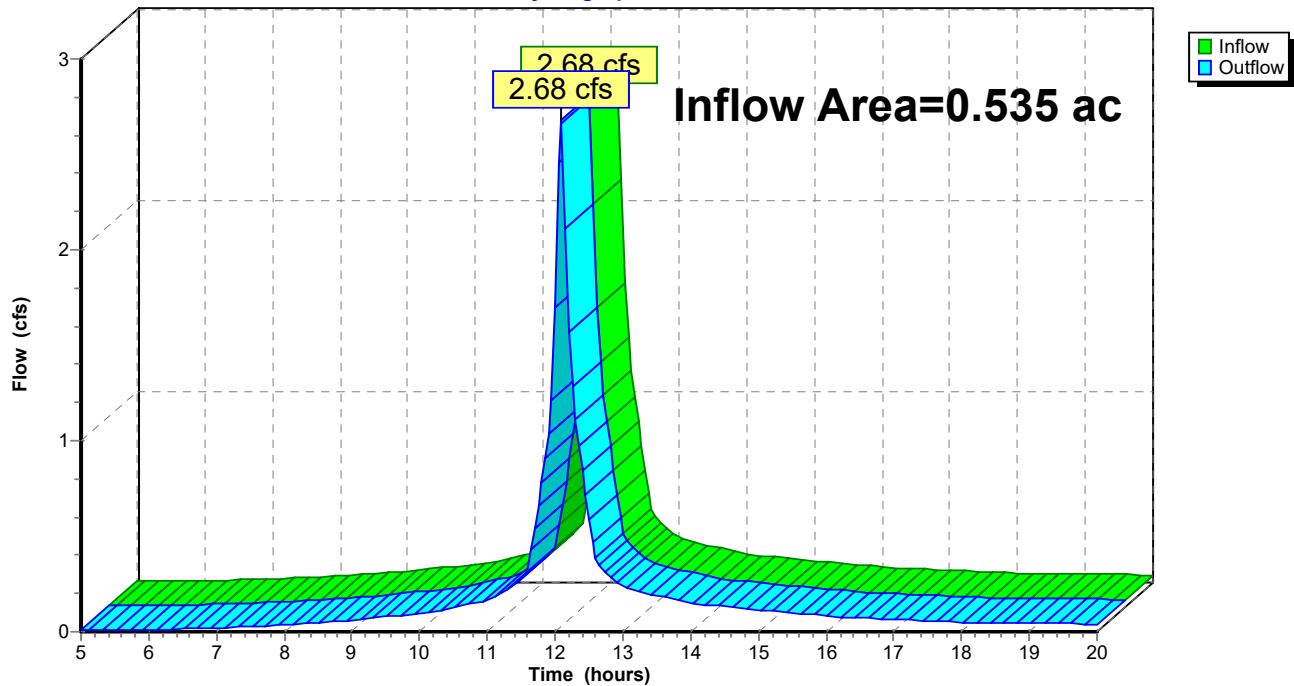
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Summary for Reach POI2: POI2

Inflow Area = 0.535 ac, 51.22% Impervious, Inflow Depth > 4.29" for 25-YR event
Inflow = 2.68 cfs @ 12.09 hrs, Volume= 0.191 af
Outflow = 2.68 cfs @ 12.09 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min

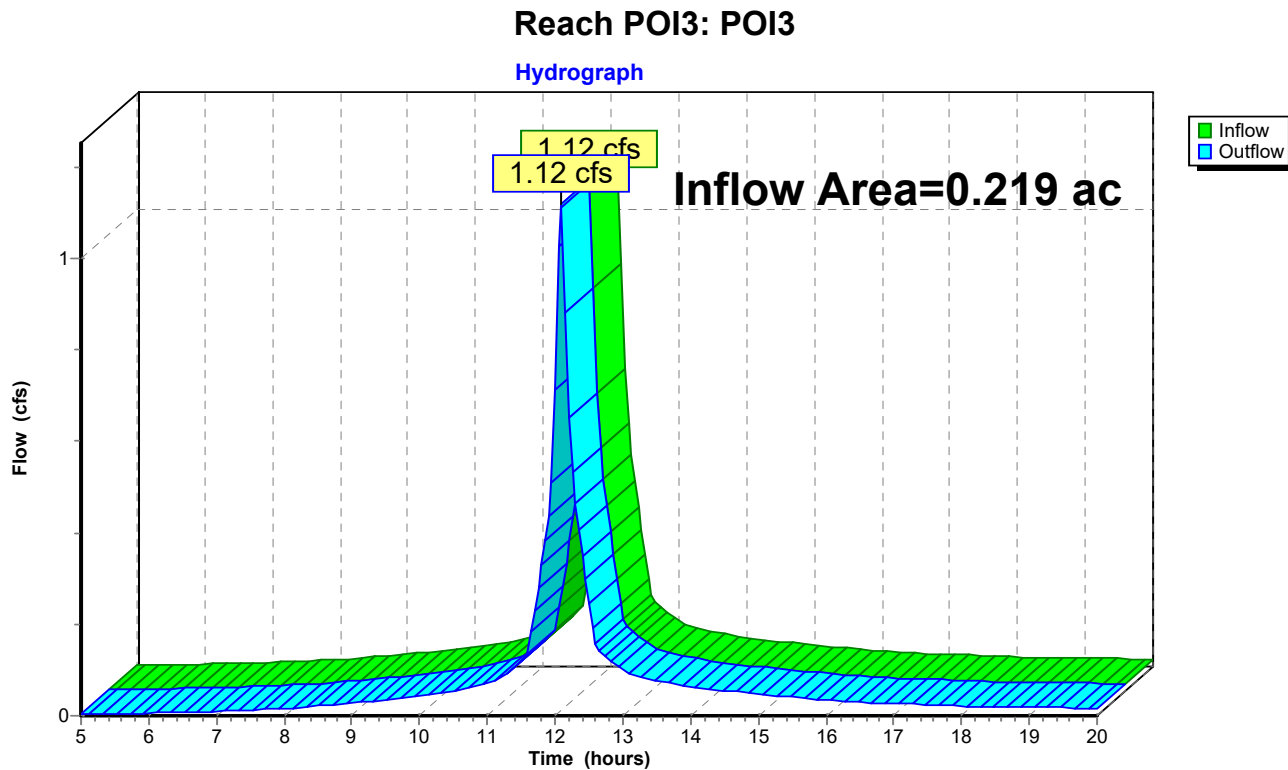
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

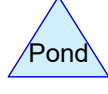
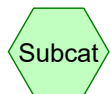
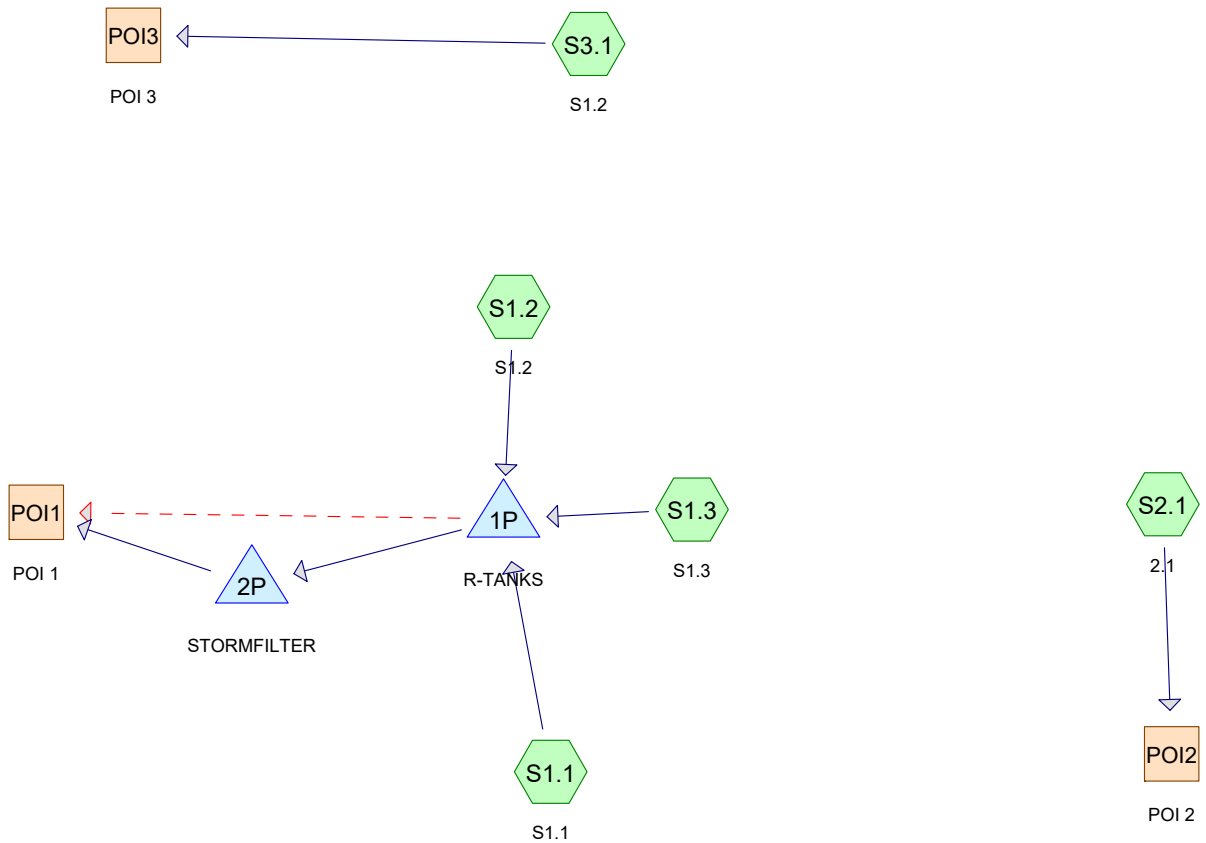
Reach POI2: POI2**Hydrograph**

Summary for Reach POI3: POI3

Inflow Area = 0.219 ac, 53.34% Impervious, Inflow Depth > 4.40" for 25-YR event
Inflow = 1.12 cfs @ 12.09 hrs, Volume= 0.080 af
Outflow = 1.12 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs





Routing Diagram for 1215 Post-Development
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.502	80	>75% Grass cover, Good, HSG D (S1.3, S2.1, S3.1)
0.402	98	Paved parking, HSG D (S1.3, S2.1)
0.497	98	Roofs, HSG D (S1.1, S1.2)
0.038	98	Unconnected pavement, HSG D (S3.1)
1.439	92	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.439	HSG D	S1.1, S1.2, S1.3, S2.1, S3.1
0.000	Other	
1.439		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.502	0.000	0.502	>75% Grass cover, Good	S1.3, S2.1, S3.1
0.000	0.000	0.000	0.402	0.000	0.402	Paved parking	S1.3, S2.1
0.000	0.000	0.000	0.497	0.000	0.497	Roofs	S1.1, S1.2
0.000	0.000	0.000	0.038	0.000	0.038	Unconnected pavement	S3.1
0.000	0.000	0.000	1.439	0.000	1.439	TOTAL AREA	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	19.00	18.98	3.6	0.0056	0.010	8.0	0.0	0.0
2	1P	21.00	19.77	23.0	0.0535	0.010	10.0	0.0	0.0

1215 Post-Development*Type III 24-hr 2-YR Rainfall=3.10"*

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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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 S1.1: S1.1	Runoff Area=11,070 sf 100.00% Impervious Runoff Depth>2.82" Tc=6.0 min CN=98 Runoff=0.75 cfs 0.060 af
Subcatchment S1.2: S1.2	Runoff Area=10,560 sf 100.00% Impervious Runoff Depth>2.82" Tc=6.0 min CN=98 Runoff=0.71 cfs 0.057 af
Subcatchment S1.3: S1.3	Runoff Area=16,626 sf 43.39% Impervious Runoff Depth>1.91" Tc=6.0 min CN=88 Runoff=0.83 cfs 0.061 af
Subcatchment S2.1: 2.1	Runoff Area=21,126 sf 48.83% Impervious Runoff Depth>1.99" Tc=6.0 min CN=89 Runoff=1.10 cfs 0.080 af
Subcatchment S3.1: S1.2	Runoff Area=3,296 sf 50.00% Impervious Runoff Depth>1.99" Tc=6.0 min CN=89 Runoff=0.17 cfs 0.013 af
Reach POI1: POI 1	Inflow=1.62 cfs 0.173 af Outflow=1.62 cfs 0.173 af
Reach POI2: POI 2	Inflow=1.10 cfs 0.080 af Outflow=1.10 cfs 0.080 af
Reach POI3: POI 3	Inflow=0.17 cfs 0.013 af Outflow=0.17 cfs 0.013 af
Pond 1P: R-TANKS	Peak Elev=20.74' Storage=1,763 cf Inflow=2.29 cfs 0.177 af Primary=1.62 cfs 0.173 af Secondary=0.00 cfs 0.000 af Outflow=1.62 cfs 0.173 af
Pond 2P: STORMFILTER	Inflow=1.62 cfs 0.173 af Primary=1.62 cfs 0.173 af

Total Runoff Area = 1.439 ac Runoff Volume = 0.270 af Average Runoff Depth = 2.25"
34.89% Pervious = 0.502 ac 65.11% Impervious = 0.937 ac

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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S1.1: S1.1

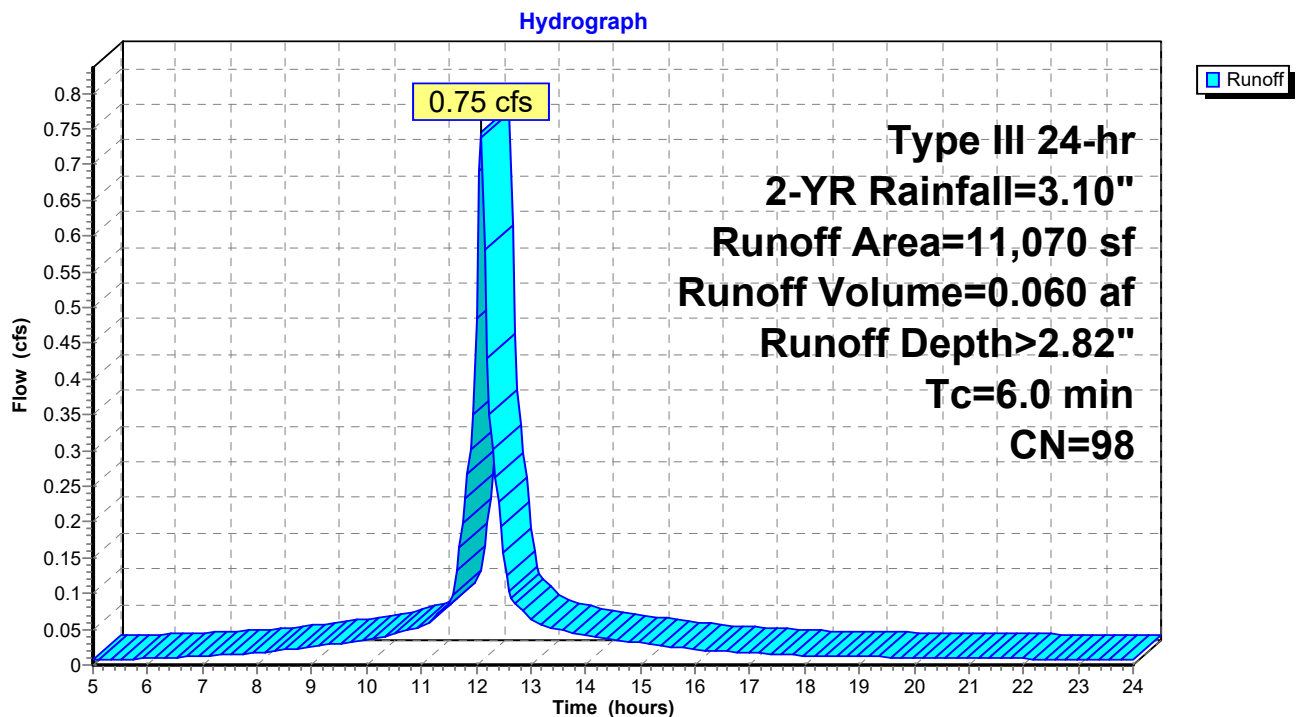
Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.060 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
11,070	98	Roofs, HSG D
11,070		100.00% Impervious Area

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

Subcatchment S1.1: S1.1



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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S1.2: S1.2

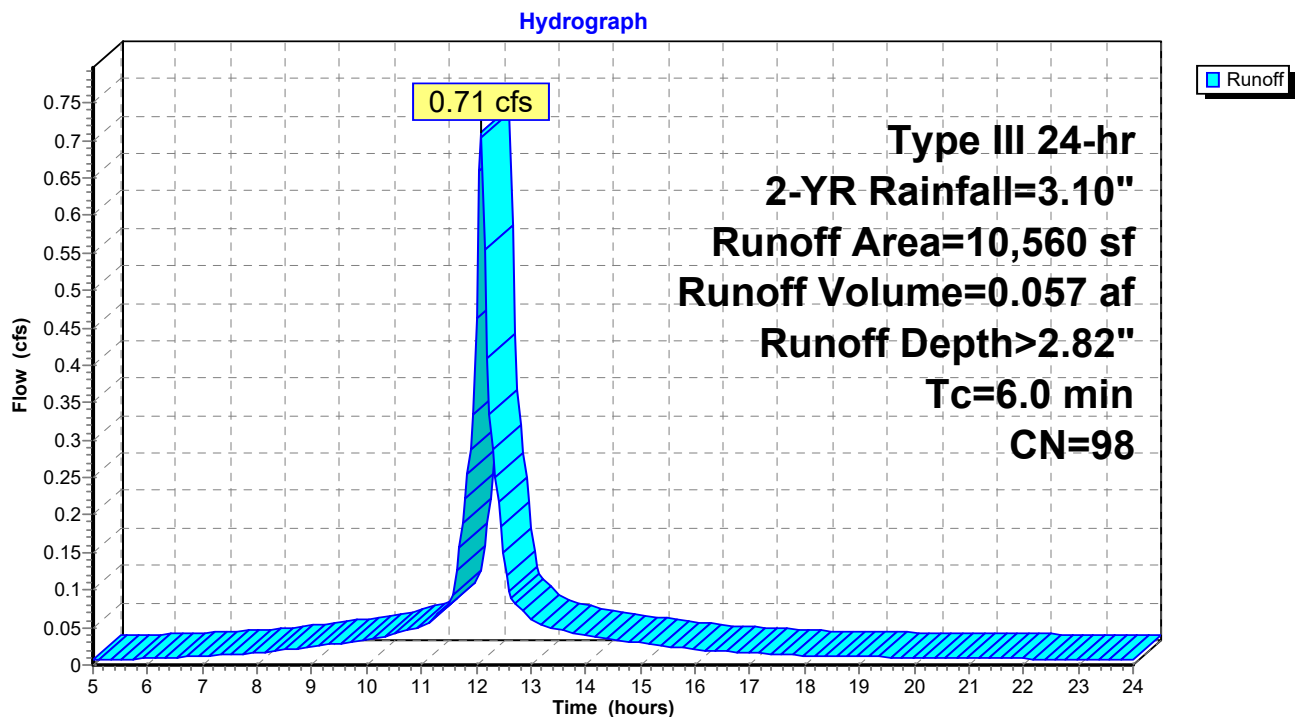
Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.057 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
10,560	98	Roofs, HSG D
10,560		100.00% Impervious Area

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

Subcatchment S1.2: S1.2



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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S1.3: S1.3

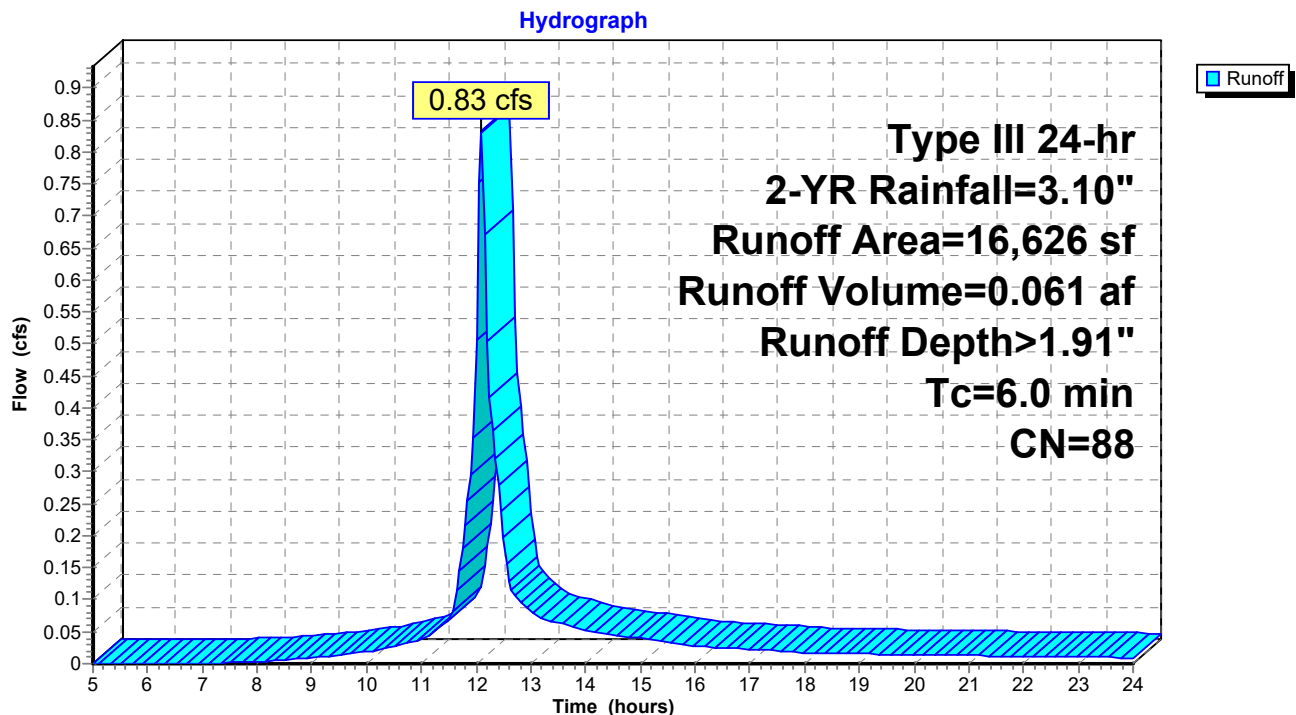
Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.061 af, Depth> 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
4,495	98	Paved parking, HSG D
557	98	Paved parking, HSG D
2,162	98	Paved parking, HSG D
1,839	80	>75% Grass cover, Good, HSG D
3,250	80	>75% Grass cover, Good, HSG D
814	80	>75% Grass cover, Good, HSG D
89	80	>75% Grass cover, Good, HSG D
2,107	80	>75% Grass cover, Good, HSG D
885	80	>75% Grass cover, Good, HSG D
428	80	>75% Grass cover, Good, HSG D
16,626	88	Weighted Average
9,412		56.61% Pervious Area
7,214		43.39% Impervious Area

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

Subcatchment S1.3: S1.3



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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S2.1: 2.1

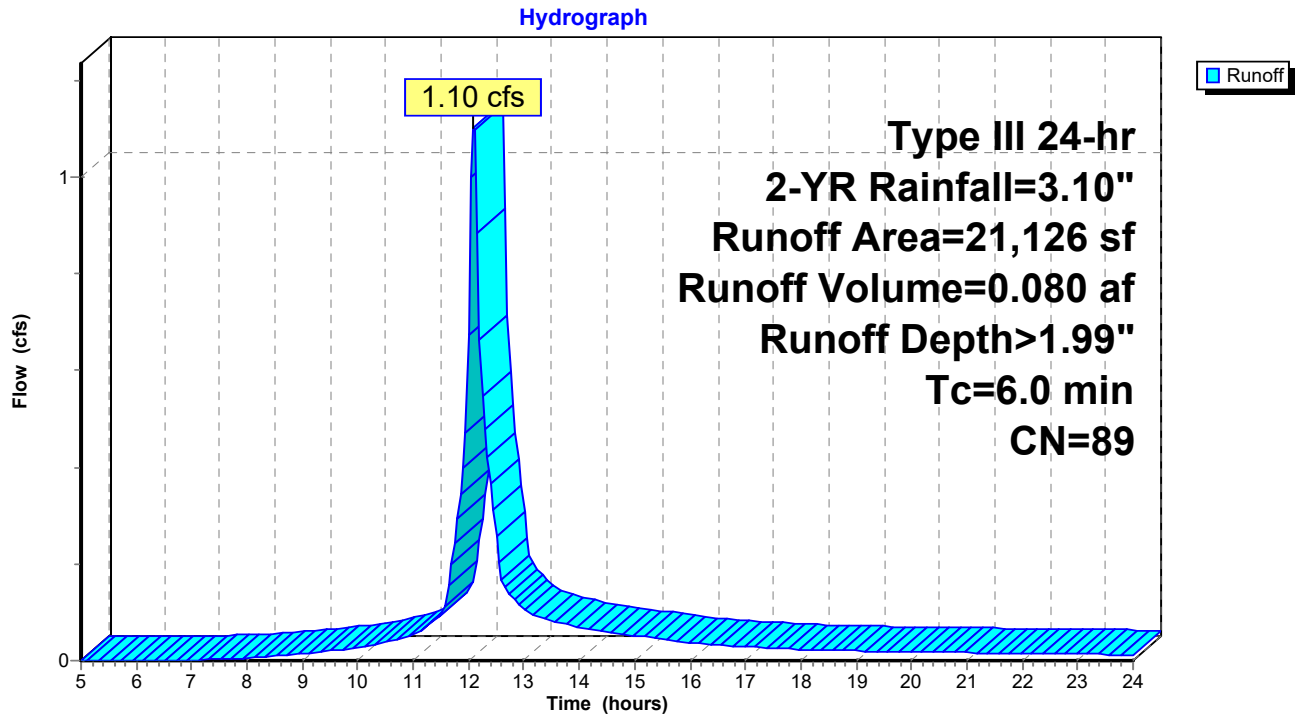
Runoff = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
7,454	80	>75% Grass cover, Good, HSG D
486	80	>75% Grass cover, Good, HSG D
1,326	80	>75% Grass cover, Good, HSG D
562	80	>75% Grass cover, Good, HSG D
983	80	>75% Grass cover, Good, HSG D
10,315	98	Paved parking, HSG D
21,126	89	Weighted Average
10,811		51.17% Pervious Area
10,315		48.83% Impervious Area

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

Subcatchment S2.1: 2.1



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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Subcatchment S3.1: S1.2

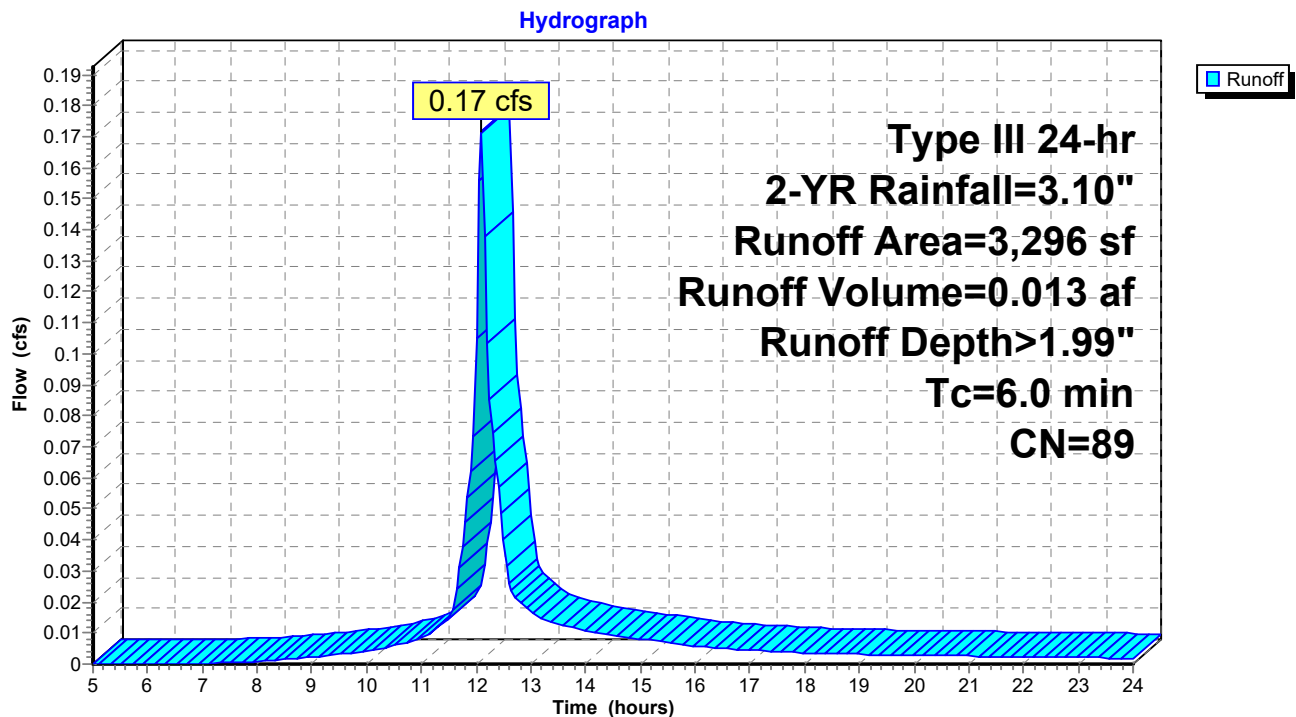
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (sf)	CN	Description
1,648	80	>75% Grass cover, Good, HSG D
1,648	98	Unconnected pavement, HSG D
3,296	89	Weighted Average
1,648		50.00% Pervious Area
1,648		50.00% Impervious Area
1,648		100.00% Unconnected

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

Subcatchment S3.1: S1.2

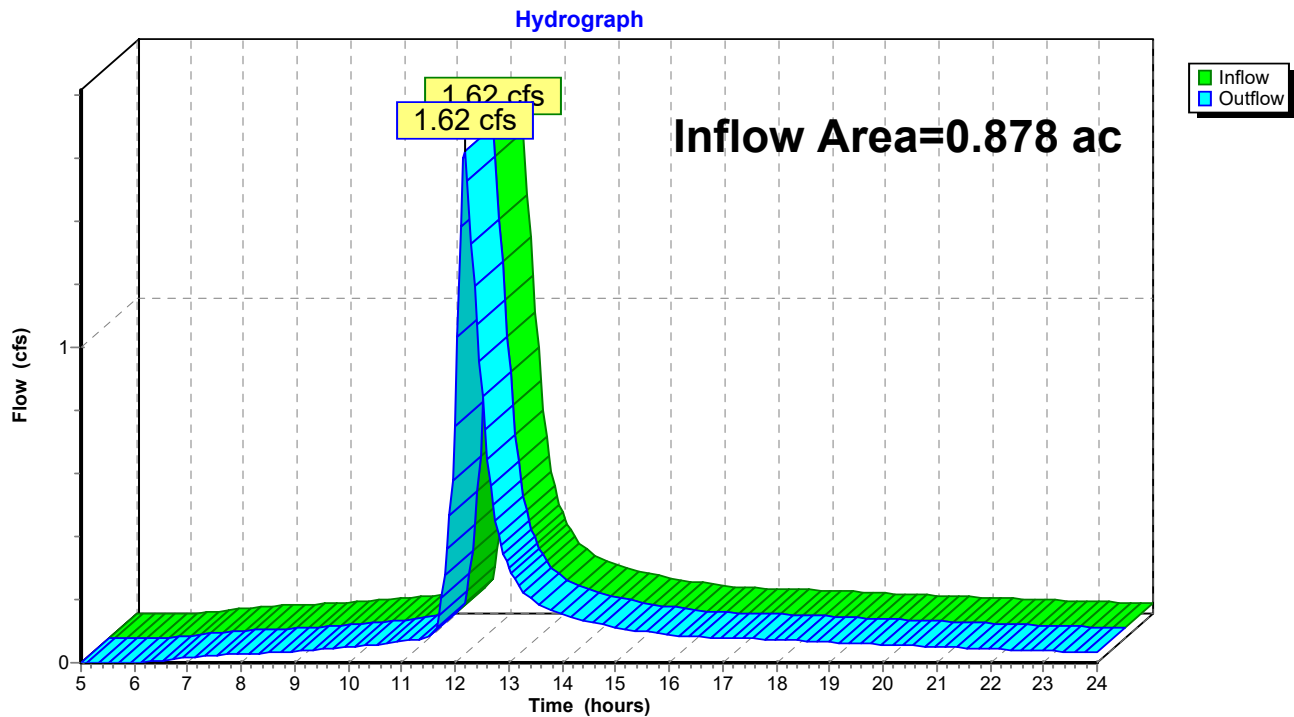


Summary for Reach POI1: POI 1

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 2.37" for 2-YR event
 Inflow = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af
 Outflow = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI1: POI 1

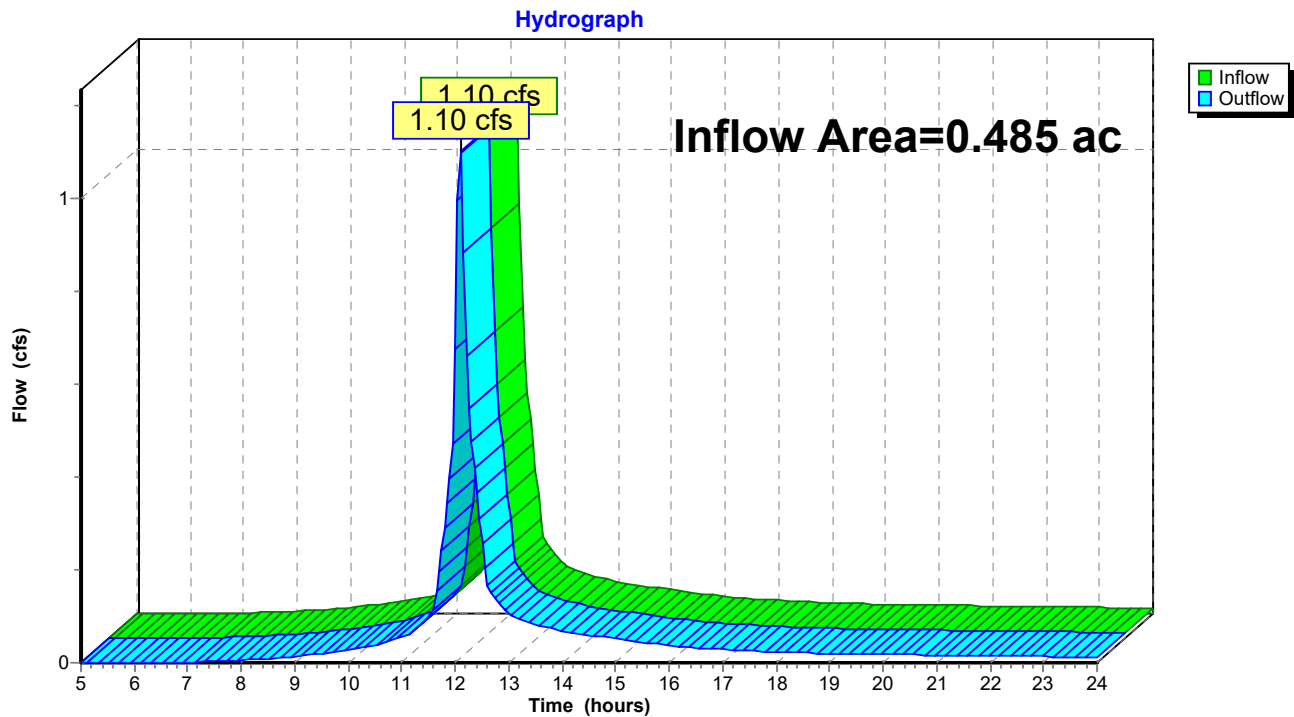


Summary for Reach POI2: POI 2

Inflow Area = 0.485 ac, 48.83% Impervious, Inflow Depth > 1.99" for 2-YR event
 Inflow = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af
 Outflow = 1.10 cfs @ 12.09 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI2: POI 2



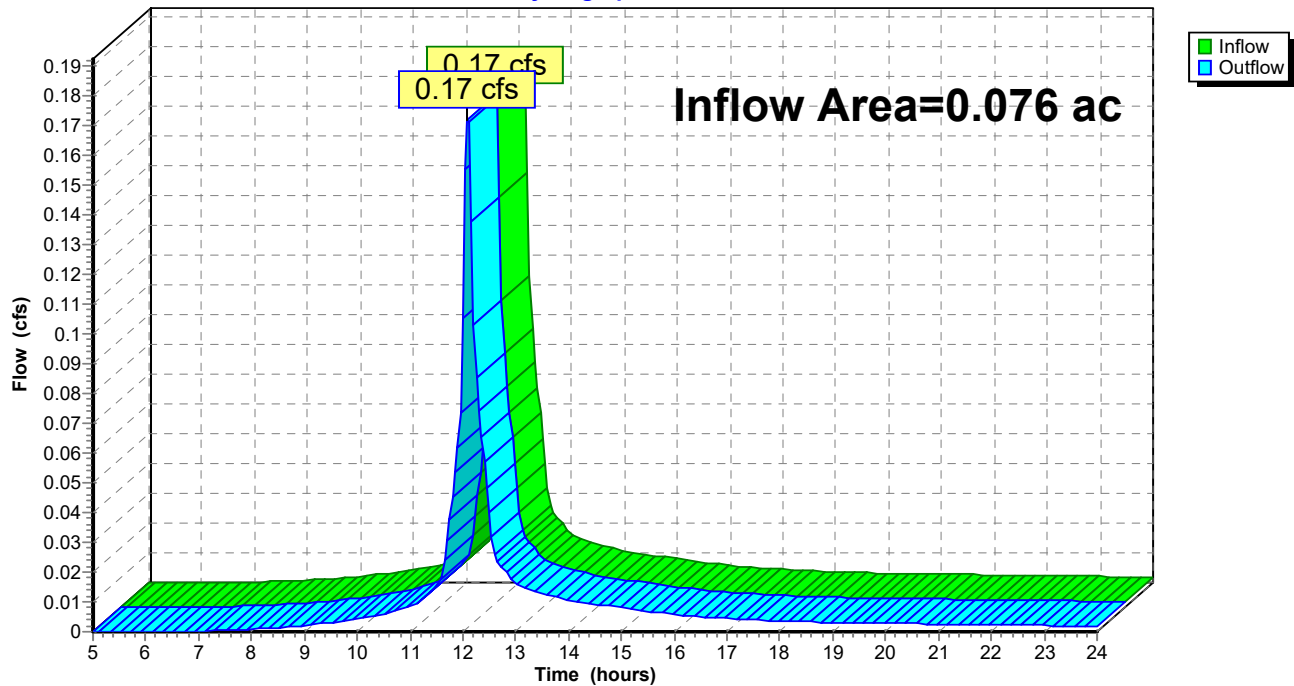
Summary for Reach POI3: POI 3

Inflow Area = 0.076 ac, 50.00% Impervious, Inflow Depth > 1.99" for 2-YR event
 Inflow = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af
 Outflow = 0.17 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI3: POI 3

Hydrograph



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Type III 24-hr 2-YR Rainfall=3.10"

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Summary for Pond 1P: R-TANKS

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 2.42" for 2-YR event
 Inflow = 2.29 cfs @ 12.09 hrs, Volume= 0.177 af
 Outflow = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af, Atten= 29%, Lag= 5.1 min
 Primary = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 20.74' @ 12.17 hrs Surf.Area= 1,324 sf Storage= 1,763 cf

Plug-Flow detention time= 70.7 min calculated for 0.173 af (98% of inflow)
 Center-of-Mass det. time= 57.7 min (840.9 - 783.2)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	996 cf	stone envelope (Prismatic) Listed below (Recalc) 5,389 cf Overall - 2,899 cf Embedded = 2,490 cf x 40.0% Voids
#2	19.25'	2,754 cf	R-Tank footprint (Prismatic) Listed below (Recalc) Inside #1 2,899 cf Overall x 95.0% Voids
		3,750 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,324	0	0
23.07	1,324	5,389	5,389

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.25	1,028	0	0
22.07	1,028	2,899	2,899

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	8.0" Round Culvert L= 3.6' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.98' S= 0.0056 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	19.10'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	21.00'	10.0" Round Culvert L= 23.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 19.77' S= 0.0535 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#4	Device 1	19.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 0.75 1.00 Width (feet) 0.50 0.50 0.50 0.50
#5	Device 1	20.80'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

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Type III 24-hr 2-YR Rainfall=3.10"

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Primary OutFlow Max=1.59 cfs @ 12.17 hrs HW=20.73' (Free Discharge)

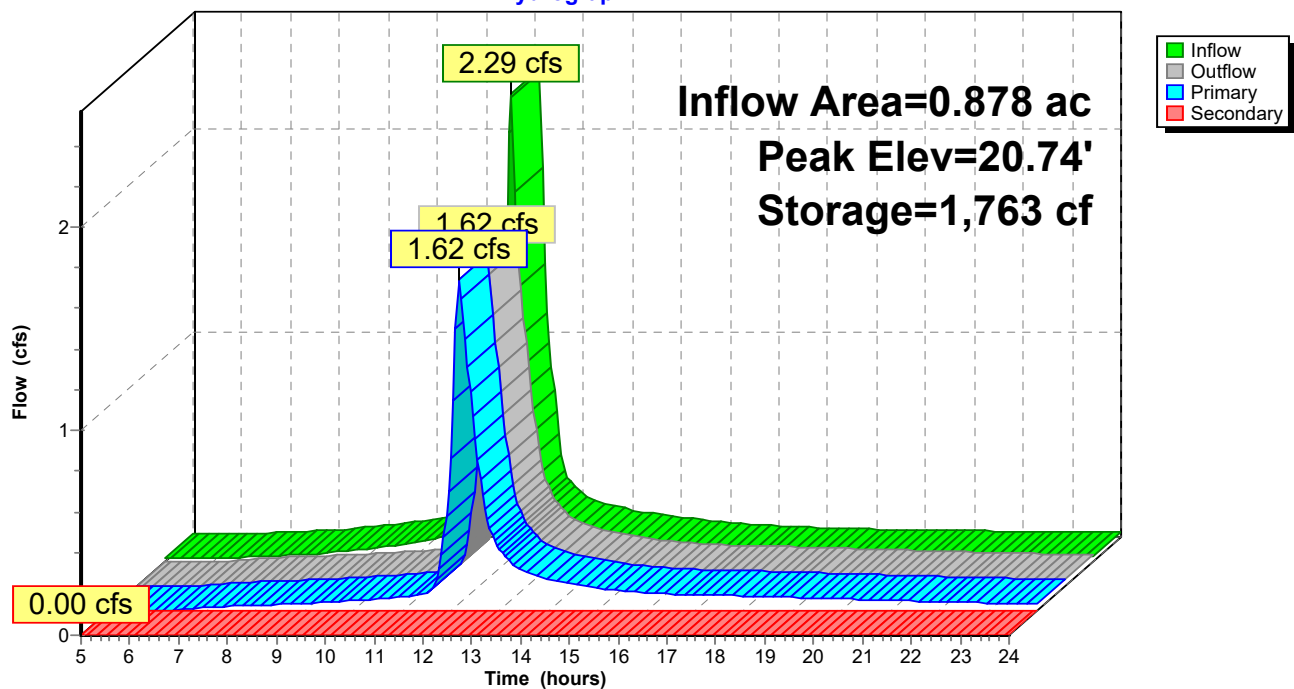
- 1=Culvert (Passes 1.59 cfs of 1.98 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.98 fps)
- 4=Custom Weir/Orifice (Weir Controls 1.46 cfs @ 3.15 fps)
- 5=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=19.00' (Free Discharge)

- 3=Culvert (Controls 0.00 cfs)

Pond 1P: R-TANKS

Hydrograph

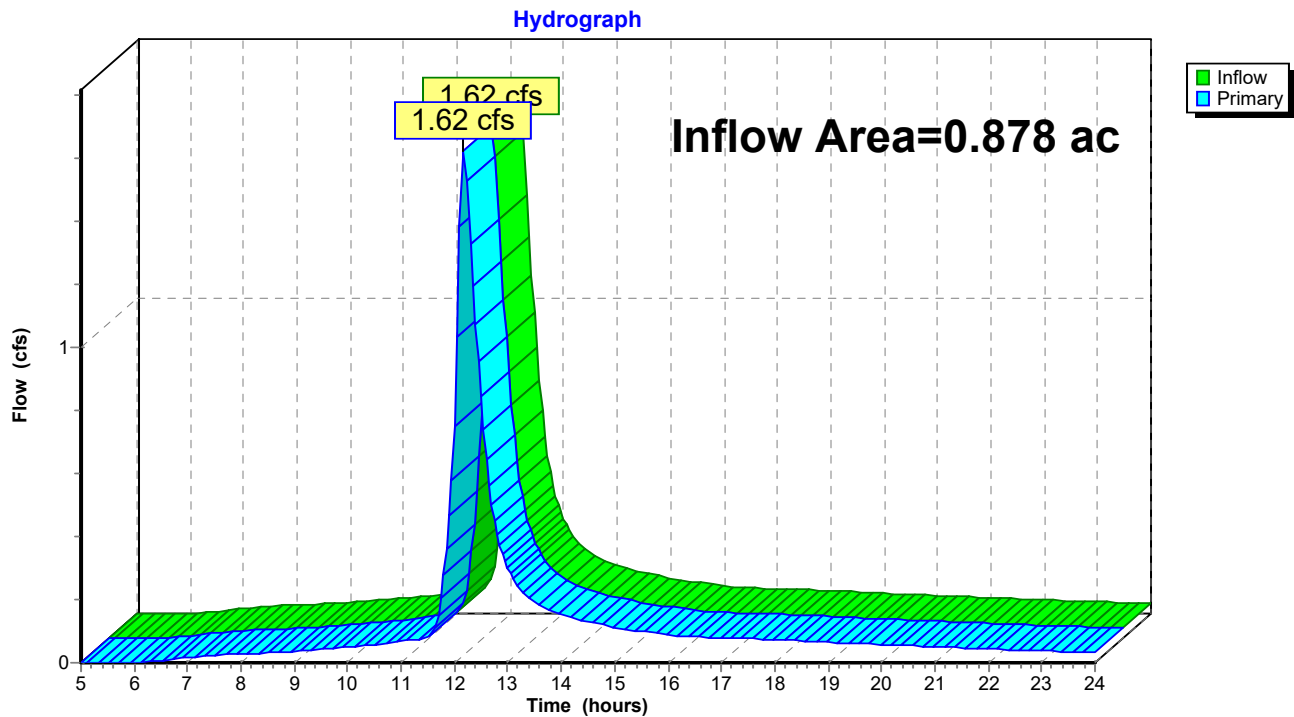


Summary for Pond 2P: STORMFILTER

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 2.37" for 2-YR event
 Inflow = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af
 Primary = 1.62 cfs @ 12.17 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Pond 2P: STORMFILTER



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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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 S1.1: S1.1	Runoff Area=11,070 sf 100.00% Impervious Runoff Depth>4.25" Tc=6.0 min CN=98 Runoff=1.12 cfs 0.090 af
Subcatchment S1.2: S1.2	Runoff Area=10,560 sf 100.00% Impervious Runoff Depth>4.25" Tc=6.0 min CN=98 Runoff=1.06 cfs 0.086 af
Subcatchment S1.3: S1.3	Runoff Area=16,626 sf 43.39% Impervious Runoff Depth>3.29" Tc=6.0 min CN=88 Runoff=1.41 cfs 0.105 af
Subcatchment S2.1: 2.1	Runoff Area=21,126 sf 48.83% Impervious Runoff Depth>3.39" Tc=6.0 min CN=89 Runoff=1.84 cfs 0.137 af
Subcatchment S3.1: S1.2	Runoff Area=3,296 sf 50.00% Impervious Runoff Depth>3.39" Tc=6.0 min CN=89 Runoff=0.29 cfs 0.021 af
Reach POI1: POI 1	Inflow=2.46 cfs 0.273 af Outflow=2.46 cfs 0.273 af
Reach POI2: POI 2	Inflow=1.84 cfs 0.137 af Outflow=1.84 cfs 0.137 af
Reach POI3: POI 3	Inflow=0.29 cfs 0.021 af Outflow=0.29 cfs 0.021 af
Pond 1P: R-TANKS	Peak Elev=21.20' Storage=2,272 cf Inflow=3.59 cfs 0.281 af Primary=2.30 cfs 0.272 af Secondary=0.16 cfs 0.001 af Outflow=2.46 cfs 0.273 af
Pond 2P: STORMFILTER	Inflow=2.30 cfs 0.272 af Primary=2.30 cfs 0.272 af

Total Runoff Area = 1.439 ac Runoff Volume = 0.439 af Average Runoff Depth = 3.66"
34.89% Pervious = 0.502 ac 65.11% Impervious = 0.937 ac

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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment S1.1: S1.1

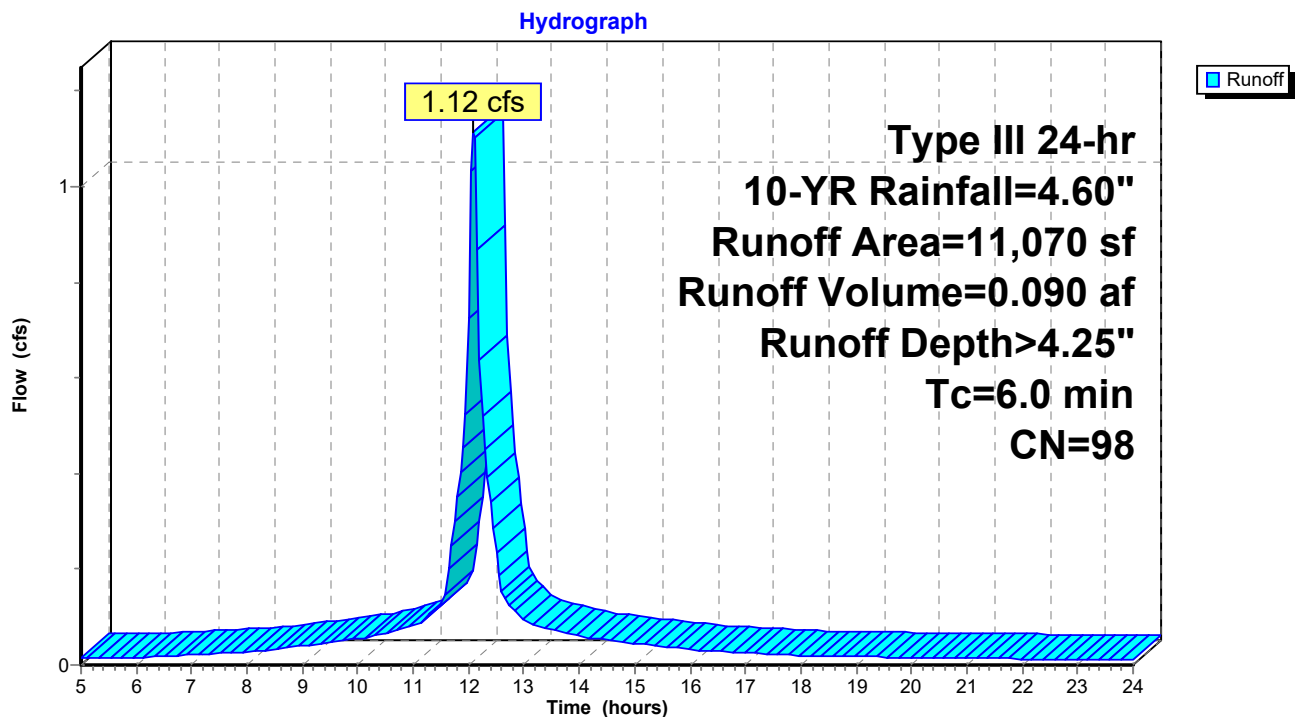
Runoff = 1.12 cfs @ 12.09 hrs, Volume= 0.090 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
11,070	98	Roofs, HSG D
11,070		100.00% Impervious Area

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

Subcatchment S1.1: S1.1



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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment S1.2: S1.2

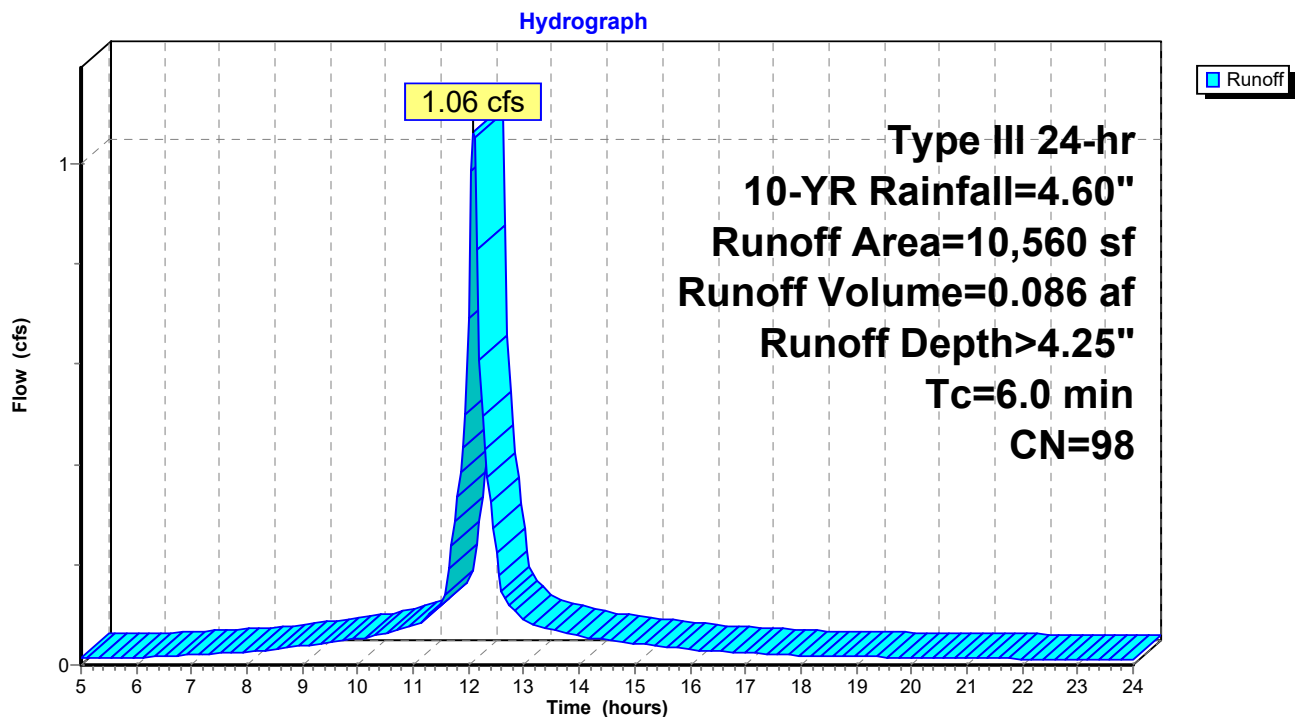
Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.086 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
10,560	98	Roofs, HSG D
10,560		100.00% Impervious Area

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

Subcatchment S1.2: S1.2



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Summary for Subcatchment S1.3: S1.3

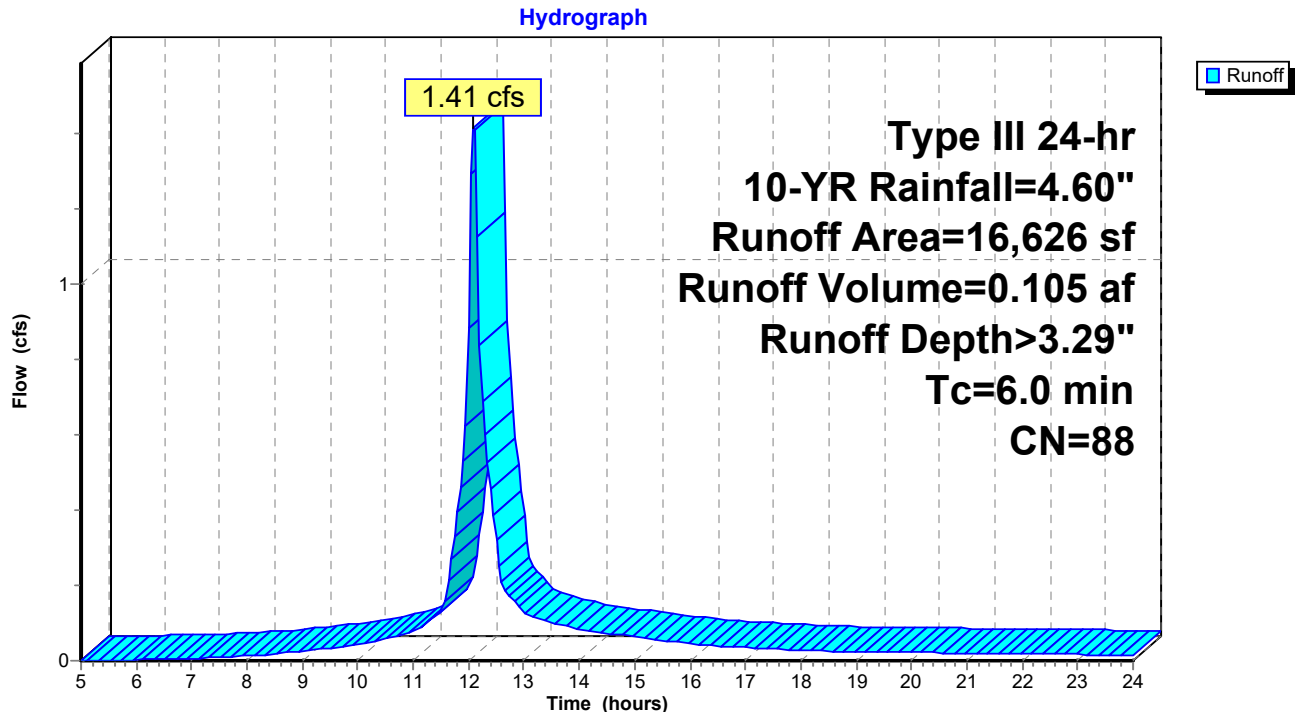
Runoff = 1.41 cfs @ 12.09 hrs, Volume= 0.105 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
4,495	98	Paved parking, HSG D
557	98	Paved parking, HSG D
2,162	98	Paved parking, HSG D
1,839	80	>75% Grass cover, Good, HSG D
3,250	80	>75% Grass cover, Good, HSG D
814	80	>75% Grass cover, Good, HSG D
89	80	>75% Grass cover, Good, HSG D
2,107	80	>75% Grass cover, Good, HSG D
885	80	>75% Grass cover, Good, HSG D
428	80	>75% Grass cover, Good, HSG D
16,626	88	Weighted Average
9,412		56.61% Pervious Area
7,214		43.39% Impervious Area

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

Subcatchment S1.3: S1.3



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Summary for Subcatchment S2.1: 2.1

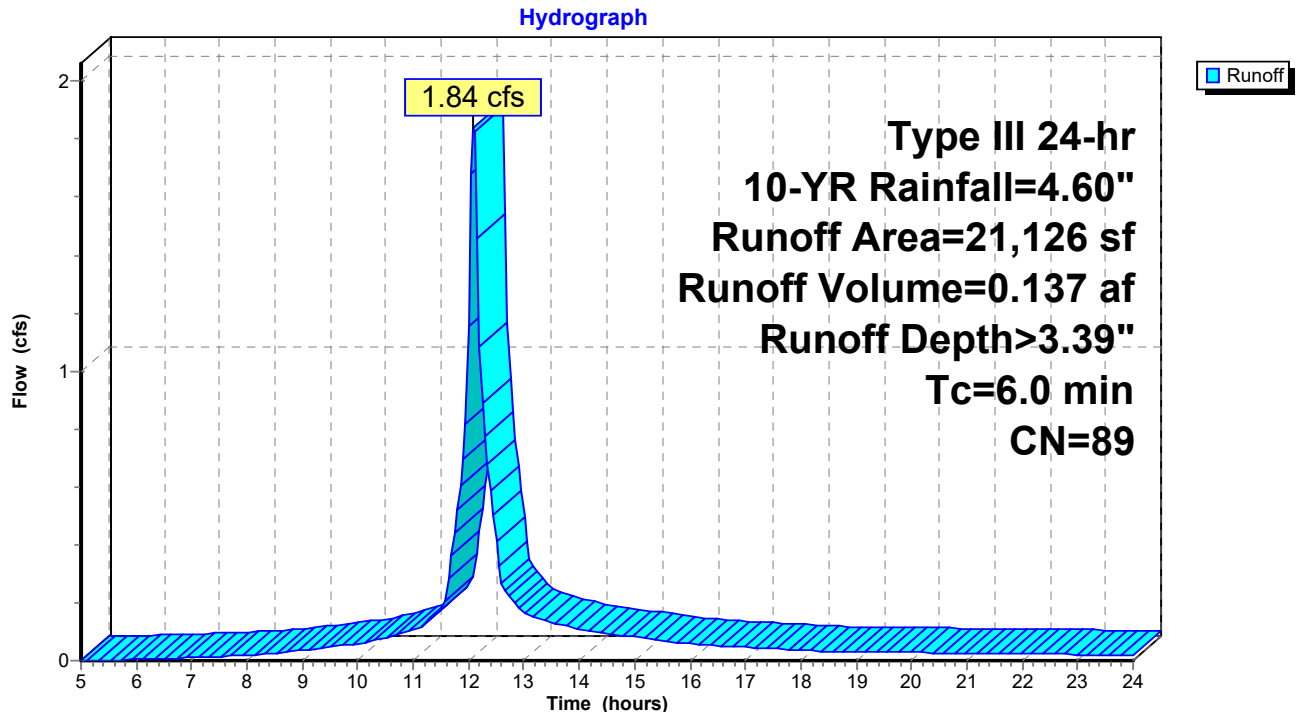
Runoff = 1.84 cfs @ 12.09 hrs, Volume= 0.137 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
7,454	80	>75% Grass cover, Good, HSG D
486	80	>75% Grass cover, Good, HSG D
1,326	80	>75% Grass cover, Good, HSG D
562	80	>75% Grass cover, Good, HSG D
983	80	>75% Grass cover, Good, HSG D
10,315	98	Paved parking, HSG D
21,126	89	Weighted Average
10,811		51.17% Pervious Area
10,315		48.83% Impervious Area

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

Subcatchment S2.1: 2.1



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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment S3.1: S1.2

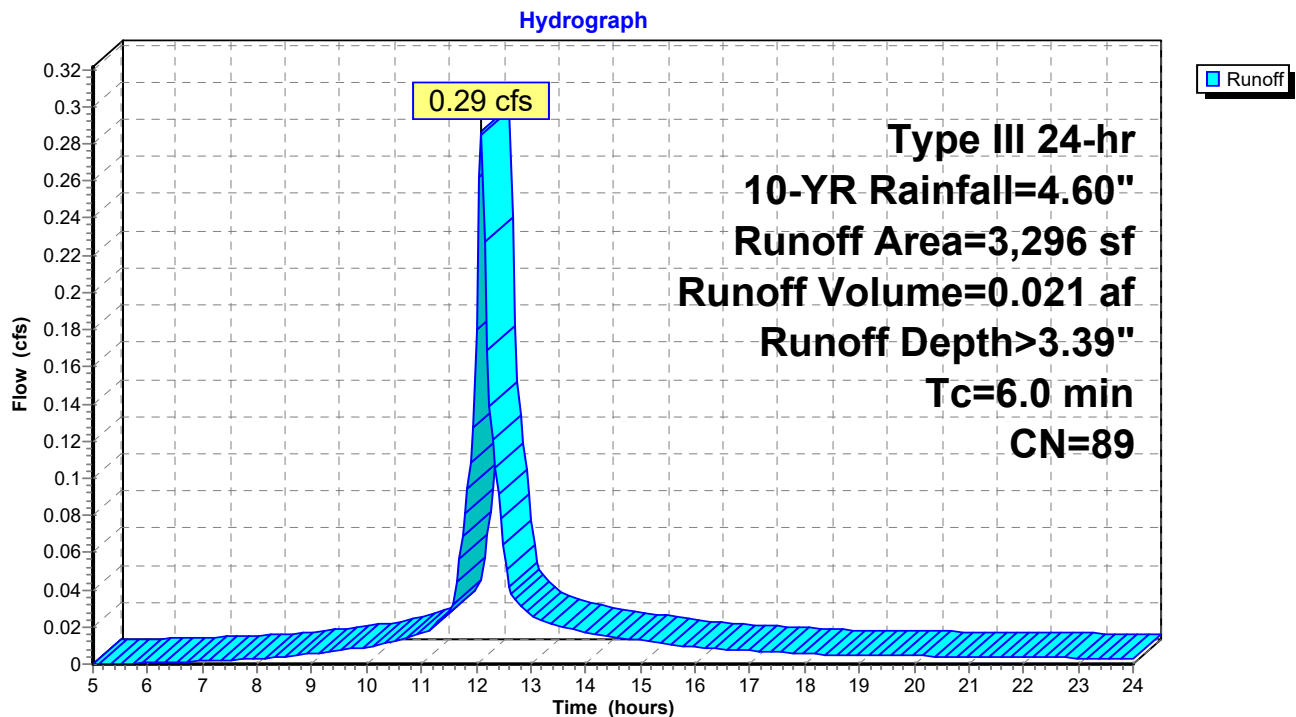
Runoff = 0.29 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
1,648	80	>75% Grass cover, Good, HSG D
1,648	98	Unconnected pavement, HSG D
3,296	89	Weighted Average
1,648		50.00% Pervious Area
1,648		50.00% Impervious Area
1,648		100.00% Unconnected

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

Subcatchment S3.1: S1.2

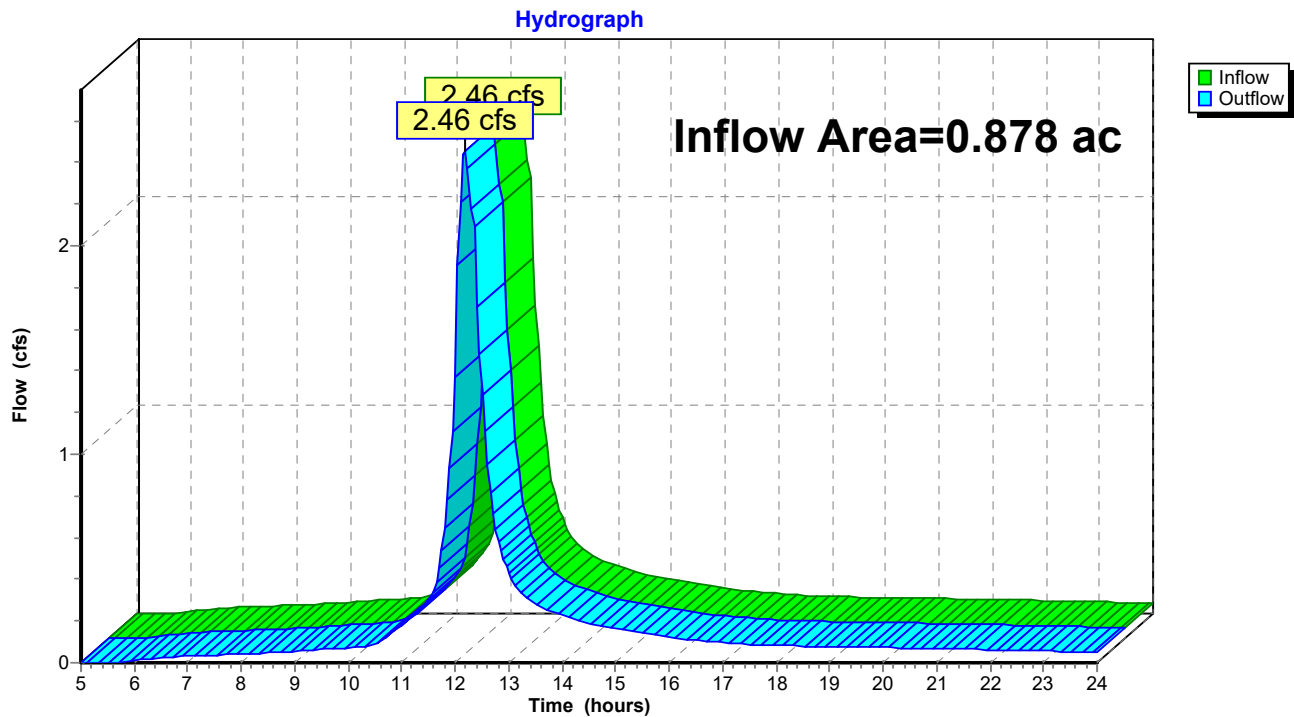


Summary for Reach POI1: POI 1

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 3.74" for 10-YR event
 Inflow = 2.46 cfs @ 12.18 hrs, Volume= 0.273 af
 Outflow = 2.46 cfs @ 12.18 hrs, Volume= 0.273 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI1: POI 1

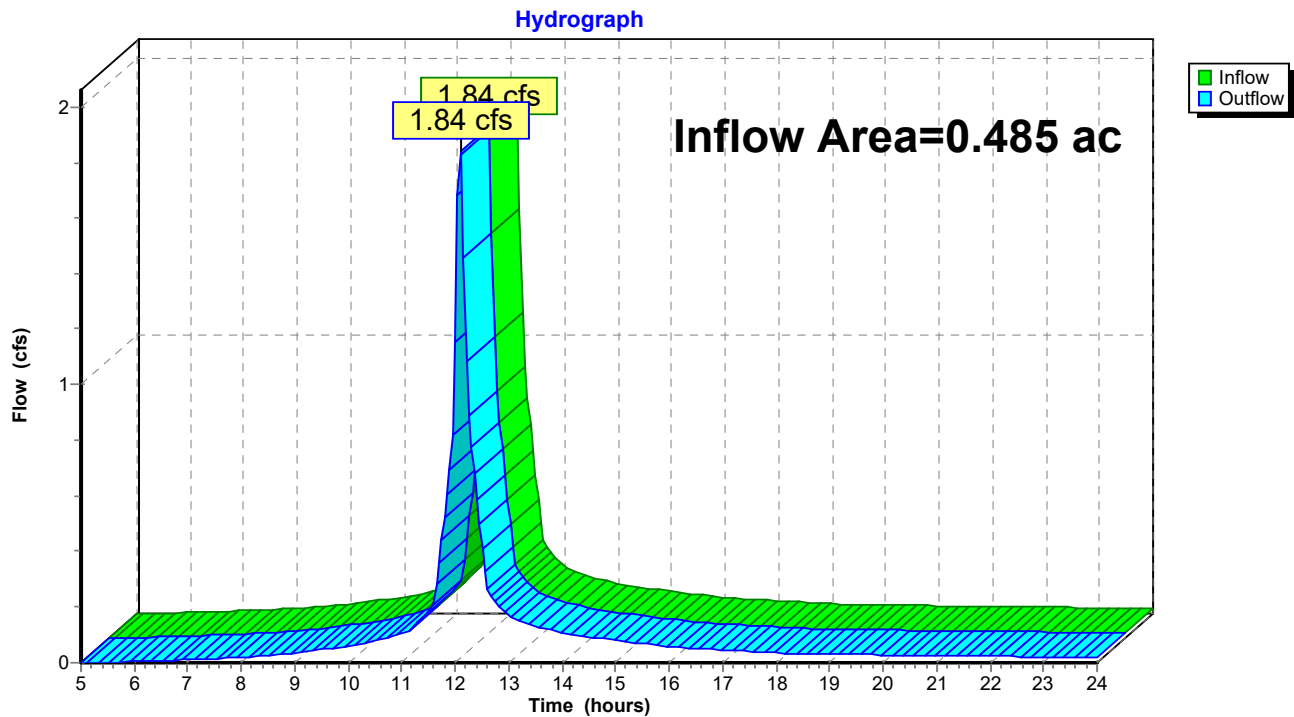


Summary for Reach POI2: POI 2

Inflow Area = 0.485 ac, 48.83% Impervious, Inflow Depth > 3.39" for 10-YR event
 Inflow = 1.84 cfs @ 12.09 hrs, Volume= 0.137 af
 Outflow = 1.84 cfs @ 12.09 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI2: POI 2



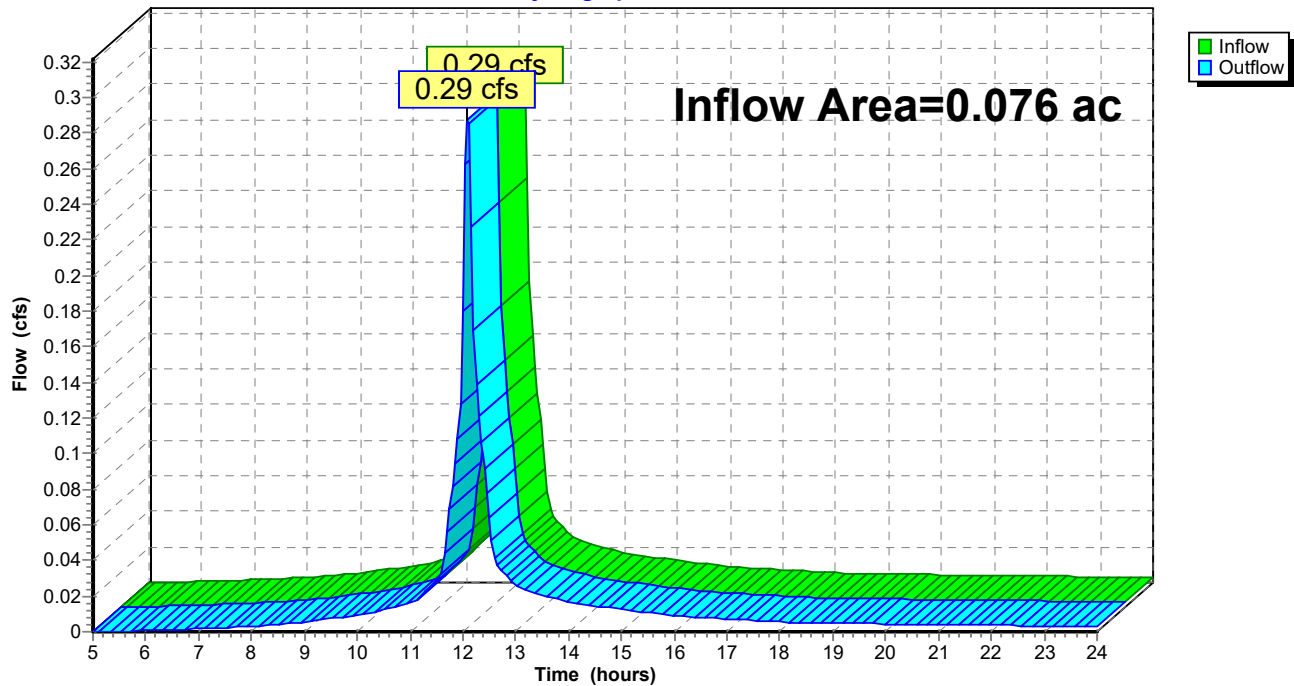
Summary for Reach POI3: POI 3

Inflow Area = 0.076 ac, 50.00% Impervious, Inflow Depth > 3.39" for 10-YR event
Inflow = 0.29 cfs @ 12.09 hrs, Volume= 0.021 af
Outflow = 0.29 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI3: POI 3

Hydrograph



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Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 1P: R-TANKS

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 3.83" for 10-YR event
 Inflow = 3.59 cfs @ 12.09 hrs, Volume= 0.281 af
 Outflow = 2.46 cfs @ 12.18 hrs, Volume= 0.273 af, Atten= 32%, Lag= 5.3 min
 Primary = 2.30 cfs @ 12.18 hrs, Volume= 0.272 af
 Secondary = 0.16 cfs @ 12.18 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 21.20' @ 12.18 hrs Surf.Area= 1,324 sf Storage= 2,272 cf

Plug-Flow detention time= 58.7 min calculated for 0.273 af (97% of inflow)
 Center-of-Mass det. time= 42.9 min (819.6 - 776.7)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	996 cf	stone envelope (Prismatic) Listed below (Recalc) 5,389 cf Overall - 2,899 cf Embedded = 2,490 cf x 40.0% Voids
#2	19.25'	2,754 cf	R-Tank footprint (Prismatic) Listed below (Recalc) Inside #1 2,899 cf Overall x 95.0% Voids
		3,750 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,324	0	0
23.07	1,324	5,389	5,389

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.25	1,028	0	0
22.07	1,028	2,899	2,899

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	8.0" Round Culvert L= 3.6' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.98' S= 0.0056 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	19.10'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	21.00'	10.0" Round Culvert L= 23.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 19.77' S= 0.0535 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#4	Device 1	19.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 0.75 1.00 Width (feet) 0.50 0.50 0.50 0.50
#5	Device 1	20.80'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

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Type III 24-hr 10-YR Rainfall=4.60"

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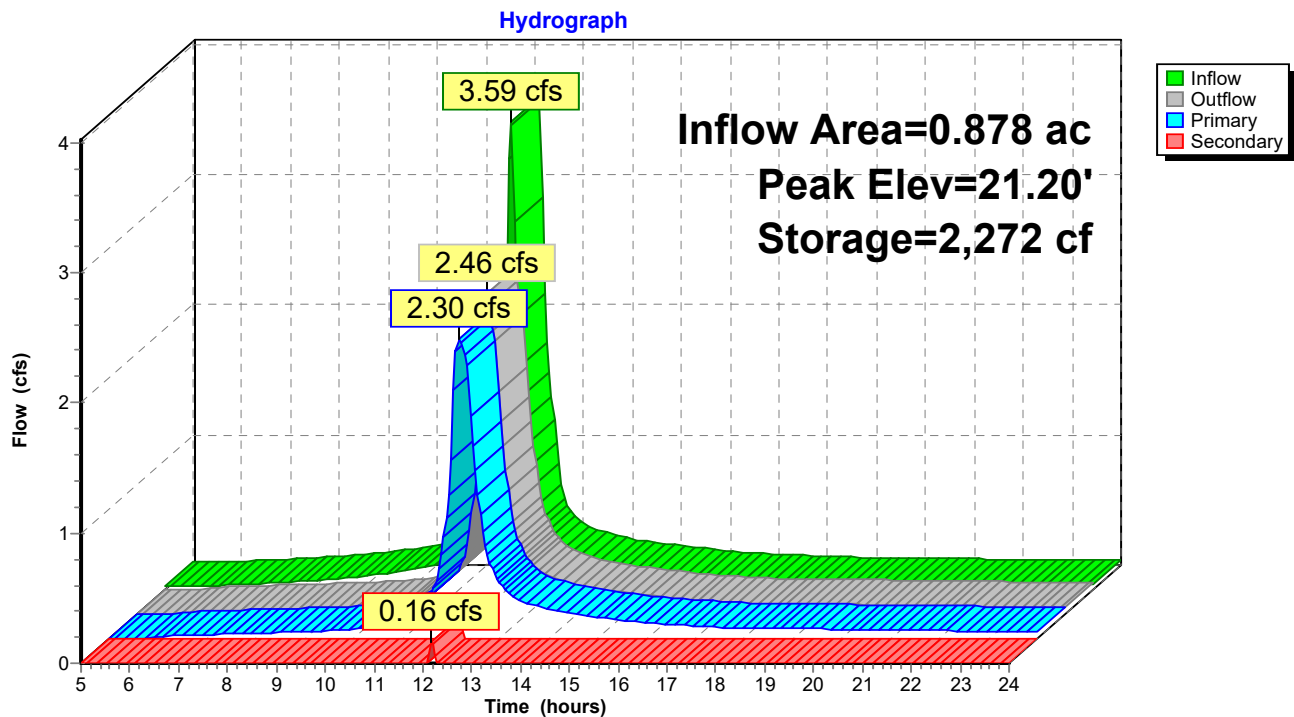
Primary OutFlow Max=2.29 cfs @ 12.18 hrs HW=21.19' (Free Discharge)

- 1=Culvert (Inlet Controls 2.29 cfs @ 6.57 fps)
- 2=Orifice/Grate (Passes < 0.15 cfs potential flow)
- 4=Custom Weir/Orifice (Passes < 2.29 cfs potential flow)
- 5=Sharp-Crested Rectangular Weir (Passes < 4.79 cfs potential flow)

Secondary OutFlow Max=0.14 cfs @ 12.18 hrs HW=21.19' (Free Discharge)

- 3=Culvert (Inlet Controls 0.14 cfs @ 1.50 fps)

Pond 1P: R-TANKS

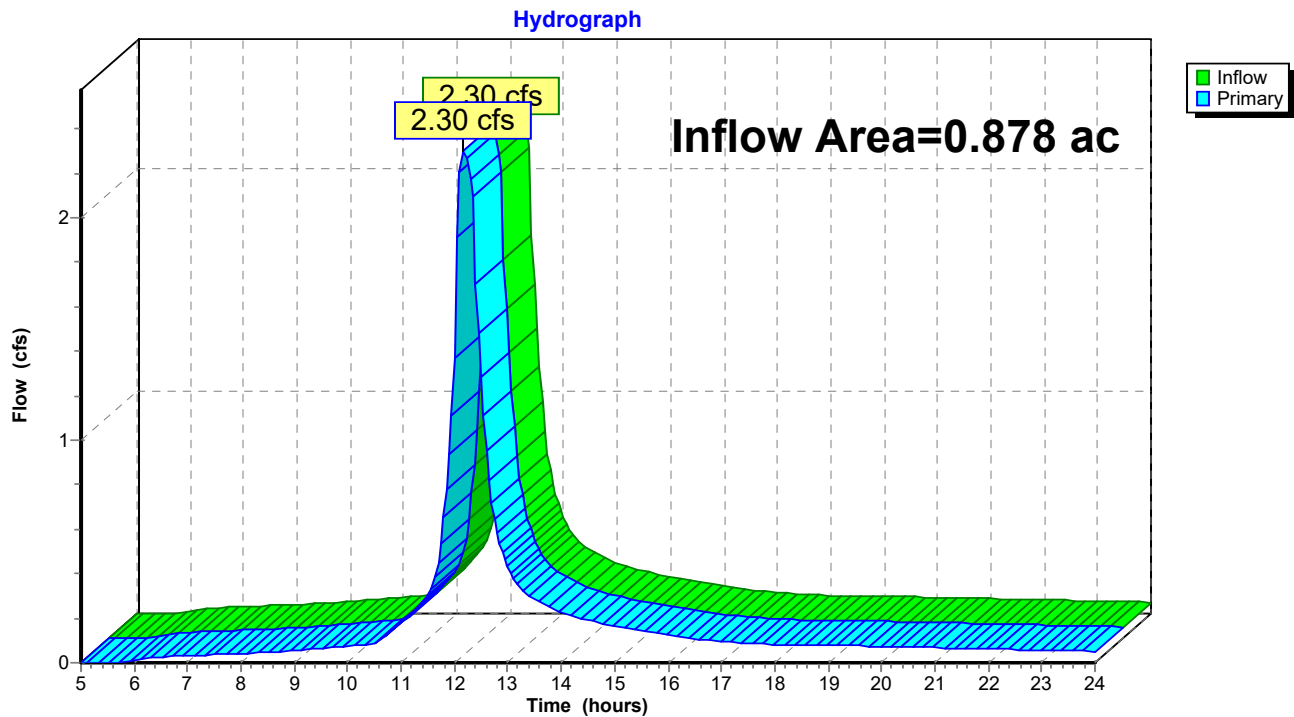


Summary for Pond 2P: STORMFILTER

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 3.72" for 10-YR event
 Inflow = 2.30 cfs @ 12.18 hrs, Volume= 0.272 af
 Primary = 2.30 cfs @ 12.18 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Pond 2P: STORMFILTER



1215 Post-Development*Type III 24-hr 25-YR Rainfall=5.80"*

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Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 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 S1.1: S1.1	Runoff Area=11,070 sf 100.00% Impervious Runoff Depth>5.40" Tc=6.0 min CN=98 Runoff=1.41 cfs 0.114 af
Subcatchment S1.2: S1.2	Runoff Area=10,560 sf 100.00% Impervious Runoff Depth>5.40" Tc=6.0 min CN=98 Runoff=1.35 cfs 0.109 af
Subcatchment S1.3: S1.3	Runoff Area=16,626 sf 43.39% Impervious Runoff Depth>4.43" Tc=6.0 min CN=88 Runoff=1.88 cfs 0.141 af
Subcatchment S2.1: 2.1	Runoff Area=21,126 sf 48.83% Impervious Runoff Depth>4.53" Tc=6.0 min CN=89 Runoff=2.43 cfs 0.183 af
Subcatchment S3.1: S1.2	Runoff Area=3,296 sf 50.00% Impervious Runoff Depth>4.53" Tc=6.0 min CN=89 Runoff=0.38 cfs 0.029 af
Reach POI1: POI 1	Inflow=3.45 cfs 0.354 af Outflow=3.45 cfs 0.354 af
Reach POI2: POI 2	Inflow=2.43 cfs 0.183 af Outflow=2.43 cfs 0.183 af
Reach POI3: POI 3	Inflow=0.38 cfs 0.029 af Outflow=0.38 cfs 0.029 af
Pond 1P: R-TANKS	Peak Elev=21.55' Storage=2,648 cf Inflow=4.63 cfs 0.364 af Primary=2.50 cfs 0.341 af Secondary=0.95 cfs 0.013 af Outflow=3.45 cfs 0.354 af
Pond 2P: STORMFILTER	Inflow=2.50 cfs 0.341 af Primary=2.50 cfs 0.341 af

Total Runoff Area = 1.439 ac Runoff Volume = 0.576 af Average Runoff Depth = 4.80"
34.89% Pervious = 0.502 ac 65.11% Impervious = 0.937 ac

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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment S1.1: S1.1

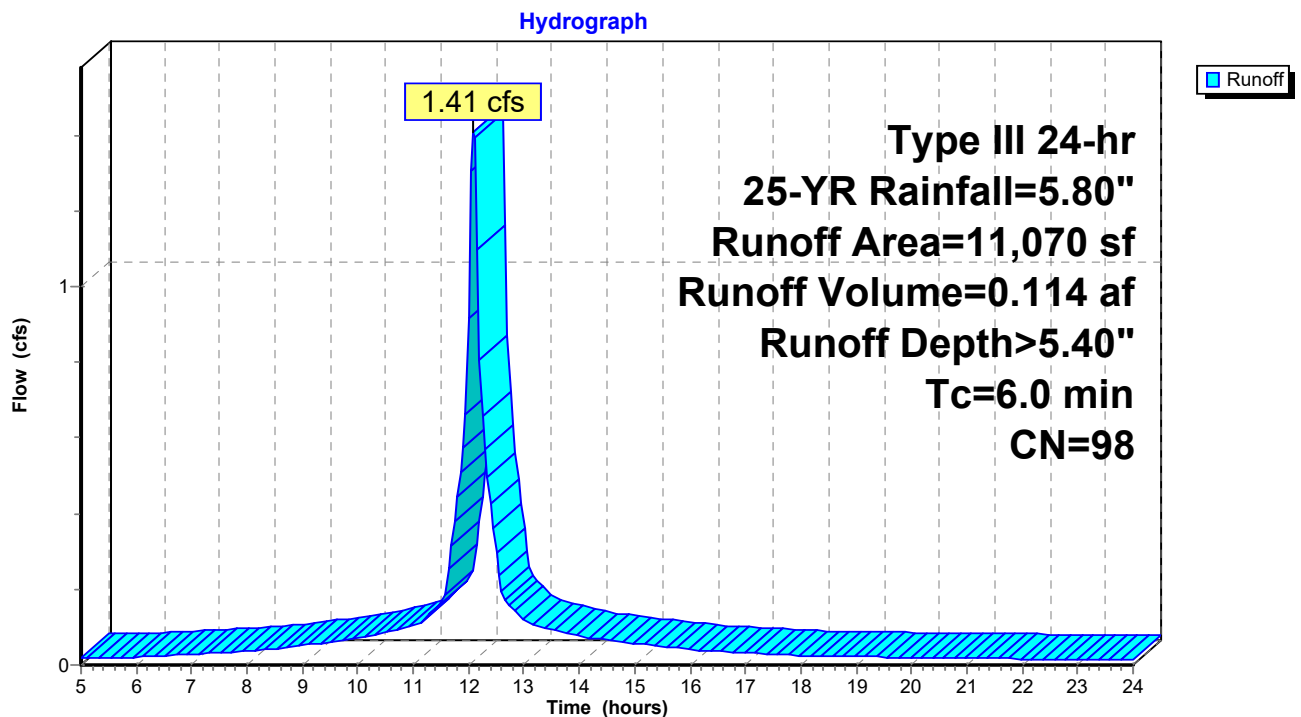
Runoff = 1.41 cfs @ 12.09 hrs, Volume= 0.114 af, Depth> 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
11,070	98	Roofs, HSG D
11,070		100.00% Impervious Area

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

Subcatchment S1.1: S1.1



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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment S1.2: S1.2

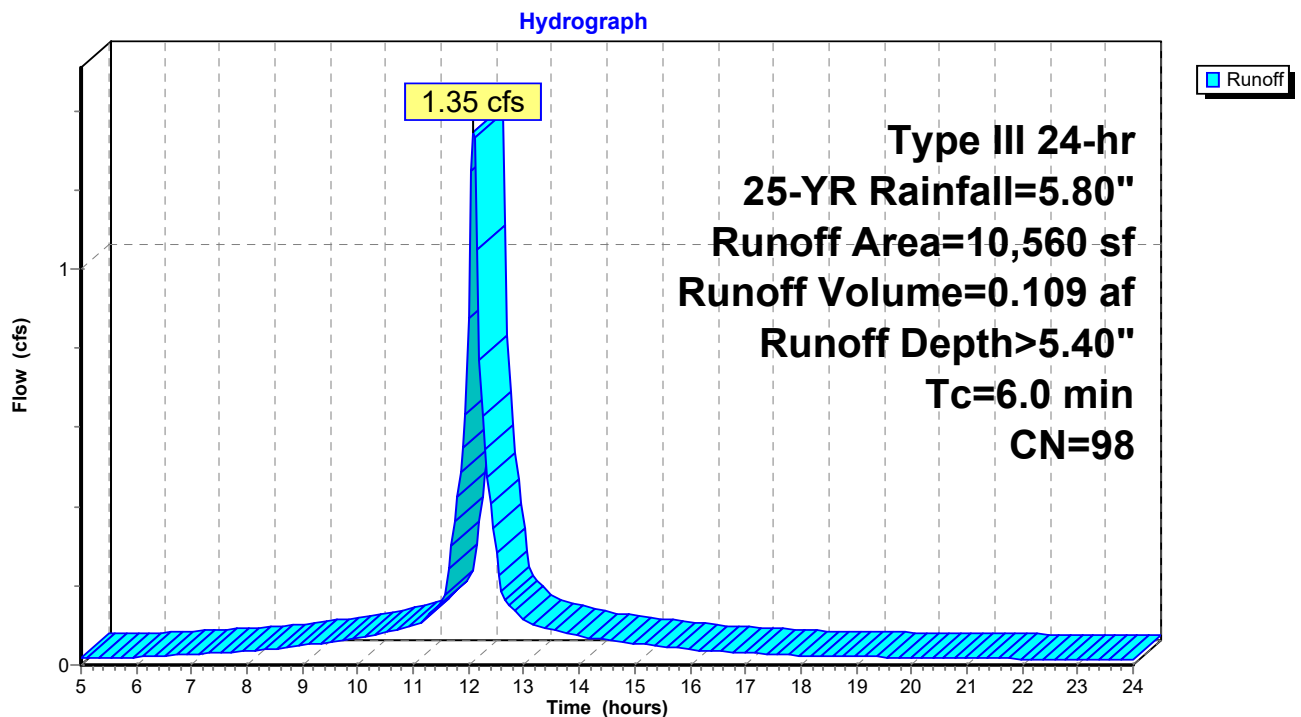
Runoff = 1.35 cfs @ 12.09 hrs, Volume= 0.109 af, Depth> 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
10,560	98	Roofs, HSG D
10,560		100.00% Impervious Area

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

Subcatchment S1.2: S1.2



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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment S1.3: S1.3

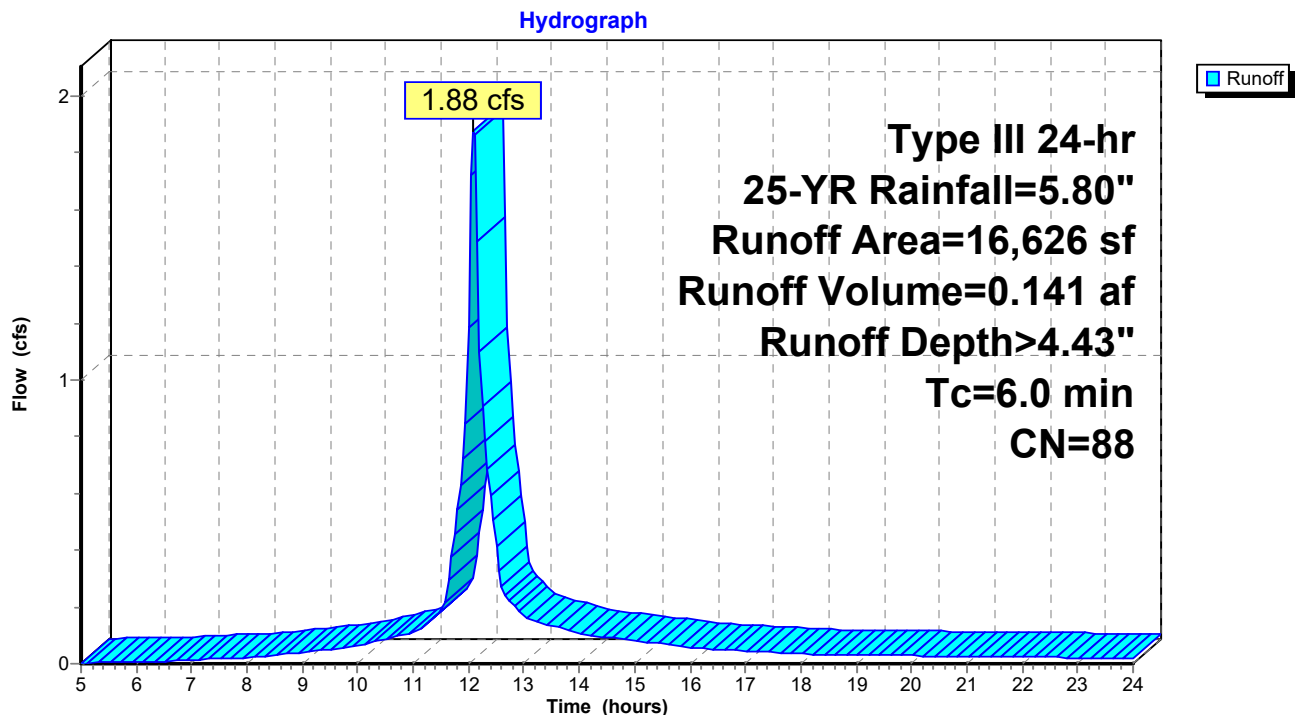
Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.141 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
4,495	98	Paved parking, HSG D
557	98	Paved parking, HSG D
2,162	98	Paved parking, HSG D
1,839	80	>75% Grass cover, Good, HSG D
3,250	80	>75% Grass cover, Good, HSG D
814	80	>75% Grass cover, Good, HSG D
89	80	>75% Grass cover, Good, HSG D
2,107	80	>75% Grass cover, Good, HSG D
885	80	>75% Grass cover, Good, HSG D
428	80	>75% Grass cover, Good, HSG D
16,626	88	Weighted Average
9,412		56.61% Pervious Area
7,214		43.39% Impervious Area

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

Subcatchment S1.3: S1.3



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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment S2.1: 2.1

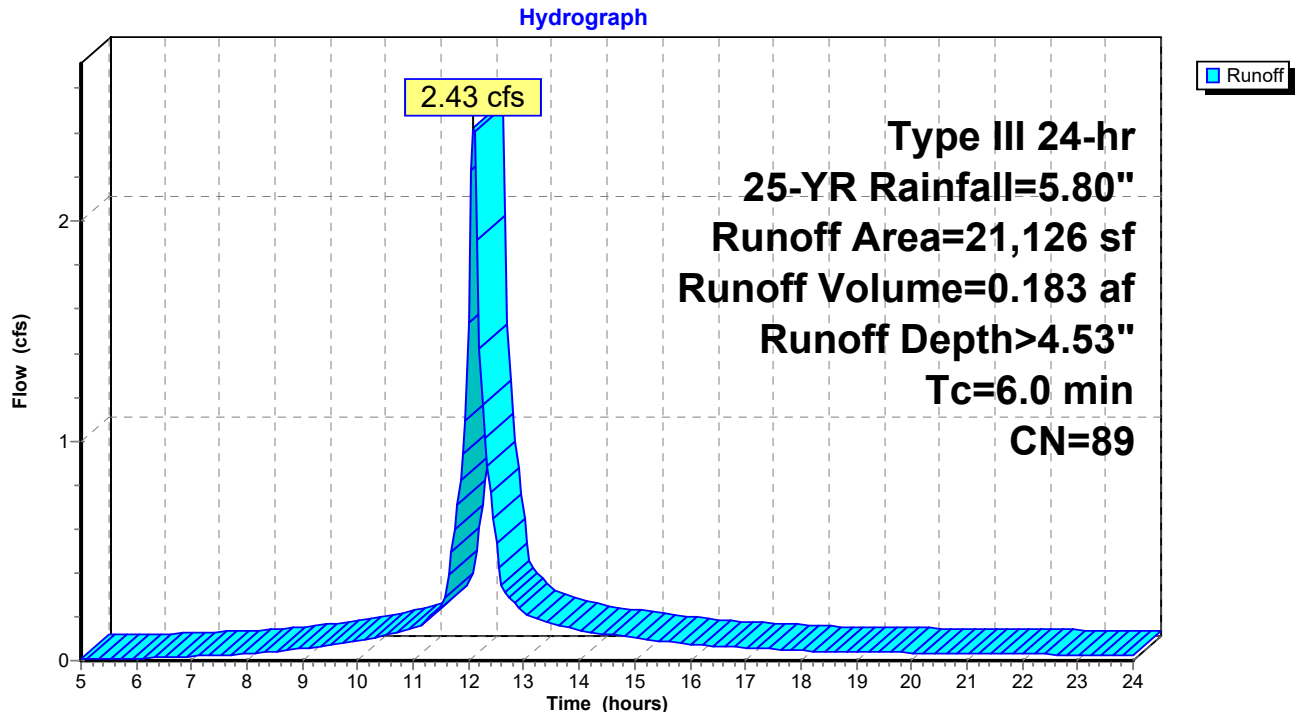
Runoff = 2.43 cfs @ 12.09 hrs, Volume= 0.183 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
7,454	80	>75% Grass cover, Good, HSG D
486	80	>75% Grass cover, Good, HSG D
1,326	80	>75% Grass cover, Good, HSG D
562	80	>75% Grass cover, Good, HSG D
983	80	>75% Grass cover, Good, HSG D
10,315	98	Paved parking, HSG D
21,126	89	Weighted Average
10,811		51.17% Pervious Area
10,315		48.83% Impervious Area

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

Subcatchment S2.1: 2.1



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Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Subcatchment S3.1: S1.2

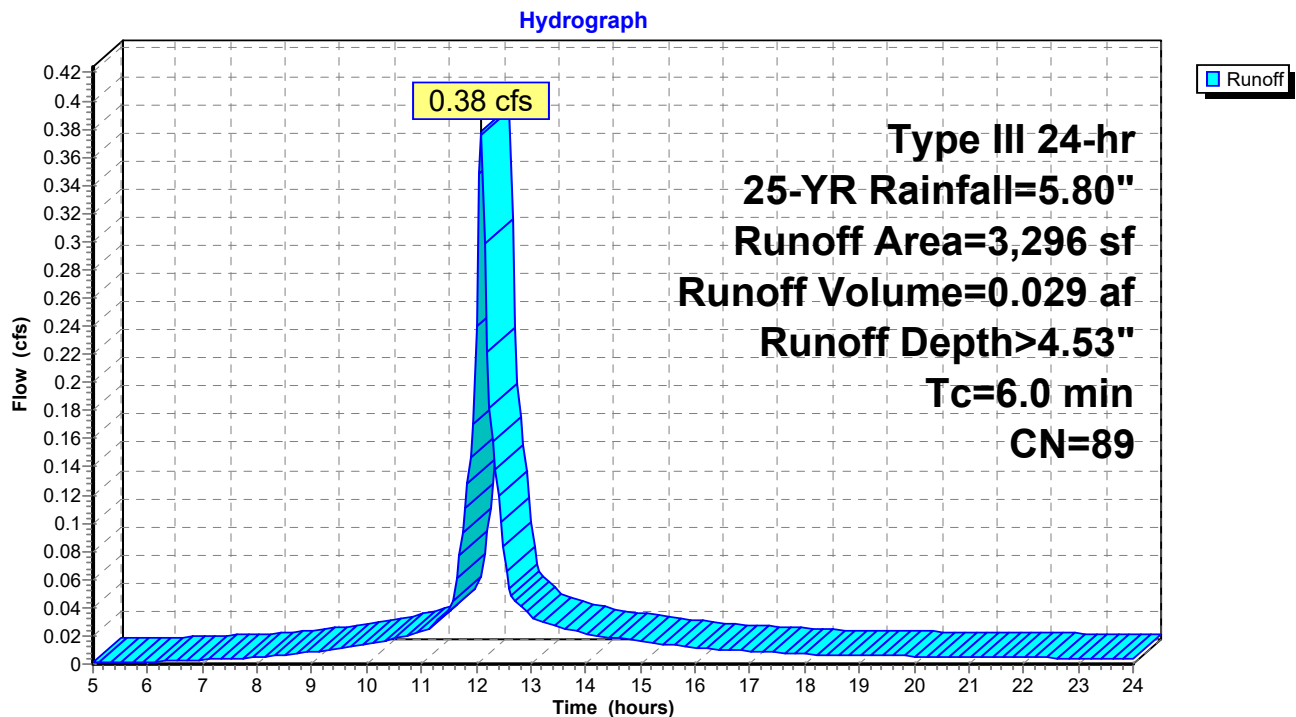
Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (sf)	CN	Description
1,648	80	>75% Grass cover, Good, HSG D
1,648	98	Unconnected pavement, HSG D
3,296	89	Weighted Average
1,648		50.00% Pervious Area
1,648		50.00% Impervious Area
1,648		100.00% Unconnected

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

Subcatchment S3.1: S1.2

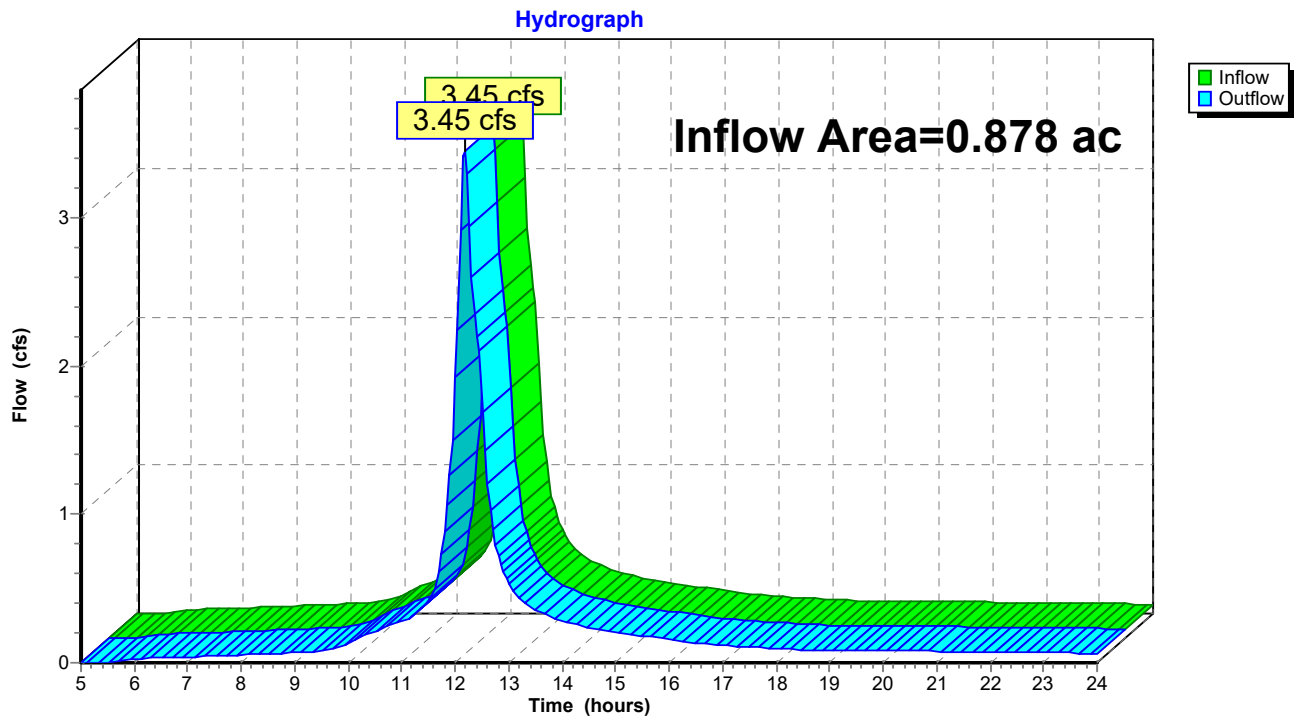


Summary for Reach POI1: POI 1

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 4.84" for 25-YR event
 Inflow = 3.45 cfs @ 12.17 hrs, Volume= 0.354 af
 Outflow = 3.45 cfs @ 12.17 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI1: POI 1

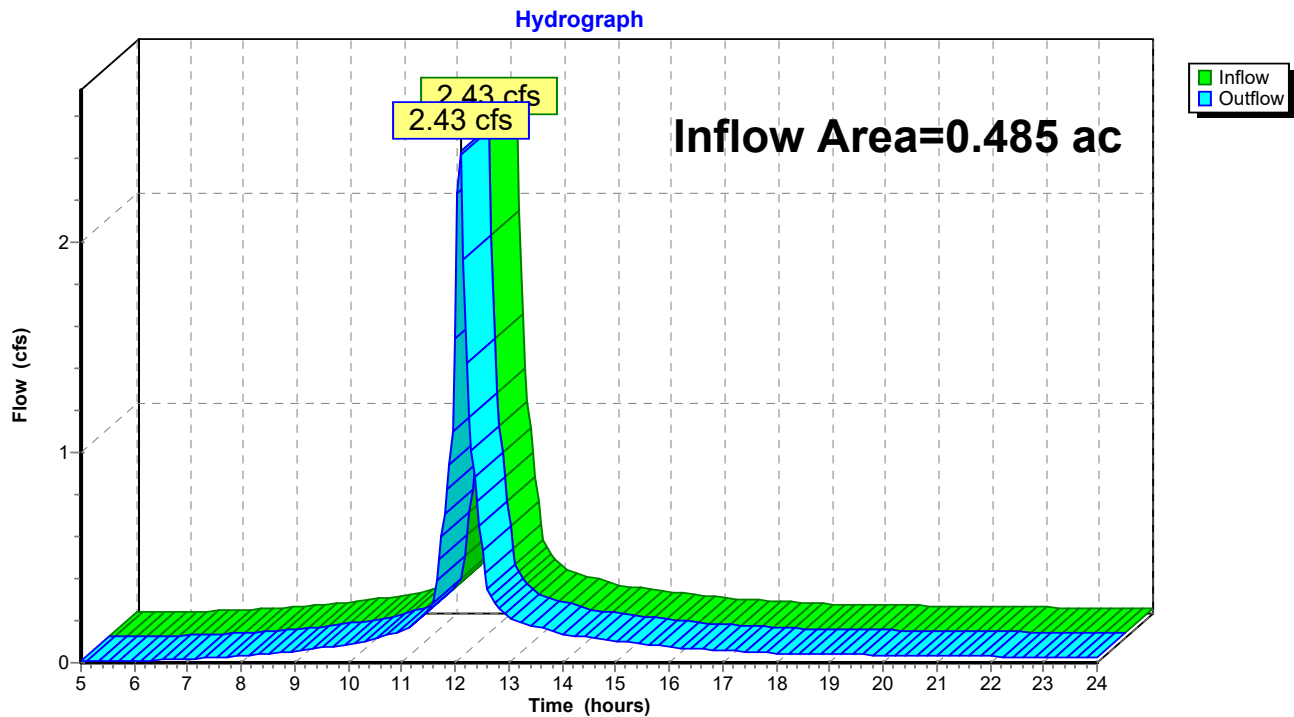


Summary for Reach POI2: POI 2

Inflow Area = 0.485 ac, 48.83% Impervious, Inflow Depth > 4.53" for 25-YR event
 Inflow = 2.43 cfs @ 12.09 hrs, Volume= 0.183 af
 Outflow = 2.43 cfs @ 12.09 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI2: POI 2



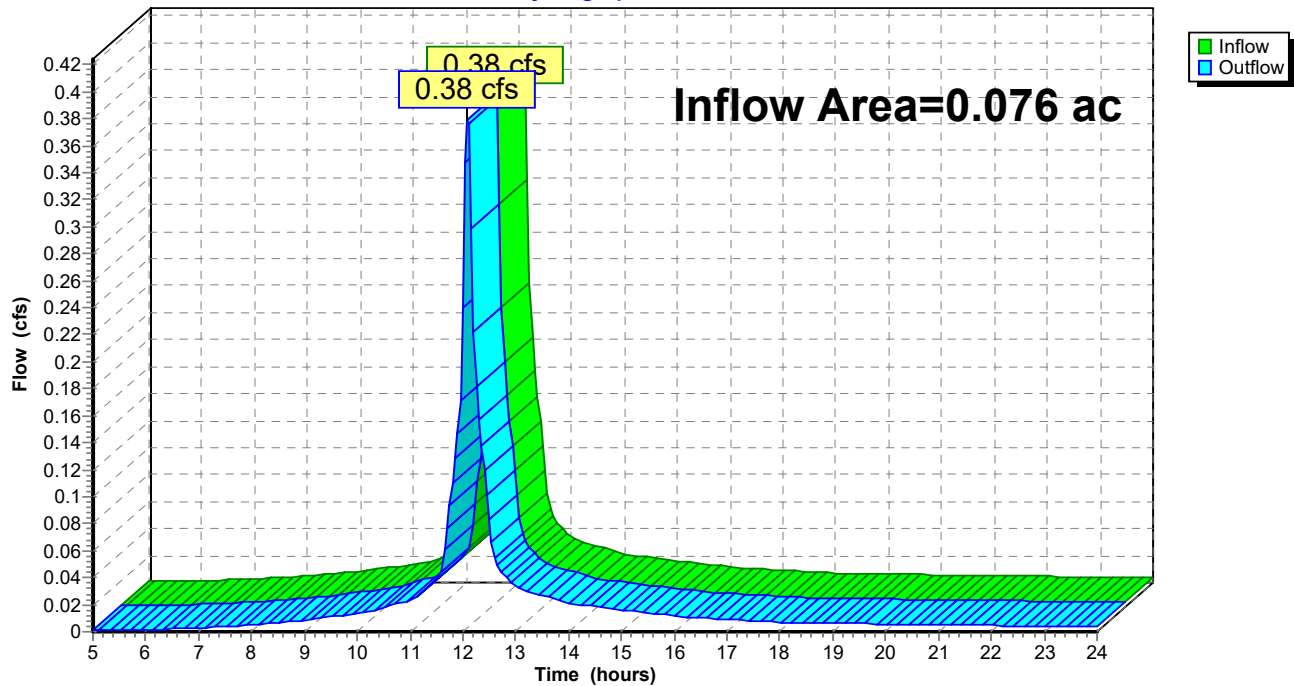
Summary for Reach POI3: POI 3

Inflow Area = 0.076 ac, 50.00% Impervious, Inflow Depth > 4.53" for 25-YR event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af
Outflow = 0.38 cfs @ 12.09 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI3: POI 3

Hydrograph



1215 Post-Development

Type III 24-hr 25-YR Rainfall=5.80"

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Summary for Pond 1P: R-TANKS

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 4.98" for 25-YR event
 Inflow = 4.63 cfs @ 12.09 hrs, Volume= 0.364 af
 Outflow = 3.45 cfs @ 12.17 hrs, Volume= 0.354 af, Atten= 25%, Lag= 4.7 min
 Primary = 2.50 cfs @ 12.17 hrs, Volume= 0.341 af
 Secondary = 0.95 cfs @ 12.17 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 21.55' @ 12.17 hrs Surf.Area= 1,324 sf Storage= 2,648 cf

Plug-Flow detention time= 51.7 min calculated for 0.353 af (97% of inflow)
 Center-of-Mass det. time= 34.7 min (808.0 - 773.3)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	996 cf	stone envelope (Prismatic) Listed below (Recalc) 5,389 cf Overall - 2,899 cf Embedded = 2,490 cf x 40.0% Voids
#2	19.25'	2,754 cf	R-Tank footprint (Prismatic) Listed below (Recalc) Inside #1 2,899 cf Overall x 95.0% Voids
		3,750 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,324	0	0
23.07	1,324	5,389	5,389

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.25	1,028	0	0
22.07	1,028	2,899	2,899

Device	Routing	Invert	Outlet Devices
#1	Primary	19.00'	8.0" Round Culvert L= 3.6' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.00' / 18.98' S= 0.0056 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	19.10'	2.0" Vert. Orifice/Grate C= 0.600
#3	Secondary	21.00'	10.0" Round Culvert L= 23.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.00' / 19.77' S= 0.0535 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
#4	Device 1	19.80'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 0.75 1.00 Width (feet) 0.50 0.50 0.50 0.50
#5	Device 1	20.80'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

1215 Post-Development

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Type III 24-hr 25-YR Rainfall=5.80"

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Primary OutFlow Max=2.49 cfs @ 12.17 hrs HW=21.53' (Free Discharge)

1=Culvert (Inlet Controls 2.49 cfs @ 7.13 fps)

2=Orifice/Grate (Passes < 0.16 cfs potential flow)

4=Custom Weir/Orifice (Passes < 2.70 cfs potential flow)

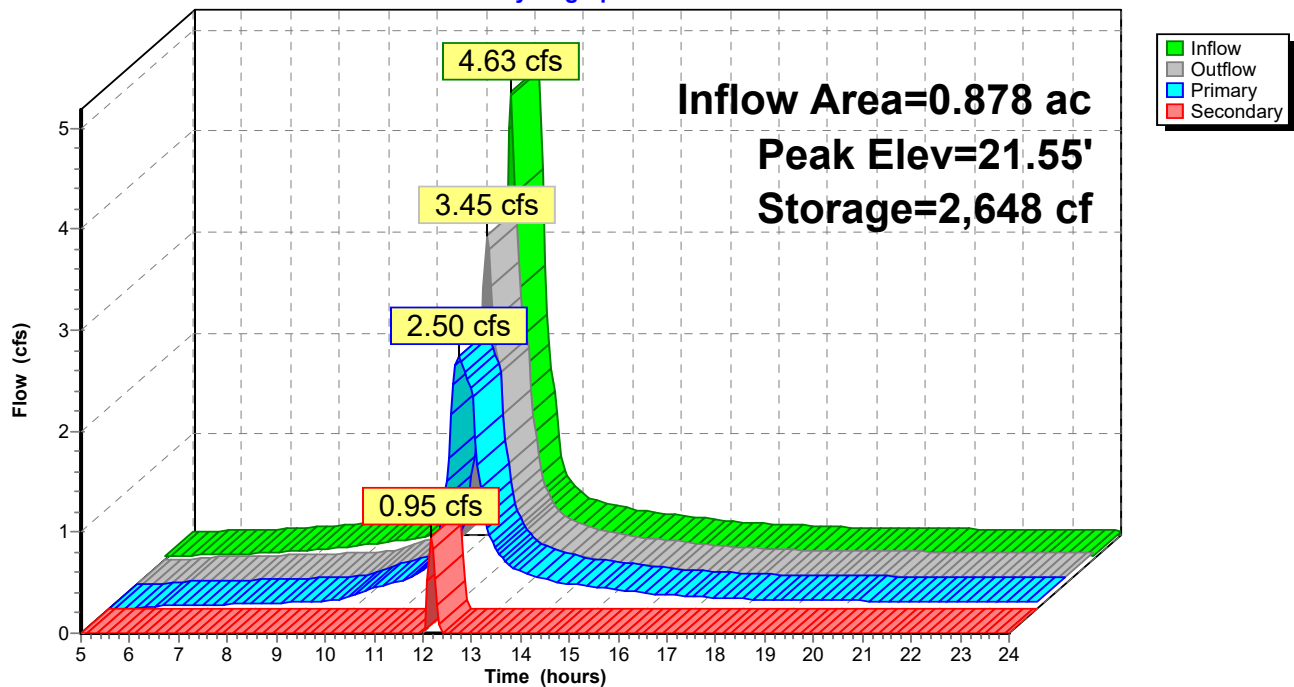
5=Sharp-Crested Rectangular Weir (Passes < 11.86 cfs potential flow)

Secondary OutFlow Max=0.90 cfs @ 12.17 hrs HW=21.53' (Free Discharge)

3=Culvert (Inlet Controls 0.90 cfs @ 2.47 fps)

Pond 1P: R-TANKS

Hydrograph

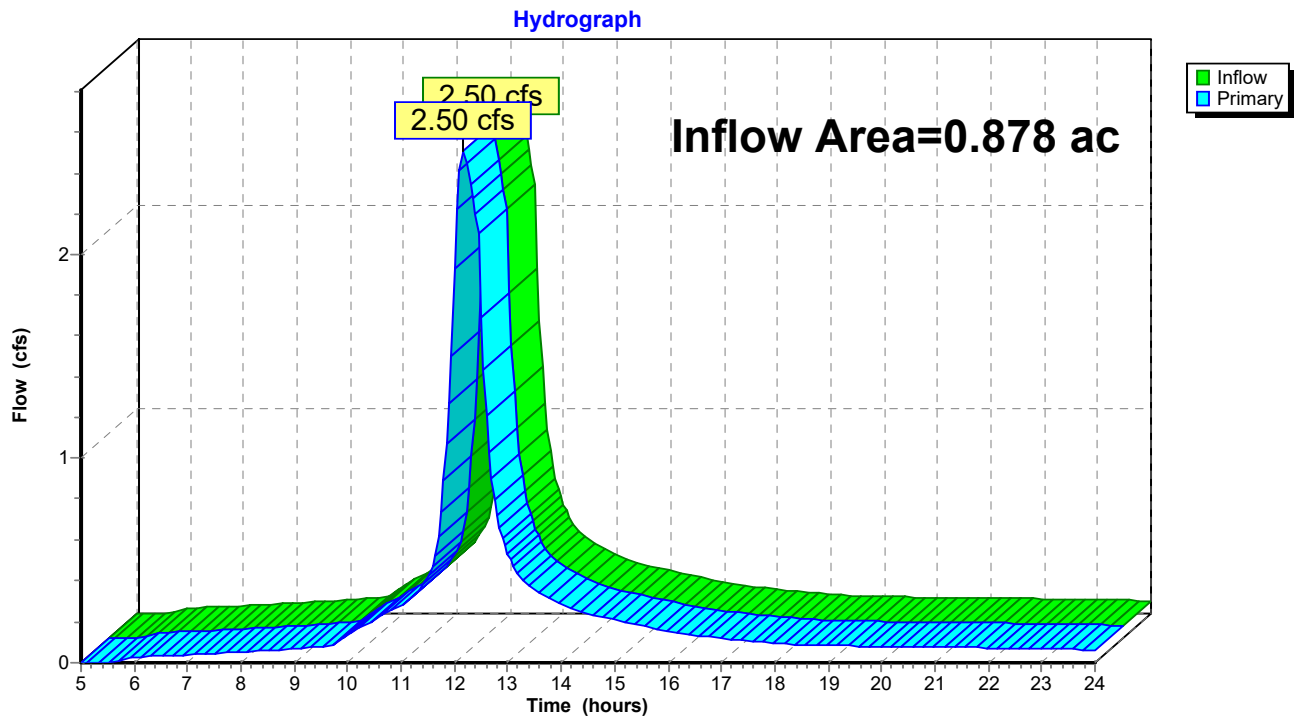


Summary for Pond 2P: STORMFILTER

Inflow Area = 0.878 ac, 75.40% Impervious, Inflow Depth > 4.66" for 25-YR event
 Inflow = 2.50 cfs @ 12.17 hrs, Volume= 0.341 af
 Primary = 2.50 cfs @ 12.17 hrs, Volume= 0.341 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Pond 2P: STORMFILTER



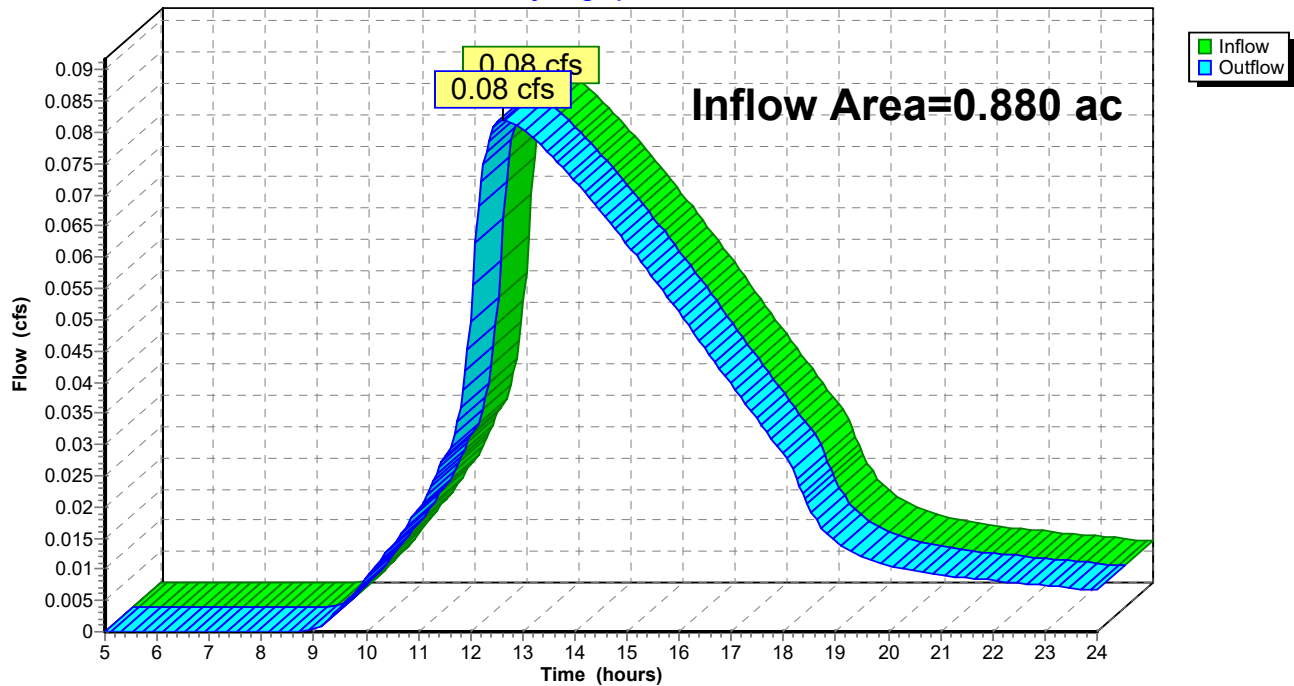
Summary for Reach POI1: POI 1

Inflow Area = 0.880 ac, 75.44% Impervious, Inflow Depth > 0.53" for 1" 24-HR event
 Inflow = 0.08 cfs @ 12.61 hrs, Volume= 0.039 af
 Outflow = 0.08 cfs @ 12.61 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Reach POI1: POI 1

Hydrograph



March 11, 2024

Mike Triglione, PE
Acorn Engineering, Inc.
PO Box 3372
Portland, ME 04104

RE: 70 East Oxford Street Redevelopment (Contech Reference No. 792726)
Review of StormFilter Design

To whom it may concern,

The purpose of this letter is to document Contech Engineered Solutions review of the plans and the proposed application of the StormFilter Media Filtration System water quality unit for your project.

Contech Engineered Solutions (Contech) has reviewed the StormFilter (SF) design for this project. We believe the SF configuration to be an appropriate water quality solution for this site.

The SF system with Phosphosorb (Psorb) media cartridges is approved for use by MEDEP meeting the General Standard of the Stormwater rules (Chapter 500) if designed, installed, and maintained in accordance with the provisions noted in the February 24, 2023 approval letter from the MEDEP.

The StormFilter system is designed in accordance with the maximum drain down rate of 1.67 gallons per minute per square foot of filter surface area (18.78 gpm maximum per 27" cartridge). Additionally, the StormFilter is designed with an upstream water quality volume (WQv) detention system to retain, route and treat the entire WQ event flow from the contributing drainage area to the treatment unit. The resultant volume from the WQ event storm is detained in the upstream detention to an elevation below any bypass flow paths resulting in a routed storm event volume through the SF cartridges. Due to the extended detention time upstream of the SF in the WQv detention system, Contech assumes sedimentation of the larger solids at an estimated 50 percent reduction of the total suspended solids prior to the treatment by the StormFilter vault.

The engineer of record provided a drainage area of 0.88 acres, of which 0.66 acres is impervious. In order to adequately treat the runoff from this area, Contech recommends an offline StormFilter 60" Manhole (model SFMH60) with quantity 4 x 27" Psorb cartridges.

The SF system requires a hydraulic headwater condition to fully immerse the media and activate the cartridge float valve. For 27" SF cartridges, this headwater condition is 3.05 ft above SF outlet invert. This is achieved by the either physical inlet to outlet pipe elevation drop or an upstream WQ detention filling during the WQ storm flow to the required SF float valve activation elevation.

The WQv is routed through the SF vault and the detention system WQ outlet control shall be designed to drain down in 24 to 48 hours after the beginning of the storm resulting in a cumulative treated WQv.

It is recommended to have the site detention system Outlet Control Structure (OCS) designed to store the WQv and flow to the treatment BMP prior to any bypass flow from initiating.

Our systems require periodic maintenance to continue operating properly. Given typical runoff pollutant loading rates, Contech recommends maintenance inspections on an annual basis.

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, PE
Contech Engineered Solutions, LLC.
(207) 885-6191
dadams@conteches.com

Contech Engineered Solutions, LLC Engineer:
Date

DRA
3/11/2024

Site Information

Project Name	70 East Oxford Street Redevelopment
Project State	Portland
Project Location	ME
Site Designation	Filter BMP
Total Drainage Area, Ad	0.88 ac
Post Development Impervious Area, Ai	0.66 ac
Pervious Area, Ap	0.22
% Impervious	75 %
Runoff Coefficient, Rc	0.73
Treatment release rate from detention, $Q_{\text{release treat}}$	0.04 cfs
Upstream pretreatment credit	50%

Mass loading calculations

Mean Annual Rainfall, P	49 in
Agency required % removal	80%
Percent Runoff Capture	90%
Mean Annual Runoff, V_t	120,065 ft ³
Event Mean Concentration of Pollutant, EMC	70 mg/l
Annual Mass Load, M_{total}	524 lbs

Filter System

Filtration brand	StormFilter
Cartridge height	27 in
Specific Flow Rate	1.00 gpm/ft ²

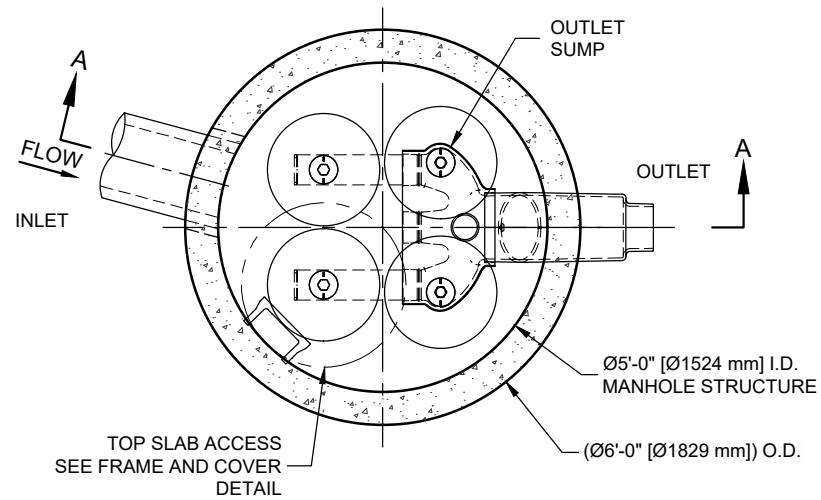
Number of cartridges - mass loading

Mass removed by pretreatment system, M_{pre}	262 lbs
Mass load to filters after pretreatment, M_{pass1}	262 lbs
Mass to be captured by filters, M_{filter}	210 lbs
Allowable Cartridge Flow rate, Q_{cart}	11.25 gpm
Mass load per cartridge, M_{cart} (lbs)	54 lbs
Number of Cartridges required, N_{mass}	4 ea
Treatment Capacity	0.100 cfs

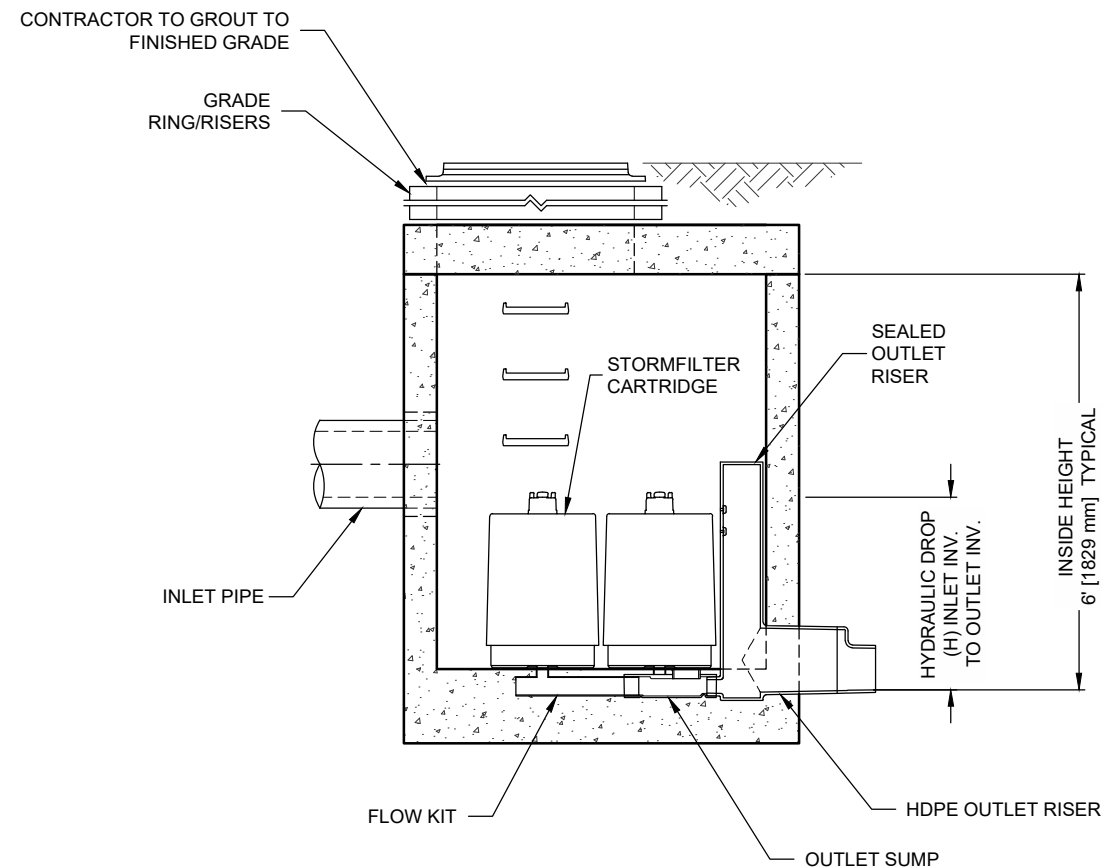
Determine Critical Sizing Value

Number of Cartridges using $Q_{\text{release treat}}$, N_{mass}	4 ea
Method to Use:	MASS-LOADING

Summary		
	Treatment Fow Rate	0.100 cfs
Mass	Treatment Mass Provided	216 lbs
	Required Cartridge Quantity	4



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 41A



SECTION A-A



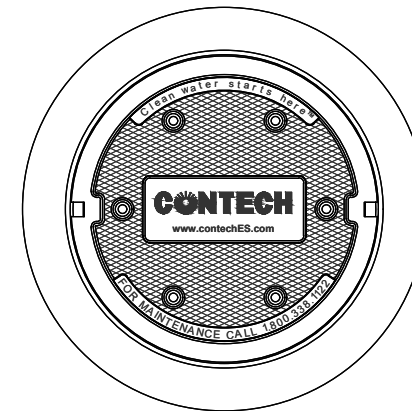
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (4). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 4 CARTRIDGES. Ø5'-0" [1524 mm] MANHOLE STORMFILTER WITH SEALED OUTLET RISER MAY REQUIRE AN UPSTREAM BYPASS STRUCTURE.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m ²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs) [L/s]			*
PEAK FLOW RATE (cfs) [L/s]			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)			*
NUMBER OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (PERLITE, ZPG, PSORB)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
- STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
- CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH®
ENGINEERED SOLUTIONS LLC

www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH60
STORMFILTER
STANDARD DETAIL

Ferguson Waterworks
94 Pleasant Ave
South Portland, ME 04106



Mike Triglione, P.E.
Project Engineer
Acorn Engineering, Inc.
PO Box 3372
Portland, ME 04104

March 13, 2024

SUBJECT: 70 East Oxford Street Redevelopment – Portland, ME
R-Tank - Plan Review and Construction Oversight Commitment

Dear Mike,

Thank you for forwarding the permit plans for the 70 East Oxford Street Redevelopment in Portland, ME to Ferguson Waterworks for review of the proposed R-Tank Subsurface storage system.

After reviewing the permit plans with the latest revision February 29th 2024, as well as the hydrocad modeling, our team has provided a concept for an R-Tank system that consists of 239 R-Tank^{HD} Double modules, and 95 R-Tank^{HD} Double Access Modules.

The treatment rows have been sized (according to Maine DEP regulations) to be able to handle the flow of the 1yr 24 hour storm, accounting for 0.02cfs per Access Module. Based on the hydrocad modeling received, total flow into the system was shown as 1.86 cfs, requiring minimum 93 R-Tank^{HD} Access Modules.

The plan set includes all the details and specification information necessary for both the permitting and construction of the detention system.

The R-Tank system has been designed with a 3" stone base (meeting the 3" minimum requirement), 2 ft stone perimeter surrounding the modules, and a sectional build-up over the system that meets the min cover guidance for R-Tank^{HD} systems designed in traffic loaded locations.

The cover over the system fits within the allowable cover limits. For R-Tank^{HD} modules, minimum cover for traffic rating consists of 20" total cover (including 12" of stone). Maximum cover allowable cannot exceed 7' from module top to finished grade.

The tanks are to be wrapped with an N080 Non-Woven Geotextile and the excavation is to be wrapped N080 Non-Woven Geotextile. The R-Tank Treatment rows are to be wrapped in 30 Mil. PVC Liner (Top and sides only) between two layers of N080 Non-Woven Geotextile. Two layers of S300 Woven fabric is to be placed under each treatment row section.

An appropriate number of inspection ports have been provided for proper maintenance and inspection.

Overall, Ferguson takes no exceptions to the location and application of the R-Tank system for this project.

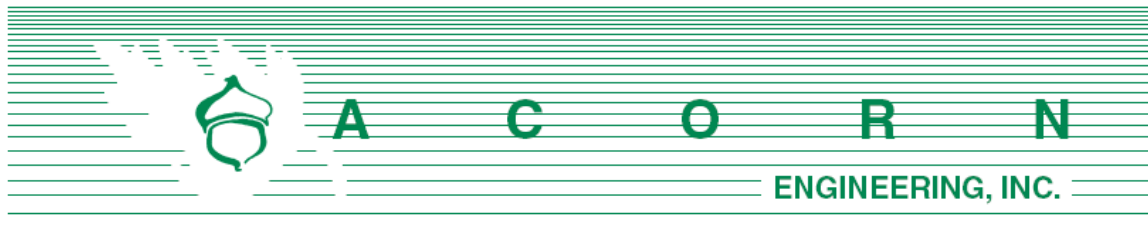
With regard to the installation, Ferguson will host a preconstruction meeting with the site contractor and will visit the site several times during the installation to ensure the installation is being conducted in accordance with our standard installation procedures and specifications.

Please review and contact me with any questions from your office.

We look forward to working with you on this project.

Sincerely,
Brett Keszczyk,
Green Stormwater Infrastructure (GSI) Engineer
Ferguson Waterworks

Cc: Rob Woodman, PE – Director of Engineering & Green Stormwater Infrastructure
Maggie Chase, PE – Green Stormwater Infrastructure Specialist (New England)



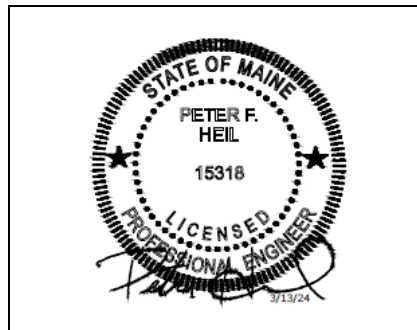
POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN

Prepared For:

**COMB Block Phase One, LP
970 Baxter Boulevard
Portland, ME 04103**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04102**



March 2024

RESPONSIBLE PARTY

The owner, COMB Block Phase One, LP and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Engineering Department prior to June 15th.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Peter Heil, PE
Acorn Engineering, Inc
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #15318
- Maine DEP – Certified in Maintenance & Inspection of Stormwater BMP's Cert
- Maine DEP – Certified Third-Party Inspector
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071

The inspection and maintenance criteria are based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

PURPOSE

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules. The applicant shall be responsible for retaining post construction and maintenance documents for at least 5 years.

OPERATION AND MAINTENANCE ACTIVITY

StormFilter Cartridges:

Inspection and Maintenance shall be conducted per the Contech StormFilter Inspection and Maintenance Procedures manual. General inspection and maintenance information for the StormFilter and StormFilter cartridges is provided below.



StormFilter Systems to be inspected at least once every six months, and filters maintained annually per the manufacturer's guidelines.

- Conducting inspections during a rain event is desirable to observe relative flow through the filter cartridges.
 - If cartridges are plugged with sediment and little flow is being discharged from the drainage pipes, then, maintenance is warranted, and the cartridges need to be replaced.
- In addition to the above circumstance, maintenance may also be warranted based on the following conditions.
 - >4" of sediment* accumulation on vault door.
 - >1/4" of sediment* accumulation on top of cartridge.
 - >4" of static water above cartridge bottom for more than 24 hours after end of rain event.
 - Plugged Media; pore space between media granules is absent.
 - StormFilter remain in bypass condition during average rainfall event.
 - Hazardous material release is reported in or around the StormFilter.
 - Pronounced scum line (>1/4" thick) is present above top cap.

If maintenance is to be performed, maintenance personnel shall follow all applicable OSHA safety regulations including but not limited to confined space entry. Maintenance shall be completed in agreement with the methods outlined in the Contech StormFilter Inspection and Maintenance Procedures. Any inspection or maintenance done to the StormFilter shall be accompanied by a detailed inspection/maintenance report.

*Sediment deposition depths and patterns within the StormFilter are likely to be quite different compared to systems without upstream storage and therefore shouldn't be used exclusively to evaluate a need for maintenance.

Subsurface R-Tank Storage Chambers:

Inspection and Maintenance shall be conducted per the R-Tank Operation, Inspection and Maintenance manual. General inspection and maintenance information for the R-Tank system is provided below.

R-Tank Systems to be inspected at least once annually (six months during the first year of operation). Inspections may be required more frequently for pre-treatment systems.

- All access points shall be examined including to complete a thorough inspection.
 - Inspection ports – Usually located centrally in the R-Tank System, are perforated columns designed to give the user a base-line sediment depth across the system floor.
 - Maintenance ports – Usually located near inlet and outlet connections, will likely have deeper deposits of heavier sediments.
 - Pipes – check for sediment or debris in the pipe connecting to the R-Tank
 - Manholes – Usually located at the inlet and outlet. If there is more than one location where stormwater enters the system than there will be additional manholes to inspect.
 - Manholes often include a sump below the invert of the pipe connecting to the R-Tank. Existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.



- If sediment or debris is observed in any of these structures the depth of the material shall be logged and kept on file.
- Maintenance of the R-Tank System should be conducted once sediment accumulation has reached 6" or 15% of the total system height.

If maintenance is to be performed, maintenance personnel shall follow all applicable OSHA safety regulations including but not limited to confined space entry. Maintenance shall be completed in agreement with the methods outlined in the R-Tank Operation, Inspection and Maintenance manual. Any inspection or maintenance done to the R-Tank System shall be accompanied by a detailed inspection/maintenance report.

Sweeping:

Annual sweeping of the driveways and parking areas following the snow melt for accumulated winter sand, if necessary. Appropriately dispose of all collected material.

General Operation:

Facility operations including but not limited to salt storage shall occur within the maintenance building or offsite at an appropriate area. Vehicle oil changes shall be performed inside the building or at an appropriate offsite area.

Catch Basins / Field Inlets:

Catch basins and field inlets shall be inspected to confirm that the structure is operating properly.

- Inspect the presence of accumulated sediment or debris any sediment shall be removed. The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Sediment shall be removed when accumulation is within 6 inches of the outfall pipe invert. Legally dispose of accumulated sediment and debris from the bottom of the basin, inlet grates, and inflow channels to the basin.
- If the basin outlet is designed with a hood to trap floatable materials (e.g. Snout), check to ensure watertight seal is working.
- Appropriately dispose of all collected material.

Sweeping:

Annual sweeping of the parking lot following the snow melt, if necessary. Appropriately dispose of all collected material.

Storm Drains:

The storm drain shall be annually inspected for the presence of accumulated sediment or debris. Any sediment shall be removed as required.



- The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Inspect and legally dispose of accumulated sediment and debris within the storm drains between basins. Liquids must be decanted on-site and returned to the catch basin.

Vegetated Areas and Embankments:

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (<90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the approved Site Plan

INSPECTION AND MAINTENANCE TABLE

Inspection and Maintenance Frequency	Spring or Yearly	Summer	Fall	As Necessary
Catch Basins	X			X
Vegetated Areas & Slopes	X			X
R-tank Storage Chambers	X		X	X
StormFilter Cartridges	X			X
Storm Drains	X			X
Sweeping	X			X

In the above chart, it is assumed the certified stormwater professional will inspect each item in the spring. Inspections outside of the spring visits can likely be conducted by the property manager.





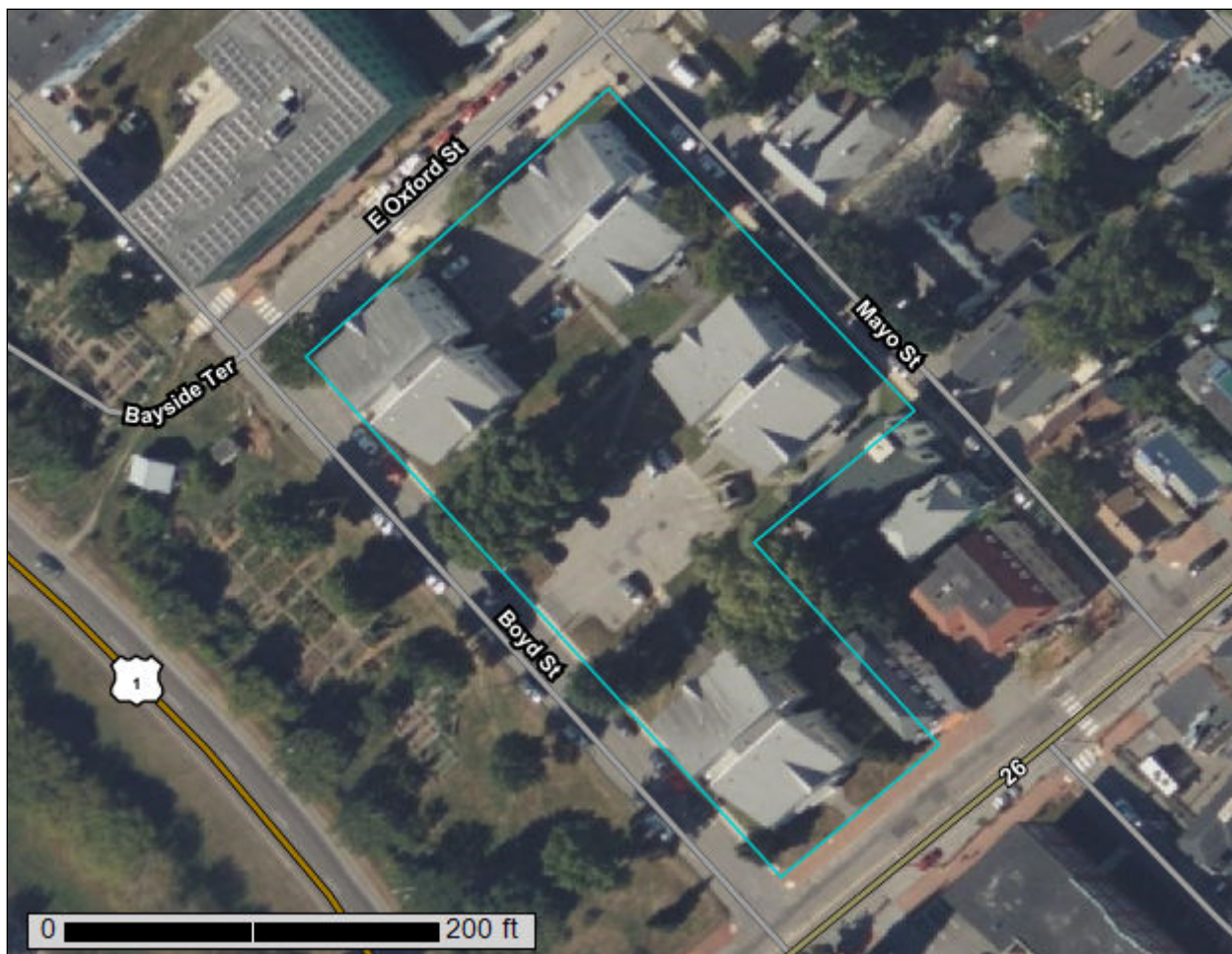
United States
Department of
Agriculture

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



January 11, 2024

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

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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.

Custom Soil Resource Report
Soil Map



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 20, Sep 5, 2023

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
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	0.1	5.1%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	1.5	94.9%
Totals for Area of Interest		1.5	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

DeB—Deerfield loamy fine sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2xfg9

Elevation: 0 to 1,190 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 145 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Deerfield and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Deerfield

Setting

Landform: Outwash deltas, outwash terraces, outwash plains, kame terraces

Landform position (three-dimensional): Tread

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex, linear, concave

Parent material: Sandy outwash derived from granite, gneiss, and/or quartzite

Typical profile

Ap - 0 to 9 inches: loamy fine sand

Bw - 9 to 25 inches: loamy fine sand

BC - 25 to 33 inches: fine sand

Cg - 33 to 60 inches: sand

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well 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: About 15 to 37 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Sodium adsorption ratio, maximum: 11.0

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: A

Ecological site: F144AY027MA - Moist Sandy Outwash

Hydric soil rating: No

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 deltas, outwash terraces, kames, kame terraces, moraines, eskers, outwash plains

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

Custom Soil Resource Report

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

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.

Custom Soil Resource Report

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.

Custom Soil Resource Report Map—Hydrologic Soil Group



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 20, Sep 5, 2023

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

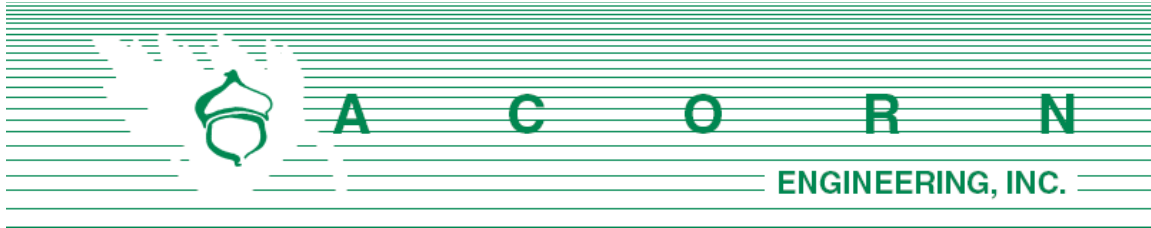
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	A	0.1	5.1%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	1.5	94.9%
Totals for Area of Interest			1.5	100.0%

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



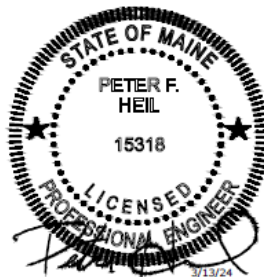
K. EROSION & SEDIMENTATION **CONTROL REPORT**

Prepared For:

**COMB Block Phase One, LP
970 Baxter Boulevard
Portland, ME 04103**

Prepared By:

**Acorn Engineering, Inc.
P.O. Box 3372
Portland, Maine 04104**



March 2024



INTRODUCTION

Acorn Engineering, Inc. has been retained by COMB Block Phase One LP, an entity of Portland Housing Authority, to provide civil engineering services for the proposed work located at 70 East Oxford Street, Portland, ME 04101. The project proposes to demolish the 4 existing multi-family buildings located on the existing parcel at 70 East Oxford development and construct a 50-unit multifamily housing building. The project also includes various parking, utility, and landscape improvements.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The proposed project is located at 70 East Oxford Street. An ALTA / NSPS Land Title Survey has been prepared by Owen Haskell, Inc. on December 22, 2023.

Abutting Uses:

- | | |
|-----------------|-----------------------------|
| ➤ North R6 Zone | Residential |
| ➤ East R7 Zone | Residential |
| ➤ South R6 Zone | Educational/Surface Parking |
| ➤ West R6 Zone | Open Space/Community Garden |

A large majority of the existing site is impervious surface that mainly includes buildings and parking lot. The average slope is moderate with grades dropping from the Southwest to Northeast across the site.

1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

Given the requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, the Class D (Medium Intensity) Soil Survey is adequate for the proposed project.

The area within and surrounding the project includes soil types listed in the table below.

Soils Type	Hydrologic Soil Group
Deerfield Loamy Fine Sand	A
Hinckley Loamy Sand	A



1.2 Existing Erosion Problems

There are no known erosion problems on the site.

1.3 Critical Areas

There are no critical areas within the project vicinity.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

2.0 **EROSION CONTROL MEASURES AND SITE STABILIZATION**

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.



- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.
- 2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.
- 2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.
- 2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.
- 2.1.5 Boyd Street and Oxford Street shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.
- 2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.
- 2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.
- 2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as



necessary. Sediments shall be removed when accumulation has reached ½ the design height.

- 2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.
- 2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.
- 2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

- 2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched.
- 2.2.2 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.
- 2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

- 3.1 The Erosion and Sedimentation Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

- 4.1 Erosion Control Details and Specifications are included in the plan set.



5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and



either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the



seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a “storm event”. A “storm event” shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP’s) shall inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.



6.2 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Peter Heil, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #15318
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's
- Maine DEP – Certified Third-Party Inspector
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #7071



The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.

7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence earthwork operations, associated with the building construction.
5. Commence installation of utilities & drainage infrastructure.
6. Continue earthwork and grading to subgrade as necessary for construction.
7. Complete installation of drainage infrastructure, as well as other utility work.
8. Complete remaining earthwork operations.
9. Install sub-base and base gravels in paved areas.
10. Install paving, curbing and brickwork.
11. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
12. Once the site is stabilized, 90% catch of grass has been obtained, or mulching of landscape areas is complete, remove all temporary erosion control measures.
13. Touch up areas without a vigorous catch of grass with loam and seed.
14. Complete site signage and striping.
15. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.



8.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan



TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.



PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

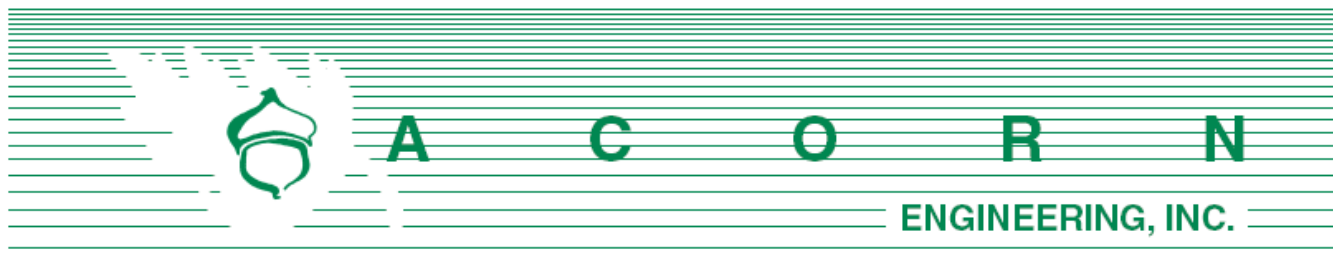
Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.





Chief Gautreau
City of Portland Fire Department
380 Congress St.
Portland, ME 04101

March 13, 2024

Subject: 70 East Oxford Street – Fire Department Checklist
Section L of Major Site Plan Application

On behalf of COMB Block Phase One, LP, the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant:

COMB Block Phase One, LP
970 Baxter Boulevard
Portland, ME 04103
(207) 773-4753

2. Name address, telephone number of architect:

Ryan Senatore Architecture
500 Congress Street, Suite #2
Portland, Maine 04101
207-838-0927

3. Proposed uses of any structures [NFPA and IBC classification]

NFPA: Apartment / IBC: R-2

4. Square footage of all structures, including decks [total and per story]

Existing (4 buildings)

Existing Building		
1 st Floor	Approx. 2,170	sf
2 nd Floor	Approx. 4,132	sf
3 rd Floor	Approx. 4,132	sf
Total (Single Building)	Approx. 10,434	sf
Total (4 Buildings)	Approx. 41,736	sf

Proposed

Existing Building		
1 st Floor	5,359	sf
2 nd Floor	10,887	sf
3 rd Floor	10,919	sf
4 th Floor	10,919	sf
5 th Floor	10,919	sf
6 th Floor	10,919	sf
Total	59,922	sf

5. Elevation of all structures

The proposed 6-story structure's height will be below the allowable 75 feet within the R-7 zoning district, which includes the affordable housing height bonus. Please refer to the building elevations provided by the Architect for additional information.

6. Proposed fire protection of all structures

The proposed buildings will have a sprinkler system per code. Fire flows and requirements for system storage or booster pumping are subject to the fire designer which will be performed prior to the request for a building permit.

7. Hydrant locations

- a. There are two existing hydrants on the Northern side of the parcel. One is located west of the parcel on the corner of Boyd Street and East Oxford Street the other is located North of the parcel on the corner of Mayo Street and East Oxford Street. Additionally, there are three hydrants located on Cumberland Ave (see hydrant map below). Hydrant flow data from the Portland Water District once received may be made available to the Fire Department upon request.





8. Water main size and location

The proposed residential building will be serviced by a proposed 4" domestic water service connection as well as a 6" fire suppression service from the existing water main within Oxford Street.

9. Access to all structures [min. 2 sides]

Access to the structure is provided directly via Boyd Street and East Oxford Street as well as from the parking lot off of Boyd Street and the parking lot off of East Oxford Street.

NFPA 1 – Chapter 18 Fire Department Access and Water Supply

18.2 Fire Department Access:

The project site is located in a heavily developed area and is fronted by a public street. The following pavement street width is currently available:

- Boyd Street: 41.25 feet
- East Oxford Street: 49.5 feet

Per NFPA 1 – Chapter 18.2.3.3.1, there will be public street access within 50 feet of at least one exterior door. Per NFPA 1 – Chapter 18.2.3.2.2.1, all first story floors shall be located not more than 450 feet from a Fire Department access road.



City of Portland Technical Manual – Section 3 Public Safety

3.4.1 Every dead-end roadway more than one hundred fifty (150') feet in length shall provide a turnaround at the closed end. Turnarounds shall be designed to facilitate future street connectivity and shall always be designed to the right (refer to Figure I-5).

Response: There are no dead-end roadway conditions more than one hundred fifty feet in length included as part of the proposed project.

3.4.2 Where possible, developments shall provide access for Fire Department vehicles to at least two sides of all structures. Access may be from streets, access roads, emergency access lanes, or parking areas.

Response: Access to structures onsite is provided directly from Boyd Street/East Oxford Street and from the internal parking lot. See the Site Plan for additional information.

3.4.3 Building setbacks, where required by zoning, shall be adequate to allow for emergency vehicle access and related emergency response activities and shall be evaluated based on the following factors:

- *Building Height.*
- *Building Occupancy.*
- *Construction Type.*
- *Impediments to the Structures.*
- *Safety Features Provided.*

Response: The proposed development layout has contemplated emergency access conditions and provides for safe and efficient access along the public street for emergency vehicles.

3.4.4. Fire Dept. access roads shall extend to within 50' of an exterior door providing access to the interior of the structure.

Response: The building will be provided with exterior doors that will be within 50' of a Fire Department access route, namely Boyd Street or East Oxford Street.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Response: The proposed site maintains the required clearance height of nine feet in all cases.

3.4.6. Elevators shall be sized to accommodate an 80 x 24-inch stretcher.

Response: elevators will be sized to accommodate an 80 x 24-inch stretcher.

3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.



Response: The site's address is 70 East Oxford Street in Portland Maine. The final address locations will be coordinated with public works as part of the proposed subdivision application process.

Thank you for your review. Please let me know if you have any additional questions or comments.
Sincerely,



Peter Heil, P.E.
Project Manager
Acorn Engineering, Inc.



M. Calculation of Wastewater Flowrate for 70 East Oxford Street Redevelopment

On behalf of Portland Housing Authority, we are pleased to submit the following request for DPW's ability to serve at a proposed development located at 70 East Oxford Street in Portland, Maine. The existing development at 70 East Oxford consists of 4 multi-family buildings on a 1.53 acre parcel on a city block confined by Oxford Street, Mayo Street, Boyd, Street, and Cumberland Avenue. The proposed development will subdivide the parcel into two separate parcels and construct a new residential building on the west corner of the lot, abutting Oxford & Boyd Streets. The proposed building will consist of 50 residential units; 10 1-bedroom, 16 2-bedroom, 19 3-bedroom, and 5 4-bedroom units.

It is our understanding that there is an existing 18" PVC sanitary sewer line that flows west along Boyd Street. The project proposes to install a new 6" sanitary service to connect to this sanitary sewer main just south of the intersection of Oxford and Boyd Street intersection. Based upon Section 4 of the Maine Subsurface Wastewater Disposal Rules and architectural plans to date, the project anticipates the following design flows:

Estimate of Anticipated Daily Flows				
Development	Unit Type	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow				
Multiple Family Dwelling Units	2-Bedroom	10	210 – 2 Bedroom	2,100
Total Gallons per Day (Existing)				2,100
Proposed Flow				
Multiple Family Dwelling units	1-Bedroom	10	120 – 1 Bedroom	1,200
Multiple Family Dwelling units	2-Bedroom	16	210 – 2 Bedroom	3,360
Multiple Family Dwelling	3-Bedroom	19	300 – 3 bedroom	5,700
Multiple Family Dwelling	4-Bedroom	5	390 – 4 bedroom	1,950
Total Gallons per Day (Proposed)				12,210
Net Change				10,110 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

The proposed project is anticipated to increase the net flow by approximately 10,110 gallons per day (GPD).

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
212 Canco Road
Portland, Maine 04103



Bradley Roland, P.E.
Water Resources Division
Department of Public Works
212 Canco Road
Portland, ME 04103

Date: 12/22/23

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 70 E Oxford Street, Portland, Maine 04103

Chart Block Lot Number: Chart 22, Block H1, Lot 1

Proposed Use: Affordable Housing
Previous Use: Affordable Housing
Existing Sanitary Flows: 2,100 GPD
Existing Process Flows: 0 GPD
Description and location of City sewer that is to
receive the proposed building sewer lateral.

Boyd Street (18" PVC)

Site Category
Commercial (see part 4 below)
Industrial (complete part 5 below)
Governmental
Residential
Other (specify)

✓

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Matthew Grooms Phone: 207-874-8719
Owner/Developer Name: COMB Block Phase One, LP - Sarah Tatarczuk
Owner/Developer Address: 970 Baxter Boulevard, Portland, Maine 04101
Phone: 207-221-8034 Fax: _____ E-mail: statarczuk@porthouse.org
Engineering Consultant Name: Acorn Engineering - Peter F. Heil, PE
Engineering Consultant Address: 500 Washington Avenue, Portland, Maine, 04103 (Suite #2)
Phone: 207-775-2655 Fax: _____ E-mail: pheil@acorn-engineering.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: Net increase: 10,110 GPD
Peaking Factor/ Peak Times: Diurnal
Specify the source of design guidelines: (i.e. "Handbook of Subsurface Wastewater Disposal in Maine,"
"Plumbers and Pipe Fitters Calculation Manual," Portland Water District Records, Other (specify)
Handbook of Subsurface Wastewater Disposal in Maine

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: N/A
Size of External Grease Interceptor: _____
Retention Time: _____
Peaking Factor/ Peak Times: _____

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: N/A GPD
Do you currently hold Federal or State discharge permits? Yes No
Is the process wastewater termed categorical under CFR 40? Yes No
OSHA Standard Industrial Code (SIC): _____ (<http://www.osha.gov/oshstats/sicser.html>)
Peaking Factor/Peak Process Times: _____

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

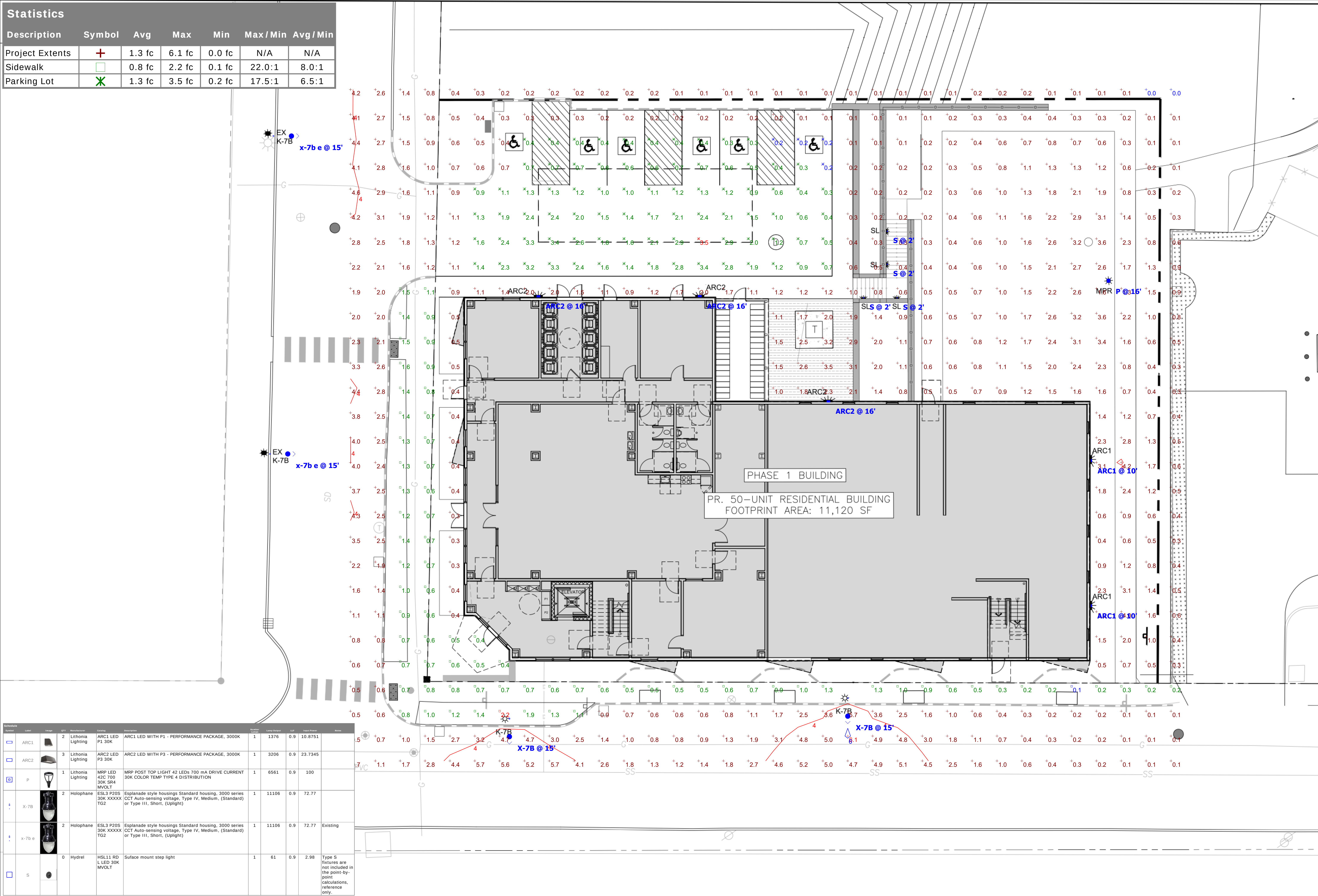
N. Lighting

All new construction will have exterior lighting at egresses and will be down shaded and dark sky compliant. Please refer to the Photometric Plan and attached cut sheets for additional information.



C:\Users\DRY\OneDrive\Documents\OneDrive\DRY\LA\Project\COMB\CAD\BASE COMB 24 0307 Rev.dwg dym 13/02/2024

Statistics						
Description	Symbol	Avg	Max	Min	Max / Min	Avg / Min
Project Extents	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Sidewalk	□	0.8 fc	2.2 fc	0.1 fc	22.0:1	8.0:1
Parking Lot	✕	1.3 fc	3.5 fc	0.2 fc	17.5:1	6.5:1



Symbol	Label	Image	Qty	Manufacturer	Color	Description	Number of Lamps	Lamp Output	ULF	Input Power	Notes
ARC1	ARC1		2	Lithonia Lighting	ARC1 LED P1 30K	ARC1 LED WITH P1 - PERFORMANCE PACKAGE, 3000K	1	1376	0.9	10.8751	
ARC2	ARC2		3	Lithonia Lighting	ARC2 LED P3 30K	ARC2 LED WITH P3 - PERFORMANCE PACKAGE, 3000K	1	3206	0.9	23.7345	
P	P		1	Lithonia Lighting	MRP LED 42C 700 30K SR4 MVOLT	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 30K COLOR TEMP TYPE 4 DISTRIBUTION	1	6561	0.9	100	
X-7B	X-7B		2	Holophane	ESL3 P20S 30K XXXXX T52	Esplanade style housings Standard housing, 3000 series CCT Auto-sensing voltage, Type IV, Medium, (Standard) or Type III, Short, (Uplight)	1	11106	0.9	72.77	
X-7B e	X-7B e		2	Holophane	ESL3 P20S 30K XXXXX T52	Esplanade style housings Standard housing, 3000 series CCT Auto-sensing voltage, Type IV, Medium, (Standard) or Type III, Short, (Uplight)	1	11106	0.9	72.77	Existing
S	S		0	Hydrel	HSL11 RD L LED 30K MVOLT	Surface mount step light	1	61	0.9	2.98	Type S fixtures are not included in the point-by-point calculations, reference only.

Prepared For:
COMB Block Phase One, LP

Prepared By:
DryLA
dry landscape architecture, l.l.c
31 miller ave.
biddeford, me 04005

Date:
MARCH 12, 2024

Issued For:
PERMITTING

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Title:
LIGHTING PLAN

70
EAST OXFORD
STREET
Portland ME 04103

Revisions:

North:

Sheet No.:
L3

Scale: 1" = 10'-0"

NOTE: This drawing is PRELIMINARY REVIEW ONLY. It is NOT intended for use as a construction document.



ARC1 LED

Architectural Wall Luminaire



Catalog Number ARC1 LED P1 30K MVOLT PE DBLXD

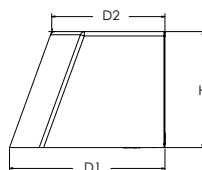
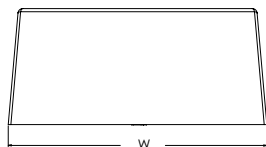
Notes

Type ARC1

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 6.5"
Depth (D2): 4.75"
Height: 5"
Width: 11"
Weight: 7 lbs
 (without options)



Introduction

The Lithonia Lighting ARC LED wall-mounted luminaires provide both architectural styling and visually comfortable illumination while providing the high energy savings and low initial costs for quick financial payback.

ARC1 delivers up to 3,000 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. The compact size of ARC1, with its integrated emergency battery backup option, is ideal for over-the-door applications.

ARC LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Approximate Lumens (4000K)				
			P1	P2	P3	P4	P5
ARC1 LED	4W	--	1,500	2,000	3,000	--	--
ARC2 LED	4W	8W	1,500	2,000	3,000	4,000	6,500

Ordering Information

EXAMPLE: ARC1 LED P2 40K MVOLT PE DDBXD

Series	Package	Color Temperature	Voltage	Options	Finish
ARC1 LED	P1 1,500 Lumens	30K 3000K	MVOLT 347 ¹	E4WH Emergency battery backup, CEC compliant (4W, 0°C min) ¹	DDBXD Dark bronze
	P2 2,000 Lumens	40K 4000K		PE Button type photocell for dusk-to-dawn operation	DBLXD Black
	P3 3,000 Lumens	50K 5000K		DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately) ²	DNAXD Natural aluminum
				SPD6KV 6kV surge protection	DWHXD White
				FAO Field adjustable light output device. Allows for easy adjustment to the desired light levels, from 20% to 100% ²	DSSXD Sandstone
					DDBTXD Textured dark bronze
					DBLBXD Textured black
					DNATXD Textured natural aluminum
					DWHGXD Textured white
					DSSTXD Textured sandstone

Accessories

Ordered and shipped separately.

WSBBW DDBXD U

Surface - mounted back box (specify finish)

NOTES

- 347V not available with E4WH.
- FAO not available with DMG.



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ARC1 LED
 Rev. 03/02/22

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	30K (3000K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)				
		Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P1	11W	1,376	127	0	0	0	1,454	134	0	0	0	1,464	135	0	0	0
P2	17W	2,035	121	1	0	1	2,151	128	1	0	1	2,165	129	1	0	1
P3	25W	2,859	117	1	0	1	3,021	123	1	0	1	3,041	124	1	0	1

Electrical Load

Performance Package	System Watts	Current (A)				
		120V	208V	240V	277V	347V
P1	11W	0.111	0.061	0.053	0.047	0.045
P2	17W	0.139	0.081	0.071	0.063	0.060
P3	25W	0.208	0.122	0.108	0.097	0.081

Lumen Output in Emergency Mode (4000K, 80 CRI)

Option	Lumens
E4WH	620

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
10°C	50°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

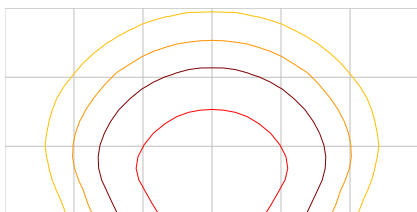
Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	0.97	>0.96	>0.95	>0.91

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting ARC LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND

0.25 fc
0.5 fc
1.0 fc
3.0 fc



MH = 10ft
Grid = 10ft x 10ft

ARC1 LED P3 40K



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ARC1 LED
Rev. 03/02/22

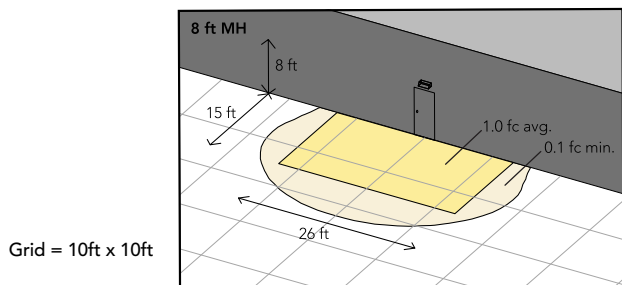
Emergency Egress Options

Emergency Battery Backup

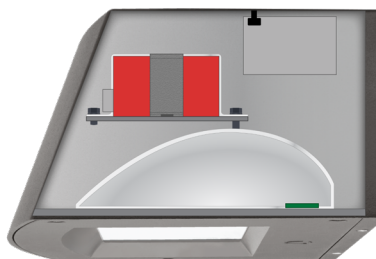
The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90 minutes.

Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The example below shows illuminance of 1 fc average and 0.1 fc minimum in emergency mode.



ARC1 LED 40K MVOLT E4WH



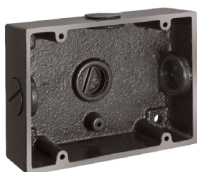
Self-contained solution for clean aesthetic

Mounting, Options & Accessories



E4WH – 4W Emergency Battery Backup

D = 6.5"
H = 5"
W = 11"



BBW – Standard Back Box

D = 1.5"
H = 4"
W = 5.5"

For surface conduit applications.
3/4" conduit entry holes.

FEATURES & SPECIFICATIONS

INTENDED USE

The clean architectural shape of the ARC LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long-life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION

The die-cast aluminum housing and door act as heat sinks to optimize thermal transfer from the light engine and driver to promote long-life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH

Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Recessed lens to cut off high angle light and reduce glare. Combination of diffused lens and reflector design has low surface brightness creating a visually comfortable environment with great distribution. LEDs are fully hidden from view to eliminate pixelization and harsh glare. The ARC LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine consists of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long-life (up to L91/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire is 0-10V dimmable.

INSTALLATION

The universal wall plate, supplied with the luminaire, fits multiple size junction boxes and supports the luminaire during wiring for easy installation. Built-in wet location wiring compartment on the luminaire to accommodate wiring connections for where there is no junction box. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International DarkSky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. Rated for -40°C minimum ambient.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



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ARC1 LED
Rev. 03/02/22



ARC2 LED

Architectural Wall Luminaire



Catalog Number ARC2 LED P3 30K MVOLT PE DBLXD

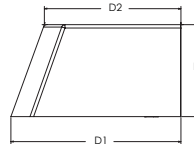
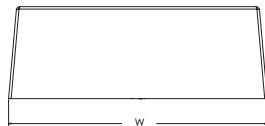
Notes

Type ARC2

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 9.25"
Depth (D2): 7.5"
Height: 5"
Width: 14"
Weight: 11 lbs
 (without options)



Introduction

The Lithonia Lighting ARC LED wall-mounted luminaires provide both architectural styling and visually comfortable illumination while providing the high energy savings and low initial costs for quick financial payback.

ARC2 delivers up to 6,500 lumens with a soft, non-pixelated light source, creating a visually comfortable environment. It offers integrated emergency battery backup options, including an 8W cold temperature option, making it suitable for pedestrian scale applications in any environment.

ARC LED Family Overview

Luminaire	Standard EM, 0°C	Cold EM, -20°C	Approximate Lumens (4000K)				
			P1	P2	P3	P4	P5
ARC1 LED	4W	--	1,500	2,000	3,000	--	--
ARC2 LED	4W	8W	1,500	2,000	3,000	4,000	6,500

Ordering Information

EXAMPLE: ARC2 LED P2 40K MVOLT PE DDBXD

Series	Package	Color Temperature	Voltage	Options	Finish
ARC2 LED	P1 1,500 Lumens	30K 3000K	MVOLT 347 ¹	E4WH Emergency battery backup, CEC compliant (4W, 0°C min) ¹	DDBXD Dark bronze
	P2 2,000 Lumens	40K 4000K		E8WC Emergency battery backup, CEC compliant (8W, -20°C min) ¹	DBLXD Black
	P3 3,000 Lumens	50K 5000K		PE Button type photocell for dusk-to-dawn operation	DNAXD Natural aluminum
	P4 4,000 Lumens			DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately) ²	DWHXD White
	P5 6,500 Lumens			SPD6KV 6kV surge protection ¹	DSSXD Sandstone
				FAO Field adjustable light output device. Allows for easy adjustment to the desired light levels, from 20% to 100% ²	DDBTXD Textured dark bronze
					DBLBXD Textured black
					DNATXD Textured natural aluminum
					DWHGXD Textured white
					DSSTXD Textured sandstone

Accessories

Ordered and shipped separately.

WSBBW DDBXD U Surface - mounted back box (specify finish)

NOTES

- 347V not available with E4WH, E8WC and SPD6KV.
- FAO not available with DMG.



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ARC2 LED
 Rev. 03/02/22

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	30K (3000K, 80 CRI)					40K (4000K, 80 CRI)					50K (5000K, 80 CRI)				
		Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
P1	11W	1,502	142	0	0	1	1,587	150	0	0	1	1,598	151	0	0	1
P2	16W	2,250	140	0	0	1	2,377	147	0	0	1	2,393	148	0	0	1
P3	24W	3,206	135	0	0	1	3,387	143	0	0	1	3,410	144	0	0	1
P4	30W	3,903	128	1	0	1	4,124	136	1	0	1	4,152	136	1	0	1
P5	51W	6,260	122	1	0	1	6,615	129	1	0	1	6,659	130	1	0	1

Electrical Load

Performance Package	System Watts	Current (A)				
		120V	208V	240V	277V	347V
P1	11W	0.090	0.055	0.049	0.046	0.045
P2	16W	0.141	0.081	0.072	0.064	0.059
P3	24W	0.202	0.117	0.103	0.091	0.079
P4	30W	0.280	0.162	0.144	0.128	0.095
P5	51W	0.471	0.272	0.239	0.212	0.158

Lumen Output in Emergency Mode (4000K, 80 CRI)

Option	Lumens
E4WH	693
E8WC	1,413

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
10°C	50°F	1.03
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a 25°C ambient, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11). To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	>0.96	>0.93	>0.88

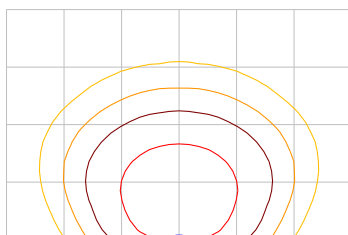
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting ARC LED homepage. Tested in accordance with IESNA LM-79 and LM-80 standards.

LEGEND

0.25 fc
0.5 fc
1.0 fc
3.0 fc

MH = 15ft
Grid = 15ft x 15ft



ARC2 LED P3 40K



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ARC2 LED
Rev. 03/02/22

Emergency Egress Options

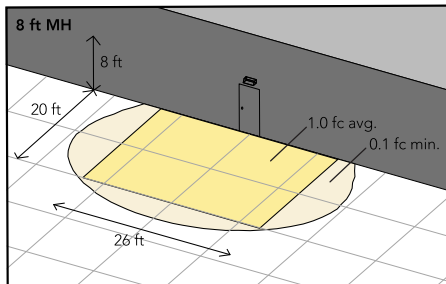
Emergency Battery Backup

The emergency battery backup is integral to the luminaire — no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product. All emergency battery backup configurations include an independent secondary driver with an integral relay to immediately detect loss of normal power and automatically energize the luminaire. The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time normal power is lost and maintain a minimum of 60% of the light output at the end of 90 minutes.

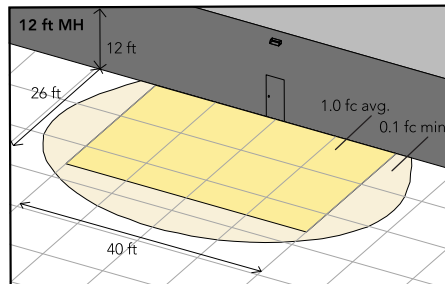
Applicable codes: NFPA 70/NEC – section 700.16, NFPA 101 Life Safety Code Section 7.9

The example below shows illuminance of 1 fc average and 0.1 fc minimum in emergency mode.

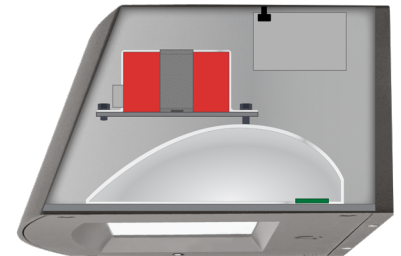
Grid = 10ft x 10ft



ARC2 LED 40K MVOLT E4WH



ARC2 LED 40K MVOLT E8WC



Self-contained solution for clean aesthetic

Mounting, Options & Accessories

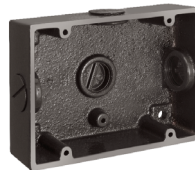


E4WH and E8WC – Emergency Battery Backup

D = 6.5"

H = 5"

W = 11"



BBW – Standard Back Box

D = 1.5"

H = 4"

W = 5.5"

For surface conduit applications.
3/4" conduit entry holes.

FEATURES & SPECIFICATIONS

INTENDED USE

The clean architectural shape of the ARC LED was designed for applications such as hospitals, schools, malls, restaurants, and commercial buildings. The long-life LEDs and driver make this luminaire nearly maintenance-free.

CONSTRUCTION

The die-cast aluminum housing and door act as heat sinks to optimize thermal transfer from the light engine and driver to promote long-life. The die-cast door frame is fully gasketed with a one-piece solid silicone gasket to keep out moisture and dust, providing an IP65 rating for the luminaire.

FINISH

Exterior painted parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum, sandstone and white. Available in textured and non-textured finishes.

OPTICS

Recessed lens to cut off high angle light and reduce glare. Combination of diffused lens and reflector design has low surface brightness creating a visually comfortable environment with great distribution. LEDs are fully hidden from view to eliminate pixelization and harsh glare. The ARC LED has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine consists of high-efficiency LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long-life (up to L88/100,000 hours at 25°C). The electronic driver has a power factor of >90%, THD <20%. Luminaire is 0-10V dimmable.

INSTALLATION

The universal wall plate, supplied with the luminaire, fits multiple size junction boxes and supports it during wiring for easy installation. Built-in wet location wiring compartment on the luminaire to accommodate wiring connections for applications with no junction box. Design can withstand up to a 1.5 G vibration load rating per ANSI C136.31.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International DarkSky Association (IDA) Fixture Seal of approval (FSA) is available for all products on this page utilizing 3000K color temperature only. Rated for -40°C minimum ambient.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

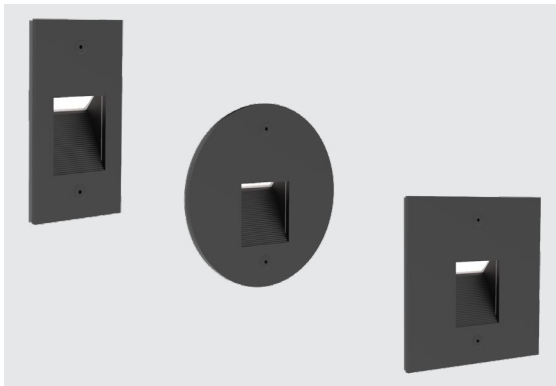
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.



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ARC2 LED
Rev. 03/02/22



HSL11

Static White and Static Color Step Light 11

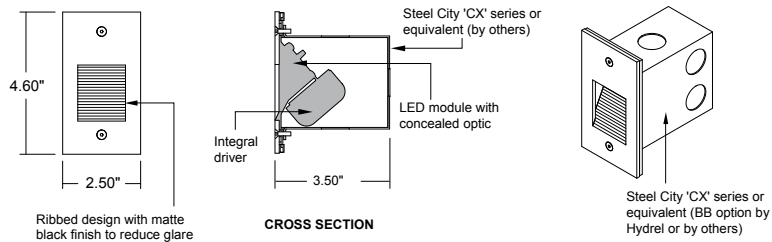
HIGHLIGHTS

- Integral Driver
- Short, Medium, and Long throw distributions
- Standard 0-10V dimming option
- Die-cast housing with solid aluminum, brass, or stainless steel faceplate
- Wet location listed
- Back Box provided by Hydrel or by others
- Suitable for concrete pour if BB option is chosen or Steel City back box is used

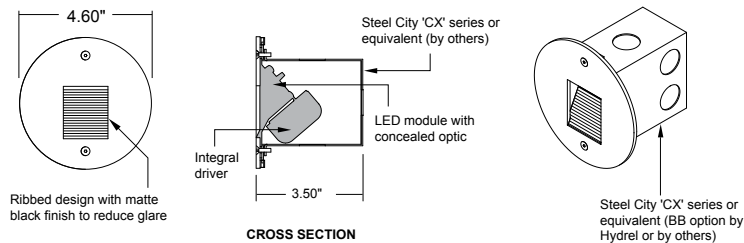
5
YEAR
warranty


DIMENSIONS

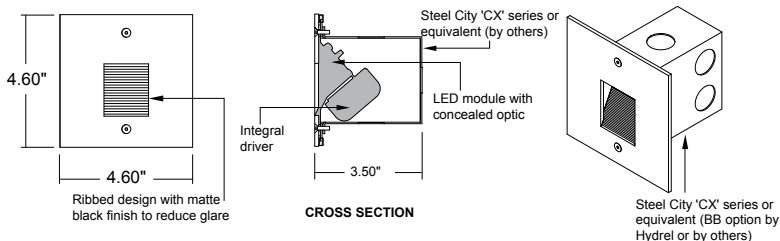
RECTANGLE



ROUND



SQUARE



LUMEN PACKAGES

Distribution	Delivered Lumens	Input Watts	Lumens/Watt
Short	36	3	12
Medium	42	3	14
Long	54	3	18

Performance data based upon 30K LED 80CRI

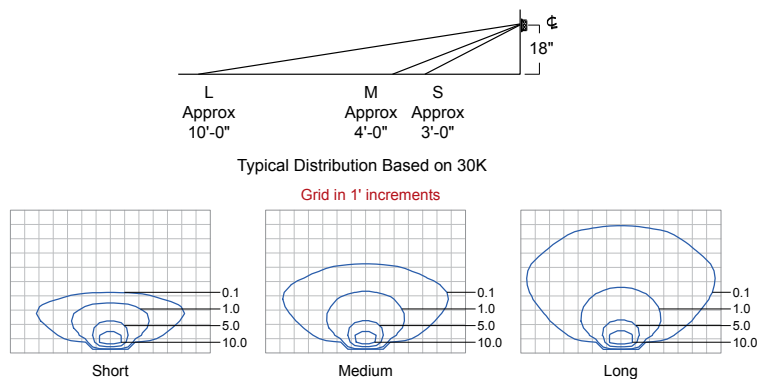
ORDERING INFORMATION

EXAMPLE: HSL11 SQ LED 27K MVOLT L MIN5 BRB

Series*	Shape*	Source*	Color Temperature*	Voltage*	Distribution*
HSL11 Step Light 11	RECT Rectangle RD Round SQ Square	LED	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	MVOLT Multi-Volt 120V thru 277V	L Long Throw M Medium Throw S Short Throw
Dimming	OPTION	Finish*			
MIN5 Dimming Driver	BB Back Box Note: Include BB if you need a back box, otherwise back box is by others. Note: Suitable for concrete pour if BB option is chosen or Steel City back box is used	BRB Brushed Brass BBP Brushed Brass Paint BRSS Brushed Stainless Steel LBPS Light Bronze Paint Smooth PBR Polished Brass PSS Polished Stainless Steel SGB Semi Gloss Black SGW Semi Gloss White CF Custom Finish RALTB Ral Paint Finishes Note: RALTB for pricing only, replace with applicable RAL call out when ready to order. See the RALBROCHURE for available options. It is recommended that Hydrel products only use textured paint.			

Note: * is a required field

PERFORMANCE DATA



Lumen Multiplier Table for CCT

CCT	Multiplier
27K	0.888
30K	1.000
35K	1.031
40K	1.047
50K	1.056
AMBLW	0.263
RED	0.318
GREEN	0.546
BLUE	0.283

BUG RATING CHART

SERIES	CCT	Distribution	BUG Rating
HSL11	30K	S Short Throw	B0U0G0

Note: For full report see IES file.

Expected Life: Static White LED: L70 @ 60,000 hours
Static Color LED: L70 @ 60,000 hours

OPERATING TEMPERATURE: -40°C through 45°C

WIRING & DIMMING

POWER SUPPLY / DIMMING

Dimming drivers require a 0-10V fluorescent-type dimming control.

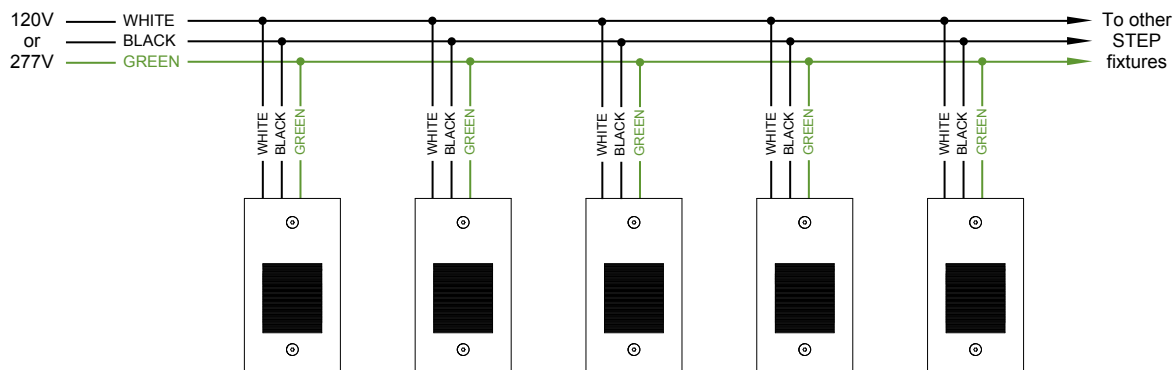
Read all instructions before installation. Do not make live connections!

NON-DIMMING INSTALLATIONS (For non-dimming, cap off the grey and purple wires separately)

Connect STEP WHITE wire to power NEUTRAL.

Connect STEP BLACK wire to power HOT.

Connect STEP GREEN wire to power GROUND.



DIMMING INSTALLATIONS

The integral dimming driver is designed to the 0-10V IEC dimming specification 60929 and is compatible with common 0-10V dimmers and dimming systems.

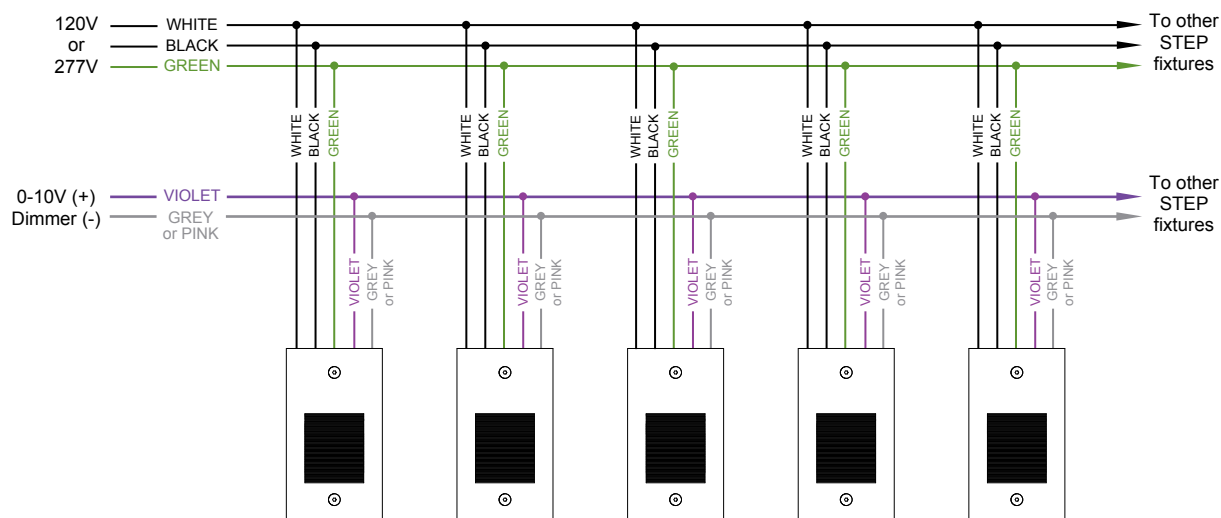
Do NOT connect line voltage to dimming input wires.

Connect STEP WHITE wire to power NEUTRAL.

Connect STEP BLACK wire to power HOT.

Connect STEP VIOLET wire to POSITIVE INPUT of Dimming Control.

Connect STEP GREY or PINK wire to NEGATIVE INPUT of Dimming Control.



SPECIFICATIONS & FEATURES

Construction

Die-cast housing with solid aluminum, brass, or stainless steel faceplate.
Two visible fasteners.

Source

Light source is a single powerful LED available in five static white color temperatures/80CRI & four colored LED choices. All within 3MacAdam ellipse

Optics

Concealed optic is available in three light distribution patterns. Short for narrow corridors, Medium for wide corridors, and Long for large area illumination.

Electrical

Integral electronic driver for 120 through 277v/50-60Hz input. Standard 0-10V dimming to 5%. THD: <20%. PFC: > 0.90. Complies to FCC CFR Title 47 Part 15, Class B at 120v and Class A at 277v EMI noise rating.

Mounting

Fixture designed to mount to a Steel City CX single gang deep junction box (BB option from Hydrel or by others) or equivalent.

Lens

Extruded clear acrylic optic lens concealed in reflector housing.

Circuiting

Single circuit

Environment

Wet location.

BUY AMERICAN ACT: This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to www.acuitybrands.com/resources/buy-american for additional information.

Listing

ETL / cETL

Finish

Recessed surfaces have a ribbed design with matte black finish to reduce glare. Faceplates are available in four metal finishes with protective clear coat or one of four polyester powder coat painted finishes.

Warranty

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:

www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.



MRP LED

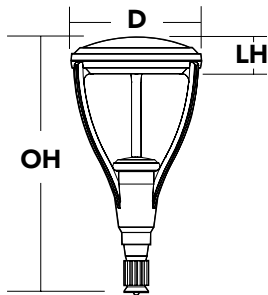
LED Area Luminaire



OMERO

Specifications

EPA:	1.125 ft ² (0.105 m ²)
Luminaire Height:	6-3/8" (16.2 cm)
Overall Height:	32" (81.3 cm)
Diameter:	18" (45.7 cm)
Weight (max):	37.5 lbs (17 kg)



Catalog Number MRP LED 42C 700 40K SR4 MVOLT DBLXD

Notes With RTA 16' Pole

Type P

Hit the Tab key or mouse over the page to see all interactive elements.

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and system-level interoperability.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is A+ Certified when ordered with DTL® controls marked by a **shaded background**. DTL DLL equipped luminaires meet the A+ specification for luminaire to photocontrol interoperability¹
- This luminaire is part of an A+ Certified solution for ROAM® control networks, providing out-of-the-box control compatibility with simple commissioning, when ordered with drivers and control options marked by a **shaded background**¹

To learn more about A+, visit www.acuitybrands.com/aplus.

1. See ordering tree for details.
2. A+ Certified Solutions for ROAM require the order of one ROAM node per luminaire. Sold Separately: [Link to Roam](#); [Link to DTL DLL](#)



A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: MRP LED 42C 700 40K SR5 MVOLT DDBXD

MRP LED												
Series	LEDs	Drive current		Color temperature		Distribution		Voltage	Mounting			
MRP LED	42C 42 LEDs (one engine)	350	350mA	30K	3000K	SR2	Type II	MVOLT ¹	277 ²	Shipped included	Shipped separately ³	
		530	530mA	40K	4000K	SR3	Type III	120 ²	347 ²	(blank) Fits 4" OD round pole	MRPT30 3-1/2" tenon slipfitter	
		700	700mA	50K	5000K	SR4	Type IV	208 ²	480 ²	Shipped separately ³	MRPT35 4" tenon slipfitter	
		1000	1000mA (1A)			SR5	Type V	240 ²		MRPT20 2-3/8" tenon slipfitter	MRPF3 3" OD round pole adapter	
										MRPT25 2-7/8" tenon slipfitter	MRPF5 5" OD round pole adapter ⁴	
Control options						Other options			Finish <i>(required)</i>			
Shipped installed												
PER	NEMA twist-lock receptacle only (control ordered separate)	DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) ⁶			SF	Single fuse (120, 277, 347V) ²		DDBXD	Dark bronze	DDBTXD	Textured dark bronze
PER5	Five-wire receptacle only (control ordered separate) ⁵					DF	Double fuse (208, 240, 480V) ²		DBLXD	Black	DBLTXD	Textured black
PER7	Seven-wire receptacle only (control ordered separate) ⁵							DNAXD	Natural aluminum	DNATXD	Textured natural aluminum	
								DWHXD	White	DWHGXD	Textured white	



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MRP-LED
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Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ⁷
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ⁷
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ⁷
DSHORT S8K U	Shorting cap ⁷
MRPT20 DDBXD U	2-3/8" tenon slipfitter (specify finish)
MRPT25 DDBXD U	2-7/8" tenon slipfitter (specify finish)
MRPT30 DDBXD U	3-1/2" tenon slipfitter (specify finish)
MRPT35 DDBXD U	4" tenon slipfitter (specify finish)
MRPF3 DDBXD U	3" OD round pole adapter (specify finish)
MRPF5 DDBXD U	5" OD round pole adapter (specify finish) ³

For more control options, visit [DTL](#) and [ROAM](#) online.

NOTES

- 1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- 2 Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- 3 Also available as a separate accessory; see Accessories information at left.
- 4 Maximum pole wall thickness is 0.156".
- 5 If ROAM® node required, it must be ordered and shipped as a separate line item from Acuity Brands Controls.
- 6 DMG not available with PER, PER5 or PER7.
- 7 Requires luminaire to be specified with PER option. Ordered and shipped as a separate line item.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

LEDs	Drive Current (mA)	System Watts	Dist. Type	30K					40K					50K				
				Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
42C (42 LEDs)	530	75W	SR2	5,456	1	2	1	73	6,605	1	2	1	88	6,671	1	2	1	89
			SR3	5,436	1	1	1	72	6,581	1	1	2	88	6,647	1	1	2	89
			SR4	5,399	1	1	1	72	6,537	1	1	2	87	6,602	1	1	2	88
			SR5	5,748	3	1	3	77	6,959	3	1	3	83	7,029	3	1	3	94
	700	100W	SR2	6,630	1	2	1	66	8,026	2	2	2	80	8,106	2	2	2	81
			SR3	6,605	1	1	2	66	7,997	1	2	2	80	8,077	1	2	2	81
			SR4	6,561	1	1	2	66	7,943	1	2	2	79	8,022	1	2	2	80
			SR5	6,985	3	1	3	70	8,456	3	2	3	85	8,541	3	2	3	85
	1000	151W	SR2	8,165	2	2	2	54	9,885	2	2	2	65	9,983	2	2	2	66
			SR3	8,135	1	2	2	54	9,848	2	2	2	65	9,947	2	2	2	66
			SR4	8,080	2	2	2	54	9,782	2	2	2	65	9,880	2	2	2	65
			SR5	8,602	3	2	3	57	10,414	4	2	4	70	10,518	4	2	4	70

PER Table

Control	PER (3 wire)	PER5 (5 wire)		PER7 (7 wire)		
			Wire 4/Wire5		Wire 4/Wire5	Wire 6/Wire7
Photocontrol Only (On/Off)	✓	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM	✗	✓	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
ROAM with Motion (ROAM on/off only)	✗	⚠	Wired to dimming leads on driver	⚠	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof*	✗	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture
Futureproof* with Motion	✗	⚠	Wired to dimming leads on driver	✓	Wired to dimming leads on driver	Wires Capped inside fixture

✓ Recommended

✗ Will not work

⚠ Alternate

*Futureproof means: Ability to change controls in the future.

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.06
10°C	50°F	1.04
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
40°C	104°F	0.96

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **MRP LED 42C 700** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.0	0.96	0.92	0.85

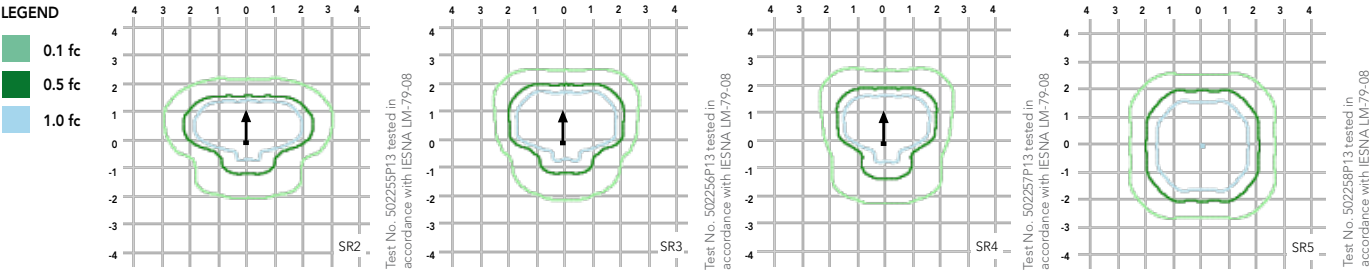


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MRP-LED
Rev. 06/27/23

Isofootcandle plots are considered to be representative of available optical distributions.



FEATURES & SPECIFICATIONS

INTENDED USE

Streets, walkways, parking lots and surrounding areas.

CONSTRUCTION

Single-piece die-cast aluminum housing with nominal wall thickness of .012". Die-cast top access doorframe has impact-resistant, tempered glass lens (3/16" thick). Doorframe is fully gasketed with one-piece tubular silicone.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum and white. Available in textured and non-textured finishes.

OPTICS

Precision acrylic refractive optics for optimum light distribution through the flat glass lens. Light engines are available in standard 3000K (70 CRI) or optional 4000K (70 CRI) or 5000K (70 CRI) configurations.

ELECTRICAL

Light engine consists of 42 high-efficacy LEDs mounted to a metal-core circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable surge protection device meets a minimum Category C Low for operation (per ANSI/IEEE C62.41.2).

INSTALLATION

Standard post-top mounting configuration fits into a 4" OD open pole top (round pole only). Multiple options and accessories are available for other mounting needs.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient. **U.S. Patent No. D556,357.**

BUY AMERICAN ACT

This product is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. Please refer to [www.acuitybrands.com/resources/buy-american](#) for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: [www.acuitybrands.com/support/warranty/terms-and-conditions](#)

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Specifications

GENERAL DESCRIPTION

The lighting post shall be all steel, one or two piece construction, consisting of a tapered shaft welded to a steel anchor base. The post shall be provided with (1) Ø17" clam shell base, (1) OUC series arm, 45" from post center to luminaire center, and (1) Boston Harbour QSL fitter.

MATERIAL

The shaft shall conform to ASTM A595 Grade-A and is supplied in .1196" thickness. The anchor base is fabricated from structural quality hot rolled carbon steel plate conforming to ASTM A36. The base plate telescopes the pole shaft and is circumferentially welded top and bottom.

DIMENSIONS

The post shall be 15'-0" in height with a 10" square base.

WIRE ACCESS

A reinforcing handhole rim is provided on the post and is made of a rectangular shaped tubing material. It is provided with one or two steel attachment bars, steel cover, and one or two round head machine screw. The handhole is welded in the post shaft and is located above the base.

INSTALLATION

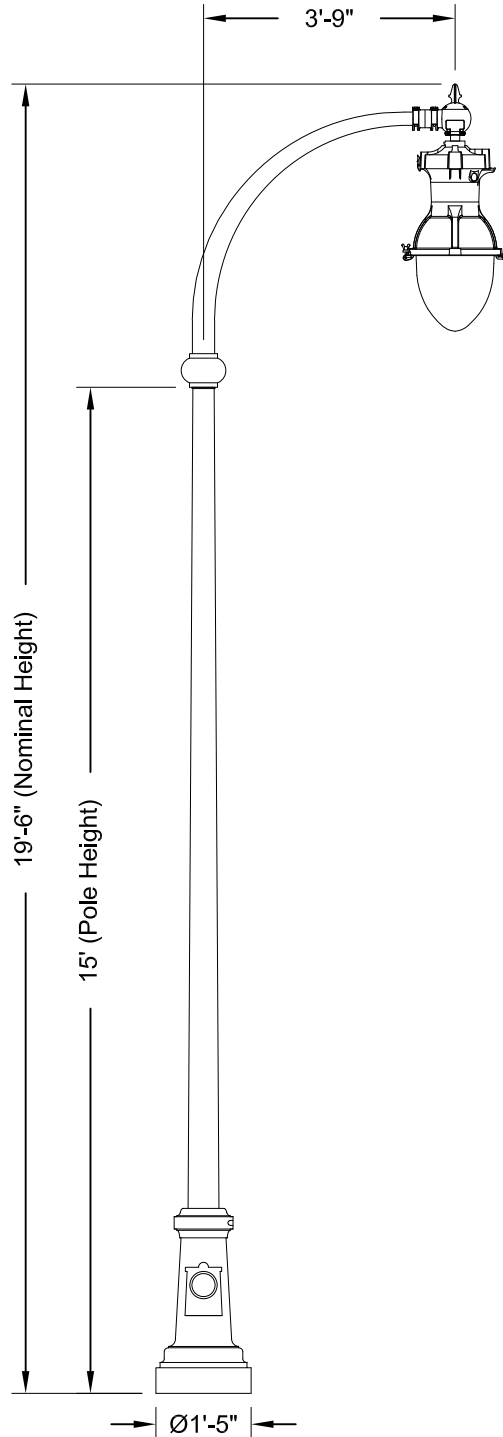
The post shall use four L-type anchor bolts (anchor bolts by others). Anchor bolts shall be installed on a Ø9" bolt circle.

FINISH

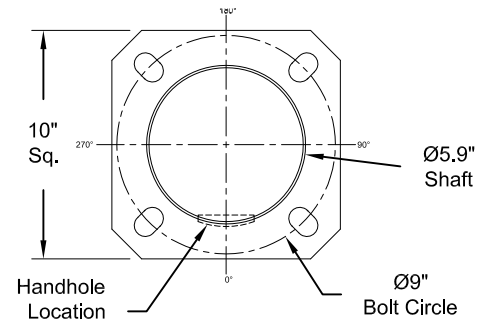
All material to have zinc rich prime coating (not galvanized) suitable for use with the following coatings; Cardinal Industries Finishes T357-GR105 Polyester TGIC powder coat metallic silver top coated with T009-CL05 Clear.

LUMINAIRE DESCRIPTION

- Esplanade Teardrop LED 2
- 10,000 Lumens, 3 COBs; 4000K CCT
- Auto Sensing Voltage (120-277)
- Custom Match Color, as described in "Finish" section above
- Teardrop Glass and Door, Type 3 Asymmetric Distribution
- Quick Lock Stem Mount



Anchorage Detail



DO NOT USE TO SET ANCHOR BOLTS
CONTACT CUSTOMER SERVICE FOR TEMPLATE

Catalog #'s:

RFD192337

Pole: CM(15.0)RTSU472A

Anchor Bolts: AB-27-4

Clamshell Base: CM17CSBU472A

Arm: OUC45/1CAY215J

RFD209202

Fixture/Fitter: ESL2P20S40KASCMCTG3S, BHDF13200CMC

Customer Signature:

Date:



City of Portland - Bayside Anchor Portland, ME

ORDER #: 2066-15-10999-0	TYPE: BAYSIDE MED. COMM.	DRAWING #:
REVISION:	REVISION DATE:	TSG 009468
DRAWN: MAB	ORIGIN DATE: 03/23/16	PAGE: 1 of 1

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Catalog Number
Notes
Type

FEATURES & SPECIFICATIONS

INTENDED USE — These specifications are for USA standards only. Round Tapered Aluminum is a general purpose light pole for up to 50-foot mounting heights. This pole provides a lighter and naturally corrosion-resistant option for mounting area light fixtures and floodlights.

CONSTRUCTION

Pole Shaft: The pole shaft is of uniform wall thickness and is one-piece extruded 6063 aluminum alloy with T6 temper. The shaft is cone-tapered. Available shaft diameters are 4", 5", 6", 7", 8", and 10".

Pole Top: Options include tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. A removable cast aluminum top cap with set screws is provided for all poles that will receive drilling patterns for side-mount luminaire arm assemblies or when ordered with open top (PT) option. The top cap resists intrusion of moisture and environmental contaminants.

Handhole: 4" - 6" RTA poles have non-reinforced 2" x 4" handhole with overlap cover. 7" - 10" RTA poles have reinforced 4" x 6" handhole with flush surface covers. 4" - 5" RTA poles have handhole located 12" above base. 6" - 10" RTA poles handhole located 18" above base on side A. Poles with non-reinforced handhole have supplemental ground lug with tapped hole for 3/8-16 ground bolt welded inside pole opposite handhole. Poles with reinforced handhole have 5/16-18 tapped hole in handhole reinforcement adjacent to opening. Positioning the handhole lower than standard may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Standard and extra handholes come with cover and attachment hardware.

Bolt Caps/Base Cover: Pole base plate for RTA poles utilizes cast aluminum A365 bolt caps to cover anchor bolt and nut assembly (included). 1 piece, spun aluminum base cover available as an option.

Anchor Base/Bolts: Anchor base is cast from A356 alloy aluminum and is heat treated to a T6 temper after welding. Anchor bolts are manufactured to ASTM F1554 Standards Grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Upper portion of anchor bolt is galvanized per ASTM A-153; bolts have an "L" bend on bottom end and are galvanized a minimum of 12" on the threaded end. Each hot-dipped galvanized anchor bolt is furnished with two hex nuts and two flat washers.

HARDWARE — All structural and non-structural fasteners are stainless-steel.

FINISH — Extra durable painted finish is coated with polyester powder that meets 5A and 5B classifications of ASTM D3359. Standard powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Other finishes include Brushed Aluminum, and Anodized Dark Bronze, Anodized Natural Aluminum and Anodized Black. Architectural Colors and Special Finishes are available by quote and include, but are not limited to RAL Colors, Custom Colors and Extended Warranty Finishes.

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application. Specifications subject to change without notice.

Anchor Base Poles

RTA

ROUND TAPERED ALUMINUM



RTA Round Tapered Aluminum Poles

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: RTA 25 6E DM19 BA

RTA					
Series	Nominal fixture mounting height	Nominal shaft base size/wall thickness ¹	Mounting ²	Options	Finish ¹⁰
RTA	8'-50' (for 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	4C 4" (.125") 5C 5" (.125") 5E 5" (.156") 5G 5" (.188") 6E 6" (.156") 6G 6" (.188") 7E 7" (.156") 8E 8" (.156") 8G 8" (.188") 8J 8" (.250") 9G 9" (.188") 10G 10" (.188") 10J 10" (.250") (See technical information table for complete ordering information.)	Tenon mounting PT Open top T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) KAC/KAD/KSE/KSF/KVR/KVF Drill mounting ³ DM19 1 at 90° DM28 2 at 180° DM28PL 2 at 180° with one side plugged DM29 2 at 90° DM32 3 at 120° DM39 3 at 90° DM49 4 at 90° CSX/DSX/RXS/AERIS™/OMERO™/HLA/KAX Drill mounting ³ DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM32AS 3 at 120° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting ³ DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM32RAD 3 at 120° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting ³ DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90° AERIS™ Suspend drill mounting ^{3,4} DM19AST_ 1 at 90° DM28AST_ 2 at 180° DM29AST_ 2 at 90° DM39AST_ 3 at 90° DM49AST_ 4 at 90° OMERO™ Suspend drill mounting ^{3,4} DM19MRT_ 1 at 90° DM28MRT_ 2 at 180° DM29MRT_ 2 at 90° DM39MRT_ 3 at 90° DM49MRT_ 4 at 90°	VD Vibration damper HAXy Horizontal arm bracket (1 fixture) ^{5,6} FDLxy Festoon outlet less electrical ^{5,7} CPL12/xy 1/2" I.D. coupling ⁵ CPL34/xy 3/4" I.D. coupling ⁵ CPL1/xy 1" I.D. coupling ⁵ NPL12/xy 1/2" O.D. threaded nipple ⁵ NPL34/xy 3/4" O.D. threaded nipple ⁵ NPL1/xy 1" O.D. threaded nipple ⁵ EHHxy Extra handhole ^{5,8} FBC Full base cover (spun aluminum) L/AB Less anchor bolts (include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (includes NEC compliant cover) BAA Buy America(n) Act Compliant ⁹	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTGXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Brushed finish BA Brushed aluminum Class 1 architectural anodized ABL Black ADB Dark bronze ANA Natural Architectural colors and special finishes Duranodic Anodize, Paint over Duranodic Anodize, RAL Colors, Custom Colors and Extended Warranty Finishes available.

NOTES:

- Wall thickness will be signified with a "C", "E", "G" or a "J" in nomenclature. "C" - 0.125 | "E" - 0.156 | "G" - 0.188 | "J" - 0.250.
- PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.
- Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
- Insert "1" or "2" to designate fixture size; e.g. DM19AST2.
- Specify location and orientation when ordering option.
For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
Example: 5ft = 5 and 20ft 3in = 20-3
For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
Example: 1/2" coupling at 5' 8", orientation C = CPL12/5-8C
- Horizontal arm is 18" x 2-3/8" O.D. tenon standard with radius curve providing 12" rise. If ordering two horizontal arm at the same height, specify with HAXy. Example: HA20BD
- FDL does not come with additional covering. Festoons must be a minimum of 3ft (36in) from the base in any orientation. Distance between any festoon and/or handhole must be at least 1ft and 6in (18in) apart in any orientation.

- Combination of tenon-top and drill mount includes extra handhole. Extra Handholes must be a minimum of 3ft (36in) from the base in any orientation. Distance between any festoon and/or handhole must be at least 1ft and 6in (18in) apart in any orientation.
- Use when mill certifications are required. Some configurations may be excluded, consult factory.
- Finish must be specified. Additional colors available; see Architectural Colors brochure linked [here](#) (Form No. 794.3). Lead times may be extended up to 2 weeks due to paint procurement.

Accessories: Order as separate catalog number.

- | | |
|---------|----------------------------|
| PL DT20 | Plugs for ESX drillings |
| PL DT8 | Plugs for DMxxAS drillings |

RTA Round Tapered Aluminum Poles

TECHNICAL INFORMATION — EPA (FT²) WITH 1.3 GUST									
Catalog number	Nominal mount ht. (ft) *	Pole shaft size (in x ft)	Wall thick (in)	80 mph	90 mph	100 mph	Max. weight	Bolt size (in. x in. x in.)	Approximate ship (lbs.)
RTA 20 5C	20	5 x 3 x 19.66	0.125	3.9	2.5	1.6	100	.75 x 18 x 3	62
RTA 20 5G	20	5 x 3 x 19.66	0.188	7.4	5.2	3.8	100	.75 x 18 x 3	72
RTA 20 6G	20	6 x 4 x 19.66	0.188	12.2	9.2	7.2	214	.75 x 30 x 3	107
RTA 20 7E	20	7 x 4 x 19.66	0.156	15.0	11.4	9.0	256	1 x 36 x 4	103
RTA 25 6E	25	6 x 4 x 24.66	0.156	5.3	3.6	2.6	114	.75 x 30 x 3	106
RTA 25 7E	25	7 x 4 x 24.66	0.156	9.5	7.0	5.4	162	1 x 36 x 4	120
RTA 25 8E	25	8 x 4.5 x 24.66	0.156	14.2	10.9	8.5	220	1 x 36 x 4	130
RTA 25 8G	25	8 x 4.5 x 24.66	0.188	18.0	13.8	10.9	261	1 x 36 x 4	153
RTA 25 9G	25	9 X 4.5 X 24.66	0.188	24.2	18.7	14.9	150	1 X 36 X 4	167
RTA 30 7E	30	7 x 4 x 29.66	0.156	5.5	3.8	2.7	111	1 x 36 x 4	135
RTA 30 8E	30	8 x 4.5 x 29.66	0.156	9.4	7.0	5.3	151	1 x 36 x 4	150
RTA 30 8G	30	8 x 4.5 x 29.66	0.188	12.4	9.4	7.3	179	1 x 36 x 4	175
RTA 30 9G	30	9 X 4.5 X 29.66	0.188	17.4	13.3	10.4	150	1 X 36 X 4	180
RTA 30 10G	30	10 x 6 x 29.66	0.188	23.8	18.3	14.3	377	1 x 40 x 4	235
RTA 35 8E	35	8 x 4.5 x 34.66	0.156	5.8	4.1	2.9	119	1 x 36 x 4	185
RTA 35 8G	35	8 x 4.5 x 34.66	0.188	8.3	6.0	4.5	141	1 x 36 x 4	220
RTA 35 8J	35	8 x 4.5 x 34.66	0.250	12.9	9.7	7.5	183	1 x 36 x 4	251
RTA 35 9G	35	9 X 4.5 X 24.66	0.188	12.5	9.3	7.2	150	1 X 36 X 4	204
RTA 35 10G	35	10 x 6 x 34.66	0.188	17.9	13.6	10.4	295	1 x 40 x 4	268
RTA 39 8G	39	8 x 4.5 x 38.66	0.188	5.6	3.9	2.7	122	1 x 36 x 4	250
RTA 39 8J	39	8 x 4.5 x 38.66	0.250	9.7	7.1	5.4	158	1 x 36 x 4	280
RTA 39 9G	39	9 X 4.5 X 38.66	0.188	9.4	6.8	5.1	150	1 X 36 X 4	255
RTA 39 10G	39	10 x 6 x 38.66	0.188	14.2	10.5	7.8	253	1 x 40 x 4	295
RTA 39 10J	39	10 x 6 x 38.66	0.250	20.4	15.5	11.9	300	1.25 x 48 x 5	373
RTA 50 10J	50	10 x 6 x 49.66	0.250	12.5	9.1	6.5	300	1.25 x 48 x 5	447

NOTE: EPA values are based ASCE 7-93 wind map. Assumes center of load is located 1.5' above pole top.
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

RTA Round Tapered Aluminum Poles

TECHNICAL INFORMATION — EPA (ft²) WITH 3-SECOND GUST PER AASHTO 2013																
Series	Mounting Height (ft)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight
RTA	8	4C	7.7	75	6.1	75	4.9	75	4	75	3.3	75	2.8	75	2.4	75
RTA	10	4C	5.9	75	4.6	75	3.6	75	2.9	75	2.3	75	1.9	75	1.6	75
RTA	10	5C	11.5	75	9.1	75	7.3	75	6	75	5	75	4.2	75	3.6	75
RTA	12	4C	4.5	75	3.4	75	2.6	75	2	75	1.5	75	1.2	75	0.9	75
RTA	12	5C	9.2	75	7.2	75	5.7	75	4.6	75	3.8	75	3.2	75	2.7	75
RTA	12	5E	11.6	75	9.2	75	7.4	75	6	75	5	75	4.2	75	3.6	75
RTA	12	5G	14	100	11.1	100	8.9	100	7.3	100	6.1	100	5.1	100	4.4	100
RTA	14	4C	3.4	75	2.5	75	1.8	75	1.2	75	0.8	75	0.5	75	-	75
RTA	14	5C	7.5	75	5.7	75	4.4	75	3.5	75	2.8	75	2.3	75	1.9	75
RTA	14	5E	9.6	75	7.4	75	5.9	75	4.7	75	3.8	75	3.2	75	2.7	75
RTA	14	5G	11.6	100	9	100	7.2	100	5.8	100	4.8	100	4	100	3.4	100
RTA	16	4C	2.5	75	1.6	75	1	75	0.6	75	-	75	-	75	-	75
RTA	16	5C	6	75	4.4	75	3.3	75	2.6	75	2	75	1.6	75	1.2	75
RTA	16	5E	7.8	75	5.9	75	4.6	75	3.6	75	2.9	75	2.3	75	1.9	75
RTA	16	5G	9.6	100	7.3	100	5.8	100	4.6	100	3.7	100	3	100	2.5	100
RTA	16	6E	13.7	100	10.8	100	8.7	100	7.1	100	6	100	5.1	100	4.3	100
RTA	16	6G	16.8	100	13.2	100	10.7	100	8.8	100	7.4	100	6.3	100	5.4	100
RTA	18	5C	4.6	75	3.3	75	2.4	75	1.7	75	1.2	75	0.9	75	0.6	75
RTA	18	5E	6.3	75	4.6	75	3.5	75	2.6	75	2	75	1.5	75	1.2	75
RTA	18	5G	7.8	100	5.8	100	4.5	100	3.5	100	2.7	100	2.2	100	1.8	100
RTA	18	6E	11.3	100	8.8	100	7	100	5.7	100	4.7	100	4	100	3.4	100
RTA	18	6G	13.9	100	10.9	100	8.8	100	7.2	100	6	100	5.1	100	4.3	100
RTA	18	7E	18	150	14.2	150	11.4	150	9.4	150	7.9	150	6.7	150	5.7	150
RTA	20	5C	3.5	75	2.4	75	1.6	75	1	75	0.6	75	-	75	-	75
RTA	20	5E	5	75	3.5	75	2.5	75	1.8	75	1.3	75	0.9	75	-	75
RTA	20	5G	6.3	100	4.6	100	3.4	100	2.5	100	1.9	100	1.4	100	1.1	100
RTA	20	6E	9.3	100	7.1	100	5.5	100	4.5	100	3.7	100	3.1	100	2.6	100
RTA	20	6G	11.6	100	9	100	7.1	100	5.8	100	4.8	100	4	100	3.4	100
RTA	20	7E	15.3	150	12	150	9.6	150	7.8	150	6.5	150	5.5	150	4.7	150
RTA	23	6E	6.9	100	5	100	3.7	100	2.9	100	2.3	100	1.9	100	1.5	100
RTA	23	6G	8.9	100	6.6	100	5.1	100	4	100	3.3	100	2.7	100	2.2	100
RTA	23	7E	12	150	9.2	150	7.2	150	5.8	150	4.8	150	4	150	3.3	150
RTA	23	8E	17.1	150	13.4	150	10.8	150	8.9	150	7.4	150	6.2	150	5.3	150
RTA	23	8G	21.3	150	16.8	150	13.6	150	11.3	150	9.4	150	8	150	6.8	150
RTA	25	6E	5.5	100	3.8	100	2.7	100	2	100	1.5	100	1.2	100	0.9	100
RTA	25	6G	7.3	100	5.3	100	3.9	100	3	100	2.4	100	1.9	100	1.6	100
RTA	25	7E	10.1	150	7.6	150	5.8	150	4.6	150	3.7	150	3.1	150	2.5	150
RTA	25	8E	14.7	150	11.4	150	9.1	150	7.5	150	6.2	150	5.1	150	4.3	150
RTA	25	8G	18.6	150	14.5	150	11.7	150	9.6	150	8	150	6.7	150	5.7	150
RTA	28	7E	7.7	150	5.6	150	4.2	150	3.2	150	2.5	150	2	150	1.6	150
RTA	28	8E	11.8	150	9	150	7.1	150	5.8	150	4.7	150	3.8	150	3.2	150
RTA	28	8G	15.1	150	11.7	150	9.4	150	7.6	150	6.3	150	5.2	150	4.4	150
RTA	28	8J	21.4	150	16.8	150	13.6	150	11.2	150	9.3	150	7.8	150	6.6	150
RTA	28	9G	21	150	16.5	150	13.3	150	10.9	150	9.1	150	7.6	150	6.4	150
RTA	28	10G	27.5	200	21.9	200	17.8	200	14.6	200	12.1	200	10.1	200	8.5	200
RTA	28	10J	37.3	300	29.9	300	24.4	300	20.2	300	16.9	300	14.2	300	12	300
RTA	30	7E	6.3	150	4.4	150	3.1	150	2.2	150	1.7	150	1.3	150	0.9	150
RTA	30	8E	10	150	7.4	150	5.8	150	4.6	150	3.7	150	3	150	2.4	150
RTA	30	8G	13.1	150	9.9	150	7.9	150	6.4	150	5.2	150	4.3	150	3.5	150
RTA	30	9G	18.6	150	14.6	150	11.7	150	9.5	150	7.8	150	6.5	150	5.4	150

*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

RTA Round Tapered Aluminum Poles

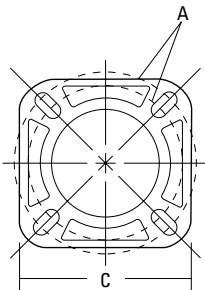
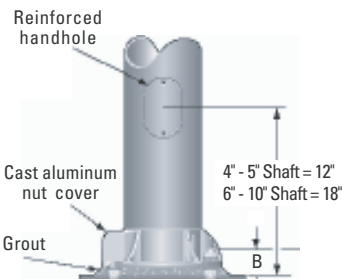
TECHNICAL INFORMATION (cont.)— EPA (ft²) WITH 3-SECOND GUST PER AASHTO 2013																
Series	Mounting Height (ft)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight
RTA	30	8J	18.9	150	14.6	150	11.7	150	9.6	150	8	150	6.7	150	5.6	150
RTA	30	10G	24.6	200	19.6	200	15.8	200	13	200	10.7	200	8.8	200	7.3	200
RTA	30	10J	33.7	300	26.9	300	21.9	300	18.1	300	15	300	12.6	300	10.6	300
RTA	33	8E	7.8	150	5.7	150	4.3	150	3.4	150	2.6	150	2	150	1.5	150
RTA	33	8G	10.6	150	7.9	150	6.2	150	4.9	150	3.9	150	3.1	150	2.5	150
RTA	33	9G	15.5	150	11.9	150	9.5	150	7.6	150	6.2	150	5.1	150	4.1	150
RTA	33	8J	15.7	150	12.1	150	9.6	150	7.8	150	6.4	150	5.3	150	4.4	150
RTA	33	10G	20.8	200	16.5	200	13.2	200	10.7	200	8.8	200	7.2	200	5.8	200
RTA	33	10J	28.9	300	23	300	18.6	300	15.3	300	12.6	300	10.5	300	8.7	300
RTA	35	8E	6.3	150	4.4	150	3.2	150	2.4	150	1.8	150	1.3	150	0.9	150
RTA	35	8G	8.9	150	6.5	150	5	150	3.9	150	3	150	2.4	150	1.8	150
RTA	35	9G	13.6	150	10.4	150	8.2	150	6.6	150	5.3	150	4.2	150	3.4	150
RTA	35	8J	13.9	150	10.6	150	8.4	150	6.7	150	5.5	150	4.4	150	3.6	150
RTA	35	10G	18.7	200	14.7	200	11.7	200	9.4	200	7.6	200	6.1	200	4.9	200
RTA	35	10J	25.9	300	20.6	300	16.6	300	13.6	300	11.2	300	9.3	300	7.7	300
RTA	37	8G	7.6	150	5.5	150	4.1	150	3.2	150	2.4	150	1.8	150	1.3	150
RTA	37	9G	12	150	9.1	150	7	150	5.5	150	4.4	150	3.4	150	2.6	150
RTA	37	8J	12.2	150	9.2	150	7.2	150	5.7	150	4.6	150	3.6	150	2.9	150
RTA	37	10G	16.7	200	13.1	200	10.3	200	8.2	200	6.5	200	5.2	200	4	200
RTA	37	10J	23.7	300	18.7	300	15	300	12.2	300	9.9	300	8.1	300	6.5	300
RTA	39	8G	6.3	150	4.4	150	3.2	150	2.4	150	1.7	150	1.1	150	0.7	150
RTA	39	9G	10.5	150	7.8	150	6	150	4.6	150	3.5	150	2.7	150	2	150
RTA	39	8J	10.6	150	7.9	150	6.1	150	4.8	150	3.7	150	2.9	150	2.2	150
RTA	39	10G	14.9	200	11.6	200	9.1	200	7.1	200	5.6	200	4.3	200	3.2	200
RTA	39	10J	21.5	300	16.9	300	13.4	300	10.8	300	8.7	300	7	300	5.6	300
RTA	48	10J	12.6	300	9.7	300	7.5	300	5.8	300	4.4	300	3.2	300	2.2	300
RTA	50	10J	11.2	300	8.4	300	6.4	300	4.9	300	3.6	300	2.5	300	1.6	300

NOTE: AASHTO 2013 criteria is the most conservative existing EPA calculation. For poles not showing EPA values under AASHTO 2013, EPA values may exist under commercial criteria (see table above).

*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

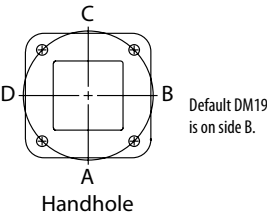
RTA Round Tapered Aluminum Poles

BASE DETAIL



POLE DATA						
Shaft base size	Bolt circle A	Bolt projection B	Base square	Base plate thickness	Template description	Anchor bolt description
4"	6.75" - 8.25"	3.25"	8.75"	0.630"	ABTEMPLATE 227905D VLEX	AB18-0
5"	7.75" - 8"	3.25"	9.61"	0.630"	ABTEMPLATE PJ50032	AB18-0 2IN WASHER
6"	9"-10"	3.50"	10.32"	0.630"	ABTEMPLATE PJ50033	AB30-0 2IN WASHER
7"	10.13" - 11"	4.13"	11.26"	0.750"	ABTEMPLATE PJ50034	AB36-0
8"	11.26" - 12"	4.13"	12.05"	0.750"	ABTEMPLATE PJ50035	AB36-0
9"	12.50" - 14"	4.13"	12.48"	1.250"	ABTEMPLATE PJ50037	AB36-0
10"G	14"-15"	4.75"	14"	1.250"	ABTEMPLATE PJ50036	AB40-0
10"J	14"-15"	5.25"	14"	1.250"	ABTEMPLATE PJ50063	AB48-0

HANDHOLE ORIENTATION



IMPORTANT INSTALLATION NOTES:

- Do not erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

CAUTION: These specifications are intended for general purposes only. Lithonia Lighting reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.



POLE-RTA

O. Architectural Design Narrative

Please find attached the design narrative completed by Ryan Senatore Architecture.



March 1, 2024

Planning Department
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: COMB Block Apartments - Design Narrative

The proposed building to be located on Boyd Street in Portland's East Bayside Neighborhood consists of 50 residential apartment units intended for families. The building is a 6 story structure along the street.

Prior to developing the building concept we spent time walking the surrounding streets, analyzing existing streetscapes, building massing, forms, materials and textures. This approach allowed us to develop a design concept that is grounded by the existing neighborhood context but reflects our contemporary time.

The neighborhood is comprised of a diverse palate of Architectural forms, and time periods of design and construction. Boyd Street and the surrounding neighborhood blocks have a variety of Architectural forms and massing from two story to 6 story structures.

We designed the building using color, massing and texture to scale the building as reflected on the Boyd Street elevation. The body of the building is comprised of neutral earth tones, the base is a durable tile cladding that references the historic brick materials found throughout Portland. The siding above is a lap siding and panel product in two tones. To provide further massing and visual interest on the facades we have designed facade breaks or 'bays' on a regular rhythm and alternate the siding colors to scale the facades.

The Massing, Ventilation, and Wind impacts of the proposed design should not have an adverse affect on abutting structures due to the Site's openness and large amount of street frontages.

The the proposed design should not cast shadows on publicly accessible open space as the building is on the North Side of the Street, the community garden is South of the Site.

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

The building should not generate significant amounts of snow or ice accumulation on adjacent structures or public ways as it is a flat roof building and has a large open site area around the building.

View corridors will not be impacted by the proposed structure.

All Mechanical equipment will meet all applicable emissions standards and be located at the interior of the site away from abutting residential properties.

We look forward to discussing the project at the upcoming Planning Board workshop.

Sincerely,



Ryan Senatore, AIA LEED AP

Principal

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

P. Utilities

Please see below for the proposed utility breakdown as part of the redevelopment of 70 East Oxford Street.

Water:

A proposed 4" domestic and 6" fire suppression service tapped off the water main within Oxford Street are anticipated to serve the proposed multi-family building. Correspondence with PWD confirming their ability to serve will be forwarded upon receipt.

Sewer:

A proposed 6" sewer will outlet the building and tap the existing 18" main in Boyd Street. A request for ability to serve has been forwarded to City of Portland DPW, Sewer Department, and confirmation will be forwarded to the city upon receipt.

Stormwater:

The project proposes stormwater detention and treatment within the proposed parking area with an R-tank detention system and Stormfilter treatment BMP. This will connect to the existing storm drain network in Oxford Street. The storm drain mainline in Oxford Street will be extended about 21' to reach the proposed site storm outlet. See Stormwater Management Report for more information. A request for ability to serve has been forwarded to City of Portland DPW, Sewer Department, and confirmation will be forwarded to the city upon receipt.

UGE/T/C:

Underground electrical, cable, and communications line will be brought to the site subsurface via a pole on Boyd Street, which will be replaced as part of the proposed improvements. Electrical service will be brought to a pad-mount transformer on the project site. External metering is anticipated for the new building. External pedestal locations will be provided for telecommunication services. Ability to serve confirmations have been received by CMP, Spectrum, and Consolidated Communications and are attached to this section.

Gas:

The proposed building will be served via the gas main within the Oxford Street sidewalk. Unitil's ability to serve confirmation is attached to this section.

Ability to serve letters have been sent out to the respective utility companies in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use Code. Responses received thus far from the utility companies can be found attached.



From: [Celina Azevedo](#)
To: [Mike Triglione](#)
Cc: [Pete Heil](#)
Subject: 526213 PO 70 E Oxford - request for ability to serve
Date: Monday, February 5, 2024 1:52:31 PM
Attachments: [Phone_223ae454-93d7-49cd-a6ff-c6b3f6771a32.png](#)
[Envelope_01e51944-8e48-4eab-9cd3-85f555862fe6.png](#)
[Web_f9738a30-9efc-4f48-8727-bc60554c3569.png](#)
[PWDlogoCMYK_finalhorzwaveandtagline_805ff89e-b71e-453e-9acc-ec30c963a648.png](#)
[Facebook_029ff86a-eef2-441a-a2e2-e87d9e072e45.png](#)
[Linedin_3a2597ae-b197-4488-b0b0-8b9f3d581365.png](#)
[Youtube_a37e753a-5442-4998-83f9-aa8e55933873.png](#)
[Xlogo2email_bf573aae-16ef-43ac-b631-1018580e1842.png](#)
[Peak Flow Based on Fixture Count.xls](#)

Mike, good afternoon,

I have received your plans, including the survey of current conditions and the utility plan for the site as well as for Phase 1. I understand you intend to retire the existing water service on Boyd Street and install a new fire and domestic service from our main in Oxford Street. I am consulting our chief operator for wastewater systems on the proposed sewer extension.

This should be a straightforward review once we have a) your fixture count (please fill out the sheet attached) and b) your fire-protection designer's calculated peak fire demand in gallons per minute. I am here for any questions you may have in the meantime. If I need any other information, I will let you know.

Best regards,
Celina

CELINA AZEVEDO

Associate Engineer

 (207) 699-5134
 cazevedo@pwd.org
 <https://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

From: [MITCHELL, JOSHUA](#)
To: [Mike Triglione](#)
Cc: [Pete Heil](#)
Subject: CMP Three Phase Service Process and Ability to Serve Letter for 70 East Oxford Street in Portland, ME
Date: Friday, February 9, 2024 10:50:18 AM
Attachments: [image001.png](#)
[Easement Information Worksheet.doc](#)
[Standard Easement Sample.pdf](#)
[blank W9.pdf](#)
[EDET Feb 2024.xlsx](#)

Mike Triglione
Acorn Engineering, Inc
PO Box 3372
Portland, Maine 04104

RE: 70 East Oxford Street Development
70 East Oxford Street, Portland, Maine
Letter of Ability to Serve Request

SAP TBD
Project Description:

The proposed development will subdivide the parcel into three separate parcels, and construct a new residential building on the west corner of the lot, abutting Oxford & Boyd Streets. The proposed building will consist of 50 residential units; 10 1-bedroom, 16 2-bedroom, 19 3-bedroom, and 5 4-bedroom units.

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). Please email them at your earliest convenience. If you are returning an Easement Form, a 1190 or State Permit please be sure to send those documents to lineclerknewservice@cmpco.com, All W9's should be sent to gettingconnected@cmpco.com. All other forms including the EDET (load sheet) and technical information should be sent to me.

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 your 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

Best regards,

Josh



Joshua Mitchell
Energy Service Specialist
Portland Service Area
207-200-0333
Joshua.Mitchell@cmpco.com

Please consider the environment before printing this email.

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5 Davis Farm Rd
Portland, ME 04103
207- 535-4271 office
207-745-9363 cell
207- 797-1098 fax

February 21, 2024

To Whom It May Concern:

My name is Patrick Morrison and I am the engineer for the Portland area. This letter is to inform that Consolidated Communications has the capacity and capability to serve the proposed development at 70 East Oxford St in Portland, ME. Consolidated Communications currently has aerial copper facilities in the area. We also have our fiber service named Fidium in the area. Please do not hesitate to contact me with any questions.

Sincerely,

Patrick Morrison

Consolidated Communications Outside Plant Engineer



February 28, 2024

Mike Triglione, PE

RE: May Serve Letter by Charter Communications or an affiliated to provide service ("Spectrum")

70 East Oxford Street Development
70 East Oxford Street
Portland, ME 04101

Dear Mike:

Thank you for your interest in receiving Spectrum service. Your development of 70 East Oxford Street Development at the site of 70 East Oxford Street, Portland, ME 04101 ("Property") is within an area where Spectrum may lawfully provide video, internet and voice services.

However, this letter is not a commitment to provide service to the Property. Prior to any determination as to whether service can or will be provided to the Property, Spectrum will conduct a survey of the Property and will need the following information from you:

- Exact site address and legal description
- Is this an existing building or new construction?
- Site plans, blue prints, plat maps or any similar data
- The location of any existing utilities or easements
- [Other as required] _____

Please forward this information to me. Upon receipt, I will be assigned to you to work through the process. Ultimately, a mutually acceptable service agreement for the Property will be required and your cooperation in the process is appreciated.

Sincerely,

Steven Holmes
MDU Account Manager-Spectrum Community Solutions
444 Perry Road
Bangor, ME 04401
(207) 631-1618, steven.holmes@charter.com



February 2, 2024

Mike Triglione
Acorn Engineering Inc.
70 East Oxford Street Development
Portland, ME 04101

Re: Ability to Serve for 70 East Oxford Street Portland, Maine

Dear Mike,

Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that natural gas can be made available from our distribution system to serve your proposed project.

Any improvements to the existing distribution system that are necessary to provide this service, as well as the design of the gas system in the project itself, will be established as the overall design and scope of your project progresses.

All work necessary to provide service will be performed in accordance with the Maine Public Utilities Commission requirements.

If you have any further questions or require additional information, please contact me directly at (207) 541-2536 or email at morrison@unitil.com.

Sincerely,

Sara Morrison

Sara Morrison
Business Development Representative
(T) 207-541-2536 (F) 207-541-2536



April 3, 2024

Pete Heil, PE
Acorn Engineering
Portland, ME 04104

Re: 70 E Oxford Street, PO
Ability to Serve with PWD Water

Dear Mr. Heil:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on February 2, 2024. Based on the information provided per plans dated April 3, 2024, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed and is valid for eighteen (18) months after the date of issue. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 4-inch domestic service with a 1.5-inch meter and a 6-inch fire service may be installed from the water main in Oxford Street. Each service should enter through the property's frontage on Oxford Street at least 10-feet from any side property lines.
- An approved testable double-check backflow prevention device must be installed on each service line directly after the meter or before the sprinkler riser prior to service activation.
- The Portland Water District does not have record of any other existing infrastructure in public roads and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and reviewed and approved by PWD.
- The existing building is currently served with a 1.5-inch domestic water service and 1.5-inch meter. This service must be terminated by shutting the corporation valve and cutting the pipe from the water main. Before the service can be retired, the meter must be pulled and the account closed. Please contact Customer Service at 207-761-8310 to complete this work prior to service retirement..

Prior to construction, the owner or contractor will need to complete a Service Application and pay all necessary fees for each proposed service. When the project is ready for construction, an Application for each service can be requested by contacting the MEANS Group at MEANS@pwd.org or 207-774-5961 ext. 3199. Once a completed Application has been submitted with payment, please allow seven (7) days for processing.

Existing Site Service

According to District records, the project site does currently have existing water service. A 1.5-inch diameter copper domestic service line provides water service to the site. Please refer to the “Conditions of Service” section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is an 12-inch diameter cast-iron water main in Oxford Street and a public fire hydrant located approximately 60 feet from the site. The estimated static pressure in the area is 103 psi.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the City of Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District’s Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District



Robert A. Bartels, P.E.
Senior Project Engineer

Date: April 22, 2024

Re: Wastewater Capacity Authorization

Address: 70 East Oxford Street

Applicant: Portland Housing Authority

Planner: Matthew Grooms

Estimate of Anticipated Wastewater Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow to Be Removed				
Multiple Family Dwelling Units	2-Bedroom	10	180	1800
Proposed flow				
Multiple Family Dwelling Units	1-Bedroom	10	120	1200
Multiple Family Dwelling Units	2-Bedroom	16	180	2880
Multiple Family Dwelling Units	3-Bedroom	19	270	5130
Multiple Family Dwelling Units	4-Bedroom	5	360	1800
Net Change				+ 9,210
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:

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.

However, storm drainage and sanitary sewer flows in this project area drain to the City's combined sewer system. Lack of wet weather capacity results in frequent system wide combined sewer overflows. City wide mitigation of combined sewer overflows is required as part of the City's CSO consent decree administered by the EPA and Maine DEP.

Section 2.2.3 of the City's Technical Manual requires DPW Water Resources approval when rain water is being proposed to discharge into a sewer which conveys sanitary waste. Prior to authorizing a new stormwater connection into the combined sewer, DPW will require that the applicant provide an on-site stormwater detention volume equal to the greater of: 1" of rainfall over the entire project redeveloped area being proposed on the parcel, or the projected average 24 hour daily sanitary sewer flow being added to the combined sewer system by the project.

You are also reminded that new connections into the combined sewer system shall be equipped with backflow prevention in accordance with Section 2.6.10 of the City's Technical Manual.

If the City can be of further assistance, please contact me at 207-874-8840 or brad@portlandmaine.gov

Sincerely,

A handwritten signature in dark ink that reads "Bradley A. Roland". The signature is written in a cursive, flowing style.

Bradley A. Roland, P.E.,
Senior Project Engineer

Q. Construction Management Plan

Project Address: 70 East Oxford Street, Portland, ME

Project Description:

The project proposes to demolish the four existing multifamily buildings on the parcel. A division of land is also proposed to split the parcel into two separate lots, a 0.56 acre parcel (Lot 1) and a 0.97 acre parcel (Lot 2). A 50-unit multifamily building is proposed to be constructed on Lot 1, at the corner of Oxford and Boyd Streets. The building will consist of 45 affordable units and 5 market-rate units. In total there will be (10) 1-bedroom, (16) 2-bedroom, (19) 3-bedroom, and (5) 4-bedroom units. The building will also consist of amenities for residents & space for building management on the ground floor. Lot 2 will be stabilized and reserved for potential future development. The project also includes associated utility, parking and landscaping improvements.

Project Team Summary:

Owner:	COMB Block Phase One, LP
General Contractor:	TBD
Civil Engineer:	Acorn Engineering, Inc.
Architect:	Ryan Senatore Architecture
Structural Engineer:	Structural Integrity

The Owner/GC and all subcontractors will work with the City of Portland and adjacent landowners to minimize any project impacts.

The GC will remain responsible for enforcement of all compliance with 1) all contract plans and specifications in their scope of work and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case for the duration of their work. These include OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. Both the Owner/GC and any subcontractors will remain responsible for safeguarding the general public.

The GC shall review all permits and conditions associated with the project. The GC will prepare a Construction Management Plan their means and methods to be taken during construction.

The following outline has been developed in accordance with the City of Portland Construction Management Plan General Template and shall be referenced by the GC during construction.

A. Construction Management Principles

The control of noise, vibrations, ground movement, truck traffic, and other construction related factors will be of utmost importance. Care shall be taken to minimize these effects in the best interest of neighbors and the general public. GC to ensure that work hours conform to the City of Portland's Ordinance.

B. Development Review of Construction Management Plan



A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

Logistics and safety program shall be submitted at or prior to the preconstruction meeting by the GC with all pertinent information required by the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Guarantees and fees will be paid at the time of the respective application. Sections 14-530 and 13-532 will be complied with all necessary permits will be obtained prior to work.

1. Street Opening and Street Occupancy Permits:

Required permits regarding street opening and occupancy will be obtained from the Department of Public Works. The requests shall conform to the approved Construction Management Plan.

2. Blasting:

Although not anticipated, if blasting occurs, it shall conform to Article VIII. In Chapter 14 of the City Code and Section 3.7 in the City's Technical Manual.

3. Building Code:

Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code.

D. Construction Administration and Communication

The Contractor will work closely with adjacent abutters, businesses, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. Communication in order to comply with all agreements, ordinances, and special permits will be of the utmost importance. Contractor contact information shall be posted on a sign on the construction fence along Boyd Street and Oxford Street frontage. Additional signage necessary for communication shall be provided but will be temporary and removed upon completion of the project. The contact information for the project personnel is:

Sarah Tatarczuk
Portland Housing Authority
(207) 221-8034

GC and Subcontractor information will be posted along Oxford Street frontage once contracted.

E. Construction Schedule

The GC shall submit a construction timeline at or prior to the preconstruction meeting. Construction may occur during the daytime hours as defined in Section 17-18 of the Construction Activities for Building permit and City Code Section 25-129, Noise, dust and debris. Between September 1 and May 31, the following year, no person shall engage in



construction activities generating noise exceeding 50 decibels, between the hours of 7 pm and 7 am of the following day within 500 feet of any buildings. From June 1 to August 31, construction activity may continue until 8 pm. No construction activity shall begin before 8 am on a Saturday, Sunday, or legal holiday. Extended hours or night work may be requested for special circumstances and street utility work if needed. These requests will be subject to approval by the Public Works Authority.

Due to the limited space within the project parcel, deliveries will need to be stored in an alternate location or deliveries must be small enough to fit within the property. Deliveries will be scheduled between 7 am and 5 pm.

The estimated timeframe of the proposed project is outlined below:

<u>Project Start Date:</u>	2025
<u>Project End Date:</u>	2027

A more detailed work schedule shall be provided by the GC at or before the pre-construction meeting with the City.

F. Security & Public Safety

1. The GC will provide all fencing and other barriers, with the intent of separating pedestrian and vehicle circulation from the construction site. Construction entrances per detail shall be installed.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations*.
3. Fire Safety Program: Prior to construction, an overall construction and demolition fire safety program shall be developed. Essential items to be emphasized include the following:
 - Good Housekeeping
 - On-site security
 - Installation of new fire protection systems as construction progresses
 - Preservation of existing systems during demolition
 - Organization and training of an on-site fire brigade
 - Development of a pre-fire plan with the local fire department
 - Rapid communication
 - Consideration of special hazards resulting from previous occupancies
 - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations.
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Temporary security lighting shall be shown on the Construction Management Plan, and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans



A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

1. Construction Activity in Public Streets

Construction activity in the public right-of-way shall be compliant with Chapter 25 Article VII of the City Code. At no time will it be permissible for construction activity including delivery vehicle to close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater

Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual. This will apply to the new connections within Boyd Street (sanitary) and Oxford Street (storm).

3. Traffic Control Plans

Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. The contractor shall submit a satisfactory "Maintenance of Traffic" (MOT) plan prior to any street opening permit approval. This document shall contain all pertinent information from the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

The MOT will address the work required for utility connections in Boyd and Oxford Streets. Traffic will be channelized utilizing drums and cones. Proper signage will be installed prior to the through work zone. Alternating traffic will be controlled with flaggers. Trenches will be patched with pavement daily.

The MOT plan shall provide for the safe passage of the public through or along the construction work zone. It may be permissible to close a portion of Boyd and Oxford Streets Street during utility connections and/or detour a mode of traffic when absolutely necessary for safety. All requests shall be subject to City approval. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic.
- Traffic Control signs shall not be placed where they would create any obstructions to bicycles or pedestrians.
- Flaggers will be utilized when necessary.

All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning and laying out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or



diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.

- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance in all capacities shall be maintained.

Use of public parking spaces on Boyd and Oxford Streets shall not be permissible. The blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

1. Regular trash and debris shall be managed appropriately, and its removal shall comply with all local, state, and federal regulations.
2. Street cleaning and sweeping shall be followed as outlined in the erosion and sedimentation control notes and report. Damage to the street shall be avoided and shall be the responsibility of the contractor.
3. Dust shall be controlled and shall comply with Section 25-129 and the erosion and sedimentation control notes, plan, and details.
4. Noise shall be controlled and shall comply with Section 17-18 and Section 25-129.
5. Rodent Control shall be provided, if applicable, by a professional exterminator and shall be consistent with Chapter 22 of the City Code.
6. Snow and Ice Removal shall be provided. Pursuant to Section 25-173, the Contractor shall ensure a safe means of travel within the work zone by the following steps:
 - a. Snow/ice removal or commence automatically from 1" or greater of snow or ice
 - b. Remove snow as needed within the work zone, including parking spaces. Driveways and site lines shall not be blocked by piles of snow.
 - c. Clear all walks and ramps within the work zone
 - d. Sand or salt as needed
 - e. Clear all basin or drainage to help snow melt
 - f. The above steps shall be carried out Sunday-Saturday including holidays.

I. Erosion Control and Preservation of Trees

1. The Contractor shall install all erosion and sedimentation controls as outlined in the plan set, and the approved erosion and sedimentation control report, prior to the pre-construction meeting for inspection by the City. The Contractor shall regularly inspect the control measures, no less than weekly and after storm events (0.5" or more in 24



hours). Additionally, temporary or permanent stormwater management systems shall be inspected and maintained to ensure working order. The Contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection (MDEP) or the U.S. Environmental Protection Agency (EPA) upon request.

2. Due to the existing sparse landscaping on site, no protection during construction will be necessary.
3. Stored materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The majority of materials delivered to the site will be scheduled such that they are able to be off-loaded immediately. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets. If, for any reason, on-site holding of trucks is not feasible, an off-site location must be designated and shown on the submitted plan referenced above in J.1.
3. All deliveries for materials shall comply with the City's noise requirements.

K. Parking During Construction

1. Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided.
2. Truck Routes and Volumes: The following quantities are estimated as part of the reconstruction:
 - Gravel & Stone – Approx. 600 CY. Earthwork subcontractor(s) pit to project site.
 - Hot Mix Asphalt – Approx. 235 tons. Paving subcontractor(s) pit to project site.

L. Dewatering Plans

1. A basic dewatering plan for any construction work is required and shall be submitted by the Contractor. The plan must cover construction sites where groundwater is not expected but the impact of rainwater may require dewatering. The plan must include operating procedures, equipment to be used, including filters, erosion and sediment control measures, or other methods of removing sediment from approved discharges.



2. For construction work that will require frequent dewatering of groundwater from site, a dewatering plan must be prepared by the Contractor and approved by the Department of Public Works. Groundwater and/or soil testing may be required to determine course of action if treatment is necessary. Approval for all discharges to City infrastructure is required. The proposed plan must address the following:
 - Project duration, discharge location, storage equipment on-site, dewatering schematic, and emergency contact.
 - General requirements include trained staff on-site for all approved discharges and required site log for documentation of all discharges.
 - Storage and/or treatment process should include proper settling time and maintain proper use of filtering medium as required.
 - Contingency/maintenance plan for all dewatering equipment devices and filtration mediums.

Any water that is removed from an excavation must be pumped from a perforated device buried in crush stone prior discharge and/or prior to storage and treatment. There will be no discharge allowed during precipitation events.

M. Special Measures as Necessary

No special measures are necessary for the proposed reconstruction.



R. Solid Waste Disposal

An existing solid waste container is located in the existing parking lot on site. This solid waste container is anticipated to remain.

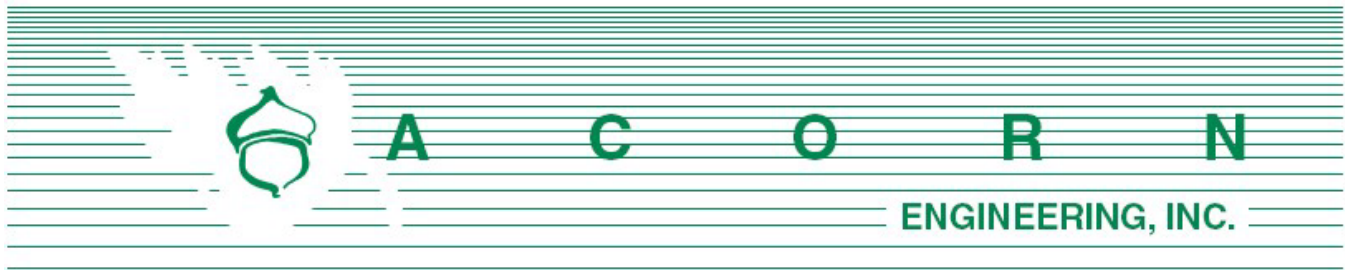
The proposed affordable housing building will utilize a new solid waste roll out containers located in the interior trash room. A private hauler will be contracted for removal services.



S. Parking Analysis

Per Land Use Code Section 19 Off Street Parking Table 19-B Categorical Exceptions to Off-Street Parking Minimums, Affordable Housing: the Planning Board may establish a lesser parking requirement regardless of the size of structure. As the project proposes affordable housing, in close walking proximity to the City's downtown core for goods and services, along with close proximity to transit stops, the applicant requests the Board establish zero (0) parking spaces required for the development.





Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

April 25, 2024

Subject: 9 Boyd St Neighborhood Meeting

I, Michael Triglione, hereby certify that a neighborhood meeting was held on February 24, 2024 at 58 Boyd Street at 5:30 pm.

I also certify that on January 12, 2022, 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,

Michael Triglione, P.E.
Project Engineer
Acorn Engineering, Inc.

Included with this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes



Neighborhood Meeting for the 9 Boyd St Redevelopment Project

April 11, 2024

Dear Neighbor:

Portland Housing Authority and Portland Housing Development Corporation have submitted a Major Site Plan Development Application to the City of Portland for the redevelopment of 9 Boyd St (formerly 70 E Oxford).

Please join us for a Neighborhood Meeting to discuss our redevelopment plans for new affordable housing and resident services, including the construction of a new 6-story building with 50 residential units and site improvements.

Meeting Date:	Wednesday, April 24th, 2024
Meeting Time:	5:30 PM
Meeting Location:	Solterra Community Room 58 Boyd St, Portland, ME 04101

Interpreters available. If you have any questions, please call Sarah Tatarczuk at 207-221-8034.

Sincerely,

Sarah Tatarczuk
Development Officer
PHA and PHDC

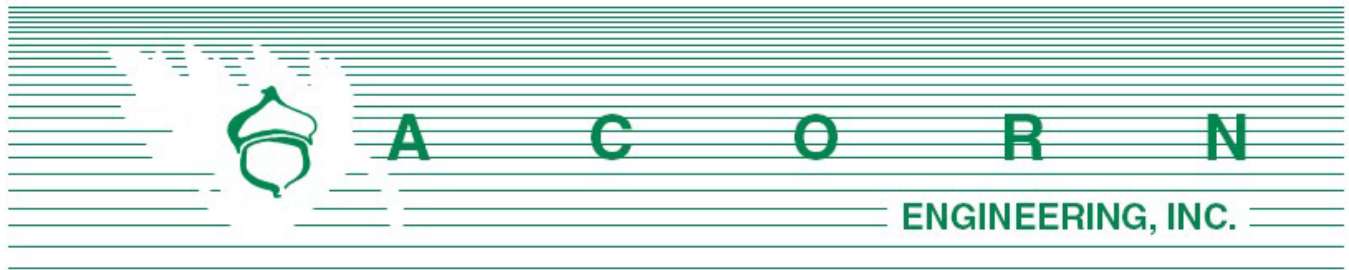
Note:

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. 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.



Neighborhood Meeting
COMB BLOCK
April 24, 2024

Name	Address and/or Email
Joanne Hamn	15A Mayo St.
Mohammad Hussein	21 School Street
Khalil Mohammad	250 Veranda st. portland (Arabic Interpreter)
Sean Noe	23 Mayo St.



9 Boyd Street Redevelopment

Neighborhood Meeting Minutes

April 24, 2024 / 5:30 pm
58 Boyd St, Portland, ME

Project Team Attendees:

Sarah Tatarczuk (ST): Portland Housing Authority

Ryan Senatore (RS): Ryan Senatore Architecture

Braden Drypolcher (BD): Dry Landscape Architecture

Peter Heil (PH): Acorn Engineering

Meeting started at approximately 5:30 pm.

Presentation:

Sarah Tatarczuk:

- Introduction to PHA development team & design team
- Overview of project/PHA mission

Braden Drypolcher:

- Overview of project open space & site access

Ryan Senatore:

- Overview of Phase 1 building layout:
 - o First floor layout consisting of entry, lobby, elevator, community room
 - o Typical residential floor layout consisting of 10 units, a mix of 1-, 2-, 3-, and 4-bedroom units
 - o No significant changes to building since last neighborhood meeting

Sarah Tatarczuk:

- Please stay up to date by viewing the project website & signing up for notifications on the project.

Peter Heil:

- Planning board workshop is tentatively scheduled for May 14, 2024 at 4:30PM at City Hall in Portland.

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.

Neighbor: Are there any other significant changes since last meeting?

ST: Minor changes to the interior layout and increase in open space.

Neighbor: Will pets be allowed?

ST: Yes, PHA Property Management has a pet policy.

Neighbor: How does someone get selected to live in new building?

ST: It is based on who is on the PHA waitlist. Preference will be given to people that currently live on the existing block to move into the new building.

Neighbor: How will the project be phased? Will all the existing buildings be torn down at once?

ST: Yes, all the buildings are anticipated to be demolished at once. There is an hopeful 9-12 month timeline for that after approvals.

Neighbor: Generally, in support of the project, the city needs more & better housing. I have concerns about parking for the proposed housing and the number of people who may be parking on the street.

Meeting concluded at approximately 6:00 pm.

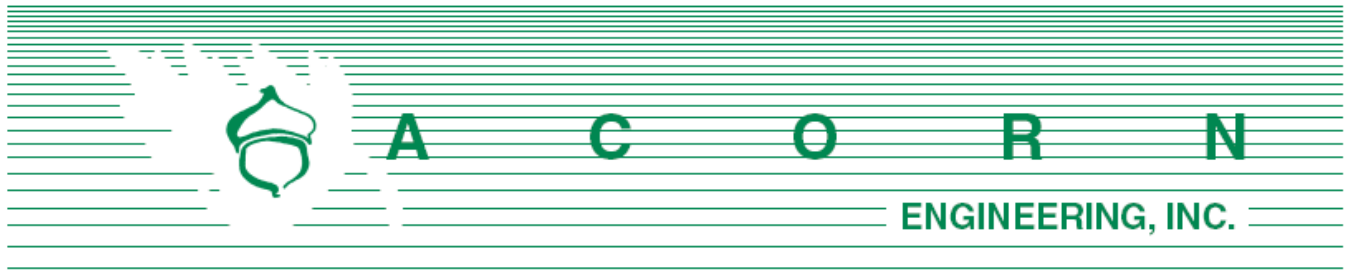
The abovementioned material was interpreted and recorded from handwritten notes. Please note and relay any discrepancies or disputed information in the recorded minutes to the below address so that they can be reviewed, revised, and resubmitted, as necessary.

Recorded by,



Mike Triglione, PE
Project Engineer, Acorn Engineering, Inc.
mtriglione@acorn-engineering.com





Eric Freeman – City Planner
City of Portland
Planning & Urban Development Department
389 Congress Street, 4th Floor
Portland, ME 04101

May 6, 2024

Subject: Comment Response Letter – PL-02815-2024
9 Boyd Street Redevelopment, Portland Maine

Eric,

On behalf of Portland Housing Authority, we are pleased to respond to the Project Review Letter, dated 4/20/24 for the 9 Boyd Street redevelopment project.

Please find responses to the comments received thus far below. Below responses provide additional information and clarify documents request as outlined in the Staff memos. Any items not specifically addressed in this comment response letter are understood to have met the required City standards.

SITE PLAN REVIEW COMMENTS

Comment – Access and Circulation: *The applicant should consider redesigning the Boyd Street sidewalk to avoid excess deviation and weaving around proposed street tree plantings.*

Response – The plans have been revised to provide a continuous sidewalk width along Boyd Street on the backside of the proposed tree wells. The sidewalk provides 4' clear width on the backside of the tree wells.

Comment – Access and Circulation: *The applicant shall provide a signage plan to ensure any street signage within the right of way that is disturbed as part of construction shall be reset and/or replaced as needed in its current or appropriate location.*

Response – A signage key and additional labeling in plan view has been added to the Site Plan, sheet C-10.

Comment – Access and Circulation: *The applicant shall design a continuous sidewalk behind the proposed trees (a public easement for the sidewalk will be required).*

Response – The plans have been revised to provide for a continuous sidewalk along Boyd Street. It is understood that a public easement will be required for this portion of the sidewalk.

Comment – *Access and Circulation: The applicant shall reduce the proposed curb extension to 4 ft rather than what is currently proposed.*

Response – We understand the curb extension is still under discussion with Planning and DPW. At this time, we have left the curb extension as previously shown until final direction is provided by the City. The applicant would prefer to leave as shown to match the curblines and extension downhill across Oxford Street and also provides additional esplanade areas and soil volumes for the street trees.

Comment – *Access and Circulation: The applicant shall consider rebuilding the proposed sidewalk in concrete. DPW will support a waiver for concrete in this area because it meets item 1 of the exception to the Sidewalk Materials Policy.*

Response – The proposed sidewalk along Boyd Street has been revised to be installed as concrete.

Comment – *Parking: The applicant is requesting a waiver from city standards for the width of the parking lot aisle width. From reviewing the site plan, it appears dimensional standards can be met and therefore it is unclear why the layout of the parking lot can't be modified to comply with standards. At this time staff do not support a waiver.*

Response – The reduction in width of the drive aisle has been designed to leave adequate space for future development of the norther portion of the property. Conceptual massing designs have been conducted for the future building along Mayo St to work in unison with the proposed 9 Boyd Street building with the reduced driveway width. It has been determined through this exercise that the reduction in aisle width will help PHA meet their housing goals with the future buildout of the entire parcel. Additionally, the reduction in aisle width reduces the overall paved impervious area and pollutant load caused by the site development. The existing parking lot, with 90 degree parking, double loaded, is currently 18' wide. The proposed conditions also serve a low turn over accessible only parking area with <10 spots. Reducing the driveway curb cut also provides greater separation to an existing street tree the project intends on preserving and limits disturbance to the trees root system. Where this waiver is granted in other urban sites throughout the city, the applicant intends to move forward and present the waiver request to the Planning Board.

Comment – *Site landscaping and Buffers: The applicant should consider redesigning the Boyd Street sidewalk to avoid excess deviation and weaving around proposed street tree plantings.*

Response – The Boyd Street sidewalk has been revised to minimize the deviations around the proposed street tree wells.

Comment – *Water Quality, Stormwater Management and Erosion Control: The project is required to comply with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 regulations for Stormwater Management.*

- *Basic Standards* – The applicant has provided for erosion and sedimentation control measures as required by the Basic Standards.
- *General/Flooding Standards* – The project is not creating new impervious surface subject to the General or Flooding Standards, and is a redevelopment project as noted below.



- *Redevelopment Standard – The applicant is providing a system with a Stormfilter and R-Tanks to provide for treatment of the redeveloped non-roof impervious surface. This system also manages the site to reduce flows from the pre-development to post-development condition.*
- *Future Development – Based on my understanding of what has been submitted, the Applicant has modeled the site considering for future development. This is conservative to show that with the proposed future development, the system has been designed to manage the site's stormwater flows. In the interim condition, undeveloped portions of the site will be planted with grass. I would recommend that the applicant coordinate with the city relative to this proposed interim condition with regards to stormwater fees and surface conditions. Depending on the timing of future development, these vegetated areas may not be considered as redevelopment. The city is also working on a revised stormwater management standard.*

Response – At this time, the timing of the future development phases is unclear. The treatment & storage system is designed to treat the roof of a future proposed building that is about 10,500 sf & a total additional developed area of 24,400 sf. This is based on preliminary massing for a future building on the northern portion of the parcel.

Based on MDEP Chapter 500 Pollutant Impact Ratings, rooftops (not flat asphalt or industrial), grassed areas mowed more than twice per year, and walkways/foot traffic pavement carry the same pollutant ranking. Therefore, MDEP treatment requirements will remain the same with/without accounting for the footprint of the existing buildings.

Understood that the city is working on revised stormwater management standard. We have designed the site to account for future development to the maximum extent practicable for this project. When other portions of the parcel are developed, they will utilize the over-sized storage and treatment system as well as, if necessary, additional measures to ensure they meet the stormwater treatment and storage requirements at that time.

Comment – *Water Quality, Stormwater Management and Erosion Control: The applicant is corresponding with Portland Water District and the City of Portland for water and sewer requirements and has noted that confirmation of ability serve will be provided when received.*

Response – Ability to serve has been confirmed by Portland Water District as well as City of Portland DPW for water and sewer, respectively. Confirmation letters are included as part of this submission.

Comment – *Water Quality, Stormwater Management and Erosion Control: The plans should account for pavement replacement on Boyd Street for the locations of the proposed sewer service and the abandonment of the existing water service at the main.*

Response – Utility Plan and Construction Management Plan have been updated to account for pavement replacement in these locations.

Comment – *Water Quality, Stormwater Management and Erosion Control: The applicant should*



specify how much new impervious area and redeveloped area associated with future development phases will be managed by the proposed oversized stormwater BMP's such that the treatment/detention volume requirements for future phases will meet the proposed updated standard. This updated standard is likely to be adopted later this year.

Response – The detention volume of the proposed R-tank system is 3,752 CF. Back calculating the area based on 1" of rainfall, this provides storage for 45,024 sf. The redeveloped area associated with the 9 Boyd St building is approximately 24,400 sf. Therefore, additional storage will meet the 1" over developed area standard for an additional 20,624 sf of developed area. The sizing of the treatment system is flow-based. Flows to size the Stormfilter have accounted for 10,560 sf of additional impervious roof area to be routed to the system.

Comment – *Public Utilities: Underground electrical conduit and vaults shall be placed behind the curblin of a street per City of Portland, Maine Technical Standards Manual Section 1 Figure I-4 (Utility Locations in Streets).*

Response – It is unfeasible to install the electrical conduit and vaults behind the curblin due to the existing gas main and telecom conduits that exist behind the curblin in Oxford Street. The proposed electrical and telecom conduit will need to be encased in concrete and has separation requirements to gas mains that will need to be maintained. Additionally, if a concrete encased duct bank and structures were installed behind the curb, it would be of the detriment of street trees proposed within the esplanade along Oxford.

Comment – *Public Utilities: The proposed bends in the underground electrical conduit may not be feasible and should be reconfigured to minimize roadway crossing distance.*

Response – The electrical conduit layout has been reviewed and approved by CMP. Correspondence with CMP has been included as part of this resubmission.

DESIGN REVIEW COMMENTS

The below comments relate to the site/civil/landscape comments included within the Design Review memo. For additional comment responses to the building and architectural design review, please see attached to this response a letter from Ryan Senatore Architecture which addresses the design review comments, informed by a meeting with Sean King.

Comment – *Staff recommends a continuous brick sidewalk along the Boyd Street frontage to reduce sidewalk maintenance concerns and provide additional sidewalk width.*

Response – The plans have been revised to provide for a continuous sidewalk along Boyd Street. The proposed sidewalk along Boyd Street has been revised to be installed as concrete as identified above from the DPW review comment. We understand there are ongoing discussions with Planning and DPW on materiality.

Comment – *Staff finds the open space provided for the fifty residential units is limited and recommends that the Applicant program the common open space, proposed as an open lawn area, to include additional gathering places with seating, shade elements, other outdoor amenities and patio spaces that could function for multiple groups during the same time.*



Response – The plans have been updated to provide additional seating / picnic table areas within the open space, as well as provides a robust planting plan, including shade trees. Based on the design team call with City staff, we understand Staff is comfortable to having the larger open space area remain as open lawn / flex area for the residents.

Please let us know if you have any additional questions or comments.

Sincerely,

A handwritten signature in blue ink, appearing to read "Peter Heil".

Peter Heil, P.E.
Project Manager
Acorn Engineering, Inc.



May 1, 2024

Sean King
Urban Designer
Planning Department
City of Portland Maine
389 Congress Street
Portland, Maine 04101

Re: COMB Block Apartments - Design Narrative

Dear Sean,

Thank you for our meeting to go over the resign review comments and discuss these in further detail, we appreciate the collaboration, as a follow up to our meeting, please see the attached drawing package reflecting revisions in response to the Design Review comments within the memo dated 4/8/24.

Below is a description of the revisions made:

III. #1 - We have revised the fenestration on Boyd Street to provide more glazing and connection to the Street. At the lobby we have revised the glazing size to a triple window and raised the head up to provide this visual connection to the street. We have increased the size of the glazing in the office adjacent to the stair, as well as added windows to the next office up the hill. We have also increased the size of the windows in the living rooms of the apartments along Boyd Street by doubling their width to 6'.

In order to provide more visibility to the main entry on the street corner we have stepped the seat wall down at its midpoint. To provide more visual prominence to the entry itself we have made the entry doors a pair of doors, and increased the height of the transom glazing above the doors. We have also added exterior wall sconces adjacent to the entry and provided signage above the doors.

III. #2 - We have addressed what we believe is the intent of this comment by providing a transom at the secondary entrances and additional signage at them, giving them more articulation and visibility as entrances.

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

III. #4 - We feel the facades are a good balance of natural light and fenestration for the internal units as well as the exterior composition. We are trying to maintain the goal of a Passive House (very energy efficient) building design so adding more fenestration would impact that effort thus why we would prefer to maintain the current fenestration as proposed.

R-7. C. - We have designed the base of the building utilizing a 'brick' color 12"x24" exterior tile to provide a durable street level facade material that is a bit more modern in nature than brick but uses its color to recall the cladding material found in the neighboring context of the masonry buildings on Cumberland Avenue and throughout Portland. We will provide physical material samples of the tile to staff and the board for review.

R-7. D. - This item was addressed in a section above.

R-7. E. - This item was addressed in a section above.

R-7. G. - This item was addressed in a section above.

We look forward to discussing the project at the upcoming Planning Board workshop.

Sincerely,



Ryan Senatore, AIA LEED AP

Principal

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

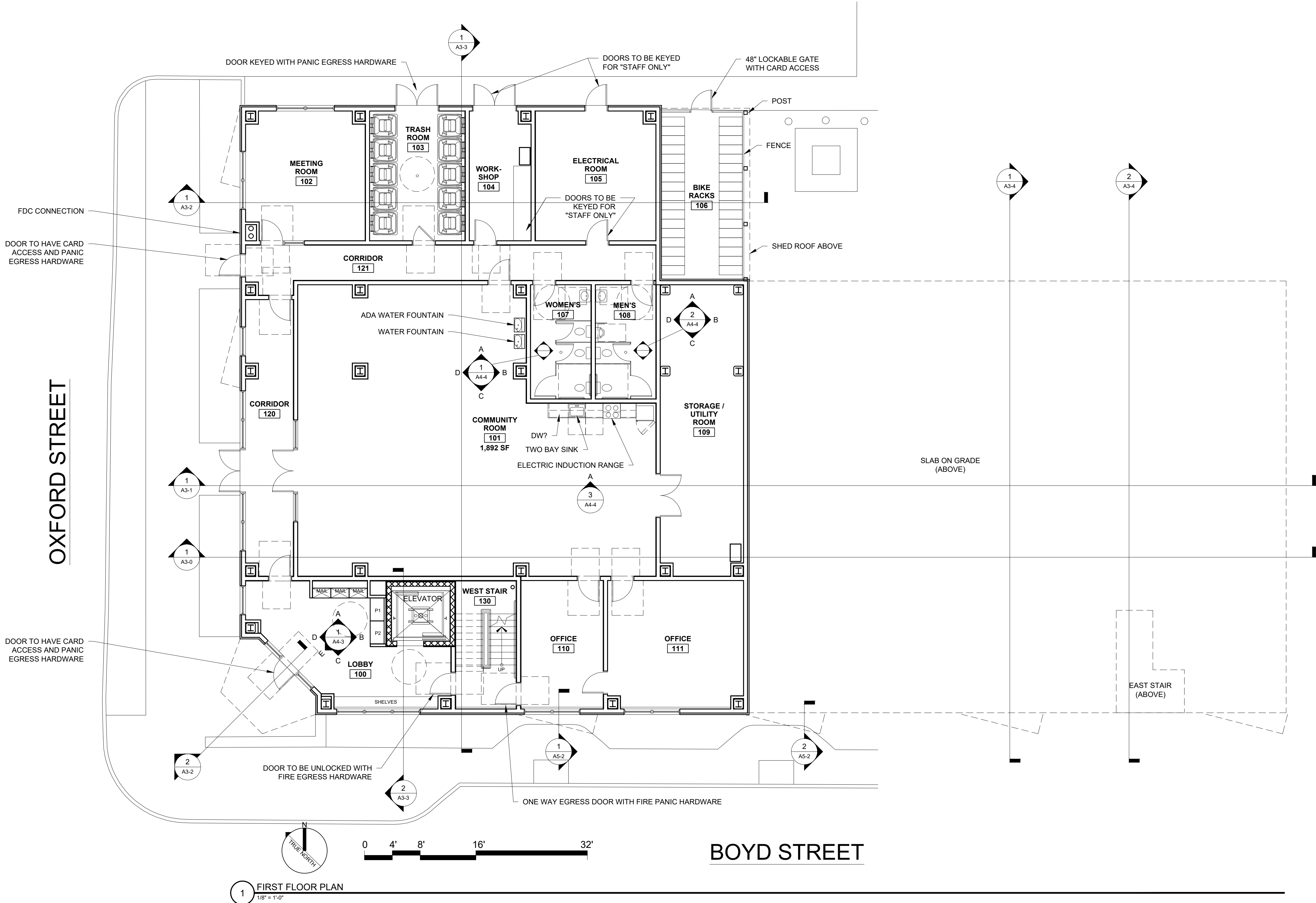
500 Congress Street, Suite 2
Portland, Maine 04101

NOTE: AT ALL EXTERIOR WALL PANELS, ALL PANEL JOINTS, BOTH VERTICAL AND HORIZONTAL, TO HAVE TWO CONTINUOUS BEADS OF ELASTOMERIC SEALANT INSTALLED.

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
50 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
50 units within building X 2% = 1 unit to be hearing and vision impaired	1 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

ACCESSIBLE UNIT TYPES								
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0
TOTALS	2	1	1	3	1	3	1	0



1 FIRST FLOOR PLAN
1/8" = 1'-0"

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APARTMENTS
9 BOYD STREET
PORTLAND, MAINE

RSA
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REVISIONS:
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MAY 6TH, 2024

DATE:
PROJECT No. 2336
DRAWN BY: RRT
CHECKED BY: RJS
SCALE: AS NOTED
SHEET TITLE:
FIRST FLOOR PLAN

A1-1

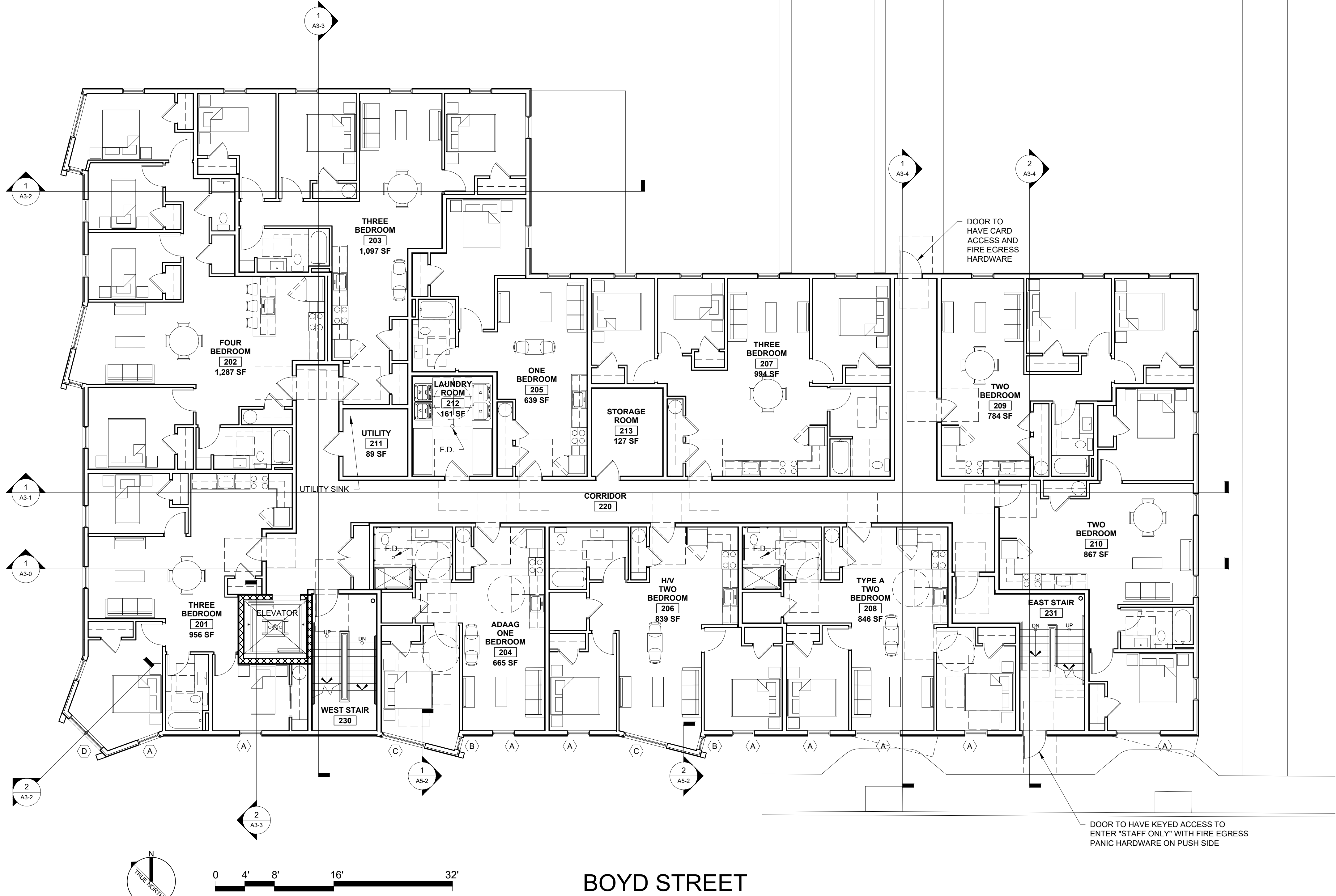
NOTE: AT ALL EXTERIOR WALL PANELS, ALL PANEL JOINTS, BOTH VERTICAL AND HORIZONTAL, TO HAVE TWO CONTINUOUS BEADS OF ELASTOMERIC SEALANT INSTALLED.

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
50 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
50 units within building X 2% = 1 unit to be hearing and vision impaired	1 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED	TYPE - ADDAG FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0	0
TOTALS	2	1	1	3	1	3	1	0	0

OXFORD STREET



1 SECOND FLOOR PLAN
1/8" = 1'-0"

BOYD STREET

APARTMENTS
9 BOYD STREET
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DRAWN BY: RRT
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SCALE: AS NOTED
SHEET TITLE:
SECOND FLOOR PLAN

A1-2

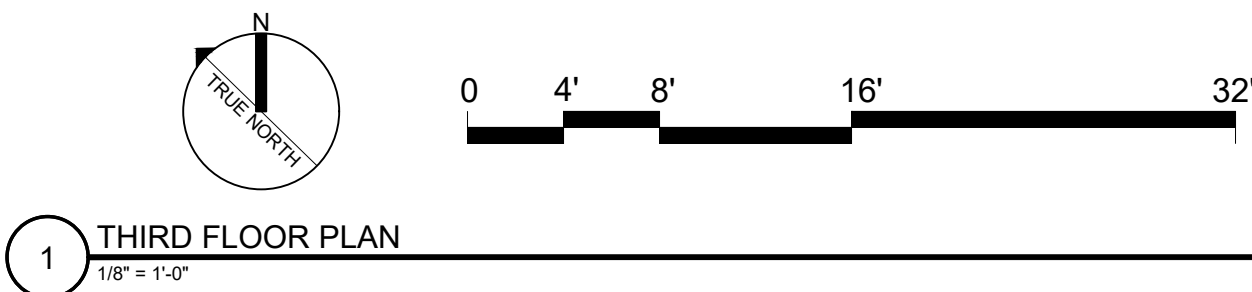
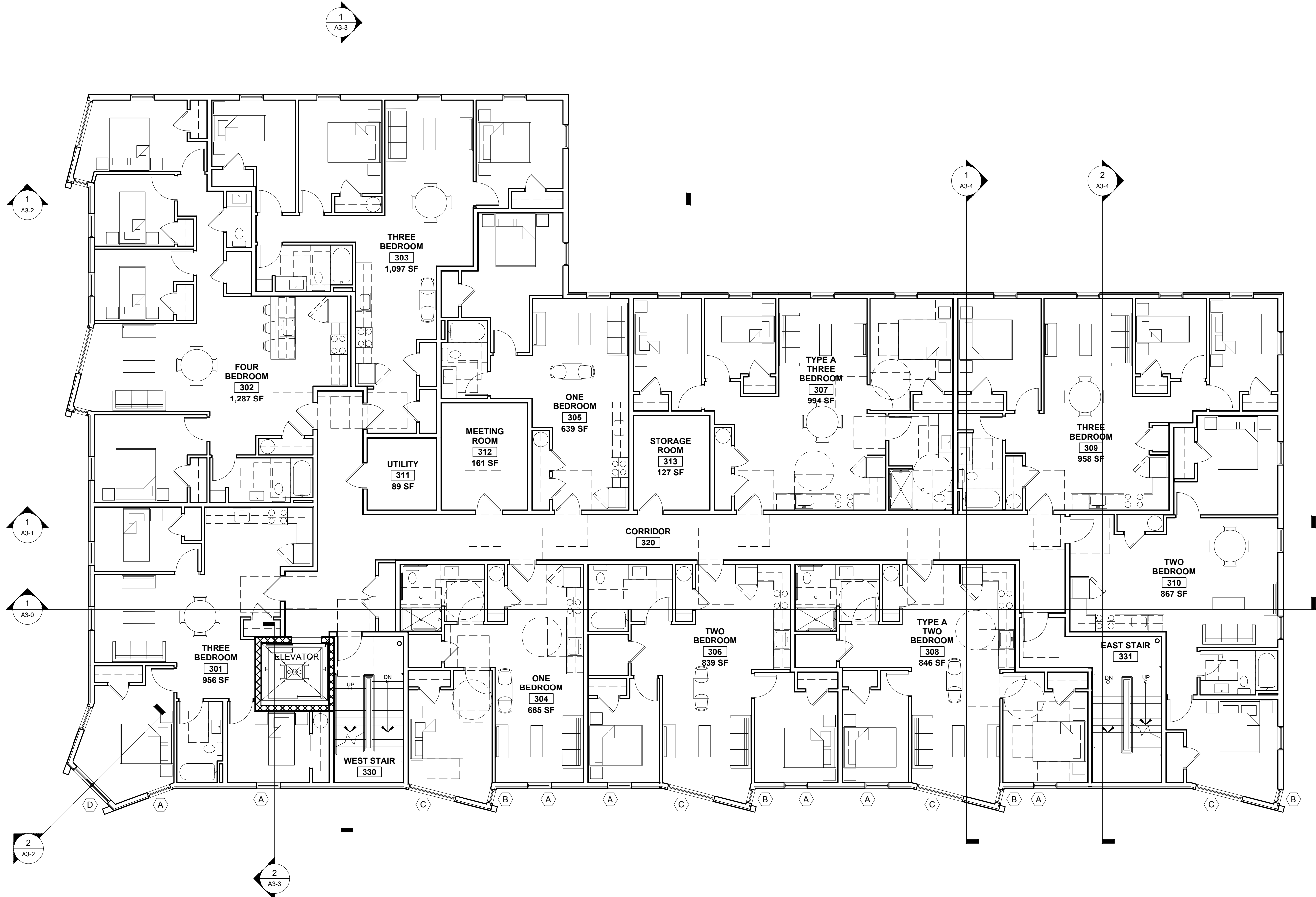
NOTE: AT ALL EXTERIOR WALL PANELS, ALL PANEL JOINTS, BOTH VERTICAL AND HORIZONTAL, TO HAVE TWO CONTINUOUS BEADS OF ELASTOMERIC SEALANT INSTALLED.

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
50 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
50 units within building X 2% = 1 unit to be hearing and vision impaired	1 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED	TYPE - ADDAG FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0	0
TOTALS	2	1	1	3	1	3	1	0	0

OXFORD STREET



BOYD STREET

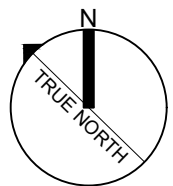
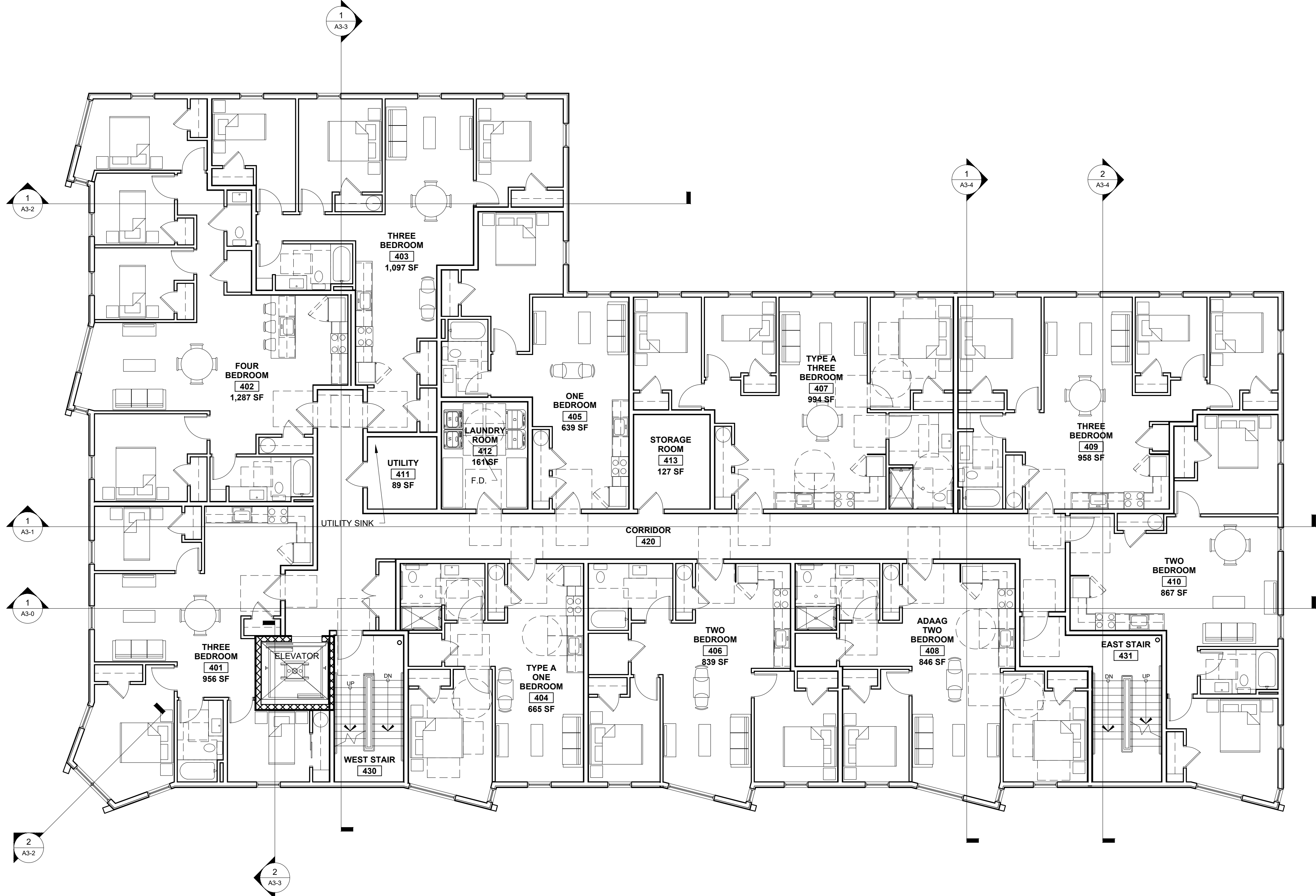
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UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
50 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
50 units within building X 2% = 1 unit to be hearing and vision impaired	1 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

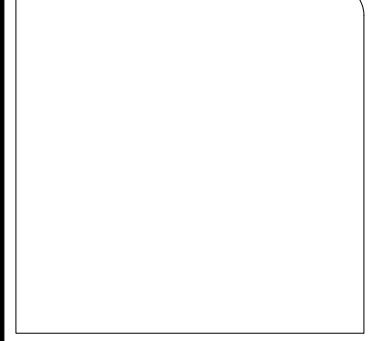
ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED	TYPE - ADDAG FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0	0
TOTALS	2	1	1	3	1	3	1	0	0

OXFORD STREET



1 FOURTH FLOOR PLAN
1/8" = 1'-0"

BOYD STREET



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APARTMENTS
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SCALE: AS NOTED

SHEET TITLE:
FOURTH FLOOR
PLAN

A1-4

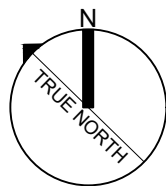
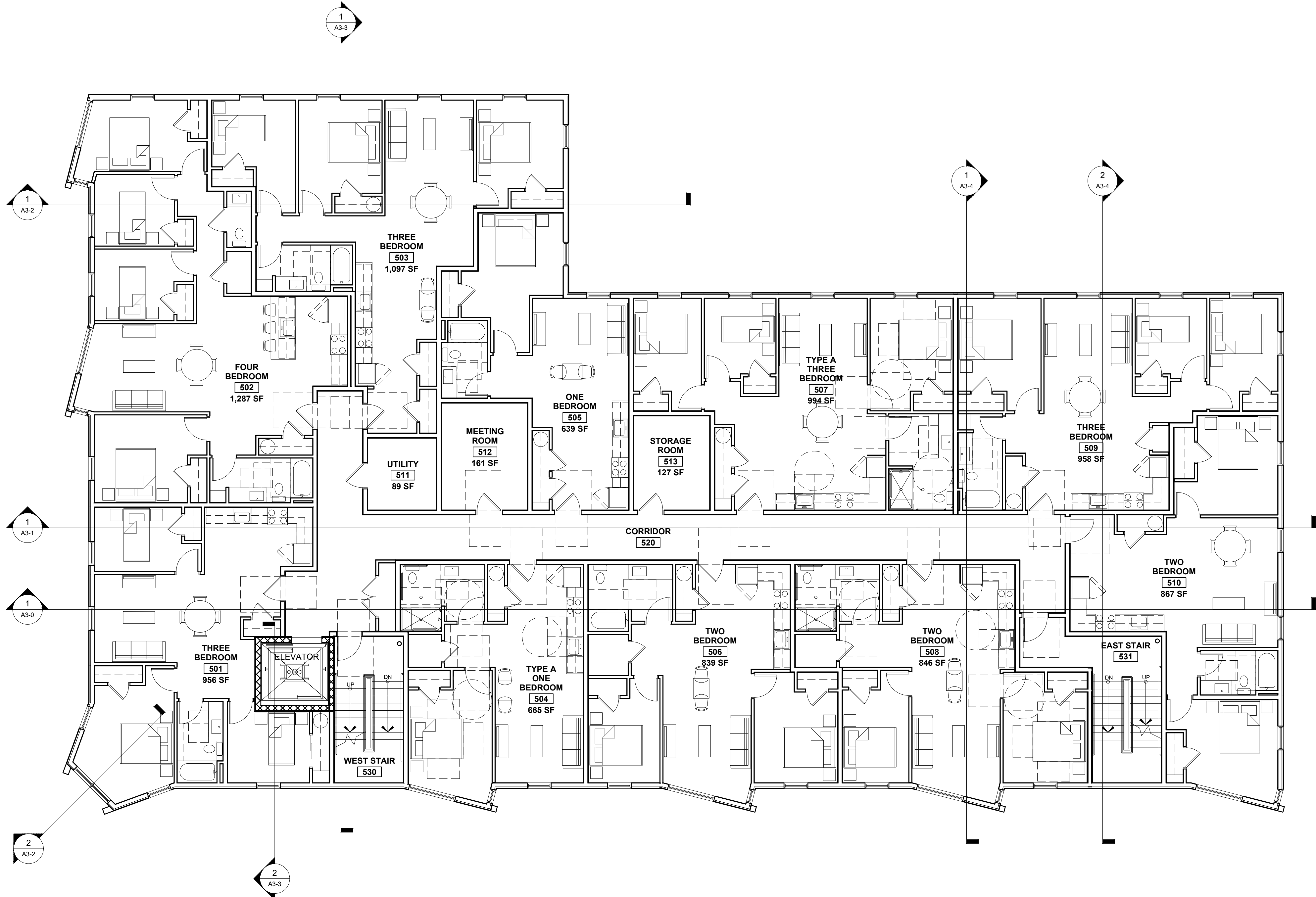
NOTE: AT ALL EXTERIOR WALL PANELS, ALL PANEL JOINTS, BOTH VERTICAL AND HORIZONTAL, TO HAVE TWO CONTINUOUS BEADS OF ELASTOMERIC SEALANT INSTALLED.

UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
50 units within building X 5% = 3 units to meet ADAAG	3 ADAAG units	0 Excess
50 units within building X 2% = 1 unit to be hearing and vision impaired	1 Hearing and Vision Impaired Units	0 Excess
REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED	TYPE - ADDAG FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0	0
TOTALS	2	1	1	3	1	3	1	0	0

OXFORD STREET



BOYD STREET

1 FIFTH FLOOR PLAN
1/8" = 1'-0"

RSA

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DATE:
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CHECKED BY: RJS
SCALE: AS NOTED
SHEET TITLE:
FIFTH FLOOR
PLAN

A1-5

APARTMENTS
9 BOYD STREET
PORTLAND, MAINE

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ARCHITECTURE

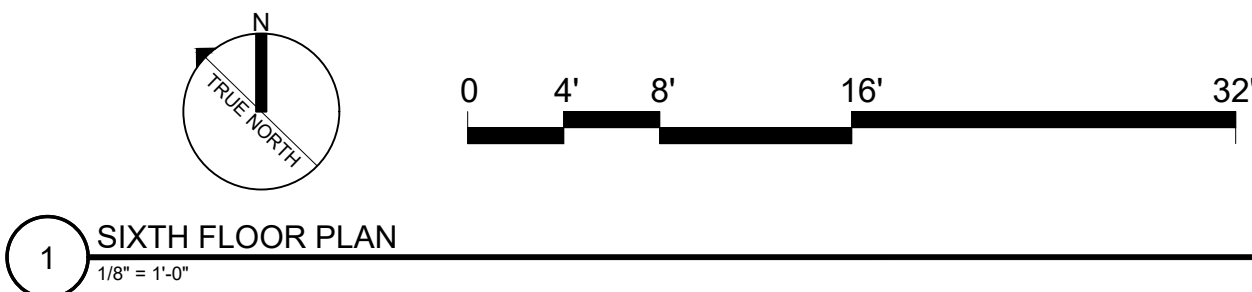
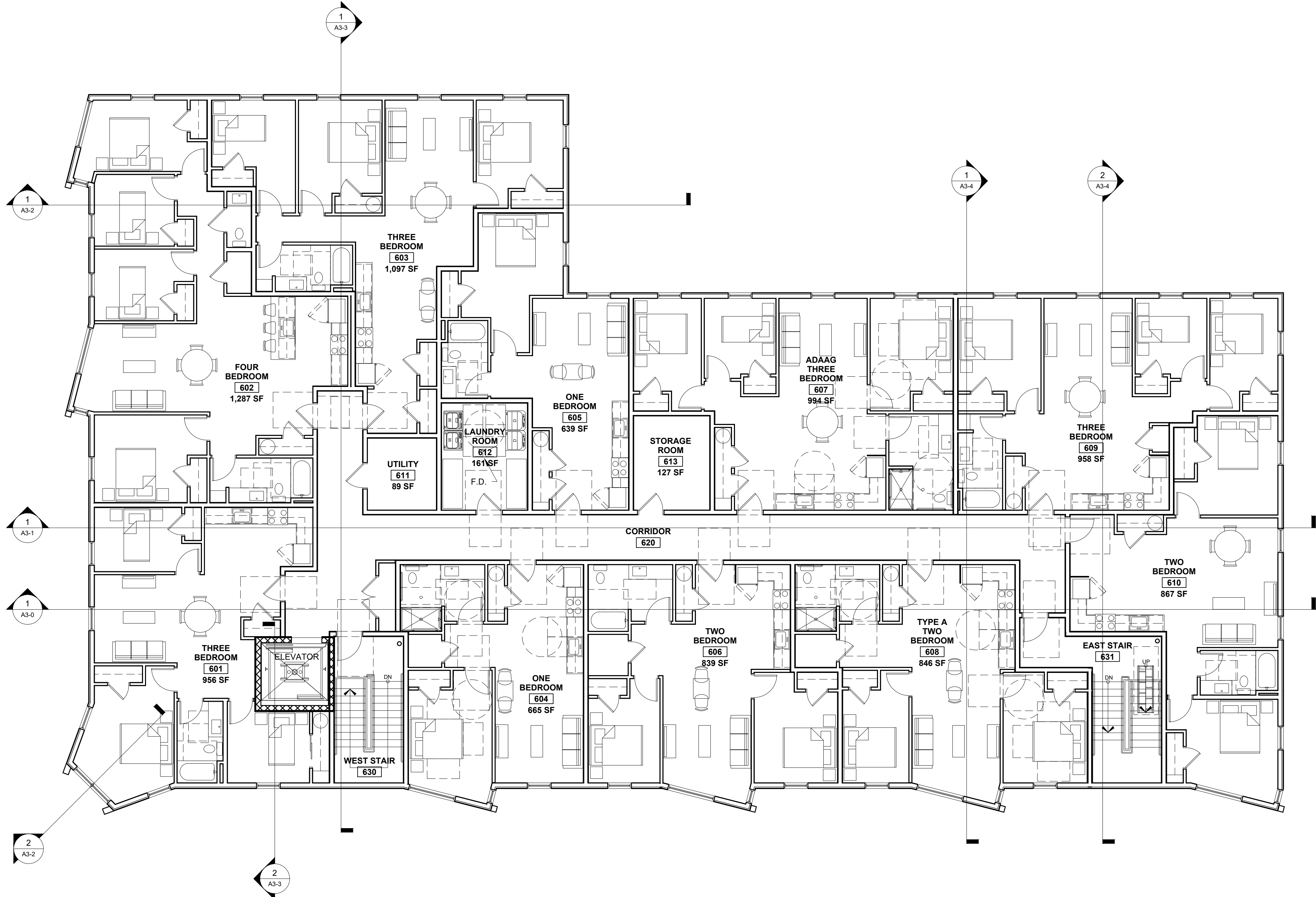
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UNIT ACCESSIBILITY SUMMARY		
REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010	PROVIDED IN PROJECT	EXCESS UNITS
SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired		
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REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009		
SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A		
10 Ground Floor (2nd Floor) Units X 10% = 1 unit	2 Type-A units (includes 1 ADAAG)	1 Excess
SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A		
40 Upper Floor (3rd,4th,5th,6th Floors) Units X 10% = 4 units	9 Type-A units (includes 2 ADAAG)	5 Excess
	11 Type-A units total (INCLUDES ADAAG)	6 Excess Type-A units total
All the rest to be Type B	39 Type-B units (includes 1 H/V)	
MHRA requires ALL units to either be Type A or B units		
All units to meet Federal Fair Housing Act		

UNIT TYPES - 50 TOTAL UNITS				
SECOND FLOOR	2 ONE BEDROOM UNITS	4 TWO BEDROOM UNITS	3 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
THIRD FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FOURTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
FIFTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
SIXTH FLOOR	2 ONE BEDROOM UNITS	3 TWO BEDROOM UNITS	4 THREE BEDROOM UNITS	1 FOURTH BEDROOM UNITS
TOTALS	10 ONE BEDROOM UNITS	16 TWO BEDROOM UNITS	19 THREE BEDROOM UNITS	5 FOURTH BEDROOM UNITS

ACCESSIBLE UNIT TYPES									
FLOOR	TYPE - A ONE BED	TYPE - ADDAG ONE BED	H/V IMPAIRED TWO BED	TYPE - A TWO BED	TYPE - ADDAG TWO BED	TYPE - A THREE BED	TYPE - ADDAG THREE BED	TYPE - A FOUR BED	TYPE - ADDAG FOUR BED
SECOND FLOOR	0	1	1	1	0	0	0	0	0
THIRD FLOOR	0	0	0	1	0	1	0	0	0
FOURTH FLOOR	1	0	0	0	1	1	0	0	0
FIFTH FLOOR	1	0	0	0	0	1	0	0	0
SIXTH FLOOR	0	0	0	1	0	0	1	0	0
TOTALS	2	1	1	3	1	3	1	0	0

OXFORD STREET

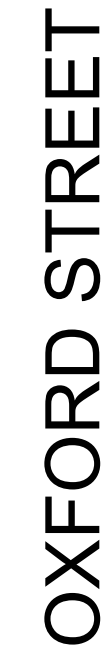


BOYD STREET

REVISIONS: C/19

SHEET TITLE:
ROOF PLAN

A1-7



ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #4
DOORS / WINDOWS	PRE FINISHED	COLOR #4
EXTERIOR 12" X 24" TILE	TBD	COLOR #5

MATERIALS NOTE:

1.) ALL DIS-SIMILAR METALS TO BE ISOLATED FROM ONE ANOTHER WITH ADHERED STRIPS OR SEALANTS TO PREVENT GALVANIC ACTION

ELEVATION NOTES

1.) ALL SIDING AND TRIM TO BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS AND APPROVED SHOP DRAWINGS

2.) SEE ELECTRICAL DRAWINGS FOR EXTERIOR LIGHTING SPECS

3.) FOR EXTERIOR VENT LOCATIONS SEE MECHANICAL PLANS. ALL VENTS AND PENETRATIONS TO BE FLASHED INTO FACADE AND PAINTED TO MATCH THE SIDING THEY ARE MOUNTED WITHIN

4.) G.C. TO PROVIDE A PARTIAL FULL SCALE MOCKUP FOR OWNER APPROVAL OF FINISH PRIOR TO CONSTRUCTION

5.) EXTERIOR THIN BRICK MUST HAVE CONTROL (MOVEMENT) JOINTS AT SPACED NO MORE THAN 16'-0" O.C. (INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS).

COLOR LEGEND

= COBBLE STONE (COLOR #1)

= MONTEREY TAUPE (COLOR #2)

= AGED PEWTER (COLOR #3)

= BLACK (COLOR #4)

= EXTERIOR TILE (COLOR #5)

APARTMENTS
COMB BLOCK
PORTLAND, MAINE

RSA

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CONSULTANTS:

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MARCH 8TH, 2024

REVISIONS:

DATE:

PROJECT No. 2336

DRAWN BY: RRT

CHECKED BY: RJS

SCALE: AS NOTED

SHEET TITLE:
SOUTH
ELEVATION

A2-0A

Page 699

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #4
DOORS / WINDOWS	PRE FINISHED	COLOR #4
EXTERIOR 12" X 24" TILE	TBD	COLOR #5
MATERIALS NOTE:		
1.) ALL DIS-SIMILAR METALS TO BE ISOLATED FROM ONE ANOTHER WITH ADHERED STRIPS OR SEALANTS TO PREVENT GALVANIC ACTION		

ELEVATION NOTES	
1.) ALL SIDING AND TRIM TO BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS AND APPROVED SHOP DRAWINGS	
2.) SEE ELECTRICAL DRAWINGS FOR EXTERIOR LIGHTING SPECS	
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4.) G.C. TO PROVIDE A PARTIAL FULL SCALE MOCKUP FOR OWNER APPROVAL OF FINISH PRIOR TO CONSTRUCTION	
5.) EXTERIOR THIN BRICK MUST HAVE CONTROL (MOVEMENT) JOINTS AT SPACED NO MORE THAN 16'-0" O.C. (INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS).	
COLOR LEGEND	
= COBBLE STONE (COLOR #1)	= BLACK (COLOR #4)
= MONTEREY TAUPE (COLOR #2)	= EXTERIOR TILE (COLOR #5)
= AGED PEWTER (COLOR #3)	



1 SOUTH ELEVATION
1/8" = 1'-0"

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ARCHITECTURE

APARTMENTS
9 BOYD STREET
PORTLAND, MAINE

RSA

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MAY 6TH, 2024

REVISIONS

DATE:	
PROJECT No.	2336
DRAWN BY:	RRT
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
SOUTH
ELEVATION -
COLORED

A2-0B

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #4
DOORS / WINDOWS	PRE FINISHED	COLOR #4
EXTERIOR 12" X 24" TILE	TBD	COLOR #5
MATERIALS NOTE:		
1.) ALL DIS-SIMILAR METALS TO BE ISOLATED FROM ONE ANOTHER WITH ADHERED STRIPS OR SEALANTS TO PREVENT GALVANIC ACTION		

ELEVATION NOTES	
1.) ALL SIDING AND TRIM TO BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS AND APPROVED SHOP DRAWINGS	
2.) SEE ELECTRICAL DRAWINGS FOR EXTERIOR LIGHTING SPECS	
3.) FOR EXTERIOR VENT LOCATIONS SEE MECHANICAL PLANS. ALL VENTS AND PENETRATIONS TO BE FLASHED INTO FACADE AND PAINTED TO MATCH THE SIDING THEY ARE MOUNTED WITHIN	
4.) G.C. TO PROVIDE A PARTIAL FULL SCALE MOCKUP FOR OWNER APPROVAL OF FINISH PRIOR TO CONSTRUCTION	
5.) EXTERIOR THIN BRICK MUST HAVE CONTROL (MOVEMENT) JOINTS AT SPACED NO MORE THAN 16'-0" O.C. (INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS).	
COLOR LEGEND	
 COBBLE STONE (COLOR #1)	 BLACK (COLOR #4)
 MONTEREY TAUPE (COLOR #2)	 EXTERIOR TILE (COLOR #5)
 AGED PEWTER (COLOR #3)	

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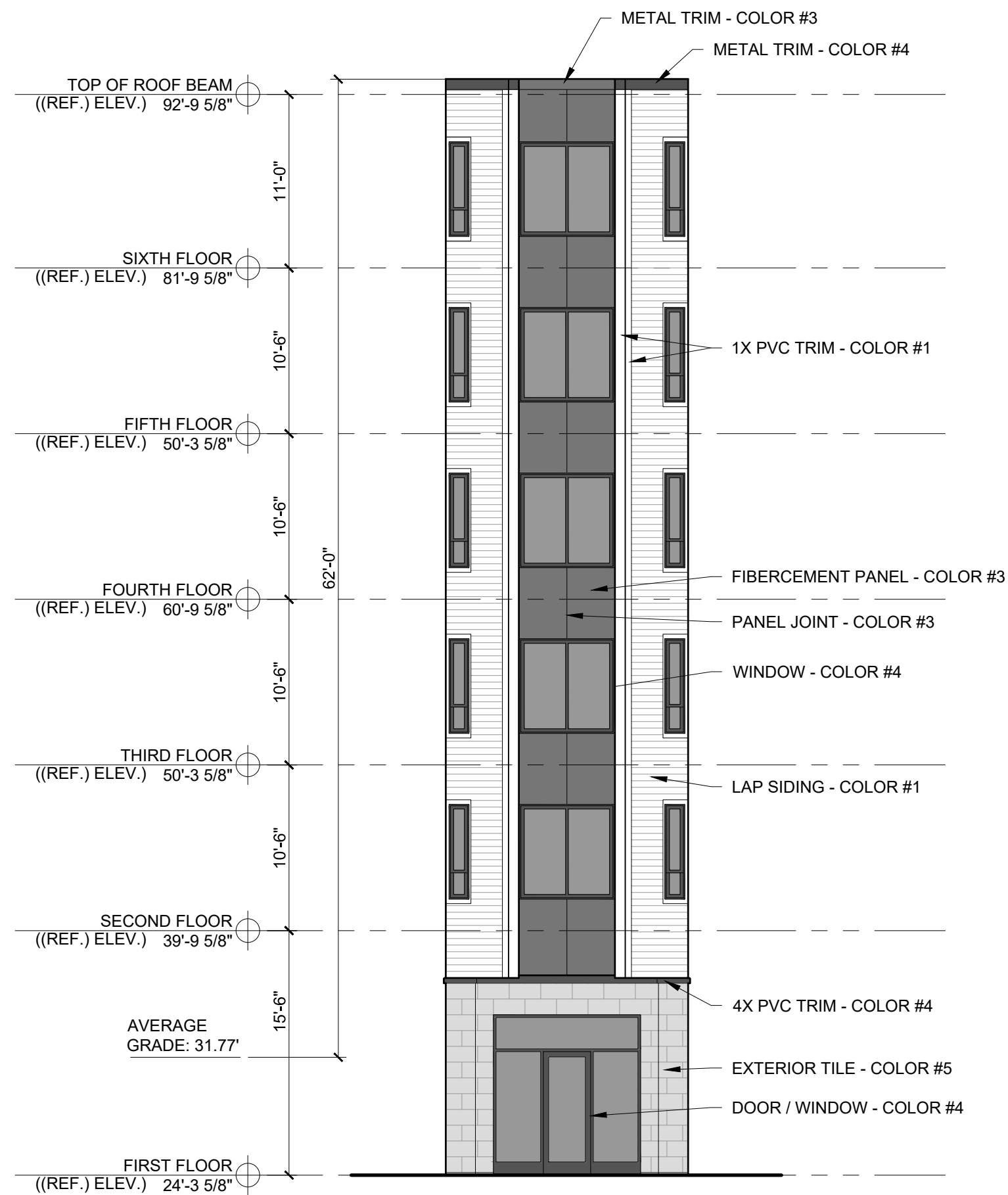
DATE:
PROJECT No. 2336
DRAWN BY: RRT
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SCALE: AS NOTED

SHEET TITLE:
WEST
ELEVATION

A2-1A



1 WEST ELEVATION
1/8" = 1'-0"



2 NORTH-EAST ELEVATION
1/8" = 1'-0"

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #4
DOORS / WINDOWS	PRE FINISHED	COLOR #4
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 = AGED PEWTER (COLOR #3)	



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1/8" = 1'-0"

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MATERIALS NOTE:

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COLOR LEGEND

= COBBLE STONE (COLOR #1)

= MONTEREY TAUPÉ (COLOR #2)

= AGED PEWTER (COLOR #3)

= BLACK (COLOR #4)

= EXTERIOR TILE (COLOR #5)

1 NORTH ELEVATION
1/8" = 1'-0"

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SCALE: AS NOTED

SHEET TITLE:
NORTH
ELEVATION

A2-2A

Page 703

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #4
DOORS / WINDOWS	PRE FINISHED	COLOR #4
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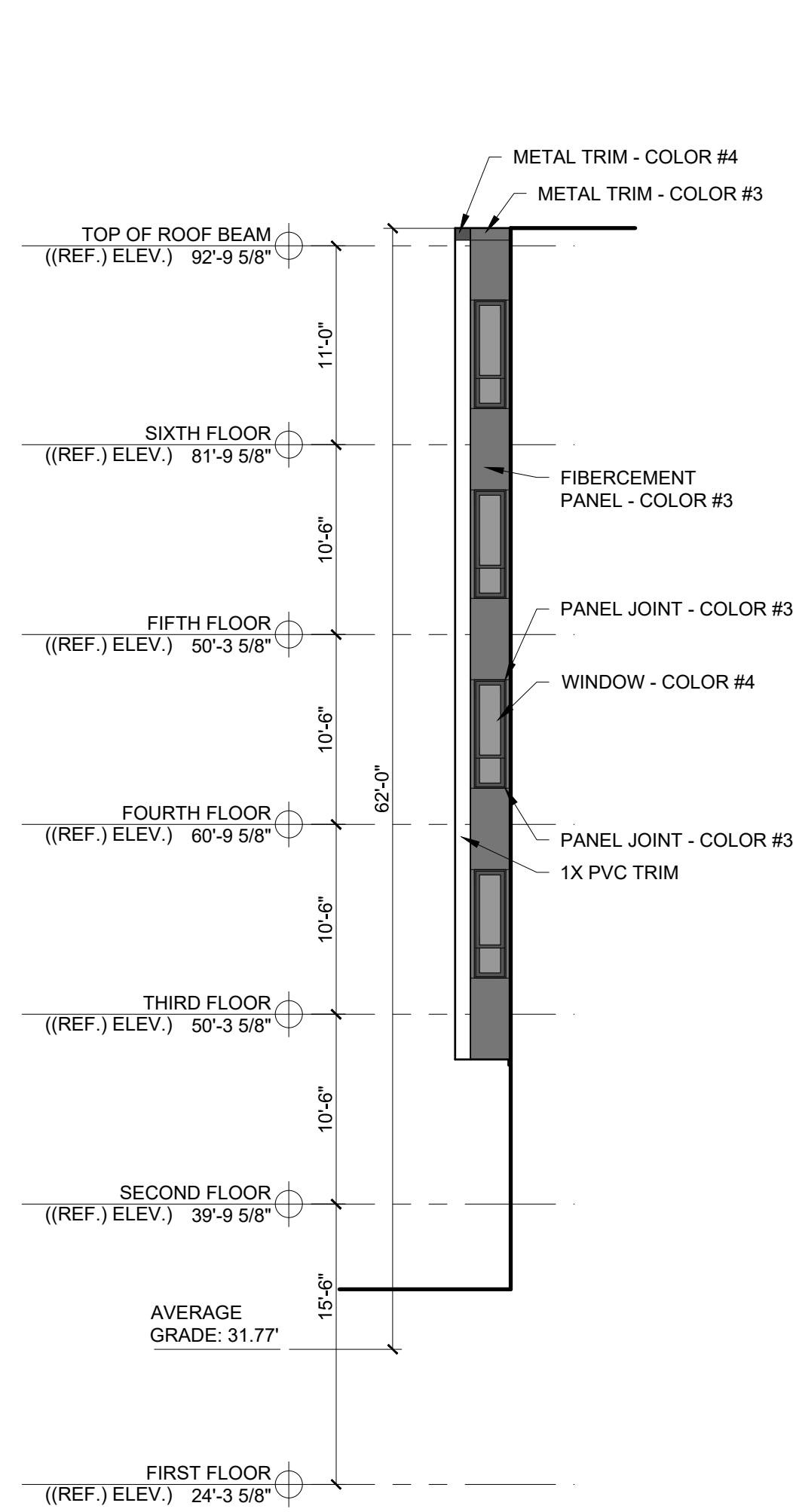
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SHEET TITLE:
NORTH
ELEVATION -
COLORED

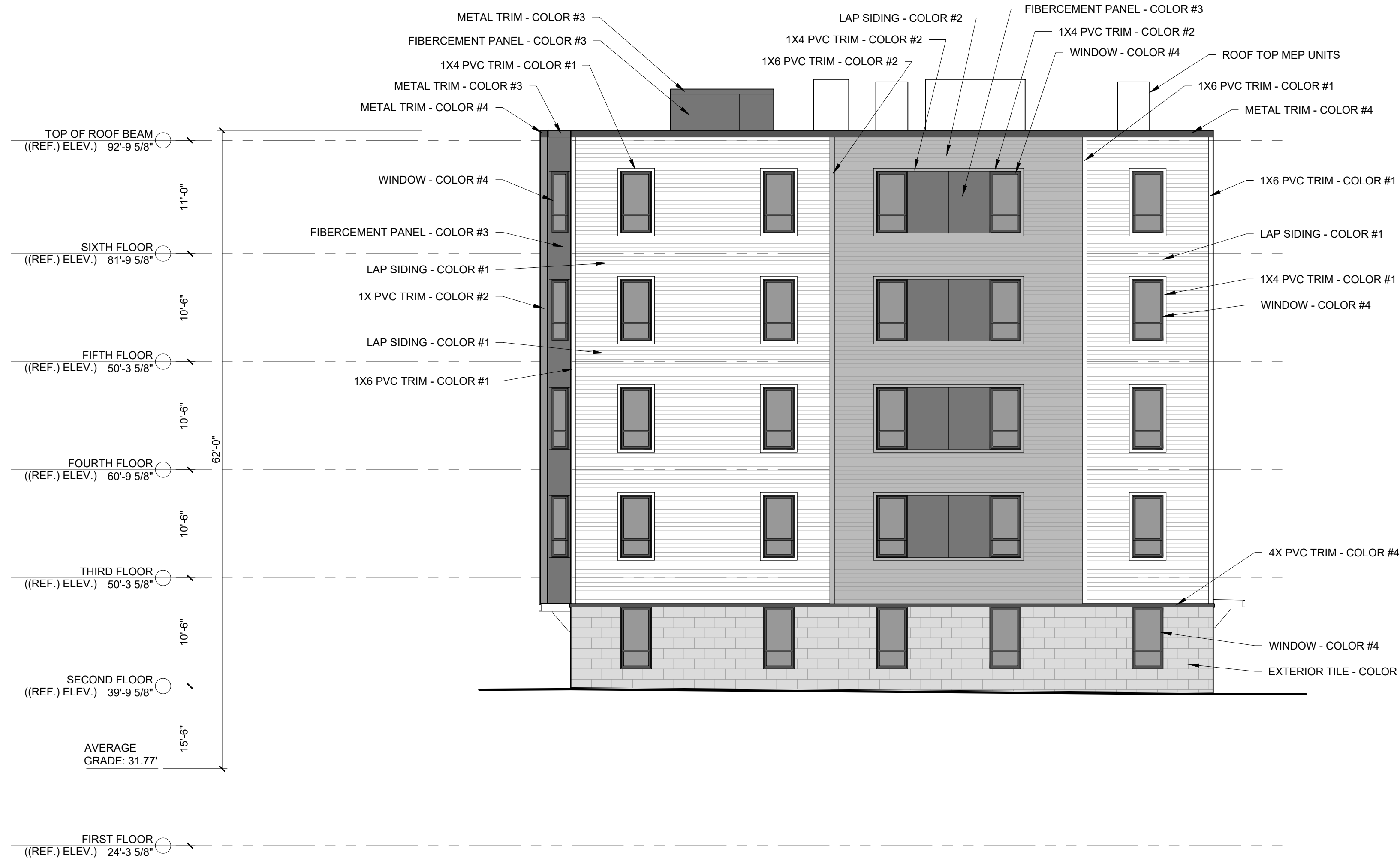
A2-2B

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TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
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TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #2
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #2
PANEL SIDING	FIBERCEMENT - SMOOTH	COLOR #3
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EXTERIOR 12" X 24" TILE	TBD	COLOR #5
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2 EAST ELEVATION
1/8" = 1'-0"



1 EAST ELEVATION
1/8" = 1'-0"

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SHEET TITLE:
EAST
ELEVATION

A2-3A

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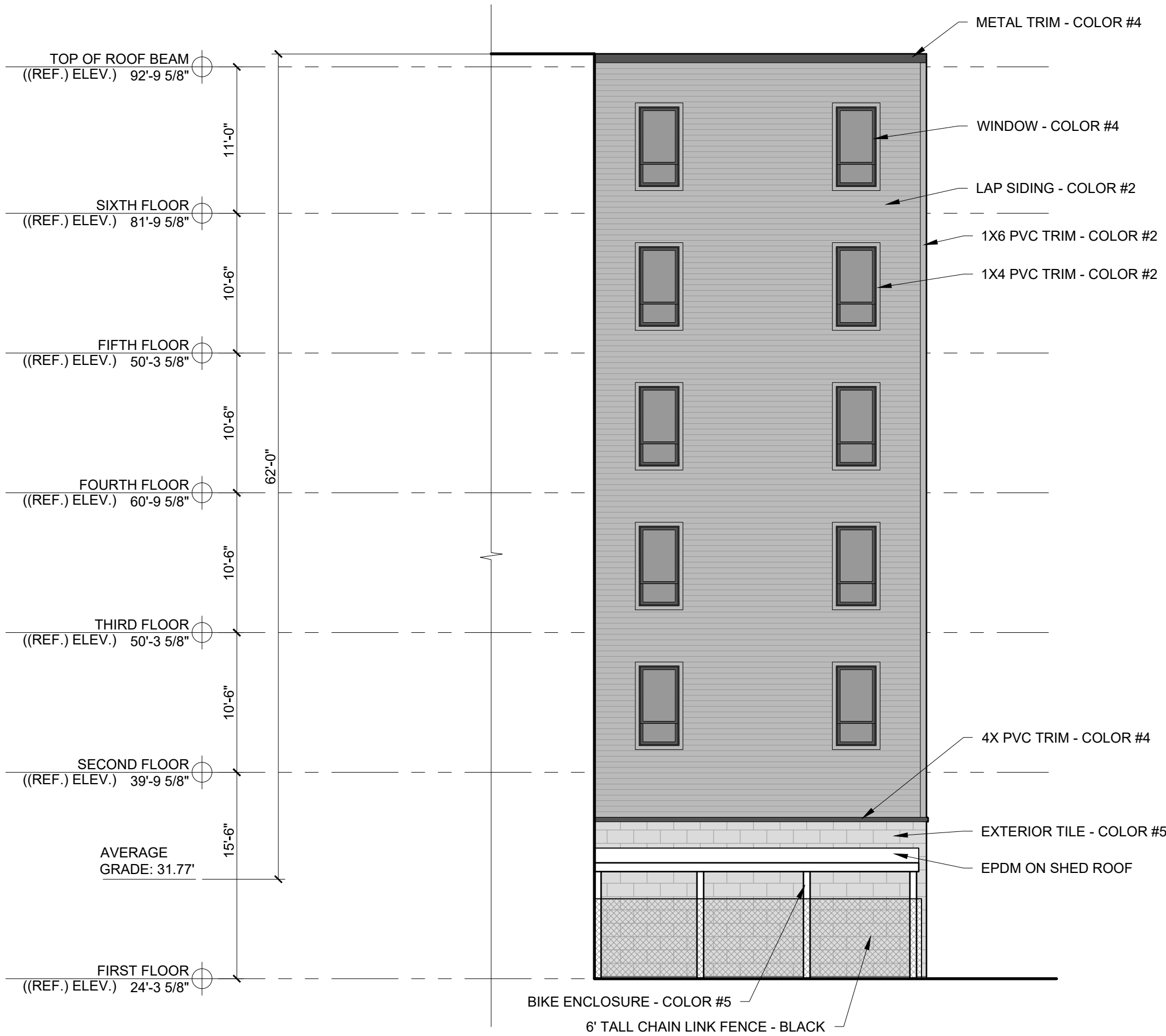
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SHEET TITLE:
EAST
ELEVATION -
COLORED

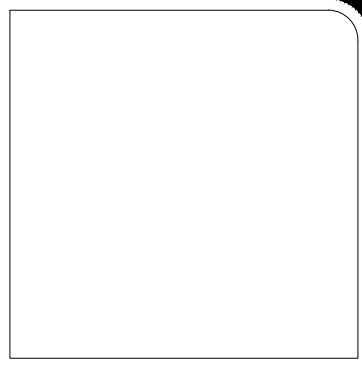
A2-3B

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
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1 EAST ELEVATION 2
1/8" = 1'-0"



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SHEET TITLE:
EAST
ELEVATION 2

A2-4A

MATERIALS KEY		
ITEM	INFORMATION	COLOR
TRIM	PVC - PAINTED / METAL - PRE FINISHED	COLOR #1
LAP SIDING	FIBERCEMENT - SMOOTH - 5" EXPOSURE	COLOR #1
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1 EAST ELEVATION 2
1/8" = 1'-0"

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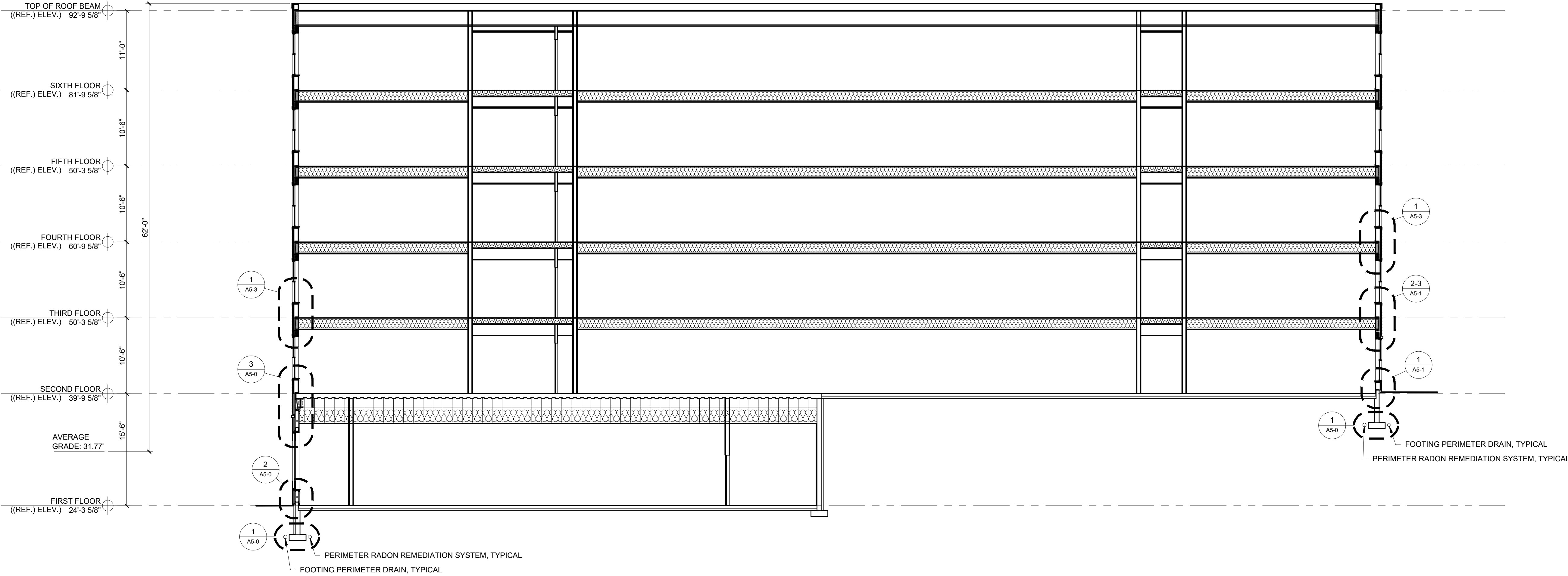
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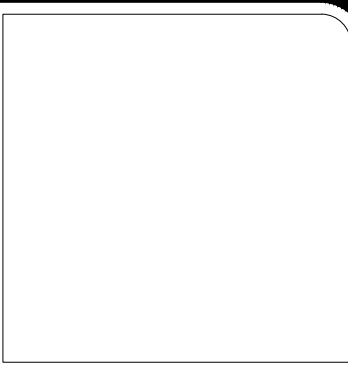
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SHEET TITLE:
EAST
ELEVATION 2 -
COLORED

A2-4B



1 SECTION
1/8" = 1'-0"



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SHEET TITLE:
SECTION

A3-0

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES, OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES SHOWN ON THE PLAN. IF DEEMED NECESSARY BY THE OWNER OR OWNER'S REPRESENTATIVE (IF APPLICABLE), ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL PREPARE THEIR OWN MATERIAL SCHEDULE BASED ON THE PLANS AND FIELD VERIFICATION BY THE CONTRACTOR. ALL MATERIAL SCHEDULES SHOWN WITHIN THE PLAN SET ARE FOR GENERAL INFORMATION ONLY.
4. ALL CONSTRUCTION METHODS, TESTING AND MATERIALS SHALL CONFORM TO THE MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IF ANY. IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SPECIFICATION SHALL APPLY AT NO ADDITIONAL COST TO THE OWNER.
5. THE SITE CONTRACTOR SHALL MAINTAIN A SET OF PAPER AND CAD DRAWINGS WHICH SHALL RECORD THE ACTUAL LOCATION, DIMENSIONS, ELEVATIONS, MATERIALS OF THEIR WORK, INDICATING THEREON ALL VARIATIONS FROM THE CONTRACT DRAWINGS. THE CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF REPRODUCIBLE RECORD DRAWINGS, IN .DWI FORMAT AND PAPER, STAMPED "AS-BUILT". IF AUTOCAD CAPABILITY IS NOT AVAILABLE, EXCLUDE FROM BID IN WRITING.
6. THE CONTRACTOR WILL REMAIN SOLELY AND COMPLETELY RESPONSIBLE FOR ENFORCEMENT OF AND COMPLIANCE WITH 1) ALL CONTRACT PLANS AND SPECIFICATIONS, 2) APPLICABLE INTERNATIONAL BUILDING CODE REQUIREMENTS, AND 3) ALL SITE WORKING CONDITIONS AND SAFETY REQUIREMENTS, DAY AND NIGHT, FOR BOTH PERSONS AND PROPERTY, IN EACH CASE BOTH BY THE CONTRACTOR AND ITS SUBCONTRACTORS. THESE INCLUDE ALL OSHA, NIOSH, U.S. EPA AND ANY OTHER APPLICABLE GOVERNMENTAL REGULATIONS.
7. EXISTING CONDITIONS, BOUNDARY SURVEY, AND TOPOGRAPHY FROM THE PLAN TITLED ALTA/NSPS LAND TITLE SURVEY BY OWEN HASKELL FOR PORTLAND HOUSING AUTHORITY, LAST REVISED 1/23/24
8. SUBSURFACE DATA HAVE BEEN OBTAINED BY SUMMIT GEOENGINEERING SERVICES, INC. AND SHALL BE INCLUDED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ALSO REVIEW THE REPORT PRIOR TO SUBMITTING A BID.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS TO THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN A SAFE VEHICLE AND PEDESTRIAN ACCESS THOUGH THE LIFE OF THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE PORTLAND PUBLIC SAFETY DIVISION ROUTINELY REGARDING TEMPORARY IMPACTS OR CHANGES TO SITE ACCESS CONDITIONS.
10. CONTRACTOR TO DETERMINE SOIL CLASSIFICATION INDEPENDENTLY FOR TRENCH, SHORING, AND OTHER SIMILAR CONSTRUCTION MEANS AND METHODS APPLICATIONS.
11. NO HOLES, TRENCHES, OR STRUCTURES SHALL BE LEFT OPEN OR UNATTENDED OVERNIGHT IN ANY AREA ACCESSIBLE TO THE PUBLIC OR WITHIN THE PUBLIC RIGHT-OF-WAY.
12. THE CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SURVEY OF INTERIOR SUBGRADE AND ABOVE GRADE ACCESSIBLE WALLS, CEILINGS, FLOORS, ROOF AND VISIBLE EXTERIOR AS VIEWED FROM THE GRADE LEVEL. THIS SHALL BE COMPLETED AT A MINIMUM ADJACENT STRUCTURES. PROVIDE A COPY OF THE SURVEY TO THE OWNER. DOCUMENT WITH PICTURES AT A MINIMUM.
13. THE CONTRACTOR SHALL PROVIDE A GPS MODEL OF THE PROPERTY TO PROVIDE TO ACORN ENGINEERING.
14. THE CONTRACTOR SHALL SURVEY ROCK SURFACE PRIOR TO EXCAVATION AND DEVELOP VOLUME CALCULATIONS TO SHARE WITH THE ENGINEER, ACORN ENGINEERING INC. (ACORN), IF ANY.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL TREES AND SHRUBS ON THE PROJECT WHICH ARE NOT TO BE REMOVED.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY TRENCH PAVEMENT THAT HAS EXPERIENCED EXCESSIVE SETTLEMENT, CRACKING, OR OPENING OF JOINTS. REPAIRS MAY INCLUDE OVERLAY, REMOVAL OF WORK MAY BE NECESSARY AFTER THE FINAL ACCEPTANCE OF WORK OR PRIOR TO THE END OF THE WARRANTY PERIOD. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

CIVIL SITE NOTES:

1. THE CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO ACORN TO MODIFY THE CONTRACT DOCUMENTS.
2. ALL SHOP, ERECTION, AND CONSTRUCTION DRAWINGS SHALL BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION FOR ACORN'S REVIEW. ANY UNCHECKED OR NON-STAMPED SUBMITTALS WILL BE RETURNED WITHOUT REVIEW.
3. CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY EXISTING STRUCTURES AND SITE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS. CONTRACTOR TO NOTIFY ACORN OF ANY DISCREPANCIES PRIOR TO PROCEEDING.
4. DETAILS SHOWN APPLY TO ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED.
5. ALTHOUGH ALL DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT ALL DETAILS ARE ILLUSTRATED, NOR IS EVERY EXCEPTION CONDITION ADDRESSED WITHIN THE CONTRACT DOCUMENTS.
6. ALL PROPRIETARY CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL WORK, INCLUDING DIMENSION AND LAYOUT VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF ANY SUBCONTRACTORS.
8. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE DRAWINGS DO NOT DESCRIBE OR DIRECT MEANS OR METHODS OF CONSTRUCTION.
9. THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING THE CONSTRUCTION, SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
10. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL SUPPORTING SLABS AND FLOOR FRAMING ARE IN PLACE AND SECURELY ANCHORED, UNLESS ADEQUATE BRACING IS PROVIDED. PRIOR TO BACKFILLING, CONCRETE SHALL BE CURED PER STRUCTURAL ENGINEER'S SPECIFICATIONS.
11. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND OTHER SUPPORTING ELEMENTS ARE IN PLACE, IF APPLICABLE.
12. ALL PAVEMENT JOINTS SHALL BE SAWCUT AND APPLIED WITH TACK COAT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
13. ACORN BEARS NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND SITE OBSERVATION VISITS DO NOT IN ANY WAY INCLUDE INSPECTION OF THEM.
14. EXCAVATIONS ACCOMPLISHED AS PART OF THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH SUBPART P OF 29 CRF PART 1926.650--.652 (CONSTRUCTION STANDARD FOR EXCAVATIONS).
15. ALL TRENCH PAVEMENT REPAIR SHALL BE COMPLETED WITH THE USE OF A STREET PAYER WITH A SCREED WIDTH CAPABLE OF SPANNING THE FULL WIDTH OF THE TRENCH UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN.
3. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

- 5.1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND OUTLINE ABOVE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS, ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION.
- 5.2. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.
- 5.3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT WITHIN TEN DAYS OF THE FINAL INSPECTION STATING WHETHER THE WORK REQUIRING A SPECIAL INSPECTION WAS, TO THE BEST OF THE INSPECTOR'S KNOWLEDGE AND BELIEF, IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE INTERNATIONAL BUILDING CODE. WORK NOT IN COMPLIANCE SHALL BE NOTED IN THE REPORT.
- 5.4. SPECIAL INSPECTOR SHALL BE EMPLOYED BY PORTLAND HOUSING AUTHORITY/ PORTLAND HOUSING DEVELOPMENT CORPORATION AND COORDINATED BY THE CONTRACTOR.

1. MONUMENTS DELINEATING PROPERTY LINES OR RIGHT OF WAYS SHALL NOT BE DISTURBED DURING CONSTRUCTION OPERATIONS. IN THE CASE A MONUMENT IS DISTURBED, AT THE CONTRACTOR'S EXPENSE, THE MONUMENT SHALL BE RESET TO ITS ORIGINAL LOCATION AND ELEVATION BY A LICENSED PROFESSIONAL LAND SURVEYOR.
2. ALL DIMENSIONS ON THE FOLLOWING SHEETS TAKE PRECEDENT OVER SCALED DIMENSIONS. EACH DRAWING WITH A BAR SCALE MEANS THAT THE DRAWING/DETAIL HAS BEEN SCALED AS ACCURATELY AS POSSIBLE, AND THE BAR SCALE IS FOR GENERAL REFERENCE ONLY. IF NO BAR SCALE IS PRESENT, THEN THERE IS NO SCALE TO THAT DRAWING/DETAIL. AT NO TIME SHOULD DRAWINGS BE SCALED FROM. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, SPECIFICATIONS AND THE FIELD CONDITION SHALL BE IMMEDIATELY REPORTED TO ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
3. SIGNAGE, STRIPING, AND PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
4. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS & CONDITIONS OF THE CITY OF PORTLAND, MAINE DEPARTMENT OF TRANSPORTATION AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A LICENSED PROFESSIONAL LAND SURVEYOR TO PROVIDE A MINIMUM OF TWO TEMPORARY BENCHMARKS WITHIN THE SITE AND TO LOCATE PROPOSED STRUCTURE CORNERS.
6. CONTRACTOR TO ENSURE THAT ACCESS, INCLUDING BUT NOT LIMITED TO WALKWAYS, DRIVEWAYS, AND MAILBOXES ADJACENT TO THE PROJECT REMAIN FUNCTIONAL AND AVAILABLE FOR USE AT ALL TIMES.

1. THIS PROJECT IS SUBJECT TO THE TERMS AND CONDITIONS OF MAJOR SITE PLAN APPLICATION FROM THE CITY OF PORTLAND.
2. THE CONTRACTOR SHALL REVIEW THE ABOVE REFERENCED PERMITS PRIOR TO SUBMITTING A BID FOR THIS PROJECT, AND INCLUDE COSTS AS NECESSARY TO COMPLY WITH THE CONDITIONS OF THESE PERMITS.
3. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY REQUIRES A STREET OPENING PERMIT FROM THE CITY OF PORTLAND. ADDITIONALLY, COORDINATE WITH THE DEPARTMENT OF PUBLIC WORKS.

1. TOPSOIL STRIPPED FROM THE SITE THAT IS SUITABLE FOR REUSE AS LOAM (MEETS THE REQUIREMENTS WITHIN SECTION 615 OF THE MDOT STANDARD SPECIFICATIONS, MOST RECENT VERSION AND IS FREE OF TRACEABLE AMOUNTS OF CONTAMINANTS) SHALL BE STOCKPILED WITHIN THE PROPOSED LIMIT OF WORK AREA. THE CONTRACTOR SHALL NOT ASSUME THAT ANY STRIPPED TOPSOIL WILL BE ACCEPTABLE FOR REUSE WITH THEIR ESTIMATE.
2. THE CONTRACTOR SHALL ANTICIPATE THAT GROUNDWATER WILL BE ENCOUNTERED DURING CONSTRUCTION AND SHALL INCLUDE SUFFICIENT COSTS WITHIN THEIR BID TO PROVIDE DEWATERING AS NECESSARY; NO SEPARATE PAYMENT SHALL BE MADE TO THE CONTRACTOR FOR DEWATERING. DEWATERING SHALL INCLUDE TREATMENT OF SILT THROUGH THE USE OF A DIRTBAG BY ACF ENVIRONMENTAL OR APPROVED EQUIVALENT. FLOWS FROM DEWATERING ACTIVITIES SHALL NOT BE DISCHARGED INTO SANITARY SEWERS. SEE BORING LOGS FOR ADDITIONAL INFORMATION.
3. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING ANY EASEMENT OR TEMPORARY CONSTRUCTION RIGHTS AS NECESSARY BY PRIVATE ADJACENT LAND OWNERS. THE CONTRACTOR SHALL NOT DISTURB ANY SOIL BEYOND THE PROPERTY LINE WITHOUT NOTIFYING AND OBTAINING SUCH EASEMENT OR TEMPORARY CONSTRUCTION RIGHT FROM THE ADJACENT LAND OWNERS. PRIOR TO THE CONTRACTOR PRICING THE WORK, THEY SHALL PROVIDE ACORN WITH PROOF OF SUCH EASEMENT OR TEMPORARY RIGHTS. SHOULD EASEMENTS OR TEMPORARY RIGHTS NOT BE AVAILABLE, THE CONTRACTOR SHALL INCLUDE COST FOR BRACING AND SHORING AS NECESSARY.
4. THE MINIMUM SLOPE SHALL MEET OR EXCEED 1% IN ALL CASES WHERE NOT NOTED ON THE GRADING PLAN. SLOPES IDENTIFIED ON THE GRADING PLAN TAKE PRECEDENT, ALL SLOPES SHALL BE AWAY FROM BUILDINGS AND TOP OF PAVEMENT SHALL BE AT OR BELOW EXISTING FINISH FLOOR ELEVATIONS.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST GEOTECHNICAL REPORT PREPARED BY THE PROJECT GEOTECHNICAL ENGINEER.
6. CONTRACTOR TO REVIEW EXISTING SOIL CONDITIONS, TEST PITS, AND BORINGS. THERE WILL BE NO ADDITIONAL PAYMENT FOR UNSUITABLE SOILS.
7. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF $N=0.012$ OR LESS.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. NATIVE SOILS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LIMIT THE DISTURBANCE TO SUBGRADE SOILS. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, CONTACT ACORN. THE DISTURBED AREAS SHALL BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO ADDITIONAL EXPENSE TO THE OWNER.
10. ALL SUBGRADE PREPARATION IS SUBJECT TO THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER, IF APPLICABLE.

1. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. ALL ROUTINE WORK ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
3. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
4. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
5. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.
6. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.
7. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

1. THIS CONTRACT IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR TO BYPASS EXISTING SEWER FLOW CONTROL AT CONNECTION TO EXISTING SYSTEM AT NO ADDITIONAL COST.
3. CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
4. ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED AND SHOWN TO PASS PRIOR TO BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16): GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
5. SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.
6. CONTRACTOR TO PROVIDE 5.5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
7. THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAINT ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN WITHIN THE PLAN SET.
8. WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT "WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURE", MOST RECENT REVISION.
9. ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH PORTLAND WATER DISTRICT, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
10. CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
11. ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
13. SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
14. COORDINATE EXIT POINT FOR SECONDARY UTILITY SERVICES WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN WITHIN THE UTILITY PLAN.
15. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.
16. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL AT NO EXTRA EXPENSE TO THE OWNER.
17. ALL UTILITY PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS OR SAGS IN THE PIPING WILL BE PERMITTED. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED PIPE LINES SHALL BE SUITABLY RESTRAINED WITH THRUST BLOCKS OR RETAINER GLANDS. RETAINER GLANDS ALLOWED FOR DUCTILE IRON PIPE ONLY. PROVIDE ALL BENDS, HORIZONTAL AND VERTICAL, AS REQUIRED TO MEET THE GRADES AND ALIGNMENTS INDICATED ON THE DRAWINGS.
18. ALL WASTEWATER PIPING, EXCLUDING BUILDING DRAINS, AND ALL PRESSURIZED PIPING, TO INCLUDE WATER MAINS, INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
19. WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS AND ADDITIONAL PIPE AS REQUIRED TO ENSURE A COMPLETE AND PROPERLY FUNCTIONING CONNECTION. CONTRACTOR TO VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. ADAPTERS AND FITTINGS ARE INCIDENTAL TO THE PIPE INSTALLATION.
20. WHENEVER POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A WATER LINE CROSSES UNDER THE WASTEWATER LINE, A FULL LENGTH OF WASTEWATER PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
21. THE CONTRACTOR SHALL BE ANTICIPATE THAT THE NATIVE SILT AND CLAY SOILS WILL NOT BE SUITABLE FOR PIPE TRENCH BACKFILL IN PAVED AREAS.
22. GROUNDWATER SHALL BE CONTROLLED TO A LEVEL OF AT LEAST ONE FOOT BELOW SUBGRADE OF THE PIPE OR STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE LOWERED GROUNDWATER LEVEL UNTIL CONSTRUCTION HAS BEEN COMPLETED TO SUCH AN EXTENT THAT THE STRUCTURES OR PIPES WILL NOT BE FLOATED OR OTHERWISE DAMAGED.
23. EXCAVATION TO SUBRADE IN NATIVE SILT AND CLAY SHALL BE COMPLETED WITH A SMOOTH EDGE BUCKET TO MINIMIZE SUBGRADE DISTURBANCE.
24. ALL ADJUSTMENTS TO FINISHED GRADE ARE TO BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONFIRM STRUCTURES THAT REQUIRE ADJUSTMENT WITH THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO ADJUSTING FRAMES.

1. THE FOLLOWING ITEMS ARE TYPICAL OF MATERIAL WHICH MAY BE ON SITE:
 - ROCK AND CONCRETE FOUNDATIONS
 - CONCRETE SLABS
 - BITUMINOUS ASPHALT PAVEMENT
 - CONCRETE PADS AND BLOCKS
 - FENCE POST AND FENCING
 - UNDERGROUND UTILITY LINES
 - ABOVE AND OR BELOW FUEL OIL AND PROPANE GAS TANKS
 - STORM DRAIN PIPES AND APPURTENANCE STRUCTURES
 - OTHER TRASH & MISCELLANEOUS SOLID WASTES
2. THE CONTRACTOR IS ADVISED TO VISIT THE SITE TO CONFIRM DEMOLITION ITEMS SINCE THE LIST IS NOT INCLUSIVE OF THE SITE CONDITIONS WHICH MAY BE ENCOUNTERED
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.
4. A PHASE II - ENVIRONMENTAL SITE ASSESSMENT FOR 9 BOYD STREET, 20 MAY STREET, 24 MAYO STREET AND 25 BOYD STREET, PORTLAND, MAINE HAS BEEN COMPLETED BY SEVEE & MAHER ENGINEERS FOR PORTLAND HOUSING DEVELOPMENT CORPORATION DATED MARCH 2024.
5. A ENVIRONMENTAL MEDIA MANAGEMENT PLAN FOR 9 BOYD STREET, 20 MAY STREET, 24 MAYO STREET AND 25 BOYD STREET, PORTLAND, MAINE HAS BEEN COMPLETED BY SEVEE & MAHER ENGINEERS FOR PORTLAND HOUSING DEVELOPMENT CORPORATION DATED MARCH 2024.

[illegible]

4. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
5. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
6. SITE DEMOLITION SHALL NOT OCCUR UNTIL PROPER ABATEMENT PROCEDURES HAVE OCCURRED. ABATEMENT, IF NECESSARY, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES; OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE PROPOSED PROJECT.
8. ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT LOCATION TO BE ACCEPTED BY THE CITY.
9. SEDIMENT BARRIERS TO BE PLACED DIRECTLY ON THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL; FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES AND DO NOT NECESSARILY DEPICT THE PHYSICAL LOCATION.
10. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FIELD INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
11. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO LANDSCAPING, UTILITIES, WORK OF ARTS, TREES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CITY OF CHICAGO PERMITS AND REGULATORY APPROVALS PRIOR TO CONSTRUCTION.
12. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR GUARANTEED. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY FOR CLOSING ANY ON-STREET PARKING SPACES DURING THE CONSTRUCTION PERIOD.
13. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING FOR VISITORS.
14. CONTRACTOR TO SUBMIT A Dewatering Plan for Review and Approval to the Department of Public Works Prior to the Pre-Construction Meeting, During the Building Permit Application Process, or Prior to Advanced Site Work. Contact the Department of Public Works for Additional Information and Current Regulations.
15. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM THE FOLLOWING:
 1. DETERMINE WHAT, IF ANY, RECOGNIZED ENVIRONMENTAL CONDITIONS (RECs) IDENTIFIED SUBSEQUENT TO ENVIRONMENTAL DUE DILIGENCE ACTIVITIES MAY AFFECT THE CONTRACTOR'S WORK.
 2. DETERMINE IF THE SITE IS/HAS BEEN IDENTIFIED AS A STATE &/OR FEDERAL HAZARDOUS SUBSTANCE SITE, OR SIMILARLY REGULATED SITE. IF SO, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COMMUNICATE ACCORDING TO AN ENVIRONMENTAL PROFESSIONAL (EP) TO UNDERSTAND WHAT CONTAMINANTS &/OR HAZARDS HAVE BEEN IDENTIFIED FOR THE SITE AND HOW THEIR RESPECTIVE IMPACTS MAY AFFECT THE CONTRACTOR'S WORK. THE EP SHALL BE EMPLOYED BY THE CLIENT SHOULD THE CLIENT REQUIRE A CORN'S EP SERVICES IT SHALL BE REQUESTED IN WRITING.
 3. COMMUNICATE AND COORDINATE WITH AN EP TO REQUEST, REVIEW AND ADHERE TO RELEVANT DOCUMENTS PREPARED FOR THE SITE DESCRIBING BEST MANAGEMENT PRACTICES FOR IMPACTED OR POTENTIALLY IMPACTED MEDIA THAT MAY BE ENCOUNTERED AS PART OF THE CONTRACTOR'S WORK INCLUDING BUT NOT LIMITED TO THE SOIL REMEDIATION PLAN.
 4. ENSURE THE APPROPRIATE STATE &/OR FEDERAL REGULATORY AGENCY(IES) HAVE BEEN NOTIFIED OF THE CONTRACTOR'S PLANNED WORK ACTIVITIES.



PERMITTING
NOT ISSUED FOR
CONSTRUCTION

[illegible]

CONSTRUCTION MANAGEMENT PLAN

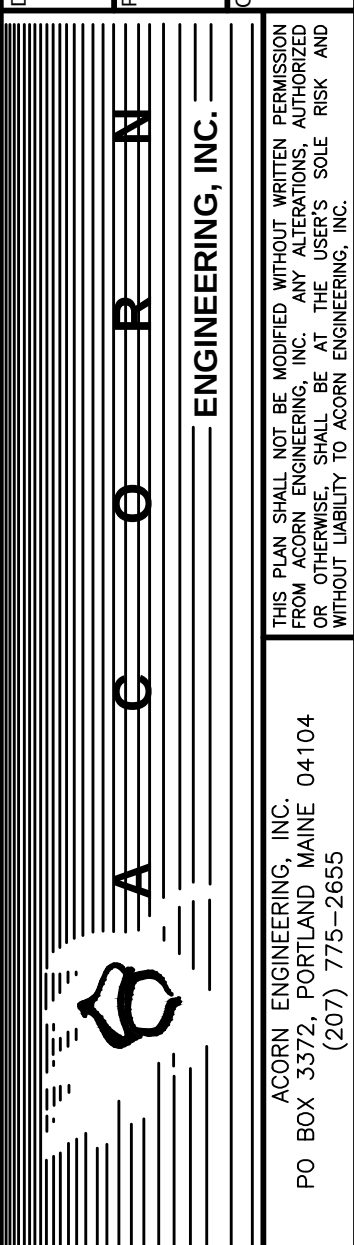
9 BOYD STREET REDEVELOPMENT

COMB BLOCK PHASE ONE, LP
BAXTER BOULEVARD, PORTLAND, MAINE 04101

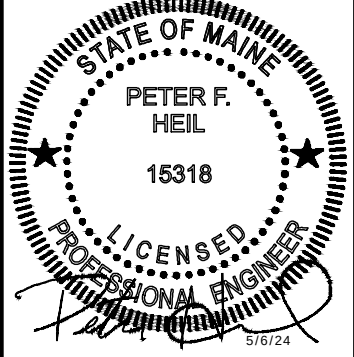
DRAWING NAME:

PROJECT NAME:

CLIENT:



FILE:	1215_CIVIL
JN:	1215
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	MKT
CHECKED BY:	WHS



DRAWING NO.

C-03

SPACE AND BULK STANDARDS					
RESIDENTIAL ZONING DISTRICT	R-7	R-7 W/ AH BONUS	R-6**	R-6 W/ AH BONUS	PROPOSED BUILDING
MAX. HEIGHT	50'	75'	45'	45'	61.03'
MIN. LOT SIZE	NONE	NONE	NONE	NONE	0.56 AC
MIN. LOT AREA PER DWELLING UNIT	435 SF	2.5 X BASE (174 SF/DU)	725 SF	2.5 X BASE (290 SF/DU)	488 SF/DU
MIN. STREET FRONTAGE	NONE	NONE	20'	20'	315'
MAX. FRONT SETBACK	0'	0'	5'	5'	5.30'
MIN. REAR SETBACK	5'	0'	10'	10'	47.37'
MIN. SIDE SETBACK	5'	0'	5*	5*	6.87'
STEPBACKS (ABOVE 35')	NOT SPECIFIED	NOT SPECIFIED	10' FROM SIDE / 15' FROM REAR	10' FROM SIDE / 15' FROM REAR	N/A
LOT COVERAGE (MAX.)	100%	100%	60%	60%	44.6%
LOT WIDTH (MIN.)	NONE	NONE	20'	20'	173.9'
DWELLING UNIT SIZE (MIN.)	400 SF	400 SF	NOT SPECIFIED	NOT SPECIFIED	639 SF
LANDSCAPED OPEN SPACE RATIO (MIN.)	NONE	NONE	20%	20%	24.9%

* EXCEPT THAT A SIDE SETBACK IN THE R-6 ZONE MAY BE REDUCED TO ZERO, PROVIDED THAT THE CUMULATIVE SIDE YARDS ARE NOT LESS THAN 10FT, A PERMANENT MAINTENANCE EASEMENT A MINIMUM OF 5 FT. IN WIDTH SHALL BE PROVIDED ON THE PARCEL ADJACENT TO THE LOT LINE WITH THE REDUCED SETBACK.

** ALTERATIONS TO SINGLE-FAMILY, TWO-FAMILY, AND MULTI-FAMILY DWELLINGS IN EXISTENCE AS OF 6/15/15 SHALL NOT RESULT IN THE CREATION OF ANY ADDITIONAL DWELLING UNIT OF LESS THAN 800 SQUARE FEET OF FLOOR AREA, EXCLUSIVE OF COMMON HALLWAYS AND STORAGE IN BASEMENT AND ATTIC; AND SHALL NOT RESULT IN ANY EXISTING DWELLING UNIT BEING REDUCED IN SIZE LESS THAN 1,000 SQUARE FEET OF FLOOR AREA, EXCLUSIVE OF COMMON AREAS AND STORAGE IN BASEMENT AND ATTIC.

PLAN REFERENCES:
1. PARCEL BOUNDARY AND EXISTING CONDITIONS PER "ALTA/NSPS LAND TITLE SURVEY, 20 & 24 MAYO STREET AND 9 & 25 BOYD STREET, PORTLAND, CUMBERLAND COUNTY, MAINE"
PREPARED FOR PORTLAND HOUSING AUTHORITY BY OWEN HASKELL, INC. DATED JANUARY 23, 2024.

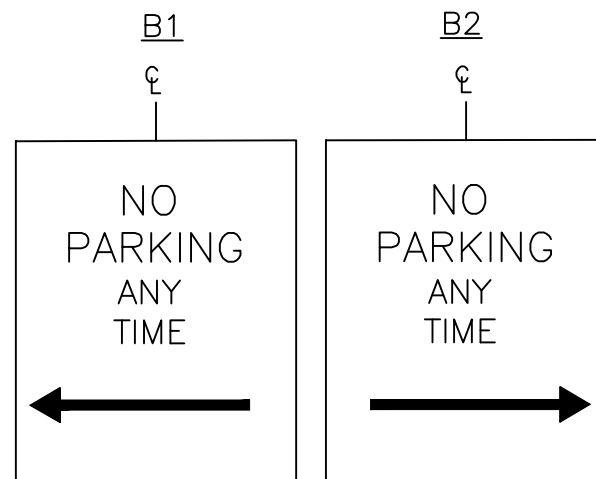
GENERAL NOTES:

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPES TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.
8. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.
9. SNOW TO BE REMOVED AND TRUCKED OFF SITE AS NECESSARY.

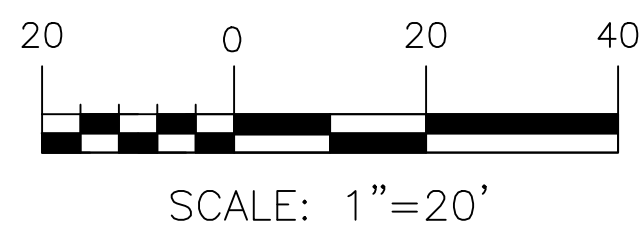
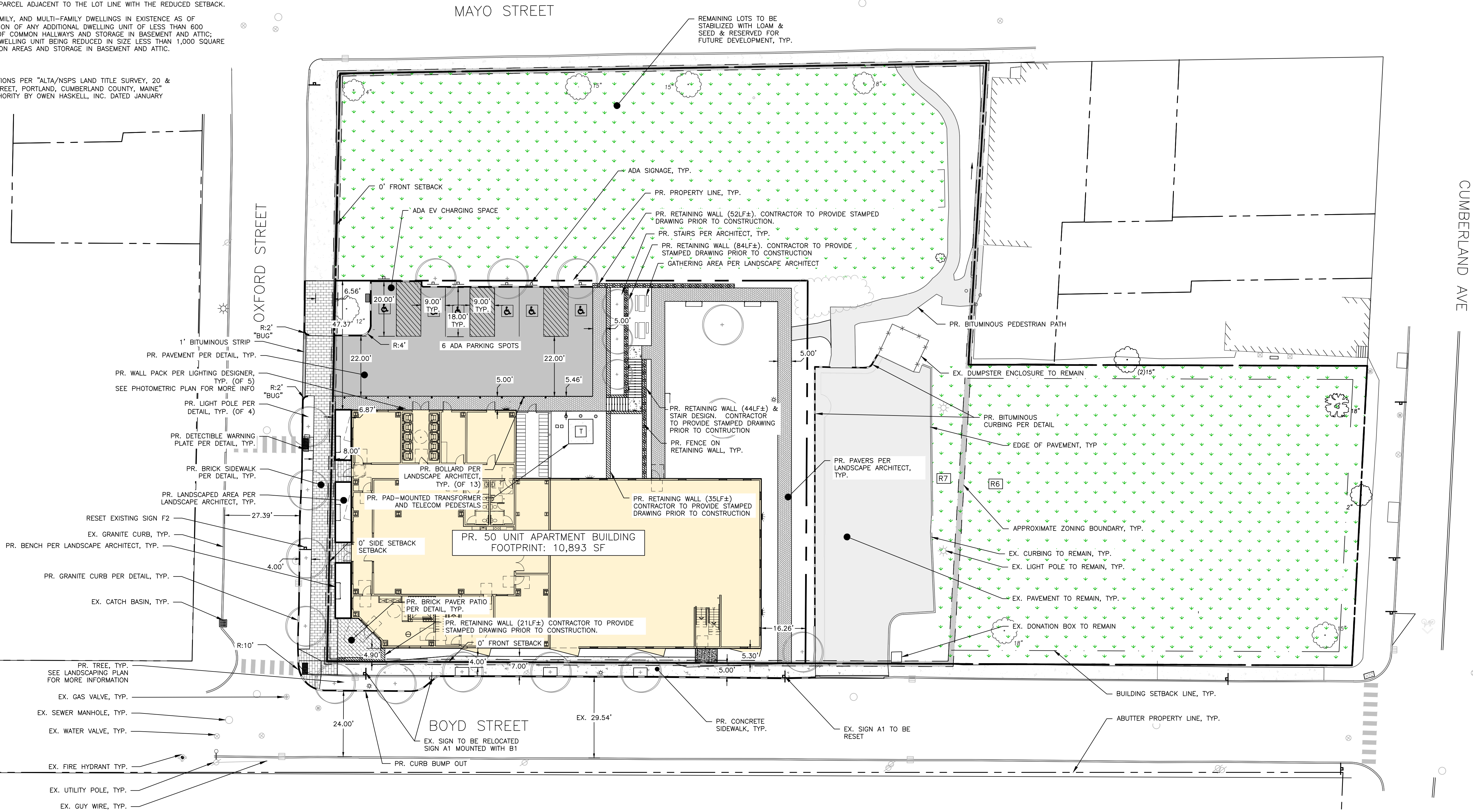
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B



1. ILLUSTRATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. FINAL SIGNAGE SHALL BE APPROVED AND INSTALLED BY THE TRAFFIC DIVISION OF THE DEPARTMENT OF PUBLIC WORKS.
2. SIGN POST SHALL BE ALIGNED WITH CENTERLINE DENOTATION.



PERMITTING
NOT ISSUED FOR
CONSTRUCTION

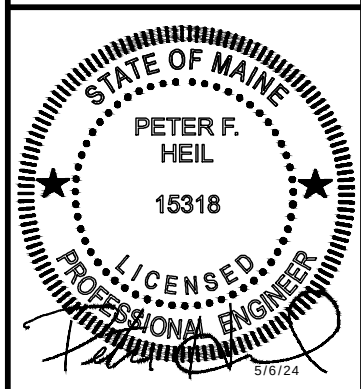
ISSUED FOR	BY
CSS SUBMISSION	PFH
MAJOR SITE PLAN	PFH
SUBMISSION	PFH
ADDRESS UPDATE	PFH
COMMENT RESPONSE	PFH

SITE PLAN	9 BOYD STREET REDEVELOPMENT	COMB BLOCK PHASE ONE, LP
DRAWING NAME:	PROJECT NAME:	CLIENT:
970 BAXTER BOULEVARD, PORTLAND, MAINE 04101		

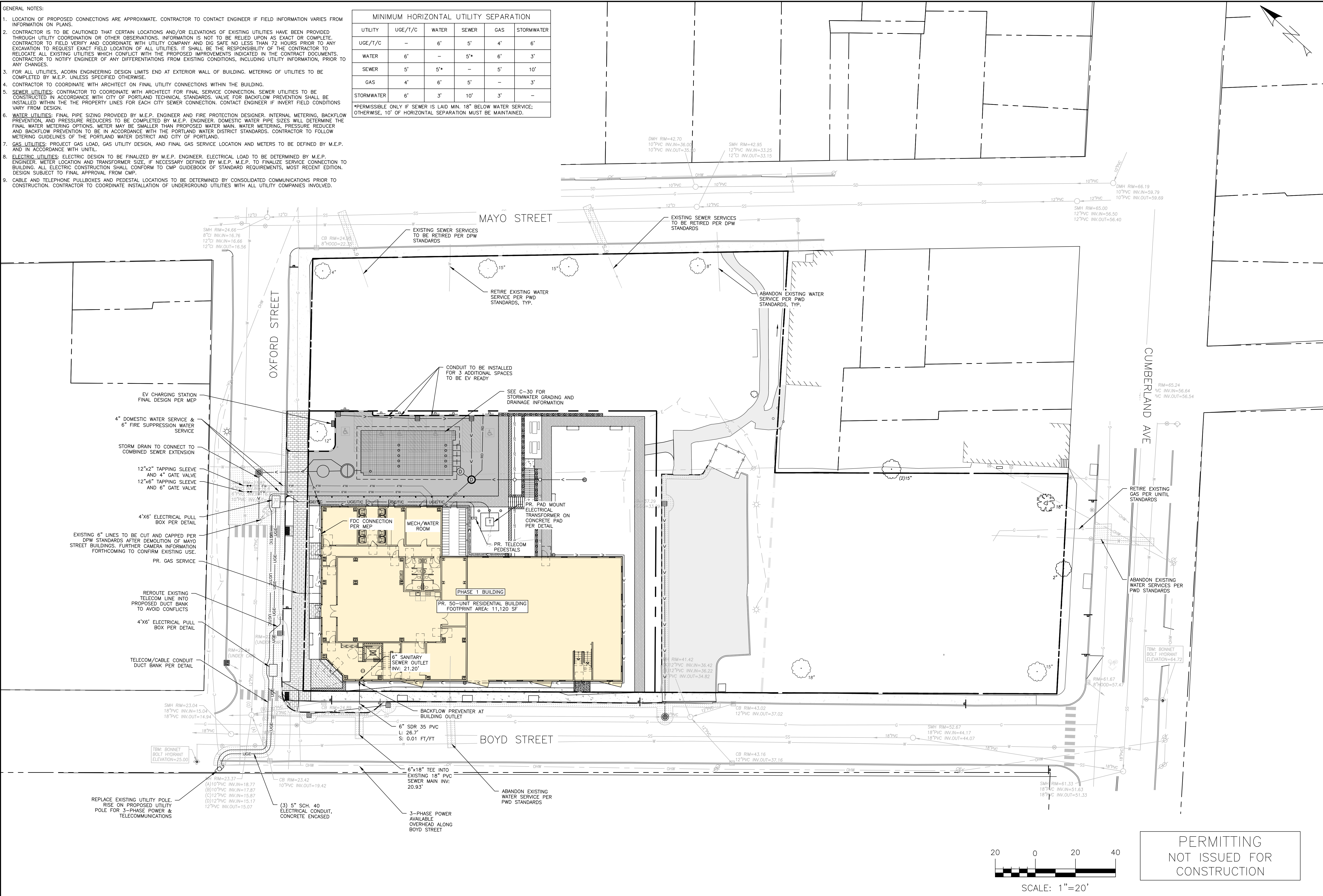
ACORN ENGINEERING, INC.
ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	1215_CIVIL
JN:	1215
SCALE:	AS NOTED
DESIGNED BY:	PFH
DRAWN BY:	MKT
CHECKED BY:	WHS



DRAWING NO.
C-10



ISSUED FOR

BY

DATE

MAJOR SITE PLAN

SUBMISSION

07/13/2024

ADDRESS UPDATE

07/13/2024

COMMENT RESPONSE

07/13/2024

UTILITY PLAN

9 BOYD STREET REDEVELOPMENT

COMB BLOCK PHASE ONE, LP

970 BAXTER BOULEVARD, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.

PO BOX 3372, PORTLAND MAINE 04104

(207) 775-2655

FILE:

1215_CIVIL

JN:

1215

SCALE:

AS NOTED

DESIGNED BY:

PFH

DRAWN BY:

MKT

CHECKED BY:

WHS

STATE OF MAINE

PETER F. HEIL

15318

LICENSED PROFESSIONAL ENGINEER

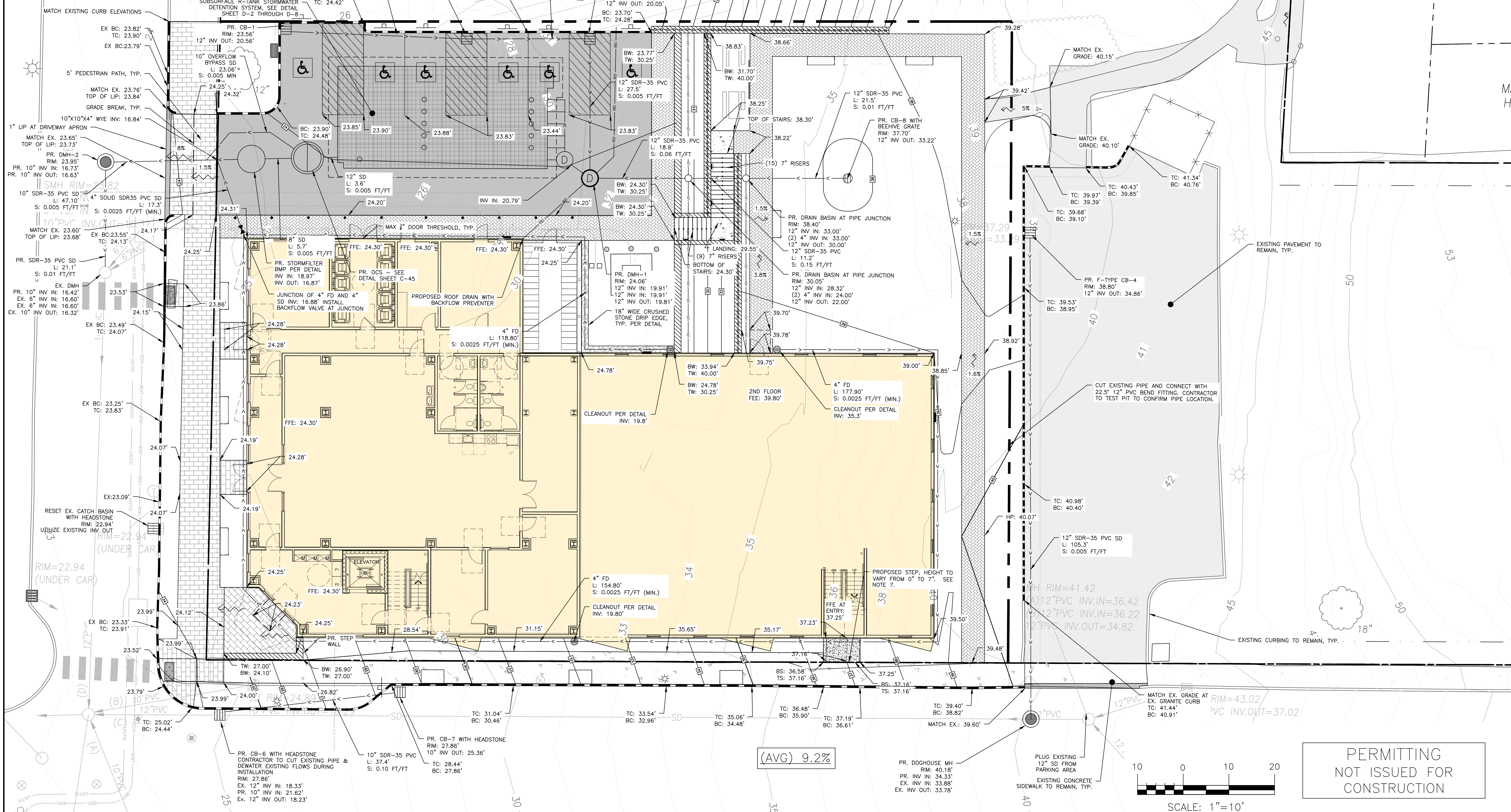
DRAWING NO.

C-20

1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNDRAINAGE ACTIVE FOR PROTECTION.
5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNDRAINAGE OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES; BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.
6. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTRACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.
7. THE NOSING OF LEADING EDGES OF THE TREADS AT NONUNIFORM HEIGHT RISERS SHALL HAVE A DISTINCTIVE MARKING, DIFFERENT FROM ANY OTHER NOSING MARKING PROVIDED ON THE STAIR FLIGHT. THE DISTINCTIVE MARKING STRIP SHALL BE VISIBLE UPON DESCENT OF THE STAIR AND SHALL HAVE A SLIP-RESISTANT SURFACE. MARKING STRIPES SHALL HAVE A WIDTH OF NOT LESS THAN 1 INCH, BUT NO MORE THAN 2 INCHES.

SEE SHEET C-03 FOR
ADDITIONAL INFORMATION ON
DEMOLITION AND SITE
REGRADING AFTER BUILDINGS
HAVE BEEN DEMOLISHED

<u>HEIGHT CALC.</u> AVERAGE GRADE: $(24.31' + 39.00' + 39.50' + 24.25') / 4 = 31.77'$ BUILDING HEIGHT: $92.80' - 31.77' = 61.03'$
--

[illegible]

DRAWING NAME: **GRADING & DRAINAGE PLAN**

PROJECT NAME: **9 BOYD STREET REDEVELOPMENT**

CLIENT: **COMB BLOCK PHASE ONE, LLP
970 BAXTER BOULEVARD, PORTLAND, MAINE 04108**


A C O R N

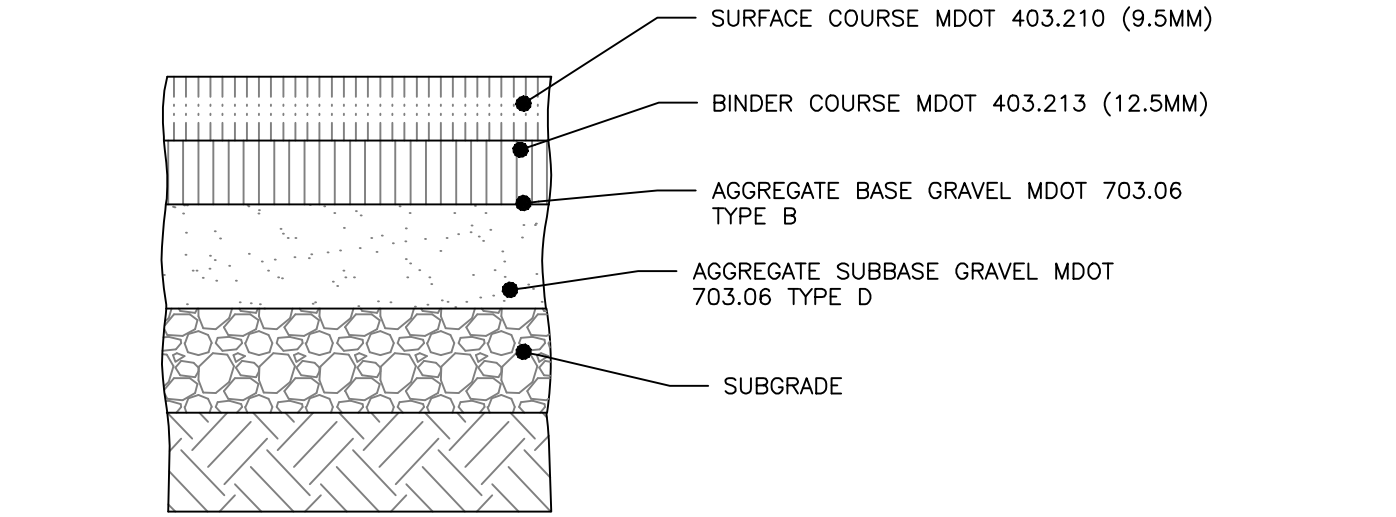
ENGINEERING, INC.

ACORN ENGINEERS, INC.
 P.O. BOX 3372, PORTLAND, MAINE 04104
 (207) 775-2655

THIS PLAN SHALL NOT BE ASSURED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR UNAUTHORIZED, WILL VOID THE POLICY. THE POLICY IS A SELLER'S RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE:	1215_CIVIL
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SCALE:	AS NOTED
DESIGNED BY:	PFH
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CHECKED BY:	WHS

DRAWING NO.
C-30

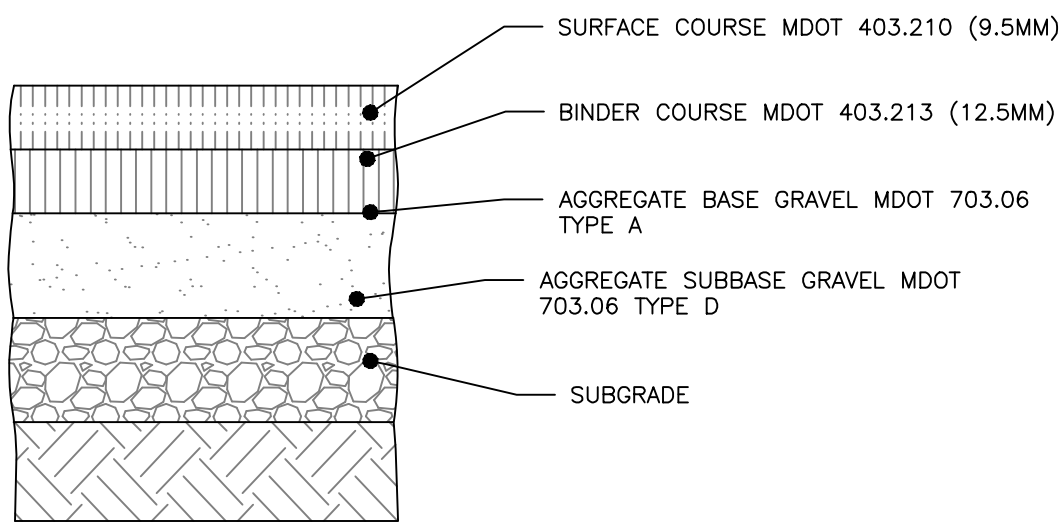


NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557
2. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF PORTLAND STANDARDS IN ADDITION TO MDOT STANDARDS.

THICKNESS OF LAYERS	
STANDARD	LAYERS
1-1/2"	SURFACE COURSE MDOT 403.210 (9.5mm)
2"	BINDER COURSE MDOT 403.213 (12.5mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE A
15"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

PRIVATE PAVEMENT PROFILE
NOT TO SCALE

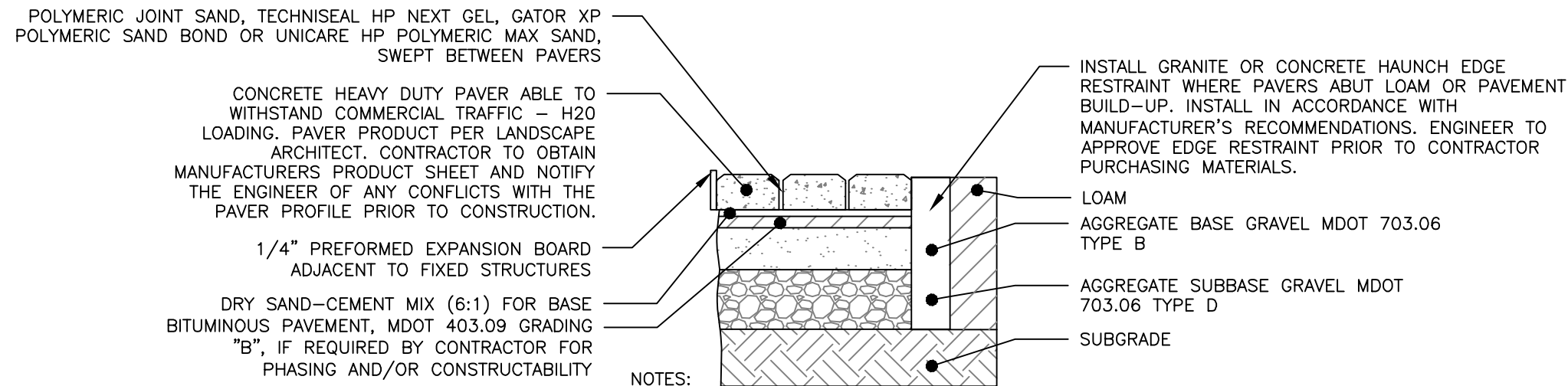


NOTES:

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2. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF PORTLAND STANDARDS IN ADDITION TO MDOT STANDARDS.

THICKNESS OF LAYERS	
STANDARD	LAYERS
1-1/2"	SURFACE COURSE MDOT 403.210 (9.5mm)
2"	BINDER COURSE MDOT 403.213 (12.5mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE A
15"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

CITY OF PORTLAND LOCAL STREET BITUMINOUS PAVEMENT PROFILE
NOT TO SCALE



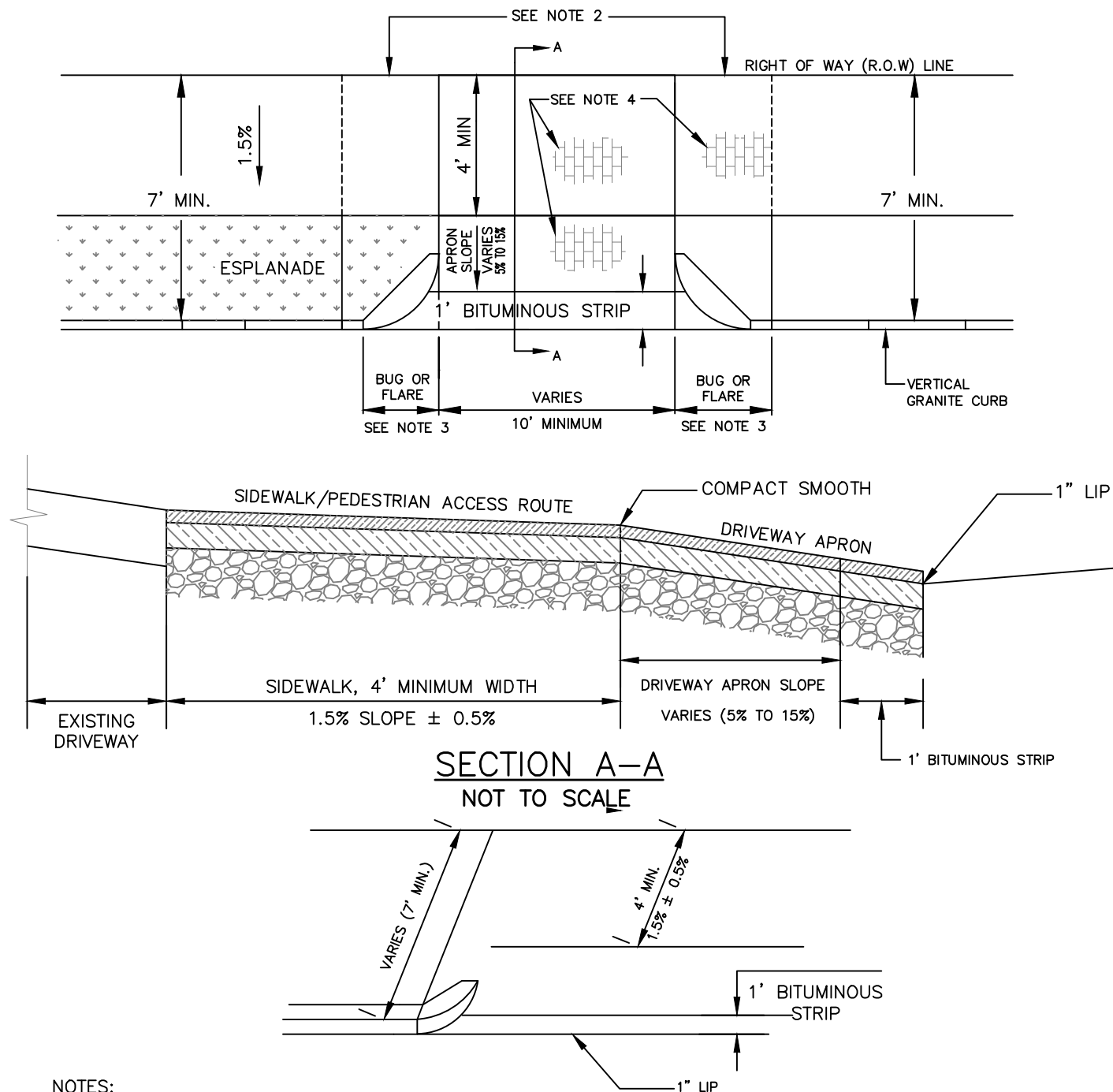
NOTES:

1. COMPACT SUBGRADE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557
2. SURFACE AND AGGREGATE MATERIALS SHALL MEET THE CITY OF PORTLAND STANDARDS IN ADDITION TO MDOT STANDARDS.
3. JOINT SAND COMPRESSION STRENGTH: PROVEN RESISTANCE TO COMPRESSION OF 550 PSI AFTER DRYING FOR 7 DAYS UNDER CONTROLLED CONDITIONS (73 DEGREE F AT 50% HUMIDITY)

GRADATION REQUIREMENTS FOR JOINT SAND		
SIEVE SIZE	NATURAL SAND PERCENT PASSING	MANUFACTURED SAND PERCENT PASSING
NO. 4 (4.75mm)	100	100
NO. 8 (2.36mm)	95-100	95-100
NO. 16 (1.18mm)	70-100	70-100
NO. 30 (0.60mm)	40-75	40-75
NO. 50 (0.30mm)	10-30	20-40
NO. 100 (0.15mm)	2-15	10-25
NO. 200 (0.075)	0-1	0-10

THICKNESS OF LAYERS	
STANDARD	LAYERS
3.149"	CONCRETE PAVEMENT (DEPTH TBD BASED UPON MANUFACTURER)
1"	DRY SAND-CEMENT MIX (6:1)
2"	BITUMINOUS MDOT 403.09 GRADING "B"
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE B
15"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

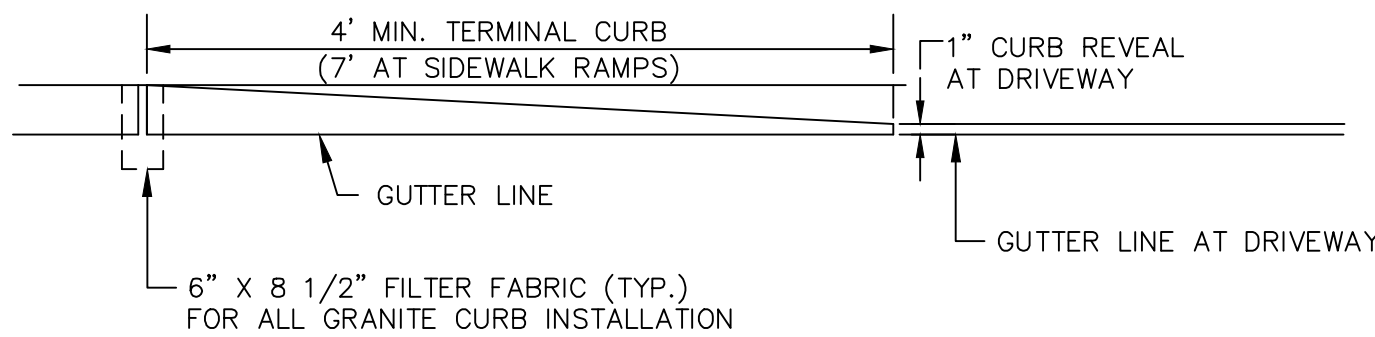
PAVER PROFILE
NOT TO SCALE



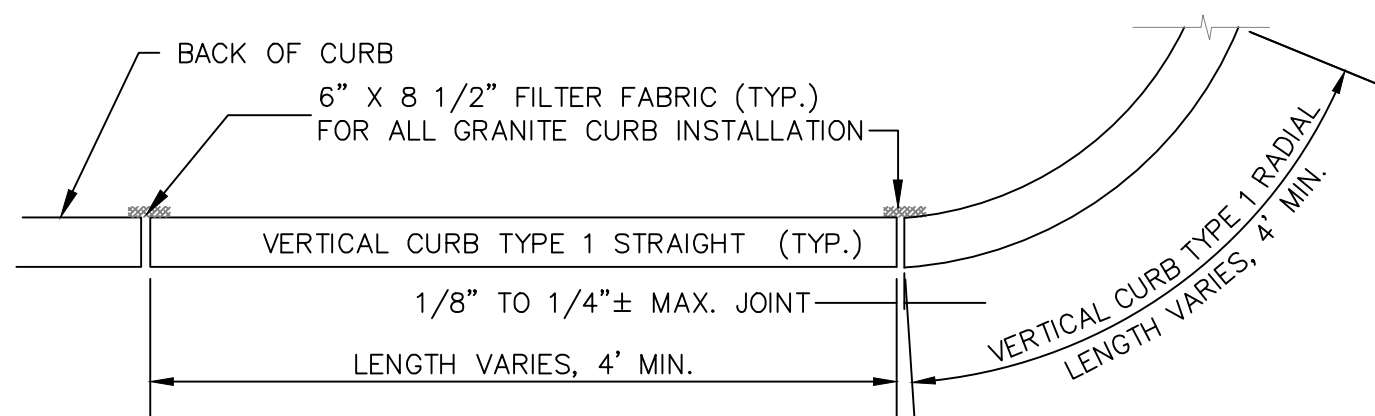
NOTES:

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. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
3. TWO-FOOT RADIUS CORNER GRANITE PIECES ("BUGS") ARE REQUIRED AT LOW-VOLUME DRIVEWAYS UNLESS OTHERWISE DIRECTED BY DPW. AT OTHER DRIVEWAYS, STANDARD FLARE/TIPDOWN TREATMENTS SHALL BE USED.
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.
5. THIS LAYOUT MAY BE REQUIRED AT MINOR DRIVEWAYS SERVING COMMERCIAL OR INDUSTRIAL USES.

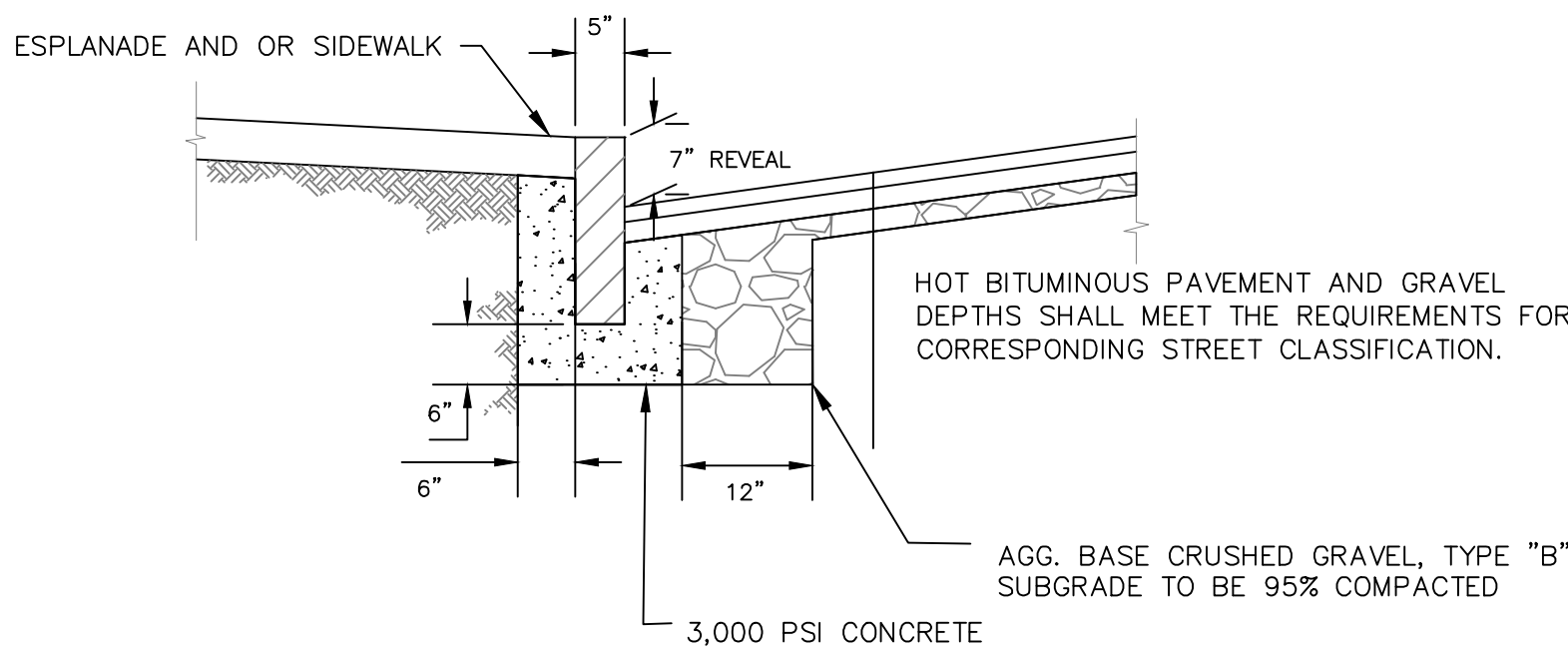
STANDARD RESIDENTIAL DRIVEWAY APRON LAYOUT
NOT TO SCALE



TERMINAL CURB PROFILE



VERTICAL GRANITE CURB PLAN VIEW



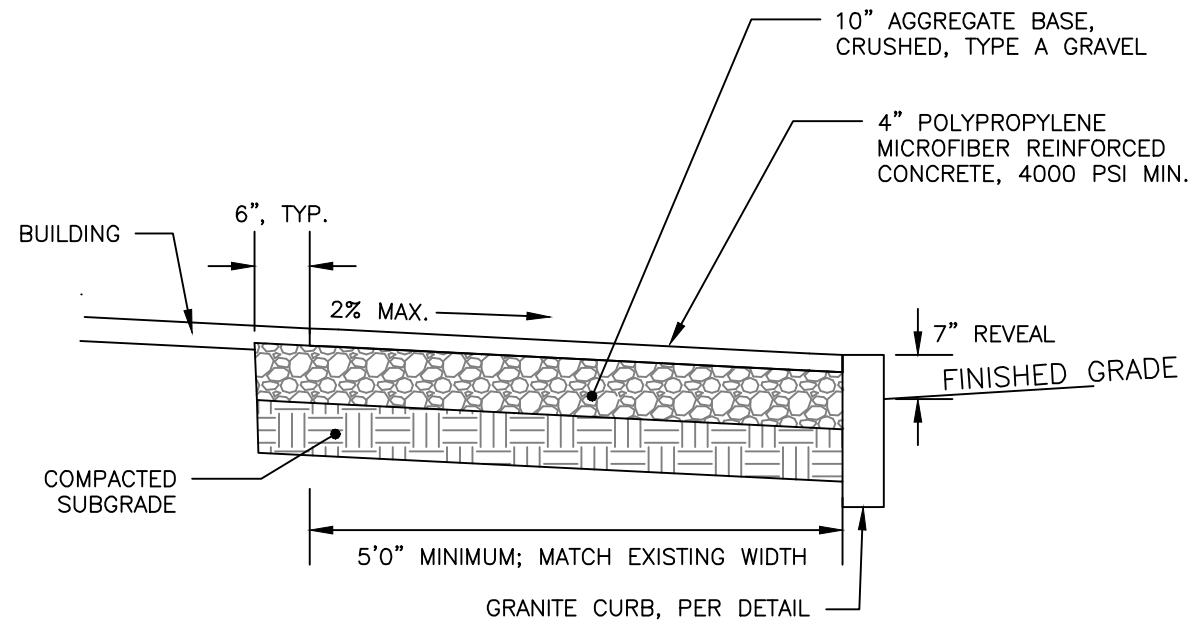
VERTICAL GRANITE CURB CROSS SECTION

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
NOT TO SCALE

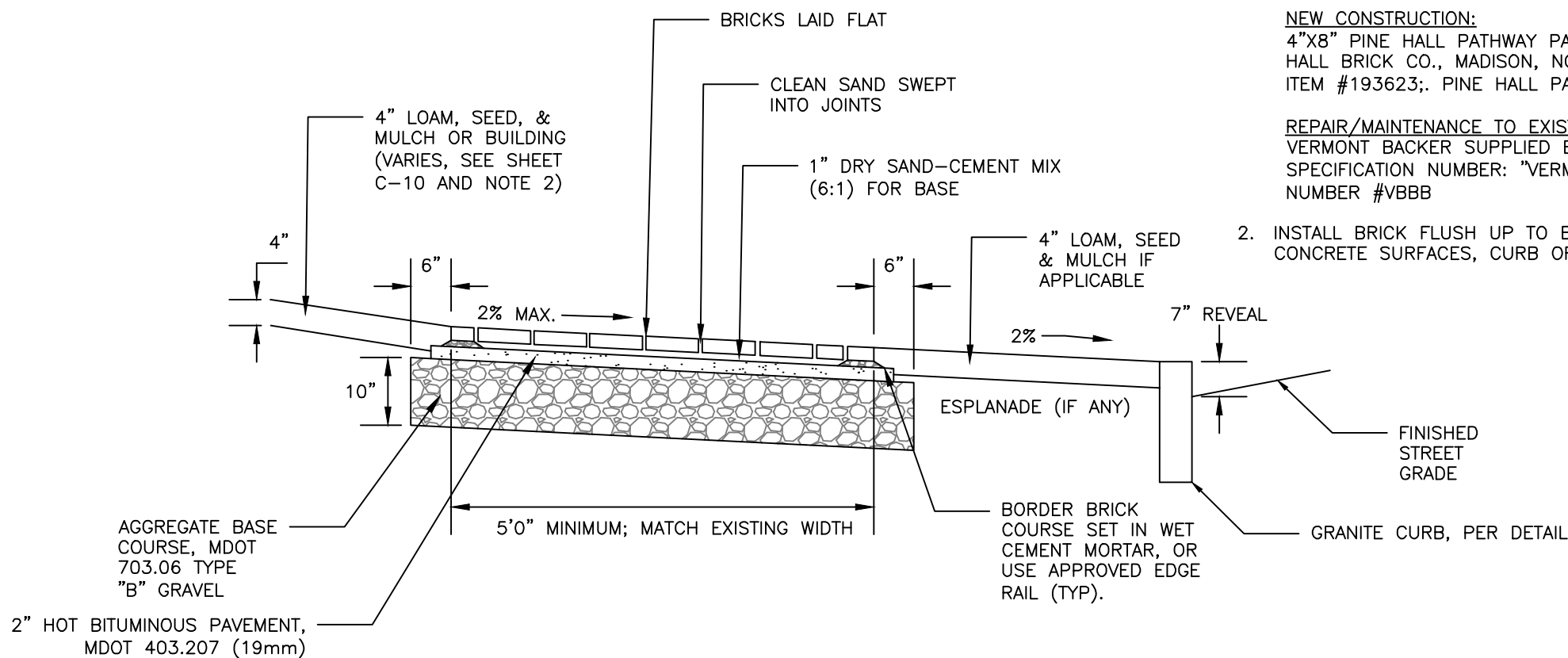
1. AT A MINIMUM, TESTING SHALL CONSIST OF ENTRAINED AIR AND SLUMP TESTS ON SITE PRIOR TO POURING THE SIDEWALKS. ENTRAINED AIR TESTS SHALL BE DONE IN ACCORDANCE WITH AASHTO T152. TEST FIRST TWO LOADS AND EVERY THIRD LOAD THEREAFTER PROVIDED CONSISTENT RESULTS ARE ACHIEVED.
2. IF THE CONTRACTOR ELECTS TO USE WELDED WIRE FABRIC, THE FABRIC SHALL BE PLACED 2 INCHES ABOVE THE CRUSHED GRAVEL, AND 2 INCHES FROM ALL FINISHED EDGES, EXPANSION JOINTS AND CURBS. ALL FABRIC JOINTS SHALL BE OVERLAPPED A MINIMUM OF 1 FOOT AND BE PROPERLY TIED. IF THE CONTRACTOR ELECTS TO USE REBAR, ONLY 4-GAUGE WILL BE ACCEPTABLE. IF THE CONTRACTOR ELECTS TO USE A PRE-MIXED FIBER MESH, A SPECIFICATION SHEET MUST BE SUBMITTED AND PRE-APPROVED BY THE ENGINEER PRIOR TO ITS APPLICATION.
3. SLABS SHALL BE PLACED ALTERNATELY IN LENGTHS NOT TO EXCEED 30 FEET OR AS DIRECTED AND SHALL BE SEPARATED BY AN EXPANSION JOINT OF PREFORMED EXPANSION FILLER 1/2 INCH IN THICKNESS.
4. WHEN CONSTRUCTED ADJACENT TO A BUILDING, RETAINING WALL OR OTHER FIXED STRUCTURE, A 1/2 INCH THICK PREFORMED JOINT FILLER SHALL BE USED BETWEEN THE SLAB AND THE STRUCTURE.
5. THE SIDEWALK SURFACE SHALL BE SCORED INTO BLOCK UNITS NO GREATER THAN 40 SQUARE FEET AS DIRECTED. THE DEPTH OF THE SCORING SHALL BE AT LEAST ONE QUARTER OF THE THICKNESS OF THE SLAB.
6. ANY MATCHING INTO EXISTING SIDEWALKS SHALL BE DONE SO WITH A CLEAN VERTICAL FACE CONNECTION.
7. THE SURFACE SHALL BE FINISHED TO PRODUCE A BROOMLIKE "BRUSHED" PATTERN. NO PLASTERING OF THE SURFACE WITH MORTAR WILL BE PERMITTED. THE FINISH SHALL RESULT IN A SURFACE OF UNIFORM TEXTURE AND COLOR; ALL OUTSIDE EDGES OF THE SLAB AND ALL JOINTS SHALL BE ROUNDED WITH A 1/4 INCH RADIUS EDGING TOOL.
8. CONCRETE SHALL BE CURED FOR 72 HOURS. CURING SHALL BE BY MEANS OF THOMPSON'S WATER SEAL AS MANUFACTURED BY E.A. THOMPSON CO., INC. OF MEMPHIS, TENNESSEE. BOILED LINSEED OIL, WHITE PIGMENTED CURING COMPOUND, OR BY OTHER APPROVED METHODS. CONCRETE SIDEWALK TO BE SEALED WITH CONSOLIDECK SALTGUARD WB OR APPROVED EQUAL 28 DAYS AFTER PLACEMENT. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.
9. GENERAL CONTRACTOR TO COLLECT DELIVERY SLIPS AND TRANSFER TO THE OWNER.
10. REFER TO CITY OF PORTLAND CONCRETE SPECIFICATIONS SECTION 608 FOR MORE INFORMATION.



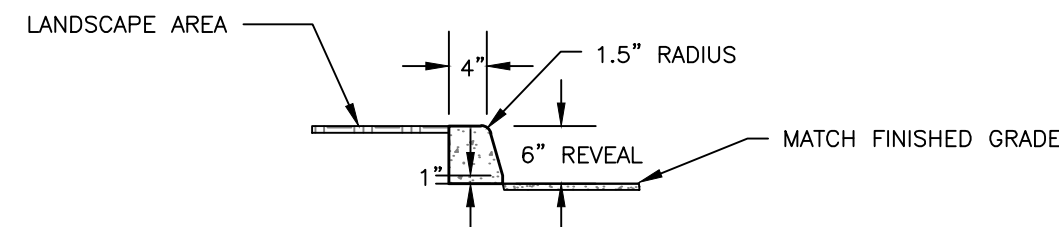
REINFORCED CONCRETE SIDEWALK
NOT TO SCALE

NOTES:

1. BRICKS TO BE USED:
NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVEMENT BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM #193623; PINE HALL PATHWAY PAVEMENT BRICK.
REPAIR/MAINTENANCE TO EXISTING BRICK SIDEWALKS:
VERMONT BACKER SUPPLIED BY GAGNE AND SONS SPECIFICATION NUMBER: "VERMONT PAVEMENT BRICK", ITEM NUMBER #VBBB
2. INSTALL BRICK FLUSH UP TO BUILDING, PAVEMENT, STAIRS, CONCRETE SURFACES, CURB OR LANDSCAPED AREAS.



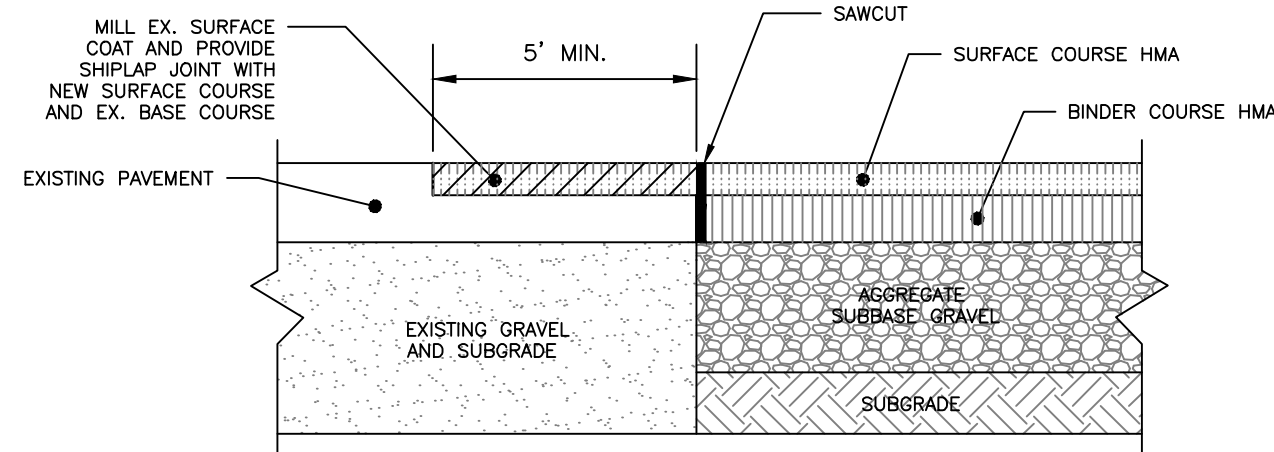
BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL WITH ESPLANADE
NOT TO SCALE



BITUMINOUS CURB DETAIL
NOT TO SCALE

NOTES:

1. SAWCUT EXISTING PAVEMENT AND REMOVE 5' STRIP OF EXISTING PAVEMENT TO CREATE A UNIFORM AND RIGID BUTT JOINT TO CREATE SHIPLAP JOINTS BETWEEN THE PAVEMENT LAYERS.
2. APPLY BITUMINOUS TACK COAT AT AN APPLICATION RATE OF 0.10 TO 0.14 GALLONS PER SQUARE YARD TO EXISTING PAVEMENT JOINTS AND SURFACES PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
3. THE NEW PAVEMENT SECTION SHALL MEET "PAVEMENT PROFILE DETAIL" AT A MINIMUM OR THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



PAVEMENT SAWCUT WITH SHIPLAP JOINTS DETAIL
NOT TO SCALE

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
MAJOR SITE PLAN
SUBMISSION
DATE
3/13/2024
PFH

ADDRESS UPDATE
DATE
3/26/2024
PFH

SITE DETAILS - 1

9 BOYD STREET REDEVELOPMENT

COMB BLOCK PHASE ONE, LP

970 BAXTER BOULEVARD, PORTLAND, MAINE 04101

DRAWING NAME

PROJECT NAME

CLIENT

ACORN ENGINEERING, INC.

ENGINEERING, INC.

ACORN ENGINEERING, INC. SHALL NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN. THE USER SHALL NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN. THE USER SHALL NOT BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN.

PO BOX 3372, PORTLAND MAINE 04104

(207) 775-2655

FILE: 1215_DETAILS

JN: 1215

SCALE: AS NOTED

DESIGNED BY: PFH

DRAWN BY: MKT

CHECKED BY: WHS

STATE OF MAINE

PETER F. HEIL

15318

REGISTERED PROFESSIONAL ENGINEER

070124

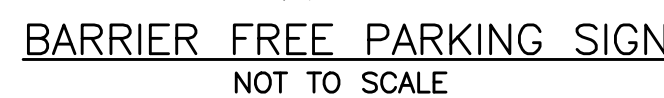
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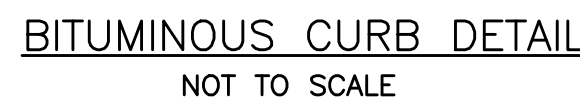
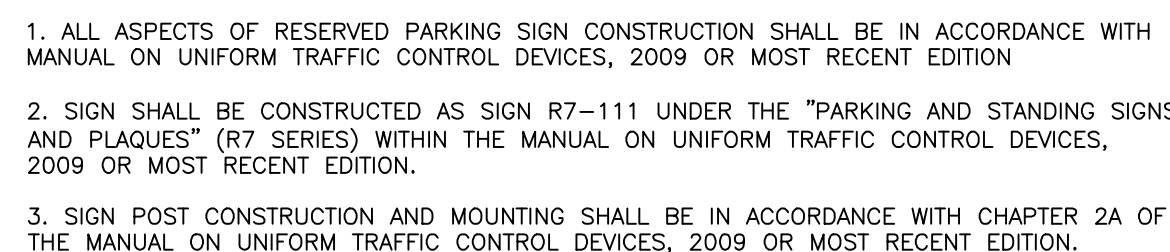
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR STRENGTH, CURING, STRUCTURE, CONCRETE MINIMUM COMPRESSIVE WEIGHT 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.



1. ALL ASPECTS OF RESERVED PARKING SIGN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.
2. SIGN SHALL BE CONSTRUCTED AS SIGN R7-8 UNDER THE "PARKING AND STANDING SIGNS AND PLAQUES" (R7 SERIES) WITHIN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION. VAN ACCESSIBILITY SHALL BE CONSTRUCTED AS SIGN R7-8a OR R7-8b.
3. SIGN POST CONSTRUCTION AND MOUNTING SHALL BE IN ACCORDANCE WITH CHAPTER 2A OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 2009 OR MOST RECENT EDITION.



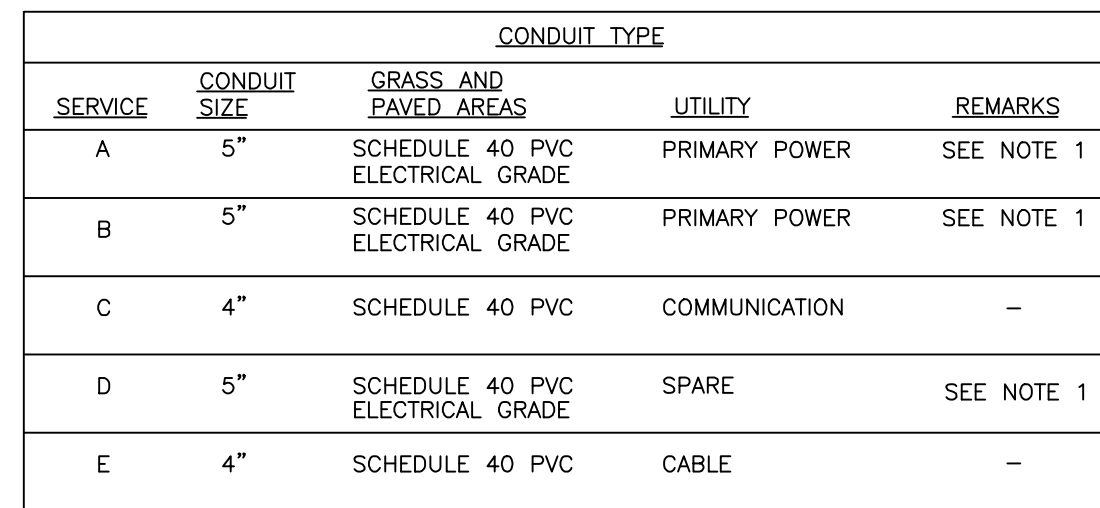
1. ALL PEDESTRIAN RAMPS SHALL COMPLY WITH ADA STANDARDS.
2. PEDESTRIAN RAMP CROSS SLOPE SHALL BE A MAXIMUM OF 2%.
3. ADJACENT SURFACE TO PEDESTRIAN RAMP SHALL BE FLUSH WITH THE BOTTOM OF THE PEDESTRIAN RAMP.
4. DETECTABLE WARNINGS SHALL SPAN THE WIDTH OF THE PEDESTRIAN RAMP.
5. FOR USE ONLY WHEN NO SIDEWALK IS PRESENT ON THE SIDE ROAD.



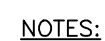
- NOTES:**
1. CONCRETE: 5000 PSI @ 28 DAYS
 2. CEMENT: TYPE III PER ASTM C150-
 3. LIGHT POLE BASE SHALL BE AS SUPPLIED BY GEORGE R. ROBERTS CO., OR APPROVED EQUAL
 4. DIAMETER TBD BASED UPON THE MANUFACTURER'S RECOMMENDATION



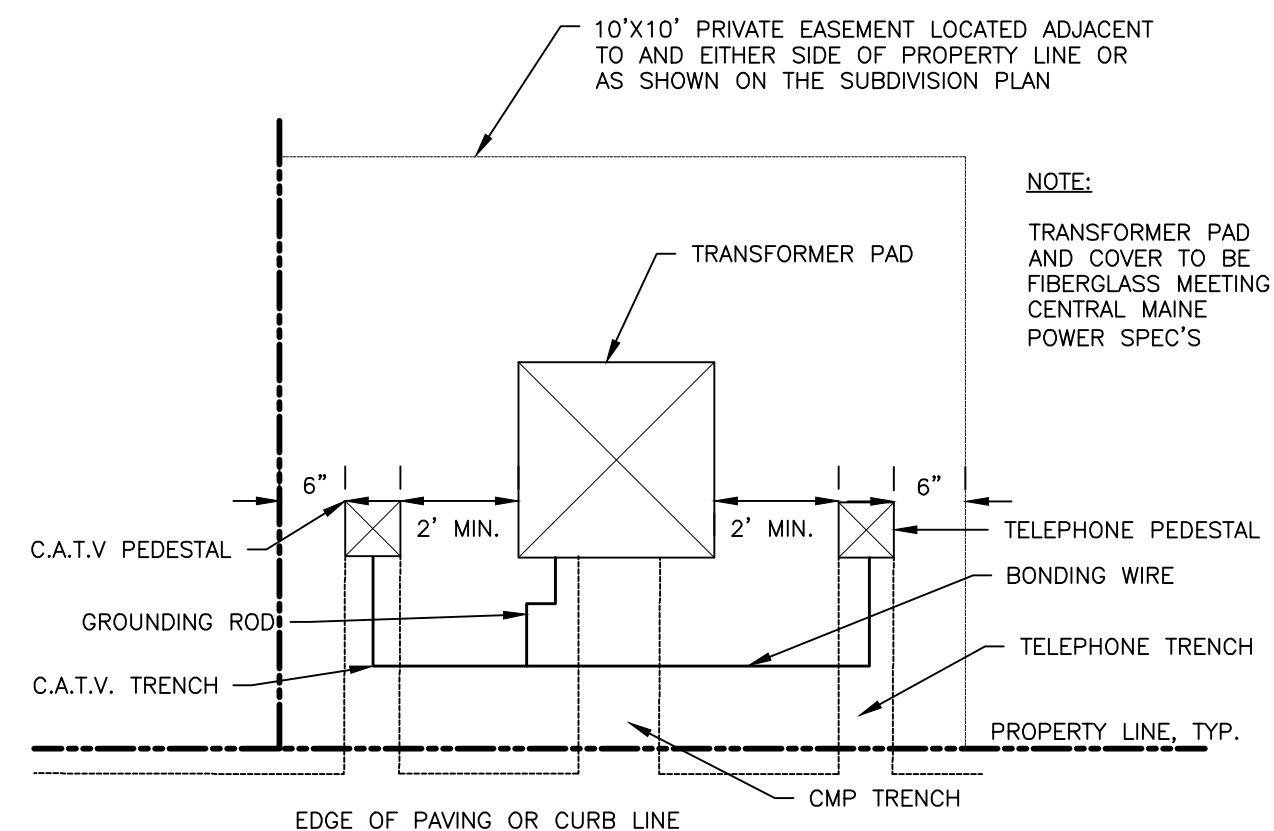
REVEALS	
APPLICATIONS	REVEAL
STREET/SIDEWALK	4"
OTHER PED HARDSCAPE	FLUSH
PEDESTRIAN LAWN/MULCH	4"
PARKING AREAS (OPEN TRAFFIC)	18-24"



NOT TO SCALE



1. WHERE DANGER OF PLOW OR TRAFFIC DAMAGE EXISTS, BARRIERS CONSISTING OF CONCRETE FILLED 6 INCH IPS STEEL POSTS SET 4 FEET DEEP SHALL BE PROVIDED FOR PROTECTION (PRESSURE TREATED 6X6 INCH MIN. TIMBER POSTS MAY BE SUBSTITUTED IN RESIDENTIAL AREAS). BARRIERS SHALL BE PLACED TO PREVENT TRANSFORMER ACCESS, GENERALLY THE POSTS SHALL BE LOCATED NEAR THE CORNERS OF THE TRANSFORMERS.
2. THE SETBACKS DEPICT CLEARANCES FROM OBSTRUCTIONS INCLUDING SIGNAGE, LIGHT SOURCES AND FENCES.
3. THERE SHALL BE NO OPENINGS IN THE BUILDING WALL IN BACK OF, BEHIND, OR OVER THE TRANSFORMER UNLESS THE TRANSFORMER IS A MIN. OF 10 FEET FROM THE BUILDING.
4. SIDE CLEARANCES FROM DOORS OR WINDOWS SHALL NOT BE LESS THAN 10 FEET.
5. THERE SHALL BE A MIN. OF 10 FEET BETWEEN THE TRANSFORMER AND ANY GAS METER/REGULATOR, GAS RELIEF VALVE, GAS VENT OR FURNACE GAS FITTING. IF THE TRANSFORMER IS NEAR A HOME, SOME INSURANCE COMPANIES MAY REQUIRE INCREASED CLEARANCES.
6. TRANSFORMER SHALL BE LOCATED FAR ENOUGH AWAY FROM BUILDING OVERHANGS SO THAT THEY WILL NOT BE SUBJECT TO DAMAGE FALLING AND/OR DRIPPING FROM THE OVERHANGS.
7. IF TRANSFORMER IS NOT INSTALLED IMMEDIATELY UPON THE INSTALLATION OF THE CABLE IN THE PAD, THE CONTRACTOR SHALL PROVIDE AND INSTALL A CMP APPROVED CONCRETE, STEEL, OR FIBERGLASS COVER OVER THE PAD OPENING TO ELIMINATE EXPOSURE OF THE CABLE.



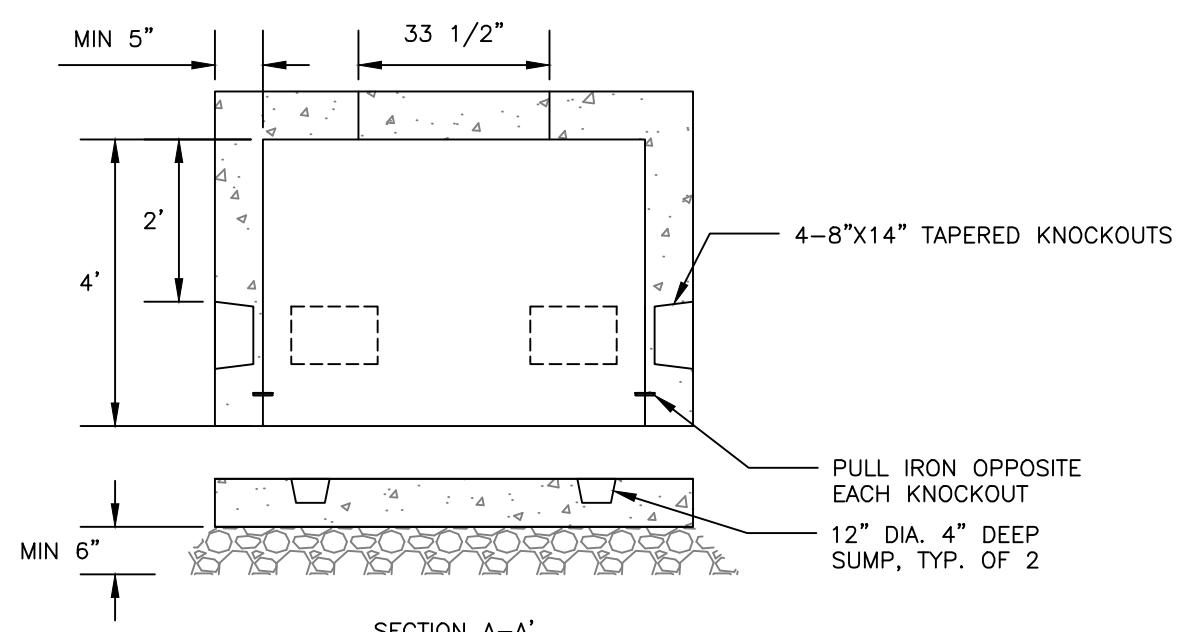
NOT TO SCALE

NOTES:

1. INSTALL MAINS WITH A MINIMUM OF 36" OF COVER AND SERVICES WITH A MINIMUM OF 24" OF COVER. EXCEPTIONS MAY BE MADE WITHIN SLATE AND FEDERAL CODES WITH THE PRIOR APPROVAL OF THE OPERATIONS CENTER MANAGER. INSTALL PLASTIC PIPE WITH SLACK. SO AFTER INITIAL LOADING OF THE TRENCH, CONTRACTOR SHALL BE RESPONSIBLE FOR THE PIPE TO BE PROPERLY TIGHTENED. IN CASES WHERE A STOPPER FITTING OF OTHER NEW MATERIAL IS ADDED TO AN OTHER MAIN SUCH THAT THE MAIN HAS LESS THAN 24" OF COVER, THE CONTRACTOR SHOULD PROVIDE PERMANENT PROTECTION OF SUCH MAINS. IF THE MAIN HAS LESS THAN 24" OF COVER, NOTIFY THE OPERATIONS CENTER MANAGER OR THE DESIGNEE SO THEY CAN REQUEST APPROVAL FROM THE DEPARTMENT OF PUBLIC UTILITIES.
2. PROCEDURE - SEE FIGURE BELOW.
- 2.1. REMOVE ALL EXCESS WATER FROM THE TRENCH WITH PUMPS OR EQUIVALENT
- 2.2. PLACE A LAYER OF SAND 4" DEEP IN TRENCH BOTTOM BEFORE LAYING THE PIPE IN THE TRENCH. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
- 2.3. FOR PLASTIC PIPE, INSTALL NUMBER 12 AWG SOLDER COPPER WIRE (TRACER WIRE) WITH YELLOW INSULATION JACKET ALONG THE LENGTH OF THE SERVICE. THIS WIRE IS USED TO LOCATE THE PIPE. THE WIRE MAY BE RUN OR ALLOW THE WIRE TO TOUCH THE TRENCH PLASTIC PIPE. KEEP THE TRACER WIRE AT LEAST 4" AWAY FROM THE PLASTIC PIPE. IF THE INSTALLATION IS TRENCHLESS, THE TRACER WIRE MAY BE LESS THEN 4" AWAY FROM THE PLASTIC PIPE.
- 2.4. PLACE A MINIMUM OF 6" OF SAND OVER THE PIPE. THE OPERATIONS CENTER MANAGER OR COMPANY FIELD REPRESENTATIVE MAY ALLOW USE OF CLEAN FILL MATERIAL INSTEAD OF SAND PROVIDED IT IS CLEAN AND FREE OF ANY OBJECTS THAT MAY IMPINGE ON THE PIPE.
- 2.5. IF THE WARNING TAPE IS YELLOW, REMOVE THE TAPE TO THE SURFACE TO THE STANDARD WARNING TAPE IS YELLOW, NON-DETECTABLE TAPE, 6" WIDE.
- 2.6. FILL THE REST OF THE TRENCH WITH CLEAN FILL MATERIAL, USING THE SPOIL WHERE SUITABLE AND ACCEPTABLE. IF THE ORIGINAL SPOIL MATERIAL IS NOT SUITABLE FOR USE AS A FILL GRADE MATERIAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MATERIAL REQUIRED BY STATE OR LOCAL AGENCIES. REMOVE ALL EXCESS SPOIL IN THE ACCEPTED MANNER.
- 2.7. PROPERLY COMPACT THE TRENCH TO INSURE THE TRENCH WILL NOT SETTLE.
- 2.8. GET STANDARD 100 FOR A DESCRIPTION OF SUITABLE MATERIAL FOR PIPE BEDDING AND FINAL BACKFILL.



1. JUNCTION BOX TO COMPLY WITH NATIONAL ELECTRICAL SAFETY CODE SECTION 323A.
2. BOX TO BE DESIGNED TO WITHSTAND H2O WHEEL LOADING WITH 6" OVERBURDEN.
3. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
4. BOX TO BE INSTALLED WITH CMP'S TYPE 'B' CASTING (CMP S/C62-1780, 62-1785, & 62-1880).
5. JUNCTION BOX AND SLAB TO BE SET ON MIN 6" COMPACTED 3/4" CRUSHED STONE.



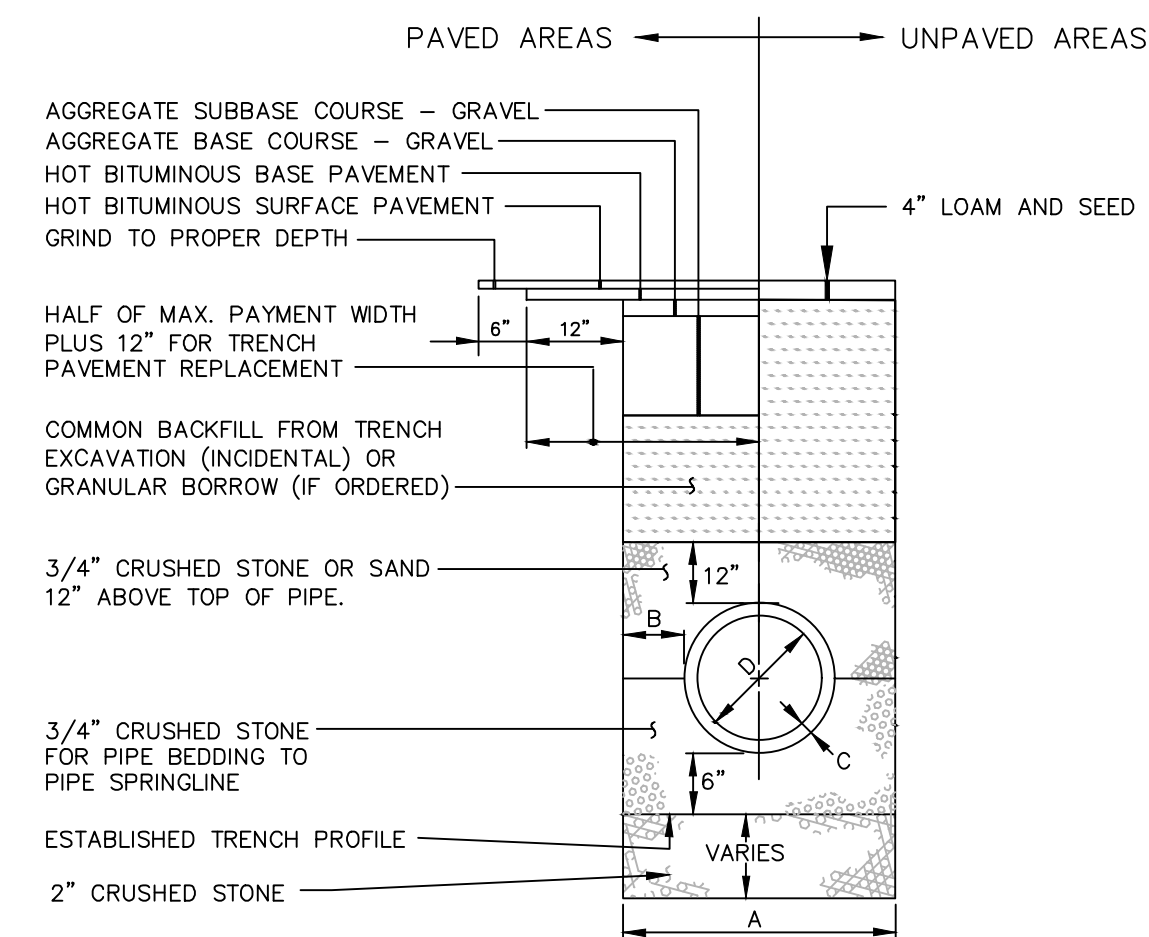
CMP JUNCTION BOX (PULL BOX)

NOT TO SCALE

NOTES:

DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.

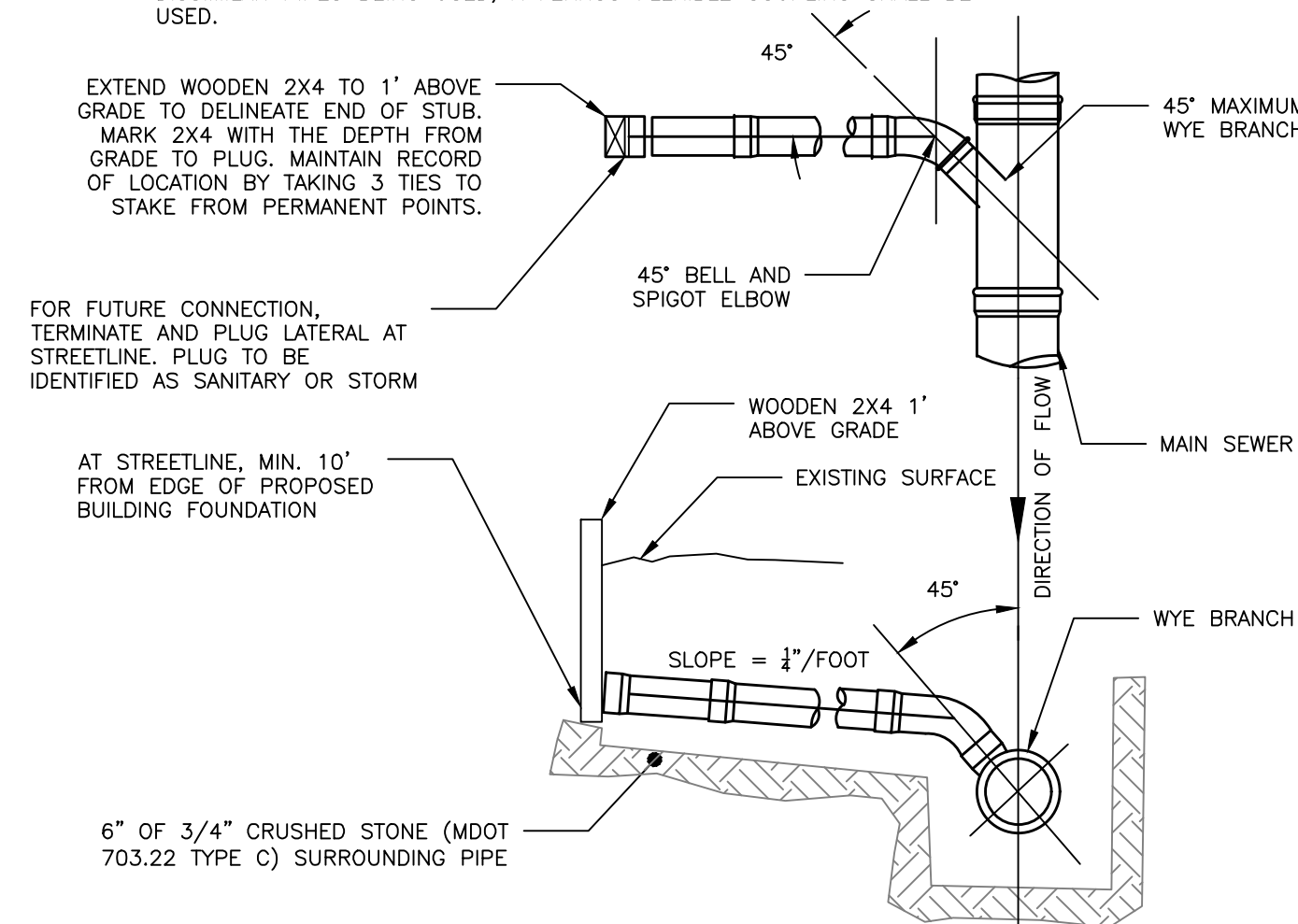


NOT TO SCALE

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	—
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

NOTES:

1. LOCATION WITH WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.
2. SITE CONTRACTOR TO COORDINATE CONNECTION OF SEWER LATERAL TO HOUSEHOLD PLUMBING WITH ARCHITECTURAL CONTRACTOR
3. CONNECTION OF PROPOSED SEWER LATERAL TO HOUSEHOLD PLUMBING SHOULD INCORPORATE USE OF SIMILAR PIPE MATERIALS. IN THE CASE OF DISSIMILAR PIPES BEING USED, A FERNCO FLEXIBLE COUPLING SHALL BE USED.



SEWER AND STORM DRAIN TEE/WYE CONNECTION DETAIL

NOT TO SCALE

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

[illegible]

UTILITY DETAILS - 1

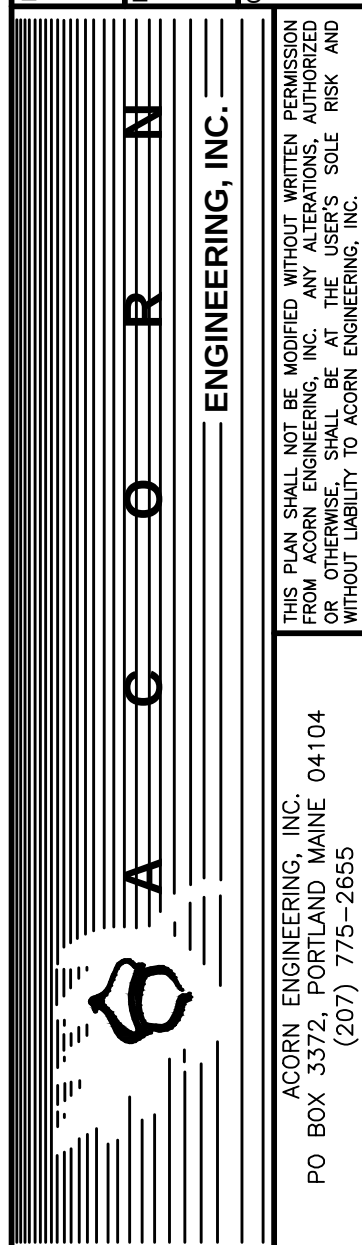
9 BOYD STREET REDEVELOPMENT

COMB BLOCK PHASE ONE, LP
370 BAXTER BOULEVARD, PORTLAND, MAINE 04101

DRAWING NAME:

PROJECT NAME:

CLIENT:



FILE: 1215_DETAILS

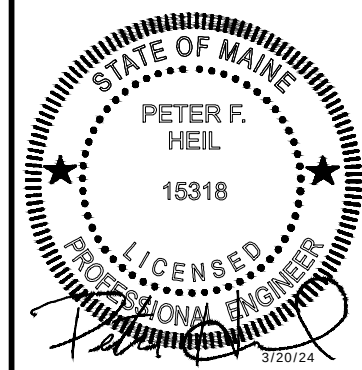
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SCALE: AS NOTED

DESIGNED BY: PFH

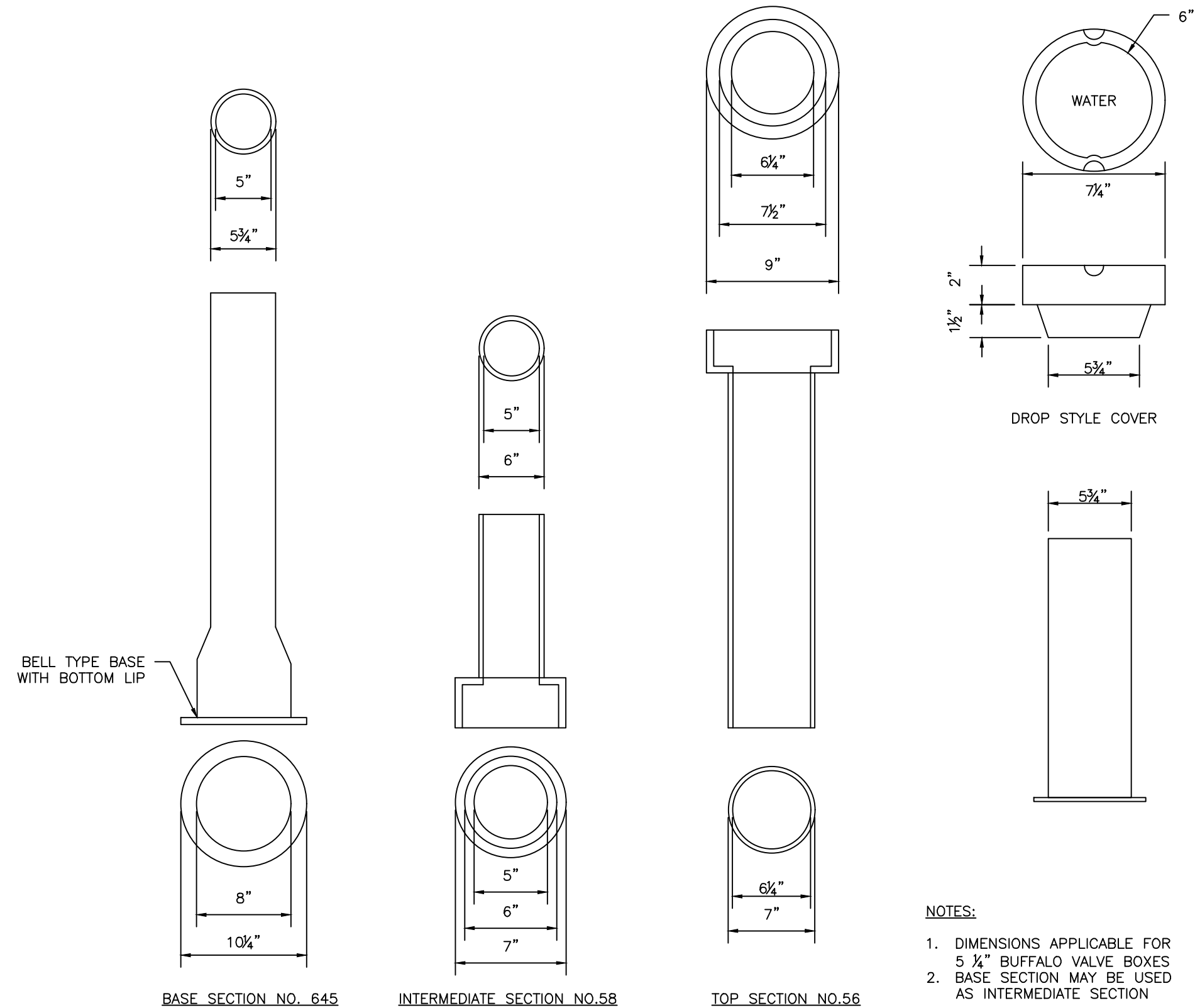
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CHECKED BY: WHS

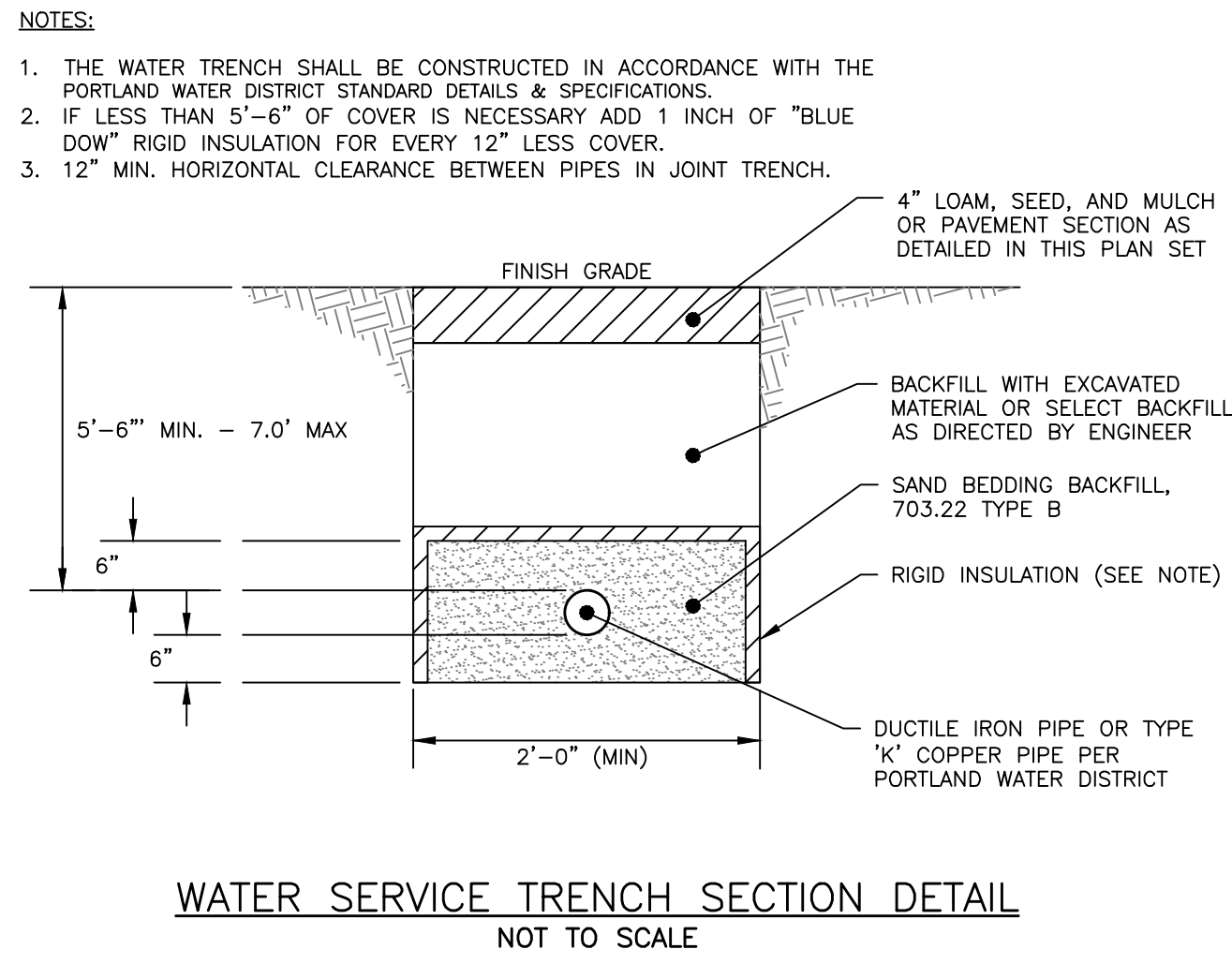


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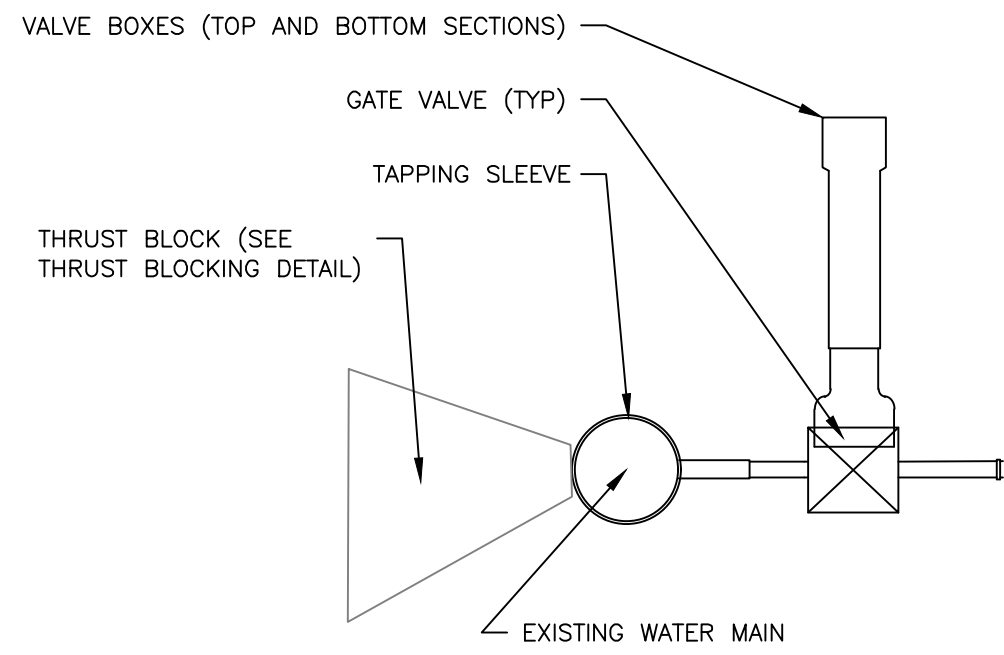
C-42



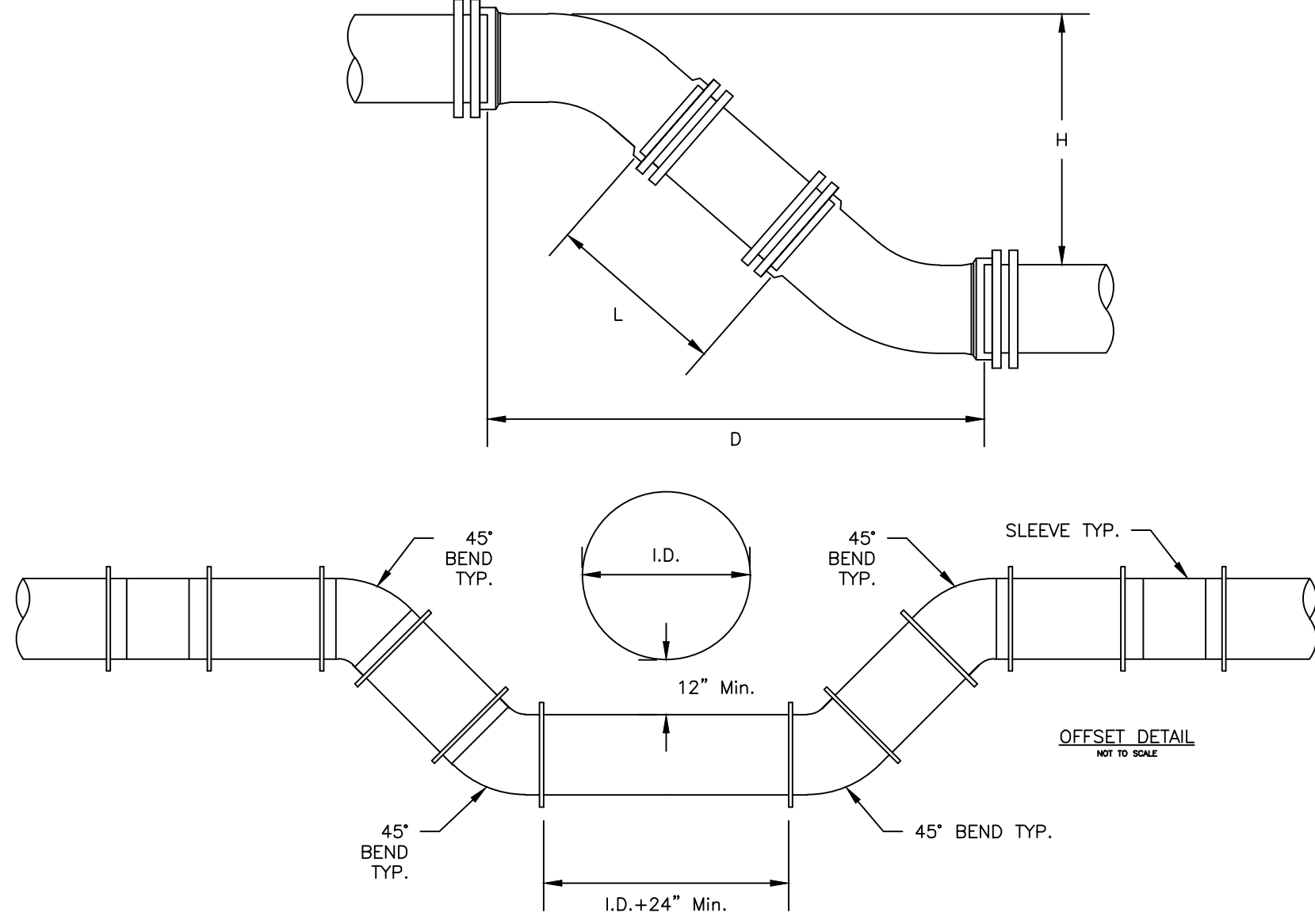
VALVE BOX & COVER
NOT TO SCALE



WATER SERVICE TRENCH SECTION DETAIL
NOT TO SCALE

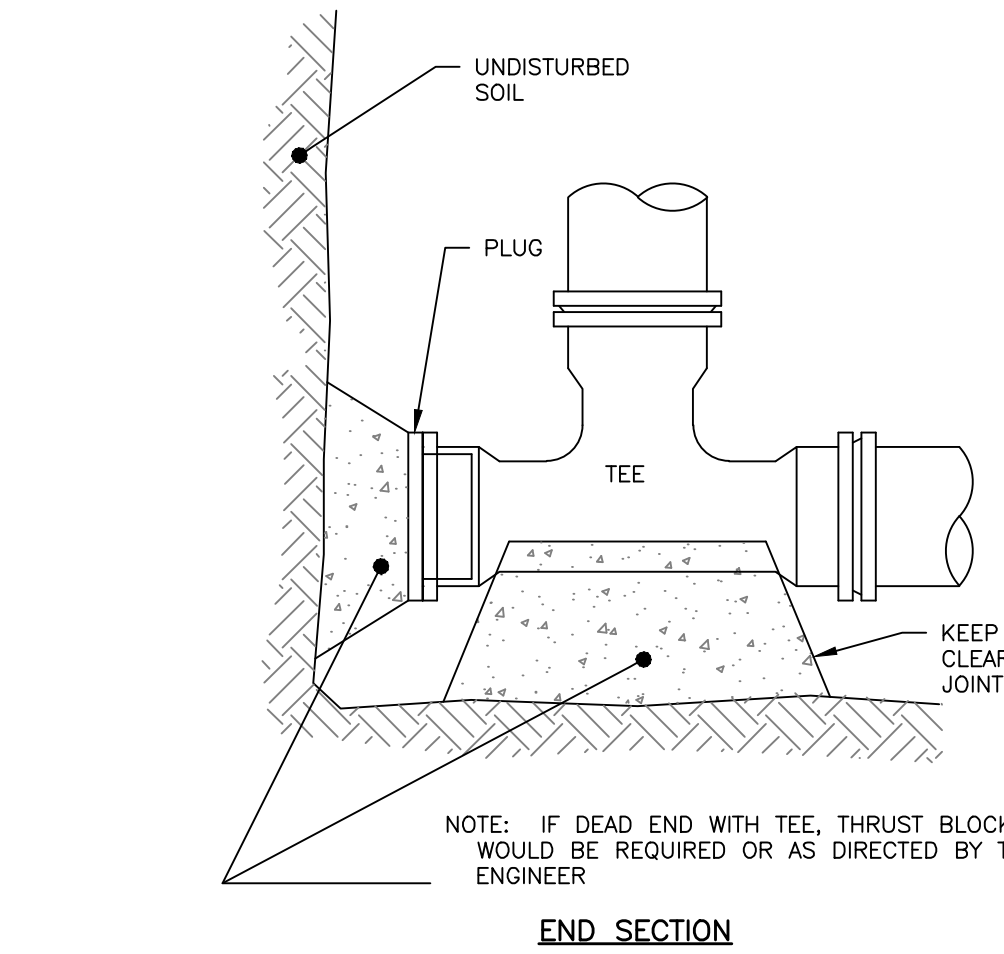


SIDE VIEW
TAPPING SLEEVE AND VALVE
NOT TO SCALE

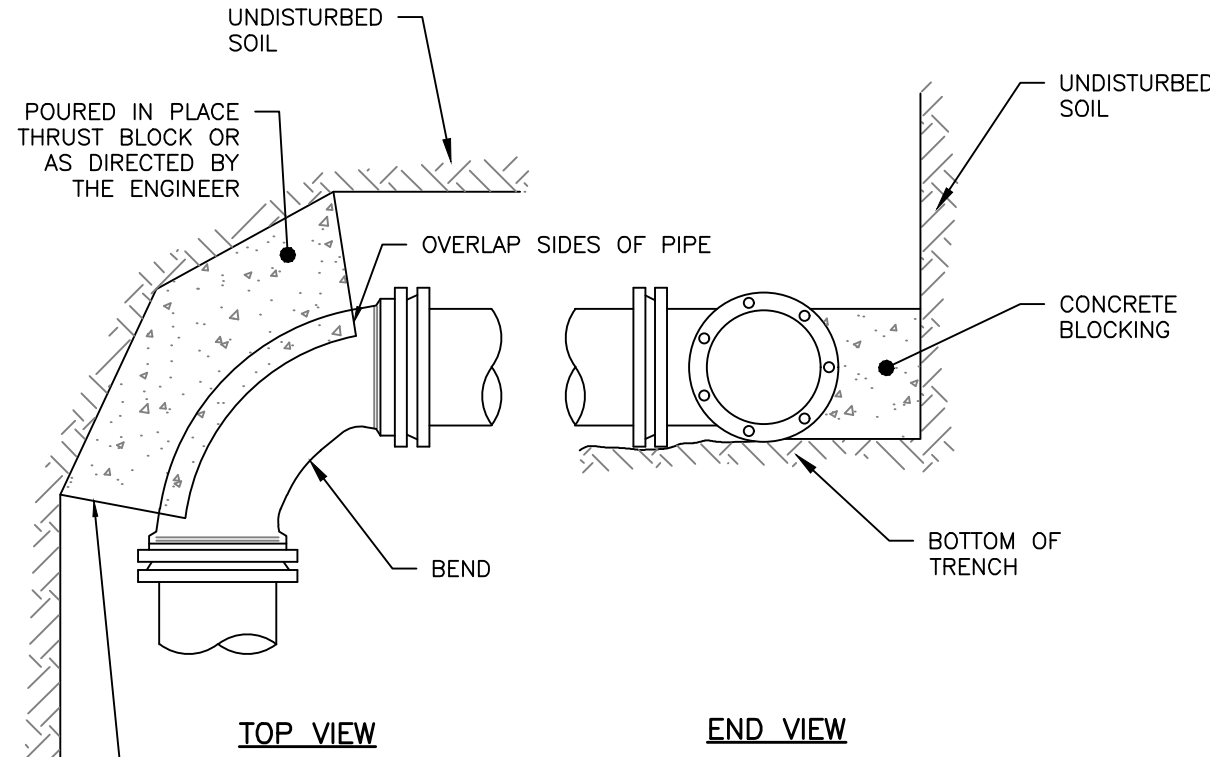


TYPICAL MAIN OFFSET
NOT TO SCALE

8" PIPE		
H	D	L
12"	1' 7-1/2"	0' 9-1/2"
13"	1' 8-1/2"	0' 10-7/8"
14"	1' 9-1/2"	1' 0-5/16"
15"	1' 10-1/2"	1' 1-11/16"
16"	1' 11-1/2"	1' 3-1/8"
17"	2' 0-1/2"	1' 4-9/16"
18"	2' 1-1/2"	1' 5-15/16"
19"	2' 2-1/2"	1' 7-3/8"
20"	2' 3-1/2"	1' 8-13/16"
21"	2' 4-1/2"	1' 10-3/16"
22"	2' 5-1/2"	1' 11-5/8"
23"	2' 6-1/2"	2' 1"
24"	2' 7-1/2"	2' 2-7/16"
25"	2' 8-1/2"	2' 3-7/8"
26"	2' 9-1/2"	2' 5-1/4"
27"	2' 10-1/2"	2' 6-11/16"
28"	2' 11-1/2"	2' 8-1/8"
29"	3' 0-1/2"	2' 9-1/2"
30"	3' 1-1/2"	2' 10-15/16"
31"	3' 2-1/2"	3' 0-5/16"
32"	3' 3-1/2"	3' 1-3/4"
33"	3' 4-1/2"	3' 3-3/16"
34"	3' 5-1/2"	3' 4-9/16"
35"	3' 6-1/2"	3' 6"
36"	3' 7-1/2"	3' 7-7/16"
37"	3' 8-1/2"	3' 8-13/16"
38"	3' 9-1/2"	3' 10-1/4"
39"	3' 10-1/2"	3' 11-11/16"
40"	3' 11-1/2"	4' 1-1/16"
41"	4' 0-1/2"	4' 2-1/2"
42"	4' 1-1/2"	4' 3-7/8"
43"	4' 2-1/2"	4' 5-5/16"
44"	4' 3-1/2"	4' 6-3/4"
45"	4' 4-1/2"	4' 8-1/8"
46"	4' 5-1/2"	4' 9-9/16"
47"	4' 6-1/2"	4' 10-15/16"
48"	4' 7-1/2"	5' 0-3/8"
49"	4' 8-1/2"	5' 1-13/16"
50"	4' 9-1/2"	5' 3-3/16"
51"	4' 10-1/2"	5' 4-5/8"
52"	4' 11-1/2"	5' 6-1/16"
53"	5' 0-1/2"	5' 7-7/16"
54"	5' 1-1/2"	5' 8-7/8"
55"	5' 2-1/2"	5' 10-5/16"



END SECTION

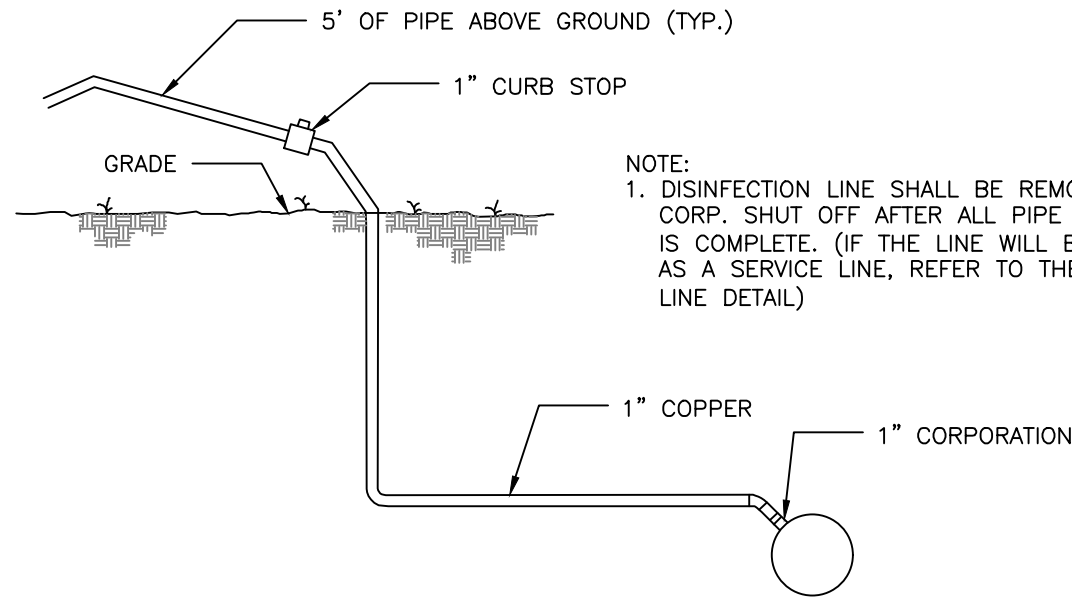


TOP VIEW

END VIEW

REGULAR BEND

THRUST BLOCKING
NOT TO SCALE



DISINFECTION LINE DETAIL
NOT TO SCALE

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR
MAJOR SITE PLAN
SUBMISSION
ADDRESS UPDATE

BY
DATE
PFH
3/13/2024
PFH
3/26/2024

DRAWING NAME
UTILITY DETAILS - 2

PROJECT NAME
9 BOYD STREET REDEVELOPMENT

CLIENT
COMB BLOCK PHASE ONE, LP
970 BAXTER BOULEVARD, PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR UNAUTHORIZED, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.

FILE: 1215_DETAILS

JN: 1215

SCALE: AS NOTED

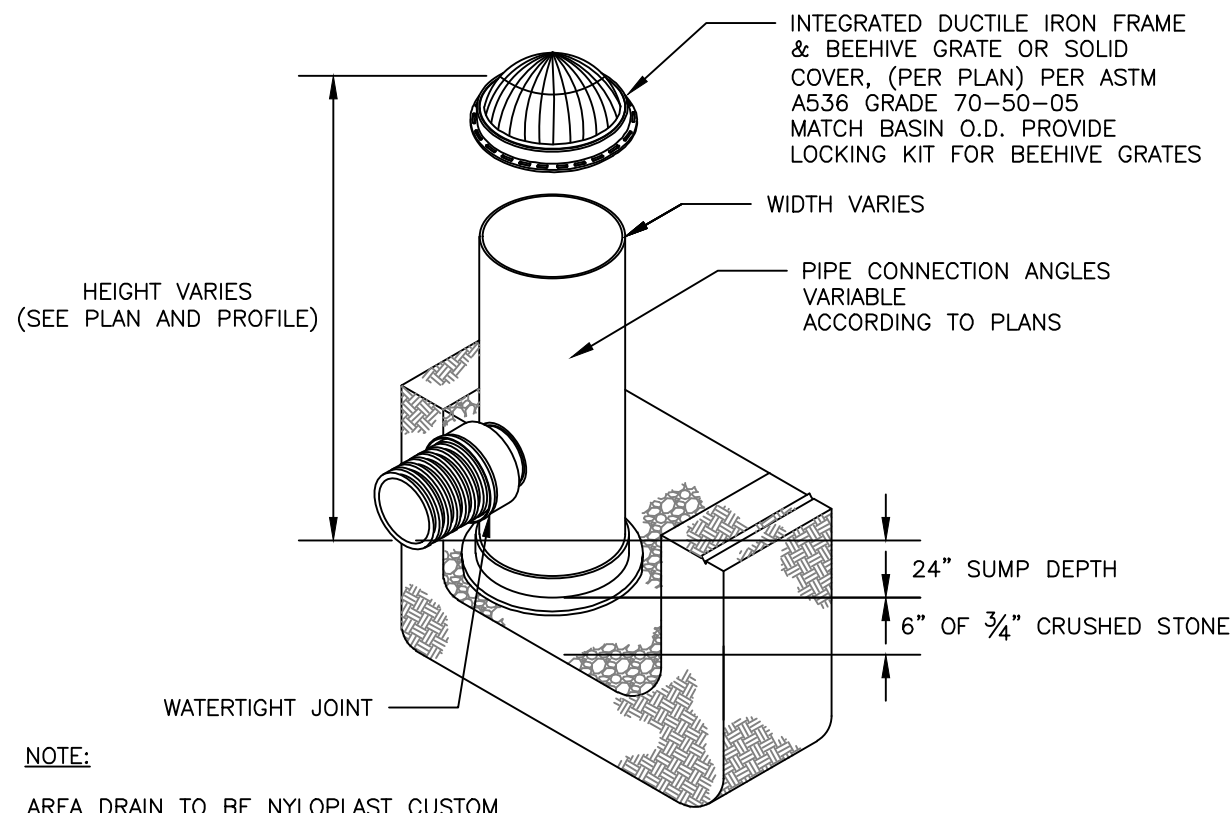
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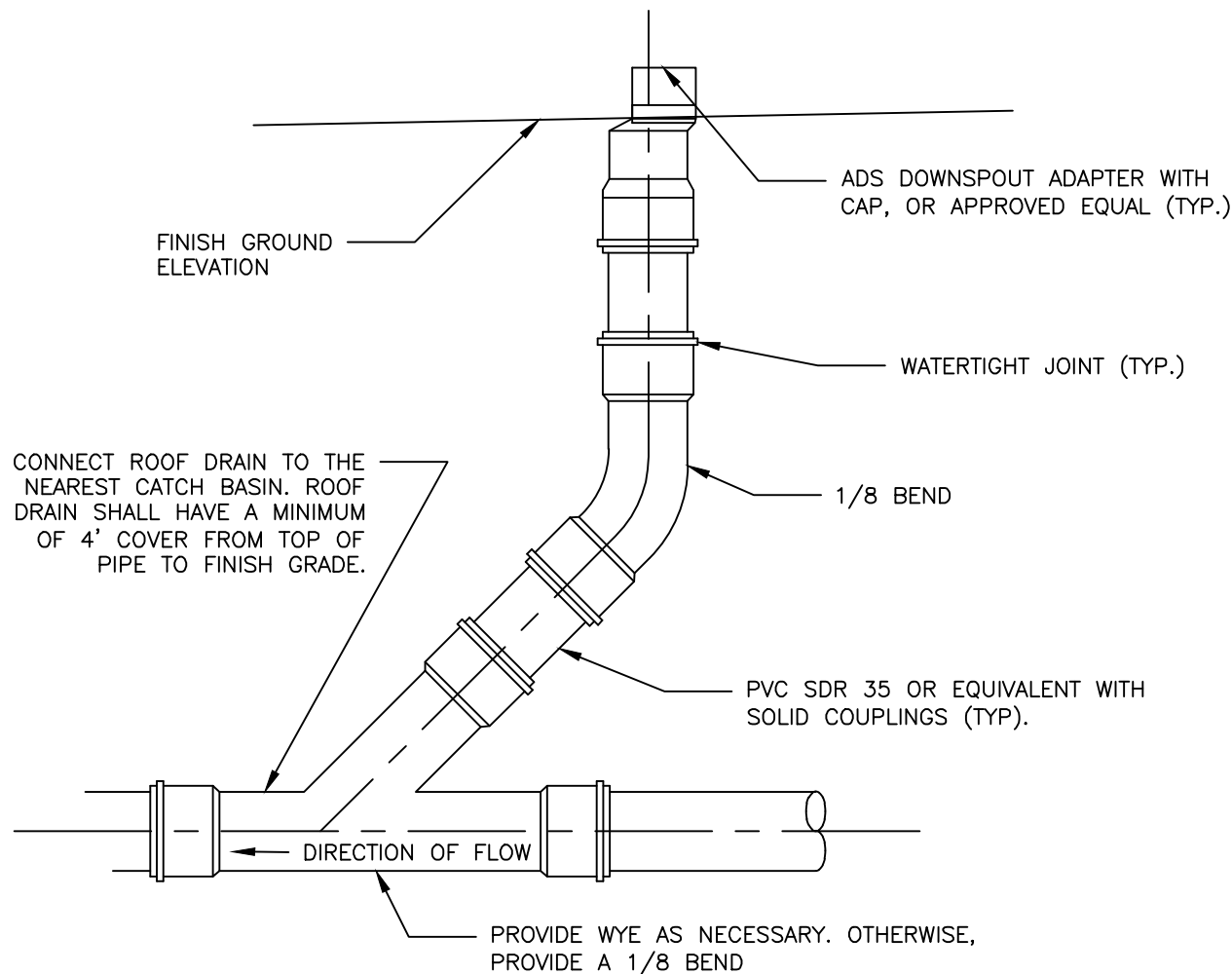
CHECKED BY: WHS

STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER

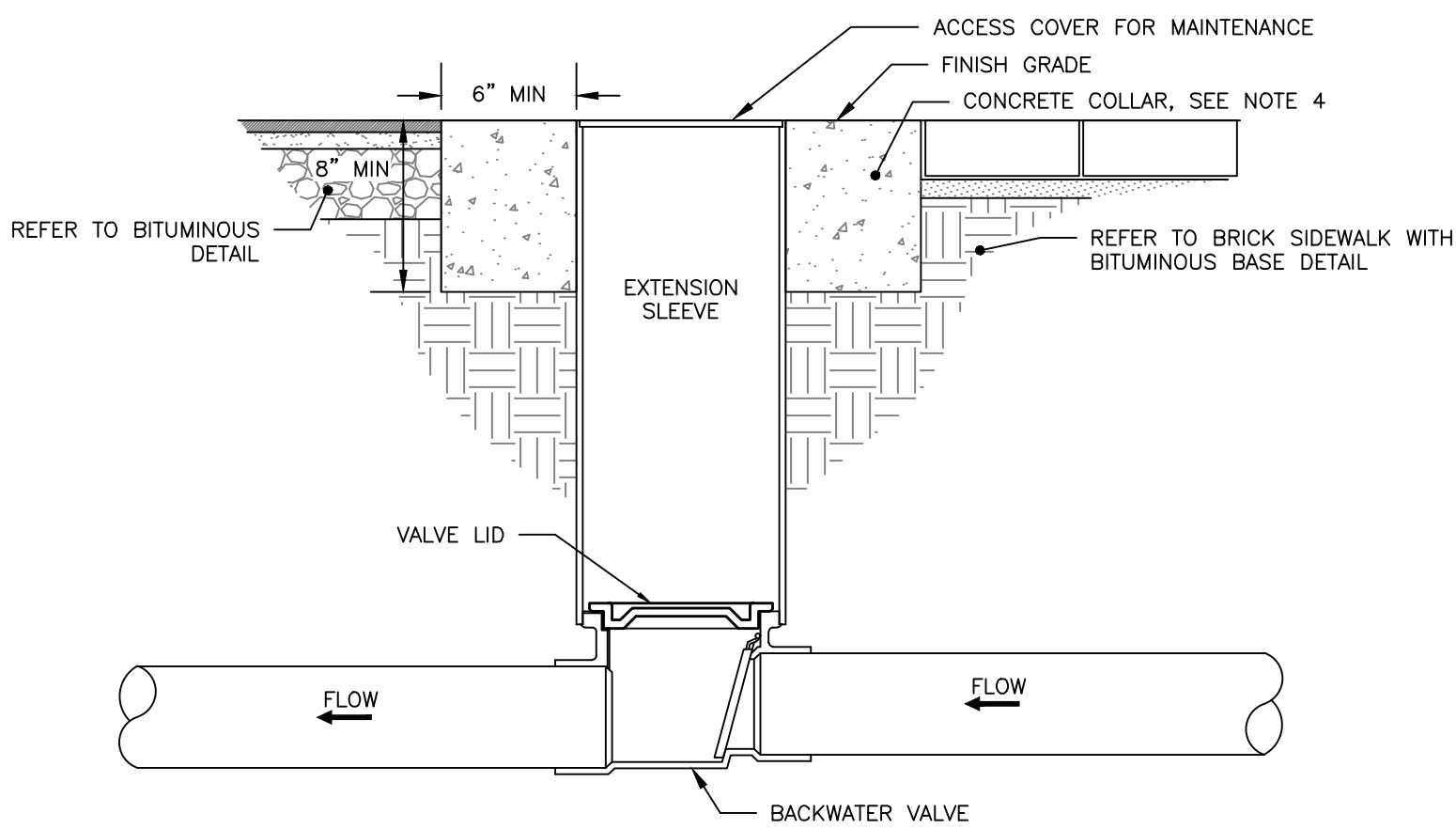
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C-43



DRAIN BASIN DETAIL
NOT TO SCALE



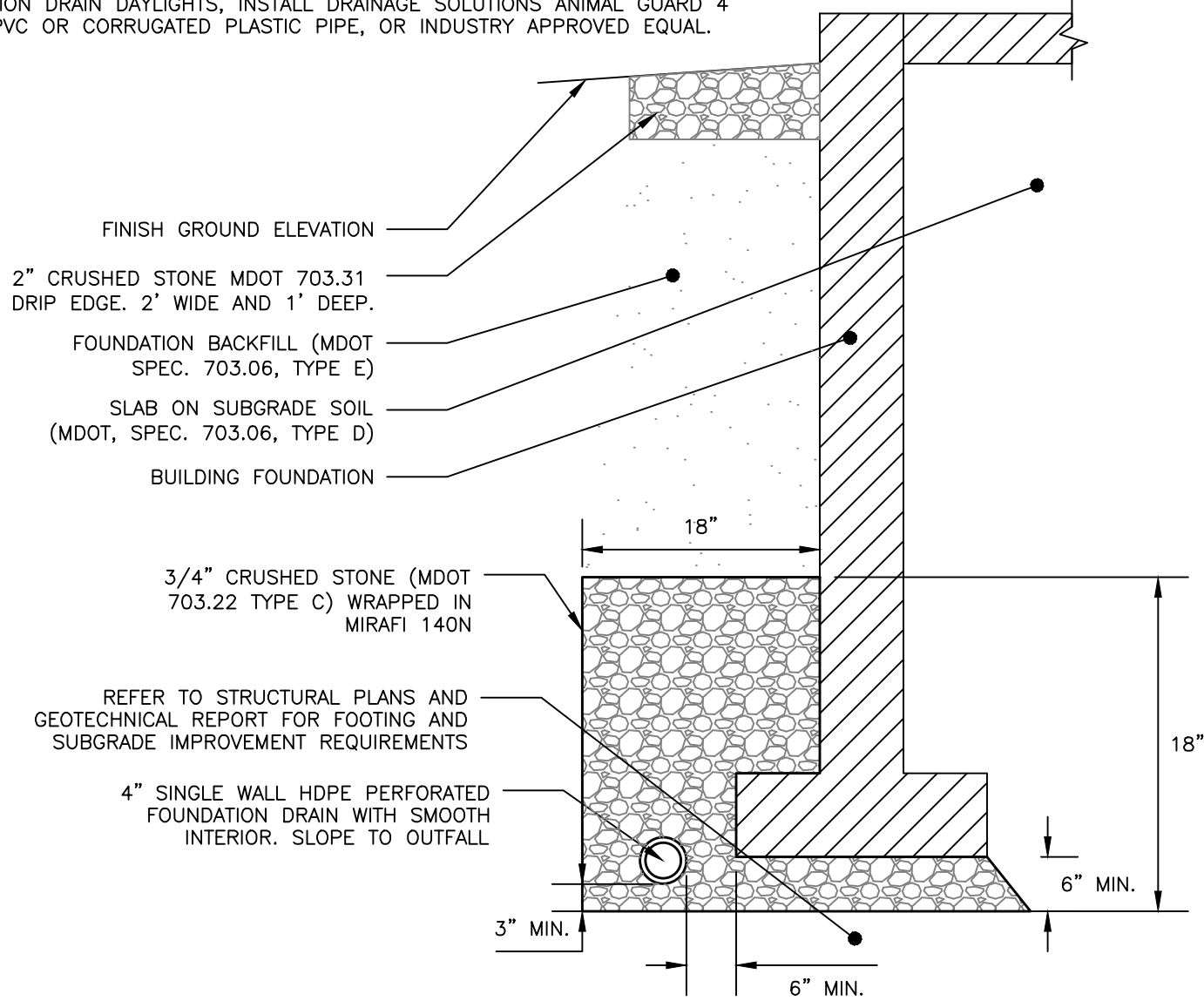
ROOF DRAIN DETAIL
NOT TO SCALE



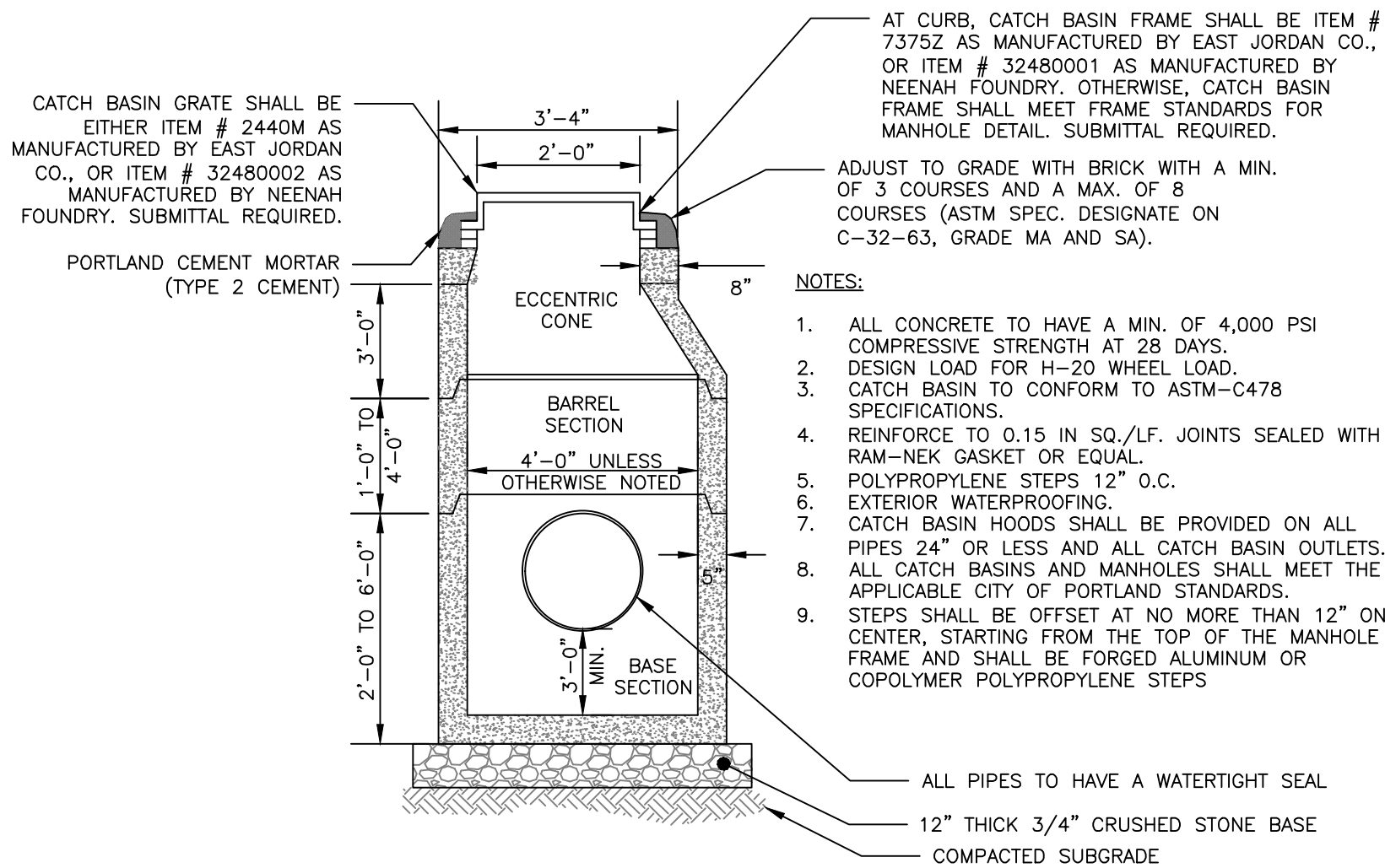
BACKFLOW VALVE ASSEMBLY
NOT TO SCALE

NOTES:

1. REFER TO THE BUILDING ARCHITECTS AND STRUCTURAL ENGINEERING PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. INSTALL STONE DRIP EDGE IN A LOCATIONS SUBJECT TO ROOF RUNOFF. WIDTH SHALL BE A MIN. 12" BEYOND THE PROJECTION OF THE ROOF EYE.
4. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE UNLESS OTHERWISE SPECIFIED BY THE GEOTECHNICAL ENGINEER OR STRUCTURAL ENGINEER. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.
5. IF FOUNDATION DRAIN DAYLIGHTS, INSTALL DRAINAGE SOLUTIONS ANIMAL GUARD 4" EXTERNAL PVC OR CORRUGATED PLASTIC PIPE, OR INDUSTRY APPROVED EQUAL.



FOUNDATION DRAIN DETAIL
NOT TO SCALE



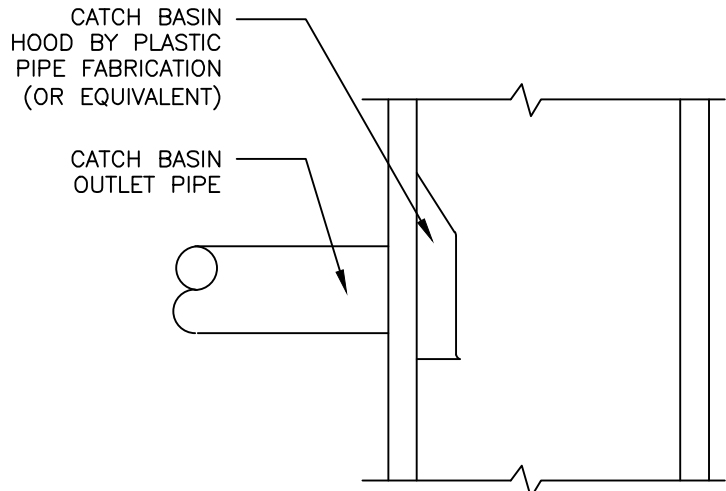
PRECAST CATCH BASIN/ DRAINAGE MANHOLE
NOT TO SCALE

1. ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. MANHOLES MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
3. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C-478.
4. ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLD AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
5. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/RAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.
6. SEWER BRICK SHALL CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
7. ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
8. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
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. ALL CATCH BASIN OUTLETS SHALL BE INSTALLED WITH A CATCH BASIN HOOD.
11. HYDROCARBON ABSORBENT BOOM IN ALL CATCH BASINS REQUIRED BY CONTRACTOR FOLLOWING PAVING. OWNER TO MAINTAIN/REPLACE FOR 1-YEAR FOLLOWING FINAL PAVEMENT.

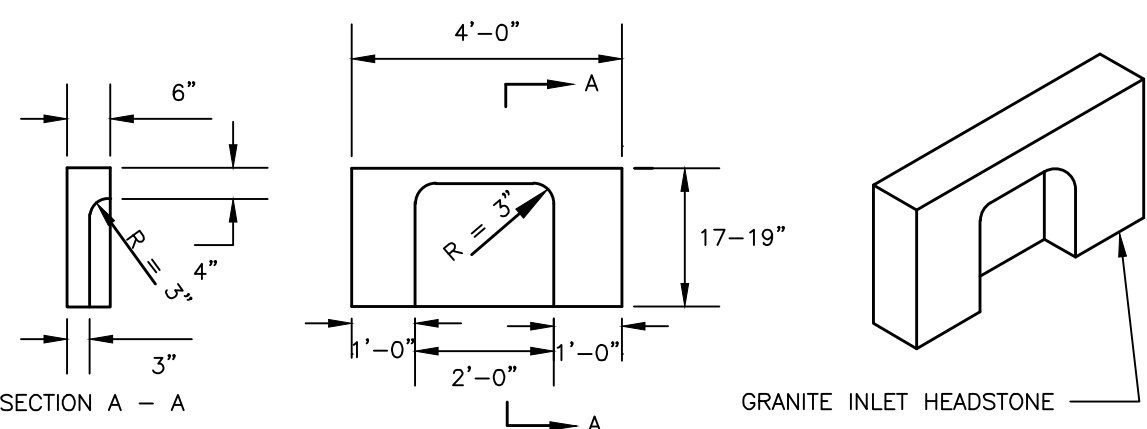
GENERAL NOTES FOR STORM MANHOLES AND CATCH BASINS

NOTES:

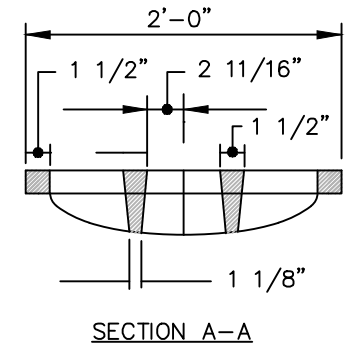
1. INSTALL HOOD ON ALL OUTLETS 24" OR LESS.
2. PREFERRED STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION REQUIREMENTS.



CATCH BASIN HOOD DETAIL
NOT TO SCALE

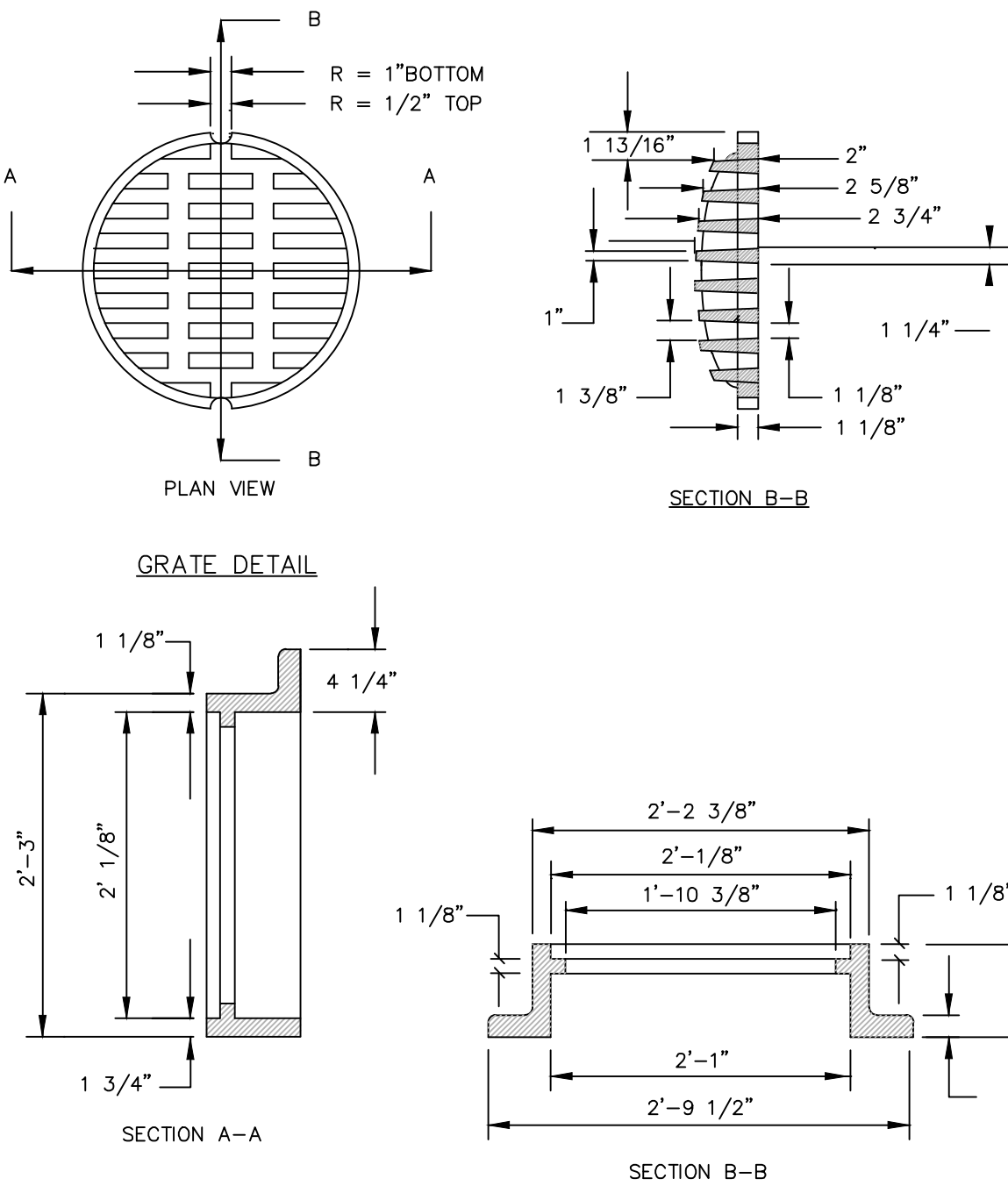


4' GRANITE HEADSTONE FOR CATCH BASIN INLET
NOT TO SCALE

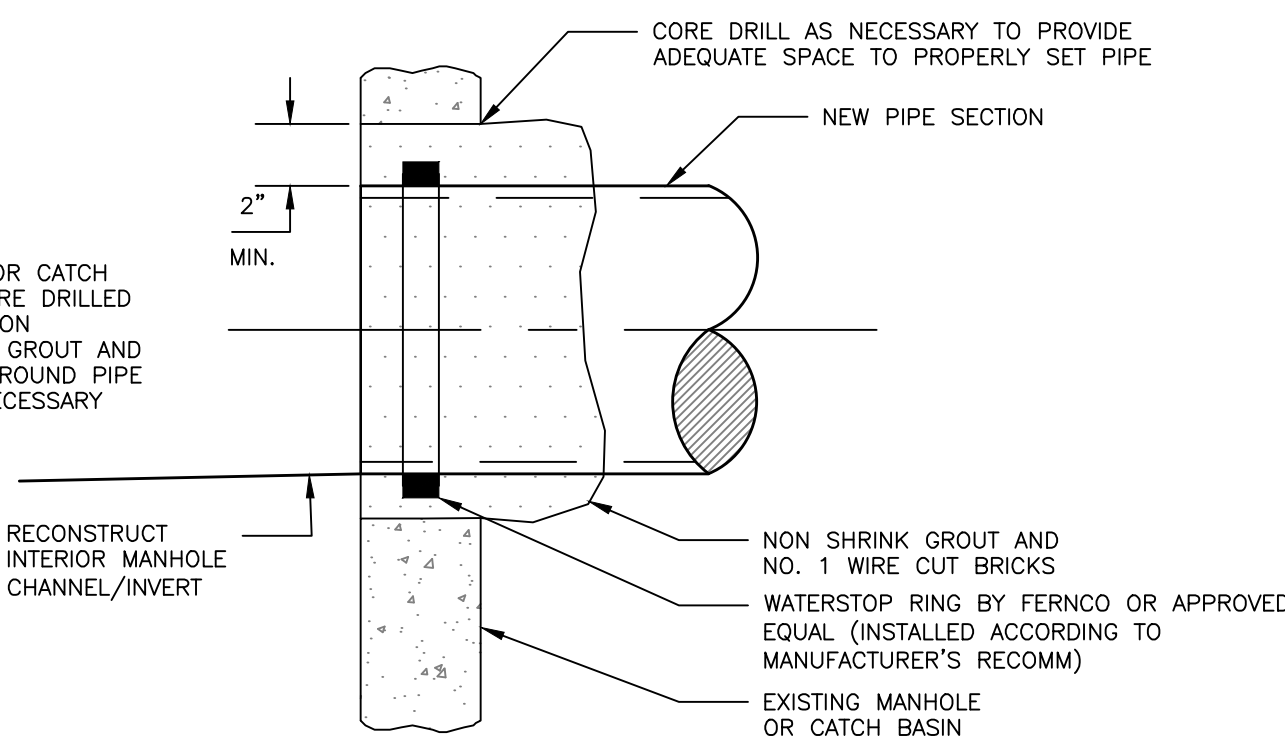


NOTES:

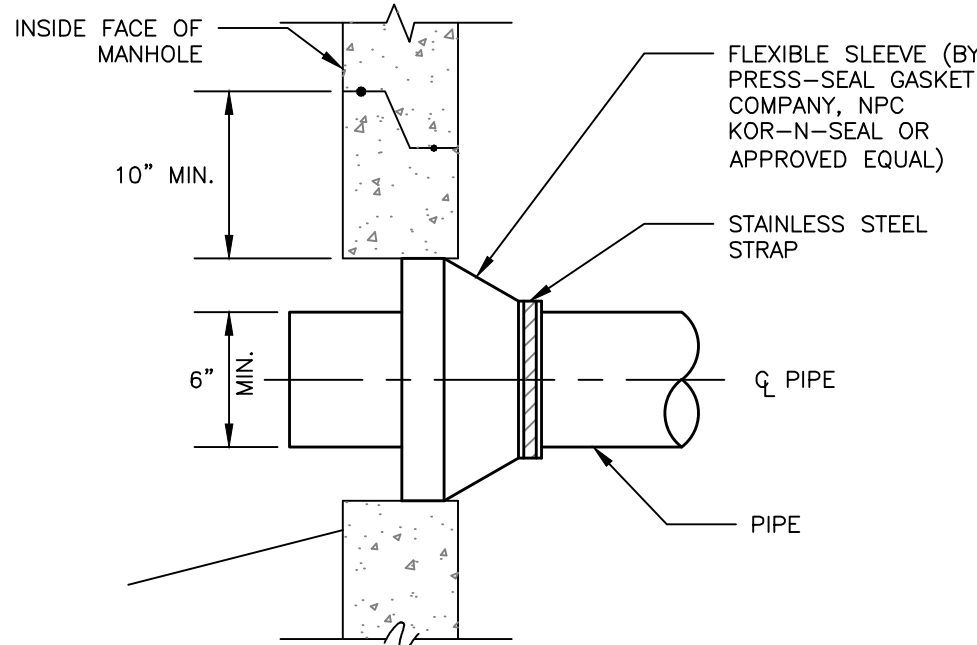
1. APPROVED CATCH BASIN FRAMES:
1.1. EAST JORDAN = 73752
1.2. NEENAH = R-3248
1.3. OR APPROVED EQUAL
2. APPROVED CATCH BASIN GRATES
2.1. EAST JORDAN = 2440M
2.2. NEENAH = R-3248
2.3. OR APPROVED EQUAL



CATCH BASIN FRAME & GRATE
NOT TO SCALE



NEW PIPE TO EXISTING STRUCTURE CONNECTION DETAIL
NOT TO SCALE



NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL
NOT TO SCALE

ISSUED FOR	BY
MAJOR SITE PLAN SUBMISSION	DATE
ADDRESS UPDATE	DATE
DRAWING NO. 1215_DETAILS	
JN: 1215	
SCALE: AS NOTED	
DESIGNED BY: PPH	
DRAWN BY: MKT	
CHECKED BY: WHS	
PERMITTING NOT ISSUED FOR CONSTRUCTION	
DRAWING NO. C-44	

ACORN ENGINEERING, INC. ENGINEERING, INC.

ACORN ENGINEERING, INC. 3372, PORTLAND, MAINE 04104 (207) 775-2655

STATE OF MAINE
PETER F. HEIL
15318
LICENSED PROFESSIONAL ENGINEER

9 BOYD STREET REDEVELOPMENT
COMB BLOCK PHASE ONE, LP
970 BAXTER BOULEVARD, PORTLAND, MAINE 04101

1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF.
5. JOINTS SEALED WITH BUTYL RUBBER.
6. POLYPROPYLENE STEPS 12" O.C.



OUTLET CONTROL STRUCTURE
NOT TO SCALE

1. TYPE "A" FRAMES ARE TO HAVE 3 FLANGES.
2. TYPE "B" FRAMES ARE TO HAVE 4 FLANGES.
3. THE WORD "GUTTER" IS TO BE MOLDED INTO THE BACK FLANGE - TYPE "B" ONLY.
4. FRAMES AND GRATES ARE TO BE GRAY CAST IRON OR DUCTILE IRON CONFORMING TO AASHTO M306.
5. DIMENSIONS ARE NOMINAL.



GRATE DETAIL



FRAME DETAIL

CATCH BASIN FRAME & GRATE – SQUARE
NOT TO SCALE

1. ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER
2. ALL SANITARY AND STORMWATER/DRAIN MANHOLE COVERS SHALL BE 24" x 5".
3. ALL SANITARY MANHOLE COVERS AND SHALL HAVE "SEWER" CAST INTO THE COVER.
4. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.

5. APPROVED MANHOLE FRAMES:
5.1. EAST JORDAN = 1690Z
5.2. NEENAH = R-1496
5.3. OR APPROVED EQUAL

- ## 6. APPROVED MANHOLE COVERS

- 6.1. EAST JORDAN = 2160A
6.2. NEENAH = R-1496
6.3. OR APPROVED EQUAL



CAST IRON MANHOLE COVER AND FRAME
NOT TO SCALE

1. ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK FRAME AND GRATE TO BE PRECAST AS A SINGLE PORTLAND CEMENT CONCRETE UNIT, #4 REBAR MINIMUM 8" O.C. OR EQUIVALENT WITH ENGINEER OF RECORD'S APPROVAL.
2. FIBER-REINFORCED CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
3. DESIGN LOAD FOR H-20 WHEEL LOAD.
4. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
5. REINFORCE TO 0.15 IN. SQ./F. JOINTS SEALED WITH RAM-NEK GASKET OR EQUAL.
6. POLYPROPYLENE STEPS 12" O.C.
7. STEPS SHALL BE OFFSET AT NO MORE THAN 12" ON CENTER, STARTING FROM THE TOP OF THE MANHOLE FRAME AND SHALL BE FORGED ALUMINUM OR COPOLYMER POLYPROPYLENE STEPS.
8. EXTERIOR WATERPROOFING.
9. FLEXIBLE WATERTIGHT PIPE BOOTS TO CONFORM TO ASTM C-923.
10. THE APPLICABLE LOCAL AND STATE STANDARDS.
10. CATCH BASIN SHALL BE AS MANUFACTURED BY PRECAST OF MAIN OR APPROVED EQUAL.



24" SQUARE CATCH BASIN "TYPE F"
NOT TO SCALE

1. FULL CONTACT WITH THE GROUND IS CRITICAL TO PREVENT SHORT CIRCUITING UNDER THE TUBE - THE SURFACE SURROUNDING THE TUBE SHOULD BE SMOOTH AND LEVEL. IN WOODED AREAS, PROTRUDING ROOTS AND DEBRIS MAY NEED TO BE REMOVED. IN GRASSED AREAS, THE GRASS NEEDS TO BE EITHER MOWN OR COMPRESSED DOWN.
2. STAKING MAY BE NECESSARY ON STEEP SLOPES.
3. UPON FINAL STABILIZATION, THE TUBE CAN BE CUT OPEN AND THE MATERIAL SPREAD OUT ONTO THE GROUND. THE MESH MATERIAL SHOULD BE REMOVED.
4. LOOSE COMPOST MAY BE BACKFILLED ALONG THE UPSLOPE SIDE OF THE COMPOST FILTER SOCK, FILLING THE SEAM BETWEEN THE SOIL SURFACE AND THE DEVICE, IMPROVING FILTRATION AND SEDIMENT RETENTION.



FILTER SOCK DETAIL
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
2. STONE SHALL BE 2"-3" COARSE AGGREGATE
3. CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
4. WHEN NECESSARY, ON-SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
5. CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS UNTO PUBLIC RIGHT-OF-WAY



NOT TO SCALE

- ## SLOPE INSTALLATION DETAIL
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (ECB), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
 2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE ECB IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF ECB EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE ECB 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 THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF ECB BACK OVER THE SEED AND CONTACTED SOIL TO SECURE ECB OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE ECB.
 3. ROLL THE ECB (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. ECB WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL ECB MUST BE SECURED AND FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
 4. THE EDGES OF PARALLEL ECB MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON THE ECB TYPE.
 5. CONSECUTIVE ECB SPliced DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGHS IN OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE ECB WIDTH.

NOTE:
IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR
STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY
TO PROPERLY SECURE THE ECB.



NOT TO SCALE



NOT TO SCALE



NOT TO SCALE

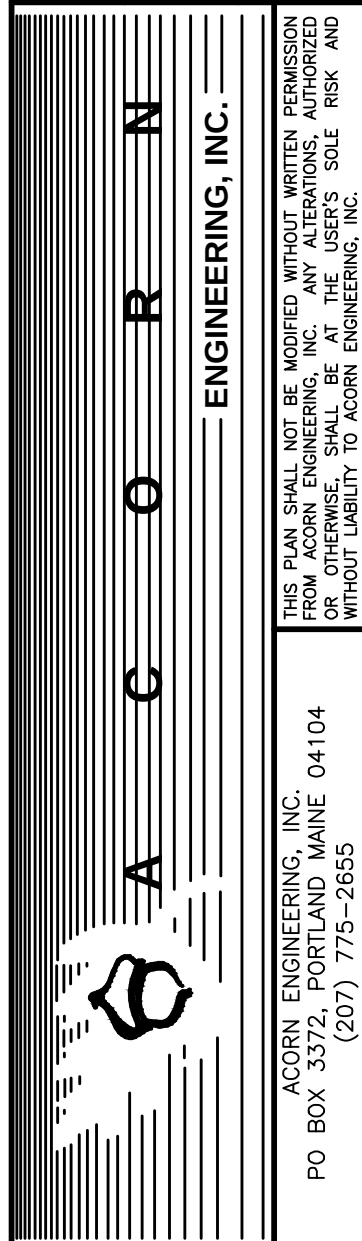
- NOTES:**
1. THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):
 - 1.1. pH BETWEEN 5.0 - 8.0
 - 1.2. PARTICLE SIZE (BY WEIGHT):
 - 1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
 - 1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
 - 1.3. SOLUBLE SALTS CONTENT < 4.0 MMHOS/CM
 - 1.4. ORGANIC MATTER 20 TO 100% , DRY WEIGHT BASIS
 2. THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR, WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.
 3. THE BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
 4. WHERE A BERM IS USED AT THE BASE OF A SLOPE GREATER THAN 8%, ANOTHER MEASURE SHALL BE USED IN CONJUNCTION WITH A BERM, SUCH AS A SILT FENCE.
 5. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.

DRAWING NAME:
EROSION & SEDIMENTATION CONTROL DETAILS

PROJECT NAME: **9 BOYD STREET REDEVELOPMENT**

COMB BLOCK PHASE ONE, LP
970 BAXTER BOULEVARD, PORTLAND, MAINE 04101

CLIENT:



FILE: 1215_DETAILS

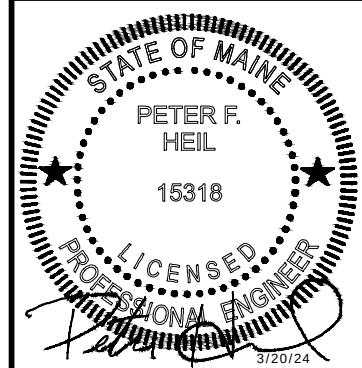
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SCALE: AS NOTED

DESIGNED BY: PFH

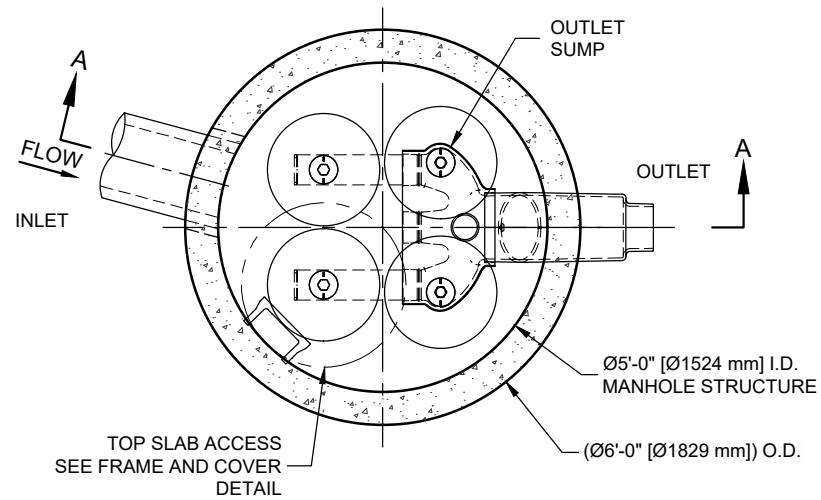
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CHECKED BY: WHS

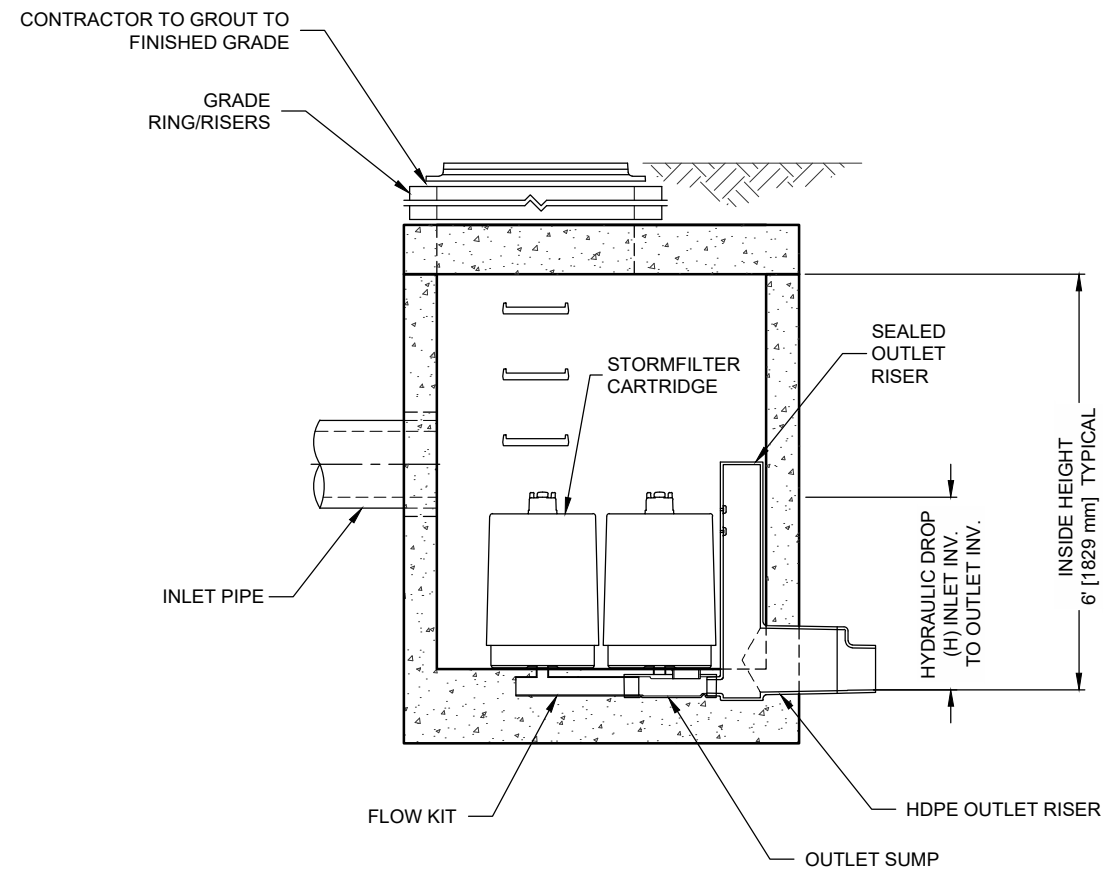


DRAWING NO.

C-46



PLAN VIEW
STANDARD OUTLET RISER
FLOWKIT: 41A



SECTION A-A

The Stormwater Management
StormFilter®
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING
U.S. PATENTS: 5,322,629; 5,524,576; 5,707,527; 5,985,157; 6,027,639; 6,649,048;
RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

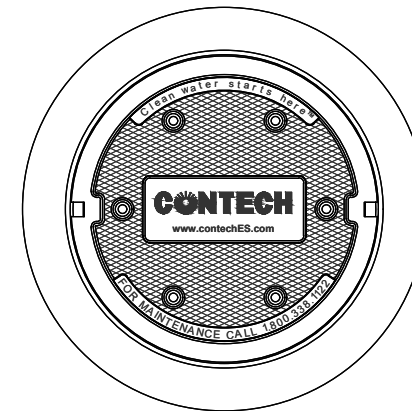
STORMFILTER DESIGN NOTES

STORMFILTER TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MANHOLE STYLE IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (4). VOLUME SYSTEM IS ALSO AVAILABLE WITH MAXIMUM 4 CARTRIDGES. Ø5'-0" [1524 mm] MANHOLE STORMFILTER WITH SEALED OUTLET RISER MAY REQUIRE AN UPSTREAM BYPASS STRUCTURE.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	27" [686 mm]			18" [458 mm]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05' [930 mm]			2.3' [700 mm]			1.8' [550 mm]		
SPECIFIC FLOW RATE (gpm/sf) [L/s/m ²]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]	2 [1.30]	1.67* [1.08]	1 [0.65]
CARTRIDGE FLOW RATE (gpm) [L/s]	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.44]	10 [0.63]	8.35 [0.54]	5 [0.32]

* 1.67 gpm/sf [1.08 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			*
WATER QUALITY FLOW RATE (cfs) [L/s]			*
PEAK FLOW RATE (cfs) [L/s]			*
RETURN PERIOD OF PEAK FLOW (yrs)			*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)			*
NUMBER OF CARTRIDGES REQUIRED			*
CARTRIDGE FLOW RATE			*
MEDIA TYPE (PERLITE, ZPG, PSORB)			*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION		*
---------------	--	---

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:
* PER ENGINEER OF RECORD

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- FOR SITE SPECIFIC DRAWINGS WITH DETAILED VAULT DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' [1524 mm] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
- FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. RADIAL MEDIA DEPTH SHALL BE 7-INCHES [178 mm]. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST 38 SECONDS.
- SPECIFIC FLOW RATE IS EQUAL TO THE FILTER TREATMENT CAPACITY (gpm) [L/s] DIVIDED BY THE FILTER CONTACT SURFACE AREA (sq ft)[m²].
- STORMFILTER STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

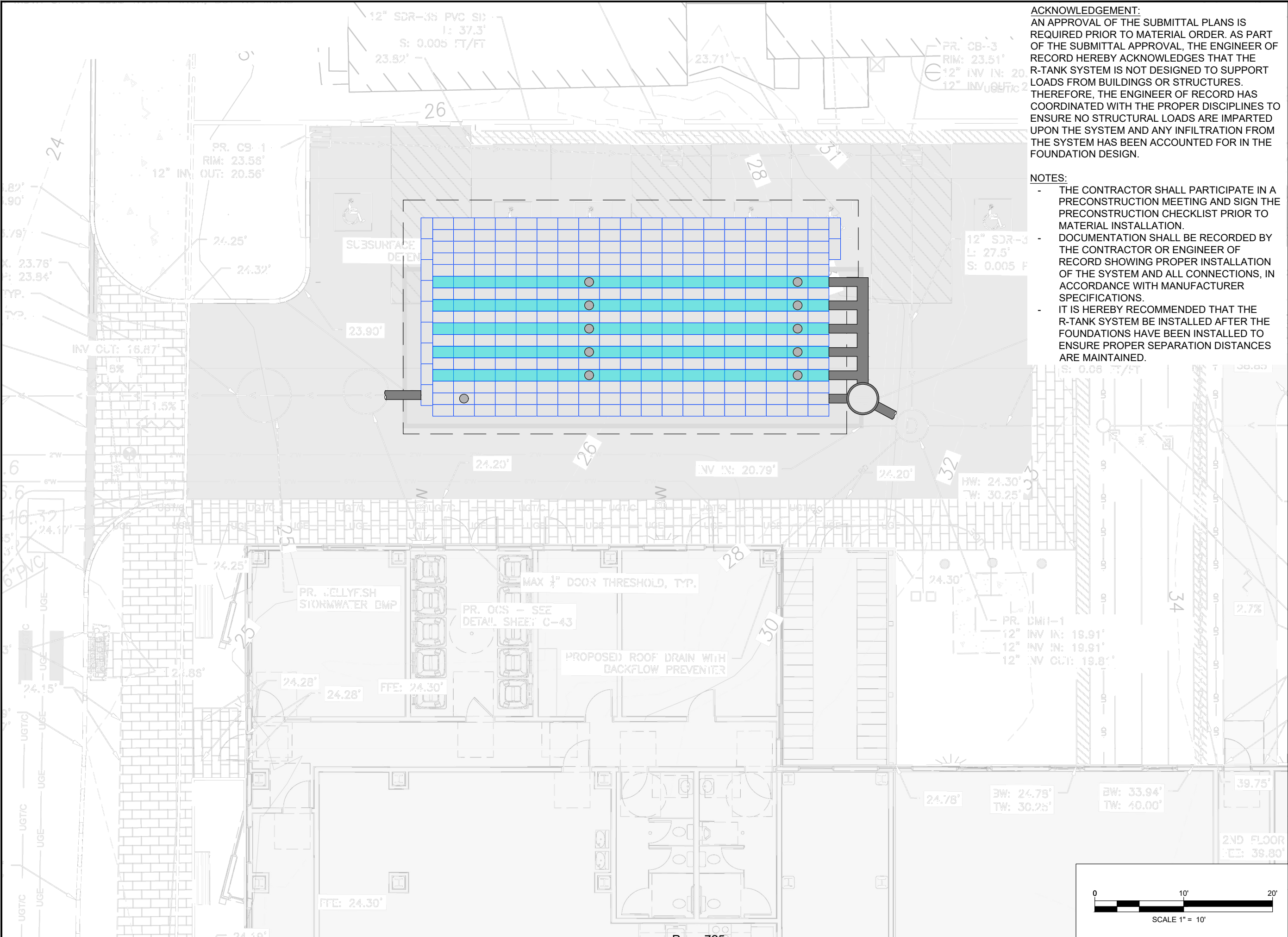
INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET PIPE(S).
- CONTRACTOR TO PROVIDE AND INSTALL CONNECTOR TO THE OUTLET RISER STUB. STORMFILTER EQUIPPED WITH A DUAL DIAMETER HDPE OUTLET STUB AND SAND COLLAR. IF OUTLET PIPE IS LARGER THAN 8 INCHES [200 mm], CONTRACTOR TO REMOVE THE 8 INCH [200 mm] OUTLET STUB AT MOLDED-IN CUT LINE. COUPLING BY FERNCO OR EQUAL AND PROVIDED BY CONTRACTOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.

CONTECH®
ENGINEERED SOLUTIONS LLC

www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFMH60
STORMFILTER
STANDARD DETAIL



ACKNOWLEDGEMENT:
AN APPROVAL OF THE SUBMITTAL PLANS IS REQUIRED PRIOR TO MATERIAL ORDER. AS PART OF THE SUBMITTAL APPROVAL, THE ENGINEER OF RECORD HEREBY ACKNOWLEDGES THAT THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD HAS COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.

- NOTES:**
- THE CONTRACTOR SHALL PARTICIPATE IN A PRECONSTRUCTION MEETING AND SIGN THE PRECONSTRUCTION CHECKLIST PRIOR TO MATERIAL INSTALLATION.
 - DOCUMENTATION SHALL BE RECORDED BY THE CONTRACTOR OR ENGINEER OF RECORD SHOWING PROPER INSTALLATION OF THE SYSTEM AND ALL CONNECTIONS, IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.
 - IT IS HEREBY RECOMMENDED THAT THE R-TANK SYSTEM BE INSTALLED AFTER THE FOUNDATIONS HAVE BEEN INSTALLED TO ENSURE PROPER SEPARATION DISTANCES ARE MAINTAINED.

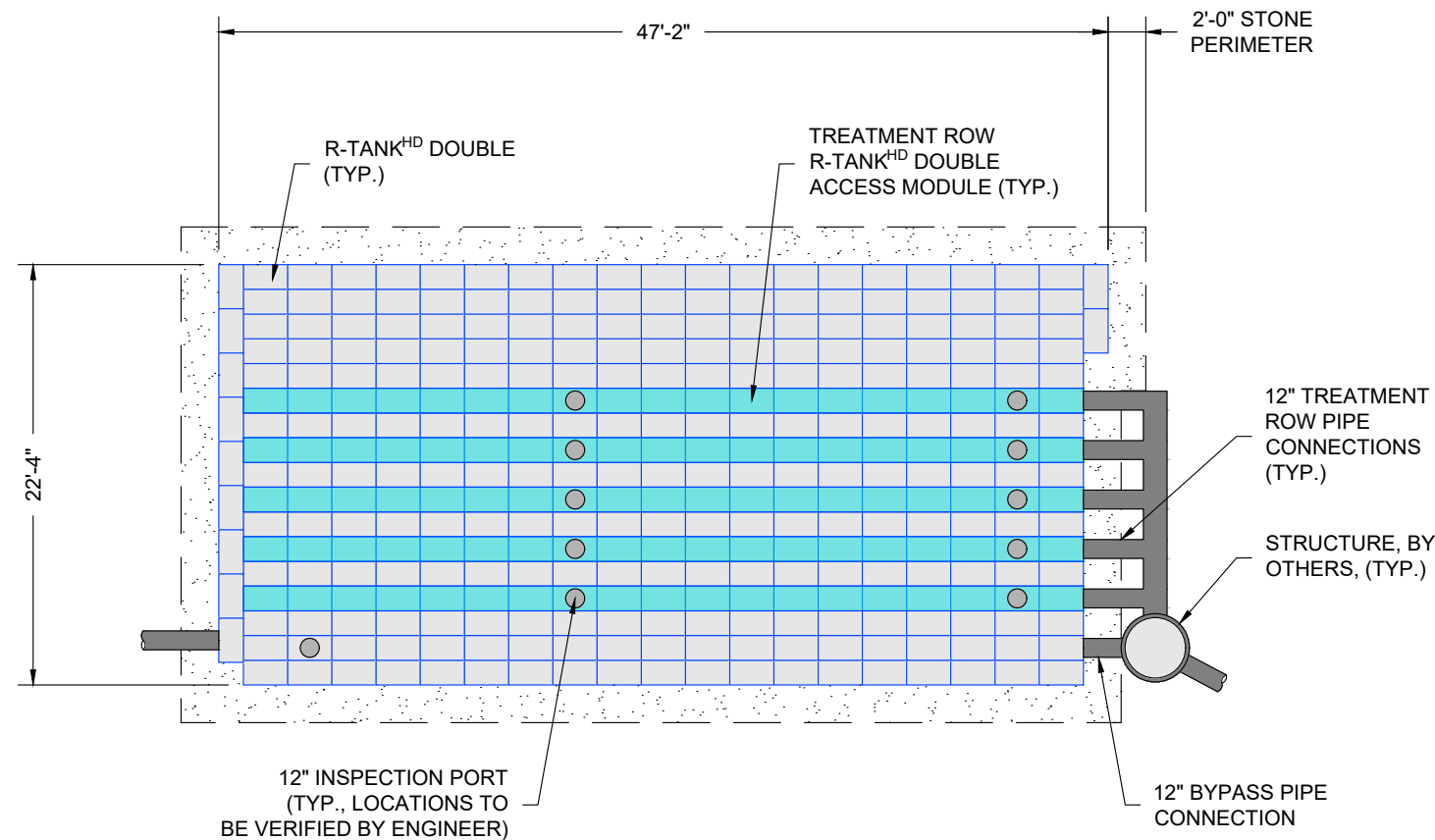


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R-TANK^{HD} SYSTEM OVERLAY
70 EAST OXFORD STREET REDEVELOPMENT
PORTLAND, ME

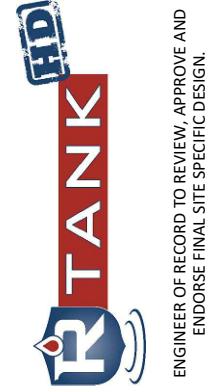
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1" = 10'
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SHEET NO.

1 of 7



ACKNOWLEDGEMENT:
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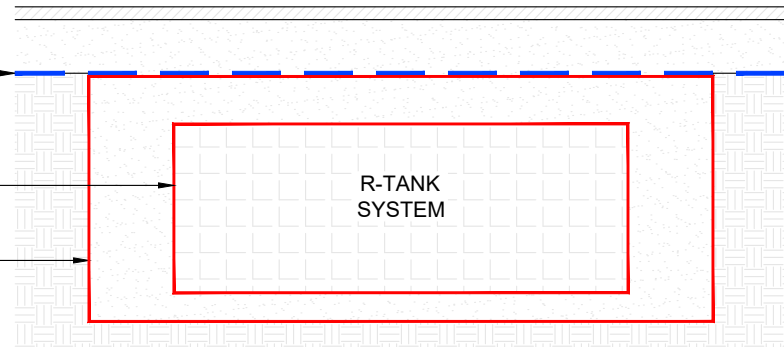
R-TANK QUANTITIES	
R-TANK ^{HD} MODULE TYPE	DOUBLE
TRAFFIC LOAD	HS-20
# OF DOUBLE R-TANKS	239
# OF DOUBLE R-TANK ACCESS MODULES	95
TOTAL SYSTEM STORAGE	3,752 CF
R-TANK STORAGE VOLUME	2,757 CF
STONE STORAGE VOLUME (40% VOID RATIO)	996 CF
STONE BED FOOTPRINT	1,324 SF
STONE QUANTITY	92 CY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	313 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	420 SY
30 MIL. PVC LINER TREAT. ROW WRAP	203 SY
8 OZ. NON-WOVEN GEOTEXTILE TREAT. ROW WRAP FABRIC	406 SY
S300 WOVEN GEOTEXTILE TREAT. ROW BASE FABRIC	81 SY
ACF BX-12 GEOGRID	233 SY
12" INSPECTION PORTS	11
GEOTEXTILE PIPE BOOTS (12")	7
STORMRING CPS (15")	1
NOTE: STONE QUANTITY INCLUDES 12" OF COVER AND 3" OF BASE.	
NOTE: GEOTEXTILE / LINER QUANTITIES INCLUDE A 15% WASTE FACTOR.	
SEE SHEETS 3 - 7 FOR DETAILS AND ADDITIONAL INFORMATION	

GRAPHIC SCALE	
R-TANK ELEVATIONS	
DESCRIPTION	ELEVATION
BASE INV.	19.00
TANK INV.	19.25
TOP OF TANK	22.07
GEOGRID	23.07
MIN. ALLOW. FINAL GRADE	23.74
MAX. ALLOW. FINAL GRADE	29.06

GEOGRID (ACF BX-12) PLACED 12" ABOVE THE R-TANK^{HD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.

R-TANK^{HD} UNITS WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)

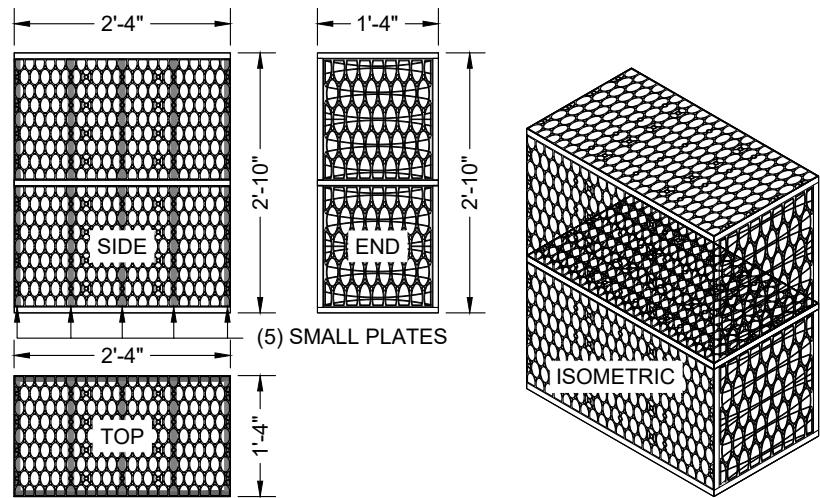
EXCAVATION WRAPPED WITH N080 NON-WOVEN GEOTEXTILE (OR EQUAL)



R-TANK^{HD} TANK WRAP & EXCAVATION ENVELOPE DETAIL

R-TANK^{HD} SYSTEM LAYOUT
70 EAST OXFORD STREET REDEVELOPMENT
PORTLAND, ME

SCALE
1" = 10'
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MODULE DATA

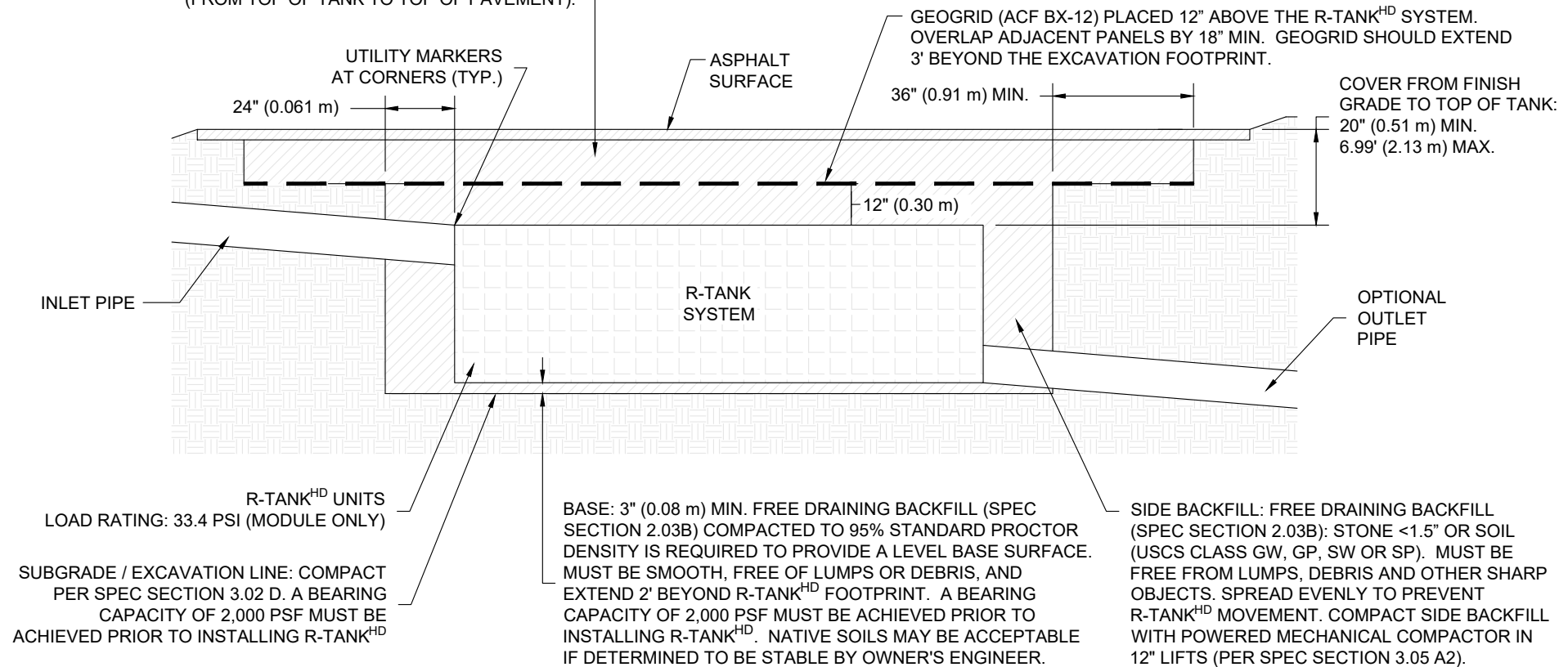
GEOMETRY:	LOAD RATING:
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
HEIGHT = 33.86 IN. (860 MM)	MATERIAL:
TANK VOLUME = 8.69 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 8.25 CF	SMALL PLATES REQUIRED:
VOID INTERNAL VOLUME: 95%	5/SEGMENT, 10/MODULE
VOID SURFACE AREA: 90%	

DOUBLE 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-TANKTM 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. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. PRE-TREATMENT STRUCTURES NOT SHOWN.
3. FOR INFILTRATION APPLICATIONS, 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.
4. FOR INSTALLATIONS IN LANDSCAPED AREAS, THE INSTALLATION OF TREES IS PROHIBITED ABOVE THE R-TANK UNITS. PLEASE CONTACT YOUR LOCAL FERGUSON WATERWORKS REPRESENTATIVE FOR MORE INFORMATION.

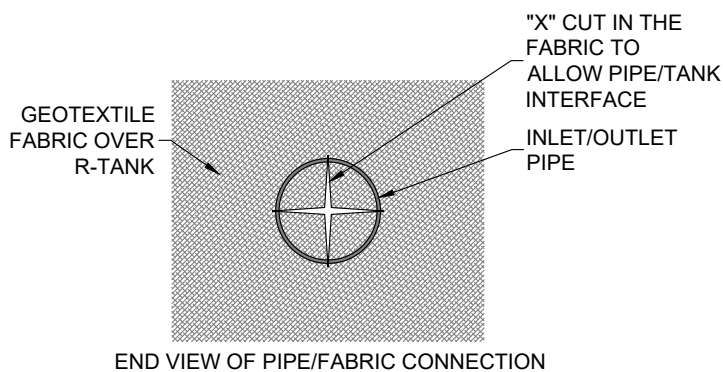


R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

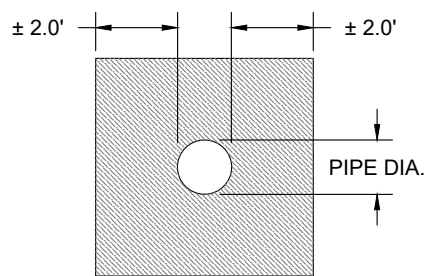
NOTE:

- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.

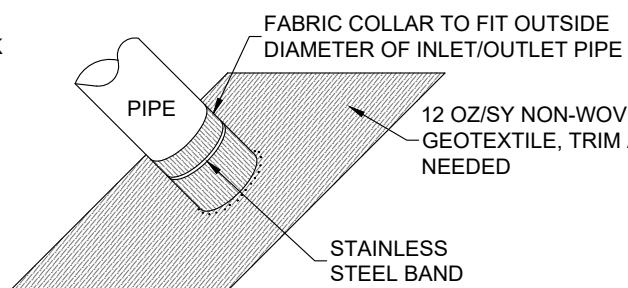
CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.



END VIEW OF PIPE/FABRIC CONNECTION

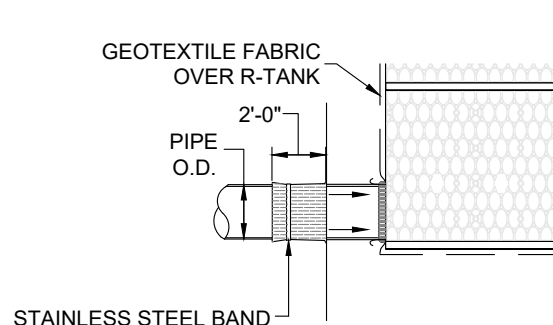


FRONT VIEW OF GEOTEXTILE BOOT

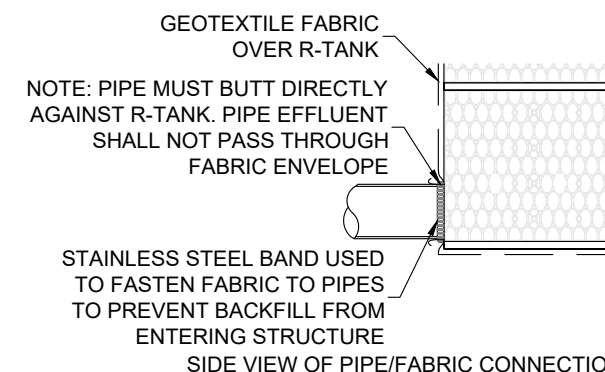


GEOTEXTILE BOOT

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.



SIDE VIEW OF GEOTEXTILE BOOT



SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL



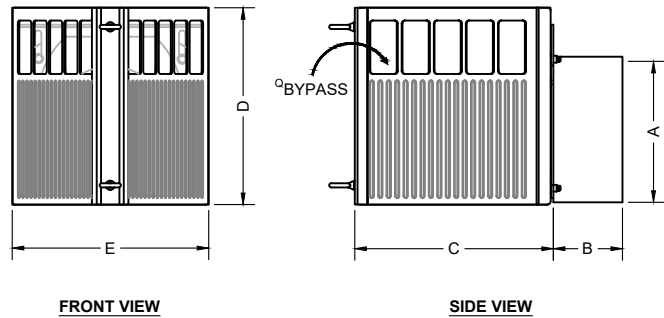
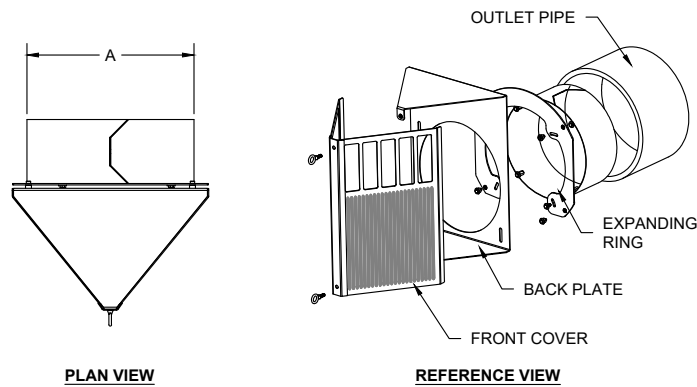
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R-TANK^{HD} SYSTEM DETAILS
70 EAST OXFORD STREET REDEVELOPMENT
PORTLAND, ME

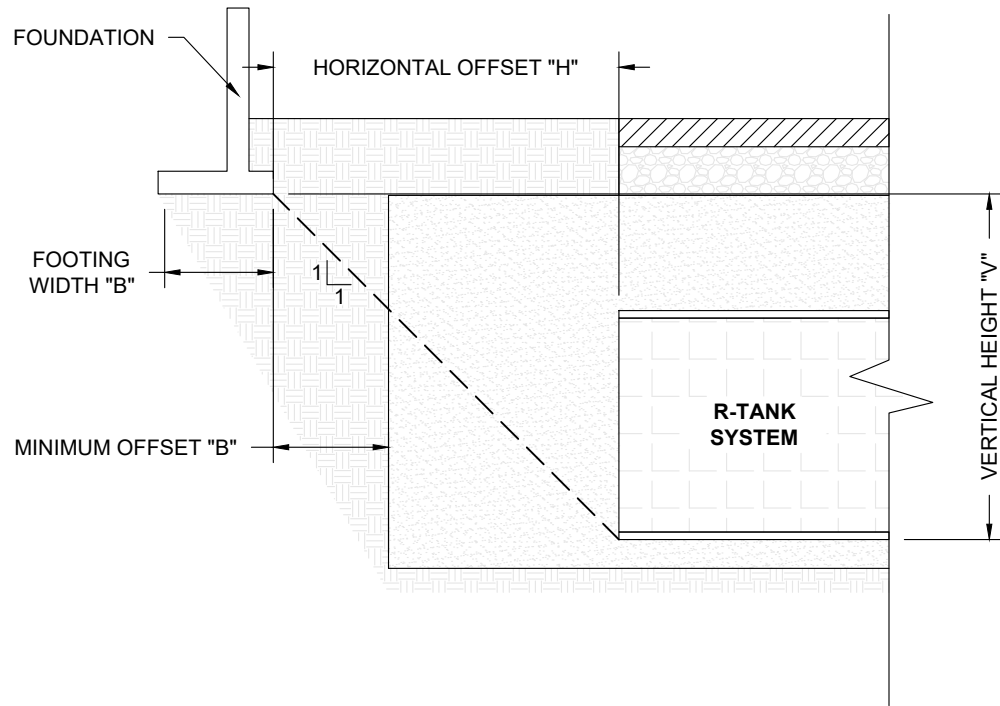
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PART NUMBER	NOMINAL PIPE DIA.	EXPANDING COLLAR DIA. (A)		STUB LENGTH (B)	CPS DEPTH (C)	CPS HEIGHT (D)	CPS WIDTH (E)
		MIN.	MAX.				
SCA6-1	6"	5.63"	6.50"	6.00"	10.00"	10.13"	10.13"
SCA8-1	8"	7.50"	8.50"	6.00"	13.00"	11.88"	11.38"
SCA10-1	10"	9.50"	10.50"	8.00"	13.50"	13.50"	13.25"
SCA12-1	12"	11.38"	12.63"	8.00"	15.50"	15.38"	15.38"
SCA15-1	15"	14.25"	15.50"	8.00"	15.50"	21.38"	18.38"
SCA18-1	18"	17.38"	18.63"	8.00"	15.75"	28.00"	21.38"
SCA24-1	24"	23.25"	24.50"	9.00"	17.00"	40.00"	28.38"

STORMRING CPS PRETREATMENT DETAIL

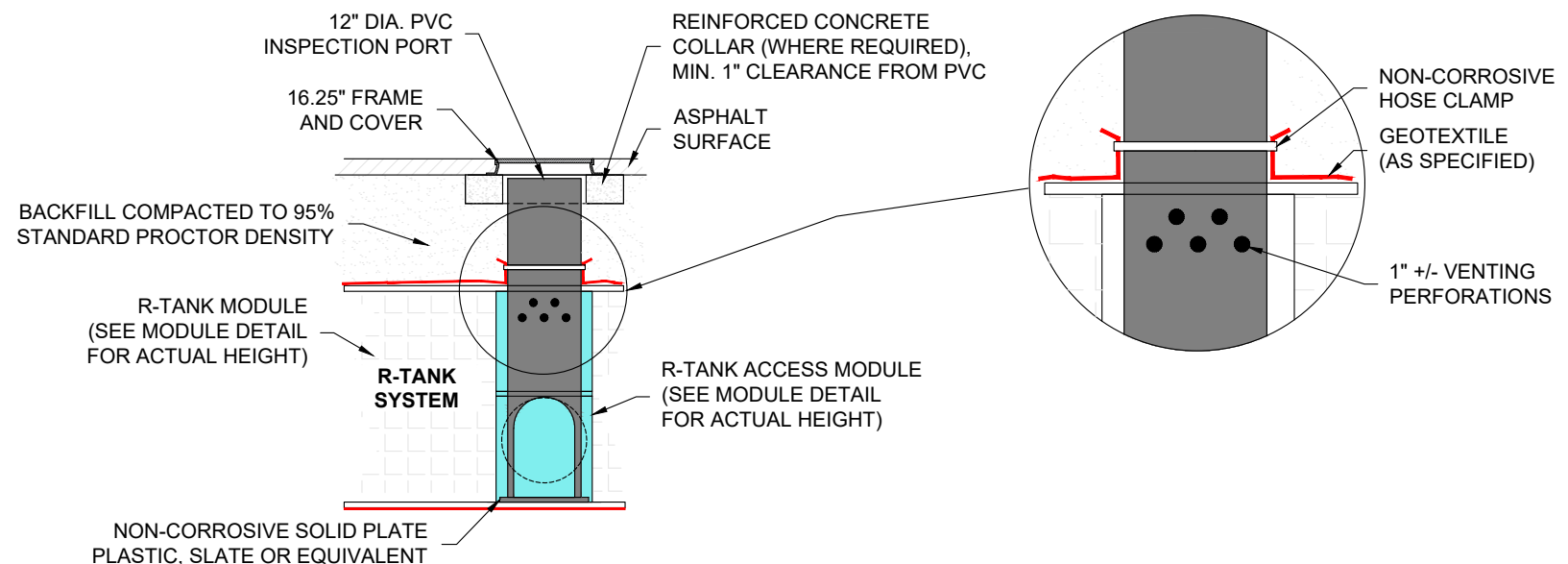
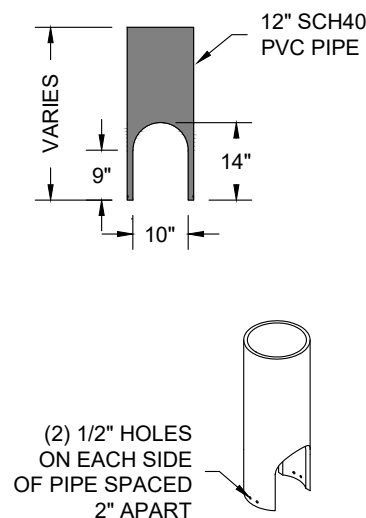


- R-TANK IS NOT DESIGNED TO SUPPORT STRUCTURAL LOADS ASSOCIATED WITH BUILDINGS, RETAINING WALLS OR OTHER STRUCTURES.
- FOUNDATIONS OF WIDTH "B" SHALL BE OFFSET A MINIMUM "B" FEET FROM THE STONE BACKFILL.
 - THE CIVIL ENGINEER AND STRUCTURAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE NO STRUCTURAL LOADS ARE APPLIED BY THE STRUCTURE ON THE R-TANK UNITS. IT IS RECOMMENDED THAT ALL R-TANK UNITS BE INSTALLED ABOVE THE ELEVATION OF ANY SUBSURFACE STRUCTURAL ELEMENTS SUCH AS FOOTERS. IF THIS CANNOT BE ACHIEVED, IT RECOMMENDED THAT A MINIMUM 1:1 ZONE OF INFLUENCE, SITE SPECIFIC SOILS MAY REQUIRE GREATER SEPARATION DISTANCE, BE MAINTAINED BETWEEN THE STRUCTURAL ELEMENT AND THE UNITS.
 - THE STRUCTURAL ENGINEER AND GEOTECHNICAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE PROPER STABILITY OF STRUCTURAL ELEMENTS DURING SATURATED SOIL CONDITIONS POTENTIALLY CAUSED BY THE PROXIMITY OF INFILTRATION FACILITIES TO THE STRUCTURAL ELEMENTS.

R-TANK - MINIMUM OFFSET DETAIL

NOTES

- THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
- MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
- R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD} AND R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS.
- SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
- IF INSPECTION 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 VEHICULAR LOAD RATED INSPECTION PORT



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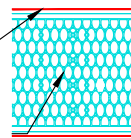
R-TANK^{HD} SYSTEM DETAILS
70 EAST OXFORD STREET REDEVELOPMENT
PORTLAND, ME

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MODULES TOP AND SIDES WRAPPED WITH 30 MIL PVC LINER BETWEEN TWO LAYERS OF 8 OZ. NON-WOVEN GEOTEXTILE

ACCESS MODULES



NON-CORROSIVE HOSE CLAMP

Ø12" MIN. SDR-35 OR AS SPECIFIED

PIPE BOOT

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.

TYPICAL PIPE CONNECTION DETAIL

Ø12" MIN. SDR-35 PVC PIPE W/ BEVELED EDGE OR AS SPECIFIED BY PROJECT ENGINEER (BY OTHERS)

12" INSPECTION PORT (QUANTITY & LOCATIONS PER PLAN LAYOUT)

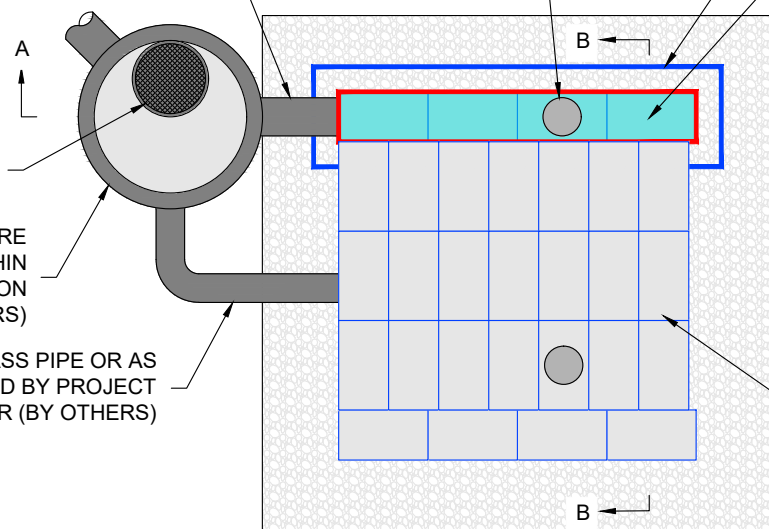
2 LAYERS OF S300 WOVEN GEOTEXTILE TO BE PLACED BETWEEN R-TANK^{HD} MODULES AND BASE

R-TANK^{HD} TREATMENT ROW (SEE PLAN LAYOUT FOR ROW LENGTH)

Ø24" F&C ACCESS (TYP, BY OTHERS)

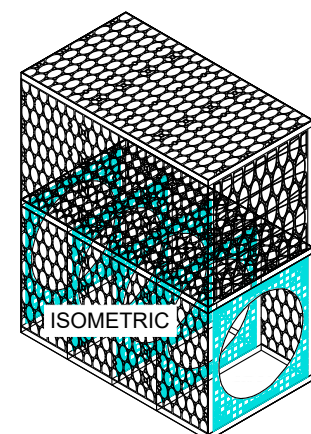
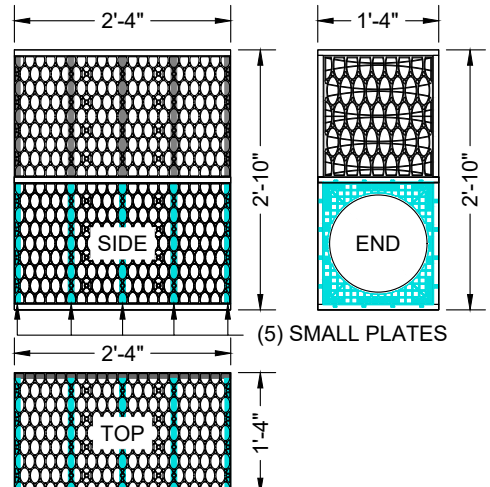
BYPASS/ACCESS STRUCTURE W/ 12" SUMP REQUIRED WITHIN 5-10' OF INLET CONNECTION (MIN Ø24"), (BY OTHERS)

Ø12" MIN. BYPASS PIPE OR AS SPECIFIED BY PROJECT ENGINEER (BY OTHERS)



R-TANK^{HD} MAIN DETENTION/RETENTION SYSTEM (SEE PLANS FOR ACTUAL LAYOUT)

R-TANK^{HD} TREATMENT ROW WITH PRECAST INLET/ACCESS STRUCTURE



DOUBLE R-TANK^{HD} - ACCESS MODULE DETAIL
(FOR MODULE DATA, SEE STANDARD MODULE DETAIL)

BYPASS/ACCESS STRUCTURE W/ 12" SUMP (BY OTHERS)

ASPHALT SURFACE

R-TANK^{HD} ACCESS MODULES TOP AND SIDES WRAPPED IN 30 MIL. PVC LINER BETWEEN TWO LAYERS OF 8 OZ. NON-WOVEN GEOTEXTILE

GEOGRID (REQUIRED IN TRAFFIC AREAS) PLACED 12" ABOVE THE R-TANK^{HD} SYSTEM. OVERLAP ADJACENT PANELS BY 18" MIN. GEOGRID SHOULD EXTEND 3' BEYOND THE EXCAVATION FOOTPRINT.

SEE TRAFFIC LOADING DETAIL OR GREEN SPACE DETAIL FOR COVER REQUIREMENTS

R-TANK SYSTEM

ELEVATED BYPASS PIPE

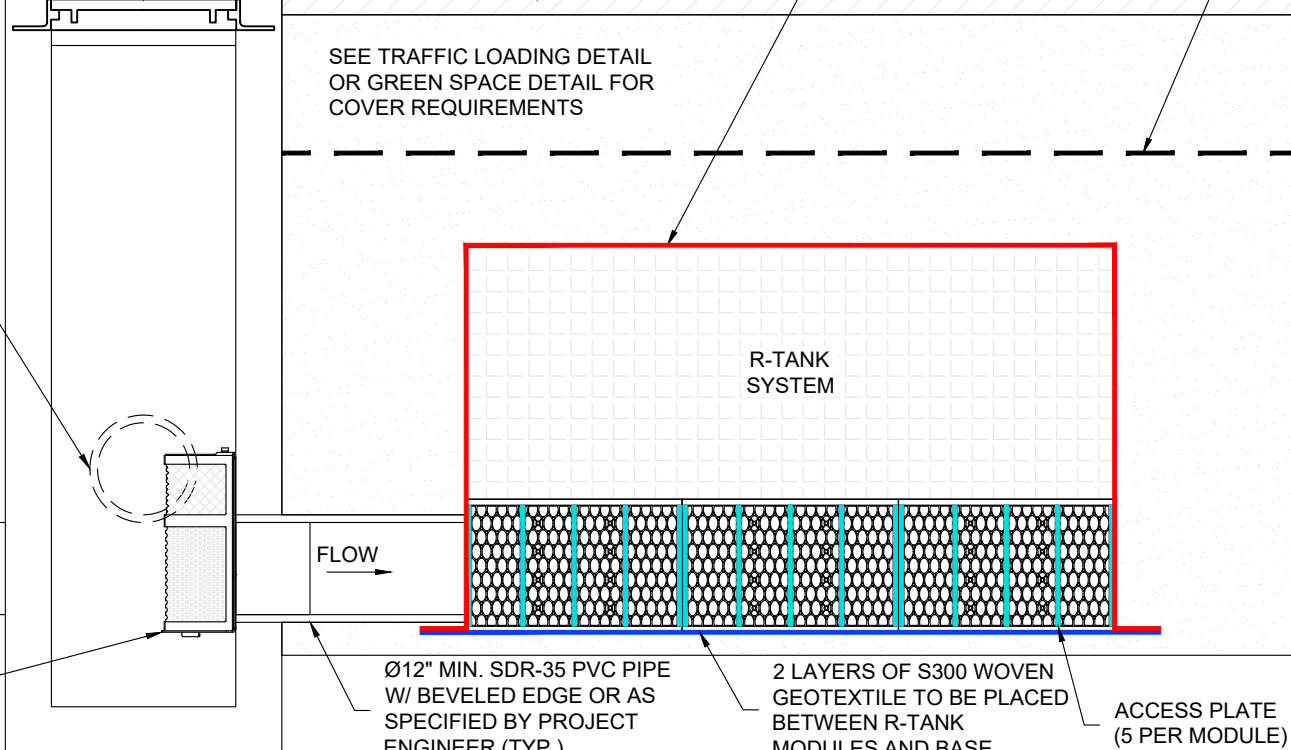
PRETREATMENT SCREEN

FLOW

Ø12" MIN. SDR-35 PVC PIPE W/ BEVELED EDGE OR AS SPECIFIED BY PROJECT ENGINEER (TYP.)

2 LAYERS OF S300 WOVEN GEOTEXTILE TO BE PLACED BETWEEN R-TANK MODULES AND BASE

ACCESS PLATE (5 PER MODULE)



R-TANK^{HD} TREATMENT ROW SECTION A-A

ASPHALT SURFACE

R-TANK^{HD} ACCESS MODULES TOP AND SIDES WRAPPED IN 30 MIL PVC LINER BETWEEN TWO LAYERS OF 8 OZ. NON-WOVEN GEOTEXTILE

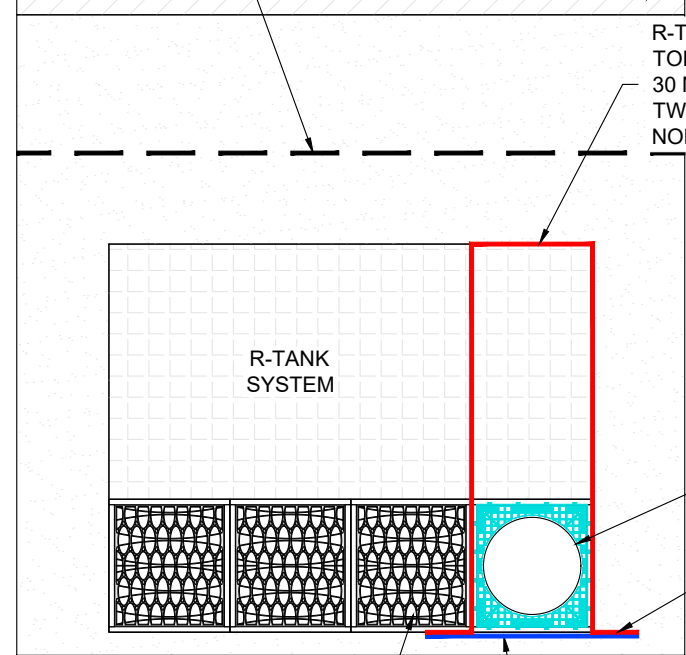
R-TANK SYSTEM

ACCESS PLATE (5 PER MODULE)

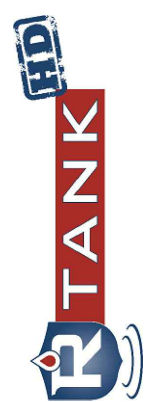
GEOTEXTILES MUST EXTEND A MINIMUM 12" BEYOND MODULES

MAIN DETENTION/RETENTION SYSTEM (SEE PLANS FOR ACTUAL LAYOUT)

2 LAYERS OF S300 WOVEN GEOTEXTILE TO BE PLACED BETWEEN R-TANK MODULES AND BASE



R-TANK^{HD} TREATMENT ROW SECTION B-B



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

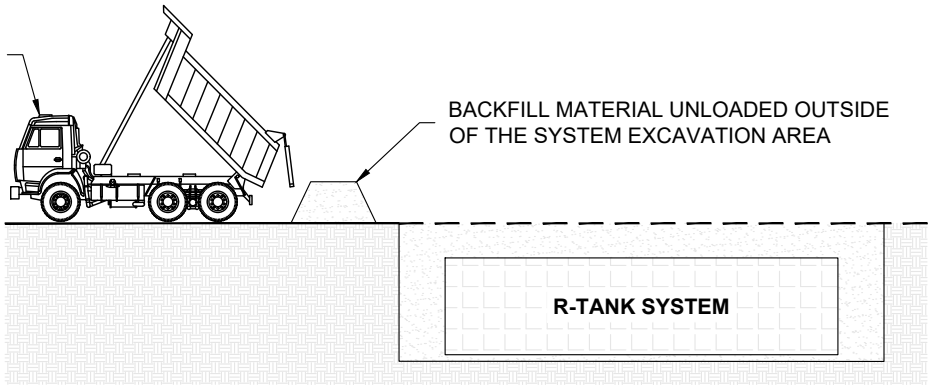


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R-TANK^{HD} TREATMENT ROW DETAILS
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DUMP TRUCKS AND PANS SHALL NOT OPERATE OVER THE SYSTEM EXCAVATION AREA



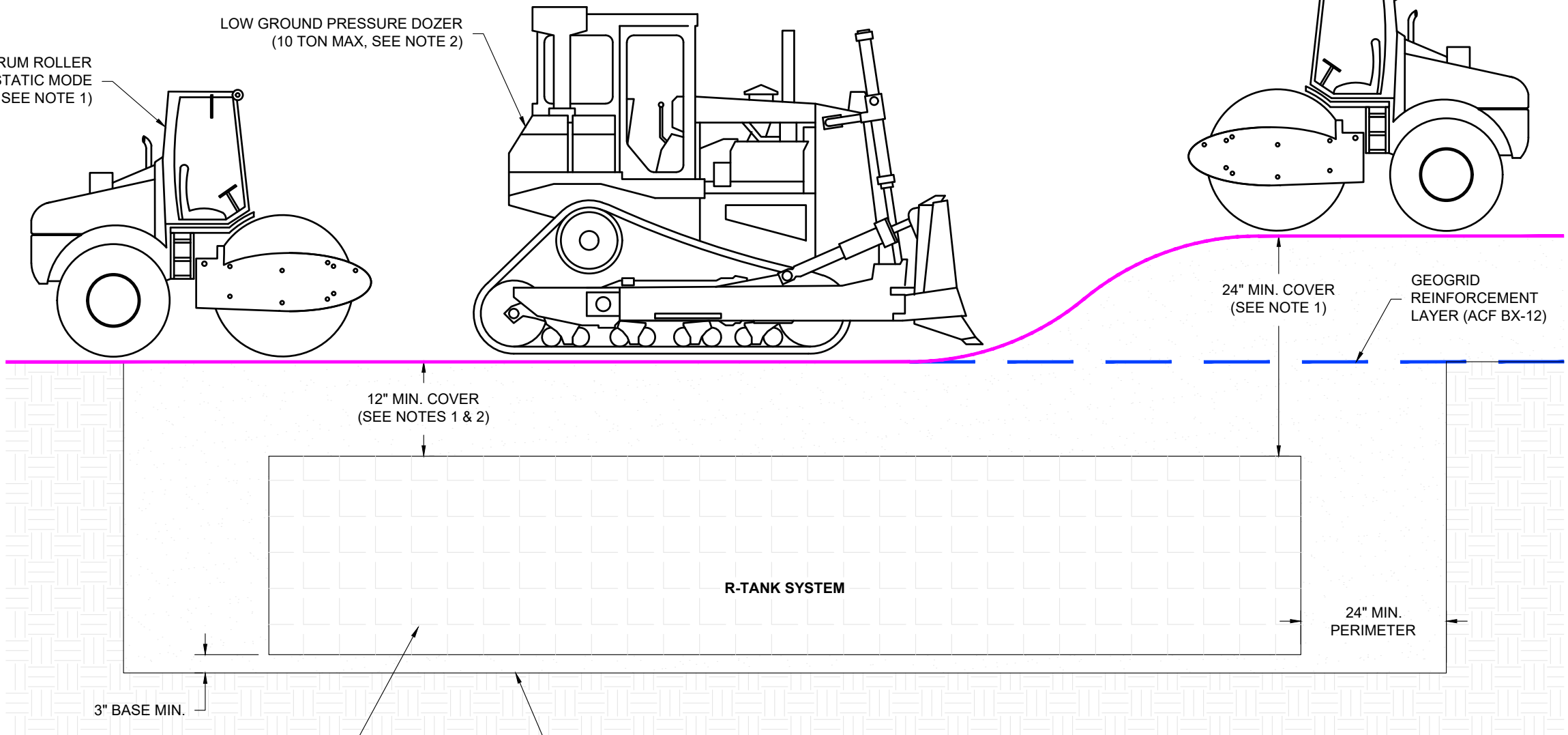
DUMP TRUCK DETAIL (SEE NOTE 3)

- NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B1) 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.

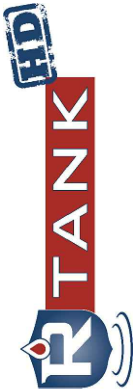
SMOOTH DRUM ROLLER
STATIC MODE
(6 TON MAX, SEE NOTE 1)

LOW GROUND PRESSURE DOZER
(10 TON MAX, SEE NOTE 2)

SMOOTH DRUM ROLLER
VIBRATORY MODE
(6 TON MAX, SEE NOTE 1)



CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

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R-TANK^{HD} CONSTRUCTION EQUIPMENT
COVER DETAIL
70 EAST OXFORD STREET REDEVELOPMENT
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R-TANK SPECIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, technical specification and general provisions of the Contract as modified herein apply to this section.

1.02 DESCRIPTION OF WORK INCLUDED

- A. Provide excavation and base preparation per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads and safety from excavation sidewall collapse. Excavations shall be in accordance with the owner's and OSHA requirements.
- B. Provide and install R-TankLD/, R-TankHD/, R-TankSD/, or R-TankUD/ system (hereafter called R-Tank) and all related products including fill materials, geotextiles, geogrids, inlet and outlet pipe with connections per the manufacturer's installation guidelines provided in this section.
- C. Provide and construct the cover of the R-Tank system including; stone backfill, structural fill cover, and pavement section as specified.
- D. Protect R-Tank system from construction traffic after installation until completion of all construction activity in the installation area.

1.03 QUALITY CONTROL

- A. All materials shall be manufactured in ISO certified facilities.
- B. Installation Contractor shall demonstrate the following experience:
1. A minimum of three R-Tank or equivalent projects completed within 2 years; and,
2. A minimum of 25,000 cubic feet of storage volume completed within 2 years.
3. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.
- C. Installation Personnel: Performed only by skilled workers with satisfactory record of performance on bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.
- D. Contractor must have manufacturer's representative available for site review if requested by Owner.

1.04 SUBMITTALS

- A. Submit proposed R-Tank layout drawings. Drawings shall include typical section details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.
- B. Submit manufacturer's product data, including compressive strength and unit weight.
- C. Submit manufacturer's installation instructions.
- D. Submit R-Tank sample for review. Reviewed and accepted samples will be returned to the Contractor.
- E. Submit material certificates for geotextile, geogrid, base course and backfill materials.
- F. Submit required experience and personnel requirements as specified in Section 1.03.
- G. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect R-Tank and other materials from damage during delivery, and store UV sensitive materials under tarp to protect from sunlight when time from delivery to installation exceeds two weeks. Storage of materials should be on smooth surfaces, free from dirt, mud and debris.
- B. Handling is to be performed with equipment appropriate to the materials and site conditions, and may include hand, handcart, forklifts, extension lifts, etc.
- C. Cold weather:
1. Care must be taken when handling plastics when air temperature is 40 degrees or below as plastic becomes brittle.
2. Do not use frozen materials or materials mixed or coated with ice or frost.
3. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

- A. Prior to the start of the installation, a preinstallation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

1.07 PROJECT CONDITIONS

- A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system. No loads heavier than the design loads shall be allowed over the system, and in no case shall loads higher than a standard AASHTO HS20 (or HS25, depending on design criteria) load be allowed on the system at any time.
- B. Protect adjacent work from damage during R-Tank system installation.
- C. All pre-treatment systems to remove debris and heavy sediments must be in place and functional prior to operation of the R-Tank system. Additional pretreatment measures may be needed if unit is operational during construction due to increased sediment loads.
- D. Contractor is responsible for any damage to the system during construction.

PART 2 - PRODUCTS

2.01 R-TANK UNITS

- A. R-Tank - Injection molded plastic tank plates assembled to form a 95% void modular structure of predesigned height (custom for each project).
- B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank ^{LD} VALUE	R-Tank ^{HD} VALUE	R-Tank ^{SD} VALUE	R-Tank ^{UD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	30.0 psi	33.4 psi	42.9 psi	134.2 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.4 psi	28.9 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	N/A	20"	18"	12" (STONE BACKFILL)
HS-25 Minimum Cover	Cover required to support HS-25 loads	N/A	24"	19"	15" (STONE BACKFILL)
Maximum Cover	Maximum allowable cover depth	3 feet	< 7 feet	< 10 feet	5 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.29 lbs / cf	3.62 lbs/cf	3.96 lbs / cf	4.33 lbs / cf
Rib Thickness	Thickness of load-bearing members	0.18 inches	0.18 inches	0.18 inches	N/A
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F

- C. Supplier: Ferguson Waterworks 2831 Cardwell Road Richmond, VA 23234 (T): 800-448-3636; (F): 804-743-7779 www.ferguson.com

2.02 GEOSYNTHETICS

- A. Geotextile. A geotextile envelope is required to prevent backfill material from entering the R-Tank modules.
1. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile (ACF N080 or equivalent).
2. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament (ACF M200 or equivalent) shall be used.
- B. Geogrid. For installations subject to traffic loads and/or when required by project plans, install geogrid (ACF BX12 or equivalent) to reinforce backfill above the R-Tank system. Geogrid is not always required for R-TankUD/ installations, and is often not required for non-traffic load applications.

2.03 BACKFILL & COVER MATERIALS

- A. Bedding Materials: Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum). Material must be free from lumps, debris, and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation. For infiltration applications bedding material shall be free draining.
- B. Side and Top Backfill: Material must be free from lumps, debris and any sharp objects that could cut the geotextile. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.
1. Traffic Applications - Free draining material shall be used adjacent to (24" minimum) and above (for the first 12") the R-Tank system.
- a. For HD, and SD modules, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
- b. For UD modules with less than 14" of top cover, backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter). The use of soil backfill on the sides and top of the UD module is not permitted unless the modules are installed outside of traffic areas or with cover depths of 14" or more. Top backfill material (from top of module to bottom of pavement base or 12" maximum) must be consistent with side backfill.
2. Non-Traffic / Green Space Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer (12" minimum) may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
- C. Additional Cover Materials: Structural Fill shall consist of granular materials meeting the gradational requirements of SM, SP, SW, GM, GP or GW as classified by the Unified Soil Classification System. Structural fill shall have a maximum of 25 percent passing the No. 200 sieve, shall have a maximum clay content of 10 percent and a maximum Plasticity Index of 4. Material shall be within 3 percent of the optimum moisture content as determined by ASTM D698 at the time of installation.

2.04 OTHER MATERIALS

- A. Utility Marker: Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 - EXECUTION

3.01 ASSEMBLY OF R-TANK UNITS

- A. Assembly of modules shall be performed in accordance with the R-Tank Installation Manual, Section 2.

3.02 LAYOUT AND EXCAVATION

- A. Installer shall stake out, excavate, and prepare the subgrade area to the required plan grades and dimensions, ensuring that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.
- B. All excavations must be prepared with OSHA approved excavated sides and sufficient working space.
- C. Protect partially completed installation against damage from other construction traffic by establishing a perimeter with high visibility construction tape, fencing, barricades, or other means until construction is complete.
- D. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas. A minimum 2,000 pounds per square foot bearing capacity is required.
1. Standard Applications: Compact subgrade to a minimum of 95% of Standard Proctor (ASTM D698) density or as required by the Owner's engineer.
2. Infiltration Applications: Subgrade shall be prepared in accordance with the contract documents. Compaction of subgrade should not be performed in infiltration applications.
- E. Unsuitable Soils or Conditions: All questions about the base of the excavation shall be directed to the owner's engineer, who will approve the subgrade conditions prior to placement of stone. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.
1. If unsuitable soils are encountered at the subgrade, or if the subgrade is pumping or appears excessively soft, repair the area in accordance with contract documents and/or as directed by the owner's engineer.
2. If indications of the water table are observed during excavation, the engineer shall be contacted to provide recommendations.
3. Do not start installation of the R-Tank system until unsatisfactory subgrade conditions are corrected and the subgrade conditions are accepted by the owner's engineer.

3.03 PREPARATION OF BASE

- A. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03 A), over the subgrade to establish a level working platform for the R-Tank modules. Level to within ½" (+/- ¼") or as shown on the plans. Native subgrade soils or other materials may be used if determined to meet the requirements of 2.03 A and are accepted by the owner's engineer.
1. Standard Applications: Static roll or otherwise compact bedding materials until they are firm and unyielding.
2. Infiltration Applications: Bedding materials shall be prepared in accordance with the contract documents.
- B. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.04 INSTALLATION OF THE R-TANKS

- A. Where a geotextile wrap is specified on the stone base, cut strips to length and install in excavation, removing wrinkles so material lays flat. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags or other ballast to secure overlaps. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.
- B. Where an impervious liner (for containment) is specified, install the liner per manufacturer's recommendations and the contract documents. The R-Tank units shall be separated from impervious liner by a non-woven geotextile fabric installed accordance with Section 3.04A.
- C. Install R-Tank modules by placing side by side, in accordance with the design drawings. No lateral connections are required. It is advisable to use a string line to form square corners and straight edges along the perimeter of the R-Tank system. The modules are to be oriented as per the design drawing with required depth as shown on plans.
1. For LD, HD, and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the two ends of the tank area will have a row of tanks placed perpendicular to all other tanks. If this is not shown in the construction drawings, it is a simple field adjustment that will have minimal effect on the overall system footprint. Refer to R-Tank Installation Guide for more details
2. For UD installations, there is no perpendicular end row required.
- D. Wrap the R-Tank top and sides in specified geotextile. Cut strips of geotextile so that it will cover the sides and top, encapsulating the entire system to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.
- E. Identify locations of inlet, outlet and any other penetrations of the geotextile (and optional liner). These connections should be installed flush (buted up to the R-Tank) and the geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile, impervious liner (if specified) or pipe. Connecting pipes at 90 degree angles facilitates construction, unless otherwise specified. Ensure end of pipe is installed snug against R-Tank system.
- F. Install Inspection and Maintenance Ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of one maintenance port for every 2,500 square feet. Install all ports as noted in the R-Tank Installation Guide.
- G. If required, install ventilation pipes and vents as specified on drawings to provide ventilation for proper hydraulic performance. The number of pipes and vents will depend on the size of the system. Vents are often installed using a 90 degree elbow with PVC pipe into a landscaped area with "U" bend or venting bollard to inhibit the ingress of debris. A ground level concrete or steel cover can be used.

3.05 BACKFILLING OF THE R-TANK UNITS

- A. Backfill and fill with recommended materials as follows:
1. Place freely draining backfill materials (Section 2.03 B) around the perimeter in lifts with a maximum thickness of 12". Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system. No fill shall be placed over top of tanks until the side backfill has been completed.
2. Each lift shall be compacted at the specified moisture content to a minimum of 95% of the Standard Proctor Density until no further densification is observed (for self-compacting stone materials). The side lifts must be compacted with walk behind compaction equipment. Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
3. Take care to ensure that the compaction process does not allow the machinery to come into contact with the modules due to the potential for damage to the geotextile and R-Tank units.
4. No compaction equipment is permissible to operate directly on the R-Tank modules.
5. Top Backfill: Only low pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using tracked equipment with an operating weight of less than 10 tons.
- a. Typical Applications: Install a 12" (or as shown on plans) lift of freely draining material (Section 2.03 B) over the R-Tank Units, maintaining 12" between equipment tracks and R-Tank System. 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.
- b. Shallow Applications (< 18" total cover): Install top backfill in accordance with plans.
6. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall.
7. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03 C) shall be placed at the specified moisture content and compacted to a minimum of 95% of the Standard Proctor Density and shall cover the entire footprint of the R-Tank system. During placement of fill above the system, unless otherwise specified, a uniform elevation of fill shall be maintained to within 12" across the footprint of the R-Tank system. Do not exceed maximum cover depths listed in Table 2.01 B.
8. Place additional layers of geotextile and/or geogrid at elevations as specified in the design details. Each layer of geosynthetic reinforcement placed above the R-Tank system shall extend a minimum of 3 feet beyond the limits of the excavation wall.
- B. 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).
- C. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.
- D. Backfill depth over R-Tank system must be within the limitations shown in the table in Section 2.01 B. If the total backfill depth does not comply with this table, contact engineer or manufacturer's representative for assistance.

3.06 MAINTENANCE REQUIREMENTS

- A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Pre-treatment systems shall be inspected yearly, or as directed by the regulatory agency and by the manufacturer (for proprietary systems). Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).
- B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.
- C. If sediment has accumulated to the level noted in the R-Tank Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.
- D. All inspection and maintenance activities should be performed in accordance with the R-Tank Operation, Inspection & Maintenance Manual.



ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.



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R-TANK^{HD} SPECIFICATION
70 EAST OXFORD STREET REDEVELOPMENT
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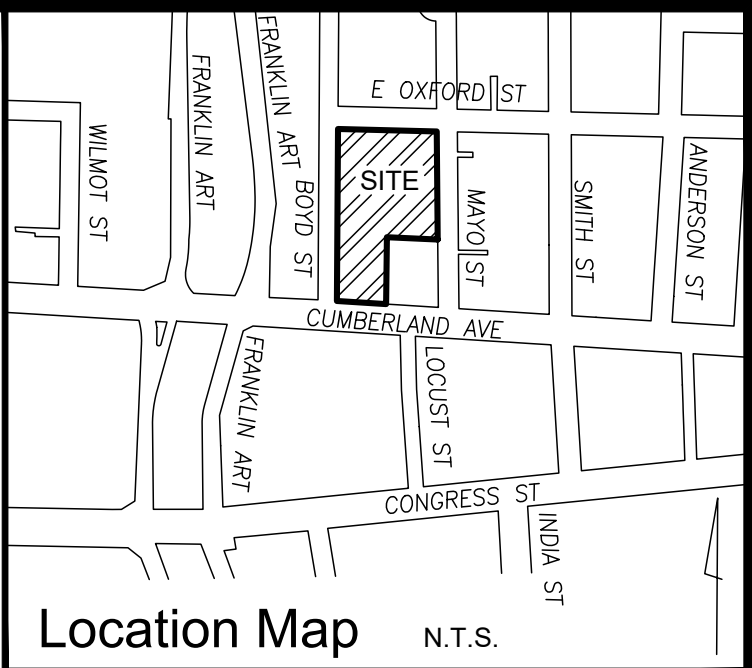
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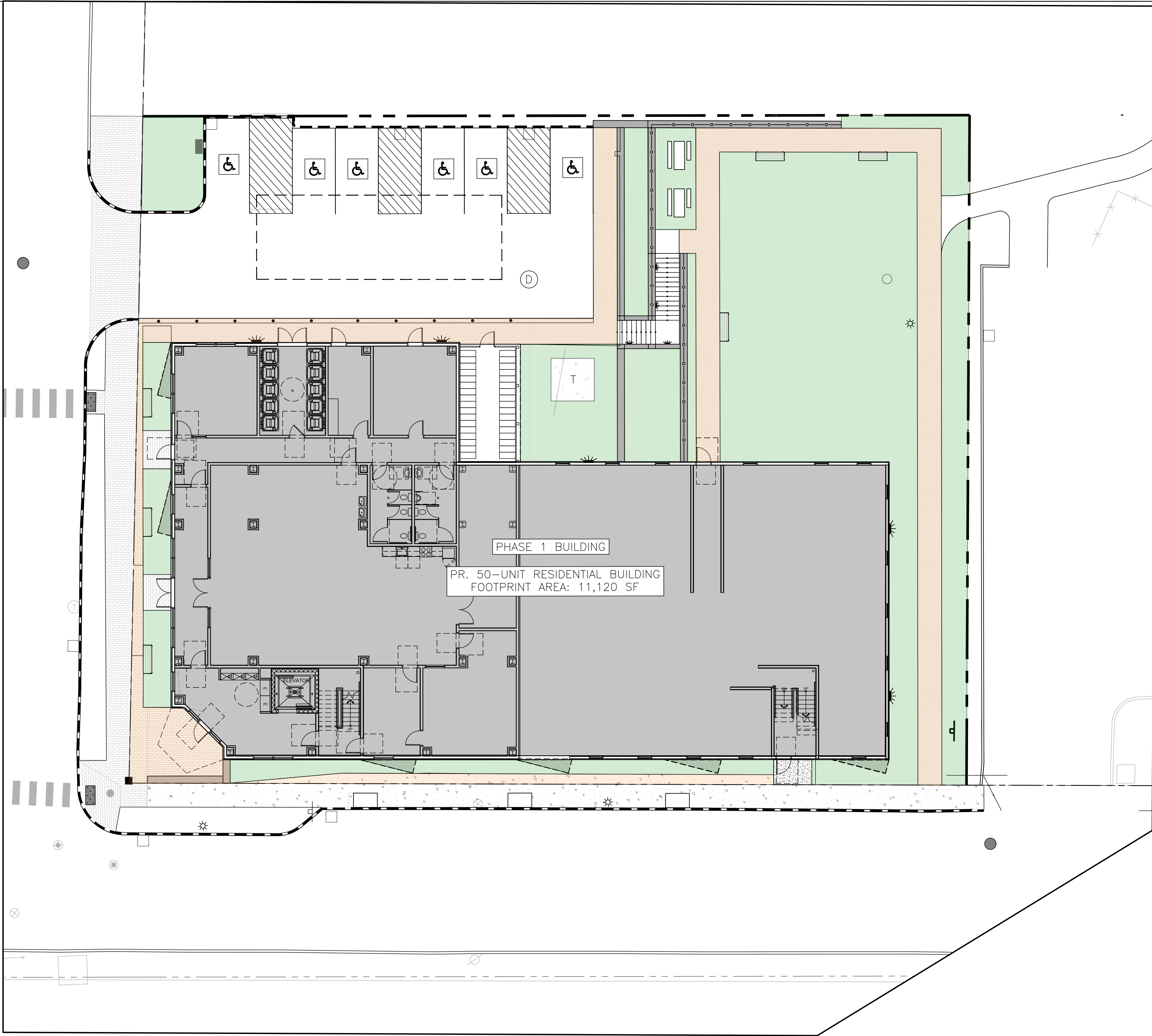
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■	MONUMENT FOUND
⊙	UTILITY POLE
○	MANHOLE
⊗/SM	ELECTRIC/GAS METER
✉	MAILBOX
—	SIGN
⊖	SATELLITE DISH
⊕	CATCH BASIN
⦿	HYDRANT
⦿	WATER VALVE OR SHUTOFF
⦿	GAS VALVE
⦿	LIGHT POLE
⦿	BUSH / SHRUB
⦿	DECIDUOUS TREE
⦿	CONIFEROUS TREE
—	CURB
— x —	FENCE
— OHW —	OVERHEAD WIRES
— E —	UNDERGROUND POWER
— W —	WATER LINE
— G —	GAS LINE
— C —	TELEPHONE/COMMUNICATION
— SD —	STORM DRAIN
— SS —	SANITARY SEWER
— 40 —	1' CONTOUR
N/F	NOW OR FORMERLY
000/000	DEED BOOK / PAGE
0/0	LANDSCAPED AREA
CONC.	CONCRETE
HT=	HEIGHT
THRES	THRESHOLD
△	POSSIBLE ENCROACHMENT
①	SCHEDULE B EXCEPTION



CHECKED BY: RRL	SCALE: 1" = 20'	DRWG. NO. 1
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C:\Users\DRY~1\OneDrive\Documents\OneDrive\DRY_LA\Projects\COMB\COMB CAD\BASE COMB 24.04.30 Comment Response.dwg Dry 4/30/2024

OPEN SPACE SUMMARY-- LOT SIZE 24,403 SF		
	R-7 OVERLAY	COLOR
LANDSCAPED OPEN SPACE	21.5%	
HARDSCAPED OPEN SPACE	10%	
TOTAL OPEN SPACE	31.5%	



NOTE: This drawing is PRELIMINARY REVIEW ONLY. It is NOT intended for use as a construction document.

Prepared For:
COMB
Block Phase
One, LP
Prepared By:
DryLA
dry landscape architecture, l.l.c
31 miller ave.
biddeford, me 04005

Date:
MARCH 12, 2024

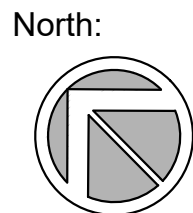
Issued For:
PERMITTING

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Title: **OPEN SPACE**
EXHIBIT

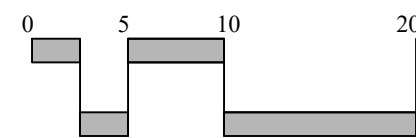
70
EAST OXFORD STREET
REDEVELOPMENT
Portland ME 04103

Revisions:
05.06.2024 City Staff Comment Response



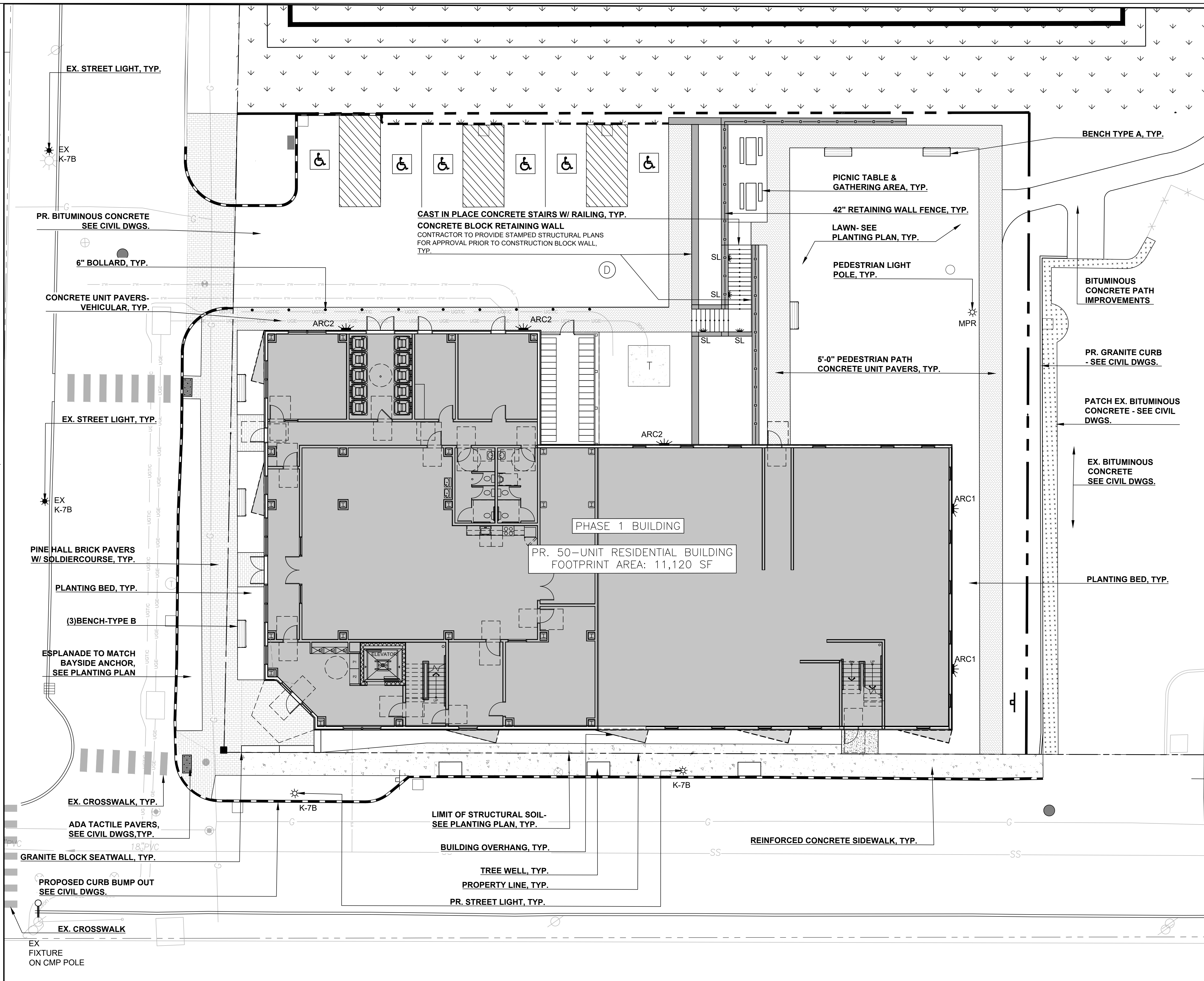
Sheet No.:
EX-A

Scale: 1" = 10'-0"



1. THE PLANTING DESIGN IS BASED ON CIVIL ENGINEERING DRAWINGS PRODUCED BY ACORN ENGINEERING. EXISTING BUILDINGS, GRADING, EASEMENTS AND UTILITIES ARE BASED ON SURVEY INFORMATION PROVIDED BY THE OWNER.
2. VERIFY ALL CONDITIONS AT PROJECT SITE AND NOTIFY LANDSCAPE ARCHITECT OF DISCREPANCY, OMISSIONS OR DISCREPANCIES BEFORE BEGINNING WORK.
3. THE LANDSCAPE ARCHITECT ASSUMES NO RESPONSIBILITY FOR THE UTILITIES OR STRUCTURES NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING OVER OR NEAR EXISTING GAS MAINS AND ELECTRICAL LINES. CONTRACTOR IS TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES ABOVE AND BELOW GRADE PRIOR TO EXCAVATION OR TRENCHING. CALL 800 SAFE AT 1(800) 452-4888. THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR CONFLICTS. DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
4. ARCHITECTURAL ELEMENTS ARE SHOWN ON LANDSCAPE PLANS FOR REFERENCE ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL ARCHITECTURAL INFORMATION. NOTIFY OWNER OR OWNER'S REPRESENTATIVE & LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
5. THE LANDSCAPE ARCHITECT IS NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR FOR SAFETY PRECAUTIONS OR MEANS UTILIZED IN CONNECTION WITH THE WORK, AND HE WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

1. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, NOTES AND SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT FOR FURTHER DIRECTION AND RESOLUTION BEFORE ADDITIONAL WORK PROCEEDS.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT FOR DIRECTION AND RESOLUTION PRIOR TO ANY FURTHER WORK.
3. CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES WITH THE APPROPRIATE UTILITY COMPANIES PRIOR TO EXCAVATION OF OR INSTALLATION OF ANY PART OF THIS WORK. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATIONS OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
4. CONTRACTOR SHALL NOTIFY DIG SAFE (1-888-344-7233) PRIOR TO EXCAVATION
5. CONTRACTOR SHALL AVOID ALL AREAS NOT REQUIRING GRADING. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND SHALL PRESERVE EXISTING VEGETATION.
6. CONTRACTOR SHALL LOAM AND SEED ALL GRADED AND DISTURBED AREAS NOT OTHERWISE IMPOSED.
7. ALL WORK ASSOCIATED WITH THE PROPOSED WATER SERVICE MUST ADHERE TO CITY OF PORTLAND WATER DISTRICT STANDARDS. ALL WORK ASSOCIATED WITH PROPOSED SANITARY SEWER LINE MUST ADHERE TO THE CITY OF PORTLAND DEPARTMENT OF WASTEWATER CONTROL STANDARDS.
8. THE CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR UNDERTAKING THE WORK IN A SAFE AND EFFICIENT MANNER, IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY REGULATIONS. ALL WORK AREAS SHALL BE DESIGNED CLEARLY TO REGULATE ACCESS TO AND FROM PUBLIC AND PRIVATE UNAUTHORIZED ACCESS. THE SITE SHALL BE LEFT IN A SAFE, ORDERLY AND TIDY MANNER AT THE END OF EACH WORK DAY.
9. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND PERFORM ALL WORK NECESSARY TO REGULATE TRAFFIC IN THE AREA OF THE SITE, AND SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS TO AND FROM PUBLIC AND PRIVATE PROPERTIES AND RIGHTS OF WAY DURING CONSTRUCTION.
10. PROVIDE EXPANSION JOINTS
11. REQUEST INSPECTION OF FIELD STAKING BY LANDSCAPE ARCHITECT A MINIMUM OF 24 HOURS IN ADVANCE OF PERFORMING ANY WORK UNLESS INDICATED OTHERWISE.



NOTE: This drawing is PRELIMINARY REVIEW ONLY. It is NOT intended for use as a construction document.

1. LANDSCAPE ARCHITECT TO APPROVE PLANT MATERIAL PRIOR TO DELIVERY TO SITE.
2. PLANT MATERIAL PROVIDED BY THE CONTRACTOR IS TO CONFORM TO THE HIGHEST STANDARD AS ADOPTED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. (ANSI), PLANT MATERIAL IS TO BE HEALTHY SPECIMENS, FREE FROM DISEASE OR DAMAGE.
3. THE CONTRACTOR IS TO FURNISH PLANTS AND SOD SHOWN ON THE DRAWINGS. PLANTS ARE TO CONFORM WITH THE BOTANICAL IDENTIFICATIONS. PLANTS ARE TO BE Sourced FROM A NURSERY WITHIN THE SAME CLIMATIC ZONE AS THE SITE LOCATION. NO SUBSTITUTIONS OF PLANT SPECIES ARE PERMITTED WITHOUT PRIOR APPROVAL OF THE OWNER OR OWNER'S REPRESENTATIVE & THE LANDSCAPE ARCHITECT.
4. SUBSTITUTIONS OF PLANT SPECIES SHALL BE A PLANT OF EQUIVALENT OVERALL FORM, HEIGHT AND BRANCHING HABIT, FLOWER, LEAF, FRUIT, COLOR, TIME OF BLOOM & CLIMATIC LOCATION AS APPROVED BY LANDSCAPE ARCHITECT.
5. LOCATE AND VERIFY EXISTING & PROPOSED UTILITY LINE LOCATIONS PRIOR TO STAKING AND REPORT CONFLICTS TO LANDSCAPE ARCHITECT.
6. PLANTING DEMOLITION DEBRIS, GARBAGE, LUMPS OF CONCRETE, STEEL AND OTHER MATERIALS DELETERIOUS TO PLANT'S HEALTH AS DETERMINED BY LANDSCAPE ARCHITECT SHALL BE REMOVED FROM PLANTING AREAS.
7. THE CONTRACTOR IS TO VERIFY SITE LAYOUT & GRADES & INFORM THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR CHANGES IN LAYOUT AND/OR GRADING PRIOR TO CONSTRUCTION. NO PLANTING IS TO BE INSTALLED BEFORE ACCEPTANCE OF ROUGH GRADING.
8. ALL PROPOSED TREE LOCATIONS SHALL BE STAKED OR LAID OUT IN THEIR APPROXIMATE LOCATION BY THE CONTRACTOR. THE CONTRACTOR SHALL ADJUST THE STAKES AS REQUESTED BY THE LANDSCAPE ARCHITECT TO ACCOUNT FOR SUBSURFACE UTILITIES AND OTHER FIELD CONDITIONS. FINAL LOCATIONS OF PLANTS MUST BE APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
9. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH FINISHED GRADE. IMMEDIATELY REPLANT PLANTS THAT SETTLE OUT OF PLUMB OR BELOW FINISHED GRADE. PLANT AND STAKES ARE TO BE SET PLUMB UNLESS OTHERWISE NOTED. PLANT UNDER FULL TIME SUPERVISION OF CERTIFIED ARBORIST, NURSERYMAN, OR LICENSED LANDSCAPE ARCHITECT. PROVIDE WRITTEN VERIFICATION OF CERTIFICATION AND/OR LICENSE FOR LANDSCAPE ARCHITECT'S APPROVAL.
10. WATER PLANTS THOROUGHLY AFTER INSTALLATION, A MINIMUM OF TWICE WITHIN THE FIRST 24 HOURS.
11. CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN PLANT MATERIALS INCLUDING SOD/SEED AREAS IN A HEALTHY STATE DURING CONSTRUCTION AND DURING REQUIRED WARRANTY PERIODS. ANY DAMAGE TO PLANT MATERIAL DUE TO NEGLIGENCE BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
12. REPAIR DAMAGE DUE TO LANDSCAPE INSTALLATION OPERATIONS INSIDE AND OUTSIDE OF LIMIT OF WORK.
13. SOAK ALL PERENNIALS FOR 24 HOURS PRIOR TO INSTALLATION.
14. A LIST OF PLANTS INCLUDING BOTANICAL NAMES, SIZES, AND SPACING ARE SHOWN ON THE DRAWINGS. QUANTITIES ARE PROVIDED FOR CONTRACTOR'S CONVENIENCE AND ARE TO BE VERIFIED. IN THE EVENT THAT QUANTITIES OR OMISSIONS OCCUR THE PLAN DRAWINGS ARE TO BE FOLLOWED.
15. IRRIGATION: A TEMPORARY UNDERGROUND DRIP AND SPRINKLER IRRIGATION SYSTEM IS TO BE PROVIDED FOR ALL PLANT MATERIAL AND SOD OR SEED AREAS.
16. DISTURBED SITE AREAS ARE TO BE DRESSED WITH 6" MIN. OF AMENDED TOPSOIL FOR LAWNS AND 12" MIN. FOR PLANT BEDS. TOPSOIL FOR SEEDED AND/OR SEED AREAS IS TO BE TWO PARTS SHARP SAND, ONE PART LOAM AND ONE PART ORGANIC COMPOST.
17. PLANT BEDS ARE TO BE MULCHED TO A DEPTH OF 2" MIN. WITH NATURAL BARK MULCH WITH BARK SIZES NO LARGER THAN 3" PERENNIAL PLANT BEDS ARE TO BE MULCHED WITH BARK SIZES NO MORE THAN 1". TREES IN LAWN AREAS ARE TO HAVE MULCH RINGS OF 5' DIA.
18. TREES ADJACENT TO PEDESTRIAN ROUTES AND WITHIN PARKING ISLANDS ARE TO BE LIMBED TO 6' ABOVE GRADE.
19. IRRIGATION DESIGN BY OTHERS

PARKING & SCREENING:
THE SITE HAS 6 PROPOSED PARKING SPACES WHICH REQUIRE THE PLANTING OF TWO TREES (OR ONE TREE AND THREE SHRUBS) PER FIVE PARKING SPACES.

TREE PLANTING REQUIREMENTS:

REQUIREMENT - ONE STREET TREE IS REQUIRED PER DWELLING UNIT (50),

THE REMAINING STREET TREES WILL BE PROVIDED THROUGH A CONTRIBUTION TO THE CITY OF PORTLAND TREE FUND. THROUGH THE PLANTINGS OF THE PROPOSED TREES AND CONTRIBUTION TO THE TREE FUND, THE APPLICATION WILL MEET THE MINIMUM STREET TREE PLANTING REQUIREMENTS.

THE SITE HAS 305 FEET OF FRONTAGE IN THE R-7 OVERLAY DISTRICT, WHICH REQUIRES THE 10 SHADE TREES OR THE EQUIVALENT OF A SHADE TREE VIA 6 PLANTINGS (1 PER 30 FEET

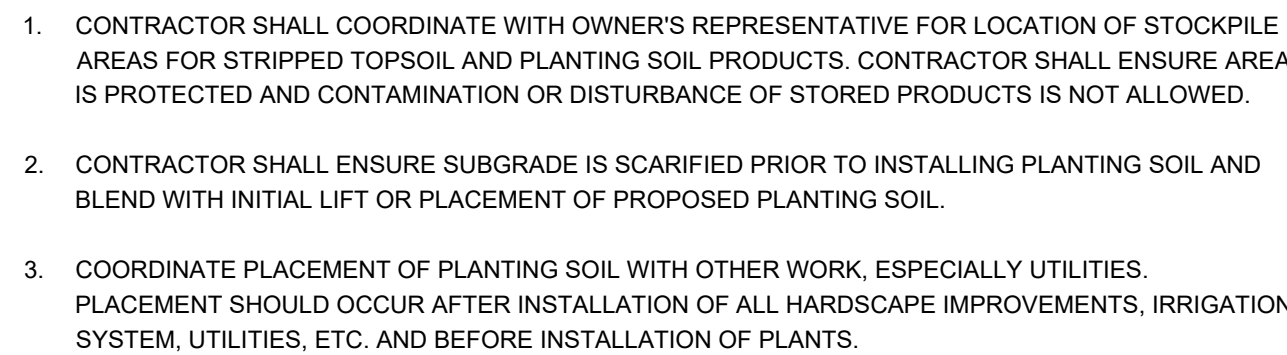
DECIDUOUS TREES						
CODE	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	NOTES
CB	<i>Carpinus betulus 'Frans Fontaine'</i>	Hornbeam 'Frans Fontaine'	3	1.75-2" cal	as shown	
GB	<i>Ginkgo biloba 'Princeton Sentry'</i>	Princeton Sentry Ginkgo	3	2.75-3" cal	as shown	
KT	<i>Cercidiphyllum japonicum</i>	Katsura Tree	2	2.75-3" cal	as shown	
PA	<i>Prunus 'Accolade'</i>	Prunus accolade	3	1.75-2" cal		Single Stem, Matched
UA	<i>Ulmus 'Accolade'</i>	Accolade Elm	3	2.75-3" cal	as shown	Single Stem, Matched
ZS	<i>Zelkova Serrata</i>	City Sprite Zelkova	4	2.75-3" cal	as shown	

DECIDUOUS SHRUBS						
CODE	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	NOTES
HAP	<i>Hydrangea anomala</i>	Climbing Hydrangea	6	24" ht.	As shown	
HYP	<i>Hydrangea paniculata</i> 'Little Quick Fire'	Little Quick Fire Panicle Hydrangea	1	30"-36" ht.	60" O.C.	
HH	<i>Hypericum 'Hilcote'</i>	St. John's Wort	12	24"-36" ht.	36" O.C.	
MPN	<i>Myrica pensylvanica</i>	Northern Bayberry	1	24"-30" ht.	60" O.C.	
XS	<i>Xanthoxia simplicissima</i>	Yellowroot	7	24"-30" ht.	48" O.C.	" "

EVERGREEN SHRUBS						
CODE	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	NOTES
IXSH	<i>Ilex glabra</i> 'Shamrock'	Shamrock Inkberry	8	30"-36" ht.	60" O.C.	
JUC	<i>Juniperus conferta</i> 'Emerald Sea'	Emerald Sea Shore Juniper	12	18"-24" ht.	36" O.C.	

PERENNIAL						
CODE	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	NOTES
APH	<i>Amonia hubrichtii</i>	Thread-leaved Bluestar	tbd	tbd	36" O.C.	
COM	<i>Azalea 'Bessingham Beauty'</i>	Bessingham Beauty Azalea	tbd	tbd	18" O.C.	
GRB	<i>Coronopsis 'Moonbeam'</i>	Moonbeam Coronopsis	tbd	tbd	18" O.C.	
GRG	<i>Geranium x 'Rozanne'</i>	Rozanne Cranesbill	tbd	tbd	24" O.C.	
HAI	<i>Hemerocallis 'Heavenly Angel Ice'</i>	Heavenly Angel Ice Daylily	tbd	tbd	24" O.C.	
HEC	<i>Hueschera 'Caramel'</i>	Caramel Coral Bells	tbd	tbd	18" O.C.	
HEF	<i>Rudbeckia 'Golden American Gold Rush'</i>	Gold Rush Black-Eyed Susan	tbd	tbd	24" O.C.	
SHM	<i>Salvia 'May Night'</i>	May Night Salvia	tbd	tbd	24" O.C.	

GRASSES, VINES & GROUND COVERS						
CODE	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING	NOTES
AG	Allium glodorum	Ornamental Onion	tbd	Bulb	12" O.C.	
CA	Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Feather Reed Grass	tbd	#12	24" O.C.	
LMB	Liriope muscari 'Big Blue'	Big Blue Lilyturf	tbd	#10	10" O.C.	
PVS	Panicum virgatum 'Shenandoah'	Shenandoah Switchgrass	tbd	#12	24" O.C.	
SS	Schizachyrium scoparium	Little Bluestem	tbd	#12	18" O.C.	



HATCH	TYPE	NOTES
	LAWN	SUNNY
	LAWN	SHADE

Date:
MARCH 12, 2024

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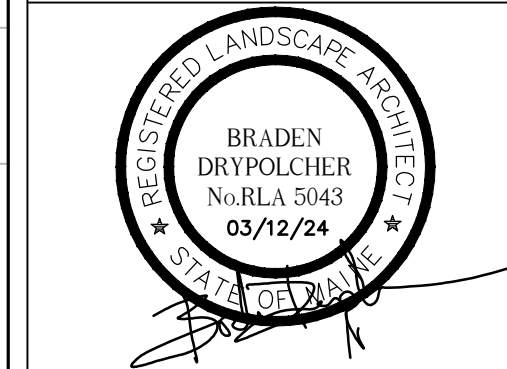
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Title: **PLANTING PLAN**

70
EAST OXFORD STREET
REDEVELOPMENT
Portland ME 04103

Revisions:

05.06.2024 City Staff Comment Response



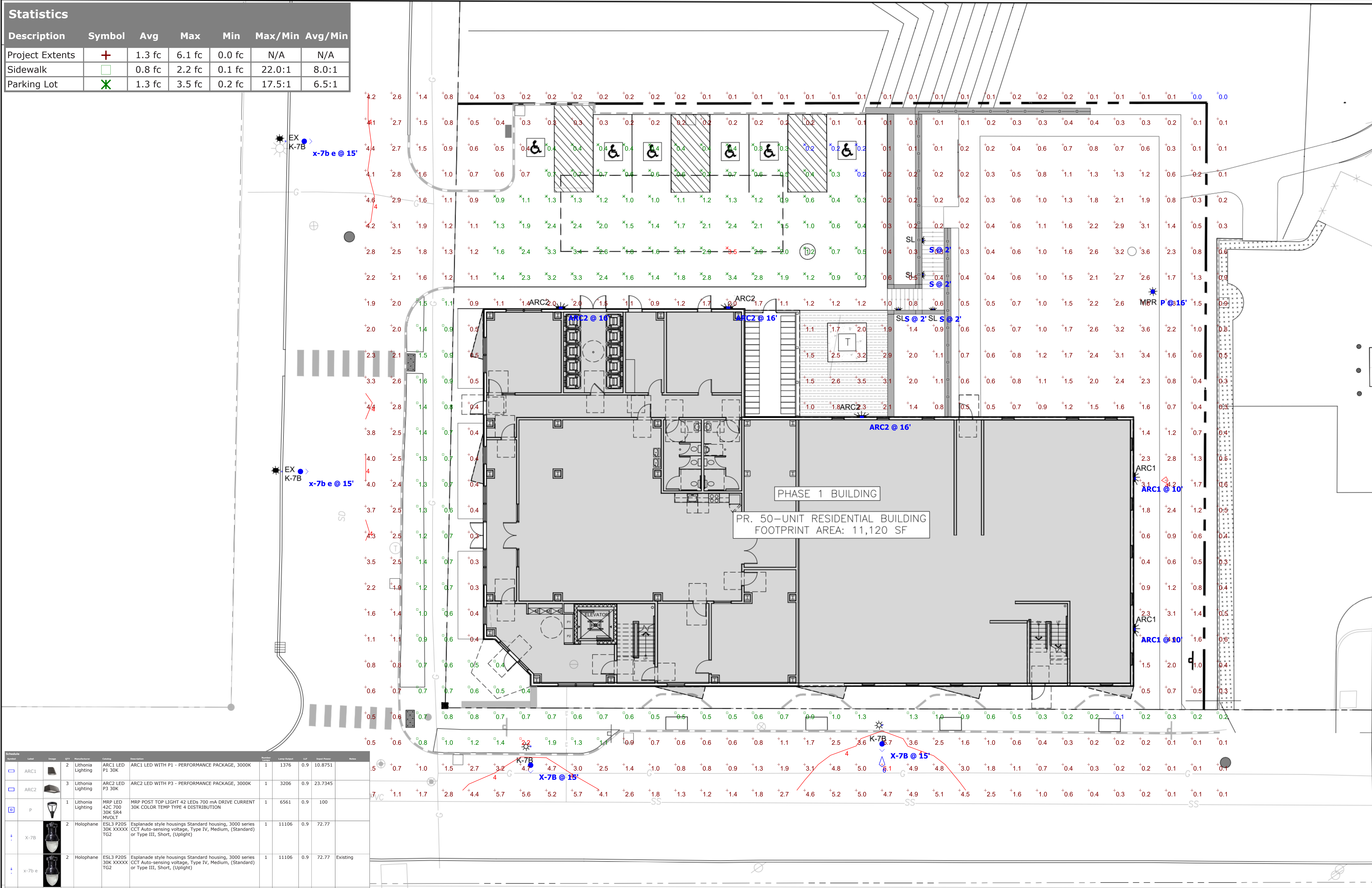
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Scale: 1" = 10'-0"

Age Group	Number of People
0	1.5
5	1.0
10	2.5
20	1.5

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Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Project Extents	+	1.3 fc	6.1 fc	0.0 fc	N/A	N/A
Sidewalk	□	0.8 fc	2.2 fc	0.1 fc	22.0:1	8.0:1
Parking Lot	✕	1.3 fc	3.5 fc	0.2 fc	17.5:1	6.5:1



Schedule	Symbol	Label	Image	QTY	Manufacturer	Category	Description	Number	Lamp Output	ULP	Input Power	Notes
ARC1	□	ARC1		2	Lithonia Lighting	ARC1 LED P1 30K	ARC1 LED WITH P1 - PERFORMANCE PACKAGE, 3000K	1	1376	0.9	10.8751	
ARC2	□	ARC2		3	Lithonia Lighting	ARC2 LED P3 30K	ARC2 LED WITH P3 - PERFORMANCE PACKAGE, 3000K	1	3206	0.9	23.7345	
P	□	P		1	Lithonia Lighting	MRP LED 42C 700 30K SR4 MVOLT	MRP POST TOP LIGHT 42 LEDs 700 mA DRIVE CURRENT 30K COLOR TEMP TYPE 4 DISTRIBUTION	1	6561	0.9	100	
X-7B e	+	X-7B e		2	Holophane	ESL3 P20S 30K XXXXX T22	Esplanade style housings Standard housing, 3000 series CCT Auto-sensing voltage, Type IV, Medium, (Standard) or Type III, Short, (Uplight)	1	11106	0.9	72.77	
X-7B e	+	X-7B e		2	Holophane	ESL3 P20S 30K XXXXX T22	Esplanade style housings Standard housing, 3000 series CCT Auto-sensing voltage, Type IV, Medium, (Standard) or Type III, Short, (Uplight)	1	11106	0.9	72.77	Existing
S	□	S		0	Hydrel	HSL11 RD L LED 30K MVOLT	Surface mount step light	1	61	0.9	2.98	Type S fixtures are not included in the point-by-point calculations, reference only.

Prepared For:
COMB Block Phase One, LP

Prepared By:
DryLA
dry landscape architecture, l.l.c
31 miller ave.
biddeford, me 04005

Date:
MARCH 12, 2024

Issued For:
PERMITTING

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Title:
LIGHTING PLAN

70
EAST OXFORD
STREET
Portland ME 04103

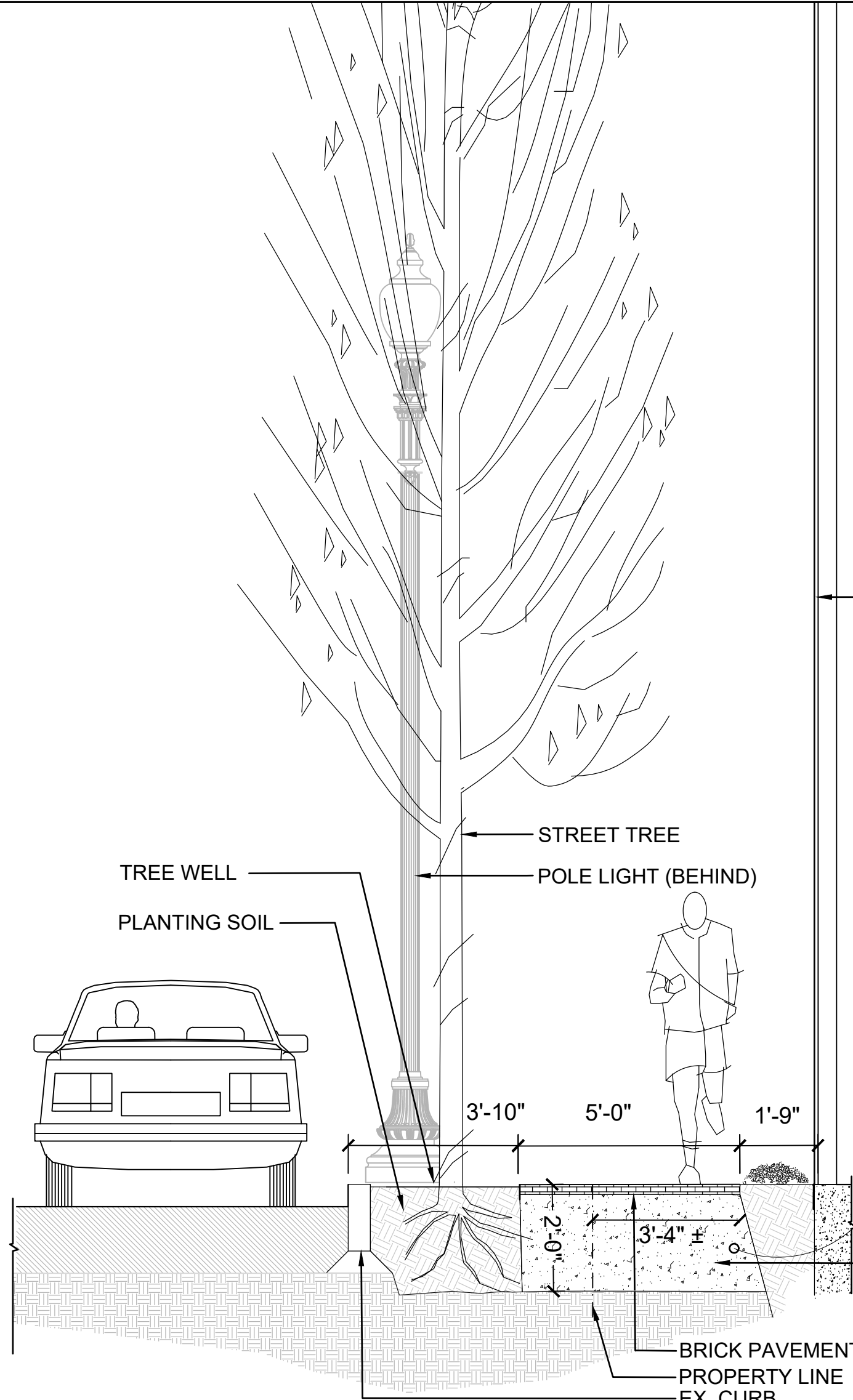
Revisions:

North:

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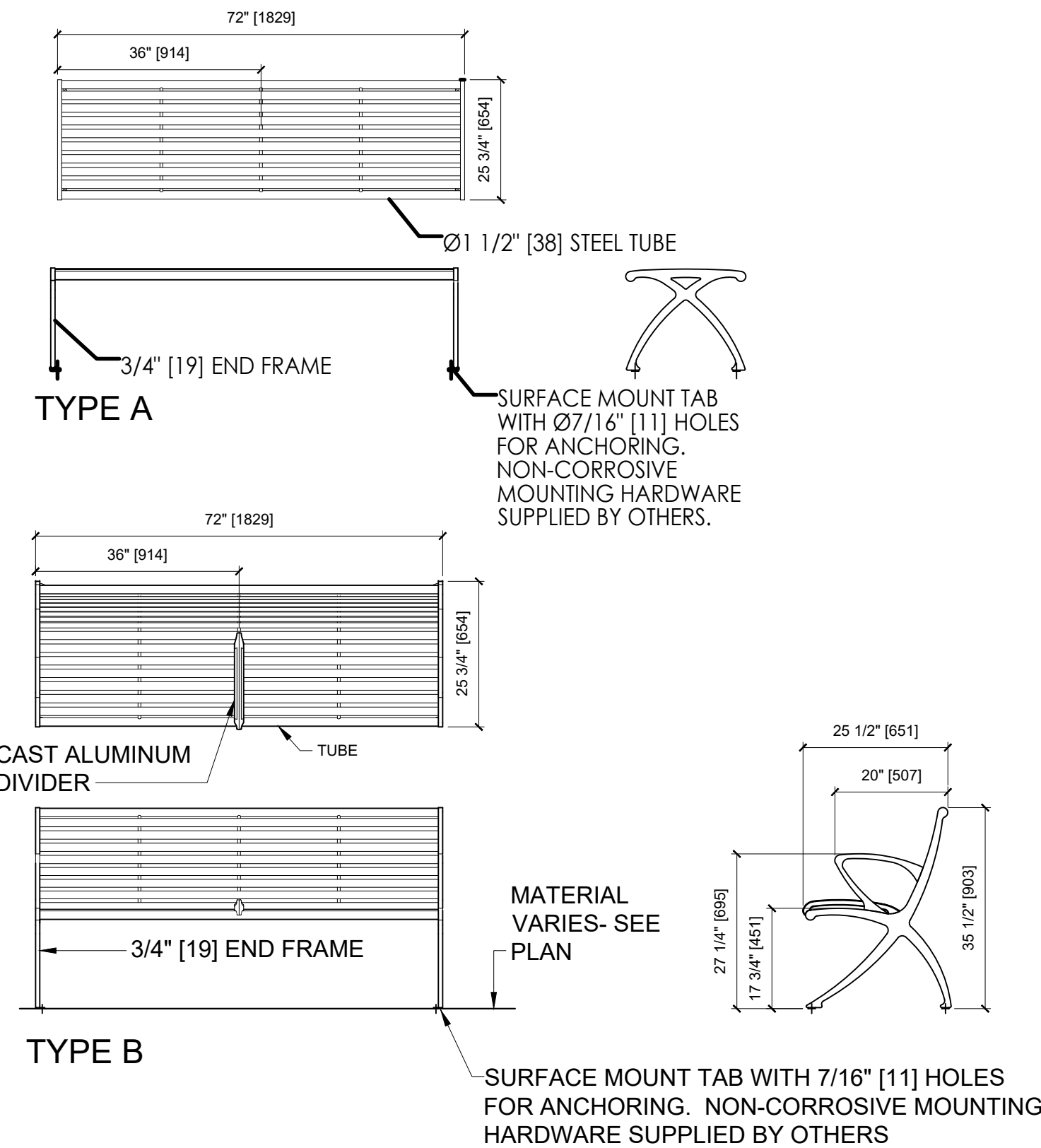
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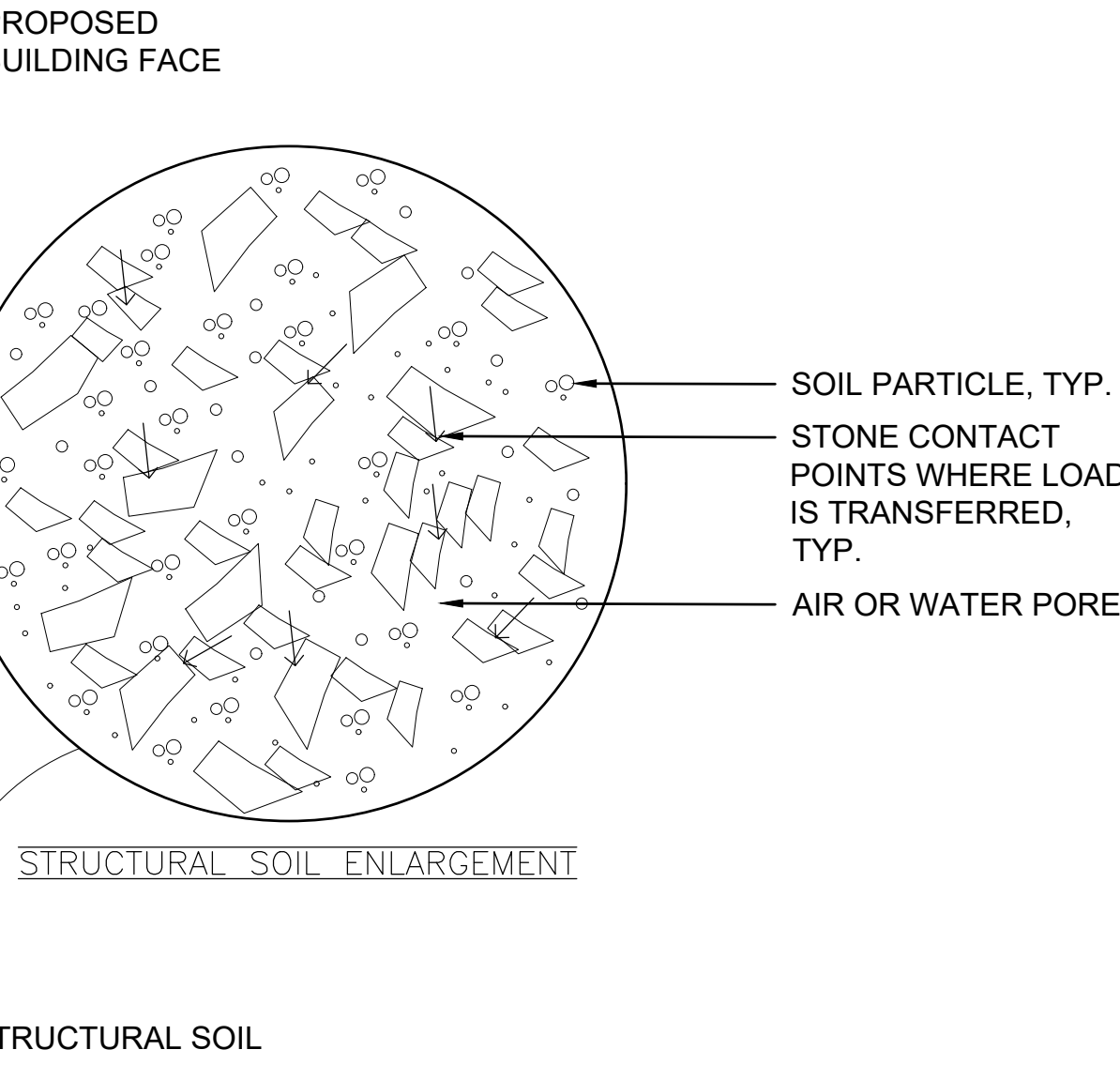
01 SIDEWALK SECTION - BOYD STREET

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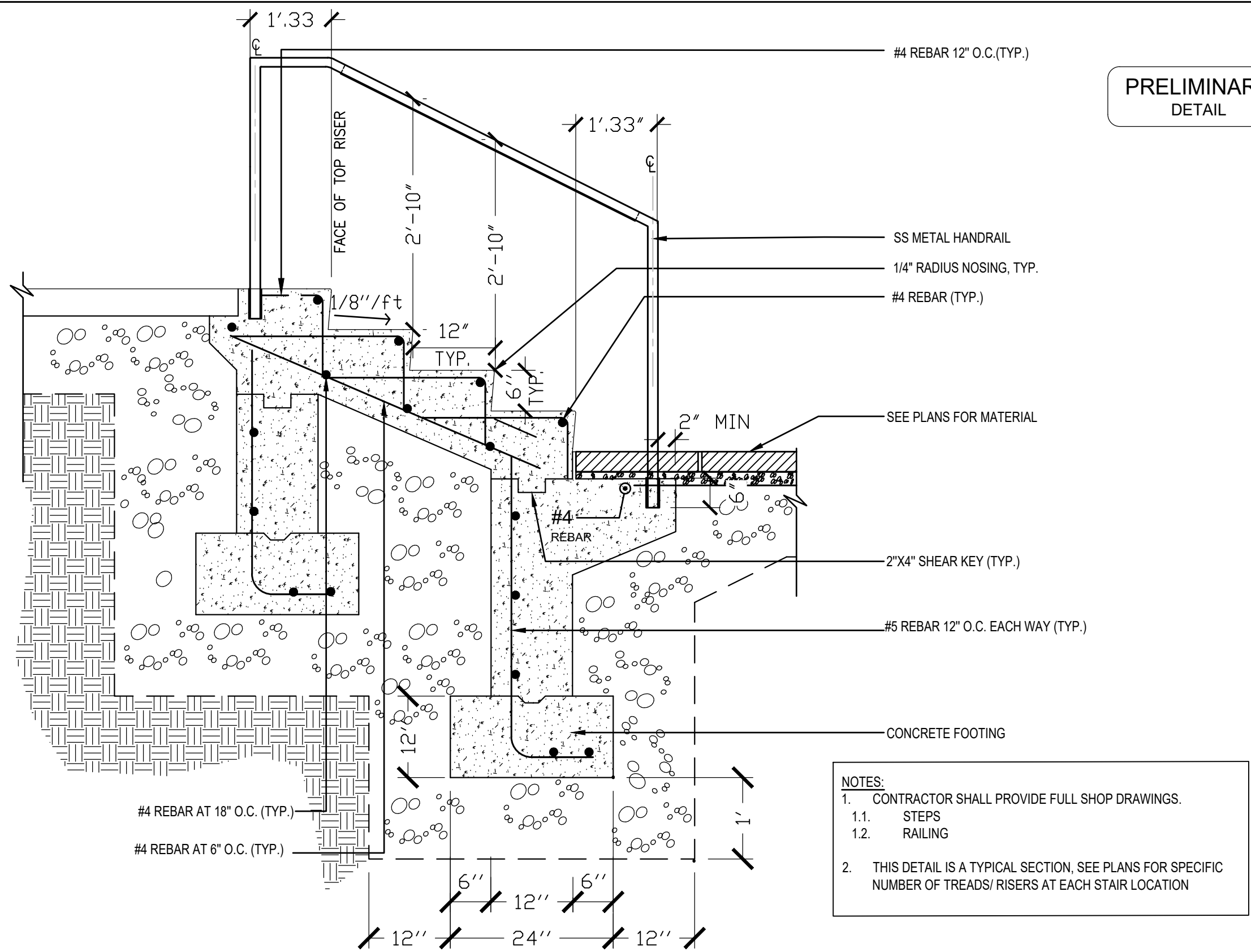
02 BENCH

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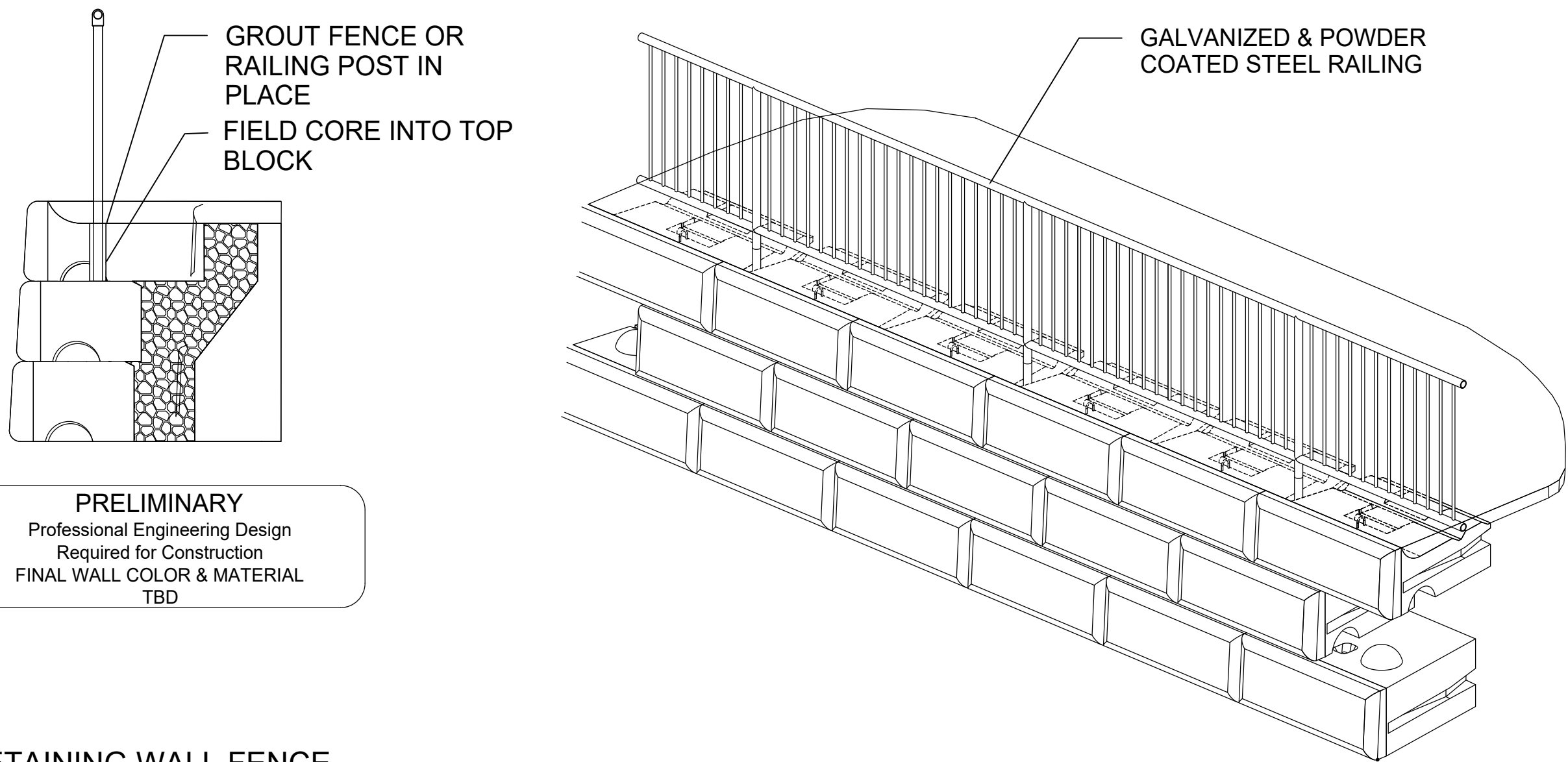
03 MONOLITHIC GRANITE BLOCK

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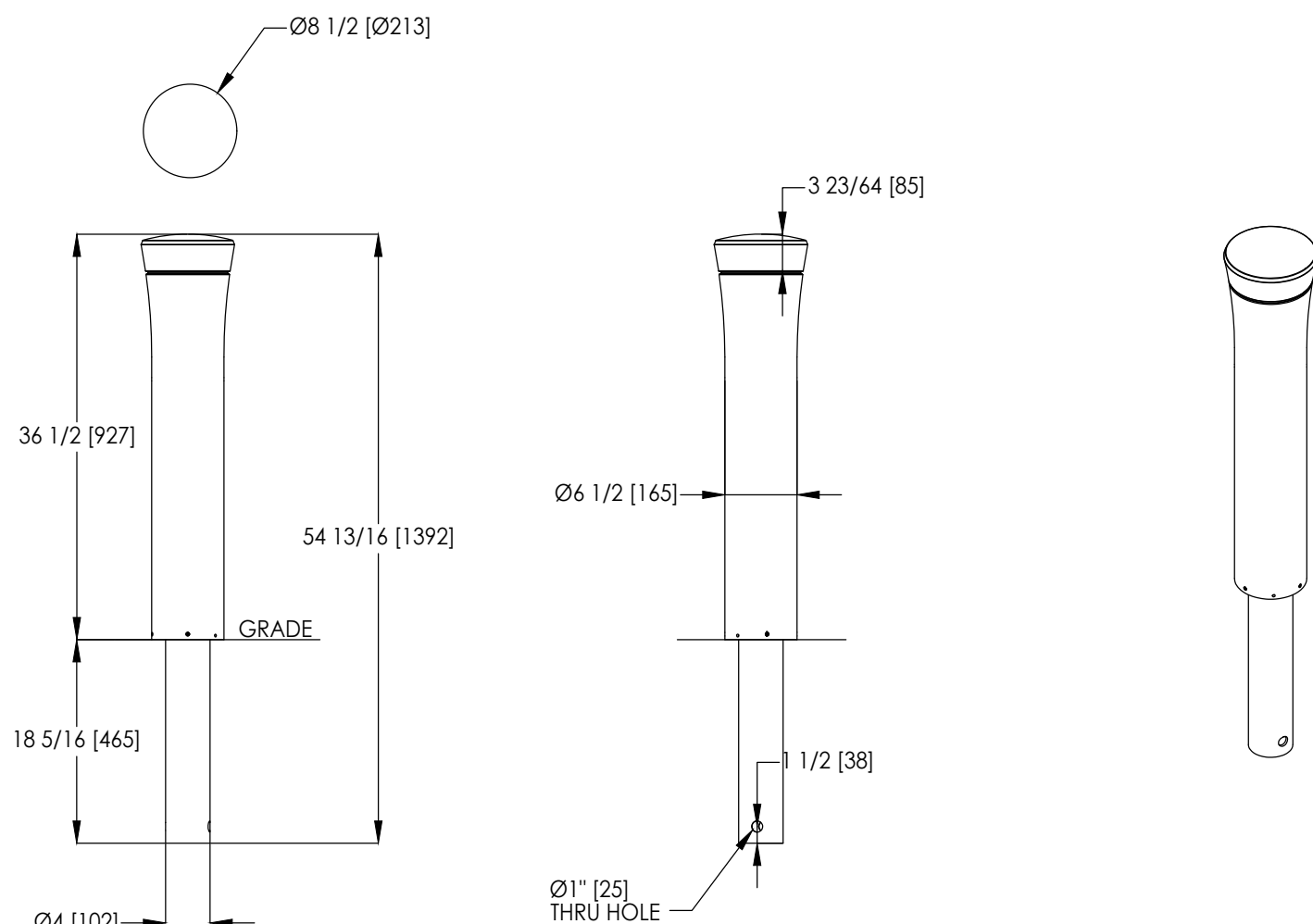
04 PRECAST STAIRS & STAIR RAILING

SCALE: N.T.S.



05 RETAINING WALL FENCE

SCALE: N.T.S.



06 BOLLARD

SCALE: N.T.S.

NOTE: This drawing is PRELIMINARY REVIEW ONLY. It is NOT intended for use as a construction document.

Prepared For:
COMB
Block Phase
One, LP
Prepared By:
DryLA
dry landscape architecture, l.l.c
31 miller ave.
biddeford, me 04005

Date:
MARCH 12, 2024

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Title:
DETAILS

70
EAST OXFORD STREET
REDEVELOPMENT
Portland ME 04103

Revisions:
05.06.2024 City Staff Comment Response



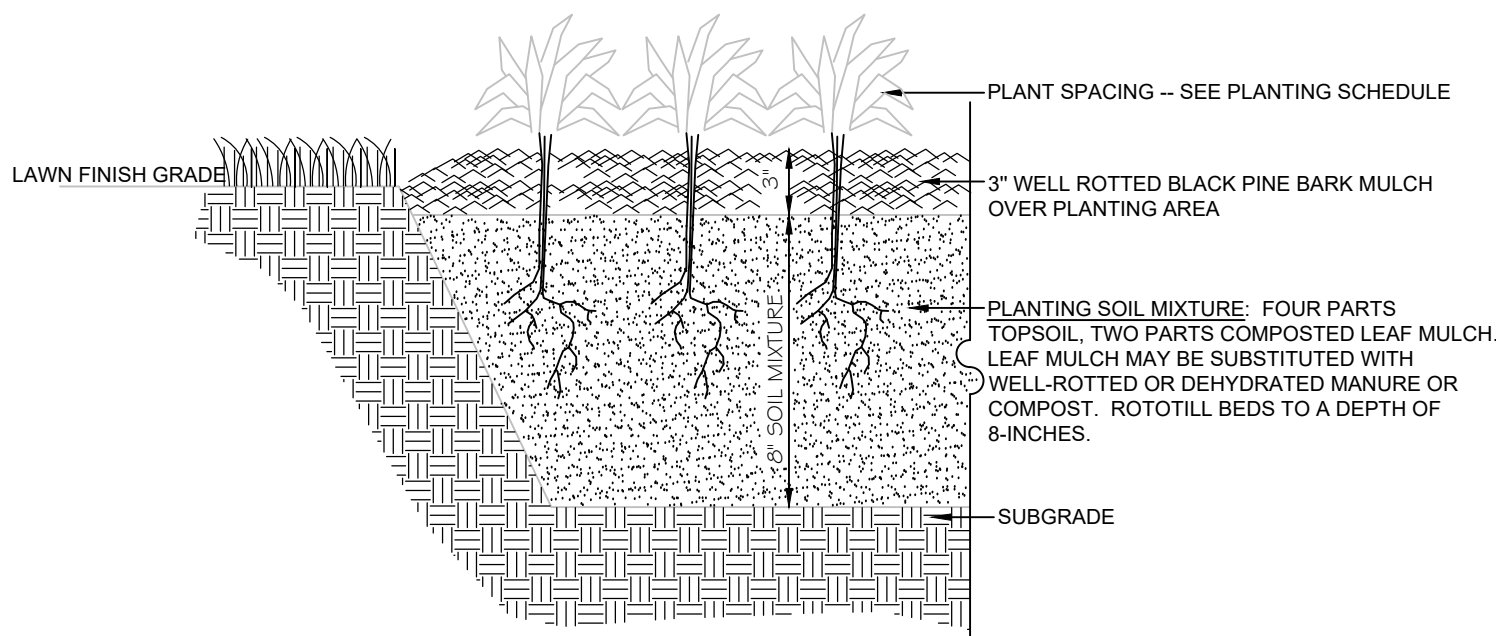
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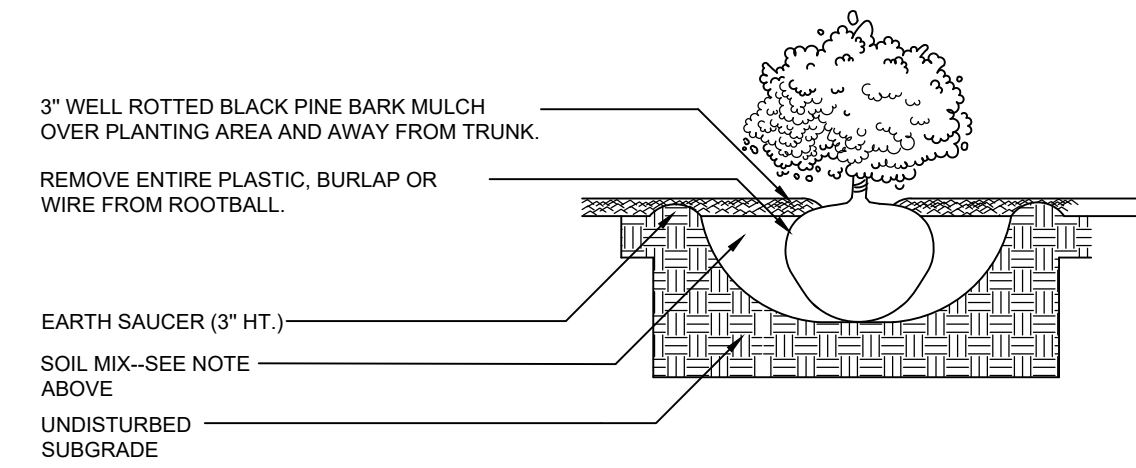
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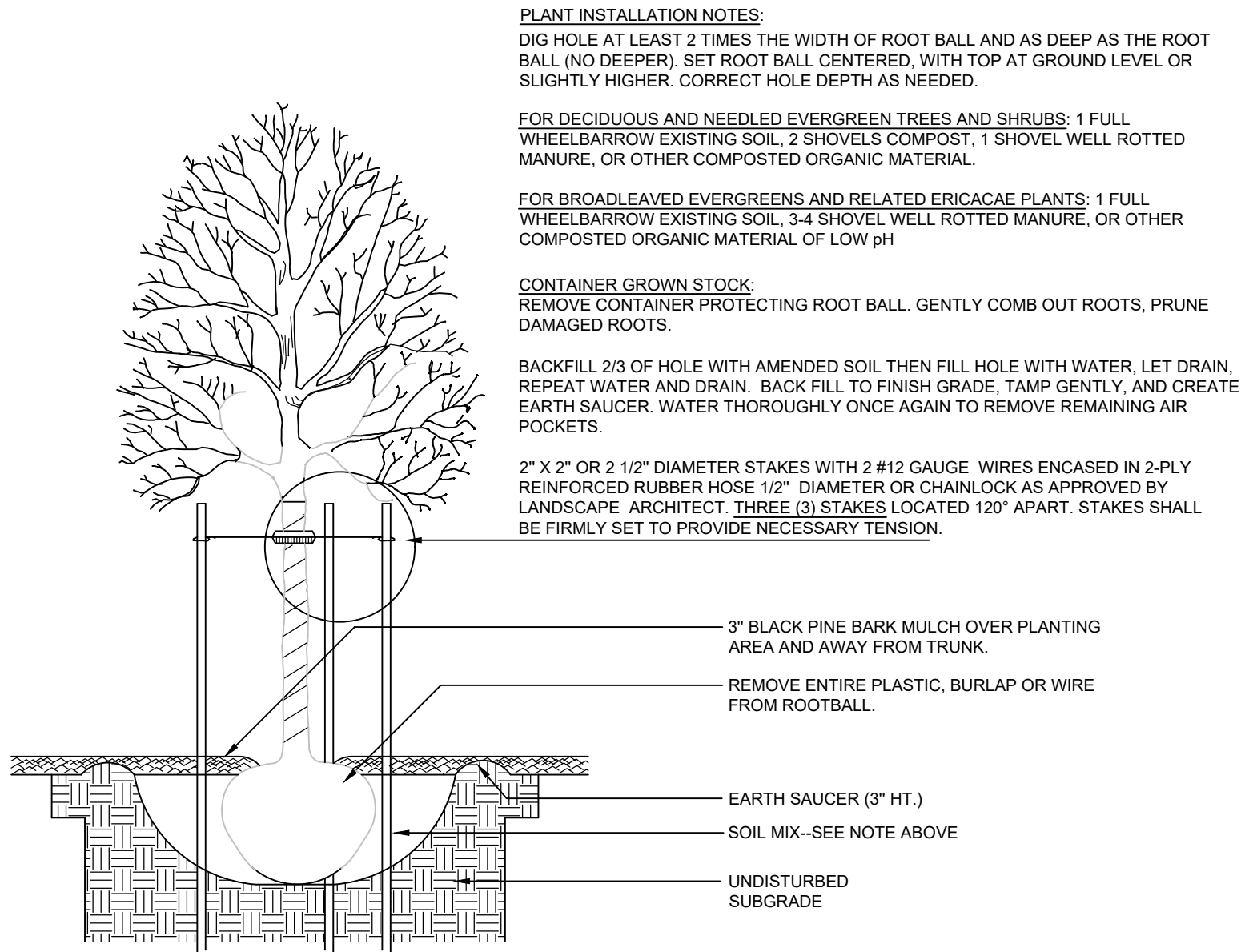
01 PLANTING BED AND MULCH DETAIL

SCALE: N.T.S.



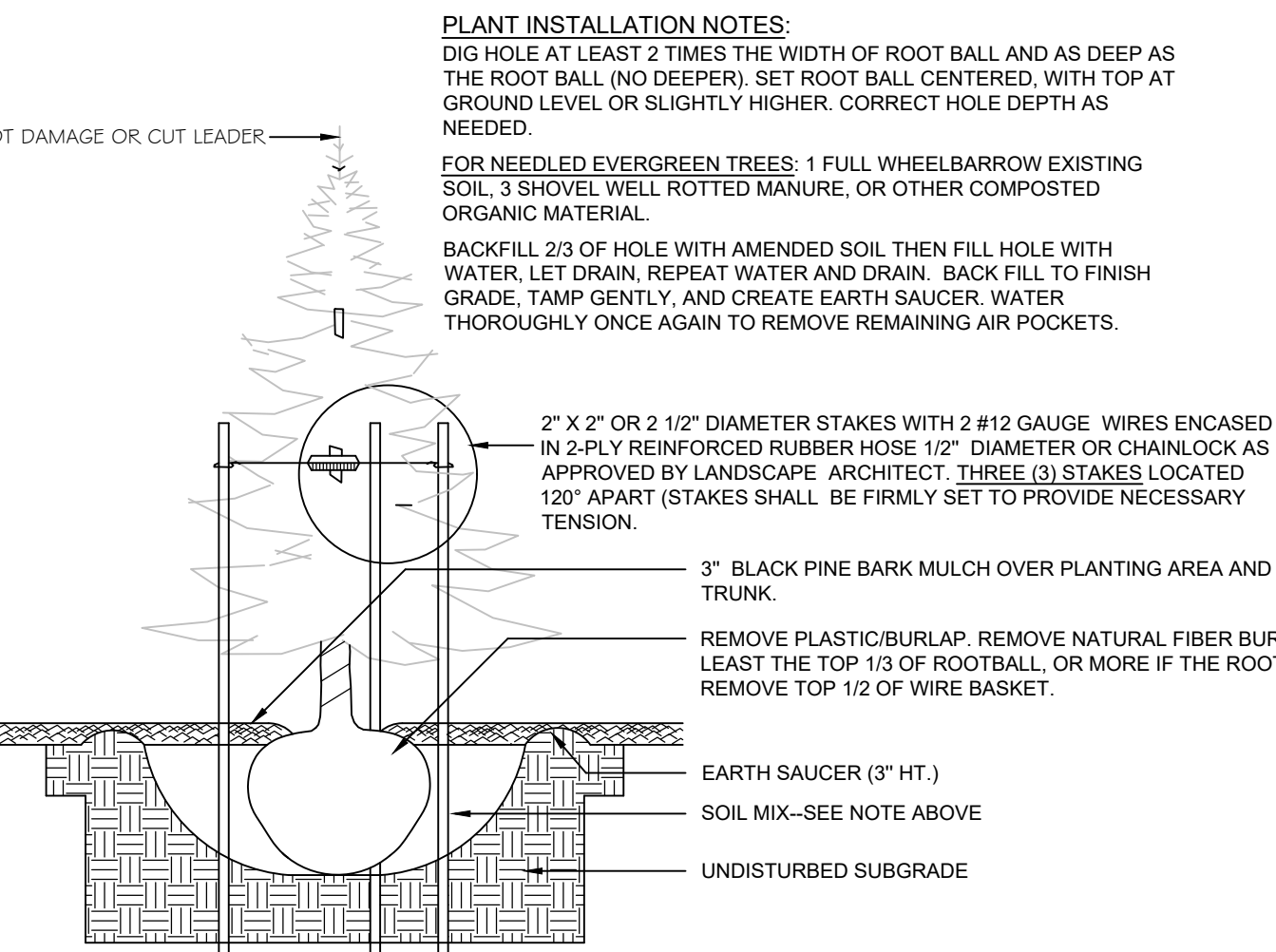
02 SHRUB INSTALLATION

SCALE: N.T.S.



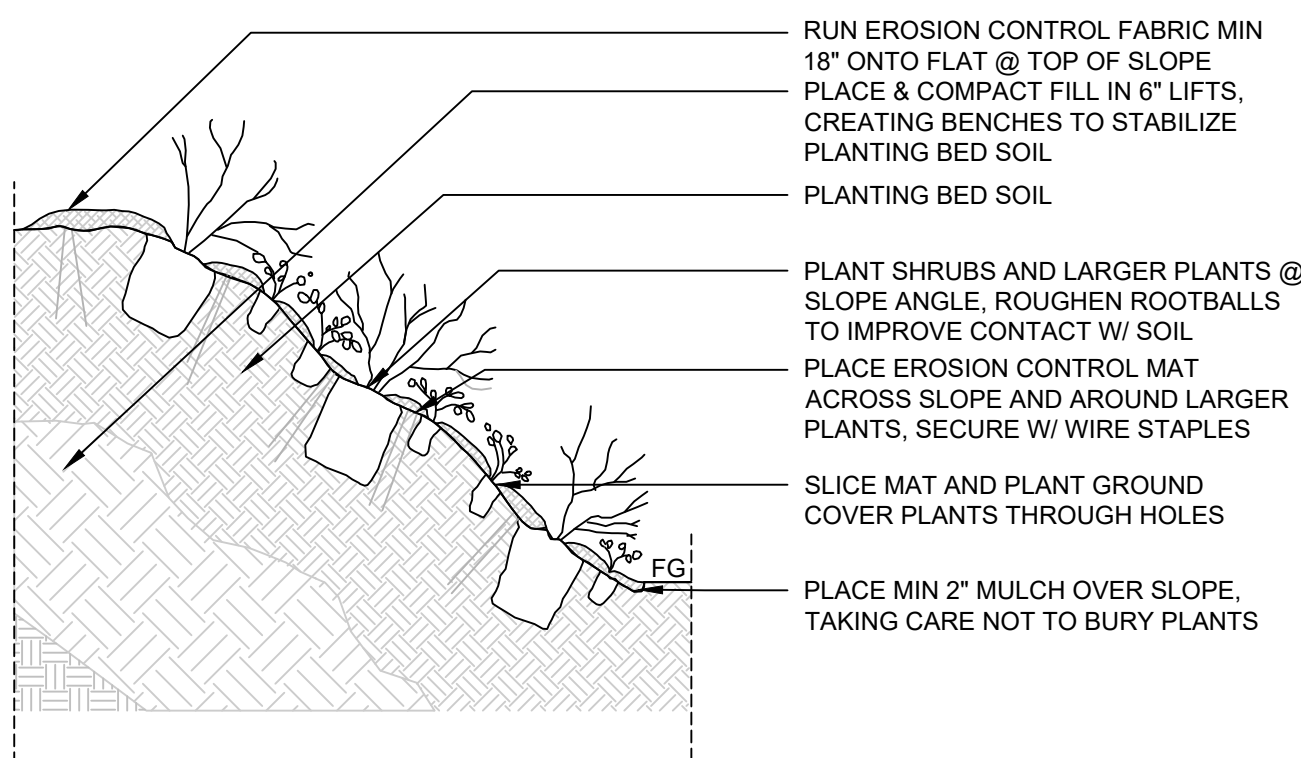
03 DECIDUOUS TREE DETAIL

SCALE: N.T.S.



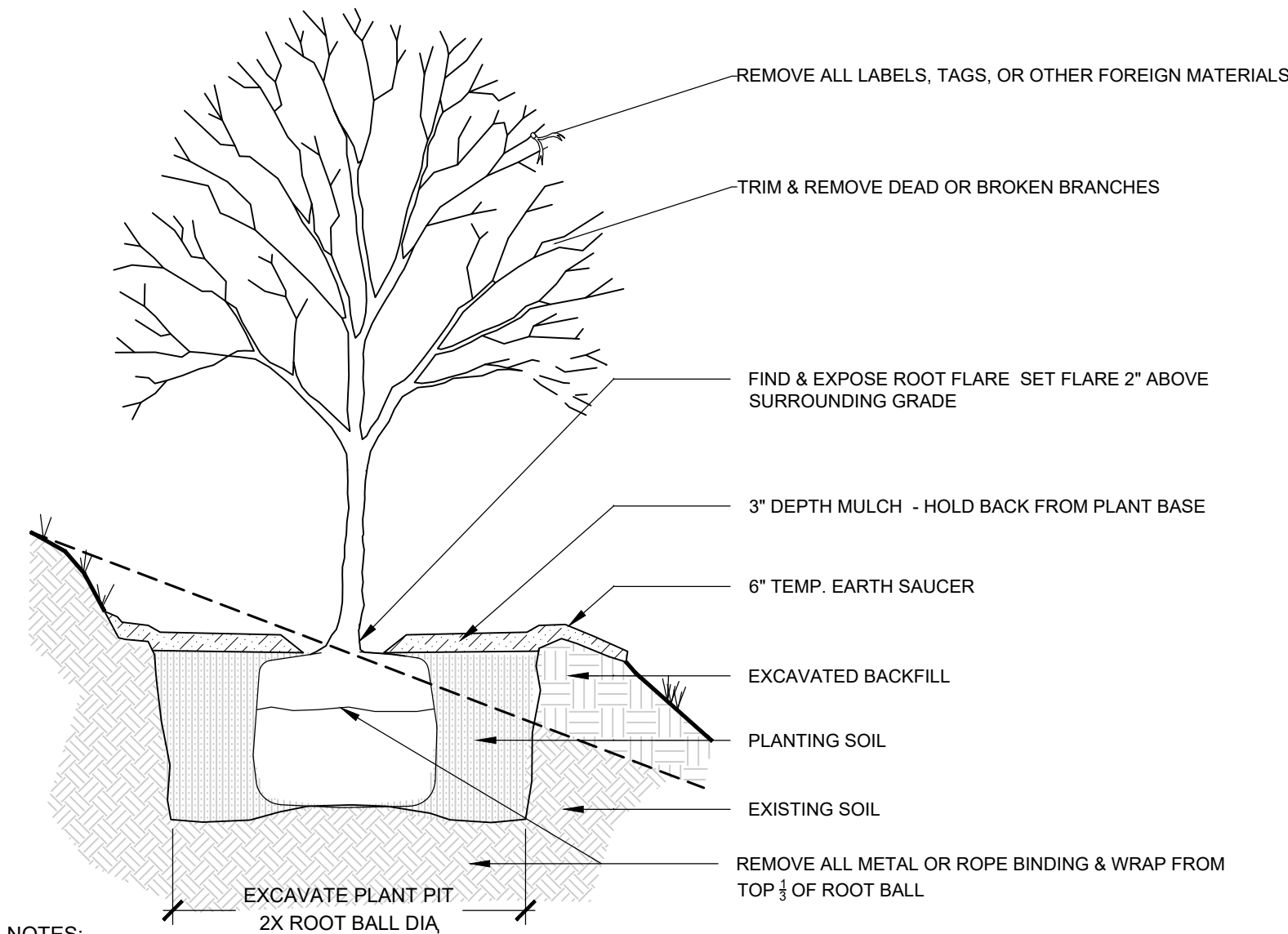
04 CONIFEROUS TREE DETAIL

SCALE: N.T.S.



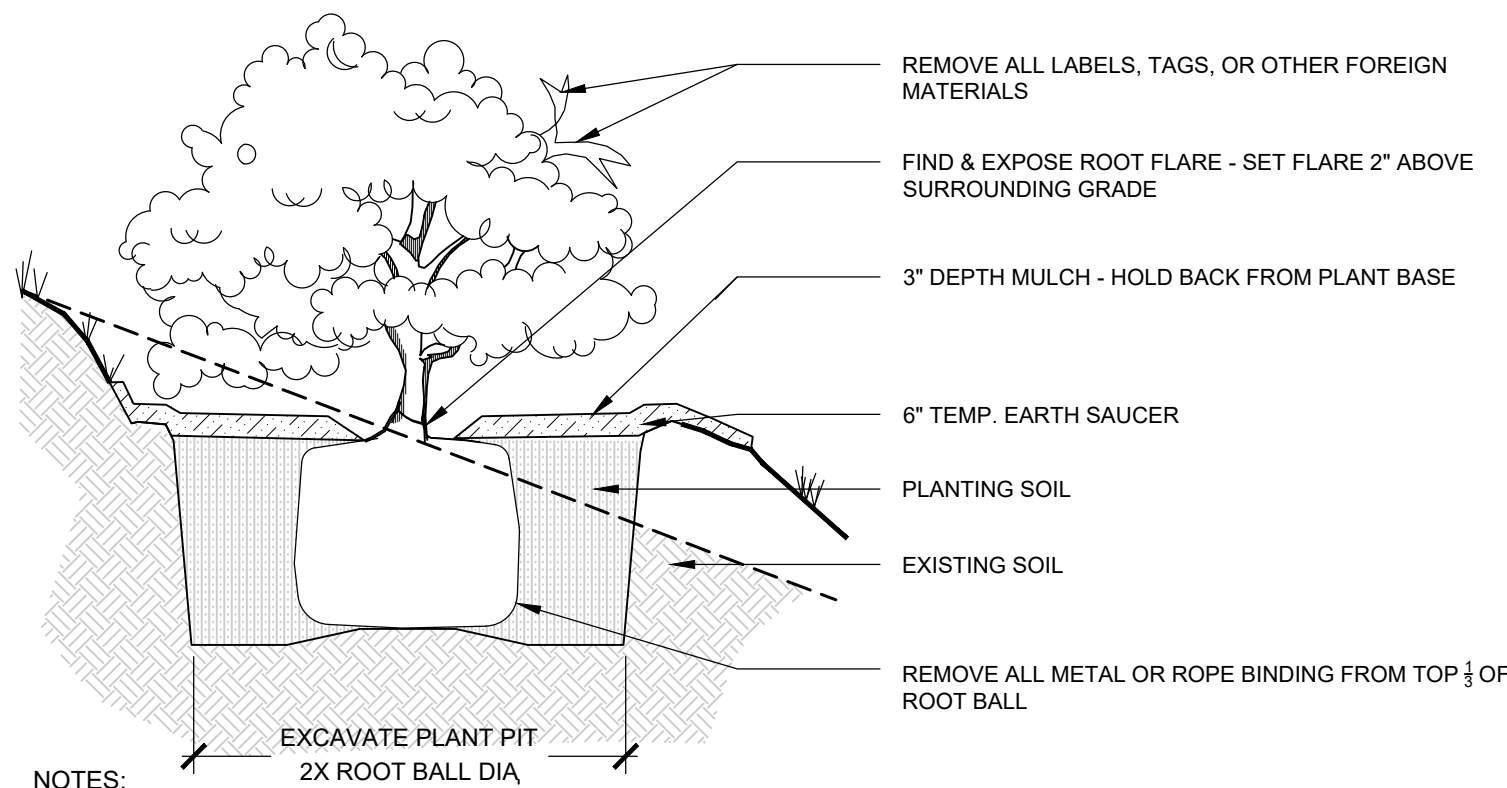
05 SLOPE PLANTING DEATIL

SCALE: N.T.S.



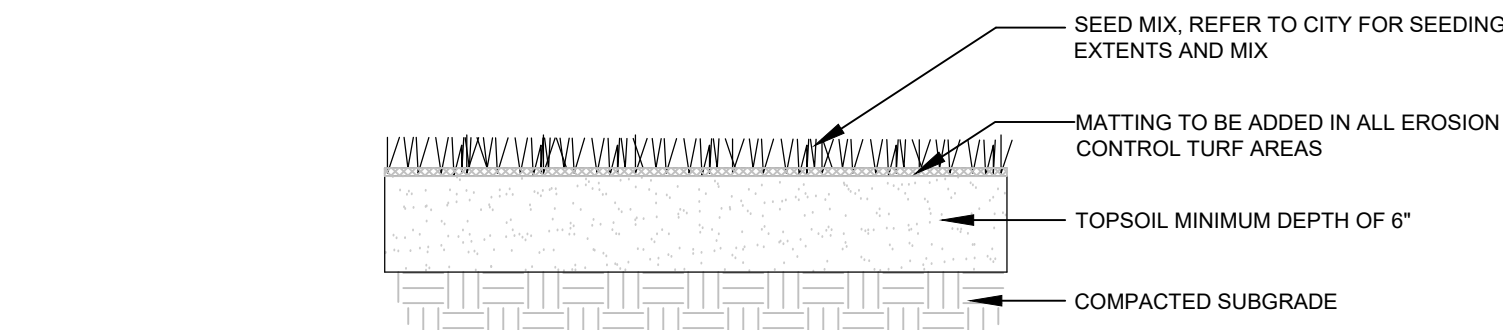
06 TREE PLANTING ON SLOPE

SCALE: N.T.S.



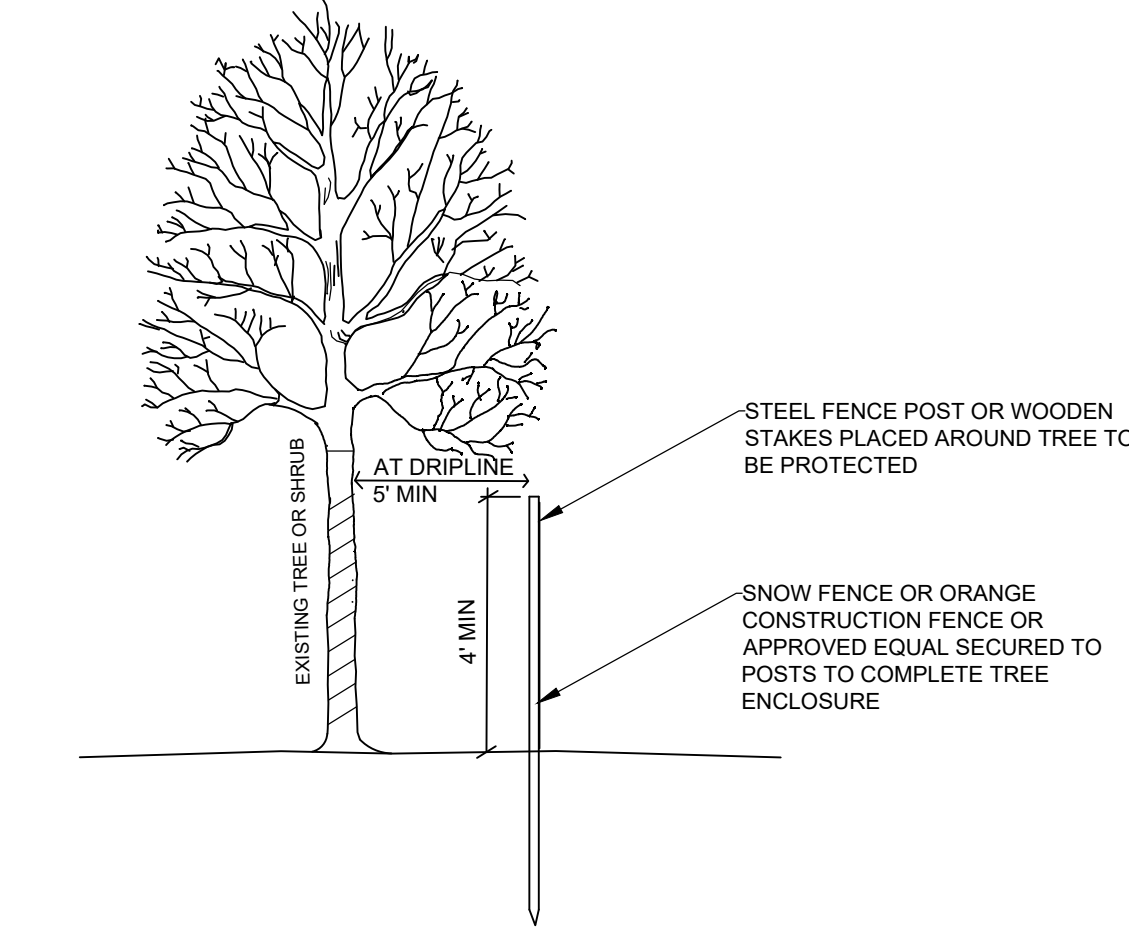
07 SHRUB PLANTING ON SLOPE

SCALE: N.T.S.



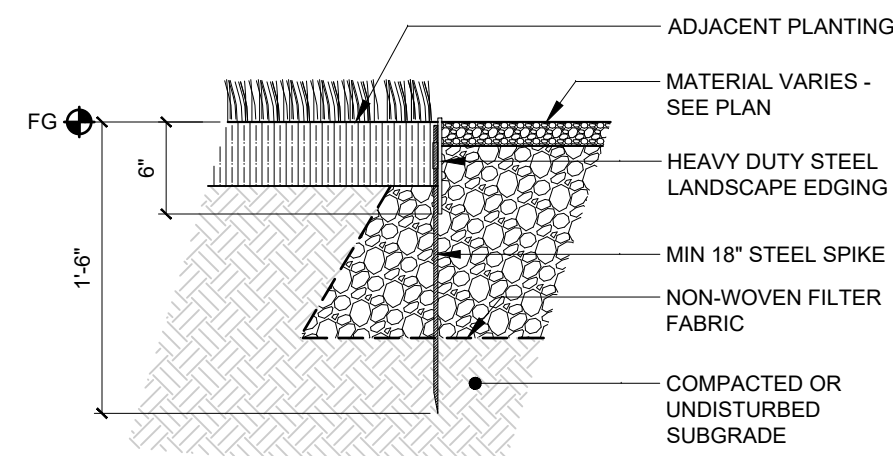
08 LAWN SEED MIX

SCALE: N.T.S.



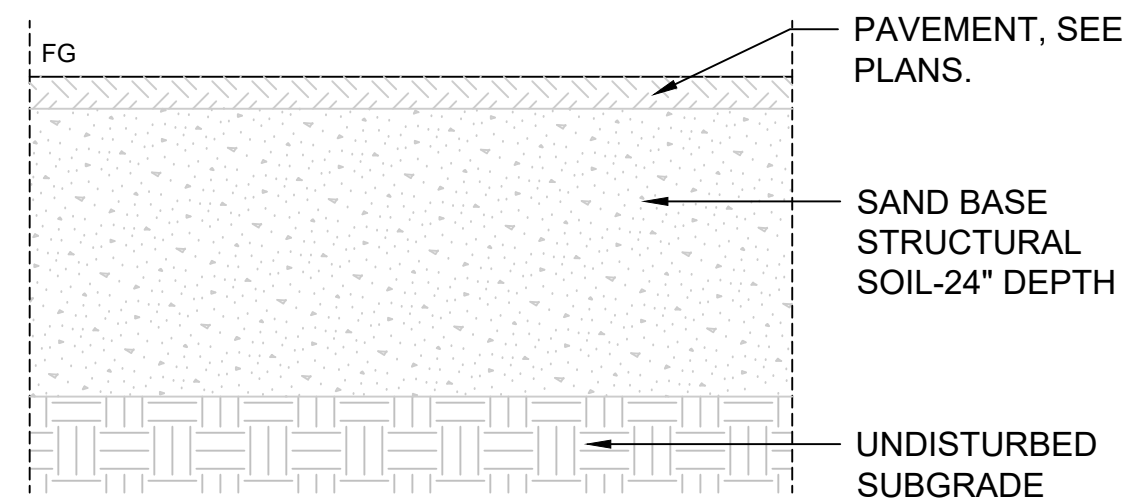
09 TREE PROTECTION

SCALE: N.T.S.



10 METAL EDGING

SCALE: N.T.S.



10 STRUCTURAL SOIL

SCALE: N.T.S.

Prepared For:
COMB
Block Phase
One, LP
Prepared By:
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Date:
MARCH 12, 2024

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70
EAST OXFORD STREET
REDEVELOPMENT
Portland ME 04103

Revisions:
05.06.2024 City Staff Comment Response



North:

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L5

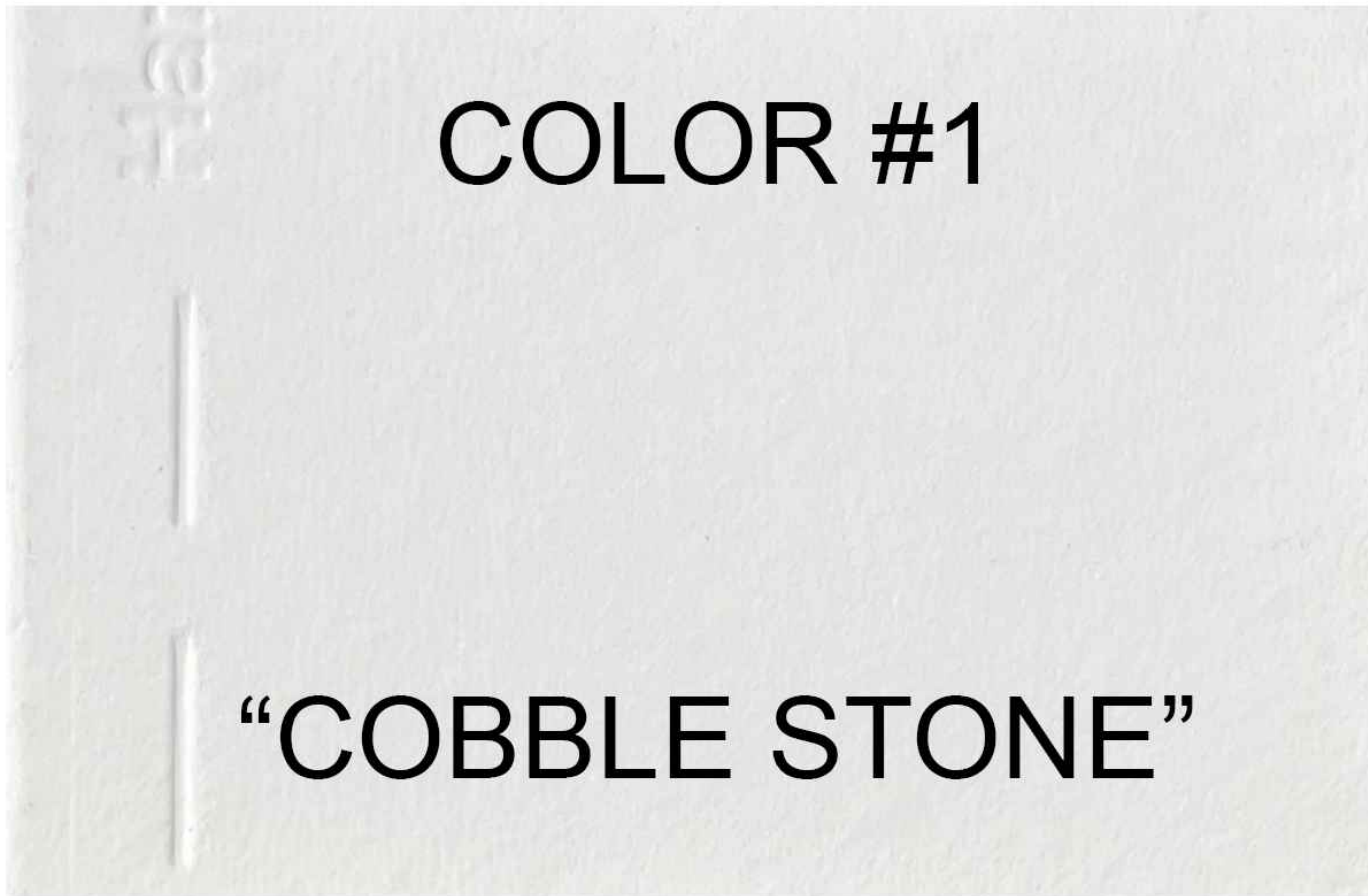
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NOTE: This drawing is PRELIMINARY REVIEW
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COMB BLOCK - MATERIALS BOARD

LAP SIDING



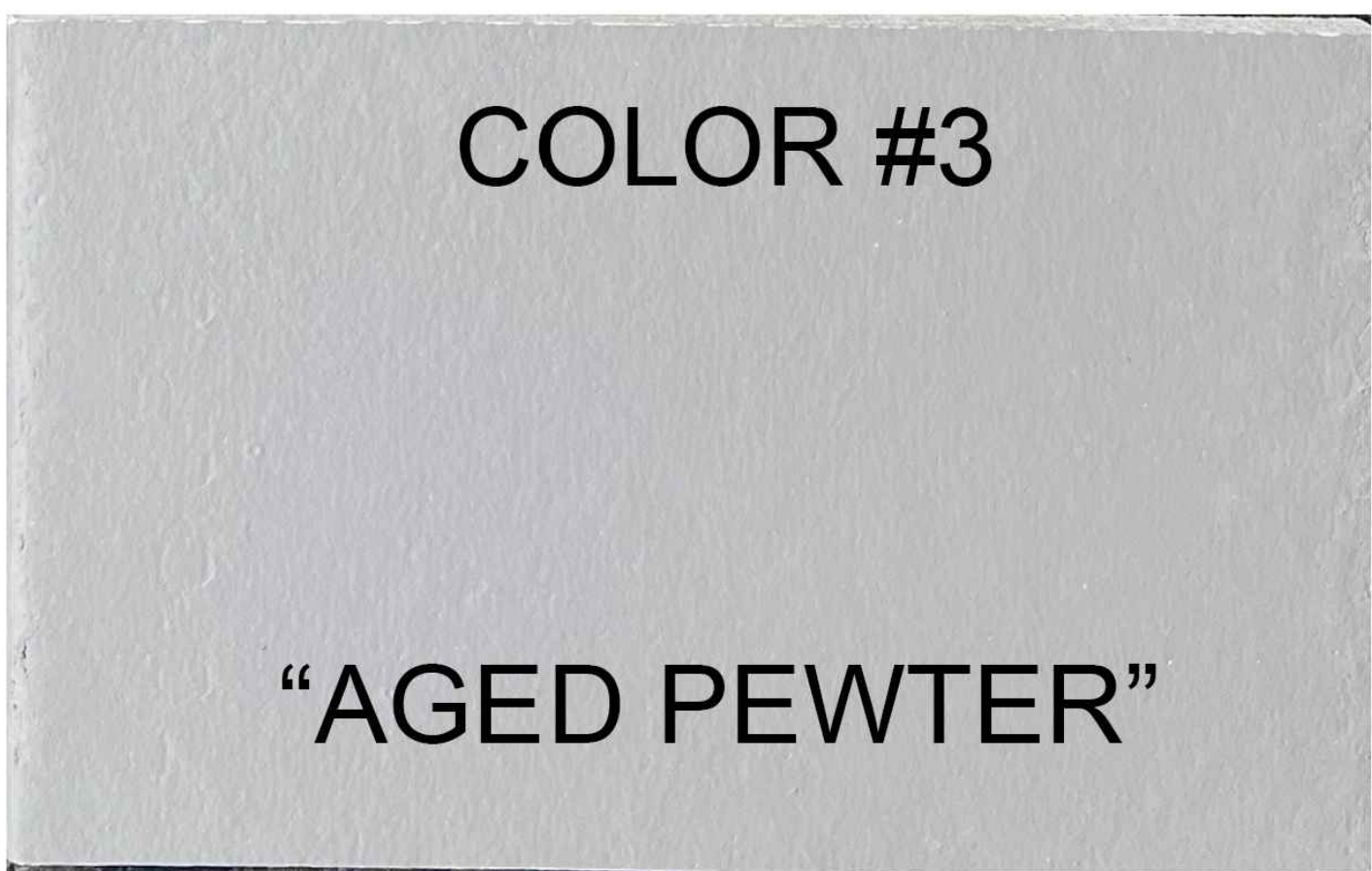
JAMES HARDIE

LAP SIDING



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PANEL SIDING



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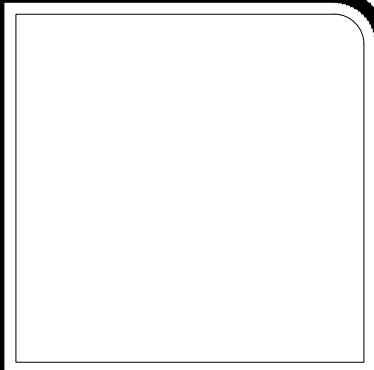
DOOR / WINDOWS / TRIM



12" X 24" EXTERIOR
PORCELAIN TILE



DALTILE



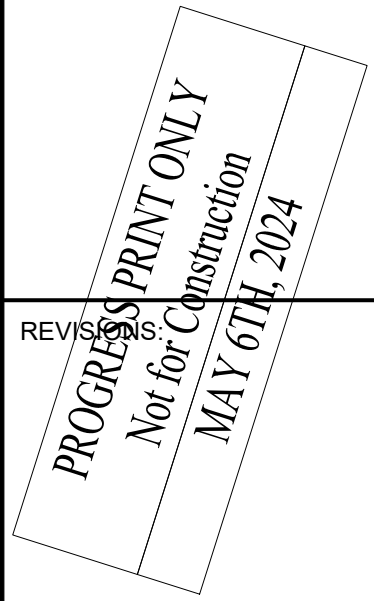
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IMAGE 9

P9

To: Chair Mazer & Members of the Planning Board
From: Benjamin Pearson, PE
Date: May 8, 2024
Re: Technical Manual Updates: Section 6
Meeting Date: May 14, 2024

I. INTRODUCTION

The Water Resources Division Compliance Section, utilizing a model ordinance created by the Interlocal Stormwater Working Group comprised of several southern Maine communities, has prepared a comprehensive revision of the City of Portland's Technical Manual, Section 6, pertaining to erosion and sediment control. Many components of the model ordinance are based on the standards specified in the most recent Maine Erosion and Sediment Control Best Management Practices. The edits include substantive amendments, such as new or revised review standards and technical details. Per Section 2.1.10 of the Land Use Code, revisions to the *Technical Manual* fall under the jurisdiction of the Planning Board.

II. GENERAL EDITS TO TECHNICAL MANUAL

Chapter 6 is being renamed from "Erosion and Sedimentation Control Standards for Single and Two-Family Homes" to "Erosion and Control Standards." This renamed section has been updated to detail the minimum standards for Construction Activity subject to the proposed Chapter 32, Article IV of the City of Portland Code of Ordinances.

III. PROPOSED UPDATES TO CHAPTER 6

The existing Section 6 of the Technical Manual has been comprehensively rewritten. The revised section has a total of seven components compared to just one in the original. The components and a basic description are as follows:

6.1 Basic Erosion and Sedimentation Control Plan – outlines the plan and maintenance requirements for Basic Erosion and Sedimentation Control Plans which apply for any sites that require a minor site plan approval, or those projects that do not require site plan approval which result in less than 1 acre or more of Disturbed Area.

6.2 Comprehensive Erosion and Sedimentation Control Plan – outlines the plan and maintenance requirements for Comprehensive Erosion and Sedimentation Control Plans which apply for any sites that require a major site plan approval, or those projects that do not require site plan approval which result in 1 acre or more of Disturbed Area. 6.2 also details

what is expected at Pre-Construction Meetings.

6.3 Erosion and Sediment Control BMPs – dictates that Erosion and Sedimentation Control (ESC) best management practices (BMPs) shall be designed using performance standards specified in the most recent Maine Erosion and Sediment Control BMPs Manual for Designers and Engineers developed by the Maine Department of Environmental Protection unless otherwise dictated in the Section. 6.3 also outlines several components including minimizing disturbed areas, sediment barriers, construction entrances, stormwater channels, and sedimentation basins.

6.4 Timing of Erosion and Sediment Control Installation and Removal – outlines the overall timing of implementation prior to any earth disturbance, installation and removal of temporary stabilization measures, permanent site stabilization, and winter construction requirements.

6.5 Erosion and Sediment Control Phasing Plan – details when and how a phased plan should be implemented.

6.6 Dewatering Plan – references the City’s existing Dewatering Program which is found in the *Rules and Regulations for Use of the Sewer System*. The Dewatering Program is meant to ensure that Contractors provide a plan to remove or properly disperse collected water on a construction site in a manner that prevents sediment from entering the City’s collection system or surface waters.

6.7 Good Housekeeping and Pollution Prevention Plan –describes good housekeeping and pollution prevention strategies such as spill prevention, groundwater protection, dust control, debris/other materials, excavation dewatering, concrete/construction material washout, and non-stormwater discharges.

IV. STAFF ANALYSIS

Section 2.1.10 of the City’s Land Use Code requires that in order for the Planning Board to approve technical standards and that such standards are necessary and reasonable, and “in accordance with sound engineering...practice.” The standards proposed in the updated Section 6 are meant to provide additional guidance/specifications for Erosion and Sediment Control Plans that are already required for minor and major site plans. The proposed revisions are being made in conjunction with updates to Chapter 32, which is the City’s stormwater ordinance, in order for the City to be compliant with the 2023 Municipal Separated Stormwater System permit issued by the Maine Department of Environmental Protection. The permit requires a regulatory mechanism for Erosion and Sediment Controls to be in place by July 1, 2024. The revised Section will dovetail with the proposed Chapter 32 – Stormwater Ordinance which is being updated to include a fourth article detailing the City’s Erosion and Sediment Control regulatory requirements. Section 6 is referenced in the Article.

Both the Ordinance and Technical Manual are based on a model ordinance that was prepared and reviewed by the Interlocal Stormwater Working Group (ISWG). ISWG consists of Biddeford, Cape Elizabeth, Cumberland, Cumberland County Soil & Water Conservation District, Falmouth, Freeport, Gorham, Old Orchard Beach, Portland, Saco, Scarborough, South Portland, Southern Maine Community College, University of Southern Maine, Westbrook, Windham, and Yarmouth. These communities work collaboratively to implement the Clean Water Act Municipal Separate Storm Sewer System (MS4) permit. These communities are utilizing the same Model Ordinance to meet the permit requirements.

V. NEXT STEPS

Following the Planning Board workshop on May 14th, staff will consider and incorporate feedback from the Board and members of the public as necessary, and will prepare revised drafts for further Board consideration or action if necessary. Chapter 32 – Stormwater Ordinance updates are being presented to City Council as a first read on the June 3rd meeting with a second read planned for June 17th.

VI. ATTACHMENTS

1. Section 6 – Erosion and Sediment Control

6. EROSION AND SEDIMENTATION CONTROL STANDARDS

The following are the mandatory minimum standards for Construction Activity subject to Chapter 32, Article IV of the City of Portland Code of Ordinances.

For projects that require a **major site plan approval, or those projects that do not require site plan approval which result in 1 acre or more of Disturbed Area**, a Comprehensive Erosion and Sedimentation Control Plan as detailed in section 6.2 below is required for all Construction Activity.

For projects that require a **minor site plan approval, or those projects that do not require site plan approval which result in less than 1 acre or more of Disturbed Area**, a Basic Erosion Control Plan as detailed in section 6.1 below is required of all Construction Activity.

Minor residential projects must use effective erosion and sedimentation controls for the duration of the Construction Activity, but are not required to submit an Erosion and Sedimentation Control Plan.

In all circumstances, the City reserves the right to require a Comprehensive Erosion and Sedimentation Control Plan, or any component thereof, when site conditions dictate (e.g. proximity to sensitive natural resources, steep grades).

6.1 Basic Erosion and Sedimentation Control Plan

Erosion Control BMPs must meet the requirements of sections 6.3 and 6.4 below. The Basic Erosion and Sedimentation Control Plan (Basic ESC Plan) shall consist of a graphic representation of the site at a scale no smaller than 1 inch = 100. The Basic ESC Plan must include the following:

- a. Name(s) of and contract information for the person(s) responsible for installation, inspection, and maintenance of ESC BMPs;
- b. Parcel boundaries;
- c. Locations of coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams or brooks;
- d. Locations of all Erosion and Sedimentation Control BMPs to be used; and
- e. Details for all Erosion and Sedimentation Control BMPs, meeting the requirements of section 6.3, to be used.

6.1.1 Basic Inspection and Maintenance Requirements

- 1) All areas of disturbance, impervious areas, ESC BMPs, materials storage areas exposed to precipitation, and locations where vehicles enter or exit the Site shall be inspected:
 - a. Once before any disturbance begins and after all Erosion and Sedimentation Control BMPs specified in the Erosion and Sedimentation Control Plan are in place;
 - b. At least once a week as well as before and within 24 hours after a storm event (rainfall); and
 - c. Once at project completion to ensure the Site has reached permanent stabilization and all temporary erosion and sedimentation controls have been removed.
- 2) The applicant is responsible for inspecting the site and maintaining erosion and sedimentation controls in good working order.
- 3) In general, sites with less than 1 acre of disturbance are not required to submit an inspection report, however the City reserves the right to require and review reports for any project.

- 4) If ESC BMPs need to be maintained, repaired, or enhanced, the work shall be initiated upon discovery of the problem but no later than the end of the next workday or prior to a precipitation event, whichever comes first. If additional ESC BMPs or significant repair of ESC BMPs are necessary, implementation must be completed prior to any storm event (rainfall) and within 7 calendar days of identification. All measures must be maintained in effective operating condition until areas are permanently stabilized.

6.2 Comprehensive Erosion and Sedimentation Control Plan

A Comprehensive Erosion and Sedimentation Control Plan (Comprehensive ESC Plan) shall be prepared by a Qualified Professional as defined in City of Portland Code of Ordinances Chapter 32, Article IV.

The Comprehensive ESC Plan shall consist of a graphic representation of the Site at a scale no smaller than 1 inch = 100. The Comprehensive ESC Plan must include the following:

- a. Name(s) of and contract information for the person(s) responsible for installation, inspection, and maintenance of ESC BMPs;
- b. Parcel boundaries;
- c. Topography for site pre-and post-construction conditions as 2-foot elevation contours;
- d. Limits of clearing and site work;
- e. Locations of coastal sand dune systems, coastal wetlands, significant wildlife habitat, fragile mountain areas, freshwater wetlands, great ponds and rivers, streams or brooks;
- f. Locations of areas not to be disturbed by Construction Activity including trees, vegetation, and areas intended for infiltration;
- g. Locations of all Erosion and Sedimentation Control BMPs to be used;
- h. Details for all Erosion and Sedimentation Control BMPs to be used;
- i. Example **inspection form** meeting the requirements of section 6.2.2;
- j. **ESC Phasing Plan** for Construction as detailed in section 6.5;
- k. **Dewatering Plan** as detailed in section 6.6 and application for review and approval if necessary; and
- l. **Good Housekeeping and Pollution Prevention Plan** as detailed in section 6.7.

6.2.1 Pre-Construction Meeting

For sites with a Comprehensive Erosion Control Plan, a pre-construction meeting is required. Once an approved Performance Guarantee, if required, is in hand and at least five (5) days prior to commencing Construction Activity, the applicant shall request a pre-construction meeting with the Enforcement Authority. At a minimum, attendance at the meeting is required by the Enforcement Authority and the applicant or their representative in charge of construction. If the representative in charge of construction is not the primary earthwork contractor, a representative of the earth work contractor must also attend the pre-construction meeting. Erosion and sediment controls should be installed for inspection during the Pre-Construction meeting and must be installed and inspected prior to the start of construction.

6.2.2 Comprehensive Inspection and Maintenance Requirements

Erosion and Sedimentation Controls must be inspected, as detailed below, to confirm that BMPs are in place and functioning. Corrective actions must be taken if erosion is occurring or there is a discharge of sediment or turbid water from the construction Site.

- 1) For all sites with one acre or greater of disturbance, the applicant shall retain the services of a qualified professional third-party inspector to inspect the site weekly, for the duration of construction until final site stabilization is in place. For sites less than one acre of

- disturbance that are required to have a comprehensive erosion and sediment control plan, the applicant shall retain the services of a qualified professional.
- 2) The inspection is required in order to ensure that all construction and stabilization activities comply with the approved drawings and specifications; that field decisions regarding erosion control implementation, stormwater system installation, and natural resource protection are based on sound engineering and environmental considerations; and that any changes to the development's erosion control plan, stormwater management plan, or final stabilization plan is communicated to the City of Portland for additional review and approval.
 - 3) All areas of disturbance, impervious areas, ESC BMPs, materials storage areas exposed to precipitation, and locations where vehicles enter or exit the Site shall be inspected at least once a week as well as before and within 24 hours after a storm event (rainfall) and prior to completing permanent stabilization measures.
 - 4) The inspector will submit weekly written reports to the Stormwater Coordinator(s) in the Water Resources Division of Public Works and the Development Review Coordinator(s) in Planning. Reports must include: project ID, project address, the date(s) and time(s) of inspection(s), site photographs of areas under construction, and the date(s) and approximate duration(s) of any rainfall events in the prior week. The report will identify and describe any erosion problems or discharge of pollutants and what actions will be taken to address these issues and repair any damage to other properties or natural resources, actions to eliminate the erosion source, and actions to prevent future sediment discharges from the area.
 - 5) If ESC BMPs need to be maintained, repaired, or enhanced, the work shall be initiated upon discovery of the problem but no later than the end of the next workday or prior to a precipitation event, whichever comes first. Immediate corrective actions are required to address active discharges of sediment to municipal streets or storm drains or to surface waters. If additional ESC BMPs or significant repair of ESC BMPs are necessary, implementation must be completed prior to any storm event (rainfall) and within 7 calendar days of identification. All measures must be maintained in effective operating condition until areas are permanently stabilized.
 - 6) An inspection log summarizing the inspections and any corrective actions must be maintained. 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 ESC BMPs, materials storage areas, and vehicle access points to the parcel. Inspection documentation must include maintenance needed, ESC BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional ESC BMPs are needed. The inspection log must also document what corrective actions are needed and when corrective actions were completed. The inspection log shall be maintained for at least three years from the completion of permanent stabilization.

6.3 Erosion and Sedimentation Control BMPs

Where not otherwise specified in this section, the Erosion and Sedimentation Control (ESC) best management practices (BMPs) shall be designed using performance standards specified in the most recent Maine Erosion and Sediment Control BMPs Manual for Designers and Engineers developed by the Maine Department of Environmental Protection.

6.3.1 Minimizing Disturbed Areas

Minimize Disturbed Area and protect natural downgradient buffer areas, and any areas where stormwater may flow off-Site to the extent practicable. Control stormwater volume and velocity within

the Site to minimize soil erosion. Minimize the disturbance of steep slopes. Control stormwater Discharges, including both peak flow rates and volume, to minimize erosion at outlets. The Discharge shall not result in erosion of any open drainage channels, swales, stream channels or stream banks, upland, or coastal or freshwater wetlands off the project Site.

- 1) Whenever practicable, no disturbance activities shall take place within 50 feet of any Protected Natural Resource.
- 2) If it is not practicable to maintain the 50-foot buffer of no disturbance, the Erosion and Sedimentation Control Plan must include redundant (at least two) perimeter control measures that are appropriate for the soil and slope.

6.3.2 Sediment Barriers

Prior to construction, properly install sediment barriers at the downgradient edge of any area to be disturbed and adjacent to any drainage channels within the Disturbed Area. Sediment barriers shall be installed downgradient of soil and sediment stockpiles and stormwater must be 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, you must install and maintain protection measures that remove sediment from the Discharge. Storm drain inlet protection must include effective curb inlet or “back throat” protection, where applicable.

6.3.3 Stabilized Construction Entrance

Prior to construction, properly install a stabilized construction entrance (SCE) at all points of egress from the Site. The SCE is typically a stabilized pad of aggregate, underlain by a geotextile filter fabric, or an engineered track out control mat which has been approved by Maine DEP which is used to prevent traffic from tracking material away from the Site onto public ROWs. Maintain the SCE until all Disturbed Areas are stabilized. If an alternate SCE has been approved by Maine DEP, provide proof of this with the Plan or application.

6.3.4 Stormwater Channels

Each channel shall 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.

6.3.5 Sediment Basins

Sediment basins that will be used to control sediment during construction activities 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 half of the design capacity of the basin. Clearly visible staking must be installed with marks showing the elevation of half design capacity for easier inspection. The use of cationic treatment chemicals in Sediment Basins, such as polymers, flocculants, or other chemicals that contain an overall positive charge designed to reduce turbidity in stormwater may only be used if the basin does not directly discharge to surface waters and if proof of approval by Maine DEP is provided.

6.4 Timing of ESC Installation and Removal

6.4.1 ESC BMPs Required Prior to Earth Disturbance

Erosion and Sedimentation Control BMPs must be in place prior to earth disturbance. For sites with 1 acre or more of disturbance which require a Comprehensive ESC Plan, ESC BMPs should be installed prior to the required pre-construction meeting.

6.4.2 Temporary Stabilization

Within 7 days of the cessation of Construction Activities in an area that will not be worked for more than 7 days, stabilize any exposed soil with mulch, or other non-erodible cover. Stabilize areas within 75 feet of a wetland or waterbody within 48 hours of the initial disturbance of the soil or prior to any storm event, whichever comes first.

6.4.3 Permanent Stabilization

If the Site or a portion of the Site 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 riprap, or road sub-base. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions; amend the Disturbed Area 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 restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. Permanent Stabilization Definitions are as follows:

- 1) 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.
- 2) 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.
- 3) 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.
- 4) Riprap: For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.
- 5) 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.
- 6) 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 riprap 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.

6.4.4 Removal of Temporary Measures

Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

6.4.5 Winter Construction

Winter construction is Construction Activity performed during the period from November 1 through April 15. If Disturbed Areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by the following additional winter construction measures and restrictions:

- 1) Site 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.
- 2) Sediment Barriers: All areas within 75 feet of a Protected Natural Resource must be protected with a double row of sediment barriers.
- 3) Ditch Lines: Ditch lines must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the Maine DEP. If release from Maine DEP has been granted, provide proof of this with the Plan or application.
- 4) 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. Unvegetated slopes less than 8% must be protected with an erosion control blanket, erosion control mix, or riprap.
- 5) Maintenance: Winter stabilization BMPs must be inspected and maintained as any other erosion and sedimentation control BMP.

6.5 ESC Phasing Plan

Erosion and Sedimentation Control BMPs must be in place before construction begins; additional Erosion and Sedimentation Control BMPs shall be installed as needed and shall be phased in if phasing is used; and ESC BMPs shall be maintained until permanent stabilization is achieved.

Phasing Plan Requirements: No phasing plan is required if the contractor will limit the Disturbed Area to a maximum of 5 acres of disturbance across the Site at any time. If the Construction Activity will result in more than 5 acres of Disturbed Area at any one time, the Contractor shall provide a phasing plan showing:

1. the initial 5-acre area to be disturbed;
2. which portions of the initial disturbance will be stabilized, and what temporary or permanent stabilization methods will be used;
3. which areas will be subsequently disturbed and what temporary or permanent stabilization methods will be used; and
4. each phase of disturbance and stabilization must clearly show the total areas in square feet or acres such that the 5-acre Disturbed Area limit at any one time is met throughout the entire project.

6.6 Dewatering Plan

The Erosion and Sedimentation Control Plan must include provisions to remove or properly disperse the collected water in a manner that prevents sediment from entering stormwater. The City of Portland requires a Dewatering Plan and Application for any construction dewatering discharging to City infrastructure, as detailed in the *Rules and Regulations for Use of the Sewer System*.

6.7 Good Housekeeping and Pollution Prevention Plan

A Good Housekeeping and Pollution Prevention Plan is required as part of a Comprehensive ESC Plan. The Good Housekeeping and Pollution Prevention Plan must be site specific and address the following:

6.7.1 Spill Prevention: Controls must be used to prevent pollutants from construction and waste materials stored on-Site from entering 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.

6.7.2 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.

6.7.3 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 shall be included to minimize tracking of mud and sediment. If off-Site tracking occurs, public roads shall 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, shall wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

6.7.4 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. Sediment generated by concrete or mortar mixing, brick cutting & saw cutting activities must be contained (e.g., sausage boom, straw bales, etc.) and cleaned up using dry methods (i.e., sweeping or vacuuming) to prevent it from entering drainage structures or water resources. These activities shall be done on vegetated areas whenever possible and away from drainage structures and water resources.

6.7.5 Excavation Dewatering: Excavation dewatering 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 ponded area, either through gravity or pumping, must be spread through natural wooded buffers or otherwise treated to collect the maximum amount of sediment possible, like a coffer dam sedimentation or sediment filter bag. Avoid allowing the water to flow over Disturbed Areas of the Site. If the Maine DEP has approved equivalent measures, provide proof of approval. Note that discharge of excavation dewater fluids from the Site must be visually clear (no visible suspended or settleable solids). Any dewatering discharges from a site to the City right-of-way or infrastructure are prohibited unless the City has provided approval of a Dewatering Plan and Application submitted by the Contractor. Discharges from the Site into the City's storm drain or sewer system must first obtain City approval through the Dewatering Program, as detailed in the *Rules and Regulations for Use of the Sewer System*.

6.7.6 Washout from Concrete, Stucco, Paint, Curing Compounds, or Other Construction Materials: If washout/cleanout is to be completed on the Site, a designated area(s) shall be established and marked on the Erosion and Sedimentation Control Plan. This area shall be a minimum of 50 feet from all drainage structures, ditches, waterbodies, and resource areas, as well as property boundaries if possible. The area shall not have an outlet to discharge wastes or flows. No detergents shall be used or vehicles washed in this location. A leak-proof pit or container shall be established in the washout area(s), to which washings shall be directed. This area shall be used for washout containment and dewatering by evaporation only. The pit shall not allow infiltration to occur. To prevent clean water from entering the pit, the washout area shall be covered during precipitation events. Inspections of the pit shall be conducted daily to ensure no leaks are present and no discharge is occurring.

6.7.7 Non-stormwater Discharges

Except as allowed or exempted herein, no person shall create, initiate, originate or maintain a non-storm water discharge to the storm drainage system. Such non-storm water discharges are prohibited, notwithstanding the fact that the City may have approved the connections, drains or conveyances by which a person discharges un-allowed non-storm water discharges to the storm drainage system.

6.7.7.1 Authorized Non-stormwater Discharges

Where allowed non-stormwater discharges exist, they must be identified, and steps shall 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:

- 1) Discharges from firefighting activity
- 2) Hydrant flushing if dechlorinated to 0.05 mg/l or less
- 3) Vehicle wash water if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage, and transmission washing is prohibited)
- 4) Dust control runoff if it does not cause erosion
- 5) Routine external building washdown, not including surface paint removal, that does not involve detergents
- 6) Pavement wash water (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used
- 7) Uncontaminated air conditioning or compressor condensate
- 8) Uncontaminated groundwater or spring water
- 9) Foundation or footer drain-water where flows are not contaminated
- 10) Uncontaminated excavation dewatering per item 5 Excavation Dewatering
- 11) Potable water including waterline flushings
- 12) Landscape irrigation

6.7.7.2 Unauthorized Non-stormwater Discharges

The following discharges are prohibited:

- 1) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds, or other construction materials;
- 2) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance;
- 3) Soaps, solvents, or detergents used in vehicle and equipment washing;
- 4) Sediment laden discharges; and
- 5) Toxic or hazardous substances from a spill or other release.

64 Pine Street
Major Site Plan
PL-002678-2023
64 Pine Street, LLC

Submitted to:	Portland Planning Board	Prepared By:	Natasha Kypfer
Public Hearing Date:	May 14, 2024	Date:	May 10, 2024



Figure 1: Snip of an architectural rendering along Pine Street, provided by Invivid Architecture.

I. INTRODUCTION

At the public hearing on May 14, the Planning Board will review a Major Site Plan application by 64 Pine Street, LLC, which proposes the redevelopment of the property at 64 Pine Street in the West End neighborhood. The project would involve the demolition of the existing surface parking area and vacant one-story commercial building, formerly a restaurant and small neighborhood market, and the construction of a four-story building with nine multi-family units on the upper floors, a commercial retail space (1,282 square feet) on the ground level, and a mechanical stacked parking system for 18 vehicles within the ground level. Other improvements include reconstruction of the streetscape, addition of two street trees, and increased on-site stormwater management.

The Planning and Urban Development Department mailed 291 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the May 4, 2024 and the May 7, 2024 editions of the *Portland Press Herald*.

The Planning Board held a workshop on March 12, 2024.

Applicant/Owner: 64 Pine Street, LLC, represented by: Tom Landry
Consultants: Engineer: Sam Lebel & Zach Stevens of Acorn Engineering
 Architect: Virginie Stanley of Invivid Architecture

II. REQUIRED REVIEWS AND REQUESTED WAIVERS

Review	Applicable Standards
Major Site Plan Review	Section 14.6
Historic Preservation Review	Section 17.7.1

Waiver Requests	Applicable Standards
1. The applicant is requesting to have a 5" – 6" reveal.	Technical Manual, Section 1., Figure I-12: Vertical Granite Curb, requires a 7" reveal. <i>Staff are supportive.</i>
2. The applicant is requesting to not have 2' radius corner granite pieces ("Bugs"), but instead have a radial curbing.	Technical Manual, Section 1., Figure I-9A: Residential Driveway Apron, requires a 2' radius corner granite pieces ("Bugs") at low-volume driveways. <i>Staff are supportive.</i>
3. The applicant is requesting to have an 18' driveway width for a two-way driveway.	Technical Manual, Standard 1.5.1.B, requires for two-way driveways, a 20' min. – 24' max. <i>Staff are supportive.</i>
4. The applicant is requesting to have a 20.27' drive aisle width associated with the covered 90-degree parking on site.	Technical Manual, Section 1., Figure I-16A: Vehicle Parking Dimensions, requires a min. drive aisle width of 24' for standard, right-angle parking. <i>Staff are supportive.</i>
5. The applicant is requesting to have a 6.12' separation from the abutting parcel's curb cut; the existing driveway separation is ~22.5'.	Technical Manual, Standard 1.5.1.C, requires driveway spacing of 50' along local streets. <i>Staff are supportive.</i>

III. PROJECT DATA

Existing Zoning	B-1 Neighborhood Business R-6 Residential* <i>*Small sliver at rear of site.</i>
Historic District	West End Historic District
Property Size	9,920 sq. ft. (0.23 ac.) <i>*Lots 056 0002 and 0004 combined.</i>
Existing Use	(Vacant) Restaurant and Surface-level Parking Lot
Proposed Use	Multi-family Residential and Retail

	Existing	Proposed	Net Change
Building Footprint	4,629 sq. ft.	7,719 sq. ft.	+ 3,090 sq. ft.
Building Floor Area	4,629 sq. ft.	20,172 sq. ft.	+ 17,127 sq. ft.
Impervious Surface Area	90 %	84.6 %	- 5.4 %
Parking Spaces	11	19	+ 8
Bicycle Parking Spaces	2	9	+ 7

IV. EXISTING CONDITIONS AND SURROUNDING AREA

The project site is located within a dense, mixed-use area of the West End Neighborhood that serves as a neighborhood commercial node, with many businesses, including retail shops, cafes, and restaurants. The site is surrounded by multiple adjacent parcels, which are fully developed and include tenants such as the Chaval restaurant and the Soap Bubble Laundromat and, to the rear, the Reiche Community Center campus and greenspace.



Figure 2: View along and above Pine Street with subject property highlighted, from CONNECTExplorer.

V. PROPOSED DEVELOPMENT

The proposed mixed-use development site (Plan 5) comprises 9,920 square feet. The lot has frontage along Pine Street. The anticipated development will include nine residential units, with mechanical stacked parking for 18 vehicles plus a single ADA-compliant parking space, and 1,282 square feet retail space the

ground level. The residential units are all proposed as three-bedroom units, with three units occupying each floor for levels two, three, and four.

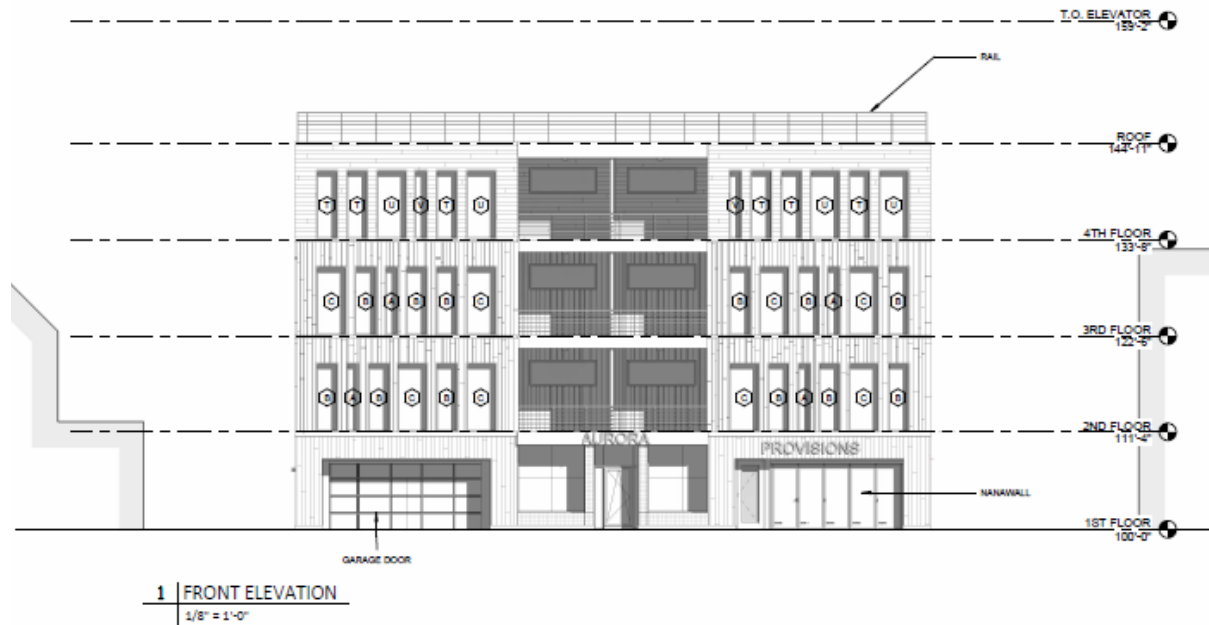


Figure 3: Snip from Exterior Elevations, Sheet A4.01 (see Plan 20), from applicant submittal.

VI. RIGHT, TITLE, AND INTEREST

The owners of the property, 64 Pine Street, LLC, have provided a Quitclaim from Norway Savings Bank without covenant recorded at the Cumberland County Registry of Deeds (Book 35505 Page 186) on March 7, 2019, as evidence of right, title, and interest in the property (Attachment C).

VII. FINANCIAL AND TECHNICAL CAPACITY

The applicant has submitted a letter from Camden National Bank, dated November 15, 2023, as demonstration of their financial capacity to complete the proposed development (Attachment G). Accompanying this, the applicant included the technical capacity documentation which includes details on the following project partners: Acorn Engineering, Invivid Architecture, and ALA (Attachment H).

VIII. ZONING ANALYSIS

DIMENSIONAL AND USE REQUIREMENTS

A zoning review has been conducted on this application and this project meets the requirements of the B-1 Neighborhood Business zone and R-6 Residential zone, see below.

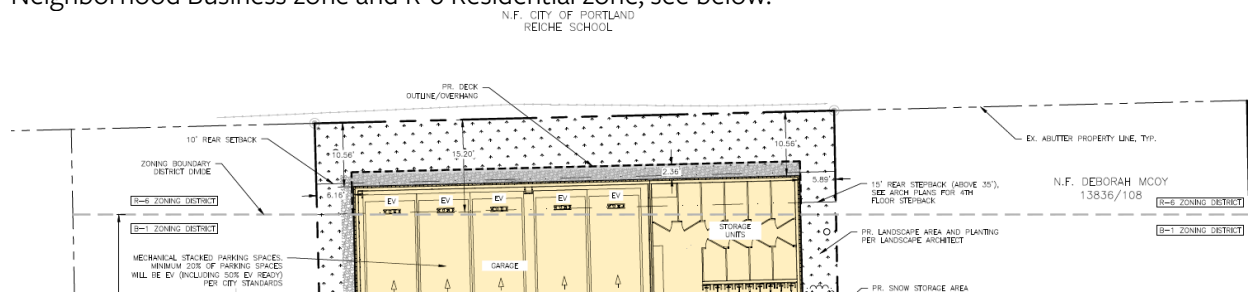


Figure 4: Snip from Site Plan, Sheet C-10 (see Plan 5), from applicant submittal which depicts B-1 and R-6 boundary line.

	Required	Proposed
Lot Area	n/a	9,920 sq. ft. (0.23 ac.) – Existing * *Lots 056 0002 and 0004 combined.
Lot Area Per Dwelling Unit	435 sq. ft.	1,102 sq. ft.
Street Frontage (Min.)	20'	85'
Front Setback (Min.)	10'	0.74'
Rear Setback (Min.)	10', or the average front yard depth of nearest developed lots if < 10'	10.56'
Side Setback (Min.)	None, except 5' if abutting residential zone	5.30' / 5.92'
Stepbacks	Rear: 15'	Rear: 15.20'
Floor Area (Max.)	10,000 sq. ft. total, non-residential uses on the first floor	1,282 sq. ft.
Structure Height (Max.)	45'	44.92'
Lot Coverage (Max.)	Up to 100%	76.2 %
Impervious Surface Ratio (Max.)	90%	85.6%
Off-Street Parking	6	19

B-1 Neighborhood Business Zone – Purpose Statement: To provide limited areas for the location of small-scale commercial establishments intended to serve a local market. Uses that are complimentary, quiet, and generally do not disturb the comfort and enjoyment of the adjoining neighborhood environment are encouraged, and should be designed for the pedestrian scale and to provide convenient access for nearby residents and workers to walk in to purchase goods and services. Buildings and uses shall be designed with attractive storefronts or similar features, with windows and doors convenient to a public sidewalk. This zone encourages mixed-use buildings, such as commercial first floor with residential uses above or combined retail/office uses in a multi-story structure. The zone also provides the opportunity for high residential density. Suitable locations for this zone may include street intersections and arterial streets with existing or proposed traditional neighborhood retail and service uses.

The proposed uses of residential and commercial/retail are permitted uses within the B-1 Neighborhood Business zone per Table 6-C of the Land Use Code and R-6 Residential zone per Table 6-A.

IX. SITE PLAN STANDARDS

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 14.6. Staff comments are below.

1. Transportation Standards (Section 14.6.1)
 - A. Impact on Surrounding Street Systems

The proposed development involves the construction of a four-story building with nine multi-family residential units on Floors 2-4, with 1,282 square feet of commercial space, and off-street parking for 19 vehicles in total. According to the applicant, redevelopment of this site is not expected to generate increased traffic flows above the former use. The proposed project is not expected to have a substantial impact on traffic mobility and safety in the vicinity of the Pine Street

area. Staff agrees with the applicant's assessment, and finds that the development complies with this standard.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

B. Access and Circulation

The proposed project is not expected to have a substantial impact on traffic mobility and safety in the vicinity of the Pine Street area. From the applicant's materials, their proposal seeks to eliminate (the existing) surface parking and incorporate off-street parking within the structure. Additionally, the applicant indicates the proposed driveway has been located to provide ample sight distance from oncoming traffic on Pine Street, and the existing 23-foot curb cut is proposed to be closed and replaced with an 18-foot curb cut located northeast of the existing. The City's Traffic Engineer peer reviewer has reviewed the application materials and does not have any review comments or concerns related to traffic. Further, documentation from the neighboring property owner, Ms. Lopez of Chaval was provided (Attachment X), that speaks to the status of the driveway: "This curb cut is occasionally use to park my personal vehicles. As such, I do not intend to have the curb cut closed or altered."

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met, if the applicable waiver requests are approved.

C. Public Transit Access

The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street. Further, projects featuring fewer than 20 residential units are not subject to this standard. No additional upgrades are required by the applicant.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

D. Parking

Per Article 19, Table 19-A, multi-family development is required to provide one off-street parking space per dwelling unit. Additionally, retail uses are required to provide one space per 200 square feet of first floor area in excess of 2,000 square feet, plus one space per 700 square feet of floor area for retail space above ground level. Further, per Article 19, Table 19-B, transit proximate development and uses do not require off-street parking within ¼ mile of fixed route transit service. The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street, meaning that off-street parking is not required for this project.

However, the applicants are proposing to provide 19 off-street parking spaces, calculating for 2 parking spaces per residential unit, plus one ADA compliant space. The majority of the parking spaces (18) will be provided through a mechanical vehicle stacking system, the WOHR Combilift 552, of which the applicant team intends to share a video of at tonight's hearing. The City's Traffic Engineer peer reviewer has reviewed information related to the semi-automatic car parking system

and found the design to be acceptable. Further, a parking analysis was provided (Attachment S) by the applicant, which seeks to detail their rationale for providing greater than 10% of the minimum requirements of five parking spaces. Further, it should be noted that the proposed retail space is 1,282 square feet in area, thus, is not required to provide off-street parking spaces. Additionally, nine bicycle parking spaces are proposed to be provided within a bike/ski/pedal storage room within the ground floor, which complies with the bicycle parking requirements in Table 19-A of the Land Use Code.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

E. Transportation Demand Management (TDM)

A TDM Plan is not required for this project, as it does not meet the thresholds as detailed in the Land Use Code, Section 14.6.1.E.1.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

2. Environmental Quality Standards (Section 14.6.2)

A. Preservation of Significant Natural Features

There are no significant natural features as defined in Sec. 14.6.2.A.1 on the subject property and therefore this standard does not apply.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met, as it is not applicable.

B. Landscape Preservation

The site is presently minimally vegetated. Further, following a March 22nd site visit between the applicant team and City staff, the applicant is requesting removal of all existing trees along the frontage and the existing maple tree located in the southeastern corner of the lot, which is largely due to the proposed excavations' proximity to its tree roots. The applicant has provided documentation from the abutting property owner, documenting their agreement to remove the existing tree, which is in the far corner of the lot, along the shared property line with the Reiche Community School.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

C. Site Landscaping and Buffers

The site proposes reconstruction of the streetscape along Pine Street and the planting of three new street trees. Further, abutting the existing residential structure along the northerly property boundary, a row of woody shrub is proposed at an area of 590 square feet in total, to act as a buffer. Additionally, a partial green roof system is proposed totaling approximately 1,604 square feet by way of sedum tray plantings. Based upon the number of residential units being developed, the applicant is responsible for providing the equivalent of nine street trees, at a rate of one tree per residential unit. Staff is recommending that the applicant pay a fee-in-lieu at a rate of \$400 per

tree. As the project is providing two street trees, this will total 7 trees, and so equals a total contribution of \$2,800.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and a Condition of Approval applies relative to the payment of the assessed fee-in-lieu for the outstanding street trees required.

D. Water Quality, Stormwater Management, and Erosion Controls

The applicants have prepared and included a site-specific Stormwater Management Plan (Attachment J) and Erosion and Sedimentation Control Details (Attachment K), along with the provided narrative, it details both the temporary and permanent erosion control measures to be utilized by this project, including a siltation fence or erosion control berm that will be installed downgradient of any disturbed areas in order to trap run-off borne sediments until permanent stabilization is achieved; which would involve the placement of a minimum of 4 inches of loam, lime, and mulch on all disturbed areas.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

3. Public Infrastructure and Community Safety Standards (Section 14.6.3)

A. Consistency with City Master Plans

The subject property seeks to provide nine residential units on a site wherein presently no residential dwellings exist, thereby contributing to the overall housing stock of the City of Portland. This application complies with applicable zoning as established under the City's comprehensive plan, *Portland's Plan 2030*, and there are no other Master Plans that this application would be subject to.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

B. Public Safety and Fire Prevention

The site has been designed to be consistent with Crime Prevention Through Environmental Design (CPTED) principles. Emergency accesses has been provided, in that the building and site layout provide adequate access from a life/safety perspective.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

C. Public Utilities

The site will generally be making use of existing utility connections and the applicant is still in the process of confirming that utility providers are able to serve the development. Per the applicant's narrative, the development features water, sewer, and gas connections that will either be maintained, expanded, or replaced by a new line. For stormwater, while there is currently no drainage infrastructure on-site, this project proposes stormwater measures like foundation drains, field inlets, and R-Tanks to collect, store and redirect stormwater into the City's storm drain system. Further, electric/communication services are currently via overhead lines extending from

Pine Street to the existing building. These services are proposed to be removed and installed subsurface.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard outstanding, as only the wastewater capacity authorization has been received; therefore, a Condition of Approval is recommended.

4. Site Design Standards (Section 14.6.4)

A. Massing, Ventilation, and Wind Impact

This project proposes a shift in bulk and height (massing) by going from a one-story structure, to a larger four-story building. The proposed massing is fairly simple with all elevations continuing to the full height along the same plane. Furthermore, the HVAC proposed on the roof is proposed to be roof-mounted and is proposed to be screened with a wooden gate and fence. Roof-mounted mechanical equipment is considered a rooftop appurtenance, and is permitted to exceed the maximum building height set for the B-1 zone, based upon the rooftop appurtenance height exception, listed in Sec. 7.5.1.G. Further, the proposed roof-mounted solar energy system meets the zoning requirements in relation to height.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

B. Shadow

Per the Technical Manual Section 11, a preliminary shadow analysis is required for limited development within select zones as a study submitted with the applicable site plan applications that include new structures (or additions to structures) greater than 45 feet tall. As the proposed structure does not exceed 45 feet, this standard does not apply and this redevelopment is exempt.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met as the project is exempt.

C. Snow and Ice Loading

The applicant's narrative describes the proposal for snow storage on-site stating: "The Owner will be responsible for managing snow at their discretion and/or coordinating snow removal from the site when necessary. The large majority of the site will be structure and the parking lot will be covered therefore snow plowing for this site is not required. Additionally, the rear 10 feet of the parcel is proposed to be landscape area and can be utilized to store a small amount of snow if required." A small snow storage area is indicated on the plan, at the south side of the site, to store the snow from the side yard walkway.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

D. View Corridors

Per the City's design standards, the massing, location, and height of development shall not substantially obstruct public view corridors. The property is not located within an established view corridor; therefore, this standard is not applicable.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met as it is not applicable.

E. Historic Resources

The subject property is located within the West End Historic District, and therefore requires approval from the Historic Preservation Board (HP Board) for both the demolition of the existing noncontributing single-story commercial building, as well as for the construction of the new four-story mixed-use structure. The applicant has appeared before the HP Board for review on January 3, 2024, February 21, 2024, and again on April 3, 2024. A public hearing is scheduled with the HP Board on May 15, 2024, of which the meeting materials can be found online here:

<https://portlandme.portal.civicclerk.com/event/6719/files>

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard, with a Condition of Approval regarding securing Historic Preservation Board approval suggested.

F. Exterior Lighting

All development must adhere to the site lighting standards provided for in Section 10 and 12 of the Technical Manual: which includes requirements for site lighting, architectural and specialty lighting, and street lighting. This project proposes only site lighting at this time, with six individual slim LED AC/Emergency outdoor lights (wall packs) being proposed. These fixtures include shielding to ensure that all site lighting complies with the City's requirements for full-cutoff fixtures. Cuts sheet and photometric plans were provided with the submission (Attachment N).

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

G. Noise and Vibration

In the City, all HVAC, AHU, emergency generators, and similar equipment are required to meet applicable state and federal emissions requirements and are further required to be located and/or screened in such a manner as to mitigate noise and vibration impacts. This project proposes to locate all said equipment either within the interior of the site or atop the building on the roof, wherein they will be appropriately screened as necessary.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

H. Signage and Wayfinding

Any signage associated with the redevelopment of this project will be required to be reviewed by the Permitting and Inspections Department separately, with a sign permit.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard and consider this standard to be met.

I. Zoning-related Design Standards

Design review of the project will be performed by the Historic Preservation Board, due to the site's location within the West End Historic District. The public hearing for this site plan application will

be scheduled following the approval of the Certificate of Appropriateness application by the Historic Preservation Board.

Staff Finding: The proposed development has been reviewed by Staff for conformance with this standard, with a Condition of Approval regarding securing Historic Preservation Board approval suggested.

X. NEIGHBORHOOD MEETING, WORKSHOP, AND PUBLIC COMMENT

The applicant held a neighborhood meeting on January 18, 2024, as required as part of this project, wherein five members of the public attended (Attachment V), as well as members of the project team, from Benchmark Real Estate, Acorn Engineering, Invivid Architecture, and Aceto Landscaping. Questions and concerns raised at the meeting were pertaining to: setbacks, landscaping, site lighting, unit costs, and potential tenancy of the retail space.

As noted, the Planning Board previously held a workshop, on March 12, 2024. The key points of discussion from that meeting centered around: the amount of parking to be provided on-site and the proposed mechanical stacked parking system; the proposed driveway and garage door width; and the height of the rooftop programming. With their revised materials, all of the noted items have been addressed: a parking analysis was provided; a video is planned to be shared regarding the proposed mechanical stacked parking system; the driveway and garage door width of been increased (from 12 feet to 18 feet); and the rooftop programming has been revised and meets zoning standards.

The Planning and Urban Development Department has received one public comment regarding this application at the time of publication of this memo.

XI. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Department staff determines that the application PL-002678-2023, a Major Site Plan at 64 Pine Street, seeking to create a four-story building with nine multi-family units on the upper floors and a 1,282 square foot commercial retail space, meets the applicable standards of Portland's Land Use Code.

XII. 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 May 14, 2024 for application PL-002678-2023 at 64 Pine Street relevant to the Site Plan Standards of the Land Use Code and the City of Portland's Technical Manual, and other regulations, and the testimony presented at the Planning Board hearing:

1. Vertical Granite Curb

The Planning Board [finds/does not find] based upon the City's Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1, Figure I-12, which requires a 7" reveal, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [waives/does not waive]

the Technical Manual standard Section 1, Figure 1-12, to allow for a 5” – 6” reveal, in order to match the existing reveals.

2. Residential Driveway Apron

The Planning Board [**finds/does not find**] based upon the City’s Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1, Figure 1-9A, which requires a 2’ radius corner granite pieces (“bugs”) at low-volume driveways, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive**] the Technical Manual standard Section 1, Figure 1-9A, to allow for radial curbing.

3. Driveway Width

The Planning Board [**finds/does not find**] based upon the City’s Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1, Standard 1.5.1.B, which requires two-way driveways to be within 20’ minimum and 24’ maximum, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive**] the Technical Manual Section 1, Standard 1.5.1.B, to allow for an 18’ width driveway.

4. Vehicle Parking Dimensions

The Planning Board [**finds/does not find**] based upon the City’s Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1, Figure 1-16A, which requires a minimum drive aisle width of 21’ for standard, right-angle parking, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive**] the Technical Manual standard Section 1, Figure 1-16A, to allow for a 20.07’ drive aisle width associated with the covered 90-degree parking on site, as demonstrated to be feasible by the provided turning templates.

5. Driveway Spacing

The Planning Board [**finds/does not find**] based upon the City’s Review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard Section 1, Standard 1.5.1.C, which requires driveway spacing of 50’ along local streets, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/does not waive**] the Technical Manual standard Section 1, Standard 1.5.1.C, to allow for a separation of 6.12’ from the abutting parcels curb cut, due to the low-use of the proximate curb cut as documented by the abutter.

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 May 14, 2024 for application PL-002678-2023 at 64 Pine 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 Plan Standards of the Land Use Code subject to the following conditions of approval:

PRIOR TO APPLICATION FOR A BUILDING PERMIT

1. The applicant is required to secure a Certificate of Appropriateness by the Historic Preservation Board.

PRIOR TO ISSUANCE OF A BUILDING PERMIT

2. The applicant shall provide ability to serve letters from the Portland Water District (PWD) and Central Maine Power (CMP).

PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY

3. The applicant shall contribute to the tree fund in the amount of \$400 per tree for 7 trees, for a total of \$2,800.

C. PLANNING BOARD DECISION

On the basis of the findings, conclusions, and recommendations contained in the Planning Board report for the public hearing on May 14, 2024 related to application PL-002678-2023 for 64 Pine Street, which is attached to the draft approval letter and incorporated therein, the Planning Board **[adopts/does not adopt]** the approval letter as drafted as the Planning Board's decision for application PL-002678-2023, and authorizes the Planning Board Chair to sign the approval letter as drafted.

XIII. ATTACHMENTS

Staff Attachments

1. Project Review Comments, First Submission, 1/9/2024
2. Project Review Comments, Resubmission, 5/1/2024

Applicant Documents

- A. Cover Letter
- AA. 64 Pine Street Comment Response #1
- AB. 64 Pine Street Comment Response #2
- AC. 64 Pine Street Comment Response #3
- B. Major Site Plan Checklist
- C. RTI Cover Page
- D. Zoning Assessment
- E. Easements
- F. Waivers
- G. Financial Capacity
- H. Technical Capacity
- I. Conformity with Land Use Ordinance
- J. Stormwater Report
- K. Erosion & Sedimentation Control
- L. Fire Department Letter
- M. Wastewater Capacity
- N. Lighting

- O. Arch. Design Narrative
- P. Utilities
- Q. Construction Management Plan
- R. Solid Waste Disposal
- S. Parking Analysis
- T. 64 Pine St., LLC Neighborhood Meeting Certification Letter
- U. 64 Pine St., LLC Neighborhood Letter
- V. 64 Pine St., LLC Neighborhood Meeting Sign-in
- W. 64 Pine St., LLC Neighborhood Meeting Minutes
- X. 58 Pine Street, LLC Letter
- Y. Wastewater Capacity Authorization

Applicant Plans

1. Cover Sheet & Legend
2. General Notes
3. Topographic Survey
4. Construction Management Plan
5. Site Plan
6. Utility Plan
7. Grading and Drainage Plan
8. Site Details
9. Utility Details – 1
10. Utility Details – 2
11. Drainage Details
12. Focal Point Details
13. Erosion & Sedimentation Control Details
14. Turning Templates
15. A1.01 First Floor Plan
16. A1.02 Second Floor Plan
17. A1.03 Third Floor Plan
18. A1.04 Fourth Floor Plan
19. A1.05 Roof Plan
20. A4.01 Exterior Elevations – 1
21. A4.02 Exterior Elevations – 2
22. A5.01 Building Section – 1
23. A5.02 Building Section – 2
24. A5.03 Building Section – 3
25. Harding Steel – 1
26. Harding Steel – 2
27. A6.01 Wall Sections – 1
28. A6.03 Wall Sections – 2
29. L0-00 Cover
30. L0-01 Notes
31. L1-00 Ground Materials Plan
32. L1-01 Roof Materials
33. L1-02 Load Exhibit
34. L3-00 Landscape Details – 1

- 35. L3-01 Landscape Details – 2
- 36. L3-02 Landscape Details – 3
- 37. L3-03 Landscape Details – 4
- 38. L3-04 Landscape Details – 5
- 39. L2-00 Ground Planting Plan
- 40. L2-01 Roof Planting Plan

Public Comment

- 1. Collin Vettier, 3/11/2024

Dear Brad Kaden and Sam Lebel,

We have completed our review of your application (PL-002678-2023), a major site plan project, proposing to build a new four-story building with nine residential units and 1,226± sq. ft. of retail space at 64 Pine Street, located in the B-1 Neighborhood Business zone and partially within the R-6 Residential zone. This development triggers major site plan review by the Planning Board, and is subject to the following regulations:

- Site Plan, Major – Article 14.6

An overview of the City's review can be viewed in the attached project review worksheets and peer review comments.

Next Steps

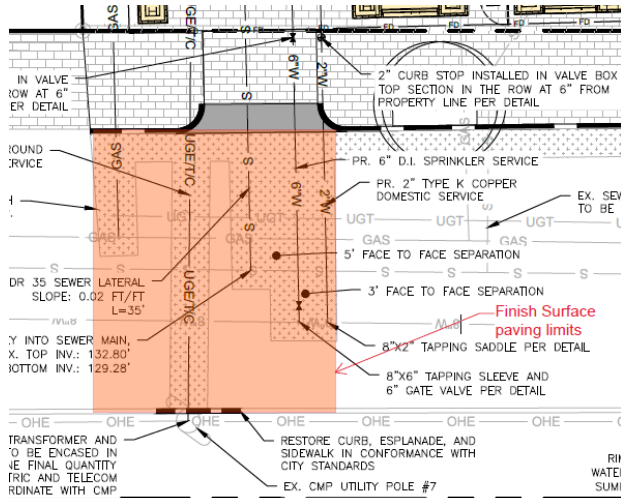
Please review all feedback and reach out to the project review manager, Natasha Kypfer, if you have any questions or would like to discuss this feedback in more detail. In order to proceed, the applicant shall prepare a written response to all feedback, and shall update plans, documents and other materials as necessary to address the comments. The applicant shall notify the project review manager when a resubmission is uploaded to ProjectDox. Once received, the project review manager will notify the applicant of their scheduled review timeline for this resubmission.

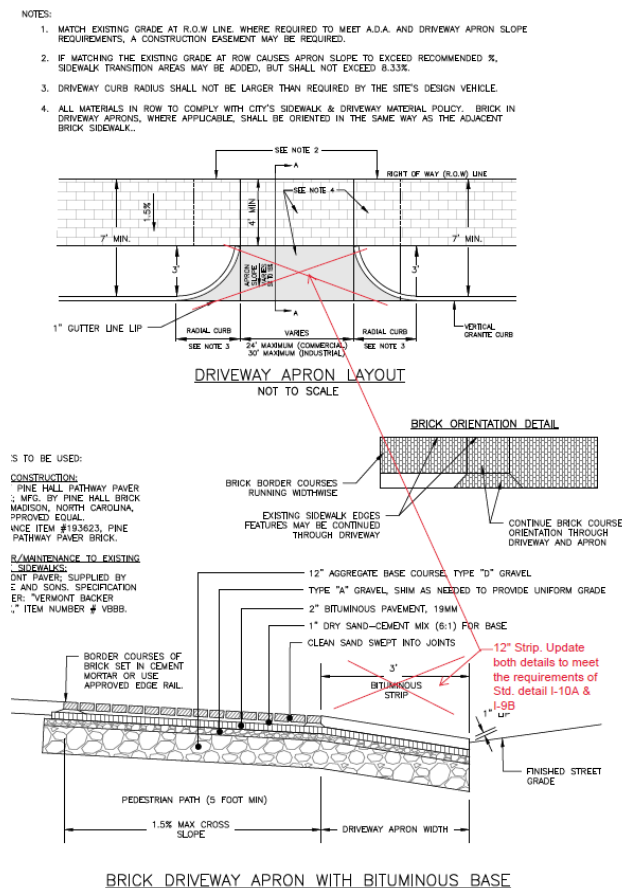
Sincerely,

Natasha Kypfer
Planner

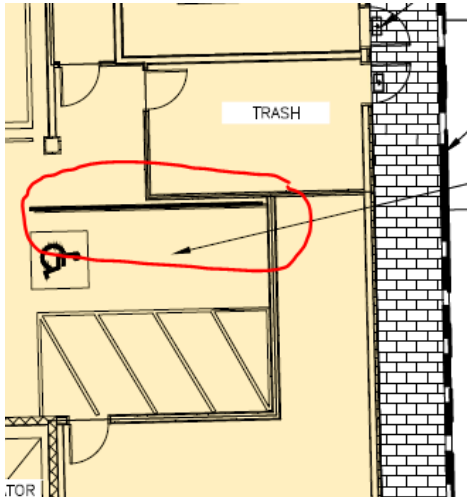
Attachments

1. Site Plan Worksheet
2. Zoning Worksheet

Site Plan Review Standards (Sec. 14.6)		
Transportation Standards (Sec. 14.6.1)		
Standard	Discussion	Finding
Impact on Surrounding Street Systems	Overview: The applicant's proposal at the subject property, 64 Pine Street, seeks to redevelop the lot, which is currently utilized as a restaurant and a surface parking lot. The change of use proposed, is into a four-story building with nine multi-family residential units on Floors 2-4, and the ground floor containing a commercial use (tenant to be decided) and mechanical-stacked parking. According to the applicant, redevelopment of this site is not expected to generate increased traffic flows above the former use. Updates Requested - Improvements and existing conditions in the ROW, including ROW, street, lanes, sidewalk, esplanade, driveways, and other improvements, shall be dimensioned on the plan view sheets, including at locations where width changes occur. Update the plans to reflect these changes. - The limited spot grades provided do not allow us to confirm that the proposed sidewalks are compliant (i.e. meet the min. cross slope and running slope). The applicant shall update the plans to provide spot grades and slopes at grade breaks for the proposed sidewalks, driveways (egress locations, steps) and at the end of the limits of the proposed improvements for the property. - Consolidate proposed service trenches to have one final trench repair (where possible). 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. - Update Driveway Detail. See notes on snips below. 	Not Met Additional information required.

	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. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%. 3. DRIVEWAY CURB RADIUS SHALL NOT BE LARGER THAN REQUIRED BY THE SITE'S DESIGN VEHICLE. 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 LAYOUT NOT TO SCALE BRICK ORIENTATION DETAIL TO BE USED: CONSTRUCTION: PINE HALL PATHWAY PAVEMENT MFG. BY PINE HALL BRICK MADISON, NORTH CAROLINA APPROVED EQUAL NICE ITEM #183623, PINE PATHWAY PAVEMENT BRICK MAINTENANCE TO EXISTING SIDEWALKS: DNT PAVEMENT, SUPPLIED BY S AND SONS, SPECIFICATION ER: VERMONT BACKER " ITEM NUMBER # VBBB BRICK DRIVEWAY APRON WITH BITUMINOUS BASE NOT TO SCALE • The driveway width does not meet city standards and the applicant shall provide information in support of a waiver. • The proposed driveway does not meet driveway separation standards. The abutting driveway does not appear to be used for vehicle access (or very limited use). I would note the project is reducing the driveway separation distance.	
Access and Circulation	Overview: The proposed project is not be expected to have a substantial impact on traffic mobility and safety in the vicinity of the Pine Street area. From the applicant's materials, their proposal seeks to eliminate (the existing) surface parking and incorporate off-street parking within the structure, resulting in more effective land use, as well as better stormwater quality. Additionally, the applicant indicates the proposed driveway has been located to provide ample site distance from oncoming traffic on Pine Street, and the existing 23' curb cut is proposed to be closed and replaced with an 18' curb cut located northeast of the existing. The City's Traffic Engineer peer reviewer has reviewed the application materials and does not have any review comments or concerns related to traffic. Waiver requested for relief from Technical Manual Section 1.7.1., Figure I-12 where vertical granite curb is to have a 7" reveal, stating: <i>Requesting waiver to have a 5" reveal. A 5" reveal is proposed to match the existing reveals along Pine Street.</i> Waiver requested for relief from Technical Manual Section 1.7.1., Figure I-10A where driveway apron is to have a 12" bituminous strip at the base of the apron, stating:	Not Met Waivers Requested Additional information required.

	Requesting waiver to have a 36" bituminous strip at the base of the apron. A larger bituminous strip will provide a more gradual transition to the sidewalk, ensuring vehicles do not bottom out. This dimension also matches the radial curb pieces which we favor in lieu of the typical "bug" which does not provide as much length to transition from the street grade to the elevated ADA sidewalk grade. <u>Updates Requested</u> Please clarify whether there is 5' of "clear width" along the front walkway at Pine St, i.e. the path is clear of intrusions like electrical meters, gas meters, etc.	
Public Transit Access	<u>Overview:</u> The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street. No additional upgrades are required by the applicant. <u>Updates Requested</u> No action is required.	Met
Parking	<u>Overview:</u> Per Article 19, Table 19-A, multi-family development is required to provide one off-street parking space per dwelling unit. Additionally, retail uses are required to provide one space per 200 square feet of first floor area in excess of 2,000 square feet, plus one space per 700 square feet of floor area for each upper floor. Per Article 19, Table 19-B, transit proximate development and uses do not require off-street parking within ¼ mile of fixed route transit service. The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street, meaning that off-street parking is not required for this project. However, the applicants are proposing to provide 19 off-street parking spaces, calculating for 2 parking spaces per residential unit, plus one ADA compliant space. The parking summary calculation table on the Site Plan (Sheet C-10) indicates 18 spaces are proposed via standard mechanical system spaces, however it is unclear how these are designed based on the Site Plan depicting 10 individual spaces, along with the ADA space. The plan also indicates a minimum of 20% of parking spaces will be EV. The proposed retail space is 1,282 square feet in area, thus, not required to provide off-street parking spaces. Further, this project is also required to provide bicycle parking, at a calculation of two spaces per every five residential units, plus two spaces for every 10 vehicle parking spaces for non-residential uses. Based upon the 9 residential units proposed, the applicant would be required to provide 4 bicycle parking spaces. <u>Updates Requested:</u> - Information on the mechanical vehicle stacking system shall be provided. Further, Staff suggests a generator be provided on-site as a back-up for the mechanical parking system in the event of electrical outage(s). - The amount of provided off-street parking spaces is greater than 10% over the minimum requirement listed in Table 19-A; please provide a parking study in support of this count, otherwise the off-street parking count should be reduced to no more than ten parking spaces. - The parking aisle width does not meet City standards and the applicant shall provide information in support of a waiver. - The bike/ski/pedal storage room on the Site Plan appears to provide ample bicycle parking, but we request the applicant please include a note (or similar	Not Met Additional information required.

	parking summary calculation table) indicating the total spaces provided. Further, Staff suggests providing an exterior door at the bike room, so that residents do not have to navigate through the first-floor common space with their bicycle in tow. • Thank you for providing notation of EV infrastructure in keeping with Technical Manual Standard 1.14, please also include the requirement that an additional 50% of spaces must be made EV-ready. • Please clarify what the circled area (see snip below) parallel to the ADA-accessible parking space is; if it is a wall, or some sort of partition, it will be problematic for anyone trying to open their driver's side door (or passenger's side, if the vehicle is backed in). 	
Transportation Demand Management	<u>Overview:</u> A TDM Plan is not required for this project, as it does not meet the thresholds as detailed in the LUC Section 14.6.1.E.1.	Met
	<u>Updates Requested</u> • No action is required.	
Environmental Quality Standards (Sec. 14.6.2)		
Standard	Discussion	Finding
Preservation of Significant Natural Features	<u>Overview:</u> The site disturbance for this project does not include disruption of any significant natural features nor are known endangered species or plants noted as existing on the site; the parcel(s) are already developed, with a single-story structure (previously operated as a restaurant) and a paved, surface parking lot.	Met
	<u>Updates Requested</u> • No action is required.	
Landscape Preservation	<u>Overview:</u> The site is presently minimally vegetated, however, the applicants propose maintaining the existing tree located to rear of the lot, along the rear perimeter of the site (plan left), to remain.	Not Met
	<u>Updates Requested</u> • Please include landscape plan that includes tree protection measures to be implemented for the existing 12" elm tree on Pine St. See Technical Manual for example. ○ Please show position and style of tree protection fencing to be installed during construction ○ Provide detailed notes on prohibitions within tree protection areas	

	○ Provide explicit detail of alternative construction methods to be utilized when incursions into the biologically sensitive areas (root zones) of the existing trees is unavoidable ▪ Critical root zone for Elm is defined as a circle of radius 1.5' per inch of stem DBH centered on the stem • Please detail the pruning required for the Boxelder tree in the NE corner of the property ○ Refer to the ANSI A300 pruning standard	
Site Landscaping and Buffers	Overview: The site proposes reconstruction of the streetscape along Pine Street, including preservation of one existing street tree, and the planting of a new street tree. Further, abutting the existing residential structure along the northerly property boundary, a row of woody shrub (planting type tbd.) is proposed at an area of 590 square feet in total, to act as a buffer. Additionally, a partial green roof system is proposed totaling approximately 1,604 sq. ft. by way of sedum tray plantings. Updates Requested • Please include species of proposed street tree on landscape plans ○ Please do not propose maple species or anything in the genus Acer as the greater Portland area is oversaturated with maple species that creates an acute susceptibility to Asian Longhorned Beetle infestation • The proposed project carries a street tree requirement of 9 trees (1 per residential unit) ○ With the proposed street tree, that leaves 8 remaining required street trees • The granite border treewell(s) in the sidewalk must comply with the Technical Manual Article 4, Figure IV-4B standard, in that they should be curved rather than rectangular; please update the plans accordingly.	Not Met Additional information required.
Water Quality, Stormwater Management and Erosion Control	Overview: The applicants have prepared and included a site-specific Stormwater Management Plan, which has been developed for the project to show compliance with the Technical Manual Section 5, including the basic standards of MEDEP Chapter 500. Further, the Erosion and Sedimentation Control Details (Sheet C-45), along with the provided narrative, details both the temporary and permanent erosion control measures to be utilized by this project, including: a siltation fence or erosion control berm shall be installed downgradient of any disturbed areas in order to trap run-off borne sediments until permanent stabilization is achieved and all disturbed areas shall receive a minimum 4" of loam, limed, and mulched. Updates Requested • The plan view of erosion control on the Construction Management Plan should include catch basin inlet protection for the existing catch basins located within the street in front of the project. • The piping layout at the southern corner of the site at the end of the R-Tank system and the proposed F-Basin is complex, wherein it appears that there is an extra 4" invert inlet to the F-Basin; please clarify. We recommend a detail view be included with the construction documents. • Roof drain connections are shown, but it is unclear where the foundation drain pipe connects into the storm drain system; please clarify. Further, at the northern corner of the site, it appears that the foundation drain crosses the property line; if this is intentional, it will likely require a license agreement. • Prior to authorizing a new stormwater connection into the combined sewer, DPW will require that the applicant provide an on-site stormwater detention volume equal to the greater of: 1" of rainfall times the impervious area within the project disturbance area or the projected average 24 hour daily sanitary	Not Met Needs additional information.

	sewer flow being added to the combined sewer system by the project. It appears the proposed storage volume will need to be increased to provide detention for 1" of rainfall times site's proposed impervious area.	
Public Infrastructure and Community Safety Standards (Sec. 14.6.3)		
Standard	Discussion	Finding
Consistency with City Master Plans	<u>Overview:</u> The subject property seeks to provide nine residential units on a site wherein presently no residential dwellings exist, thereby contributing to the overall housing stock of the City. This contributes to the local goal within Portland's Plan 2030, Housing chapter, which states: "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."	Met
	<u>Updates Requested</u> No action is required.	
Public Safety and Fire Prevention	<u>Overview:</u> Per the applicant's submittal, the site has been designed to promote safe and inviting public access. As well, emergency accesses has been provided, in that fire trucks and ambulances will be able to access all of the site and buildings.	Met
	<u>Updates Requested</u> No action required.	
Public Utilities	<u>Overview:</u> The site will generally be making use of existing utility connections and is still in process of confirming the ability to serve from the various utility service companies. Per the applicant's narrative water, sewer, and gas all have existing connections that will either be maintained, expanded, or a new line requested. For stormwater, while there is currently no drainage infrastructure on-site, this project proposes stormwater measures like foundation drains, field inlets, and R-Tanks to provide storage. Further, electric/communication is currently served by overhead services which are proposed to be removed and installed subsurface for electric and telecom from an existing utility pole on Pine Street.	Not Met Needs additional information.
	<u>Updates Requested</u> - Please provide the ability to serve letters, as received from each of the utility companies. - The demolition of the existing water service requires termination at the main per Portland Water District requirements. That area should be identified for trenching and repair. Similarly, it should be clarified if the sewer service removal will also require additional trenching.	
Site Design Standards (Sec. 14.6.4)		
Standard	Discussion	Finding
Massing, Ventilation and Wind Impact	<u>Overview:</u> This project proposes a shift in bulk and height (massing) by going from a single, one-story structure, to a larger, 9-unit and four-story building. The proposed massing is fairly simple with all elevations continuing to the full height along the same plane. Furthermore, the HVAC proposed on the roof is indicated as 19' x 20' mechanical on a concrete paver with pedestal system, to be screened with a wooden gate and fence.	Not Met Needs additional information.
	<u>Updates Requested</u> Please address this standard within your required narrative, presently it refers to Section O, the Architectural Design Narrative, which itself does not specifically address this standard.	

Shadow	Overview: Per the Technical Manual Sec. 11, a preliminary shadow analysis is required for all applicable site plan applications that include new structures (or additions to structures) greater than 45' tall. As the proposed structure does not exceed 45', this standard does not apply and this redevelopment is exempt.	Met
	Updates Requested No action is required.	
Snow and Ice Loading	Overview: The applicant's narrative describes the proposal for snow storage on-site stating: "The Owner will be responsible for managing snow at their discretion and/or coordinating snow removal from the site when necessary. The large majority of the site will be structure and the parking lot will be covered therefore snow plowing for this site is not required. Additionally, the rear 10' of the parcel is proposed to be landscape area and can be utilized to store a small amount of snow if required." However, a snow storage area is not noted on the plan itself.	Not Met Needs additional information.
	Updates Requested Please indicate a snow storage area on the Site Plan, demonstrating the area(s) will not encroach on parking, walkways, or the any stormwater management systems.	
View Corridors	Overview: Per the City's design standards, the massing, location, and height of development shall not substantially obstruct public view corridors. The property is not located within an established view corridor; therefore, this standard is not applicable.	Met
	Updates Requested No action required.	
Historic Resources	Overview: The subject property is within the West End Historic District, and therefore requires approval from the Historic Preservation Board for both the demolition of the existing noncontributing single-story commercial building, as well as for the construction of the new four-story mixed-use structure. The applicant appeared before the HP Board for preliminary review of new construction as a first workshop item on January 3, 2024.	Not Met In-Process with the HP Board.
	Updates Requested The applicant will ultimately need to seek approval from the Historic Preservation Board in the form of a Certificate of Appropriateness. Please revise your narrative to indicate the subject property is within an Historic District, as the current submittal states it is not.	
Exterior Lighting	Overview: All development must adhere to the site lighting standards provided for in the Technical Manual, Section 12, for: site lighting, architectural and specialty lighting, and street lighting. This project proposes only site lighting at this time, with six individual slim LED AC/Emergency outdoor lights (wallpacks) are proposed over two structure planes, with appropriate shielding; the cuts sheet and photometric plans were provided with the submission.	Met
	Updates Requested No action required.	
Noise and Vibration	Overview: In the City, all HVAC, AHU, emergency generators, and similar equipment are required to meet applicable state and federal emissions requirements and are further required to be located and/or screened in such a manner as to mitigate noise and vibration impacts. This project proposes to locate all said equipment either within the interior of the site or atop the building on the roof, wherein they will be appropriately screened as necessary.	Met
	Updates Requested	

	No action required.	
Signage and Wayfinding	<u>Overview:</u> Any signage associated with the redevelopment of this project will be required to be reviewed by the Permitting and Inspections Department separately, with a sign permit.	Met
	<u>Updates Requested</u> No action is required.	
Design Standards	<u>Overview:</u> Design review of the project will be performed by either Historic Preservation staff or the Historic Preservation Board, due to the site's location within the West End Historic District.	Met
	<u>Updates Requested</u> No action is required.	
Other		
	- More attention should be paid to the Construction Management Plan (the overhead view, in particular). The narrative states the following items (see snip below) will be prepared on a plan for City staff to review prior to approval, which we kindly request to the maximum extent practical: J. Construction Staging Area - The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan. - The depiction of a construction entrance over the sidewalk is incongruous with the note the sidewalk will remain open. Ideally this entrance will not be located in the ROW. However, as the site is extremely tight, a Traffic Control Plan (TCP) will need to be submitted in conjunction with any impacts to the ROW. We would kindly request to see a concept of this prior to appearance before / approval by the Planning Board. If the project efforts do need to occupy a portion of the sidewalk or street for an extended period, a cross sectional view of the ROW will be required.	

Zoning Use Review (Article 6)				
Use Permissions (Table 6-C)				
Proposed Use	Permitted, Conditional or Accessory Use	Zone	Use Std	
Multi-family Residential	Permitted	B-1, R-6* *Small sliver at rear of site	None	
Retail		B-1	6.4.7	
Zoning Dimensional Review (Article 7)				
Dimensional Standards (Table 7-E)				
Standard	Requirement 1	Requirement 2	Proposed	Finding
Lot Area	n/a	n/a	9,920 sq. ft.	Met
Lot Area per Dwelling Unit	435 sq. ft.	n/a	1,102 sq. ft.	Met
Street Frontage	20'	n/a	85'	Met
Front Setback (Max.)	10'	n/a	0.74'	Met
Rear Setback (Principal)	10', or the average front yard depth of nearest developed lots if < 10'	n/a	10.56'	Met
Side Setback	None, except 5' if abutting residential zone	n/a	5.30' / 5.92'	Met
Stepbacks	Side: 10' Rear: 15'	n/a	Side: 10* Rear: 15.20'	*Please confirm.
Floor Area (Max.)	10,000 sq. ft. total, non-residential uses on the first floor	n/a	1,282 sq. ft.	Met
Structure Height (Max.)	45'	n/a	44.76'	**Please provide additional information.
Lot Coverage (Max)	n/a	n/a	76.2%	Met
Impervious Surface Ratio	90%	n/a	85.6%	Met

**For the overall height, please provide a measurement documenting the height from the average grade to the top of the floor for the rooftop deck. On the elevations, a measurement to the roof is listed, but it is unclear whether that includes the roof deck or not.

Further, please provide additional information on the proposed rooftop sauna amenity, specifically how it meets the definition for appurtenance (listed below), as it exceeds the maximum allowed building height. Section 3 of the LUC defines it as: “**Appurtenance.** A device or structure not designed for human occupancy and attached to the exterior of a building.” A sauna, is not considered a rooftop appurtenance exempt from height restrictions under Section 7.5.1 (G); therefore, the sauna would need to be under 45’.

Project Review Letter / May 1, 2024 / PL-02678-2023 / 64 Pine Street

Resubmission #1: April 8, 2024

Planner: Natasha Kypfer – nkypfer@portlandmaine.gov



Dear Sam Lebel and Zach Stevens,

We have completed our review of your resubmission for application (PL-002678-2023), a major site plan project, proposing to build a new four-story building with nine residential units and 1,226± sq. ft. of retail space at 64 Pine Street, located in the B-1 Neighborhood Business zone and partially within the R-6 Residential zone.

This development triggers major site plan review by the Planning Board, and is subject to the following regulations:

- Site Plan, Major – Article 14.6

An overview of the City's review can be viewed in the attached project review worksheets and peer review comments.

Next Steps

Please review all feedback and reach out if you have any questions or would like to discuss this feedback in more detail. In order to proceed, the applicant shall prepare a written response to all feedback, and shall update plans, documents, and other materials as necessary to address the comments. The applicant shall notify the project review manager when a resubmission is uploaded to ProjectDox.

Based upon the City's findings related to your application, the City will advance this application for a public hearing with the Planning Board on **Tuesday, May 14, 2024**. Please let the project review manager know at your earliest convenience if there are any conflicts with the proposed date.

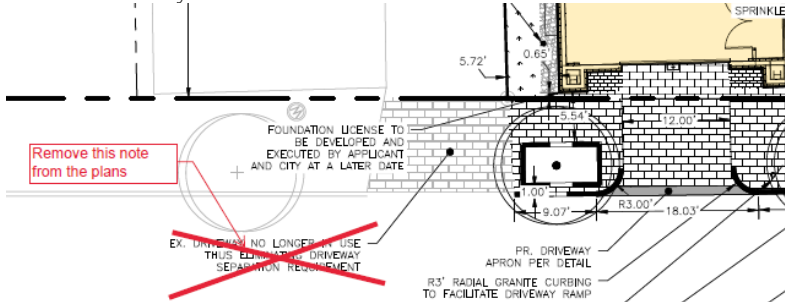
Sincerely,

Natasha Kypfer
Senior Planner

Attachments

1. Site Plan Worksheet
2. Zoning Worksheet

Site Plan Review Standards (Sec. 14.6)		
Transportation Standards (Sec. 14.6.1)		
Standard	Discussion	Finding
Impact on Surrounding Street Systems	Overview: The applicant's proposal at the subject property, 64 Pine Street, seeks to redevelop the lot, which is currently utilized as a restaurant and a surface parking lot. The change of use proposed, is into a four-story building with nine multi-family residential units on Floors 2-4, and the ground floor containing a commercial use (tenant to be decided) and mechanical-stacked parking. According to the applicant, redevelopment of this site is not expected to generate increased traffic flows above the former use. Standard to be Waived: Technical Manual Section 1.5.1.B, Driveway Design, where (for two-way driveways, greater than 10 residential parking spaces) 20'-24' is required as min./max. driveway width. Waiver Being Sought: The applicant is requesting to have a 12' driveway width. Updates Requested While the applicant suggests that given the short queuing length and visibility, when the garage door is open then a car entering will know to yield to the exiting vehicle prior to entering the site. Staff notes that, upon further review, a wider driveway should be considered, particularly as it relates to simultaneous entry and exit movements. Staff encourages the use of technology which indicates when exit/entry is okay, for example, a green and red indicator light mounted to the outside elevation which signals when to attempt operation of the garage door; see <i>example photograph on Page 7</i>. The installation of said equipment will provide feedback to motorists as to potential vehicle conflicts entering the site related to this waiver, and the parking aisle waiver request.	Not Met <u>Waivers Requested</u> Additional information required.
Access and Circulation	Overview: The proposed project is not expected to have a substantial impact on traffic mobility and safety in the vicinity of the Pine Street area. From the applicant's materials, their proposal seeks to eliminate (the existing) surface parking and incorporate off-street parking within the structure, resulting in more effective land use, as well as better stormwater quality. Additionally, the applicant indicates the proposed driveway has been located to provide ample site distance from oncoming traffic on Pine Street, and the existing 23' curb cut is proposed to be closed and replaced with an 18' curb cut located northeast of the existing. The City's Traffic Engineer peer reviewer has reviewed the application materials and does not have any review comments or concerns related to traffic. Thank you for providing the documentation from the neighboring property owner, Ms. Lopez of Chaval, that speaks to the status of the driveway: "This curb cut is occasionally use to park my personal vehicles. As such, I do not intend to have the curb cut closed or altered." Standard to be Waived: Technical Manual 1. Transportation Systems and Street Design standards. Figure 1-12 Vertical Granite Curb. Waiver Being Sought: The applicant is requesting a waiver to have a 5'-6" reveal. Standard to be Waived: Technical Manual 1. Transportation Systems and Street Design standards. Figure I-9A Residential Driveway Apron. Waiver Being Sought: The applicant is requesting a waiver to not have two-foot radius corner granite pieces ("Bugs"), but instead have radial curbing.	Not Met <u>Waivers Requested</u> Additional information required.

	Standard to be Waived: Technical Manual Section 1.5.1.C, Driveway Spacing, where 50' is required for local streets. Waiver Being Sought: The applicant is requesting to have a 9.07' driveway separation from the abutting parcel's curb cut on plan left. (The existing driveway separation is approximately 22.5', a further reduction is requested.) Updates Requested - DPW requires the applicant to maintain a 7" reveal where possible with a minimum reveal of 6" when the requirement cannot be met. - Remove Driveway note.  - The reveal of the proposed granite curb for the planters should be reduced to 3" to 4" to decrease conflict with car doors. - The edges and the corners of the granite planter need to be beveled for the safety of pedestrians and other users that may come in contact with the planters. - The pedestrian path for the proposed driveway can be reduced so the grade break is at the back of the proposed tree wells.	
Public Transit Access	Overview: The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street. No additional upgrades are required by the applicant. Updates Requested No action is required.	Met
Parking	Overview: Per Article 19, Table 19-A, multi-family development is required to provide one off-street parking space per dwelling unit. Additionally, retail uses are required to provide one space per 200 square feet of first floor area in excess of 2,000 square feet, plus one space per 700 square feet of floor area for each upper floor. Per Article 19, Table 19-B, transit proximate development and uses do not require off-street parking within ¼ mile of fixed route transit service. The development is located immediately on Pine Street, upon which METRO bus service routes are operated, and a bus stop for Route 8 currently exists within 384±' of the subject property at the intersection of Pine Street and Lewis Street, meaning that off-street parking is not required for this project. Thank you for providing the parking analysis documentation, due to the amount of off-street parking spaces being greater than the 10% over the minimum requirement listed in Table 19-A. As well, thank you for adding the bicycle summary table on the site plan (Sheet C-10) to document required parking spaces. Standard to be Waived: Technical Manual Section 1. Transportation Systems and Street Design standards. Figure 1-16A Vehicle Parking Dimensions.	Not Met <u>Waivers Requested</u>

	Waiver Being Sought: The applicant is requesting to have a 20.27' drive aisle width associated with the covered 90-degree parking on-site, where 24' is the minimum for standard, right-angle parking.	
	<u>Updates Requested:</u> No action is required.	
Transportation Demand Management	<u>Overview:</u> A TDM Plan is not required for this project, as it does not meet the thresholds as detailed in the LUC Section 14.6.1.E.1.	Met
	<u>Updates Requested</u> No action is required.	
Environmental Quality Standards (Sec. 14.6.2)		
Standard	Discussion	Finding
Preservation of Significant Natural Features	<u>Overview:</u> The site disturbance for this project does not include disruption of any significant natural features nor are known endangered species or plants noted as existing on the site; the parcel(s) are already developed, with a single-story structure (previously operated as a restaurant) and a paved, surface parking lot.	Met
	<u>Updates Requested</u> No action is required.	
Landscape Preservation	<u>Overview:</u> The site is presently minimally vegetated. Further, following the March 22nd site visit, the applicant is requesting removal of all existing trees along the frontage and the existing maple tree located in the southeastern corner of the lot (largely due to the proposed excavations' proximity to its tree roots). The applicant has provided documentation from the abutting property owner, in their agreement to remove the existing tree, which is in the corner of the lot shared with the Reiche Community School property line. <u>Standard to be Waived:</u> Technical Manual 4. Landscaping and Landscape Preservation Standards. Figure IV-4B Granite Border Treewell in sidewalk with no Esplanade. Waiver Being Sought: The applicant is requesting a waiver to have a minimum offset of 1' from placement of tree wells and proposed granite curb, as well as a waiver to have 90-degree corners at the edge of treewells.	Not Met <u>Waivers Requested</u> Additional information required.
	<u>Updates Requested</u> DPW is not opposed to the waiver to have a minimum offset of 1', however, they will require the edges and the corners of the granite planter be beveled for the safety of pedestrians and other users that may come in contact with the planters.	
Site Landscaping and Buffers	<u>Overview:</u> The site proposes reconstruction of the streetscape along Pine Street, including preservation of one existing street tree, and the planting of a new street tree. Further, abutting the existing residential structure along the northerly property boundary, a row of woody shrub (planting type tbd.) is proposed at an area of 590 square feet in total, to act as a buffer. Additionally, a partial green roof system is proposed totaling approximately 1,604 sq. ft. by way of sedum tray plantings.	Not Met Additional information required.
	<u>Updates Requested</u> - The proposed project carries a street tree requirement of 9 trees (1 per residential unit) - With the proposed 3 street trees, that leaves 6 remaining required street trees	

	Please note the alternative method utilized to account for the remaining required trees	
Water Quality, Stormwater Management and Erosion Control	Overview: The applicants have prepared and included a site-specific Stormwater Management Plan, which has been developed for the project to show compliance with the Technical Manual Section 5, including the basic standards of MEDEP Chapter 500. Further, the Erosion and Sedimentation Control Details (Sheet C-45), along with the provided narrative, details both the temporary and permanent erosion control measures to be utilized by this project, including: a siltation fence or erosion control berm shall be installed downgradient of any disturbed areas in order to trap run-off borne sediments until permanent stabilization is achieved and all disturbed areas shall receive a minimum 4" of loam, limed, and mulched. Updates Requested The Applicant is showing two plans for pavement repair in the street for utility work. The Construction Management plan shows repair for demolished existing services and the Utility Plan shows repair for proposed services as well as for the proposed curb installation. If it is anticipated that the entire impacted roadway area is paved at one time, I'd recommend showing it all on one sheet for clarity during construction.	Not Met Needs additional information.
Public Infrastructure and Community Safety Standards (Sec. 14.6.3)		
Standard	Discussion	Finding
Consistency with City Master Plans	Overview: The subject property seeks to provide nine residential units on a site wherein presently no residential dwellings exist, thereby contributing to the overall housing stock of the City. This contributes to the local goal within Portland's Plan 2030, Housing chapter, which states: "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." Updates Requested No action is required.	Met
Public Safety and Fire Prevention	Overview: Per the applicant's submittal, the site has been designed to promote safe and inviting public access. As well, emergency accesses has been provided, in that fire trucks and ambulances will be able to access all of the site and buildings. Updates Requested No action required.	Met
Public Utilities	Overview: The site will generally be making use of existing utility connections and is still in process of confirming the ability to serve from the various utility service companies. Per the applicant's narrative water, sewer, and gas all have existing connections that will either be maintained, expanded, or a new line requested. For stormwater, while there is currently no drainage infrastructure on-site, this project proposes stormwater measures like foundation drains, field inlets, and R-Tanks to provide storage. Further, electric/communication is currently served by overhead services which are proposed to be removed and installed subsurface for electric and telecom from an existing utility pole on Pine Street. Updates Requested Reminder to please provide the ability to serve letters, as received from each of the utility companies.	Not Met Reminder: Needs additional information.
Site Design Standards (Sec. 14.6.4)		
Standard	Discussion	Finding

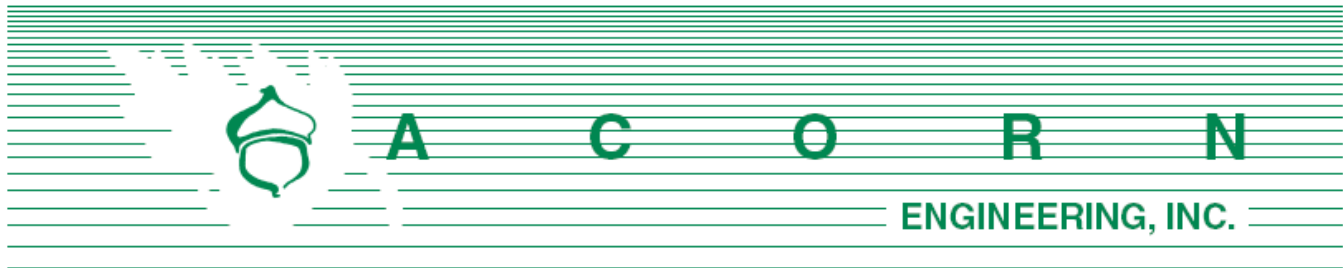
Massing, Ventilation and Wind Impact	Overview: This project proposes a shift in bulk and height (massing) by going from a single, one-story structure, to a larger, 9-unit and four-story building. The proposed massing is fairly simple with all elevations continuing to the full height along the same plane. Furthermore, the HVAC proposed on the roof is indicated as 19' x 20' mechanical on a concrete paver with pedestal system, to be screened with a wooden gate and fence.	Met
	Updates Requested No action is required.	
Shadow	Overview: Per the Technical Manual Sec. 11, a preliminary shadow analysis is required for all applicable site plan applications that include new structures (or additions to structures) greater than 45' tall. As the proposed structure does not exceed 45', this standard does not apply and this redevelopment is exempt.	Met
	Updates Requested No action is required.	
Snow and Ice Loading	Overview: The applicant's narrative describes the proposal for snow storage on-site stating: "The Owner will be responsible for managing snow at their discretion and/or coordinating snow removal from the site when necessary. The large majority of the site will be structure and the parking lot will be covered therefore snow plowing for this site is not required. The site plan has been updated to indicate a small snow storage area added to the south side of the site.	Met
	Updates Requested No action is required.	
View Corridors	Overview: Per the City's design standards, the massing, location, and height of development shall not substantially obstruct public view corridors. The property is not located within an established view corridor; therefore, this standard is not applicable.	Met
	Updates Requested No action required.	
Historic Resources	Overview: The subject property is within the West End Historic District, and therefore requires approval from the Historic Preservation Board for both the demolition of the existing noncontributing single-story commercial building, as well as for the construction of the new four-story mixed-use structure. The applicant is poised to appear before the HP Board for a public hearing on May 15, 2024.	Not Met In-Process with the HP Board.
	Updates Requested The applicant will need to seek approval from the Historic Preservation Board in the form of a Certificate of Appropriateness.	
Exterior Lighting	Overview: All development must adhere to the site lighting standards provided for in the Technical Manual, Section 12, for: site lighting, architectural and specialty lighting, and street lighting. This project proposes only site lighting at this time, with six individual slim LED AC/Emergency outdoor lights (wallpacks) are proposed over two structure planes, with appropriate shielding; the cuts sheet and photometric plans were provided with the submission.	Met
	Updates Requested No action required.	
Noise and Vibration	Overview: In the City, all HVAC, AHU, emergency generators, and similar equipment are required to meet applicable state and federal emissions requirements and are further required to be located and/or screened in such a manner as to mitigate noise and vibration impacts. This project proposes to	Met

	locate all said equipment either within the interior of the site or atop the building on the roof, wherein they will be appropriately screened as necessary.	
	<u>Updates Requested</u> No action required.	
Signage and Wayfinding	<u>Overview:</u> Any signage associated with the redevelopment of this project will be required to be reviewed by the Permitting and Inspections Department separately, with a sign permit.	Met
	<u>Updates Requested</u> No action is required.	
Design Standards	<u>Overview:</u> Design review of the project will be performed by either Historic Preservation staff or the Historic Preservation Board, due to the site's location within the West End Historic District.	Met
	<u>Updates Requested</u> No action is required.	
Other	- Construction Management Plan: Staff suggests submitting a more robust CMP, which details: truck routing, contractor parking, temporary ESV measures, laydown area, area for loading/unloading, temporary contractor offices (the current plan denotes solely a small job trailer, is that all that is anticipated?), location of the stabilized construction entrance, any proposed temporary street/sidewalk closures, and any proposed vehicle/pedestrian rerouting. As I am sure you can appreciate, the site constraints are such that we want to be cognizant of impact to the City ROW along Pine Street within this highly traveled area of the West End. - Please be prepared to share a video and more information on the mechanical vehicle stacking system at the Planning Board public hearing, per their request at the workshop.	

Example of suggested technology at garage door to assist in entry/exit of vehicles:



Zoning Use Review (Article 6)				
Use Permissions (Table 6-C)				
Proposed Use	Permitted, Conditional or Accessory Use	Zone	Use Std	
Multi-family Residential	Permitted	B-1, R-6* *Small sliver at rear of site	None	
Retail		B-1	6.4.7	
Zoning Dimensional Review (Article 7)				
Dimensional Standards (Table 7-E)				
Standard	Requirement 1	Requirement 2	Proposed	Finding
Lot Area	n/a	n/a	9,920 sq. ft.	Met
Lot Area per Dwelling Unit	435 sq. ft.	n/a	1,102 sq. ft.	Met
Street Frontage	20'	n/a	85'	Met
Front Setback (Max.)	10'	n/a	0.74'	Met
Rear Setback (Principal)	10', or the average front yard depth of nearest developed lots if < 10'	n/a	10.56'	Met
Side Setback	None, except 5' if abutting residential zone	n/a	5.30' / 5.92'	Met
Stepbacks	Side: 10' Rear: 15'	n/a	Side: n/a Rear: 15.20'	Met
Floor Area (Max.)	10,000 sq. ft. total, non-residential uses on the first floor	n/a	1,282 sq. ft.	Met
Structure Height (Max.)	45'	n/a	44.92'	Met
Lot Coverage (Max.)	n/a	n/a	76.2%	Met
Impervious Surface Ratio	90%	n/a	85.6%	Met



Planning and Urban Development Department
Attn: Matt Grooms, Development Review Manager
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

November 17th, 2023

Subject: Major Site Plan Application
64 Pine Street Redevelopment

Matt:

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the accompanying package of submission materials related to the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business District. The project area abuts the B1 Neighborhood Business District at the front and sides of the property, while rear abuts the R6 Residential District. The project proposes to redevelop the lot, currently used as a parking lot and restaurant, into a 4-story building with 9 multi-family units on the upper floors with commercial use and mechanical stacked parking on the ground floor. This infill project will feature several key improvements to the property and the City as a whole, including:

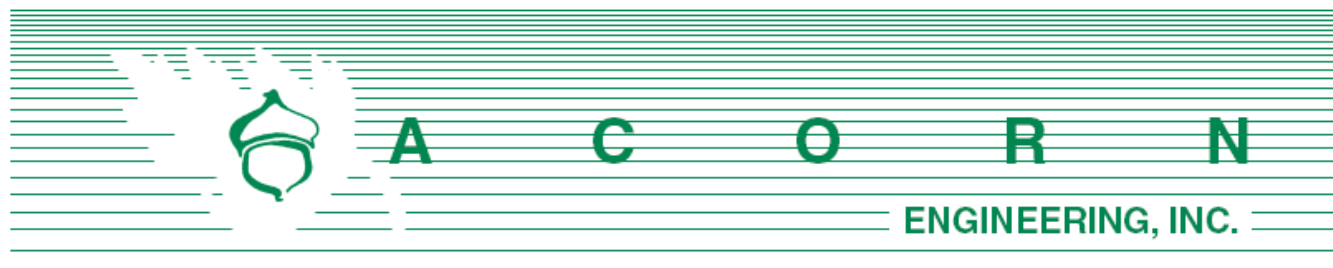
- 9 new housing units
- On-site stormwater management and net reduction in peak runoff
- Reconstruction of the streetscape including preservation of one existing street tree, and planting of a new tree
- Activation of the front façade and a public easement grant, effectively widening the public sidewalk while creating placemaking opportunities
- Elimination of surface parking and incorporation of off-street parking within the structure, resulting in more effective land use and better stormwater quality

64 Pine Street LLC, and the design team look forward to your review of this project. If you have any questions regarding these materials or the completeness of the application materials, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink that reads 'Sam Lebel'.

Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.



City of Portland Planning Department
Natasha Kypfer – Planner
389 Congress Street, 4th Floor
Portland, Maine 04101

February 23th, 2024

Subject: Comment Response Letter
64 Pine Street, Portland, Maine – Major Site Plan Application

On behalf of 64 Pine Street, LLC and the design team, Acorn Engineering is pleased to respond to the following comments from the City of Portland Planning Department review of the 64 Pine Street, Major Site Plan Application. The following is in response to the City Staff comments received January 9th, 2023.

Transportation Standards:

Comment: Improvements and existing conditions in the ROW, including ROW, street, lanes, sidewalk, esplanade, driveways, and other improvements, shall be dimensioned on the plan view sheets, including at locations where width changes occur. Updated the plans to reflect these changes.

Response: Please see Sheet C-10 for this additional information.

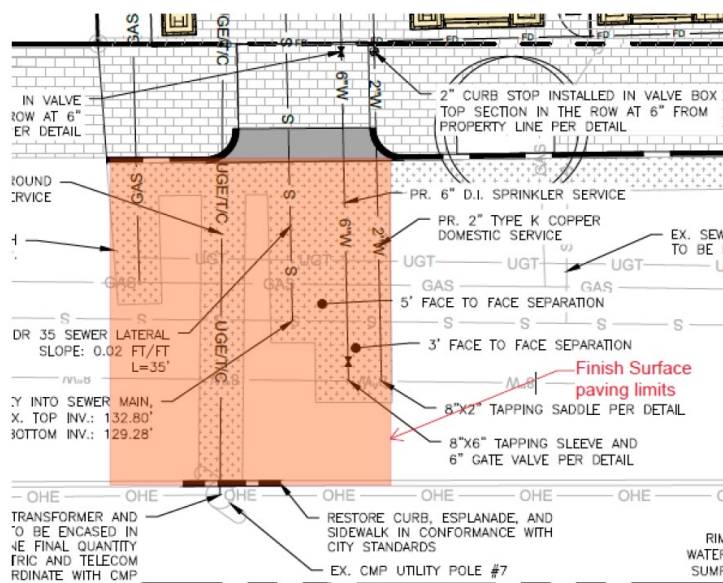
Comment: The limited spot grades provided do not allow us to confirm that the proposed sidewalks are compliant (i.e. meet the min. cross slope and running slope). The applicant shall update the plans to provide spot grades and slopes at grade breaks for the proposed sidewalks, driveways (egress locations, steps) and at the end of the limits of the proposed improvements for the property.

Response: Additional spot grades have been placed along the reconstructed ROW sidewalk. Please refer to C-30 for more information.

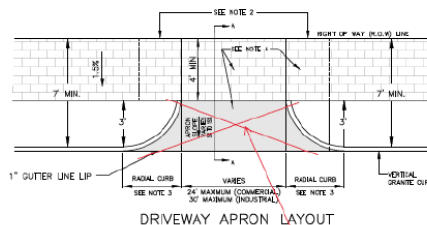
Comment: Consolidate proposed service trenches to have one final trench repair (where possible). All pavement cuts in the City ROW shall be repaired per the Minor Excavation Pavement Repair Details (prior to paving the finished surface) found in the Rules and Regulations for Excavation Activity.

Response: Proposed service trenches have been consolidated on C-20 to reduce the number of saw cuts within the ROW. Utility trench callout has been updated to reference the city's minor excavation pavement repair details. See Sheet C-20 for more information.

Comment: Update Driveway Detail. See notes on snips below.



- 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. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED 8.33% SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
 3. DRIVEWAY CURB RADIUS SHALL NOT BE LARGER THAN REQUIRED BY THE SITE'S DESIGN VEHICLE.
 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.



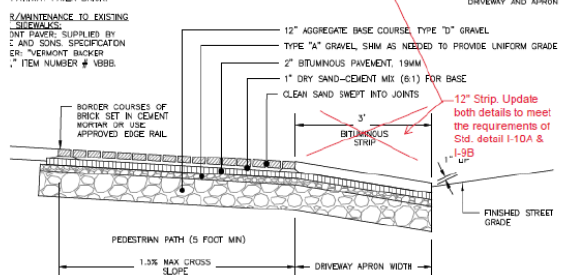
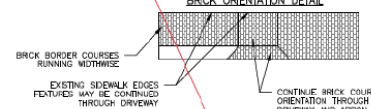
DRIVEWAY APRON LAYOUT

NOT TO SCALE

TO BE USED:

CONSTRUCTION:
FINE HALL PATHWAY PAVEMENT
MFG. BY FINE HALL BRICK
MADE IN NORTH CAROLINA
PROVIDED EQUAL
NICE ITEM #10023, FINE
PATHWAY PAVEMENT BRICK.

MAINTENANCE TO EXISTING
SIDEWALKS:
PNT PAVING SUPPLIED BY
C AND SONS SPECIFICATION
OR "NEAREST EQUIVALENT"
ITEM NUMBER # VB88.



BRICK DRIVEWAY APRON WITH BITUMINOUS BASE

NOT TO SCALE

Response: We have updated our plans to show a 12" pavement strip. See sheets C-10, C-30, and C-40 for additional information.

Comment: The driveway width does not meet city standards and the applicant shall provide information in support of a waiver.

Response: A waiver has been requested regarding the proposed driveway width. See Section F. Waivers for information.

Comment: The proposed driveway does not meet driveway separation standards. The abutting driveway does not appear to be used for vehicle access (or very limited use). I would note the project is reducing the driveway separation distance.

Response: Thank you for your comment. We have added a waiver request for the driveway separation distance.

Comment: Please clarify whether there is 5' of clear width" along the front walkway at Pine St. i.e. the path is clear of intrusions like electrical meters, gas meters, etc.

Response: Dimensional measurements and callouts have been added to the site plan to indicate a 5' minimum clear width along Pine Street. We anticipate electrical meters will be located on the northeast face of the building. See sheet C-10 and C-20 for more information.



Comment: *Information on the mechanical vehicle stacking system shall be provided. Further, Staff suggests a generator be provided on-site as a back-up for the mechanical parking system in the event of electrical outage(s).*

Response: This building doesn't require a generator. During a power outage, there is no risk to people, only an inconvenience that residents can't get their car out. Given the project's vicinity to schools and hospitals within the urban core, long-term power outages are not a concern to the Applicant. Drawings of the mechanical parking system are included with this submission package. Residents are able to take their bikes through the stair egress and out during power outages.

Comment: *The amount of provided off-street parking spaces is greater than 10% over the minimum requirement listed in Table 19-A; please provide a parking study in support of this count, otherwise the off-street parking count should be reduced to no more than ten parking spaces.*

Response: Please refer to Section S. Parking Analysis document for supporting documentation that supports the number of proposed parking spaces.

Comment: *The parking aisle width does not meet the City standards and the applicant shall provide information in support of a waiver.*

Response: A waiver has been requested regarding the proposed parking aisle width. We have conducted vehicle tracking movements and recommend various parking spaces are restricted to a permissible vehicle table as shown on Sheet C-10 and outlined in Section F. Waivers.

Comment: *The bike/ski/pedal storage room on the Site Plan appears to provide ample bicycle parking, but we request the applicant please include a note (or similar parking summary calculation table) indicating the total spaces provided. Further, Staff suggests providing an exterior door at the bike room, so that residents do not have to navigate through the first-floor common space with their bicycle in ROW.*

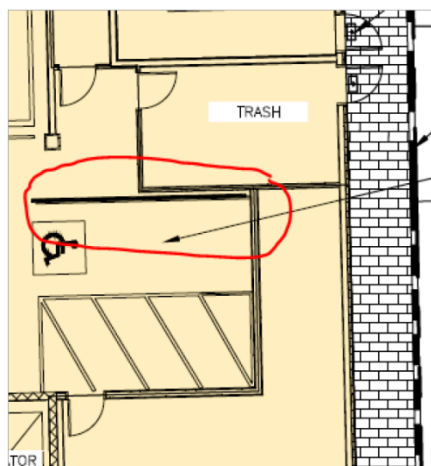
Response: A column has been added to the parking table on Sheet C-10 to address bicycle parking. To limit the number of egress locations on the side yard, we believe the stair egress door suffices as an entry to the bicycle room as there is an internal door that connects the two rooms.

Comment: *Thank you for providing notation of EV infrastructure in keeping with Technical Manual Standard 1.14, please also include the requirement that an additional 50% of spaces must be made EV-ready.*

Response: All 18 parking spaces located within the mechanical parking structure are anticipated to be equipped with EV charging stations. We added a note to the Site Plan that states 50% of spaces shall be EV ready). See sheet C-10 for additional information.



Comment: Please clarify what the circled area (see snip below) parallel to the ADA-accessible parking space is; if it is a wall, or some sort of partition, it will be problematic for anyone trying to open their driver's side door (or passenger's side, if the vehicle is backed in).



Response: The circled line is the parking space line striping. The line is to indicate the ADA parking space is 8'x18'. Dimensions have been added to sheet C-10. The user of the ADA space has an available 16' of width to park/maneuver within.

Environmental Quality Standards:

Comment: Please include landscape plan that includes tree protection measures to be implemented for the existing 12" elm tree on Pine St. See Technical Manual for example.

- Please show position and style of tree protection fencing to be installed during construction.
- Provide detailed notes on prohibitions within tree protection areas
- Provide explicit detail of alternative construction methods to be utilized when incursions into the biologically sensitive areas (root zones) of the existing trees is unavoidable
 - Critical root zone for Elm id defined as a circle of radius 1.5' per inch of stem DBH centered on the stem.

Response: A tree protection detail has been added to the Landscape Plan. See the revised Landscape Plan for additional information.

Comment: Please detail the pruning required for the Boxelder tree in the NE corner of the property. Please show position and style of tree protection fencing to be installed during construction

- Refer to the ANSI A300 pruning standard.

Response: See the revised Landscape Plan for additional information.



Comment: Please include species of proposed street tree on landscape plans.

- Please do not propose maple species or anything in the genus *Acer* as the greater Portland area is oversaturated with maple species that creates an acute susceptibility to Asian Longhorned Beetle infestation.

Response: The new street tree will be an elm tree to match the existing street tree on the project's frontage. See the revised Landscape Plan for additional information.

Comment: The proposed project carries a street tree requirement of 9 trees (1 per residential unit)

- With the proposed street tree, that leaves 8 remaining required street trees.

Response: Due to the confined street frontage along the lot, the design team is proposing one new street tree and one existing tree to remain undisturbed for a total of two street trees. The required fee will be contributed to the Street Tree Fund to compensate for this requirement.

Comment: The granite border treewell(s) in the sidewalk must comply with the Technical Manual Article 4, Figure IV-4B standard, in that they should be curved rather than rectangular; please update the plans accordingly.

Response: The landscape architect recommends rectangular tree pits to maximize the planted area and mirror the existing tree well that currently exists onsite. We are working with the landscape architect to finalize the tree well and granite block setback from the curb to account for street parking car door openings. It should be noted that the existing tree that is to remain currently has a rectangle flush granite curb tree box. Final Designs are forthcoming.

Comment: The plan view of erosion control on the Construction Management Plan should include catch basin inlet protection for the existing catch basins located within the street in front of the project.

Response: Catch Basin inlet protection for existing catch basins 1 & 2 along Pine street have been added to sheet C-03. See the revised Construction Management Plan for additional information.

Comment: The piping layout at the southern corner of the site at the end of the R-Tank system and the proposed F-Basin is complex, where in it appears that there is an extra 4" invert inlet to the F-Basin; please clarify. We recommend a detail view be included with the construction documents.

Response: The 4" underdrain below the tank system will be piped to the F basin such that a cap with a drilled hole can act as an orifice and be accessible. (2) 6" pipes will act as overflow bypassing the F basin. A detail has been provided on Sheet C-44 showing a cross section of the BMP system. Please see sheet C-30 and C-44 for additional information.



Comment: Roof drain connections are shown, but it is unclear where the foundation drain pipe connects into the storm drain system; please clarify. Further, at the northern corner of the site, it appears that the foundation drain crosses the property line; if this is intentional, it will likely require a license agreement.

Response: The foundation drain connection to the storm drain has been added to the plan set. See Sheet C-30 for additional information. The foundation drain is included as part of the foundation license and is to be developed and executed by the applicant and city at a later date, typical of past projects with a maximum front zoning setback. See note on the northern building corner of Sheet C-10 for additional information.

Comment: Prior to authorizing a new stormwater connection into the combined sewer, DPW will require that the applicant provide an on-site stormwater detention volume equal to the greater of 1" of rainfall times the impervious area within the project disturbance area or the projected average 24 hour daily sanitary sewer flow being added to the combined sewer system by the project. It appears the proposed storage volume will need to be increased to provide detention of 1" of rainfall times site's proposed impervious area.

Response: The stormwater detention system has been increased to provide storage for 1" of rainfall over the site's impervious area. Please refer to Section J. Stormwater Report for more information.

Public Infrastructure and Community Safety Standards:

Comment: Please provide the ability to serve letters, as received from each of the utility companies.

Response: Ability to serve letters, will be uploaded to the City's portal when received.

Comment: The demolition of the existing water service required termination at the main per Portland Water District requirements. That area should be identified for trenching and repair. Similarly, it should be clarified if the sewer service removal will also require additional trenching.

Response: Our plans have been updated to show the existing water service will be terminated per Portland Water District's Standards. Trenching limits for the removal of existing utilities have been updated and can be seen on Sheet C-03 and Sheet C-20.

Site Design Standards:

Comment: Please address this standard within your required narrative, presently it refers to Section O, the Architectural Design Narrative, which itself does not specifically address this standard.

Response: Please refer to the revised architectural design narrative for additional information.



Comment: Please indicate a snow storage area on the Site Plan, demonstrating the area(s) will not encroach on parking, walkways, or the any stormwater management systems.

Response: Due to covered parking, it is anticipated that minimal snow removal will be required for this site. A small snow storage area has been added to the south side of the site to store the snow from the side yard walkway. See Sheet C-10 for additional information.

Comment: The applicant will ultimately need to seek approval from the Historic preservation Board in the form of A certificate of Appropriateness. Please revise your narrative to indicate the subject property is within an Historic District, as the current submittal states it is not.

Response: Please refer to the revised architectural design narrative for additional information.

Other:

Comment: More attention should be paid to the Construction Management Plan (the overhead view, in particular). The narrative states the following items will be prepared on a plan for City staff to review prior to approval, which we kindly request to the maximum extent practical:

- The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan.

Response: The project team is coordinating with the contractor to provide a more detailed construction management plan within the subsequent submission.

Comment: The depiction of a construction entrance over the sidewalk is incongruous with the note the sidewalk will remain open. Ideally this entrance will not be located in the ROW. However, as the site is extremely tight, a Traffic Control Plan (TCP) will need to be submitted in conjunction with any impacts to the ROW. We would kindly request to see a concept of this prior to appearance before/approval by the Planning Board. If the project efforts do need to occupy a portion of the sidewalk or street for an extended period, a cross sectional view of the ROW will be required.

Response: Conceptual traffic control will be included within the forthcoming construction management plan noted above. Once the final project parameters are known, a formal TCP is anticipated to come during the building permit phase, typical of previous projects.

Zoning Dimensional Review:

Comment: Please confirm side setbacks.

Response: Side setbacks are required for parcels that are abutting residential zones. This project's side yard does not abut a residential zoning district therefore is not subject to a side yard setback.



Comment: Please provide additional information regarding Structure Height. For the overall height, please provide a measurement documenting the height from the average grade to the top of the floor for the rooftop deck. On the elevations, a measurement to the roof is listed, but it is unclear whether that includes the roof deck or not.

Further, please provide additional information on the proposed rooftop sauna amenity, specifically how it meets the definition for appurtenance (listed below), as it exceeds the maximum allowed building height. Section 3 of the LUC defines it as: "Appurtenance. A device or structure not designed for human occupancy and attached to the exterior of a building." A sauna, is not considered a rooftop appurtenance exempt from height restrictions under Section 7.5.1 (G); therefore, the sauna would need to be under 45'.

Response: The building height has been revised to be below 45' and the sauna has been removed from the rooftop programming. Please refer to the revised elevations for additional information.

Please let us know if you have any additional questions or comments.

Sincerely,



Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.



Zach Stevens, P.E.
Project Engineer
Acorn Engineering, Inc.

Revised Plans:

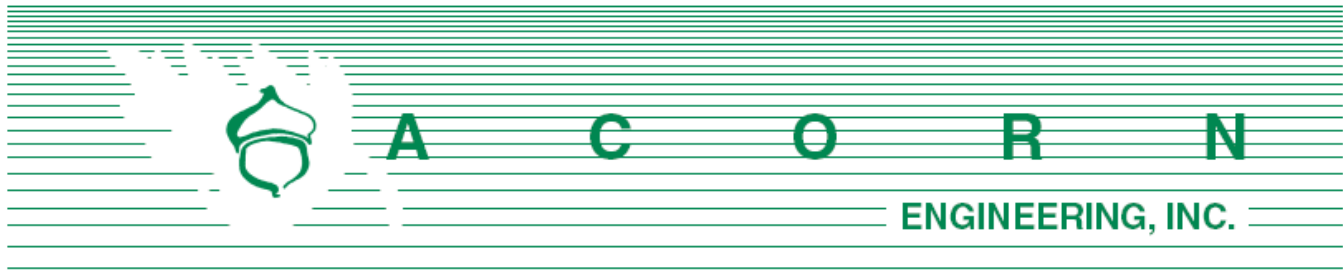
- 4. Construction Management Plan
- 5. Site Plan
- 6. Utility Plan
- 7. Grading Plan
- 8. Site Details – 1
- 9. Focal Point Details
- 20. A1.01 First Floor Plan
- 25. A4.01 Exterior Elevations
- 26. A4.02 Exterior Elevations
- 30. Harding Steel – 1
- 31. Harding Steel – 2
- 40. L0-00 Cover
- 41. L0-01 Notes
- 42. L1-00 Ground Material Plans
- 43. L1-01 Roof Materials Plans
- 45. L3-00 Landscape Details



Revised Documents:

- D. Zoning Assessment
- F. Waiver Requests
- J. Stormwater Report
- M. Wastewater Capacity
- O. Arch Design Narrative
- P. Utilities
- Q. Construction Management Plan
- S. Parking Analysis





City of Portland Planning Department
Natasha Kypfer – Planner
389 Congress Street, 4th Floor
Portland, Maine 04101

April 1, 2024

Subject: Comment Response Letter #2
64 Pine Street, Portland, Maine – Major Site Plan Application

On behalf of 64 Pine Street, LLC and the design team, we are pleased to respond to the following comments from the City of Portland Planning Department review of the 64 Pine Street, Major Site Plan Application. The following is in response to the City Staff comments received March 13, 2024.

DPW Comments:

Comment: The applicant shall monitor and maintain the existing tree by following the technical manual tree preservation standards when installing or abandoning utilities near the existing tree as well as during the installation of the proposed curb.

Response: Following the onsite meeting with City Staff, the applicant is requesting all removal of all existing trees along the property frontage and the existing tree located in the southeastern corner of the lot, due the proposed excavations' proximity to tree roots. Please refer to Document X regarding the abutter's agreement of removing the existing tree in the corner of lot shared with the Reiche School property line.

Comment: Any street signage that is disturbed as part of construction shall be reset and/or replaced as needed int its current location.

Response: See sheet C-10 regarding callouts indicating proposed locations/replacement of street signs.

Comment: Use tick marks to layout the proposed parking along Pine Street to identify tree planter and vehicle door conflicts. Make adjustments where needed.

Response: See sheet C-10 regarding tick marks for proposed parking spaces for visual purposes.

Comment: The applicant shall provide a detail for the proposed benches that include installation method, spacing and hot it will look (what will the finish be?). Dimensions should be included to ensure accessible clear space (per ada requirements) around the benches can be maintained.

Response: Please refer to landscape architecture plans and details for additional information.

Comment: A dimensional shall be added to the plans between the ROW line and the proposed benches accessible clear space.

Response: Dimensions have been added to sheet C-10 from benches to ROW line. See landscape architecture plans and details for additional information.

Comment: The applicant shall provide documentation from the neighboring property owner that clearly defines the status of the driveway. Based on the results, the proposed granite curb installation may have to be extended to close off the existing driveway to meet the driveway separation requirement and provide additional on street parking.

Response: Please refer to Document X, included with this submission.

Please let us know if you have any additional questions or comments.

Sincerely,



Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.



Zach Stevens, P.E.
Project Engineer
Acorn Engineering, Inc.

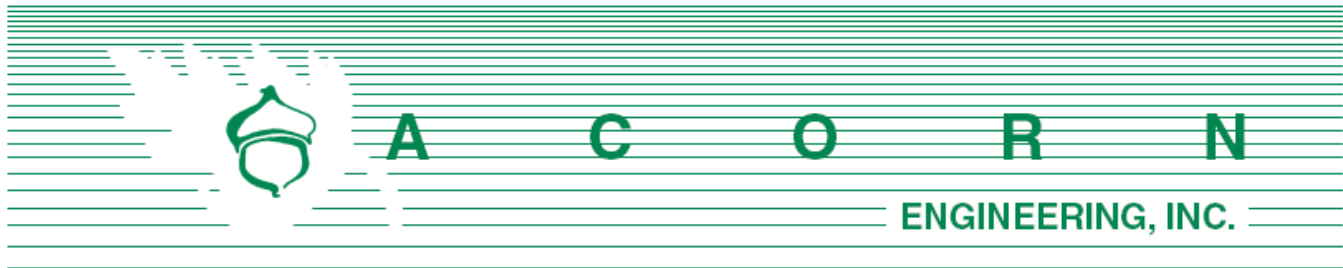
Revised/New Plans:

- 4. Construction Management Plan
- 5. Site Plan
- 6. Utility Plan
- 7. Grading and Drainage Plan
- 8. Site Details – 1
- 11. Drainage Details – 1
- 14. Turning Templates
- 20. A1.01 First Floor Plan
- 21. A1.02 Second Floor Plan
- 22. A1.03 Third Floor Plan
- 23. A1.04 Fourth Floor Plan
- 40. L0-00 Cover
- 41. L0-01 Notes
- 42. L1-00 Ground Material Plans
- 43. L1-01 Roof Materials Plans
- 45. L3-00 Landscape Details
- 46. L3-01 Landscape Details
- 47. L3-02 Landscape Details
- 48. L3-03 Landscape Details
- 49. L3-04 Landscape Details
- 50. L2-00 Ground Planting Plan
- 51. L2-01 Roof Planting Plan

Revised/New Documents:

- F. Waiver Requests
- X. 58 Pine Street, LLC Letter
- Y. Wastewater Capacity Authorization





City of Portland Planning Department
 Natasha Kypfer – Planner
 389 Congress Street, 4th Floor
 Portland, Maine 04101

May 7th, 2024

Subject: Comment Response Letter #2
 64 Pine Street, Portland, Maine – Major Site Plan Application

On behalf of 64 Pine Street, LLC and the design team, Acorn Engineering is pleased to respond to the following comments from the City of Portland Planning Department review of the 64 Pine Street, Major Site Plan Application. The following is in response to the City Staff comments received May 1st, 2024.

Transportation Standards:

Comment: While the applicant suggests that given the short queuing length and visibility, when the garage door is open then a car entering will know to yield to the existing vehicle prior to entering the site. Staff notes that, upon further review, a wider driveway should be considered, particularly as it relates to simultaneous entry and exit movements. Staff encourages the use of technology which indicates when exist/entry is okay, for example, a green and red indicator light mounted to the outside elevation which signals when to attempt operation of the garage door; see example photograph on Page 7. The installation of said equipment will provide feedback to motorists as to potential vehicle conflicts entering the site related to this waiver, and the parking aisle waiver request.

Response: The Garage door and driveway have been increased in width from 12' to 18' to allow two way access and respond to comments from the Historic Preservation Board. We have provided a turning template that illustrates this condition and can be found in the plan titled 14. Turning Templates. With this change we believe the lighting technology which indicates if exit/entry is okay is not necessary.

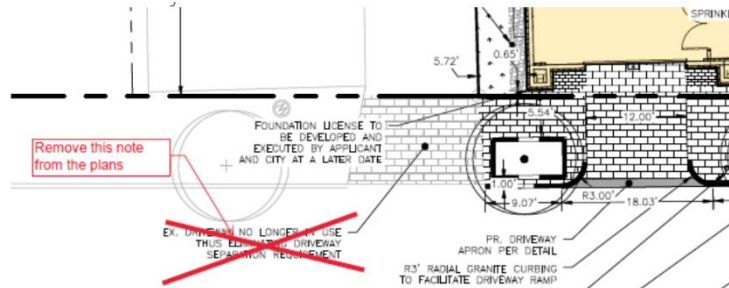
It is also important to note that with the increased driveway width, the proposed separation between the new driveway and the existing driveway northeast of our site (Chaval) are now spaced 6.12' apart. See revised document titled Waivers for additional information.

Comment: DPW requires the applicant to maintain a 7" reveal where possible with a minimum reveal of 6" when the requirement cannot be met.

Response: The curb reveal along the project frontage has been updated to 7". It should be noted that the curb reveal at the adjacent driveway entrance northeast of the site (Chaval) currently has a 5" curb reveal at the match point. Because we are providing an additional

driveway 6.12' apart, we are proposing to hold a 6" curb reveal at our curb cut and then will transition to a 7" reveal for the rest of the curbline along our frontage.

Comment: Remove Driveway note.



Response: The note has been removed. See Sheet C-10 for additional information.

Comment: The reveal of the proposed granite curb for the planters should be reduced to 3" to 4" to decrease conflict with car doors.

Response: The curb reveal for the tree boxes have been updated to hold a 3-4" curb reveal. See updated detail per LA.

Comment: The edges and corners of the granite planter need to be beveled for the safety of pedestrians and other users that may come in contact with the planters.

Response: See updated detail per LA which incorporates the beveled edge.

Comment: The pedestrian path for the proposed driveway can be reduced so the grade break is at the back of the proposed tree wells.

Response: The pedestrian path has been reduced so the grade break is in line with the back of the tree wells. See Sheet C-30 for additional information.

Environmental Quality Standards:

Comment: DPW is not opposed to have a minimum offset of 1', however, they will require the edges and the corners of the granite planter to be beveled for the safety of the pedestrians and other users that may come in contact with the planters.

Response: See updated detail per LA which incorporates the beveled edge.

Comment: The proposed project carries a street tree requirement of 9 trees (1 per residential unit)

- With the proposed 3 street trees, that leaves 6 remaining required street trees
- Please note the alternative method utilized to account for the remaining required trees.

Response: As part of the driveway width increase, a street tree has been removed resulting in a total of two street trees for this project. The fee in lieu will need to be paid for the remaining trees to meet the street tree requirement.

Comment: The Applicant is showing two plans for pavement repair in the street for utility work. The



Construction Management plan shows repair for demolished existing services and the Utility Plan shows repair for proposed services as well as for the proposed curb installation. If it is anticipated that the entire impacted roadway area is paved at one time, I'd recommend showing it all on one sheet for clarity during construction.

Response: The trench cuts and anticipated scope for retired services have been reconciled.

Public Infrastructure and Community Safety Standards:

Comment: *Reminder to please provide the ability to serve letters, as received for each of the utility companies*

Response: See the document titled P. Utilities for the ability to serve letters we have received thus far.

Site Design Standards:

Comment: *The applicant will need to seek approval from the Historic Preservation Board in the form of Certificate of Appropriateness.*

Response: The next Historic Preservation Board Meeting is scheduled for May 16th, 2024.

Other:

Comment: *Construction Management Plan: Staff suggests submitting a more robust CMP, which details: truck routing, contractor parking, temporary ESV measures, laydown area, area for loading/unloading, temporary contractor offices (the current plan denotes solely a small job trailer, is that all that is anticipated?), location of the stabilized construction entrance, any proposed temporary street/sidewalk closures, and any proposed vehicle/pedestrian rerouting. As I am sure you can appreciate, the site constraints are such that we want to be cognizant of impact to the City ROW along Pine Street within this highly traveled area of the West End.*

Response: The project team has contacted Great Falls Construction (GFC) to be the General Contractor for this project. We have worked with GFC to revise the construction management plan in accordance with the above request. See Sheet C-03 for additional information. Another level of detail will be provided such as site logistics and traffic control once the project moves towards a building permit and additional subcontractors are brought on board.

Comment: *Please be prepared to share a video and more information on the mechanical vehicle stacking system at the Planning Board public hearing, per their request at the workshop.*

Response: The project team is prepared to share a video of the mechanical vehicle stacking system at the next planning board meeting. Thank you for the reminder and we look forward to seeing you then.



Thank you for your review and collaboration.

Sincerely,



Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.



Zach Stevens, P.E.
Project Engineer
Acorn Engineering, Inc.

Revised Plans:

- 4. Construction Management Plan
- 5. Site Plan
- 6. Utility Plan
- 7. Grading Plan
- 14. Turning Templates

Revised Documents:

- F. Waiver Requests
- P. Utilities



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		
<u>Yes</u>	NA	Project Description Cover letter with detailed project description
<u>Yes</u>	NA	Completed Checklist (this document)
<u>Yes</u>	NA	Evidence of Right, Title, and Interest Deeds, leases, or purchase and sales agreements
Yes	<u>NA</u>	Evidence of State or Federal Approvals Permits or letters of non-jurisdiction, if applicable
<u>Yes</u>	NA	Zoning Assessment (see Zoning Assessment Table) Summary of compliance with use and dimensional standards of the land use code
<u>Yes</u>	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
<u>Yes</u>	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
<u>Yes</u>	NA	Waiver Requests (see Waiver Table) Written request for waiver describing request and compliance with applicable waiver standards
<u>Yes</u>	NA	Financial Capability Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
<u>Yes</u>	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 <u>NA</u>	Impact on Surrounding Street Systems (14-14.6.1(A)) Describe incremental volume of traffic impacts and mitigation measures. If needed
<u>Yes</u> NA See Drawings	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 <u>NA</u>	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
<u>Yes</u> NA See Drawings	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 <u>NA</u>	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	<u>NA</u>	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
<u>Yes</u>	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
<u>Yes</u>	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
<u>Yes</u>	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		
<u>Yes</u>	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
<u>Yes</u>	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)
<u>Yes</u>	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	<u>NA</u>	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	<u>NA</u>	Shadows (14-14.6.4(B)), if applicable Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes	<u>NA</u>	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	<u>NA</u>	View Corridors (14-14.6.4(D)), if applicable Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes	<u>NA</u>	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

<u>Yes</u>	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	<u>NA</u>	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	<u>NA</u>	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
<u>Yes</u>	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

C. Right, Title & Interest

See attached quitclaim deed for the project property.





Attorneys at Law

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RICHARD H. SPENCER, JR.
F. BRUCE SLEEPER
LESLIE E. LOWRY III
PATRICIA M. DUNN
MICHAEL J. QUINLAN
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June 7, 2019

Thomas Landry
c/o 64 Pine Street LLC
100 Congress Street
Portland, ME 04101

RE: 64 Pine Street, Portland, Maine

Dear Tom,

Enclosed please find the original Quitclaim from Norway Savings Bank, as foreclosing mortgagee pursuant to Mortgages and Assignments of Rents from Madeline, LLC to 64 Pine Street LLC regarding the above-referenced property which has now been recorded on March 8, 2019 in the Cumberland County Registry of Deeds in Book 35505, Page 186. This deed should be retained along with other important papers for safekeeping.

Also, enclosed please find your original Chicago Title Insurance Company Owner Policy No. 7230619-216836136 for the above captioned real estate issued in the amount of \$1,075,000.00. Please be sure to keep this policy in a safe place as well.

If you have any questions or need further information, please give me a call.

Sincerely,

Leslie E. Lowry, Esq.

~ Over 60 Years of Service ~

DLN: 1001940051790

SHORT FORM QUITCLAIM (RELEASE) DEED WITHOUT COVENANT

NORWAY SAVINGS BANK, as foreclosing mortgagee (the "Grantor"), pursuant to Mortgages and Assignments of Rents from **MADELINE, LLC** (the "Borrower") to Norway Savings Bank (the "Bank"), said Mortgages dated May 2, 2017 and recorded in the Cumberland County Registry of Deeds in Book 33985, Page 58, and March 22, 2018 and recorded in said Registry in Book 34732, Page 97; and, in said Assignments of Rents recorded in Book 33985, Page 71 and Book 34732, Page 105 (the "Property"), FOR CONSIDERATION PAID, releases to **64 PINE STREET LLC**, a Maine limited liability company, with a mailing address of 10 Free Street, P.O. Box 4510, Portland, ME 04112, as buyer at the foreclosure auction on January 10, 2019 (the "Grantee"), certain real property, together with any improvements thereon, located at 64 Pine Street, Portland, Cumberland County, Maine and more particularly described on Exhibit A attached hereto and made a part hereof.

This deed is a conveyance of all right, title and interest of the grantor/mortgagee and all parties to said action, solely as to the property described herein pursuant to 14 M.R.S.A. § 6203-A. For compliance with 14 M.R.S.A. § 6203-A, reference is made to the Notice of Mortgagee's Sale of Real Estate, Fixtures, and Tangible and Intangible Personal Property of Miss M, Inc. and Madeline, LLC and recorded in the Cumberland County Registry of Deeds at Book 35311, Page 47, and the Affidavit of Sale recorded in the Cumberland County Registry of Deeds in Book 35448, Page 176.

IN WITNESS WHEREOF, NORWAY SAVINGS BANK has caused this instrument to be executed by SHAWN BALDWIN, its VICE PRESIDENT, thereunto duly authorized, this 7th day of MARCH, 2019.

WITNESS:



Name:

NORWAY SAVINGS BANK

By: Shawn Baldwin

Print Name:

SHAWN BALDWINTitle: VICE PRESIDENT

State of Maine

County of Cumberland, SSDate: March 7, 2019

PERSONALLY APPEARED the above-named Shawn Baldwin of NORWAY SAVINGS BANK as aforesaid, and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of said NORWAY SAVINGS BANK.

Before me,



Notary Public/~~Attorney at Law~~
Commission Expires

JANICE S. BROWN
NOTARY PUBLIC, MAINE
MY COMMISSION EXPIRES MAY 11, 2021

MAINE REAL ESTATE TAX PAID

SEAL

Exhibit A

A certain lot or parcel of land, with the buildings and improvements thereon, situated on the southeasterly side of Pine Street, in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

BEGINNING on the southeasterly side of said Pine Street at a point distant one hundred sixty (160) feet southwesterly from the intersection of said side of Pine Street with the southwesterly side of Brackett Street; thence southwesterly along said southeasterly side of Pine Street forty (40) feet to a point; thence southeasterly by a line parallel with the southwesterly side of Brackett Street one hundred sixteen and 61 hundredths (116.61) feet to a fence; thence by said fence northeasterly forty (40) feet to a point; thence northwesterly by a line parallel with said southwesterly side of Brackett Street one hundred fifteen and seventy-two hundredths (115.72) feet to the point of beginning.

ALSO, a certain lot or parcel of land, with the buildings thereon, situated on the southeasterly side of Pine Street, in the City of Portland, County of Cumberland and State of Main, bounded and described as follows:

Beginning at a point in the southeasterly side of Pine Street distant two hundred (200) feet southwesterly from an angle formed by Brackett and Pine Streets; thence running southeasterly at right angles with said Pine Street one hundred thirteen (113) feet, more or less, to land formerly of Arthur G. Huff; thence southwesterly on the line between this lot and said Huff land and land formerly of Daniel Knight, forty-five (45) feet, more or less, to land formerly owned by Benjamin F. Nelson; thence northwesterly by said Nelson land, land formerly owned by Joseph C. Perry and land now or formerly owned by Richard D. Berry, one hundred thirteen (113) feet, more or less, to said Pine Street; thence northeasterly on said Pine Street, forty-five (45) feet, more or less, to the point of beginning.

MEANING AND INTENDING to describe and to convey herein the same premises conveyed to Madeline, LLC by deed from Princess K, LLC dated May 2, 2017, recorded in the Cumberland County Registry of Deeds in Book 33985, Page 56.

Received
Recorded Register of Deeds
Mar 08, 2019 02:24:19P
Cumberland County
Nancy A. Lane



Policy No.: 1027-1-22521.12-2019.7230619-216836136

OWNER'S POLICY OF TITLE INSURANCE

Issued by

CHICAGO TITLE INSURANCE COMPANY

Any notice of claim and any other notice or statement in writing required to be given the Company under this Policy must be given to the Company at the address shown in Section 18 of the Conditions.

COVERED RISKS

SUBJECT TO THE EXCLUSIONS FROM COVERAGE, THE EXCEPTIONS FROM COVERAGE CONTAINED IN SCHEDULE B, AND THE CONDITIONS, CHICAGO TITLE INSURANCE COMPANY, a Florida corporation, (the "Company") insures as of Date of Policy and, to the extent stated in Covered Risks 9 and 10, after Date of Policy, against loss or damage, not exceeding the Amount of Insurance, sustained or incurred by the Insured by reason of:

1. Title being vested other than as stated in Schedule A.
2. Any defect in or lien or encumbrance on the Title. This Covered Risk includes but is not limited to insurance against loss from
 - (a) A defect in the Title caused by
 - (i) forgery, fraud, undue influence, duress, incompetency, incapacity, or impersonation;
 - (ii) failure of any person or Entity to have authorized a transfer or conveyance;
 - (iii) a document affecting Title not properly created, executed, witnessed, sealed, acknowledged, notarized, or delivered;
 - (iv) failure to perform those acts necessary to create a document by electronic means authorized by law;
 - (v) a document executed under a falsified, expired, or otherwise invalid power of attorney;
 - (vi) a document not properly filed, recorded, or indexed in the Public Records including failure to perform those acts by electronic means authorized by law; or
 - (vii) a defective judicial or administrative proceeding.
 - (b) The lien of real estate taxes or assessments imposed on the Title by a governmental authority due or payable, but unpaid.
 - (c) Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
3. Unmarketable Title.
4. No right of access to and from the Land.
5. The violation or enforcement of any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (a) the occupancy, use, or enjoyment of the Land;
 - (b) the character, dimensions, or location of any improvement erected on the Land;
 - (c) the subdivision of land; or
 - (d) environmental protection
 if a notice, describing any part of the Land, is recorded in the Public Records setting forth the violation or intention to enforce, but only to the extent of the violation or enforcement referred to in that notice.
6. An enforcement action based on the exercise of a governmental police power not covered by Covered Risk 5 if a notice of the enforcement action, describing any part of the Land, is recorded in the Public Records, but only to the extent of the enforcement referred to in that notice.
7. The exercise of the rights of eminent domain if a notice of the exercise, describing any part of the Land, is recorded in the Public Records.
8. Any taking by a governmental body that has occurred and is binding on the rights of a purchaser for value without Knowledge.
9. Title being vested other than as stated Schedule A or being defective
 - (a) as a result of the avoidance in whole or in part, or from a court order providing an alternative remedy, of a transfer of all or any part of the title to or any interest in the Land occurring prior to the transaction vesting Title as shown in Schedule A because that prior transfer constituted a fraudulent or preferential transfer under federal bankruptcy, state insolvency, or similar creditors' rights laws; or
 - (b) because the instrument of transfer vesting Title as shown in Schedule A constitutes a preferential transfer under federal bankruptcy, state insolvency, or similar creditors' rights laws by reason of the failure of its recording in the Public Records
 - (i) to be timely, or
 - (ii) to impart notice of its existence to a purchaser for value or to a judgment or lien creditor.
10. Any defect in or lien or encumbrance on the Title or other matter included in Covered Risks 1 through 9



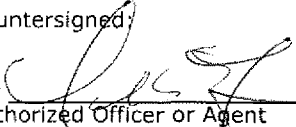
that has been created or attached or has been filed or recorded in the Public Records subsequent to Date of Policy and prior to the recording of the

deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The Company will also pay the costs, attorneys' fees, and expenses incurred in defense of any matter insured against by this Policy, but only to the extent provided in the Conditions.

IN WITNESS WHEREOF, CHICAGO TITLE INSURANCE COMPANY has caused this policy to be signed and sealed by its duly authorized officers.

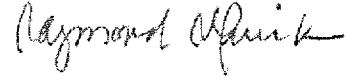
Countersigned:

By: 
Authorized Officer or Agent
Leslie E. Lowry
Jensen Baird Gardner & Henry
10 Free St
PO Box 4510
Portland, ME 04112
Tel: 207-775-7271
Fax: 207-775-7935



By:

CHICAGO TITLE INSURANCE COMPANY



President

Attest:



Secretary

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters:
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;

- (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
- (c) resulting in no loss or damage to the Insured Claimant;
- (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
- (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

CONDITIONS

1. DEFINITION OF TERMS

The following terms when used in this policy mean:

(a) "Amount of Insurance": The amount stated in Schedule A, as may be increased or decreased by endorsement to this policy, increased by Section 8(b), or decreased by Sections 10 and 11 of these Conditions.

(b) "Date of Policy": The date designated as "Date of Policy" in Schedule A.

(c) "Entity": A corporation, partnership, trust, limited liability company, or other similar legal entity.

(d) "Insured": The Insured named in Schedule A.

(i) The term "Insured" also includes



**CHICAGO TITLE INSURANCE COMPANY
ALTA OWNER POLICY**

SCHEDULE A

Agent's File No. 22521.12

POLICY NUMBER	DATE & TIME OF POLICY	AMOUNT OF INSURANCE
Owner: 7230619-216836136	March 8, 2019 @ 2:26 P.M.	\$ 1,075,000.00

ISSUED WITH LOAN POLICY NUMBERS:

1. Name of Insured: **64 Pine Street LLC**
2. The estate or interest in the Land that is encumbered by the Insured Mortgage is: **Fee Simple.**
3. Title to the estate or interest in the Land is at Date of Policy vested in:

64 Pine Street LLC by virtue of a Quitclaim Deed without Covenant from Norway Savings Bank, as foreclosing mortgagee pursuant to Mortgages and Assignments of Rents from Madeline, LLC, dated March 7, 2019 and recorded at the Cumberland County Registry of Deeds in Book 35505, Page 186.
4. The Insured Mortgage and its assignments, if any, are described as follows:

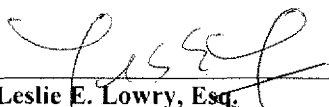
Mortgage from 64 Pine Street, LLC to Camden National Bank, in the original principal amount of \$860,000.00, dated March 7, 2019 and recorded at the Cumberland County Registry of Deeds in Book 35505, Page 188.

Assignment of Rents by and between 64 Pine Street, LLC and Camden National Bank, dated March 7, 2019 and recorded at the Cumberland County Registry of Deeds in Book 35505, Page 196.
5. The Land referred to in this policy is described as follows:

Street Address: **64 Pine Street**
City/Town: **Portland**
County: **Cumberland**
State/Zip: **Maine 04102**

and is more specifically described on Exhibit A attached hereto and made a part hereof.

CHICAGO TITLE INSURANCE COMPANY

BY: 
Leslie E. Lowry, Esq.
Jensen Baird Gardner & Henry

This policy is valid only if Schedule B is attached.

**CHICAGO TITLE INSURANCE COMPANY
ALTA OWNER POLICY**

Owner's Policy Number: 7230619-216836136

**SCHEDULE B – PART I
EXCEPTIONS FROM COVERAGE**

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Rights, facts, interests or claims of present tenants, lessees or parties in possession which are not shown by the Public Records, but which could be ascertained by an inspection of said Land or by making inquiry of persons in possession thereof.
2. Any liability for mechanics' or materialmen's liens.
3. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
4. The Mortgage and its assignments, if any, referred to in Item 4 of Schedule A.
5. Real estate taxes, assessments and water and sewer charges which become due and payable subsequent to the date of policy.
6. IF THE INSURED PREMISES IS A CONDOMINIUM UNIT:

Covenants, conditions, restrictions, reservations, easements, liens for assessments, options, powers of attorney, and limitations on Title, created by the laws of the state of the insured Land or set forth in the Master Deed or Declaration of Condominium, in the related By-Laws, in the Declaration of Trust, or Site Plans and Floor Plans as duly recorded in the appropriate land records office and as the same may have been lawfully amended, and in any instruments creating the estate or interest insured by this policy.
7. There is added after any Special Exception appearing in this Schedule B relative to covenants, conditions and restrictions, the following: '...but omitting any covenants or restrictions, if any, based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable, state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law.'
8. The exact acreage or square footage of the Land will not be insured.

☒ For additional exceptions, if any, see attached Schedule B – Part I Continuation Sheet.

Exceptions deleted from a Loan Policy, if any, are not deleted from the Owner's Policy unless there is an endorsement attached authorizing specific deletions. Affirmative insurance language under any Schedule B exception does NOT apply to the Owner's Policy unless otherwise specified. Deletion of a specific survey exception from a Loan Policy, if any, does not delete Exception 3 above from the Owner's Policy.

CHICAGO TITLE INSURANCE COMPANY

BY: _____



**CHICAGO TITLE INSURANCE COMPANY
ALTA OWNER POLICY**

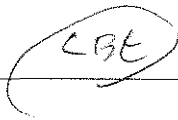
Owner's Policy Number: 7230619-216836136

SCHEDULE B – PART I CONTINUATION SHEET

9. Any exception, reservation, restriction, easement or condition set out in the attached Exhibit A.
10. Rights, facts, interests or claims of present tenants, lessees or parties in possession which are not shown by the Public Records, but which could be ascertained by an inspection of said Land or by making inquiry of persons in possession thereof.
11. Rights of others in and to the use of appurtenant easements insured herein and terms and conditions relative to the use thereof.

CHICAGO TITLE INSURANCE COMPANY

BY: _____



**CHICAGO TITLE INSURANCE COMPANY
ALTA OWNER POLICY**

Owner's Policy Number: 7230619-216836136

LEGAL DESCRIPTION - EXHIBIT A

64 Pine Street, Portland, Maine

A certain lot or parcel of land with the buildings thereon, situated on the Southeasterly side of Pine Street, in Portland, County of Cumberland and State of Maine, bounded and described as follows: Beginning on the Southeasterly side of said Pine Street at a point distant one hundred and sixty (160) feet Southwesterly from the intersection of said Pine Street with the Southwesterly side of Brackett Street; thence Southwesterly along said Southeasterly side of Pine Street forty (40) feet to a point; thence Southeasterly by a line parallel with the Southwesterly side of Brackett Street one hundred and sixteen and sixty-one hundredths (116.61) feet to a fence; thence by said fence Northeasterly forty (40) feet to a point; thence Northwesterly by a line parallel with said Southwesterly side of Brackett Street one hundred fifteen and seventy-two Hundredths (115.72) feet to the point of beginning.

Also, a certain lot or parcel of land, with the buildings thereon, situated on the Southeasterly side of Pine Street, in Portland, County of Cumberland and State of Maine, bounded and described as follows: Beginning at a point in the Southeasterly side of Pine Street distant two hundred (200) feet Southwesterly from an angle formed by Brackett Street and Pine Streets; thence running Southeasterly at right angles with said Pine Street one hundred thirteen (113) feet, more or less, to land formerly of Arthur G. Huff; thence Southwesterly on the line between this lot and said Huff land and land formerly of Daniel Knight, forty-five (45) feet, more or less, to land formerly owned by Benjamin F. Nelson; thence Northwesterly by said-Nelson land, land formerly owned by Joseph C. Perry and land now or formerly of Richard D. Berry, one hundred thirteen (113) feet, more or less, to said Pine Street; thence Northeasterly on said Pine Street, forty-five (45) feet, more or less, to the point of beginning.

(A) successors to the Title of the Insured by operation of law as distinguished from purchase, including heirs, devisees, survivors, personal representatives, or next of kin;

(B) successors to an Insured by dissolution, merger, consolidation, distribution, or reorganization;

(C) successors to an Insured by its conversion to another kind of Entity;

(D) a grantee of an Insured under a deed delivered without payment of actual valuable consideration conveying the Title

(1) if the stock, shares, memberships, or other equity interests of the grantee are wholly-owned by the named Insured,

(2) if the grantee wholly owns the named Insured,

(3) if the grantee is wholly-owned by an affiliated Entity of the named Insured, provided the affiliated Entity and the named Insured are both wholly-owned by the same person or Entity, or

(4) if the grantee is a trustee or beneficiary of a trust created by a written instrument established by the Insured named in Schedule A for estate planning purposes.

(ii) With regard to (A), (B), (C), and (D) reserving, however, all rights and defenses as to any successor that the Company would have had against any predecessor Insured.

(e) "Insured Claimant": An Insured claiming loss or damage.

(f) "Knowledge" or "Known": Actual knowledge, not constructive knowledge or notice that may be imputed to an Insured by reason of the Public Records or any other records that impart constructive notice of matters affecting the Title.

(g) "Land": The land described in Schedule A, and affixed improvements that by law constitute real property. The term "Land" does not include any property beyond the lines of the area described in Schedule A, nor any right, title, interest, estate, or easement in abutting streets, roads, avenues, alleys, lanes, ways or waterways, but this does not modify or limit the extent that a right of access to and from the Land is insured by this policy.

(h) "Mortgage": Mortgage, deed of trust, trust deed, or other security instrument, including one evidenced by electronic means authorized by law.

(i) "Public Records": Records established under state statutes at Date of Policy for the purpose of imparting constructive notice of matters relating to real property to purchasers for value and without Knowledge. With respect to Covered Risk 5(d), "Public Records" shall also include environmental protection liens filed in the records of the clerk of the United States District Court for the district where the Land is located.

(j) "Title": The estate or interest described in Schedule A.

(k) "Unmarketable Title": Title affected by an alleged or apparent matter that would permit a prospective purchaser or lessee of the Title or lender on the Title to be released from the obligation to purchase, lease, or lend if there is a contractual condition requiring the delivery of marketable title.

2. CONTINUATION OF INSURANCE

The coverage of this policy shall continue in force as of Date of Policy in favor of an Insured, but only so long as the Insured retains an estate or interest in the Land, or holds an obligation secured by a purchase money Mortgage given by a purchaser from the Insured, or only so long as the Insured shall have liability by reason of warranties in any transfer or conveyance of the Title. This policy shall not continue in force in favor of any purchaser from the Insured of either (i) an

estate or interest in the Land, or (ii) an obligation secured by a purchase money Mortgage given to the Insured.

3. NOTICE OF CLAIM TO BE GIVEN BY INSURED CLAIMANT

The Insured shall notify the Company promptly in writing (i) in case of any litigation as set forth in Section 5(a) of these Conditions, (ii) in case Knowledge shall come to an Insured hereunder of any claim of title or interest that is adverse to the Title, as insured, and that might cause loss or damage for which the Company may be liable by virtue of this policy, or (iii) if the Title, as insured, is rejected as Unmarketable Title. If the Company is prejudiced by the failure of the Insured Claimant to provide prompt notice, the Company's liability to the Insured Claimant under the policy shall be reduced to the extent of the prejudice.

4. PROOF OF LOSS

In the event the Company is unable to determine the amount of loss or damage, the Company may, at its option, require as a condition of payment that the Insured Claimant furnish a signed proof of loss. The proof of loss must describe the defect, lien, encumbrance, or other matter insured against by this policy that constitutes the basis of loss or damage and shall state, to the extent possible, the basis of calculating the amount of the loss or damage.

5. DEFENSE AND PROSECUTION OF ACTIONS

(a) Upon written request by the Insured, and subject to the options contained in Section 7 of these Conditions, the Company, at its own cost and without unreasonable delay, shall provide for the defense of an Insured in litigation in which any third party asserts a claim covered by this policy adverse to the Insured. This obligation is limited to only those stated causes of action alleging matters insured against by this policy. The Company shall have the right to select counsel of its choice (subject to the right of the Insured to object for reasonable cause) to represent the Insured as to those stated causes of action. It shall not be liable for and will not pay the fees of any other counsel. The Company will not pay any fees, costs, or expenses incurred by the Insured in the defense of those causes of action that allege matters not insured against by this policy.

(b) The Company shall have the right, in addition to the options contained in Section 7 of these Conditions, at its own cost, to institute and prosecute any action or proceeding or to do any other act that in its opinion may be necessary or desirable to establish the Title, as insured, or to prevent or reduce loss or damage to the Insured. The Company may take any appropriate action under the terms of this policy, whether or not it shall be liable to the Insured. The exercise of these rights shall not be an admission of liability or waiver of any provision of this policy. If the Company exercises its rights under this subsection, it must do so diligently.

(c) Whenever the Company brings an action or asserts a defense as required or permitted by this policy, the Company may pursue the litigation to a final determination by a court of competent jurisdiction, and it expressly reserves the right, in its sole discretion, to appeal from any adverse judgment or order.

6. DUTY OF INSURED CLAIMANT TO COOPERATE

(a) In all cases where this policy permits or requires the Company to prosecute or provide for the defense of any action or proceeding and any appeals, the Insured shall secure to the Company the right to so prosecute or provide defense in the action or proceeding, including the right to use, at its option, the name of the Insured for this purpose. Whenever requested by the Company, the Insured, at the Company's expense,

shall give the Company all reasonable aid (i) in securing evidence, obtaining witnesses, prosecuting or defending the action or proceeding, or effecting settlement, and (ii) in any other lawful act that in the opinion of the Company may be necessary or desirable to establish the Title, or any other matter as insured. If the Company is prejudiced by the failure of the Insured to furnish the required cooperation, the Company's obligations to the Insured under the policy shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation, with regard to the matter or matters requiring such cooperation.

(b) The Company may reasonably require the Insured Claimant to submit to examination under oath by any authorized representative of the Company and to produce for examination, inspection, and copying, at such reasonable times and places as may be designated by the authorized representative of the Company, all records, in whatever medium maintained, including books, ledgers, checks, memoranda, correspondence, reports, e-mails, disks, tapes, and videos whether bearing a date before or after Date of Policy, that reasonably pertain to the loss or damage. Further, if requested by any authorized representative of the Company, the Insured Claimant shall grant its permission, in writing, for any authorized representative of the Company to examine, inspect, and copy all of these records in the custody or control of a third party that reasonably pertain to the loss or damage. All information designated as confidential by the Insured Claimant provided to the Company pursuant to this Section shall not be disclosed to others unless, in the reasonable judgment of the Company, it is necessary in the administration of the claim. Failure of the Insured Claimant to submit for examination under oath, produce any reasonably requested information, or grant permission to secure reasonably necessary information from third parties as required in this subsection, unless prohibited by law or governmental regulation, shall terminate any liability of the Company under this policy as to that claim.

7. OPTIONS TO PAY OR OTHERWISE SETTLE CLAIMS; TERMINATION OF LIABILITY

In case of a claim under this policy, the Company shall have the following additional options:

(a) To Pay or Tender Payment of the Amount of Insurance.

To pay or tender payment of the Amount of Insurance under this policy together with any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment or tender of payment and that the Company is obligated to pay.

Upon the exercise by the Company of this option, all liability and obligations of the Company to the Insured under this policy, other than to make the payment required in this subsection, shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation.

(b) To Pay or Otherwise Settle With Parties Other Than the Insured or With the Insured Claimant.

(i) To pay or otherwise settle with other parties for or in the name of an Insured Claimant any claim insured against under this policy. In addition, the Company will pay any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to the time of payment and that the Company is obligated to pay; or

(ii) To pay or otherwise settle with the Insured Claimant the loss or damage provided for under this policy, together with any costs, attorneys' fees, and expenses incurred by the Insured Claimant that were authorized by the Company up to

the time of payment and that the Company is obligated to pay.

Upon the exercise by the Company of either of the options provided for in subsections (b)(i) or (ii), the Company's obligations to the Insured under this policy for the claimed loss or damage, other than the payments required to be made, shall terminate, including any liability or obligation to defend, prosecute, or continue any litigation.

8. DETERMINATION AND EXTENT OF LIABILITY

This policy is a contract of indemnity against actual monetary loss or damage sustained or incurred by the Insured Claimant who has suffered loss or damage by reason of matters insured against by this policy.

(a) The extent of liability of the Company for loss or damage under this policy shall not exceed the lesser of

(i) the Amount of Insurance; or

(ii) the difference between the value of the Title as insured and the value of the Title subject to the risk insured against by this policy.

(b) If the Company pursues its rights under Section 5 of these Conditions and is unsuccessful in establishing the Title, as insured,

(i) the Amount of Insurance shall be increased by 10%, and

(ii) the Insured Claimant shall have the right to have the loss or damage determined either as of the date the claim was made by the Insured Claimant or as of the date it is settled and paid.

(c) In addition to the extent of liability under (a) and (b), the Company will also pay those costs, attorneys' fees, and expenses incurred in accordance with Sections 5 and 7 of these Conditions.

9. LIMITATION OF LIABILITY

(a) If the Company establishes the Title, or removes the alleged defect, lien or encumbrance, or cures the lack of a right of access to or from the Land, or cures the claim of Unmarketable Title, all as insured, in a reasonably diligent manner by any method, including litigation and the completion of any appeals, it shall have fully performed its obligations with respect to that matter and shall not be liable for any loss or damage caused to the Insured.

(b) In the event of any litigation, including litigation by the Company or with the Company's consent, the Company shall have no liability for loss or damage until there has been a final determination by a court of competent jurisdiction, and disposition of all appeals, adverse to the Title, as insured.

(c) The Company shall not be liable for loss or damage to the Insured for liability voluntarily assumed by the Insured in settling any claim or suit without the prior written consent of the Company.

10. REDUCTION OF INSURANCE; REDUCTION OR TERMINATION OF LIABILITY

All payments under this policy, except payments made for costs, attorneys' fees, and expenses, shall reduce the Amount of Insurance by the amount of the payment.

11. LIABILITY NONCUMULATIVE

The Amount of Insurance shall be reduced by any amount the Company pays under any policy insuring a Mortgage to which exception is taken in Schedule B or to which the Insured has agreed, assumed, or taken subject, or which is executed by an Insured after Date of Policy and which is a charge or lien on the Title, and the amount so paid shall be deemed a payment to the Insured under this policy.

12. PAYMENT OF LOSS

When liability and the extent of loss or damage have been



definitely fixed in accordance with these Conditions, the payment shall be made within 30 days.

13. RIGHTS OF RECOVERY UPON PAYMENT OR SETTLEMENT

(a) Whenever the Company shall have settled and paid a claim under this policy, it shall be subrogated and entitled to the rights of the Insured Claimant in the Title and all other rights and remedies in respect to the claim that the Insured Claimant has against any person or property, to the extent of the amount of any loss, costs, attorneys' fees, and expenses paid by the Company. If requested by the Company, the Insured Claimant shall execute documents to evidence the transfer to the Company of these rights and remedies. The Insured Claimant shall permit the Company to sue, compromise, or settle in the name of the Insured Claimant and to use the name of the Insured Claimant in any transaction or litigation involving these rights and remedies.

If a payment on account of a claim does not fully cover the loss of the Insured Claimant, the Company shall defer the exercise of its right to recover until after the Insured Claimant shall have recovered its loss.

(b) The Company's right of subrogation includes the rights of the Insured to indemnities, guaranties, other policies of insurance, or bonds, notwithstanding any terms or conditions contained in those instruments that address subrogation rights.

14. THIS SECTION IS INTENTIONALLY DELETED

15. LIABILITY LIMITED TO THIS POLICY; POLICY ENTIRE CONTRACT

(a) This policy together with all endorsements, if any, attached to it by the Company is the entire policy and contract between the Insured and the Company. In interpreting any provision of this policy, this policy shall be construed as a whole.

(b) Any claim of loss or damage that arises out of the status of the Title or by any action asserting such claim shall be restricted to this policy.

(c) Any amendment of or endorsement to this policy must be in writing and authenticated by an authorized person, or expressly incorporated by Schedule A of this policy.

(d) Each endorsement to this policy issued at any time is made a part of this policy and is subject to all of its terms and provisions. Except as the endorsement expressly states, it does not (i) modify any of the terms and provisions of the policy, (ii) modify any prior endorsement, (iii) extend the Date of Policy, or (iv) increase the Amount of Insurance.

16. SEVERABILITY

In the event any provision of this policy, in whole or in part, is held invalid or unenforceable under applicable law, the policy shall be deemed not to include that provision or such part held to be invalid, but all other provisions shall remain in full force and effect.

17. CHOICE OF LAW; FORUM

(a) Choice of Law: The Insured acknowledges the Company has underwritten the risks covered by this policy and determined the premium charged therefor in reliance upon the law affecting interests in real property and applicable to the interpretation, rights, remedies, or enforcement of policies of title insurance of the jurisdiction where the Land is located.

Therefore, the court or an arbitrator shall apply the law of the jurisdiction where the Land is located to determine the validity of claims against the Title that are adverse to the Insured and to interpret and enforce the terms of this policy. In neither case shall the court or arbitrator apply its conflicts of law principles to determine the applicable law.

(b) Choice of Forum: Any litigation or other proceeding brought by the Insured against the Company must be filed only in a state or federal court within the United States of America or its territories having appropriate jurisdiction.

18. NOTICES, WHERE SENT

Any notice of claim and any other notice or statement in writing required to be given to the Company under this policy must be given to the Company at CHICAGO TITLE INSURANCE COMPANY, Attn: Claims Department, P.O. Box 45023, Jacksonville, FL 32232-5023.



Portland, Maine



Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) B1 - Neighborhood Business

All Projects:

	Required	Proposed
Lot Size	N/A	9,920 SF
Area Per Dwelling Unit	435 SF	1,102 SF
Minimum Street Frontage	20 FT	85 FT
Front Yard Minimum	N/A	0.74 FT
Front Yard Maximum	10 FT	0.74 FT
Rear Yard	10 FT	10.56 FT
Yard Right	NONE	5.30 FT
Yard Left	NONE	5.92 FT
Side Street Setback	NONE	
Step Back	15*	15.20 FT
Maximum Lot Coverage	NONE	76.2%
Minimum Lot Coverage	NONE	76.2%
Maximum Height	45 FT	44.92 FT
Open Space	N/A	
Maximum Impervious Area	90%	84.6%
Pavement Setback	NONE	
Floor Area Ratio	NONE	
Off Street Parking Spaces	5	19
Loading Bays	N/A	
Other 1	10,000 SF**	1,282 SF
Other 2		
Other 3		

*Rear stepback required when building is above 35 ft when property line abuts a residential zone

**Maximum floor area with non-residential uses on first floor

E. Summary of Written Easements

Existing easements:

There is no existing easement information documented on the plan titled “Boundary Survey & Topographical Site Plan with Existing Conditions” prepared and identified by R.W. Eaton Associates dated 6/1/23.

Proposed Easements:

There are no proposed easements.



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.
Technical Manual 1. Transportation Systems and Street Design standards. Figure I-12 Vertical Granite Curb	Vertical granite curb to have a 7" reveal.	Requesting waiver to have a 5"-6" reveal	A 5" reveal is proposed to match the existing reveal at the abutters driveway entrance. Due to close driveway proximitys we are proposing a 6" curb reveal at the proposed curb cut and will hold a 7" reveal for the rest of our frontage.
Technical Manual 1. Transportation Systems and Street Design standards. Figure I-9A Residential Driveway Apron	Two-foot radius corner granite pieces ("Bugs") are required at low-volume driveways unless otherwise directed by DPW. At other driveways, standard flare/ tipdown treatments shall be used	Requesting waiver to not have two-foot radius corner granite pieces ("Bugs"), but instead have radial curbing.	Radial curbing pieces are requested in lieu of the typical "bug" to lengthen the transition from the street elevation to the elevated ADA sidewalk route. This is to avoid bottoming out and provide a smoother transition as the apron climbs 6".

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.
Technical Manual 1. Transportation Systems and Street Design standards. Section 1.5.1.B Driveway Width	For two-way driveways - greater than 10 residential parking spaces. (preferred): - 20 feet minimum, 24 feet maximum for residential/commercial uses	Requesting waiver to have a 18 feet driveway width	We believe a 18' width will suffice for the short driveway that connects to the covered parking area restricted for 9 units. We have pulled together turning templates that demonstrate that 18' in width is enough for two cars to simultaneously enter/exit the garage
Technical Manual 1. Transportation Systems and Street Design standards. Figure I-16A Vehicle Parking Dimensions	The minimum drive aisle width is 24 feet for standard, right-angle parking.	Requesting waiver to have an 20.27 foot drive aisle width associated with the covered 90 degree parking onsite.	A 20.27 foot wide drive aisle width is being proposed due to urban site constraints and covered parking conditions. We are providing a permissible vehicle summary (size) associated with each parking space as a result of the limited drive aisle width. Buyers of the condo units will be aware of the limitations. See the Site Plan for additional information

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.
Technical Manual 1. Transportation Systems and Street Design standards. Section 1.5.1.C Driveway Spacing	Driveway spacing should be a minimum of 50 feet along local streets	Requesting waiver to have a 6.12' driveway separation from the abutting parcels curb cut.	It should be noted that the subject parcel currently has 85' of street frontage and a driveway exists directly on each side of the parcel, therefore the parcel is unable to provide 50' of separation. The existing driveway separation is approximately 22.5' and we are requesting to reduce the separation to 6.12'. We believe this configuration takes the existing pattern of driveways in the surrounding context into account, and limits the impact to on street parking and existing street trees. Lastly, it should be noted that the existing curb cut 6' away from the proposed driveway is not currently being used for vehicular access. Should it be used in the future, it appears the curb cut would only allow access for 2 vehicles parked in tandem and therefore it would be an extremely low use driveway.

G. Financial Capacity

A letter from the Applicant's bank confirming financial capacity is attached to this section.





November 15, 2023

Re: Nine Unit Condominium Development at 64 Pine Street

To Whom It May Concern:

On behalf of Camden National Bank ("Bank") I am pleased to provide this letter in support of 64 Pine Street, LLC ("Developer") for the planned nine unit condominium development at 64 Pine Street in Portland ("Project"). Based on our review of the Project and the principal's successful track record with the Bank, we believe that the applicant will qualify for the financing needed to support the Project cost.

While this letter of support is not a commitment to lend, the Bank would welcome the opportunity to be a resource to the Developer for financing. This letter shall in no way obligate the Bank, or the Developer, beyond the scope and intent of this letter.

Please feel free to contact me with questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Elliott Barry", with a stylized flourish at the end.

Elliott Barry, Senior Vice President
Commercial Banking Officer
207.344.6852
ebarry@camdennational.com



H. Technical Capacity

Acorn Engineering specializes in providing urban redevelopment, civil/site design, environmental services, municipal consulting, and construction administration. Acorn Engineering, Inc. has successfully designed and permitted more than 20 Major/Minor Site Plan Applications over the past several years. See below for a partial list:

- Munjoy Heights
- 89 Anderson St. – East Bayside Lofts
- 121 Washington Ave
- 667 Congress St – the Hiawatha
- Cumberland Flats
- East End Lofts

Invivid Architecture, a distinguished Portland-based full-service architectural design firm, is wholly dedicated to crafting sophisticated designs and functional spaces. Our primary focus lies in diverse housing projects, spanning from affordable and market-rate rehabilitation and new construction to opulent, multi-million-dollar luxury condominium complexes. Additionally, the firm engages in hospitality and commercial development projects. The genesis of Invivid unfolded 20 years into the career of the founder, Virginie Stanley. Her over two-decade journey in the industry has been marked by a relentless pursuit of design excellence, earning her a distinguished reputation through her expansive and diverse portfolio. Invivid, prides itself on not only envisioning spaces but also on bringing them to life with a level of craftsmanship that defines our legacy of excellence.

ALA is a process-driven, landscape architecture and urban design firm committed to thoughtful, creative intervention at the intersection of environment, economics, art, and culture. ALA has worked on a number of important projects throughout Maine and the U.S. Locally, ALA has been the prime design consultant for the redevelopment of the 500-acre Scarborough Downs property in addition to numerous public and private development projects across Maine. ALA's clients include private developers, housing authorities, and municipalities.



I. Conformity with Land Use Ordinance

The following outline is made in accordance with the City of Portland Code of Ordinances, Chapter 14 Land Use, Article V Section 14.6.1-4

OVERVIEW

The proposed mixed-use residential buildings have been designed to conform to City standards where possible, as well as improve upon existing non-conformities. This project conforms with the majority of the applicable standards of Portland's Land Use Ordinance Section 14-526 as demonstrated in the following narrative.

14.6.1 Transportation Standards

A. Impact on Surrounding Street Systems:

- a. The project will not create any significant hazard to safety on the surrounding street network. The site is located along Pine Street which is a local street according to the City of Portland Federal Street Classification map.
- b. This project is not expected to increase traffic flows.

B. Access and Circulation:

1) In general

- a. The development will provide safe access and internal circulation for both pedestrians, vehicles and emergency vehicles as seen on the Site Plan and in accordance with the Technical Manual.
- b. Continuous internal walkways will be provided and will connect to the proposed sidewalk along Pine Street.
- c. The proposed driveway has been located to provide ample site distance from oncoming traffic on Pine Street. Additionally, the existing 23-foot curb cut will be closed and replaced with an 18-foot curb cut located northeast of the existing curb cut.
- d. The site does not feature drive-up services as mentioned in this requirement.

2) Loading and Servicing:

Various 60-minute and 30-minute parking spaces exist on Pine Street.

3) Curbs and Sidewalks:



- a. The development proposes curbing and sidewalks to be installed in accordance with the City's Technical Manual. A brick sidewalk exists along Pine Street and will be rebuilt as part of the project.
- b. There is an existing sidewalk along Pine Street. Any curbing or sidewalk disturbed during construction is to be repaired and rebuilt as necessary in conformance with City standards.
- c. Not applicable
- d. Not applicable

C. Public Transit Access:

- 1) Not applicable.
- 2) Not applicable.
- 3) Not applicable.

D. Parking:

1) Vehicular Parking

- a. The proposed project will provide 18 parking spaces, which is anticipated to meet the requirements of the proposed uses within the new building.
- b. A parking study is not required.
- c. Not applicable.
- d. The parking space and aisle dimensions are in conformance with the Technical Standards. Please refer to the Site Plan for more information.

2) Location and Required Number of Bicycle Parking Spaces:

- a. The site plan includes an interior bicycle storage room of approximately 10 bicycles spaces. Additional indoor storage is available within the units themselves.
- b. Not applicable

3) Snow Storage:

- a. The Owner will be responsible for managing snow at their discretion and/or coordinating snow removal from the site when necessary. The large majority



of the site will be structure and the parking lot will be covered therefore snow plowing for this site is not required. Additionally, the rear 10' of the parcel is proposed to be landscape area and can be utilized to store a small amount of snow if required.

- b. Snow storage areas will not encroach on parking, walkways, or stormwater management systems.
- 4) Electric Vehicle (EV) charging
 - a. The project will provide EV charging per the City Standards.

E. Transportation Demand Management (TDM):

- 1) A Transportation Demand Management (TDM) plan will not be required as part of this application.

14.6.2 Environmental Quality Standards

A. Preservation of Significant Natural Features:

- 1. The site does not consist of any significant natural features. There are no known endangered species or plants existing on the site.
- 2. Not applicable
- 3. Not applicable

B. Landscape Preservation:

- 1) The site will no disturb any significant natural features.
- 2) There is no existing vegetation on site.
- 3) There is one existing tree located in the back left of the lot to remain.
- 4) A waiver is not requested.
- 5) Not applicable.

C. Site Landscaping and Buffers

- 1) Within the B1 zone, shade trees or plantings will be installed per the City of Portland Technical Manual standards.



2) Buffers

- a. All solid waste will be indoors and out of site from the public way.
- b. Not applicable
- c. The existing buffers are to remain or be replanted along all residential abutters.

3) Parking Landscaping

- a. Not applicable
- b. Not applicable
- c. Not applicable

4) Street Trees

- a. One street tree is proposed to be removed and replaced as part of the proposed project.
- b. Not applicable.

D. Water Quality, Stormwater Management and Erosion Control:

- a. The site drainage will not be directed to flow or pond onto adjacent lots. The runoff created from the site will be collected, attenuated, and released at a rate that does not exceed the existing condition.
- b. Provisions are in place to ensure stormwater from the development will not exceed the pre-development flows.
- c. Not applicable
- d. A site-specific Stormwater Management Plan has been developed for the project to show compliance with Section 5 of the Technical Manual, including the basic standards of MEDEP Chapter 500. Please refer to sections J and K, the Erosion & Sedimentation Control and Stormwater Management Plans, respectively, for more information.
- e. The development is not anticipated to pose a contamination risk to groundwater during or after construction. The project will be serviced by a public wastewater system. The development will provide for adequate and sanitary disposal of sewage in accordance with adequate the Technical Manual.



14.6.3 Public Infrastructure and Community Safety Standards

A. Consistency with City Master Plans:

- a. The project has been designed to be consistent with the City's Zoning Ordinance and off-site infrastructure.
- b. Not applicable.

B. Public Safety and Fire Prevention:

- a. The site has been designed to promote safe and inviting public access.
- b. Emergency access has been provided. Fire trucks and ambulances will be able to access all of the site and buildings.

C. Public Utilities

- a. Requests for Ability to Serve letters have been sent to the respective companies. Responses are forthcoming.
- b. The electrical service will be wired underground via a new pole mounted transformer as shown on the Utility Plan.
- c. The new sewer and stormwater infrastructure will meet the provisions of the Technical Manual.
- d. The project will be served by connection to the public sewer system within Pine Street. The stormwater management system is designed to meet the standards of Chapter 500.
- e. Although not required, the project anticipates providing internal solid waste storage with private hauling of the waste.

16.4.4 Site Design Standards

A. Massing, Ventilation and Wind Impact:

- a. Please refer to Section O, Architectural Design Narrative.

B. Shadows:

- a. The shadows created by the building will not influence public open spaces.

C. Snow and Ice Loading:



- a. The structure will not distribute snow and ice onto adjacent properties.

D. View Corridors:

- a. Not applicable

E. Historic Resources:

- a. The development is not located in a historic district, historic landscape district or City designated landmark.
- b. The development is not located adjacent to designated landmarks, historic district, or historic landscape district.
- c. It is our understanding that there are no known archaeological resources that exist on site.

F. Exterior Lighting:

- a. Site Lighting
 - i. Exterior lighting will be designed to meet the requirements of Section 12 of the Technical Manual.
 - ii. Any lighting that may adversely impact the abutting residential properties will feature house-side shielding.
- b. Architectural and Specialty Lighting
 - i. No architectural or specialty lighting is proposed, at this time.
 - ii. No up-lighting is proposed, at this time.
- c. Street Lighting
 - i. No new street lights are proposed.

G. Noise and Vibration:

- a. All proposed heating, ventilation and air conditioning equipment, and emergency generators are to meet the applicable state and federal emissions requirements as defined by the Architect. They are to be located within the interior of the site or the top of the building and will also be screened when necessary.

H. Signage and Wayfinding:

- a. All street and wayfinding signage shall meet the requirements of the



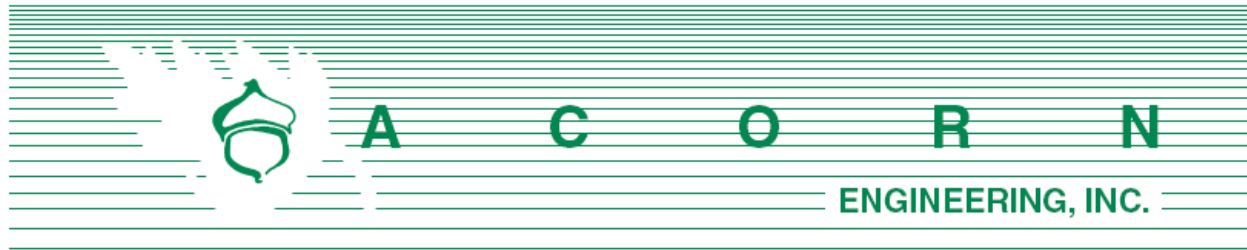
Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

- i. The project is not located in a historic district or subject to Article IX.
 - ii. Signage will complement the subject building and its immediate context.
 - iii. Signage will only be related to vehicular access.
 - iv. Signage will be facing downwardly to avoid glare and light spillover towards the sky.
 - v. No proposed signs will be located along rooftops.
- b. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

I. Design Standards.

- a. The project has been designed to meet the standards set forth in the B1 zone. Please refer to the Site Plan for more information on the Space & Bulk Standards.





STORMWATER MANAGEMENT **REPORT**

Prepared For:

**64 Pine Street LLC
104 Washington Avenue
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104**



**November 2023
Rev. February 2024**



INTRODUCTION

Acorn Engineering, Inc. has been retained by 64 Pine LLC to provide civil engineering services for the proposed redevelopment of 64 Pine Street. The property consists of approximately 0.23 acres of land to be transformed into a 4-story building containing 9 residential units and a retail space on the ground floor. The project will reside at Map 56, Block C, Lots 002 & 004.

A stormwater analysis was prepared to demonstrate that the project will meet the requirements set forth by Maine DEP Chapter 500 Basic and General Standards and the following requirements from the City of Portland (the City):

- City of Portland Land Use Ordinance Article 14.6.2.D.
- City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.

EXISTING CONDITIONS

The project site has frontage on Pine Street. A boundary plan has been prepared by R.W. Eaton Associates, dated June 1st, 2023. The site primarily consists of an existing restaurant with a paved parking area.

The existing lot contains a single-story restaurant building. The grades are relatively flat (less than 5%) across the site with half the lot draining to the rear of the site and the other half draining toward the front of the site toward Pine Street.

PROPOSED DEVELOPMENT

The project features the redevelopment of one mixed-use building with 1 commercial unit and a total of 9 dwelling units. The site will feature covered parking, landscaping, and utility improvements.

The development will be served by the Portland Water District, underground power/cable/communications, natural gas and the municipal sewer system. The project anticipates incorporating Maine DEP approved stormwater Best Management Practices (BMP) to meet the General and Flooding Standards.

GENERAL STANDARDS – WATER QUALITY

All treatment BMPs proposed as part of this development were designed in accordance with The Maine Stormwater Management Design Manual Chapter 7.3 and 7.7.

Treatment Area

Due to the project resulting in less than 1,000 SF or greater of impervious area and less than 5,000 SF of redeveloped non-roof impervious area, treatment is not required as part of this project. However, it should be noted that a green roof is anticipated to be incorporated into

the building which would provide some level of water quality treatment. Please see the roof plans prepared by the architect and landscape architect for additional information.

FLOODING STANDARD – WATER QUANTITY

To meet the City’s requirement of providing on-site detention volume for the greater volume of either 1” of rainfall times the impervious area within the project or the projected average 24 hour daily sanitary sewer flow being added to the combined sewer system will be provided using storage modules (R-Tanks). Only 263 CF is required storage for the addition of sanitary sewer flow, while 695 CF is required for 1” of rainfall times the impervious area as seen in Table 1 & 2 below. Through a series of roof drains, gutters, and a downspout, two thirds of the roof is proposed to be routed to 58 storage modules (R-Tanks) that will sit above crushed stone to provide storage before being collected by an orificed-controlled underdrain and piped to the street.

Table 1: Required Detention Volume				
	Existing	Proposed	Total Net Change	Storage Requirement
Projected 24 hour daily sanitary flows:	660 GPD	2,590 GPD	1,930 GPD	263 CF

Table 2: Required Detention Volume		
	Impervious Area Proposed	Storage Requirement
Projected 1” of rainfall times impervious area	8,535 SF	711 CF

The project proposes 58 subsurface R-Tanks to provide storage for the increased sewer flow of 695 CF to reach the city’s requirement. It should be noted that the stormwater detention design is based on storing the increased sewer flows (per Table 1 above), as such the project is observing the 1” storm and routing 2/3 of the roof’s runoff to the storage BMP onsite.

Table 3: Proposed Detention Volume	
Number of R-Tanks	Total Storage
58	715 CF

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10”, 4.60”, and 5.80” respectively.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering to round to the nearest whole number. However, due to the small size of the project and the minimal existing flows, the stormwater runoff shall be rounded to the nearest tenth of a cubic feet per second (cfs).



Time of Concentration (Tc)

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each subcatchment into the model. When the calculated Tc was less than six minutes (0.1 hours), a direct entry of six minutes was used as advised by the TR-55 model. Consistent with previous submissions and best practices, the sheet flow length for any Tc path was capped at 100 feet.

Curve Number (CN)

Within the pre-development model, the vegetated areas were considered fair grass, and impervious areas consisted of either roof of existing building or pavement from parking lot.

Pre-Development

- Pavement, Roofs – CN 98
- 50-75% Grass Cover – Fair, HSG A – CN 49

Post-Development

- Pavement, Brick, Roofs – CN 98
- >75% Grass Cover (new landscaping) – Good, HSG A – CN 39

Pre-development Calculations

The pre-development model was broken into two separate subcatchments.

- Subcatchment 1 – This tributary includes the Northwestern side of the paved parking lot and the roof of the existing building. This area drains toward Pine Street.
- Subcatchment 2 – This tributary area includes the southeastern side of the paved parking lot adjacent to the existing building. This area drains toward the rear of the parcel away from Pine Street.

A pre-development watershed map developed for this project can be viewed in Attachment A and a copy of the HydroCAD calculations is included within Attachment C, of this report. Point of interest flow rates for the two sub catchments outlined above are as follows:

Table 4 – Pre-Development Point of Interest Flows				
POI #	1" Storm Event (cfs)	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
POI – 1 (Runoff to Pine Street)	0.14	0.47	0.71	0.89
POI – 2 (Runoff toward rear of parcel)	0.04	0.18	0.28	0.36

Total combined peak flow rates for the pre-development storm events are as follows:

Table 5 – Pre-Development Peak Stormwater Flows			
Drainage Area	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
Total Runoff	0.66	0.99	1.26

Post-development Calculations

The post-development model was broken into three separate sub catchments.

- Subcatchment 1 – This tributary includes all of the new structures roof. This subcatchment will be directed to the proposed subsurface storage system onsite and ultimately be directed to Pine Street.
- Subcatchment 2 – This tributary includes the north, west, and south sides of the building. An f-basin will be utilized in the rear of the parcel to direct the stormwater to Pine Street.
- Subcatchment 3 - This tributary includes the east side of the building. This subcatchment will be directed to the proposed subsurface storage system onsite and ultimately be directed to Pine Street.

Total Peak flow rates for the post-development storm events are as follows:

Table 6 – Post-Development Peak Stormwater Flows			
Drainage Area	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)
Total Runoff	0.21	0.85	1.09

The post-development calculations include changes to the land use and the compensation provided by the stormwater BMPs. It should be noted that the post development is eliminating the runoff to the rear of the site (predevelopment POI #2) and as a result is minorly increasing the post development flow rate to Pine Street in comparison to the pre-developed condition. However, total peak flow rates in the post development are reduced in comparison to the total predevelopment flow rates for the 2,10,25-year storms.

The following table represents a comparison of pre- development and post-development condition peak runoff rates for the proposed development and tributary area.

Table 7 – Comparison of Peak Flows						
POI	2-Year Storm Event (cfs)		10-Year Storm Event (cfs)		25-Year Storm Event (cfs)	
	Pre	Post	Pre	Post	Pre	Post
Total Runoff	0.66	0.21	0.99	0.85	1.26	1.09



A post-development watershed map developed for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment C of this report.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County
- United States Department of Agriculture Web Soil Survey

Given the soils information, listed above, no onsite wastewater is proposed; the applicant does not intend to perform a more intense hydric soil boundary delineation because the waiver requirements set forth in the City of Portland Technical Manual – Section 7 – Soil Survey, Rev. 6/17/11 are met.

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 8 - “K” Value		
Soils Type	Subsurface	Substratum
Hinkley Loamy Sand (HIB)	.17	.17

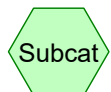
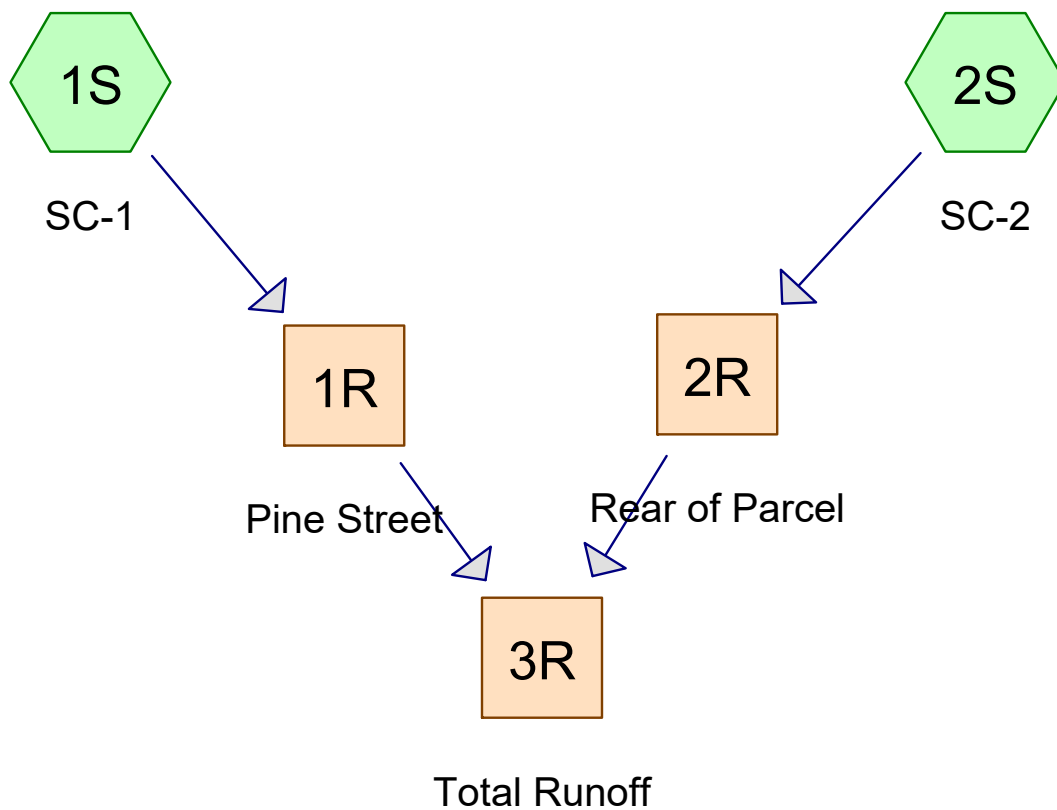
The soil “K” value for the soil, listed above, shows a low susceptibility to erosion. The site’s susceptibility to erosion is sourced from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County.

CONCLUSION

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. The proposed project as designed is not anticipated to cause flooding or erosion problems within the subject site, abutters’ sites, nor within the right-of-way. Overall, the project will provide an improvement to stormwater runoff and overall management from several perspectives as outlined above.

ATTACHMENTS

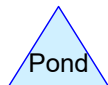
Attachment A: Pre-Development Watershed Map
 Attachment B: Post-Development Watershed Map
 Attachment C: HydroCAD Calculations
 Attachment D: Medium Intensity Web Soil Survey



Subcat



Reach



Pond



Link

Routing Diagram for 1109.4-PRE

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.005	49	50-75% Grass cover, Fair, HSG A (1S, 2S)
0.160	98	Building & Pavement (1S)
0.063	98	Pavement (2S)
0.228	97	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.005	HSG A	1S, 2S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.223	Other	1S, 2S
0.228		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.005	0.000	0.000	0.000	0.000	0.005	50-75% Grass cover, Fair	1S, 2S
0.000	0.000	0.000	0.000	0.160	0.160	Building & Pavement	1S
0.000	0.000	0.000	0.000	0.063	0.063	Pavement	2S
0.005	0.000	0.000	0.000	0.223	0.228	TOTAL AREA	

1109.4-PRE*Type III 24-hr 2-year Rainfall=3.10"*

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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

Subcatchment1S: SC-1

Runoff Area=7,021 sf 99.50% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.036 af

Subcatchment2S: SC-2

Runoff Area=2,893 sf 94.19% Impervious Runoff Depth>2.41"
Tc=6.0 min CN=95 Runoff=0.18 cfs 0.013 af

Reach 1R: Pine Street

Inflow=0.47 cfs 0.036 af
Outflow=0.47 cfs 0.036 af

Reach 2R: Rear of Parcel

Inflow=0.18 cfs 0.013 af
Outflow=0.18 cfs 0.013 af

Reach 3R: Total Runoff

Inflow=0.66 cfs 0.049 af
Outflow=0.66 cfs 0.049 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.049 af Average Runoff Depth = 2.60"
2.05% Pervious = 0.005 ac 97.95% Impervious = 0.223 ac

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Type III 24-hr 2-year Rainfall=3.10"

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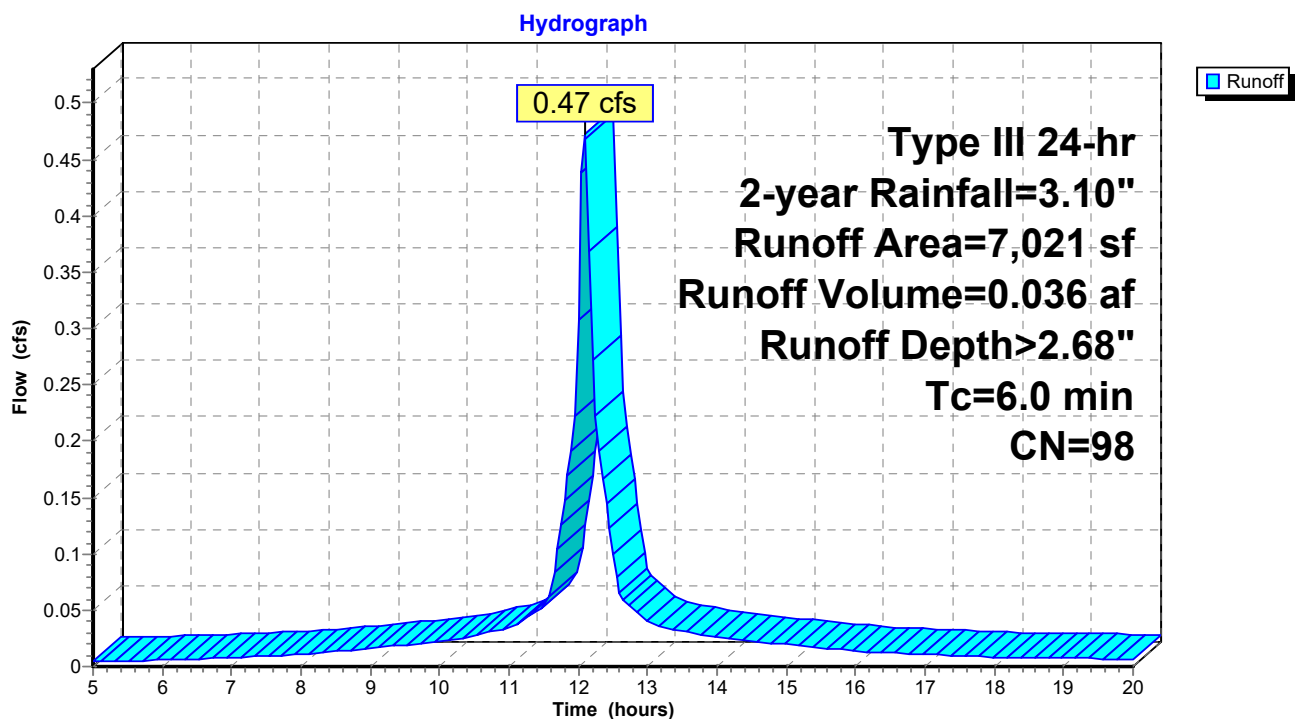
Summary for Subcatchment 1S: SC-1

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	6,986	98	Building & Pavement
	35	49	50-75% Grass cover, Fair, HSG A
	7,021	98	Weighted Average
	35		0.50% Pervious Area
	6,986		99.50% Impervious Area

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

Subcatchment 1S: SC-1

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Type III 24-hr 2-year Rainfall=3.10"

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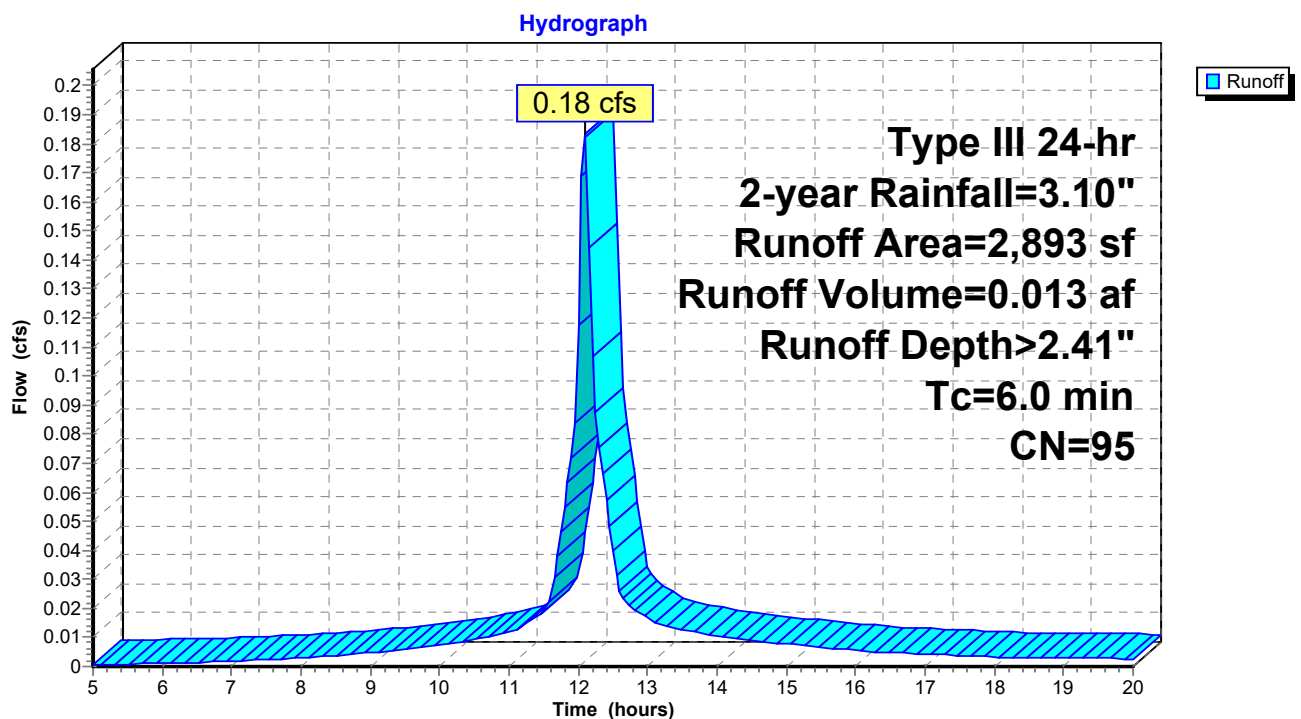
Summary for Subcatchment 2S: SC-2

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,725	98	Pavement
	168	49	50-75% Grass cover, Fair, HSG A
	2,893	95	Weighted Average
	168		5.81% Pervious Area
	2,725		94.19% Impervious Area

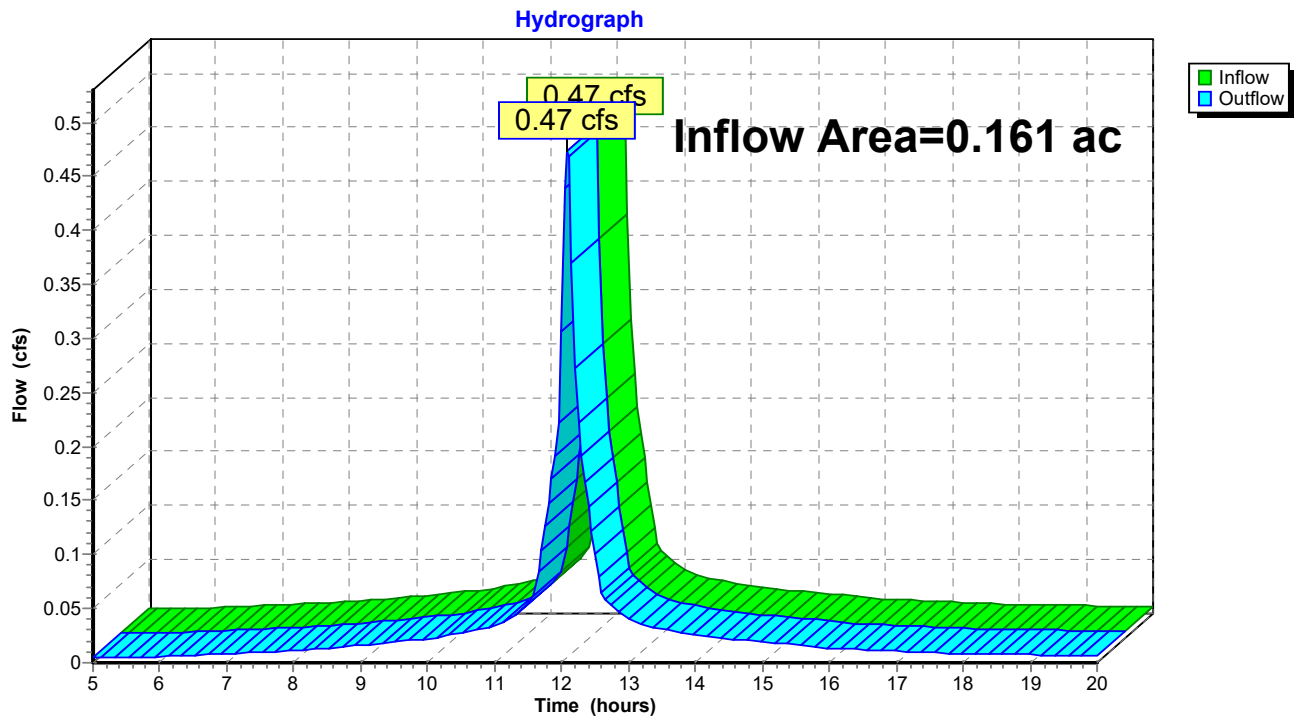
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min Direct Entry

Subcatchment 2S: SC-2

Summary for Reach 1R: Pine Street

Inflow Area = 0.161 ac, 99.50% Impervious, Inflow Depth > 2.68" for 2-year event
Inflow = 0.47 cfs @ 12.09 hrs, Volume= 0.036 af
Outflow = 0.47 cfs @ 12.09 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min

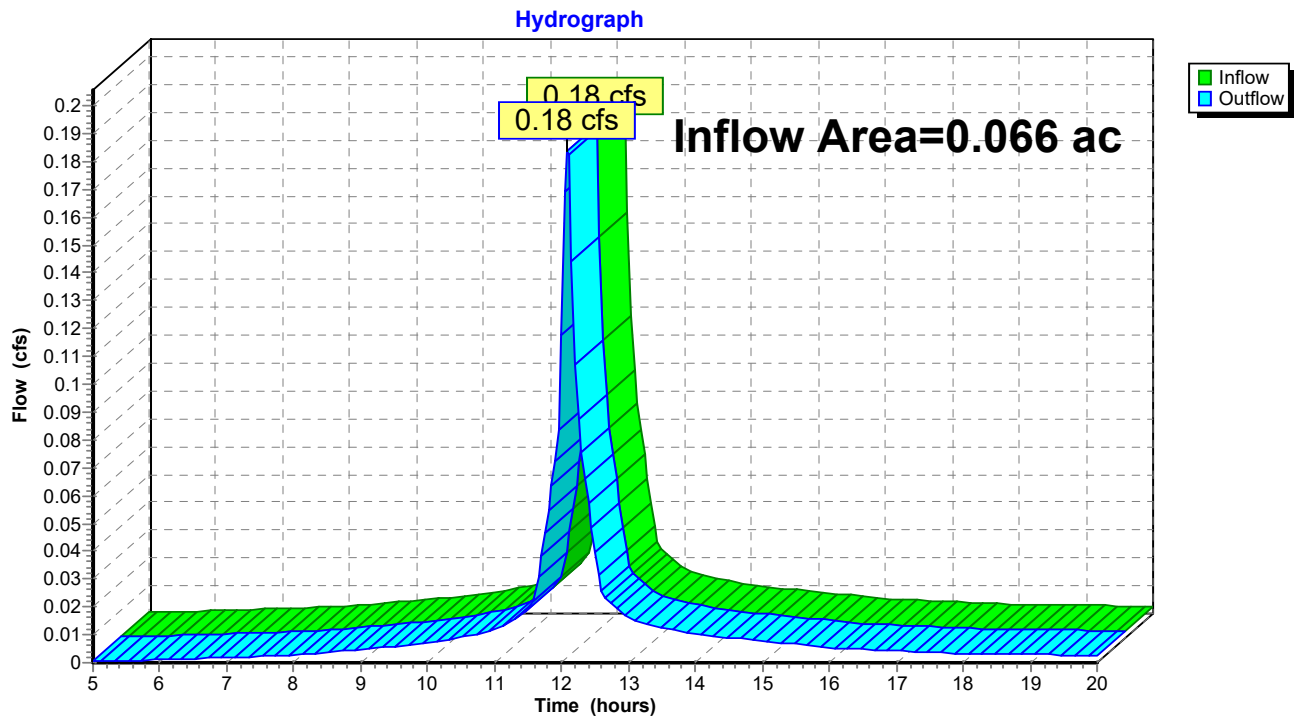
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Pine Street

Summary for Reach 2R: Rear of Parcel

Inflow Area = 0.066 ac, 94.19% Impervious, Inflow Depth > 2.41" for 2-year event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

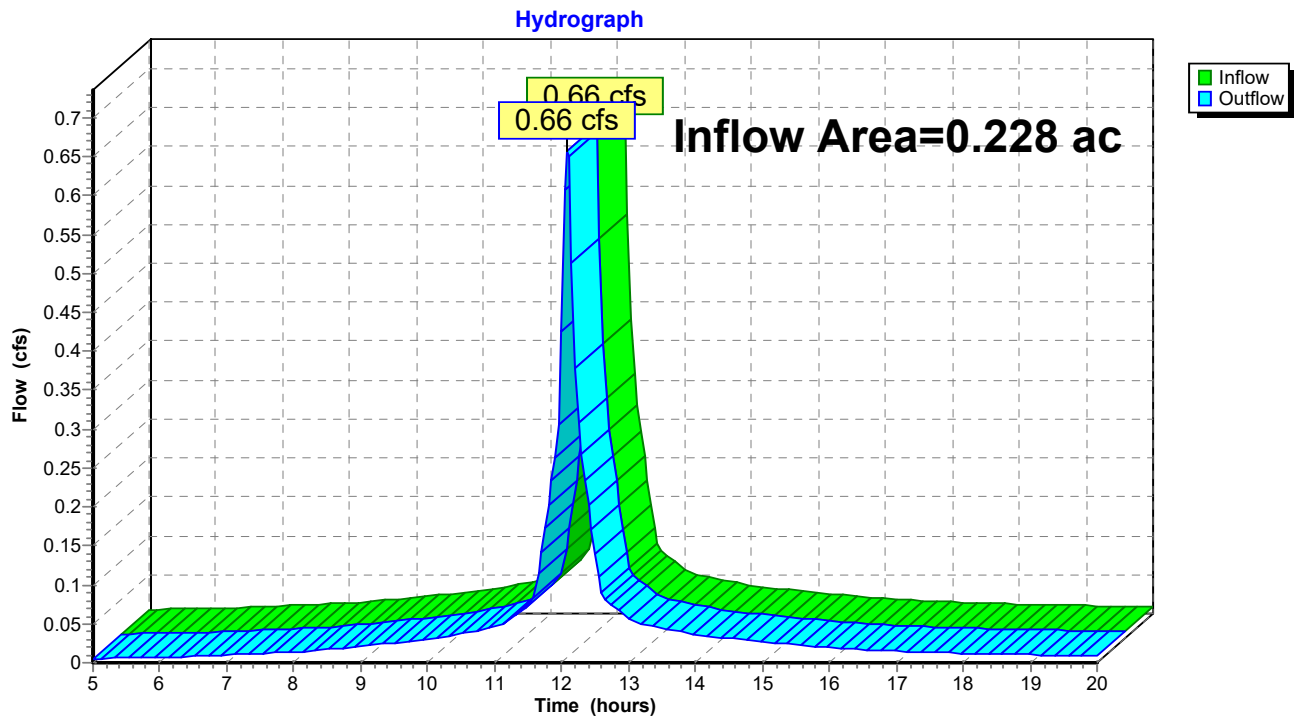
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Rear of Parcel

Summary for Reach 3R: Total Runoff

Inflow Area = 0.228 ac, 97.95% Impervious, Inflow Depth > 2.60" for 2-year event
Inflow = 0.66 cfs @ 12.09 hrs, Volume= 0.049 af
Outflow = 0.66 cfs @ 12.09 hrs, Volume= 0.049 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 3R: Total Runoff

1109.4-PRE*Type III 24-hr 10-year Rainfall=4.60"*

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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

Subcatchment1S: SC-1

Runoff Area=7,021 sf 99.50% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=98 Runoff=0.71 cfs 0.054 af

Subcatchment2S: SC-2

Runoff Area=2,893 sf 94.19% Impervious Runoff Depth>3.79"
Tc=6.0 min CN=95 Runoff=0.28 cfs 0.021 af

Reach 1R: Pine Street

Inflow=0.71 cfs 0.054 af
Outflow=0.71 cfs 0.054 af

Reach 2R: Rear of Parcel

Inflow=0.28 cfs 0.021 af
Outflow=0.28 cfs 0.021 af

Reach 3R: Total Runoff

Inflow=0.99 cfs 0.075 af
Outflow=0.99 cfs 0.075 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.075 af Average Runoff Depth = 3.98"
2.05% Pervious = 0.005 ac 97.95% Impervious = 0.223 ac

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Type III 24-hr 10-year Rainfall=4.60"

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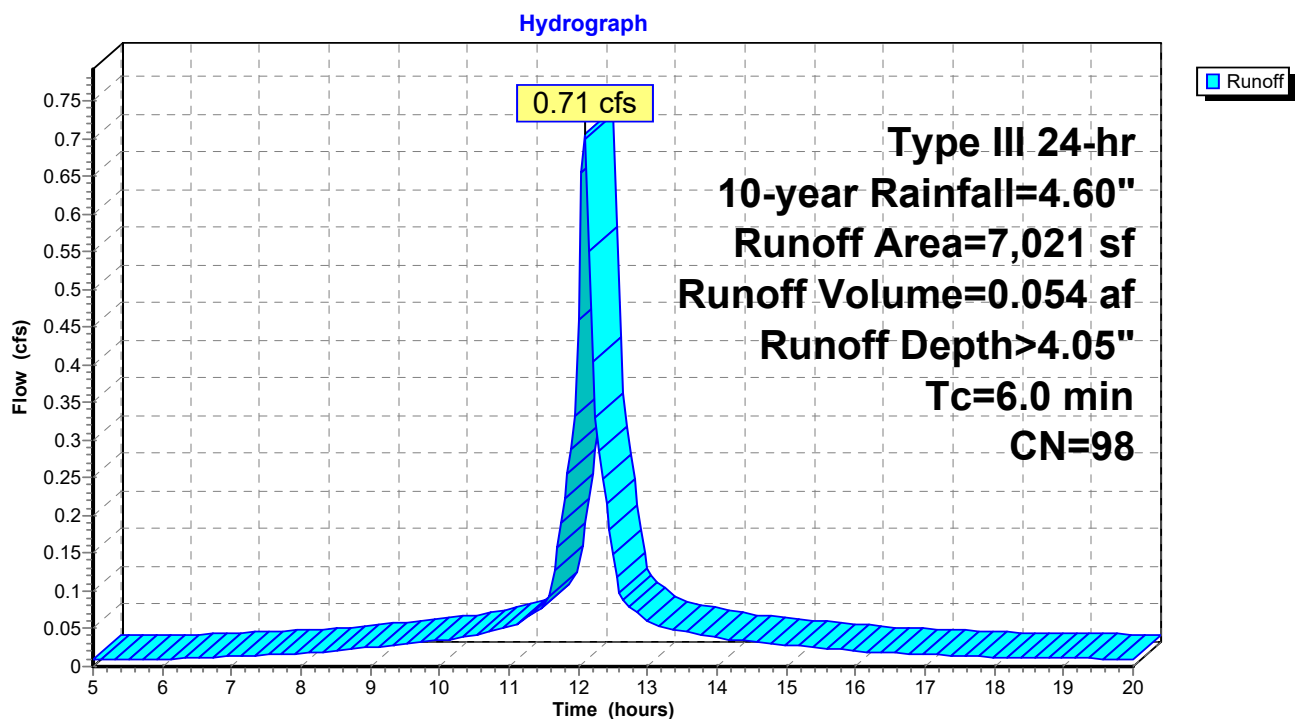
Summary for Subcatchment 1S: SC-1

Runoff = 0.71 cfs @ 12.09 hrs, Volume= 0.054 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	6,986	98	Building & Pavement
	35	49	50-75% Grass cover, Fair, HSG A
	7,021	98	Weighted Average
	35		0.50% Pervious Area
	6,986		99.50% Impervious Area

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

Subcatchment 1S: SC-1

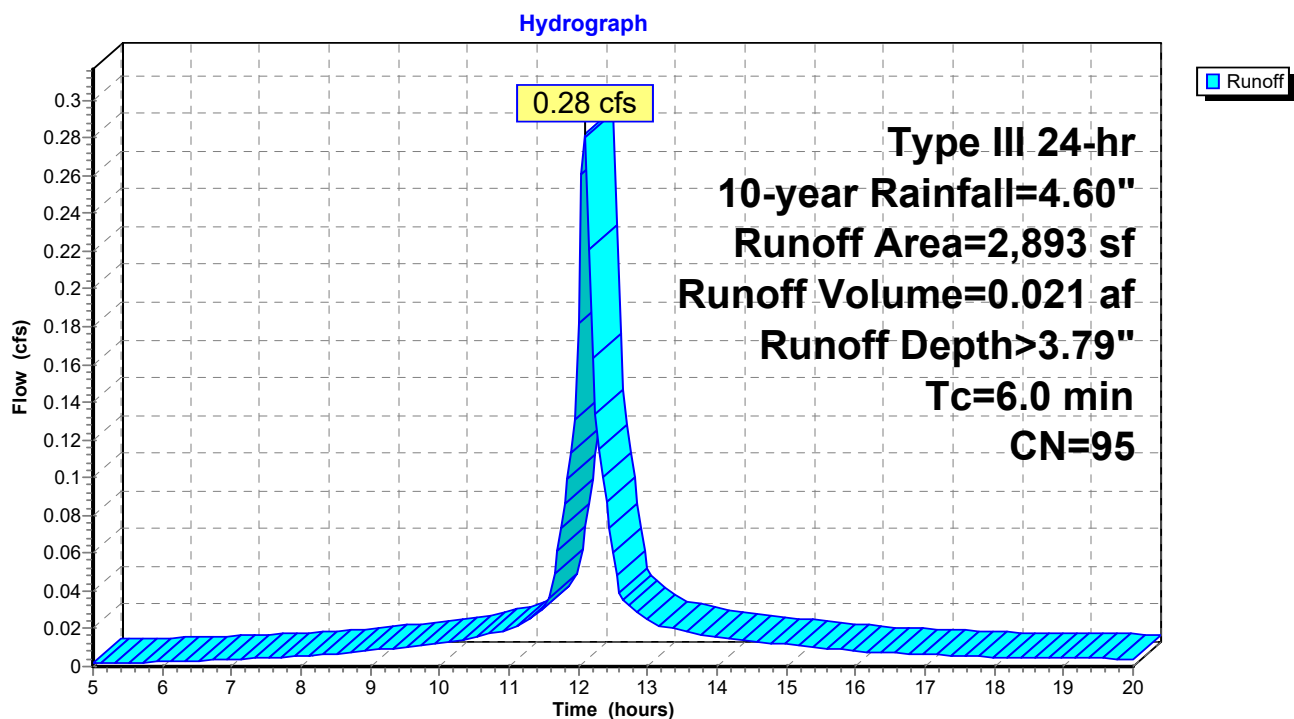
Summary for Subcatchment 2S: SC-2

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 3.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

Area (sf)	CN	Description
* 2,725	98	Pavement
168	49	50-75% Grass cover, Fair, HSG A
2,893	95	Weighted Average
168		5.81% Pervious Area
2,725		94.19% Impervious Area

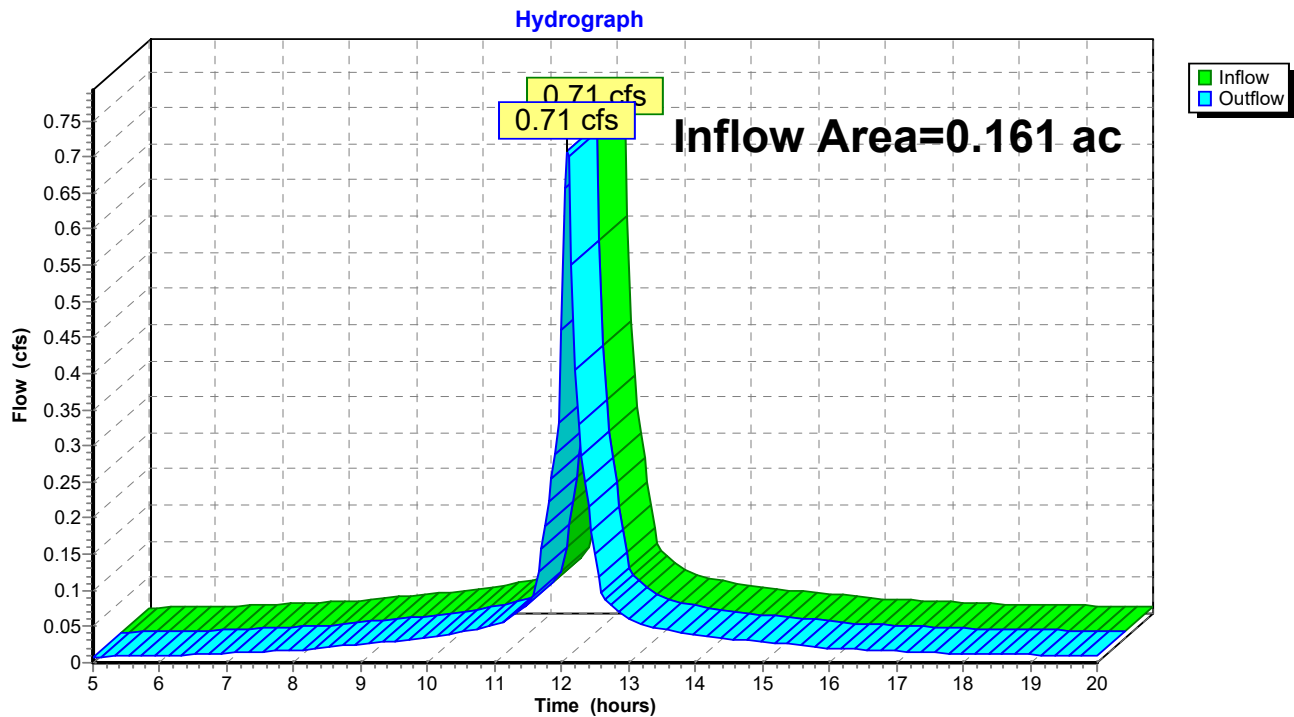
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min Direct Entry

Subcatchment 2S: SC-2

Summary for Reach 1R: Pine Street

Inflow Area = 0.161 ac, 99.50% Impervious, Inflow Depth > 4.05" for 10-year event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.054 af
Outflow = 0.71 cfs @ 12.09 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

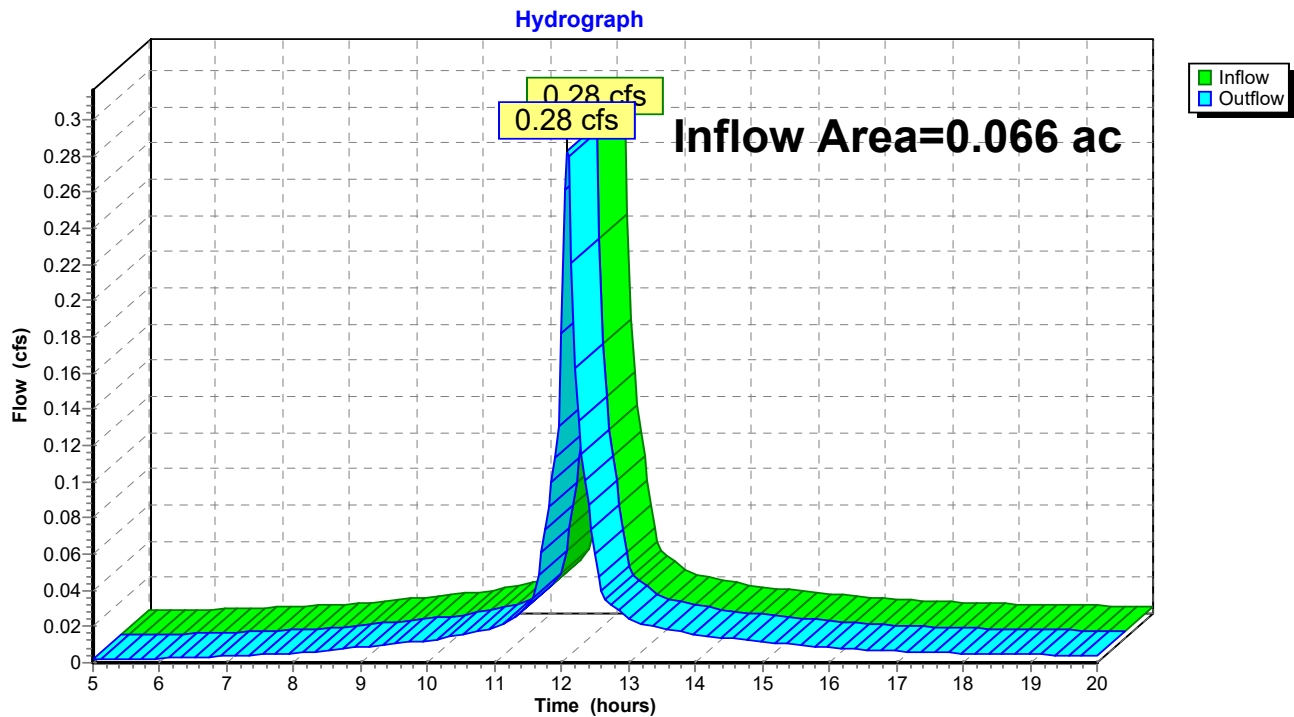
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Pine Street

Summary for Reach 2R: Rear of Parcel

Inflow Area = 0.066 ac, 94.19% Impervious, Inflow Depth > 3.79" for 10-year event
Inflow = 0.28 cfs @ 12.09 hrs, Volume= 0.021 af
Outflow = 0.28 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

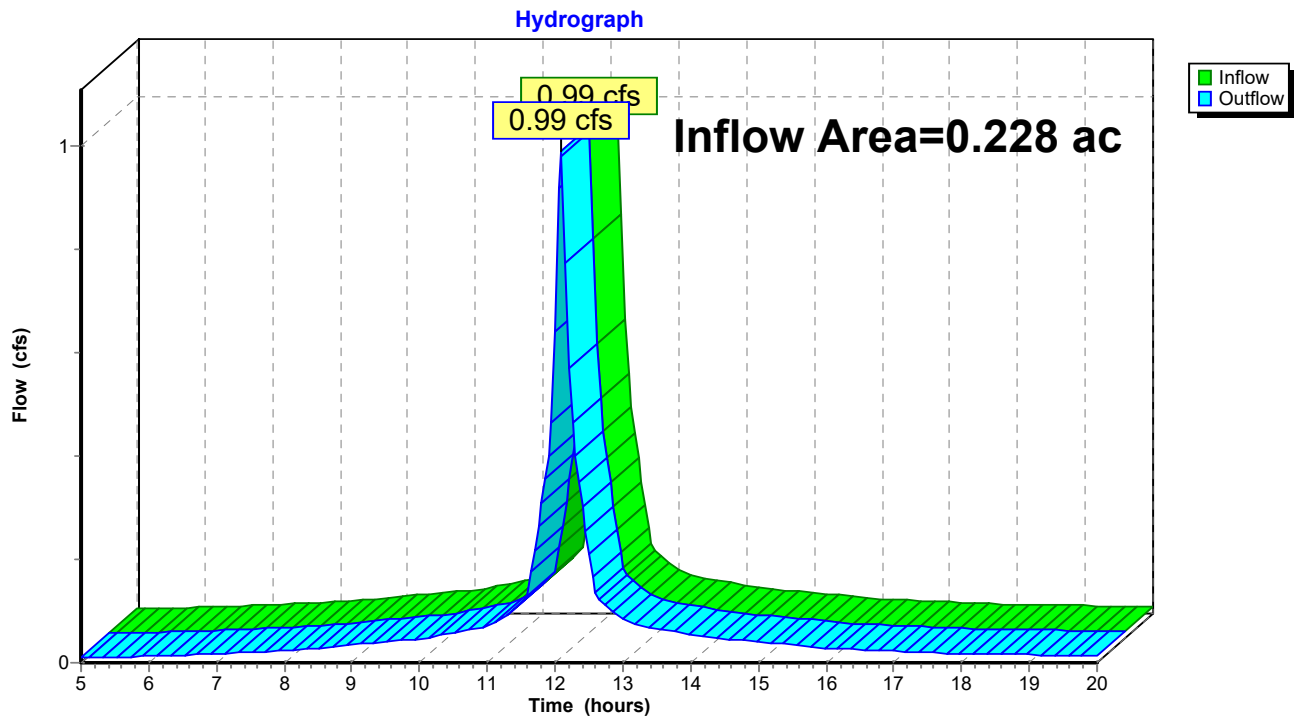
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Rear of Parcel

Summary for Reach 3R: Total Runoff

Inflow Area = 0.228 ac, 97.95% Impervious, Inflow Depth > 3.98" for 10-year event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.075 af
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 0.075 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 3R: Total Runoff

1109.4-PRE*Type III 24-hr 25-year Rainfall=5.80"*

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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

Subcatchment1S: SC-1

Runoff Area=7,021 sf 99.50% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=98 Runoff=0.89 cfs 0.069 af

Subcatchment2S: SC-2

Runoff Area=2,893 sf 94.19% Impervious Runoff Depth>4.90"
Tc=6.0 min CN=95 Runoff=0.36 cfs 0.027 af

Reach 1R: Pine Street

Inflow=0.89 cfs 0.069 af
Outflow=0.89 cfs 0.069 af

Reach 2R: Rear of Parcel

Inflow=0.36 cfs 0.027 af
Outflow=0.36 cfs 0.027 af

Reach 3R: Total Runoff

Inflow=1.26 cfs 0.096 af
Outflow=1.26 cfs 0.096 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.096 af Average Runoff Depth = 5.07"
2.05% Pervious = 0.005 ac 97.95% Impervious = 0.223 ac

Summary for Subcatchment 1S: SC-1

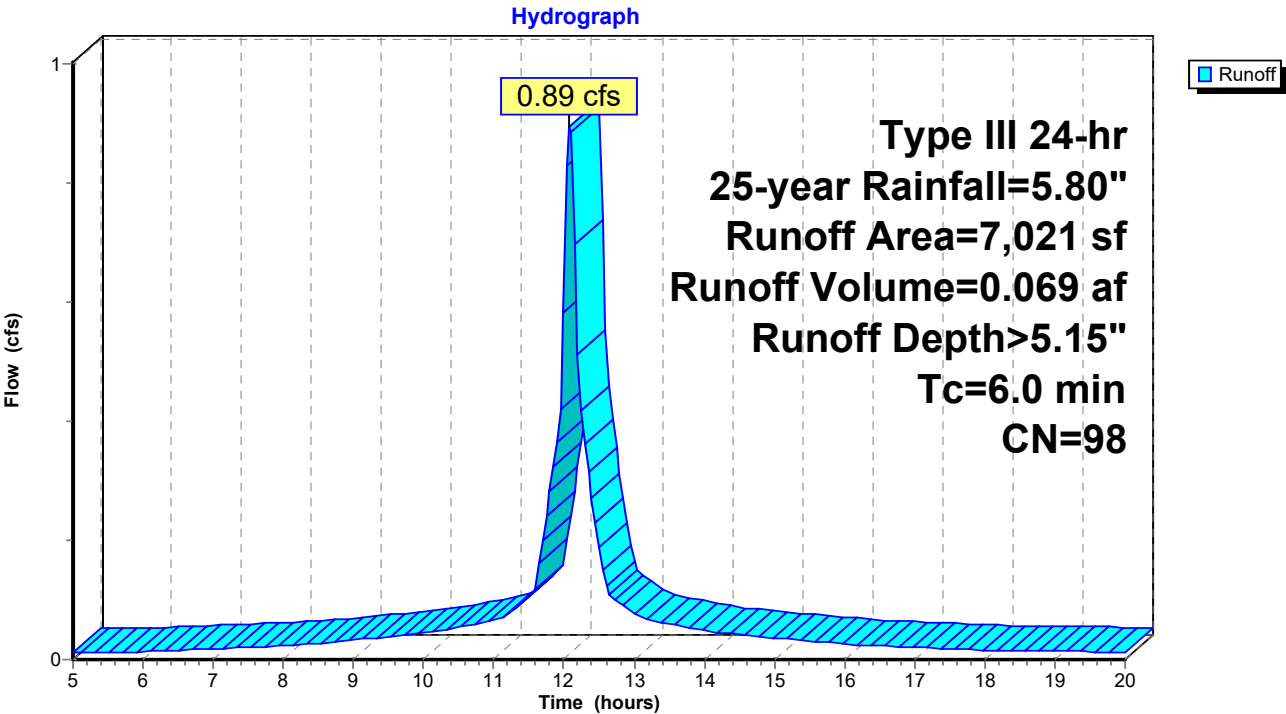
Runoff = 0.89 cfs @ 12.09 hrs, Volume= 0.069 af, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,986	98	Building & Pavement
	35	49	50-75% Grass cover, Fair, HSG A
	7,021	98	Weighted Average
	35		0.50% Pervious Area
	6,986		99.50% Impervious Area

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

Subcatchment 1S: SC-1



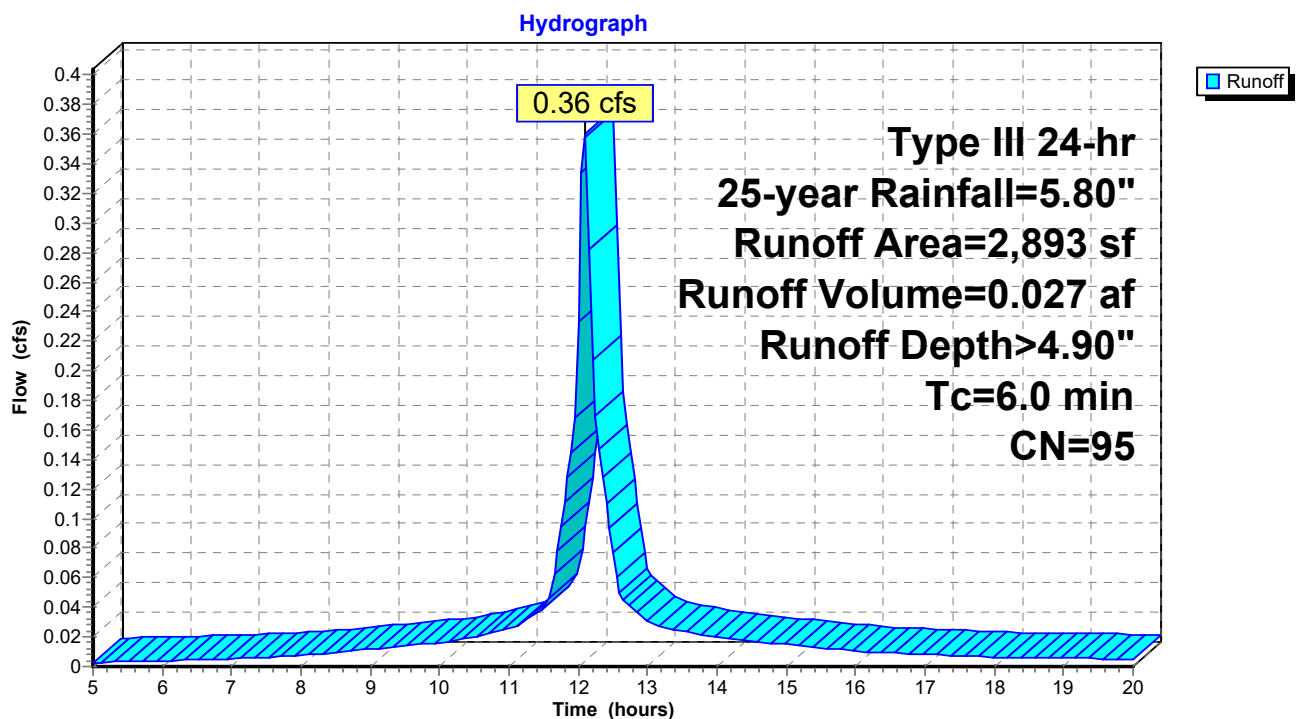
Summary for Subcatchment 2S: SC-2

Runoff = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af, Depth> 4.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,725	98	Pavement
	168	49	50-75% Grass cover, Fair, HSG A
	2,893	95	Weighted Average
	168		5.81% Pervious Area
	2,725		94.19% Impervious Area

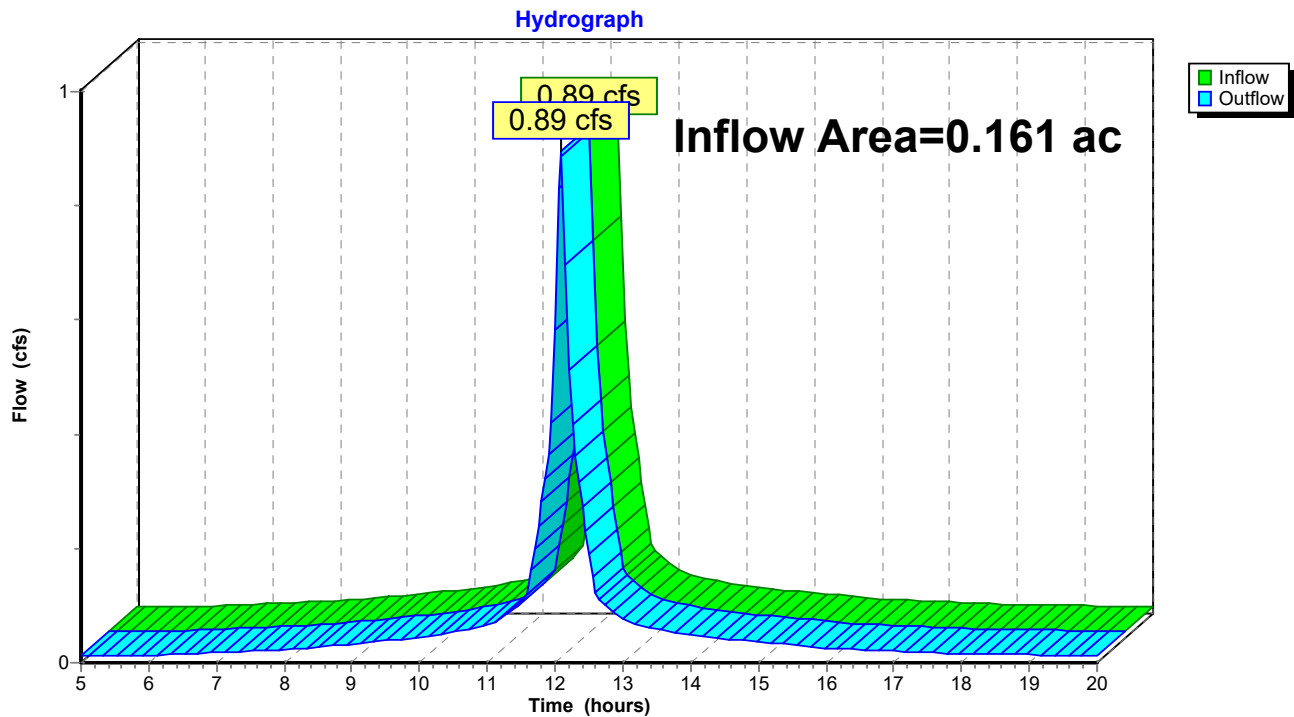
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min Direct Entry

Subcatchment 2S: SC-2

Summary for Reach 1R: Pine Street

Inflow Area = 0.161 ac, 99.50% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.89 cfs @ 12.09 hrs, Volume= 0.069 af
Outflow = 0.89 cfs @ 12.09 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min

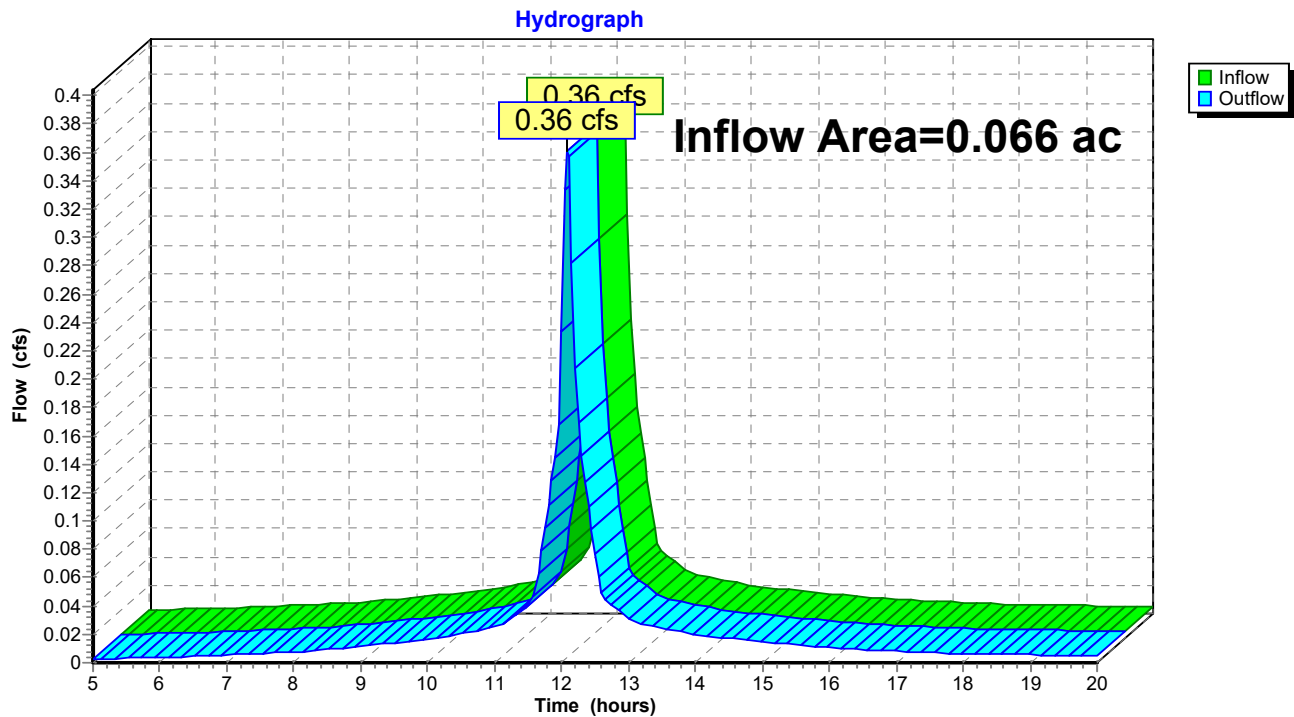
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Pine Street

Summary for Reach 2R: Rear of Parcel

Inflow Area = 0.066 ac, 94.19% Impervious, Inflow Depth > 4.90" for 25-year event
Inflow = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af
Outflow = 0.36 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

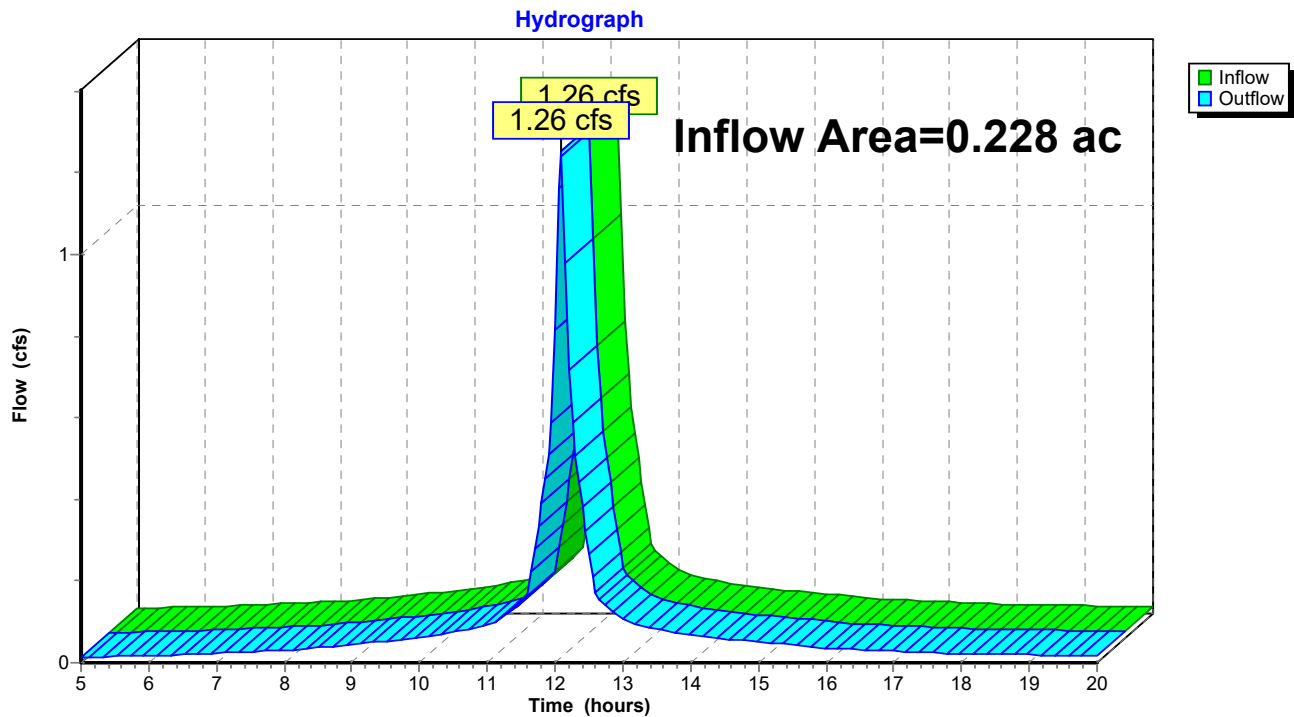
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 2R: Rear of Parcel

Summary for Reach 3R: Total Runoff

Inflow Area = 0.228 ac, 97.95% Impervious, Inflow Depth > 5.07" for 25-year event
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 0.096 af
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 0.096 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 3R: Total Runoff

1109.4-PRE*Type III 24-hr WQ Rainfall=1.00"*

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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

Subcatchment1S: SC-1

Runoff Area=7,021 sf 99.50% Impervious Runoff Depth>0.75"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.010 af

Subcatchment2S: SC-2

Runoff Area=2,893 sf 94.19% Impervious Runoff Depth>0.53"
Tc=6.0 min CN=95 Runoff=0.04 cfs 0.003 af

Reach 1R: Pine Street

Inflow=0.14 cfs 0.010 af
Outflow=0.14 cfs 0.010 af

Reach 2R: Rear of Parcel

Inflow=0.04 cfs 0.003 af
Outflow=0.04 cfs 0.003 af

Reach 3R: Total Runoff

Inflow=0.18 cfs 0.013 af
Outflow=0.18 cfs 0.013 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.013 af Average Runoff Depth = 0.68"
2.05% Pervious = 0.005 ac 97.95% Impervious = 0.223 ac

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Type III 24-hr WQ Rainfall=1.00"

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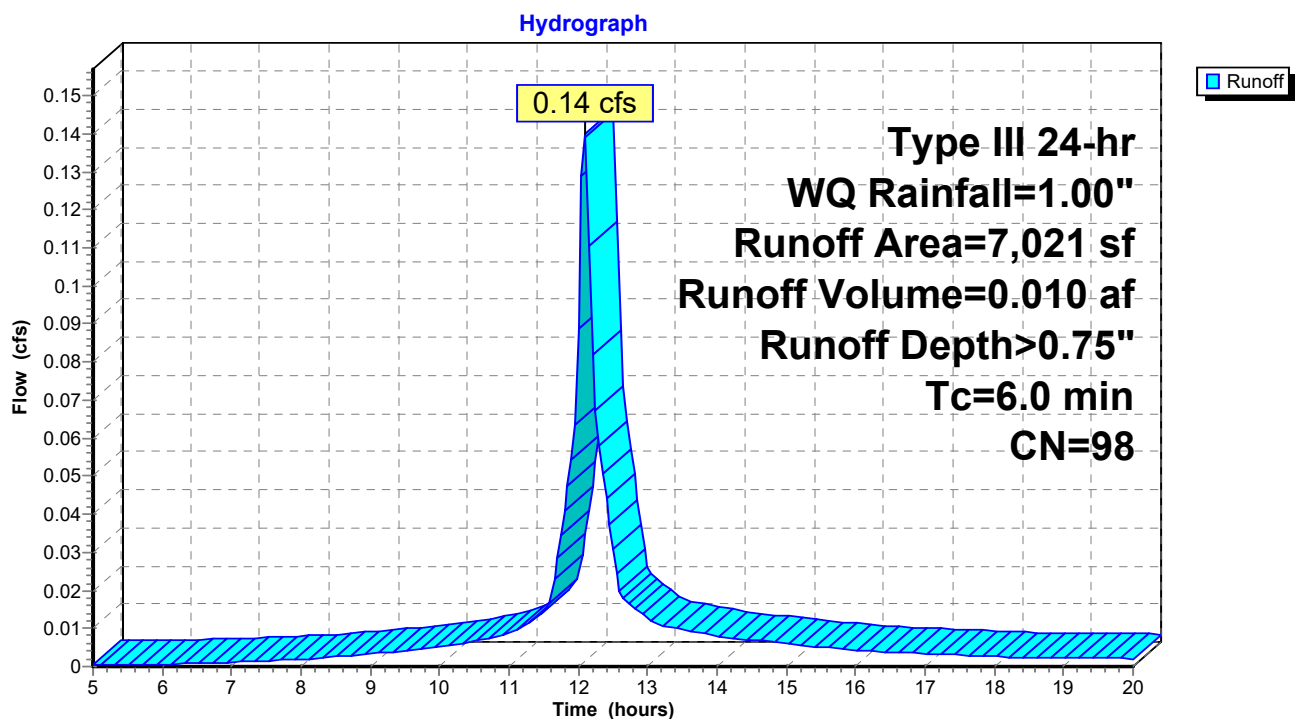
Summary for Subcatchment 1S: SC-1

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Depth> 0.75"

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

	Area (sf)	CN	Description
*	6,986	98	Building & Pavement
	35	49	50-75% Grass cover, Fair, HSG A
	7,021	98	Weighted Average
	35		0.50% Pervious Area
	6,986		99.50% Impervious Area

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

Subcatchment 1S: SC-1

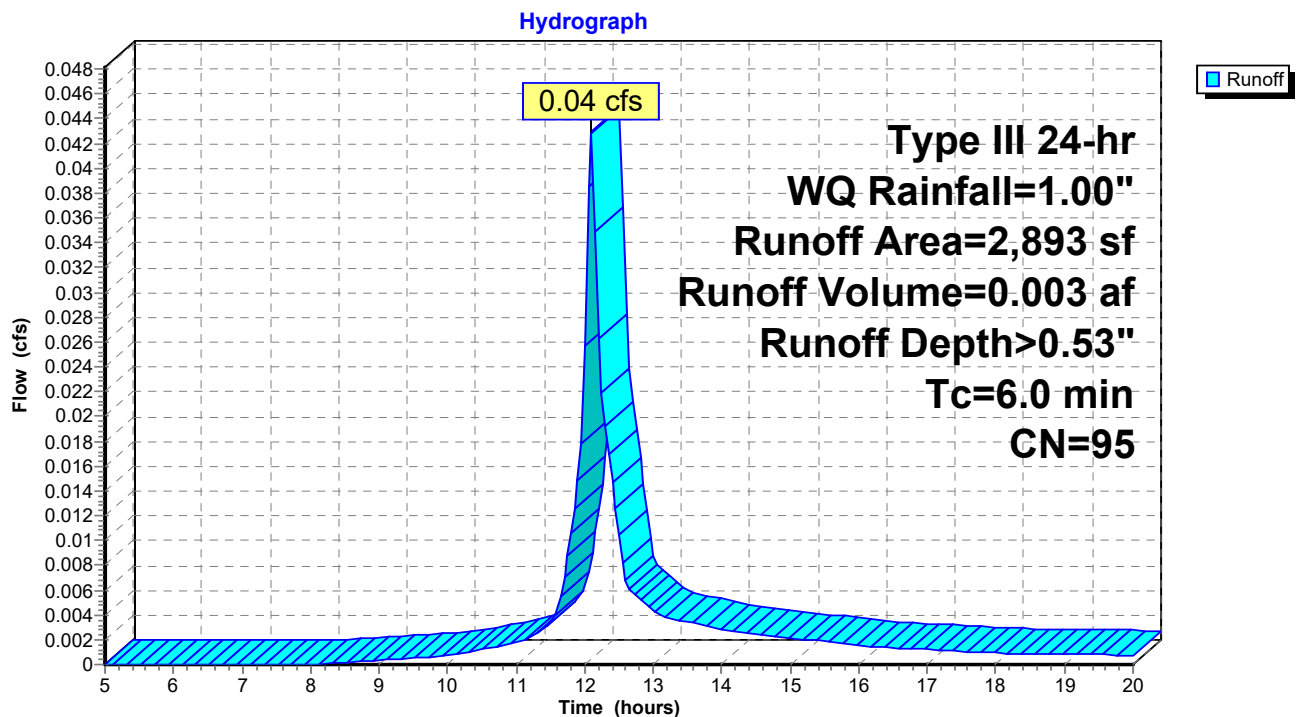
Summary for Subcatchment 2S: SC-2

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.53"

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

	Area (sf)	CN	Description
*	2,725	98	Pavement
	168	49	50-75% Grass cover, Fair, HSG A
	2,893	95	Weighted Average
	168		5.81% Pervious Area
	2,725		94.19% Impervious Area

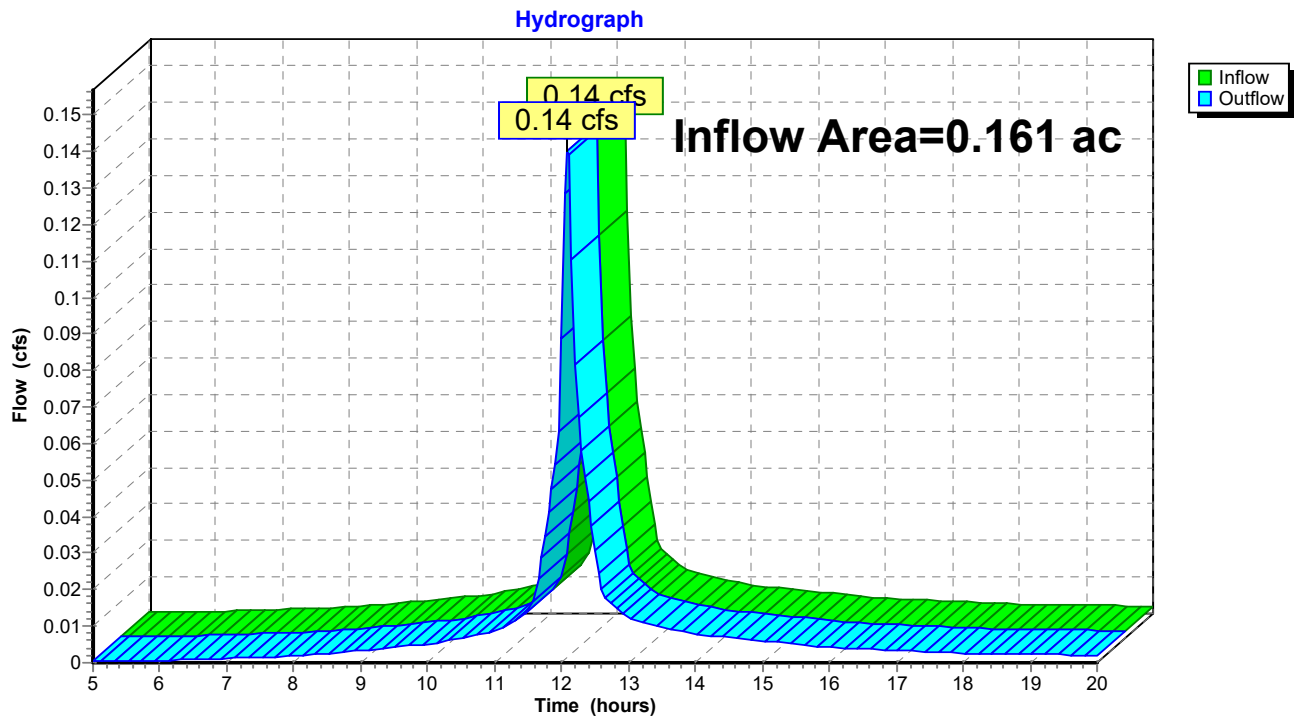
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min Direct Entry

Subcatchment 2S: SC-2

Summary for Reach 1R: Pine Street

Inflow Area = 0.161 ac, 99.50% Impervious, Inflow Depth > 0.75" for WQ event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

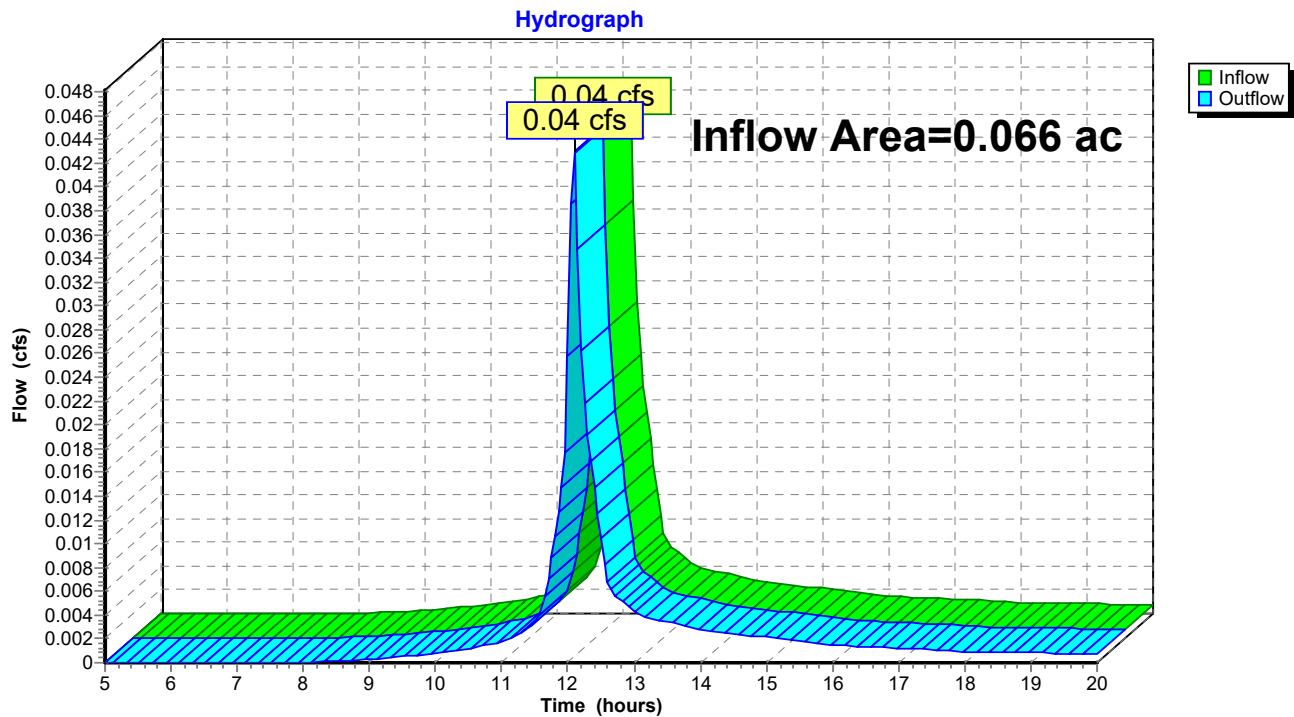
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 1R: Pine Street

Summary for Reach 2R: Rear of Parcel

Inflow Area = 0.066 ac, 94.19% Impervious, Inflow Depth > 0.53" for WQ event
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

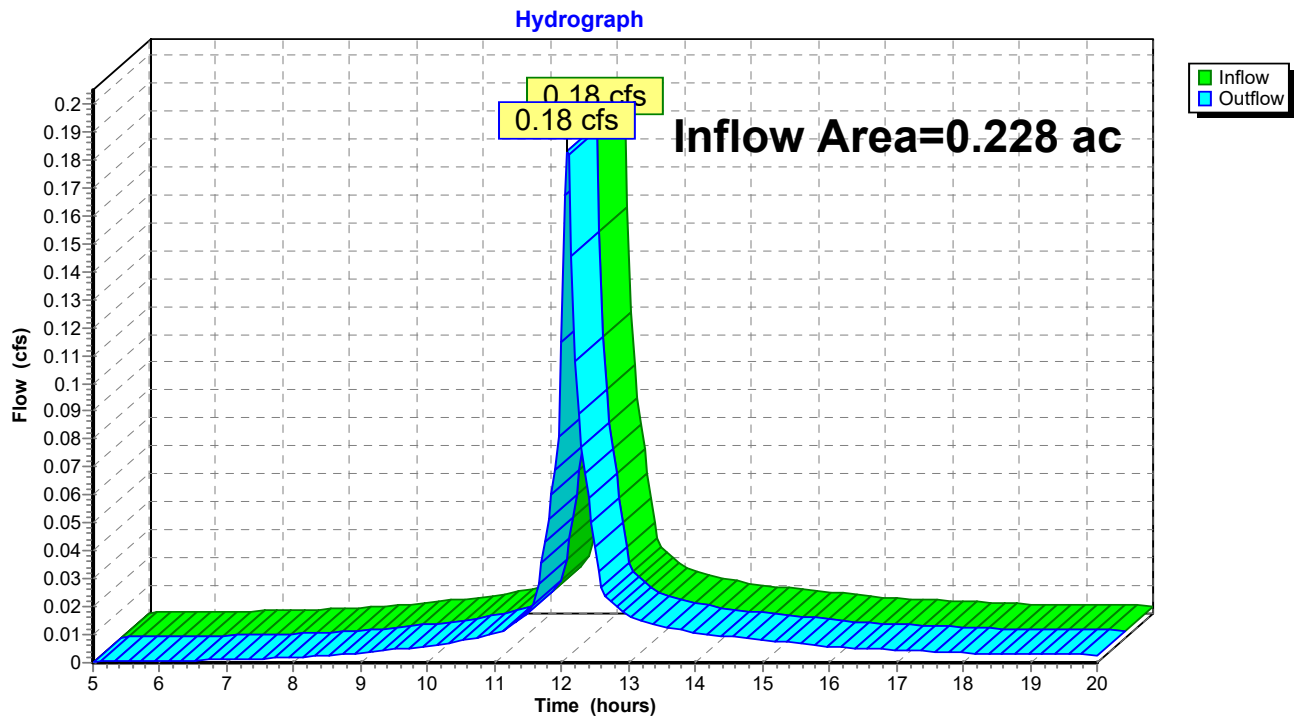
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

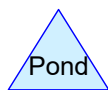
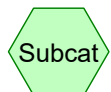
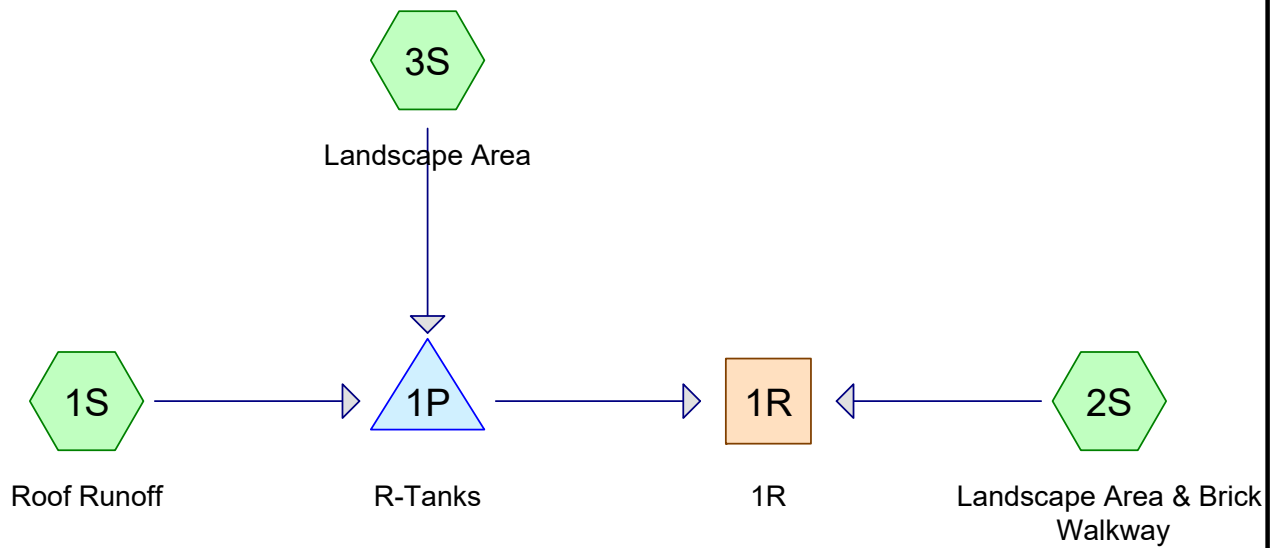
Reach 2R: Rear of Parcel

Summary for Reach 3R: Total Runoff

Inflow Area = 0.228 ac, 97.95% Impervious, Inflow Depth > 0.68" for WQ event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.013 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 3R: Total Runoff



Routing Diagram for 1109.4-POST
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Project Notes

Rainfall events imported from "1192.2_PRE_4.3.23.hcp"

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.029	39	>75% Grass cover, Good, HSG A (2S, 3S)
0.014	98	Brick sidewalk (2S)
0.005	98	Drip Edge (2S, 3S)
0.180	98	Roof (1S)
0.228	91	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.029	HSG A	2S, 3S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.199	Other	1S, 2S, 3S
0.228		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.029	0.000	0.000	0.000	0.000	0.029	>75% Grass cover, Good	2S, 3S
0.000	0.000	0.000	0.000	0.014	0.014	Brick sidewalk	2S
0.000	0.000	0.000	0.000	0.005	0.005	Drip Edge	2S, 3S
0.000	0.000	0.000	0.000	0.180	0.180	Roof	1S
0.029	0.000	0.000	0.000	0.199	0.228	TOTAL AREA	

1109.4-POST*Type III 24-hr 2-year Rainfall=3.10"*

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Time span=0.50-50.00 hrs, dt=0.03 hrs, 1651 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: Roof Runoff

Runoff Area=7,845 sf 100.00% Impervious Runoff Depth=2.87"

Tc=6.0 min CN=98 Runoff=0.54 cfs 0.043 af

Subcatchment2S: Landscape Area & Brick

Runoff Area=1,455 sf 49.83% Impervious Runoff Depth=0.68"

Tc=6.0 min CN=68 Runoff=0.02 cfs 0.002 af

Subcatchment3S: Landscape Area

Runoff Area=616 sf 14.61% Impervious Runoff Depth=0.07"

Tc=6.0 min CN=48 Runoff=0.00 cfs 0.000 af

Reach 1R: 1R

Inflow=0.21 cfs 0.045 af

Outflow=0.21 cfs 0.045 af

Pond 1P: R-Tanks

Peak Elev=137.33' Storage=726 cf Inflow=0.54 cfs 0.043 af

Outflow=0.19 cfs 0.043 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.045 af Average Runoff Depth = 2.37"
12.67% Pervious = 0.029 ac 87.33% Impervious = 0.199 ac

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Type III 24-hr 2-year Rainfall=3.10"

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Summary for Subcatchment 1S: Roof Runoff

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 2.87"

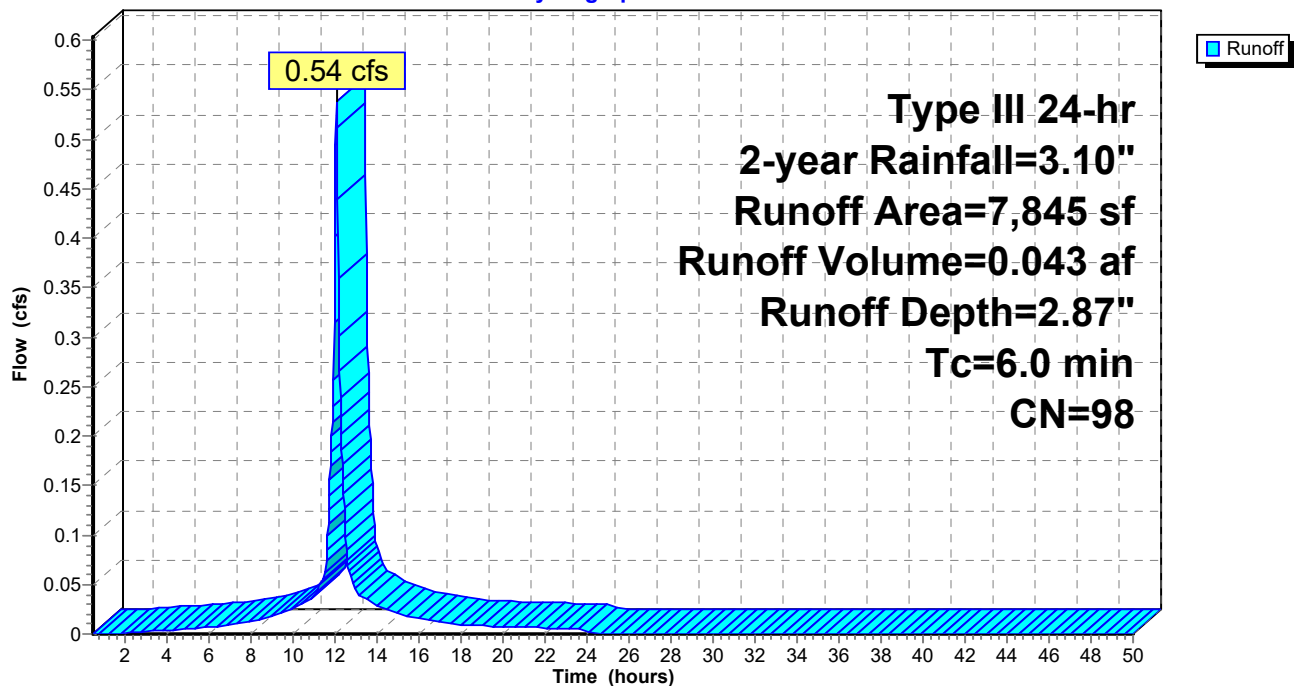
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,845	98	Roof
	7,845		100.00% Impervious Area

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

Subcatchment 1S: Roof Runoff

Hydrograph



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Type III 24-hr 2-year Rainfall=3.10"

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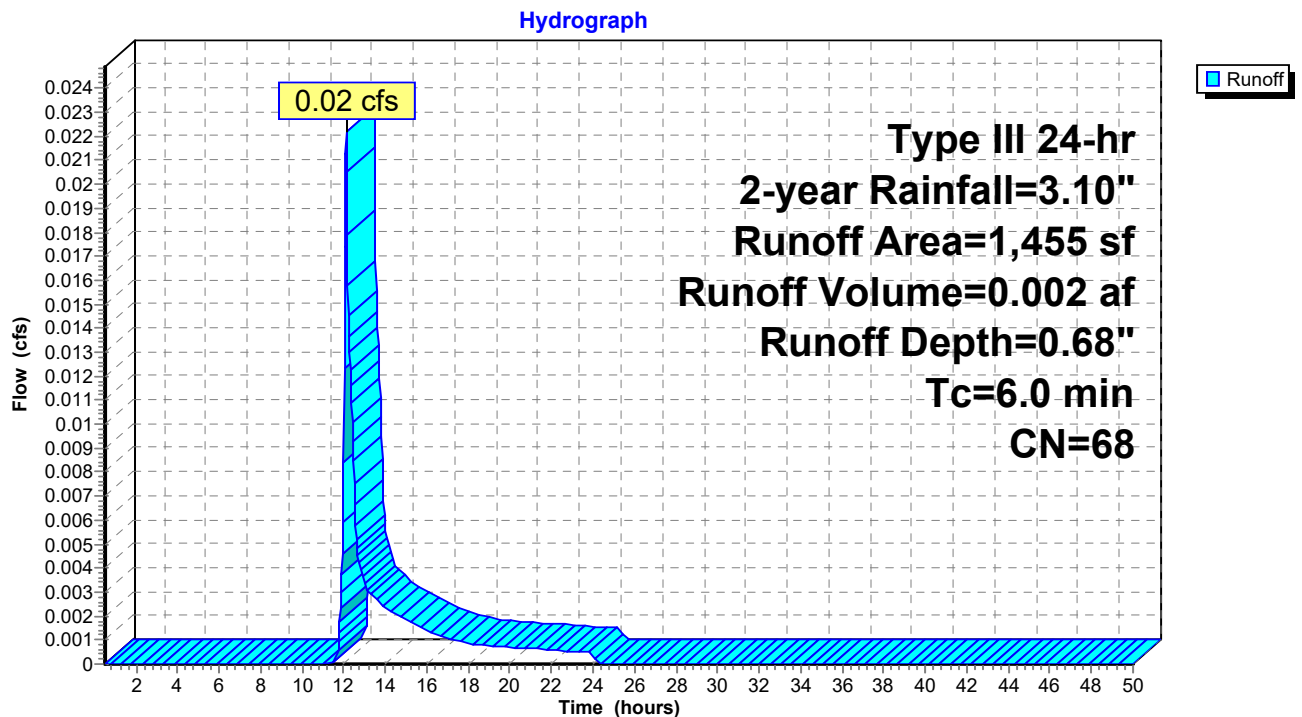
Summary for Subcatchment 2S: Landscape Area & Brick Walkway

Runoff = 0.02 cfs @ 12.11 hrs, Volume= 0.002 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

	Area (sf)	CN	Description
	730	39	>75% Grass cover, Good, HSG A
*	595	98	Brick sidewalk
*	130	98	Drip Edge
	1,455	68	Weighted Average
	730		50.17% Pervious Area
	725		49.83% Impervious Area

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

Subcatchment 2S: Landscape Area & Brick Walkway

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Type III 24-hr 2-year Rainfall=3.10"

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Summary for Subcatchment 3S: Landscape Area

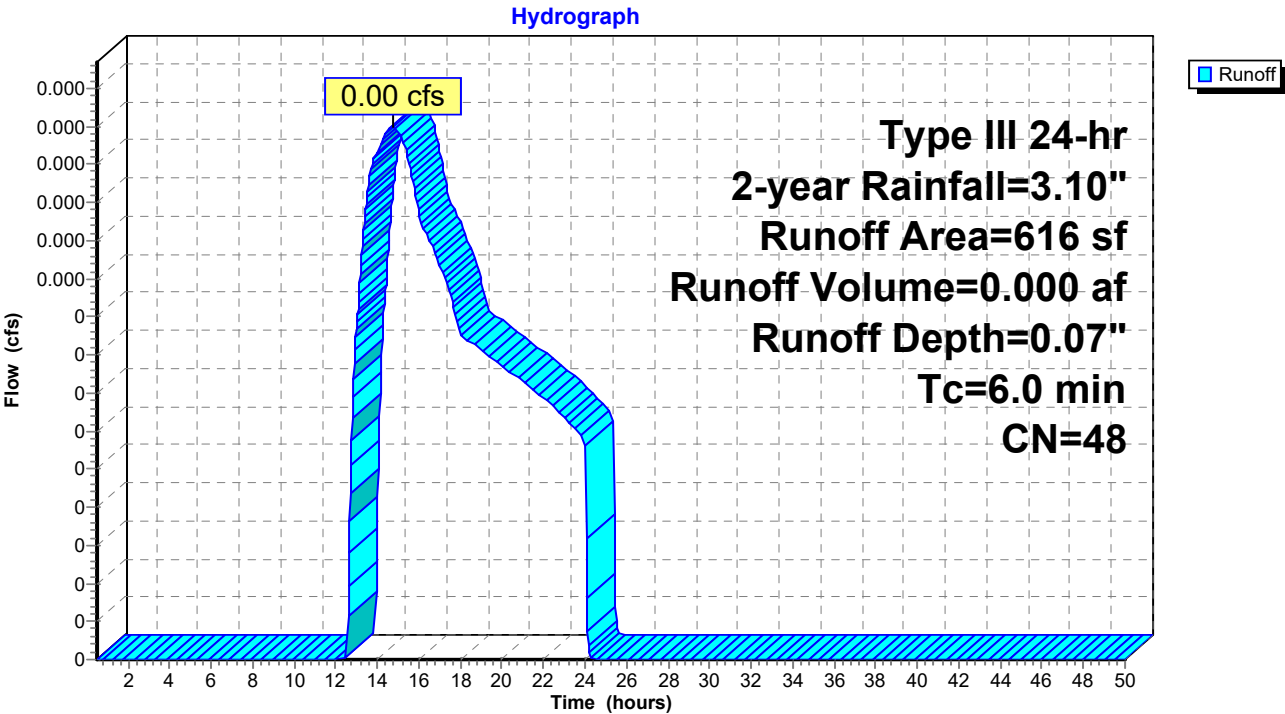
Runoff = 0.00 cfs @ 14.75 hrs, Volume= 0.000 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-year Rainfall=3.10"

Area (sf)	CN	Description
526	39	>75% Grass cover, Good, HSG A
* 90	98	Drip Edge
616	48	Weighted Average
526		85.39% Pervious Area
90		14.61% Impervious Area

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

Subcatchment 3S: Landscape Area

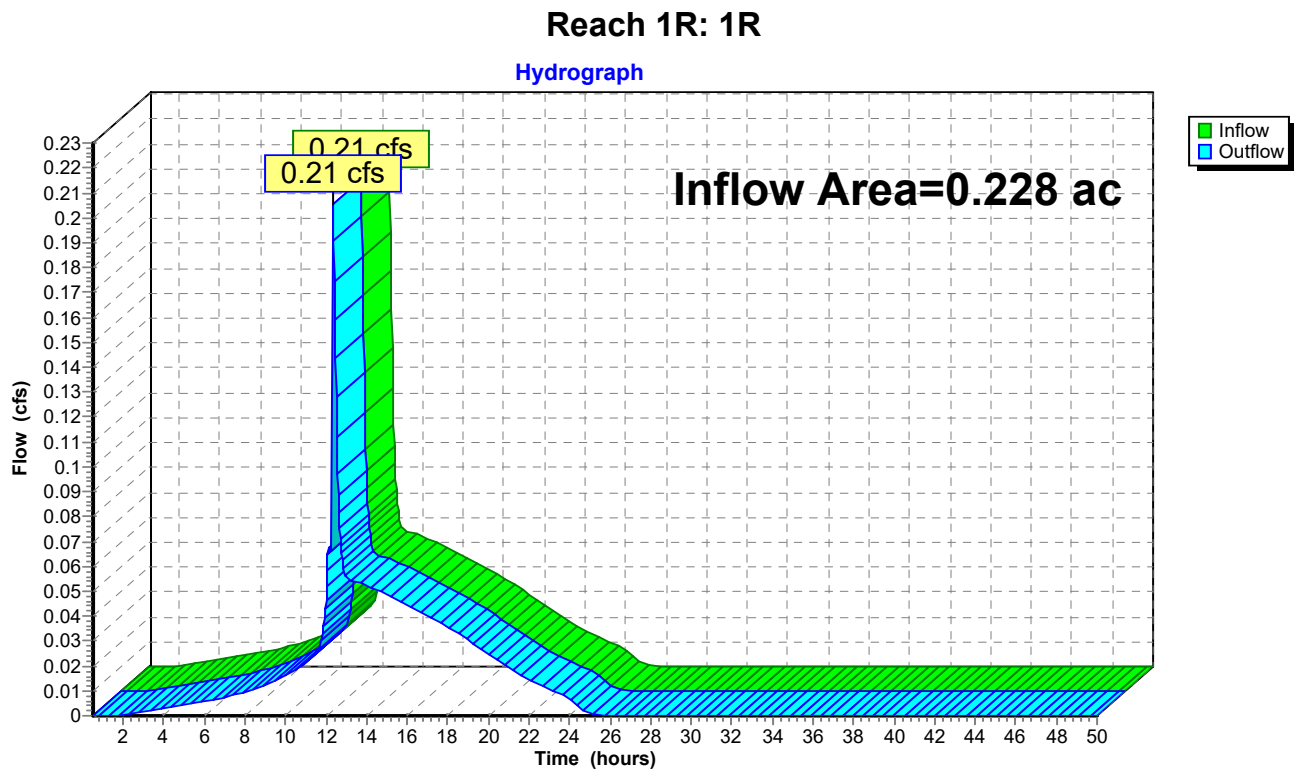


Summary for Reach 1R: 1R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.228 ac, 87.33% Impervious, Inflow Depth = 2.37" for 2-year event
Inflow = 0.21 cfs @ 12.35 hrs, Volume= 0.045 af
Outflow = 0.21 cfs @ 12.35 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs



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Type III 24-hr 2-year Rainfall=3.10"

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Summary for Pond 1P: R-Tanks

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.194 ac, 93.78% Impervious, Inflow Depth = 2.66" for 2-year event
 Inflow = 0.54 cfs @ 12.08 hrs, Volume= 0.043 af
 Outflow = 0.19 cfs @ 12.35 hrs, Volume= 0.043 af, Atten= 64%, Lag= 15.8 min
 Primary = 0.19 cfs @ 12.35 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
 Peak Elev= 137.33' @ 12.35 hrs Surf.Area= 383 sf Storage= 726 cf

Plug-Flow detention time= 136.5 min calculated for 0.043 af (100% of inflow)
 Center-of-Mass det. time= 136.5 min (894.2 - 757.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.40'	642 cf	Stone Storage (Prismatic) Listed below (Recalc) 1,869 cf Overall - 263 cf Embedded = 1,606 cf x 40.0% Voids
#2	134.90'	244 cf	1.31'W x 2.35'L x 2.88'H Tanks x 29 Inside #1 257 cf Overall x 95.0% Voids
#3	133.45'	6 cf	4.0" Round Pipe Storage Inside #1 L= 68.0' S= 0.0025 ' /'
		893 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.40	383	0	0
138.28	383	1,869	1,869

Device	Routing	Invert	Outlet Devices
#1	Primary	133.40'	8.0" Round 8" Outlet Pipe L= 8.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 133.40' / 133.35' S= 0.0063 ' /' Cc= 0.600 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	133.35'	1.0" Vert. Orifice C= 0.600
#3	Device 1	137.28'	6.0" Horiz. (2) 6" overflow pipes X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.18 cfs @ 12.35 hrs HW=137.33' (Free Discharge)

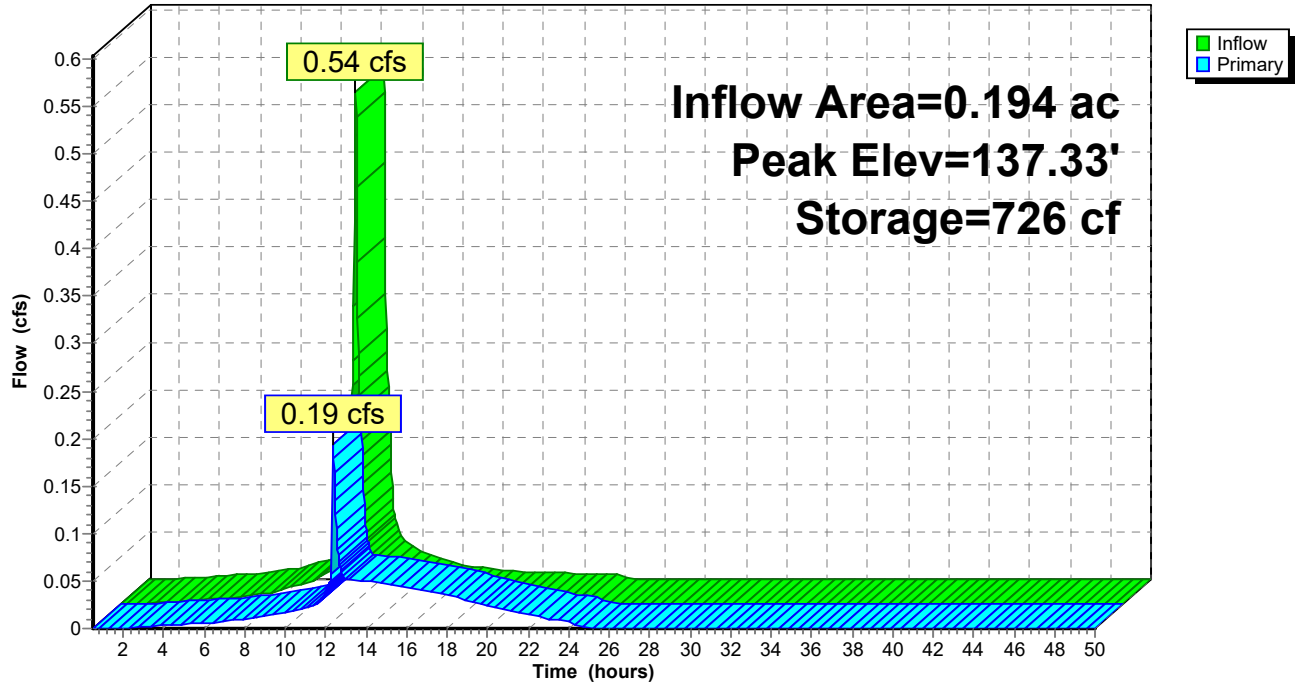
1=8" Outlet Pipe (Passes 0.18 cfs of 1.68 cfs potential flow)

2=Orifice (Orifice Controls 0.05 cfs @ 9.55 fps)

3=(2) 6" overflow pipes (Weir Controls 0.13 cfs @ 0.76 fps)

Pond 1P: R-Tanks

Hydrograph



1109.4-POST*Type III 24-hr 10-year Rainfall=4.60"*

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Time span=0.50-50.00 hrs, dt=0.03 hrs, 1651 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: Roof Runoff

Runoff Area=7,845 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.81 cfs 0.065 af

Subcatchment2S: Landscape Area & Brick

Runoff Area=1,455 sf 49.83% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=68 Runoff=0.06 cfs 0.004 af

Subcatchment3S: Landscape Area

Runoff Area=616 sf 14.61% Impervious Runoff Depth=0.45"
Tc=6.0 min CN=48 Runoff=0.00 cfs 0.001 af

Reach 1R: 1R

Inflow=0.85 cfs 0.070 af
Outflow=0.85 cfs 0.070 af

Pond 1P: R-Tanks

Peak Elev=137.46' Storage=750 cf Inflow=0.81 cfs 0.066 af
Outflow=0.79 cfs 0.066 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.070 af Average Runoff Depth = 3.71"
12.67% Pervious = 0.029 ac 87.33% Impervious = 0.199 ac

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Type III 24-hr 10-year Rainfall=4.60"

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Summary for Subcatchment 1S: Roof Runoff

Runoff = 0.81 cfs @ 12.08 hrs, Volume= 0.065 af, Depth= 4.36"

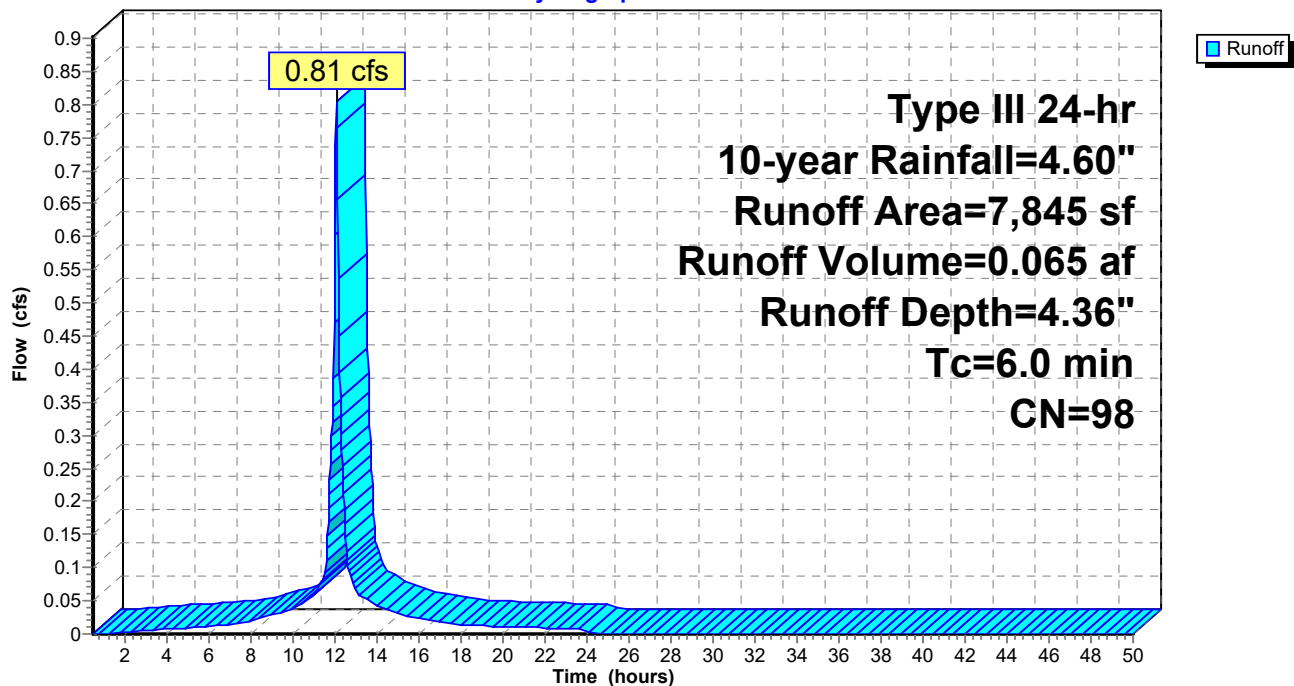
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	7,845	98	Roof
	7,845		100.00% Impervious Area

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

Subcatchment 1S: Roof Runoff

Hydrograph



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Type III 24-hr 10-year Rainfall=4.60"

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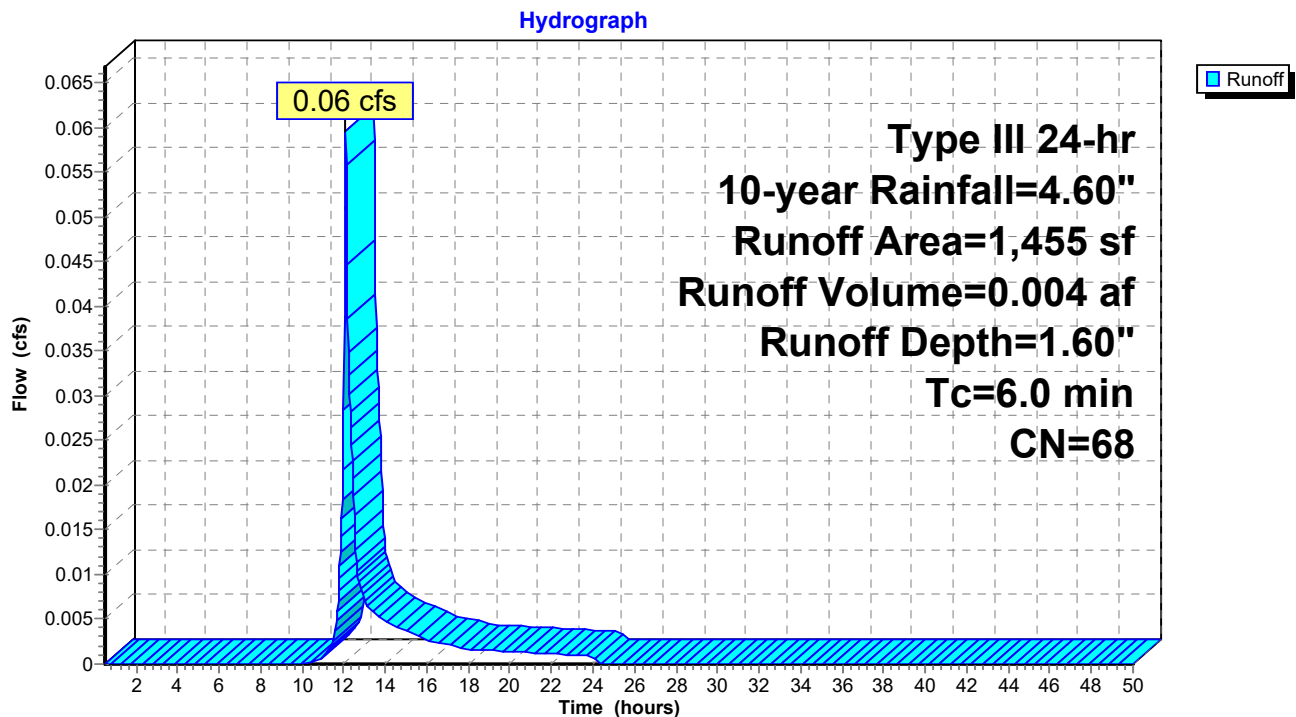
Summary for Subcatchment 2S: Landscape Area & Brick Walkway

Runoff = 0.06 cfs @ 12.10 hrs, Volume= 0.004 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
	730	39	>75% Grass cover, Good, HSG A
*	595	98	Brick sidewalk
*	130	98	Drip Edge
	1,455	68	Weighted Average
	730		50.17% Pervious Area
	725		49.83% Impervious Area

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

Subcatchment 2S: Landscape Area & Brick Walkway

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Type III 24-hr 10-year Rainfall=4.60"

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Summary for Subcatchment 3S: Landscape Area

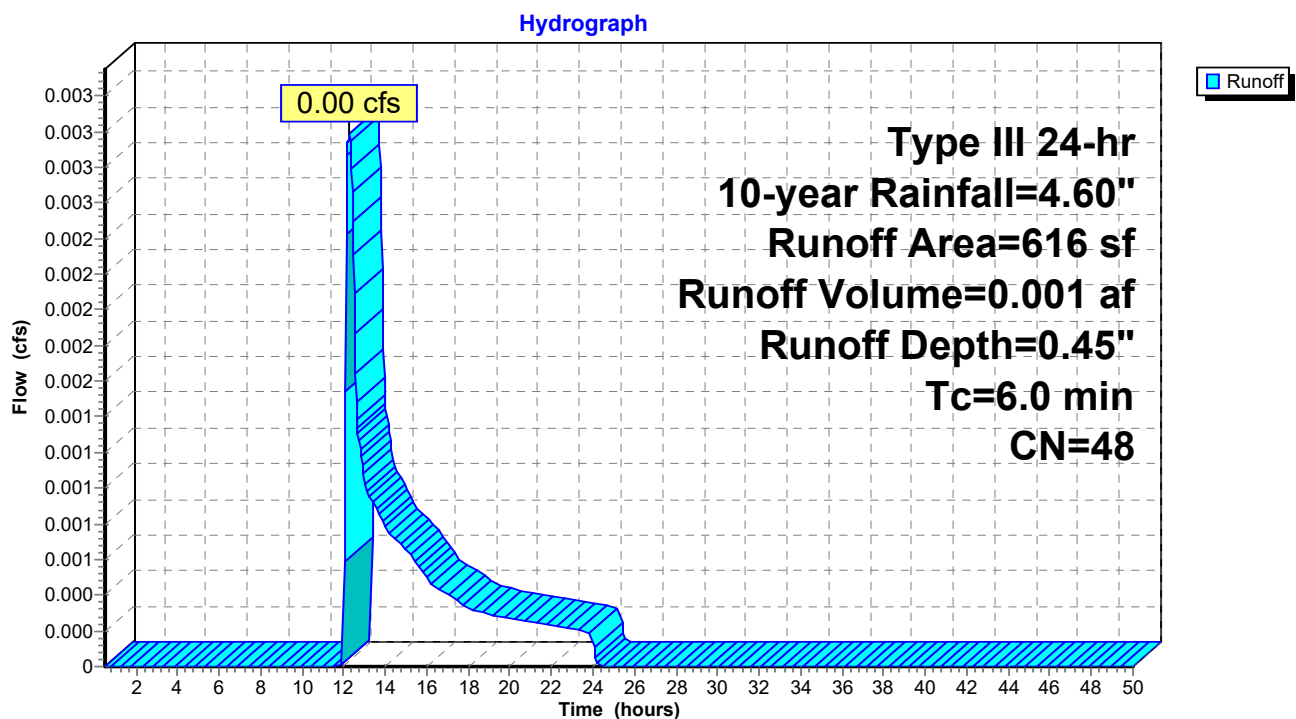
Runoff = 0.00 cfs @ 12.28 hrs, Volume= 0.001 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 10-year Rainfall=4.60"

	Area (sf)	CN	Description
*	526	39	>75% Grass cover, Good, HSG A
	90	98	Drip Edge
	616	48	Weighted Average
	526		85.39% Pervious Area
	90		14.61% Impervious Area

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

Subcatchment 3S: Landscape Area

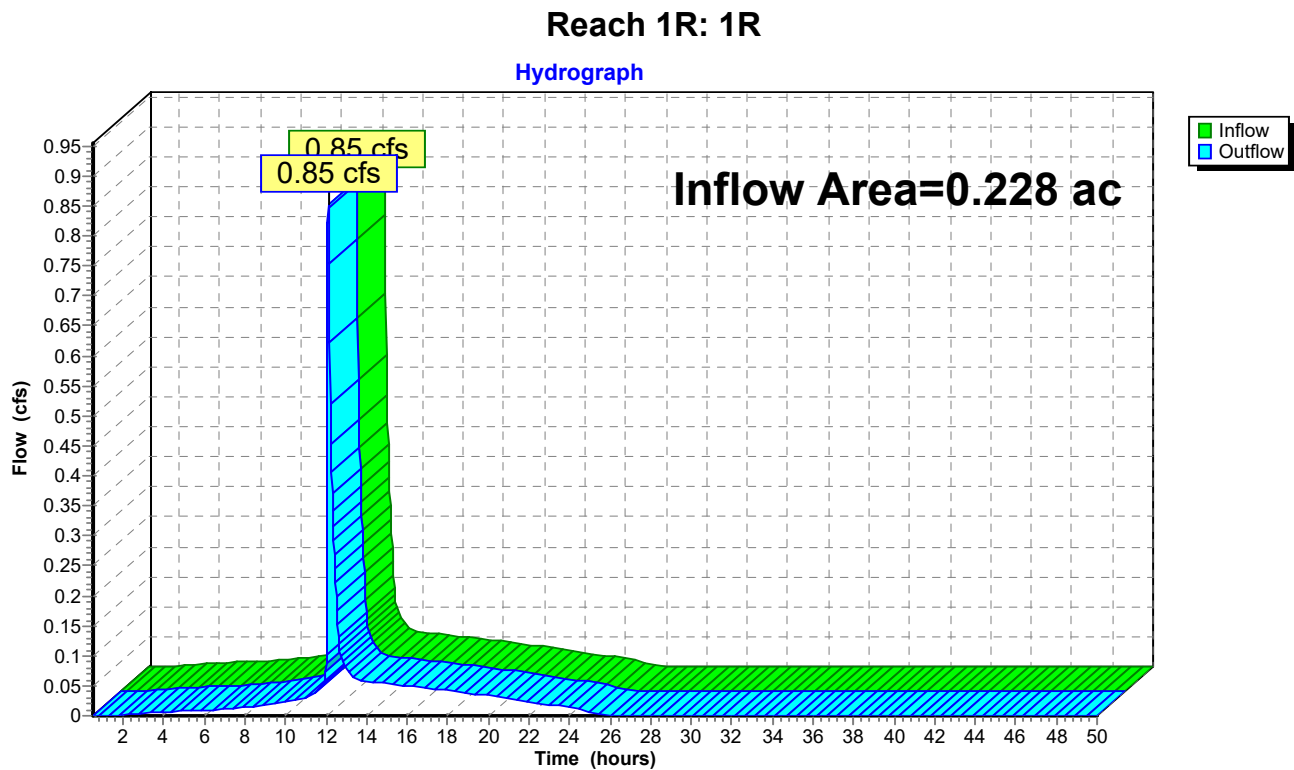


Summary for Reach 1R: 1R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.228 ac, 87.33% Impervious, Inflow Depth = 3.71" for 10-year event
Inflow = 0.85 cfs @ 12.10 hrs, Volume= 0.070 af
Outflow = 0.85 cfs @ 12.10 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs



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Type III 24-hr 10-year Rainfall=4.60"

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Summary for Pond 1P: R-Tanks

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.194 ac, 93.78% Impervious, Inflow Depth = 4.08" for 10-year event
 Inflow = 0.81 cfs @ 12.08 hrs, Volume= 0.066 af
 Outflow = 0.79 cfs @ 12.10 hrs, Volume= 0.066 af, Atten= 2%, Lag= 1.1 min
 Primary = 0.79 cfs @ 12.10 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
 Peak Elev= 137.46' @ 12.10 hrs Surf.Area= 383 sf Storage= 750 cf

Plug-Flow detention time= 117.0 min calculated for 0.066 af (100% of inflow)
 Center-of-Mass det. time= 117.0 min (867.9 - 750.9)

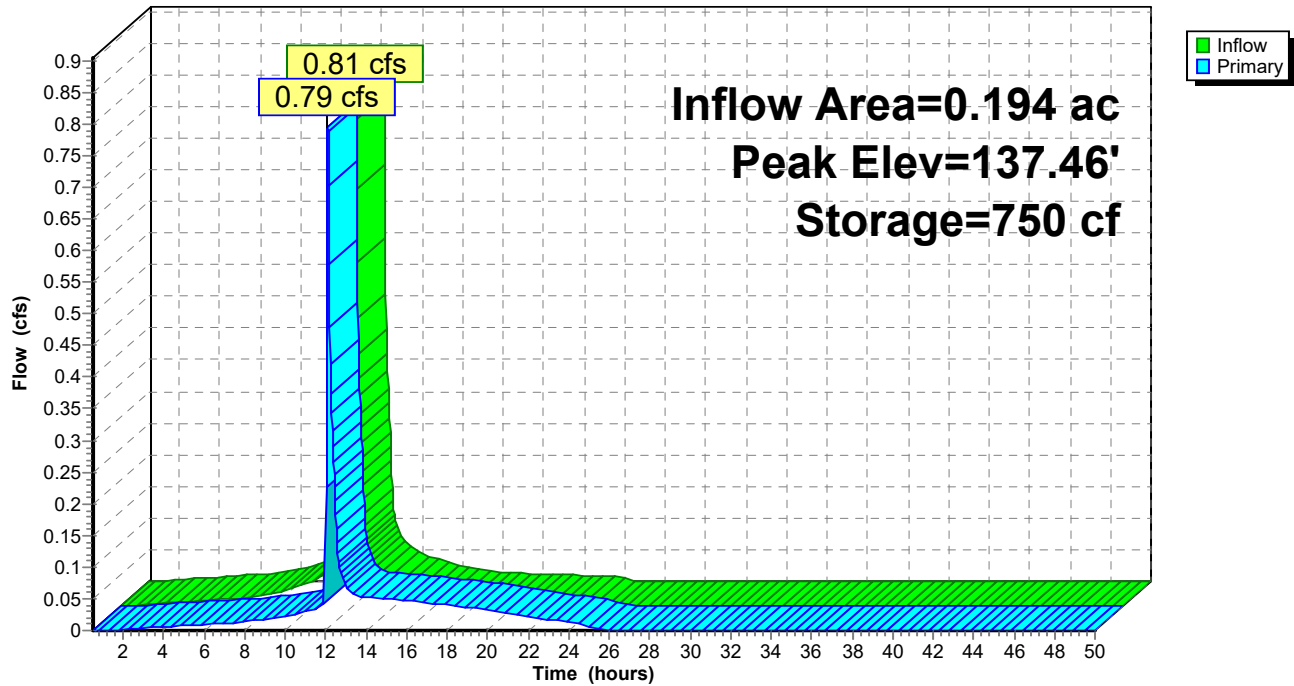
Volume	Invert	Avail.Storage	Storage Description
#1	133.40'	642 cf	Stone Storage (Prismatic) Listed below (Recalc) 1,869 cf Overall - 263 cf Embedded = 1,606 cf x 40.0% Voids
#2	134.90'	244 cf	1.31'W x 2.35'L x 2.88'H Tanks x 29 Inside #1 257 cf Overall x 95.0% Voids
#3	133.45'	6 cf	4.0" Round Pipe Storage Inside #1 L= 68.0' S= 0.0025 ' /'
		893 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.40	383	0	0
138.28	383	1,869	1,869

Device	Routing	Invert	Outlet Devices
#1	Primary	133.40'	8.0" Round 8" Outlet Pipe L= 8.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 133.40' / 133.35' S= 0.0063 ' /' Cc= 0.600 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	133.35'	1.0" Vert. Orifice C= 0.600
#3	Device 1	137.28'	6.0" Horiz. (2) 6" overflow pipes X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.79 cfs @ 12.10 hrs HW=137.45' (Free Discharge)

1=8" Outlet Pipe (Passes 0.79 cfs of 1.71 cfs potential flow)
 2=Orifice (Orifice Controls 0.05 cfs @ 9.69 fps)
 3=(2) 6" overflow pipes (Weir Controls 0.74 cfs @ 1.36 fps)

Pond 1P: R-Tanks**Hydrograph**

1109.4-POST*Type III 24-hr 25-year Rainfall=5.80"*

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Time span=0.50-50.00 hrs, dt=0.03 hrs, 1651 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: Roof Runoff

Runoff Area=7,845 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.02 cfs 0.083 af

Subcatchment2S: Landscape Area & Brick

Runoff Area=1,455 sf 49.83% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=68 Runoff=0.09 cfs 0.007 af

Subcatchment3S: Landscape Area

Runoff Area=616 sf 14.61% Impervious Runoff Depth=0.91"
Tc=6.0 min CN=48 Runoff=0.01 cfs 0.001 af

Reach 1R: 1R

Inflow=1.09 cfs 0.091 af
Outflow=1.09 cfs 0.091 af

Pond 1P: R-Tanks

Peak Elev=137.53' Storage=765 cf Inflow=1.03 cfs 0.085 af
Outflow=0.99 cfs 0.085 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.091 af Average Runoff Depth = 4.82"
12.67% Pervious = 0.029 ac 87.33% Impervious = 0.199 ac

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Type III 24-hr 25-year Rainfall=5.80"

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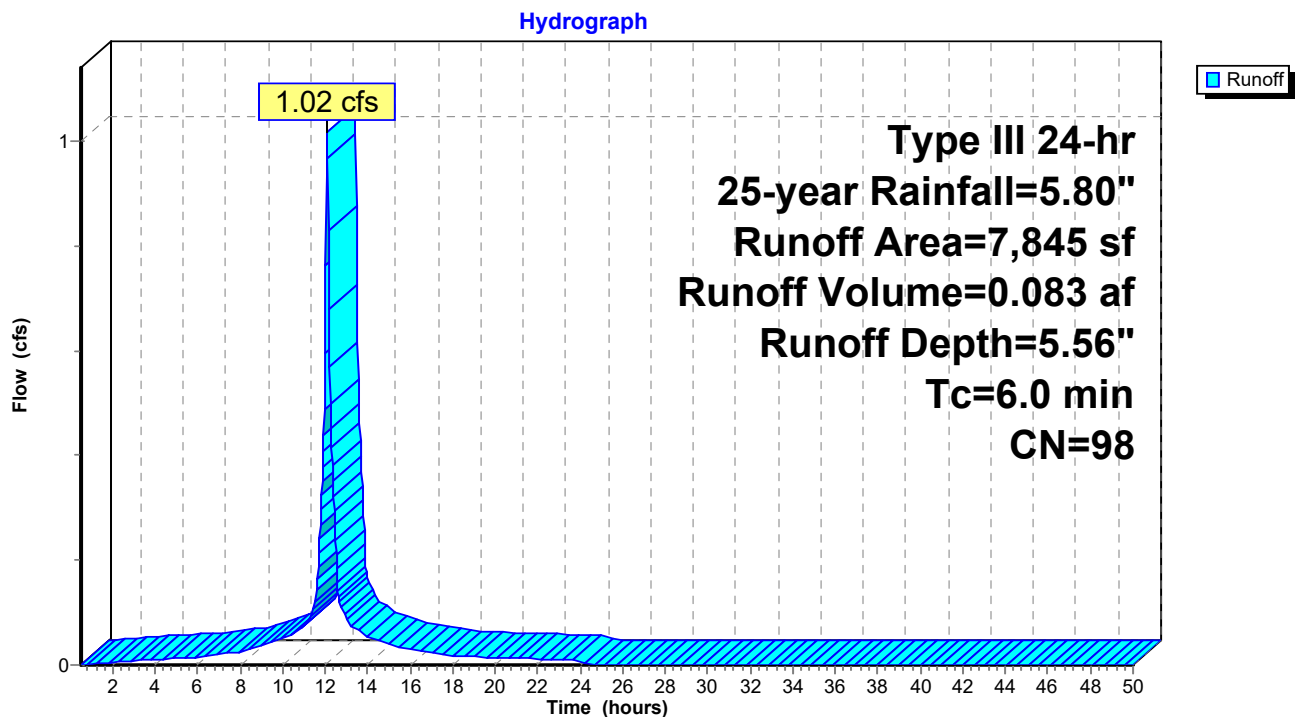
Summary for Subcatchment 1S: Roof Runoff

Runoff = 1.02 cfs @ 12.08 hrs, Volume= 0.083 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,845	98	Roof
	7,845		100.00% Impervious Area

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

Subcatchment 1S: Roof Runoff

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Type III 24-hr 25-year Rainfall=5.80"

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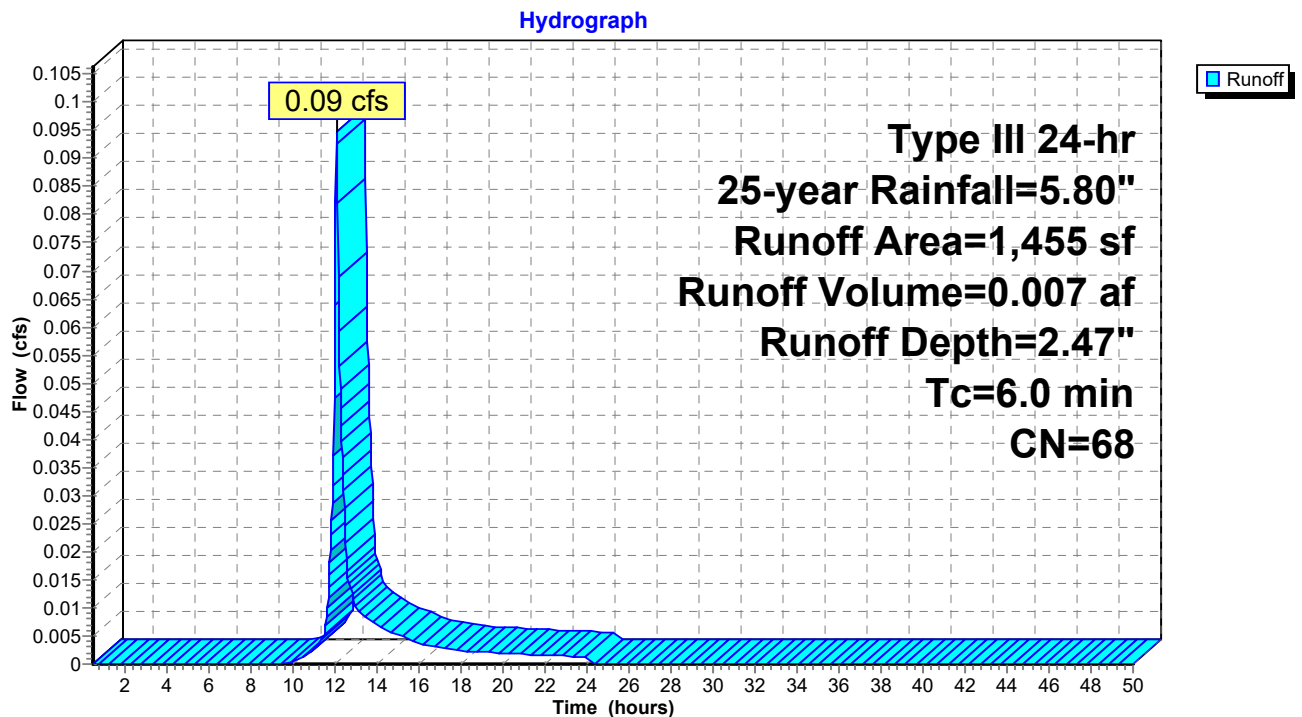
Summary for Subcatchment 2S: Landscape Area & Brick Walkway

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 0.007 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	730	39	>75% Grass cover, Good, HSG A
*	595	98	Brick sidewalk
*	130	98	Drip Edge
	1,455	68	Weighted Average
	730		50.17% Pervious Area
	725		49.83% Impervious Area

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

Subcatchment 2S: Landscape Area & Brick Walkway

1109.4-POST

Type III 24-hr 25-year Rainfall=5.80"

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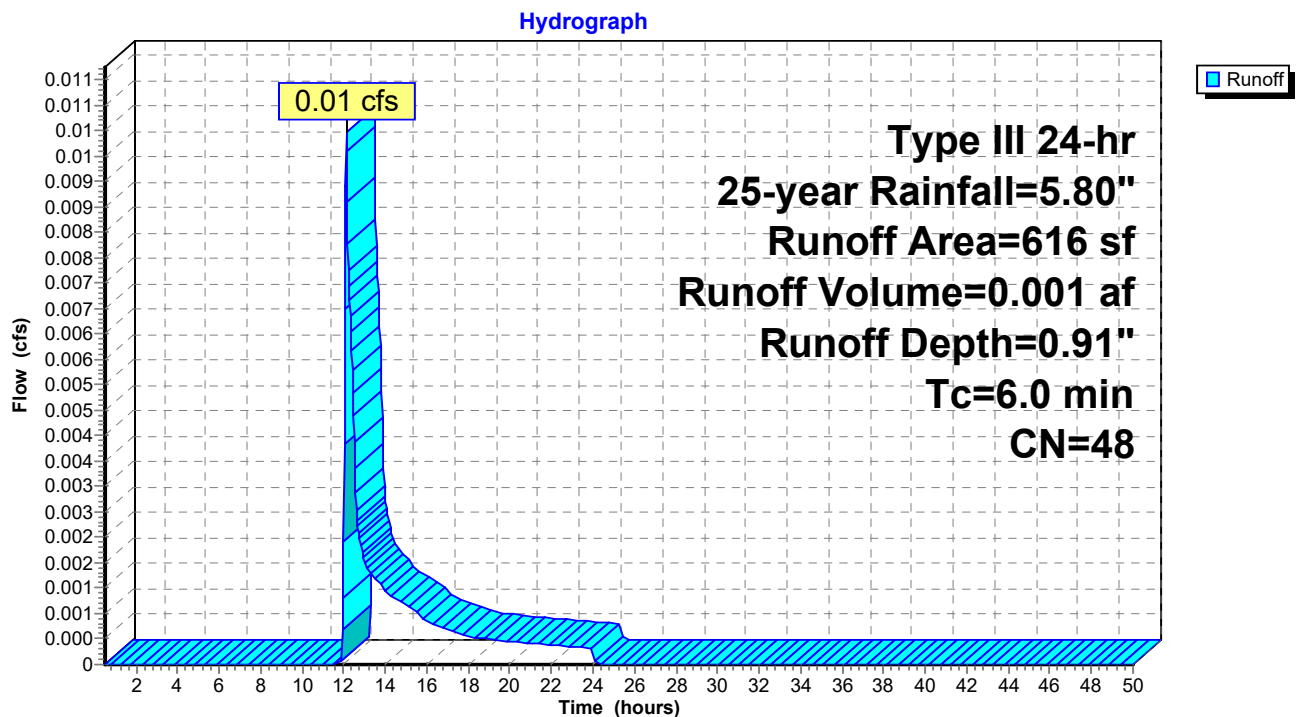
Summary for Subcatchment 3S: Landscape Area

Runoff = 0.01 cfs @ 12.12 hrs, Volume= 0.001 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr 25-year Rainfall=5.80"

	Area (sf)	CN	Description
	526	39	>75% Grass cover, Good, HSG A
*	90	98	Drip Edge
	616	48	Weighted Average
	526		85.39% Pervious Area
	90		14.61% Impervious Area

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

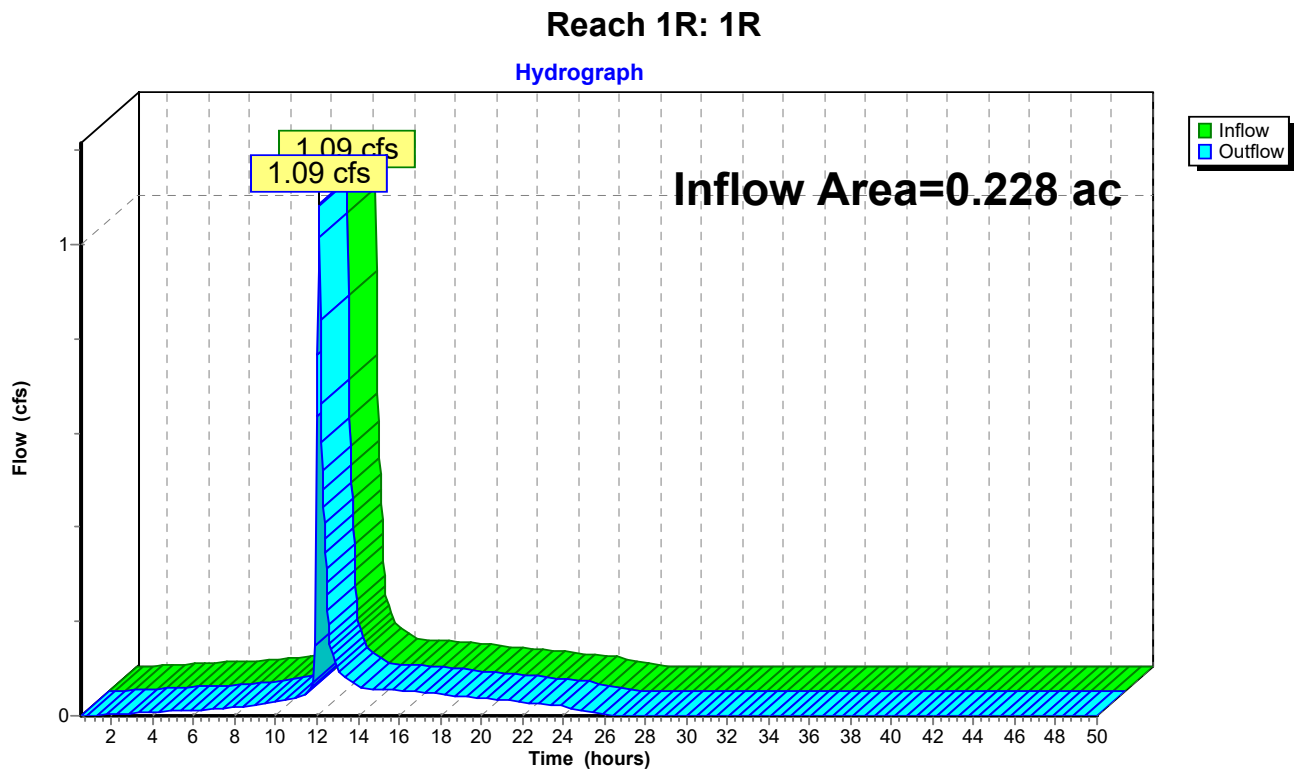
Subcatchment 3S: Landscape Area

Summary for Reach 1R: 1R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.228 ac, 87.33% Impervious, Inflow Depth = 4.82" for 25-year event
Inflow = 1.09 cfs @ 12.10 hrs, Volume= 0.091 af
Outflow = 1.09 cfs @ 12.10 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs



1109.4-POST

Type III 24-hr 25-year Rainfall=5.80"

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Summary for Pond 1P: R-Tanks

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.194 ac, 93.78% Impervious, Inflow Depth = 5.22" for 25-year event
 Inflow = 1.03 cfs @ 12.08 hrs, Volume= 0.085 af
 Outflow = 0.99 cfs @ 12.10 hrs, Volume= 0.085 af, Atten= 3%, Lag= 1.2 min
 Primary = 0.99 cfs @ 12.10 hrs, Volume= 0.085 af

Routing by Stor-Ind method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
 Peak Elev= 137.53' @ 12.10 hrs Surf.Area= 383 sf Storage= 765 cf

Plug-Flow detention time= 107.4 min calculated for 0.085 af (100% of inflow)
 Center-of-Mass det. time= 107.4 min (855.1 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.40'	642 cf	Stone Storage (Prismatic) Listed below (Recalc) 1,869 cf Overall - 263 cf Embedded = 1,606 cf x 40.0% Voids
#2	134.90'	244 cf	1.31'W x 2.35'L x 2.88'H Tanks x 29 Inside #1 257 cf Overall x 95.0% Voids
#3	133.45'	6 cf	4.0" Round Pipe Storage Inside #1 L= 68.0' S= 0.0025 ' /'
		893 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.40	383	0	0
138.28	383	1,869	1,869

Device	Routing	Invert	Outlet Devices
#1	Primary	133.40'	8.0" Round 8" Outlet Pipe L= 8.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 133.40' / 133.35' S= 0.0063 ' /' Cc= 0.600 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	133.35'	1.0" Vert. Orifice C= 0.600
#3	Device 1	137.28'	6.0" Horiz. (2) 6" overflow pipes X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.99 cfs @ 12.10 hrs HW=137.52' (Free Discharge)

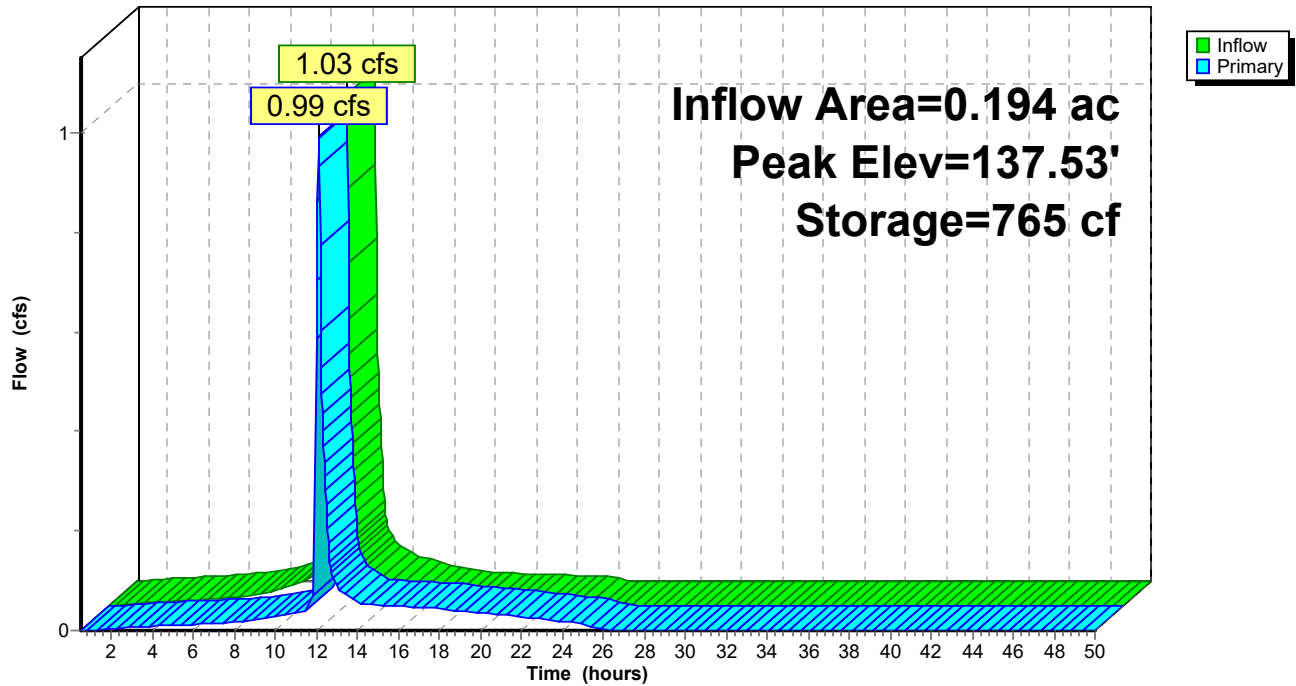
1=8" Outlet Pipe (Passes 0.99 cfs of 1.72 cfs potential flow)

2=Orifice (Orifice Controls 0.05 cfs @ 9.78 fps)

3=(2) 6" overflow pipes (Orifice Controls 0.93 cfs @ 2.38 fps)

Pond 1P: R-Tanks

Hydrograph



1109.4-POST*Type III 24-hr Detention Storm Rainfall=1.34"*

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Time span=0.50-50.00 hrs, dt=0.03 hrs, 1651 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: Roof Runoff

Runoff Area=7,845 sf 100.00% Impervious Runoff Depth=1.12"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

Subcatchment2S: Landscape Area & Brick

Runoff Area=1,455 sf 49.83% Impervious Runoff Depth=0.03"
Tc=6.0 min CN=68 Runoff=0.00 cfs 0.000 af

Subcatchment3S: Landscape Area

Runoff Area=616 sf 14.61% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=48 Runoff=0.00 cfs 0.000 af

Reach 1R: 1R

Inflow=0.03 cfs 0.017 af
Outflow=0.03 cfs 0.017 af

Pond 1P: R-Tanks

Peak Elev=135.12' Storage=277 cf Inflow=0.22 cfs 0.017 af
Outflow=0.03 cfs 0.017 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.017 af Average Runoff Depth = 0.89"
12.67% Pervious = 0.029 ac 87.33% Impervious = 0.199 ac

1109.4-POST

Type III 24-hr Detention Storm Rainfall=1.34"

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Summary for Subcatchment 1S: Roof Runoff

Runoff = 0.22 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 1.12"

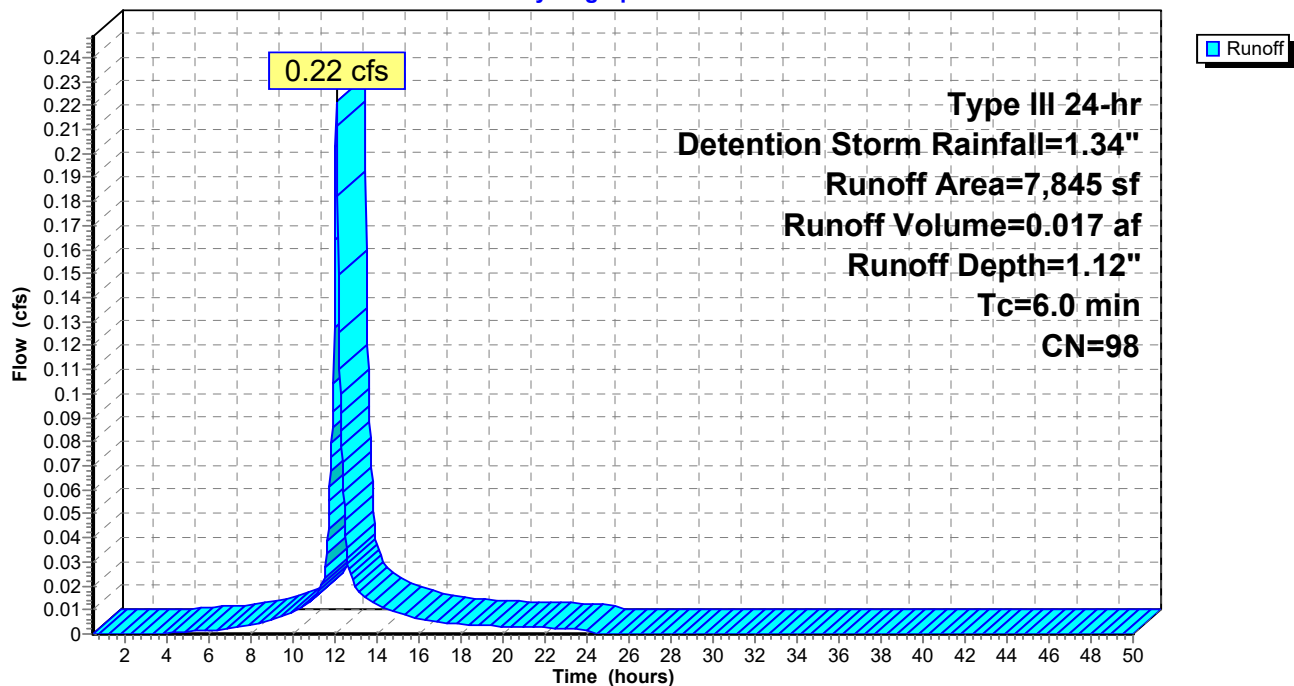
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr Detention Storm Rainfall=1.34"

	Area (sf)	CN	Description
*	7,845	98	Roof
	7,845		100.00% Impervious Area

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

Subcatchment 1S: Roof Runoff

Hydrograph



1109.4-POST

Type III 24-hr Detention Storm Rainfall=1.34"

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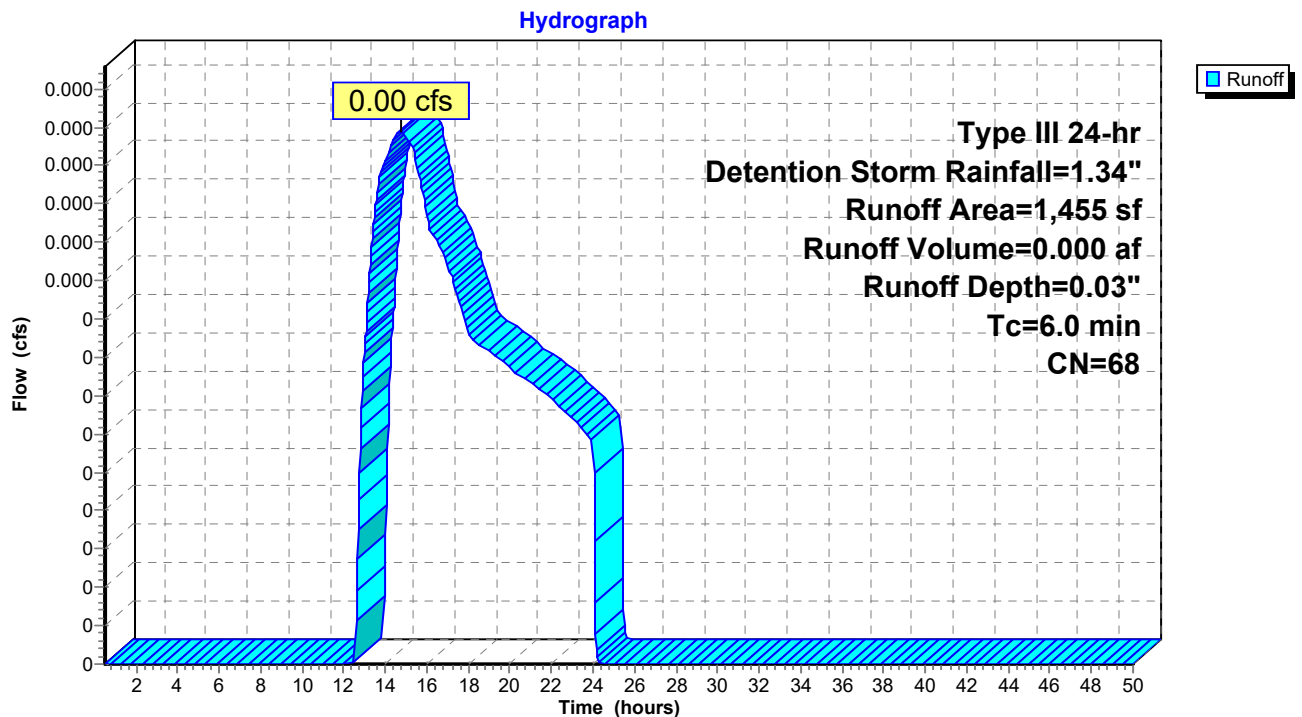
Summary for Subcatchment 2S: Landscape Area & Brick Walkway

Runoff = 0.00 cfs @ 14.77 hrs, Volume= 0.000 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr Detention Storm Rainfall=1.34"

Area (sf)	CN	Description
730	39	>75% Grass cover, Good, HSG A
* 595	98	Brick sidewalk
* 130	98	Drip Edge
1,455	68	Weighted Average
730		50.17% Pervious Area
725		49.83% Impervious Area

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

Subcatchment 2S: Landscape Area & Brick Walkway

1109.4-POST

Type III 24-hr Detention Storm Rainfall=1.34"

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Summary for Subcatchment 3S: Landscape Area

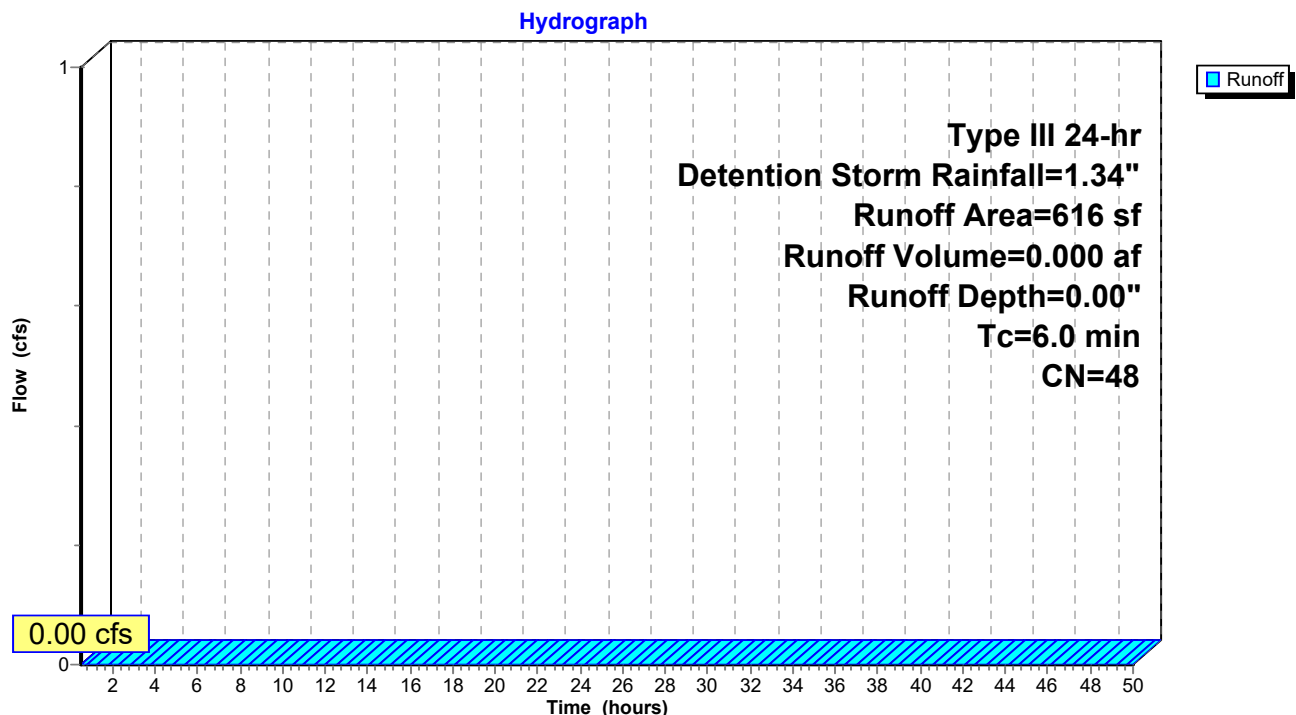
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.50 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr Detention Storm Rainfall=1.34"

	Area (sf)	CN	Description
	526	39	>75% Grass cover, Good, HSG A
*	90	98	Drip Edge
	616	48	Weighted Average
	526		85.39% Pervious Area
	90		14.61% Impervious Area

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

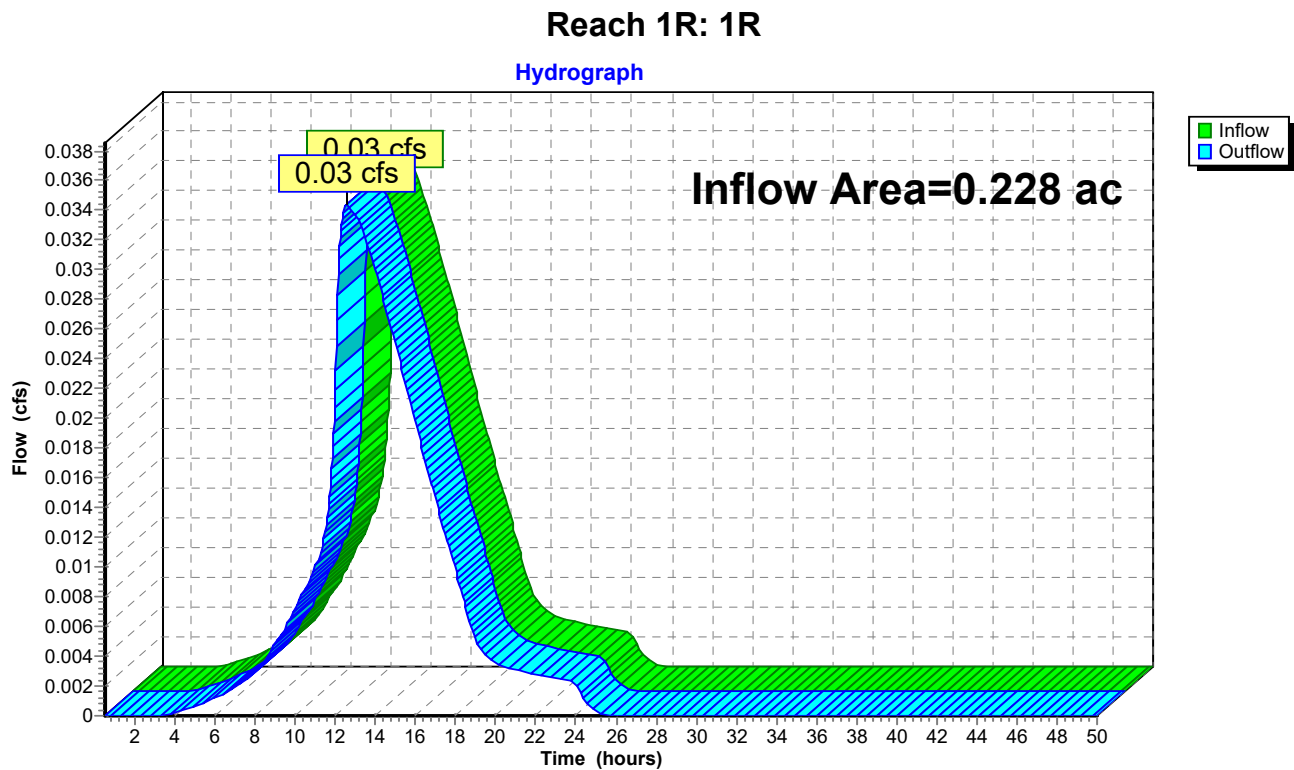
Subcatchment 3S: Landscape Area

Summary for Reach 1R: 1R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.228 ac, 87.33% Impervious, Inflow Depth = 0.89" for Detention Storm event
Inflow = 0.03 cfs @ 12.57 hrs, Volume= 0.017 af
Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs



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Type III 24-hr Detention Storm Rainfall=1.34"

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Summary for Pond 1P: R-Tanks

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.194 ac, 93.78% Impervious, Inflow Depth = 1.04" for Detention Storm event
 Inflow = 0.22 cfs @ 12.08 hrs, Volume= 0.017 af
 Outflow = 0.03 cfs @ 12.57 hrs, Volume= 0.017 af, Atten= 85%, Lag= 29.0 min
 Primary = 0.03 cfs @ 12.57 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
 Peak Elev= 135.12' @ 12.57 hrs Surf.Area= 383 sf Storage= 277 cf

Plug-Flow detention time= 81.0 min calculated for 0.017 af (100% of inflow)
 Center-of-Mass det. time= 81.0 min (859.7 - 778.6)

Volume	Invert	Avail.Storage	Storage Description
#1	133.40'	642 cf	Stone Storage (Prismatic) Listed below (Recalc) 1,869 cf Overall - 263 cf Embedded = 1,606 cf x 40.0% Voids
#2	134.90'	244 cf	1.31'W x 2.35'L x 2.88'H Tanks x 29 Inside #1 257 cf Overall x 95.0% Voids
#3	133.45'	6 cf	4.0" Round Pipe Storage Inside #1 L= 68.0' S= 0.0025 ' /'
		893 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.40	383	0	0
138.28	383	1,869	1,869

Device	Routing	Invert	Outlet Devices
#1	Primary	133.40'	8.0" Round 8" Outlet Pipe L= 8.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 133.40' / 133.35' S= 0.0063 ' /' Cc= 0.600 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	133.35'	1.0" Vert. Orifice C= 0.600
#3	Device 1	137.28'	6.0" Horiz. (2) 6" overflow pipes X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 12.57 hrs HW=135.12' (Free Discharge)

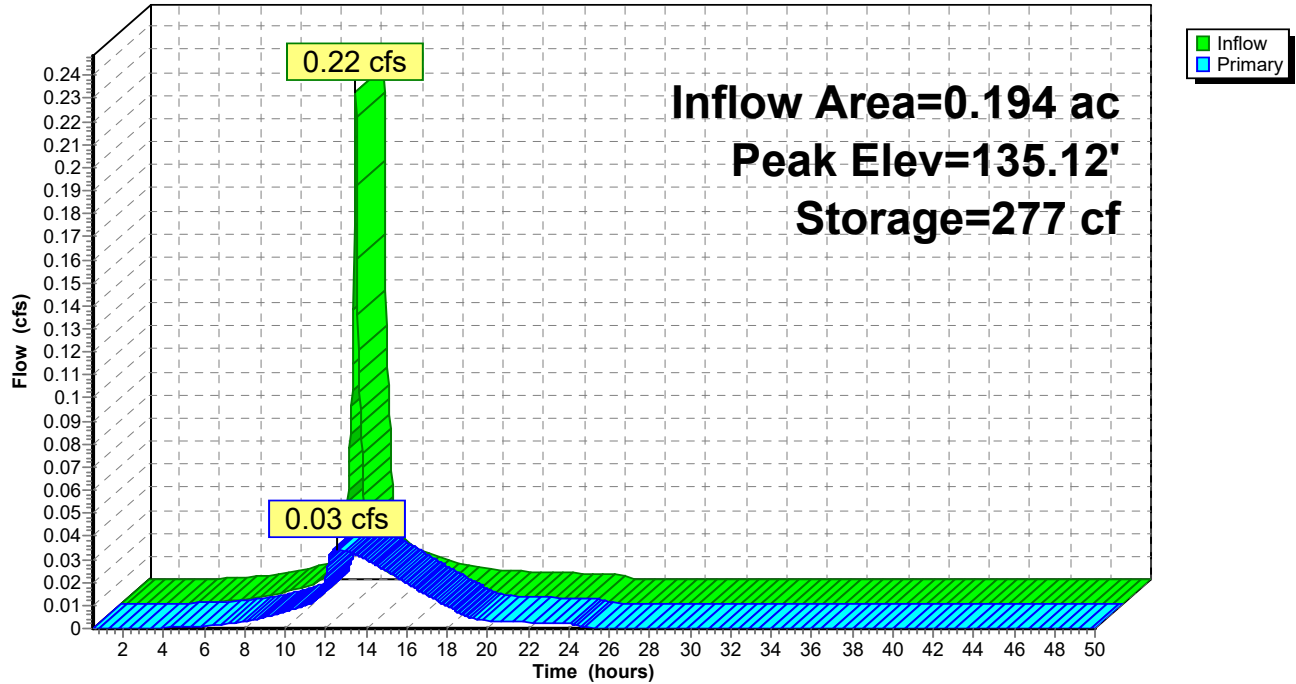
1=8" Outlet Pipe (Passes 0.03 cfs of 1.04 cfs potential flow)

2=Orifice (Orifice Controls 0.03 cfs @ 6.31 fps)

3=(2) 6" overflow pipes (Controls 0.00 cfs)

Pond 1P: R-Tanks

Hydrograph



1109.4-POST*Type III 24-hr WQ Rainfall=1.00"*

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Time span=0.50-50.00 hrs, dt=0.03 hrs, 1651 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: Roof Runoff

Runoff Area=7,845 sf 100.00% Impervious Runoff Depth=0.79"

Tc=6.0 min CN=98 Runoff=0.16 cfs 0.012 af

Subcatchment2S: Landscape Area & Brick

Runoff Area=1,455 sf 49.83% Impervious Runoff Depth=0.00"

Tc=6.0 min CN=68 Runoff=0.00 cfs 0.000 af

Subcatchment3S: Landscape Area

Runoff Area=616 sf 14.61% Impervious Runoff Depth=0.00"

Tc=6.0 min CN=48 Runoff=0.00 cfs 0.000 af

Reach 1R: 1R

Inflow=0.03 cfs 0.012 af

Outflow=0.03 cfs 0.012 af

Pond 1P: R-Tanks

Peak Elev=134.58' Storage=185 cf Inflow=0.16 cfs 0.012 af

Outflow=0.03 cfs 0.012 af

Total Runoff Area = 0.228 ac Runoff Volume = 0.012 af Average Runoff Depth = 0.63"
12.67% Pervious = 0.029 ac 87.33% Impervious = 0.199 ac

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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 1S: Roof Runoff

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 0.79"

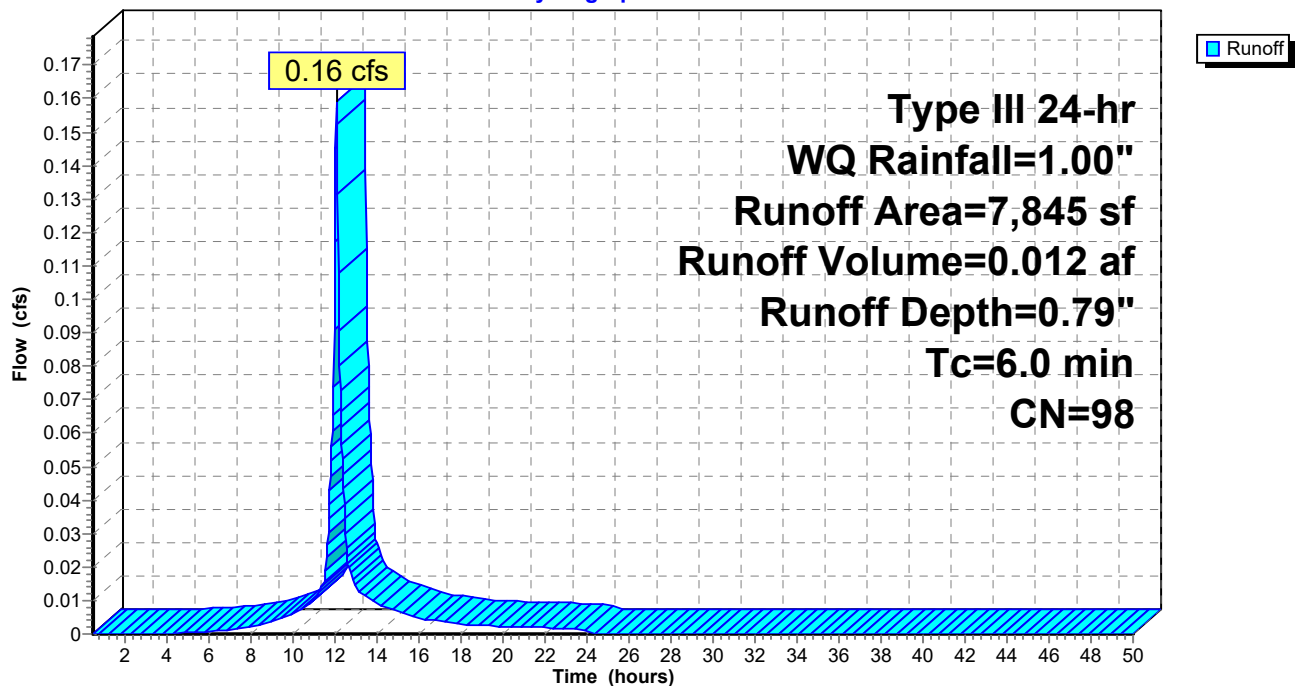
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr WQ Rainfall=1.00"

	Area (sf)	CN	Description
*	7,845	98	Roof
	7,845		100.00% Impervious Area

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

Subcatchment 1S: Roof Runoff

Hydrograph



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Type III 24-hr WQ Rainfall=1.00"

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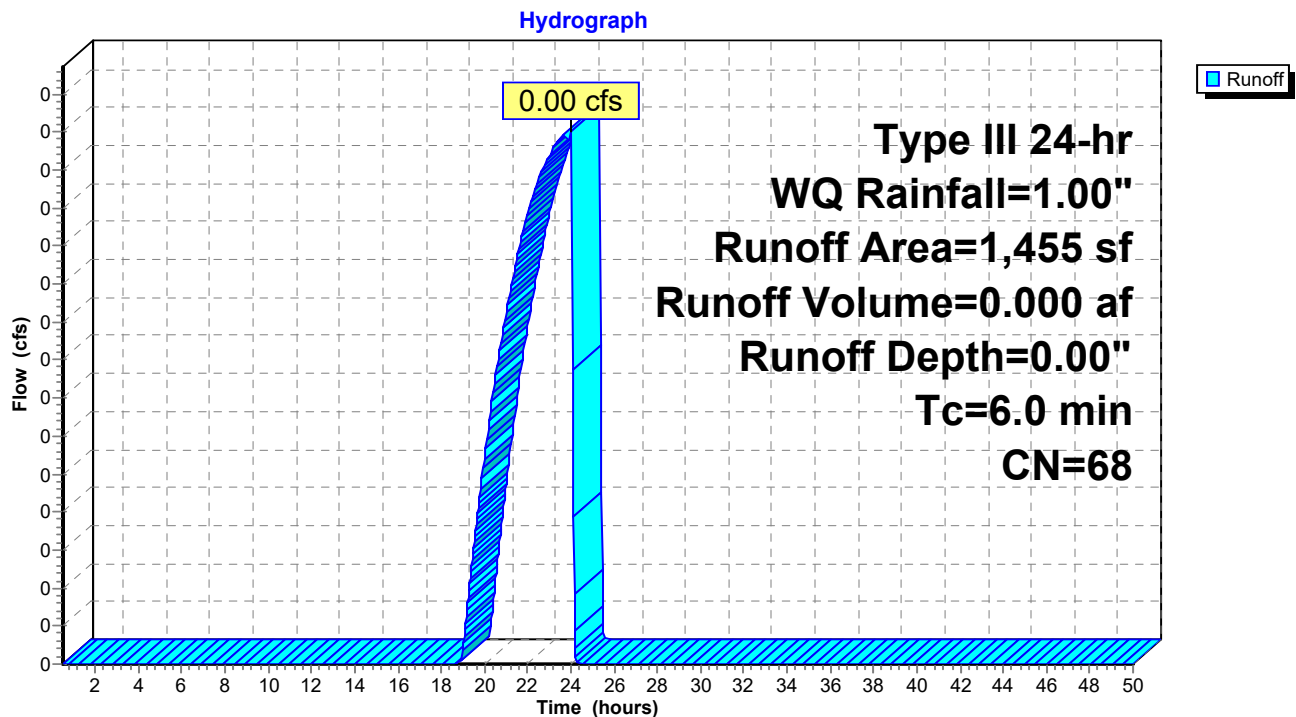
Summary for Subcatchment 2S: Landscape Area & Brick Walkway

Runoff = 0.00 cfs @ 23.99 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
730	39	>75% Grass cover, Good, HSG A
* 595	98	Brick sidewalk
* 130	98	Drip Edge
1,455	68	Weighted Average
730		50.17% Pervious Area
725		49.83% Impervious Area

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

Subcatchment 2S: Landscape Area & Brick Walkway

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Type III 24-hr WQ Rainfall=1.00"

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Summary for Subcatchment 3S: Landscape Area

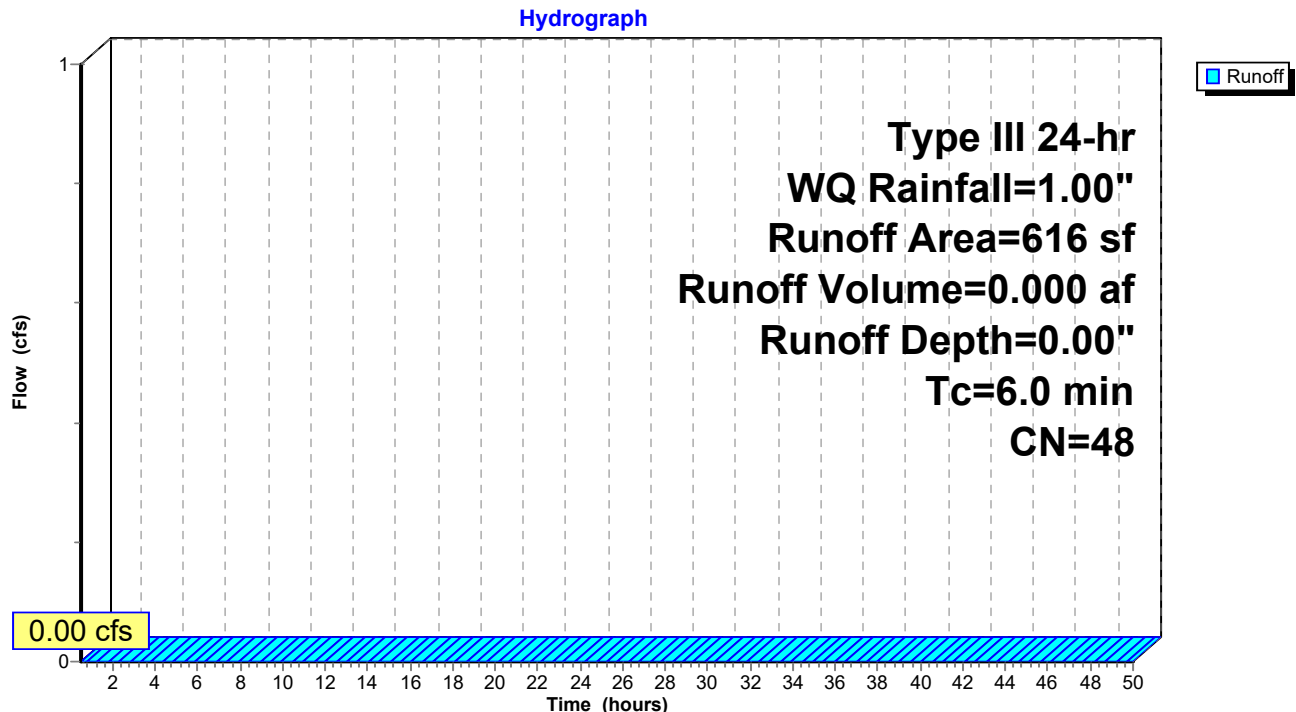
[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.50 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
Type III 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
526	39	>75% Grass cover, Good, HSG A
* 90	98	Drip Edge
616	48	Weighted Average
526		85.39% Pervious Area
90		14.61% Impervious Area

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

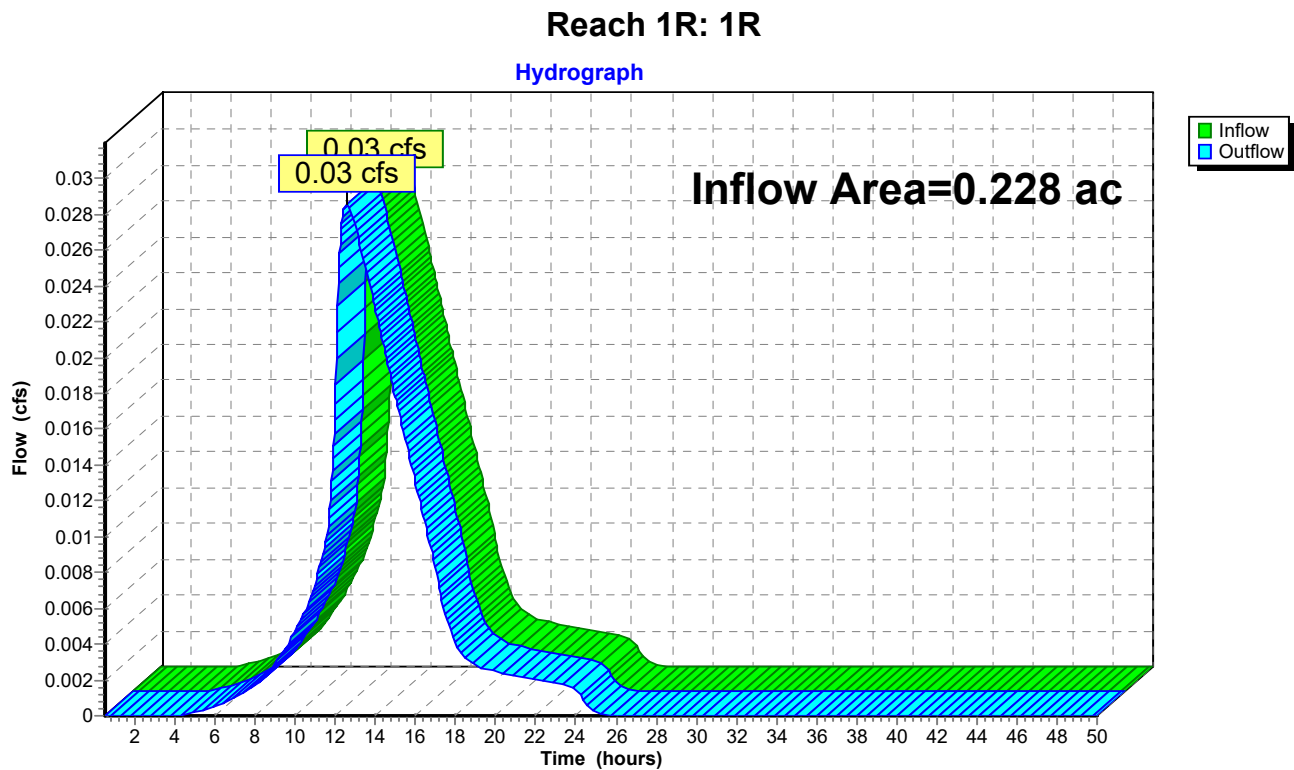
Subcatchment 3S: Landscape Area

Summary for Reach 1R: 1R

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.228 ac, 87.33% Impervious, Inflow Depth = 0.63" for WQ event
Inflow = 0.03 cfs @ 12.54 hrs, Volume= 0.012 af
Outflow = 0.03 cfs @ 12.54 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs



1109.4-POST

Type III 24-hr WQ Rainfall=1.00"

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Summary for Pond 1P: R-Tanks

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.194 ac, 93.78% Impervious, Inflow Depth = 0.73" for WQ event
 Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.012 af
 Outflow = 0.03 cfs @ 12.54 hrs, Volume= 0.012 af, Atten= 82%, Lag= 27.3 min
 Primary = 0.03 cfs @ 12.54 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.50-50.00 hrs, dt= 0.03 hrs
 Peak Elev= 134.58' @ 12.54 hrs Surf.Area= 383 sf Storage= 185 cf

Plug-Flow detention time= 66.0 min calculated for 0.012 af (100% of inflow)
 Center-of-Mass det. time= 66.0 min (853.9 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	133.40'	642 cf	Stone Storage (Prismatic) Listed below (Recalc) 1,869 cf Overall - 263 cf Embedded = 1,606 cf x 40.0% Voids
#2	134.90'	244 cf	1.31'W x 2.35'L x 2.88'H Tanks x 29 Inside #1 257 cf Overall x 95.0% Voids
#3	133.45'	6 cf	4.0" Round Pipe Storage Inside #1 L= 68.0' S= 0.0025 ' /'
		893 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
133.40	383	0	0
138.28	383	1,869	1,869

Device	Routing	Invert	Outlet Devices
#1	Primary	133.40'	8.0" Round 8" Outlet Pipe L= 8.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 133.40' / 133.35' S= 0.0063 ' /' Cc= 0.600 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	133.35'	1.0" Vert. Orifice C= 0.600
#3	Device 1	137.28'	6.0" Horiz. (2) 6" overflow pipes X 2.00 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.03 cfs @ 12.54 hrs HW=134.58' (Free Discharge)

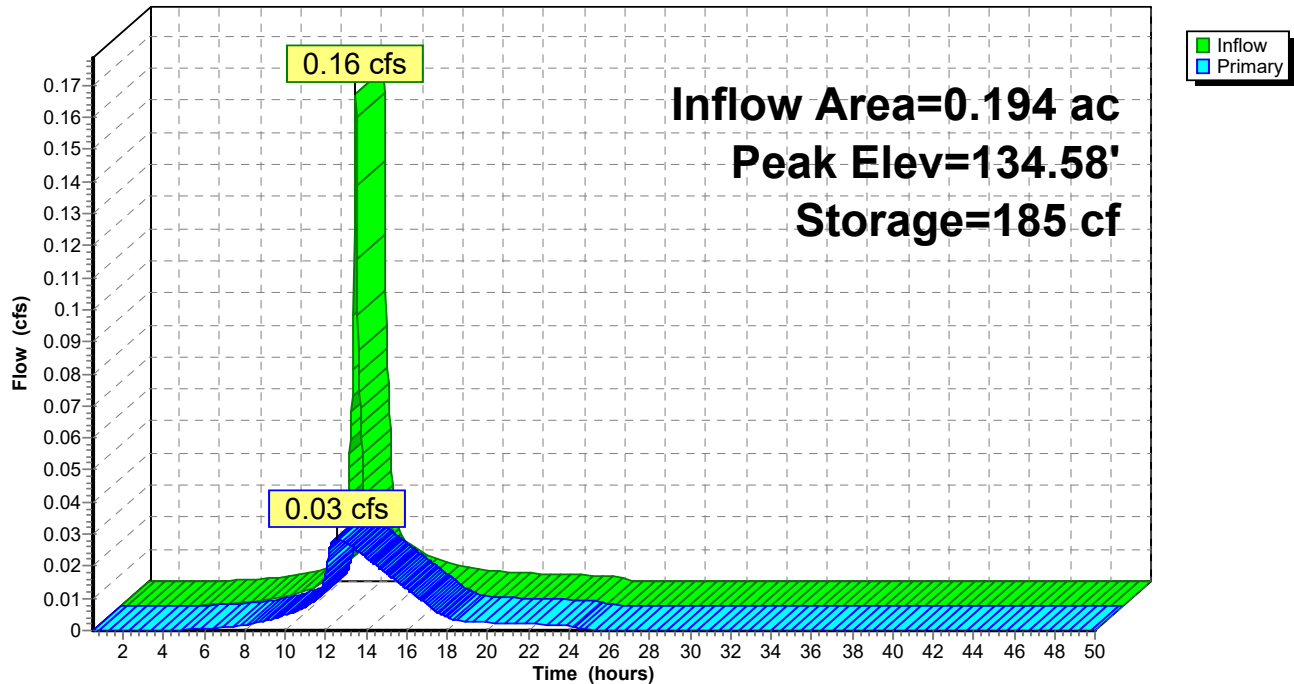
1=8" Outlet Pipe (Passes 0.03 cfs of 0.82 cfs potential flow)

2=Orifice (Orifice Controls 0.03 cfs @ 5.24 fps)

3=(2) 6" overflow pipes (Controls 0.00 cfs)

Pond 1P: R-Tanks

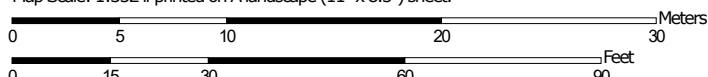
Hydrograph



Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine (PL)



Map Scale: 1:352 if printed on A landscape (11" x 8.5") sheet.



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



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey
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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 19, Aug 30, 2022

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 imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	0.2	100.0%
Totals for Area of Interest			0.2	100.0%

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

K. EROSION & SEDIMENTATION **CONTROL REPORT**

Prepared For:

**64 Pine Street LLC
104 Washington Avenue
Portland, Maine 04101**

Prepared By:

**Acorn Engineering, Inc.
PO Box 3372
Portland, Maine 04104**



November 2023



INTRODUCTION

Acorn Engineering, Inc. has been retained by 64 Pine LLC to provide civil engineering services for the proposed redevelopment of 64 Pine Street. The property consists of approximately 0.23 acres of land to be transformed into a 4-story building containing 9 residential units and a retail space on the ground floor. The project will reside at Map 56, Block C, Lots 002 & 004.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP’s Erosion & Sediment Control BMP’s Manual, revised in 2016.

1.0 EXISTING CONDITIONS

The project site is bordered by Pine Street. A boundary plan has been prepared by R.W. Eaton Associates, dated June 1st, 2023. The site is 0.23 acres and primarily consists of an existing restaurant with a paved parking area.

Abutting Uses:

- | | |
|------------------|--------------------------|
| ➤ North R-6 Zone | Multi Family Residential |
| ➤ East B-1 Zone | Multi-Use Commercial |
| ➤ South R-6 Zone | Governmental - School |
| ➤ West B-1 Zone | Retail Services |

1.1 Existing Soils

Onsite soil information derived from the following resources:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County
- United States Department of Agriculture Web Soil Survey

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils.

Table 1 - “K” Value		
Soils Type	Subsurface	Substratum
Hinckley loamy Sand	0.17	0.17

The soil “K” value for the soil, listed above, shows a low susceptibility to erosion. The site’s susceptibility to erosion is from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Although the soil “K” value shows a low susceptibility to erosion,



implementation of the proposed Erosion & Sedimentation Measures by the contractor will be of the utmost importance given the sustained slope throughout the site.

1.2 Existing Erosion Problems

There are no signs of erosion.

1.3 Critical Areas

There are no signs of critical areas.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.



2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

MDEP requires all projects to provide prior to construction an erosion and sediment control plan as part of the site development. The following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

- 2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas prior to construction. The following specifications shall be followed at a minimum:
 - Stone size shall be 2-3 inches or reclaimed or recycled concrete equivalent.
 - The thickness of the entrance stone layer shall be no less than 6 inches.
 - The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
 - The stabilized construction entrance shall be underlain by a geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
 - The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public roadways.
- 2.1.2 Siltation fence or erosion control berm shall be installed downgradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges or impounding large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. When time for removal, it is recommended that silt fences be removed by cutting the fence material at ground level to avoid additional soil disturbance.
- 2.1.3 Hay mulch, including hydroseeding, is intended to provide cover for denuded or seeded areas until revegetation is established. Temporary mulch should be applied to areas that will not be actively worked for more than 14 days (7 days in sensitive areas). Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch



placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

- 2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.
- 2.1.5 Pine Street shall be swept to control mud and dust from the construction site as necessary. Additional stone shall be added to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.
- 2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.
- 2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire, in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.
- 2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached $\frac{1}{2}$ the design height.
- 2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 2.1.11 Stockpiles shall be stabilized and anchored within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.



2.1.12 For disturbance between November 1 and April 15, please refer to the winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 5.2 of this report.

2.2.2 All stormwater devices shall be installed and tributary areas stabilized prior to receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

3.0 EROSION AND SEDIMENTATION CONTROL PLAN

3.1 The Construction Management & Erosion Control Plan is included within the plan set.

4.0 DETAILS AND SPECIFICATIONS

4.1 Erosion & Sedimentation Control Details and Specifications are included in the plan set.

5.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1st and April 15th. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover, or riprap by November 15th, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on the road shall be considered open.

The contractor shall limit the work area to areas where work will occur within the subsequent 15 days so that it can be mulched one day prior to a snow event. The contractor shall stabilize



work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

5.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

5.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that the ground surface is not visible through the mulch. Between the dates of November 1st and April 15th, all mulch shall be anchored by either mulch netting, tracking, or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

5.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

5.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above-freezing temperatures, finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.



All dormant seeding beds shall be covered with overwintering mulch or an anchored erosion control blanket. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for an adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

5.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

5.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st, the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.



- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod for late-season stabilization after October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 1H:1V or in areas with flowing water. Full contact between the blanket and the soil is critical for an effective erosion control cover.
- Stabilize the soil with stone riprap – Ditches and channels constructed in winter shall be stabilized with riprap. Riprap shall be layered over a nonwoven geotextile fabric blanket on top of a 6-inch layer of clean drainage sand. Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

6.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every week, as well as after a “storm event”. A “storm event” shall consist of 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall be inspected in the manner as described.

6.1 Sediment Barriers

Hay bale barriers, silt fences, and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

6.2 Stabilized Stone Construction Entrances



The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. The entrance/exit pad shall be inspected weekly and before and after each storm event. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on-site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking onto the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control. Frequent reapplication of water may be necessary to mitigate dust occurring on warm sunny days, the distribution of water should not cause turbid runoff. Sweeping of paved road surface should occur during dry conditions and shall be swept from the centerline to the edge of the travel way, and shall not to be swept into a waterbody or wetland. Public roads may also require sweeping when necessary.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:



- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.



7.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above-described erosion control measures. Measures should be in accordance with the proper erosion control measures for the season in which construction will be conducted. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence installation of drainage infrastructure.
5. Commence earthwork operations associated with the parking lot construction.
6. Commence installation of utilities.
7. Continue earthwork and grading to subgrade as necessary for construction.
8. Complete installation of drainage infrastructure, as well as other utility work.
9. Complete remaining earthwork operations.
10. Install sub-base and base gravels in paved areas.
11. Install paving, curbing, and brickwork.
12. Loam, lime, fertilize, seed, and mulch disturbed areas and complete all landscaping.
13. Once the site is stabilized and mulching of landscape areas is complete, remove all temporary erosion control measures.
14. Touch up areas without a vigorous catch of grass with loam and seed.
15. Complete site signage and striping.
16. Execute proper maintenance and inspections of all temporary and permanent erosion control measures throughout the project.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken within the following 30 days.

8.0 CONCLUSION

The above erosion control narrative is intended to minimize any negative development impact caused by erosion and sedimentation. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.



9.0 ATTACHMENTS

- Temporary Seeding Plan
- Permanent Seeding Plan



TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.



PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

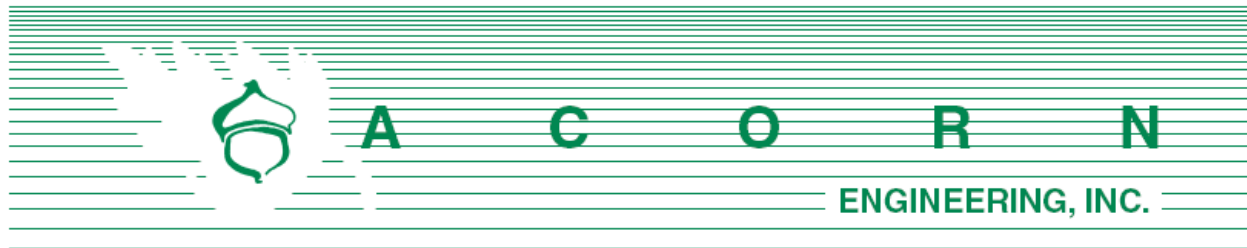
Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.





Chief Keith Gautreau
 City of Portland Fire Department
 380 Congress St.
 Portland, ME 04101

November 17, 2023

Subject: 64 Pine Street Redevelopment– Fire Department Checklist
 Section L of Application

On behalf of 64 Pine Street, LLC, the design team is pleased to respond to the Portland Fire Department Site Review Checklist.

1. Name, address, telephone number of applicant

64 Pine Street, LLC
 104 Washington Avenue
 Portland, Maine 04101
 (207) 939-5432

2. Name, address, telephone number of architect

Invid Architecture
 631 Stevens Avenue, Suite 200
 Portland, ME 04103
 (207) 939-7602

3. Proposed uses of any structures [NFPA and IBC classification]

NFPA: Apartments/Mercantile
 IBC: R2 and M

4. Square footage of all structures, including decks [total and per story]

Existing Building		
Total	4695	sf

Proposed Building		
Ground	7,719	sf
2 nd Floor	7,221	sf
3 th Floor	7,221	sf
4 th Floor	7,221	sf
Total	29,382	sf



5. Elevation of all structures

Based upon the average grade plane defined by the IBC, the proposed building height is just under 45'. This height is below the allowable 45 feet within the B1 zone. Please refer to the building elevations provided by the architect for additional information.

6. Proposed fire protection of all structures

The building will be serviced by a 6" sprinkler service with additional protection per code. Fire flows and requirements for system storage or booster pumping are subject to the fire professional design which will be performed prior to the request for a building permit.

7. Hydrant locations

An existing hydrant is located approximately 200 ft south of the property along Pine Street. Hydrant flow data from the Portland Water District once received may be made available to the Fire Department upon request.

8. Water main size and location

The redevelopment will be serviced by a new 6" sprinkler line and domestic water main within Pine Street. The building is expected to have internal sprinkler risers and a Fire Department pump connection.

9. Access to all structures [min. 2 sides]

Access to the structure is provided directly on the public right-of-way along Pine Street.

10. Code summaries will be provided by the Architects upon request.

NFPA 1 – Chapter 18 Fire Department Access and Water Supply

18.2 Fire Department Access:

The project site is located in a developed area and is fronted by a public street. The following pavement street width is currently available:

- Pine Street: 45.50 feet

Per NFPA 1 – Chapter 18.2.3.2.2.1, all first story floors shall be located not more than 450 feet from a Fire Department access road.



City of Portland Technical Manual – Section 3 Public Safety

3.4.1 Every dead-end roadway more than one hundred fifty (150') feet in length shall provide a turnaround at the closed end. Turnarounds shall be designed to facilitate future street connectivity and shall always be designed to the right (refer to Figure I-5).

Response: Not applicable

3.4.2 Where possible, developments shall provide access for Fire Department vehicles to at least two sides of all structures. Access may be from streets, access roads, emergency access lanes, or parking areas.

Response: The building is accessible directly from the street.

3.4.3 Building setbacks, where required by zoning, shall be adequate to allow for emergency vehicle access and related emergency response activities and shall be evaluated based on the following factors:

- *Building Height.*
- *Building Occupancy.*
- *Construction Type.*
- *Impediments to the Structures.*
- *Safety Features Provided.*

Response: The proposed development layout has contemplated emergency access conditions and provides for safe and efficient access along a circuitous route through the site for emergency access. Vehicular access is from the street.

3.4.4. Fire Dept. access roads shall extend to within 50' of an exterior door providing access to the interior of the structure.

Response: The building will be provided with exterior doors that will be within 50' of a Fire Department access route.

3.4.5. Site access shall provide a minimum of nine (9) feet clearance height to accommodate ambulance access.

Response: There is no proposed vehicular site access.

3.4.6. Elevators shall be sized to accommodate an 80 x 24-inch stretcher.

Response: The proposed elevators will meet this requirement.



3.4.7. All structures are required to display the assigned street number. Numbers shall be clearly visible from the public right of way.

Response: The applicant is currently working with the City's Public Works Division to assign street addresses and numbering to meet City Standards.

Thank you for your review. Please let me know if you have any additional questions or comments.

Sincerely,



Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.



M. Calculation of Wastewater Flowrate

The proposed project will include the redevelopment of a site that is currently occupied by an existing restaurant and parking lot. The existing site will be redeveloped into a mixed-use 4-story building with retail space on the first floor and residential units on floors two through four.

Based upon Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following daily flows:

Estimate of Anticipated Daily Flows			
Classification of Water Demand	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow			
Eating Place, 2 meals/day (20 GPD per seat)	30 seats	20	600
Eating Place, 2 meals/day (12 GPD per employee)	5 employees	12	60
Total Gallons per Day (Existing)			660 GPD
Proposed Flow			
Employees at place of employment with no showers (12 GPD per employee)	1 unit (5 employees per unit)	12	60
Eating place, takeout	1 unit	100	100
3-Bedroom	9	270	2,430
Total Gallons per Day (Proposed)			2,590 GPD
Net Change			+1,930 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition			

As seen above, the project anticipates an increase in daily flow rate of approximately 1,930 gallons per day. As proposed within the stormwater report, we will be providing onsite detention for an equivalent storage volume.



N. Lighting

Please find attached the cuts sheet and photometric plans for the proposed site lighting.



FEATURES

- Includes self-diagnostic/self-test feature to monitor proper operation
- Quick installation
- Universal 120-277VAC input, 60Hz.
- Includes long-life 7.2V Nickel Cadmium battery for UL recognized 90 minute operation
- Full re-charge within 24 hours
- Provided with water-proof test switch and AC-On indicator
- 0°C to 50°C Standard Model, -25°C to 50°C with optional heater
- UL924 and Wet Location Listed



SPECIFICATIONS

DESCRIPTION

- The CUSO Series is an architectural, low-profile outdoor light, offering "normally On" AC and emergency lighting with powerful LED illumination
- The housing is fully sealed and gasketed, and has an IP65 rating
- Designed for wall mounting with universal K/O pattern in back-plate for easy installation to most standard size junction boxes
- Includes a single 1/2" NPT conduit entry in the top, center of the housing
- Illumination provided by 8 high power LEDs which achieve 1,600 lumens in AC and 600 lumens in emergency
- Available in 3000K or 4000K color temperature

- Models at 3000K include a photo-sensor and PIR(passive infra-red) motion detector which cannot be altered
- The unit will only turn on in AC mode when motion is detected. Models at 4000K include a photo-sensor and do not include motion detector
- The unit can be controlled by a switch, timer or the photo-cell

APPLICATION

- The CUSO Series can be applied in areas that are susceptible to rain and severe moisture like parking decks, and outdoor commercial applications to meet all Path of Egress requirements

tradeSELECT®



COMPLIANCES

- UL924 Listed for Wet Location
- NFPA 101
- NFPA 70
- OSHA

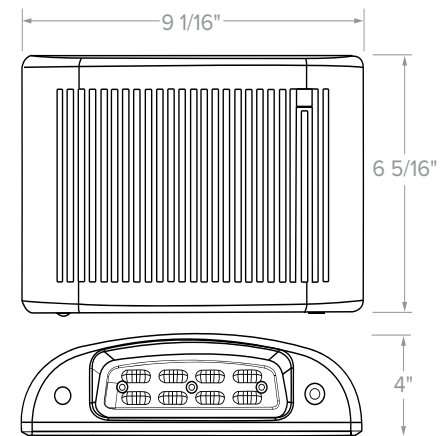
WARRANTY

- 5 year full unit warranty

ENERGY CONSUMPTION

	Max.	Max. with heater
120VAC, 60Hz	3.59W	3.40W
277VAC, 60Hz	3.59W	3.40W

DIMENSIONS



Single Carton Weight	4 lbs.
Master Carton Quantity	6 each

ORDERING GUIDE

Catalog Number	Description
CUSO DB	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., Dark Bronze
CUSO DB-H	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., Dark Bronze, Heater
CUSO BK	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., Black
CUSO BK-H	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., Black, Heater
CUSO WH	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., White
CUSO WH-H	Outdoor AC/EM, 3000K, Photo-sensor and PIR Motion Detect, Self-Diag., White, Heater
CUSO4DB-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., Dark Bronze
CUSO4DB-H-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., Dark Bronze, Heater
CUSO4BK-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., Black
CUSO4BK-H-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., Black, Heater
CUSO4WH-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., White
CUSO4WH-H-ND	Outdoor AC/EM, 4000K, Photo-sensor, Self-Diag., White, Heater

O. Architectural Design Narrative

Please find attached the design narrative completed by Invivid Architecture.



Project Overview:

Name: 64 Pine

Location: 64 Pine Street, Portland Maine

Number of Units: 9 Luxury Condominiums, 1 Commercial Unit

Use: Residential, Commercial Unit, Mechanical Parking System

Design Concept:

Our design concept is rooted in the vision of seamlessly integrating modern living into the fabric of the historic West End. Recognizing the unique character of the neighborhood, our aim is to create a development that pays homage to the past while embracing the convenience and sustainability demands of contemporary life.

Key Design Features:

Historic District: The project is located within the historic district. We are closely working with the Historic Board to place character-defining elements of the district into our design while maintaining a contemporary, luxurious feel to the project.

Ecological Responsibility: The project places a strong emphasis on ecological responsibility, utilizing sustainable practices and materials throughout the development process.

Luxurious Condominiums: Comprising nine luxurious condominiums, the project caters to discerning residents who seek both opulence and sustainability in their living spaces.

Strategic Location: Situated in the heart of the West End, the development is strategically located adjacent to various amenities such as restaurants, retailers, bakers, and boutiques, fostering a vibrant and connected community.

Innovative Parking System: The first floor features a state-of-the-art mechanical parking system, optimizing space efficiency and addressing urban parking challenges.

Distinctive Exterior: The exterior design is characterized by clean, modern lines with warm natural wood materials, offering a nod to the historical context of the West End. A distinct base further grounds the project in its surroundings.

Abundant Natural Light: The incorporation of extensive glass elements ensures that each unit is bathed in natural light, creating a bright and inviting living environment for residents.

Shared Roof Deck: A shared roof deck serves as a communal space for entertainment and relaxation. The deck features native, organic edible planting, contributing to a sustainable and aesthetically pleasing green space.

Massing, Ventilation, and wind impact: the bulk, location, or height of proposed building does not result in health or safety problems from reduction in ventilation to abutting structures or change the existing wind climate that would result in unsafe wind condition for users of the site or adjacent public spaces.
The bulk, location, or height of proposed building and structure minimizes any substantial diminution in the value or utility to neighboring structures and is not subject to a legal servitude in favor of the site being developed.
We locate all HVAC venting to direct exhaust away from public spaces and residential properties.



Architecture – Planning – Programming - Schematic Design
Design Development - Construction Documents - Building Permit Sets
Bidding/ Negotiating/ Price Discussions with the Contractor
Construction Administration – Project Management – 3D Imagery

We believe that 64 Pine will not only enhance the architectural landscape of the West End but will also contribute positively to the neighborhood's vitality. We are committed to working collaboratively with the Planning Board to address any concerns and ensure that our project aligns seamlessly with the city's vision for urban development.

Thank you for considering our proposal. We look forward to the opportunity to bring this vision to life and contribute to the enduring charm of Portland's historic West End.

Sincerely,

Virginie Stanley
INVIVID ARCHITECTURE
631 Stevens Avenue, Suite 200
Portland, Maine 04103

P. Utilities

The proposed project will include installation of multiple utility services to the proposed building.

Water:

There is an existing 8" water main within Pine Street. It is proposed to tap a new 6" service line off the existing water main within Pine Street. The 6" line will serve as the sprinkler service and the 2" line will be for domestic services.

Sewer:

An existing 18" sewer exists in Pine Street. It is proposed to connect a 6" sewer lateral into the existing main in Pine Street. A backflow preventer is proposed at the property line before connecting into the existing sewer main.

Stormwater:

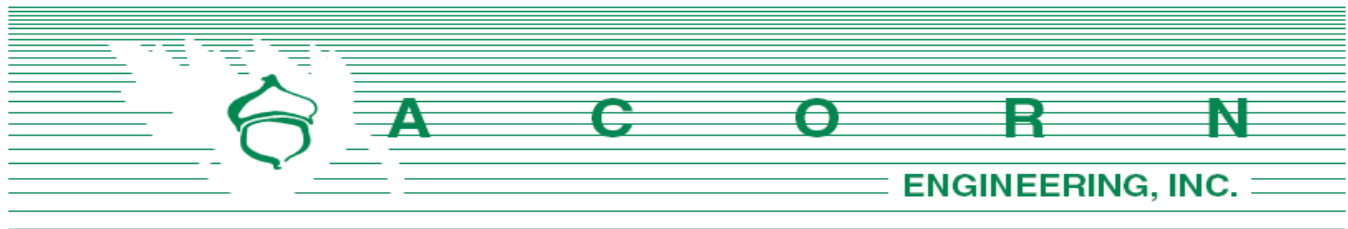
There is currently no drainage infrastructure on site. The proposed stormwater measures include generous vegetation, foundation drains, field inlets, and R-Tanks to provide storage. Please see the stormwater Management Report for more information.

Electric/Communications:

The site is currently served by overhead services. It is proposed to remove the existing overhead services and install subsurface electric and telecom from the existing utility pole on Pine Street. The project will require a new pole mounted transformer but that will be confirmed as the coordination with CMP progresses. See Sheet C-20 for additional information.

Ability to serve letters have been sent out to the respective utility companies in accordance with the City of Portland Code of Ordinances Chapter 14 Land Use. Responses from the utility companies are forthcoming.





Central Maine Power Company
Attn: Jamie Cough
162 Canco Road
Portland, Maine 04103

September 20, 2023

Subject: 64 Pine Street Development
Re: Ability to Serve; CMP

Mr. Cough:

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for CMP's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

The existing utility pole and pole mounted transformer that is currently servicing the lot is anticipated to remain as part of the project. The existing overhead connection is proposed to be removed and replaced underground to serve the development. Please let us know if the existing transformer is unable to serve the proposed development.

On behalf of the client, we are requesting the following information:

1. Any easements for overhead services currently crossing the proposed development.
2. Alternative connection locations from the development to the existing system.
3. CMP's proposed infrastructure improvements within the project vicinity.
4. CMP's ability to serve the project.
5. Access requirements to the CMP meters.

I have attached the existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.



ACORN Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

From: [Dumont, Katherine](#)
To: [Zach Stevens](#)
Cc: [Brad Kaden](#)
Subject: CMP Three Phase Service Process and Ability to Serve Letter
Date: Wednesday, October 4, 2023 12:47:38 PM
Attachments: [image001.jpg](#)
[image001.png](#)
[image002.jpg](#)
[Easement Information Worksheet.doc](#)
[Standard Easement Sample.pdf](#)
[blank W9.pdf](#)

Zach Stevens, PE
PO BOX 3372
Portland, ME 04104

RE: 64 Pine St LLC
64 Pine St
Portland, ME
Chart 56 Map C, Lot 2 & 4

Letter of Ability to Serve Request

SAP: **TBD**

Project Description: The following request for CMP's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

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 your 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 reach out with any questions.

Kind Regards,
Kathy



Katherine Dumont
Energy Service Specialist
162 Canco Rd
Portland, ME 04103

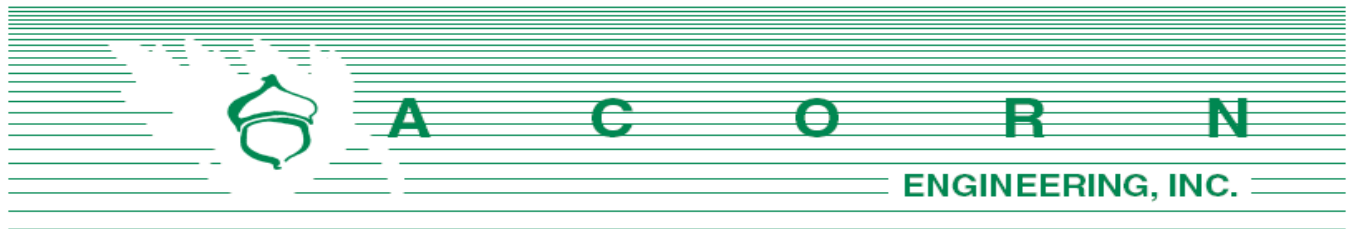
207-242-5744
katherine.dumont@cmpco.com



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Consolidated Communications
Attn: Patrick Morrison
5 Davis Farm Road
Portland, Maine 04103

September 20, 2023

Subject: 64 Pine Street Redevelopment
Re: Ability to Serve

Mr. Morrison,

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for Consolidated Communication's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

The existing utility pole that is currently servicing the lot is anticipated to remain as part of the project. The existing overhead connection is proposed to be removed and replaced underground to serve the development.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Pine Street.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the property to the existing communication system.
4. Consolidated Communication's proposed infrastructure improvements within the project vicinity.
5. Consolidated Communication's ability to serve the project.

I have attached the existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.



A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104



5 Davis Farm Rd
Portland, ME 04103
207- 535-4271 office
207-745-9363 cell
207- 797-1098 fax

February 21, 2024

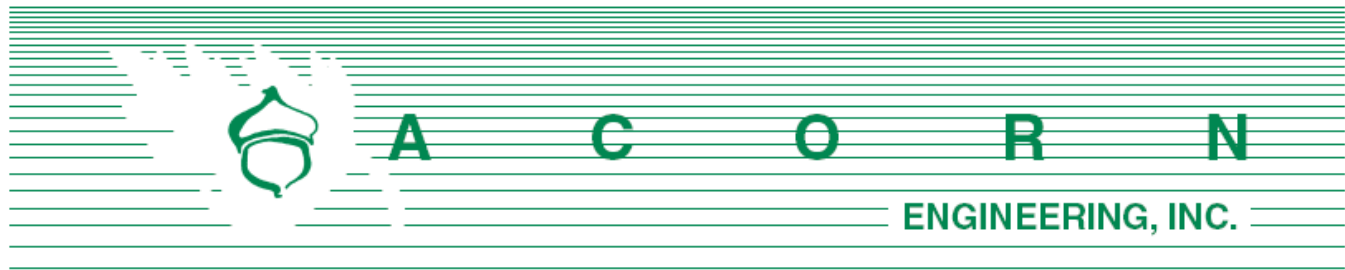
To Whom It May Concern:

My name is Patrick Morrison and I am the engineer for the Portland area. This letter is to inform that Consolidated Communications has the capacity and capability to serve the proposed development at 64 Pine St in Portland, ME. Consolidated Communications currently has aerial copper facilities in the area on Pine St. We also have our fiber service named Fidium in the area. Please do not hesitate to contact me with any questions.

Sincerely,

Patrick Morrison

Consolidated Communications Outside Plant Engineer



Department of Public Works
 Attn: Bradley Roland
 250 Canco Road
 Portland, Maine 04103

September 20, 2023
Revised February 20, 2024

Subject: 64 Pine Street Redevelopment
 Re: Ability to Serve

To Whom It May Concern:

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for Department of Public Work's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

There is an existing 18" combined sewer main located within Pine Street. The existing sewer lateral that serves the existing restaurant onsite is proposed to be removed and replaced with a 6" PVC sewer lateral that connects to the sewer main within Pine Street to serve the proposed development. See the attached Utility Plan for additional information.

Based upon the Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following design flows:

Estimate of Anticipated Daily Flows			
Classification of Water Demand	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow			
Eating Place, 2 meals/day (20 GPD per seat)	30 seats	20	600
Eating Place, 3 meals/day (12 GPD per employee)	5 employees	12	60
Total Gallons per Day (Existing)			660 GPD
Proposed Flow			
Employees at place of employment with no showers (12 GPD per employee)	1 unit (5 employees per unit)	12	60
Eating place, takeout	1 unit	100	100

3-Bedroom	9	270	2,430
Total Gallons per Day (Proposed)			2,590 GPD
Net Change			+1,930 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition			

Based on the building consisting of 1 retail space and 9 residential units, the proposed project is anticipated to increase the net water demand by approximately 1,930 gallons per day (GPD). It should be noted that these values were developed using conservative estimates from the State of Maine Subsurface Wastewater Disposal Rules.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Pine Street and confirmation of the location and size of the services to the existing property and the size and material of the main within Pine Street.
2. DPW's proposed infrastructure improvements within the project vicinity.
3. DPW's ability to serve the project.
4. Any project related offsite sewer main improvements.

I have attached the existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,



Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.



Date: March 27, 2024

Re: Wastewater Capacity Authorization

Address: 64 Pine Street

Applicant: 64 Pine LLC

Planner: Natasha Kypfer

Estimate of Anticipated Wastewater Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow to be Removed				
Eating Place, 2 meals/day	# Seats	30	20	-600
Eating Place, 2 meals/day	# Employees	5	12	-60
Proposed flow				
Employees at place of employment with no showers	# Employees	5	12	60
Multiple Family Dwelling Units	3-Bedroom	9	270	2430
Net Change				+ 1,830
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:

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.

However, storm drainage and sanitary sewer flows in this project area drain to the City's combined sewer system. Lack of wet weather capacity results in frequent system wide combined sewer overflows. City wide mitigation of combined sewer overflows is required as part of the City's CSO consent decree administered by the EPA and Maine DEP.

Section 2.2.3 of the City's Technical Manual requires DPW Water Resources approval when rain water is being proposed to discharge into a sewer which conveys sanitary waste. Prior to

authorizing a new stormwater connection into the combined sewer, DPW will require that the applicant provide an on-site stormwater detention volume equal to the greater of: 1” of rainfall over the entire project redeveloped area being proposed on the parcel, or the projected average 24 hour daily sanitary sewer flow being added to the combined sewer system by the project.

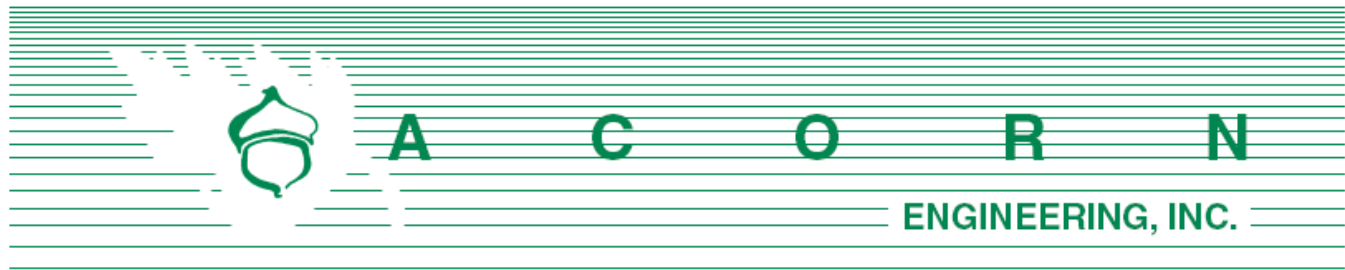
You are also reminded that new connections into the combined sewer system shall be equipped with backflow prevention in accordance with Section 2.6.10 of the City’s Technical Manual.

If the City can be of further assistance, please contact me at 207-874-8840 or brad@portlandmaine.gov

Sincerely,

A handwritten signature in dark ink, reading "Bradley A. Roland", is displayed on a light gray rectangular background.

Bradley A. Roland, P.E.,
Senior Project Engineer



Portland Water District
 Attn: MEANS Department
 225 Douglass Street
 Portland, Maine 04104

September 20, 2023

Subject: 64 Pine Street Redevelopment
 Re: Ability to Serve

To Whom It May Concern:

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for Portland Water District’s ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

It is our understanding that an 8” water main exists within Pine Street. The redevelopment proposes a 6” sprinkler line and a proposed 2” domestic line that are separately tapped into the 8” water main within Pine Street. The existing water services that are connected to the existing restaurant are proposed to be removed per Portland Water District’s standards. Based upon the Section 4 of the Maine Subsurface Wastewater Disposal Rules, the project anticipates the following design flows:

Estimate of Anticipated Daily Flows			
Classification of Water Demand	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow			
Eating Place, 2 meals/day (20 GPD per seat)	30 seats	20	600
Eating Place, 3 meals/day (12 GPD per employee)	5 employees	12	60
Total Gallons per Day (Existing)			660 GPD
Proposed Flow			
Employees at place of employment with no showers (12 GPD per employee)	1 retail unit (5 employees per unit)	12	60
3-bedroom	9	270	2,430
Total Gallons per Day (Proposed)			2,490 GPD

Net Change	+1,830 GPD
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition	

Based on the building consisting of 1 retail space and 9 residential units, the proposed project is anticipated to increase the net water demand by approximately 1,830 gallons per day (GPD). It should be noted that these values were developed using conservative estimates from the State of Maine Subsurface Wastewater Disposal Rules.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Pine Street and confirmation of the location and size of the services to the existing property and the size and material of the water main.
2. Alternative connection locations from the property to the existing system.
3. PWD's proposed infrastructure improvements within the project vicinity.
4. Flow data for adjacent hydrant.
5. PWD's ability to serve the project.

I have attached a fixture count, an existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,



Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.





February 21, 2024

Zachary Stevens, PE
Acron Engineering, Inc

Re: 64 Pine Street, PO
Revised Ability to Serve with PWD Water

Dear Mr. Stevens:

The Portland Water District has received your request for a Revised Ability to Serve Determination for the noted site submitted on January 4, 2024. Based on the information provided per plans dated February 15, 2024, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed and is valid for eighteen (18) months after the date of issue. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 2-inch domestic service with a 1.5-inch meter may be installed from the water main in Pine Street. The service should enter through the property's frontage on Pine Street at least 10-feet from any side property lines. An approved Testable Double Check Valve Assembly (DCVA) backflow prevention device must be installed on the service line directly after the meter prior to service activation.
- A new 6-inch fire service may be installed from the water main in Pine Street. The service should enter through the property's frontage on Pine Street at least 10-feet from any side property lines. An approved Testable Double Check Valves Assembly (DCVA) must be installed on the service line prior to service activation. Please refer to the PWD website for more information on cross-connection control policies.
- The Portland Water District does not have record of any other existing infrastructure in public roads and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and approved by PWD.
- The existing building is currently served with a 3/4- inch domestic water service; the size of this service is undersized for the proposed use. This service must be terminated by shutting the corporation valve and cutting the pipe from the water main. The building will be without water while the existing service is retired and the proposed service is installed. This process will take at least one day, and may take several days depending on the project.

Prior to construction, the owner or contractor will need to complete a Service Application and pay all necessary fees for each proposed service. When the project is ready for construction, an Application for each service can be requested by contacting the MEANS Group at MEANS@pwd.org or 207-774-5961 ext. 3199. Once a completed Application has been submitted with payment, please allow seven (7) days for processing.

Existing Site Service

According to District records, the project site does currently have existing water service. A 3/4-inch diameter copper domestic service line provides water service to the site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is an 8-inch diameter CAST water main in Pine Street and a public fire hydrant located approximately 180 feet from the site. The estimated static pressure in the area is 54 psi.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the City of Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service.

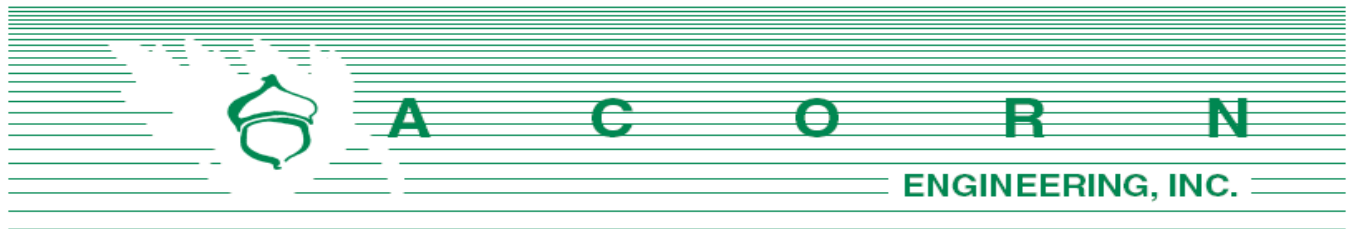
Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

A handwritten signature in black ink, appearing to read "Robert A. Bartels".

Robert A. Bartels, P.E.
Senior Project Engineer



Unitil Service Corp.
Attn: Scott Carpenter
1075 Forest Avenue
Portland, Maine 04103

September 20, 2023

Subject: 64 Pine Street Redevelopment
Re: Ability to Serve

Mr. Carpenter,

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for Unitil's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

We are aware of one existing gas line servicing the lot. It is proposed to remove the existing gas service and route a new service from the existing gas main within Pine Street to the proposed building.

On behalf of the client, we are requesting the following information:

1. Any additional utility mapping such as gas lines within Pine Street.
2. A confirmation of an existing gas main within Pine Street, as well as the size of any gas lines and services in the vicinity.
3. Unitil's proposed infrastructure improvements within the project vicinity.
4. Unitil's ability to serve the project.

I have attached an existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.



A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104



September 26, 2023
Acorn Engineering, Inc.
P.O. Box 3372
Portland, ME 04104
Attn: Zachary Stevens, E.I.

Subject: 64 Pine Street Redevelopment
Re: Ability to Serve

Dear Zachary,

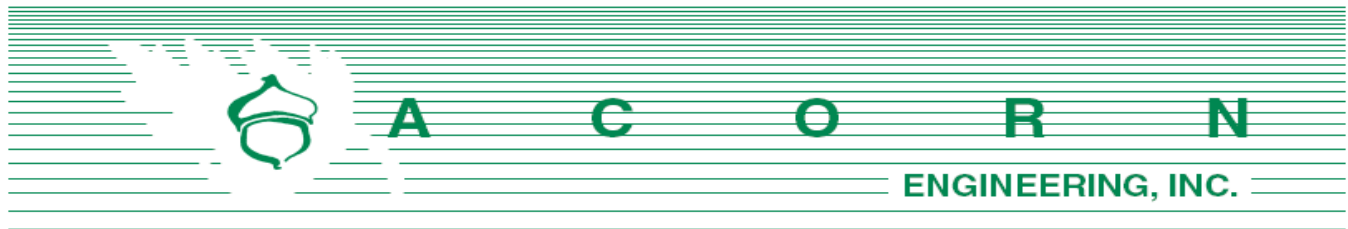
Thank you for your interest in using natural gas for the above referenced project.

This is to confirm that Unitil has natural gas in the vicinity to the proposed new mixed-use 4-story building, proposed to be constructed consisting of 9 multi-family units and 1 commercial user. 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



Spectrum Cable
Attn: Mr. Mark Pelletier
118 Johnson Road
Portland, Maine 04102

September 20, 2023

Subject: 64 Pine Street Redevelopment
Re: Ability to Serve

Dear Mr. Pelletier:

On behalf of 64 Pine Street LLC, Acorn Engineering, Inc. (Acorn) is pleased to submit the following request for Spectrum Cable's ability to serve the proposed redevelopment of 64 Pine Street, in Portland Maine (Chart 56 Map C, Lot 2 & Lot 4) within the B1 Neighborhood Business Zoning District. The existing lot contains a 3,330-sf restaurant, which is proposed to be demolished and a new mixed-use 4-story building is proposed to be constructed consisting of 9 multi-family units and 1 commercial use.

The existing utility pole that is currently servicing the lot is anticipated to remain as part of the project. The existing overhead connection is proposed to be removed and replaced underground to serve the development.

On behalf of the client, we are requesting the following information:

1. Any additional information, such as utility mapping within Pine Street.
2. Any easements for overhead services currently crossing the proposed development.
3. Alternative connection locations from the property to the existing communication system.
4. Spectrum's proposed infrastructure improvements within the project vicinity.
5. Spectrum's ability to serve the project.

I have attached an existing conditions plan created by R.W. Eaton Associates dated June 1st, 2023, and the proposed preliminary utility plan from our office to facilitate your review. Please do not hesitate to contact me or the office for any questions or clarifications.

Sincerely,

Sam Lebel, PE
Project Manager
Acorn Engineering, Inc.



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207-775-2655 • PO Box 3372 • Portland • Maine • 04104

Q. Construction Management Plan

Project Address: 64 Pine Street, Portland Maine, 04102

Project Description:

The proposed project includes the development of a 4-story mixed-used building with 9 residential units and 1 retail space.

Project Team Summary:

Owner:	64 Pine Street, LLC
General Contractor:	Great Falls Construction
Civil & Environmental Engineer:	Acorn Engineering, Inc.
Architect:	Inivid Architecture
Structural Engineer:	M2 Structural Engineering, P.C.

The Owner/GC and all subcontractors will work with the City of Portland and adjacent landowners to minimize any project impacts.

The GC will remain responsible for enforcement of all compliance with 1) all contract plans and specifications in their scope of work and 2) all site working conditions and safety requirements, day and night, for both persons and property, in each case for the duration of their work. These include OSHA, NIOSH, U.S. EPA, local ordinance and any other applicable governmental regulations. Both the Owner/GC and any subcontractors will remain responsible for safeguarding the general public.

The GC shall review all permits and conditions associated with the project. Refer to the Civil/Site Plan Set, Sheet C-03 Construction Management Plan for visual representation of the measures to be taken during construction.

The following outline has been developed in accordance with the City of Portland Construction Management Plan General Template and shall be referenced by the GC during construction.

A. Construction Management Principles

The control of noise, vibrations, ground movement, truck traffic, and other construction related factors will be of utmost importance. Care shall be taken to minimize these effects in the best interest of neighbors and the general public. GC to ensure that work hours conform to the City of Portland's Ordinance.

B. Development Review of Construction Management Plan

Logistics and safety program shall be submitted at or prior to the preconstruction meeting by the GC with all pertinent information required by the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.



C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Guarantees and fees will be paid at the time of the respective application. Sections 14-11 will be complied with all necessary permits will be obtained prior to work.

1. Street Opening and Street Occupancy Permits:

Required permits regarding street opening and occupancy will be obtained from the Department of Public Works. The requests shall conform to the approved Construction Management Plan.

2. Blasting:

Although not anticipated, if blasting occurs, it shall conform to Article VIII. In Chapter 14 of the City Code and Section 3.7 in the City's Technical Manual.

3. Building Code:

Employ the best practices, as applicable, of Chapter 33 Safeguards During Construction, from the 2009 International Building Code. In addition to the best practices set forth in the Inclusionary Zoning Guidelines for Developers of rental housing.

D. Construction Administration and Communication

The Contractor will work closely with adjacent abutters, businesses, and all parties informed, as far in advance as possible, of scheduled work, particularly work anticipated to cause significant noise, vibrations, or dust. Communication in order to comply with all agreements, ordinances, and special permits will be of the utmost importance. Contractor and Subcontractor contact information shall be posted somewhere along the project's street frontage. Additional signage necessary for communication shall be provided but will be temporary and removed upon completion of the project.

E. Construction Schedule

The GC shall submit a construction timeline at or prior to the preconstruction meeting. Construction may occur during the daytime hours as defined in Section 17-18. Construction Activities for Building permit and City Code Section 25-129, Noise, dust and debris. Between September 1 and May 31, the following year, no person shall engage in construction activities generating noise exceeding 50 decibels, between the hours of 7 pm and 7 am of the following day within 500 feet of any buildings. From June 1 to August 31, construction activity may continue until 8 pm. No construction activity shall begin before 8 am on a Saturday, Sunday, or legal holiday. Extended hours or night work may be requested for special circumstances and street utility work if needed. These requests will be subject to approval by the Public Works Authority.



Deliveries will be scheduled between 7 am and 5 pm.

The estimated timeframe of the proposed project is outlined below:

<u>Project Start Date:</u>	Spring 2024
<u>Project End Date:</u>	Spring 2025

A more detailed work schedule shall be provided by the GC at or before the pre-construction meeting with the City.

F. Security

1. The Construction Management Plan, Sheet C-03, depicts all proposed fencing and other barriers, with the intent of separating pedestrian and vehicle circulation from the construction site. Construction entrances per detail shall be installed.
2. Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 1 Chapter 16. *Safeguarding Construction, Alteration, and Demolition Operations.*
3. Fire Safety Program: Prior to construction, an overall construction and demolition fire safety program shall be developed. Essential items to be emphasized include the following:
 - Good Housekeeping
 - On-site security
 - Installation of new fire protection systems as construction progresses
 - Preservation of existing systems during demolition
 - Organization and training of an on-site fire brigade
 - Development of a pre-fire plan with the local fire department
 - Rapid communication
 - Consideration of special hazards resulting from previous occupancies
 - Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations.
4. Blasting, if required, shall conform with all measures of Article VIII. Regulation of Explosives in the Land Use Code and Section 3.7 Standards for Blasting and Regulation of Explosives in Portland's Technical Manual.
5. Temporary security lighting shall be shown on the Construction Management Plan, and all fixtures shall be full cutoffs.

G. Construction Permitting and Traffic Control Plans

1. Construction Activity in Public Streets

Construction activity in the public right-of-way shall be compliant with Chapter 25 Article VII of the City Code. At no time will it be permissible for construction



activity including delivery vehicle to close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

2. Sewer and Stormwater

Sewer and stormwater system connections are controlled by Chapters 24 and 32 of the City code of Ordinance. Required permits for new connections and/or abandonment of existing connections are available through the Street Opening Clerk at the Department of Public Works. Rules and Regulations for these utility systems are available through the City Engineer's office of the Department of Public Works and in Section II of the Technical Manual.

3. Traffic Control Plans

Construction activity that impacts the existing public street system must be controlled to protect the safety of the construction workers and all modes of the traveling public. The contractor shall submit a satisfactory "Maintenance of Traffic" (MOT) plan prior to any street opening permit approval. This document shall contain all pertinent information from the Maine Department of Transportation's Traffic Control Plan Standard Specification 652.3.3.

The MOT will address the work required for utility connections in Pine Street. Traffic will be channelized utilizing drums and cones. Proper signage will be installed prior to the through work zone. Alternating traffic will be controlled with flaggers. Trenches will be patched with pavement daily.

The MOT plan shall provide for the safe passage of the public through or along the construction work zone. It may be permissible to close a portion of the street during utility connections and/or detour a mode of traffic when absolutely necessary for safety. All requests shall be subject to City approval. MOT plans shall employ the appropriate techniques and devices as called for in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). In addition:

- Construction speed signing may be used as needed to slow traffic.
- Traffic Control signs shall not be placed where they would create any obstructions to bicycles or pedestrians.
- Flaggers will be utilized when necessary.

All existing modes of travel in the work zone area shall be accommodated if impacted by the activity. The safe passage of pedestrians, bicyclists, transit providers, and motorists are of equal importance when planning and laying out the work zone; no pre-existing travel mode may be eliminated without the express approval of the Department of Public Works. The MOT should also address on-street parking impacts, including deliveries and parking for adjoining businesses and property owners, analysis of roadway capacity or diversion capacity if street closure or change to roadway capacity is required, and coordination with other on-going or future construction or utility projects in the vicinity.



- Traffic control bicycle and pedestrian facilities or routes through work zones shall be maintained until the bicycle and pedestrian facilities or routes are ready for safe operation. Traffic control will not be removed to allow auto travel at the expense of bicycle and pedestrians.
- Barrier systems utilized to separate the construction activity from the public street and /or sidewalk shall not inhibit sight distances, particularly for visibility of pedestrians and bicyclists.
- ADA compliance in all capacities shall be maintained.

Use of public parking spaces or the blockage of any portion of sidewalk for the purpose of construction activity shall require an occupancy permit and appropriate fee as assessed by the Department of Public Works.

H. Site Management and Controls

1. Regular trash and debris shall be managed appropriately, and its removal shall comply with all local, state, and federal regulations.
2. Street cleaning and sweeping shall be followed as outlined in the erosion and sedimentation control notes and report. Damage to the street shall be avoided and shall be the responsibility of the contractor.
3. Dust shall be controlled and shall comply with Section 25-129 and the erosion and sedimentation control notes, plan, and details.
4. Noise shall be controlled and shall comply with Section 17-18 and Section 25-129.
5. Rodent Control shall be provided, if applicable, by a professional exterminator and shall be consistent with Chapter 22 of the City Code.
6. Snow and Ice Removal shall be provided. Pursuant to Section 25-173, the Contractor shall ensure a safe means of travel within the work zone by the following steps:
 - a. Snow/ice removal or commence automatically from 1" or greater of snow or ice
 - b. Remove snow as needed within the work zone, including parking spaces. Driveways and site lines shall not be blocked by piles of snow.
 - c. Clear all walks and ramps within the work zone
 - d. Sand or salt as needed
 - e. Clear all basin or drainage to help snow melt
 - f. The above steps shall be carried out Sunday-Saturday including holidays.

I. Erosion & Sedimentation Control

1. The Contractor shall install all erosion and sedimentation controls as depicted on the approved Construction Management Plan, C-03, and the approved erosion and sedimentation control report, prior to the pre-construction meeting for inspection



- by the City. The Contractor shall regularly inspect the control measures, no less than weekly and after storm events (0.5" or more in 24 hours). Additionally, temporary or permanent stormwater management systems shall be inspected and maintained to ensure working order. The Contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection (MDEP) or the U.S. Environmental Protection Agency (EPA) upon request.
2. The Contractor to install catch basin inlet protection to existing catch basins located within the street in front of the project. Refer to approved Construction Management Plan, C-03, for specific location of the catch basins.
 3. Due to the existing, sparse landscaping on site, no protection during construction will be necessary.
 4. Stored materials shall be identified and avoid being located under/near trees.

J. Construction Staging Area

1. The Contractor shall submit a plan with locations depicted for the location of material staging areas, the location of on-site temporary construction trailers, the location of on-site truck delivery holding areas, the location of on-site truck washing stations, masonry mixing stations, the general location of the construction security fence and the general location of temporary construction dumpsters. This plan shall be submitted at or prior to the pre-construction meeting. Any open storage areas shall be shown on the plan.
2. Delivery Truck Holding Areas On-Site: The majority of materials delivered to the site will be scheduled such that they are able to be off-loaded immediately. On days when the construction activities require multiple truck deliveries, these deliveries will be carefully scheduled so that there is always adequate on-site area for the holding of trucks until they can be unloaded. Once at the site all vehicles will be brought within the fence line and will make every attempt to avoid queuing on public streets. If, for any reason, on-site holding of trucks is not feasible, an off-site location must be designated and shown on the submitted plan referenced above in J.1.
3. All deliveries for materials shall comply with the City's noise requirements.

K. Parking During Construction

1. Adequate parking for construction workers shall be provided on site or arrangements for off-street parking at an off-site location shall be provided.
2. Truck Routes and Volumes: The following quantities are estimated as part of the reconstruction:
 - Gravel & Stone – 200 CY. Earthwork subcontractor(s) pit to project site.



- Hot Mix Asphalt – 100 Tons. Paving subcontractor pit to project site.

L. Dewatering Plans

1. A basic dewatering plan for any construction work is required and shall be submitted by the Contractor. The plan must cover construction sites where groundwater is not expected but the impact of rainwater may require dewatering. The plan must include operating procedures, equipment to be used, including filters, erosion and sediment control measures, or other methods of removing sediment from approved discharges.
2. For construction work that will require frequent dewatering of groundwater from site, a dewatering plan must be prepared by the Contractor and approved by the Department of Public Works. Groundwater and/or soil testing may be required to determine course of action if treatment is necessary. Approval for all discharges to City infrastructure is required. The proposed plan must address the following:
 - Project duration, discharge location, storage equipment on-site, dewatering schematic, and emergency contact.
 - General requirements include trained staff on-site for all approved discharges and required site log for documentation of all discharges.
 - Storage and/or treatment process should include proper settling time and maintain proper use of filtering medium as required.
 - Contingency/maintenance plan for all dewatering equipment devices and filtration mediums.

Any water that is removed from an excavation must be pumped from a perforated device buried in crush stone prior discharge and/or prior to storage and treatment. There will be no discharge allowed during precipitation events.

M. Special Measures as Necessary

No special measures are necessary for the proposed reconstruction.



R. Solid Waste Disposal

The property management company or Owner shall be responsible for locating the solid waste and recyclable material to the spaces allocated for solid waste storage as noted on the Site Plan (C-10).

A private hauler will be contracted for removal. The solid waste containers will be located within the building out of public view.



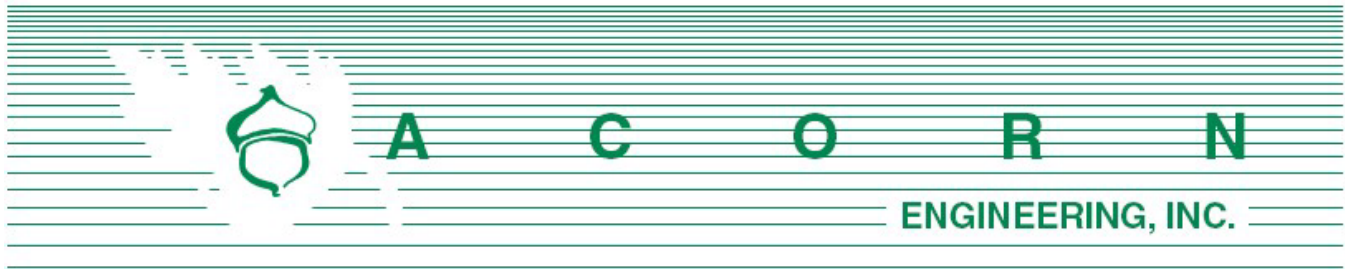
S. Parking Analysis

Per Land Use Code Section 19 Off Street Parking Table 19-B: Off Street Parking Minimums for residential uses is no off-street parking shall be required for the first four dwelling units, not counting accessory dwelling units, except as otherwise specified herein. This results in the required minimum amount of off-street parking for a 9 unit building with less than 2,000 sf of retail space to be 5 parking spaces. The project proposes the use of a mechanical vehicle parking system inside the building which provides space for a standard residential vehicle for a total of up to two (2) spaces per unit (18 spaces) which is greater than 10% of the minimum requirement of 5 parking spaces.

Based upon the Applicant's market research, there is a demand for these types of residential condominium buildings that include two parking spaces per unit that is presently not being met. Due to limited on-street parking along Pine Street and the surrounding neighborhood which among uses, is home to growing businesses, a school, a hospital, and newly built housing, providing additional parking within the building reduces spillover into the neighborhood and frees up on-street parking for other residents/customers in the area. By providing an internally stacked mechanical parking system for the residents, the project makes efficient use of space and minimizes the land area dedicated to parking.

Proposed Parking = 19 Off Street Parking Spaces. It is proposed to have 18 parking spaces (2 spaces per unit) within the mechanically stacked parking system. One additional ADA parking space will be provided. Given the type of proposed unit owners, bedroom count, unit size, lack of available on street parking, neighbors' concerns, and desire for flexibility, the applicant respectfully requests the Planning Board allow the applicant to exceed the minimum parking standard This is achieved by utilizing the higher first floor ceiling found in retail storefronts to implement a state-of-the-art mechanical stacker system. This additional parking therefore does not sacrifice other elements of the project as smart growth principles are being implemented by eliminating surface parking and providing a mixed-use building with active ground level frontage and housing above.





Planning Division
City of Portland, Maine
389 Congress Street, 4th Floor
Portland, ME 04101

January 29, 2024

Subject: 64 Pine Street, LLC Neighborhood Meeting

I, Sam Lebel, hereby certify that a neighborhood meeting was held on January 18, 2023, at 64 Pine Street at 5:30 pm.

I also certify that on January 4, 2024, invitations were mailed to the following:

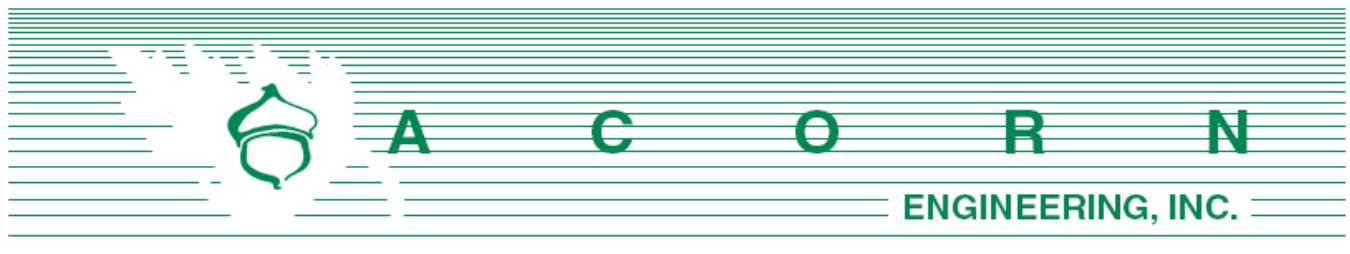
1. All addresses on the mailing list provided by the Planning Division, which includes property owners within 500 feet of the proposed development.
2. Residents on the "interested parties" list.

Sincerely,

Sam Lebel, 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



Dear Neighbor:

January 4, 2024

On behalf of 64 Pine Street LLC, we are pleased to invite you to a neighborhood meeting to discuss the Major Site Plan Application for the proposed redevelopment of 64 Pine Street within the B1 Zoning District. The project proposes to redevelop the parking lot and former restaurant, into a 4-story building with 9 residential units on the upper floors and a ground level commercial space. The project will require approval from both the Planning Board and the Historic Preservation Board. Please refer to the meeting information below:

Meeting Location: 64 Pine Street, Portland, ME 04102

Meeting Date/Time: Thursday, January 18th, 2024, at 5:30 p.m.

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,

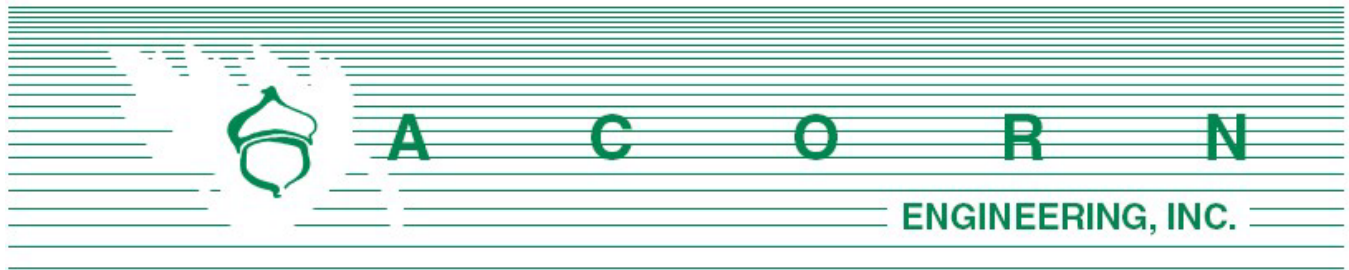
Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.

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.

Sign-in Sheet

Name	Email
Sean O'Neill	Sean-d-oneill@hotmail.com
George Russell	ghruss@yahoo.com
Colin Vettier	colin.vettier@gmail.com
Caitlin Ent	Caitlin.Ent@gmail.com
Ilma Lopez	Ilma.jeil.lopez@gmail.com
Project Team	
Tom Landry	tomlandry@benchmarkmaine.com
Nick Aceto	tomlandry@benchmarkmaine.com
Virginie Stanley	virginie@invividarchitecture.com
Taejoo Jeon	taejoo@invividarchitecture.com
Sam Lebel	slebel@acorn-engineering.com
Zachary Stevens	zstevens@acorn-engineering.com
Brad Kaden	bkaden@acorn-engineering.com

[illegible]



64 Pine Street Neighborhood Meeting

Neighborhood Meeting Minutes

January 18, 2023 / 5:30 pm
64 Pine Street, Portland Maine

Project Team Attendees:

Tom Landry (TL): Developer/Presenter (Benchmark Real Estate)
Nick Aceto (NA): Landscape Architect/Presenter (Aceto)
Virginie Stanley (VS): Architect/Presenter (Invivid)
Taejoo Jeon (TJ): Architect (Invivid)
Sam Lebel (SL): Civil Engineer /Presenter (Acorn Engineering)
Zachary Stevens (ZS): Civil Engineer/Presenter (Acorn Engineering)
Brad Kaden (BK): Civil Engineer/Note Taker (Acorn Engineering)

The meeting started at approximately 5:40 pm.

Presentation:

Tom Landry:

- Welcomed the neighborhood attendees to the meeting.
- Gave a background and history of the lot regarding previous ownership.
 - o Explained the importance the recently vacant diner had to the neighborhood and community.
- Explained the process of purchasing the parcel and wanting to create an enjoyable and usable building on this piece of land.
- Illustrated the specifications of needing to modernize the proposed building with an ambitious concept.
- Communicated that correspondence between the city's planning department and the project team have been on going and we expect minor modifications to the rooftop programming.
 - o The project team is trying to be creative to provide an active roof with various tenant amenities.

Zachary Stevens:

- Welcomed audience to the neighborhood meeting.
 - o Explained neighborhood meeting is a city requirement for the Major Site Plan Application.
 - o The scheduled planning board meeting with the city is on February 27th.
- Explained the existing lot condition and the current zoning designations.
- Explained the city's ordinance requirements and how they were met for this lot.
- Explained an overview of the site regarding the proposal to provide 19 parking spaces, 9 bicycle spaces, walkways along the right side of the building, landscaping at the left side and rear of lot, and rebuilding of sidewalk per city standards.
- Communicated all new utilities and stormwater infrastructure will be implemented to the site, including on-site detention.

Nick Aceto:

- Explained the goal of creating a sense of space for the site by enhancing the street scape.
- Replacing one of the elm trees and possibly adding another tree along the street to create a total of 2-3 street trees.
- Implementing glass doors that can open from both sides of the building to look out onto the street is a key design aspect we want to use.
- Proposing to provide granite benches on the project's frontage.
- Working with city to create an activate roof that is vegetated, provides amenity for residents, low plantings, solar panels, and movable furniture.

Virginie Stanley:

- Showed a visual of the street views of the buildings and neighbors along the Pine Street.
- Explained the location of the garage entrance, lobby, mechanical parking area, commercial/retail area, bike room, storage, and trash location.
- Explained the upper floor plans consisting of (3) 3-bedroom units on each floor.
- Showed the renderings of the proposed building for where the cafe/retail unit is proposed to be located, the glass door surrounding the building, and the illustration of the existing neighboring buildings.

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.

Neighbor: How wide is the building from the property line.

- **Zach:** The building is approximately 5 feet from the property line on the sides and 10 feet from the back property line.



Neighbor: How close is the existing building on the left to the proposed building.

- **Virginie Stanley:** The proposed building is to be 5 feet from the property line and the existing building looks to be 5-10 feet from their property line, equating to around 10 to 15 feet.

Neighbor: Will there be landscaping all the way to the back of the lot?

- **Nick Aceto:** We will be providing shrubs along the left side of the building, there will some landscaping at the rear of the parcel as well.

Neighbor: Where will the stormdrain system be located?

- **Zach Stevens:** All stormwater will be directed to the rear of the lot and the storage system will be located underground in the rear of the lot.

Neighbor: Will there be lighting on the sides and rear of the building? We (abutting property) would like to work together to provide a cohesively lit alleyway to provide customer/tenant for both of our properties.

- **Virginie Stanley:** We are proposing to have lighting on this building and we would be interested in investigating a lighting plan that promotes safety.

Neighbor: What are your thoughts of keeping both alley ways (side yards) safely lit. In the past, I have had to call the police to remove people from this area.

- **Tom Landry:** We figure the alley ways will be clear from people but are open to suggestion of providing lighting around the whole building. We possibly could put a fence or gate in the back of the lot to keep intruders from going back there.

Neighbor: Is it possible to put pavement in the back of the lot?

- **Zach Stevens:** The pervious count is 90% maximum, and we are already relatively close to that percentage so we are unable to put pavement back there.

Neighbor: Is there any other public areas apart from the ground level commercial space?

- **Tom Landry:** The only public space is going to be the café/retail unit on the first floor.

Neighbor: Will abutting sites lose power or water during construction due to this project?

- **Zach Stevens:** I believe the water main tap is a live tap.
- **Sam Lebel:** We don't anticipate any shutoffs will be required for this project but will follow up and do our best to provide a notice if that is not the case.

Neighbor: The more communication the better so I can let my restaurant (abutting property) know when everything is proposed to happen.

- **Tom Landry:** We can let you know and put together a communication feed of some sort. The tentative start of construction is Q3 of this year if all things line up. The project should take around 18-24 months to complete.

Neighbor: Is the building panelized and crane needed?

- **Tom Landry:** The building is not panelized and a crane will not be needed to the same extent. The sidewalks will be closed for no walking during construction.



Neighbor: What are the prices for the units?

- **Tom Landry:** The condo prices have not been selected and they will most likely come out a month or two before completion.

Neighbor: It is it definitely café or is it café/retail?

- **Tom Landry:** We are still not sure yet, but we do like both options. We have a concept we are excited about. We will have to wait and see what type of tenants are in the market.

Neighbor: Is there a formal communication process?

- **Sam Lebel:** No formal process to reach back out but we can make communication happen. We do have a planner if anyone wants her email. Two planning board meetings to come as well as two more Historic Preservation meeting.

The meeting concluded at approximately 6:15 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,



Brad Kaden, EI
Design Engineer, Acorn Engineering, Inc.
bkaden@acorn-engineering.com



Planning & Urban Development Dpt
Attn: Natasha Kypfer, Senior Planner
389 Congress Street
Portland, Maine 04101

March 28, 2024

Subject: 64 Pine Street Redevelopment

Natasha:

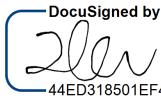
My name is Ilma Lopez and I am the owner of Chaval and 58 Pine Street, LLC, the neighboring property to the north of 64 Pine Street. I am familiar with the proposed 9-unit, mixed use redevelopment project, being led by Tom Landry.

It's been brought to my attention that the City has asked for my input on removal of the existing maple tree that falls at the intersection of my shared property line with 64 Pine Street, and the Reiche School parcel (more specifically, the southeastern corner of my parcel, as depicted on the survey prepared by RW Eaton Associates). Due to depth and proximity of the proposed excavation for the new building, as well as the underground stormwater detention system required for the 64 Pine project, we are in agreement, and support the removal of this tree.

I also understand the City is interested in obtaining more information on the existing curb cut on the southern end of my parcel. This curb cut is occasionally used to park my personal vehicles. As such, I do not intend to have the curb cut closed or altered.

We appreciate being involved with this planning process and look forward to this project bringing new business and housing opportunities to the neighborhood. Please let me know if you have any questions.

Sincerely,

DocuSigned by:

44ED318501EF4A4...

Ilma Lopez

Date: March 27, 2024

Re: Wastewater Capacity Authorization

Address: 64 Pine Street

Applicant: 64 Pine LLC

Planner: Natasha Kypfer

Estimate of Anticipated Wastewater Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow to be Removed				
Eating Place, 2 meals/day	# Seats	30	20	-600
Eating Place, 2 meals/day	# Employees	5	12	-60
Proposed flow				
Employees at place of employment with no showers	# Employees	5	12	60
Multiple Family Dwelling Units	3-Bedroom	9	270	2430
Net Change				+ 1,830
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:

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.

However, storm drainage and sanitary sewer flows in this project area drain to the City's combined sewer system. Lack of wet weather capacity results in frequent system wide combined sewer overflows. City wide mitigation of combined sewer overflows is required as part of the City's CSO consent decree administered by the EPA and Maine DEP.

Section 2.2.3 of the City's Technical Manual requires DPW Water Resources approval when rain water is being proposed to discharge into a sewer which conveys sanitary waste. Prior to

authorizing a new stormwater connection into the combined sewer, DPW will require that the applicant provide an on-site stormwater detention volume equal to the greater of: 1” of rainfall over the entire project redeveloped area being proposed on the parcel, or the projected average 24 hour daily sanitary sewer flow being added to the combined sewer system by the project.

You are also reminded that new connections into the combined sewer system shall be equipped with backflow prevention in accordance with Section 2.6.10 of the City’s Technical Manual.

If the City can be of further assistance, please contact me at 207-874-8840 or brad@portlandmaine.gov

Sincerely,

A handwritten signature in dark ink, reading "Bradley A. Roland", is displayed on a light gray rectangular background.

Bradley A. Roland, P.E.,
Senior Project Engineer

Colin V. <colin.vettier@gmail.com>

Mar 11, 2024, 3:46:57 PM (17 hours ago)



to planningboard@portlandmaine.gov

Dear planning board,

I would like to submit a comment regarding
Major Site Plan project at 64 Pine Street (PL-002678-2023).

My name is Colin Vettier and I live on 53 West street, quite close from the former location of Ruby's West end.

I think that creating more housing and mixed usage building is a great idea. However, it seems that this is going to be another case of luxury condo that will further increase the divide in our community. Relying on the median income in Portland (around 60k a year) and based on the price of a 1 bedroom unit from this developer (+700k), this will not provide housing needed for working class or unhoused people - nor will it be affordable for middle class.

I suggest that this project include the community and is catered towards its actual needs, instead of gaslighting us to make us believe that unaffordable housing will do anything to the community or the city. I think that regardless of how many units there are in new buildings, a significant portion should be made affordable (since the city fails to enforce and collect the money from short term rental and rent control violation, therefore digging deeper into our housing crisis). This is particularly true of the West End neighborhood where the sense of community is dwindling, and the neo nazis are regularly dropping their hate flyers.

Kindly,

Colin Vettier

64 PINE STREET, LLC
PORTLAND, MAINE



ONE/T/C

UNDERDRAIN
GREEN SPACE
UTILITY PAVEMENT CUTS
STRIPING
SEDIMENTATION BARRIER
EDGE OF EX. PAVEMENT
CURB
SIGN
LAMP OR LIGHT POLE
UTILITY POLE
GUY WIRE
WATER VALVE
FIRE HYDRANT
SEWER MANHOLE
CATCH BASIN
OIL WATER SEPARATOR
UNDERGROUND ELECTRIC LINE
UNDERGROUND WATER LINE
MINOR CONTOURS (1 FT)
MAJOR CONTOURS (5 FT)
GAS LINE
STORM DRAIN LINE
SEWER LINE
FOUNDATION DRAIN
EXISTING/PROPOSED BUILDING
HEAD ELECTRICAL/TELEPHONE/CABLE
PROPERTY LINE
SETBACKS

- | | |
|------|---|
| C-01 | COVER SHEET & LEGEND |
| C-02 | GENERAL NOTES |
| EX | BOUNDARY SURVEY AND TOPOGRAPHICAL SITE PLAN WITH
EXISTING CONDITIONS PREPARED BY BY R.W. EATON
ASSOCIATES |
| C-03 | CONSTRUCTION MANAGEMENT PLAN |
| C-10 | SITE PLAN |
| C-20 | UTILITY PLAN |
| C-30 | GRADING & DRAINAGE PLAN |
| C-40 | SITE DETAILS |
| C-41 | UTILITY DETAILS - 1 |
| C-42 | UTILITY DETAILS - 2 |
| C-43 | DRAINAGE DETAILS |
| C-44 | FOCAL POINT DETAILS |
| C-45 | EROSION & SEDIMENTATION CONTROL DETAILS & NOTES |

CALL BEFORE YOU DIG
1-888-DIG-SAFE
1-888-344-7233

DEPARTMENT OF PUBLIC WORKS (DPW)
250 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: BRADLEY ROLAND, P.E.
(207) 874-8834



PORTLAND WATER DISTRICT
225 DOUGLASS STREET
PO BOX 3553
PORTLAND, MAINE 04104
ATTN: MEANS DIVISION
(207) 774-5961



CENTRAL MAINE POWER COMPANY (CMP)
162 CANCO ROAD
PORTLAND, MAINE 04103
CONTACT: KATHERINE DUMOUNT
(207) 242-5744



CONSOLIDATED COMMUNICATIONS
(FORMERLY FAIRPOINT)
45 FOREST AVENUE
PORTLAND, MAINE 04101
CONTACT: PAT MORRISON
(207) 745-9363



SPECTRUM CABLE
118 JOHNSON ROAD
PORTLAND, MAINE, 04102
CONTACT: STEVEN HOLMES
(207) 631-1618



UNITIL SERVICE CORP
1075 FOREST AVENUE
PORTLAND, ME 04103
CONTACT: SCOTT CARPENTER
(207) 541-2543



TOM LANDRY
72 PINE STREET, SUITE #16
PORTLAND, MAINE 04102
CONTACT: TOM LANDRY

ACORN ENGINEERING, INC.
PORTLAND, MAINE
CONTACT: SAM LEBEL, P.E.
(207) 775-2655



R.W. EATON ASSOCIATES
WESTBROOK, MAINE
CONTACT: RICHARD EATON P.L.S.
(207) 854-2402



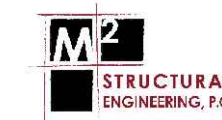
INVIVID ARCHITECTURE
PORTLAND, MAINE
CONTACT: VIRGINIE STANELY, R.A.
(207) 939-7602



ACETO LANDSCAPE ARCHITECTS
PORTLAND, MAINE
CONTACT: NICK ACETO, R.L.A.
(207) 221-3390



M2 STRUCTURAL ENGINEERING, P.C.
WINDHAM, MAINE
CONTACT: MATT MILLER, P.E.
(207) 982-0983



ZADE ASSOCIATES, LLC.
 QUINCY, MA
 CONTACT: MUZAFFER MUCTEHITZADE, P.E.
 (617) 338-4406

ZADE ASSOCIATES LLC.

PARTIAL LIST OF ABBREVIATIONS AND THEIR CORRESPONDING MEANING. PLEASE CONTACT THE ENGINEER FOR ANY CLARIFICATION	
APPROX.	APPROXIMATE
BC	BOTTOM OF CURB
BMP	BEST MANAGEMENT PRACTICE
BOT.	BOTTOM
CAD	COMPUTER AIDED DESIGN
CB	CATCH BASIN
CF	CUBIC FOOT
CIP	CAST IN PLACE
CL	CENTERLINE
CM	CONSTRUCTION MANAGER
CMP	CENTRAL MAINE POWER
CONC.	CONCRETE
CPP	CORRUGATED PLASTIC PIPE
CY	CUBIC YARD
DI	DUCTILE IRON PIPE
DIA.	DIAMETER
DIM.	DIMENSION
EA.	EACH
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQUIV.	EQUIVALENT
EST.	ESTIMATE
EX.	EXISTING
FFE	FINISH FLOOR ELEVATION
FT.	FEET
HDPE	HIGH DENSITY POLY ETHYLENE
ID	INNER DIAMETER
IN.	INCH
INV.	INVERT
L	LENGTH
MAX.	MAXIMUM
MDEP	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
MDOT	MAINE DEPARTMENT OF TRANSPORTATION
M.E.P	MECHANICAL, ELECTRICAL, PLUMBING DESIGNER
MFG.	MANUFACTURED
MH	MANHOLE
MIN.	MINIMUM
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
OHE/T/C	OVERHEAD ELECTRIC/TELEPHONE/CABLE
PC	PRECAST
PE	PROFESSIONAL ENGINEER
PL	PROPERTY LINE
PLS	PROFESSIONAL LAND SURVEYOR
PROP.	PROPOSED
PSJ	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWD	PORTLAND WATER DISTRICT
R	RADIUS
RD	ROOF DRAIN
RET.	RETAINING
ROW	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDR	STANDARD DIMENSION RATIO
SF	SQUARE FEET
SMH	SEWER MANHOLE
SPEC.	SPECIFICATION
TC	TOP OF CURB
TW	TOP OF WALL
TYP.	TYPICAL
UD	UNDERDRAIN
UGE	UNDERGROUND ELECTRIC
VIF	VERIFY IN FIELD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

SCALE: 1:200

1. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION FOR UTILITIES. OTHERWISE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE ANY POTENTIAL CONFLICTS WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.

- CIVIL SITE NOTES:

- SPECIAL INSPECTION NOTES

1. ALL SITE SOILS-RELATED WORK AND FOOTING EXCAVATIONS PRIOR TO PLACING FORMS SHALL BE REVIEWED BY THE PROJECT GEOTECHNICAL ENGINEER.
2. ALL SITE DRAINAGE-RELATED WORK SHALL BE REVIEWED BY ACORN.
3. NORMAL REVIEWS BY LOCAL BUILDING DEPARTMENT. NOTIFY 48 HOURS PRIOR TO REQUIRED REVIEW.
4. REQUIRED SPECIAL INSPECTIONS PER I.B.C. SECTION 1705.6 BY AN APPROVED SPECIAL INSPECTOR RETAINED BY OWNER. CONTRACTOR TO COORDINATE SPECIAL INSPECTIONS.
5. SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.
 - 5.1. DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR SHALL BE TO OBSERVE AND/OR TEST THE WORK ASSIGNED AND

5.2. THE SPECIAL INSPECTOR SHALL FURNISH REGULAR REPORTS TO THE BUILDING OFFICIAL, THE ARCHITECT AND ENGINEER OF RECORD, AND OTHER DESIGNATED PERSONS. PROGRESS REPORTS FOR CONTINUOUS INSPECTION SHALL BE FURNISHED WEEKLY. INDIVIDUAL REPORTS OF PERIODIC INSPECTIONS SHALL BE FURNISHED WITHIN ONE WEEK OF INSPECTION DATES. THE REPORTS SHALL NOTE UNCORRECTED DEFICIENCIES, AND NET CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS AUTHORIZED BY THE ENGINEER OF RECORD.

- LAYOUT NOTES:

- ## PERMITTING NOTES

- GRADING AND DRAINAGE NOTES:

- EROSION CONTROL NOTES:

1. DISTURBED AREAS ARE DEFINED AS THOSE SURFACES WHERE EXISTING VEGETATION OR STRUCTURES HAVE BEEN REMOVED, EXPOSING NATIVE SOIL TO THE ELEMENTS.
2. ALL ROUTINE WORK ACTIVITIES SHALL BE CONDUCTED IN SUCH A WAY TO LIMIT THE AMOUNT OF DISTURBED AREA AT ONE TIME TO THE EXTENT PRACTICABLE.
3. PRIOR TO THE START OF ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL APPLICABLE EROSION CONTROL DEVICES SUCH AS PERIMETER SILT FENCE, AND OTHER APPLICABLE MEASURES. IN THE EVENT THE CONTRACTOR IS NOT SURE A EROSION CONTROL MEASURE SHOULD BE IMPLEMENTED, THE CONTRACTOR SHALL CONTACT THE ENGINEER OF RECORD TO CONFIRM IMPLEMENTATION OF ANY EROSION CONTROL DEVICES.
4. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCH SHALL BE APPLIED AS SOON AS POSSIBLE WITHIN 7 DAYS FOLLOWING THE COMPLETION OF ANY SOIL DISTURBANCE, AND PRIOR TO ANY STORM EVENT.
5. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE CITY. THE CONTRACTOR SHALL REFERENCE THE APPROVED EROSION AND SEDIMENTATION CONTROL REPORT FOR TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES IN ADDITION TO THE PLAN SET. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE D.E.P.'S PERMIT CONDITIONS, FINDINGS OF FACT AND ORDER (IF ANY), AND THE CURRENT MAINE EROSION AND SEDIMENTATION CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.
6. PRIOR TO PAVING, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM STORM DRAINS, CATCH BASINS, AND APPURTENANCES.
7. REFER TO THE EROSION CONTROL DETAILS & NOTES FOR ADDITIONAL INFORMATION.

THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED UPON RECORDS OF VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEST PIT TO DETERMINE THE EXACT LOCATION AND ELEVATION OF UTILITIES TO COORDINATE WITH THE PROPOSED CONNECTIONS OR CROSSING. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO ACORN FOR FURTHER DIRECTIONS BEFORE ANY ADDITIONAL WORK PROCEEDS.

- CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
- CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONDUCT EXPLORATORY EXCAVATIONS AT LOCATIONS WHERE PROPOSED EXCAVATION WILL INTERSECT WITH EXISTING UTILITIES, PRIOR TO THE ORDERING OF STRUCTURES.
- ALL NEW SANITARY MANHOLES SHALL BE VACUUM TESTED AND SHOWN TO PASS PRIOR TO BACKFILLING. TESTING SHALL BE COMPLETED IN ACCORDANCE WITH TECHNICAL REPORT #16 (TR-16); GUIDES FOR THE DESIGN OF WASTEWATER TREATMENT WORKS, PREPARED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION.
- SEWER MANHOLES SHALL BE 4' ID UNLESS OTHERWISE STATED ON THE PLANS.
- CONTRACTOR TO PROVIDE 5.5' OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR WATER MAINS.
- THRUST BLOCKS SHALL BE USED FOR THRUST RESTRAINT ON WATER MAINS. DETAIL AND LIMITS FOR THRUST BLOCKS ARE SHOWN WITHIN THE PLAN SET.
- WATER INFRASTRUCTURE SHALL BE TESTED IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT DOCUMENT "WATER AND SEWER CONSTRUCTION SPECIFICATIONS AND PROCEDURE", MOST RECENT REVISION.
- ALL REQUIRED FITTINGS FOR THE WATER MAIN ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY FITTINGS REQUIRED TO CONSTRUCT THE WATER MAIN IN ACCORDANCE WITH CITY OF PORTLAND, STATE OF MAINE, AND AMERICAN WATER WORKS ASSOCIATION STANDARDS AND REGULATIONS.
- CONTRACTOR SHALL COORDINATE WORK REGARDING ANY WATER MAIN CONNECTION AND WATER MAIN SHUTDOWN WITH THE PORTLAND WATER DISTRICT AT LEAST SEVEN (7) DAYS PRIOR TO CONSTRUCTION.
- ALL WATER PIPE INSTALLATION SHALL CONFORM WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS AND PROCEDURES, MOST RECENT EDITION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- SEWER, GAS, TELEPHONE, ELECTRICITY, CABLE, WATER AND ANY OTHER UTILITY CONNECTIONS SHALL BE REVIEWED BY PLUMBING, ELECTRICAL, AND MECHANICAL DESIGNER FOR CONSISTENCY WITH THEIR PLANS PRIOR TO CONSTRUCTION.
- COORDINATE EXIT POINT FOR SECONDARY UTILITY SERVICES WITH THE ARCHITECT/ELECTRICAL ENGINEER. SECONDARY LINE LOCATIONS NOT PROVIDED BY ACORN WITHIN THE UTILITY PLAN.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL THE NECESSARY PERMITS FOR THE INSTALLATION OF THE UTILITIES AND STORMDRAINS WITHIN THE PUBLIC RIGHT OF WAY. THE CONTRACTOR SHALL SUBMIT A MAINTENANCE OF TRAFFIC PLAN TO THE CITY IN ACCORDANCE WITH THE CITY OF PORTLAND TECHNICAL MANUAL PRIOR TO ANY WORK.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL AT NO EXTRA EXPENSE TO THE OWNER.
- ALL UTILITY PIPES SHALL SLOPE UNIFORMLY BETWEEN ELEVATIONS INDICATED ON THE DRAWINGS. NO CRESTS OR SAGS IN THE PIPING WILL BE PERMITTED. ALL HORIZONTAL AND VERTICAL BENDS IN PRESSURIZED PIPE LINES SHALL BE SUITABLY RESTRAINED WITH THRUST BLOCKS OR RETAINER GLANDS. RETAINER GLANDS ALLOWED FOR DUCTILE IRON PIPE ONLY. PROVIDE ALL BENDS, HORIZONTAL AND VERTICAL, AS REQUIRED TO MEET THE GRADES AND ALIGNMENTS INDICATED ON THE DRAWINGS.
- ALL WASTEWATER PIPING, EXCLUDING BUILDING DRAINS, AND ALL PRESSURIZED PIPING, TO INCLUDE WATER MAINS, INSTALLED BENEATH STRUCTURES SHALL BE ENCASED IN CONCRETE.
- WHERE NEW PIPING IS TO BE CONNECTED TO EXISTING PIPING, THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ADAPTERS, FITTINGS AND ADDITIONAL PIPE AS REQUIRED TO ENSURE A COMPLETE AND PROPERLY FUNCTIONING CONNECTION. CONTRACTOR TO VERIFY LOCATION, ELEVATION, ORIENTATION AND MATERIAL OF CONSTRUCTION. ADAPTERS AND FITTINGS ARE INCIDENTAL TO THE PIPE INSTALLATION.
- WHENEVER POSSIBLE, WATER LINES SHOULD BE INSTALLED OVER WASTEWATER LINES. A MINIMUM SEPARATION OF 18 INCHES BETWEEN THE BOTTOM OF THE WATER LINE AND THE TOP OF THE WASTEWATER LINE SHALL BE MAINTAINED WHERE POSSIBLE. WHERE A WATER LINE CROSSES UNDER THE WASTEWATER LINE, A FULL LENGTH OF WASTEWATER PIPE SHALL BE CENTERED ABOVE THE WATER LINE SO THAT BOTH JOINTS WILL BE AS FAR FROM THE WATER LINE AS POSSIBLE.
- THE CONTRACTOR SHALL BE ANTICIPATE THAT THE NATIVE SILT AND CLAY SOILS WILL NOT BE SUITABLE FOR PIPE TRENCH BACKFILL IN PAVED AREAS.
- GROUNDWATER SHALL BE CONTROLLED TO A LEVEL OF AT LEAST ONE FOOT BELOW SUBGRADE OF THE PIPE OR STRUCTURE. THE CONTRACTOR SHALL MAINTAIN THE LOWERED GROUNDWATER LEVEL UNTIL CONSTRUCTION HAS BEEN COMPLETED TO SUCH AN EXTENT THAT THE STRUCTURES OR PIPES WILL NOT BE FLOATED OR OTHERWISE DAMAGED.
- EXCAVATION TO SUBRADE IN NATIVE SILT AND CLAY SHALL BE COMPLETED WITH A SMOOTH EDGE BUCKET TO MINIMIZE SUBGRADE DISTURBANCE.
- ALL ADJUSTMENTS TO FINISHED GRADE ARE TO BE COMPLETED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONFIRM STRUCTURES THAT REQUIRE ADJUSTMENT WITH THE ENGINEER OR OWNERS REPRESENTATIVE PRIOR TO ADJUSTING FRAMES.

1. THE FOLLOWING ITEMS ARE TYPICAL OF MATERIAL WHICH MAY BE ON SITE:

- ROCK AND CONCRETE FOUNDATIONS
 - CONCRETE SLABS
 - BITUMINOUS ASPHALT PAVEMENT
 - CONCRETE PADS AND BLOCKS
 - FENCE POST AND FENCING
 - UNDERGROUND UTILITY LINES
 - ABOVE AND OR BELOW FUEL OIL AND PROPANE GAS TANKS
 - STORM DRAIN PIPES AND APPURTENANCE STRUCTURES
 - OTHER TRASH & MISCELLANEOUS SOLID WASTES
2. THE CONTRACTOR IS ADVISED TO VISIT THE SITE TO CONFIRM DEMOLITION ITEMS SINCE THE LIST IS NOT INCLUSIVE OF THE SITE CONDITIONS WHICH MAY BE ENCOUNTERED
3. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTORS SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" DEMONSTRATING PROPER DISPOSAL OF ALL MATERIALS.

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

[illegible]

GENERAL NOTES	
PROJECT NAME:	64 PINE STREET REDEVELOPMENT 64 PINE STREET, PORTLAND, MAINE 04012
CLIENT:	64 PINE STREET LLC 104 WASHINGTON AVENUE PORTLAND, MAINE 04101


A C O R N
ENGINEERING, INC.
 ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED BY ACORN ENGINEERING, INC. SHALL BE THE SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.
 PO BOX 3372, PORTLAND MAINE 04104
 (207) 775-2655

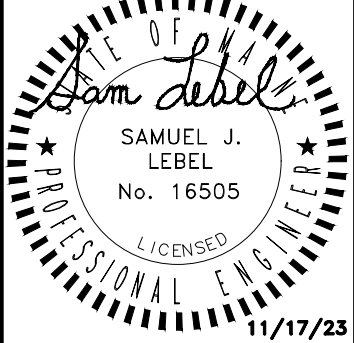
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JN:	1109.4
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SCALE: AS NOTED

DESIGNED BY:	ZMS
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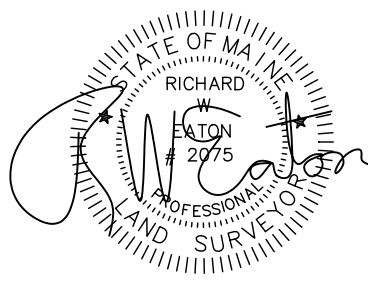
DRAWN BY:	BJK
CHECKED BY:	SIL

[illegible]

DRAWING NO.

C-02

CERTIFICATION



RICHARD W. EATON P.L.S. # 2075

State of Maine
Cumberland ss Registry Of Deeds
Received _____ 20____
At ____H____M____M., And
Recorded In Book____Page____
Attest: _____
Register

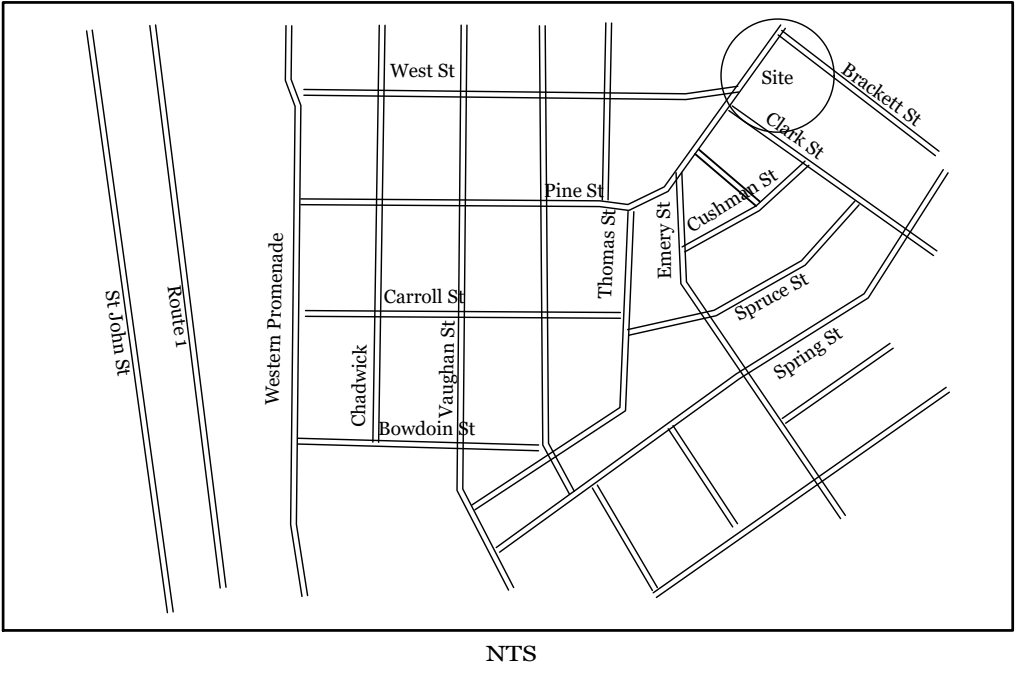
General Notes:

- 1) Tax Map 56 Block C Lot 002 & 004
- 2) Total Area 9,920 Square Feet Or 0.23 Acres
- 2) Basis of Bearing, Maine State Plane NAD 1983 1802 West Zone Base Point, Granite Monument
With DH at Pine & Brackett TT130-55-137, N298222.210 E2925903.492
Azimuth Point, Monument T124-23-1183, N297539.387, E2924869.394, 856-33'-46"W 1239.39' Feet
- 4) Elevation Of Sewer Inverts As Per Plan Reference 3 & 4 No Field Elevation Check
- 5) Flood Zone C Area Of Minimum Flooding Community Panel Number 230051 0013 B
Panel 13 Of 17 Dated July 17, 1986
- 6) Bench Mark Is The Top Of A Drill Hole In Granite Monument Located On The 3 Foot Offset
At The Easterly Corner Of Pine And Clark Street Elevation Is 139.41' Feet

Space & Bulk Standards:

Zone. B1 Neighborhood Business Zone	
Mimium Lot Size	435 S.F.
Minimum Frontage	20'
Minimum Yard Dimensions	
Width	None
Rear Yard	None
Side Yard	None
Maximum Impervious Area	
Maximum Floor Area	10,000 S.F.
Minimum Lot Width	None
Maximum Building Height	45'

Location



LEGEND

- 5/8" Rebar Set With Cap
- Rebar/Iron Pipe Found
- ⊕ Utility Pole
- N.F. Now or Formerly
- 1324/98 Book & Page
- Stockade Fence
- Chain Link Fence

Plan Reference

- 1) Andrews Square Intersection Improvements By The City Of Portland
Dated 08/09/2021
- 2) Standard Boundary survey& Topographic Survey At Reiche School
Made For Portland Parks & Recreation Dept. By Owen Haskell Dated Feb. 2, 2001
- 3) Portland Water District Portland Sewer System Infiltration-Inflow Analysis
Study Area IV By Hunter -Ballew Associates Dated 1981
- 4) City Of Portland Pine St Rebuilding Sewer No 32 To Pine Dated Feb. 14, 1936
- 5) Street Right Of Way Sheets From Engineers Vault

Boundary Survey & Topographical Site Plan

With Existing Conditions

Land Located at:	64 Pine Street Portland, Maine 04102
Land Owned By:	64 Pine Street, LLC
Address:	10 Free Street P.O. Box 4510 Portland, Maine 04112
Deed Reference:	Book 35505 Page 186

SCALE: 1:10
DRAWN BY: R.W.E.
CHECKED BY: R.W.E.
CAD FILE: 1050.DWG
PROJ #: 1050
ORIG DATE: 06-01-23
0 REV DATE: 00-00-00
1 REV DATE: 00-00-00
2 REV DATE: 00-00-00
3 REV DATE: 00-00-00

R. W. EATON ASSOCIATES
LAND SURVEYING & REAL ESTATE

58 PLEASANT STREET, WESTBROOK, MAINE 04092

PHONE: 207-854-2402 EMAIL Dick@rweatonsurveyor.com

June 1st, 2023

Clark Street

N.F. Bricklight Properties, LLC
32379/123

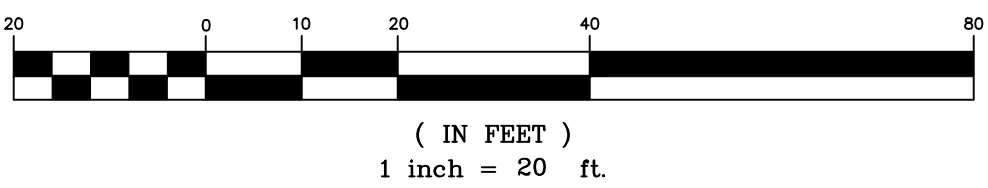
N.F. Edward Ingalls
19653/117

N.F. Deborah McCoy
13836/108

N.F. City Of Portland
Reiche School
Plan Reference #2

N.F. 58 Pine Street, LLC
33245/95

GRAPHIC SCALE



- 2.1. EXISTING ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
- 2.2. ALL DISPOSAL OF DEMOLITION DEBRIS OR WASTE SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS.
- 2.3. CONTRACTOR SHALL PROVIDE OWNER WITH APPROPRIATE "BILLS OF LADING" TO DEMONSTRATE PROPER DISPOSAL OF ALL MATERIALS.
- 2.4. SITE DEMOLITION SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE, & FEDERAL REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTRACTOR.
- 2.5. THE CONTRACTOR SHALL CALL THE APPROPRIATE UTILITY COMPANIES AND DIG SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION TO IDENTIFY ALL EXISTING UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE PROPOSED PROJECT.
- 2.6. THE LOCATION OF UNDERGROUND UTILITIES AND LOCATE POTENTIAL CONFLICT WITH THE APPROVED PLANS PRIOR TO CONSTRUCTION.
- 2.7. ALL CONSTRUCTION SIGNAGE IS TEMPORARY AND WILL BE REMOVED AT PROJECT COMPLETION. FINAL SIGNAGE WORDING AND PLACEMENT LOCATION TO BE ACCEPTED BY THE CITY.
- 2.8. SEVERE EROSION SHALL BE PREVENTED BY THE FRONT AND SIDE PROPERTY LINES, DOWN GRADIENT OF THE PROPOSED PROJECT WORK PER DETAIL. FENCES ARE OFFSET OF THE PROPERTY LINES AS SHOWN ON THE PLAN FOR CLARITY PURPOSES AND DO NOT NECESSARILY DEPICT THE PHYSICAL LOCATION.
- 2.9. CONTRACTOR SHALL PLACE CATCH BASIN INLET PROTECTION ON CATCH BASINS AND FILL INLETS DOWN-GRADIENT OF ALL NON-STABILIZED SURFACES, PER DETAIL.
- 2.10. DEMOLITION PLAN IS NOT INCLUSIVE OF ALL EXISTING ITEMS TO BE REMOVED AS PART OF SITE CONSTRUCTION INCLUDING BUT NOT LIMITED TO: LANDSCAPE, UTILITIES, WORK WITHIN THE ROW, ETC. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH THE CITY OF PORTLAND REGULATIONS.
- 2.11. CONTRACTOR TO BE RESPONSIBLE FOR PROVIDING OFF-SITE PARKING TO EMPLOYEES; ON-SITE PARKING WILL NOT BE PROVIDED OR GUARANTEED. CONTRACTOR TO BE RESPONSIBLE FOR OBTAINING THE APPROPRIATE PERMITS FROM THE CITY FOR CLOSING ANY.
- 2.12. CONTRACTOR SHALL BE RESPONSIBLE FOR SNOW REMOVAL ALONG CONSTRUCTION FENCE AND GATE.
- 2.13. CONTRACTOR TO SUBMIT A DEWATERING PLAN FOR REVIEW AND APPROVAL TO THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE PROPOSED CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ADVANCED SITE WORK. CONTACT THE DEPARTMENT OF PUBLIC WORKS FOR ADDITIONAL INFORMATION AND CURRENT REGULATIONS.
- 2.14. CONTRACTOR NOTES BELOW PROVIDED BY GREAT FALLS CONSTRUCTION INC.
- 2.1. LOCATION OF MATERIAL STAGING AREA: N/A, MATERIALS WILL BE ORDERED IN TIMELY/SEQUENTIAL FASHION.
- 2.2. LOCATION OF ONSITE TEMP TRAILER: THE TRAILER IS SHOWN ON THE PLAN TO THE SIDE OF THE PROPERTY ON THE SIDEWALK CLOSEST TO THE CHAVUL CURB CUT AS POSSIBLE AND WILL SERVE AS A SMALL JOB TRAILER.
- 2.3. LOCATION OF ONSITE TRUCK DELIVERY HOLDING AREAS: N/A, MATERIALS WILL BE ORDERED IN TIMELY/SEQUENTIAL FASHION.
- 2.4. MANNY MIXING/STATIONS: WASH OUT IN HOLE ON SITE AND SITE CONTRACTOR TO HAUL OFF SITE ONCE HARDENED.
- 2.5. LOCATION OF CONSTRUCTION SECURITY FENCE: PERMANENT APPLICATION PROPOSED.
- 2.6. LOCATION OF TEMP CONSTRUCTION DUMPSTER: WILL USE A TRAILER IN THE FRONT OF THE SITE WITHIN RENTED SIDEWALK SPACE.
- 2.7. NO OPEN STORAGE AREAS EXPECTED AT THIS TIME.
- 2.8. CONTRACTOR PARKING TO USE A COMBINATION OF PAID AND PUBLIC PARKING. PAID PARKING LOCATION IS TO BE DETERMINED AT THIS TIME.



PERMITTING
NOT ISSUED FOR
CONSTRUCTION

[illegible]

CONSTRUCTION MANAGEMENT PLAN
64 PINE STREET REDEVELOPMENT
64 PINE STREET, PORTLAND, MAINE 04012

64 PINE STREET LLC
104 WASHINGTON AVENUE PORTLAND, MAINE 04101

DRAWING NAME:

R N
ENGINEERING, INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACON ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACON ENGINEERING, INC.

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND, MAINE 04104
(207) 775-2655

FILE: 1109.4_CIVIL

JN:	1109.4
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SCALE: AS NOTED

DESIGNED BY: ZMS

DRAWN BY: BJK

CHECKED BY: SJL



DRAWING NO.

C-03

1. ALL BRICK SIDEWALK AND VERTICAL GRANITE CURB TO BE REPLACED SHALL BE REBUILT TO CITY OF PORTLAND STANDARD.
2. ALL PAVEMENT STRIPING AND MARKINGS SHALL COMPLY TO CITY OF PORTLAND STANDARDS.
3. ANY ASPHALT TO BE REMOVED SHALL BE STRIPPED AND PROPERLY DISPOSED OF OFFSITE.
4. CURB TO BE REMOVED, STOCKPILED AND RESET IN ACCORDANCE WITH DETAIL. BROKEN FOOT CURB SHALL BE PROPERLY DISPOSED OF AND SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
5. ALL RAMPS TO CONFORM TO ADA GUIDELINES. SLOPE SHALL NOT EXCEED 1 INCH PER FOOT.
6. ALL SITE SIGNAGE TO COMPLY WITH MUTCD STANDARDS. CONTRACTOR TO COORDINATE AND INSTALL.
7. FOLLOWING COMPLETION OF CONSTRUCTION, THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND MANAGEMENT OF DRIVEWAYS, SITE LIGHTING, TRASH REMOVAL AND SNOW REMOVAL.
8. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTS PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.
9. PLAN REFERENCES
- 9.1. PLAN TITLED "BOUNDARY SURVEY & TOPOGRAPHICAL SITE PLAN WITH EXISTING CONDITIONS" PREPARED BY R.W. EATON ASSOCIATES DATED JUNE 15TH, 2023
10. FINAL "LOADINGS SUBJECT TO THE BASED ON THE FINISH MEP DESIGN, MEET TO PROVIDE EV CHARGING STATION DESIGN AND CONDUIT ROUTING.

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
1,2	9.4'	16.8'	6.3'
3	9.0'	15.3'	6.0'
4,5	8.7'	14.4'	6.0'



PERMITTING
NOT ISSUED FOR
CONSTRUCTION

DRAWING NO.

C-10

GENERAL NOTES:

1. LOCATION OF PROPOSED CONNECTIONS ARE APPROXIMATE. CONTRACTOR TO CONTACT ENGINEER IF FIELD INFORMATION VARIES FROM INFORMATION ON PLANS.
2. CONTRACTOR IS TO BE CAUTIONED THAT CERTAIN LOCATIONS AND/OR ELEVATIONS OF EXISTING UTILITIES HAVE BEEN PROVIDED THROUGH UTILITY COORDINATION OR OTHER OBSERVATIONS. INFORMATION IS NOT TO BE RELIED UPON AS EXACT OR COMPLETE. CONTRACTOR TO FIELD VERIFY AND COORDINATE WITH UTILITY COMPANY AND DO SAFE NO LESS THAN 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR TO NOTIFY ENGINEER OF ANY DIFFERENTIATIONS FROM EXISTING CONDITIONS, INCLUDING UTILITY INFORMATION, PRIOR TO ANY CHANGES.
3. FOR ALL UTILITIES, ACORN ENGINEERING DESIGN LIMITS END AT EXTERIOR WALL OF BUILDING. METERING OF UTILITIES TO BE COMPLETED BY M.E.P. UNLESS SPECIFIED OTHERWISE.
4. CONTRACTOR TO COORDINATE WITH ARCHITECT ON FINAL UTILITY CONNECTIONS WITHIN THE BUILDING.
5. **SEWER UTILITIES:** CONTRACTOR TO COORDINATE WITH ARCHITECT FOR FINAL SERVICE CONNECTION. SEWER UTILITIES TO BE CONSTRUCTED IN ACCORDANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS. VALVE FOR BACKFLOW PREVENTION SHALL BE INSTALLED WITHIN THE THE PROPERTY LINES FOR EACH CITY SEWER CONNECTION. CONTACT ENGINEER IF INVERT FIELD CONDITIONS VARY FROM DESIGN.
6. **WATER UTILITIES:** FINAL PIPE SIZING PROVIDED BY M.E.P. ENGINEER AND FIRE PROTECTION DESIGNER. INTERNAL METERING, BACKFLOW PREVENTION, AND PRESSURE REDUCERS TO BE COMPLETED BY M.E.P. ENGINEER. DOMESTIC WATER PIPE SIZES WILL DETERMINE THE FINAL WATER METERING OPTIONS. METER MAY BE SMALLER THAN PROPOSED WATER MAIN. WATER METERING, PRESSURE REDUCER AND BACKFLOW PREVENTION TO BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT STANDARDS. CONTRACTOR TO FOLLOW METERING GUIDELINES OF THE PORTLAND WATER DISTRICT AND CITY OF PORTLAND.
7. **GAS UTILITIES:** PROJECT GAS LOAD, GAS UTILITY DESIGN, AND FINAL GAS SERVICE LOCATION AND METERS TO BE DEFINED BY M.E.P. AND IN ACCORDANCE WITH UNTIL.
8. **ELECTRIC UTILITIES:** ELECTRIC DESIGN TO BE FINALIZED BY M.E.P. ENGINEER. ELECTRICAL LOAD TO BE DETERMINED BY M.E.P. ENGINEER. METER LOCATION AND TRANSFORMER SIZE, IF NECESSARY DEFINED BY M.E.P. M.E.P. TO FINALIZE SERVICE CONNECTION TO BUILDING. ALL ELECTRIC CONSTRUCTION SHALL CONFORM TO CMP GUIDEBOOK OF STANDARD REQUIREMENTS, MOST RECENT EDITION. DESIGN SUBJECT TO FINAL APPROVAL FROM CMP.
9. CABLE AND TELEPHONE PULLBOXES AND PEDESTAL LOCATIONS TO BE DETERMINED BY CHARTER COMMUNICATIONS AND CONSOLIDATED COMMUNICATIONS PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE INSTALLATION OF UNDERGROUND UTILITIES WITH ALL UTILITY COMPANIES INVOLVED.

N.F. CITY OF PORTLAND
REICHE SCHOOL

PR. SUBSURFACE R-TANKS.
SEE SHEET C-30 FOR
ADDITIONAL INFORMATION

PROPERTY LINE, TYP.

PR. FIELD INLET, SEE SHEET C-30
FOR ADDITIONAL INFORMATION

N.F. DEBORAH MCOY
13836/108

MACHINE PARKING PER MANUFACTURER.
PROVIDE SUMP CONNECTION WITH PUMP AND
TIE INTO SEWER NETWORK PRIOR TO OWS

PR. 6" SDR 35 PVC LATERAL
SLOPE: 0.025 FT/FT
L = 20'

N.F.58 PINE STREET, LLC
33245/95

DOMESTIC SEWER PER
MEP TO BYPASS OWS

PR. 6" SDR 35 PVC LATERAL
SLOPE: 0.025 FT/FT
L = 24'

PR. TELE/DATA PANEL

PR. ELECTRIC METER PANEL

PR. OIL WATER SEPARATOR,
TYP. PER DETAIL
RIM: 139.80'
4" INV. IN: 133.80'
6" INV. OUT: 131.50'

PR. UNITIL GAS METER LOCATION

PR. BACKFLOW VALVE, PER DETAIL

PROVIDE 12" VERTICAL
SEPARATION

PR. GAS SERVICE CONNECTION
TO EXISTING GAS MAIN

PR. UNDERGROUND
ELECTRIC/TELECOM/CABLE SERVICE

EX. 4" GAS MAIN

GAS

GAS

GAS

GAS

GAS

GAS

GAS

GAS

GAS

GAS

EX. SMH-2
RIM: 139.50'
INV.: 128.65'

6" PVC SDR 35 SEWER LATERAL
SLOPE: 0.02 FT/FT
L=35'

CHIMNEY INTO SEWER MAIN,
APPROX. TOP INV.: 130.80'
APPROX. BOTTOM INV.: 129.28'

EX. 8" WATER MAIN PER PWD
INFRASTRUCTURE MAP DATED (1903)

PROPOSED UPGRADED POLE MOUNTED TRANSFORMER AND NEW RISER POLE
TO SERVICE BUILDING. CONDUITS TO BE ENCASED IN CONCRETE WHEN IN
ROW. MEP TO DEFINE FINAL QUANTITY AND SIZES OF UNDERGROUND
ELECTRIC AND TELECOM CONDUITS. CONTRACTOR TO COORDINATE WITH CMP

RESTORE CURB, ESPLANADE, AND
SIDEWALK IN CONFORMANCE WITH
CITY STANDARDS

EX. CB-2
RIM: 138.70'
WATER: 132.40'
SUMP: 132.10'

PR. FOUNDATION DRAIN PER
DETAIL, SEE SHEET C-30 FOR
ADDITIONAL INFORMATION

EX. GAS SERVICE TO BE REMOVED
DOMESTIC SERVICE REQUIRES A TESTABLE
DUAL CHECK VALVE. FIRE SERVICE REQUIRES
A TESTABLE DOUBLE CHECK VALVE. 1.5"
METER AND BACKFLOW PREVENTERS TO BE
INSTALLED AT SERVICE ENTRANCE.

PR. SPRINKLER ROOM
6" GATE VALVE INSTALLED IN VALVE
BOX TOP SECTION IN THE ROW AT 6"
FROM PROPERTY LINE PER DETAIL

PR. SPRINKLER ROOM

EX. WATER SERVICE AND VALVE TO
BE REMOVED IN CONFORMANCE
WITH PWD STANDARDS

PR. STORMDRAIN TO BE
18" FACE TO FACE FROM
EX. CATCH BASIN

EX. CB-1 TO REMAIN
RIM: 138.60'
WATER: 134.65'
SUMP: 132.15'

EX. CATCH BASIN 5'
DIAMETER STRUCTURE

EX. 18" COMBINED
SEWER MAIN

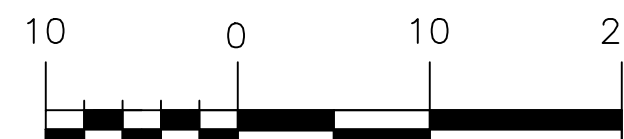
EX. SMH-1
RIM: 139.30'
INV.: 129.20'

EX. WATER SERVICE TO BE RETIRED
PER PWD STANDARDS. SHUT AND
CUT WATER SERVICE AT WATER MAIN,
PULL BOX, AND ROD AT STREETLINE

EX. CMP UTILITY POLE #8

CLARK STREET

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

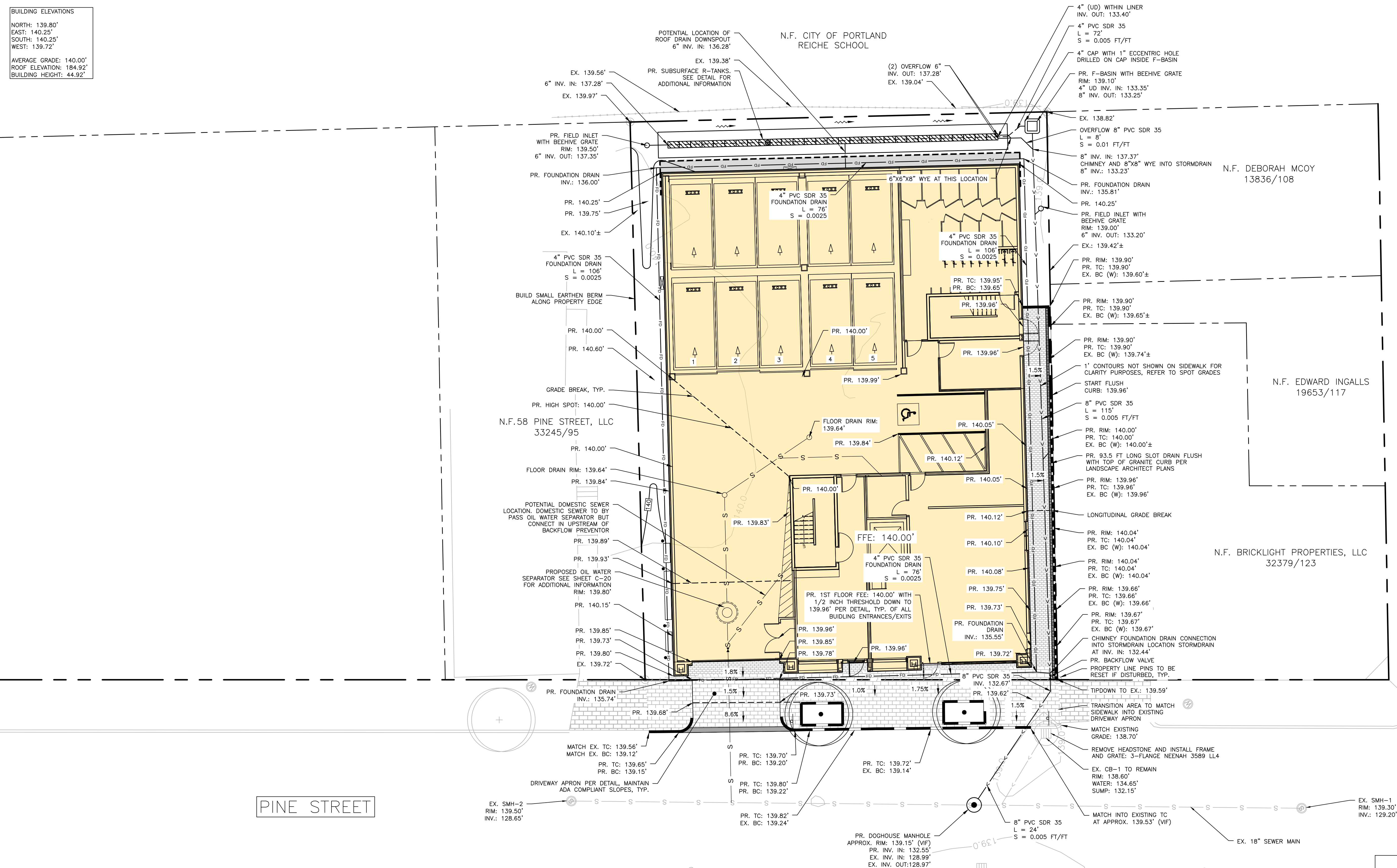


- GENERAL NOTES:
1. ALL WORK WITHIN THE CITY STREET RIGHT OF WAY SHALL MEET CITY OF PORTLAND TECHNICAL MANUAL STANDARDS.
 2. DESIGN OF TEMPORARY SOIL RESTRAINT MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IF NECESSARY FOR CONSTRUCTION.
 3. CONTRACTOR SHALL ENSURE THAT UNDERDRAINS ARE CONSTRUCTED WITH POSITIVE OUTLET TO PROPOSED CONNECTIONS.
 4. CATCH BASIN INLET PROTECTION TO BE INSTALLED WITHIN ANY STRUCTURES DOWNGRADIENT OF ACTIVE CONSTRUCTION.
 5. SEDIMENTATION BARRIERS ARE TO BE INSTALLED DOWNGRADIENT OF ALL ACTIVE CONSTRUCTION WORK PER DETAIL. BARRIERS TO NOT EXTEND PAST PROPERTY LINES; BARRIERS SHOWN OFFSET FROM PROPERTY LINES ON PLANS FOR VISUAL PURPOSES ONLY.
 6. CONTRACTOR SHALL VERIFY BOTTOM AND TOP OF CURB ELEVATIONS ALONG BUILDING FRONTAGES PRIOR TO CONSTRUCTION OF THE FOUNDATIONS. CONTACT ENGINEER PRIOR TO CONSTRUCTION IF DISCREPANCIES ARE FOUND.

BUILDING ELEVATIONS

NORTH: 139.80'
EAST: 140.25'
SOUTH: 140.25'
WEST: 139.72'

AVERAGE GRADE: 140.00'
ROOF ELEVATION: 184.92'
BUILDING HEIGHT: 44.92'



SCALE: 1" = 10'

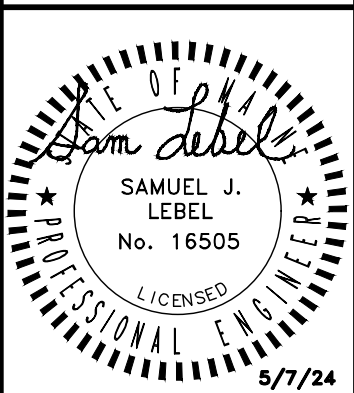
PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

GRADING PLAN	64 PINE STREET REDEVELOPMENT	64 PINE STREET, PORTLAND, MAINE 04102
DRAWING NAME:	PROJECT NAME:	CLIENT:
		64 PINE STREET LLC
		104 WASHINGTON AVENUE PORTLAND, MAINE 04101

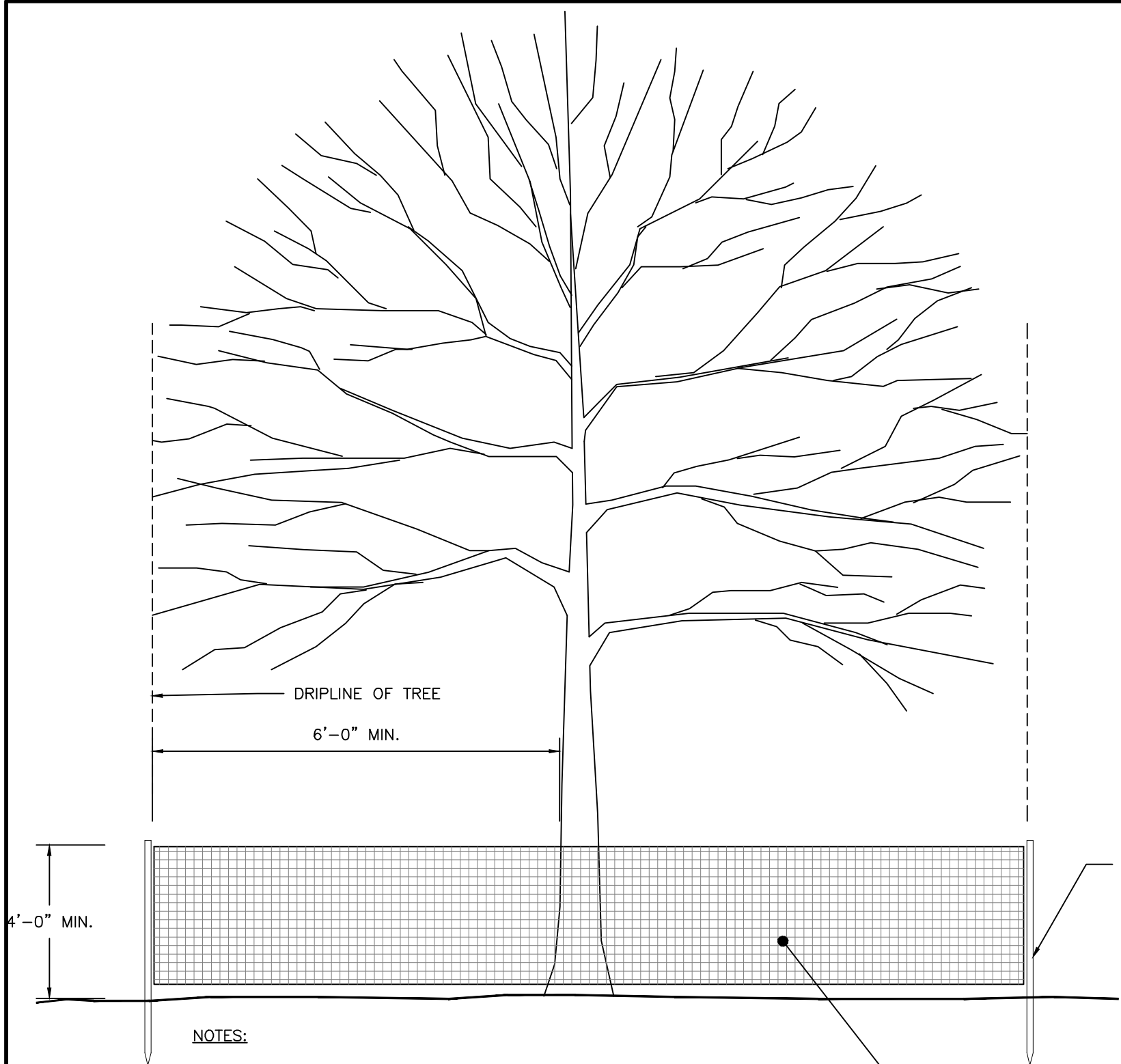
ACORN ENGINEERING, INC.	ENGINEERING, INC.
ACORN ENGINEERING, INC.	ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104	(207) 775-2655

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.

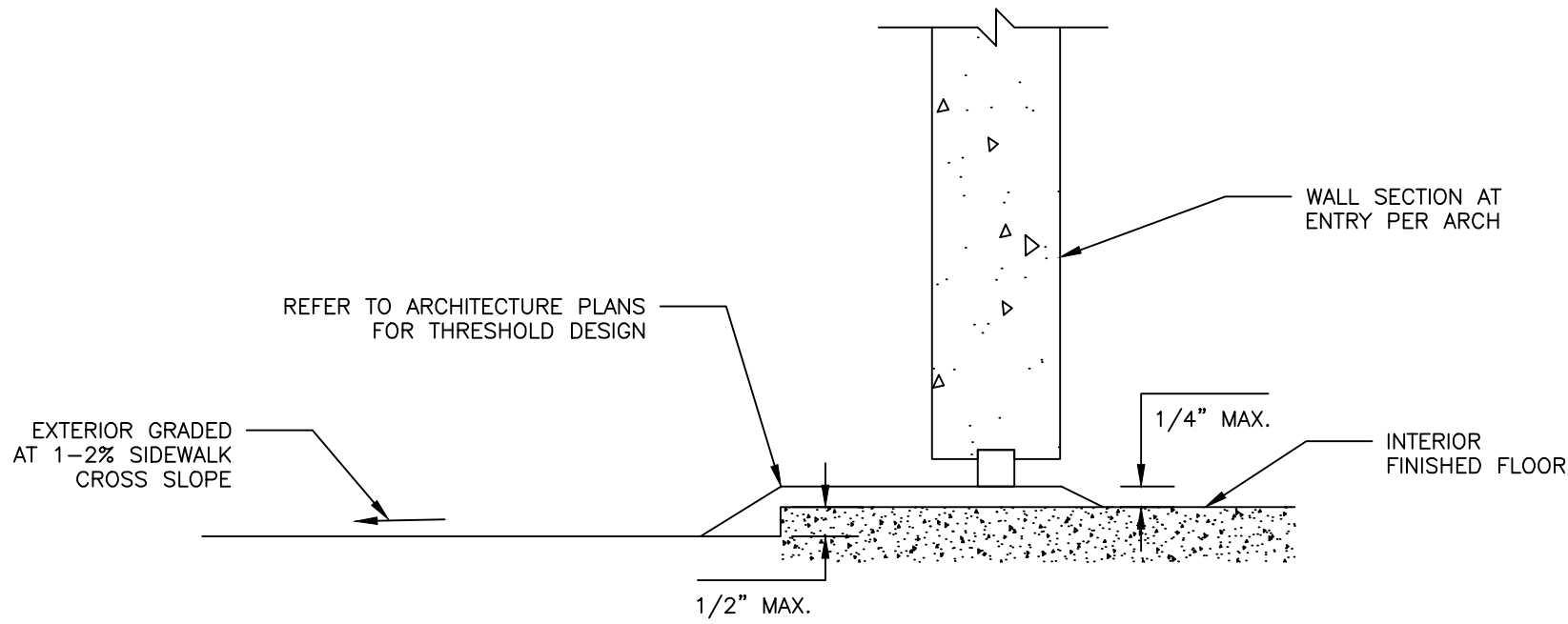
C-30



- NOTES:
1. TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY.
 2. INSTALL PROTECTIVE FENCING TO LIMIT OF DRIPLINE ON TREE OR A MINIMUM OF 6' FROM TRUNK WHEN NECESSARY, WITH PRIOR PERMISSION OF LANDSCAPE ARCHITECT.
 3. DO NOT STORE CONSTRUCTION EQUIPMENT, MATERIALS, TOOLS, ETC. WITHIN PROTECTIVE FENCING.
 4. MAINTAIN FENCING IN A NEAT AND ORDERLY FASHION THROUGHOUT CONSTRUCTION PERIOD.

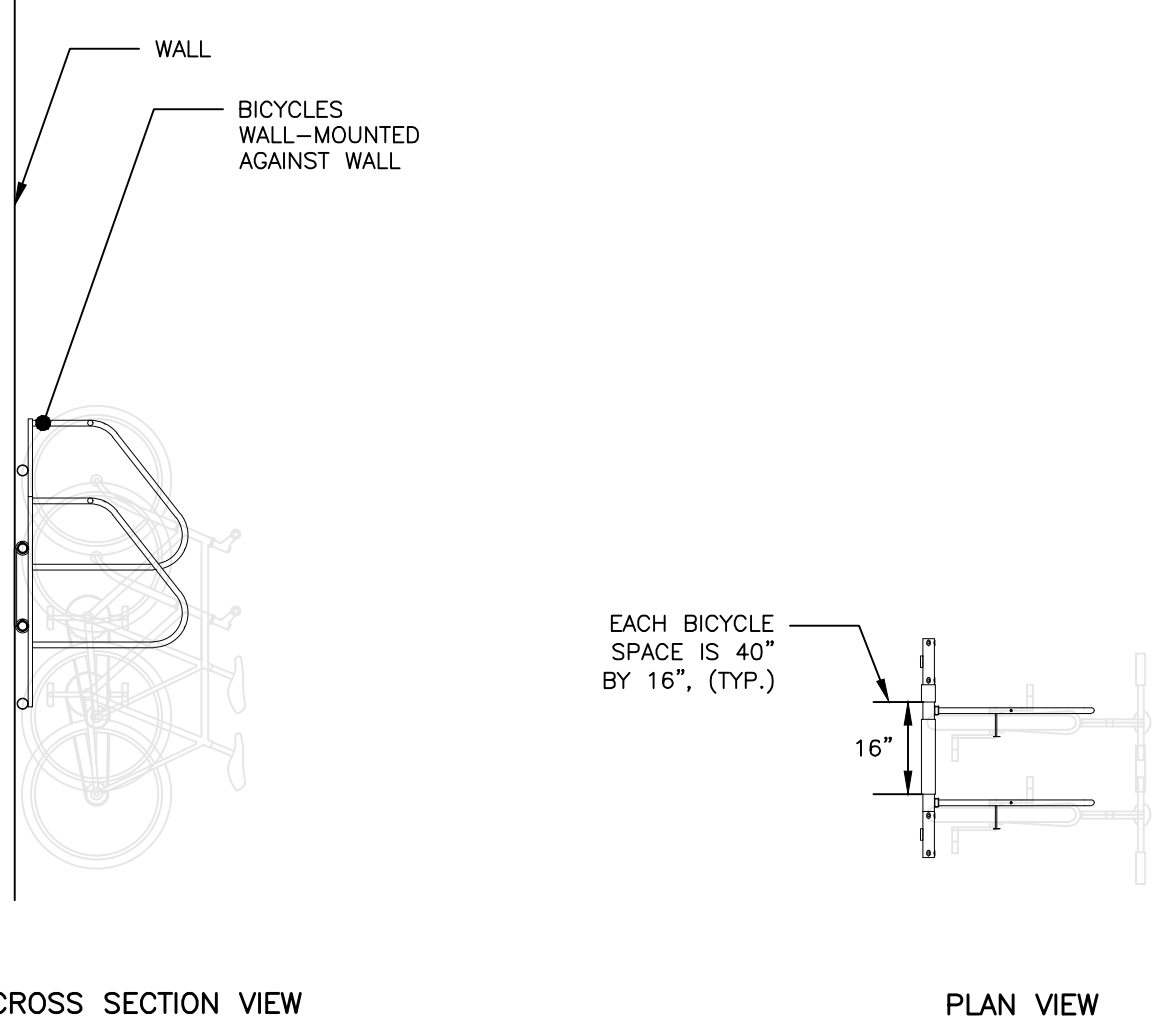
TREE PROTECTION DETAIL
NOT TO SCALE

- NOTES:
1. THIS DETAIL REPRESENTS A TYPICAL CONDITION TO MITIGATE WATER INTRUSION. REFER TO THE ARCHITECTURAL PLANS FOR SPECIFICATION AND THRESHOLD DESIGN. CONTACT ENGINEER WITH ANY DISCREPANCIES

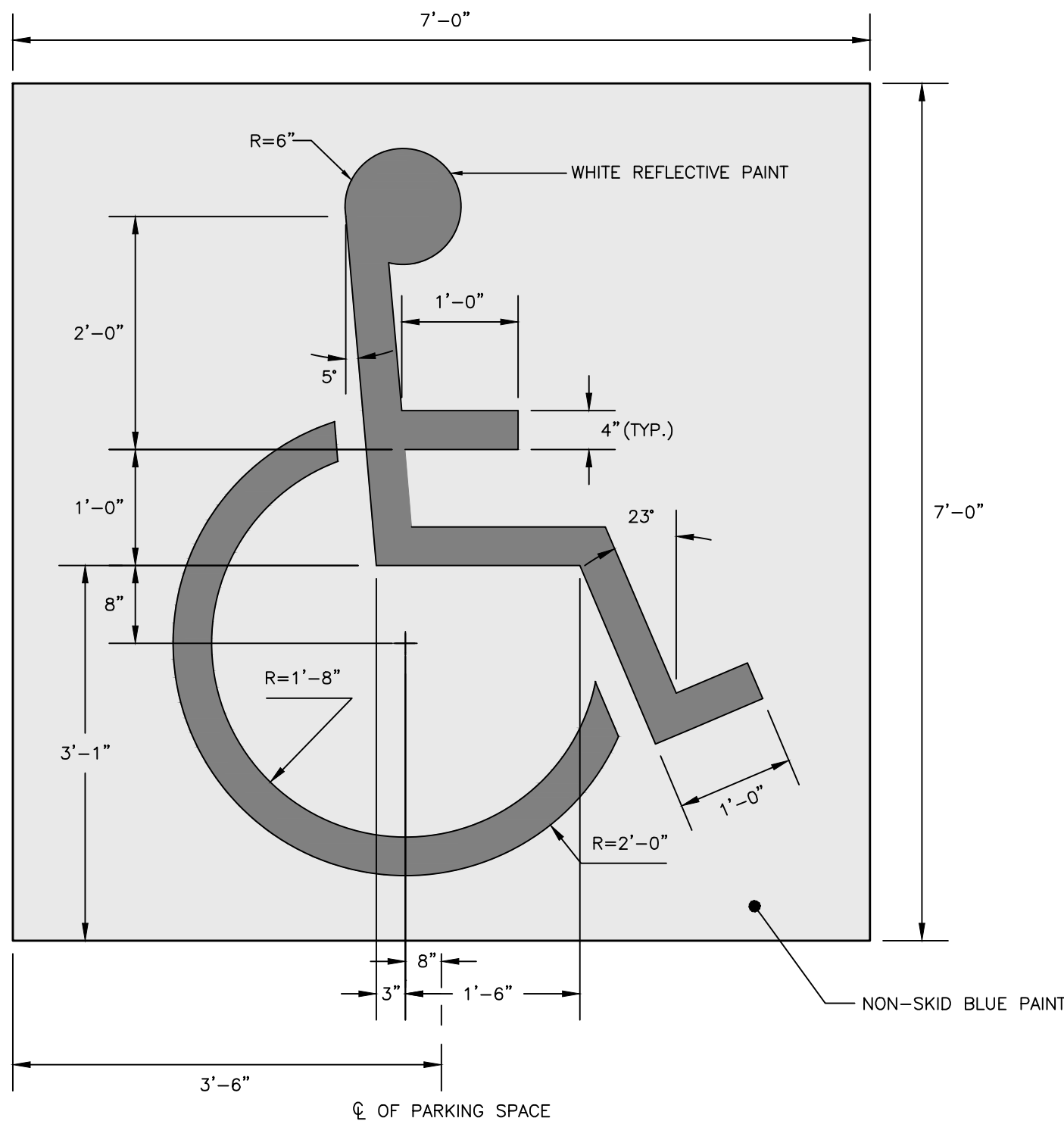


TYPICAL THRESHOLD DETAIL
NOT TO SCALE

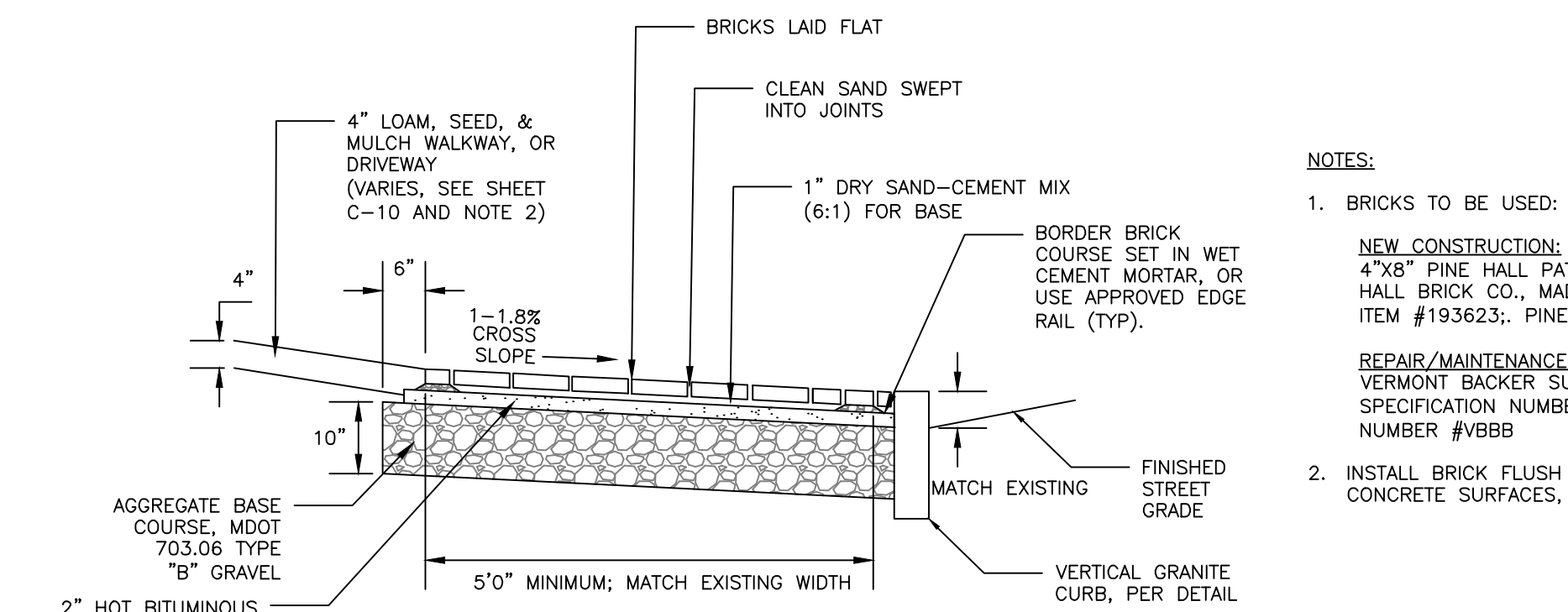
- NOTES:
1. FINAL LOCATION OF INTERIOR BICYCLE RACKS SHALL CONFORM TO ALL ARCHITECTURAL DRAWINGS. CONTRACTOR TO NOTIFY ENGINEER AND ARCHITECT WITH ANY DISCREPANCIES.
 2. BICYCLE MOUNT SHALL BE ULTRA SPACE SAVER AS MANUFACTURED BY DERO, OR APPROVED EQUAL.
 3. BICYCLES SHALL BE WALL MOUNTED IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS.



BICYCLE RACK INTERIOR
NOT TO SCALE

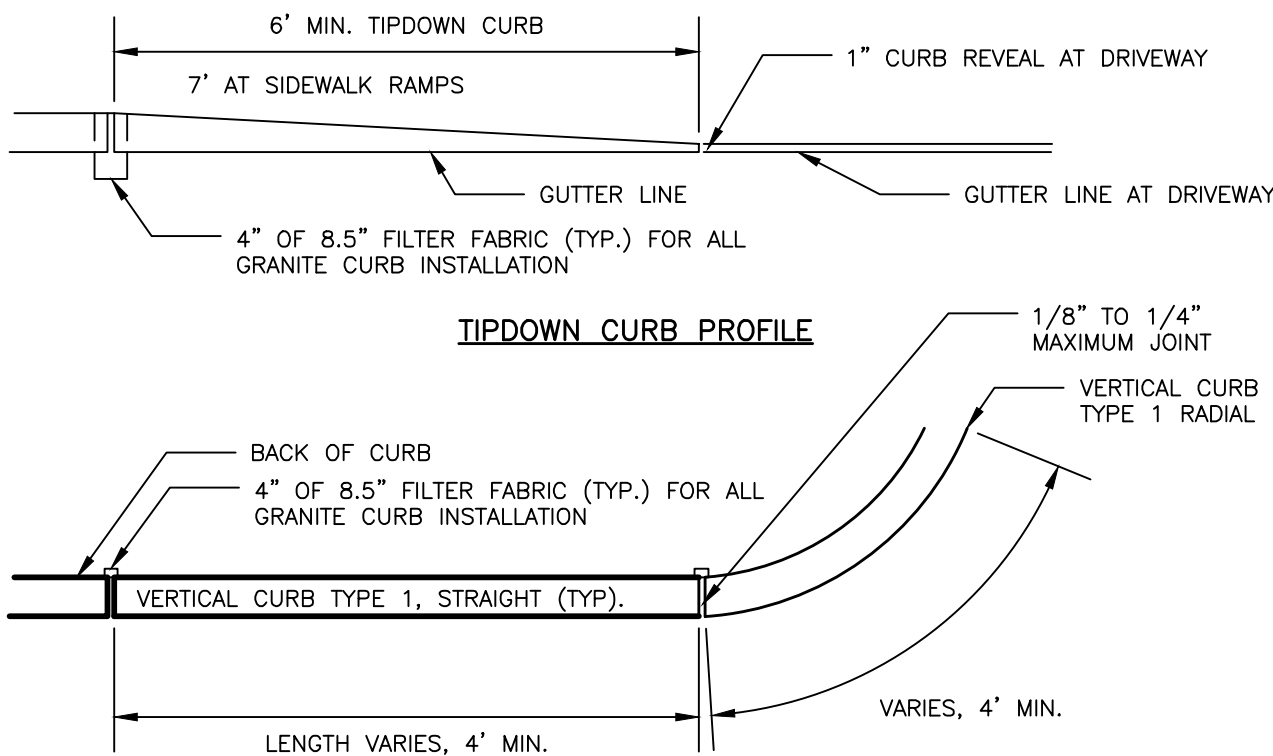


INTERNATIONAL BARRIER FREE SYMBOL
NOT TO SCALE

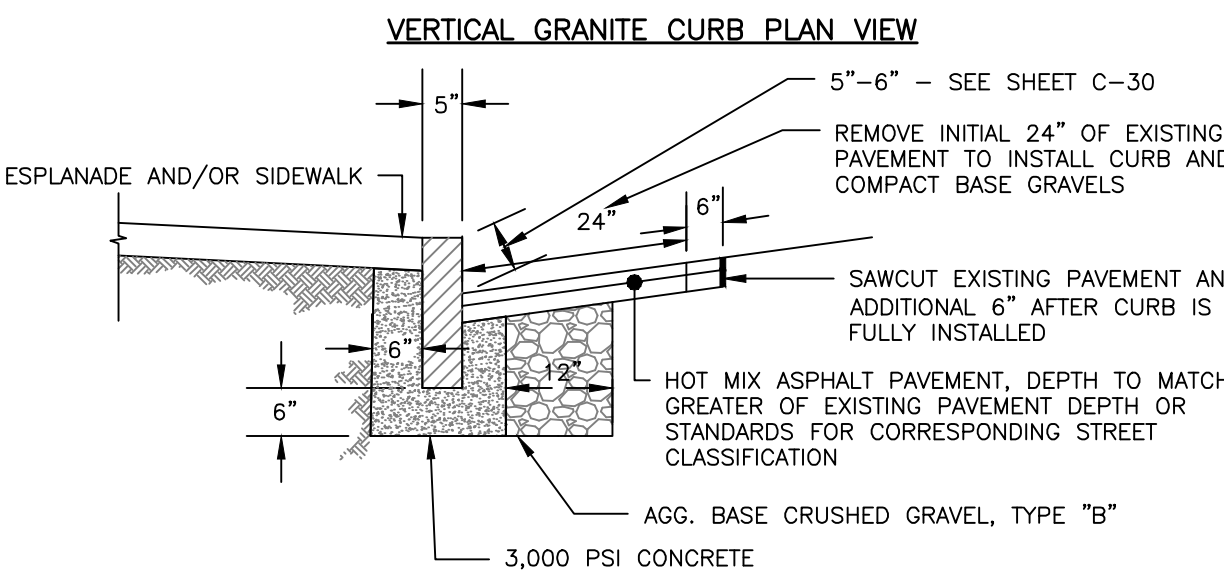


BRICK SIDEWALK WITH BITUMINOUS BASE DETAIL
NOT TO SCALE

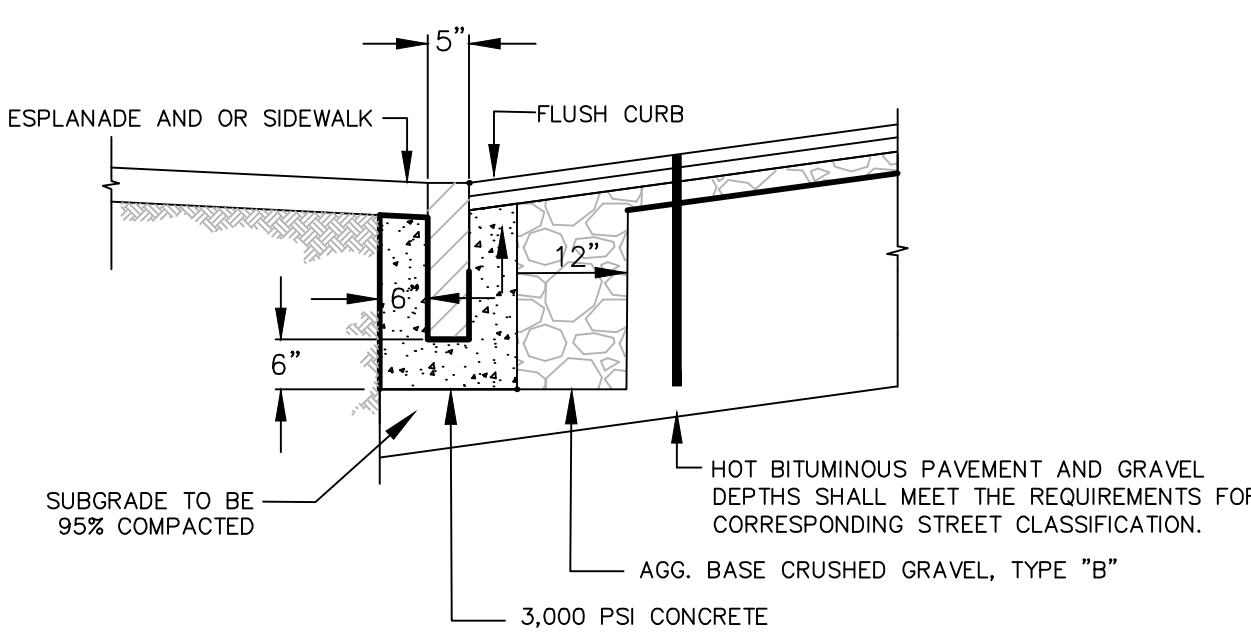
- NOTES:
1. BRICKS TO BE USED:
NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVEMENT BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM #193623. PINE HALL PATHWAY PAVEMENT BRICK.
REPAIR/MAINTENANCE TO EXISTING BRICK SIDEWALKS:
VERMONT BACKER SUPPLIED BY GAGNE AND SONS SPECIFICATION NUMBER: "VERMONT PAVEMENT BRICK", ITEM NUMBER #VBBB
 2. INSTALL BRICK FLUSH UP TO BUILDING, PAVEMENT, STAIRS, CONCRETE SURFACES, CURB OR LANDSCAPED AREAS.



TIPDOWN CURB PROFILE



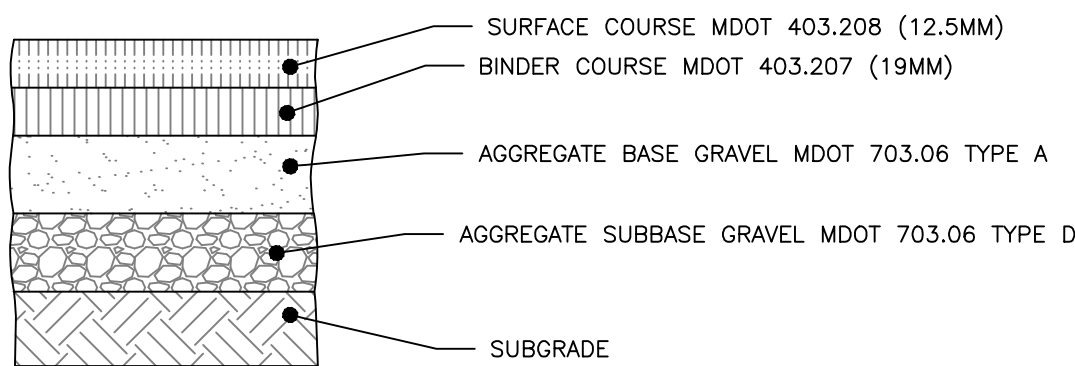
VERTICAL GRANITE CURB WITH REVEAL CROSS SECTION



FLUSH VERTICAL GRANITE CURB CROSS SECTION

- NOTES:
1. CURB SHALL BE RESET IN ACCORDANCE WITH MDOT 609.08 WITH THE EXCEPTION OF CURB SPACING TO BE INSTALLED PER DETAIL.
 2. INDIVIDUAL PIECES OF CURB SHORTER THAN 4' L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.
 3. 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 THE CURB.
 4. CURBING SHALL BE SET IN A 6-INCH BED OF POURED IN PLACE 3,000 PSI CONCRETE MIX.
 5. WOODEN SHIMS MAY BE USED TO SET CURB.

VERTICAL GRANITE CURB AND TIPDOWN INSTALLATION
IN EXISTING STREETS DETAIL
NOT TO SCALE

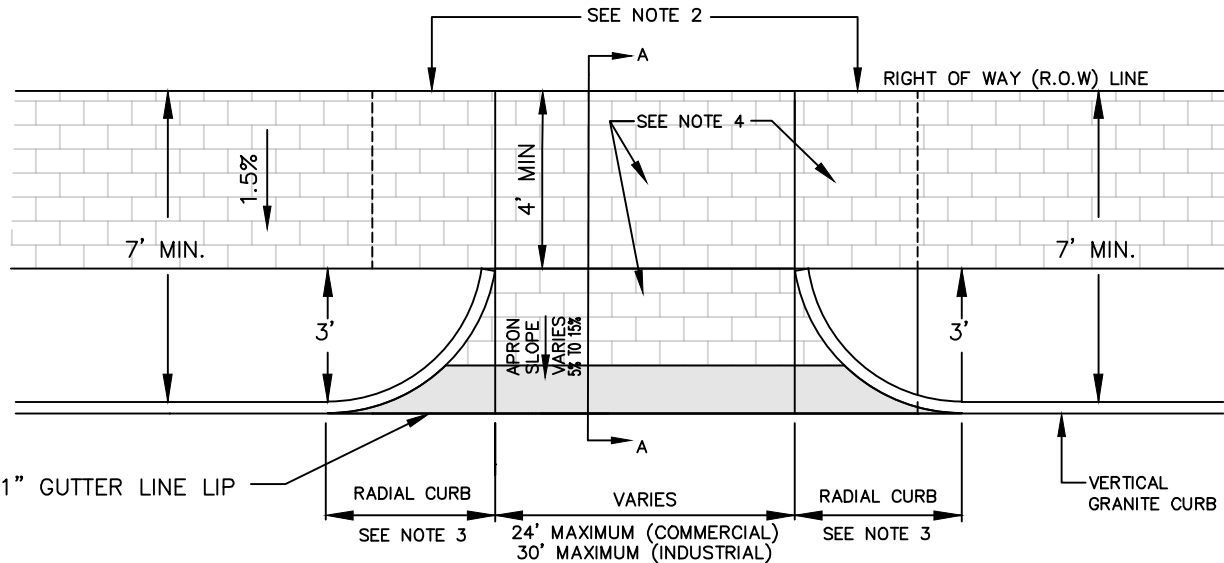


- NOTE:
- COMPACT THE AGGREGATE BASE TO 95% MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557.

STANDARD	THICKNESS OF LAYERS
2"	SURFACE COURSE MDOT 403.208 (12.5 mm)
3"	BINDER COURSE MDOT 403.207 (19 mm)
3"	AGGREGATE BASE GRAVEL MDOT 703.06 TYPE A
18"	AGGREGATE SUBBASE GRAVEL MDOT 703.06 TYPE D

PINE STREET PAVEMENT PROFILE
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. IF MATCHING THE EXISTING GRADE AT ROW CAUSES APRON SLOPE TO EXCEED RECOMMENDED %, SIDEWALK TRANSITION AREAS MAY BE ADDED, BUT SHALL NOT EXCEED 8.33%.
 3. DRIVEWAY CURB RADIUS SHALL NOT BE LARGER THAN REQUIRED BY THE SITE'S DESIGN VEHICLE.
 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.

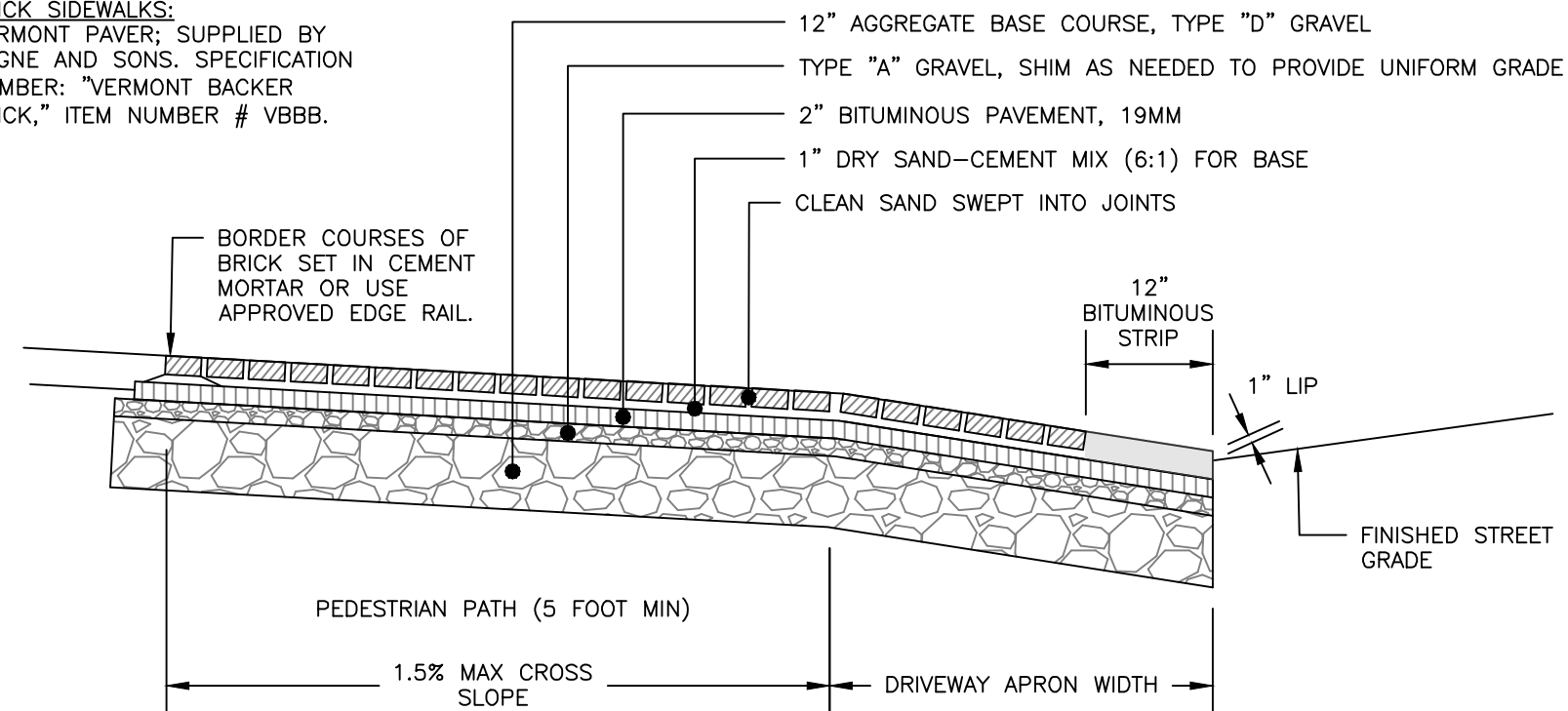


DRIVEWAY APRON LAYOUT
NOT TO SCALE

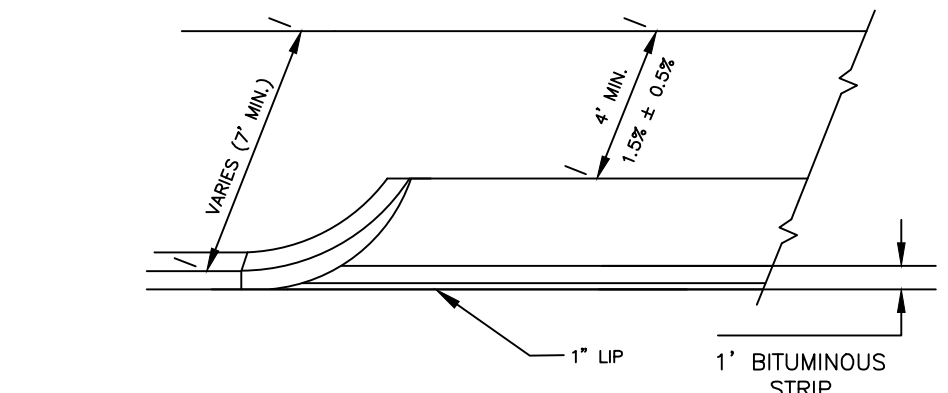
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVEMENT BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA, OR APPROVED EQUAL.
LACHANCE ITEM #193623, PINE HALL PATHWAY PAVEMENT BRICK.

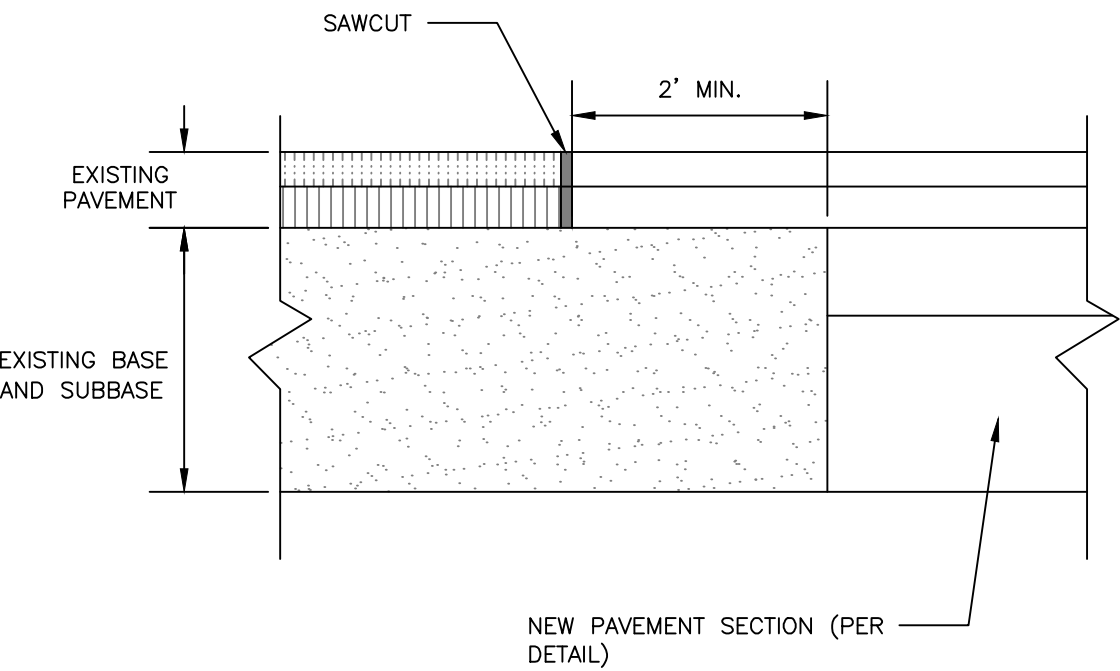
REPAIR/MAINTENANCE TO EXISTING BRICK SIDEWALKS:
VERMONT PAVEMENT, SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK," ITEM NUMBER # VBBB.



BRICK DRIVEWAY APRON WITH BITUMINOUS BASE
NOT TO SCALE



- NOTES:
1. SAWCUT EXISTING PAVEMENT AND REMOVE 2' STRIP OF EXISTING PAVEMENT. CREATE UNIFORM AND RIGID BUTT JOINT AND APPLY BITUMINOUS TACK COAT AT AN APPLICATION RATE OF 0.10 TO 0.14 GALLONS PER SQUARE YARD PRIOR TO PLACEMENT OF NEW BITUMINOUS PAVEMENT.
 2. THE NEW PAVEMENT SECTION SHALL MEET THE CITY OF LOCAL BITUMINOUS PAVEMENT SECTION DETAIL AT A MINIMUM OR THE THE EXISTING PAVEMENT AND AGGREGATE BASE AND SUBBASE DEPTH WHICHEVER IS GREATER.



PAVEMENT SAWCUT DETAIL
NOT TO SCALE

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

SITE DETAILS - 1	64 PINE STREET REDEVELOPMENT	64 PINE STREET, PORTLAND, MAINE 04012	64 PINE STREET LLC	104 WASHINGTON AVENUE PORTLAND, MAINE 04101
DRAWING NAME:	PROJECT NAME:	CLIENT:		

ACORN ENGINEERING, INC.	ACORN ENGINEERING, INC.
1109.4_CIVIL	1109.4_CIVIL
1109.4	1109.4
AS NOTED	AS NOTED
ZMS	ZMS
BJK	BJK
SJL	SJL

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL

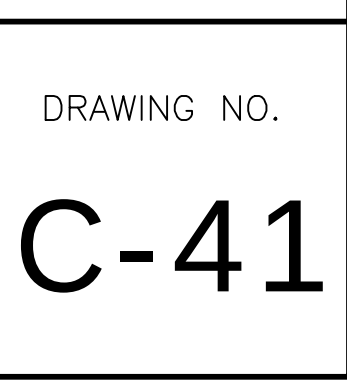
ACORN ENGINEERING, INC.	ACORN ENGINEERING, INC.
1109.4_CIVIL	1109.4_CIVIL
1109.4	1109.4
AS NOTED	AS NOTED
ZMS	ZMS
BJK	BJK
SJL	SJL

DRAWING NO.	C-40
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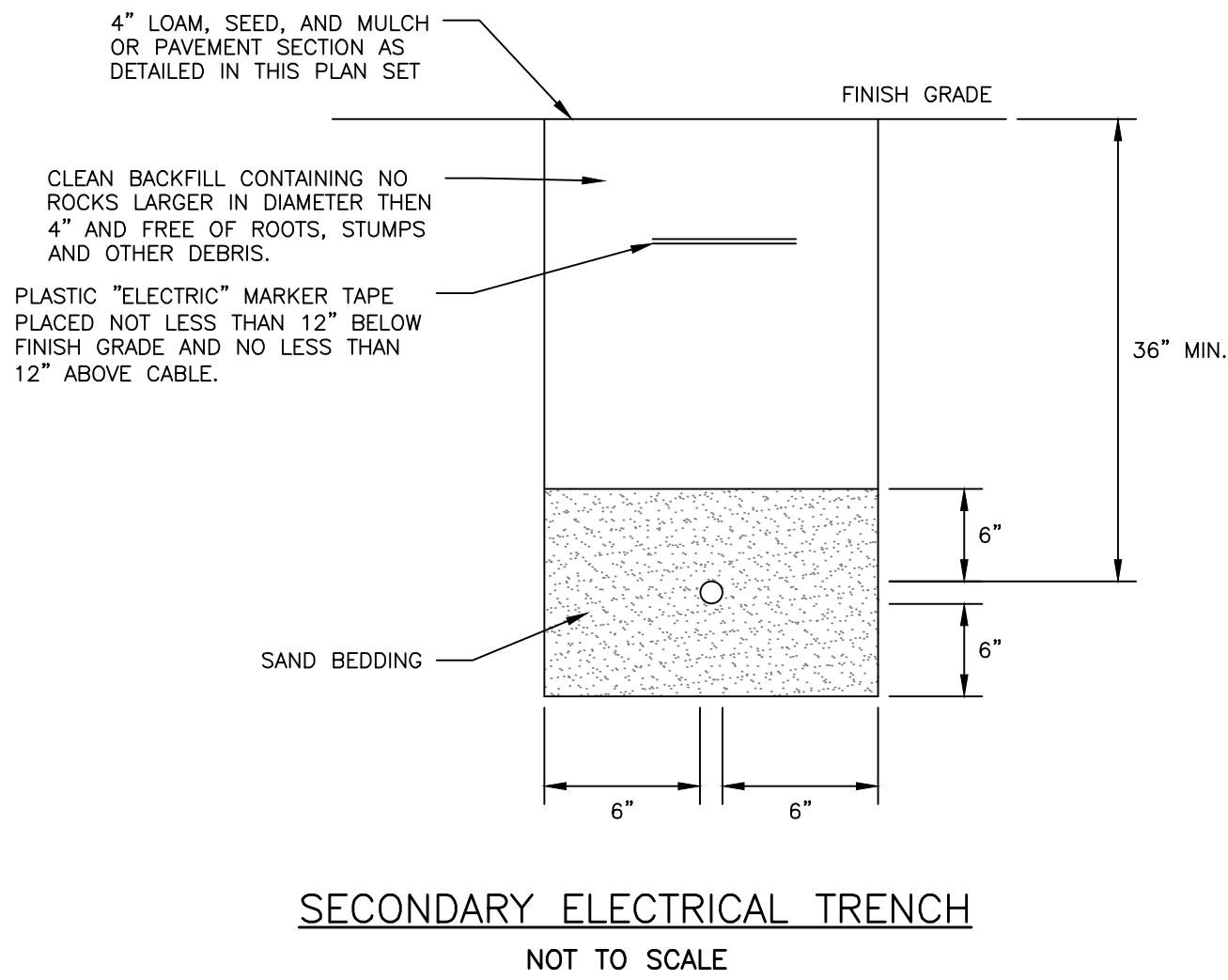
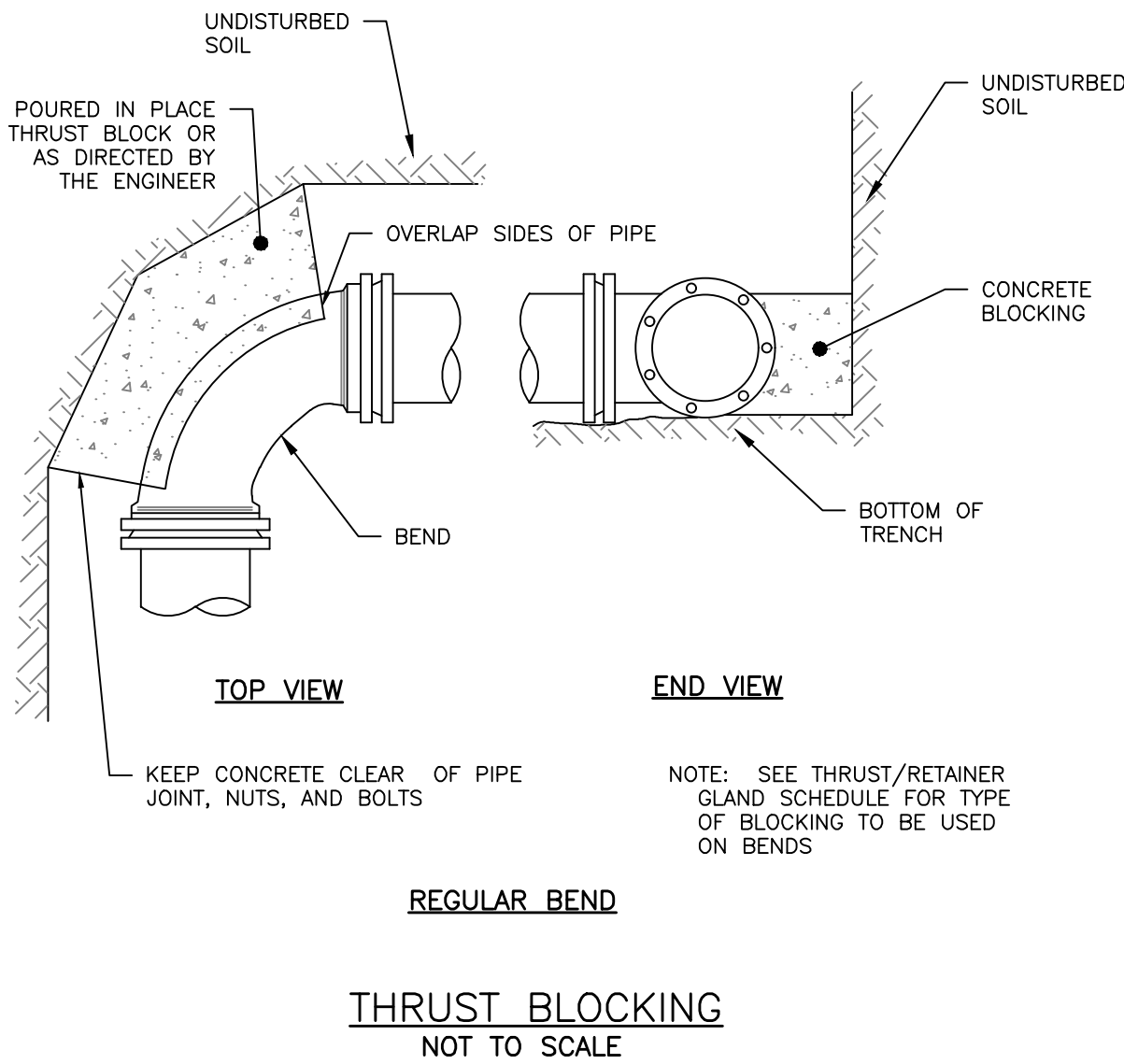
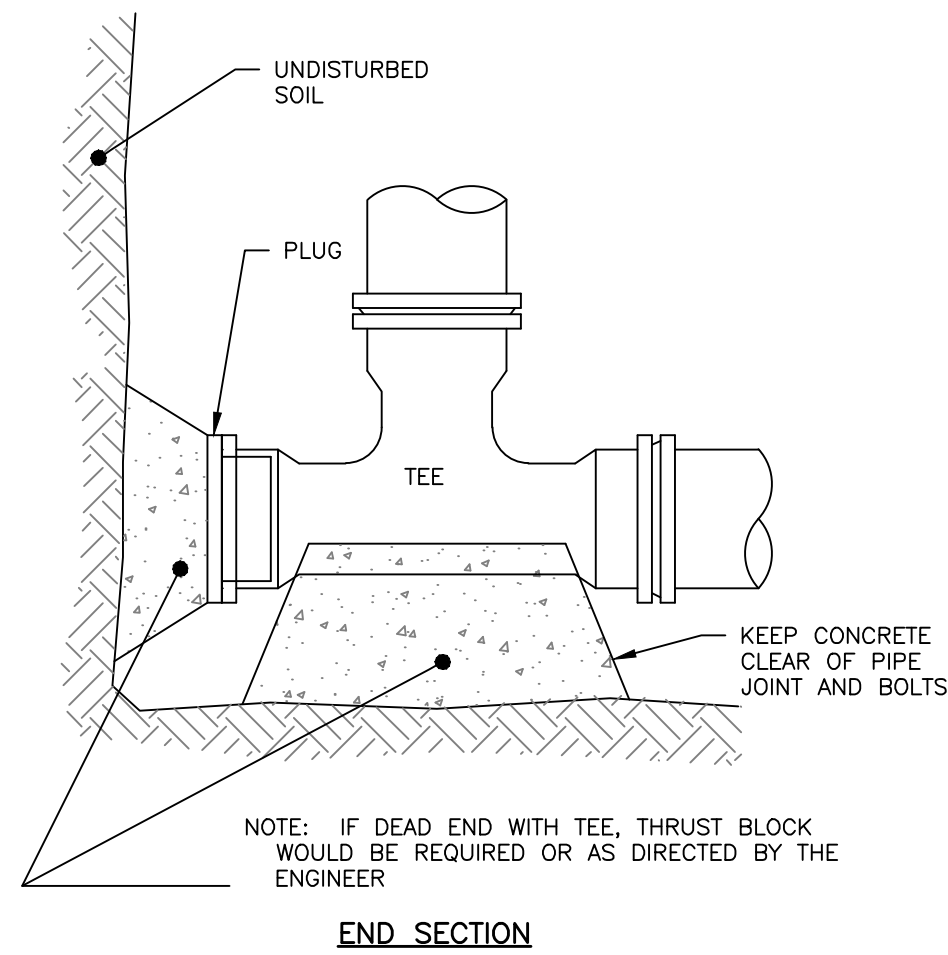
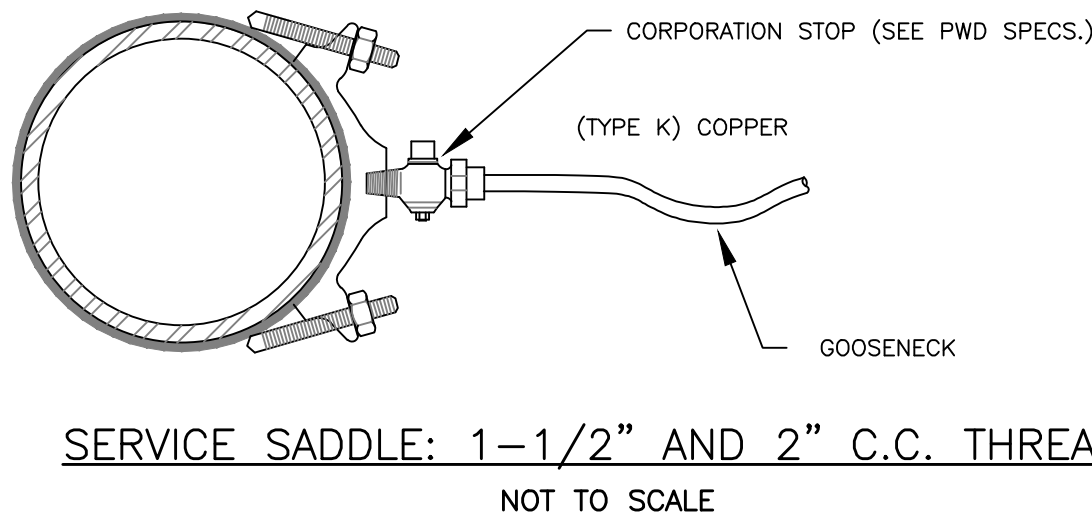
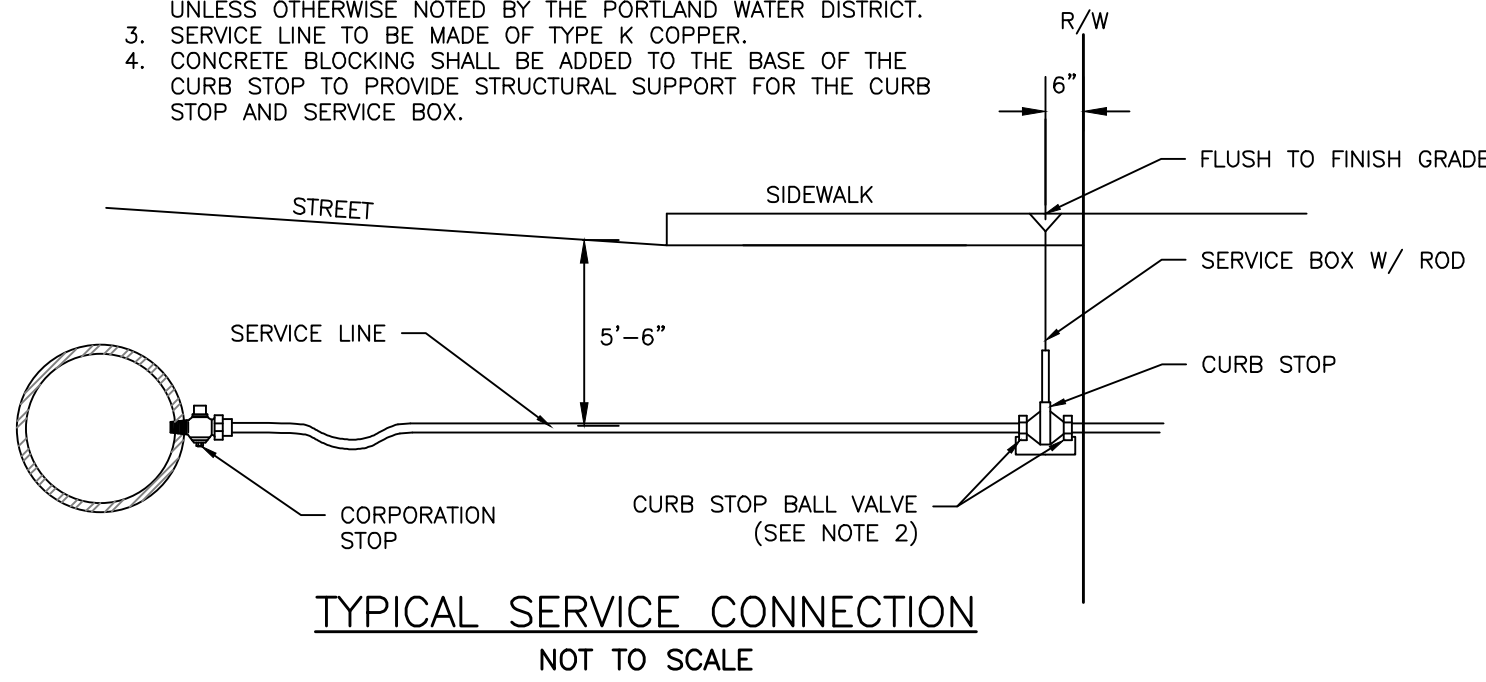
-
- PAVED AREAS
- UNPAVED AREAS
- GRIND TO PROPER DEPTH
- FINISH GRADE
- 12"
- 6"
- 4" LOAM AND SEED
- HOT BITUMINOUS PAVEMENT GRADING "C"
- HOT BITUMINOUS PAVEMENT GRADING "B"
- AGGREGATE BASE COURSE, CRUSHED, TYPE "B"
- SEE PLANS AND DETAILS FOR PIPE SIZES
- HALF OF MAX. PAVEMENT WIDTH PLUS 12" FOR TRENCH PAVEMENT REPLACEMENT
- AGGREGATE SUBBASE COURSE, GRAVEL, TYPE "D"
- COMMON BACKFILL FROM TRENCH EXCAVATION (INCIDENTAL) OR GRANULAR BORROW (IF ORDERED)
- 12"
- 3/4" CRUSHED STONE OR SAND (MDOT 703.33 TYPE C)
- 3/4" CRUSHED STONE FOR PIPE BEDDING TO PIPE SPRINGLINE
- RIGID INSULATION IN LOCATIONS INDICATED ON PLAN. SEE NOTE 8 FOR THICKNESS.
- 6"
- ESTABLISHED TRENCH PROFILE
- 2" CRUSHED STONE
- VARIES
- A
- B
- TRENCH WIDTH**
- | PIPE DIAMETER (IN) | MAX. TRENCH WIDTH, A (FT) |
|--------------------|---------------------------|
| 4 | 4 |
| 6 | 4 |
| 8 | 4 |
| 10 | 4 |
| 12 | 4 |
| 15 | 4 |
| 18 | 5 |
| 21 | 5 |
| 24 | 5 |

- CITY OF PORTLAND TYPICAL PIPE TRENCH DETAIL
NOT TO SCALE



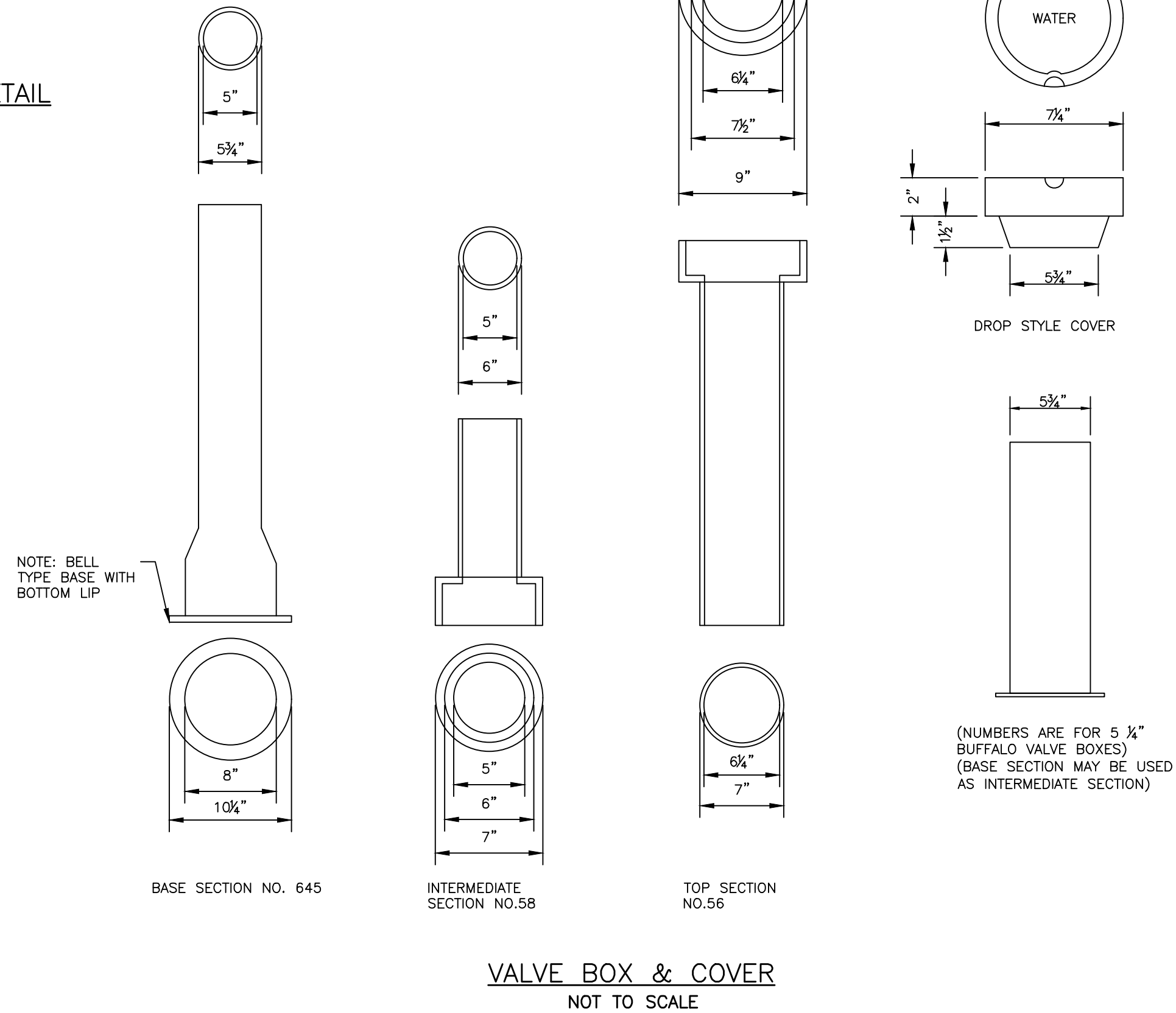
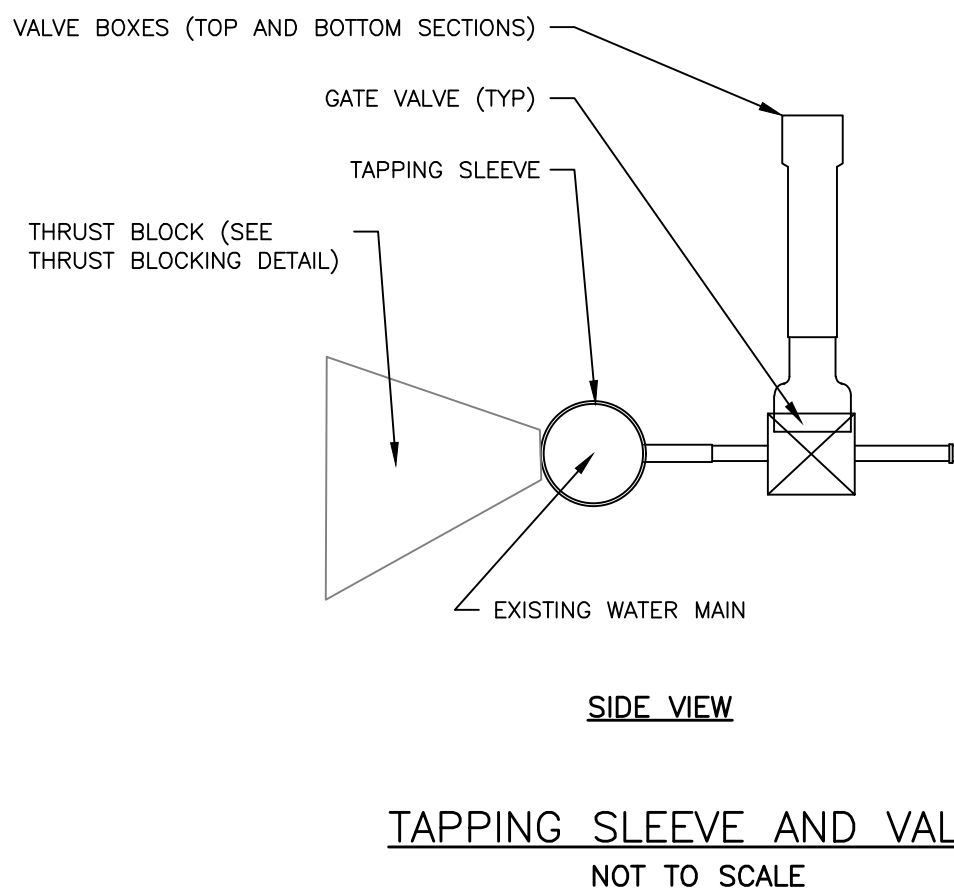
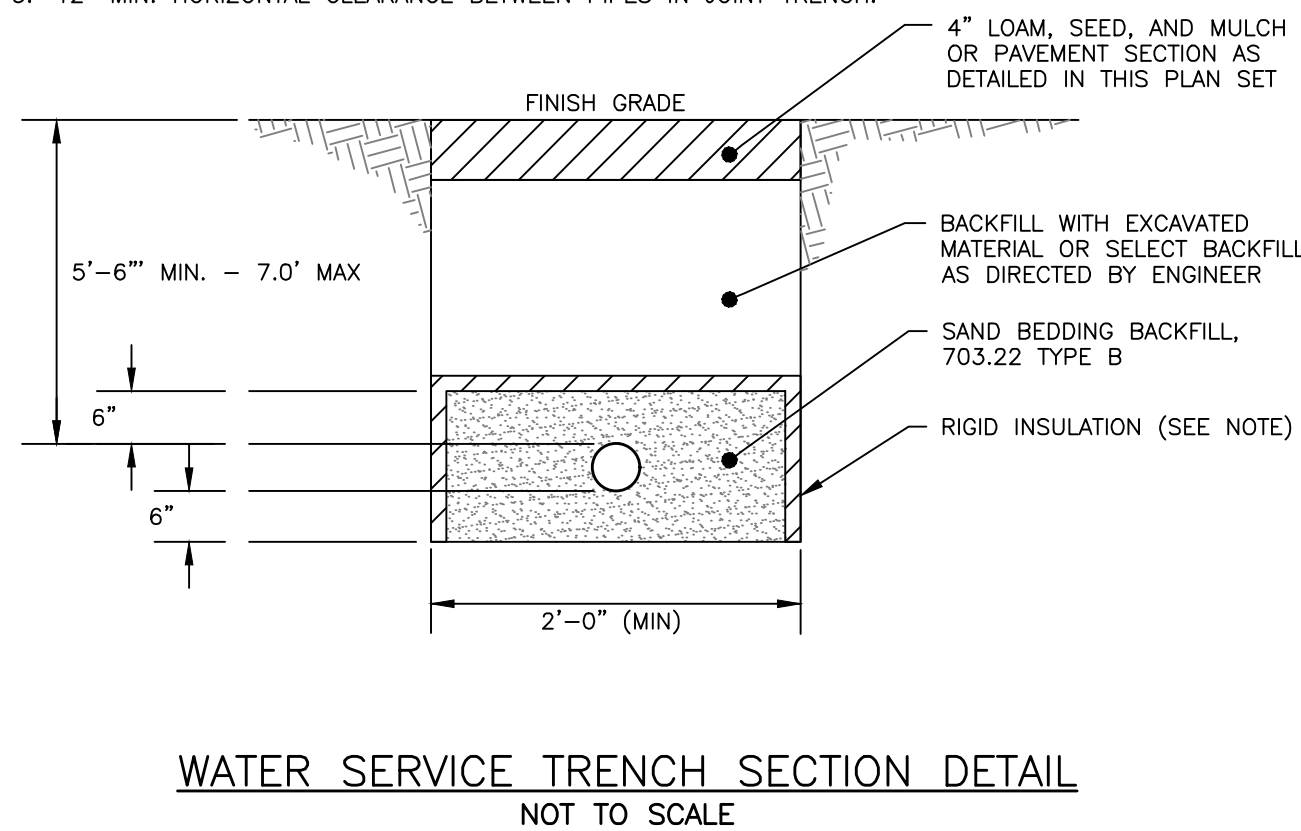
NOTES:

1. ALL MATERIALS AND INSTALLATION PROCEDURES MUST COMPLY WITH THE CITY OF PORTLAND WATER DISTRICT (PWD) SPECIFICATIONS.
2. CURB STOP BALL VALVE TO BE MADE OF COPPER OR BRASS UNLESS OTHERWISE NOTED BY THE PORTLAND WATER DISTRICT.
3. SERVICE LINE TO BE MADE OF TYPE K COPPER.
4. CONCRETE BLOCKING SHALL BE ADDED TO THE BASE OF THE CURB STOP TO PROVIDE STRUCTURAL SUPPORT FOR THE CURB STOP AND SERVICE BOX.

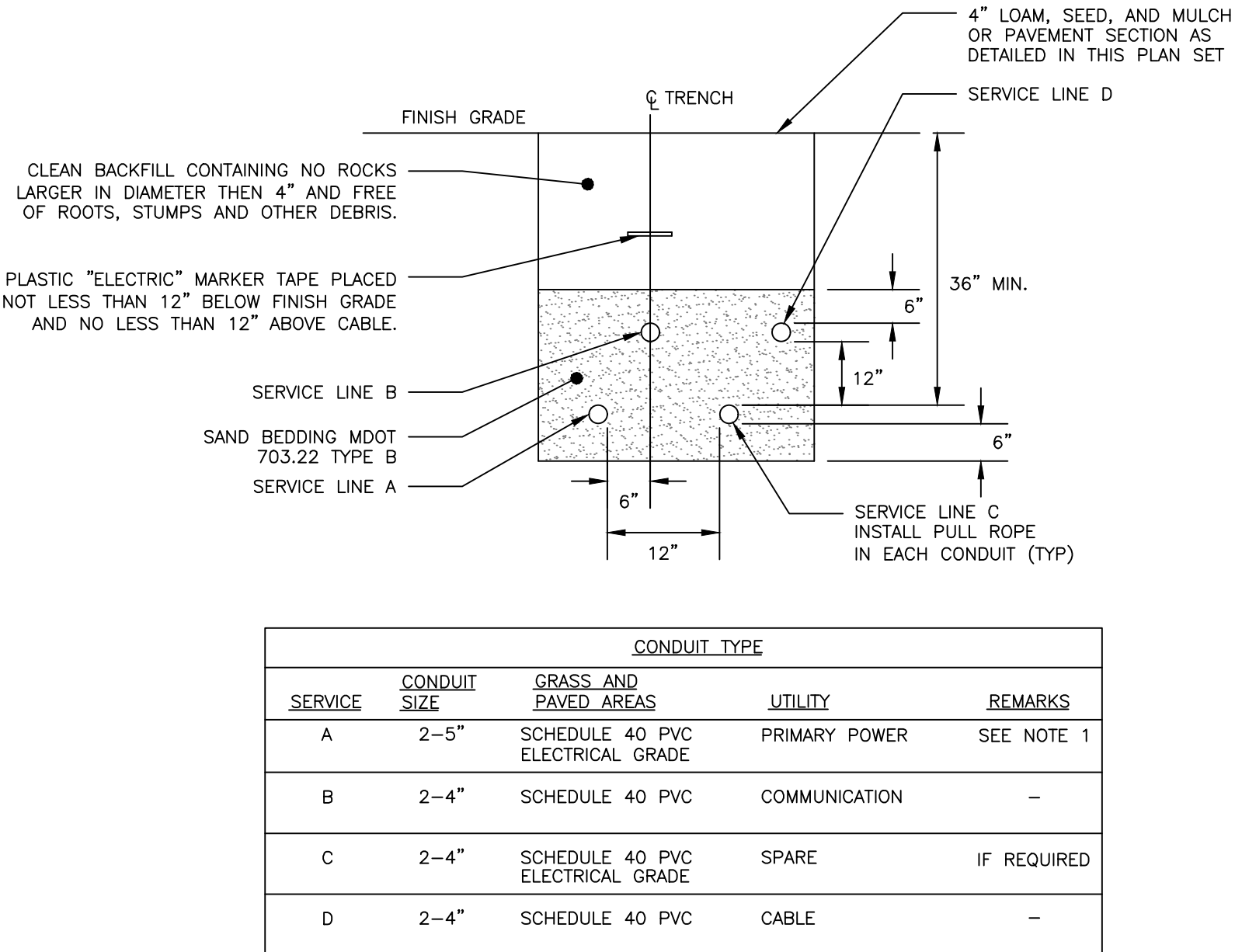


NOTES:

1. THE WATER TRENCH SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SANFORD WATER DISTRICT STANDARD DETAILS & SPECIFICATIONS.
2. IF LESS THAN 5'-6" OF COVER IS POSSIBLE ADD 1 INCH OF "BLUE DOW" RIGID INSULATION FOR EVERY 12" LESS COVER.
3. 12" MIN. HORIZONTAL CLEARANCE BETWEEN PIPES IN JOINT TRENCH.



VALVE BOX & COVER
NOT TO SCALE



NOTES:

1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10" ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS.
2. MINIMUM SEPARATION OF 24 INCHES BETWEEN PRIMARY CABLE/CONDUIT AND GAS LINES SHALL BE MAINTAINED.
3. CONDUITS WITHIN THE CITY RIGHT-OF-WAY SHALL BE ENCASED IN CONCRETE.

UTILITY TRENCH - PRIMARY AND SECONDARY POWER,
TELEPHONE, AND CABLE
NOT TO SCALE

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
11/17/23	11/17/23

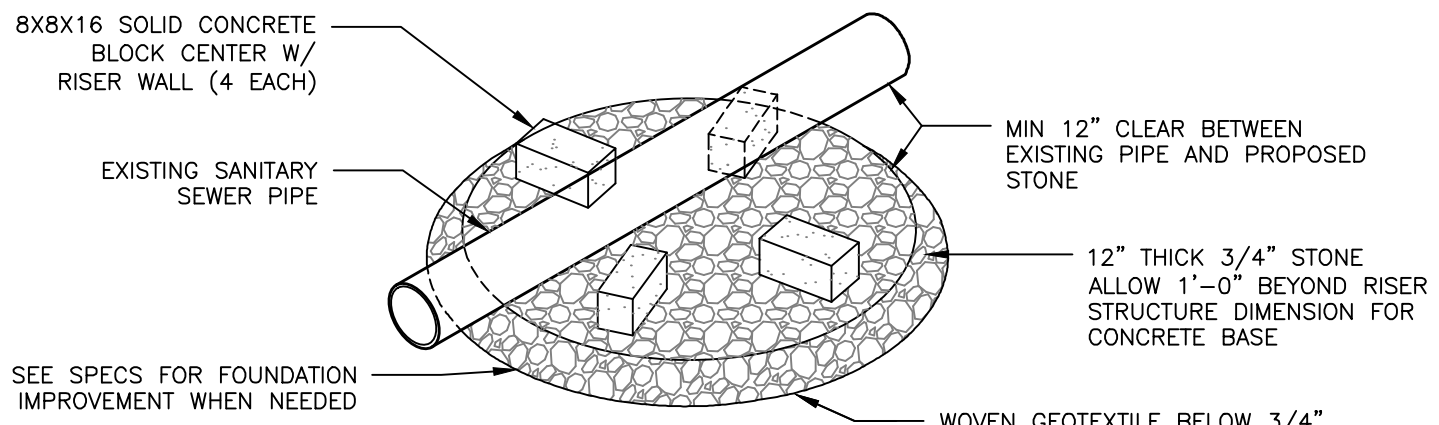
DRAWING NAME:	PROJECT NAME:	CLIENT:
UTILITY DETAILS - 2	64 PINE STREET REDEVELOPMENT 64 PINE STREET, PORTLAND, MAINE 04102	64 PINE STREET LLC 104 WASHINGTON AVENUE PORTLAND, MAINE 04101

FILE:	JN:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
1109.4_CIVIL	1109.4	AS NOTED	ZMS	BJK	SJL

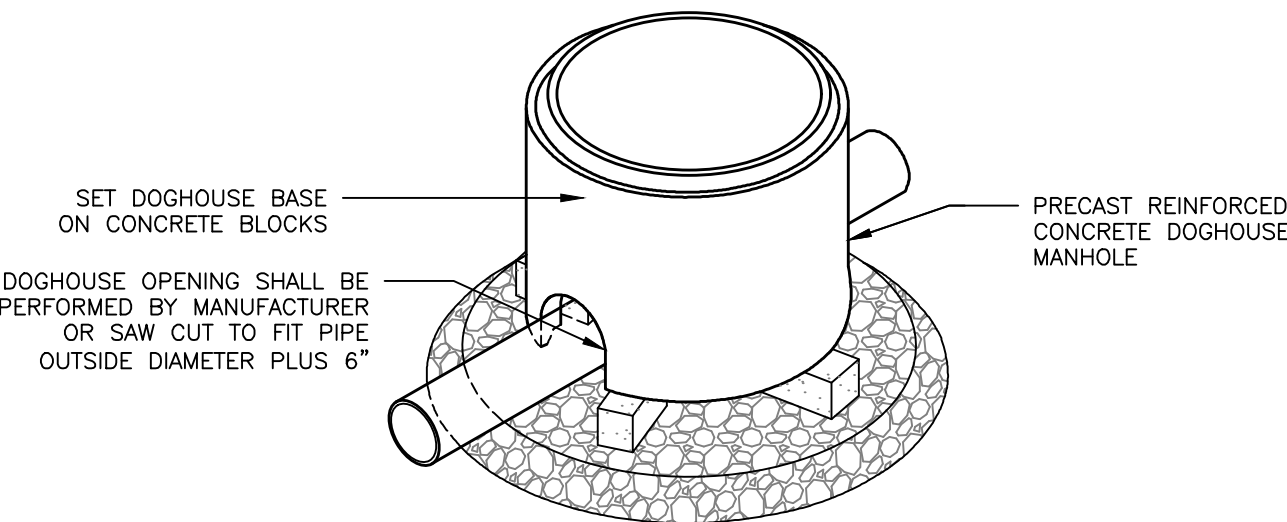
ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104 (207) 775-2655

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104 (207) 775-2655

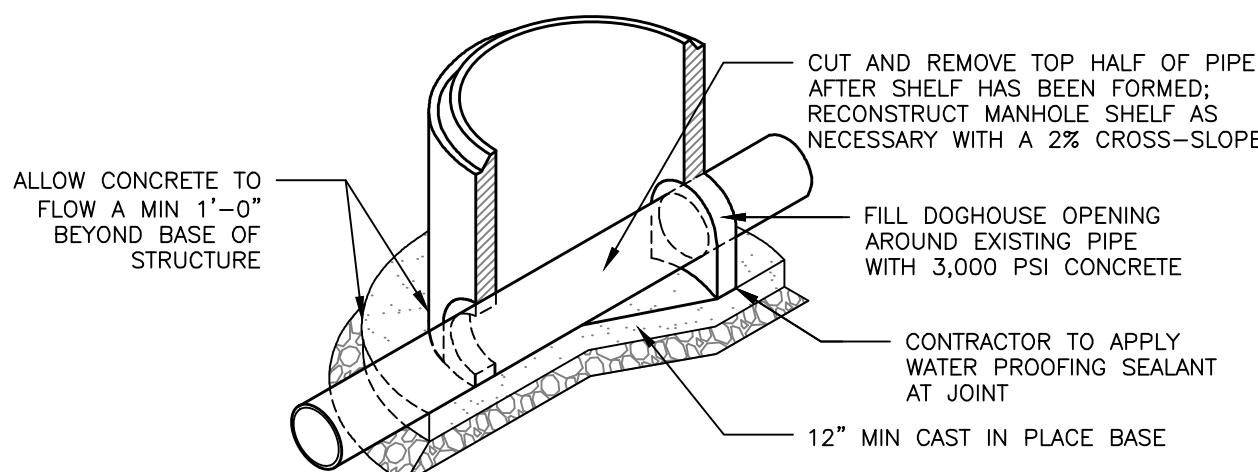
PERMITTING NOT ISSUED FOR CONSTRUCTION
C-42



BASE ISOMETRIC VIEW



RISER ISOMETRIC VIEW



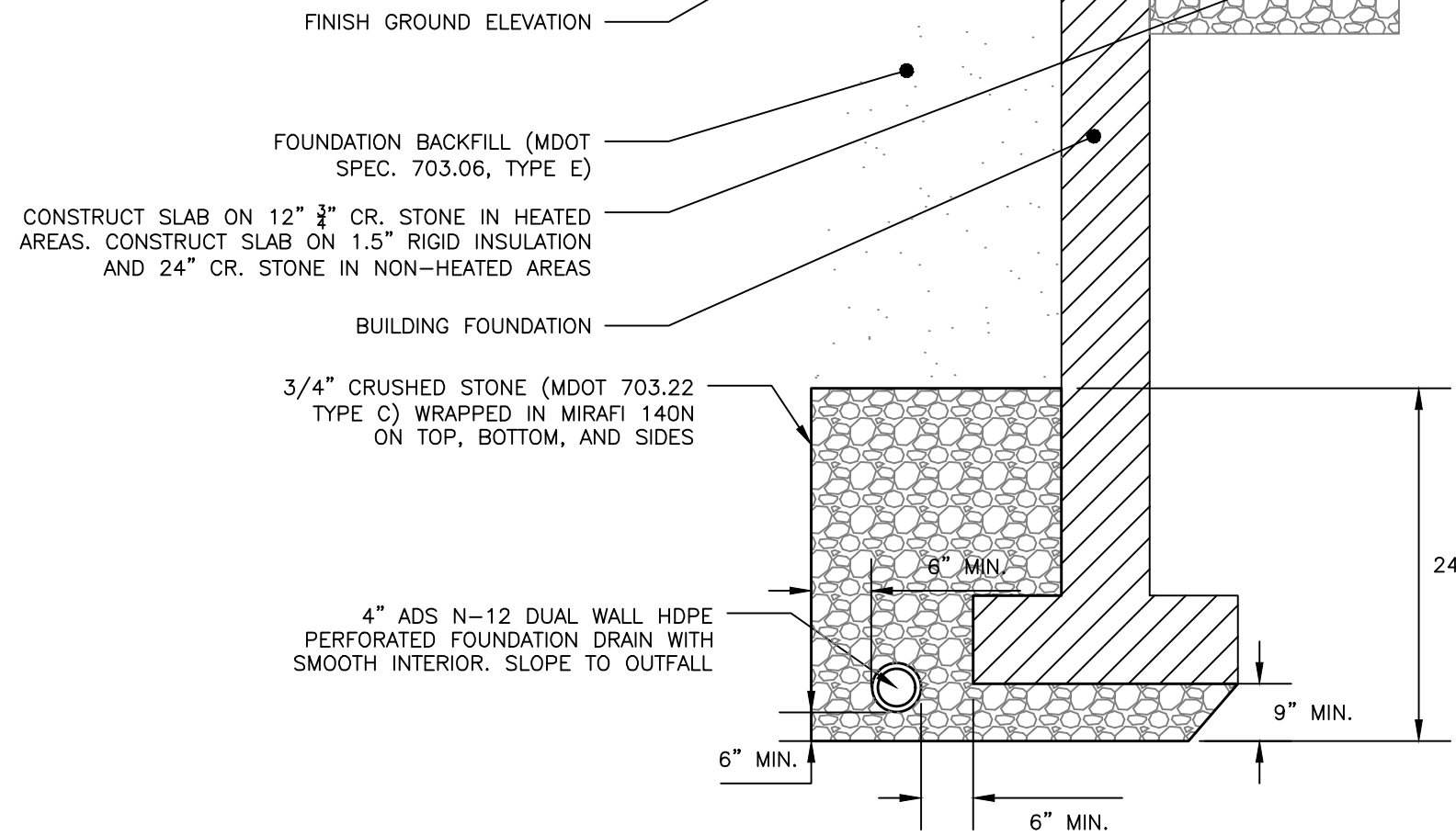
FOUNDATION SECTION VIEW

- NOTES:
1. UNLESS OTHERWISE SPECIFIED, CONCRETE SHALL BE 4000 PSI @28 DAYS.
 2. RECONSTRUCT INTERIOR MANHOLE INVERT AS NECESSARY TO ACCOMMODATE NEW PIPE.
 3. THIS DETAIL IS INTENDED TO PROVIDE ADDITIONAL INFORMATION TO THE CONTRACTOR IN REGARDS TO THE CONNECTION OF THE DOGHOUSE MANHOLE BASE TO THE EXISTING SANITARY SEWER SYSTEM. MANHOLE INSTALLATION INFORMATION NOT EXPLICITLY REFERRED TO IN THIS DETAIL SHALL BE PER THE "STANDARD PRECAST SEWER MANHOLE" DETAIL.

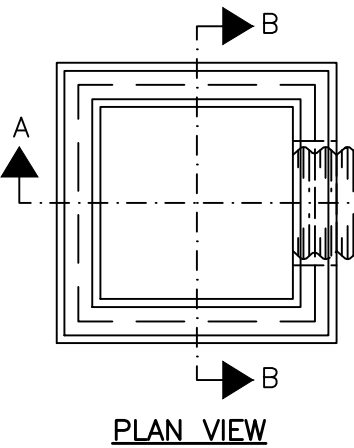
DOGHOUSE MANHOLE DETAIL
NOT TO SCALE

NOTES:

1. REFER TO THE BUILDING ARCHITECTS PLANS FOR THE BUILDING FOUNDATION, BACKFILL, ROOF DRAIN, SIDEWALK AND OTHER DETAILS.
2. PERFORATIONS IN UNDERDRAIN PIPE SHALL BE ORIENTED DOWN.
3. INSTALL STONE DRIP EDGE IN A LOCATIONS SUBJECT TO ROOF RUNOFF. WIDTH SHALL BE A MIN. 12" BEYOND THE PROJECTION OF THE ROOF EYE.
4. FOUNDATION WALL FOOTINGS SHALL BE CONSTRUCTED TO A MIN. DEPTH OF 4 FT BELOW ADJACENT FINISH GRADE. REFER TO STRUCTURAL ENGINEERS PLANS FOR ADDITIONAL INFORMATION AND MIN. REQUIREMENTS.



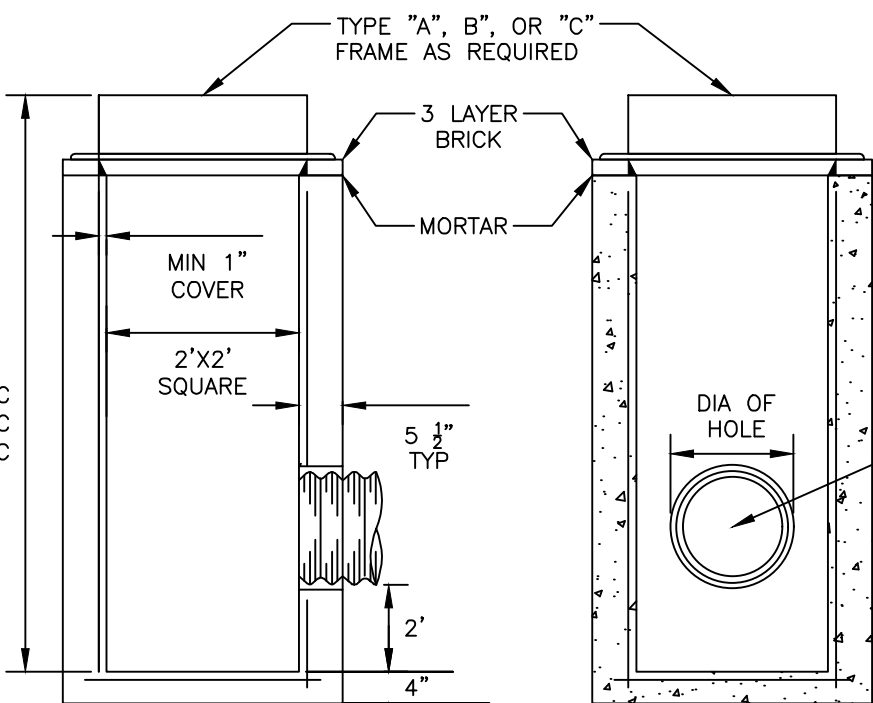
FOUNDATION DRAIN DETAIL
NOT TO SCALE



PLAN VIEW

NOTES:

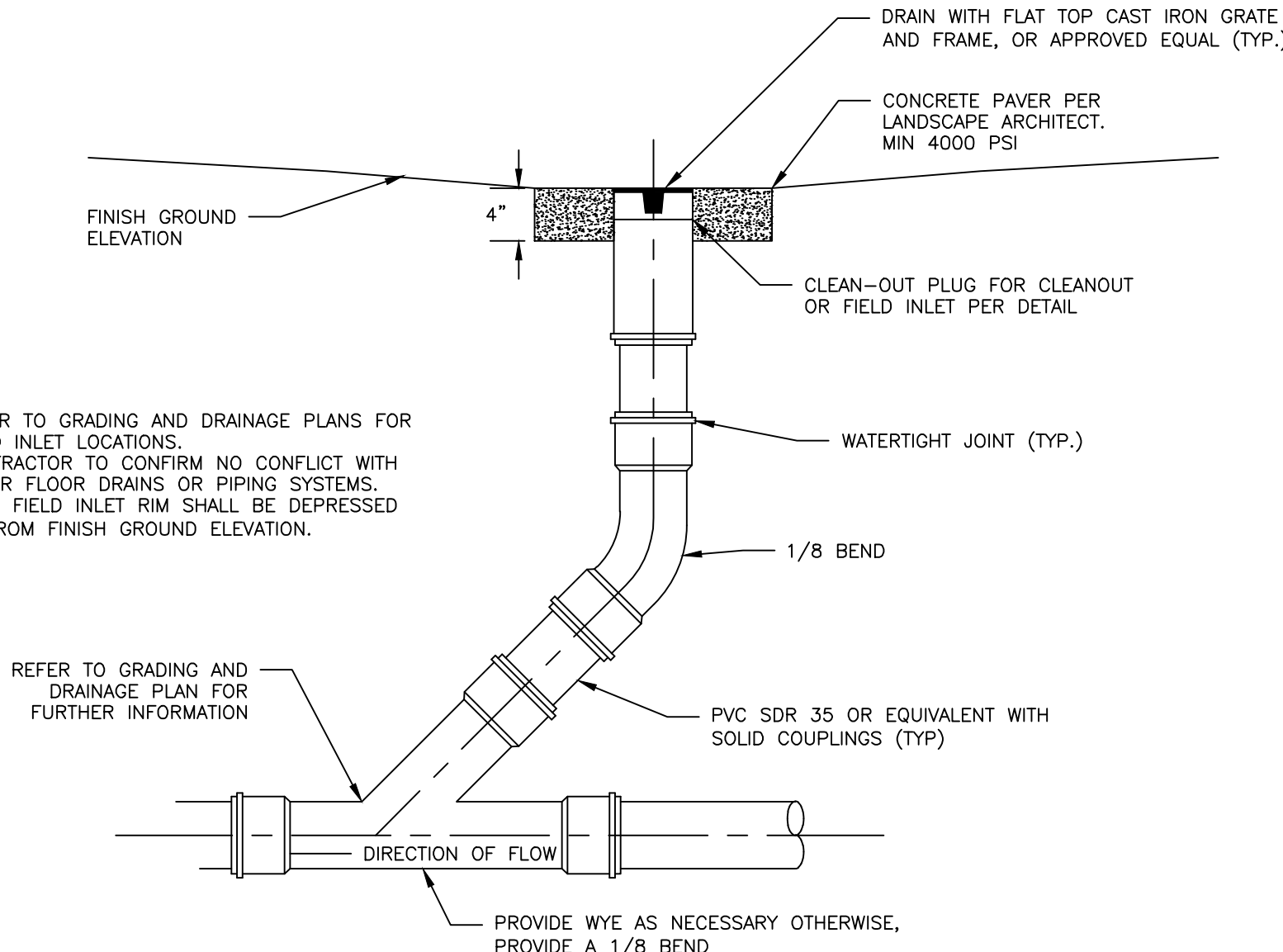
1. ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK FRAME AND GRATE TO BE PRECAST AS A SINGLE PORTLAND CEMENT CONCRETE UNIT, #4 REBAR MINIMUM 8" O.C. OR EQUIVALENT WITH ENGINEER OF RECORD'S APPROVAL.
2. FIBER-REINFORCED CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
3. DESIGN LOAD FOR H-20 WHEEL LOAD.
4. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
5. REINFORCE TO 0.15 IN SQ/LF. JOINTS SEALED WITH RAM-NEK GASKET OR EQUAL.
6. POLYPROPYLENE STEPS 12" O.C.
- 6.1. STEPS SHALL BE OFFSET AT NO MORE THAN 12" ON CENTER, STARTING FROM THE TOP OF THE MANHOLE FRAME AND SHALL BE FORGED ALUMINUM OR COPOLYMER POLYPROPYLENE STEPS.
7. EXTERIOR WATERPROOFING.
8. FLEXIBLE WATERTIGHT PIPE BOOTS TO CONFORM TO ASTM C-923.
9. SHALL MEET THE APPLICABLE TOWN OF SCARBOROUGH STANDARDS.
10. CATCH BASIN SHALL BE AS MANUFACTURED BY PRECAST OF MAINE OR APPROVED EQUAL.



SECTION A-A

SECTION B-B

24" SQUARE CATCH BASIN "TYPE F"
NOT TO SCALE



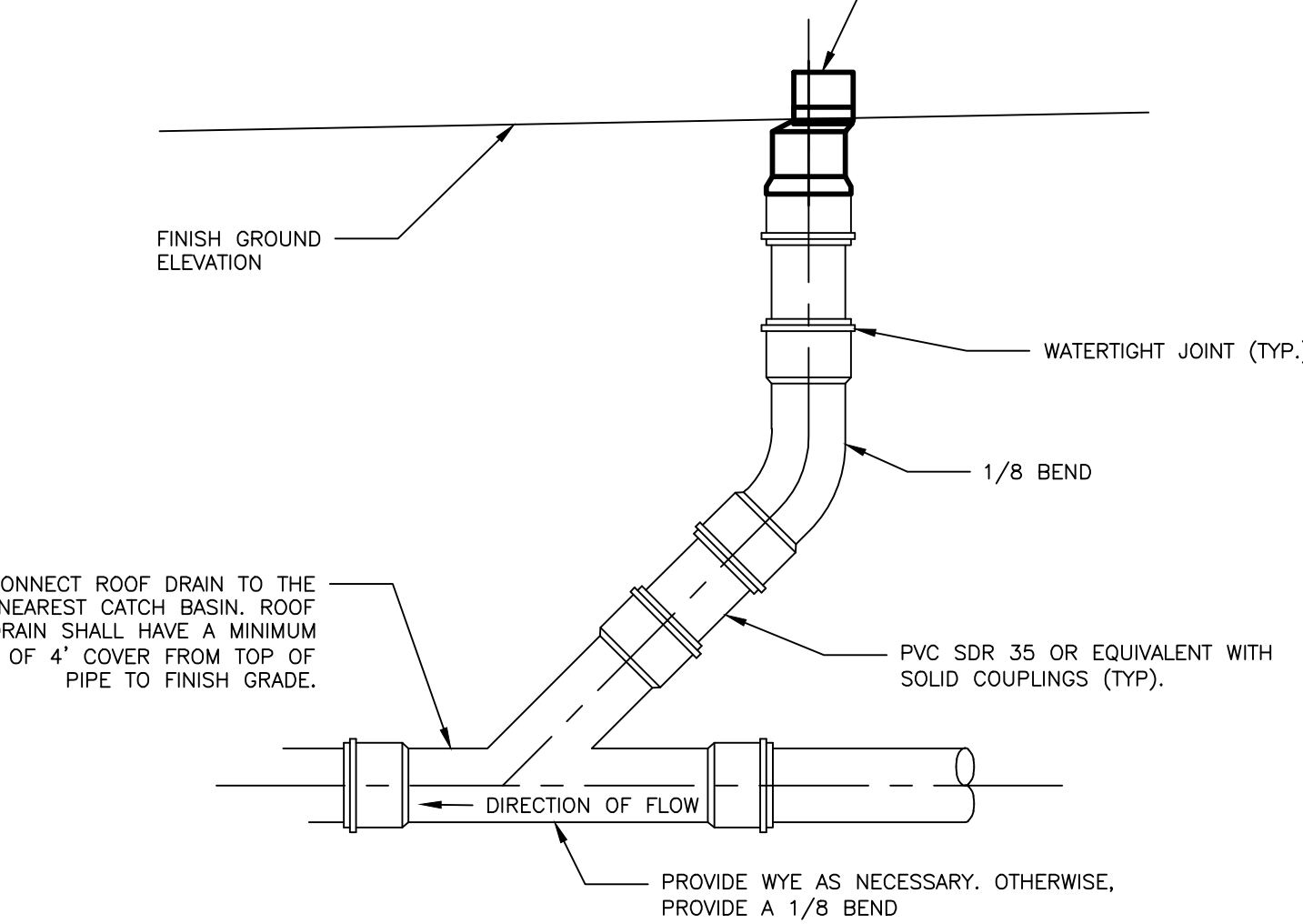
FLOOR DRAIN / CLEANOUT IN THE TRAVEL WAY
NOT TO SCALE

NOTES:

1. REFER TO GRADING AND DRAINAGE PLANS FOR FIELD INLET LOCATIONS.
2. CONTRACTOR TO CONFIRM NO CONFLICT WITH OTHER FLOOR DRAINS OR PIPING SYSTEMS.
3. EACH FIELD INLET RIM SHALL BE DEPRESS 1" FROM FINISH GROUND ELEVATION.

NOTES:

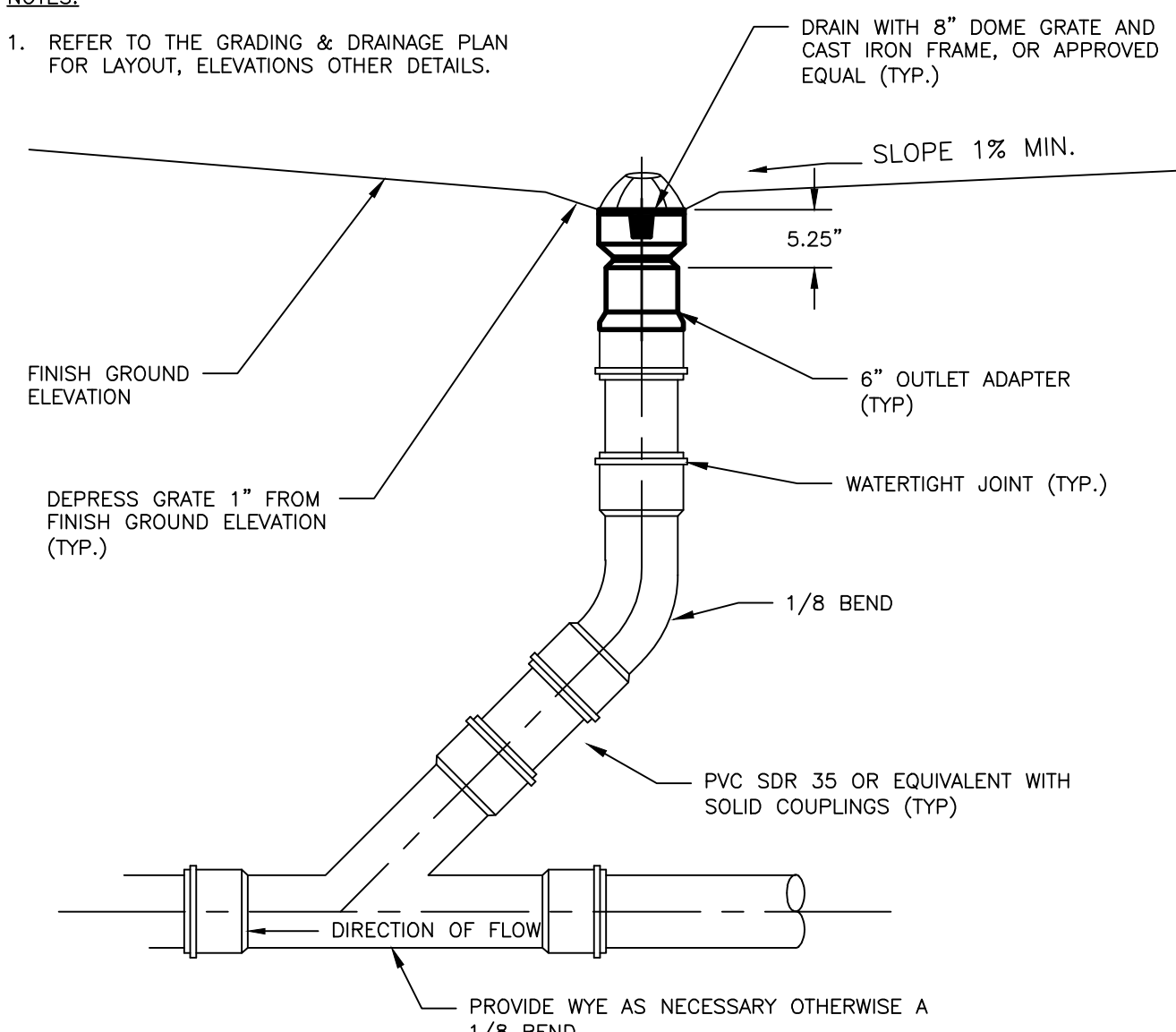
1. CONTRACTOR RESPONSIBLE FOR THE INSTALLATION OF THE ROOF DRAIN, ADAPTER AND COVER, GUTTERS, AND DOWNSPOUTS, UNLESS OTHERWISE DIRECTED.
2. ALL PIPES SHALL BE OF UNIFORM SIZE.



ROOF DRAIN DETAIL
NOT TO SCALE

NOTES:

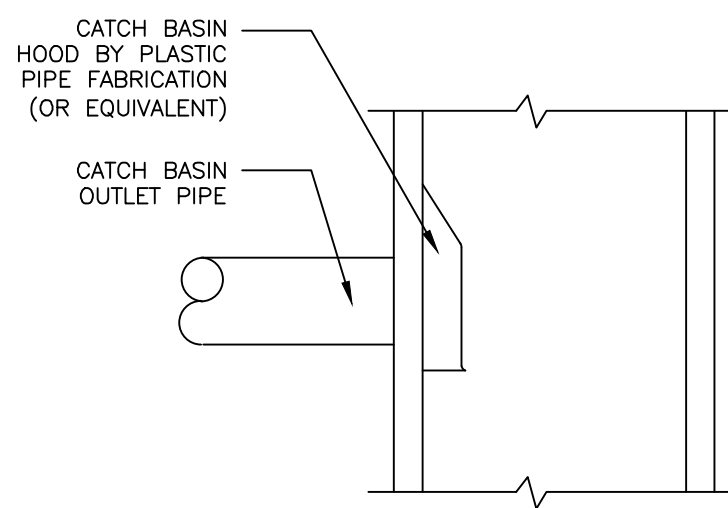
1. REFER TO THE GRADING & DRAINAGE PLAN FOR LAYOUT, ELEVATIONS OTHER DETAILS.



FIELD INLET BEEHIVE DRAIN
NOT TO SCALE

NOTES:

1. INSTALL HOOD ON ALL OUTLETS 24" OR LESS.
2. PREFERRED STYLE DESIGNED TO ELIMINATE CEMENTING OF THE TRAP.
3. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION REQUIREMENTS



CATCH BASIN HOOD DETAIL
NOT TO SCALE

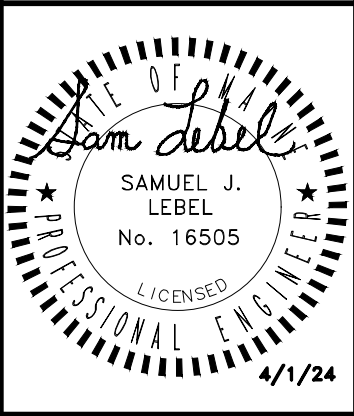
PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL

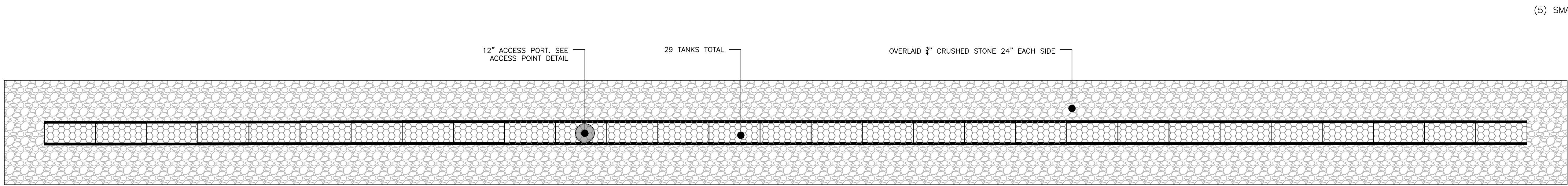
DRAINAGE DETAILS	64 PINE STREET REDEVELOPMENT	64 PINE STREET, PORTLAND, MAINE 04012	64 PINE STREET LLC	104 WASHINGTON AVENUE PORTLAND, MAINE 04101
DRAWING NAME:	PROJECT NAME:	PROJECT NAME:	CLIENT	

ACORN ENGINEERING, INC.	ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104	PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655	(207) 775-2655

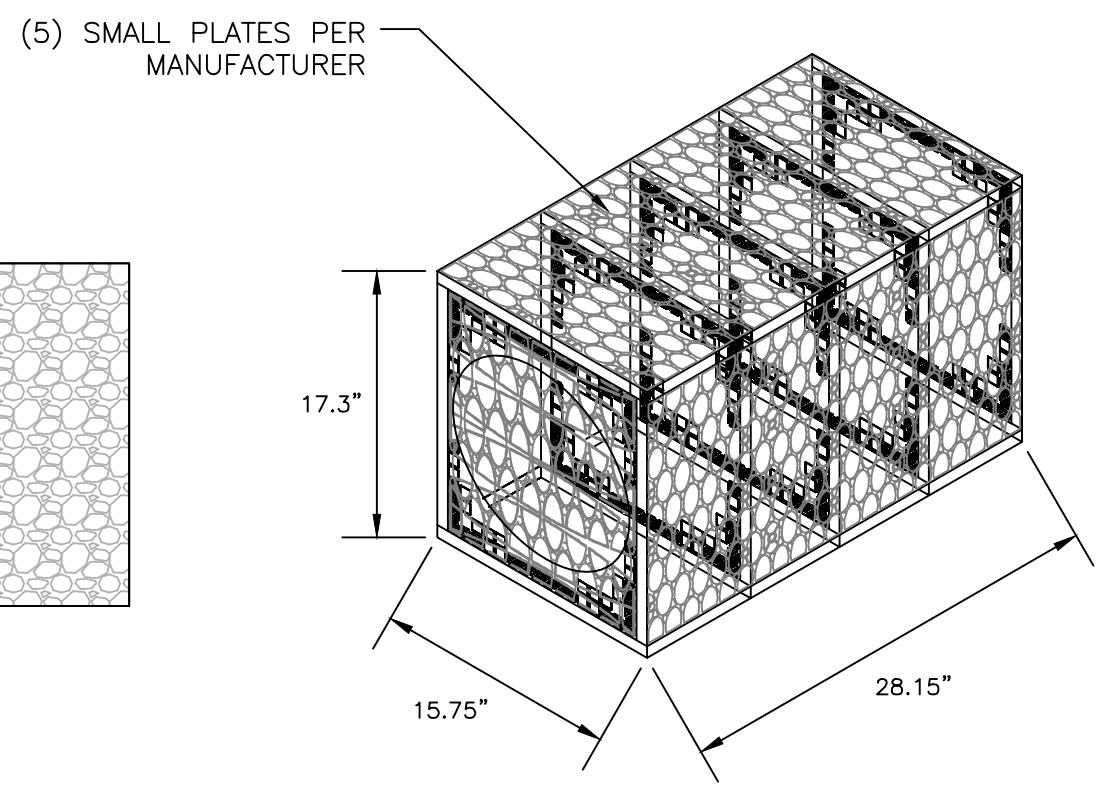
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JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
C-43



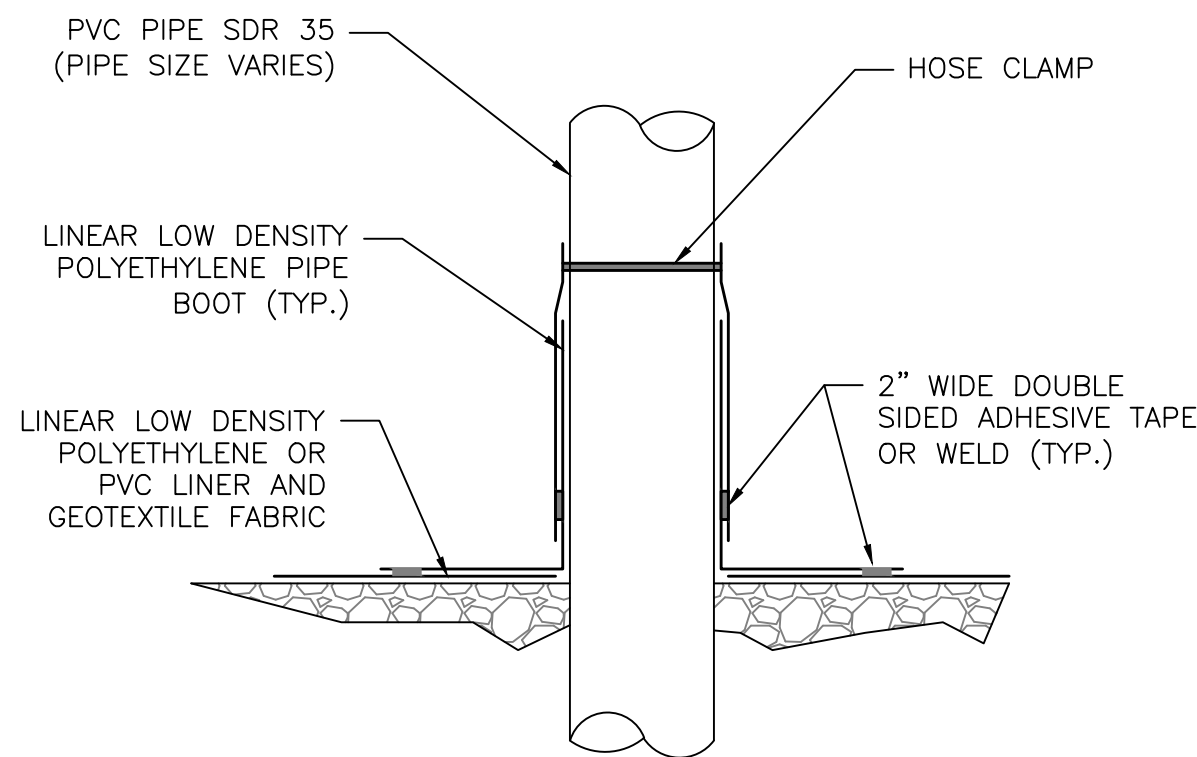
PLAN VIEW



ISOMETRIC VIEW

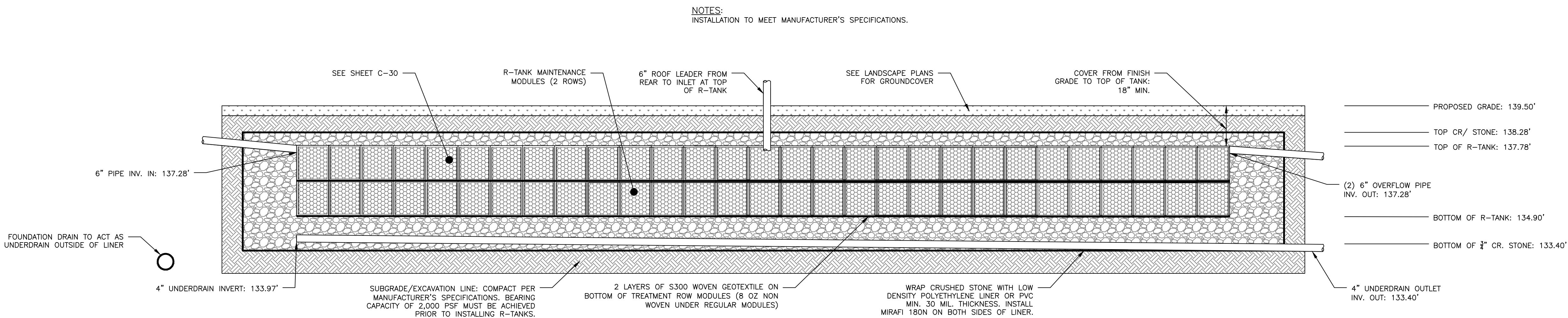
R-TANK MODULE DETAIL

NOT TO SCALE



TYPICAL PIPE PENETRATION DETAIL

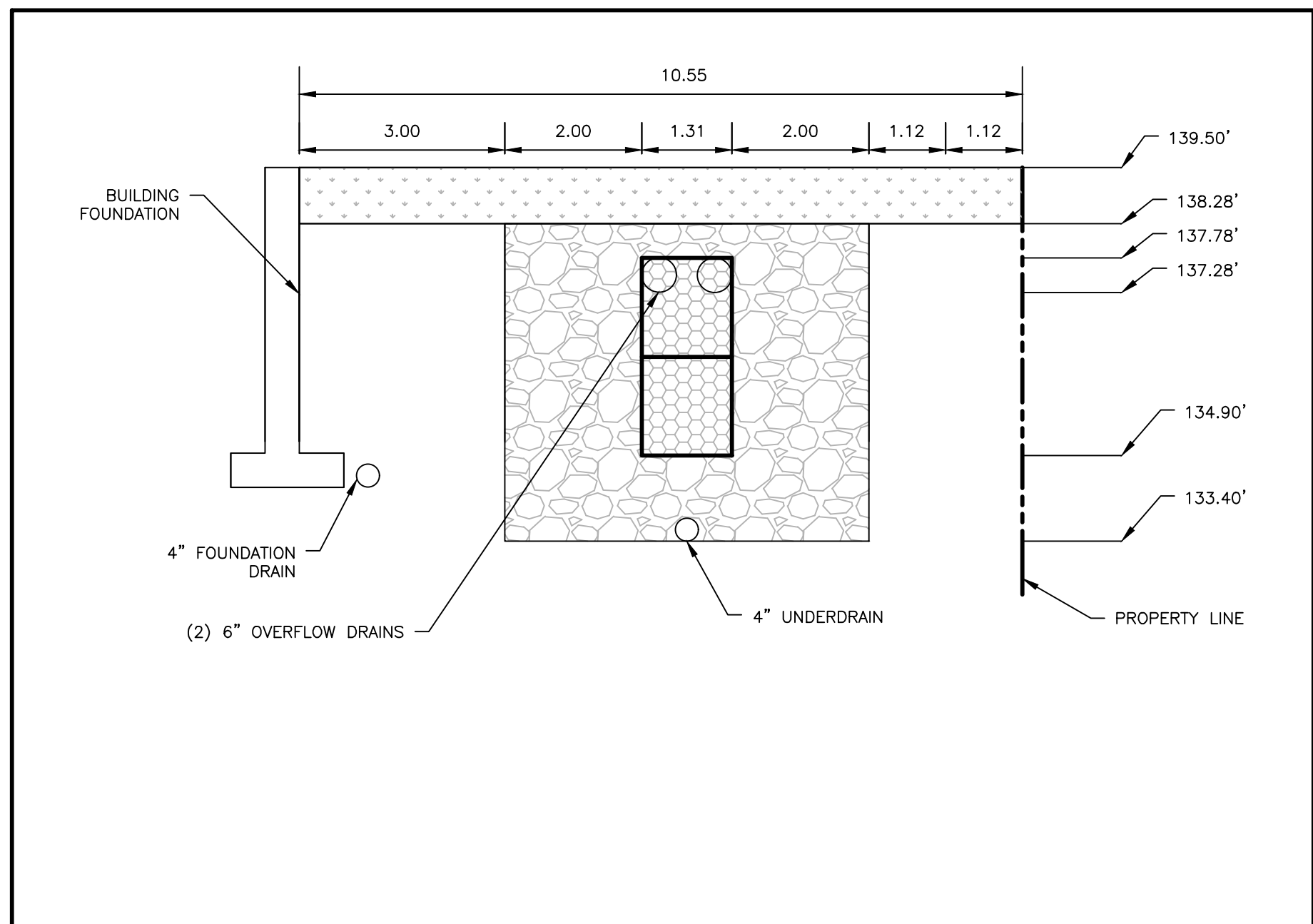
NOT TO SCALE



SECTION A-A

FOCAL POINT RAIN GARDEN WITH R-TANK TREATMENT ROW

NOT TO SCALE

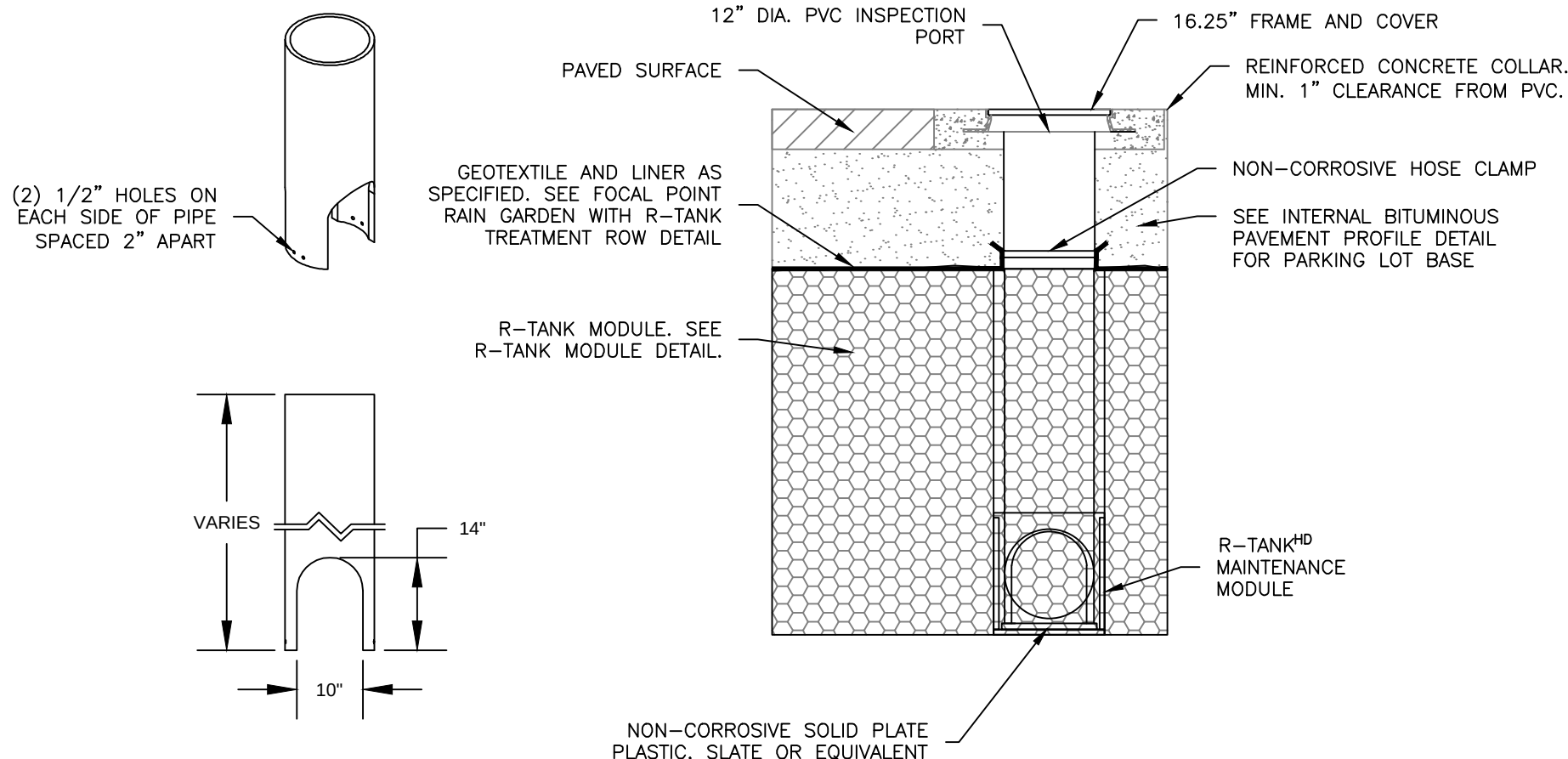


SECTION B-B

INSET OF DRAINAGE AREA IN BACK OF LOT

SCALE 1:2

- NOTES
1. THE INSPECTION PORT IS USED IN THE MAINTENANCE MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION.
 2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH MAINTENANCE ROW VIA THE ACCESS STRUCTURE FROM EITHER END AS NEEDED.
 3. R-TANK[®] MAY BE USED IN TRAFFIC APPLICATIONS.
 4. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
 5. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.



ACCESS PORT WITH SOLID COVER

NOT TO SCALE

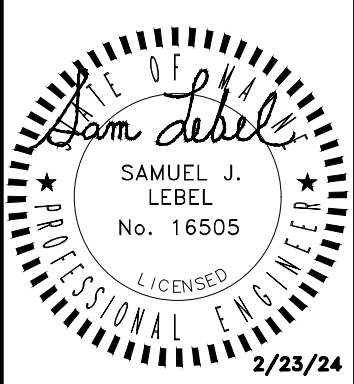
PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL

DRAWING NAME:	FOCAL POINT DETAILS
	64 PINE STREET REDEVELOPMENT
PROJECT NAME:	64 PINE STREET, PORTLAND, MAINE 04012
CLIENT:	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

	A C O R N									
	ENGINEERING, INC.									
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR UNAUTHORIZED, SHALL BE THE RESPONSIBILITY OF THE USER AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.										
ACORN ENGINEERING, INC. 04104 PO BOX 3372, PORTLAND MAINE (207) 775-2655										

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.

C-44

1.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

AS PART OF THE SITE DEVELOPMENT, THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE IMPLEMENTED. DEVICES SHALL BE INSTALLED AS DESCRIBED IN THIS REPORT OR WITHIN THE PLAN SET. SEE THE MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION; BEST MANAGEMENT PRACTICES FOR FURTHER REFERENCE.

1.1 TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE PLANNED FOR THE PROJECT'S CONSTRUCTION PERIOD:

- 1.1.1 CRUSHED STONE STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT ALL ACCESS POINTS TO THE PROJECT SITE WHERE THERE ARE DISTURBED AREAS. THE FOLLOWING SPECIFICATIONS SHALL BE FOLLOWED AT A MINIMUM:
 - STONE SIZE SHALL BE 2-3 INCHES, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
 - THE THICKNESS OF THE ENTRANCE STONE LAYER SHALL BE NO LESS THAN 6 INCHES.
 - THE ENTRANCE SHALL NOT BE LESS THAN 20 FEET WIDE, HOWEVER NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS. THE LENGTH SHALL NOT BE LESS THAN 50 FEET IN LENGTH.
 - GEOTEXTILE FABRIC (WOVEN OR NON-WOVEN) SHALL BE PLACED OVER THE ENTIRE ENTRANCE AREA.
 - THE ENTRANCE/EXIT SHALL BE MAINTAINED TO THE EXTENT THAT IT WILL PREVENT THE TRACKING OF SEDIMENT ONTO PUBLIC ROADWAYS.
- 1.1.2 SILTATION FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED DOWN GRADIENT OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL PERMANENT STABILIZATION IS ACHIEVED. THE SILT FENCE OR EROSION CONTROL BERM SHALL BE INSTALLED PER THE DETAILS PROVIDED IN THE PLAN SET AND INSPECTED BEFORE AND IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE LINE OR BERM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THE FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.
- 1.1.3 HAY MULCH INCLUDING HYDRO SEEDING IS INTENDED TO PROVIDE COVER FOR DENuded OR SEEDED AREAS UNTIL REVEGETATION IS ESTABLISHED. MULCH PLACED BETWEEN APRIL 15TH AND NOVEMBER 1ST ON SLOPES OF LESS THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. MULCH PLACED BETWEEN NOVEMBER 1ST AND APRIL 15TH ON SLOPES EQUAL TO OR STEEPER THAN 8 PERCENT AND EQUAL TO OR FLATTER THAN 2:1 SHALL USE MATS OR FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.
- 1.1.4 AT ANY TIME OF THE YEAR, ALL SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH DOUBLE NET EROSION CONTROL BLANKET BIONET SC150BN BY NORTH AMERICAN GREEN OR APPROVED EQUAL, OR EROSION CONTROL MIX SLOPE PROTECTION AS DETAILED WITHIN THE PLANS.
- 1.1.5 PINE STREET SHALL BE SWEEPED TO CONTROL MUD AND DUST FROM THE CONSTRUCTION SITE AS NECESSARY. ADD ADDITIONAL STONE TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.
- 1.1.6 DURING DEMOLITION, CLEARING AND GRUBBING OPERATIONS, STONE CHECK DAMS SHALL BE INSTALLED AT ANY AREAS OF CONCENTRATED FLOW. THE MAXIMUM HEIGHT OF THE CHECK DAM SHALL NOT EXCEED 2 FEET. THE CENTER OF THE CHECK DAM SHALL BE 6 INCHES BELOW THE OUTER EDGES OF THE DAM. THE CONTRACTOR SHALL MULCH THE SLOPE SLOPES AND INSTALL STONE CHECK DAMS FOR ALL NEWLY EXCAVATED DITCH LINES WITHIN 24 HOURS OF THEIR CREATION.
- 1.1.7 SILT FENCE STAKE SPACING SHALL NOT EXCEED 6 FEET UNLESS THE FENCE IS SUPPORTED WITH 14 GAUGE WIRE IN WHICH CASE THE MAXIMUM SPACING SHALL NOT EXCEED 10 FEET. THE SILT FENCE SHALL BE "TOED" INTO THE GROUND.
- 1.1.8 STORMDRAIN INLET PROTECTION SHALL BE PROVIDED TO STORMDRAINS THROUGH THE USE OF ANY OF THE FOLLOWING: HAY BALE DROP INLET STRUCTURES, SILT FENCE DROP INLET SEDIMENT FILTER, GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER, OR CURB INLET SEDIMENT FILTER. BARRIERS SHALL BE INSPECTED AFTER EVERY RAINFALL EVENT AND REPAIRED AS NECESSARY. SEDIMENTS SHALL BE REMOVED WHEN ACCUMULATION HAS REACHED 1/2 THE DESIGN HEIGHT.
- 1.1.9 DUST CONTROL SHALL BE ACCOMPLISHED BY THE USE OF ANY OF THE FOLLOWING: WATER, CALCIUM CHLORIDE, STONE, OR AN APPROVED MDEP PRODUCT. DUST CONTROL SHALL BE APPLIED AS NEEDED TO ACCOMPLISH DUST CONTROL.
- 1.1.10 TEMPORARY LOAM, SEED, AND MULCHING SHALL BE USED IN AREAS WHERE NO OTHER EROSION CONTROL MEASURE IS USED. APPLICATION RATES FOR SEEDING ARE PROVIDED AT THE END OF THIS REPORT.
- 1.1.11 STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF FORMATION UNLESS A SCHEDULED RAIN EVENT OCCURS PRIOR TO THE 7 DAY WINDOW, IN WHICH CASE THE STOCKPILE SHALL BE STABILIZED PRIOR TO THE RAIN EVENT. METHODS OF STABILIZATION SHALL BE MULCH, EROSION CONTROL MIX, OR EROSION CONTROL BLANKETS/MATS. SILT FENCE OR A WOOD WASTE COMPOST FILTER BERM SHALL BE PLACED DOWNHILL OF ANY SOIL STOCKPILE LOCATION.
- 1.1.12 FOR DISTURBANCE BETWEEN NOVEMBER 1 AND APRIL 15, PLEASE REFER TO WINTER STABILIZATION PLAN IN THIS REPORT AND THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR FURTHER INFORMATION.
- 1.1.13 IT IS OF THE UTMOST IMPORTANCE THAT STORMWATER RUNOFF AND POTENTIAL SEDIMENT FROM THE CONSTRUCTION SITE BE DIVERTED AROUND THE PROPOSED UNDERDRAINS UNTIL THE TRENCH IS BACKFILLED.

1.2 PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES ARE INTENDED FOR POST DISTURBANCE AREAS OF THE PROJECT.

- 1.2.1 ALL DISTURBED AREAS DURING CONSTRUCTION, NOT SUBJECT TO OTHER PROPOSED CONDITIONS, SHALL RECEIVE A MINIMUM 4" OF LOAM AND SHALL BE LIMED, AND MULCHED.
- 1.2.2 EROSION CONTROL BLANKETS OR MATS SHALL BE PLACED OVER THE MULCH IN AREAS NOTED IN PARAGRAPH 4.2 OF THIS REPORT.
- 1.2.3 ALL STORMWATER DEVICES SHALL BE INSTALLED AND TRIBUTARY AREAS STABILIZED PRIOR RECEIVING STORMWATER.
- 1.2.3 REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.

2.0 EROSION AND SEDIMENTATION CONTROL PLAN

- 2.1 THE EROSION AND SEDIMENTATION CONTROL PLAN IS INCLUDED WITHIN THE PLAN SET.

3.0 DETAILS AND SPECIFICATIONS

- 3.1 EROSION CONTROL DETAILS AND SPECIFICATIONS ARE INCLUDED IN THE PLAN SET.

4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

WINTER CONSTRUCTION CONSISTS OF EARTHWORK DISTURBANCE BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15, THEN THE SITE SHALL BE PROTECTED WITH OVER-WINTER STABILIZATION. ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MIX, EROSION CONTROL MATS, RIPRAP, OR GRAVEL BASE ON A ROAD SHALL BE CONSIDERED OPEN.

THE CONTRACTOR SHALL LIMIT THE WORK AREA TO AREAS THAT WORK WILL OCCUR IN DURING THE SUBSEQUENT 15 DAYS AND SO THAT IT CAN BE MULCHED ONE DAY PRIOR TO A SNOW EVENT. THE CONTRACTOR SHALL STABILIZE WORK AREAS PRIOR TO OPENING ADDITIONAL WORK AREAS TO MINIMIZE AREAS WITHOUT EROSION CONTROL MEASURES.

THE FOLLOWING MEASURES SHALL BE IMPLEMENTED DURING WINTER CONSTRUCTION PERIODS:

4.1 SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS MAY CONSIST OF EROSION CONTROL MIX BERMS OR ANY OTHER RECOGNIZED SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES OR SILT FENCES.

4.2 MULCHING

ALL AREAS SHALL BE CONSIDERED TO BE DENuded UNTIL SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCH THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO BE STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WHEN THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCHING AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4.3 SOIL STOCKPILING

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR WITH A FOUR-INCH LAYER OF EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL.

4.4 SEEDING

BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED SHALL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER MULCHED OR TEMPORARILY SEEDED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS NOT BEEN LOAMED, FINAL GRADING WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED.

DORMANT SEEDING MAY BE PLACED PRIOR TO THE PLACEMENT OF MULCH OR EROSION CONTROL BLANKETS. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS./1,000 S.F. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

4.5 OVER WINTER STABILIZATION OF DISTURBED SOILS

BY SEPTEMBER 15TH, ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15% SHALL BE SEEDED AND MULCHED. IF THE DISTURBED AREAS ARE NOT STABILIZED BY THIS DATE, THEN ONE OF THE FOLLOWING ACTIONS SHALL BE TAKEN TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION - BY OCTOBER 1ST, SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS PER 1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 1ST, THEN MULCH THE AREA FOR OVER-WINTER PROTECTION.
- STABILIZE THE SOIL WITH SOD - STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
- STABILIZE THE SOIL WITH MULCH - BY NOVEMBER 15TH, MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 LBS PER 1,000 S.F. ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, ANCHOR THE MULCH WITH NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

4.6 OVER WINTER STABILIZATION OF DISTURBED SLOPES

ALL STONE-COVERED SLOPES SHALL BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15TH. ALL SLOPES TO BE VEGETATED SHALL BE SEEDED AND MULCHED BY SEPTEMBER 1ST. A SLOPE IS CONSIDERED A GRADE GREATER THAN 15%. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1ST, THEN ONE OF THE FOLLOWING ACTION SHALL BE TAKEN TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS - BY OCTOBER 1ST THE DISTURBED SLOPE SHALL BE SEEDED WITH WINTER RYE AT A SEEDING RATE OF 3 LBS PER 1,000 S.F. AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED MULCH OVER THE SEEDED. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE SLOPE BY NOVEMBER 1ST, THEN THE CONTRACTOR SHALL COVER THE SLOPE WITH A LAYER OF EROSION CONTROL MIX OR WITH STONE RIPRAP.
- STABILIZE THE SOIL WITH SOD - THE DISTURBED SLOPE SHALL BE STABILIZED WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR SHALL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 3H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- STABILIZE THE SOIL WITH EROSION CONTROL MIX - EROSION CONTROL MIX SHALL BE PROPERLY INSTALLED BY NOVEMBER 15TH. THE CONTRACTOR SHALL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 2H:1V OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
- STABILIZE THE SOIL WITH STONE RIPRAP - PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. A REGISTERED PROFESSIONAL ENGINEER SHALL BE HIRED TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

5.0 INSPECTION AND MAINTENANCE

A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT, SHALL CONDUCT PERIODIC VISUAL INSPECTIONS OF INSTALLED EROSION CONTROL MEASURES. THE FREQUENCY OF INSPECTION SHALL OCCUR AT LEAST ONCE EVERY TWO WEEKS, AS WELL AS AFTER A "STORM EVENT". A "STORM EVENT" SHALL CONSIST OF 0.5 INCHES OF RAIN WITHIN A 24 HOUR PERIOD. THE FOLLOWING EROSION AND SEDIMENT CONTROL - BEST MANAGEMENT PRACTICES (BMP'S) SHALL INSPECTED IN THE MANNER AS DESCRIBED.

5.1 SEDIMENT BARRIERS

HAY BALE BARRIERS, SILT FENCES AND FILTER BERMS SHALL BE INSPECTED AND REPAIRED FOR THE FOLLOWING IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THEM. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES OF THE BARRIER, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND THEM, SEDIMENT BARRIERS SHALL BE REPLACED WITH A TEMPORARY CHECK DAM. SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER. FILTER BERMS SHOULD BE RESHAPED AS NEEDED. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHOULD BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.

5.2 STABILIZED STONE CONSTRUCTION ENTRANCES

THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. WHEN THE CONTROL PAD BECOMES INEFFECTIVE, THE STONE SHALL BE REMOVED ALONG WITH THE COLLECTED SOIL MATERIAL AND REDISTRIBUTED ON SITE IN A STABLE MANNER. THE ENTRANCE SHOULD THEN BE RECONSTRUCTED. THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS, WHICH HAVE EXPERIENCED MUD-TRACKING ON TO THE PAVEMENT OR TRAVELED WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE, WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

5.3 MULCHED AREAS

ALL MULCHES MUST BE INSPECTED PERIODICALLY, IN PARTICULAR AFTER RAINSTORMS, TO CHECK FOR RILL EROSION. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. NETS MUST BE INSPECTED AFTER RAIN EVENTS FOR DISLOCATION OR FAILURE. IF WASHOUTS OR BREAKAGE OCCUR, RE-INSTALL THE NETS AS NECESSARY AFTER REPAIRING DAMAGE TO THE SLOPE, WHERE MULCH IS USED IN CONJUNCTION WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE. REPAIR AS NEEDED.

5.4 DUST CONTROL

WHEN TEMPORARY DUST CONTROL MEASURES ARE USED, REPETITIVE TREATMENT SHALL BE APPLIED AS NEEDED TO ACCOMPLISH CONTROL.

5.5 STORMWATER APPURTENANCES

ALL UNDERDRAINS, STORM DRAINS, AND CATCH BASINS NEED TO BE OPERATING EFFECTIVELY AND FREE OF DEBRIS.

5.6 EROSION AND SEDIMENTATION CONTROL INSPECTIONS:

ACORN ENGINEERING HAS PERSONNEL QUALIFIED TO CONDUCT EROSION AND SEDIMENTATION CONTROL INSPECTIONS. FOR FURTHER INFORMATION CONTACT:

CONTACT: WILL SAVAGE, PE
TELEPHONE: (207) 775-2655

QUALIFICATIONS:

- MAINE PROFESSIONAL ENGINEERING LICENSE #11419
- MAINE DEP - CERTIFIED IN MAINTENANCE & INSPECTION OF STORMWATER BMP'S CERT #14
- CERTIFIED EROSION, SEDIMENT AND STORM WATER INSPECTOR (CESSWI) CERT #0293
- CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) CERT. #4620

THE CONTRACTOR HAS SOLE RESPONSIBILITY FOR COMPLYING WITH THE EROSION AND SEDIMENTATION REPORT/PLAN, INCLUDING CONTROL OF FUGITIVE DUST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONETARY PENALTIES RESULTING FROM FAILURE TO COMPLY WITH THESE STANDARDS.

6.0 IMPLEMENTATION SCHEDULE

THE FOLLOWING IMPLEMENTATION SEQUENCE IS INTENDED TO MAXIMIZE THE EFFECTIVENESS OF THE ABOVE DESCRIBED EROSION CONTROL MEASURES. CONTRACTORS SHOULD AVOID OVEREXPOSING DISTURBED AREAS AND LIMIT THE AMOUNT OF STABILIZATION AREA.

- INSTALL A STABILIZED CONSTRUCTION ENTRANCE IN ALL LOCATIONS WHERE CONSTRUCTION TRAFFIC WILL ENTER AND EXIT THE SITE.
- INSTALL PERIMETER SILT FENCE OR EROSION CONTROL BERM.
- INSTALL ALL OTHER EROSION CONTROL DEVICES AS NECESSARY THROUGHOUT THE REMAINDER OF THIS SCHEDULE.
- COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
- PRIORITIZE THE DOWNHILL SIDE TO CONTAIN RUNOFF WITHIN THE SITE WHILE PROVIDING AN ENGINEERED OUTLET WITH SILTATION BARRIER TO THE MUNICIPAL STORMWATER SYSTEM WITHIN PINE STREET.
- COMMENCE EARTHWORK OPERATIONS, WALL AND FOUNDATION INSTALLATION.
- COMMENCE INSTALLATION OF UTILITIES.
- CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
- COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE, AS WELL AS OTHER UTILITY WORK.
- COMPLETE REMAINING EARTHWORK OPERATIONS.
- INSTALL SUB-BASE AND BASE GRAVELS IN PAVED AREAS.
- INSTALL PAVING, CURBING AND BRICKWORK.
- LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.
- ONCE THE SITE IS STABILIZED, 90% CATCH OF GRASS HAS BEEN OBTAINED, OR MULCHING OF LANDSCAPE AREAS IS COMPLETE REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
- TOUCH UP AREAS WITHOUT A VIGOROUS CATCH OF GRASS WITH LOAM AND SEED.
- COMPLETE SITE SIGNAGE AND STRIPING.
- EXECUTE PROPER MAINTENANCE OF ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES THROUGHOUT THE PROJECT.

THE ABOVE IMPLEMENTATION SEQUENCE SHOULD BE GENERALLY FOLLOWED BY THE SITE CONTRACTOR. HOWEVER, THE CONTRACTOR MAY CONSTRUCT SEVERAL ITEMS SIMULTANEOUSLY. THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE OF THE COMPLETION OF THE WORK. IF THE CONTRACTOR IS TO COMMENCE THE CONSTRUCTION OF MORE THAN ONE ITEM ABOVE, THEY SHALL LIMIT THE AMOUNT OF EXPOSED AREAS TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE FOLLOWING 30 DAYS.

THE CONTRACTOR SHALL RE-VEGETATE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF FINAL GRADING OR BEFORE A STORM EVENT. THE CONTRACTOR SHALL INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEMS AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

7.0 SEEDING PLAN

7.1 SITE PREPARATION

THE SEEDED AREAS SHALL BE FEASIBLY GRADED OUT TO PROVIDE THE USE OF EQUIPMENT FOR SEEDED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. IF NECESSARY, THE SITE MAY REQUIRE ADDITIONAL TEMPORARY EROSION CONTROL MEASURES OUTLINED IN THE EROSION CONTROL REPORT.

7.2 SEEDBED PREPARATION

FERTILIZER SHALL BE APPLIED TO THE SITE AT A RATE OF 13.8 POUNDS PER 1,000 SQUARE FEET. THE COMPOSITION OF THE FERTILIZER SHALL BE 10-10-10 (N-P205-K20) OR EQUIVALENT.

LIMESTONE SHALL BE APPLIED TO THE SITE AT A RATE OF 138 POUNDS PER 1,000 SQUARE FEET.

7.3 SEEDING

THE COMPOSITION AND AMOUNT OF TEMPORARY SEED APPLIED TO A SITE SHALL BE DETERMINED BY THE FOLLOWING TABLE:

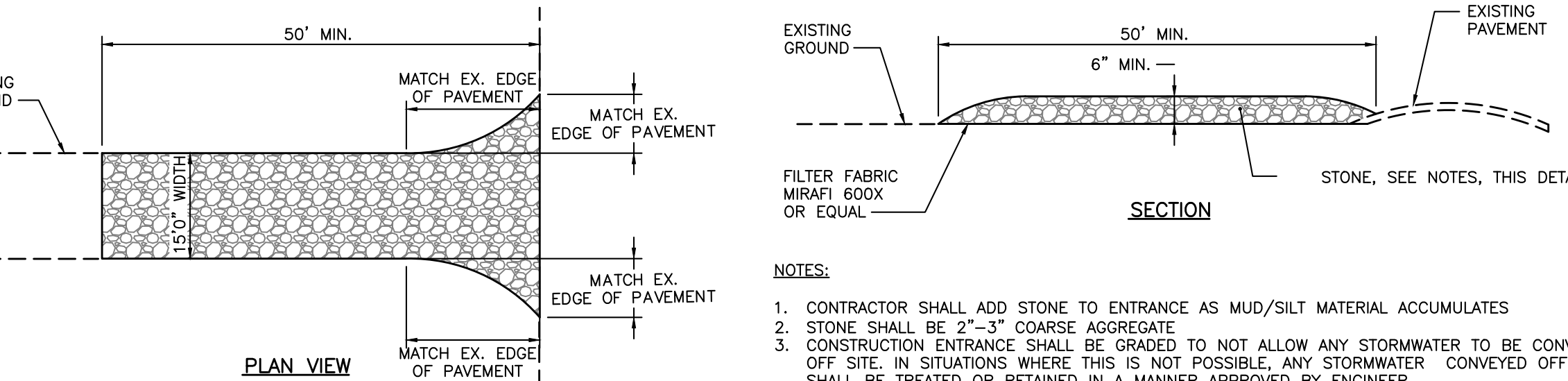
TEMPORARY SEED APPLICATION RATES		
SEED	LBS / ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	2.57	8/15 TO 10/1
OATS	1.84	4/1 TO 7/1 8/15 TO 9/15
ANNUAL RYGRASS	0.92	4/1 TO 7/1
SUDANGRASS	0.92	5/15 TO 8/15
PERENNIAL	0.92	8/15 TO 9/15
TOTAL	7.17 LBS/ACRE	

7.4 MULCHING

MULCH SHALL BE HARDWOOD AND APPLIED AT A RATE OF 70 LBS - 90 LBS PER 1,000 SQUARE FEET. THE MULCH SHALL BE INSTALLED AT A MINIMUM DEPTH OF 4 INCHES. THE SEEDED AREA SHALL BE MULCHED IMMEDIATELY AFTER SEED IS APPLIED. MULCHING DURING THE WINTER SEASON SHALL BE DOUBLE THE NORMAL AMOUNT. REFER TO DETAIL FOR MORE INFORMATION.

8.0 CONCLUSION

THE ABOVE EROSION CONTROL NARRATIVE IS INTENDED TO MINIMIZE THE DEVELOPMENT IMPACT BY IMPLEMENTING TEMPORARY AND PERMANENT EROSION CONTROL MEASURES. THE CONTRACTOR SHALL ALSO REFER TO THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL FOR ADDITIONAL INFORMATION.



NOTES:

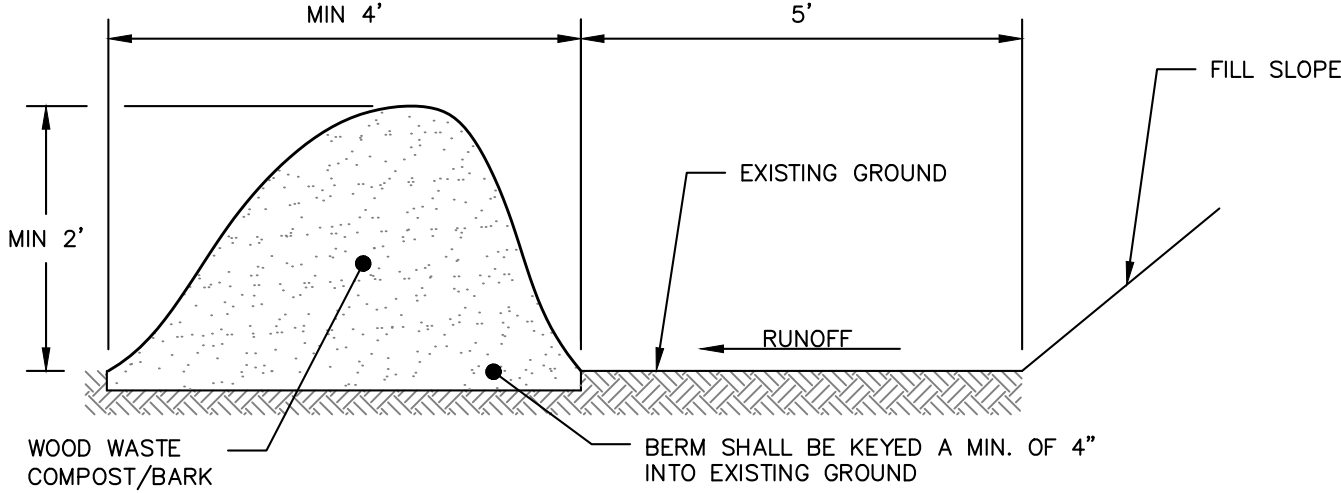
- CONTRACTOR SHALL ADD STONE TO ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES
- STONE SHALL BE 2"-3" COARSE AGGREGATE
- CONSTRUCTION ENTRANCE SHALL BE GRADED TO NOT ALLOW ANY STORMWATER TO BE CONVEYED OFF SITE. IN SITUATIONS WHERE THIS IS NOT POSSIBLE, ANY STORMWATER CONVEYED OFFSITE SHALL BE TREATED OR RETAINED IN A MANNER APPROVED BY ENGINEER.
- WHEN NECESSARY, ON-SITE VEHICLES SHALL HAVE THEIR WHEELS CLEANED PRIOR TO LEAVING SITE.
- CONSTRUCTION ENTRANCE SHALL BE GRADED IN A MANNER THAT PREVENTS TRACKING OF SEDIMENTS ONTO PUBLIC RIGHT-OF-WAY

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

NOTES:

- THE EROSION CONTROL MIX SHALL CONFORM TO THE FOLLOWING STANDARDS AND IN ACCORDANCE WITH THE MAINE DOT CHAPTER 700, SECTION 717.04(D):
 - 1.1. pH BETWEEN 5.0 - 8.0
 - 1.2. PARTICLE SIZE (BY WEIGHT):
 - 1.2.1. 100% PASSING A 150 MM (6 IN) SCREEN
 - 1.2.2. 75 TO 85% PASSING A 19 MM (0.75 IN) SCREEN
 - 1.3. SOLUBLE SALTS CONTENT < 4.0 MMHOS/CM
 - 1.4. ORGANIC MATTER 20 TO 100% , DRY WEIGHT BASIS
- THE BERM SHOULD BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR, WHEN NECESSARY THE BERM MAY BE PLACED PERPENDICULAR TO THE SLOPE ALONG THE PROPERTY LINE TO CONTAIN THE SEDIMENT PROVIDED A BERM IS LOCATED AT THE BASE OF THE SLOPE.
- BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS STABILIZED OR 90% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED OFFSITE OR BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.
- DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.

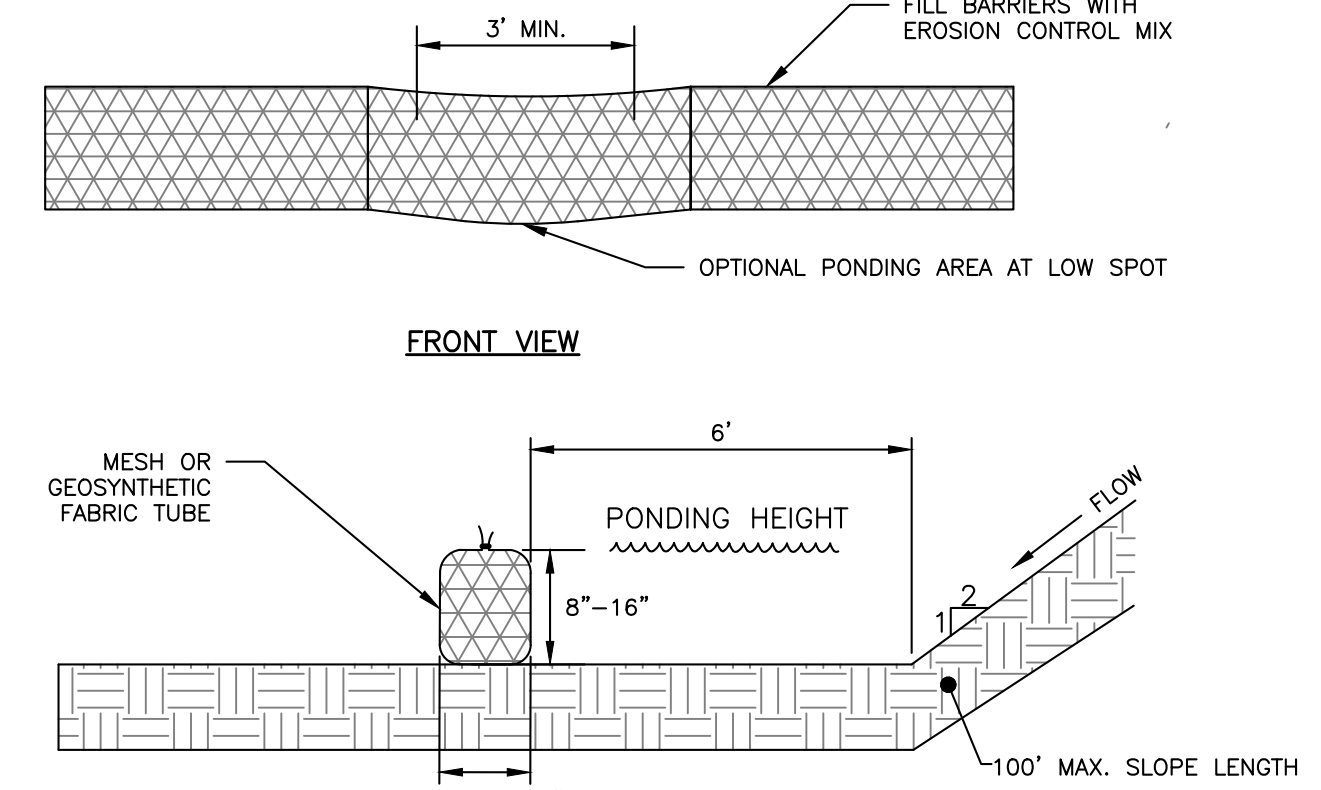


EROSION CONTROL MIX BERM DETAIL

NOT TO SCALE

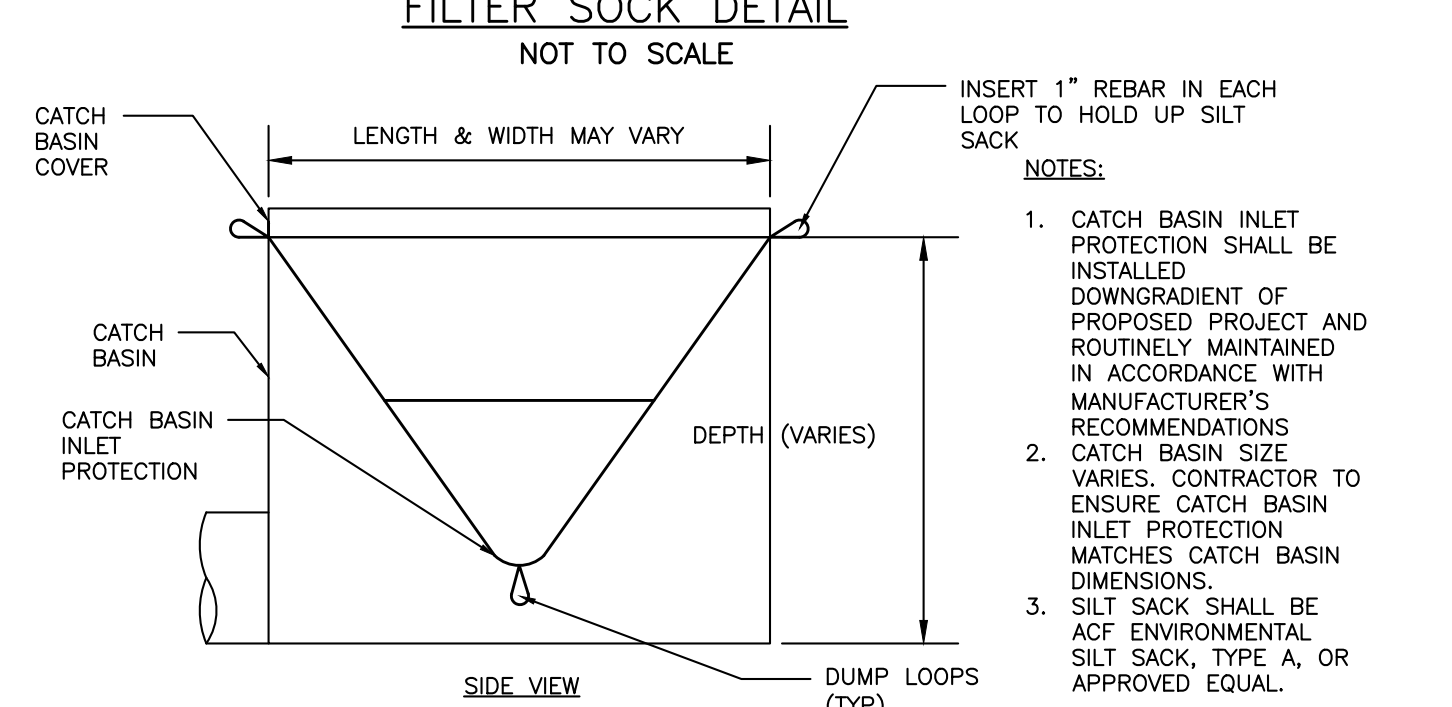
NOTES:

- FULL CONTACT WITH THE GROUND IS CRITICAL TO PREVENT SHORT CIRCUITING UNDER THE TUBE - THE GROUND SURFACE SHOULD BE SMOOTH AND LEVEL. IN WOODED AREAS, PROTRUDING ROOTS AND DEBRIS MAY NEED TO BE REMOVED. IN GRASSED AREAS, THE GRASS NEEDS TO BE EITHER MOWED OR COMPRESSED DOWN.
- STAKING MAY BE NECESSARY ON STEEP SLOPES.
- UPON FINAL STABILIZATION, THE TUBE CAN BE CUT OPEN AND THE MATERIAL SPREAD OUT ONTO THE GROUND. THE MESH MATERIAL SHOULD BE REMOVE.
- LOOSE COMPOST MAY BE BACKFILLED ALONG THE UPSLOPE SIDE OF THE COMPOST FILTER SOCK, FILLING THE SEAM BETWEEN THE SOIL SURFACE AND THE DEVICE, IMPROVING FILTRATION AND SEDIMENT RETENTION.



FILTER SOCK DETAIL

NOT TO SCALE



NOTES:

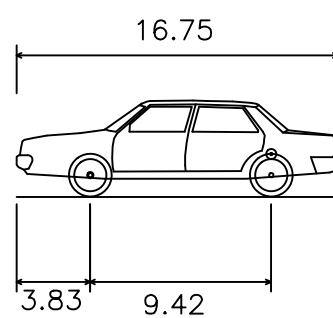
- CATCH BASIN INLET PROTECTION SHALL BE INSTALLED DOWNGRADIENT OF PROPOSED PROJECT AND ROUTINELY MAINTAINED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- CATCH BASIN SIZE VARIES. CONTRACTOR TO ENSURE CATCH BASIN INLET PROTECTION MATCHES CATCH BASIN DIMENSIONS.
- SILT SACK SHALL BE ACT ENVIRONMENTAL SILT SACK, TYPE A, OR APPROVED EQUAL.

CATCH BASIN INLET PROTECTION

NOT TO SCALE

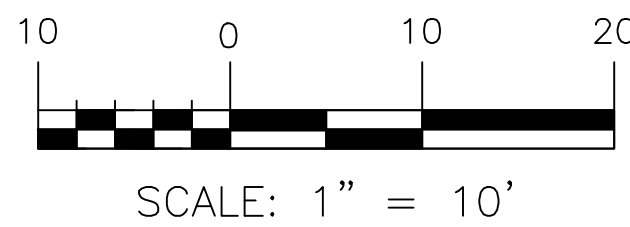
PERMITTING
NOT ISSUED FOR
CONSTRUCTION

ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	07/19/23
MAJOR SITE PLAN	11/17/23
EROSION & SEDIMENTATION CONTROL DETAILS	
PROJECT NAME: 64 PINE STREET REDEVELOPMENT	
64 PINE STREET, PORTLAND, MAINE 04012	
CLIENT: 64 PINE STREET LLC	
104 WASHINGTON AVENUE PORTLAND, MAINE 04101	
DRAWING NO. C-45	



Architectural
Overall Length 16.750ft
Overall Width 6.300ft
Overall Body Height 5.003ft
Min Body Ground Clearance 0.939ft
Track Width 6.300ft
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 20.000ft

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
1,2	9.4'	16.8'	6.3'



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

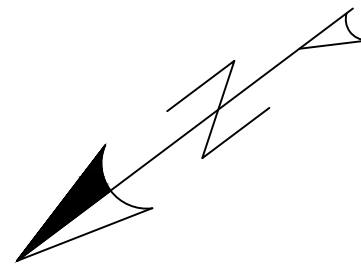
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

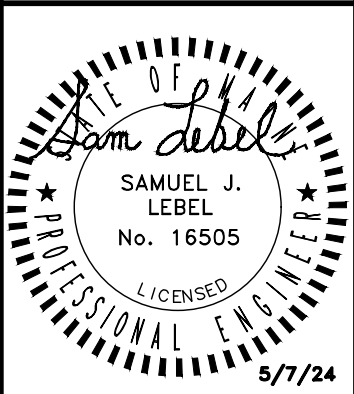
DRAWING NAME:	TURNING TEMPLATE - 1
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

**ACORN**
ENGINEERING, INC.

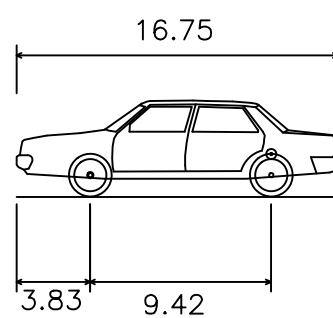
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ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL

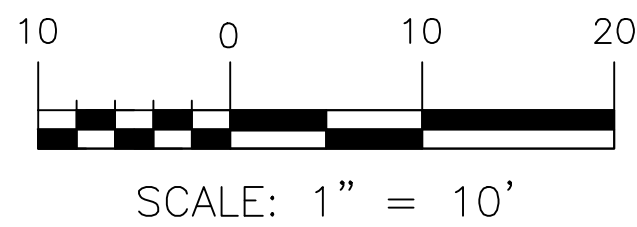


DRAWING NO.
TT1



Architectural
Overall Length 16.750ft
Overall Width 6.300ft
Overall Body Height 5.003ft
Min Body Ground Clearance 0.939ft
Track Width 6.300ft
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 20.000ft

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
1,2	9.4'	16.8'	6.3'



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

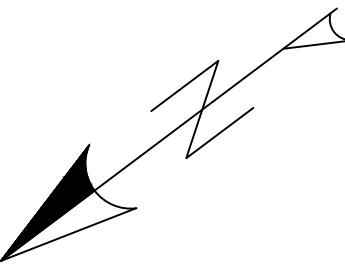
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

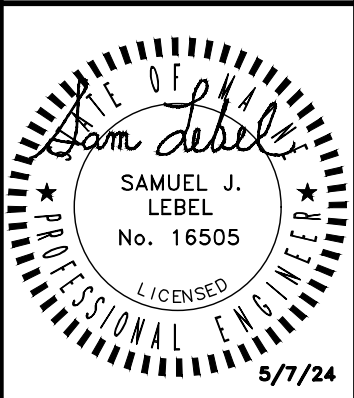
DRAWING NAME:	TURNING TEMPLATE - 2
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

**ACORN**
ENGINEERING, INC.

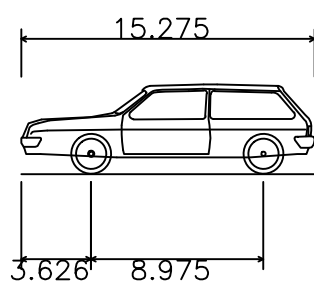
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ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL

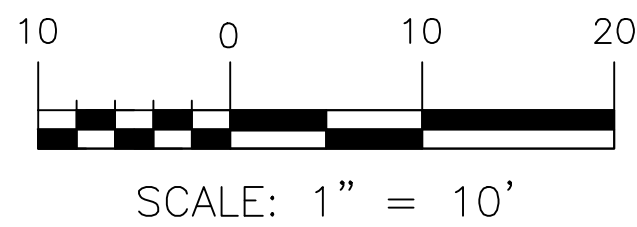


DRAWING NO.
TT2



Honda Civic LX
Overall Length 15.275ft
Overall Width 5.908ft
Overall Body Height 4.671ft
Min Body Ground Clearance 0.870ft
Track Width 5.908ft
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 18.050ft

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
3	9.0'	15.3'	6.0'



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

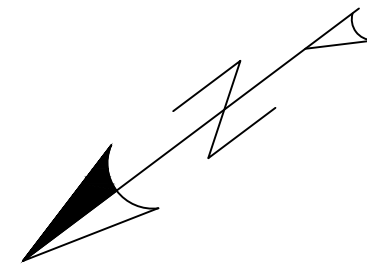
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



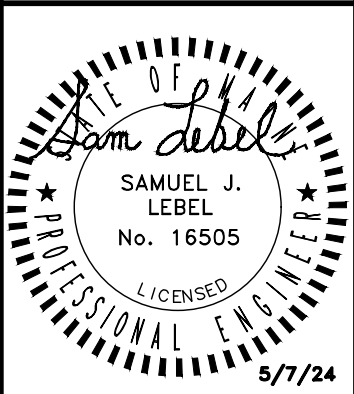
ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

DRAWING NAME:	TURNING TEMPLATE - 3
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

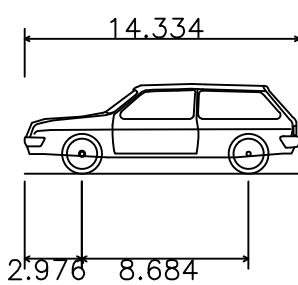
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PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

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FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL

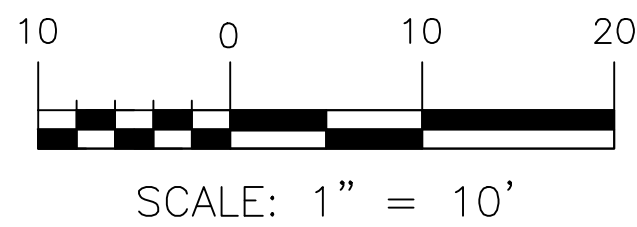


DRAWING NO.
TT3



Volvo V 40
Overall Length 14.334ft
Overall Width 5.912ft
Overall Body Height 4.672ft
Min Body Ground Clearance 0.871ft
Track Width 5.912ft
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 17.717ft

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
4,5	8.7'	14.4'	6.0'



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

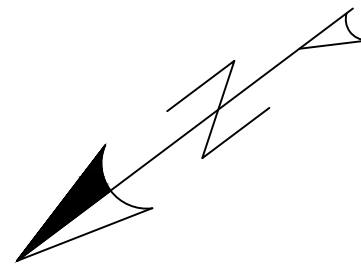
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

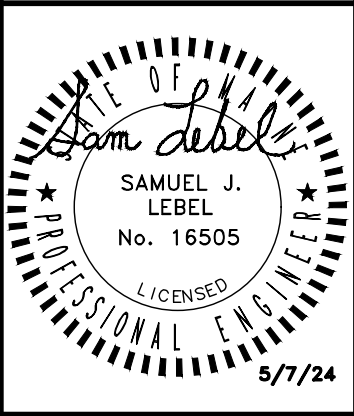
DRAWING NAME:	TURNING TEMPLATE - 4
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

**ACORN**
ENGINEERING, INC.

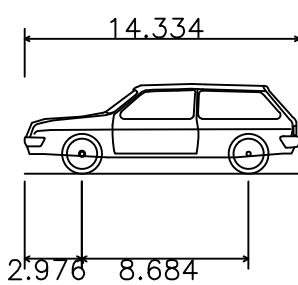
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ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
TT4



Volvo V 40
Overall Length 14.334ft
Overall Width 5.912ft
Overall Body Height 4.672ft
Min Body Ground Clearance 0.871ft
Track Width 5.912ft
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 17.717ft

PERMISSIBLE VEHICLE SUMMARY			
SPACES	MAX WHEEL BASE	MAX LENGTH	MAX WIDTH
4,5	8.7'	14.4'	6.0'



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

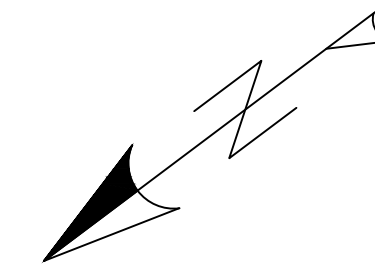
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

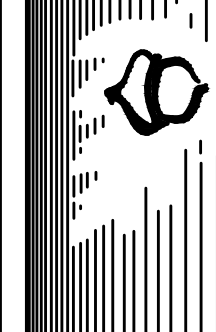
APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

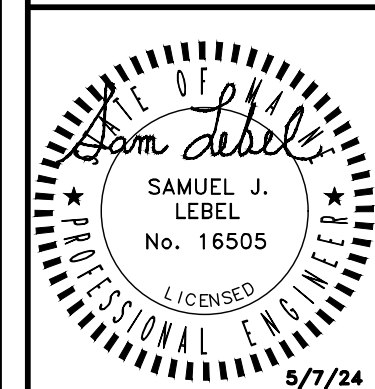
DRAWING NAME:	TURNING TEMPLATE - 5
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101



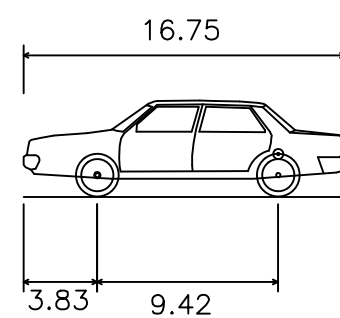
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PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

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FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
TT5



Architectural
Overall Length 16.750ft
Overall Width 6.300ft
Overall Body Height 5.003ft
Min Body Ground Clearance 0.939ft
Track Width 6.300ft
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 20.000ft

N.F. 58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

PINE STREET

APPROX. CENTERLINE OF ROAD



SCALE: 1" = 10'

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

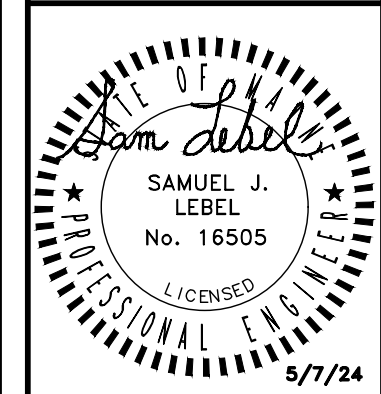
ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

DRAWING NAME:	TURNING TEMPLATE - 6
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

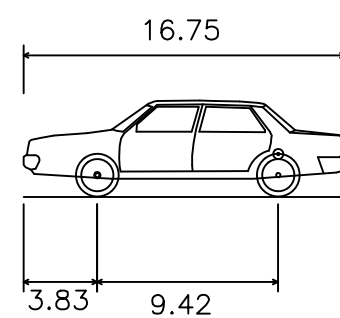
ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

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FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
TT6



Architectural
Overall Length 16.750ft
Overall Width 6.300ft
Overall Body Height 5.003ft
Min Body Ground Clearance 0.939ft
Track Width 6.300ft
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 20.000ft

N.F. 58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

PINE STREET

APPROX. SIGHTLINE EXISTING GARAGE

APPROX. CENTERLINE OF ROAD



SCALE: 1" = 10'

PERMITTING
NOT ISSUED FOR
CONSTRUCTION

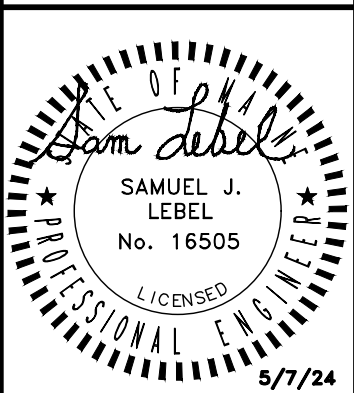
ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

DRAWING NAME:	SIGHT LINES EXHIBIT
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012 64 PINE STREET LLC 104 WASHINGTON AVENUE PORTLAND, MAINE 04101

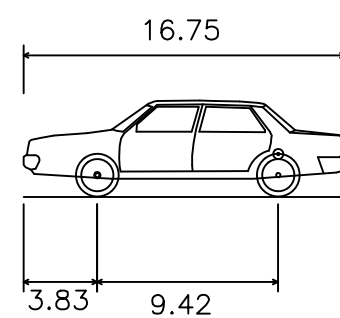
ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

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FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
TT7



Architectural
Overall Length 16.750ft
Overall Width 6.300ft
Overall Body Height 5.003ft
Min Body Ground Clearance 0.939ft
Track Width 6.300ft
Lock-to-lock time 5.00s
Curb to Curb Turning Radius 20.000ft



PINE STREET

N.F.58 PINE STREET, LLC
33245/95

N.F. CITY OF PORTLAND
REICHE SCHOOL

N.F. DEBORAH MCOY
13836/108

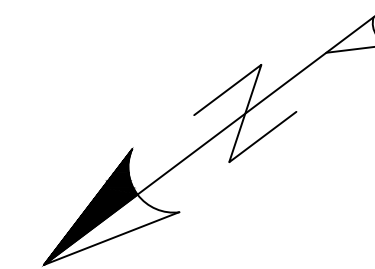
N.F. EDWARD INGALLS
19653/117

N.F. BRICKLIGHT PROPERTIES, LLC
32379/123

CLARK STREET

APPROX. CENTERLINE OF ROAD

PERMITTING
NOT ISSUED FOR
CONSTRUCTION



ISSUED FOR	BY
50% DRAWINGS	SJL
DD SET	SJL
MAJOR SITE PLAN	SJL
COMMENT RESPONSE	SJL
FINAL SITE PLAN	SJL
COMMENT RESPONSE #2	SJL

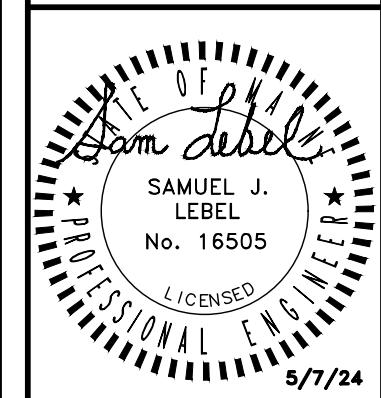
DRAWING NAME:	TURNING TEMPLATE - 8
PROJECT NAME:	64 PINE STREET REDEVELOPMENT
CLIENT:	64 PINE STREET, PORTLAND, MAINE 04012
	64 PINE STREET LLC
	104 WASHINGTON AVENUE PORTLAND, MAINE 04101

ACORN ENGINEERING, INC.
PO BOX 3372, PORTLAND MAINE 04104
(207) 775-2655

ENGINEERING, INC.

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FILE:	1109.4_CIVIL
JN:	1109.4
SCALE:	AS NOTED
DESIGNED BY:	ZMS
DRAWN BY:	BJK
CHECKED BY:	SJL



DRAWING NO.
TT8

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

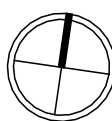
Consultant:

Revisions:

Key Plan:

FIRST FLOOR PLAN

Scale:
3/16" = 1'-0"



12 MARCH, 2024

A1.01

1 | 1ST FLOOR

3/16" = 1'-0"

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

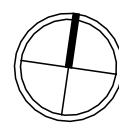
Consultant:

Revisions:

Key Plan:

SECOND FLOOR PLAN

Scale:
3/16" = 1'-0"



12 MARCH, 2024

A1.02



Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

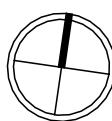
Consultant:

Revisions:

Key Plan:

THIRD FLOOR PLAN

Scale:
3/16" = 1'-0"



12 MARCH, 2024

A1.03



Project:
64 PINE STREET
64 Pine Street
Portland, Maine
Owner/Client:
TOM LANDRY
Consultant:

Revisions:

Key Plan:

FOURTH FLOOR PLAN
Scale:
3/16" = 1'-0"
12 MARCH, 2024

A1.04

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

Consultant:

Revisions:

Key Plan:

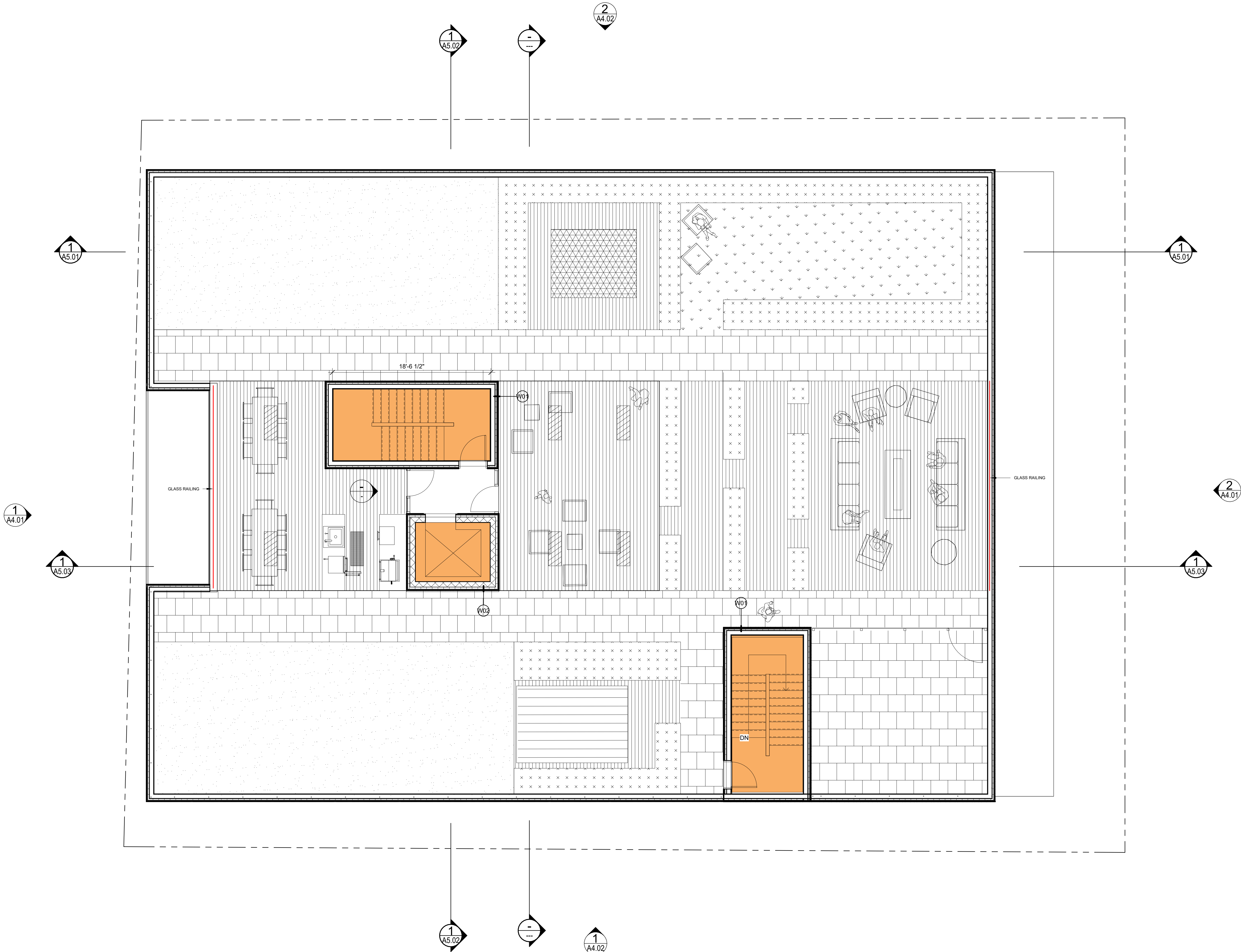
ROOF PLAN

Scale:
3/16" = 1'-0"



3 NOVEMBER, 2023

A1.05



Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

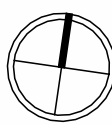
Consultant:

Revisions:

Key Plan:

EXTERIOR ELEVATIONS

Scale:
1/8" = 1'-0"

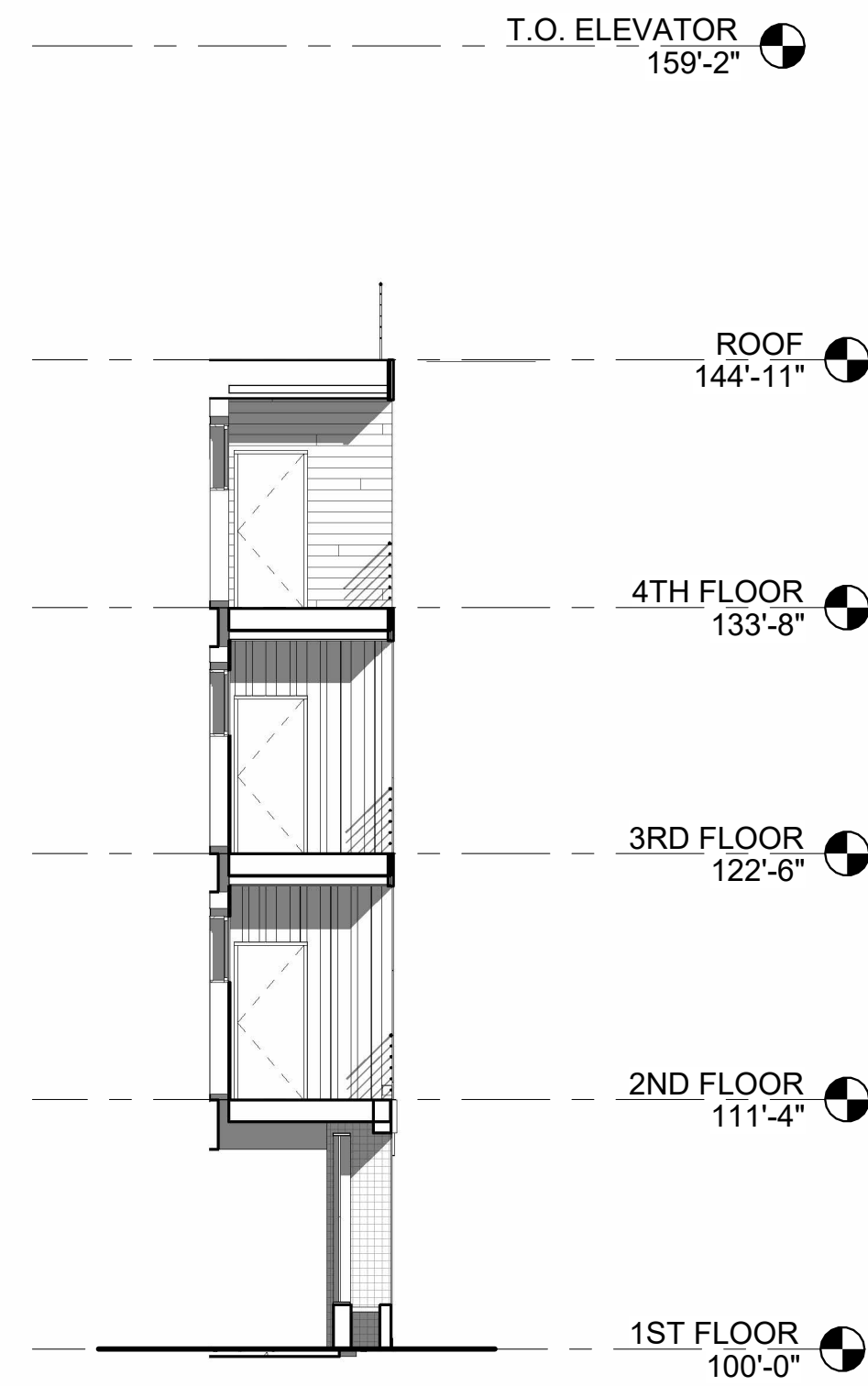


12 MARCH, 2024

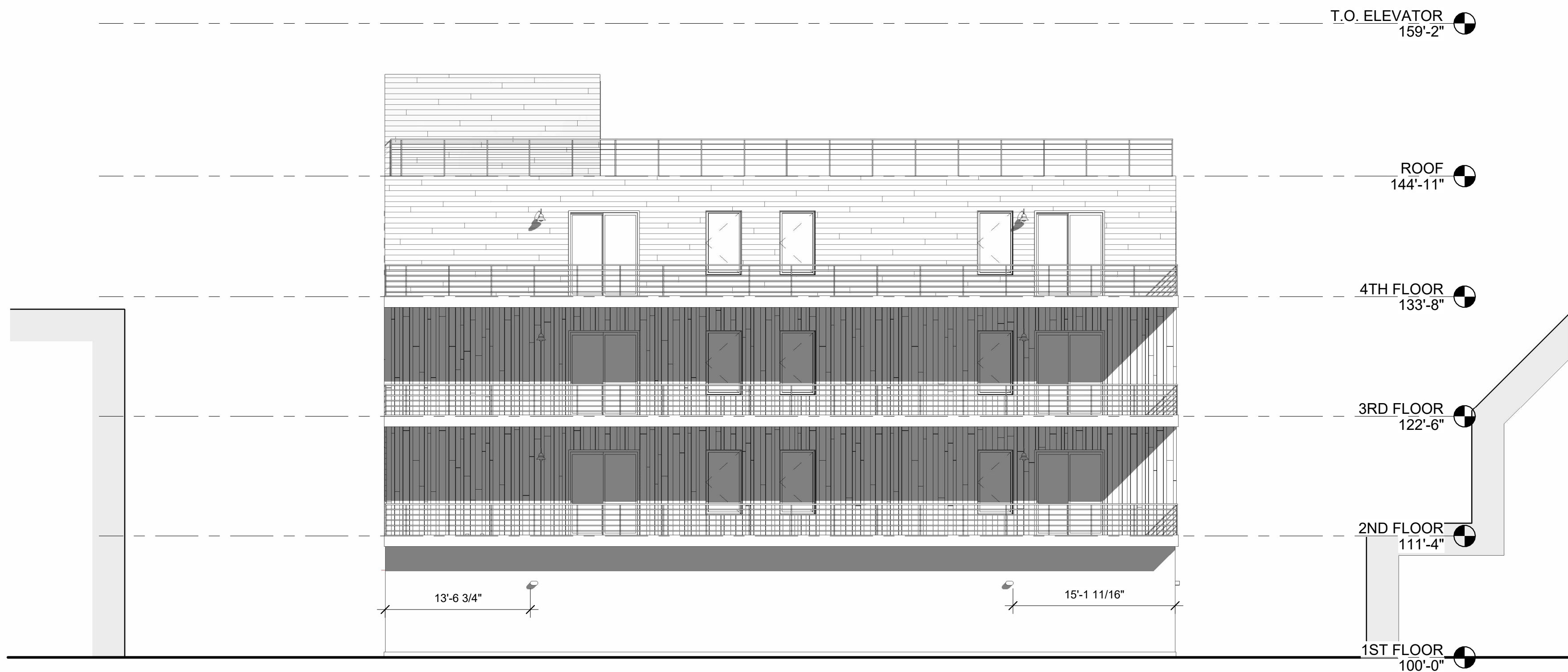
A4.01



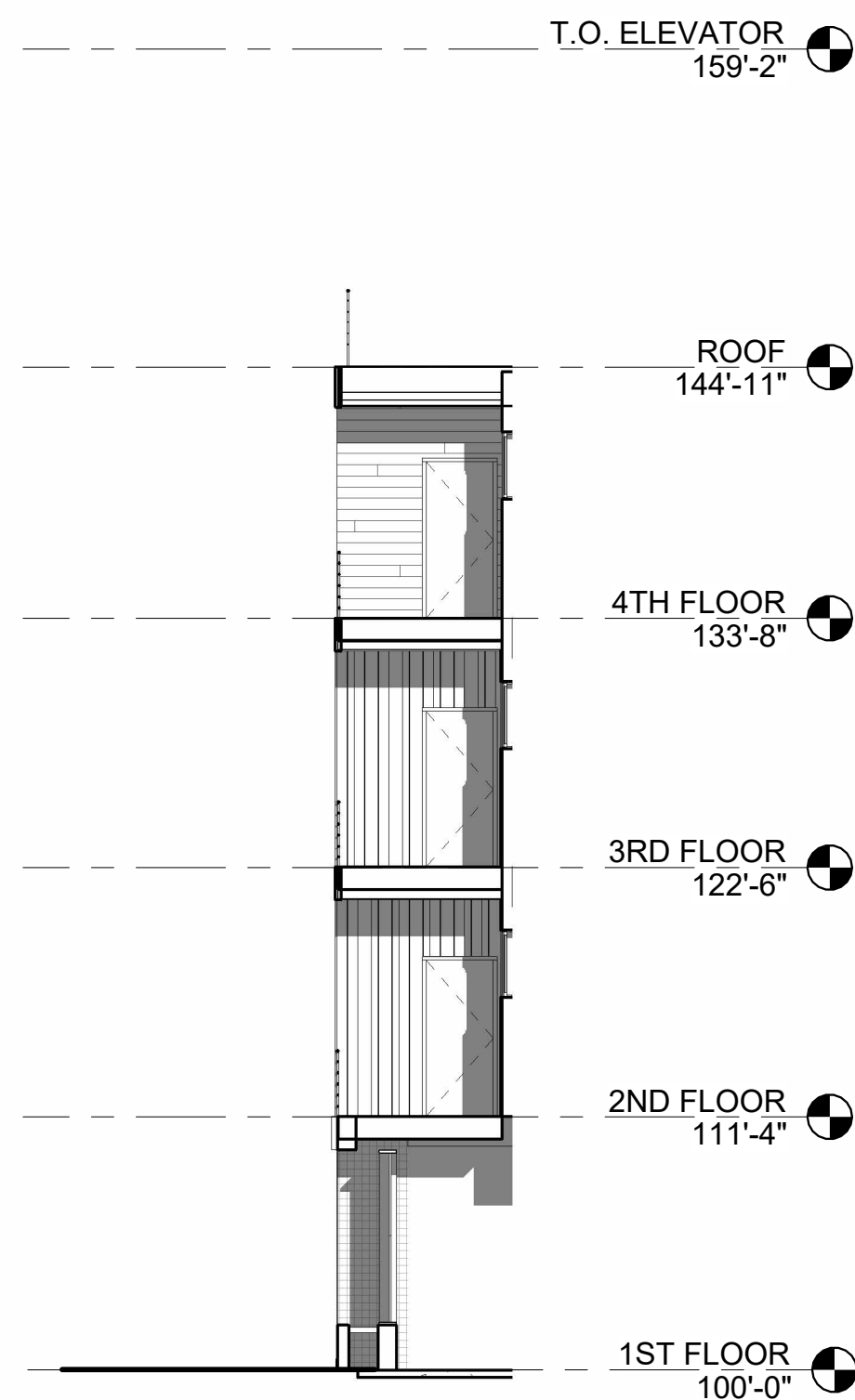
1 | FRONT ELEVATION
1/8" = 1'-0"



3 | TERRACE ELEVATION 2
1/8" = 1'-0"



2 | REAR ELEVATION
1/8" = 1'-0"



4 | TERRACE ELEVATION 1
1/8" = 1'-0"

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

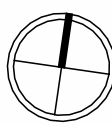
Consultant:

Revisions:

Key Plan:

EXTERIOR ELEVATIONS

Scale:
1/8" = 1'-0"

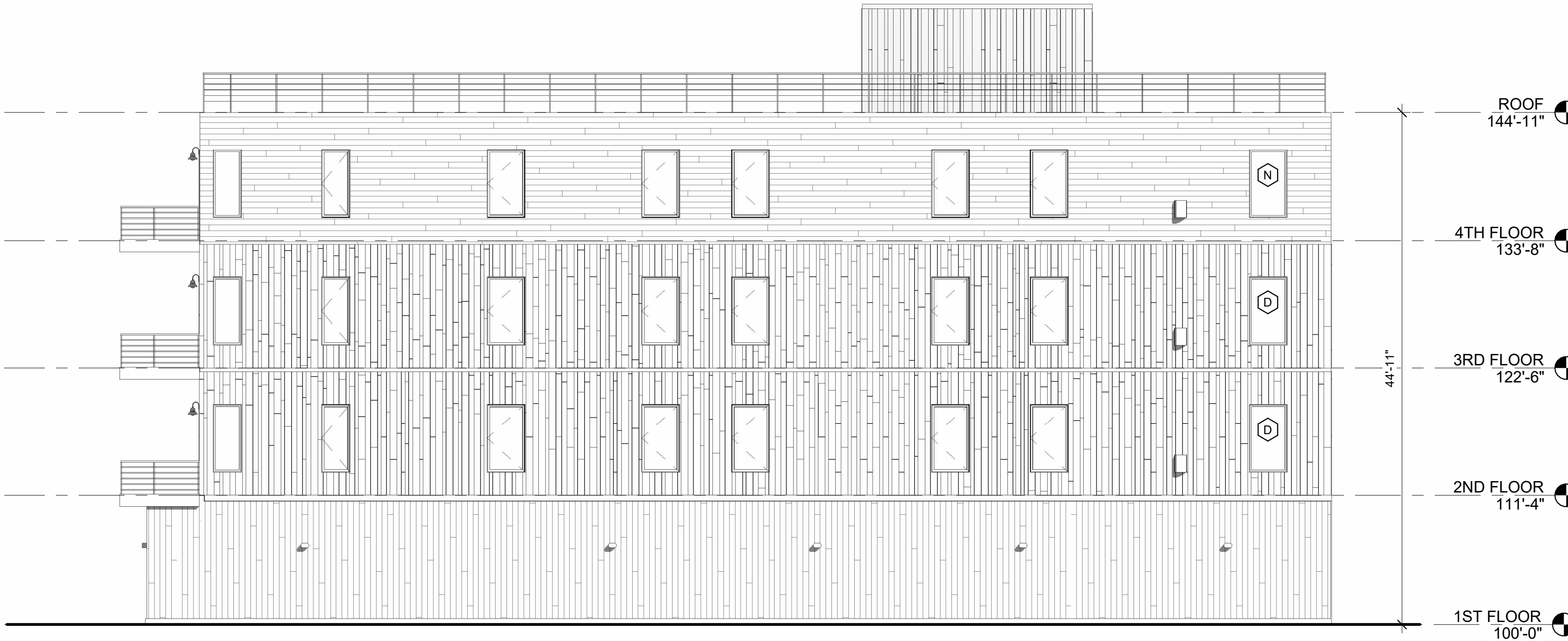


12 MARCH, 2024

A4.02



1 | RIGHT SIDE ELEVATION
1/8" = 1'-0"



2 | LEFT SIDE ELEVATION
1/8" = 1'-0"

Project:

64 PINE STREET

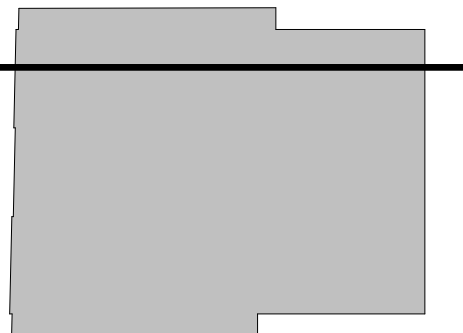
64 Pine Street
Portland, Maine
Owner/Client:

TOM LANDRY

Consultant:

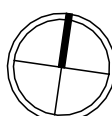
Revisions:

Key Plan:



BUILDING SECTION

Scale:
As indicated



12 MARCH, 2024

A5.01

T.O. ELEVATOR
159'-2"

ROOF
144'-11"

4TH FLOOR
133'-8"

3
A6.01
3RD FLOOR
122'-6"

2ND FLOOR
111'-4"

1ST FLOOR
100'-0"

11'-3"

11'-2"

11'-2"

11'-4"

44'-11"

33'-8"

1
A6.01

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

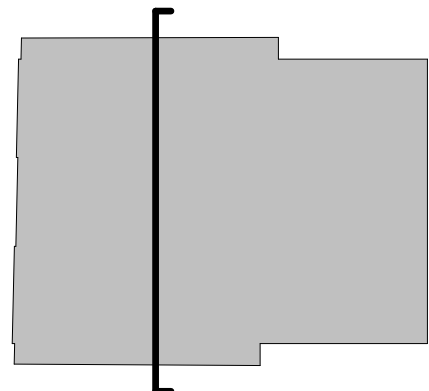
Owner/Client:

TOM LANDRY

Consultant:

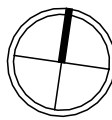
Revisions:

Key Plan:



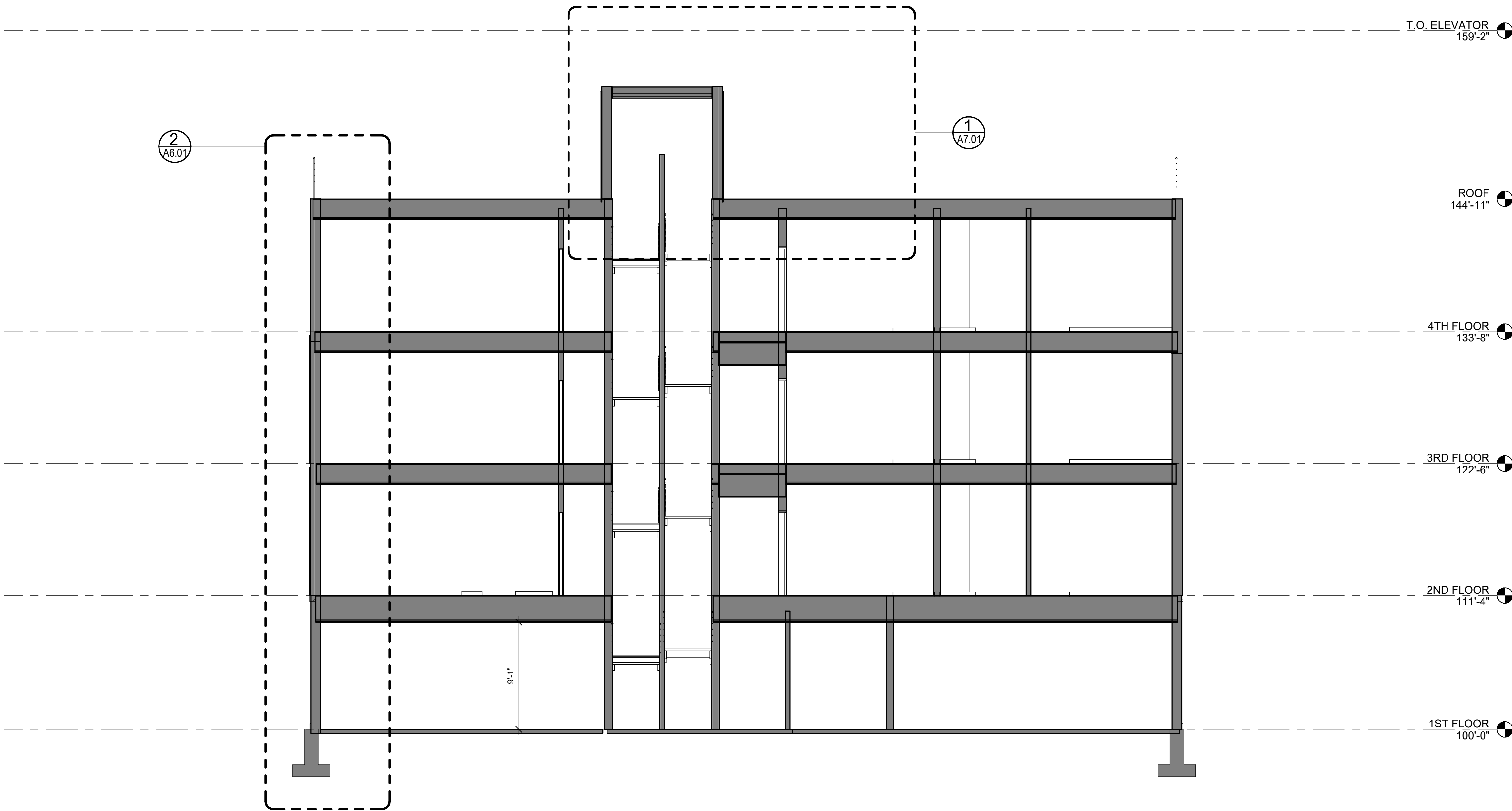
BUILDING SECTION

Scale:
As indicated



12 MARCH, 2024

A5.02



Project:

64 PINE STREET

64 Pine Street
Portland, Maine

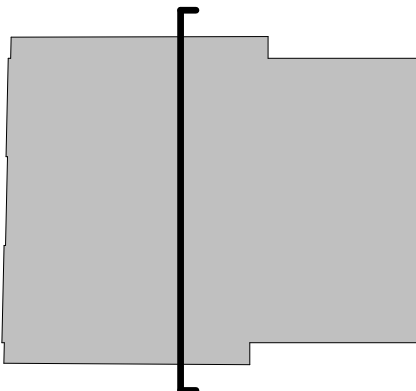
Owner/Client:

TOM LANDRY

Consultant:

Revisions:

Key Plan:

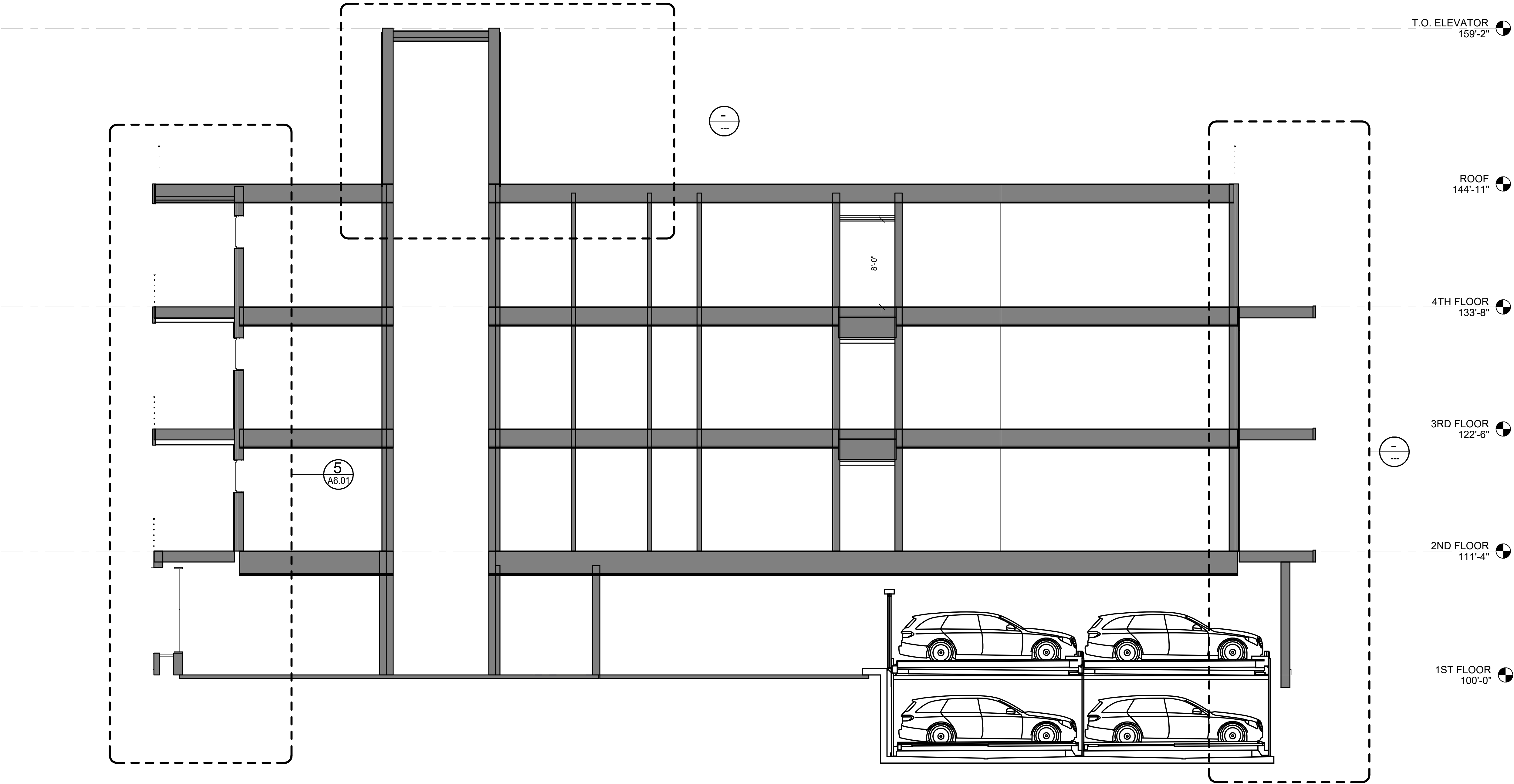


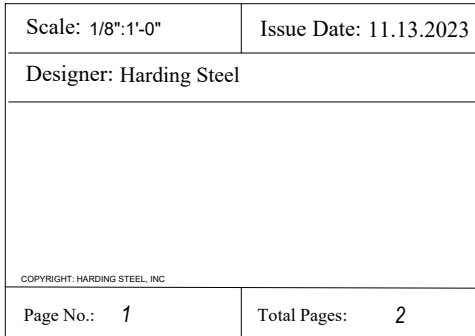
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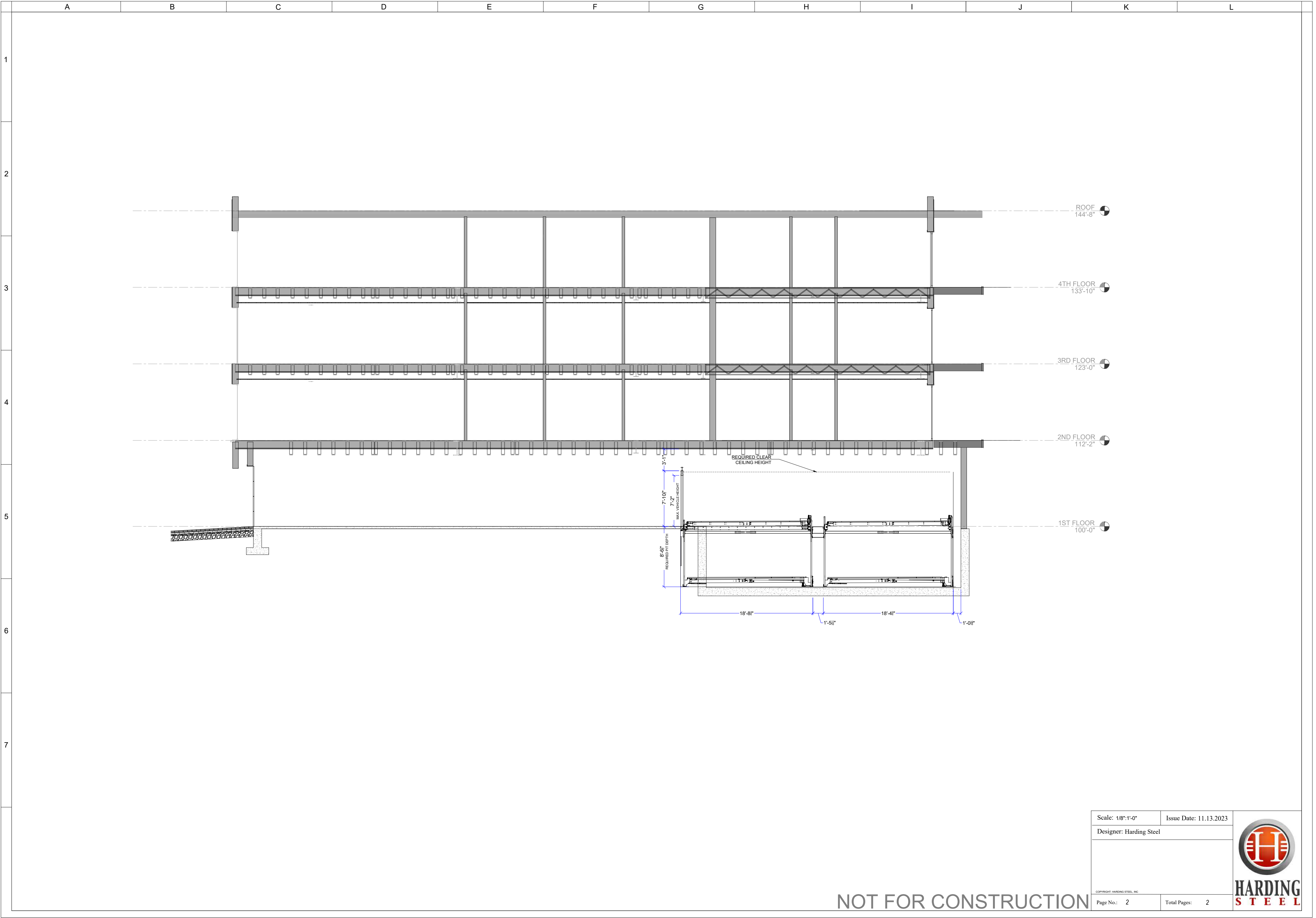
Scale:
As indicated

12 MARCH, 2024

A5.03

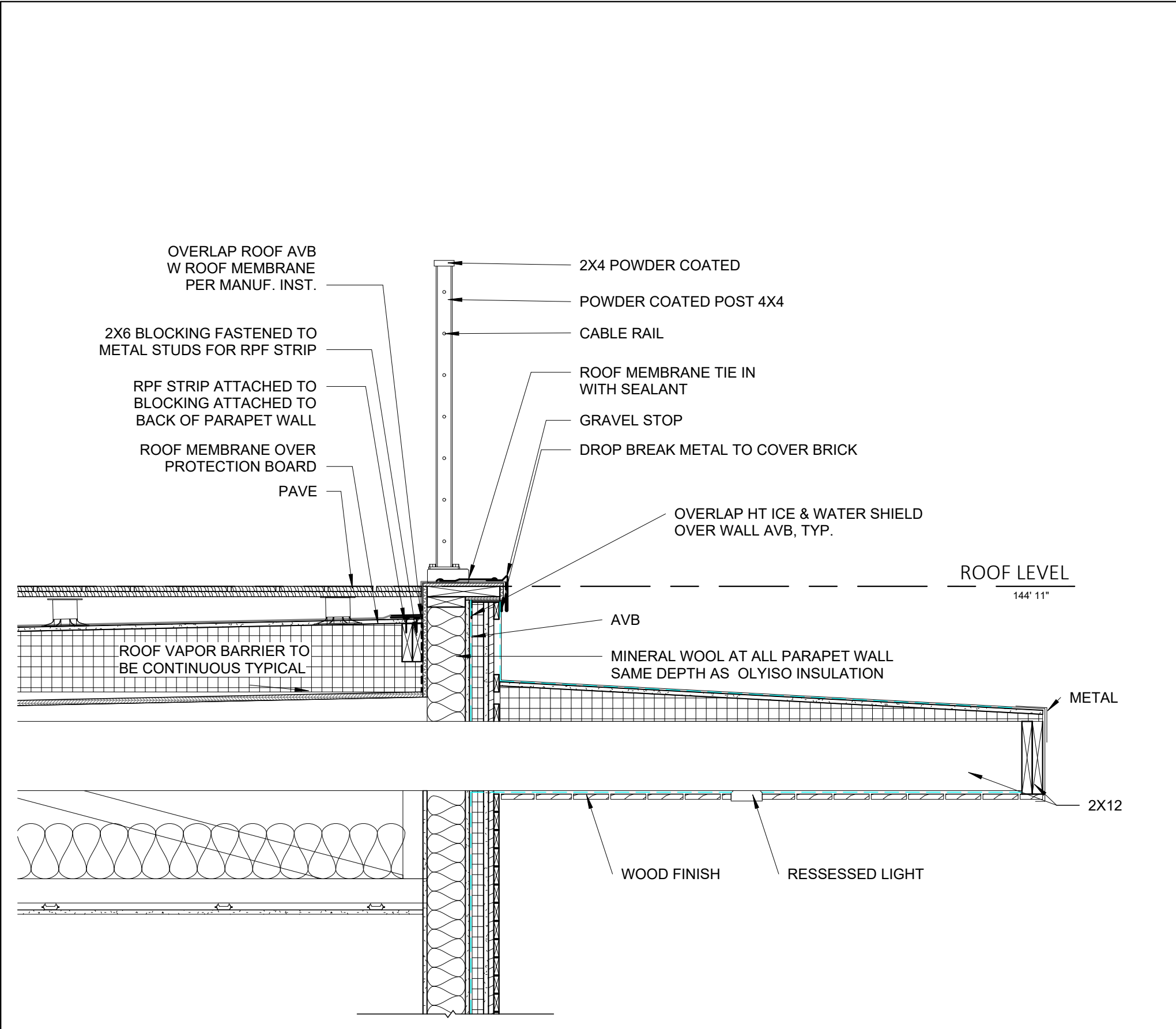






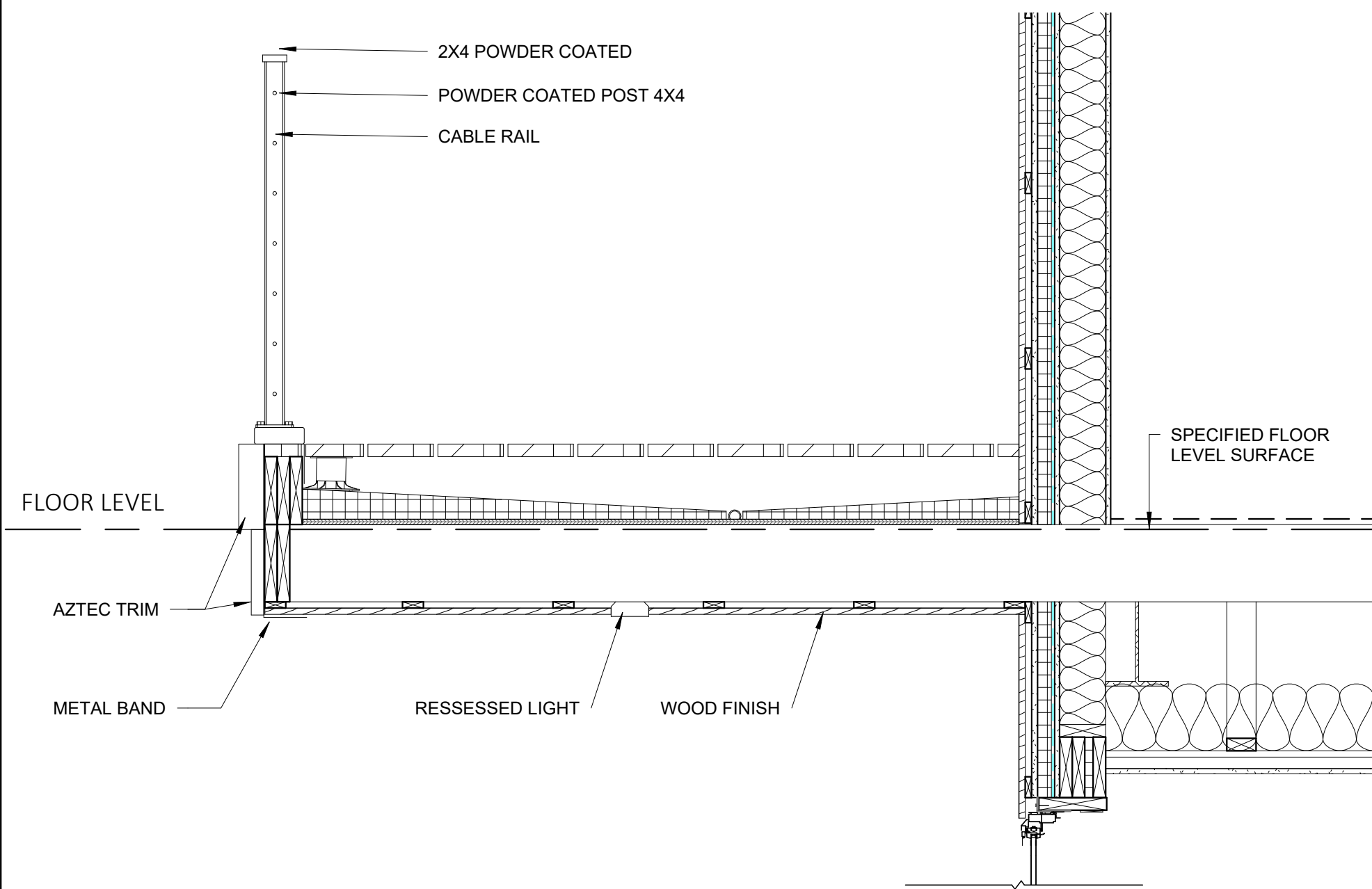
Scale: 1/8"=1'-0"	Issue Date: 11.13.2023
Designer: Harding Steel	
Page No.: 2	Total Pages: 2





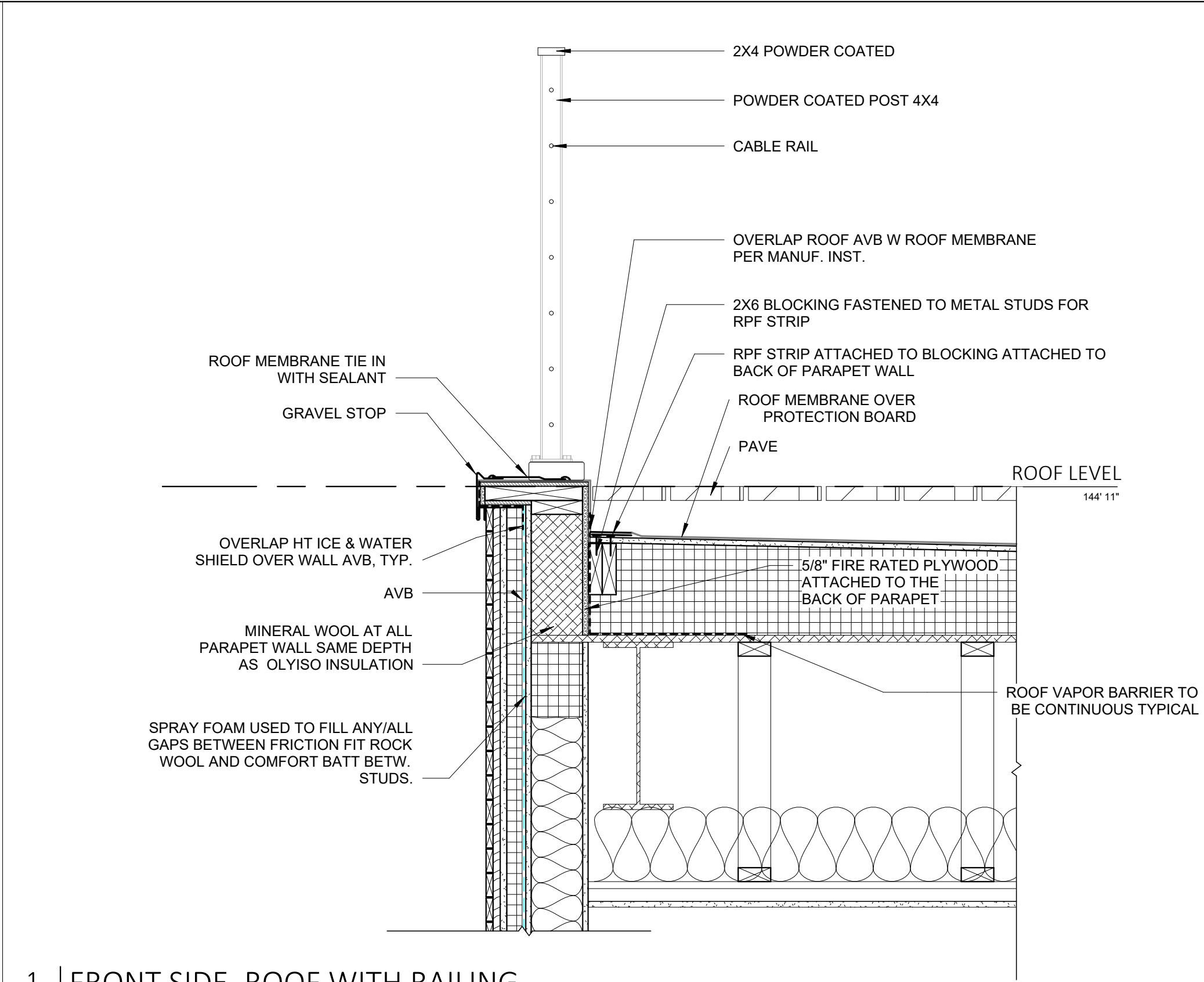
4 | REAR SIDE, ROOF PARAPET WITH SHADE

3/4" = 1'-0"



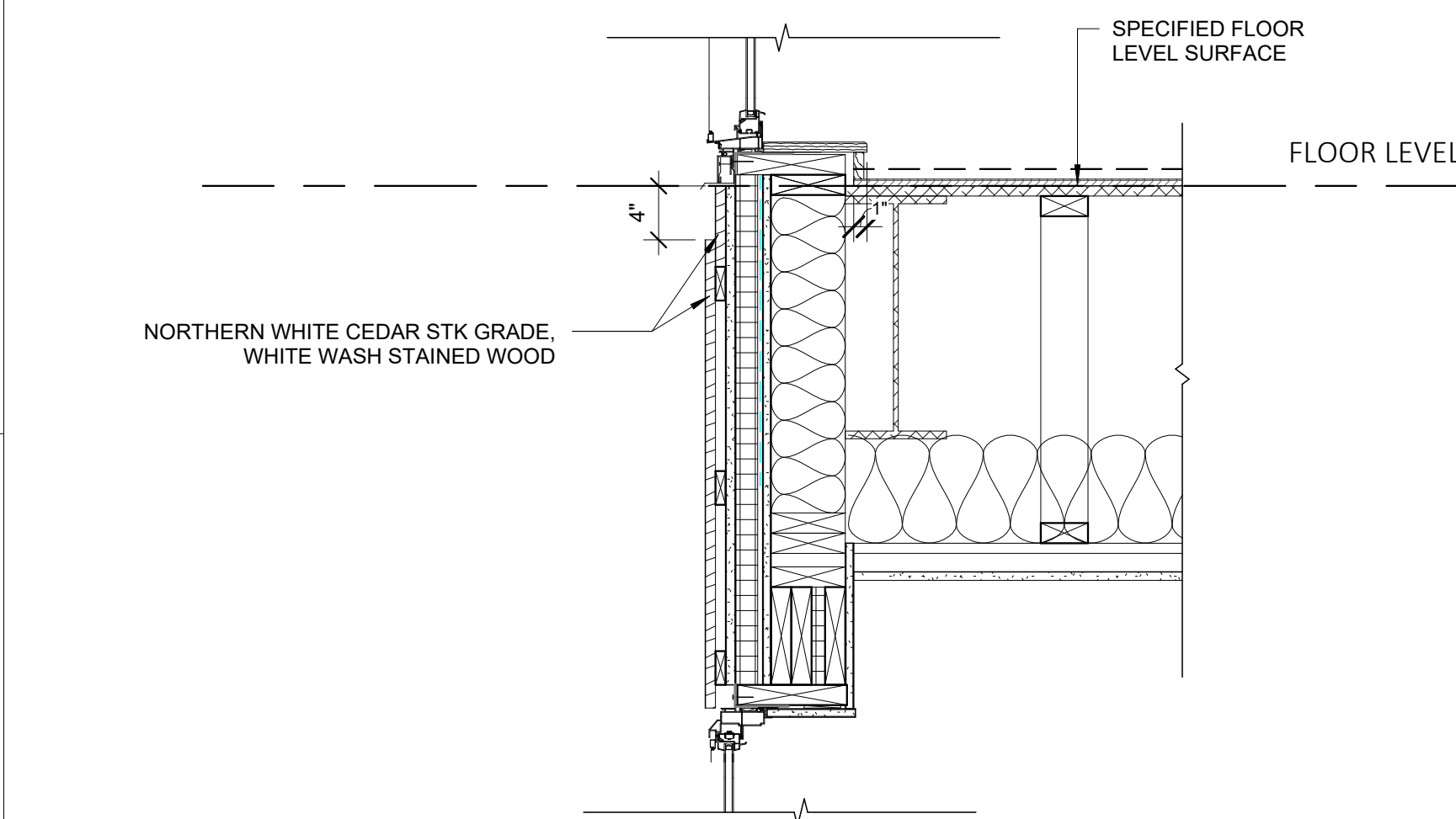
3 | FRONT SIDE, BALCONY

3/4" = 1'-0"



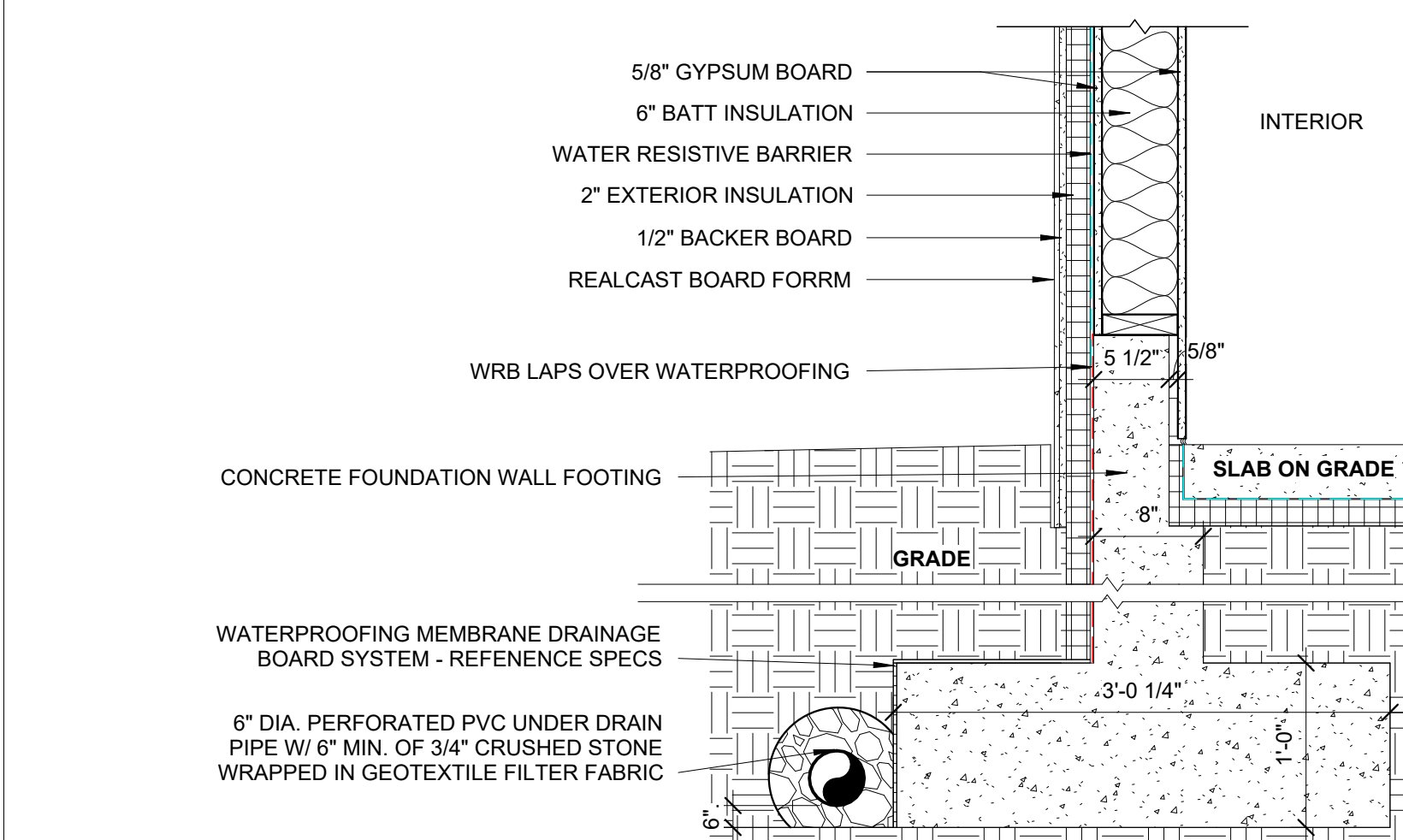
1 | FRONT SIDE, ROOF WITH RAILING

1" = 1'-0"



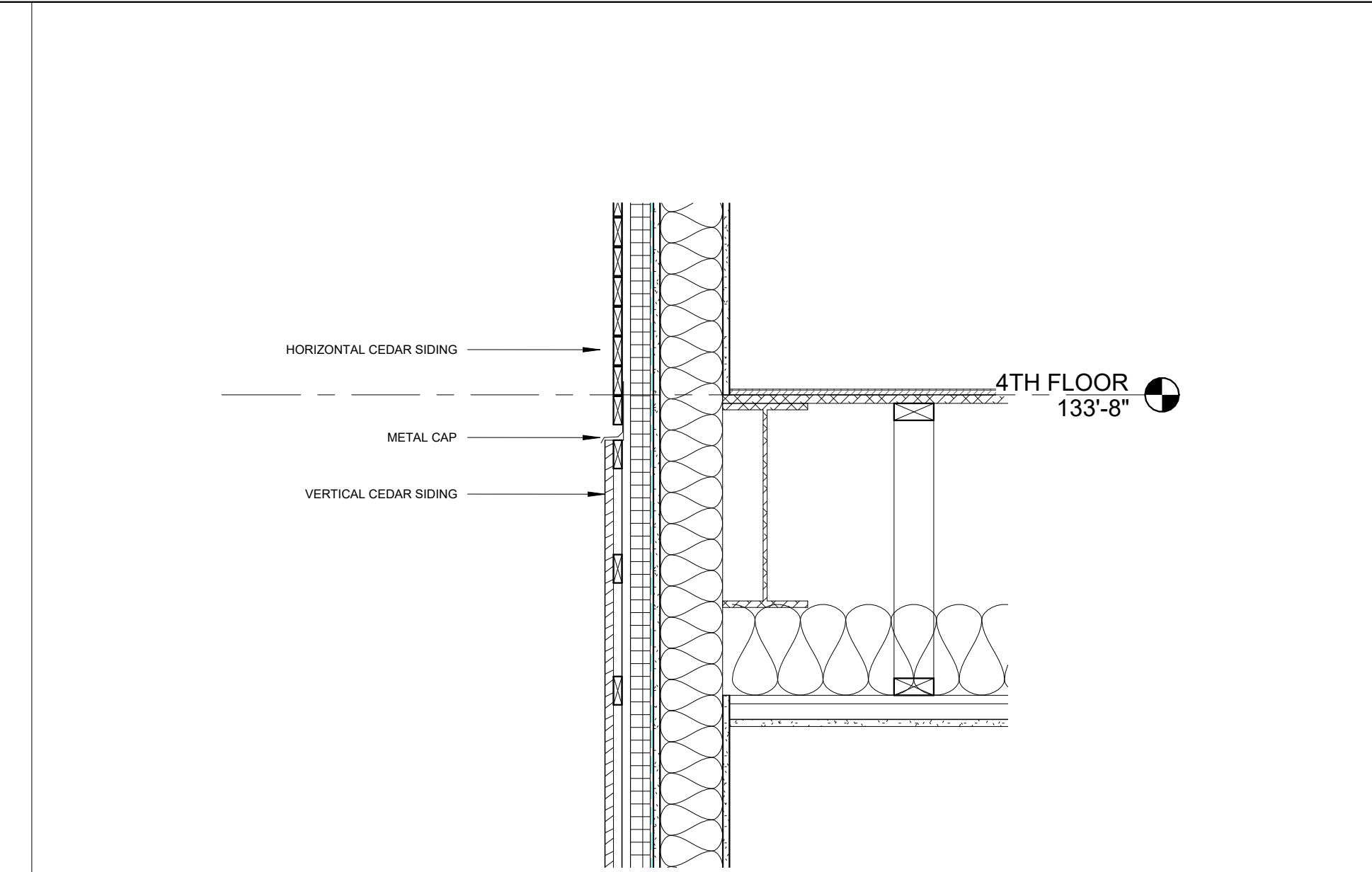
5 | FRONT SIDE, WINDOW SILL AND HEAD WITH 4INCH GAP

1" = 1'-0"



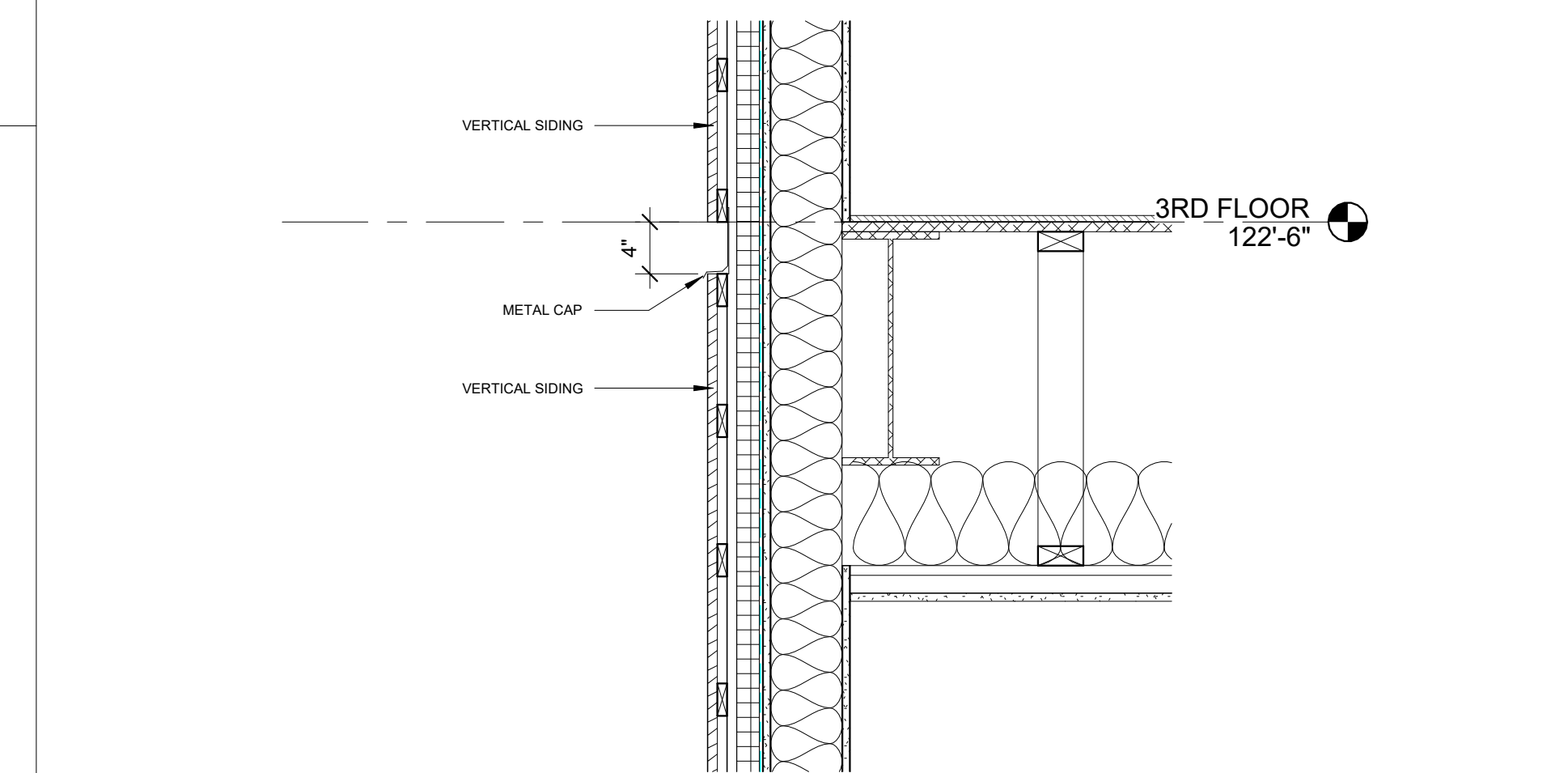
2 | FRONT SIDE, BASE

1" = 1'-0"



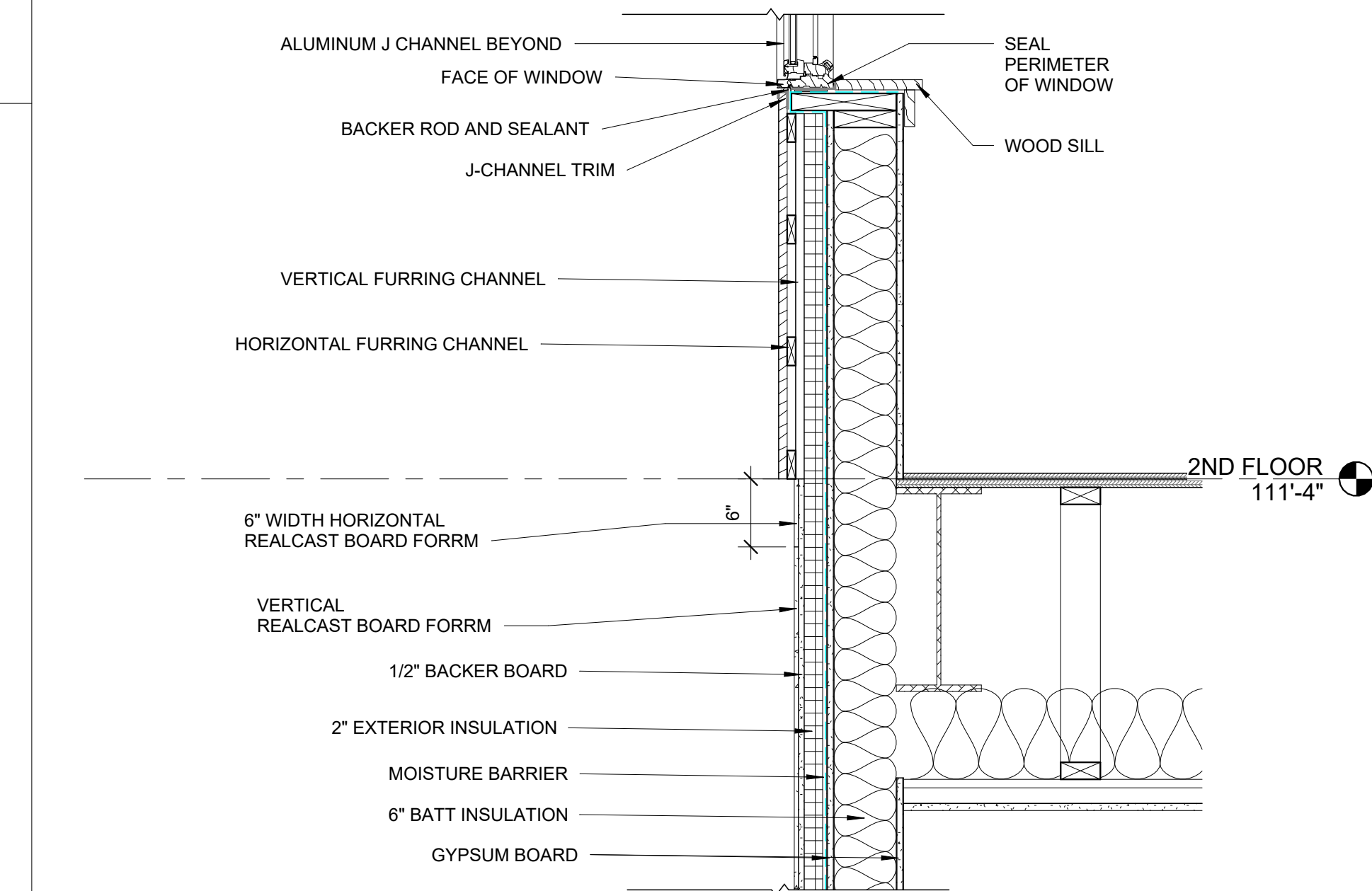
7 | FRONT SIDE, BETWEEN VERTICAL SIDING AND HORIZONTAL SIDING

1" = 1'-0"



8 | FRONT SIDE, SIDING WITH 4 INCH GAP

1" = 1'-0"



6 | FRONT SIDE, BETWEEN 1ST FLOOR AND 2ND FLOOR

1" = 1'-0"

Project:

64 PINE STREET

64 Pine Street
Portland, Maine

Owner/Client:

TOM LANDRY

Consultant:

Revisions:

Key Plan:

Unnamed

Scale:

As indicated



12 MARCH, 2024

A0.03



CONCEPTUAL RENDER



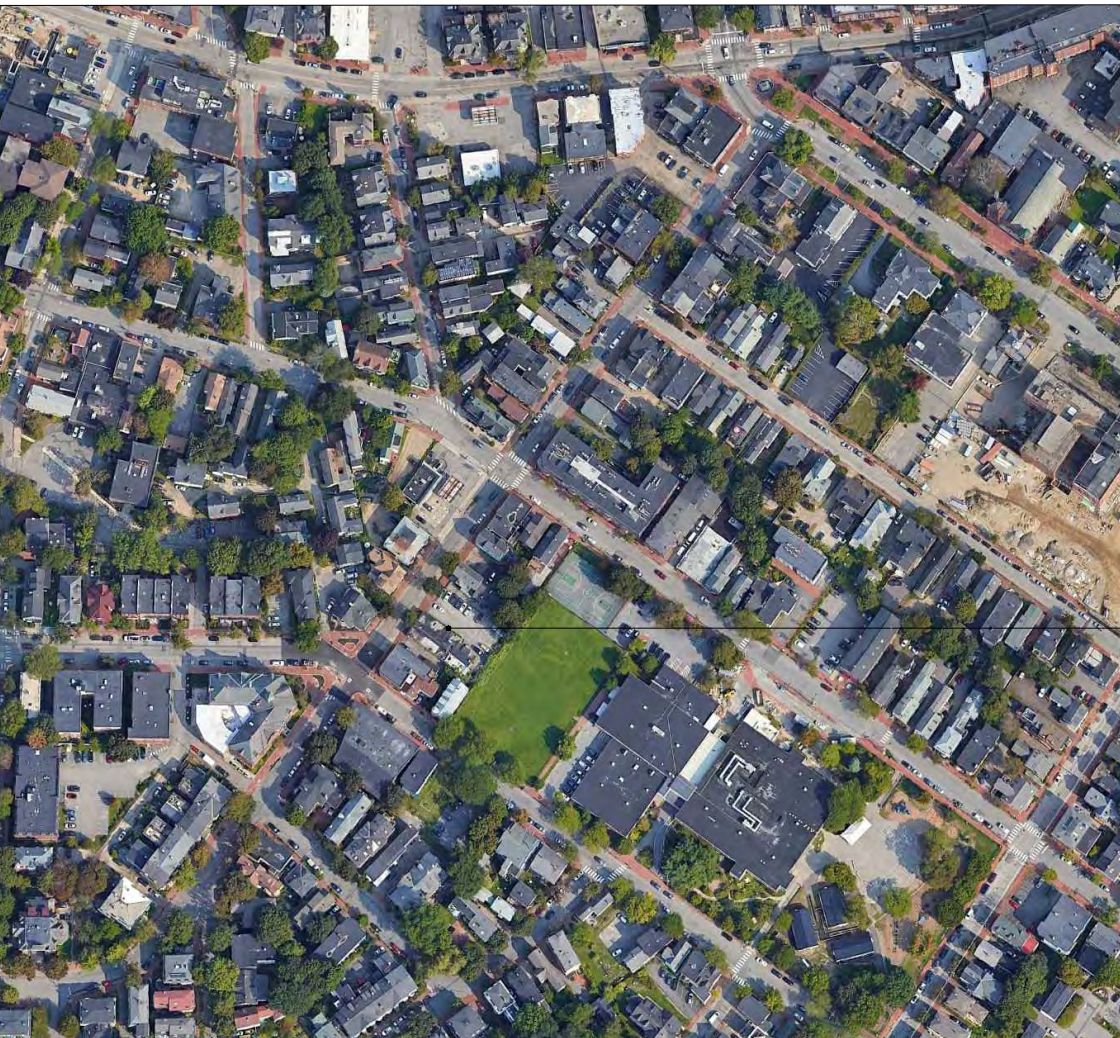
CONCEPTUAL RENDER

05.07.2024 CITY REVISIONS
04.01.2024 CITY REVISIONS
02.15.2024 CITY REVISIONS
11.02.2023 PERMIT SUBMITTAL

SHEET INDEX
LANDSCAPE DRAWINGS

■ ■ ■	L0-00	COVER SHEET
■ ■ ■	L0-01	NOTES
■ ■ ■	L1-00	GROUND MATERIALS PLAN
■ ■ ■	L1-01	ROOF MATERIALS PLAN
■ ■ ■	L2-00	GROUND PLANTING PLAN
■ ■ ■	L2-01	ROOF PLANTING PLAN
■ ■ ■	L3-00	SITE DETAILS
■ ■ ■	L3-01	SITE DETAILS
■ ■ ■	L3-02	SITE DETAILS
■ ■ ■	L3-03	SITE DETAILS
■ ■ ■	L3-04	SITE DETAILS

VICINITY MAP:



PROJECT LOCATION



LANDSCAPE ARCHITECT	ARCHITECT	CIVIL ENGINEER
ACETO LANDSCAPE ARCHITECTS NICK ACETO 207.221.3390 na@acetola.com	INVIVID ARCHITECTURE VIRGINIE STANLEY 207.939.7602 virginie@invividarchitecture.com	ACORN ENGINEERING SAM LABEL 207.478.4327 slabel@acorn-engineering.com

SEAL

LOCATION

64 PINE STREET
PORTLAND, ME 04102

PREPARED FOR

64 PINE STREET LLC
104 WASHINGTON AVENUE
PORTLAND, MAINE 04101

REVISIONS DATE

SITE PLAN SUBMISSION 11.02.23
CITY COMMENT REV. 02.20.24

ISSUE DATE

MAY 7, 2024

SHEET TITLE

COVER

SHEET INFORMATION

L 0-00

NOT FOR CONSTRUCTION

LAYOUT AND MATERIALS NOTES

- REVIEW CONTRACT DOCUMENTS AND FIELD CONDITIONS BEFORE COMMENCING WORK. REPORT ERRORS, OMISSIONS, OR INCONSISTENCIES PROMPTLY TO THE LANDSCAPE ARCHITECT.
- CONTACT UTILITY COMPANIES AS REQUIRED BY STATE AND LOCAL REGULATIONS BEFORE DIGGING. LOCATE AND MARK EXISTING UTILITIES.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
- WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
- DIMENSIONS REFERRED TO AS "EQUAL" INDICATE SPACING WHICH IS EQUIDISTANT MEASURED TO THE CENTERLINES.
- MEASUREMENTS ARE TO THE FINISHED FACE OF BUILDINGS, WALLS, OR OTHER FIXED SITE IMPROVEMENTS. DIMENSIONS TO CENTERLINES ARE IDENTIFIED.
- INSTALL INTERSECTING ELEMENTS AT 90-DEGREE ANGLES, UNLESS OTHERWISE NOTED.
- PROVIDE EXPANSION JOINTS WHERE FLATWORK MEETS VERTICAL STRUCTURES, SUCH AS WALLS, CURBS, STEPS, AND OTHER HARDSCAPE.
- CONTROL JOINTS SHOULD BE SPACED NO GREATER THAN TEN (10) LINEAR FEET MAXIMUM, UNLESS OTHERWISE SPECIFIED.
- CONTROL JOINT RECOMMENDATIONS TO MINIMIZE CRACKING SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL.
- ALL TOP OF WALLS AND FENCES ARE TO BE HELD LEVEL, UNLESS OTHERWISE SPECIFIED.
- SAMPLES OF SPECIFIED MATERIALS SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO ORDERING.
- THE CONTRACTOR SHALL PROVIDE A FULL-SCALE MOCKUP AND RECEIVE APPROVAL FROM THE LANDSCAPE ARCHITECT BEFORE BEGINNING CONSTRUCTION OF PAVEMENT.
- ALL SITE FURNITURE LOCATIONS ARE TO BE STAKED BY CONTRACTOR AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

PLANTING NOTES

- CONTACT UTILITY COMPANIES AS REQUIRED BY STATE AND LOCAL REGULATIONS BEFORE DIGGING. LOCATE AND MARK EXISTING UTILITIES.
- REFER TO CIVIL ENGINEER'S GRADING PLANS FOR FINAL GRADING AND UTILITY LOCATIONS.
- THE CONTRACTOR SHALL OBTAIN ALL PERMITS WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
- LANDSCAPE ARCHITECT TO REVIEW PLANT MATERIALS AT SOURCE OR BY PHOTOGRAPHS PRIOR TO DIGGING OR SHIPPING OF PLANT MATERIAL.
- CONTRACTOR IS TO VERIFY ALL QUANTITIES. IF QUANTITIES ON PLANT LIST DIFFER FROM GRAPHIC INDICATIONS, GRAPHICS SHALL PREVAIL.
- EXACT LOCATIONS OF TREES AND B&B SHRUBS ARE TO BE STAKED BY THE CONTRACTOR FOR LANDSCAPE ARCHITECT REVIEW AND APPROVAL PRIOR TO INSTALLATION. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ADJUST PLANTS TO EXACT LOCATION IN THE FIELD.
- PLANT MATERIAL NOT MEETING THE STANDARDS CONTAINED WITHIN CONTRACT DOCUMENTS SHALL BE REPLACED AT NO COST TO THE OWNER.
- PROVIDE MATCHING SIZES AND FORMS FOR EACH PLANT OF THE SAME SPECIES DESIGNATED ON THE DRAWINGS UNLESS OTHERWISE INDICATED.
- ALL PLANT MATERIAL IS TO BE INSTALLED PLUMB/PER THE SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS.
- PRUNE EXISTING AND/OR NEWLY PLANTED TREES ONLY AS DIRECTED BY THE LANDSCAPE ARCHITECT.
- PLANT MATERIAL SHALL HAVE ALL WIRE, TWINE, BASKETS, BURLAP, AND ALL OTHER NON-BIODEGRADABLE CONTAINMENT MATERIAL REMOVED FROM THE TRUNK AND/OR ROOT BALL OF THE PLANT PRIOR TO PLANTING. ROOT BALLS SHALL BE FREE OF WEEDS.
- FINISH GRADE OF PLANTING BEDS SHALL BE ONE (1) INCH BELOW ADJACENT PAVER OR HEADER, UNLESS OTHERWISE SPECIFIED.
- MULCH OR PLANTING BED DRESSING SHALL BE PLACED IN ALL PLANTING AREAS AS SPECIFIED. MULCH OR PLANTING BED DRESSING SHALL NOT BE PLACED WITHIN SIX (6) INCHES OF TREE TRUNKS. MULCHING SHOULD BE REPEATED ANNUALLY DURING THE AUTUMN TO A 3" DEPTH. SOIL PEP MULCH SHALL BE USED UNLESS OTHERWISE SPECIFIED..
- ALL PLANT MATERIAL SHOULD RECEIVE AN ORGANIC FERTILIZER IN LIMITED APPLICATION FOLLOWING INSTALLATION. TYPE AND APPLICATION RATE AND METHOD OF APPLICATION TO BE SPECIFIED BY THE CONTRACTOR & APPROVED BY THE LANDSCAPE ARCHITECT.
- STOCKPILED PLANT MATERIAL TO BE PLACED IN THE SHADE AND PROPERLY HAND-WATERED UNTIL PLANTED.
- PRESERVE & PROTECT ALL EXISTING VEGETATION INDICATED TO REMAIN AT ALL TIMES.
- TO THE GREATEST EXTENT POSSIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION SHALL BE STOCKPILED FOR LATER USE IN AREAS REQUIRING REVEGETATION/PLANTING.
- ALL MATERIALS USED SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE CURRENT AMERICAN STANDARDS FOR NURSERY STOCK, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL DISTURBED AREAS ARE TO BE REVEGETATED

SEEDING NOTES

- REVEGETATED AREAS ARE TO BE HYRO-SEEDED, FOLLOWED BY THE APPLICATION OF STRAW MULCH.
- APPLY STRAW MULCH AT A MINIMUM RATE OF 1.5 TONS PER ACRE OF AIR DRY MATERIAL. SPREAD STRAW MULCH UNIFORMLY OVER THE AREA WITH MECHANICAL MULCH SPREADER/CRIMPER. DO NOT MULCH WHEN WIND VELOCITY EXCEEDS 10 MPH.
- IMMEDIATELY UPON COMPLETION OF THE MULCHING AND BINDING OPERATION, THE SEEDED AREAS SHALL BE IRRIGATED, KEEPING THE TOP 2 INCHES OF SOIL EVENLY MOIST UNTIL SEED HAS UNIFORMLY GERMINATED AND GROWN TO A HEIGHT OF 2 INCHES.
- WATERING APPLICATION SHALL BE DONE IN A MANNER WHICH WILL PROVIDE UNIFORM COVERAGE BUT WHICH WILL NOT CAUSE EROSION, MOVEMENT, OR DAMAGE TO THE FINISHED SURFACE.

GRADING AND DRAINAGE NOTES

- MATERIALS/WASTE CREATED BY REMOVAL PROCEDURES SHALL BE LEGALLY DISPOSED OF AWAY FROM THE JOB SITE.
- NOTIFY LOCAL UNDERGROUND SERVICE COMPANIES FOR UTILITY FINDS 48 HOURS PRIOR TO ANY EXCAVATION.
- THE CONTRACTOR IS TO REVIEW ARCHITECTURAL DRAWINGS FOR THE VERIFICATION OF CONNECTIONS TO DRAINS OVER STRUCTURE.
- THE CONTRACTOR IS TO REVIEW ARCHITECTURAL DRAWINGS FOR THE VERIFICATION OF WATERPROOFING OF SLAB PENETRATIONS.
- THE CONTRACTOR IS TO REVIEW CIVIL ENGINEER'S DRAWINGS FOR THE VERIFICATION OF CONNECTIONS TO DRAINS.
- GRADING AND EXCAVATION WORK SHALL BE COMPLETED DURING DRY AND NON-FREEZING CONDITIONS.
- POSITIVE DRAINAGE SHALL BE PROVIDED AWAY FROM ALL STRUCTURES.
- SOIL COMPACTION SHALL BE 95% PROCTOR DENSITY MINIMUM BENEATH PAVEMENTS, STEPS, WALLS AND LIGHT FOUNDATIONS, UNLESS OTHERWISE SPECIFIED.

ABBREVIATIONS TABLE

APPROX	APPROXIMATE	MH	MANHOLE
ARCH	ARCHITECT	MIN	MINIMUM
AVG	AVERAGE	MISC	MISCELLANEOUS
B+B	BALED AND BURLAPPED	N	NORTH
BF	BOTTOM OF FOOTING	NIC	NOT IN CONTRACT
BLDG	BUILDING	NO	NUMBER
BM	BENCHMARK	NOM	NOMINAL
BOC	BACK OF CURB	NTS	NOT TO SCALE
BR	BOTTOM OF RAMP	OC	ON CENTER
BS	BOTTOM OF STEP	OD	OUTSIDE DIAMETER
BW	BOTTOM OF WAL	OPP	OPPOSITE
CAL	CALIPER	PAR	PARALLEL
CAP	CAPACITY	PC	POINT OF CURVATURE
CF	CUBIC FEET	PE	POLYURETHANE
CHAM	CHAMFER	PERF	PERFORATED
CIP	CAST IN PLACE	PED	PEDESTRIAN
CJ	CONTROL JOINT	PI	POINT OF INTERSECTION
CL	CENTER LINE	PL	PROPERTY LINE
CLR	CLEARANCE	PT	POINT, POINT OF TANGENCY
CM	CENTIMETER	PVC	POLYVINYL CHLORIDE
CO	CLEAN OUT	PVMT	PAVEMENT
COMP	COMPACTED	PVR	PAVER
CONC	CONCRETE	QTY	QUANTITY
CONST	CONSTRUCTION	R	RADIUS
CONT	CONTINUOUS	REF	REFERENCE
CONTR	CONTRACTOR	REINF	REINFORCE(D)
CU	CUBIC	REQ'D	REQUIRED
CY	CUBIC YARD	REV	REVISION, REVISED
DEMO	DEMOLISH, DEMOLITION	ROW	RIGHT OF WAY
DIA	DIAMETER	RT	RIGHT
DIM	DIMENSION	S	SOUTH
DTL	DETAIL	SS	SANITARY SEWER
DWG	DRAWING	SCH	SCHEDULE
E	EAST	SD	STORM DRAIN
EA	EACH	SEC	SECTION
EJ	EXPANSION JOINT	SF	SQUARE FOOT (FEET)
EL	ELEVATION	SHT	SHEET
ELEC	ELECTRICAL	SIM	SIMILAR
ENG	ENGINEER	SNT	SEALANT
EQ	EQUAL	SPECS	SPECIFICATIONS
EQUIP	EQUIPMENT	SQ	SQUARE
EST	ESTIMATE	ST	STORM SEWER
E.W.	EACH WAY	SY	SQUARE YARD
EXIST	EXISTING	STA	STATION
EXP	EXPANSION, EXPOSED	STD	STANDARD
FFE	FINISHED FLOOR ELEVATION	STL	STEEL
FG	FINISHED GRADE	STRL	STRUCTURAL
FIN	FINISH	SYM	SYMMETRICAL
FL	FLOW LINE	T&B	TOP AND BOTTOM
FOW	FACE OF WAL	TBC	TOP OF BACK CURB
FT	FOOT (FEET)	TC	TOP OF CURB
FTG	FOOTING	TF	TOP OF FOOTING
GA	GAUGE	TRANS	ELECTRIC TRANSFORMER
GAL	GALVANIZED	TOC	TOP OF CONCRETE
GEN	GENERAL	TOPO	TOPOGRAPHY
HORIZ	HORIZONTAL	TSL	TOP OF SLAB
HP	HIGH POINT	TR	TOP OF RAMP
HT	HEIGHT	TS	TOP OF STEP
ID	INSIDE DIAMETER	TW	TOP OF WAL
INV	INVERT ELEVATION	TYP	TYPICAL
IN	INCH(ES)	VAR	VARIES
INCL	INCLUDE(D)	VERT	VERTICAL
IRR	IRRIGATION	VEH	VEHICLE
JT	JOINT	VOL	VOLUME
LIN	LINEAR	W/	WITH
LF	LINEAR FEET	W/O	WITHOUT
LP	LOW POINT	WT	WEIGHT
LT	LIGHT	WWF	WELDED WIRE FABRIC
MATL	MATERIAL	YD	YARD
MAX	MAXIMUM	@	AT
MEMB	MEMBRANE		
MD	MAIN DISCONNECT SWITCH		



SEAL

LOCATION

64 PINE STREET
PORTLAND, ME 04102

PREPARED FOR

64 PINE STREET LLC
104 WASHINGTON AVENUE
PORTLAND, MAINE 04101

REVISIONS

DATE

SITE PLAN SUBMISSION 11.02.23
CITY COMMENT REV. 02.20.24

ISSUE DATE

MAY 7, 2024

SHEET TITLE

NOTES
FOR CONCEPTUAL
INTENT ONLY

SHEET INFORMATION

L 0-01
NOT FOR CONSTRUCTION

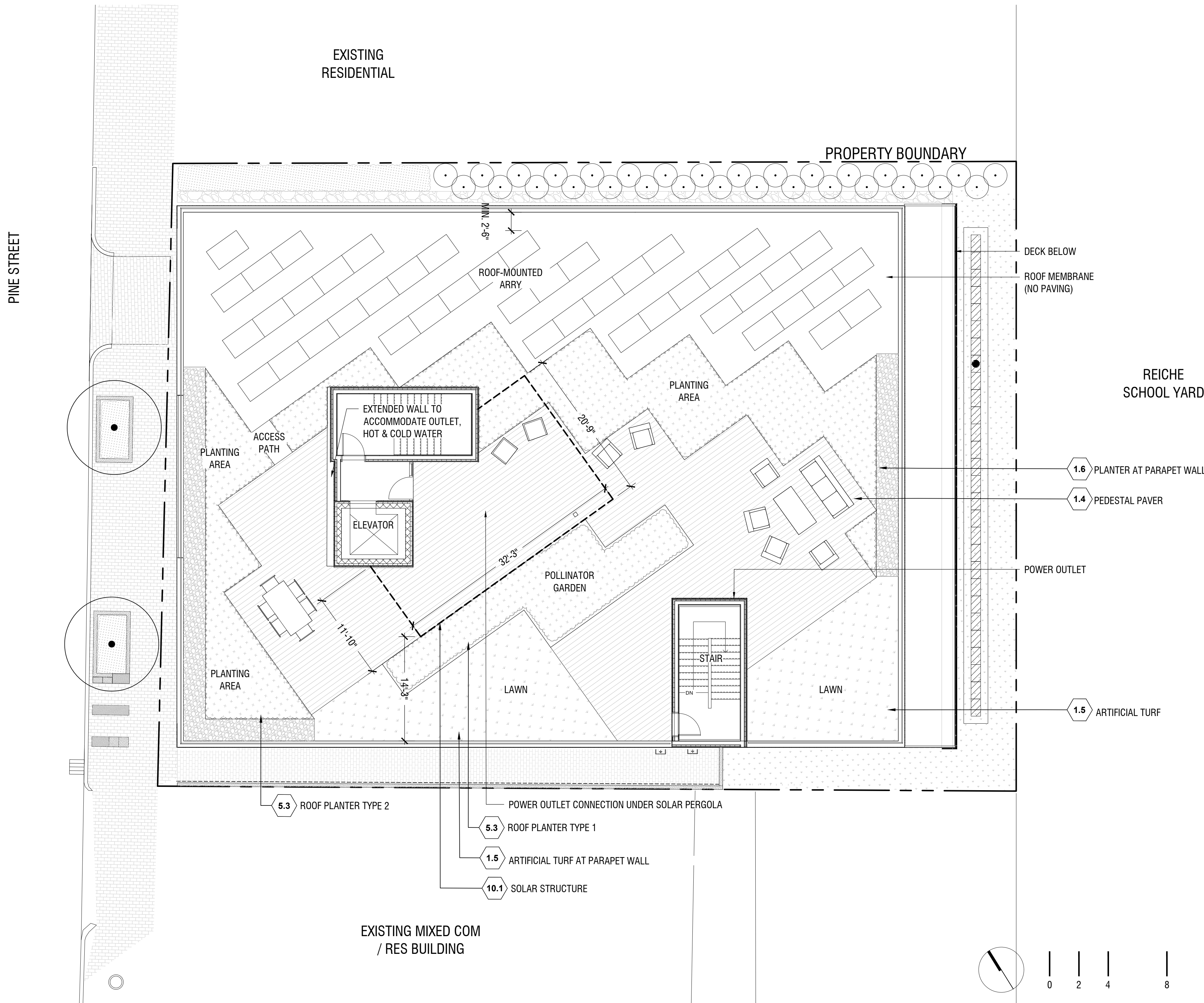
MATERIALS LEGEND

SYMBOL

	GROUND PLANTING AREA - APPROX. 200 SF
	ROOF PLANTING AREA - APPROX. 1300 SF
	WOOD DECKING - APPROX. 1980 SF
	LAWN SEEDING - APPROX. 880 SF
	CRUSHED STONE - APPROX. 279 SF
	GRANITE EDGING - APPROX. 116 LF

SITE KEYNOTES:

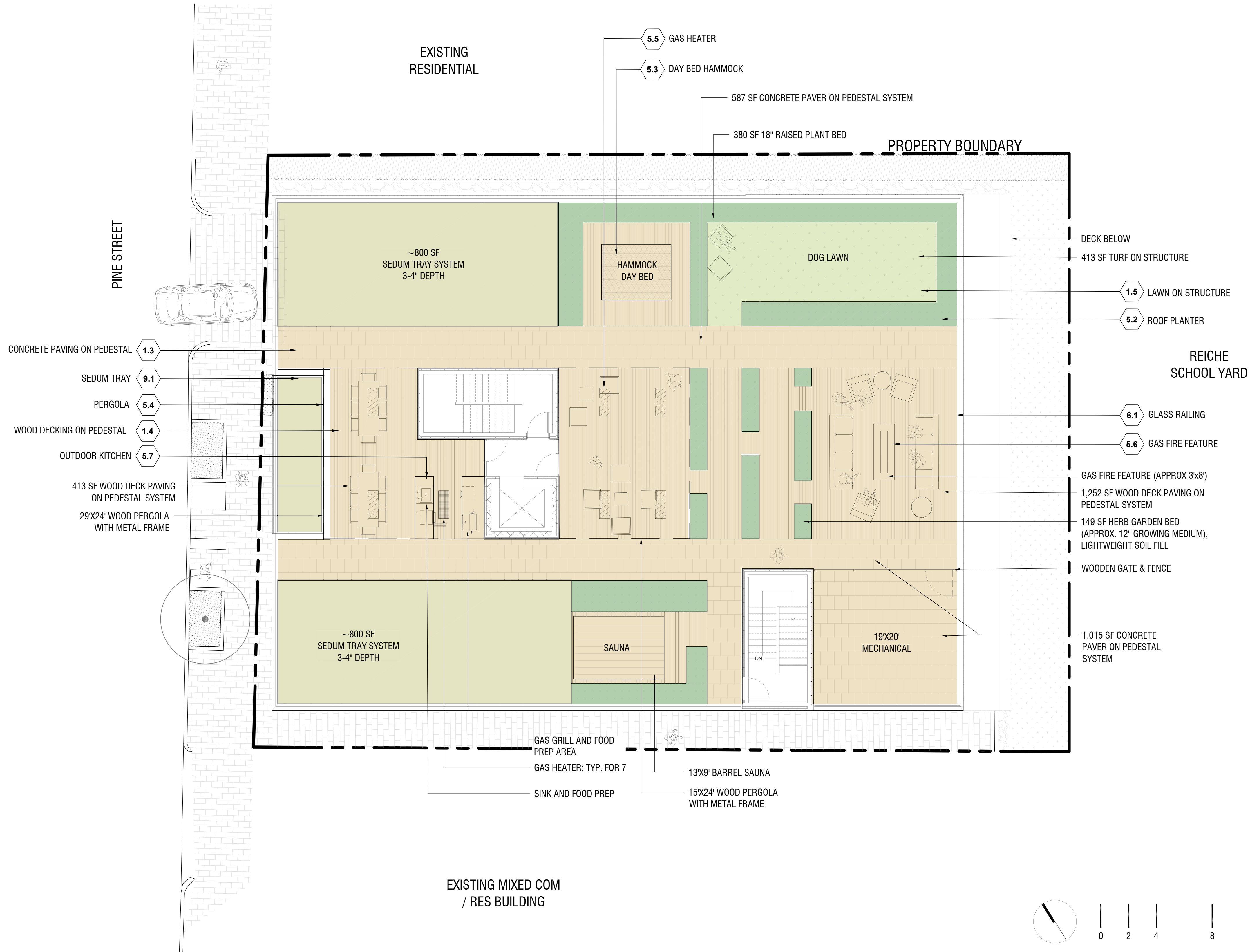
1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	X.X	NOT USED AT THIS TIME	X/XX-XX
1.2	TALL GRANITE EDGING	6/L3-01			
1.3	GRANITE PAVING	3/L3-00	7.0	SITE LIGHTING	
1.4	PEDESTAL PAVER	3/L3-02	X.X	NOT USED AT THIS TIME	X/XX-XX
1.5	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	8.0	DRAINAGE	
1.6	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		9.0	PLANTING AND LANDSCAPE	
X.X	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			

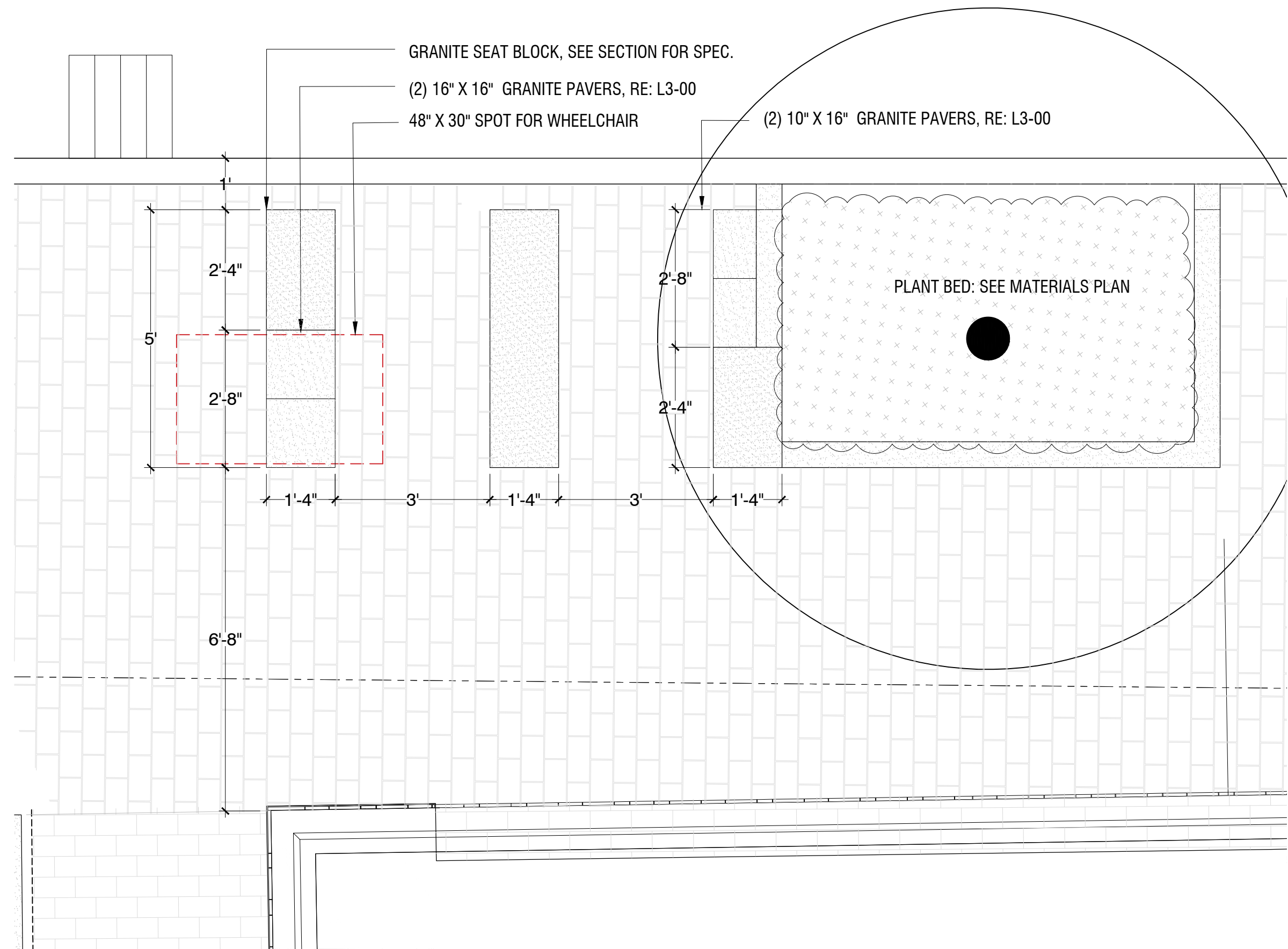
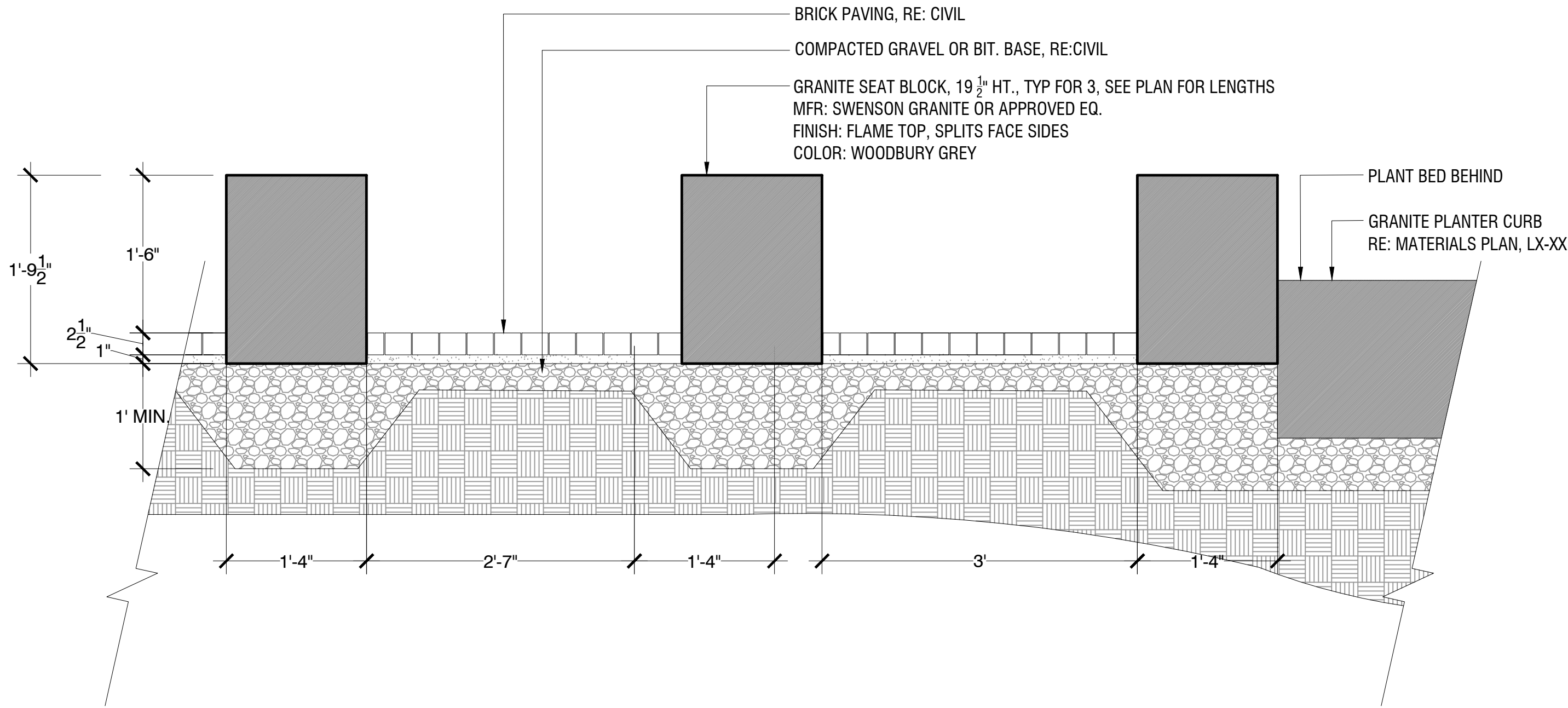


EXISTING MIXED COM
/ RES BUILDING

SEEDUM TRAYS: APPROX 29-50 PSF	1,604 SF
LAWN ON STRUCTURE APPROX 50-60 PSF +LIVE LOAD	413 SF
RAISED PLANTERS: APPROX 80-90 PSF	694 SF
PEDESTAL PAVING: APPROX 25 PSF + LIVE LOAD	3,414 SF

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	X/XX-XX	6.1	GLASS RAILING	X/XX-XX
1.2	FLUSH GRANITE CURBING	X/XX-XX			
1.3	CONCRETE PAVING ON PEDESTAL	X/XX-XX	7.0	SITE LIGHTING	
1.4	WOOD DECKING ON PEDESTAL	X/XX-XX	X.X	NOT USED AT THIS TIME	X/XX-XX
1.5	LAWN ON STRUCTURE	X/XX-XX			
2.0	JOINTING		8.0	DRAINAGE	
X.X	NOT USED AT THIS TIME	X/XX-XX	X.X	NOT USED AT THIS TIME	X/XX-XX
3.0	STEPS				
X.X	NOT USED AT THIS TIME	X/XX-XX	9.0	PLANTING AND LANDSCAPE	
4.0	SITE WALLS/ EMBANKMENTS		9.1	SEDUM TRAY	X/XX-XX
X.X	NOT USED AT THIS TIME	X/XX-XX	9.2	SHRUB PLANTING	X/XX-XX
			9.3	PERENNIAL PLANTING	X/XX-XX
5.0	SITE FURNITURE		10.0	MISCELLANEOUS ELEMENTS	
5.1	GRANITE BLOCK BENCH	X/XX-XX	10.1	CRUSHED STONE DRIP EDGE W/ METAL EDGER	X/XX-XX
5.2	ROOF PLANTER	X/XX-XX			
5.3	DAY BED HAMMOCK	X/XX-XX			
5.4	PERGOLA	X/XX-XX			
5.5	GAS HEATER	X/XX-XX			
5.6	GAS FIRE FEATURE	X/XX-XX			
5.7	OUTDOOR KITCHEN	X/XX-XX			

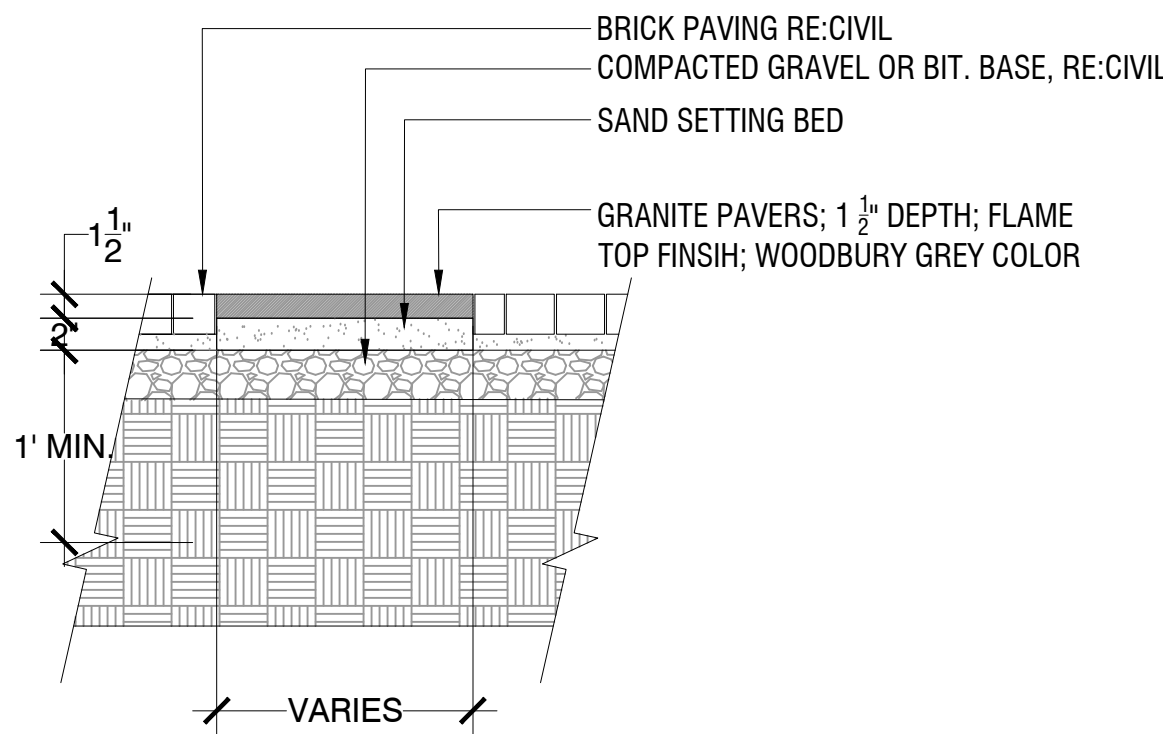
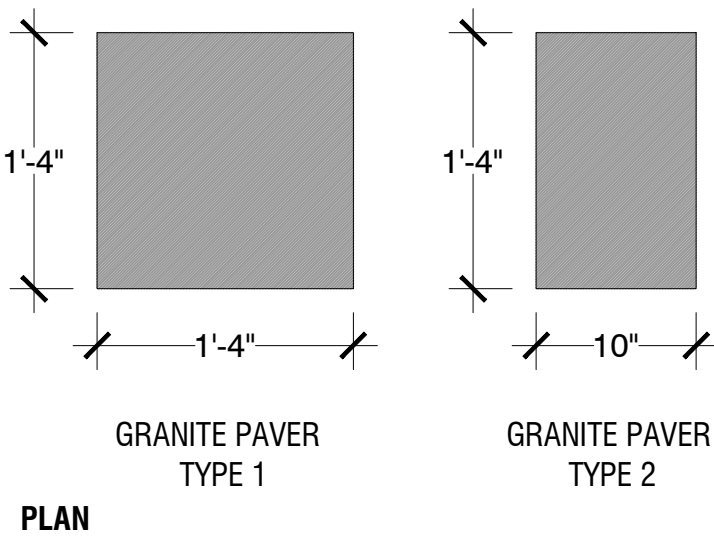
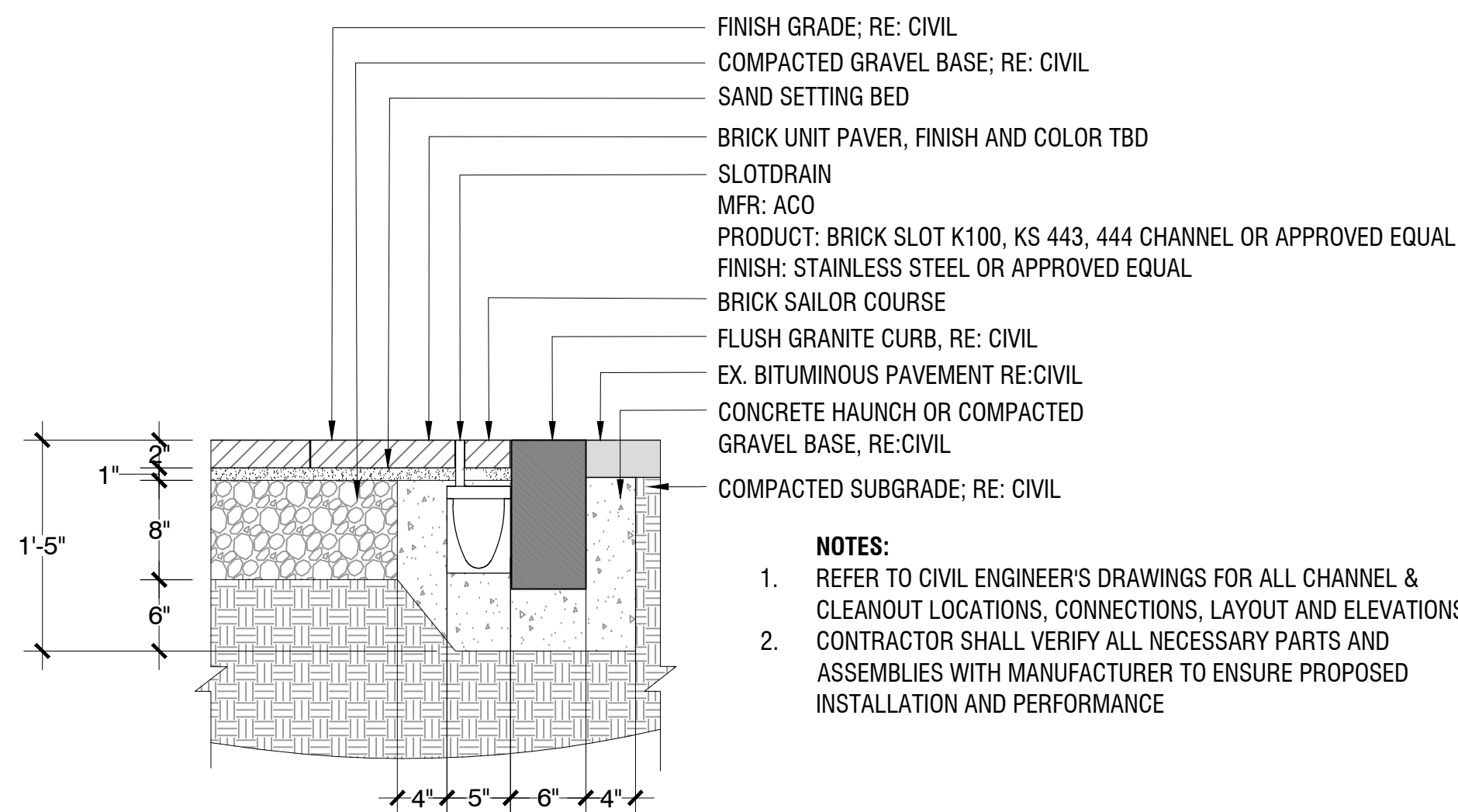




1

GRANITE BENCHES
1":1'-0"

5.1



SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	XX	NOT USED AT THIS TIME	X/XX-XX
1.2	GRANITE PAVING	3/L3-00	SITE LIGHTING		
1.3	PEDESTAL PAVER	3/L3-02	XX	NOT USED AT THIS TIME	X/XX-XX
1.4	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	DRAINAGE		
1.5	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		8.0	PLANTING AND LANDSCAPE	
XX	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			

2

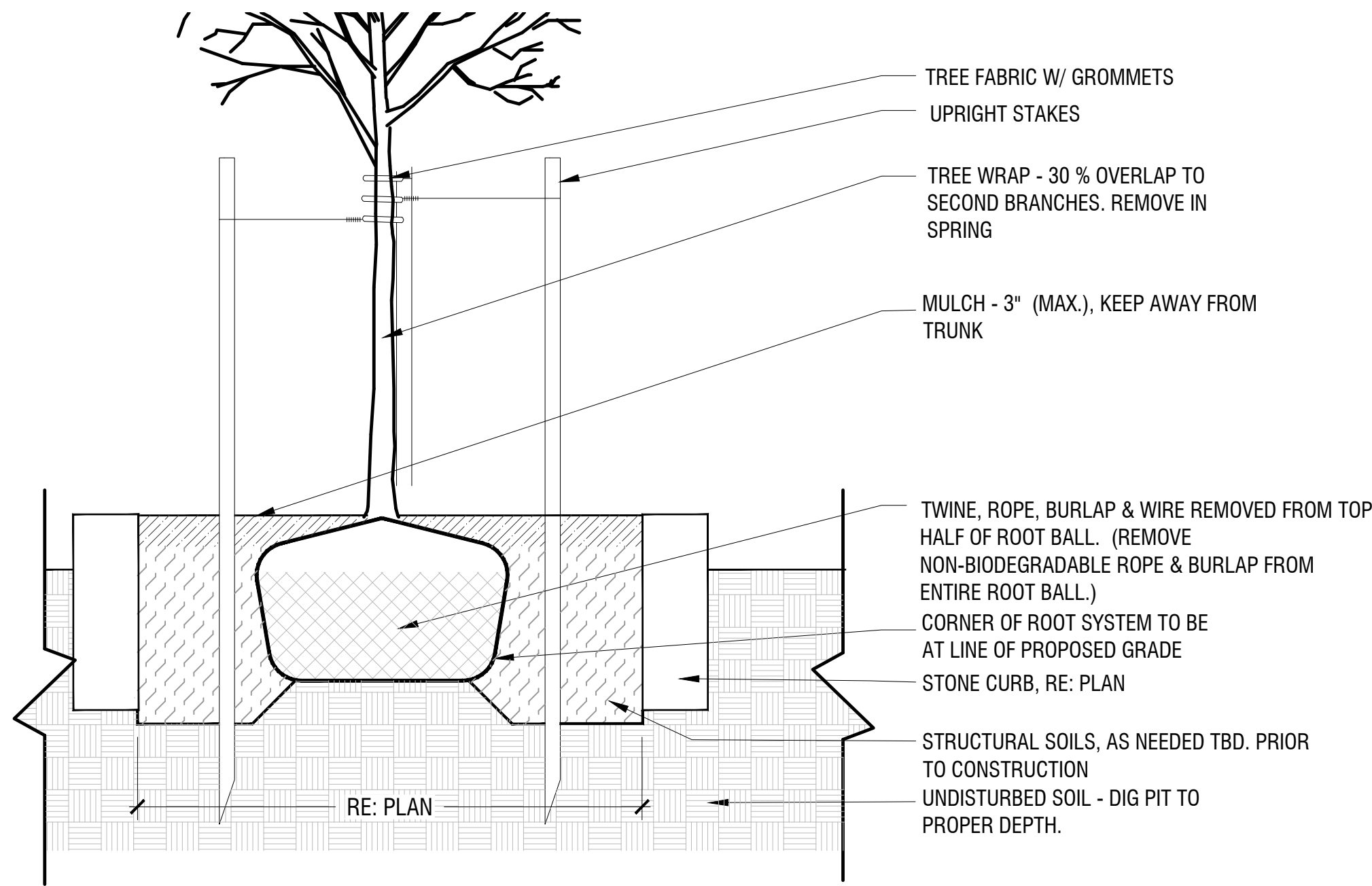
SLOT DRAIN
1":1'-0"

8.1

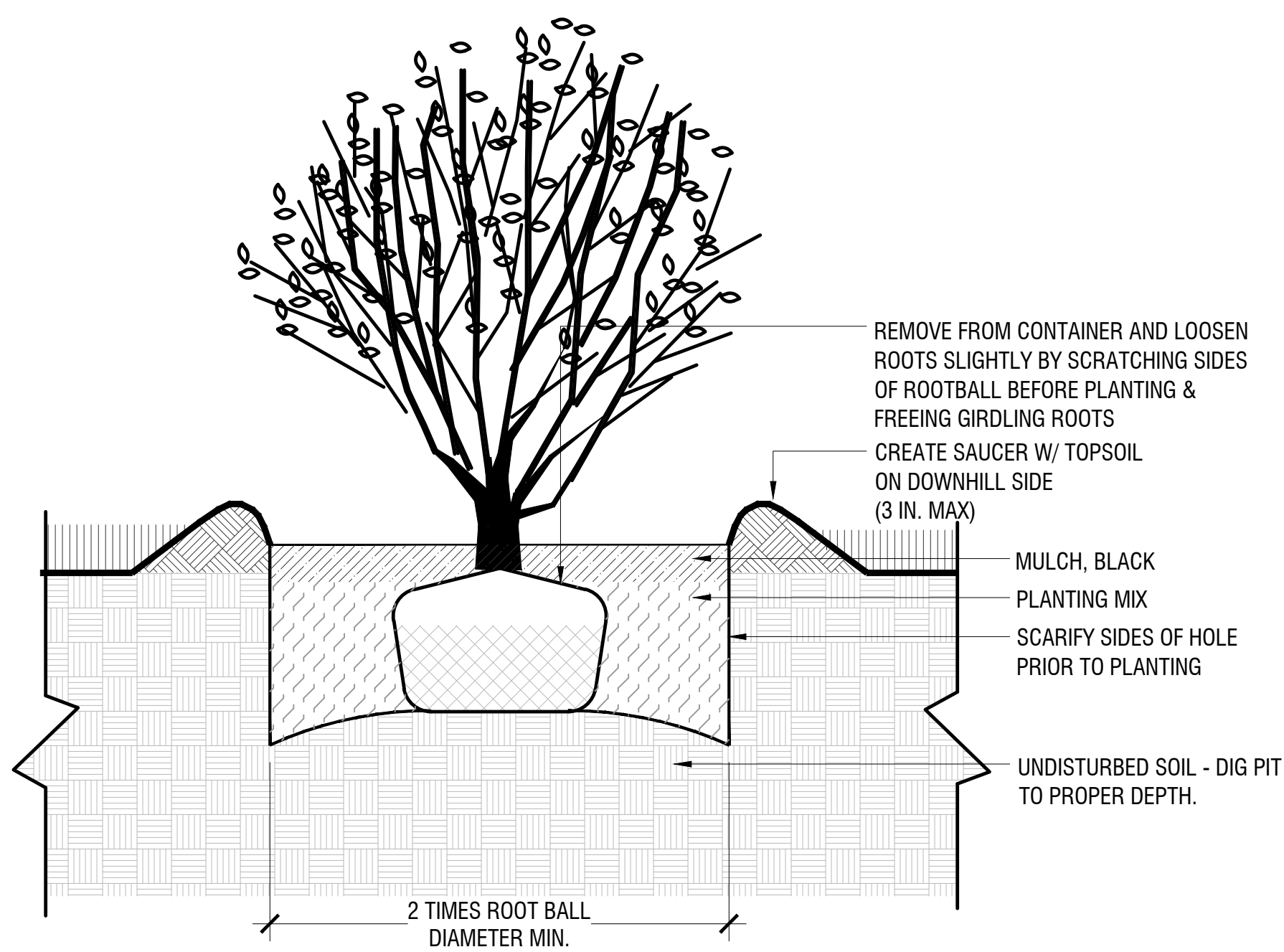
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GRANITE PAVER
1":1'-0"

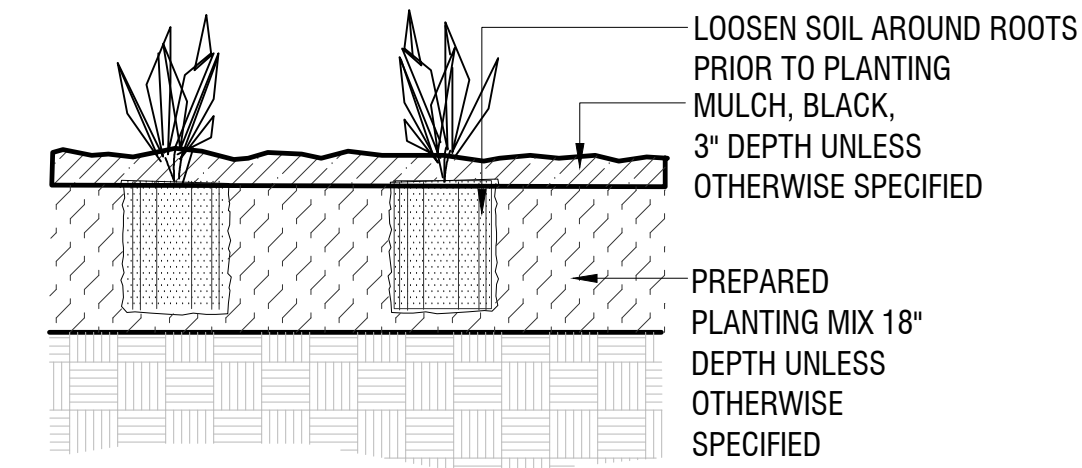
1.2



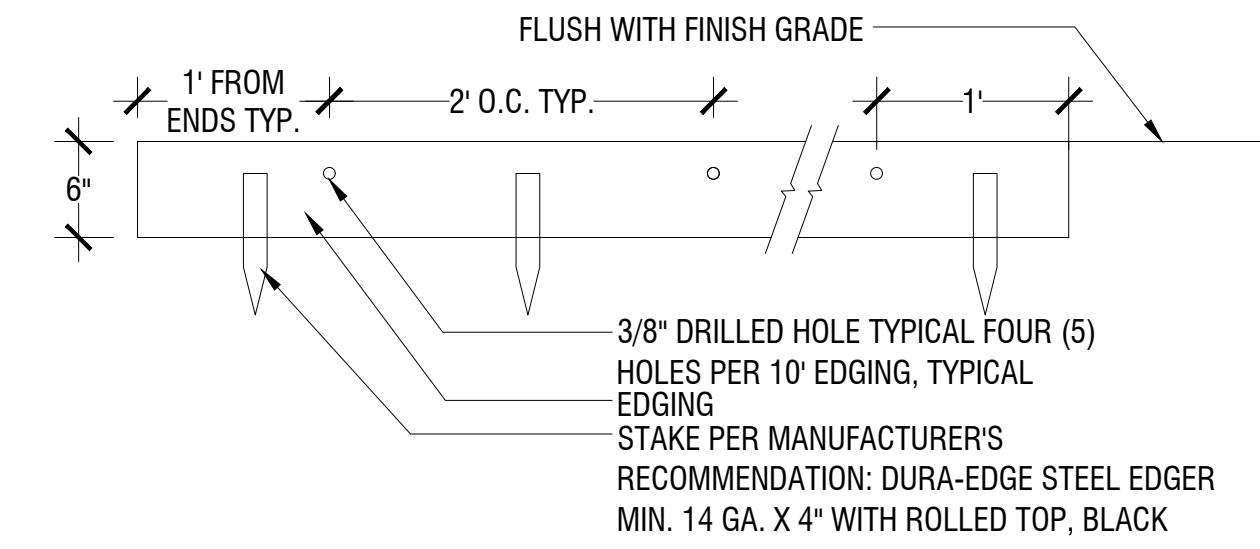
1 TREE PLANTING
1":1'-0"



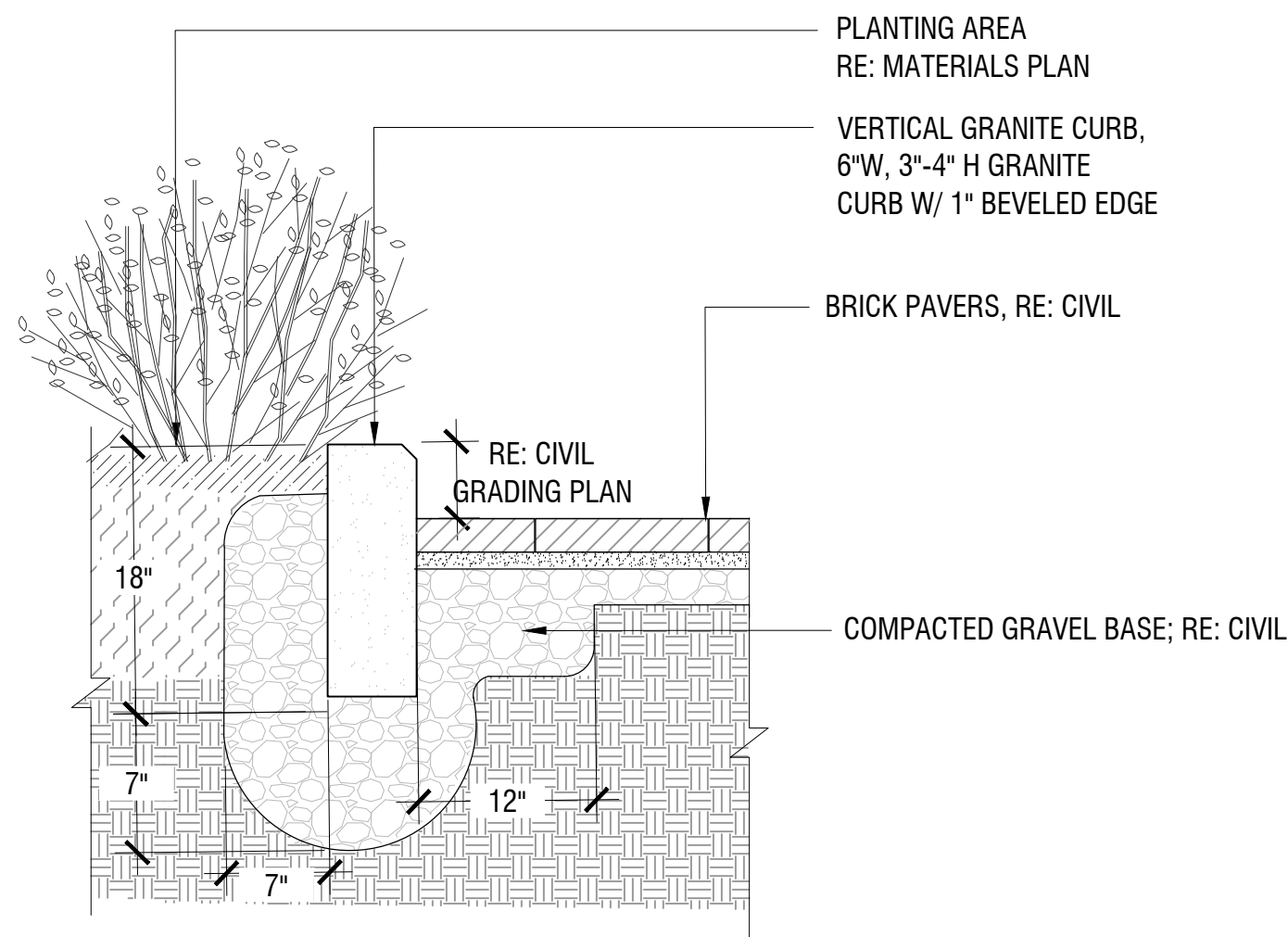
2 SHRUB PLANTING
1":1'-0"



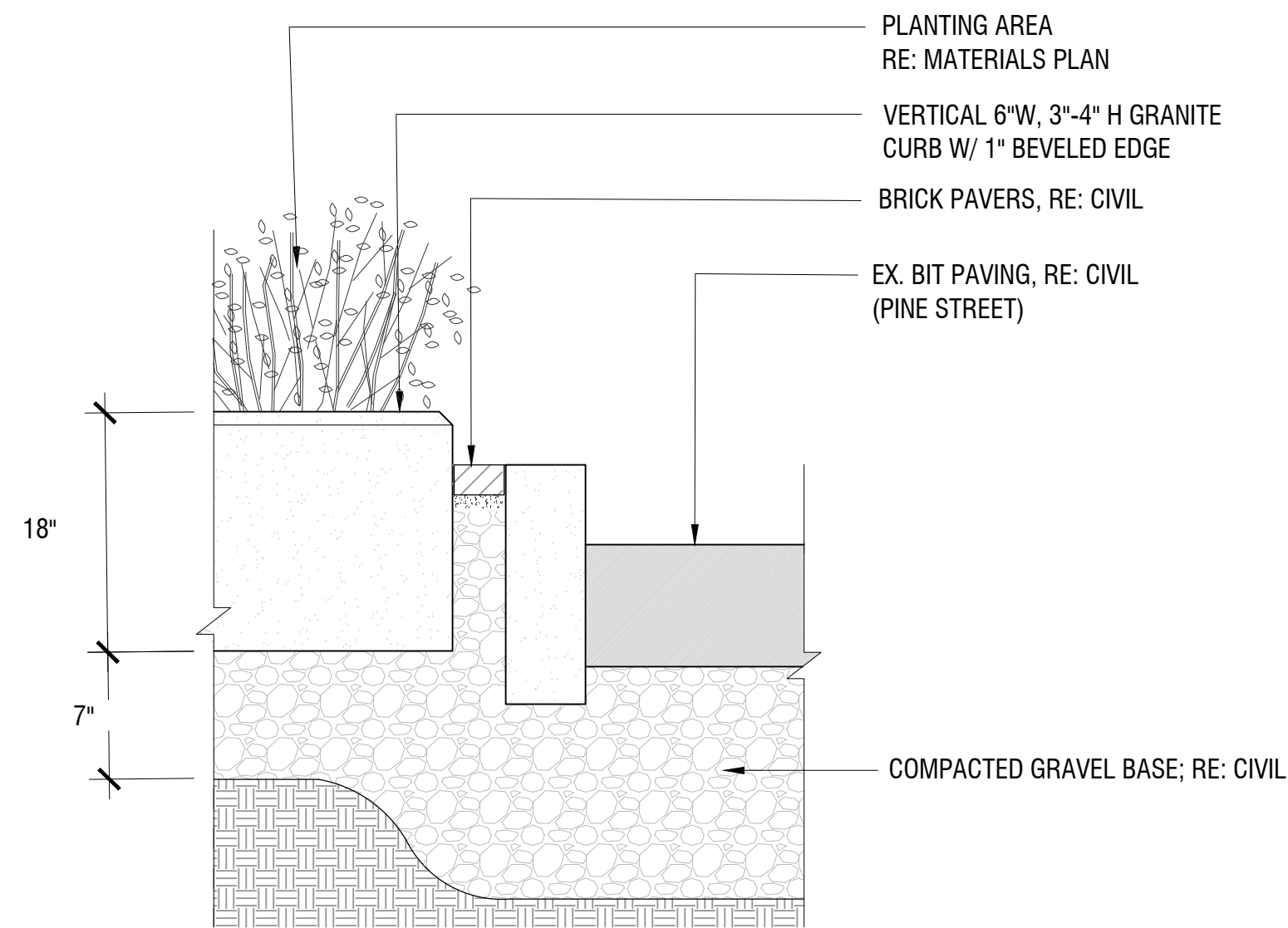
3 PERENNIAL PLANTING
1":1'-0"



4 LANDSCAPE EDGING
1":1'-0"



SECTION



CROSS SECTION

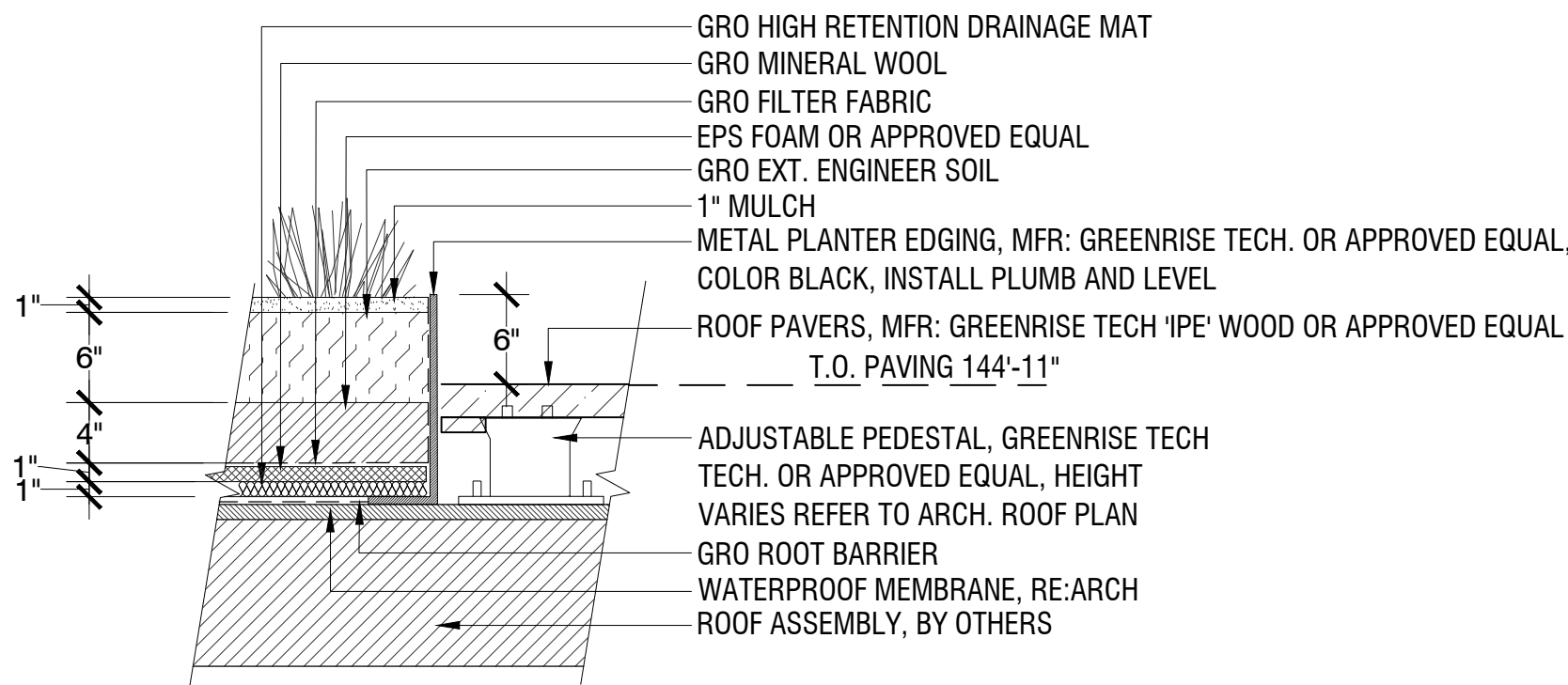
5 GRANITE PLANTER CURB
1":1'-0"

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	XX	NOT USED AT THIS TIME	X/XX-XX
1.2	GRANITE PAVING	3/L3-00	SITE LIGHTING		
1.3	PEDESTAL PAVER	3/L3-02	XX	NOT USED AT THIS TIME	X/XX-XX
1.4	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	DRAINAGE		
1.5	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		8.0	PLANTING AND LANDSCAPE	
XX	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			

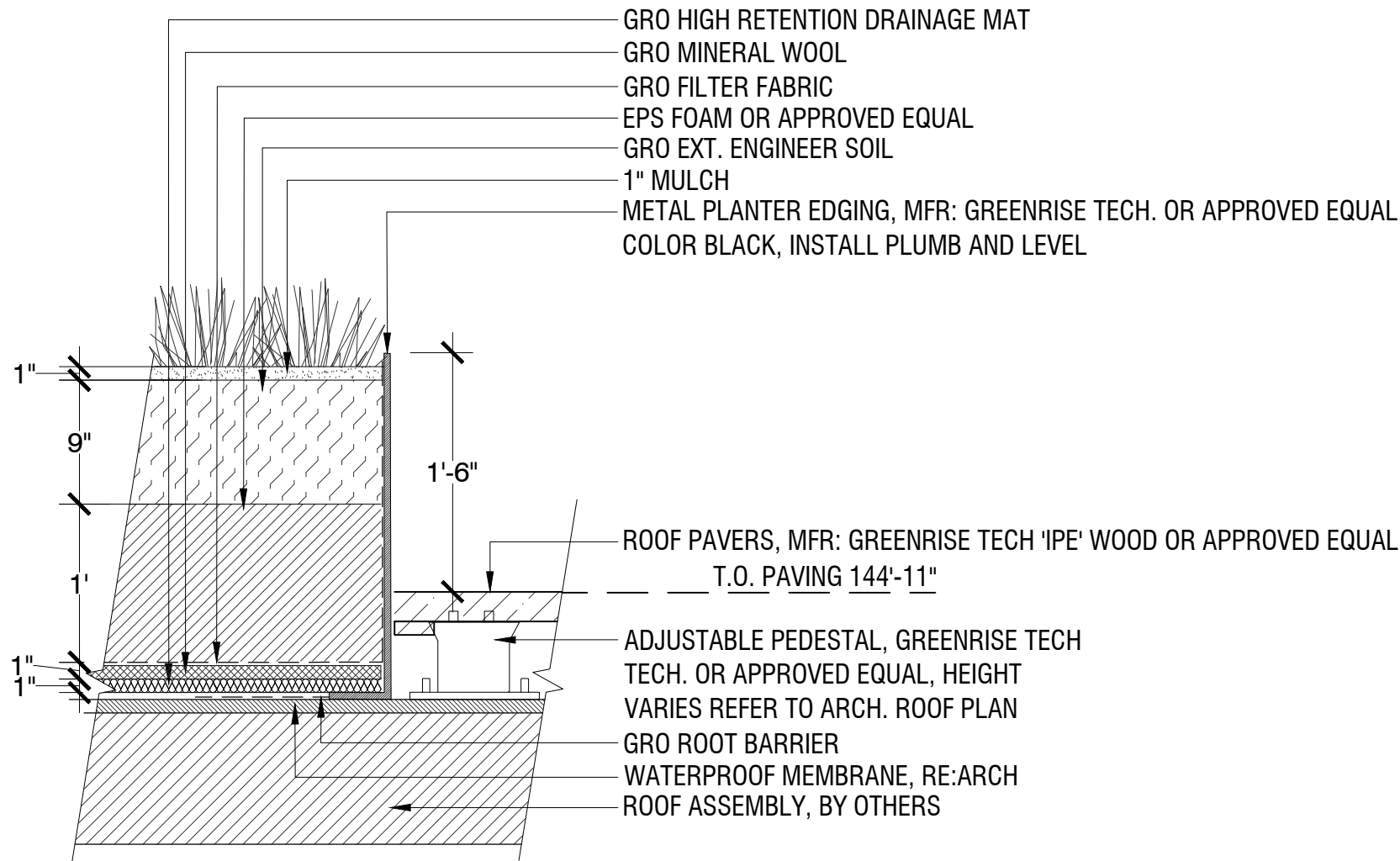
NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR LANDSCAPE ARCH. APPROVAL FOR METAL EDGING AND PLANTER SYSTEM
2. CONTRACTOR SHALL SUBMIT SAMPLES FOR LANDSCAPE ARCH. APPROVAL OF PAVER AND PEDESTAL SYSTEM
3. CONTRACTOR SHALL SUBMIT SAMPLE OF ENGINEERED SOIL FOR LANDSCAPE ARCH. APPROVAL PRIOR TO CONSTRUCTION
4. PLANTER ASSEMBLY DETAIL FOR PLANNING PURPOSES ONLY, FINAL DETAIL AND SPEC'S TBD PRIOR TO CONSTRUCTION



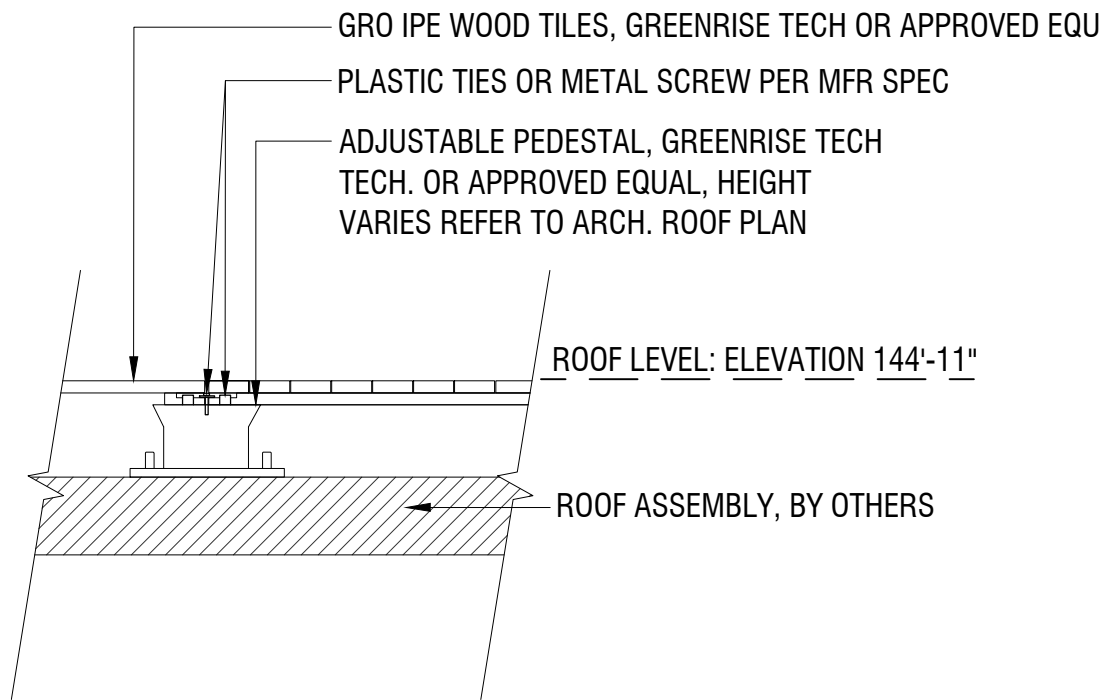
1 ROOF PLANTER 'TYPE 1'
1":1'-0"

5.2



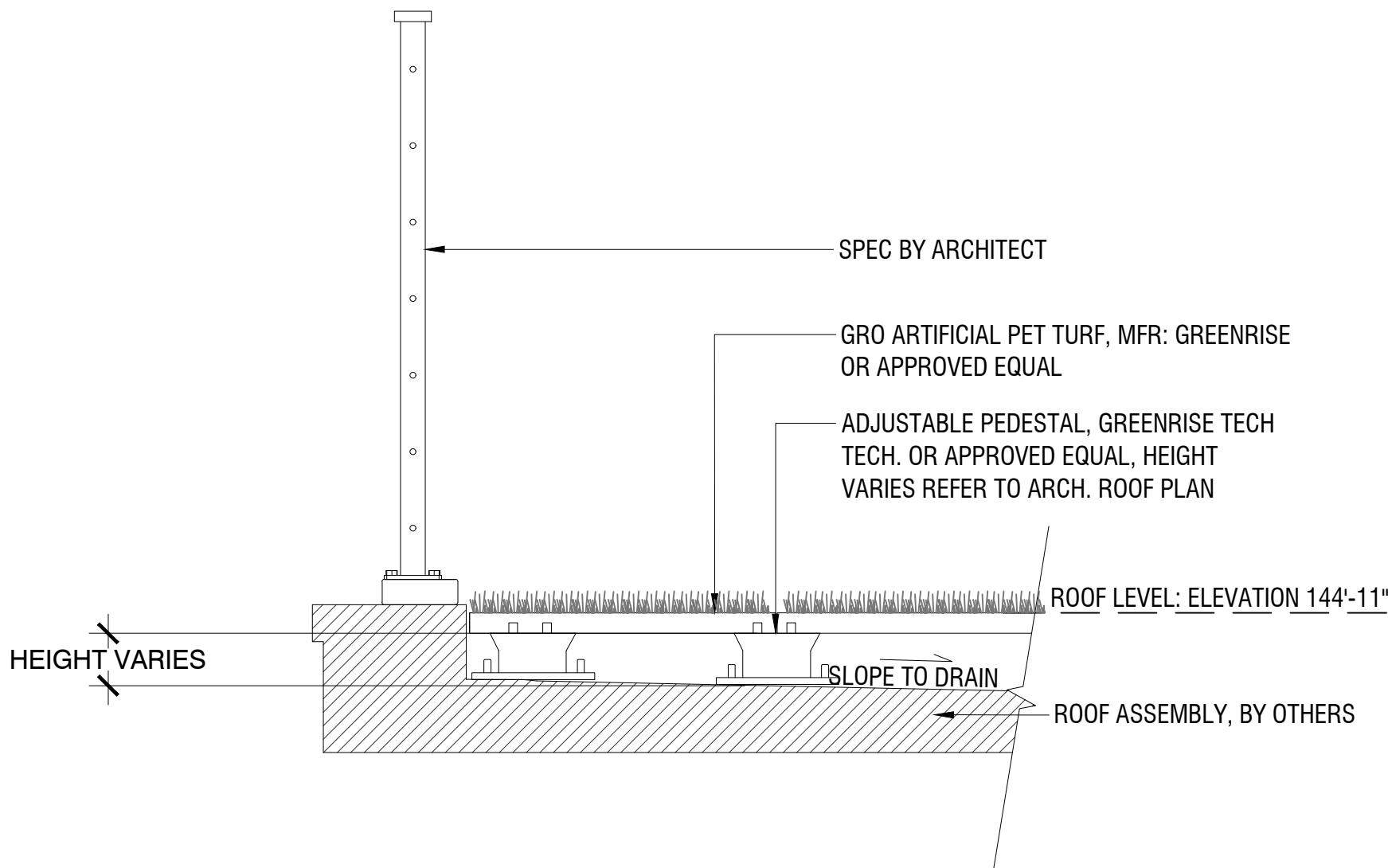
2 ROOF PLANTER 'TYPE 2'
1":1'-0"

5.3



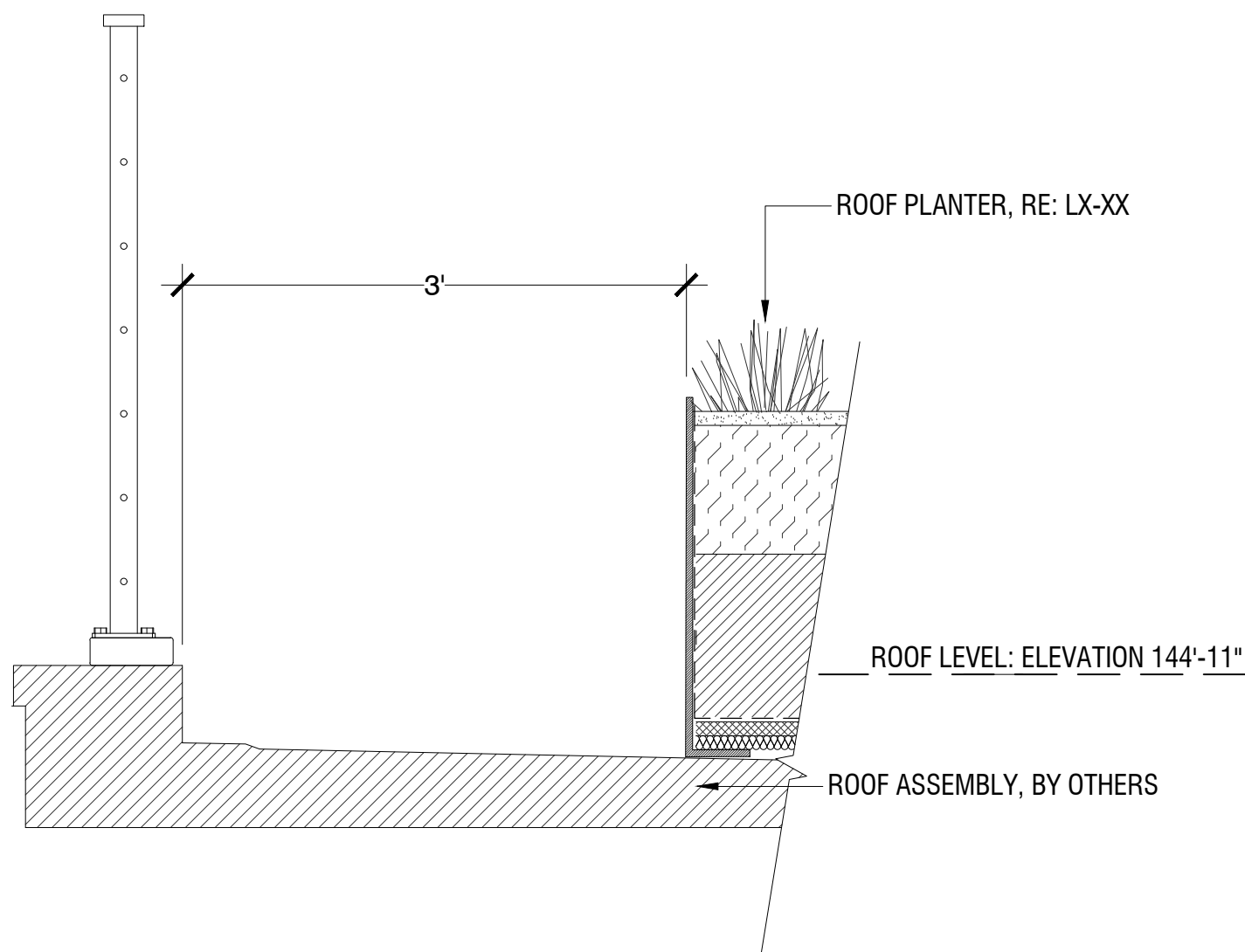
3 PEDESTAL PAVER
1":1'-0"

1.3



4 ARTIFICIAL TURF AT PARAPET WALL
1":1'-0"

1.4

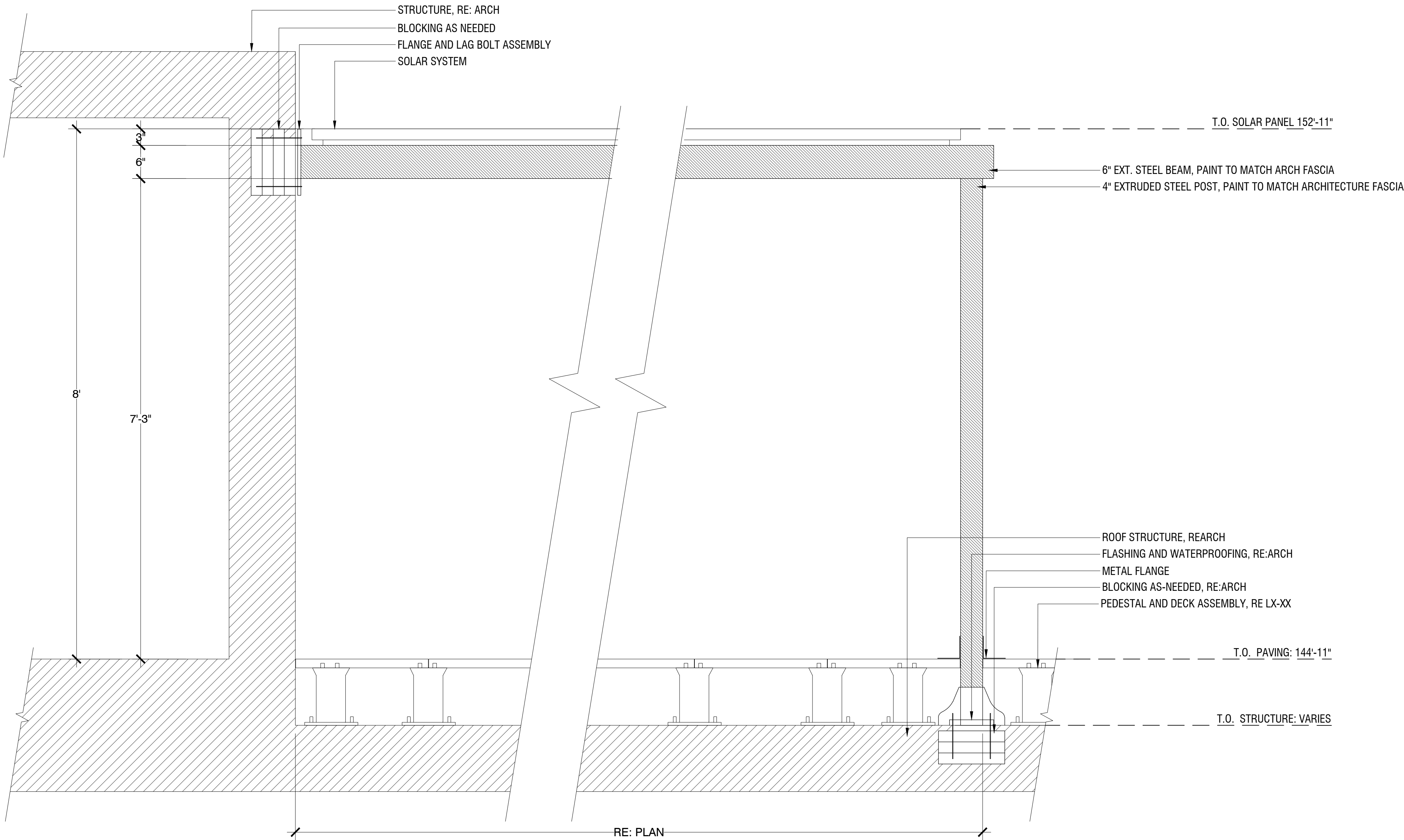


5 PLANTER AT PARAPET WALL
1":1'-0"

1.5

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	XX	NOT USED AT THIS TIME	X/XX-XX
1.2	GRANITE PAVING	3/L3-00	7.0	SITE LIGHTING	
1.3	PEDESTAL PAVER	3/L3-02	XX	NOT USED AT THIS TIME	X/XX-XX
1.4	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	8.0	DRAINAGE	
1.5	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		9.0	PLANTING AND LANDSCAPE	
XX	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			



SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	XX	NOT USED AT THIS TIME	X/XX-XX
1.2	GRANITE PAVING	3/L3-00	SITE LIGHTING		
1.3	PEDESTAL PAVER	3/L3-02	XX	NOT USED AT THIS TIME	X/XX-XX
1.4	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	DRAINAGE		
1.5	PLANTER PARAPET WALL	5/L3-02	8.0	8.1	SLOT DRAIN 2/L3-00
JOINTING			PLANTING AND LANDSCAPE		
XX	NOT USED AT THIS TIME	X/XX-XX	9.0	9.1	TREE PLANTING 1/L3-01
STEPS			9.2	SHRUB PLANTING	2/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
SITE WALLS/ EMBANKMENTS			9.4	LANDSCAPE EDGING	4/L3-01
XX	NOT USED AT THIS TIME	X/XX-XX	MISCELLANEOUS ELEMENTS		
SITE FURNITURE			10.0	10.1	SOLAR STRUCTURE 1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			

1

SOLAR STRUCTURE
1"=1'-0"

10.1

64 PINE STREET
PORTLAND, ME 04102

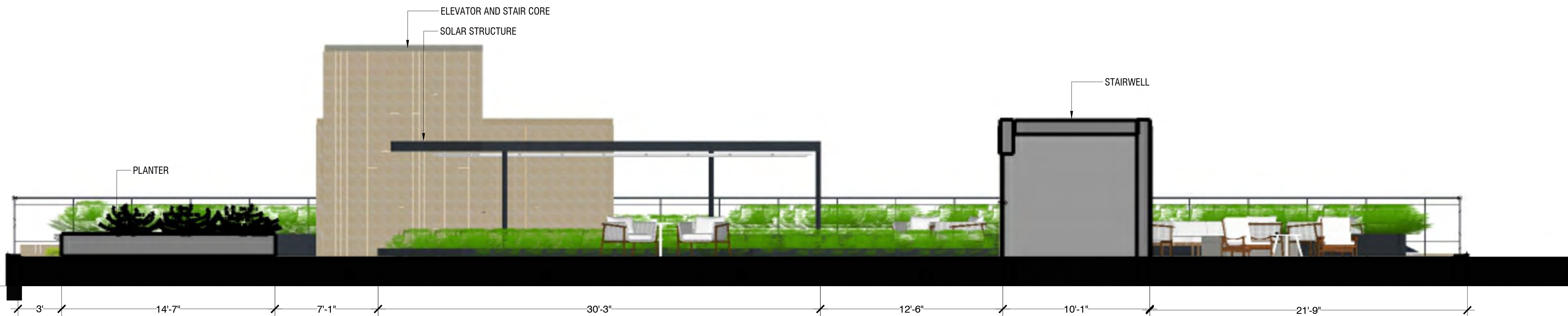
64 PINE STREET LLC
104 WASHINGTON AVENUE
PORTLAND, MAINE 04101

SITE PLAN SUBMISSION 11.02.23
CITY COMMENT REV. 02.20.24

MAY 7, 2024

LANDSCAPE
DETAILS

L 3-04



1

ROOF SECTIONS
1/4"=1'-0"

xx

PLANTING LEGEND

SYMB.	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING
TREES					
TC	TILIA CORDATA 'CORZAM'	LITTLE LEAF LIDEN	02	2" CAL.	PER PLAN

SHRUBS

VA	VIBURNUM ACERFOLIUM	MAPLE LEAF VIBURNUM	31	#5	PER PLAN
DL	DIERVILLA LONICERA	BUCH HONEYSUCKLE	19	#3	30" O.C.
RA	RHUS AROMATICA	FRAGRANT SUMAC	12	#3	30" O.C.

KEYNOTE	QTY.	DESCRIPTION
PERENNIALS AND ORNAMENTAL GRASSES		
ERGROSTIS SPECTABILIS		PURPLE LOVEGRASS
CAREX TEXANIS		TEXAS SEDGE
AUTUMN ONION		ALLIUM STELLATUM
SOLIDAGO RIGIDA		STIFF-LEAVED GOLDENROD
SEDUM		SPECIES TBD
SPOROBOLUS HETEROLEPIS		PRAIRIE DROPSEED
LAVANDULA ANGUSTIFOLIUM		LAVANDER
CHAMAECRISTA FASCICULATA		PARTRIDGE PEA
COREOPSIS MARITIMA		SEA DAHLIA

LAWN (SEED MIX IN REVEGETATED SPACES OUTSIDE OF POOL DECK)
(WILDFLOWER FARM'S ECO-LAWN GRASS SEED)

ECO-LAWN IS A DROUGHT-RESISTANT GRASS THAT REQUIRES MOWING ONLY ONCE PER MONTH. EACH 5 POUND BAG OF SEED COVERS 1,000 SQUARE FEET.

TOTAL AREA 820 SF

TREES TO BE REMOVED (3)

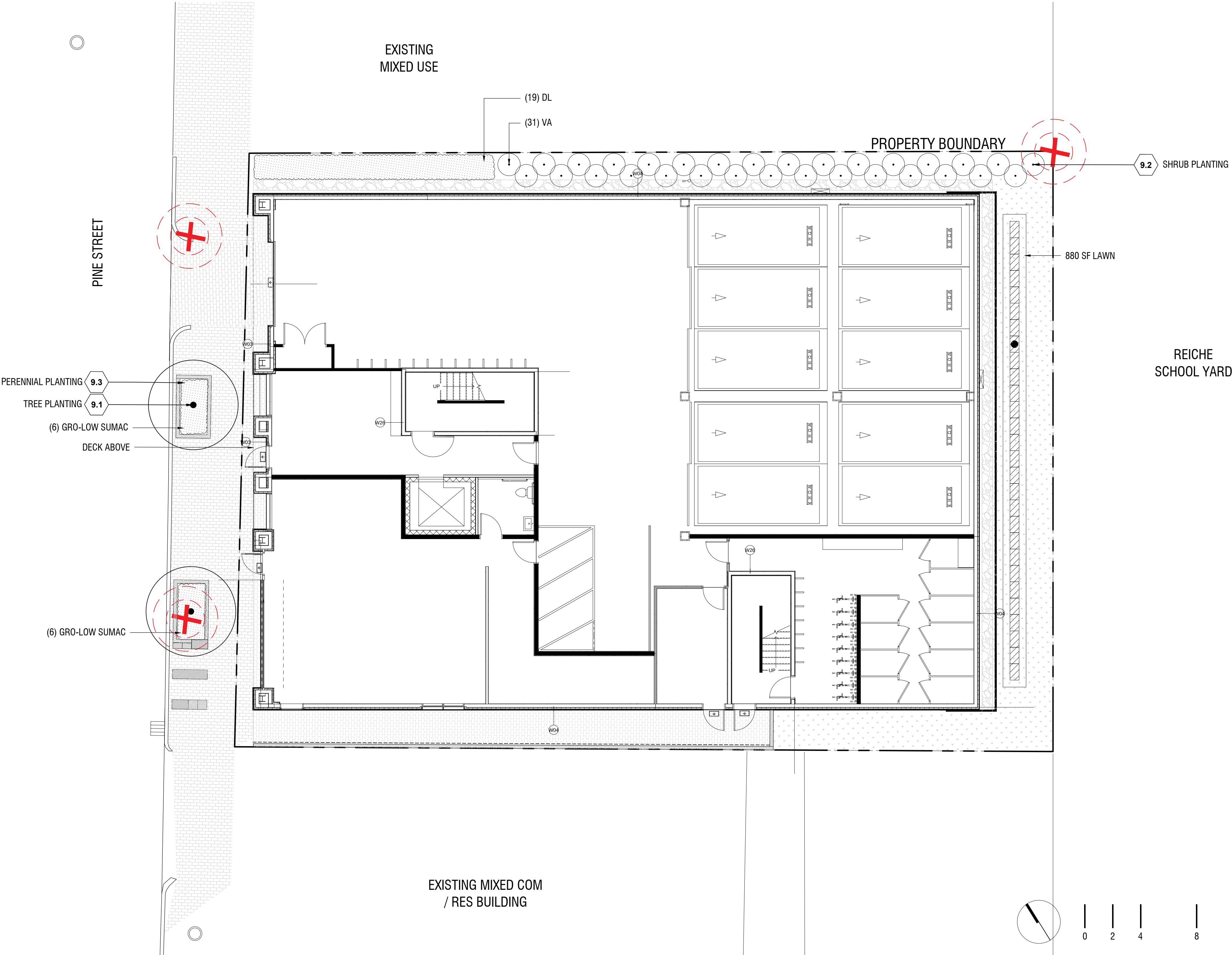


MATERIALS LEGEND

SYMBOL	
	GROUND PLANTING AREA - APPROX. 200 SF
	ROOF PLANTING AREA - APPROX. 1300 SF
	WOOD DECKING - APPROX. 1980 SF
	LAWN SEEDING - APPROX. 880 SF
	CRUSHED STONE - APPROX. 279 SF

SITE KEYNOTES:

1.0	PAVEMENTS, RAMPS, CURBS	DETAIL / SHEET	6.0	RAILINGS, BARRIERS, FENCING	DETAIL / SHEET
1.1	GRANITE EDGING	5/L3-01	X.X	NOT USED AT THIS TIME	X/XX-XX
1.2	TALL GRANITE EDGING	6/L3-01			
1.3	GRANITE PAVING	3/L3-00	7.0	SITE LIGHTING	
1.4	PEDESTAL PAVER	3/L3-02	X.X	NOT USED AT THIS TIME	X/XX-XX
1.5	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	8.0	DRAINAGE	
1.6	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		9.0	PLANTING AND LANDSCAPE	
X.X	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			



SEAL

LOCATION

64 PINE STREET
PORTLAND, ME 04102

PREPARED FOR

64 PINE STREET LLC
104 WASHINGTON AVENUE
PORTLAND, MAINE 04101

REVISIONS

REVISIONS	DATE
SITE PLAN SUBMISSION	11.02.23
CITY COMMENT REV.	02.20.24

ISSUE DATE

MAY 7, 2024

SHEET TITLE

GROUND
PLANTING
PLAN

SHEET INFORMATION

L 2-00
NOT FOR CONSTRUCTION

PLANTING LEGEND

SYMB.	BOTANICAL NAME	COMMON NAME	QTY.	SIZE	SPACING
TREES					
TC	TILIA CORDATA 'CORZAM'	LITTLE LEAF LIDEN	03	2" CAL.	PER PLAN

SHRUBS

VA	VIBURNUM ACERFOLIUM	MAPLE LEAF VIBURNUM	31	#5	PER PLAN
DL	DIERVILLA LONICERA	BUCH HONEYSUCKLE	19	#3	30" O.C.
RA	RHUS AROMATICA	FRAGRANT SUMAC	18	#3	30" O.C.

KEYNOTE	QTY.	DESCRIPTION
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CAREX TEXANIS		TEXAS SEDGE
AUTUMN ONION		ALLIUM STELLATUM
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SEDUM		SPECIES TBD
SPOROBOLUS HETEROLEPIS		PRAIRIE DROPSEED
LAVANDULA ANGUSTIFOLIUM		LAVANDER
CHAMAECRISTA FASCICULATA		PARTRIDGE PEA
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TOTAL AREA 820 SF

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SYMBOL	
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SITE KEYNOTES:

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1.1	GRANITE EDGING	5/L3-01	X.X	NOT USED AT THIS TIME	X/XX-XX
1.2	TALL GRANITE EDGING	6/L3-01			
1.3	GRANITE PAVING	3/L3-00	7.0	SITE LIGHTING	
1.4	PEDESTAL PAVER	3/L3-02	X.X	NOT USED AT THIS TIME	X/XX-XX
1.5	ARTIFICIAL TURF AT PARAPET WALL	4/L3-02	8.0	DRAINAGE	
1.6	PLANTER PARAPET WALL	5/L3-02	8.1	SLOT DRAIN	2/L3-00
2.0	JOINTING		9.0	PLANTING AND LANDSCAPE	
X.X	NOT USED AT THIS TIME	X/XX-XX	9.1	TREE PLANTING	1/L3-01
3.0	STEPS		9.2	SHRUB PLANTING	2/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	9.3	PERENNIAL PLANTING	3/L3-01
4.0	SITE WALLS/ EMBANKMENTS		9.4	LANDSCAPE EDGING	4/L3-01
X.X	NOT USED AT THIS TIME	X/XX-XX	10.0	MISCELLANEOUS ELEMENTS	
5.0	SITE FURNITURE		10.1	SOLAR STRUCTURE	1/L3-03
5.1	GRANITE BENCHES	1/L3-00			
5.2	ROOF PLANTER TYPE 1	1/L3-02			
5.3	ROOF PLANTER TYPE 2	2/L3-02			

PINE STREET

EXISTING
RESIDENTIAL

PROPERTY BOUNDARY

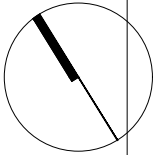
REICHE
SCHOOL YARD

MIX OF PRARIE DROPSEED, LAVANDER,
PARTRIDGE PEA, AND SEA DAHLIA

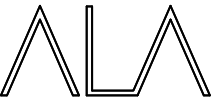
MIX OF PRARIE DROPSEED, LAVANDER,
PARTRIDGE PEA, AND SEA DAHLIA

MIX OF PURPLE LOVEGRASS, TEXAS
SEEDGE, AUTUMN ONION, STIFF-LEAVED
GOLDENROD, AND SEDUM

EXISTING MIXED COM
/ RES BUILDING



0 2 4 8



ACETO LANDSCAPE ARCHITECTS
207.221.3380 | ACETOLA.COM

SEAL

LOCATION

64 PINE STREET
PORTLAND, ME 04102

PREPARED FOR

64 PINE STREET LLC
104 WASHINGTON AVENUE
PORTLAND, MAINE 04101

REVISIONS

DATE

SITE PLAN SUBMISSION 11.02.23
CITY COMMENT REV. 02.20.24

ISSUE DATE

MAY 7, 2024

SHEET TITLE

ROOF
PLANTING
PLAN

SHEET INFORMATION

L 2-01
NOT FOR CONSTRUCTION