# Commonwealth Pier Revitalization

South Boston, Massachusetts

## Notice of Intent

**Originally Submitted April 3, 2019**
**Revised Submission April 17, 2019**

submitted to the **Boston Conservation Commission**

submitted by the **Commonwealth Pier Trust II**

prepared by **Fort Point Associates, Inc.**

in association with
**Pembroke Real Estate, LLC**
**CBT Architects**
**Schmidt Hammer Lassen Architects**
**Sasaki**
**Goulston & Storrs**
**VHB**
**ARUP**
**Haley & Aldrich**
**Thornton Tomasetti**
**Childs Engineering**

Fort Point Associates, Inc.
*Urban Planning Environmental Consulting Project Permitting*

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# TRANSMITTAL FORM

**Enter your transmittal number** → X282689 (Transmittal Number)

Your unique Transmittal Number can be accessed online:
http://www.mass.gov/eea/agencies/massdep/service/approvals/transmittal-form-for-payment.html

**Massachusetts Department of Environmental Protection**

# Transmittal Form for Permit Application and Payment

**1.** Please type or print. A separate Transmittal Form must be completed for each permit application.

**2.** Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

**3.** Three copies of this form will be needed.

**Copy 1 - the original** must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

**4.** Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

**MassDEP**
**P.O. Box 4062**
**Boston, MA**
**02211**

*** Note:**
For BWSC Permits, enter the LSP.

## A. Permit Information

| 1. Permit Code: 4 to 7 character code from permit instructions | 2. Name of Permit Category |
|---|---|
| BRP WPA Form 3 | Notice of Intent |

3. Type of Project or Activity: Building Renovation and Pier Construction

## B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: Commonwealth Pier Trust II, c/o Pembroke Real Estate LLC

| 2. **Last Name** of Individual | 3. **First Name** of Individual | 4. MI |
|---|---|---|
| | | |

5. Street Address: 255 State Street

| 6. City/Town | 7. State | 8. Zip Code | 9. Telephone # | 10. Ext. # |
|---|---|---|---|---|
| Boston | MA | 02109 | (617) 563-2658 | |

| 11. Contact Person | 12. e-mail address |
|---|---|
| Megha Vadula | megha.vadula@pembroke.com |

## C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: Seaport World Trade Center

2. Street Address: 200 Seaport Boulevard

| 3. City/Town | 4. State | 5. Zip Code | 6. Telephone # | 7. Ext. # |
|---|---|---|---|---|
| South Boston | MA | 02210 | | |

| 8. DEP Facility Number (if Known) | 9. Federal I.D. Number (if Known) | 10. BWSC Tracking # (if Known) |
|---|---|---|
| | | |

## D. Application Prepared by (if different from Section B)*

1. Name of Firm Or Individual: Fort Point Associates, Inc.

2. Address: 31 State Street, 3rd Floor

| 3. City/Town | 4. State | 5. Zip Code | 6. Telephone # | 7. Ext. # |
|---|---|---|---|---|
| Boston | MA | 02109 | (617) 357-7044 | 207 |

| 8. Contact Person | 9. LSP Number (BWSC Permits only) |
|---|---|
| Cara Pattullo | |

## E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☒ yes ☐ no
   If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit: 15985 (EOEA File Number)

## F. Amount Due

*DEP Use Only*

*Permit No:*

*Rec'd Date:*

*Reviewer:*

**Special Provisions:**

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
   *There are no fee exemptions for BWSC permits, regardless of applicant status.*
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

| Check Number | Dollar Amount | Date |
|---|---|---|
| 197007131 | $1,512.50 | April 2, 2019 |

COMMONWEALTH OF MASSACHUSETT 102427 04/02/2019 197007131

| INVOICE NO. | INVOICE DATE | DESCRIPTION | NET AMOUNT |
|---|---|---|---|
| COMM032719 | 02-APR-19 | NOTICE OF INTENT | $1,512.50 |
| | | | $1,512.50 |

THE FACE OF THIS DOCUMENT CONTAINS A VOID PANTOGRAPH AND MICROPRINTING

TETRA TECH

**TETRA TECH, INC**
3475 E. Foothill Blvd.
Pasadena CA 91107-6024
626.470.2300

**WELLS FARGO BANK, N.A.**
Positive Pay Protected

56-382/412

**197007131**

DATE 04/02/2019

Pay One Thousand Five Hundred Twelve And 50/100 Dollars

****$1,512.50**

TO THE ORDER OF
COMMONWEALTH OF MASSACHUSETTS
DEPT OF ENVIRONMENTAL PROTECTION
BOX 4062
BOSTON, MA 02211

VOID AFTER 90 DAYS

⑈197007131⑈ ⑆041203824⑆960004850 5⑈

# APPLICATION

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

**Important:**
When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

## A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

200 Seaport Boulevard — a. Street Address
Boston — b. City/Town
02210 — c. Zip Code

Latitude and Longitude:
42° 21' 04" — d. Latitude
71° 02' 26" — e. Longitude

0602672052 — f. Assessors Map/Plat Number
g. Parcel /Lot Number

2. Applicant:

Megha — a. First Name
Vadula — b. Last Name
Commonwealth Pier Trust II, c/o Pembroke Real Estate — c. Organization
255 State Street — d. Street Address
Boston — e. City/Town
MA — f. State
02019 — g. Zip Code
(617) 563-2658 — h. Phone Number
i. Fax Number
megha.vadula@pembroke.com — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

James — a. First Name
Stolecki — b. Last Name
Massachusetts Port Authority — c. Organization
One Harborside Drive, Suite 200S — d. Street Address
Boston — e. City/Town
MA — f. State
02128 — g. Zip Code
(617) 568-3552 — h. Phone Number
i. Fax Number
jstolecki@massport.com — j. Email address

4. Representative (if any):

Cara — a. First Name
Pattullo — b. Last Name
Fort Point Associates, Inc. — c. Company
31 State Street, 3rd Floor — d. Street Address
Boston — e. City/Town
MA — f. State
02109 — g. Zip Code
(617) 357-7044 — h. Phone Number
i. Fax Number
cpattullo@fpa-inc.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

$3,012.50 — a. Total Fee Paid
$1,512.50 — b. State Fee Paid
$1,500.00 — c. City/Town Fee Paid

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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## A. General Information (continued)

6. General Project Description:

The proposed revitalization of the World Trade Center will modernize the existing building and maximize public access to the waterfront by removing a portion of the building and expanding open space at the ground floor and viaduct level with an open-air public plaza, street improvements at Seaport Boulevard, and an enhanced Harborwalk around the perimeter of the Project Site.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☒ Commercial/Industrial
4. ☒ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

| a. County | b. Certificate # (if registered land) |
|---|---|
| Suffolk | |
| c. Book | d. Page Number |
| 9856 | 302 |

## B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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## B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|---|
| a. ☐ Bank | 1. linear feet | 2. linear feet |
| b. ☐ Bordering Vegetated Wetland | 1. square feet | 2. square feet |
| c. ☐ Land Under Waterbodies and Waterways | 1. square feet<br>3. cubic yards dredged | 2. square feet |

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|---|
| d. ☐ Bordering Land Subject to Flooding | 1. square feet | 2. square feet |
| | 3. cubic feet of flood storage lost | 4. cubic feet replaced |
| e. ☐ Isolated Land Subject to Flooding | 1. square feet | |
| | 2. cubic feet of flood storage lost | 3. cubic feet replaced |
| f. ☐ Riverfront Area | 1. Name of Waterway (if available) - **specify coastal or inland** | |

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☒ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

**Note:** for coastal riverfront areas, please complete **Section B.2.f**. above.

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

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## B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|---|
| a. ☒ Designated Port Areas | Indicate size under Land Under the Ocean, below | |
| b. ☒ Land Under the Ocean | 1,328 (1. square feet) | |
| | (2. cubic yards dredged) | |
| c. ☐ Barrier Beach | Indicate size under Coastal Beaches and/or Coastal Dunes below | |
| d. ☐ Coastal Beaches | (1. square feet) | (2. cubic yards beach nourishment) |
| e. ☐ Coastal Dunes | (1. square feet) | (2. cubic yards dune nourishment) |

| Resource Area | Size of Proposed Alteration | Proposed Replacement (if any) |
|---|---|---|
| f. ☒ Coastal Banks | 0 (1. linear feet) | |
| g. ☐ Rocky Intertidal Shores | (1. square feet) | |
| h. ☐ Salt Marshes | (1. square feet) | (2. sq ft restoration, rehab., creation) |
| i. ☐ Land Under Salt Ponds | (1. square feet) | |
| | (2. cubic yards dredged) | |
| j. ☐ Land Containing Shellfish | (1. square feet) | |
| k. ☐ Fish Runs | Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above | |
| | (1. cubic yards dredged) | |
| l. ☒ Land Subject to Coastal Storm Flowage | 347,630 (1. square feet) | |

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands
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## C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

### Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ☒ No

**If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program**
**Division of Fisheries and Wildlife**
**1 Rabbit Hill Road**
**Westborough, MA 01581**

August 2017
b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands
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## C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☐ Not applicable – project is in inland resource area only b. ☒ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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## C. Other Applicable Standards and Requirements (cont'd)

**Online Users:** Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☒ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☒ A portion of the site constitutes redevelopment

      3. ☒ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

## D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

**Online Users:** Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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## D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

See Table 3 in Attachment A - Supplemental Information
a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☒ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

## E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

| | |
|---|---|
| 197007129<br>2. Municipal Check Number | April 2, 2019<br>3. Check date |
| 197007131<br>4. State Check Number | April 2, 2019<br>5. Check date |
| Tetra Tech, Inc.<br>6. Payor name on check: First Name | <br>7. Payor name on check: Last Name |

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

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## F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

| | |
|---|---|
| PEMBROKE<br>1. Signature of Applicant | 3-28-19<br>2. Date |
| Tommy Stakelum<br>3. Signature of Property Owner (if different) | 4/01/2019<br>4. Date |
| 5. Signature of Representative (if any) | 2 April 2019<br>6. Date |

**For Conservation Commission:**
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

**For MassDEP:**
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

**Other:**
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

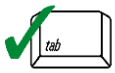
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

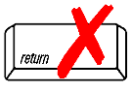
**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.




## A. Applicant Information

1. Location of Project:

| | |
|---|---|
| 200 Seaport Boulevard | Boston |
| a. Street Address | b. City/Town |
| 197007131 (State); 197007129 (City) | $1,512.50 (State); $1,500 (City) |
| c. Check number | d. Fee amount |

2. Applicant Mailing Address:

| | | | |
|---|---|---|---|
| Megha | | Vadula | |
| a. First Name | | b. Last Name | |
| Commonwealth Pier Trust II, c/o Pembroke Real Estate LLC | | | |
| c. Organization | | | |
| 255 State Street | | | |
| d. Mailing Address | | | |
| Boston | MA | | 02109 |
| e. City/Town | f. State | | g. Zip Code |
| (617) 563-2658 | | megha.vadula@pembroke.com | |
| h. Phone Number | i. Fax Number | j. Email Address | |

3. Property Owner (if different):

| | | | |
|---|---|---|---|
| James | | Stolecki | |
| a. First Name | | b. Last Name | |
| Massachusetts Port Authority | | | |
| c. Organization | | | |
| One Harborside Drive, Suite 200S | | | |
| d. Mailing Address | | | |
| Boston | MA | | 02128 |
| e. City/Town | f. State | | g. Zip Code |
| (617) 568-3552 | | jstolecki@massport.com | |
| h. Phone Number | i. Fax Number | j. Email Address | |

## B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

**Step 1/Type of Activity:** Describe each type of activity that will occur in wetland resource area and buffer zone.

**Step 2/Number of Activities**: Identify the number of each type of activity.

**Step 3/Individual Activity Fee:** Identify each activity fee from the six project categories listed in the instructions.

**Step 4/Subtotal Activity Fee:** Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

**Step 5/Total Project Fee:** Determine the total project fee by adding the subtotal amounts from Step 4.

**Step 6/Fee Payments:** To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands

# NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

## B. Fees (continued)

| Step 1/Type of Activity | Step 2/Number of Activities | Step 3/Individual Activity Fee | Step 4/Subtotal Activity Fee |
|---|---|---|---|
| Category 5 - Work on docks, piers | >500 lf (maximum) | $4/lf ($2,000 maximum) | $2,000 |
| Catgory 3 - Building | 1 building | $1,050 | $1,050 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Step 5/Total Project Fee:** $3,050

**Step 6/Fee Payments:**

| | |
|---|---|
| Total Project Fee: | $3,050 (a. Total Fee from Step 5) |
| State share of filing Fee: | $1,512.50 (b. 1/2 Total Fee **less $**12.50) |
| City/Town share of filling Fee: | $1,500 (Boston Fee) (c. 1/2 Total Fee **plus** $12.50) |

## C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

**To MassDEP Regional Office** (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

# Attachment A

# SUPPLEMENTAL INFORMATION

# ATTACHMENT A: SUPPLEMENTAL INFORMATION

## A.1 INTRODUCTION

In accordance with the Massachusetts Wetland Protection Act (WPA) and the regulations set forth at 310 CMR 10.00, Commonwealth Pier Trust II (the "Applicant") is submitting this Notice of Intent (NOI) for work within wetland resource areas associated with the revitalization of the Seaport World Trade Center (the "Project") located at 200 Seaport Boulevard (the "Project Site") in the South Boston Seaport District of Boston, Massachusetts. The Applicant currently leases the Project Site from Massachusetts Port Authority (Massport) pursuant to a long-term ground lease.

The Applicant and its affiliates have owned or occupied the Seaport World Trade Center (the "World Trade Center") building on Commonwealth Pier for over three decades. The proposed revitalization of the World Trade Center will modernize the existing building and reposition Commonwealth Pier as a vibrant place to work and visit with enhanced retail and public amenities on the South Boston waterfront. The Project will maximize public access to the waterfront by removing a portion of the building and expanding open space at the ground floor and viaduct level with an open-air public plaza, street improvements at Seaport Boulevard, and an enhanced Harborwalk around the perimeter of the Project Site.

Additionally, the Project includes several adaptation measures that will make the Project Site resilient to future climate change impacts. These strategies include incorporating a waterproof building envelope, elevating the interior ground floor level and critical mechanical equipment out of the floodplain, providing on-site storage of deployable flood barriers, and installing structural tie-down piles along the apron perimeter to mitigate buoyancy forces associated with rising sea levels and storm surge. A new stormwater management system will ensure that storm drainage and sewage conveyance do not back up during storm surges.

## A.2 EXISTING CONDITIONS

The Project Site is located on the historic South Boston waterfront and is bounded by Boston Harbor to the east, west, and north, and Seaport Boulevard to the south. The surrounding area is characterized by a mix of commercial, marine, municipal, cultural, hospitality, office, and residential uses. The Project Site is accessible by the MBTA Silver Line World Trade Center station and the Seaport World Trade Center water taxi stop. See Figure 1, Locus Map and Figure 2, Aerial Photo of the Project Site.

The World Trade Center building (the "building") consists of a headhouse and three connected rear sheds to create a continuous structure that currently covers the majority of the 1,200-foot-long, 400-foot-wide Commonwealth Pier. It is surrounded by a publicly-accessible walkway around the perimeter of the building (the "apron"). Several passenger vessel operations currently have leases and maintain office and ticketing booths on the apron. An upper level walkway (the "viaduct") carries pedestrian and vehicular traffic from World Trade Center Avenue over Seaport Boulevard to the second story of the building. See Figure 3, Existing Conditions Photographs.

The Project Site is previously developed and consists of entirely impervious surface and adjacent watersheet. Of the approximately 18.9-acre Project Site, approximately 8-acres are filled and contained within a granite seawall. The filled area is located beneath the World Trade Center building. A narrow strip of the building and the surrounding apron, totaling approximately 3.5 acres, is located over water on piles. A Harborwalk currently runs the periphery of the building and provides the public with a continuous walkway with views of Downtown, East Boston, and Boston Harbor. The remaining approximately 7.4 acres of the Project Site is watersheet.

## A.3 PROJECT DESCRIPTION

The proposed revitalization of the World Trade Center will modernize the existing building systems and significantly improve energy efficiency while maintaining the historic character of the Project Site. The Project will maximize public access to the waterfront by expanding open space at the ground floor and viaduct level with an open-air public plaza, a reconstructed Harborwalk, and various public space amenities. All existing public boat dock and apron tenant operations will be accommodated by the completed Project by expanded apron areas, new docking facilities, and sheltered passenger waiting areas to support existing and future water transportation services. The Project will also address resiliency concerns at the Project Site related to future sea level rise and storm surge.

### A.3.1 BUILDING RENOVATIONS

The Project consists of converting the existing building into extensive public realm improvements, expanded ground floor retail space, a new co-working space made accessible to the public, upgraded innovative office space, and first-class event spaces. The building's height and massing remain relatively unchanged with the exception of the large portion of the southwestern corner of existing building that will be demolished and converted into public realm and open space. The roof and parapet of the historic Headhouse will remain the highest points of the building. See Figure 4, Proposed Site Plan.

The building will be completely modernized with new energy efficient materials and systems that meet or exceed best practices. The Project is targeting a 25 percent

energy reduction from the Massachusetts Energy Code by installing highly efficient HVAC and LED lighting systems, employing natural lighting strategies, and replacing the existing stucco with a new energy efficient façade.

### A.3.2 OPEN SPACE IMPROVEMENTS

The Project includes approximately 46,000 sf of new public realm and open spaces, which is an increase of approximately 37 percent. Public realm and open space improvements will include:

- An approximately 20,395 sf apron expansion on the east and west sides of the Headhouse;
- A new open-air public Plaza with tree plantings, moveable furniture, and event programming;
- Relocation of existing boat and ferry ticketing booths to the public plaza with an extensive waiting area and amenities;
- Multiple large cut outs ("niches") on the perimeter of the building that are open to the public and covered for protection from inclement weather;
- Street improvements along Seaport Boulevard; and
- Enhanced viaduct-level covered walkway proving access to a public lobby in the Headhouse.

The Harborwalk will be reconstructed and will include new lighting, strategically located site furnishing, wayfinding signage, integrated planters, and public art. All landscaping will include native, salt-tolerant species.

### A.3.3 APRON DEMOLITION, RECONSTRUCTION, AND EXPANSION

The existing timber fender pile system will be cut at the mudline, removed, and disposed of. The existing concrete apron will be removed through cutting and picking, which will contain debris at the surface to avoid impacts to the seafloor. Any remaining concrete on the steel framing will be chipped off and contained within netting below. Steel pipe coating will be removed and repaired as necessary using high pressure water and will be contained within mesh that will recover paint chippings. The underlying structure will be repaired as needed and the apron will be reconstructed as shown on the attached plans.

The apron will be expanded by a total of approximately 20,395 sf, extending up to 460 feet north of the existing sea wall along Seaport Boulevard. The key purpose of

this space is to provide improved pedestrian access to the Harborwalk and safely accommodate vehicular traffic and vessel docking at these locations. The pile-supported apron expansion will use structural tie-down piles ("mini piles") to counter buoyancy forces resulting from future rising tide and storm surge events. A new floating dock system will be constructed with gangways, platforms, and floating docks. New fender piles will be installed around the periphery of the pier on the north and east sides and a small transient berthing area on the northwest corner.

**Table 1: Pile Installation Summary**

| Pile | Description | Installation Method |
|---|---|---|
| Tie-Down/Mini Piles | ±175 7-inch piles within a 12-inch casing | Augur Cast |
| Apron Expansion Piles | ±121 14-inch wall coated steel pipe piles | Impact Hammer |
| Float Piles | ±49 New and ±21 Re-used 14-inch wall coated steel pipe piles | Vibratory Hammer |
| Fender Piles | ±109 16-inch steel pipe piles | Vibratory Hammer |
| Sheet Pile | ±300 NZ 26 steel sheet pile bulkhead | Vibratory Hammer |

### A.3.4 RESILIENCY MEASURES

The Applicant is committed to building a livable, sustainable, and forward-thinking Project aligned with Massport and the City of Boston's goals for climate change and adaptation. The Massport Floodproofing Design Guidelines dated April 2015 establish designated Design Flood Elevations (DFEs) for projects on Massport owned land. Along with the designated DFEs, the guidelines indicate which systems and equipment should be dry or wet floodproofed and establishes DFEs for new facilities and existing facilities. The DFEs for existing facilities corresponds to 0.2% annual probability of exceedance in 2030 plus 3 feet of freeboard, resulting in a DFE of 20.16 feet BCB (13.7 NAVD88) for the Project.

The Boston Planning & Development Agency (BPDA) Sea Level Rise Base Flood Elevation (SLR-BFE) for the Project Site is 19.3 feet BCB (12.8 NAVD88). The BPDA Sea Level Rise Design Flood Elevation (SLR-DFE) is 20.3 feet BCB (13.8 NAVD88). The SLR-DFE is determined by adding 12 inches of freeboard to the SLR-BFE for buildings and uses that are not critical facilities or ground floor residential uses.

The building façade design has incorporated a 3-foot concrete curb that will waterproof the building envelope to elevation 21.5 feet BCB (15.0 NAVD88). All critical mechanical, electrical, plumbing, fire protection, and lifesaving equipment will be located above the SLR-DFE. Critical equipment required to be on the first floor will be raised on platforms to an elevation of 23.5 feet BCB (17.0 NAVD88). The interior floor level will be raised to 19.2 feet BCB (12.7 NAVD88).

Entries to the building will be situated slightly higher than the elevation of the apron and will implement dry flood-proofing strategies to keep water from intruding into the building. Deployable barriers and/or flood gates will be stored on-site. Structural tie-down/mini piles will be installed along the entire apron perimeter to mitigate buoyancy forces associated with rising sea levels and storm surges.

Backflow preventers and duckbill check valves will ensure that storm drainage and sewage conveyance do not back up during storm surges. The stormwater conveyance system has been designed to accommodate increased peak rain events, including up to 6 inches of rainfall during the 2070 10-year, 24-hour design storm.

## A.4 WETLAND RESOURCE AREAS

Based on the definitions provided in the WPA (310 CMR 10.21 through 10.37), the following wetland resource areas are present within the Project Site:

- Land Under the Ocean;
- Coastal Bank;
- Tidal Flats; and
- Land Subject to Coastal Storm Flowage.

The Project Site also includes a regulated Buffer Zone, which is a protected zone extending 100 feet inland from the Coastal Bank resource area. See Figure 5, Wetland Resources.

### A.4.1 LAND UNDER THE OCEAN

The Land Under the Ocean (LUO) resource area is defined in 310 CMR 10.25(2) as:

*Land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries.*

The LUO resource area at the Project Site below Mean Low Water (MLW), which is identified as elevation 1.3 feet BCB (-5.2 NAVD88) at the Project Site. All land seaward of this elevation on the Project Site is regulated as LUO and consists of

approximately 10.5 acres. Portions of this area are covered with a pile-supported building perimeter and apron.

### A.4.2 COASTAL BANK

The Coastal Bank resource area is defined in 310 CMR 10.30(2) as:

*The seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a Coastal Beach, land subject to tidal action, or other wetland.*

At the Project Site, the Coastal Bank resource area extends along the entire length of seawall and bulkhead, approximately 2,660 linear feet (lf). The Coastal Bank is comprised of the granite block seawall and sloping riprap and is located landward of the Mean High Water (MHW) line bounding the filled area below the existing building.

### A.4.3 TIDAL FLATS

Tidal Flats is defined in 310 CMR 10.27(2) as:

*Any nearly level part of a coastal beach which extends from the mean low water line landward to the more steeply sloping face of the coastal beach or which may be separated from the beach by land under the ocean.*

There are two small man-made Tidal Flats resource areas at the Project Site located to the east and west of the existing headhouse. The nearly flat area is bounded by steel sheet pile on the outboard side and vertical granite block seawall on the inboard side.

### A.4.4 LAND SUBJECT TO COASTAL STORM FLOWAGE

Land Subject to Coastal Storm Flowage (LSCSF) is defined in 310 CMR 10.04 as:

*Land subject to an inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record, or storm of record, whichever is greater.*

The LSCSF resource area was determined based on 100-year flood information provided by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) and measured based on actual elevation. The Project Site is located entirely within the FEMA 100-year flood elevation (FIRM panel 25025C0081J, effective March 16, 2016), which is elevation 17.5 feet BCB (11.0 NAVD88) for the Project Site. A FEMA Velocity Zone at elevation 19.5 feet BCB (13.0 NAVD88) exists on a portion of the Project Site, including the watersheet and the apron up to the perimeter of the building. See Figure 6, FEMA Firmette.

### A.4.5 DESIGNATED PORT AREA

Land Under Ocean within a mapped Designated Port Area (DPA) is a wetland resource area. The resource area includes the area under the pile supported portion of the building and pier apron and the surrounding watersheet on the north and east sides of Commonwealth Pier.

### A.4.6 BUFFER ZONE

The Buffer Zone is defined in 310 CMR 10.04 as:

*That area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a).*

At the Project Site, the buffer zone extends 100 feet inland from the top of Coastal Bank resource area.

## A.5 IMPACTS TO WETLAND RESOURCE AREAS

The Project has been designed to fully comply with the performance standards of each impacted resource area and potential Project impacts will be minimized to the greatest extent possible. Project work and impacts within, or adjacent to, wetland resource areas are summarized in Table 2 below. The following sections identify and demonstrate how the Project complies with relevant WPA standards.

**Table 2: Alteration of Wetland Resource Areas**

| Resource Area | Existing Condition | Project-related Impact |
|---|---|---|
| Land Under Ocean | ±629,448 sf | • ±226 sf of new apron expansion piles – permanent<br>• ±98 sf of new float piles – permanent<br>• ±153 sf of new fender piles – permanent<br>• ±161 sf of new mini piles – permanent<br>• ±690 sf of new sheet pile – permanent<br>**Total Impact:** ±1,328 sf |
| Coastal Bank | ± 2,660 lf | *No Impact* |
| Tidal Flats | ± 8,806 sf | *No Impact* |

| Resource Area | Existing Condition | Project-related Impact |
|---|---|---|
| Land Subject to Coastal Storm Flowage[1] | ± 347,630 sf | • Building renovations – temporary<br>• Landscaping and open space improvements – permanent |
| Designated Port Area | South Boston Designated Port Area - under the pile supported portion of the building, pier apron, and the surrounding watersheet | • ±64 sf of new apron expansion piles – permanent<br>• ±49 sf of new float piles – permanent<br>• ±153 sf of new fender piles – permanent<br>• ±161 sf of new mini piles – permanent<br>• ±690 sf of new sheet pile – permanent<br>**Total Impact:** ±1,117 sf |
| Buffer Zone | 100-feet landward of the Top of Coastal Bank | • Building renovations – temporary<br>• Seaport Boulevard reconstruction - temporary<br>*No change in Buffer Zone function.* |

### A.5.1 LAND UNDER THE OCEAN

Impacts within the LUO resource area will include the cutting of timber fender piles at the mudline along the perimeter of the pier; the installation of approximately 226 sf of new piles for the apron expansion, approximately 98 sf of new float piles, and approximately 153 sf of new fender piles; and approximately 690 sf of new steel sheet pile bulkhead. There will be a total impact of approximately 1,328 sf within the LUO resource area.

LUO is likely to be significant to marine fisheries, storm damage prevention, flood control, and protection of wildlife habitat. When nearshore areas of LUO are significant to storm damage prevention or flood control, the bottom topography of such land is critical to the protection of those interests. The Project's compliance with relevant performance standards are described below:

- *310 CMR 10.25(5): Projects not included in 310 CMR 10.25(3) or (4) which affect nearshore areas of land under the ocean shall not cause adverse effects*

[1] Activities are within areas mapped as FEMA A-Zone; however, the existing building is elevated above the flood elevation.

*by altering the bottom topography so as to increase storm damage or erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes.*

The Project does not alter bottom topography, and therefore, will not increase storm damage or erosion of nearby resource areas. The Project will significantly reduce the potential for storm damage though the resiliency measures previously described in Section A.3.4 Resiliency Measures.

- *310 CMR 10.25(6): Projects not included in 310 CMR 10.25(3) which affect land under the ocean shall if…non-water-dependent, have no adverse effects, on marine fisheries habitat or wildlife habitat.*

  The Project has been designed to minimize impacts to marine fisheries and changes in water circulation by using small diameter piles throughout. There will be no alterations in water circulation, distribution of sediment grain size, water quality, or shallow submerged lands with high densities of polychaetes, mollusks, or macrophytic algae. Temporary water quality impacts during construction will be mitigated using silt curtains during pile driving and marine construction. Demolition of the apron and construction of a new apron deck will take place from floating barges with staging or floats put in place to prevent construction debris or materials from entering the harbor. Water quality post-construction will be improved by new storm water control measures in compliance with the DEP Stormwater Guidelines. These will include a stormwater management system with a treatment train of Best Management Practices (BMPs) that has been designed to provide up to 80% Total Suspended Solids (TSS) removal of stormwater runoff from all proposed impervious surfaces. The Project incorporates a number of BMPs used to reduce TSS from stormwater runoff, such as deep sump catch basins, deep sump hanging drains, and Vortechs water quality unit. Please see Attachment B – Stormwater Report for computations and supporting information, including the Long-Term Pollution Prevention Plan.

  The Applicant has reached out to the Division of Marine Fisheries (DMF) to discuss the appropriate mitigating measures to protect winter flounder spawning. The water depths at the pier of 35 to 45 feet below MLW are far deeper than the typical winter flounder spawning habitat of one to five meters.[2] No dredging or pulling of piles is proposed and the proposed pile driving will have a limited siltation effect. Silt curtains placed entirely around the work area prior to commencement of the spawning window have proved to be an effective solution on other projects and may be appropriate here.

[2] T. Evans et al, Division of Marine Fisheries Technical Report TR-47, January 2015, p. 20

- *310 CMR 10.25(7) Notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

  There are no specified habitat sites of rare vertebrate or invertebrate species in or near the project site. The Project has been designed to avoid or minimize overall habitat impacts.

### A.5.2 COASTAL BANK

There will be no changes or adverse project-related impacts to the Coastal Bank resource area.

### A.5.3 TIDAL FLATS

There will be no adverse project-related impacts to the Tidal Flats resource area.

### A.5.4 LAND SUBJECT TO COASTAL STORM FLOWAGE

While there are no performance standards for the LSCSF resource area, the Applicant has implemented several design strategies to address recurrent flooding associated with the predicted sea level rise and increased frequency and intensity of storm events. The proposed resiliency measures include:

- Critical mechanical and lifesaving systems located above the Design Flood Elevation (DFE) of 21.5 feet BCB (15.0 NAVD88);
- New façade with a 3-foot high continuous upturned waterfront curb running along the building perimeter that raises the glass level above vulnerable elevations;
- Integrated wall/apron slab designed to withstand lateral pressure of wave action;
- Hardening of the portion of ground floor structure that extends over water to resist buoyancy forces resulting from rising tides and storm surge;
- Provisions for deployable flood barriers;
- Landscaping, walkways, stairways, railings, benches, and bike racks designed with materials that withstand saltwater intrusion;
- Operational planning and readiness procedures and coordination with Massport and other agencies.

### A.5.5 DESIGNATED PORT AREAS

Work proposed within the DPA area includes the replacement of approximately 153 sf of fender piles; installation of 49 sf of new floating dock piles, approximately 161 sf of mini piles under the existing apron area, and approximately 64 sf of apron expansion piles; and repair of sheet piling on the east and west side of the Headhouse, affecting approximately 690 sf. There will be a total impact of approximately 1,117 sf within the DPA resource area.

The Project also includes the demolition and reconstruction of the pier apron, construction of apron expansions and installation of new docks and ramps to support commercial passenger vessel operations within the DPA. These activities do not directly impact Land Under Ocean within the DPA, other than through the supporting piles which are described above.

Land Under the Ocean in DPAs is likely to be significant to marine fisheries, storm damage prevention, and flood control. The Project's compliance with relevant performance standards are described below:

- *310 CMR 10.26(3): Projects shall be designed and constructed, using best practical measures, so as to minimize adverse effects on marine fisheries caused by changes in (a) water circulation; (b) water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants.*

  The Project has been designed to minimize impacts to marine fisheries and changes in water circulation by using small diameter piles throughout. There will be no alterations in water circulation, distribution of sediment grain size, water quality, or shallow submerged lands with high densities of polychaetes, mollusks, or macrophytic algae. Temporary water quality impacts during construction will be mitigated using silt curtains during pile driving and marine construction. Demolition of the apron and construction of a new apron deck will take place from floating barges with staging or floats put in place to prevent construction debris or materials from entering the harbor. Water quality post-construction will be improved by new storm water control measures in compliance with the DEP Stormwater Guidelines. These will include a stormwater management system with a treatment train of BMPs that has been designed to provide up to 80% TSS removal of stormwater runoff from all proposed impervious surfaces. The Project incorporates a number of BMPs used to reduce TSS from stormwater runoff, such as deep sump catch basins, deep sump hanging drains, and Vortechs water quality unit. Please see Attachment B – Stormwater Report for computations and supporting information, including the Long-Term Pollution Prevention Plan.

The Applicant has reached out to the Division of Marine Fisheries (DMF) to discuss the appropriate mitigating measures to protect winter flounder spawning. The water depths at the pier of 35 to 45 feet below MLW are far deeper than the typical winter flounder spawning habitat of one to five meters.[2] No dredging or pulling of piles is proposed and the proposed pile driving will have a limited siltation effect. Silt curtains placed entirely around the work area prior to commencement of the spawning window have proved to be an effective solution on other projects and may be appropriate here.

- *310 CMR 10.26(4): Projects shall be designed and constructed, using the best practical measures, so as to minimize, adverse effects on storm damage or flood control caused by changes in such land's ability to provide support for adjacent coastal banks or adjacent coastal engineering structures.*

The Project will does not alter bottom topography, and therefore will not change the land's ability to provide flood protection and storm control. The Project has been designed with small diameter piles to avoid alterations in water circulation and distribution of sediment grain size. Structural tie-down/mini piles will be installed along the entire apron perimeter to mitigate buoyancy forces associated with flooding and storm surges. The Project will significantly reduce the potential for storm damage though the resiliency measures previously described in Section A.3.4 Resiliency Measures.

### A.5.6 BUFFER ZONE

Activities within the 100-foot Coastal Bank Buffer Zone will include the building renovations and reconstruction of Seaport Boulevard. The Project will not have any adverse effects on the stability of the Coastal Bank.

## A.6 CONSTRUCTION SCHEDULE AND METHODS

Construction of the Project is anticipated to begin in early 2020 and is expected to be completed by 2024. The Project will be completed in four stages and will accommodate the existing apron tenants to avoid disruption to passenger vessel operations. Any in-water work will take place within a floating silt curtain and/or outside the Time-of-Year Restrictions for winter flounder spawning. See Attachment E – Staging Plan for additional details.

### A.6.1 CONSTRUCTION PHASE MITIGATION METHODS

Prior to starting work at the Project Site, the Applicant will notify appropriate agencies and shall install erosion control measures as shown on the attached plans. Proposed mitigation and erosion control measure include:

- All marine work will be staged and supplied from a floating barge;

- The perimeter of the Project Site will be surrounded by fencing. Perimeter sedimentation controls will be in place at the end of each day and before rain events;

- Siltsacks will be installed in all catch basins before commencing work to prevent sediment from washing into the drainage system until the completion of the Project;

- Straw wattles will be used to stabilize the construction exit. They will be inspected periodically and after all storm events;

- A full building scrim/screening will be used to prevent debris from impacting resource areas during the partial demolition of the building;

- A silt boom will be used during the marine construction phase to prevent sedimentation;

- Water spraying will be utilized to prevent airborne particles during the demolition phase;

- All equipment and unconsolidated materials will be removed from the floodplain prior to a significant storm event;

- Hazardous material spill contaminants kit will be kept on-site at all times in case there is a release of oil, gasoline, or other toxic substances related to mechanical equipment; and

- Upon completion of the site work all erosion control measures will be removed and all structures will be cleaned of silt and debris. At that time, all construction related materials will be cleared from the Project Site.

## A.7 STORMWATER MANAGEMENT

There are existing roof drains generally located at every other building column along one column line on the east and one column line on the west side of the building. The roof drains typically connect into existing storm risers, located at the base of these columns, which discharge the roof runoff directly into Boston Harbor. In addition to the existing roof drains that discharge directly into the Boston Harbor, the Boston Water and Sewer Commission (BWSC) system maps indicate there is drainage infrastructure in Seaport Boulevard. These systems include several unlabeled drain lines that discharge into a 60-inch Massport drain. The 60-inch Massport drain eventually discharges into a 60-inch drain and 48-inch drain. These two drains separately discharge into the Boston Harbor via two existing unnumbered outfalls. While the BWSC system maps indicated an existing 60-inch drain discharging into a 60-inch drain and a 48-inch drain, the Applicant's existing condition survey indicated the

# FIGURES

drain line to be 36-inch discharging into a single 36-inch drain based on field conditions. Based on the Applicant's discussions with Massport, the drains in Seaport Boulevard are owned by Massport and the outfalls coming through the building are owned and maintained by the building.

The existing storm drains from the covered parking area on the Viaduct level of the existing building convey storm water into oil/water separators located inside the building. The runoff from the oil/water separators is eventually conveyed to the existing 18-inch BWSC sanitary sewer line in Seaport Boulevard. The existing storm drains from the portion of World Trade Center Avenue Viaduct that is part of the Project discharges into drain leaders located along the existing bridge columns. The existing drain leaders connect directly into the existing unmarked storm drain lines in Seaport Boulevard. The runoff from the World Trade Center Avenue Viaduct eventually discharges into the 60-inch Massport drain in Seaport Boulevard.

Under proposed condition, the rehabilitated building and concrete pier apron and proposed apron extensions will continue to occupy the majority of the Project Site. The Project is proposing new landscaped areas in the Plaza area and internal courtyards that reduce the amount of impervious area on the Project Site. The runoff from the sidewalk and roadway surfaces in Seaport Boulevard will be conveyed into deep sump catch basins. Most of the roof runoff from the building will continue to discharge directly into Boston Harbor via the existing outfalls. A portion of the building roof will be conveyed to the existing 10-inch storm drain located in Seaport Boulevard via two 10-inch building drain connections. These two 10-inch building drain connections will connect into existing drain manholes in Seaport Boulevard. The runoff from the proposed plaza area will be conveyed to a water quality unit prior to discharge into Boston Harbor via an existing outfall. The runoff from the proposed internal courtyards will be discharged into the Boston Harbor via new outfalls. The runoff from the portion of the concrete apron that will be driven on by delivery trucks to the building will be captured by proposed trench drains along the edge of concrete apron. The runoff will then be conveyed to deep sump hanging basins for treatment prior to direct discharge into the Boston Harbor. The deep sump hanging basins will contain a 4 feet sump and to allow sediments and floatables to be separated from the runoff before it discharges through an overflow pipe. See Attachment B – Stormwater Report for full details and regulatory compliance.

## A.8 NOI PLAN LIST

**Table 3: Plan List**

| Sheet Number | Title | Date | Signature and Stamp |
|---|---|---|---|
| **General** | | | |
| G100 | Drawing Index and Notes | 9/14/2018 | N/A |
| G101 | Existing Deck Plan | 3/29/2019 | David P. Prince, PLS |

| Sheet Number | Title | Date | Signature and Stamp |
|---|---|---|---|
| G102 | Existing Deck Plan | 3/29/2019 | David P. Prince, PLS |
| G103 | Existing Under Deck Plan | 3/29/2019 | Charles M. Roberts, PE |
| G104 | Existing Under Deck Plan | 3/29/2019 | Charles M. Roberts, PE |
| **Civil** | | | |
| C001 | Legend and General Notes | 4/1/2019 | Lisa Chow, PE |
| C100 | Layout and Materials Plan | 4/1/2019 | Lisa Chow, PE |
| C200 | Grading and Drainage Plan – Seaport Blvd | 4/1/2019 | Lisa Chow, PE |
| C300 | Utility Plan – Seaport Blvd | 4/1/2019 | Lisa Chow, PE |
| C400 | Details | 4/1/2019 | Lisa Chow, PE |
| C501 | Erosion Control & Sedimentation Plan | 4/1/2019 | Lisa Chow, PE |
| C502 | Erosion Control & Sedimentation Plan | 4/1/2019 | Lisa Chow, PE |
| **Landscaping** | | | |
| LA100 | NOI Overall Site Plan | 4/1/2019 | Zachary P. Chrisco, PE |
| LA201 | NOI Layout + Materials Plan | 4/1/2019 | Zachary P. Chrisco, PE |
| LA202 | NOI Layout + Materials Plan | 4/1/2019 | Zachary P. Chrisco, PE |
| LA301 | NOI Grading Plan | 4/1/2019 | Zachary P. Chrisco, PE |
| LA302 | NOI Grading Plan | 4/1/2019 | Zachary P. Chrisco, PE |
| **Marine Structural** | | | |
| MS101 | Existing Conditions Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS102 | Existing Conditions Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS103 | Proposed Pile/Cap Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS104 | Proposed Pile/Cap Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS105 | Proposed Framing Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS106 | Proposed Framing Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS107 | Proposed Float Plan | 3/29/2019 | Charles M. Roberts, PE |
| MS301 | Existing Sections | 3/29/2019 | Charles M. Roberts, PE |
| MS302 | Proposed Sections | 3/29/2019 | Charles M. Roberts, PE |
| MS303 | Proposed Sections | 3/29/2019 | Charles M. Roberts, PE |
| MS304 | Proposed Float Sections | 3/29/2019 | Charles M. Roberts, PE |
| MS501 | Details | 3/29/2019 | Charles M. Roberts, PE |
| **Plumbing** | | | |
| P400.1 | Plumbing Plan Underslab – South | 3/29/2019 | Mark Walsh-Cooke, PE |
| P400.2 | Plumbing Plan Underslab - Mid | 3/29/2019 | Mark Walsh-Cooke, PE |
| P400.3 | Plumbing Plan Underslab – North | 3/29/2019 | Mark Walsh-Cooke, PE |
| P401.1 | Plumbing Plan Level 1 – South | 3/29/2019 | Mark Walsh-Cooke, PE |
| P401.2 | Plumbing Plan Level 1 – Mid | 3/29/2019 | Mark Walsh-Cooke, PE |
| P401.3 | Plumbing Plan Level 1 – North | 3/29/2019 | Mark Walsh-Cooke, PE |
| P404.1 | Plumbing Plan Roof Level – South | 3/29/2019 | Mark Walsh-Cooke, PE |
| P404.2 | Plumbing Plan Roof Level – Mid | 3/29/2019 | Mark Walsh-Cooke, PE |
| P404.3 | Plumbing Plan Roof Level – North | 3/29/2019 | Mark Walsh-Cooke, PE |


South Boston Massachusetts

Figure 1

**Locus Map**

Source: Fort Point Associates, Inc., 2019


South Boston Massachusetts

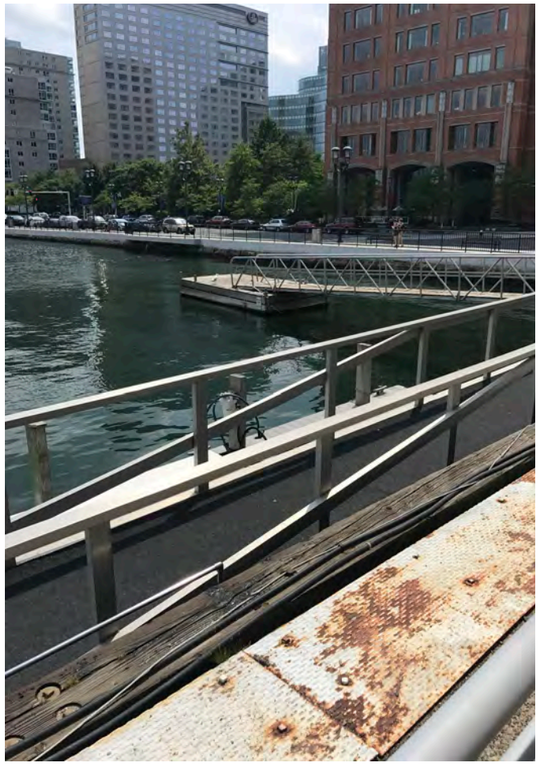
Figure 2

**Aerial Photo of the Project Site**

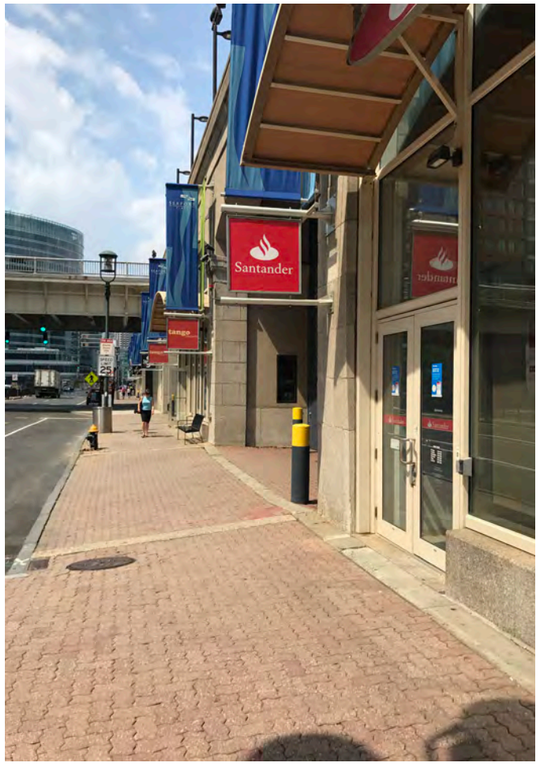
Source: Fort Point Associates, Inc., 2019

Passenger vessel operations on the west side of the apron

Fender piles on the north end of the pier

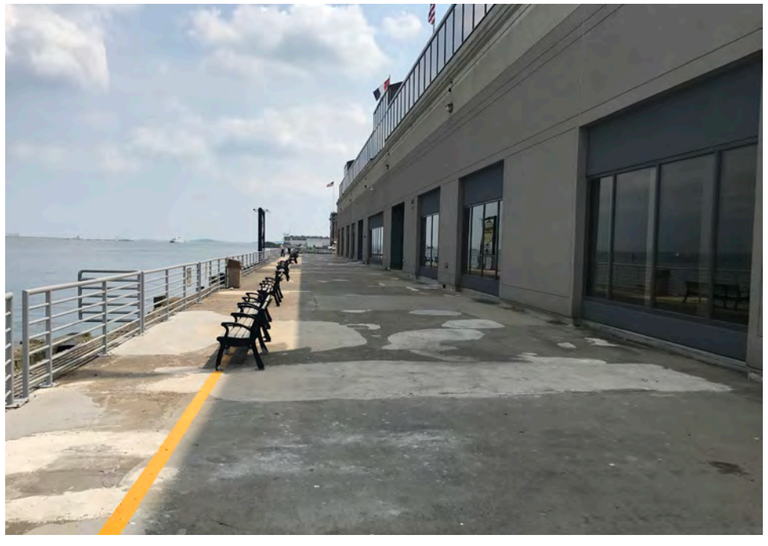


Floating dock on the east side of the pier

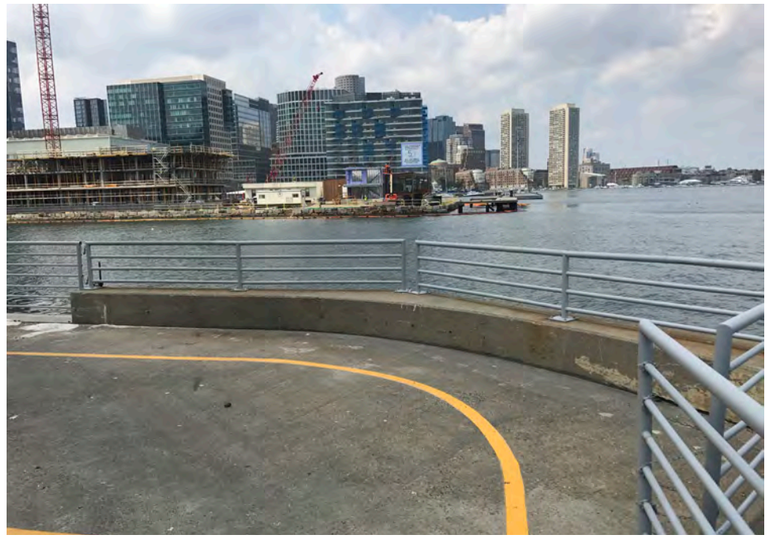



Retail space along Seaport Boulevard

View of the historic headhouse from the Viaduct



Harborwalk along the north side of the pier



View from the northwest corner of the pier toward downtown



Figure 3
**Existing Conditions Photographs**
Source: Fort Point Associates, Inc., 2019

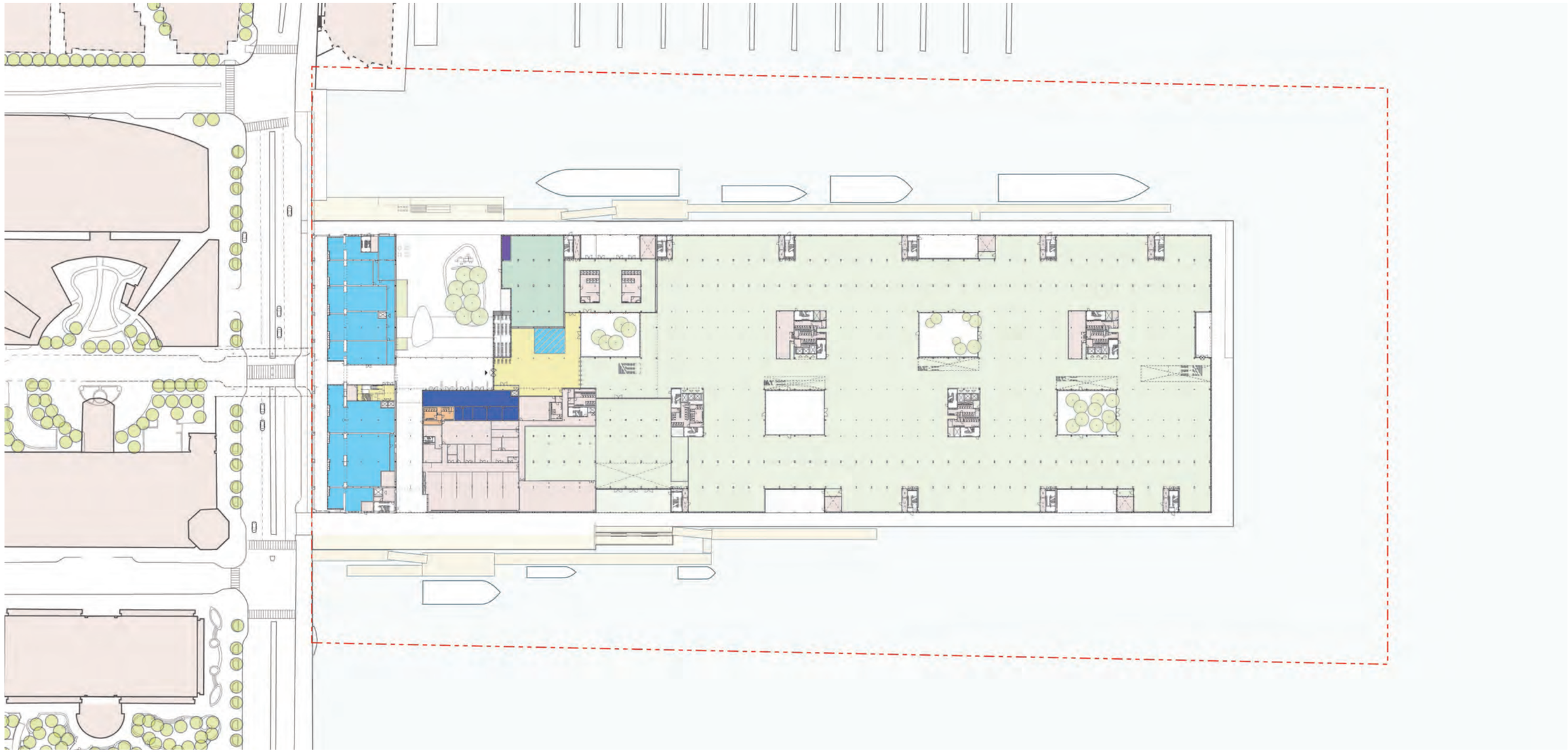





Figure 4
**Proposed Site Plan**
Source: Sasaki, 2019

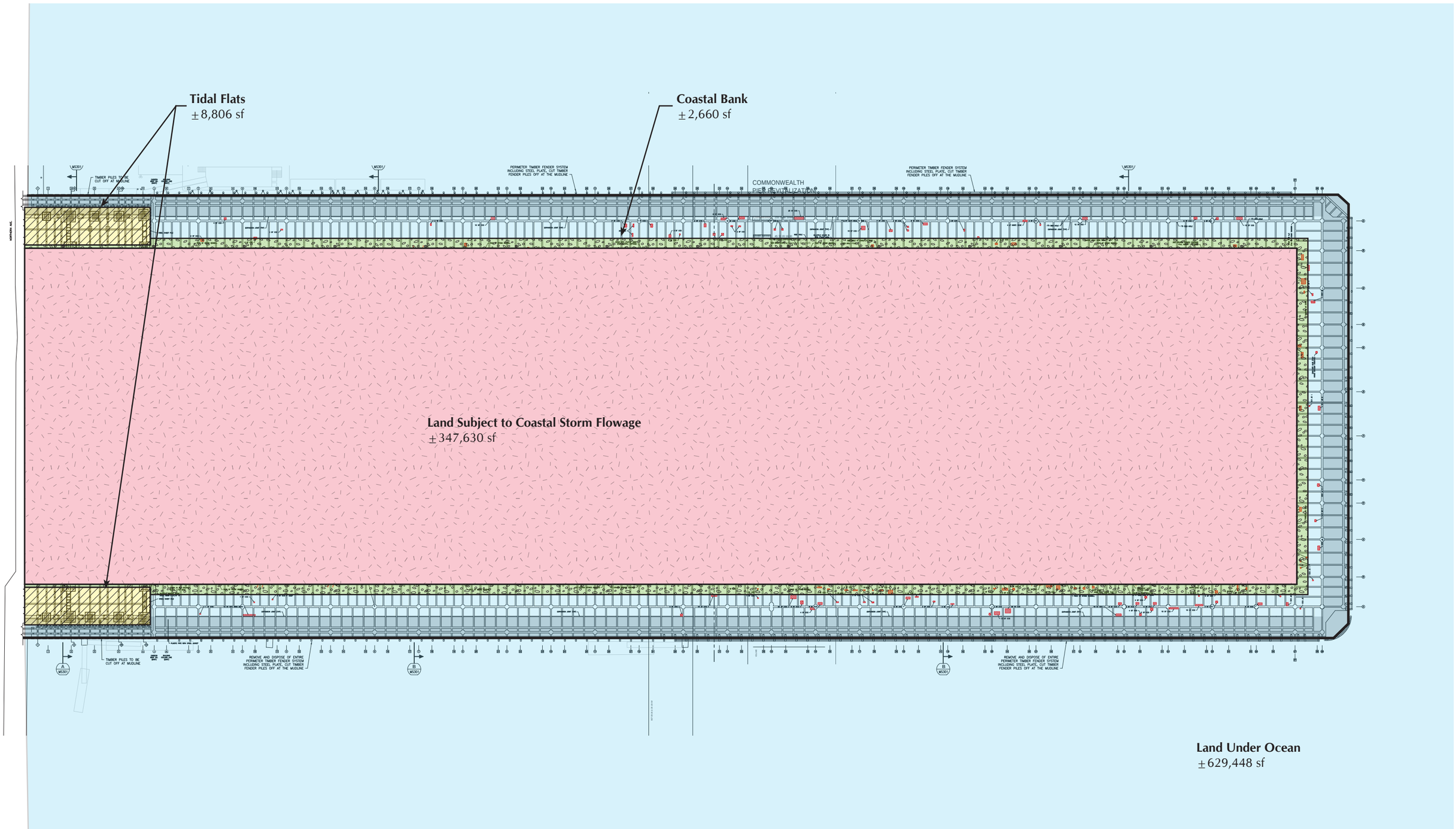





Figure 5
**Wetland Resources**
Source: Fort Point Associates, Inc., 2019


South Boston, Massachusetts

Figure 6
**FEMA Firmette**
Source: Federal Emergency Management Agency., 2019

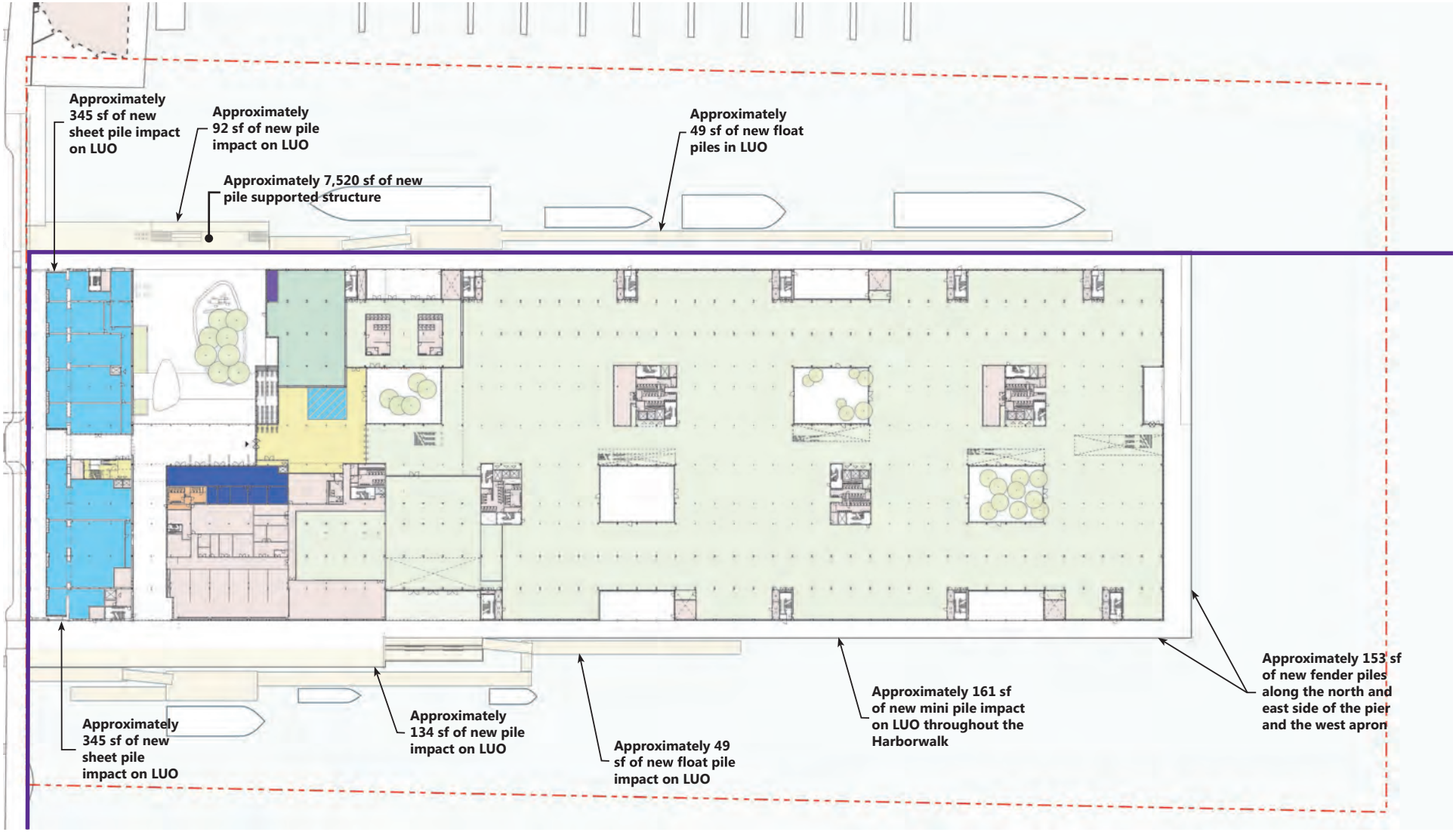
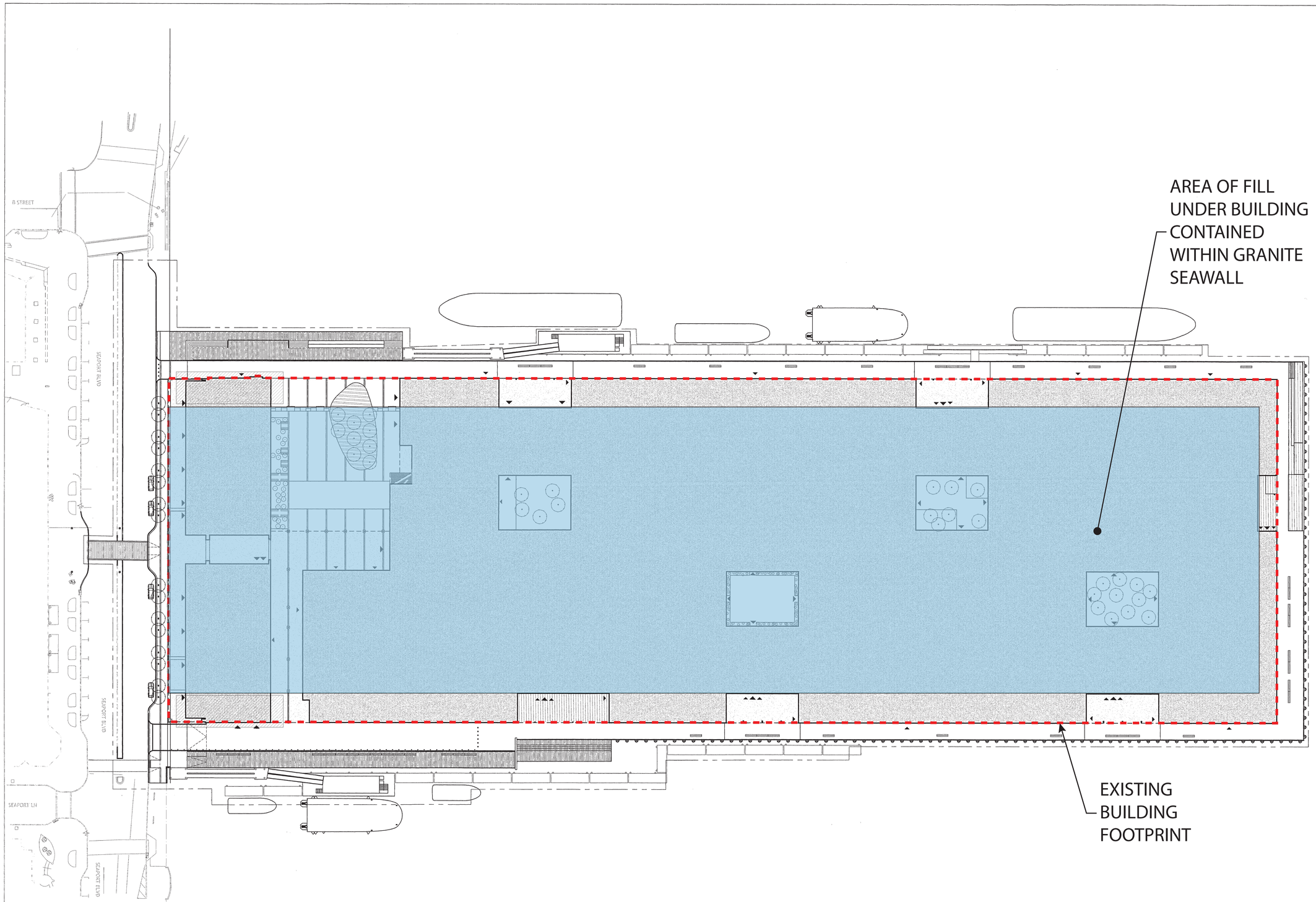





Figure 7

**Wetland Resource Area Impacts**

Source: Sasaki; Fort Point Associates, Inc., 2019




0' 20' 40' 80'
SCALE: 1" = 40'

**REVISIONS**

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**

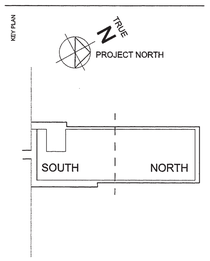

Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

schmidt/hammer/lassen/
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114

SASAKI
617 926 3300
64 Pleasant Street,
Watertown, MA 02472


KEY PLAN




GENERAL NOTES

SEAL

TITLE: NOTICE OF INTENT PLANS

VOLUME: NOT FOR CONSTRUCTION

DRAWING TITLE: NOI Overall Site Plan

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20" | 174079 | 04.01.2019 |

**LA100**

# Attachment B

# STORMWATER REPORT

# Commonwealth Pier Revitalization

## Boston, Massachusetts

PREPARED FOR

Pembroke REAL ESTATE

Commonwealth Pier Trust II
c/o Pembroke Real Estate LLC
255 State Street
Boston, MA, 02109
617.563.3100

PREPARED BY

vhb

**Vanasse Hangen Brustlin, Inc.**
99 High Street, 10th Floor
Boston, MA 02110
617.728.7777

February 22 2019

# Table of Contents

## List of Figures



## List of Tables



## Appendices

# Checklist for Stormwater Report

**Massachusetts Department of Environmental Protection**
Bureau of Resource Protection - Wetlands Program

# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

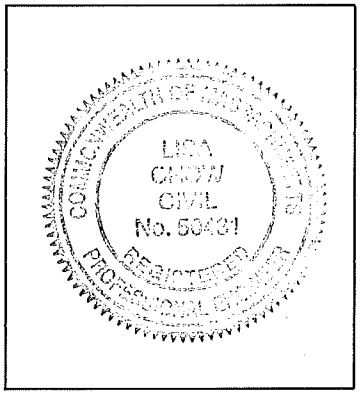
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

## Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature




4/1/19

Signature and Date

## Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

# Checklist for Stormwater Report

## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☒ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☒ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of “country drainage” versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

**Standard 1: No New Untreated Discharges**

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 2: Peak Rate Attenuation**

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

**Standard 3: Recharge**

☐ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

☐ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 3: Recharge** (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

**Standard 4: Water Quality**

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 4: Water Quality** (continued)

☐ The BMP is sized (and calculations provided) based on:

- ☐ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

**Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)**

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

**Standard 6: Critical Areas**

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☒ Critical areas and BMPs are identified in the Stormwater Report.

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable**

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

**Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control**

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

# Checklist for Stormwater Report

## Checklist (continued)

**Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control** (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

**Standard 9: Operation and Maintenance Plan**

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

**Standard 10: Prohibition of Illicit Discharges**

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

# Stormwater Report Narrative

This Stormwater Report has been prepared to demonstrate compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and Water Quality Certification Regulations (314 CMR 9.00). This report also demonstrates compliance with Article 37 of the Boston Zoning Code. Discharges to Massport owned storm drainage systems are regulated under the U.S Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) Stormwater Permit Regulations.

## Project Description

The Applicant, Commonwealth Pier Trust II, is proposing to rehabilitate the existing Seaport World Trade Center (the Project) through the conversion of existing exhibition space into public realm improvements, expanded retail space, and upgraded office and event spaces. The building's height and massing will remain relatively unchanged with the proposed design, except for the removal of a portion of the building's southwest corner to create an open-air public plaza. The Project proposes to expand open space and public realm area on-site.

As currently proposed, the Project redevelopment consists of approximately 635,920 gross floor area (GFA) of office (134,020 net new), including lobby and amenity space, 11,240 square feet of new co-working space, and 45,240 GFA of retail space (33,140 net new). New utility service connections are also proposed to support the redevelopment. The Project will also include street improvements to Seaport Boulevard. Since the Project is a rehabilitation and revitalization development, it does not introduce a significant amount of new/additional uses. The proposed Project redevelopment is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL).

## Site Description

The Project Site consists of an approximately 13.02-acre of land, impervious area supported by piles over water, and open water (the Site) located along the Boston Harbor waterfront on Seaport Boulevard in Boston, Massachusetts (see Figure 1). Of the 13.02 acres Project Site, approximately 0.73 acres is Seaport Boulevard, which is adjacent to Seaport World Trade Center. The overall parcel for the Seaport World

Trade Center consists of an approximately 11-acre pier extending over Boston's Main Channel, surrounded by approximately 8 acres of open water, and is located within the surface watershed of the Boston Harbor. The Site is bounded by existing public boat docks and water to the east, west, and north, and Seaport Boulevard to the south. See Figure 1, Site Locus Map.

There is existing storm drain infrastructure located within the Project Site. These systems include several unlabeled drain lines that discharge into a 60-inch Massachusettts Port Authority (Massport) drain. The 60-inch Massport drain eventually discharges into a 60-inch drain and 48-inch drain. These two drains separately discharge into the Boston Harbor via two existing unnumbered outfalls. While the BWSC system maps indicated an existing 60-inch drain discharging into a 60-inch drain and a 48-inch drain, the Proponent's existing condition survey indicated the drain line to be 36-inch discharging into a single 36-inch drain based on field conditions. There are also existing outfalls that discharge directly into the Boston Harbor located within the existing building footprint. Based on discussions with Massport, the drains in Seaport Boulevard are owned by Massport and the outfalls coming through the building are owned and maintained by the building owner. The stormwater management controls will be established in compliance with the local regulatory standards.

Wetland Resource Areas on or near the Site were provided by Fort Point Associates. The identified Wetland Resource Areas on or near the Site include Land Under the Ocean; Tidal Flat; Coastal Bank; Designated Port Area (DPA); and Land Subject to Coastal Storm Flowage (LSCSF). The Project's proposed work has been designed to comply with the performance standards of each impacted resource area in the Wetlands Protection Act (WPA). The Project includes erosion and sedimentation controls and complies with DEP's stormwater management policy.

Land Under the Ocean is defined in the WPA regulations at 310 CMR 10.25 (2) as "land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries." The mean low water (MLW) at the Project Site is at approximately elevation 1.3 Boston City Base (BCB). All land seaward of this elevation on the Project Site is regulated as Land Under the Ocean and consists of approximately 10.5 acres. Portions of this area are covered with a pile-supported building perimeter and pier apron.

Tidal Flat is defined in the WPA regulations at 310 CMR 10.27 (2) as "means any nearly level part of a coastal beach which usually extends from the mean low water line landward to the more steeply sloping face of the coastal beach or which may be separated from the beach by land under the ocean." On this site, there are two small areas of tidal flats heavily impacted by piles supporting the east and west side of the headhouse. This nearly flat area is bounded by sheetpiling on the outboard side and vertical granite block seawall on the inboard side.

Coastal Bank is defined in the WPA regulations at 310 CMR 10.30 (2) as the seaward face or side of any elevated landform, other than a coastal dune, which lies at the

landward edge of a coastal beach, land subject to tidal action, or other wetland. Coastal Banks are likely to be significant to storm damage prevention and flood control. Coastal Bank makes up approximately 2,660 lineal feet (18,200 sf) of the Project Site and is comprised of the granite block seawall and sloping riprap bounding the filled area of the Project Site underneath the existing building.

Land Under Ocean within a mapped DPA is a wetland resource area. The entire pier, pier apron, and the watersheet on the north and east sides of Commonwealth Pier are located within the South Boston DPA, but only the area under the pile supported portion of the building and pier apron, and the surrounding watersheet is a wetland resource area.

According to 310 CMR 10.04, LSCSF means land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater. It is coterminous with the Special Flood Hazard Area defined in the currently effective Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) or (FIRM) Rate Map.

Per FIRM panel 25025C0018-J, effective March 16, 2016, the building is within an area classified as Zone AE, with a flood elevation of 11 feet NAVD88, or approximately 17.46 feet Boston City Base (BCB). Approximately 13.02 acres of the Site is within LSCSF and would be impacted by the Project.

According to the National Resources Conservation Service (NRCS), surface soils on the Site include Water, Urban Land, and Udorthents. On-site soils are unranked in Hydrologic Soil Groups (HSG) and assumed to be of classification D. The NRCS soil evaluation is included in Appendix A.

## Existing Drainage Conditions

Under existing conditions, the Site is predominantly impervious, consisting of the building itself, a concrete pier apron, open water, and concrete sidewalk and roadway. The site consists of generally flat topography and is located along a dense urban corridor. Existing surface runoff along the sidewalks and road frontage of the Site sheet flows into nearby deep sump catch basins located in Seaport Boulevard. These existing deep sump catch basins are connected to multiple storm drain lines in Seaport Boulevard ranging from 10-inch to 36-inch. The existing storm drain lines in Seaport Boulevard are Massachusetts Port Authority owned storm drains. The runoff from Seaport Boulevard eventually discharge into the Boston Harbor via multiple storm drain outfalls located along Seaport Boulevard. Roof runoff from the existing building discharges directly into the Boston Harbor via existing outfalls within the building footprint. Per discussions with MPA, these existing outfalls are owned by the building owner. The surface runoff along the concrete pier apron sheet flows directly into the Boston.

Figure 2 illustrates the existing drainage patterns on the Site. Currently, the Site is divided into 8 drainage areas as stormwater runoff flows to one (1) Design Point, which has been identified as DP-1: Boston Harbor. The existing drainage areas are listed below:

**EX-1** – This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-2** - This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-3** - This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-4** - This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-5** – This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-6 -** This area consists of existing Seaport Boulevard sidewalk and paved surface roadway/median. Runoff sheet flows toward an existing catch basin in Seaport Boulevard.

**EX-7** - This area consists of existing concrete pier apron and open water of the Boston Harbor. Runoff sheet flows directly into the Boston Harbor.

**EX-8** - This area consists of the existing building. There are existing raised planters located on the second level of the building. Roof runoff is predominantly captured through internal building systems and discharged into the Boston Harbor.

Table 2 below provides a summary of the existing conditions hydrologic data.

## Table 1
## Existing Conditions Hydrologic Data

| *Drainage Area* | *Discharge Location* | *Design Point* | *Area (acres)* | *Curve Number* | *Time of Concentration (min)* |
|---|---|---|---|---|---|
| EX-1 | Boston Harbor | DP-1 | .096 | 98 | 5.0 |
| EX-2 | Boston Harbor | DP-1 | .099 | 98 | 5.0 |
| EX-3 | Boston Harbor | DP-1 | .083 | 98 | 5.0 |
| EX-4 | Boston Harbor | DP-1 | .119 | 98 | 5.0 |

| | | | | | |
|---|---|---|---|---|---|
| EX-5 | Boston Harbor | DP-1 | .222 | 98 | 5.0 |
| EX-6 | Boston Harbor | DP-1 | .102 | 98 | 5.0 |
| EX-7 | Boston Harbor | DP-1 | 2.503 | 98 | 5.0 |
| EX-8 | Boston Harbor | DP-1 | 9.796 | 98 | 5.0 |

## Proposed Drainage Conditions

Under proposed condition, the rehabilitated building and concrete pier apron and proposed apron extensions will continue to occupy the majority of the Site. The Project is proposing new landscaped areas in the Plaza area and internal courtyards that reduce the amount of impervious area on the Site. The runoff from the sidewalk and roadway surfaces in Seaport Boulevard will be conveyed into deep sump catch basins. Most of the roof runoff from the building will continue to discharge directly into Boston Harbor via the existing outfalls. A portion of the building roof will be conveyed to the existing 10-inch storm drain located in Seaport Boulevard via two (2) 10-inch building drain connections. These two (2) 10-inch building drain connections will connect into existing drain manholes in Seaport Boulevard. The runoff from the proposed plaza area will be conveyed to a water quality unit prior to discharge into Boston Harbor via an existing outfall. The runoff from the proposed internal courtyards will be discharged into the Boston Harbor via new outfalls. The runoff from the portion of the concrete apron that will be driven on by delivery trucks to the building will be captured by proposed trench drains along the edge of concrete apron. The runoff will then be conveyed to deep sump hanging basins for treatment prior to direct discharge into the Boston Harbor. The deep sump hanging basins will contain a 4 feet sump and to allow sediments and floatables to be separated from the runoff before it discharges through an overflow pipe.

Figure 3 illustrates the proposed "post construction" drainage conditions for the project. As shown, the Site will be divided into 14 drainage areas that discharge treated stormwater to the same one (1) existing Design Point: Boston Harbor.

The proposed drainage areas are listed below:

**PR-1** – This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards an existing catch basin in Seaport Boulevard.

**PR-2 -** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-3 -** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-4 -** This area consists of the Seaport Boulevard median and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-5 –** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-6 -** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-7 -** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-8 -** This area consists of the Seaport Boulevard sidewalk and paved roadway surface. Runoff sheet flows towards an existing catch basin in Seaport Boulevard.

**PR-9 -** This area consists of the Seaport Boulevard median and paved roadway surface. Runoff sheet flows towards a proposed catch basin along the median in Seaport Boulevard.

**PR-10 -** This area consists of the proposed floating docks and concrete pier apron extension wrapping around the building. Runoff sheet flows directly into the Boston Harbor.

**PR-11 -** This area consists of the proposed concrete pier apron extension where runoff sheet flows into a perimeter trench drain and is directed to deep sump hanging drains before discharging into the Boston Harbor.

**PR-12 -** This area consists of the proposed outdoor Plaza area with few landscaped areas. Runoff sheet flows to trench drains and is directed through a water quality unit to remove TSS before being discharged into the Boston Harbor.

**PR-13 -** This area consists of the proposed building and internal courtyards. The internal courtyards consist of landscaped areas. The runoff from the building roof is collected through internal systems and discharged either into the Boston Harbor or drain system in Seaport Boulevard. The runoff from the internal courtyards will discharge directly into the Boston Harbor via new outfalls.

**PR-14 -** This area consists of the proposed concrete pier apron extension where runoff sheet flows into a perimeter trench drain and is directed to deep sump hanging drains before discharging into the Boston Harbor.

Table 3 below provides a summary of the proposed conditions hydrologic data.

**Table 2**
**Proposed Conditions Hydrologic Data**

| *Drainage Area* | *Discharge Location* | *Design Point* | *Area (acres)* | *Curve Number* | *Time of Concentration (min)* |
|---|---|---|---|---|---|
| PR-1 | Boston Harbor | DP-1 | 0.047 | 98 | 5 |
| PR-2 | Boston Harbor | DP-1 | 0.138 | 98 | 5 |
| PR-3 | Boston Harbor | DP-1 | 0.066 | 98 | 5 |
| PR-4 | Boston Harbor | DP-1 | 0.026 | 98 | 5 |
| PR-5 | Boston Harbor | DP-1 | 0.124 | 98 | 5 |
| PR-6 | Boston Harbor | DP-1 | 0.096 | 98 | 5 |
| PR-7 | Boston Harbor | DP-1 | 0.125 | 98 | 5 |
| PR-8 | Boston Harbor | DP-1 | 0.073 | 98 | 5 |
| PR-9 | Boston Harbor | DP-1 | 0.033 | 98 | 5 |
| PR-10 | Boston Harbor | DP-1 | 2.141 | 98 | 5 |
| PR-11 | Boston Harbor | DP-1 | 0.101 | 98 | 5 |
| PR-12 | Boston Harbor | DP-1 | 0.488 | 96 | 5 |
| PR-13 | Boston Harbor | DP-1 | 9.313 | 98 | 5 |
| PR-14 | Boston Harbor | DP-1 | 0.249 | 98 | 5 |

Integrated into the site design is a comprehensive stormwater management system that has been developed in accordance with the Massachusetts Stormwater Handbook. Because the existing site area is limited to a man-made pier predominantly covered with a building, the proposed stormwater management system has been designed to treat the stormwater runoff to the maximum extent practicable. The Project includes new landscape areas that will reduce the amount of impervious area from existing condition. Under existing conditions, the Site is approximately 99.5% impervious. Under proposed conditions, the Site is approximately 97% impervious. The project also proposes to provide Total Suspended Solids (TSS) reduction by installing deep seep hanging drains and a water quality unit for areas where delivery trucks to the building will travel prior to discharge.

## Environmentally Sensitive and Low Impact Development (LID) Techniques

Low Impact Development (LID) techniques and stormwater Best Management Practices (BMPs) implemented into the site design include a redevelopment of the existing building, reduction of site impervious area, new deep sump catch basins in the roadway, deep sump hanging drains beneath the apron pier extension, and a water quality treatment unit to treat runoff from the new Plaza area. In general, stormwater from the proposed impervious surfaces is collected into catch basins in Seaport Blvd and area drains and trench drains around portions of the pier where delivery trucks to the building will travel. The runoff from these areas are treated

through deep sump structures or a water quality unit and eventually discharged through existing outfalls into the Boston Harbor.

**Figure 1: Site Locus Map**


Source: USGS

Project Boundary

Figure 1.1

Locus Map

**Commonwealth Pier Revitalization**
**Boston, Massachusetts**


Source: City of Boston, Bing

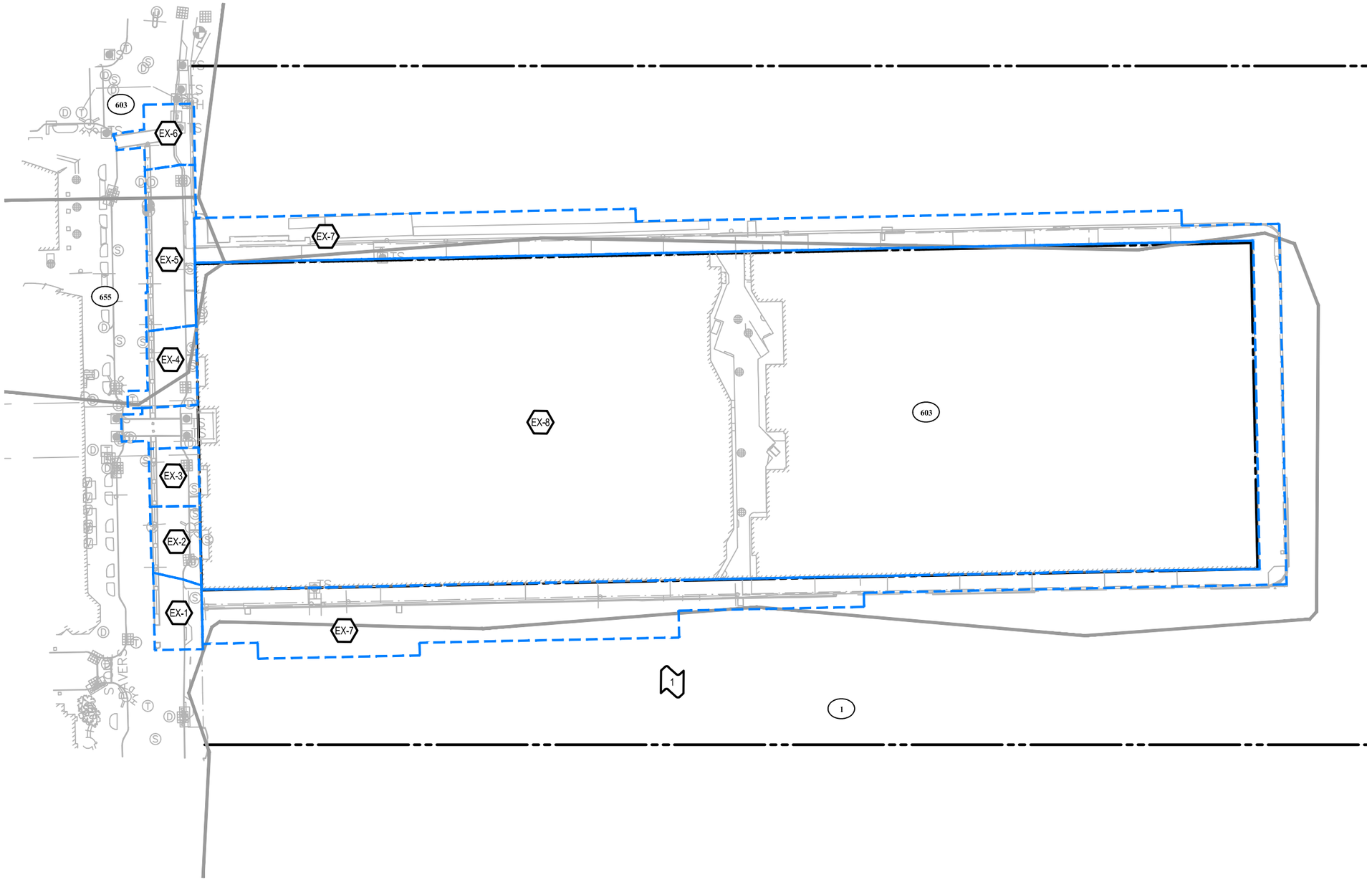
Project Boundary

Figure 1.2

Project Site Context

**Commonwealth Pier Revitalization**
**Boston, Massachusetts**

**Figure 2: Existing Drainage Areas**




# Legend

**SYMBOLS**

X — **DESIGN POINT**

X — **DRAINAGE AREA DESIGNATION**

**LINETYPES**

**DRAINAGE AREA BOUNDARY**

**SOIL TYPE BOUNDARY**

**SCS SOIL CLASSIFICATIONS**

| | |
|---|---|
| 1 | **WATER** |
| 603 | **URBAN LAND, WET SUBSTRATUM, 0 TO 3 PERCENT SLOPES** |
| 655 | **UDORTHENTS, WET SUBSTRATUM** |

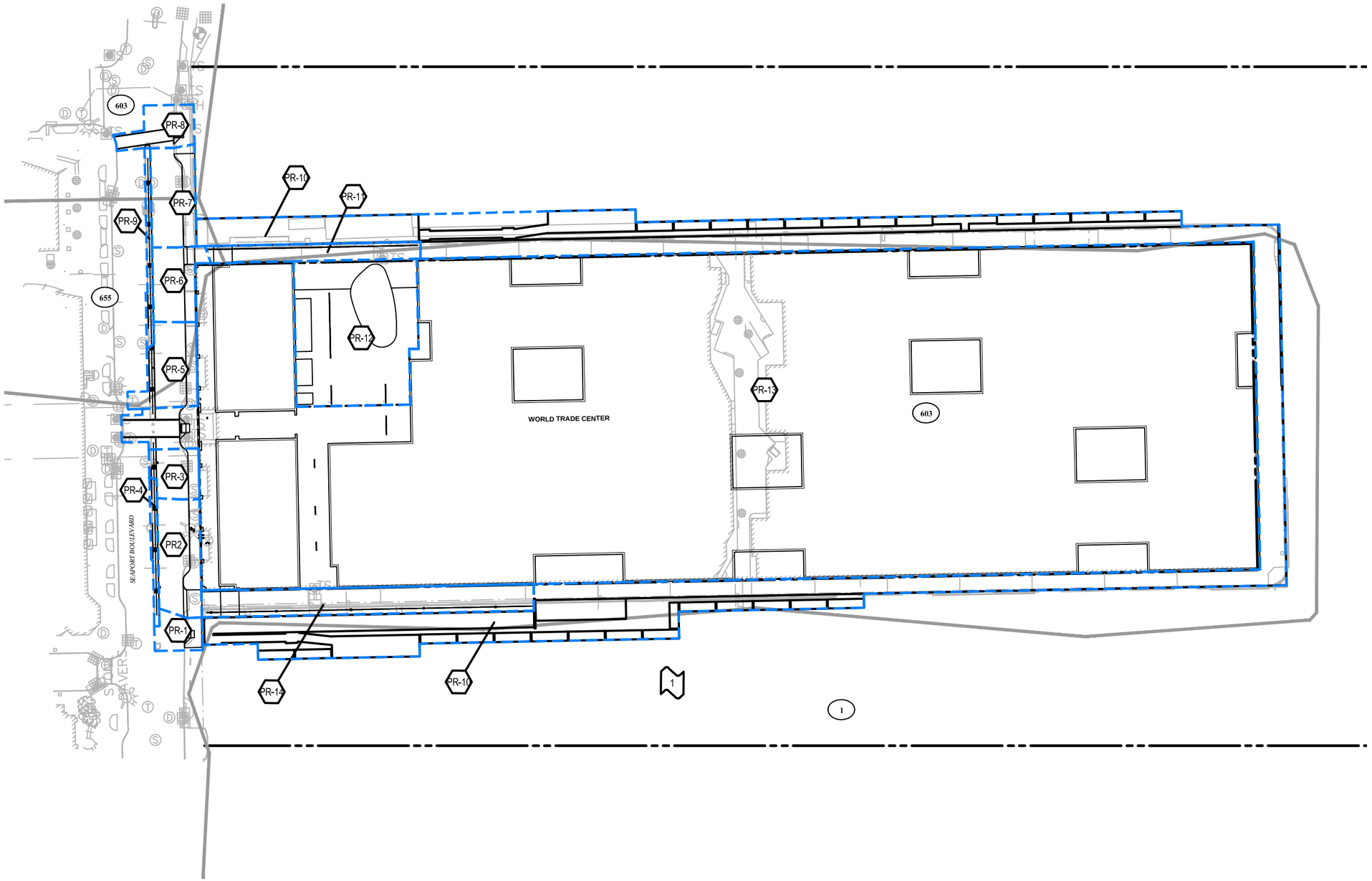
0 60 120 Feet

Existing Drainage Conditions
Commonwealth Pier Revitalization
Boston, MA

**Figure 2**

02/22/2019

**Figure 3: Proposed Drainage Areas**




# Legend

**SYMBOLS**

X — **DESIGN POINT**

X — **DRAINAGE AREA DESIGNATION**

**LINETYPES**

**DRAINAGE AREA BOUNDARY**

**SOIL TYPE BOUNDARY**

**SCS SOIL CLASSIFICATIONS**

| | |
|---|---|
| 1 | **WATER** |
| 603 | **URBAN LAND, WET SUBSTRATUM, 0 TO 3 PERCENT SLOPES** |
| 655 | **UDORTHENTS, WET SUBSTRATUM** |

0 60 120 Feet

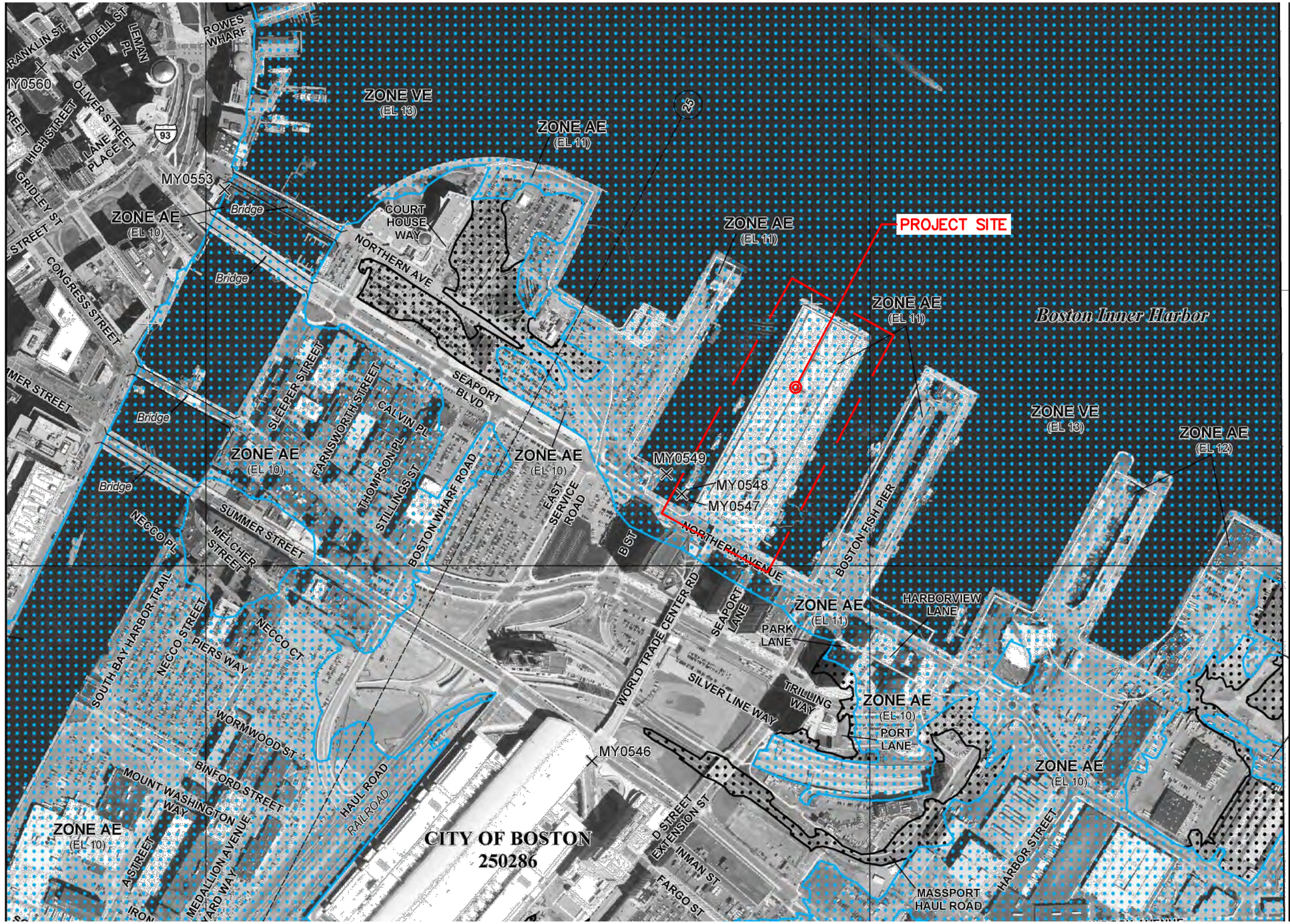
Proposed Drainage Conditions
Commonwealth Pier Revitalization
Boston, MA

**Figure 3**

02/22/2019

## Figure 4: FEMA Flood Insurance Rate Map

\\vhb\gbl\proj\Boston\13862.00\cad\ld\Planmisc\SWR Drainage Figures\FEMA FIRM.dwg




NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0081J

# FIRM

FLOOD INSURANCE RATE MAP

SUFFOLK COUNTY, MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 81 OF 176
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY | NUMBER | PANEL | SUFFIX |
|---|---|---|---|
| BOSTON, CITY OF | 250286 | 0081 | J |

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

**MAP NUMBER**
**25025C0081J**
**MAP REVISED**
**MARCH 16, 2016**

Federal Emergency Management Agency

0 250 500 Feet

FEMA Flood Insurance Rate Map
Commonwealth Pier Revitalization
Boston, MA

**Figure 4**

January, 2019

# Regulatory Compliance

## Massachusetts Department of Environmental Protection (DEP) - Stormwater Management Standards

As demonstrated below, the proposed Project fully complies with the DEP Stormwater Management Standards.

### Standard 1: No New Untreated Discharges or Erosion to Wetlands

The Project has been designed to fully comply with Standard 1.

The Best Management Practices (BMPs) included in the proposed stormwater management system have been designed in accordance with the Massachusetts Stormwater Handbook. Supporting information and computations demonstrating that no new untreated discharges will result from the Project are presented through compliance with Standards 4 through 6.

The Project will include new outfalls that discharge into the Boston Harbor. The approximate location of the new outfalls are located above existing rip rap. The project contains no discharge overflows from BMP's that impound stormwater.

### Standard 2: Peak Rate Attenuation

The Project is seeking relief under Stormwater Management Standard 7 and as such complies with Standard 2 to the maximum extent practicable.

The rainfall-runoff response of the Site under existing and proposed conditions was analyzed for storm events with recurrence intervals of 2, 10, 25 and 100-years. The results of the analysis, as summarized in Table 3 below, indicate that there is no increase in peak discharge rates between the existing and proposed conditions for all the analyzed storm events.

Computations and supporting information regarding the hydrologic modeling are included in Appendix B.

**Table 3**
**Peak Discharge Rates (cfs*)**

| *Design Point* | *2-year* | *10-year* | *25-year* | *100-year* |
|---|---|---|---|---|
| **Design Point:** Boston Harbor – DP-1 | | | | |
| Existing | 41.48 | 63.71 | 79.51 | 101.37 |
| Proposed | 41.43 | 63.67 | 79.48 | 101.34 |

## Standard 3: Stormwater Recharge

The Project is seeking relief under Stormwater Management Standard 7 and as such complies with Standard 3 to the maximum extent practicable.

The pier revitalization project is a re-development of the existing pier and associated building. There is no opportunity on this site to infiltrate due to the site being entirely located on a man-made pier, in the Boston harbor. The site soils consist of class D soil type, which have low infiltration rates, and water. The project does not propose infiltration on this site due to the above factors.

The Project is also reducing the amount of impervious area on the Site. The Project includes new pervious area that will result in an approximately 2% reduction in percent impervious.

## Standard 4: Water Quality

The Project is seeking relief under Stormwater Management Standard 7 and as such complies with Standard 4 to the maximum extent practicable.

The proposed stormwater management system implements a treatment train of BMPs that has been designed to provide up to 80% TSS removal of stormwater runoff from all proposed impervious surfaces. The project incorporates a number of BMPs used to reduce TSS from stormwater runoff such as deep sump catch basins, deep sump hanging drains, and a Vortechs water quality unit.

Deep sump catch basins are proposed in the existing roadway area in Seaport Boulevard and achieve 25% TSS removal, while deep sump hanging drains are proposed along the pier apron expansion and will be suspended below the pier decking, also achieving 25% TSS removal. The deep sump hanging drains are proposed for areas where delivery trucks to the building will travel. A Vortechs water quality unit is proposed to intercept and treat runoff from the proposed public plaza area to reduce 80% TSS before discharge.

Computations and supporting information, including the Long-Term Pollution Prevention Plan, are included in Appendix C.

## Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

The Project is not considered a LUHPPL.

## Standard 6: Critical Areas

The Project will not discharge stormwater near or to a critical area.

## Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable

The Project is a redevelopment and has been designed to comply with Stormwater Management Standards 2-6 to the maximum extent practicable. Standards 8-10 have been met completely.

## Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls

The Project will disturb approximately 13.02 acres of land and is therefore required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit. An Erosion and Sedimentation Plan has been developed. As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted before land disturbance begins. Recommended construction period pollution prevention and erosion and sedimentation controls will finalized in the SWPPP.

## Standard 9: Operation and Maintenance Plan

In compliance with Standard 9, a Post Construction Stormwater Operation and Maintenance (O&M) Plan has been developed for the Project. The O&M Plan is included in Appendix D as part of the Long-Term Pollution Prevention Plan.

## Standard 10: Prohibition of Illicit Discharges

Sanitary sewer and storm drainage structures remaining from the previous development and which are part of the redevelopment area will be removed or will be kept and incorporated into updated sanitary sewer and separate stormwater sewer systems. The design plans submitted with this report have been designed so that the components included therein are in full compliance with current standards. No

statement is made with regard to the drainage system in portions of the site not included in the redevelopment project area. The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges.

A No Illicit Discharge Compliance Statement will be submitted by the Owner prior to the discharge of any stormwater to post-construction BMP's. (language per MA Stormwater Report Checklist)

## Local Municipal Rules and Regulations

The following is a summary of the regulatory framework for utility connection reviews and standards. Any new connections will be designed and constructed in accordance with city, state, and federal standards.

The Massachusetts Port Authority (Massport) approval will be required for all proposed stormwater systems and connections to Massport stormwater infrastructure within the vicinity of the site. Massport does not have regulated stormwater requirements or procedures but, as part of the permitting process, will provide comments on a project specific basis. Massport Fire and Rescue review will be required with respect to fire protection measures within the proposed re-development. Massport will also be required to authorize all excavation activities involving cutting and capping of any existing utilities.

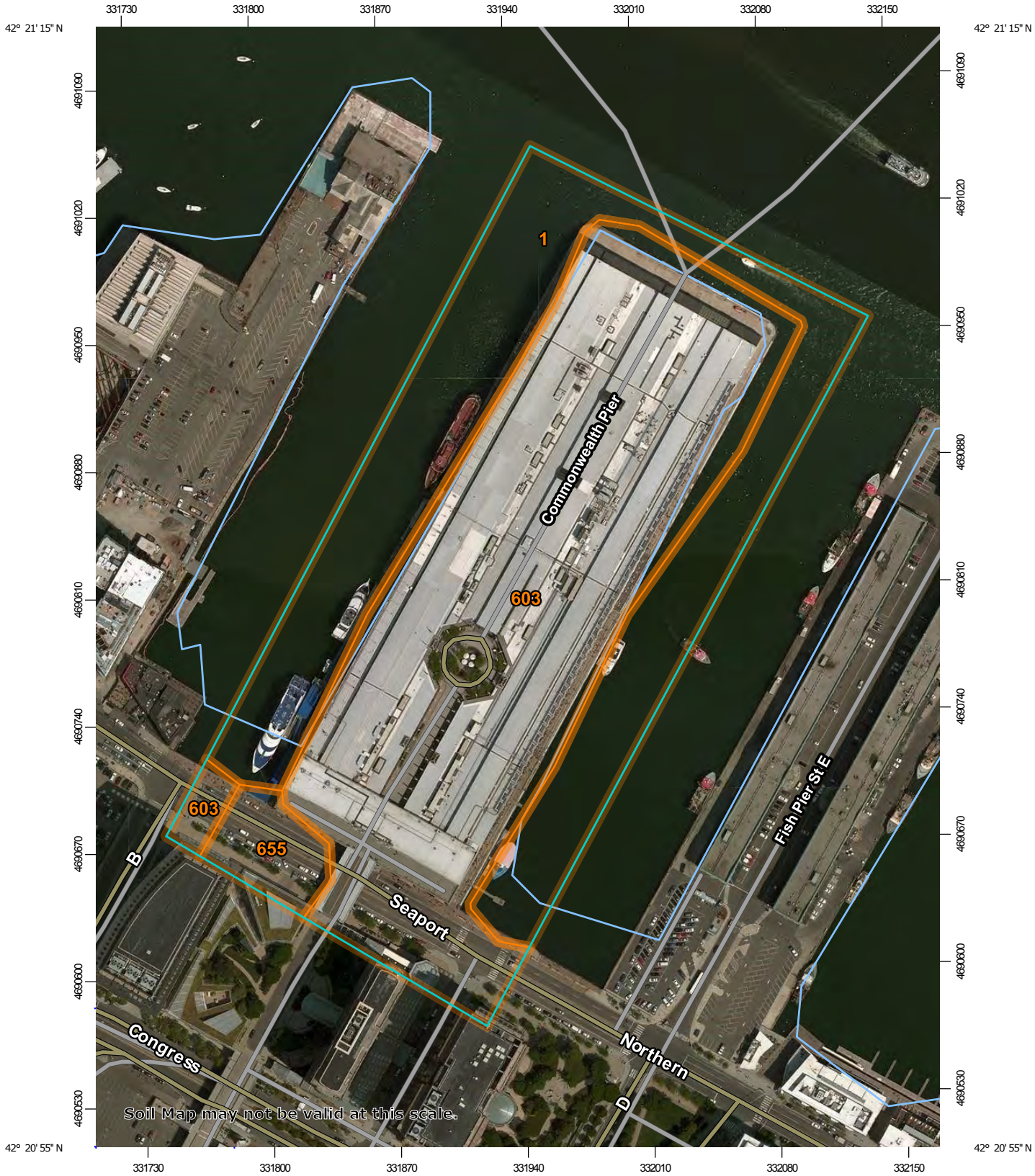
All new connections and or modifications to BWSC water and sewer infrastructure will be reviewed by BWSC as part of their Site Plan review process. This process includes a comprehensive design review of the proposed service connections, assessment of system demands and capacity, and establishment of water service accounts. All proposed utility and energy systems will need to be coordinated with respective system owners

# Appendix A
# NRCS Soil Survey

# 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)




Map Scale: 1:3,000 if printed on A portrait (8.5" x 11") sheet.

N

0 40 80 160 240 Meters

0 100 200 400 600 Feet

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

## MAP LEGEND

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

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**Water Features**
- Streams and Canals

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

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 14, Sep 12, 2018

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

Date(s) aerial images were photographed: Aug 10, 2014—Aug 25, 2014

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

# Map Unit Legend (MAP)

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 1 | Water | 8.2 | 36.7% |
| 603 | Urban land, wet substratum, 0 to 3 percent slopes | 13.4 | 59.9% |
| 655 | Udorthents, wet substratum | 0.8 | 3.4% |
| **Totals for Area of Interest** | | **22.4** | **100.0%** |

# Map Unit Descriptions (MAP)

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.

# Norfolk and Suffolk Counties, Massachusetts

## 1—Water

**Map Unit Setting**

*National map unit symbol:* vkyp
*Mean annual precipitation:* 32 to 50 inches
*Mean annual air temperature:* 45 to 50 degrees F
*Frost-free period:* 120 to 200 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Water:* 100 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

## 603—Urban land, wet substratum, 0 to 3 percent slopes

**Map Unit Setting**

*National map unit symbol:* vkyl
*Mean annual precipitation:* 32 to 50 inches
*Mean annual air temperature:* 45 to 50 degrees F
*Frost-free period:* 120 to 200 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Urban land:* 85 percent
*Minor components:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Urban Land**

**Setting**

*Parent material:* Excavated and filled land over herbaceous organic material and/or alluvium and/or marine deposits

**Minor Components**

**Udorthents**

*Percent of map unit:* 13 percent
*Hydric soil rating:* Unranked

**Beaches**

*Percent of map unit:* 2 percent
*Hydric soil rating:* Unranked

## 655—Udorthents, wet substratum

### Map Unit Setting

*National map unit symbol:* vkyd
*Mean annual precipitation:* 45 to 54 inches
*Mean annual air temperature:* 43 to 54 degrees F
*Frost-free period:* 145 to 240 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Udorthents and similar soils:* 95 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Udorthents

#### Setting

*Landform position (two-dimensional):* Shoulder, footslope
*Landform position (three-dimensional):* Riser, tread
*Down-slope shape:* Convex, linear
*Across-slope shape:* Convex, linear
*Parent material:* Excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material

#### Properties and qualities

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None

### Minor Components

#### Urban land

*Percent of map unit:* 3 percent
*Hydric soil rating:* Unranked

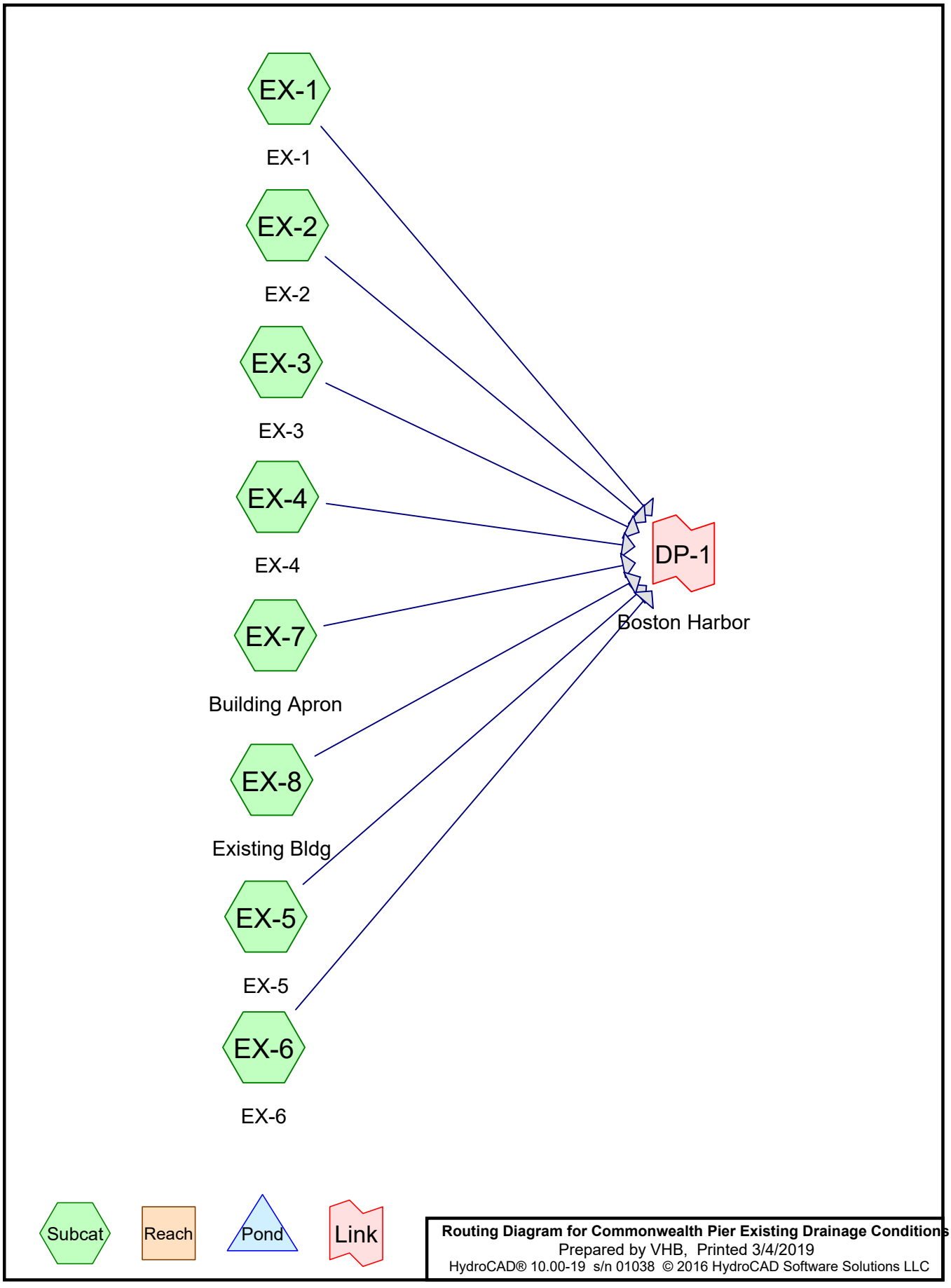
#### Ipswich

*Percent of map unit:* 2 percent
*Landform:* Marshes
*Hydric soil rating:* Yes

# Appendix B
# Standard 2 Computations and Supporting Information

Rainfall volumes used for this analysis were based on the Natural Resources Conservation Service (NRCS) Type III, 24-hour storm event for Boston Massachusetts. Runoff coefficients for the existing and proposed conditions, as previously shown in Tables 1 and 2 respectively, were determined using NRCS Technical Release 55 (TR-55) methodology as provided in HydroCAD. The HydroCAD model is based on the NRCS Technical Release 20 (TR-20) Model for Project Formulation Hydrology.

# HydroCAD Analysis: Existing Conditions




**Routing Diagram for Commonwealth Pier Existing Drainage Conditions**
Prepared by VHB, Printed 3/4/2019
HydroCAD® 10.00-19 s/n 01038 © 2016 HydroCAD Software Solutions LLC

## Area Listing (selected nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.066 | 89 | <50% Grass cover, Poor, HSG D (EX-8) |
| 1.405 | 98 | Paved parking, HSG D (EX-7) |
| 0.720 | 98 | Paved roads w/curbs & sewers, HSG D (EX-1, EX-2, EX-3, EX-4, EX-5, EX-6) |
| 9.731 | 98 | Roofs, HSG D (EX-8) |
| 1.098 | 98 | Water Surface, HSG D (EX-7) |
| **13.019** | **98** | **TOTAL AREA** |

## Soil Listing (selected nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.000 | HSG A | |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 13.019 | HSG D | EX-1, EX-2, EX-3, EX-4, EX-5, EX-6, EX-7, EX-8 |
| 0.000 | Other | |
| **13.019** | | **TOTAL AREA** |

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 EX-1: EX-1** Runoff Area=4,178 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.31 cfs 0.023 af

**Subcatchment EX-2: EX-2** Runoff Area=4,328 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.023 af

**Subcatchment EX-3: EX-3** Runoff Area=3,545 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.019 af

**Subcatchment EX-4: EX-4** Runoff Area=5,179 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.38 cfs 0.028 af

**Subcatchment EX-5: EX-5** Runoff Area=9,682 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.71 cfs 0.052 af

**Subcatchment EX-6: EX-6** Runoff Area=4,439 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.024 af

**Subcatchment EX-7: Building Apron** Runoff Area=109,015 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=7.97 cfs 0.590 af

**Subcatchment EX-8: Existing Bldg** Runoff Area=426,734 sf 99.33% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=31.22 cfs 2.309 af

**Link DP-1: Boston Harbor** Inflow=41.48 cfs 3.069 af
Primary=41.48 cfs 3.069 af

**Total Runoff Area = 13.019 ac Runoff Volume = 3.069 af Average Runoff Depth = 2.83"**
**0.51% Pervious = 0.066 ac 99.49% Impervious = 12.953 ac**

## Summary for Subcatchment EX-1: EX-1

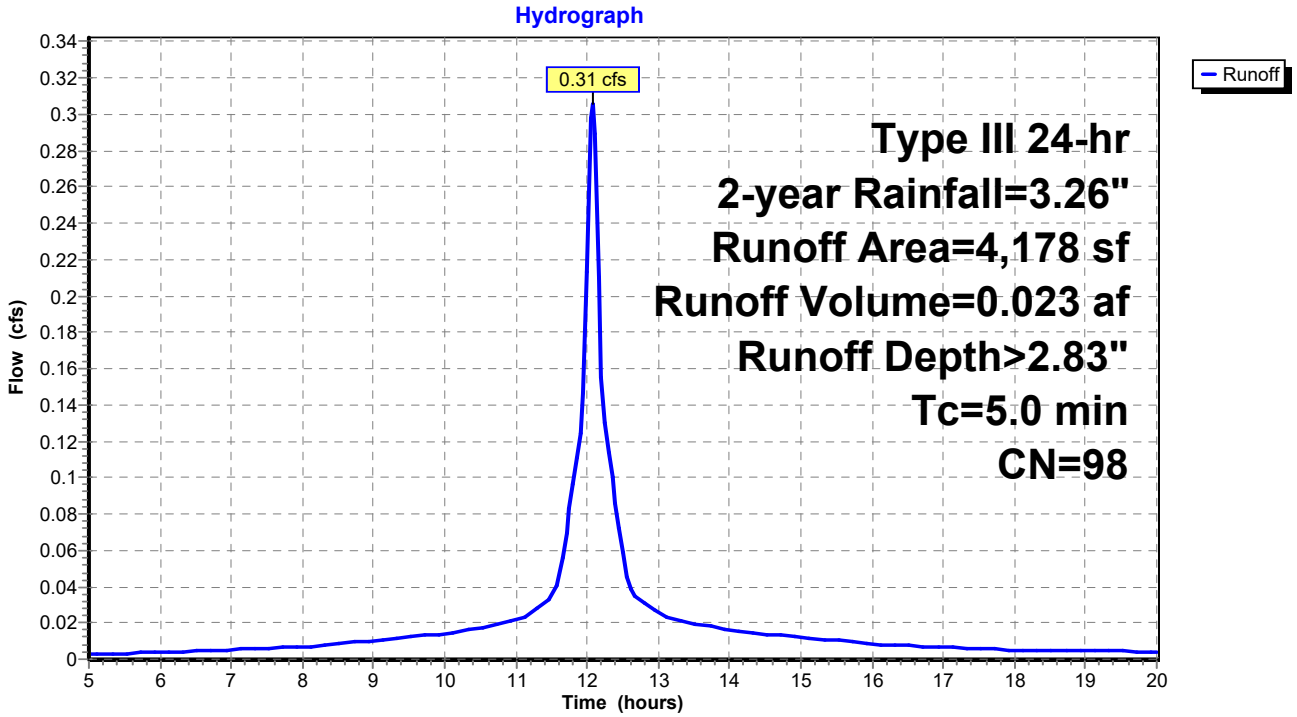
Runoff = 0.31 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 4,178 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,178 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-1: EX-1



## Summary for Subcatchment EX-2: EX-2

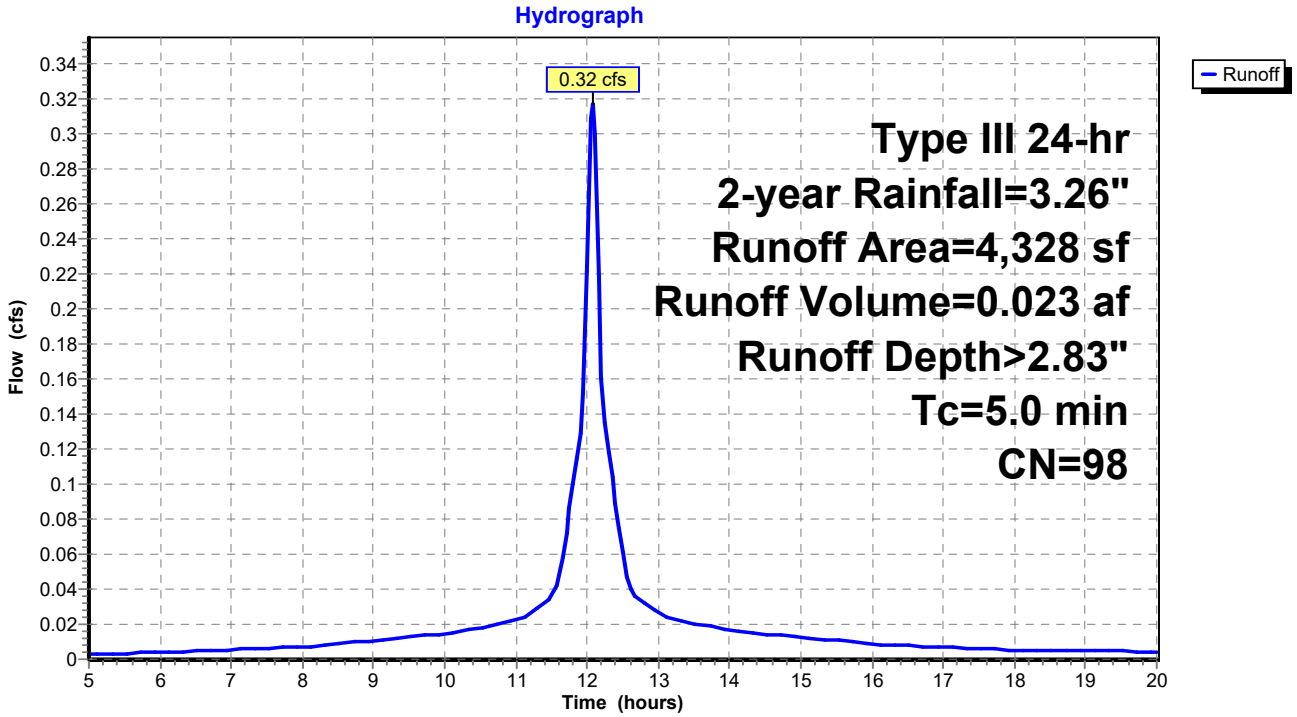
Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 4,328 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,328 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-2: EX-2



## Summary for Subcatchment EX-3: EX-3

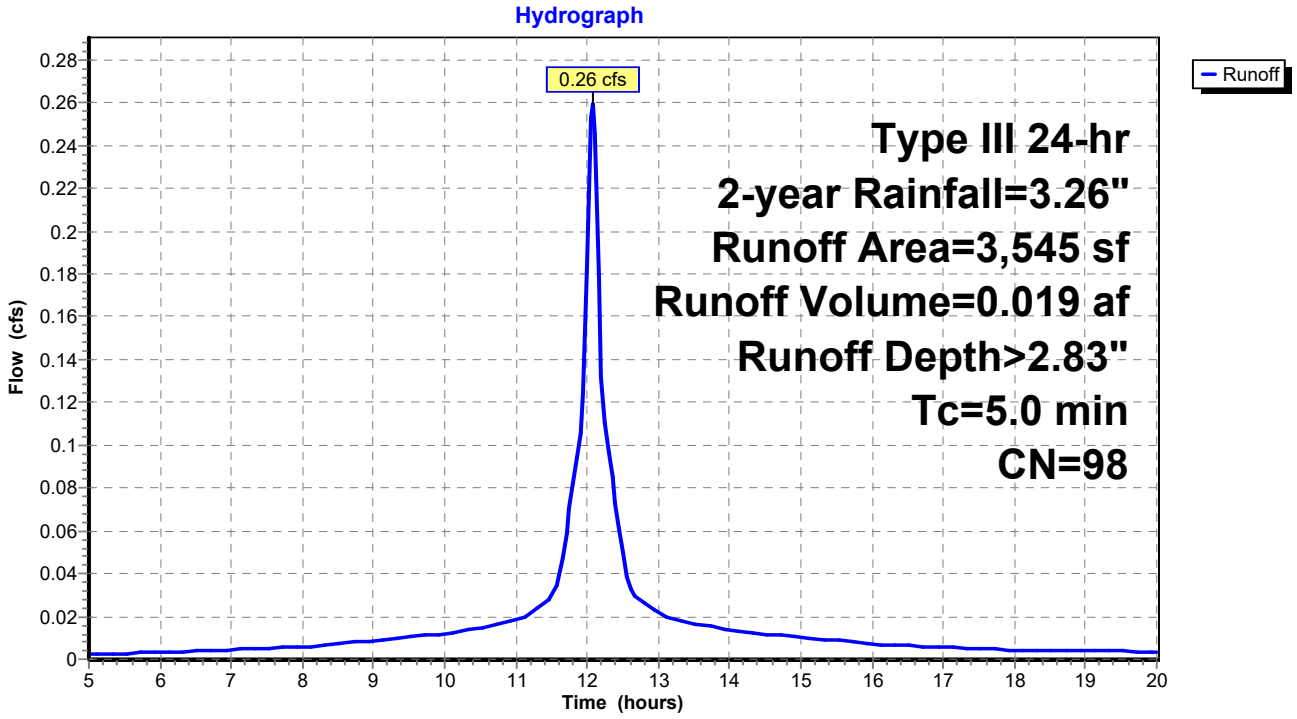
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.019 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 3,545 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,545 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-3: EX-3



## Summary for Subcatchment EX-4: EX-4

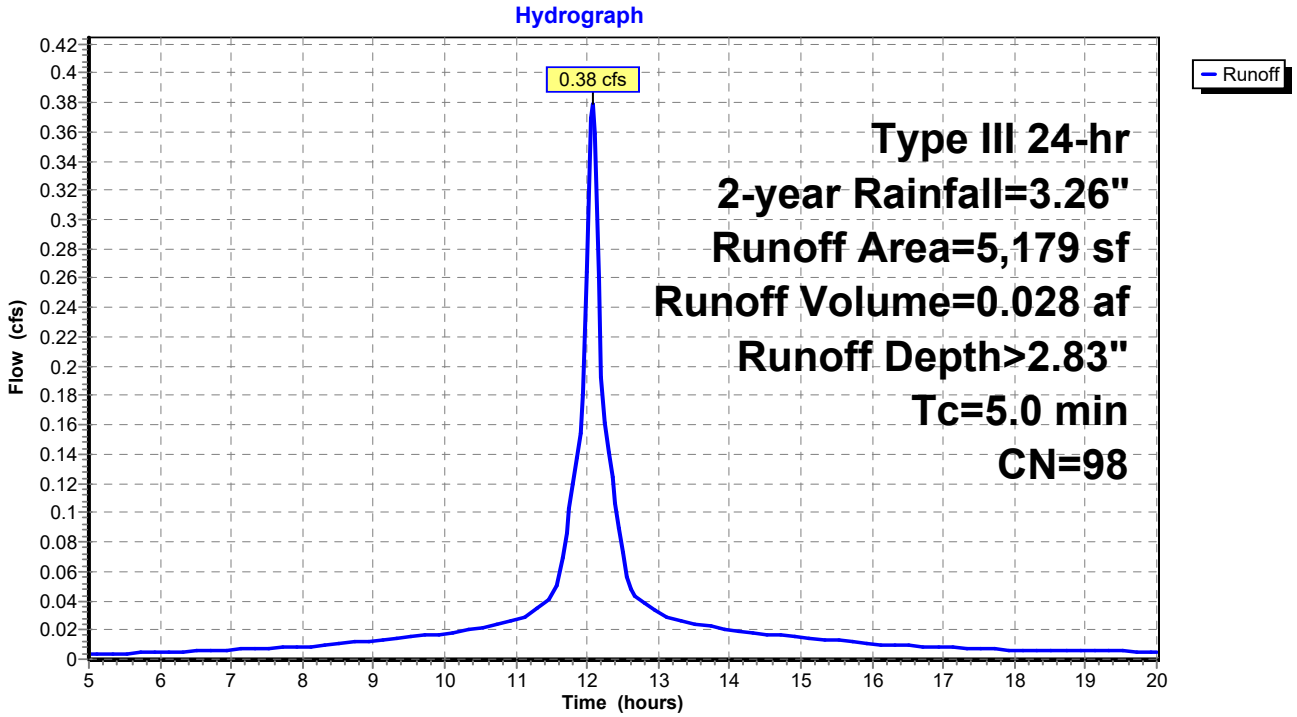
Runoff = 0.38 cfs @ 12.07 hrs, Volume= 0.028 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 5,179 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,179 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-4: EX-4



## Summary for Subcatchment EX-5: EX-5

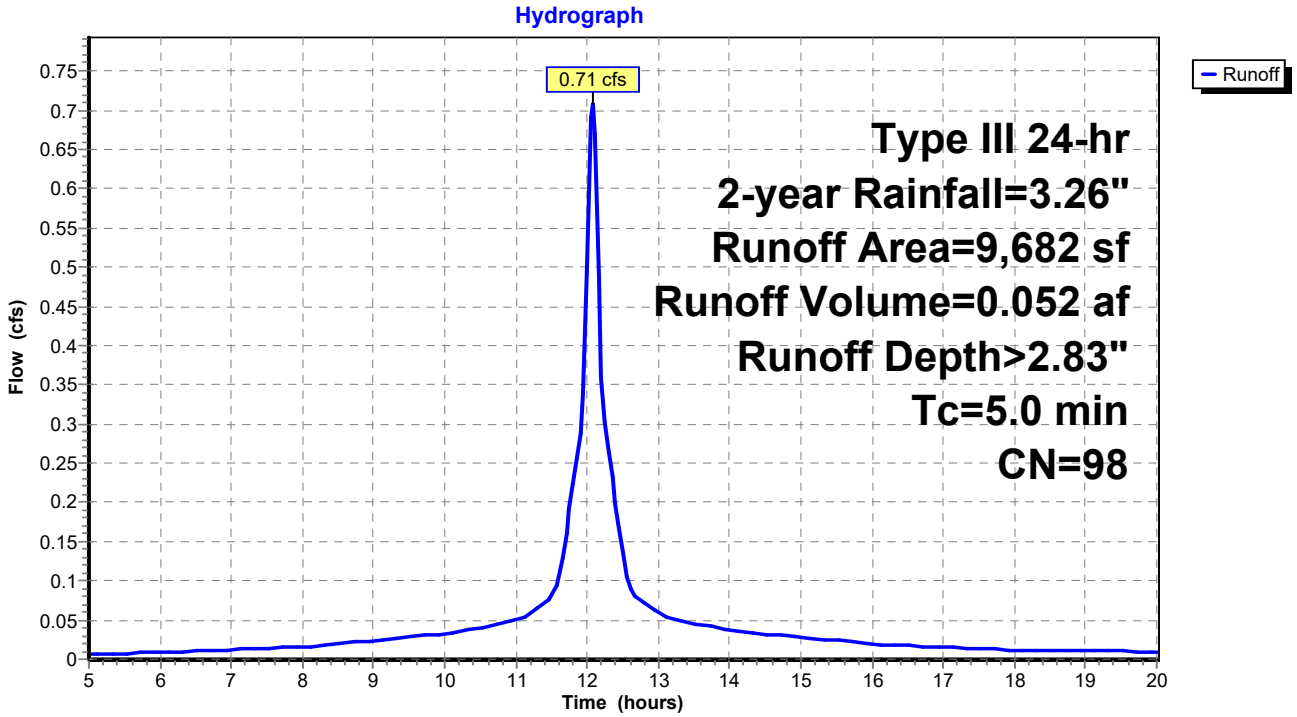
Runoff = 0.71 cfs @ 12.07 hrs, Volume= 0.052 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 9,682 | 98 | Paved roads w/curbs & sewers, HSG D |
| 9,682 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-5: EX-5



## Summary for Subcatchment EX-6: EX-6

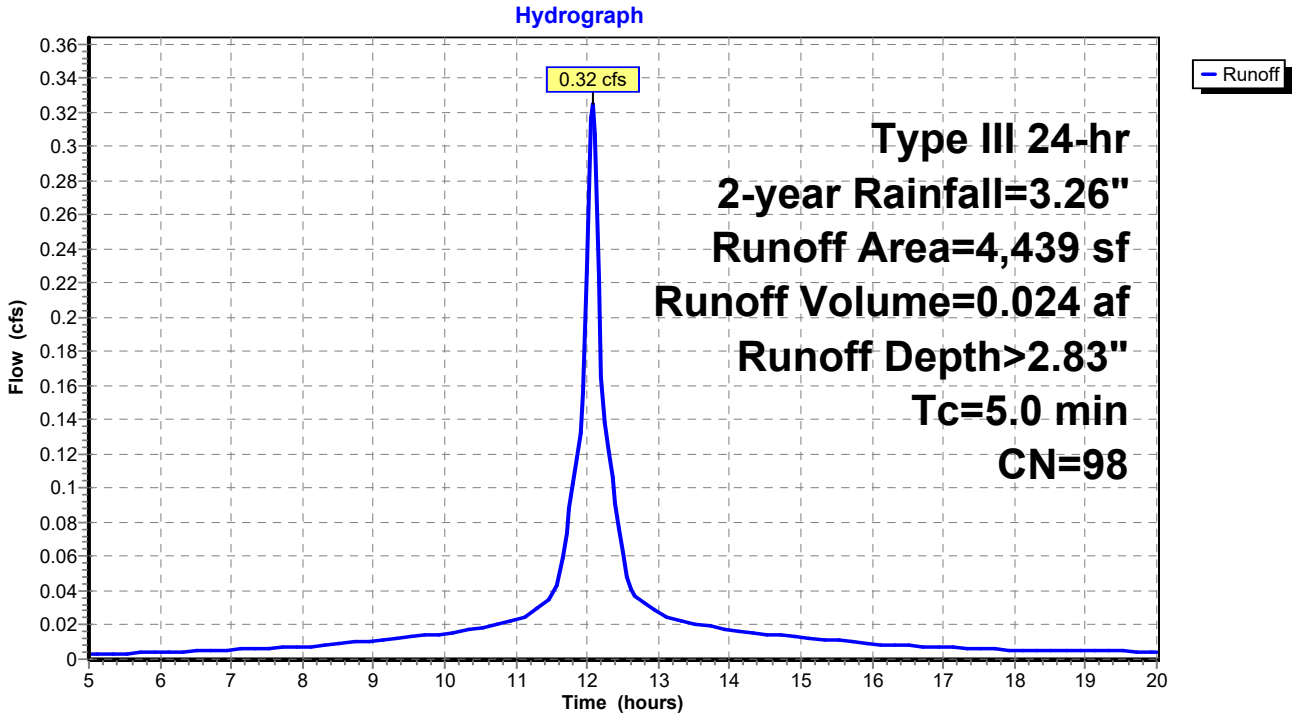
Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 4,439 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,439 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-6: EX-6



## Summary for Subcatchment EX-7: Building Apron

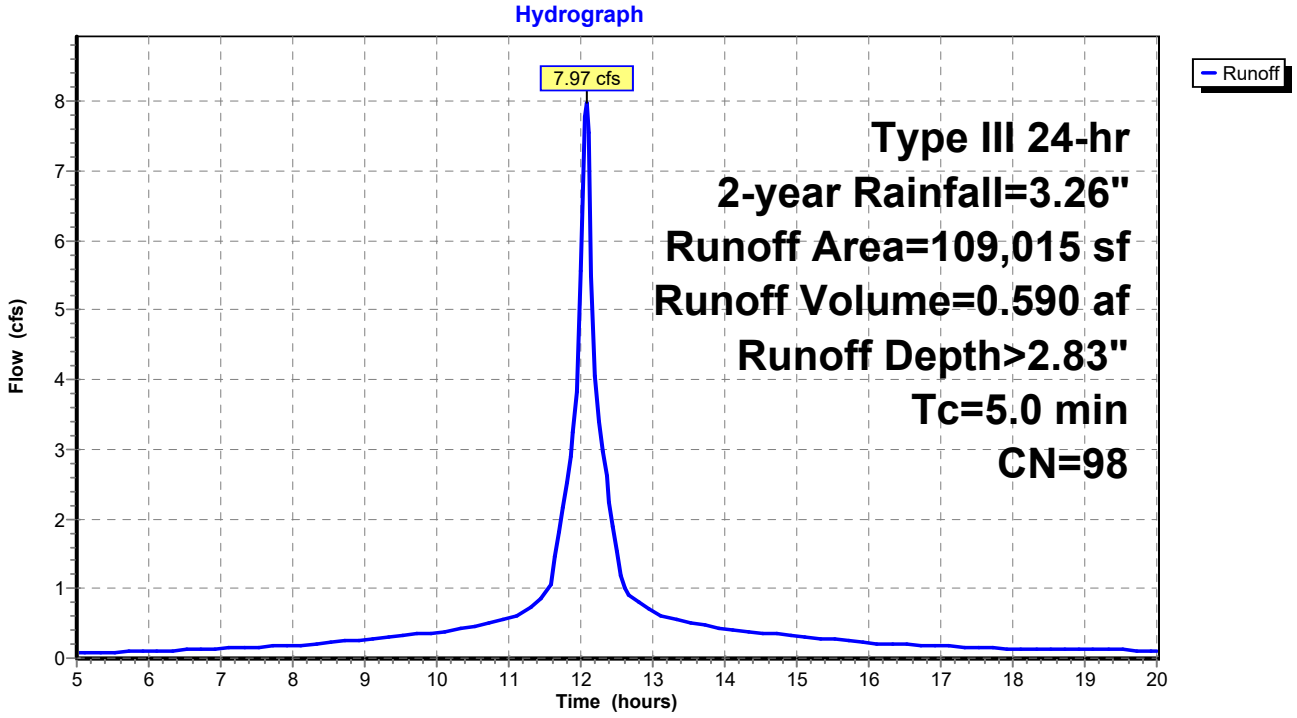
Runoff = 7.97 cfs @ 12.07 hrs, Volume= 0.590 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 61,185 | 98 | Paved parking, HSG D |
| 47,830 | 98 | Water Surface, HSG D |
| 109,015 | 98 | Weighted Average |
| 109,015 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-7: Building Apron



## Summary for Subcatchment EX-8: Existing Bldg

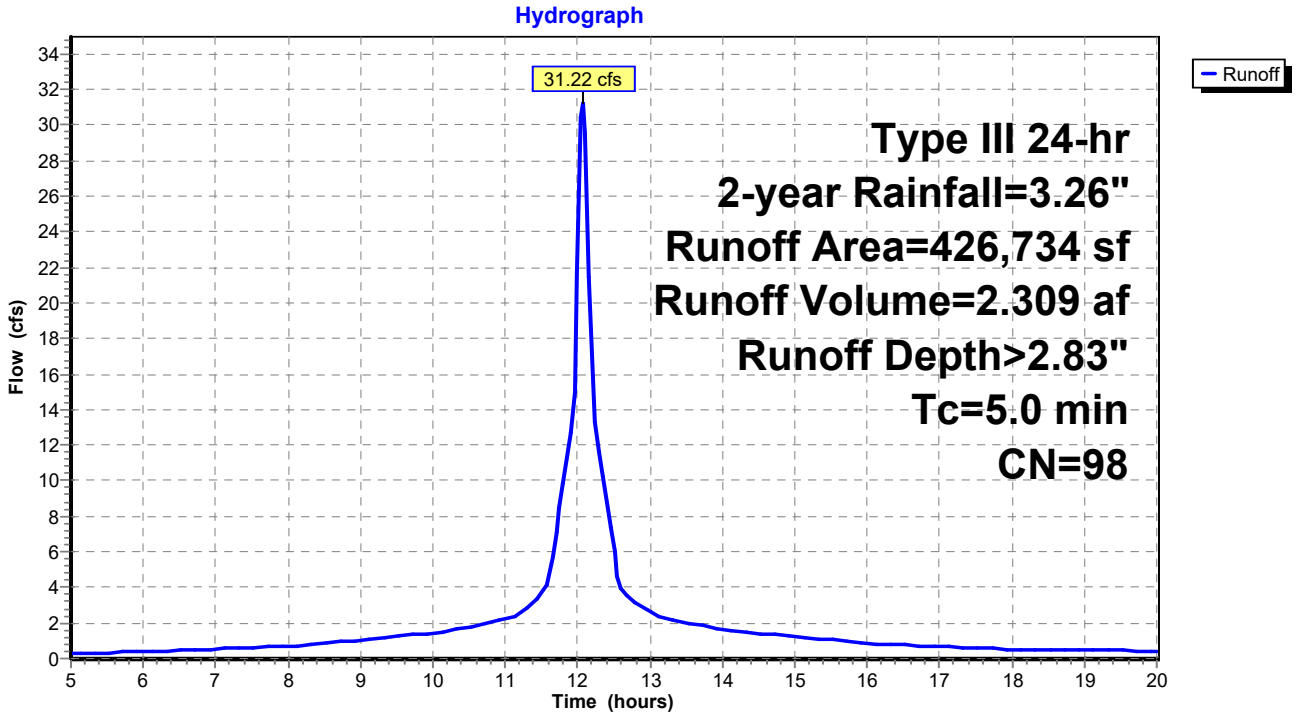
Runoff = 31.22 cfs @ 12.07 hrs, Volume= 2.309 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 423,866 | 98 | Roofs, HSG D |
| 2,868 | 89 | <50% Grass cover, Poor, HSG D |
| 426,734 | 98 | Weighted Average |
| 2,868 | | 0.67% Pervious Area |
| 423,866 | | 99.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-8: Existing Bldg

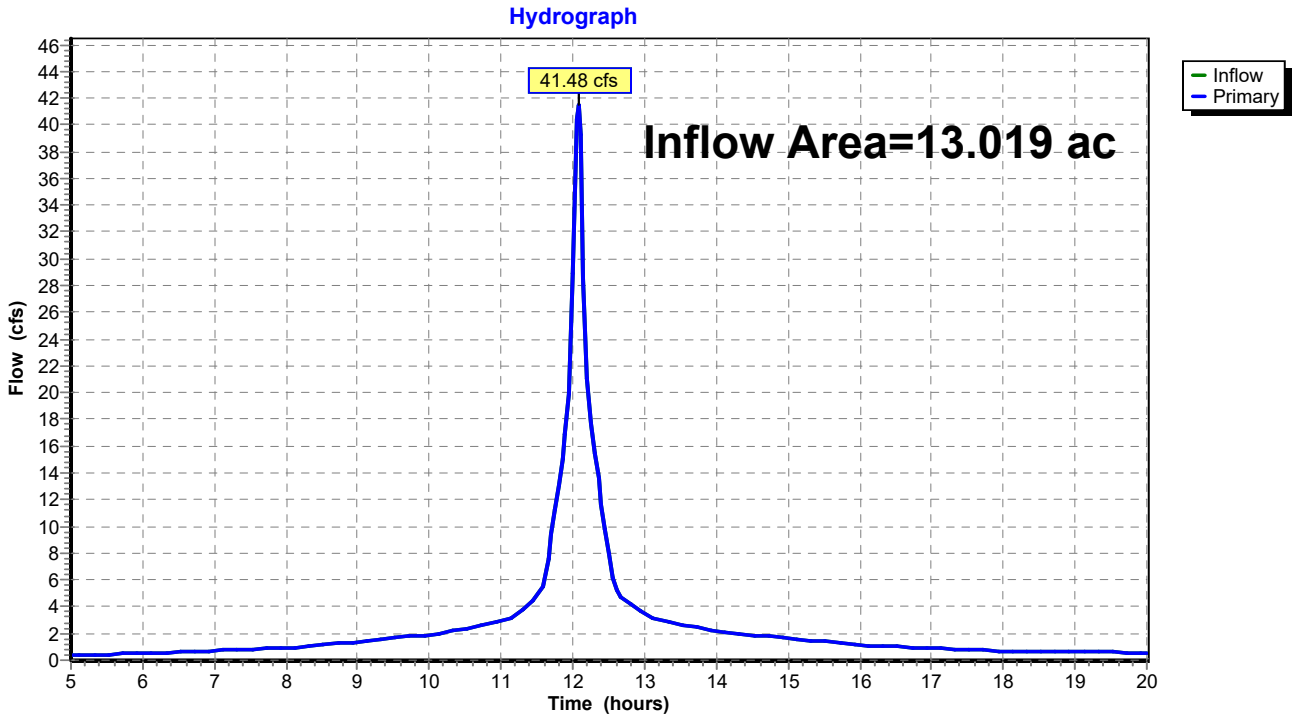


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 99.49% Impervious, Inflow Depth > 2.83" for 2-year event
Inflow = 41.48 cfs @ 12.07 hrs, Volume= 3.069 af
Primary = 41.48 cfs @ 12.07 hrs, Volume= 3.069 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 EX-1: EX-1** Runoff Area=4,178 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.47 cfs 0.035 af

**Subcatchment EX-2: EX-2** Runoff Area=4,328 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.49 cfs 0.036 af

**Subcatchment EX-3: EX-3** Runoff Area=3,545 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.030 af

**Subcatchment EX-4: EX-4** Runoff Area=5,179 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.58 cfs 0.044 af

**Subcatchment EX-5: EX-5** Runoff Area=9,682 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=1.09 cfs 0.081 af

**Subcatchment EX-6: EX-6** Runoff Area=4,439 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.50 cfs 0.037 af

**Subcatchment EX-7: Building Apron** Runoff Area=109,015 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=12.25 cfs 0.916 af

**Subcatchment EX-8: Existing Bldg** Runoff Area=426,734 sf 99.33% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=47.94 cfs 3.585 af

**Link DP-1: Boston Harbor** Inflow=63.71 cfs 4.764 af
Primary=63.71 cfs 4.764 af

**Total Runoff Area = 13.019 ac Runoff Volume = 4.764 af Average Runoff Depth = 4.39"**
**0.51% Pervious = 0.066 ac 99.49% Impervious = 12.953 ac**

## Summary for Subcatchment EX-1: EX-1

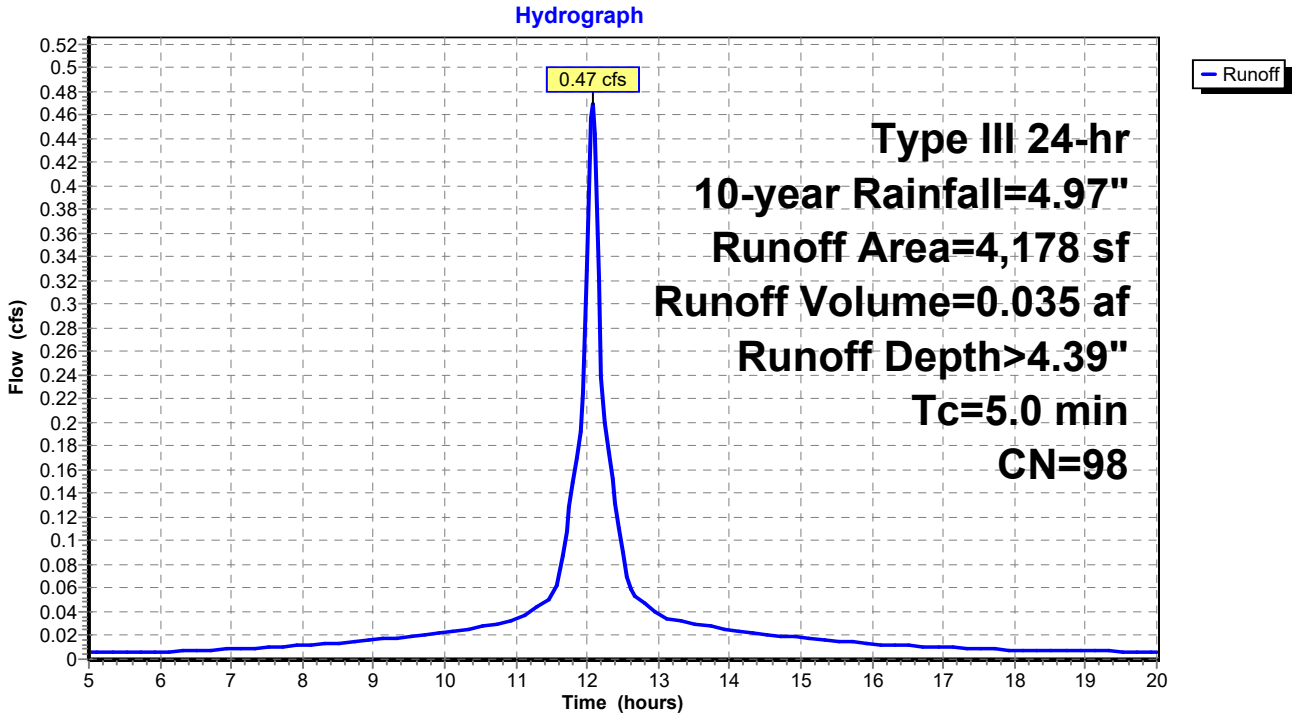
Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.035 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 4,178 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,178 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-1: EX-1



## Summary for Subcatchment EX-2: EX-2

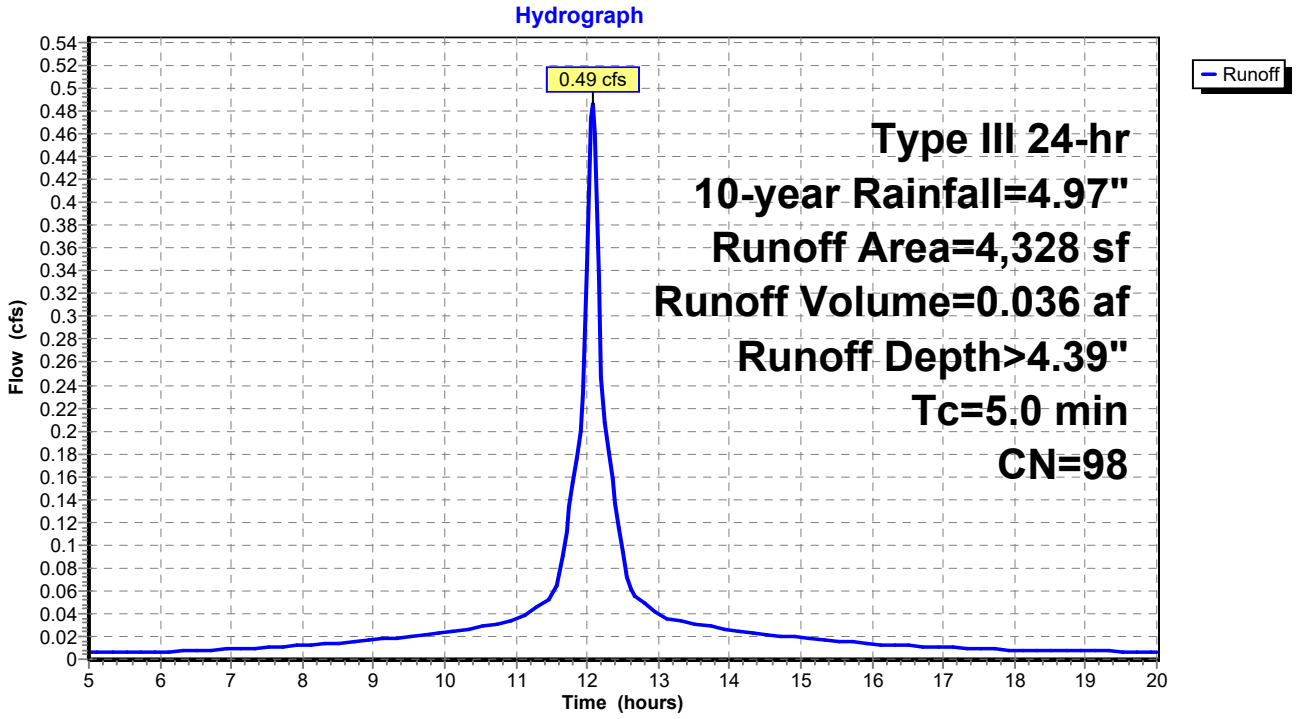
Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.036 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 4,328 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,328 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-2: EX-2



## Summary for Subcatchment EX-3: EX-3

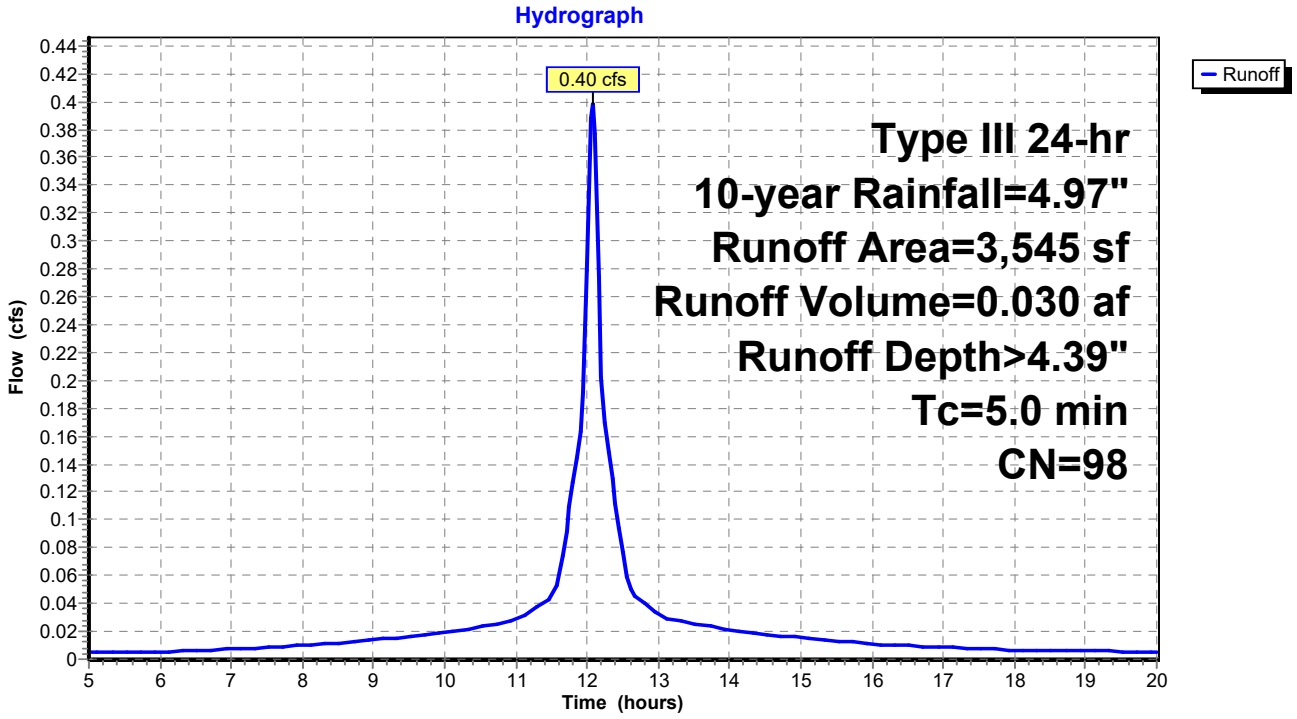
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 3,545 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,545 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-3: EX-3



## Summary for Subcatchment EX-4: EX-4

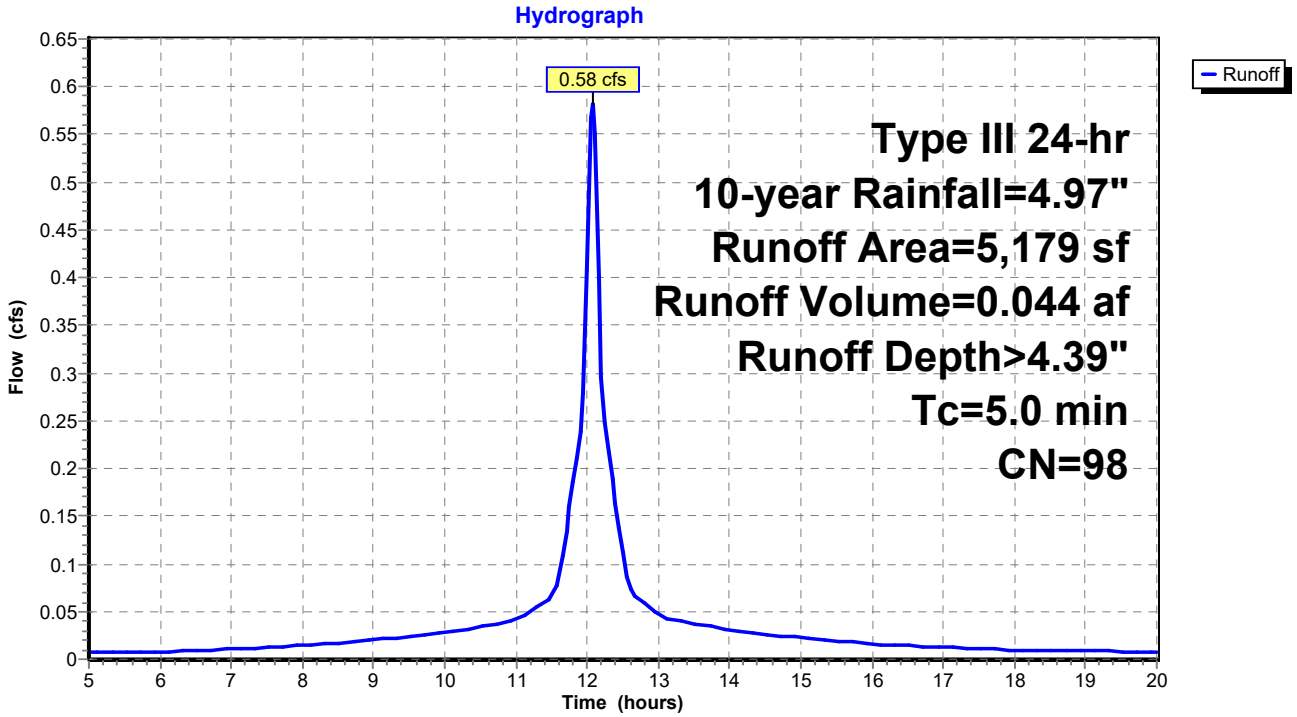
Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.044 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 5,179 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,179 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-4: EX-4



## Summary for Subcatchment EX-5: EX-5

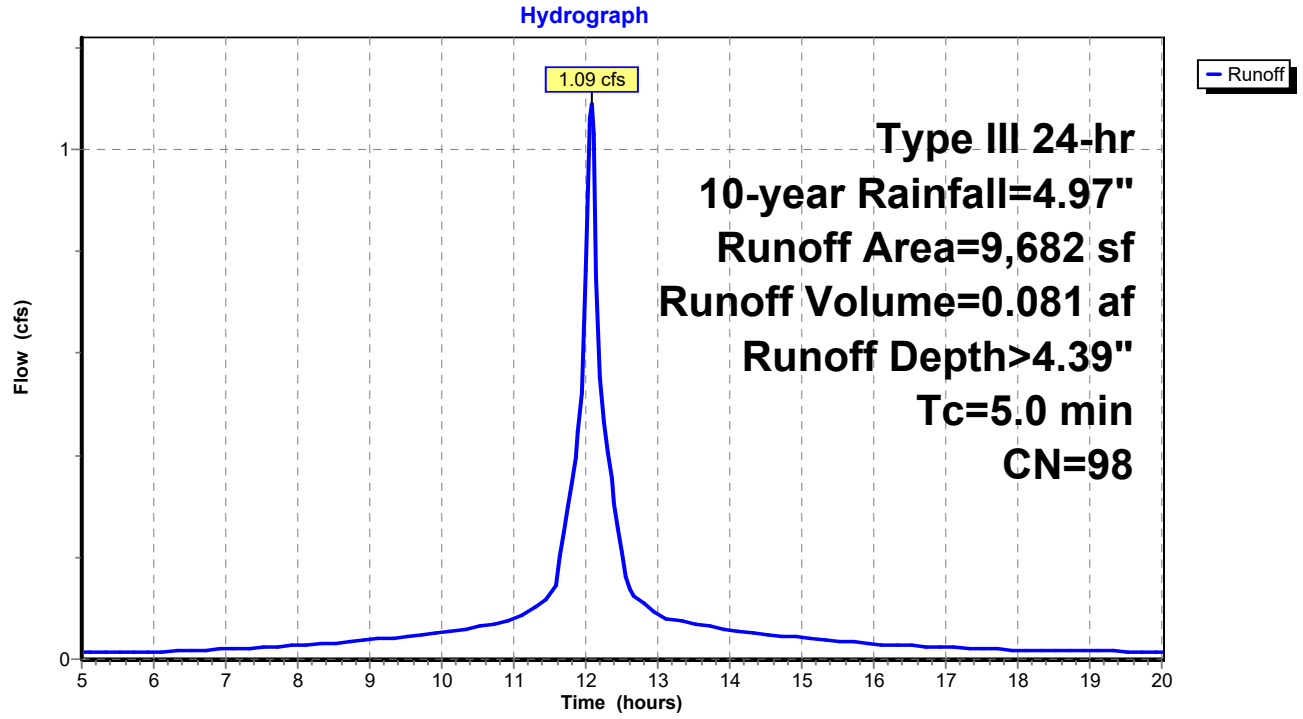
Runoff = 1.09 cfs @ 12.07 hrs, Volume= 0.081 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 9,682 | 98 | Paved roads w/curbs & sewers, HSG D |
| 9,682 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-5: EX-5



## Summary for Subcatchment EX-6: EX-6

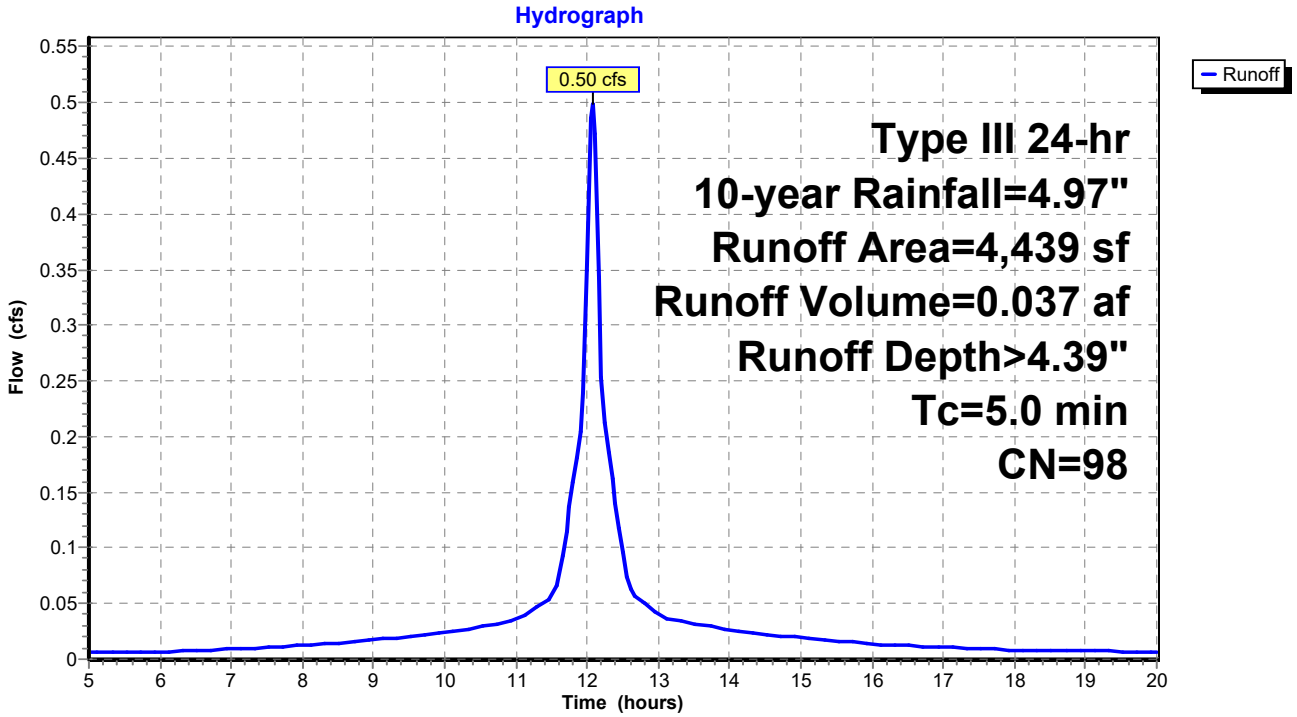
Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 4,439 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,439 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-6: EX-6



## Summary for Subcatchment EX-7: Building Apron

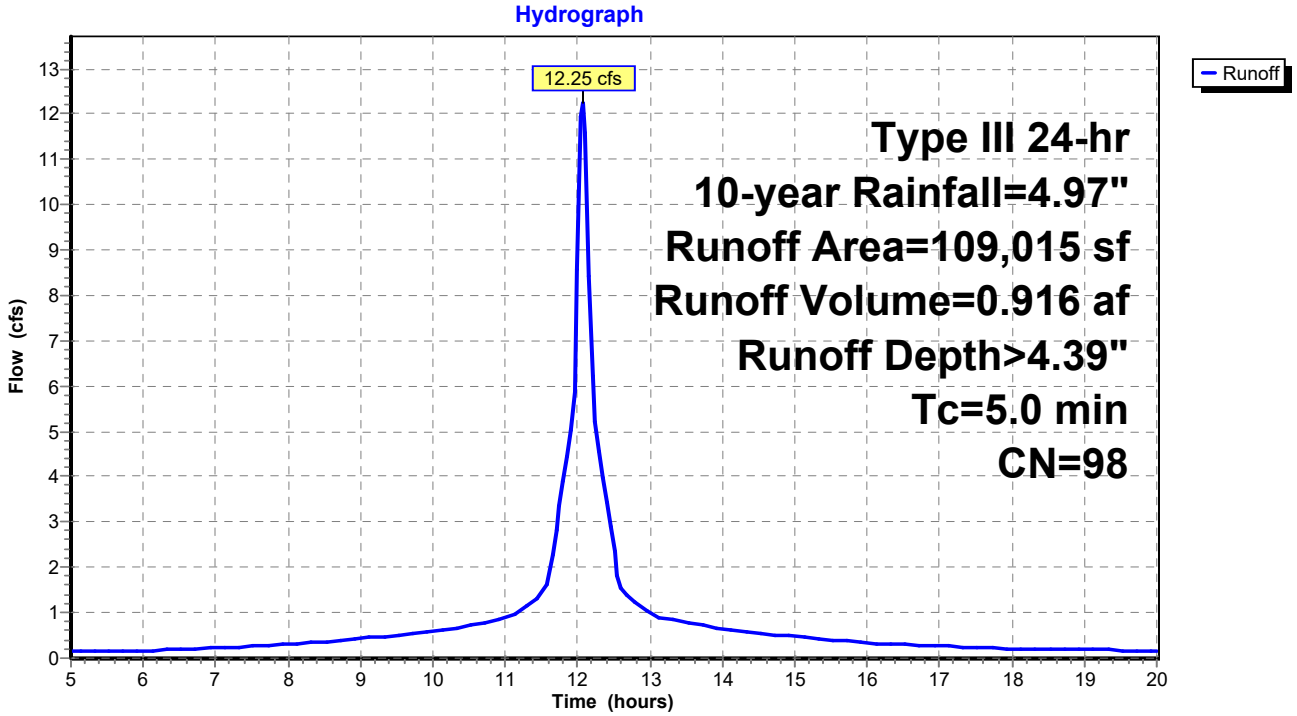
Runoff = 12.25 cfs @ 12.07 hrs, Volume= 0.916 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 61,185 | 98 | Paved parking, HSG D |
| 47,830 | 98 | Water Surface, HSG D |
| 109,015 | 98 | Weighted Average |
| 109,015 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-7: Building Apron



## Summary for Subcatchment EX-8: Existing Bldg

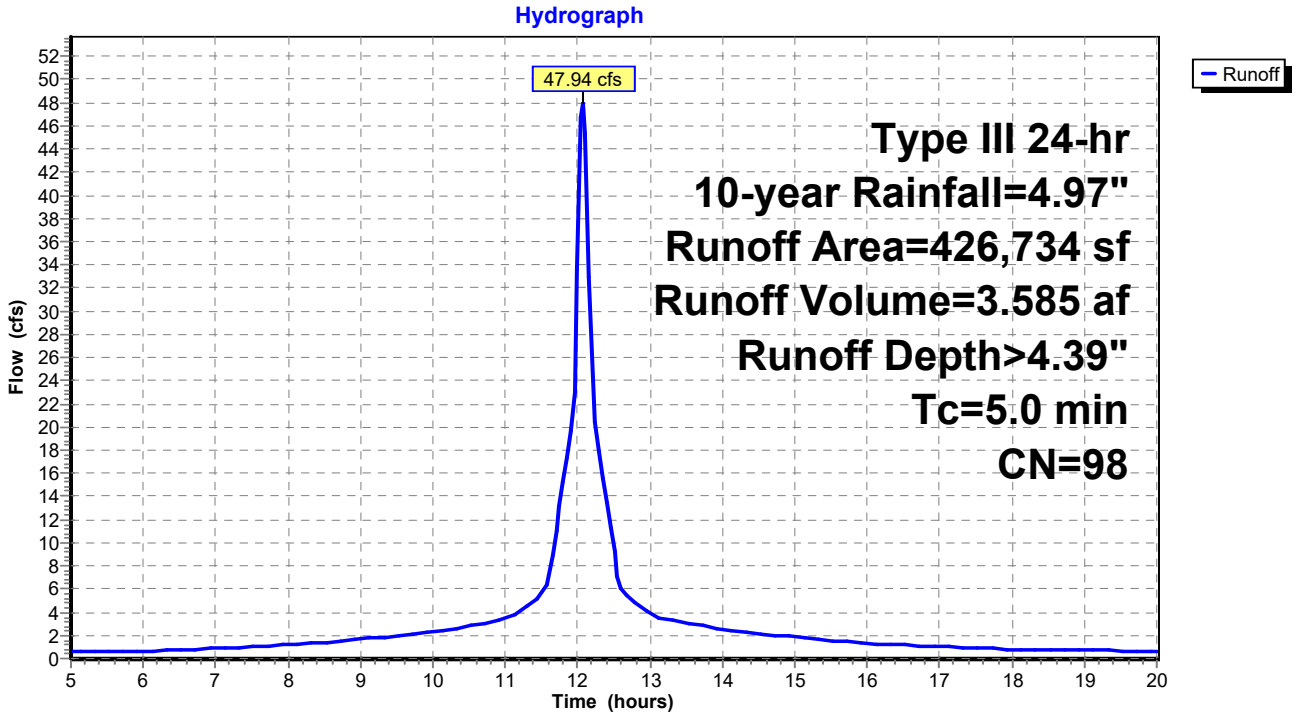
Runoff = 47.94 cfs @ 12.07 hrs, Volume= 3.585 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 423,866 | 98 | Roofs, HSG D |
| 2,868 | 89 | <50% Grass cover, Poor, HSG D |
| 426,734 | 98 | Weighted Average |
| 2,868 | | 0.67% Pervious Area |
| 423,866 | | 99.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-8: Existing Bldg

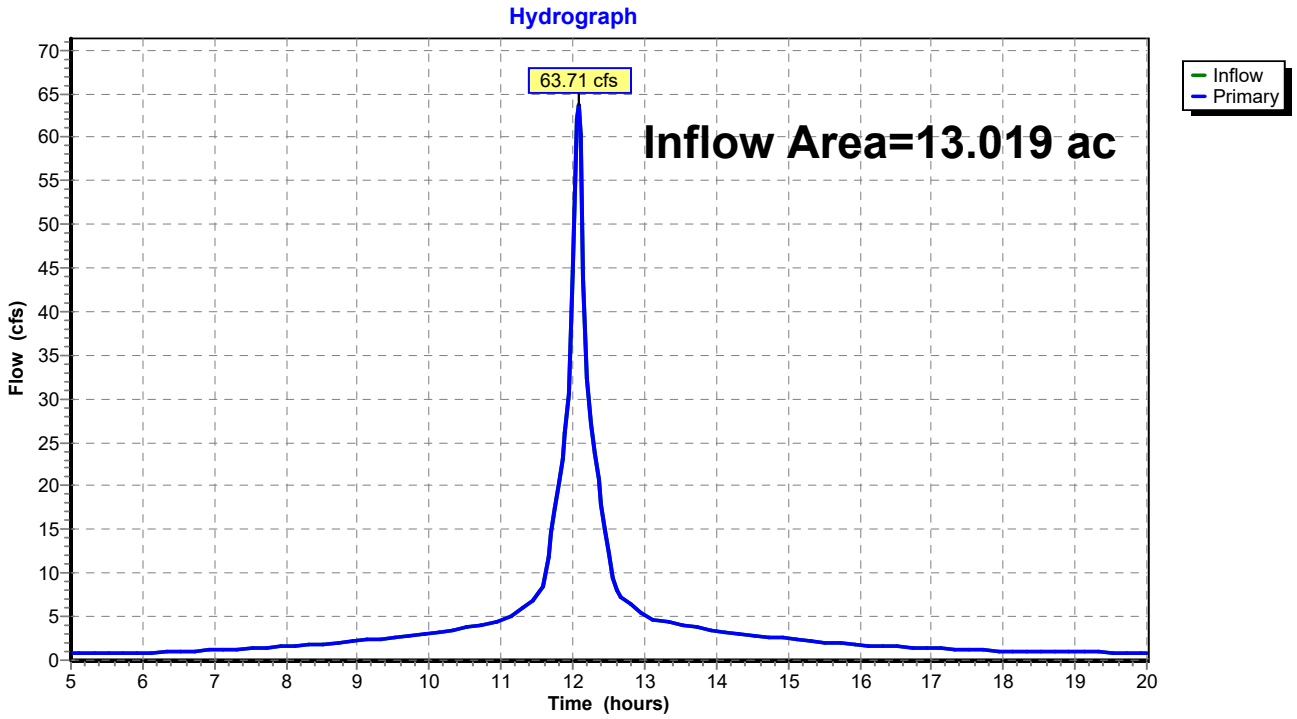


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 99.49% Impervious, Inflow Depth > 4.39" for 10-year event
Inflow = 63.71 cfs @ 12.07 hrs, Volume= 4.764 af
Primary = 63.71 cfs @ 12.07 hrs, Volume= 4.764 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 EX-1: EX-1** Runoff Area=4,178 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.59 cfs 0.044 af

**Subcatchment EX-2: EX-2** Runoff Area=4,328 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.61 cfs 0.046 af

**Subcatchment EX-3: EX-3** Runoff Area=3,545 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.50 cfs 0.037 af

**Subcatchment EX-4: EX-4** Runoff Area=5,179 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.73 cfs 0.055 af

**Subcatchment EX-5: EX-5** Runoff Area=9,682 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=1.36 cfs 0.102 af

**Subcatchment EX-6: EX-6** Runoff Area=4,439 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.62 cfs 0.047 af

**Subcatchment EX-7: Building Apron** Runoff Area=109,015 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=15.28 cfs 1.147 af

**Subcatchment EX-8: Existing Bldg** Runoff Area=426,734 sf 99.33% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=59.83 cfs 4.492 af

**Link DP-1: Boston Harbor** Inflow=79.51 cfs 5.969 af
Primary=79.51 cfs 5.969 af

**Total Runoff Area = 13.019 ac Runoff Volume = 5.969 af Average Runoff Depth = 5.50"**
**0.51% Pervious = 0.066 ac 99.49% Impervious = 12.953 ac**

## Summary for Subcatchment EX-1: EX-1

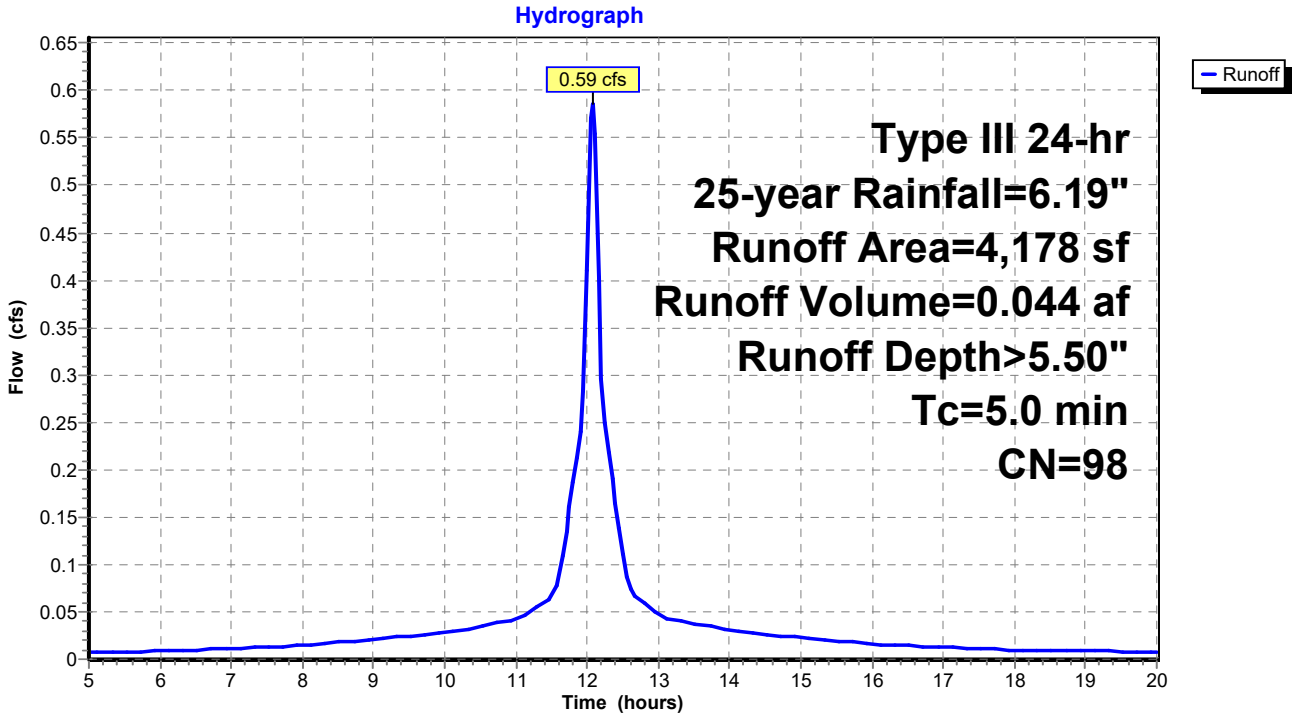
Runoff = 0.59 cfs @ 12.07 hrs, Volume= 0.044 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 4,178 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,178 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-1: EX-1



## Summary for Subcatchment EX-2: EX-2

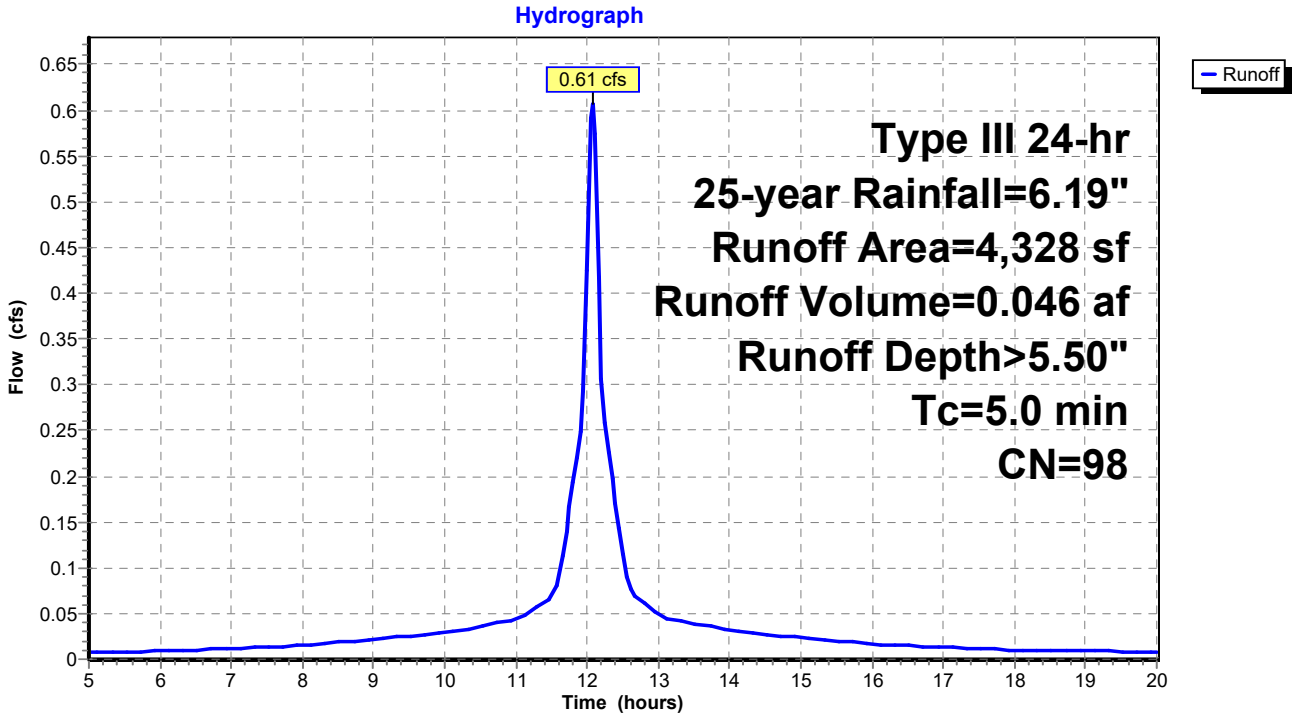
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.046 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 4,328 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,328 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-2: EX-2



## Summary for Subcatchment EX-3: EX-3

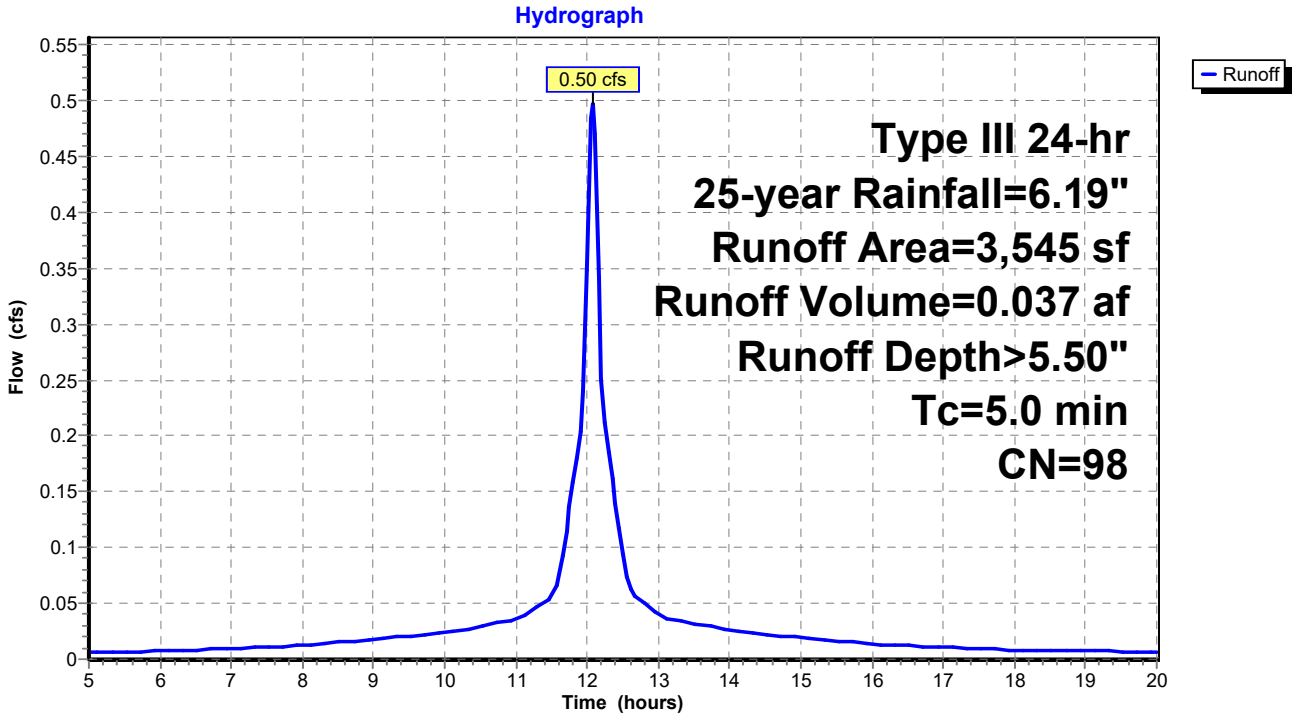
Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 3,545 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,545 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-3: EX-3



## Summary for Subcatchment EX-4: EX-4

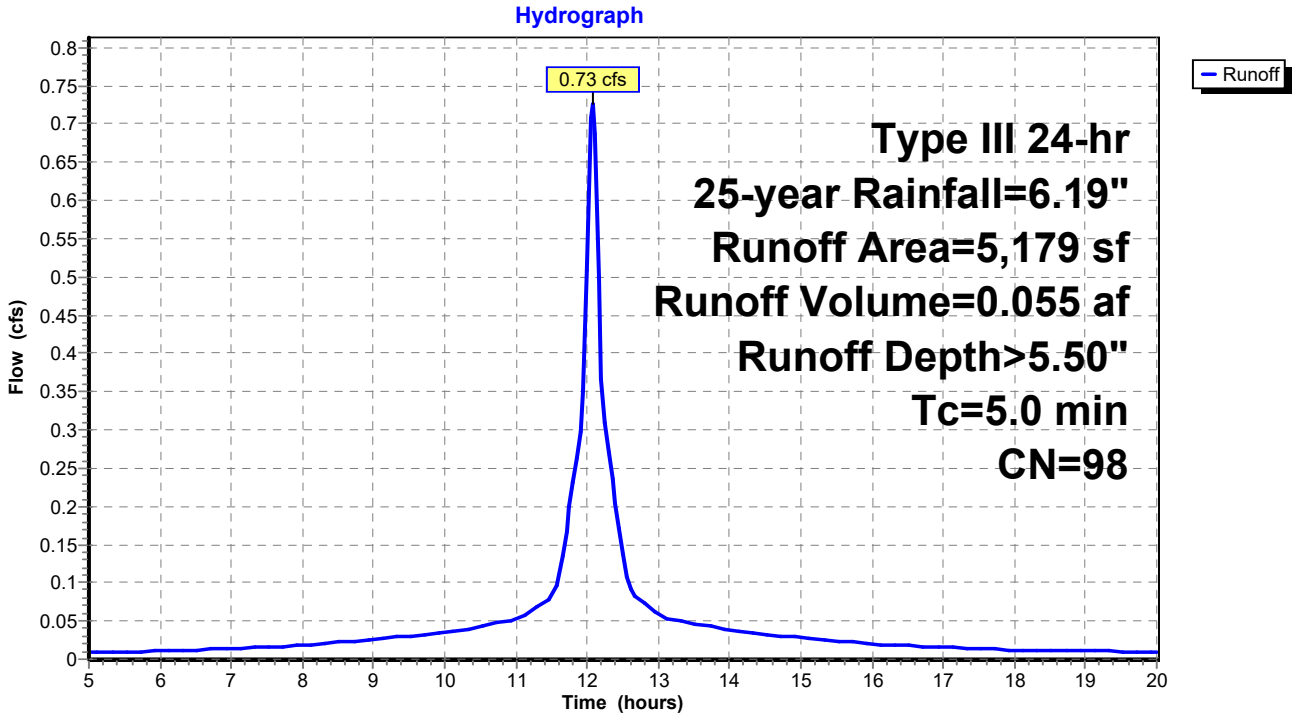
Runoff = 0.73 cfs @ 12.07 hrs, Volume= 0.055 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 5,179 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,179 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-4: EX-4



## Summary for Subcatchment EX-5: EX-5

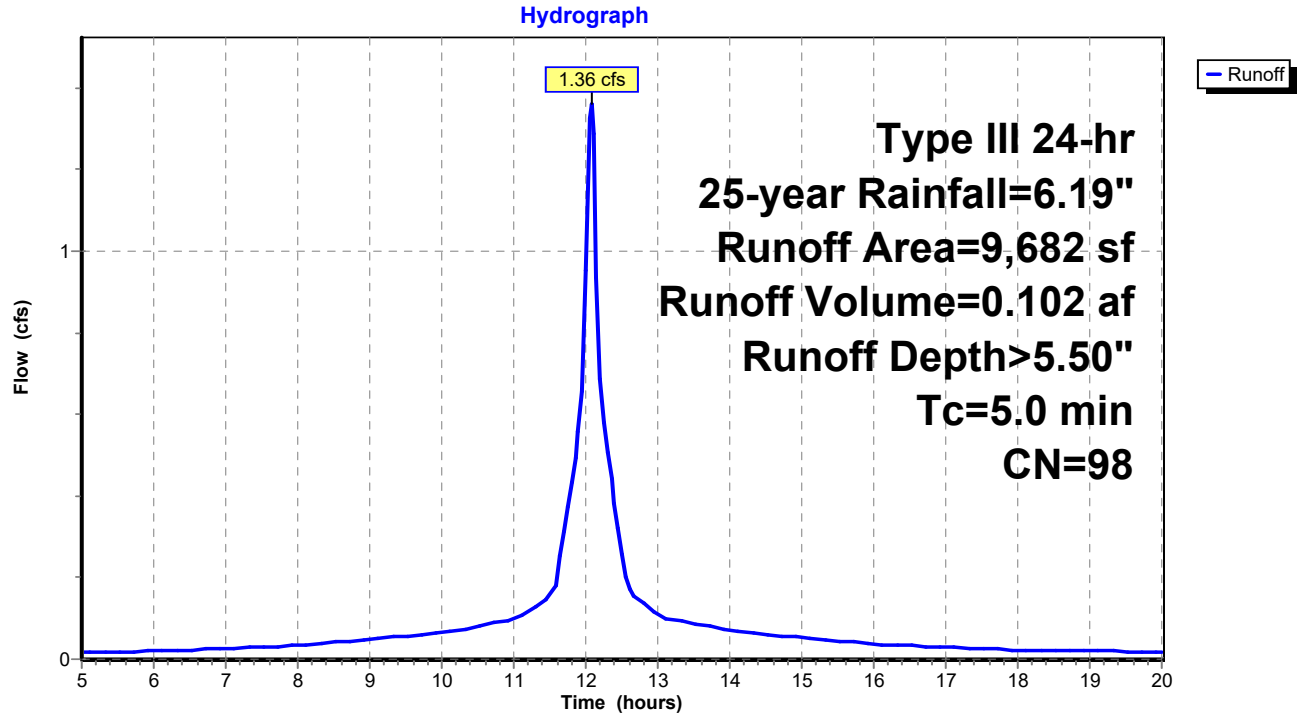
Runoff = 1.36 cfs @ 12.07 hrs, Volume= 0.102 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 9,682 | 98 | Paved roads w/curbs & sewers, HSG D |
| 9,682 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-5: EX-5



## Summary for Subcatchment EX-6: EX-6

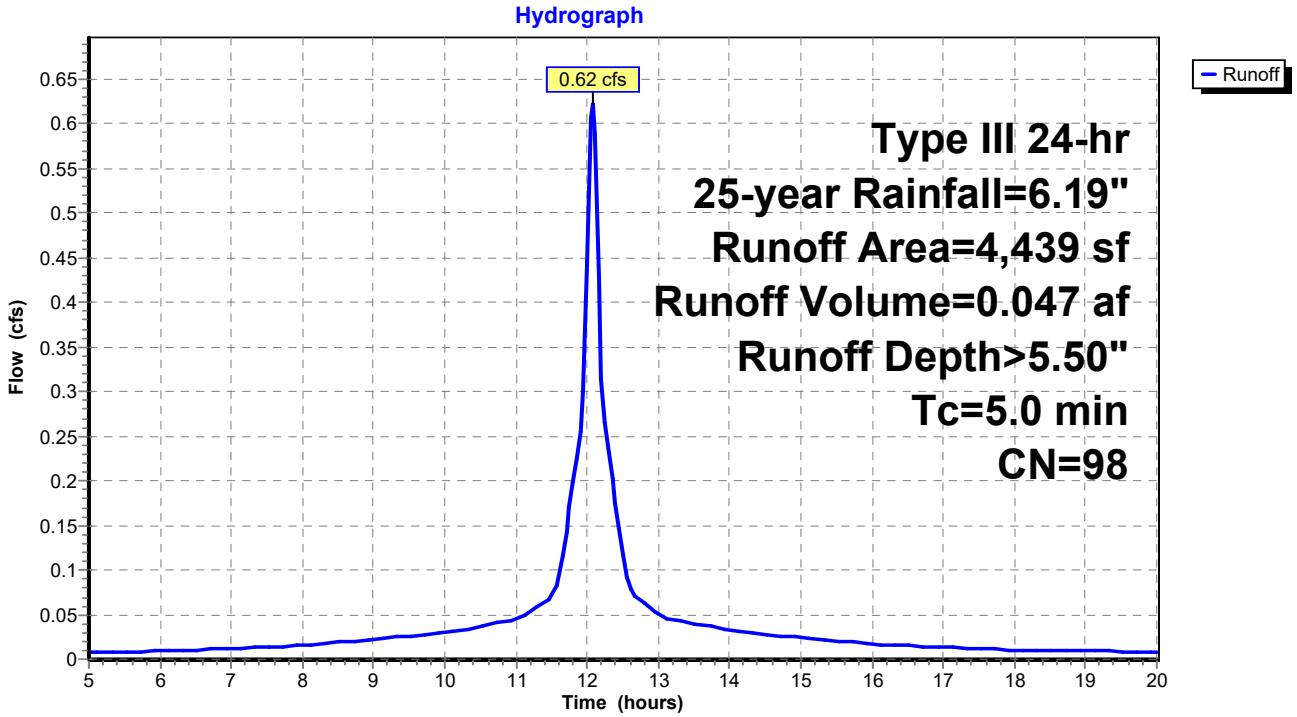
Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.047 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 4,439 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,439 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-6: EX-6



## Summary for Subcatchment EX-7: Building Apron

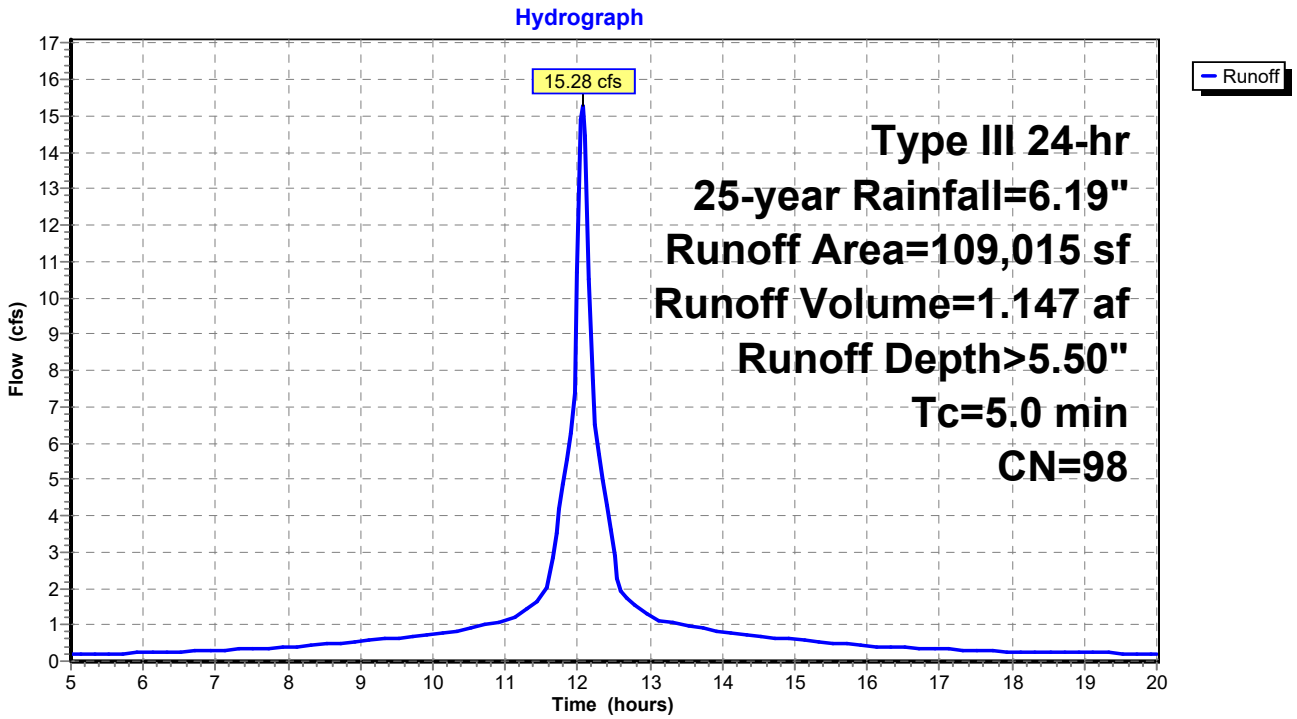
Runoff = 15.28 cfs @ 12.07 hrs, Volume= 1.147 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 61,185 | 98 | Paved parking, HSG D |
| 47,830 | 98 | Water Surface, HSG D |
| 109,015 | 98 | Weighted Average |
| 109,015 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-7: Building Apron



## Summary for Subcatchment EX-8: Existing Bldg

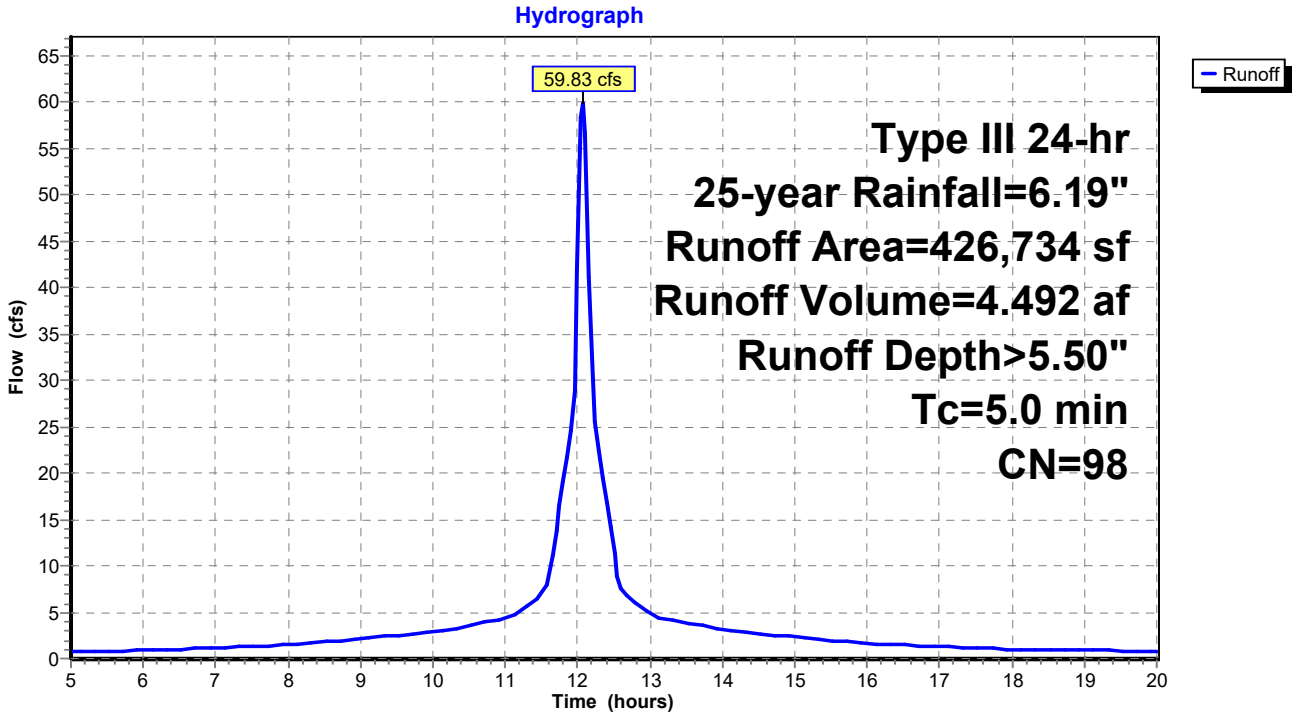
Runoff = 59.83 cfs @ 12.07 hrs, Volume= 4.492 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 423,866 | 98 | Roofs, HSG D |
| 2,868 | 89 | <50% Grass cover, Poor, HSG D |
| 426,734 | 98 | Weighted Average |
| 2,868 | | 0.67% Pervious Area |
| 423,866 | | 99.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-8: Existing Bldg

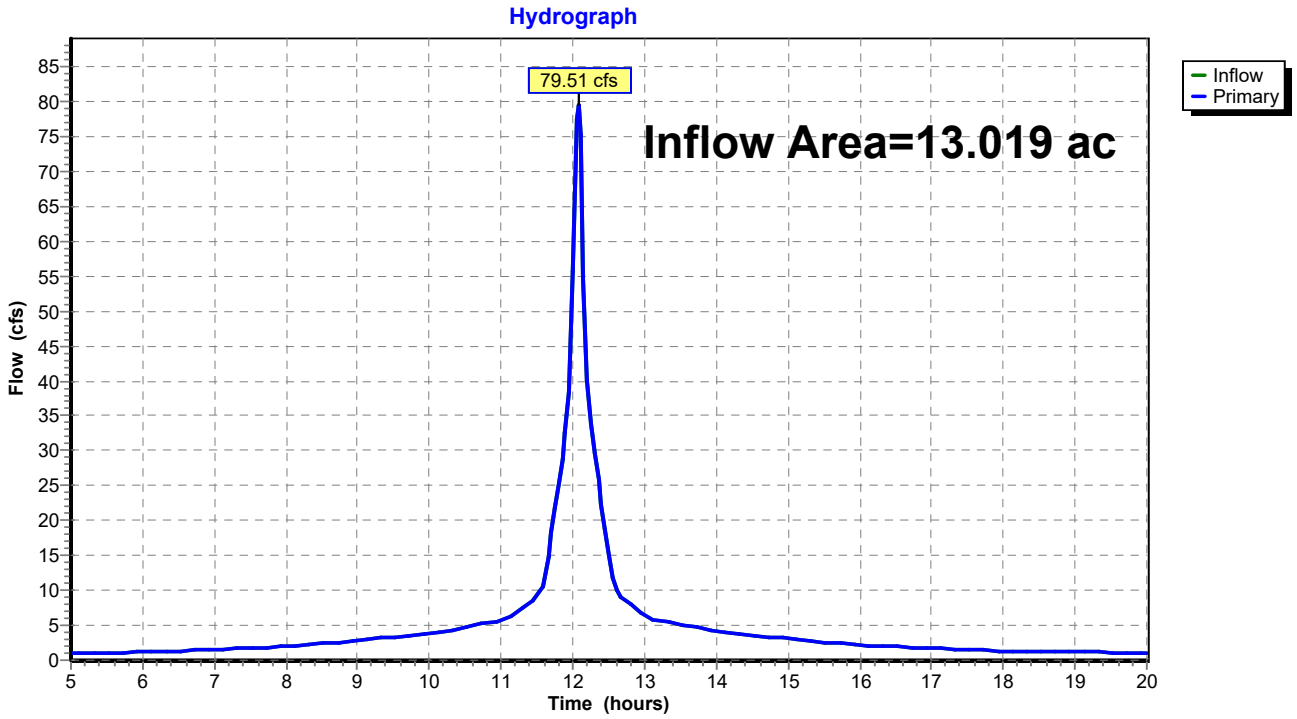


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 99.49% Impervious, Inflow Depth > 5.50" for 25-year event
Inflow = 79.51 cfs @ 12.07 hrs, Volume= 5.969 af
Primary = 79.51 cfs @ 12.07 hrs, Volume= 5.969 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 EX-1: EX-1** Runoff Area=4,178 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.75 cfs 0.056 af

**Subcatchment EX-2: EX-2** Runoff Area=4,328 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.77 cfs 0.058 af

**Subcatchment EX-3: EX-3** Runoff Area=3,545 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.63 cfs 0.048 af

**Subcatchment EX-4: EX-4** Runoff Area=5,179 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.93 cfs 0.070 af

**Subcatchment EX-5: EX-5** Runoff Area=9,682 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=1.73 cfs 0.130 af

**Subcatchment EX-6: EX-6** Runoff Area=4,439 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.79 cfs 0.060 af

**Subcatchment EX-7: Building Apron** Runoff Area=109,015 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=19.49 cfs 1.467 af

**Subcatchment EX-8: Existing Bldg** Runoff Area=426,734 sf 99.33% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=76.28 cfs 5.744 af

**Link DP-1: Boston Harbor** Inflow=101.37 cfs 7.633 af
Primary=101.37 cfs 7.633 af

**Total Runoff Area = 13.019 ac Runoff Volume = 7.633 af Average Runoff Depth = 7.04"**
**0.51% Pervious = 0.066 ac 99.49% Impervious = 12.953 ac**

## Summary for Subcatchment EX-1: EX-1

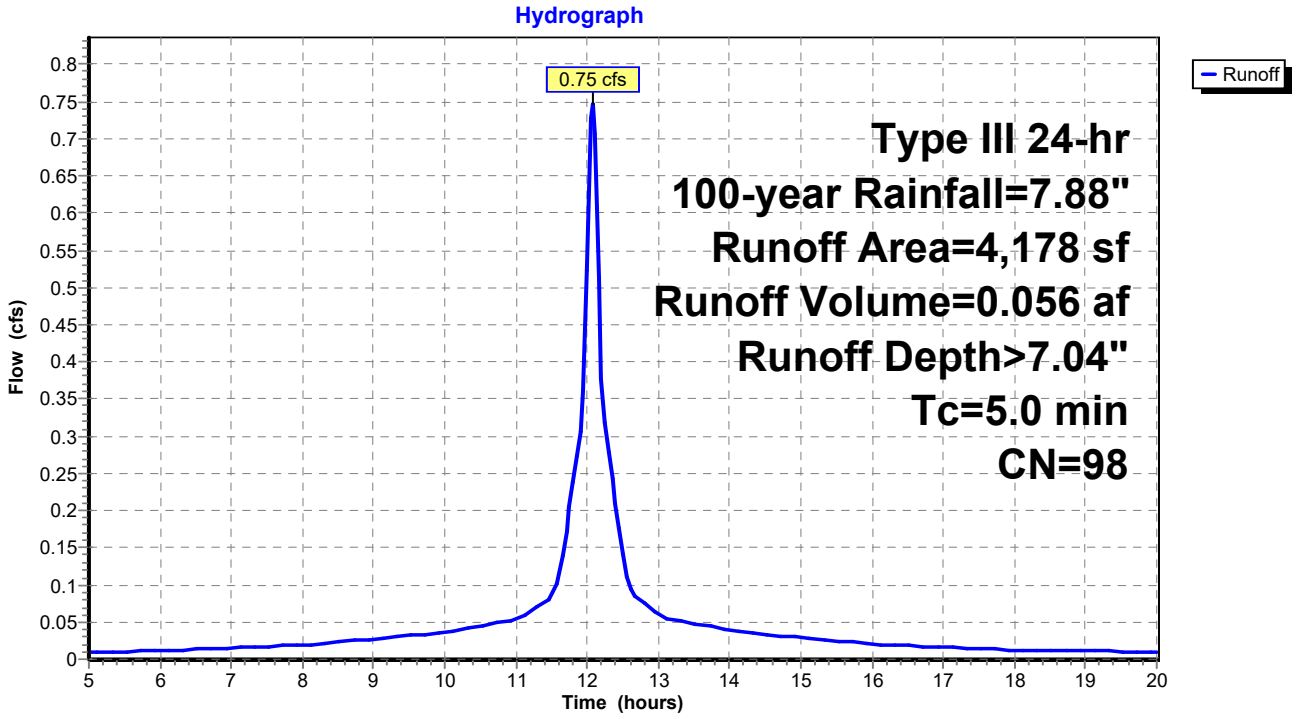
Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.056 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 4,178 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,178 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-1: EX-1



## Summary for Subcatchment EX-2: EX-2

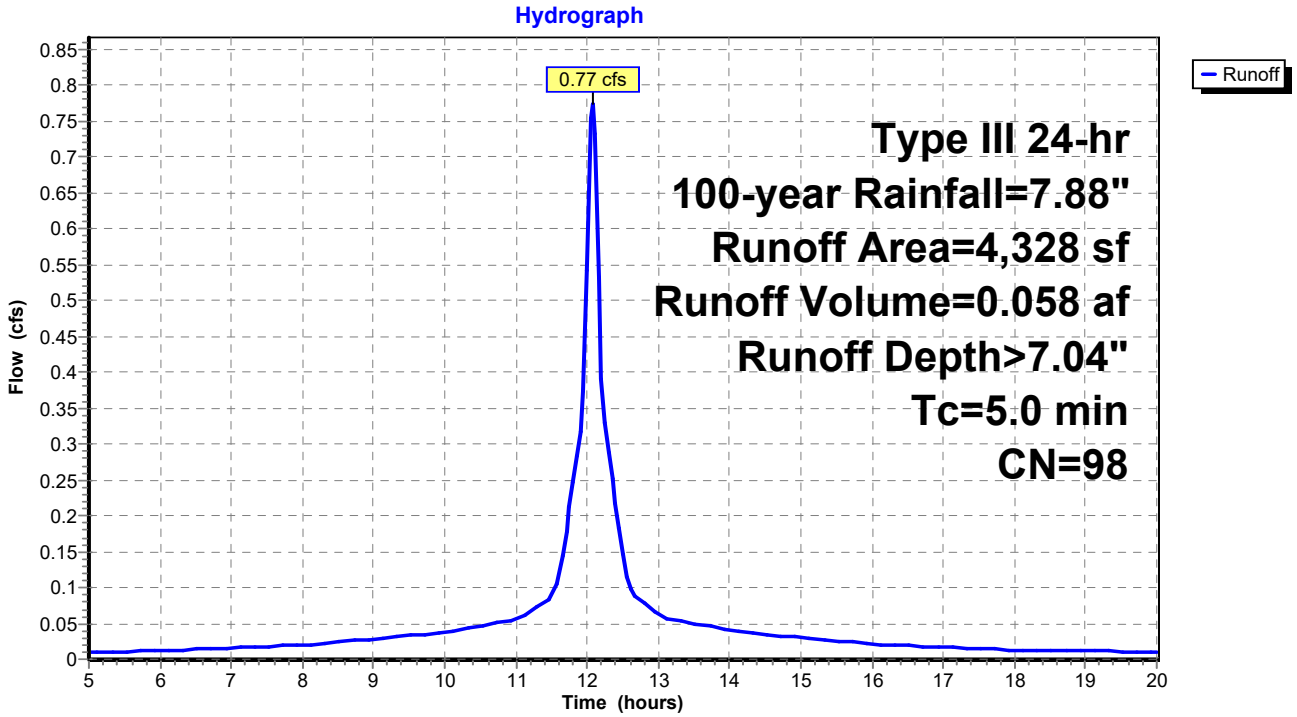
Runoff = 0.77 cfs @ 12.07 hrs, Volume= 0.058 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 4,328 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,328 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-2: EX-2



## Summary for Subcatchment EX-3: EX-3

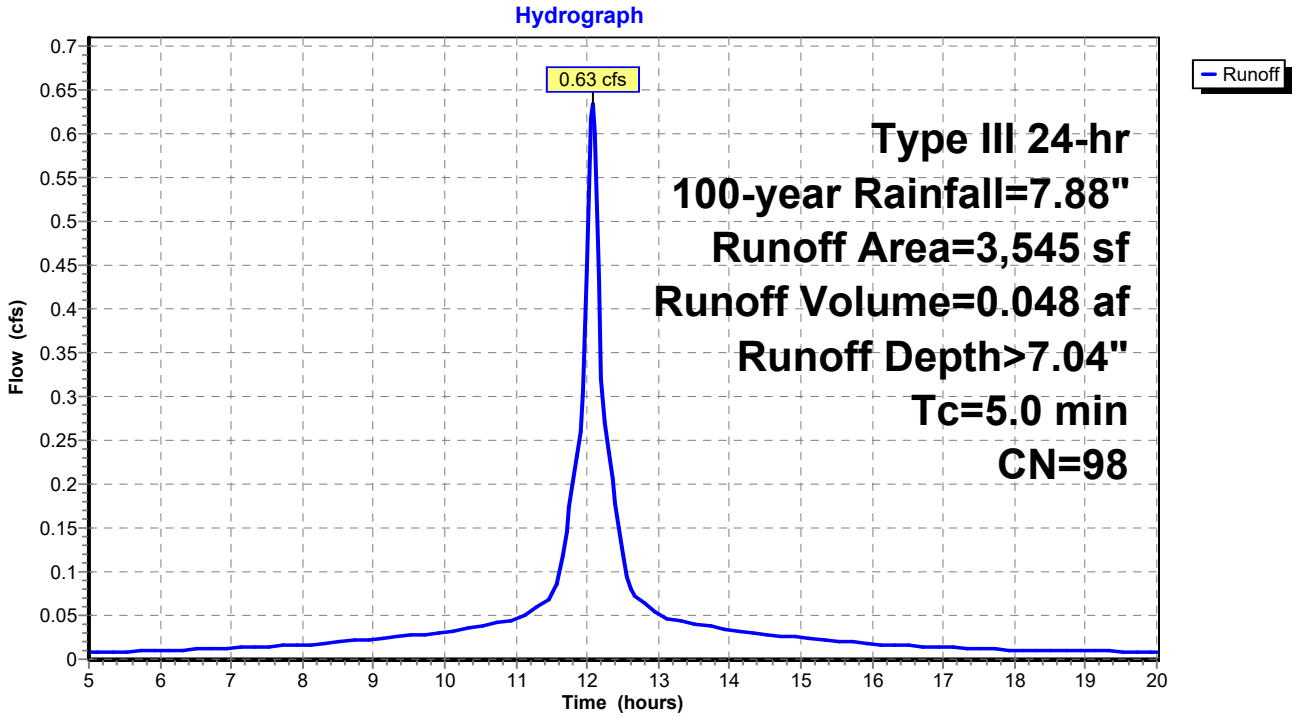
Runoff = 0.63 cfs @ 12.07 hrs, Volume= 0.048 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 3,545 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,545 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-3: EX-3



## Summary for Subcatchment EX-4: EX-4

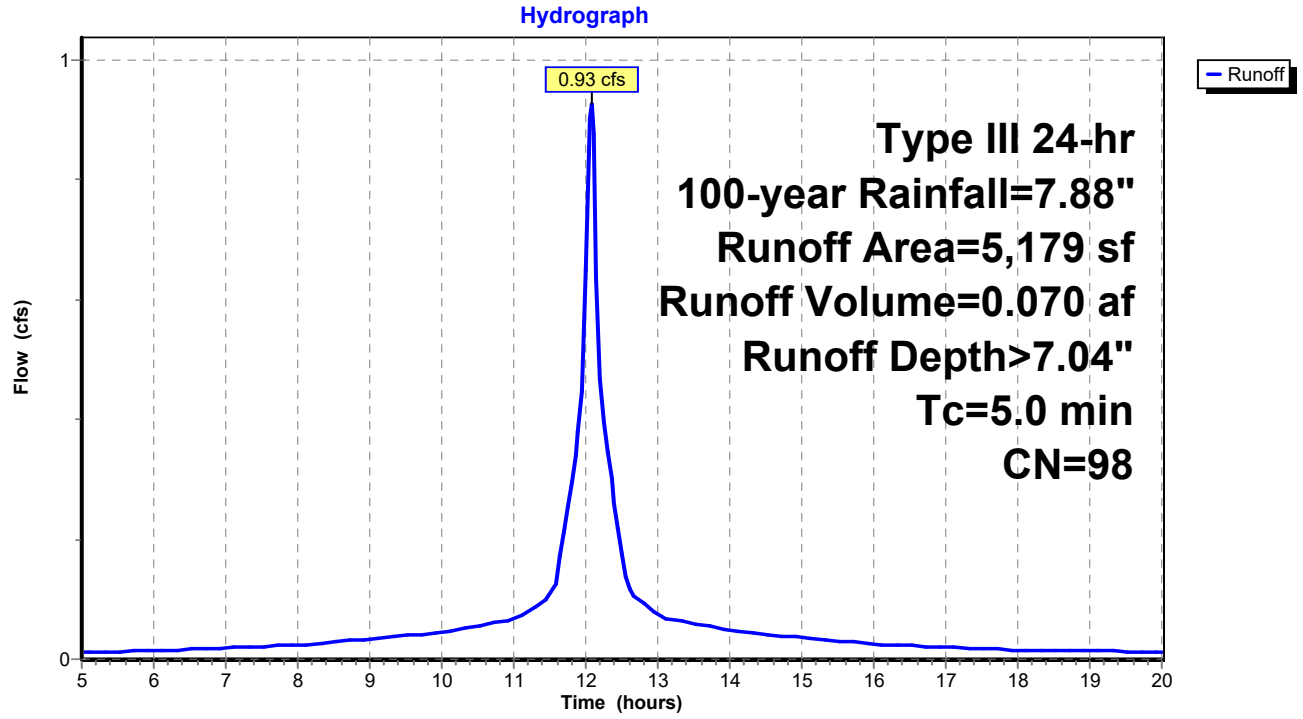
Runoff = 0.93 cfs @ 12.07 hrs, Volume= 0.070 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 5,179 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,179 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-4: EX-4



## Summary for Subcatchment EX-5: EX-5

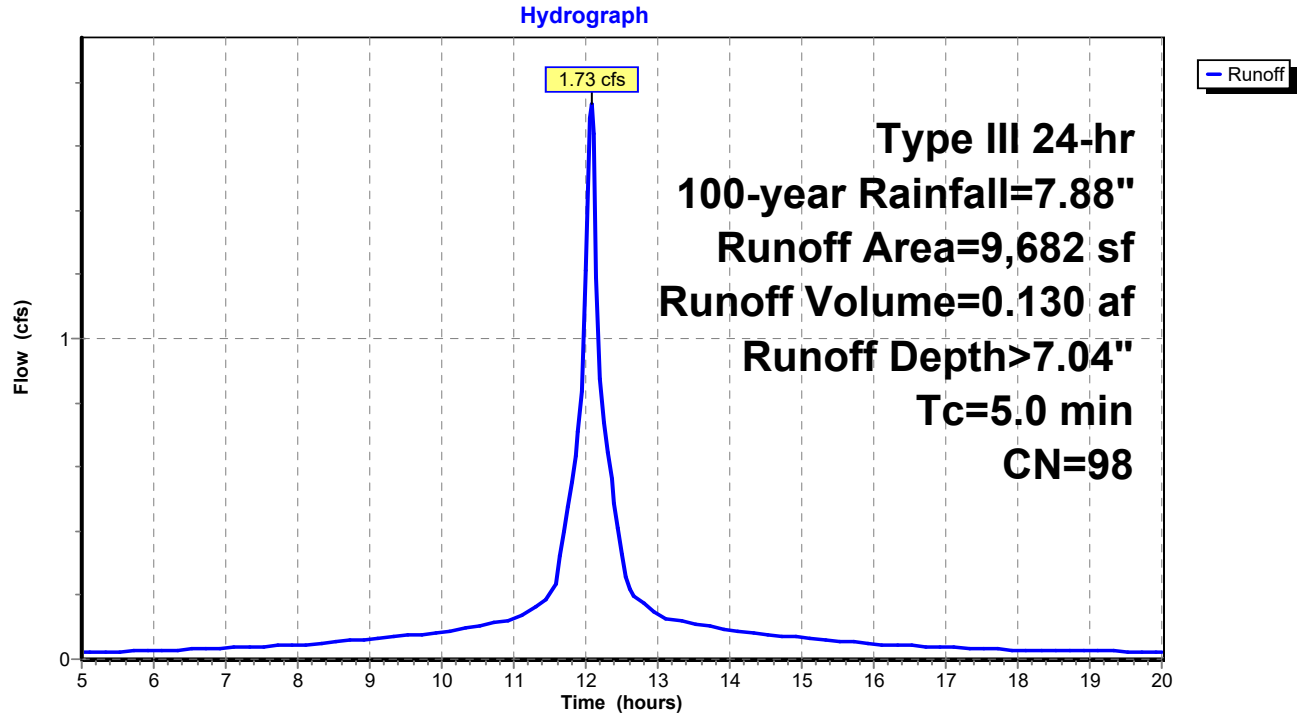
Runoff = 1.73 cfs @ 12.07 hrs, Volume= 0.130 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 9,682 | 98 | Paved roads w/curbs & sewers, HSG D |
| 9,682 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-5: EX-5



## Summary for Subcatchment EX-6: EX-6

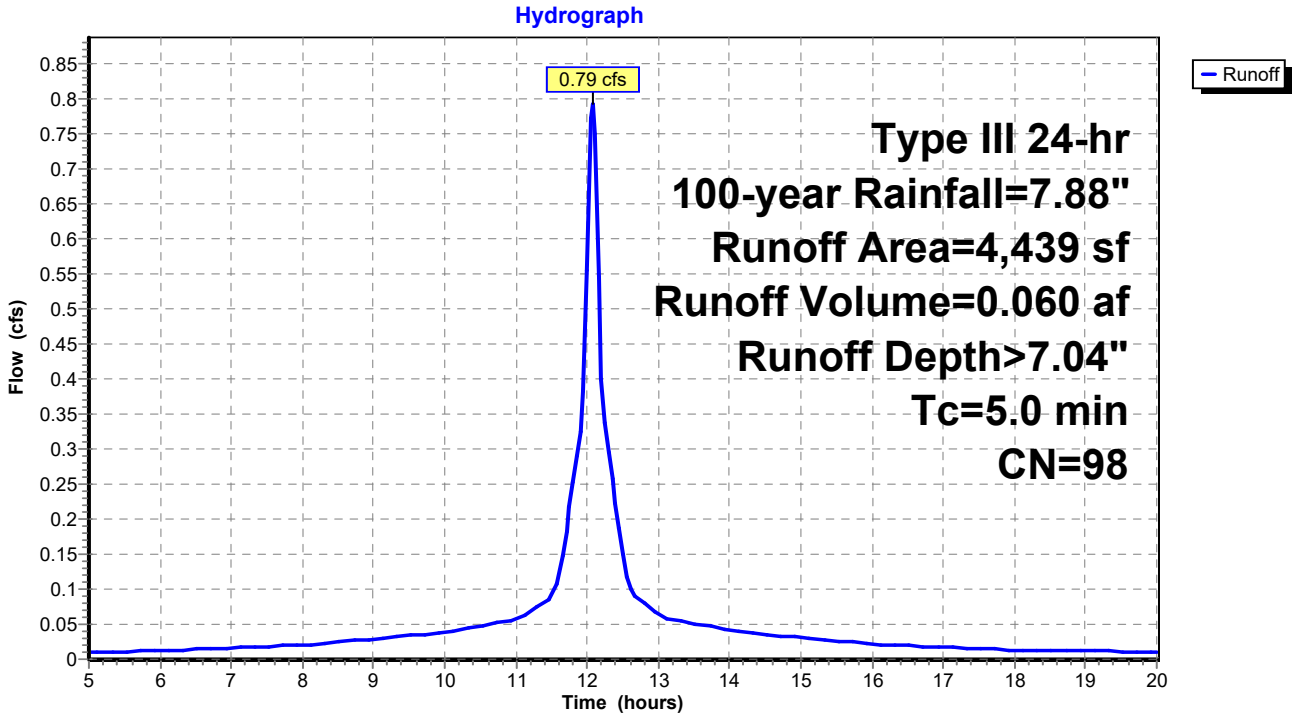
Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.060 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 4,439 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,439 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-6: EX-6



## Summary for Subcatchment EX-7: Building Apron

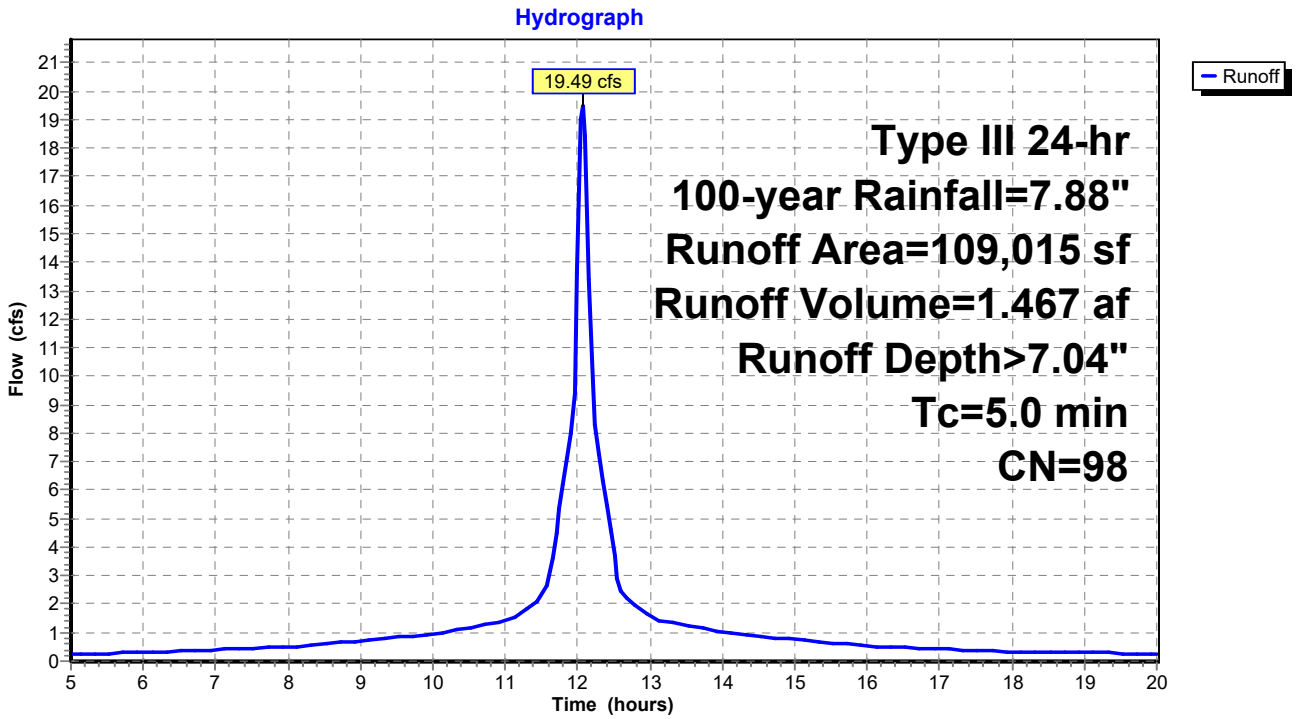
Runoff = 19.49 cfs @ 12.07 hrs, Volume= 1.467 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 61,185 | 98 | Paved parking, HSG D |
| 47,830 | 98 | Water Surface, HSG D |
| 109,015 | 98 | Weighted Average |
| 109,015 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-7: Building Apron



## Summary for Subcatchment EX-8: Existing Bldg

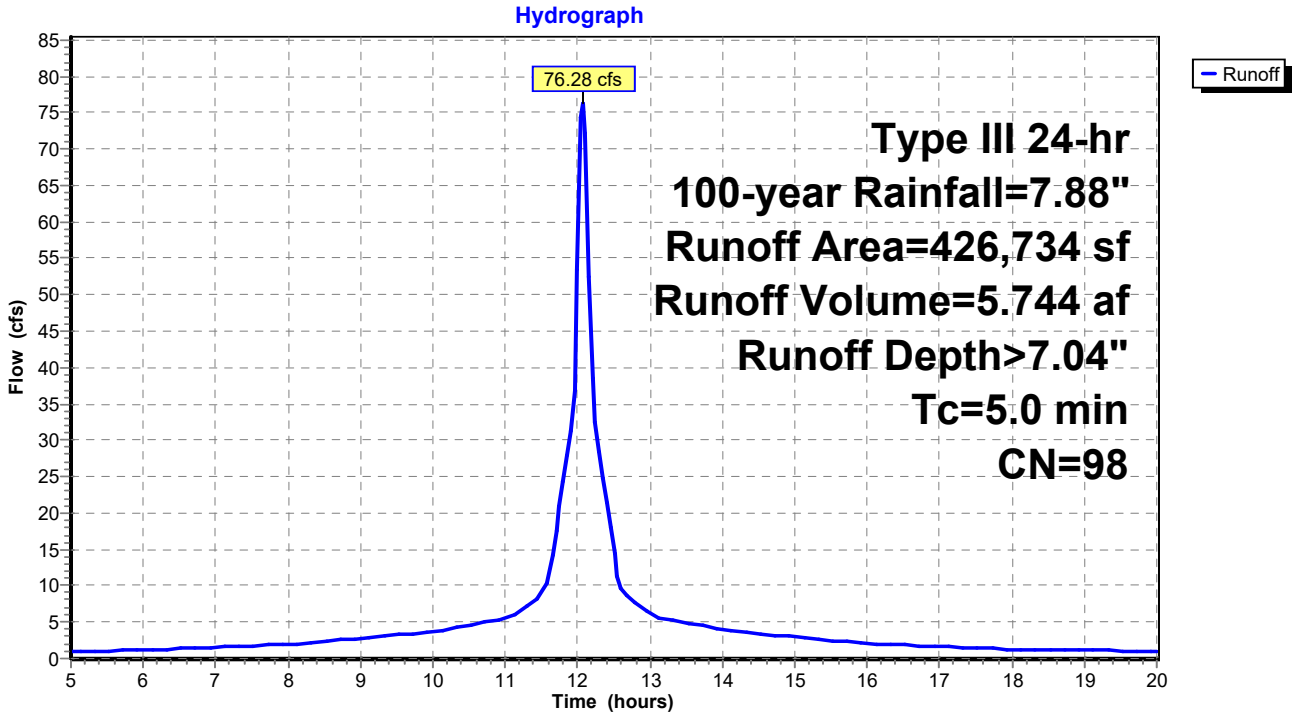
Runoff = 76.28 cfs @ 12.07 hrs, Volume= 5.744 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 423,866 | 98 | Roofs, HSG D |
| 2,868 | 89 | <50% Grass cover, Poor, HSG D |
| 426,734 | 98 | Weighted Average |
| 2,868 | | 0.67% Pervious Area |
| 423,866 | | 99.33% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment EX-8: Existing Bldg

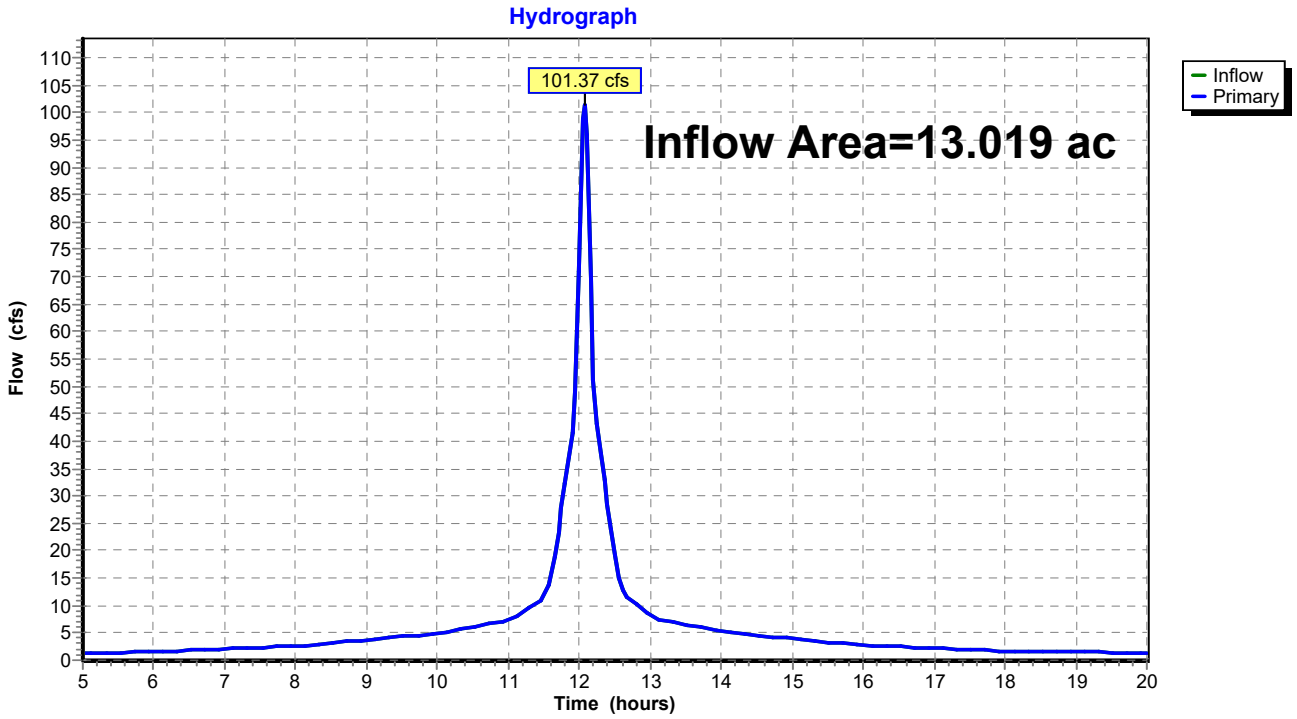


## Summary for Link DP-1: Boston Harbor

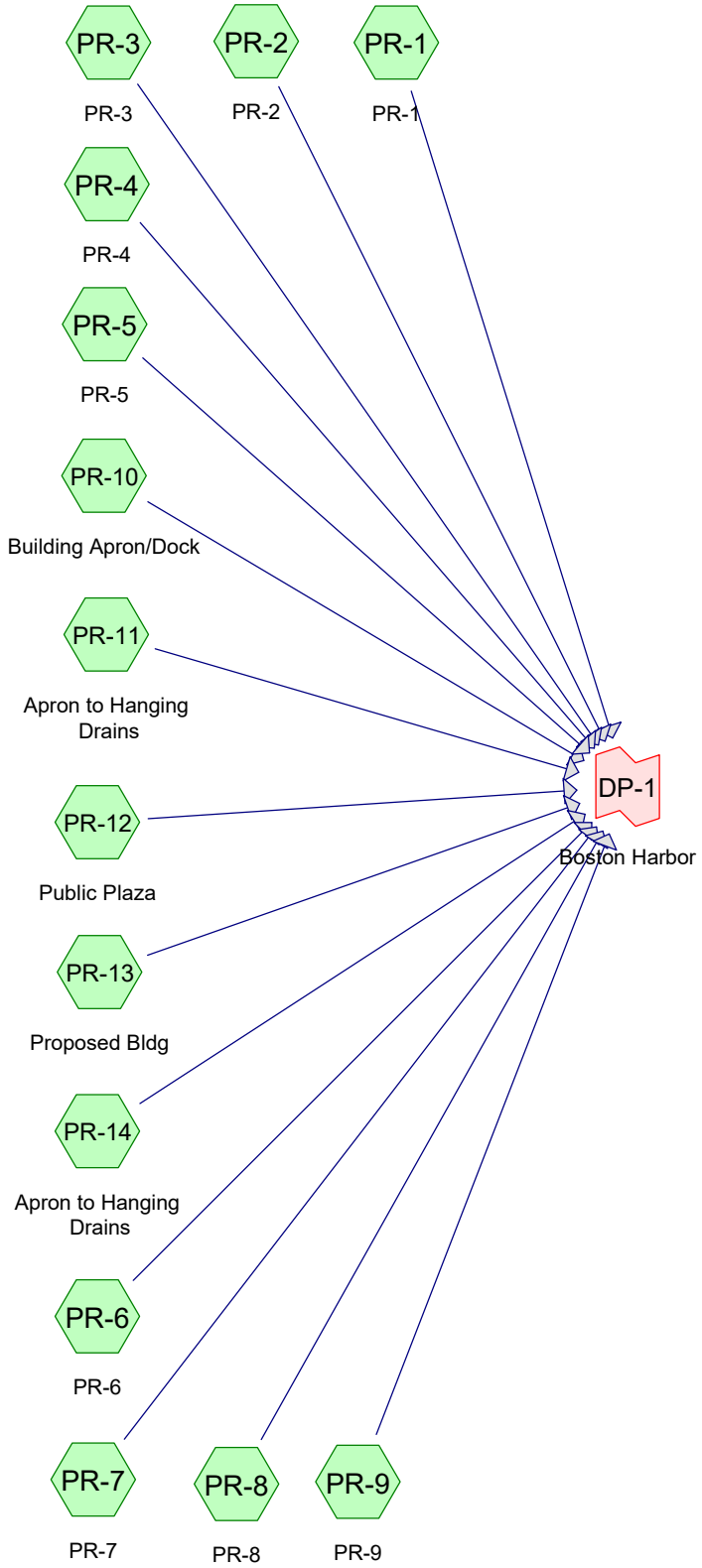
Inflow Area = 13.019 ac, 99.49% Impervious, Inflow Depth > 7.04" for 100-year event
Inflow = 101.37 cfs @ 12.07 hrs, Volume= 7.633 af
Primary = 101.37 cfs @ 12.07 hrs, Volume= 7.633 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



# HydroCAD Analysis: Proposed Conditions




Subcat Reach Pond Link

**Routing Diagram for Commonwealth Pier Proposed Drainage Conditions**

Prepared by VHB, Printed 2/22/2019

HydroCAD® 10.00-22 s/n 01038 © 2018 HydroCAD Software Solutions LLC

## Area Listing (selected nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.350 | 89 | <50% Grass cover, Poor, HSG D (PR-12, PR-13) |
| 0.727 | 98 | Paved roads w/curbs & sewers, HSG D (PR-1, PR-2, PR-3, PR-4, PR-5, PR-6, PR-7, PR-8, PR-9) |
| 9.082 | 98 | Roofs, HSG D (PR-13) |
| 1.710 | 98 | Unconnected pavement, HSG D (PR-10, PR-11, PR-12, PR-14) |
| 1.151 | 98 | Water Surface, HSG D (PR-10) |
| **13.019** | **98** | **TOTAL AREA** |

## Soil Listing (selected nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.000 | HSG A | |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 13.019 | HSG D | PR-1, PR-10, PR-11, PR-12, PR-13, PR-14, PR-2, PR-3, PR-4, PR-5, PR-6, PR-7, PR-8, PR-9 |
| 0.000 | Other | |
| **13.019** | | **TOTAL AREA** |

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 PR-1: PR-1** Runoff Area=2,026 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.15 cfs 0.011 af

**Subcatchment PR-10: Building** Runoff Area=93,270 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=6.82 cfs 0.505 af

**Subcatchment PR-11: Apron to Hanging** Runoff Area=4,405 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.024 af

**Subcatchment PR-12: Public Plaza** Runoff Area=21,260 sf 75.77% Impervious Runoff Depth>2.65"
Tc=5.0 min CN=96 Runoff=1.50 cfs 0.108 af

**Subcatchment PR-13: Proposed Bldg** Runoff Area=405,684 sf 97.51% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=29.68 cfs 2.195 af

**Subcatchment PR-14: Apron to Hanging** Runoff Area=10,825 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.79 cfs 0.059 af

**Subcatchment PR-2: PR-2** Runoff Area=6,016 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.44 cfs 0.033 af

**Subcatchment PR-3: PR-3** Runoff Area=2,856 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.21 cfs 0.015 af

**Subcatchment PR-4: PR-4** Runoff Area=1,141 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

**Subcatchment PR-5: PR-5** Runoff Area=5,389 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.39 cfs 0.029 af

**Subcatchment PR-6: PR-6** Runoff Area=4,163 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.30 cfs 0.023 af

**Subcatchment PR-7: PR-7** Runoff Area=5,433 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.029 af

**Subcatchment PR-8: PR-8** Runoff Area=3,195 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.017 af

**Subcatchment PR-9: PR-9** Runoff Area=1,455 sf 100.00% Impervious Runoff Depth>2.83"
Tc=5.0 min CN=98 Runoff=0.11 cfs 0.008 af

**Link DP-1: Boston Harbor** Inflow=41.43 cfs 3.062 af
Primary=41.43 cfs 3.062 af

**Total Runoff Area = 13.019 ac Runoff Volume = 3.062 af Average Runoff Depth = 2.82"**
**2.69% Pervious = 0.350 ac 97.31% Impervious = 12.670 ac**

## Summary for Subcatchment PR-1: PR-1

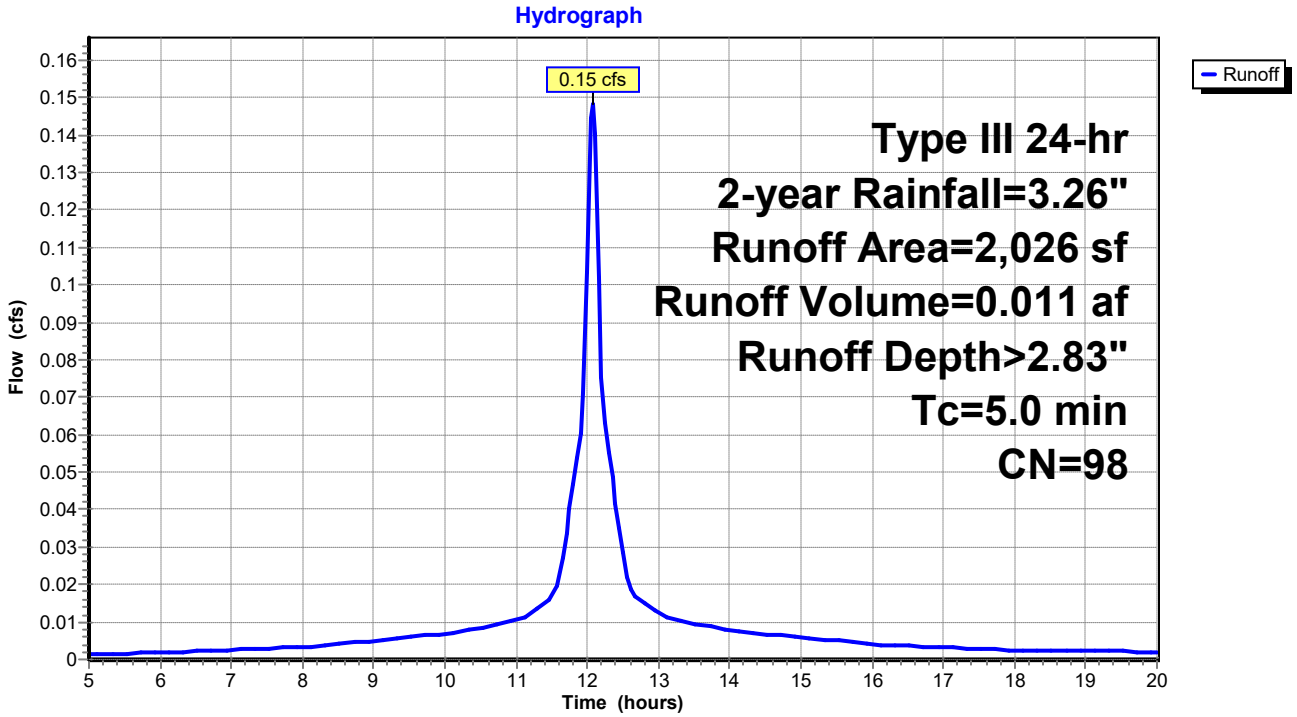
Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 2,026 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,026 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-1: PR-1



## Summary for Subcatchment PR-10: Building Apron/Dock

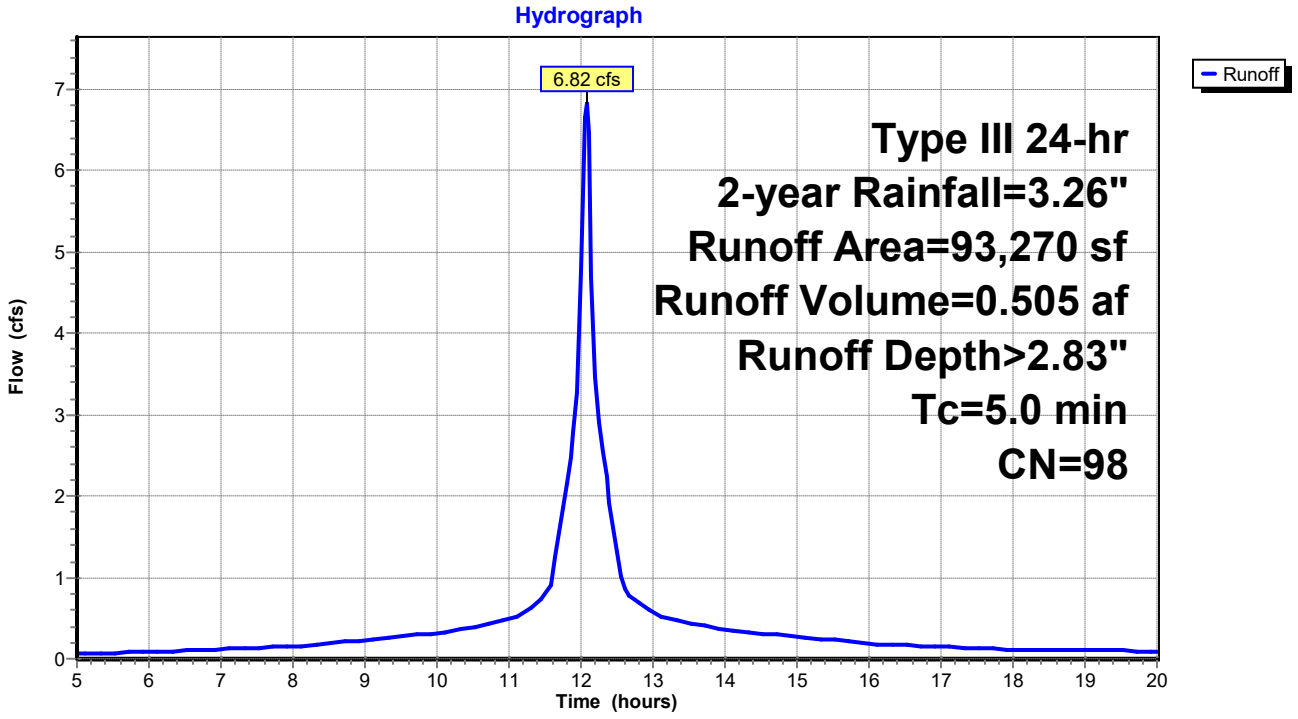
Runoff = 6.82 cfs @ 12.07 hrs, Volume= 0.505 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 43,144 | 98 | Unconnected pavement, HSG D |
| 50,126 | 98 | Water Surface, HSG D |
| 93,270 | 98 | Weighted Average |
| 93,270 | | 100.00% Impervious Area |
| 43,144 | | 46.26% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-10: Building Apron/Dock



## Summary for Subcatchment PR-11: Apron to Hanging Drains

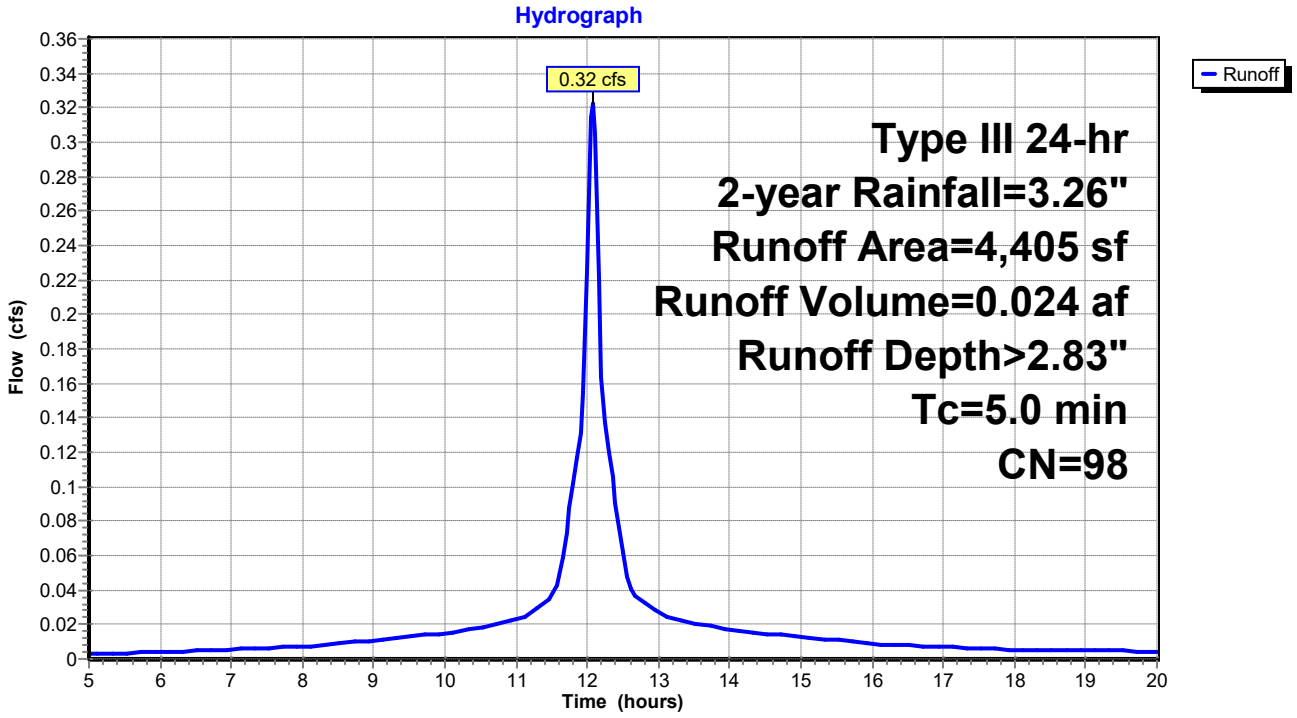
Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 4,405 | 98 | Unconnected pavement, HSG D |
| 4,405 | | 100.00% Impervious Area |
| 4,405 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-11: Apron to Hanging Drains



## Summary for Subcatchment PR-12: Public Plaza

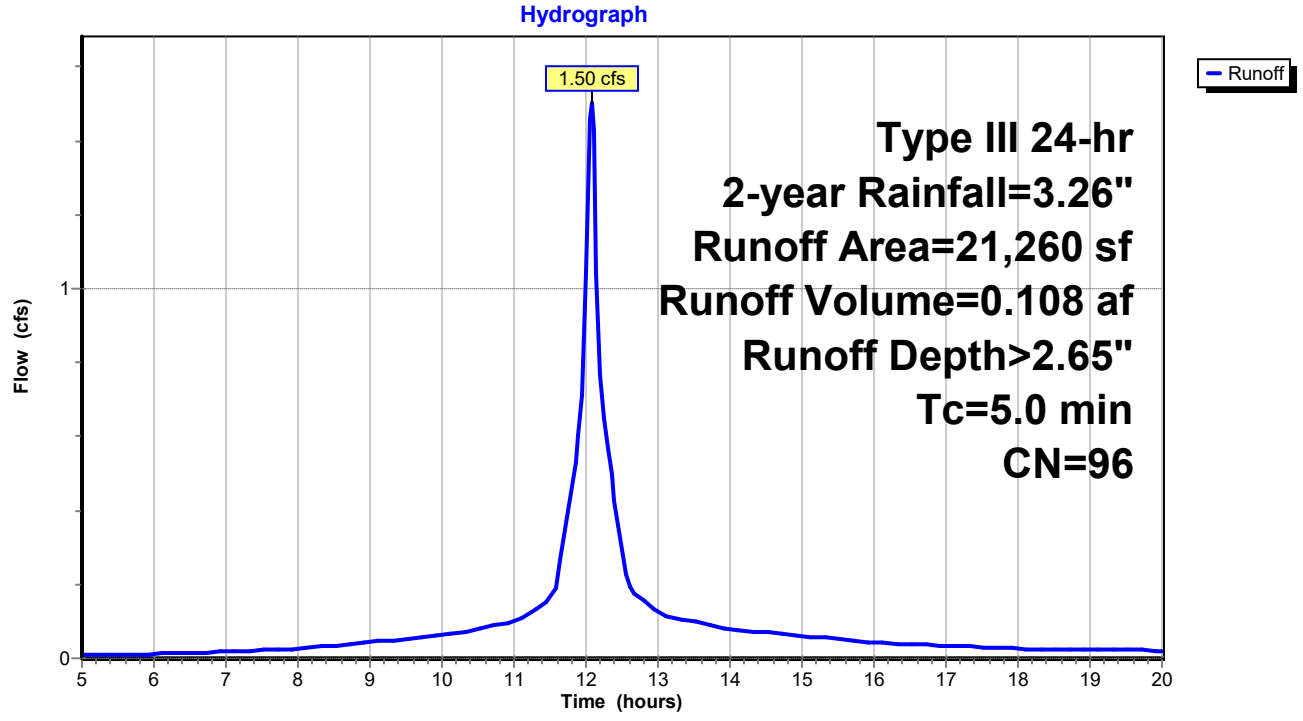
Runoff = 1.50 cfs @ 12.07 hrs, Volume= 0.108 af, Depth> 2.65"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 16,108 | 98 | Unconnected pavement, HSG D |
| 5,152 | 89 | <50% Grass cover, Poor, HSG D |
| 21,260 | 96 | Weighted Average |
| 5,152 | | 24.23% Pervious Area |
| 16,108 | | 75.77% Impervious Area |
| 16,108 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

### Subcatchment PR-12: Public Plaza



## Summary for Subcatchment PR-13: Proposed Bldg

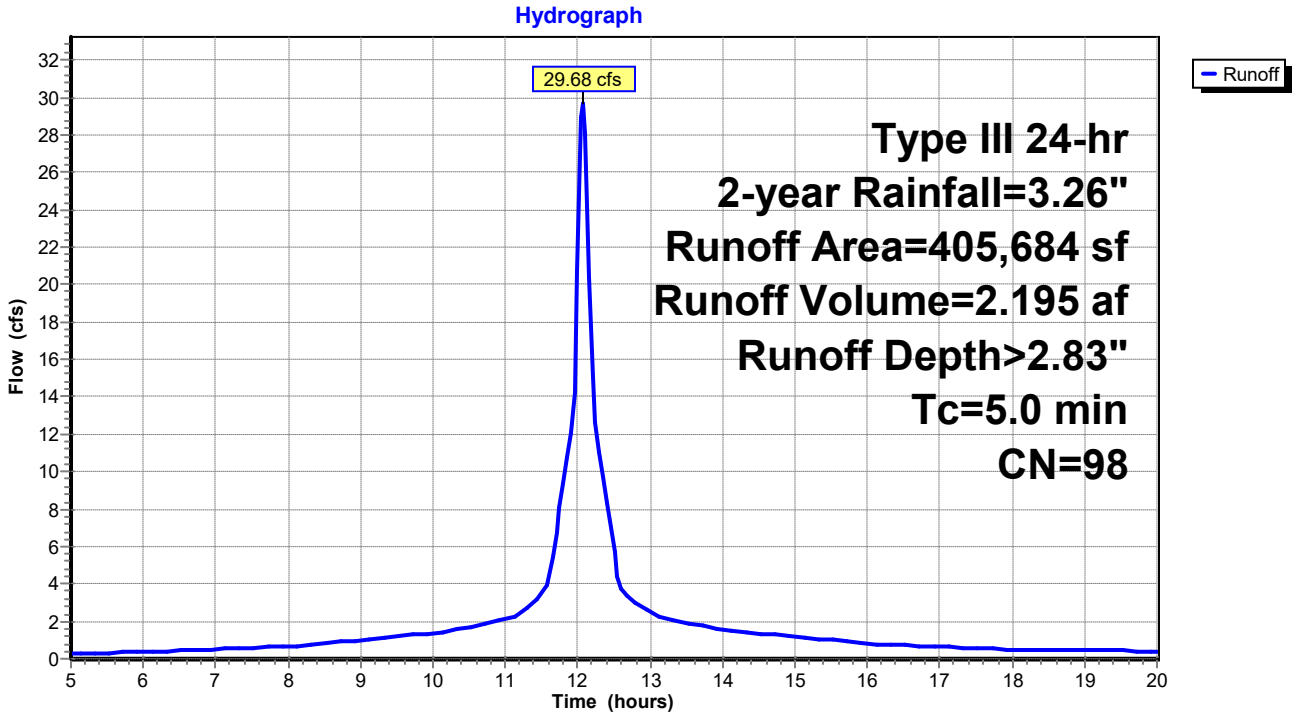
Runoff = 29.68 cfs @ 12.07 hrs, Volume= 2.195 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 395,602 | 98 | Roofs, HSG D |
| 10,082 | 89 | <50% Grass cover, Poor, HSG D |
| 405,684 | 98 | Weighted Average |
| 10,082 | | 2.49% Pervious Area |
| 395,602 | | 97.51% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-13: Proposed Bldg



## Summary for Subcatchment PR-14: Apron to Hanging Drains

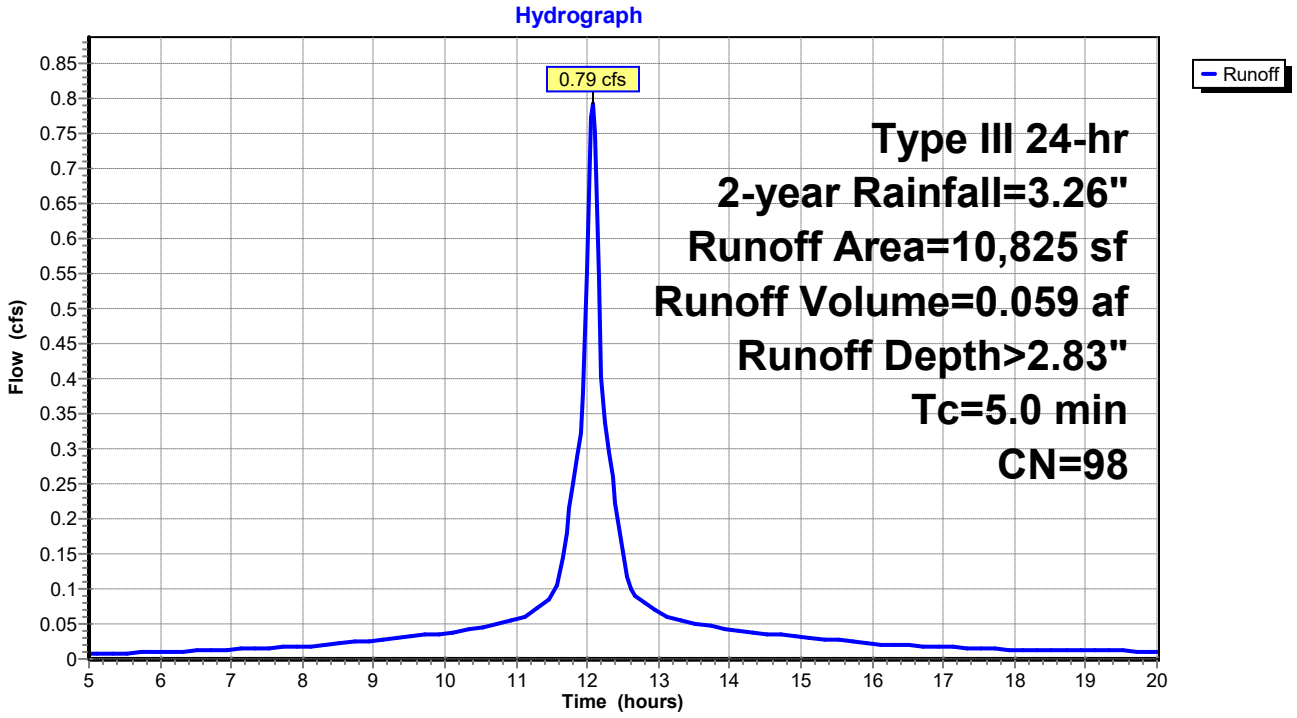
Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.059 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 10,825 | 98 | Unconnected pavement, HSG D |
| 10,825 | | 100.00% Impervious Area |
| 10,825 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-14: Apron to Hanging Drains



## Summary for Subcatchment PR-2: PR-2

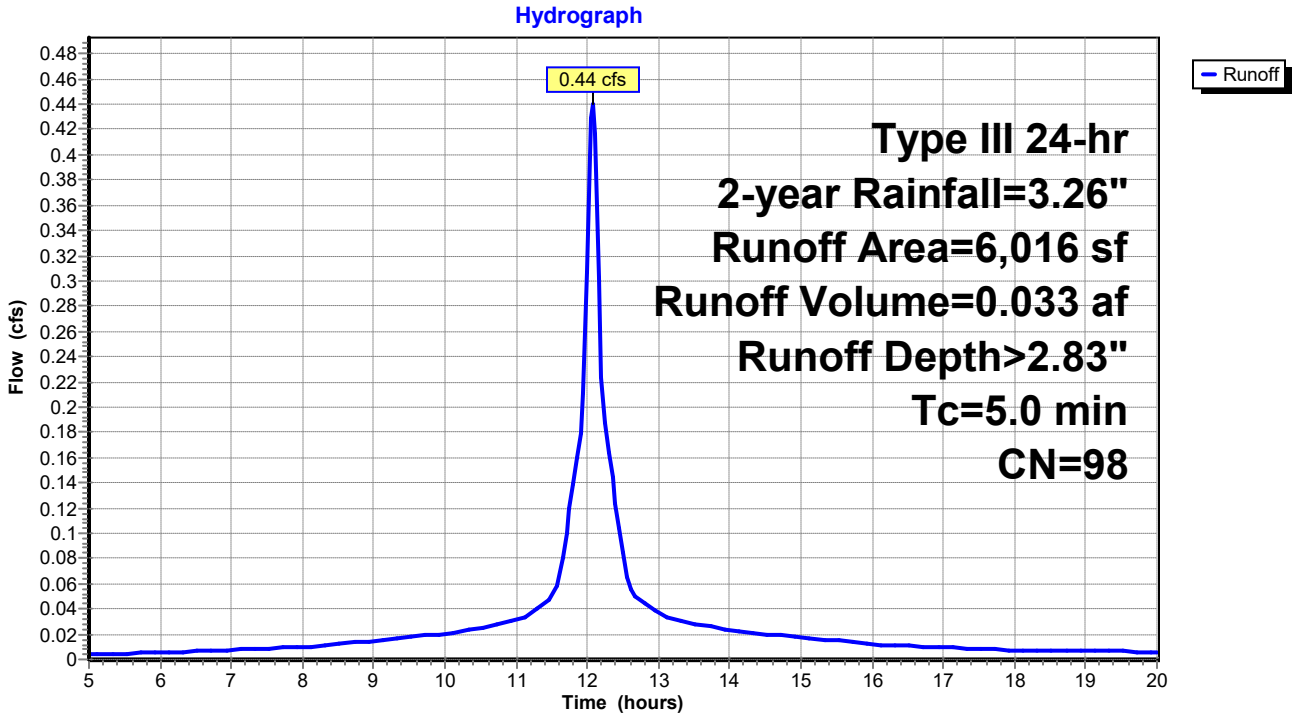
Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 6,016 | 98 | Paved roads w/curbs & sewers, HSG D |
| 6,016 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-2: PR-2



## Summary for Subcatchment PR-3: PR-3

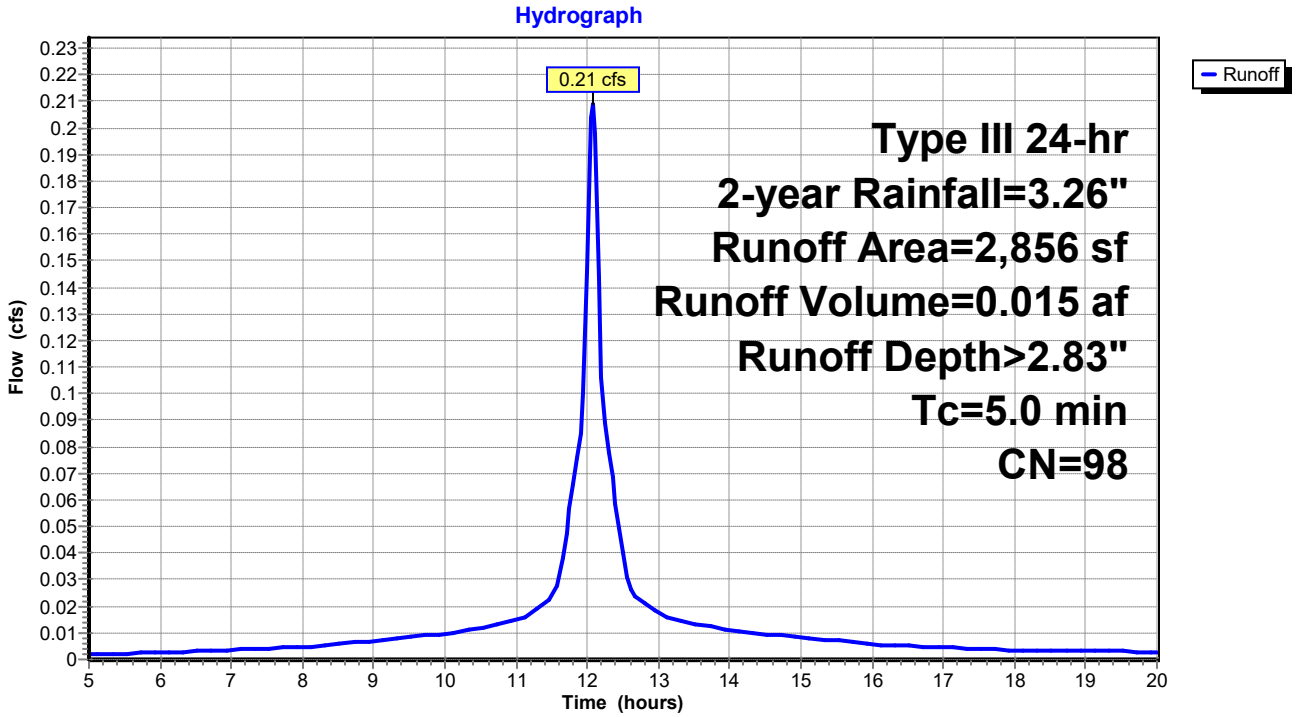
Runoff = 0.21 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 2,856 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,856 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-3: PR-3



## Summary for Subcatchment PR-4: PR-4

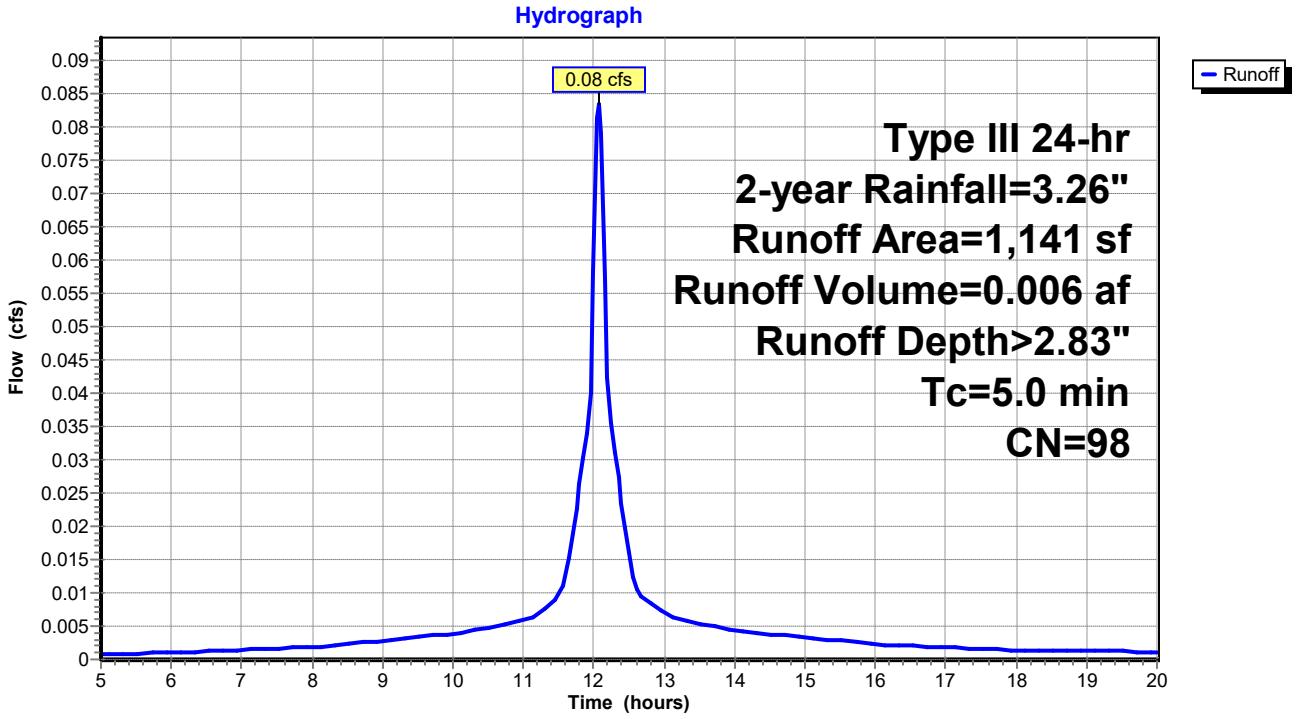
Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 1,141 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,141 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-4: PR-4



## Summary for Subcatchment PR-5: PR-5

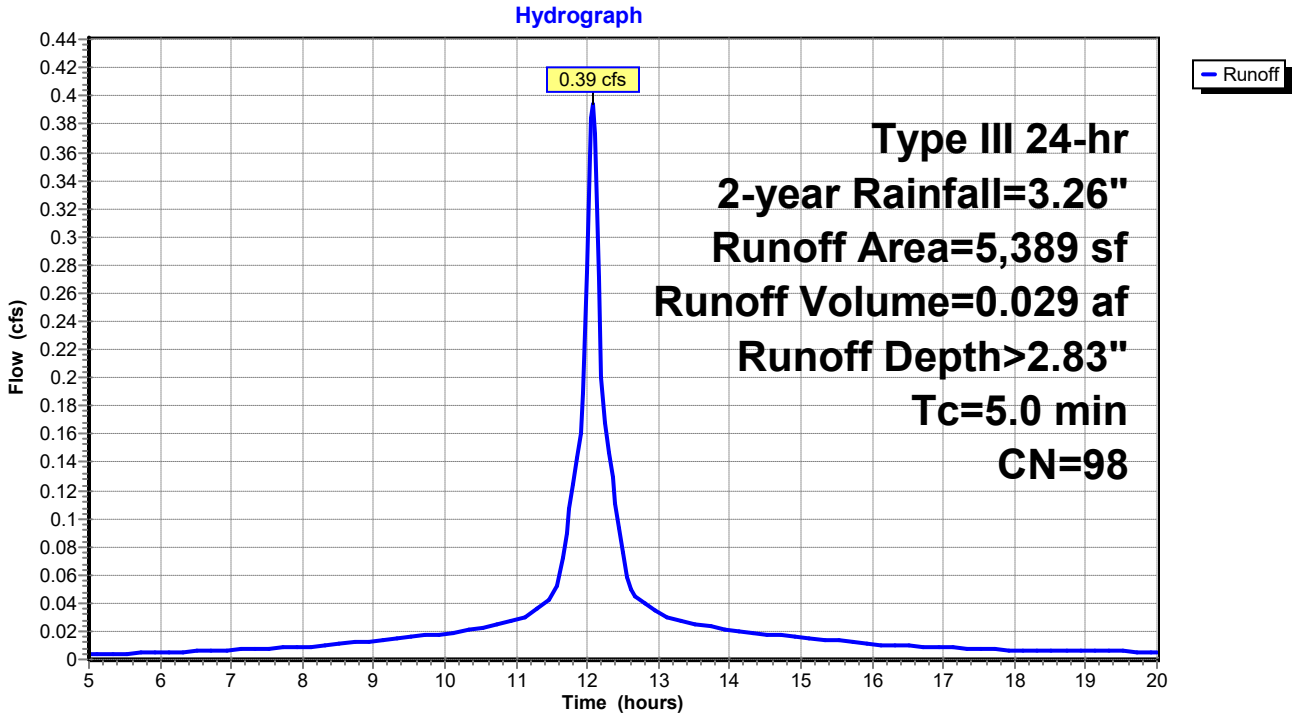
Runoff = 0.39 cfs @ 12.07 hrs, Volume= 0.029 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 5,389 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,389 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-5: PR-5



## Summary for Subcatchment PR-6: PR-6

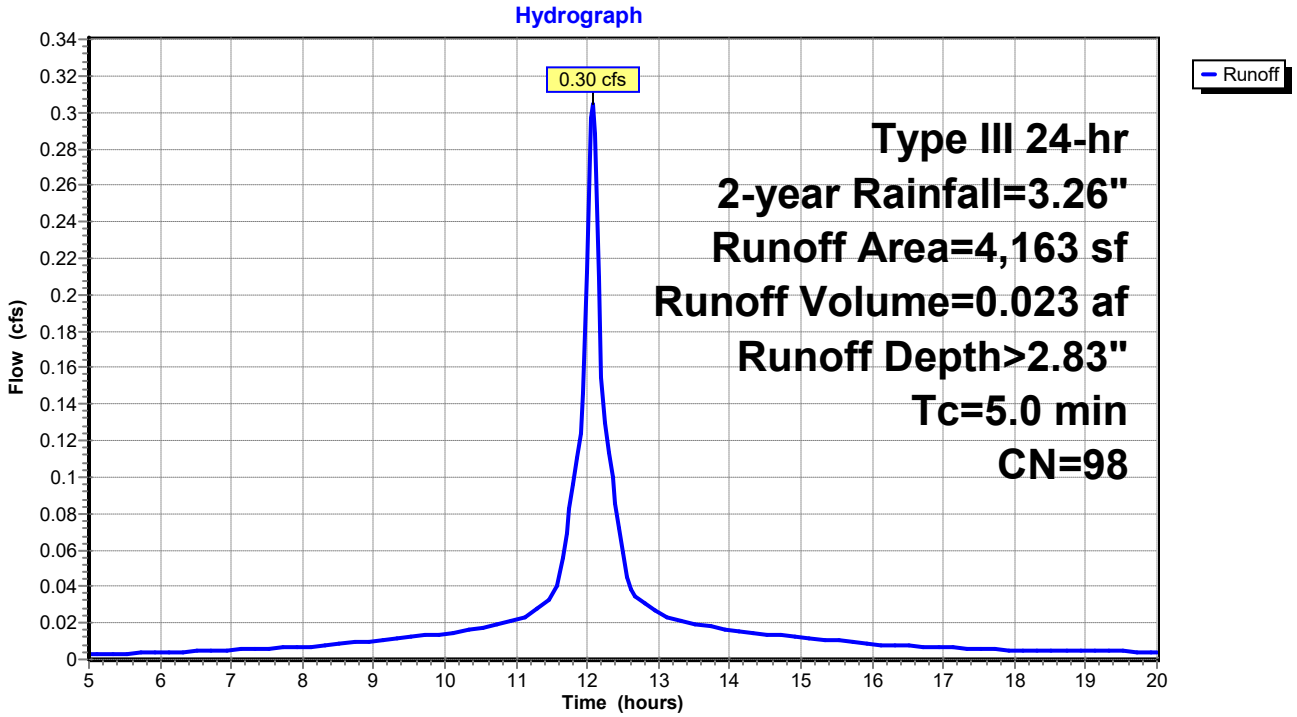
Runoff = 0.30 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 4,163 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,163 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-6: PR-6



## Summary for Subcatchment PR-7: PR-7

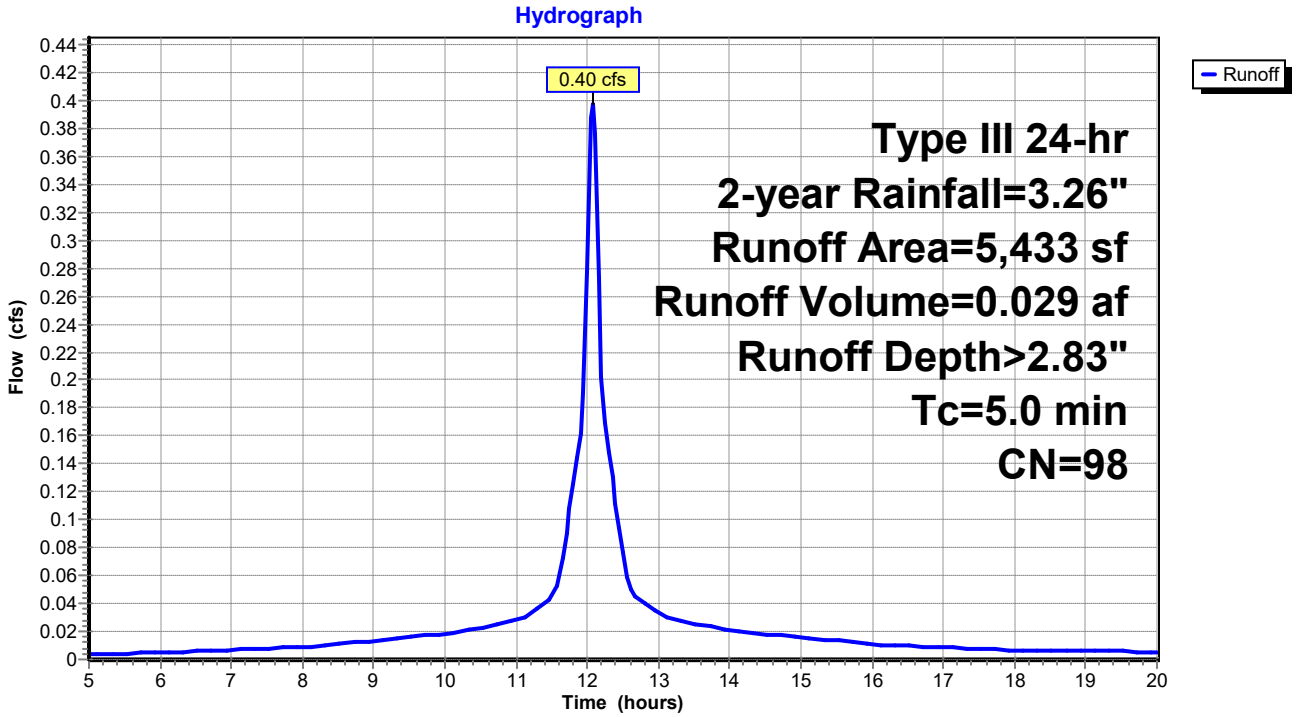
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.029 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 5,433 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,433 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-7: PR-7



## Summary for Subcatchment PR-8: PR-8

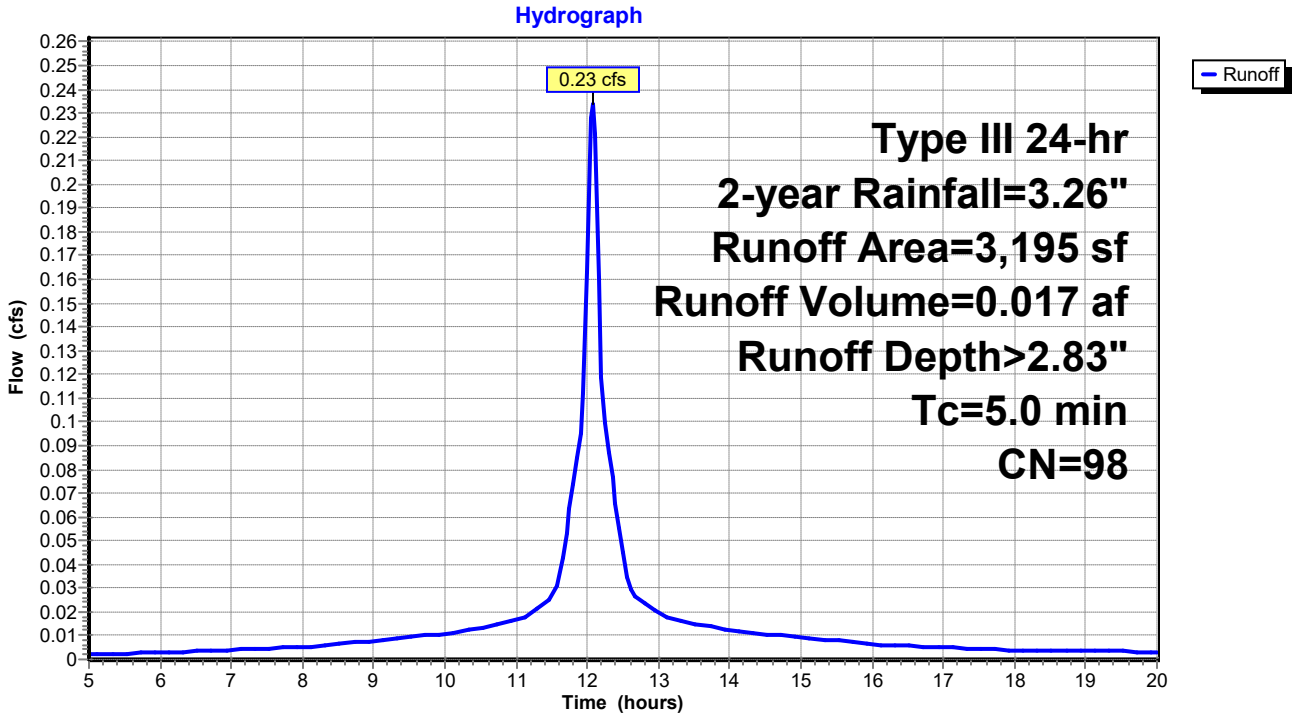
Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 3,195 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,195 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-8: PR-8



## Summary for Subcatchment PR-9: PR-9

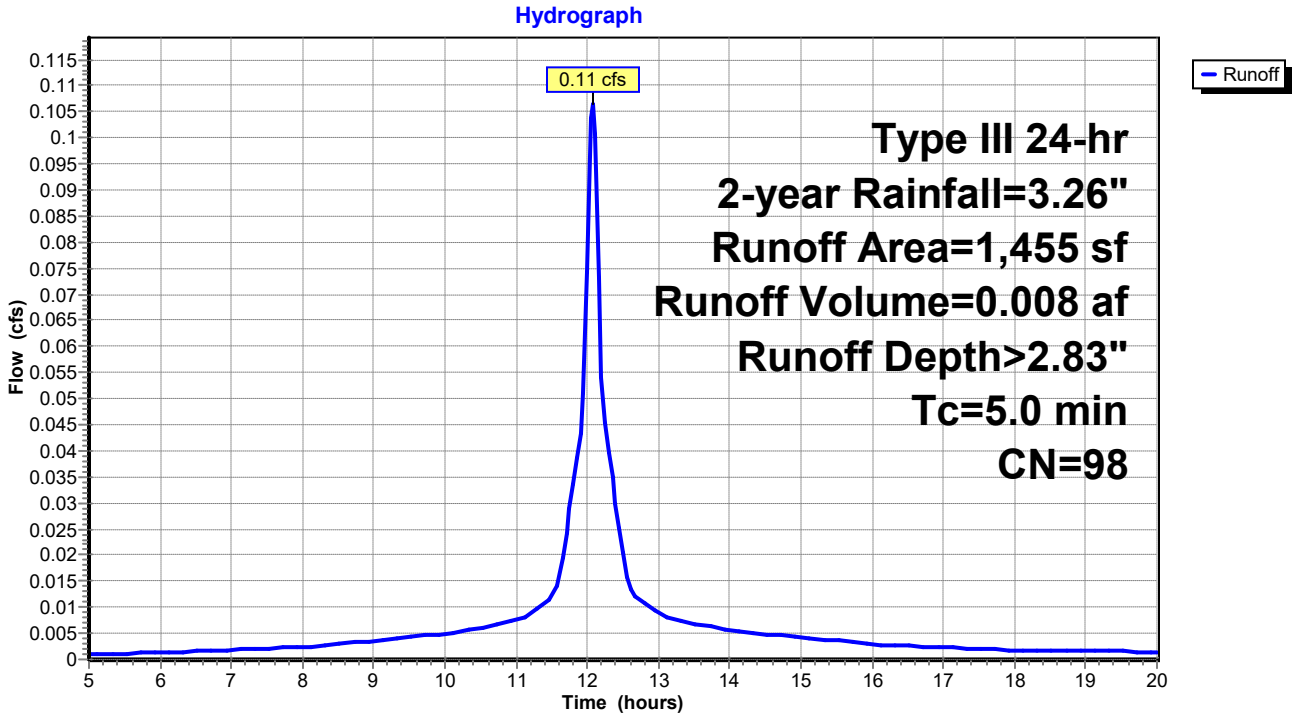
Runoff = 0.11 cfs @ 12.07 hrs, Volume= 0.008 af, Depth> 2.83"

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=3.26"

| Area (sf) | CN | Description |
|---|---|---|
| 1,455 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,455 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-9: PR-9

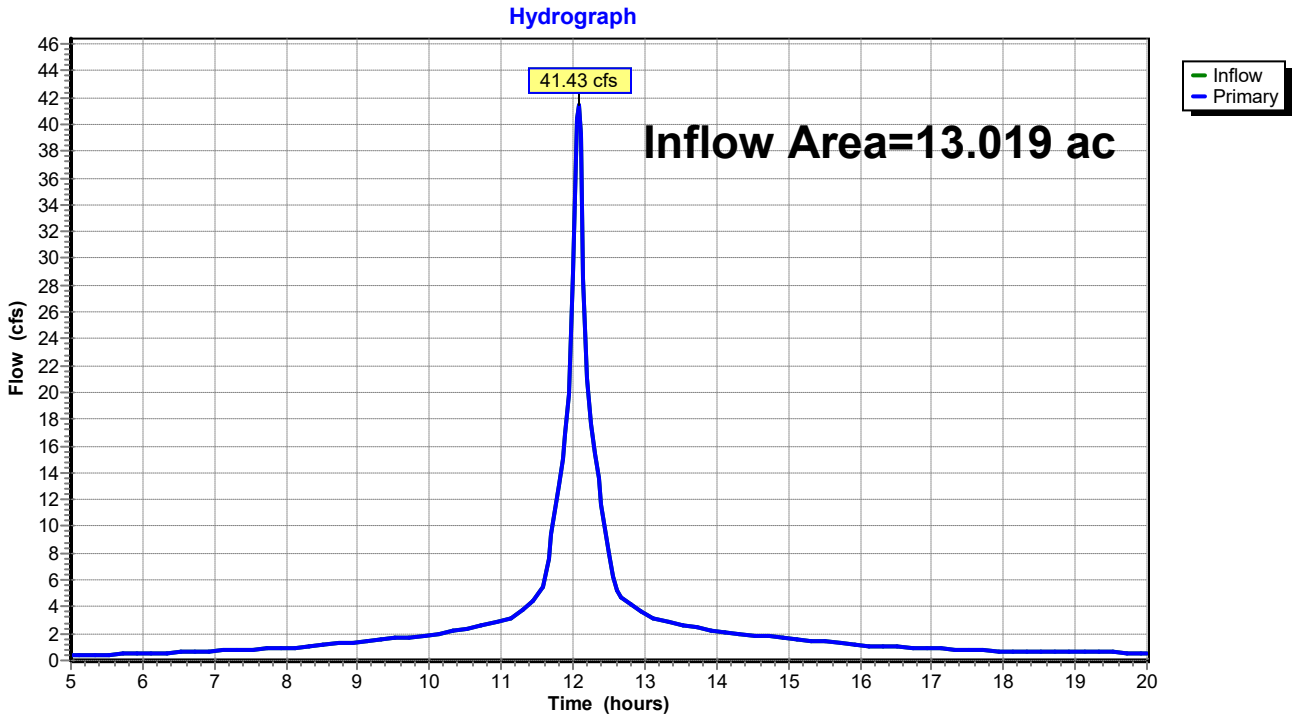


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 97.31% Impervious, Inflow Depth > 2.82" for 2-year event
Inflow = 41.43 cfs @ 12.07 hrs, Volume= 3.062 af
Primary = 41.43 cfs @ 12.07 hrs, Volume= 3.062 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 PR-1: PR-1** Runoff Area=2,026 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.23 cfs 0.017 af

**Subcatchment PR-10: Building** Runoff Area=93,270 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=10.48 cfs 0.784 af

**Subcatchment PR-11: Apron to Hanging** Runoff Area=4,405 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.49 cfs 0.037 af

**Subcatchment PR-12: Public Plaza** Runoff Area=21,260 sf 75.77% Impervious Runoff Depth>4.23"
Tc=5.0 min CN=96 Runoff=2.35 cfs 0.172 af

**Subcatchment PR-13: Proposed Bldg** Runoff Area=405,684 sf 97.51% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=45.57 cfs 3.408 af

**Subcatchment PR-14: Apron to Hanging** Runoff Area=10,825 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=1.22 cfs 0.091 af

**Subcatchment PR-2: PR-2** Runoff Area=6,016 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.68 cfs 0.051 af

**Subcatchment PR-3: PR-3** Runoff Area=2,856 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.32 cfs 0.024 af

**Subcatchment PR-4: PR-4** Runoff Area=1,141 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.13 cfs 0.010 af

**Subcatchment PR-5: PR-5** Runoff Area=5,389 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.61 cfs 0.045 af

**Subcatchment PR-6: PR-6** Runoff Area=4,163 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.47 cfs 0.035 af

**Subcatchment PR-7: PR-7** Runoff Area=5,433 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.61 cfs 0.046 af

**Subcatchment PR-8: PR-8** Runoff Area=3,195 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.36 cfs 0.027 af

**Subcatchment PR-9: PR-9** Runoff Area=1,455 sf 100.00% Impervious Runoff Depth>4.39"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.012 af

**Link DP-1: Boston Harbor** Inflow=63.67 cfs 4.758 af
Primary=63.67 cfs 4.758 af

**Total Runoff Area = 13.019 ac Runoff Volume = 4.758 af Average Runoff Depth = 4.39"**
**2.69% Pervious = 0.350 ac 97.31% Impervious = 12.670 ac**

## Summary for Subcatchment PR-1: PR-1

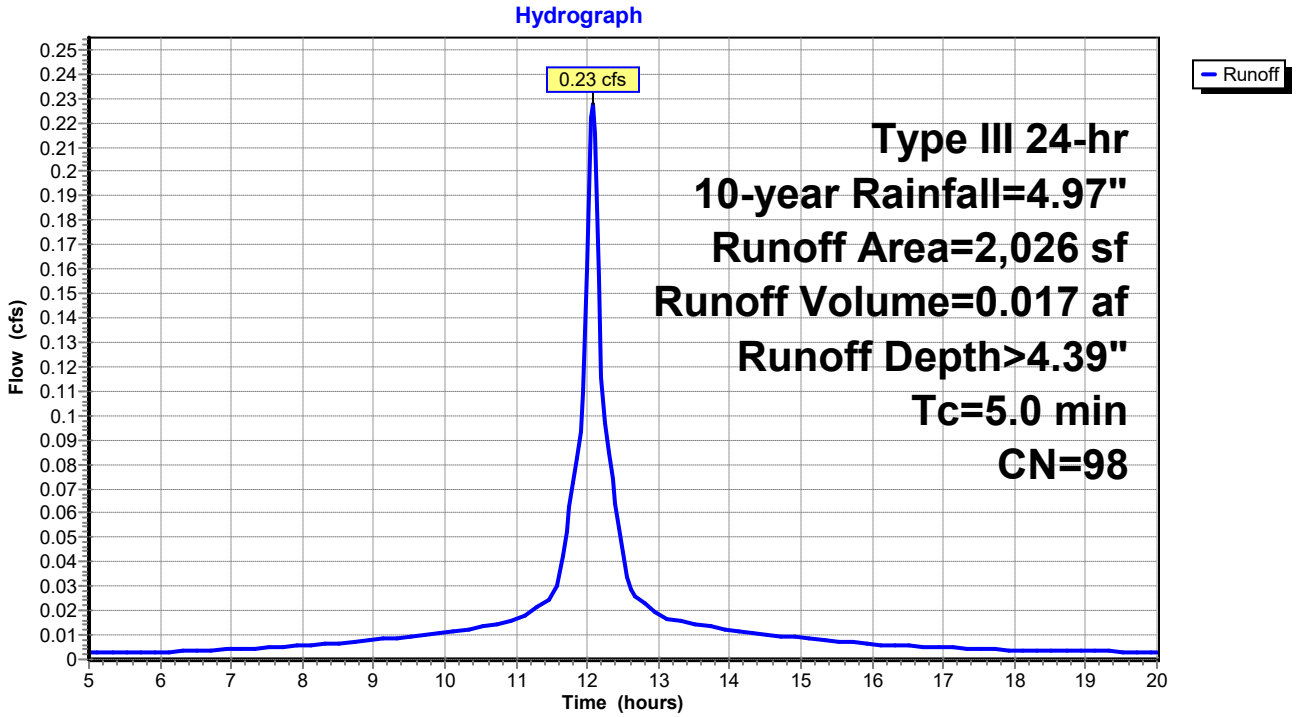
Runoff = 0.23 cfs @ 12.07 hrs, Volume= 0.017 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 2,026 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,026 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-1: PR-1



## Summary for Subcatchment PR-10: Building Apron/Dock

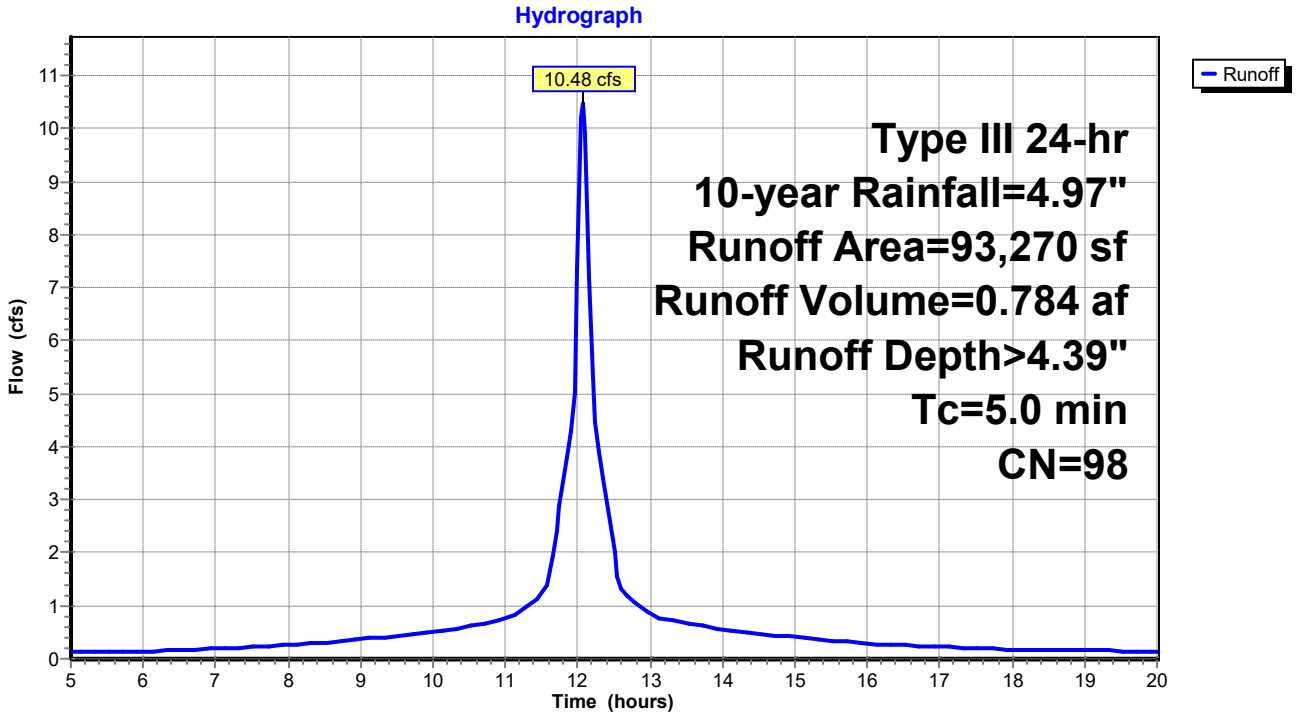
Runoff = 10.48 cfs @ 12.07 hrs, Volume= 0.784 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 43,144 | 98 | Unconnected pavement, HSG D |
| 50,126 | 98 | Water Surface, HSG D |
| 93,270 | 98 | Weighted Average |
| 93,270 | | 100.00% Impervious Area |
| 43,144 | | 46.26% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-10: Building Apron/Dock



## Summary for Subcatchment PR-11: Apron to Hanging Drains

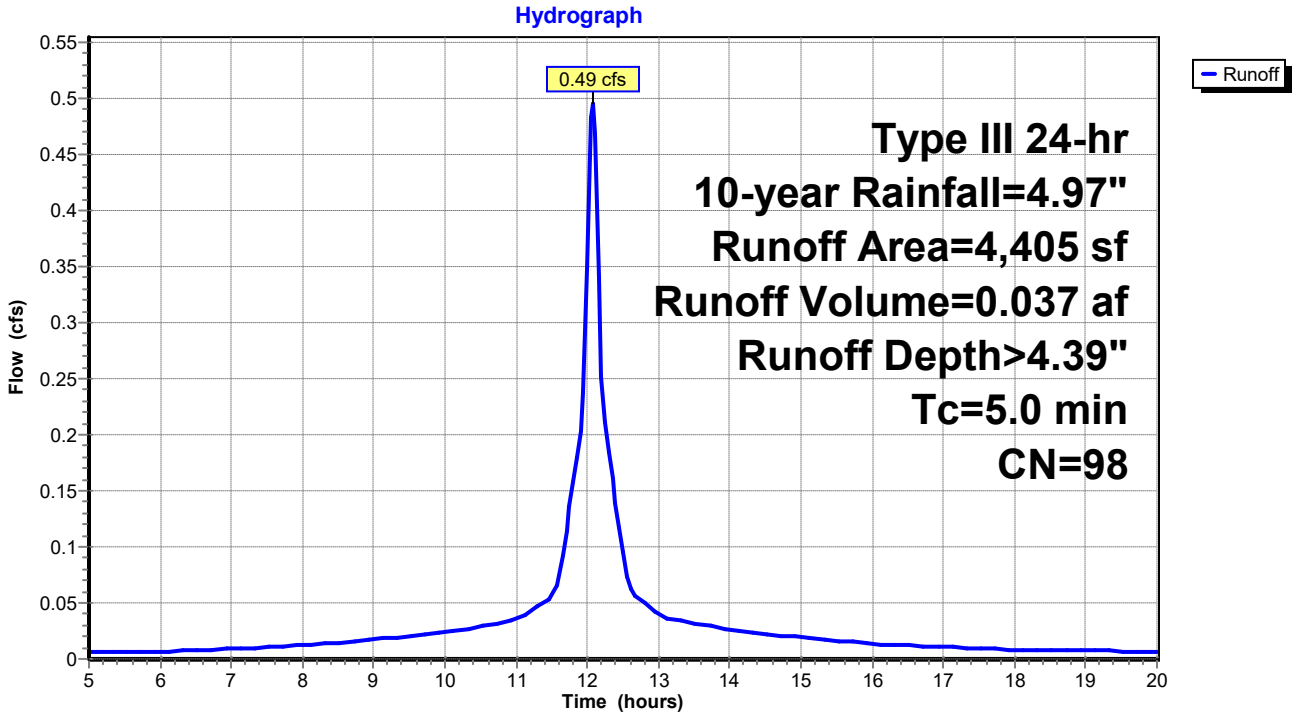
Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 4,405 | 98 | Unconnected pavement, HSG D |
| 4,405 | | 100.00% Impervious Area |
| 4,405 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-11: Apron to Hanging Drains



## Summary for Subcatchment PR-12: Public Plaza

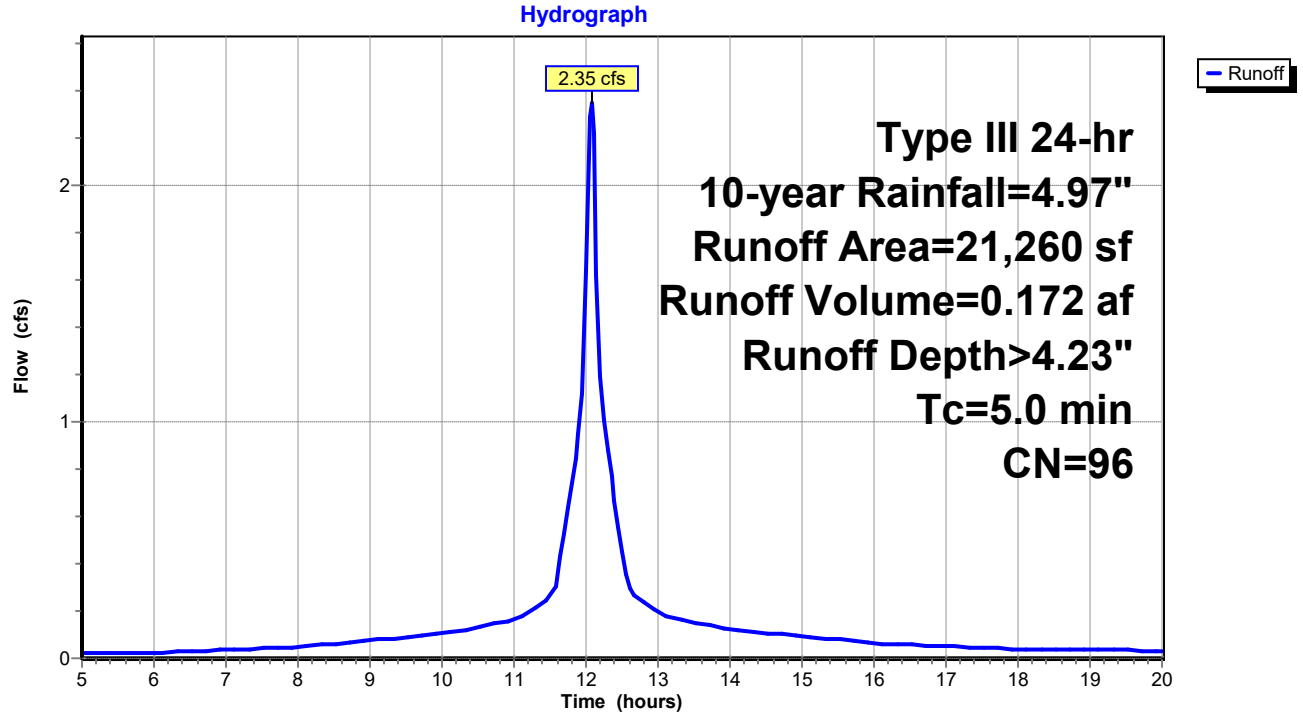
Runoff = 2.35 cfs @ 12.07 hrs, Volume= 0.172 af, Depth> 4.23"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 16,108 | 98 | Unconnected pavement, HSG D |
| 5,152 | 89 | <50% Grass cover, Poor, HSG D |
| 21,260 | 96 | Weighted Average |
| 5,152 | | 24.23% Pervious Area |
| 16,108 | | 75.77% Impervious Area |
| 16,108 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-12: Public Plaza



## Summary for Subcatchment PR-13: Proposed Bldg

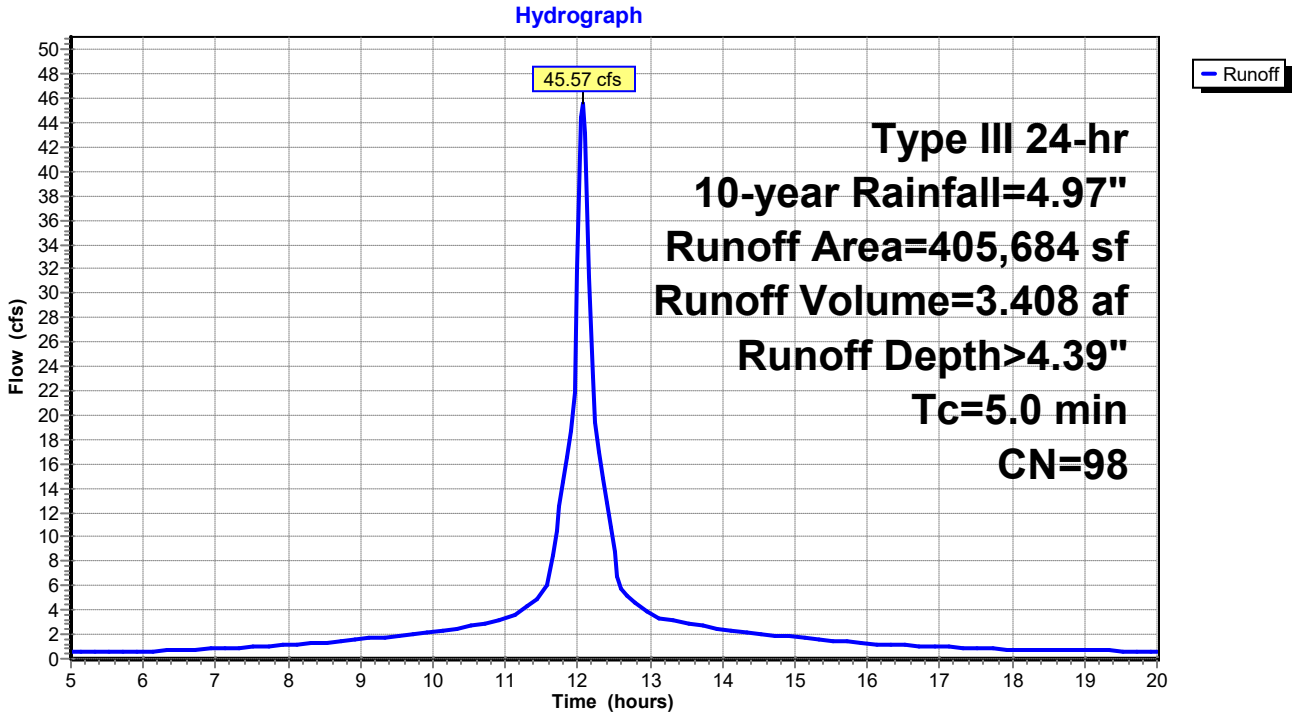
Runoff = 45.57 cfs @ 12.07 hrs, Volume= 3.408 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 395,602 | 98 | Roofs, HSG D |
| 10,082 | 89 | <50% Grass cover, Poor, HSG D |
| 405,684 | 98 | Weighted Average |
| 10,082 | | 2.49% Pervious Area |
| 395,602 | | 97.51% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-13: Proposed Bldg



## Summary for Subcatchment PR-14: Apron to Hanging Drains

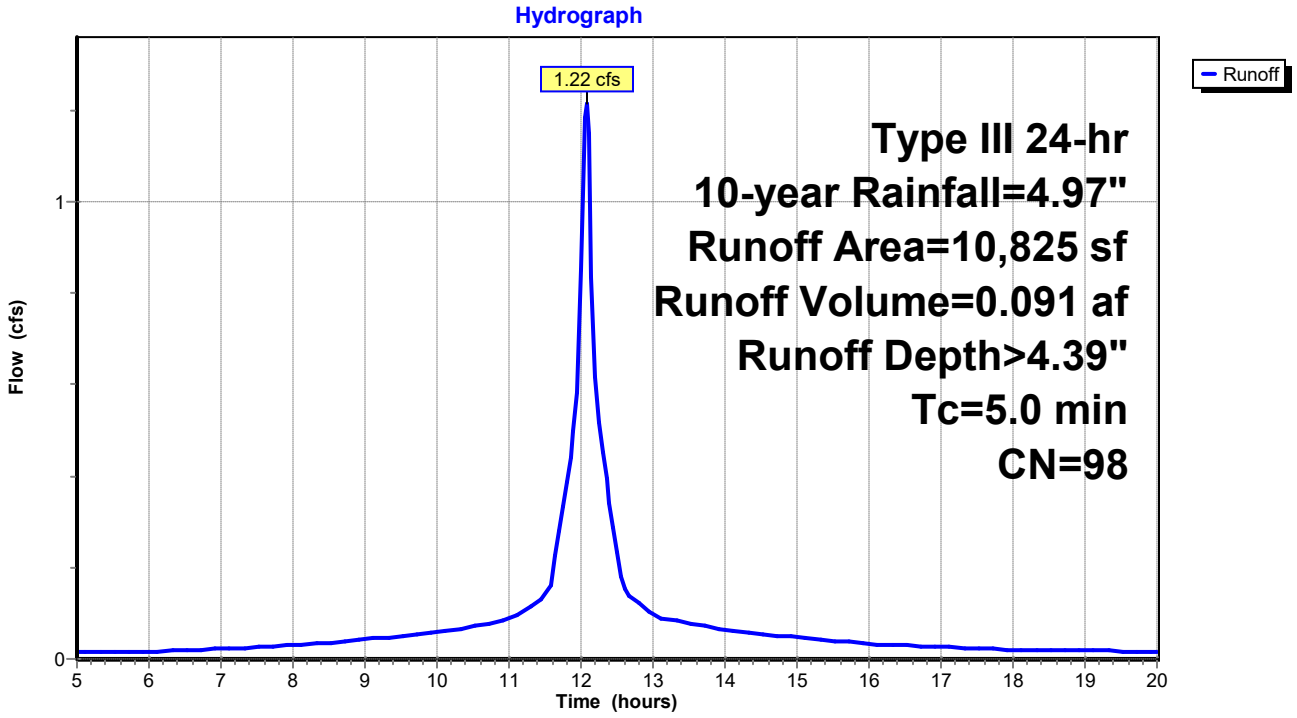
Runoff = 1.22 cfs @ 12.07 hrs, Volume= 0.091 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 10,825 | 98 | Unconnected pavement, HSG D |
| 10,825 | | 100.00% Impervious Area |
| 10,825 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-14: Apron to Hanging Drains



## Summary for Subcatchment PR-2: PR-2

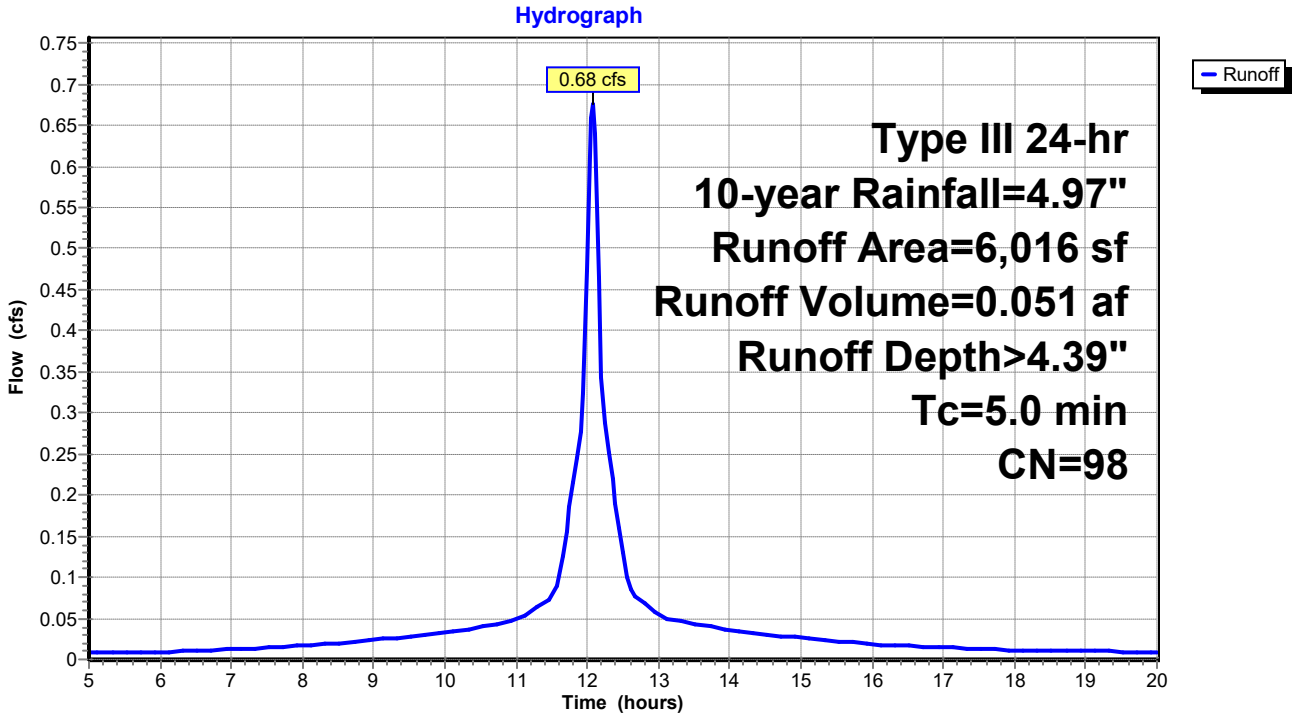
Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.051 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 6,016 | 98 | Paved roads w/curbs & sewers, HSG D |
| 6,016 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-2: PR-2



## Summary for Subcatchment PR-3: PR-3

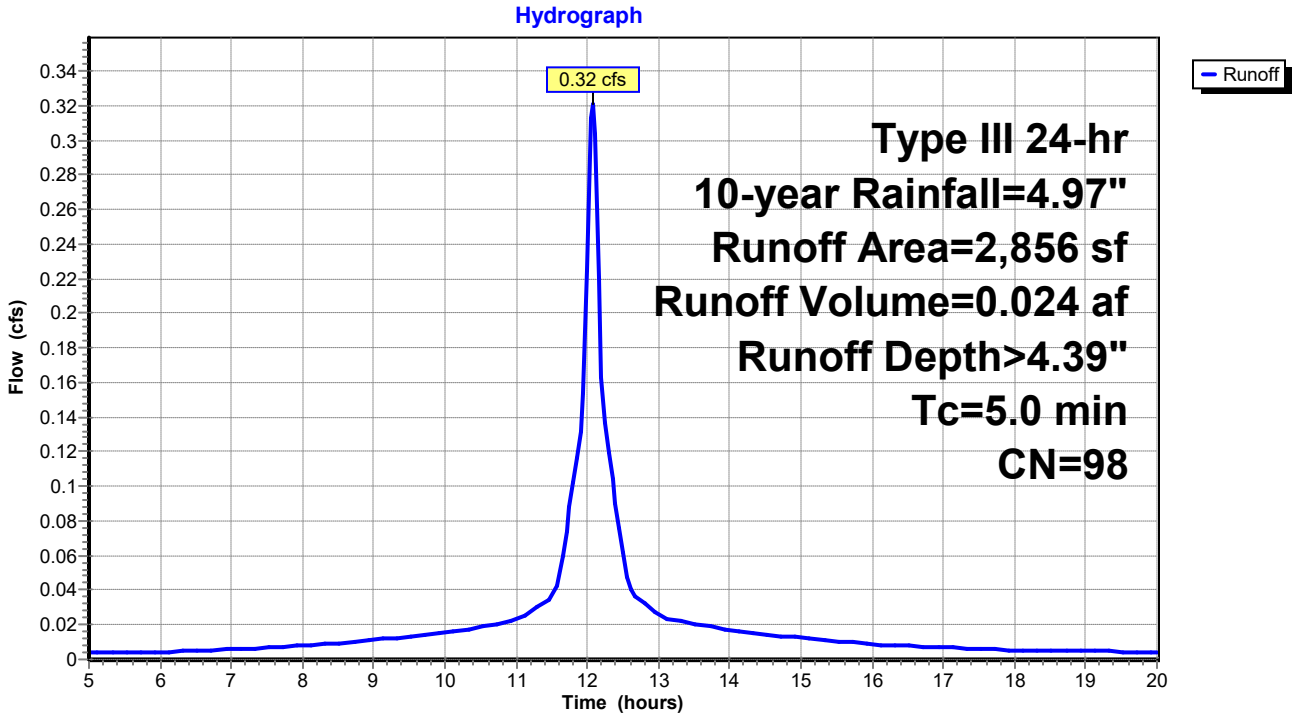
Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 2,856 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,856 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-3: PR-3



## Summary for Subcatchment PR-4: PR-4

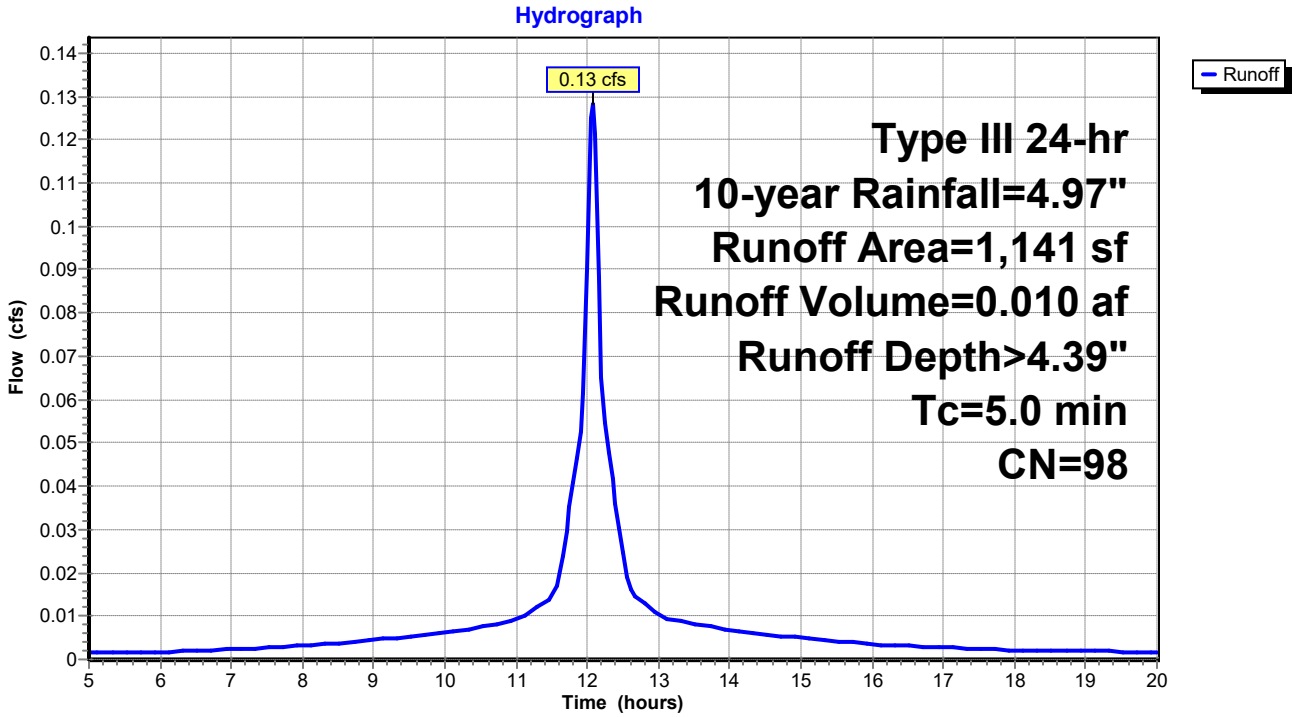
Runoff = 0.13 cfs @ 12.07 hrs, Volume= 0.010 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 1,141 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,141 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-4: PR-4



## Summary for Subcatchment PR-5: PR-5

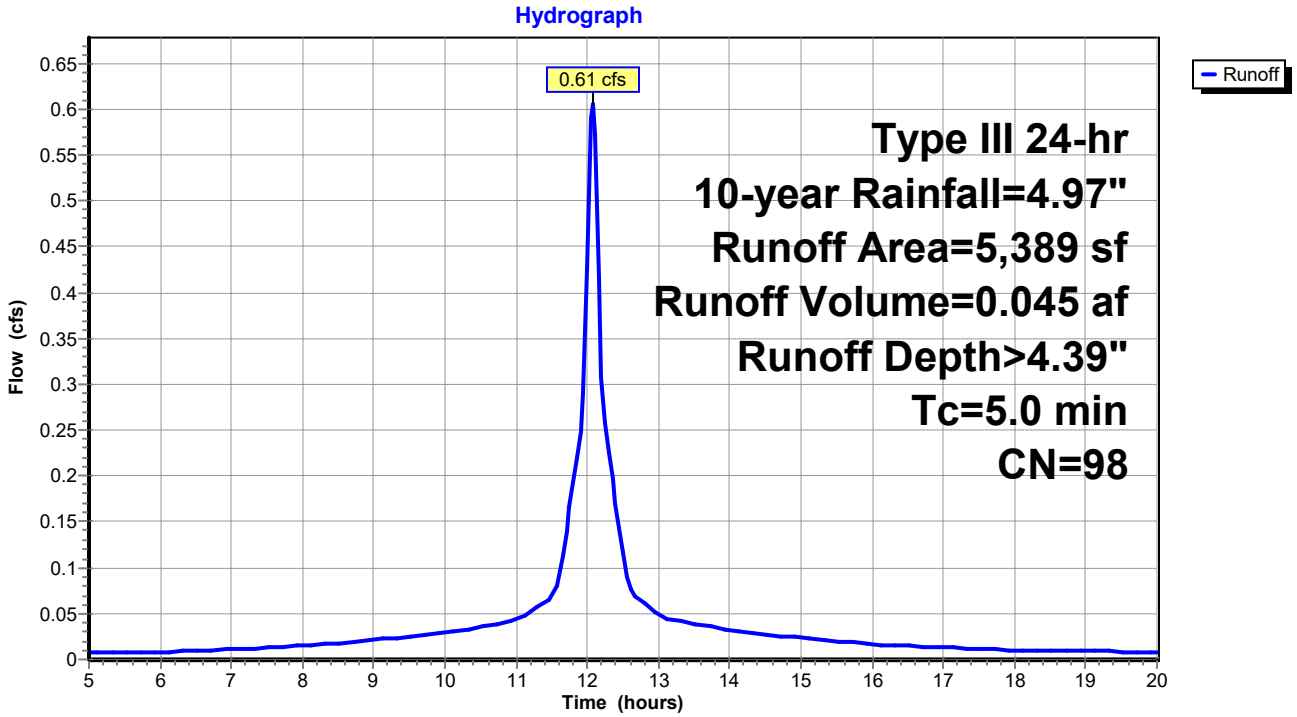
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 5,389 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,389 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-5: PR-5



## Summary for Subcatchment PR-6: PR-6

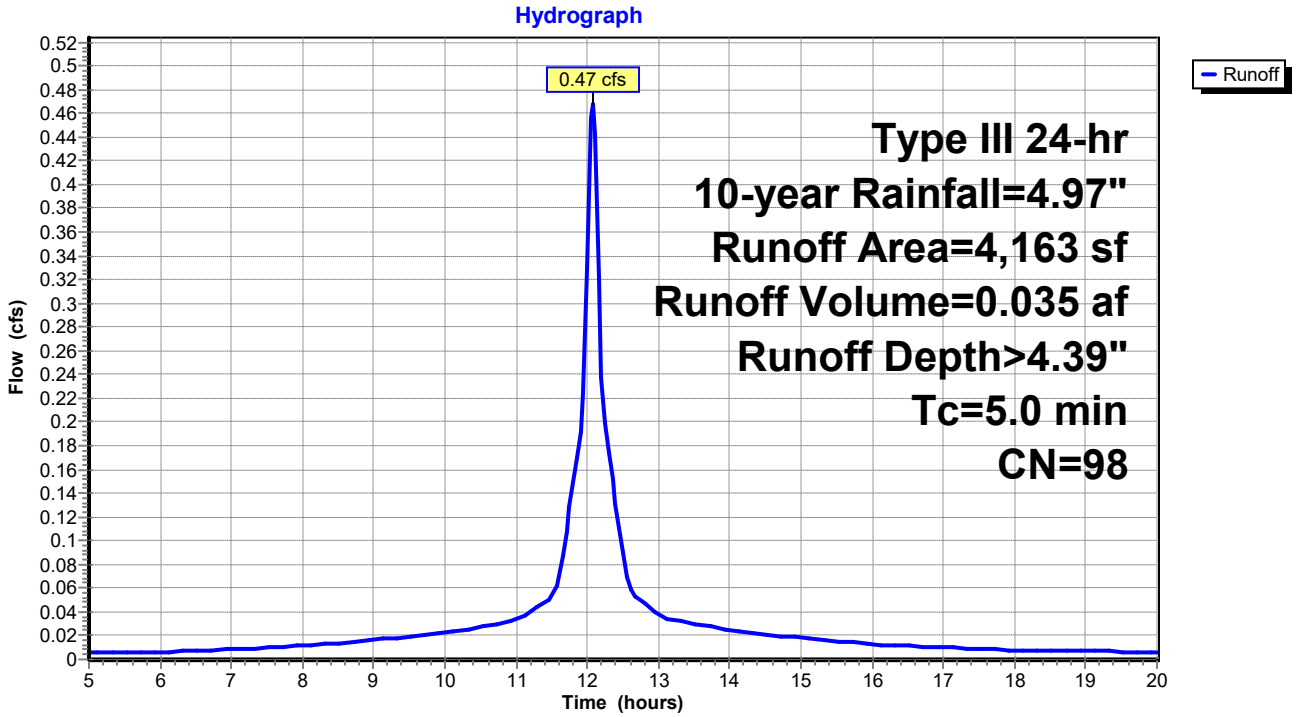
Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.035 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 4,163 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,163 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-6: PR-6



## Summary for Subcatchment PR-7: PR-7

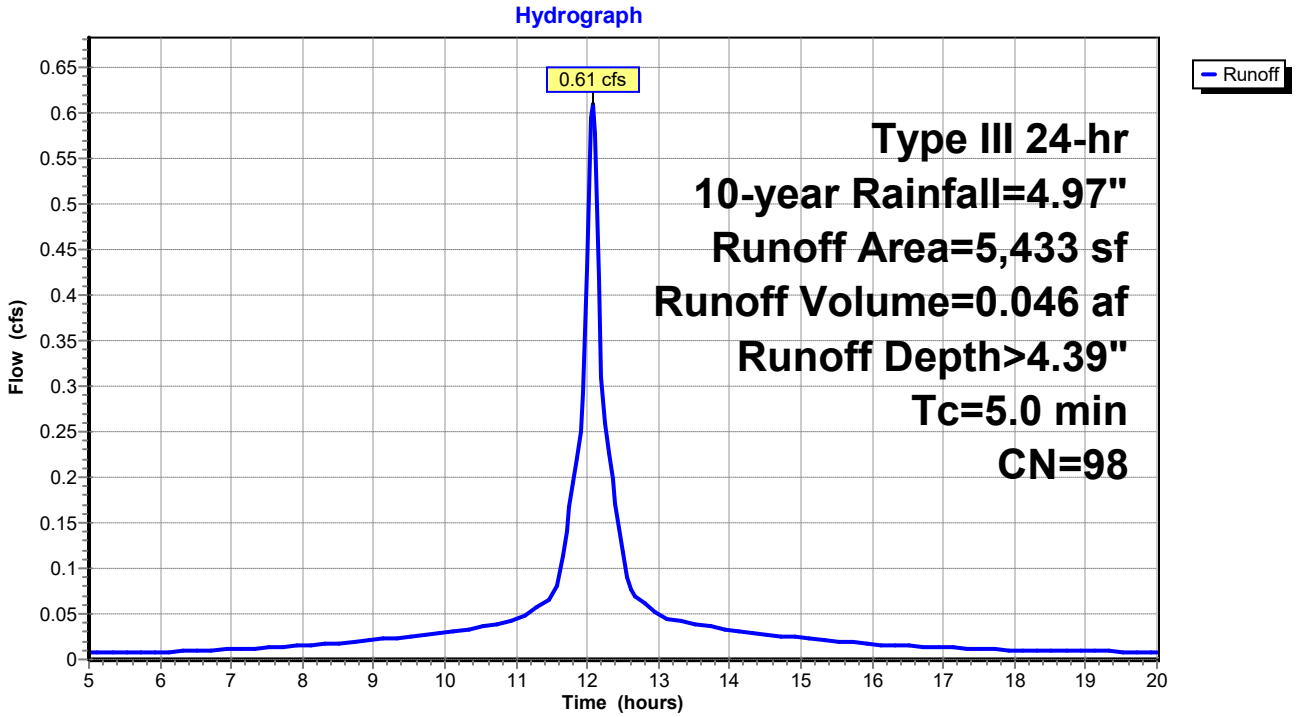
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.046 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 5,433 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,433 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-7: PR-7



## Summary for Subcatchment PR-8: PR-8

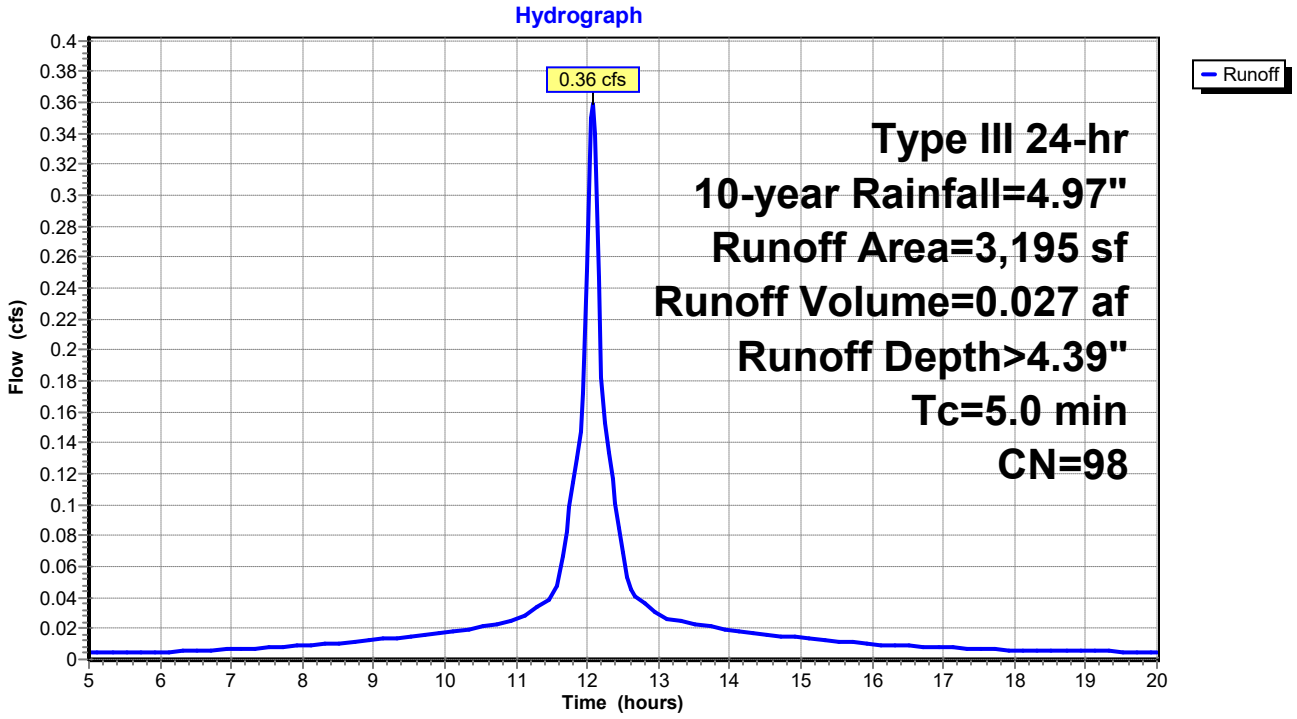
Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 3,195 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,195 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-8: PR-8



## Summary for Subcatchment PR-9: PR-9

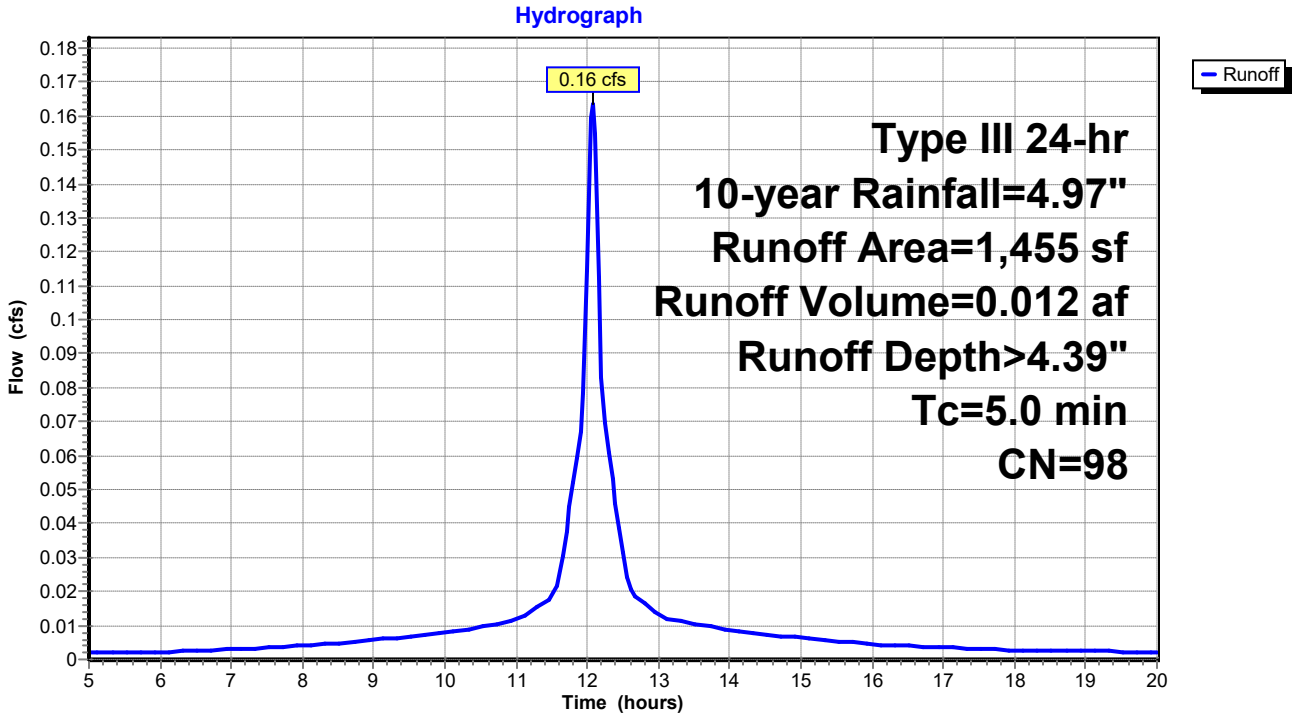
Runoff = 0.16 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 4.39"

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=4.97"

| Area (sf) | CN | Description |
|---|---|---|
| 1,455 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,455 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-9: PR-9

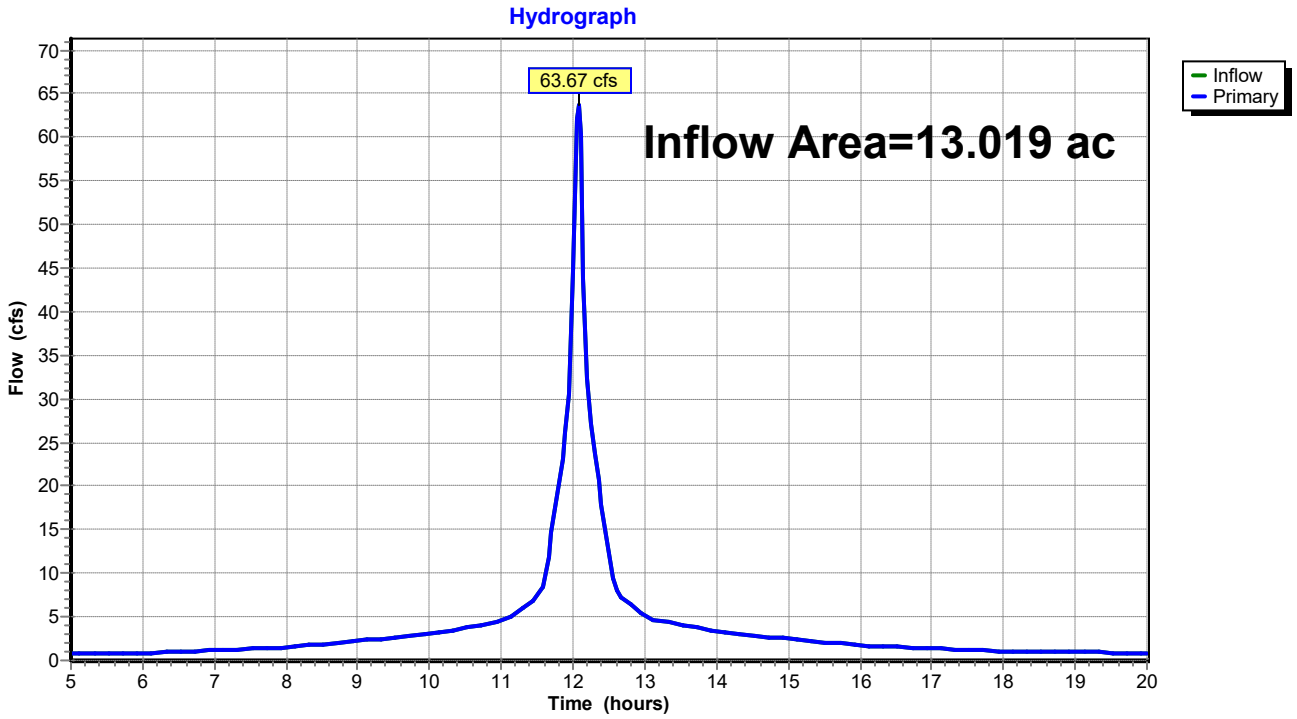


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 97.31% Impervious, Inflow Depth > 4.39" for 10-year event
Inflow = 63.67 cfs @ 12.07 hrs, Volume= 4.758 af
Primary = 63.67 cfs @ 12.07 hrs, Volume= 4.758 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 PR-1: PR-1** Runoff Area=2,026 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.28 cfs 0.021 af

**Subcatchment PR-10: Building** Runoff Area=93,270 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=13.08 cfs 0.982 af

**Subcatchment PR-11: Apron to Hanging** Runoff Area=4,405 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.62 cfs 0.046 af

**Subcatchment PR-12: Public Plaza** Runoff Area=21,260 sf 75.77% Impervious Runoff Depth>5.35"
Tc=5.0 min CN=96 Runoff=2.95 cfs 0.218 af

**Subcatchment PR-13: Proposed Bldg** Runoff Area=405,684 sf 97.51% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=56.88 cfs 4.270 af

**Subcatchment PR-14: Apron to Hanging** Runoff Area=10,825 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=1.52 cfs 0.114 af

**Subcatchment PR-2: PR-2** Runoff Area=6,016 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.84 cfs 0.063 af

**Subcatchment PR-3: PR-3** Runoff Area=2,856 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.030 af

**Subcatchment PR-4: PR-4** Runoff Area=1,141 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.012 af

**Subcatchment PR-5: PR-5** Runoff Area=5,389 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.76 cfs 0.057 af

**Subcatchment PR-6: PR-6** Runoff Area=4,163 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.58 cfs 0.044 af

**Subcatchment PR-7: PR-7** Runoff Area=5,433 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.76 cfs 0.057 af

**Subcatchment PR-8: PR-8** Runoff Area=3,195 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.45 cfs 0.034 af

**Subcatchment PR-9: PR-9** Runoff Area=1,455 sf 100.00% Impervious Runoff Depth>5.50"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.015 af

**Link DP-1: Boston Harbor** Inflow=79.48 cfs 5.963 af
Primary=79.48 cfs 5.963 af

**Total Runoff Area = 13.019 ac Runoff Volume = 5.963 af Average Runoff Depth = 5.50"**
**2.69% Pervious = 0.350 ac 97.31% Impervious = 12.670 ac**

## Summary for Subcatchment PR-1: PR-1

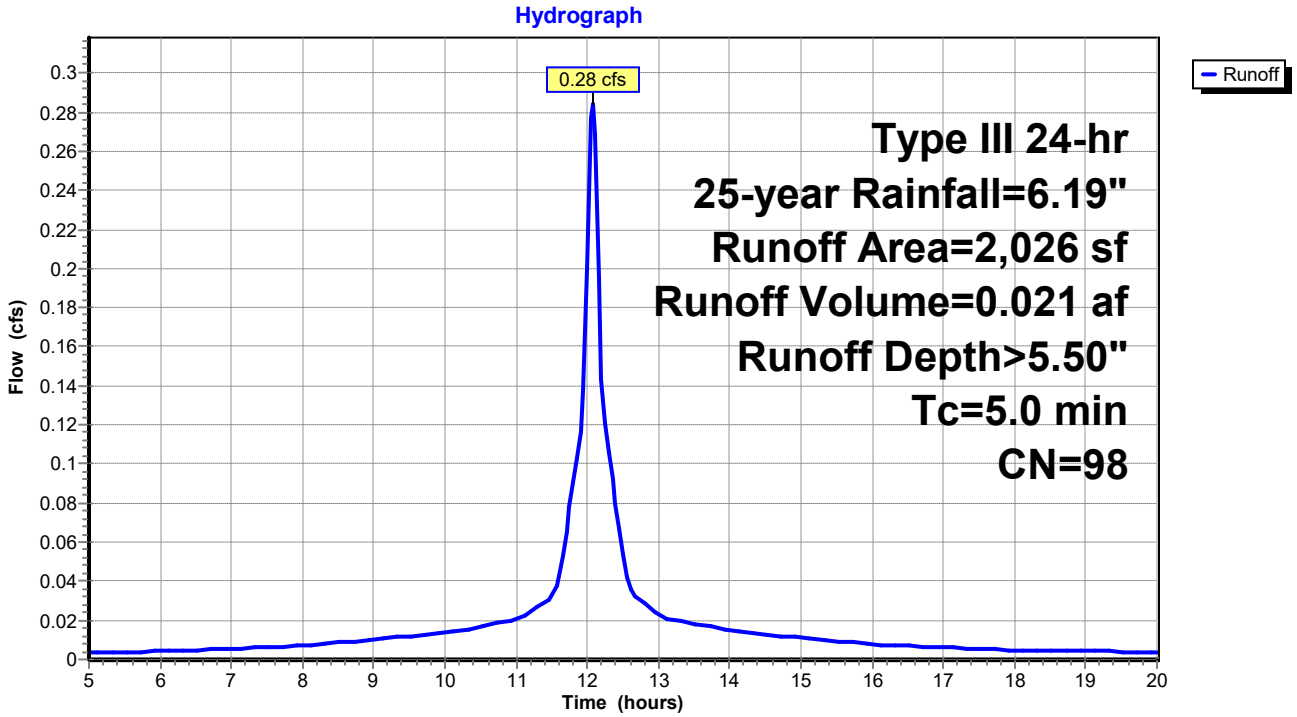
Runoff = 0.28 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 2,026 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,026 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-1: PR-1



## Summary for Subcatchment PR-10: Building Apron/Dock

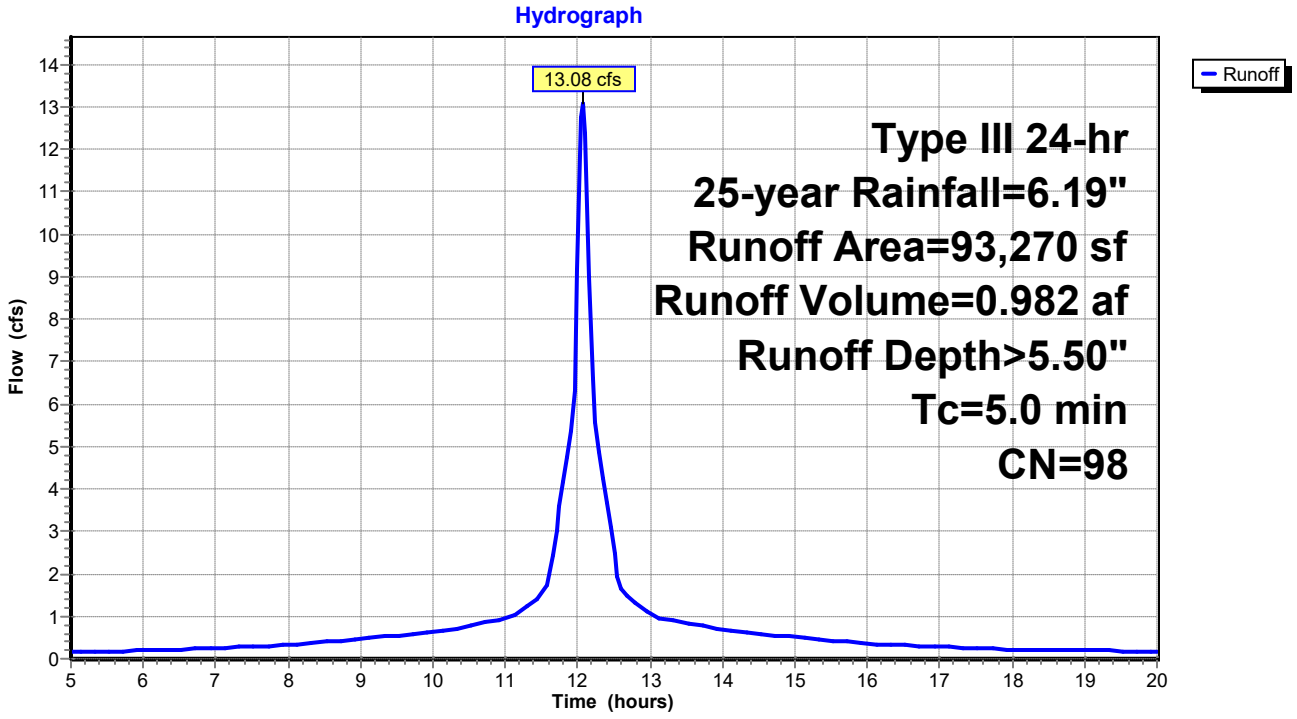
Runoff = 13.08 cfs @ 12.07 hrs, Volume= 0.982 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 43,144 | 98 | Unconnected pavement, HSG D |
| 50,126 | 98 | Water Surface, HSG D |
| 93,270 | 98 | Weighted Average |
| 93,270 | | 100.00% Impervious Area |
| 43,144 | | 46.26% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-10: Building Apron/Dock



## Summary for Subcatchment PR-11: Apron to Hanging Drains

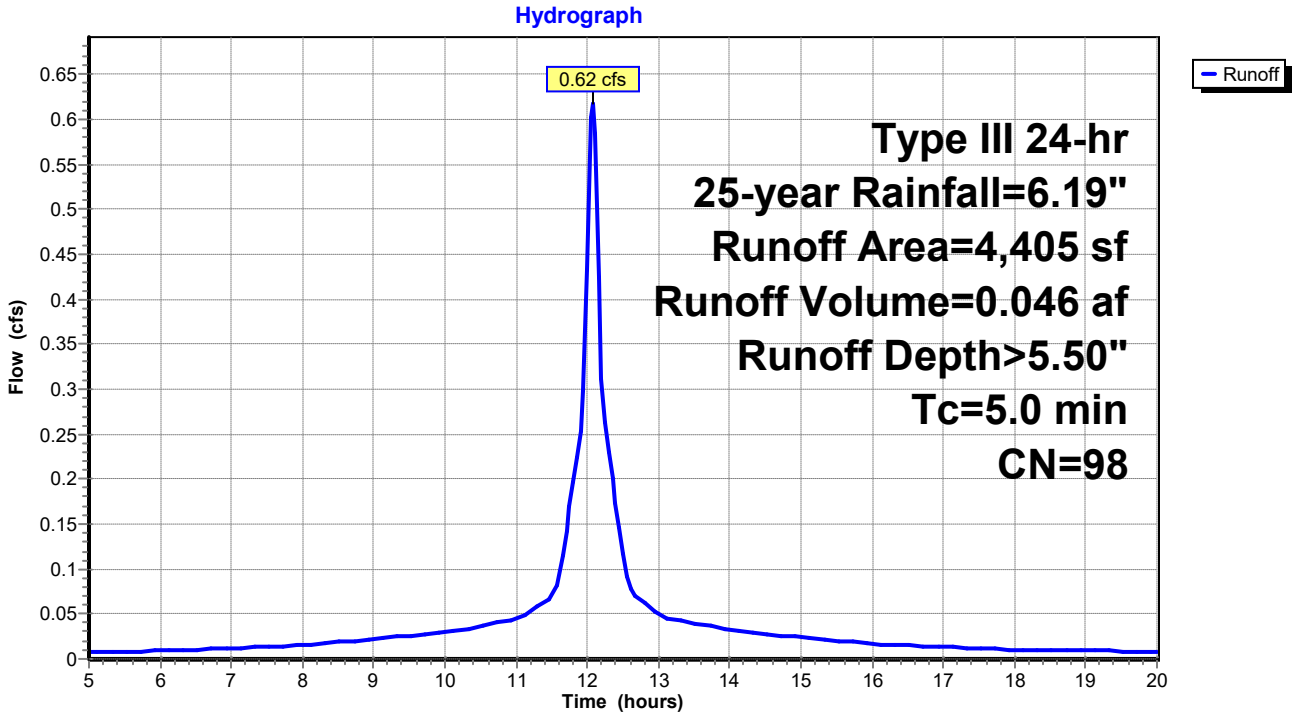
Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.046 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 4,405 | 98 | Unconnected pavement, HSG D |
| 4,405 | | 100.00% Impervious Area |
| 4,405 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-11: Apron to Hanging Drains



## Summary for Subcatchment PR-12: Public Plaza

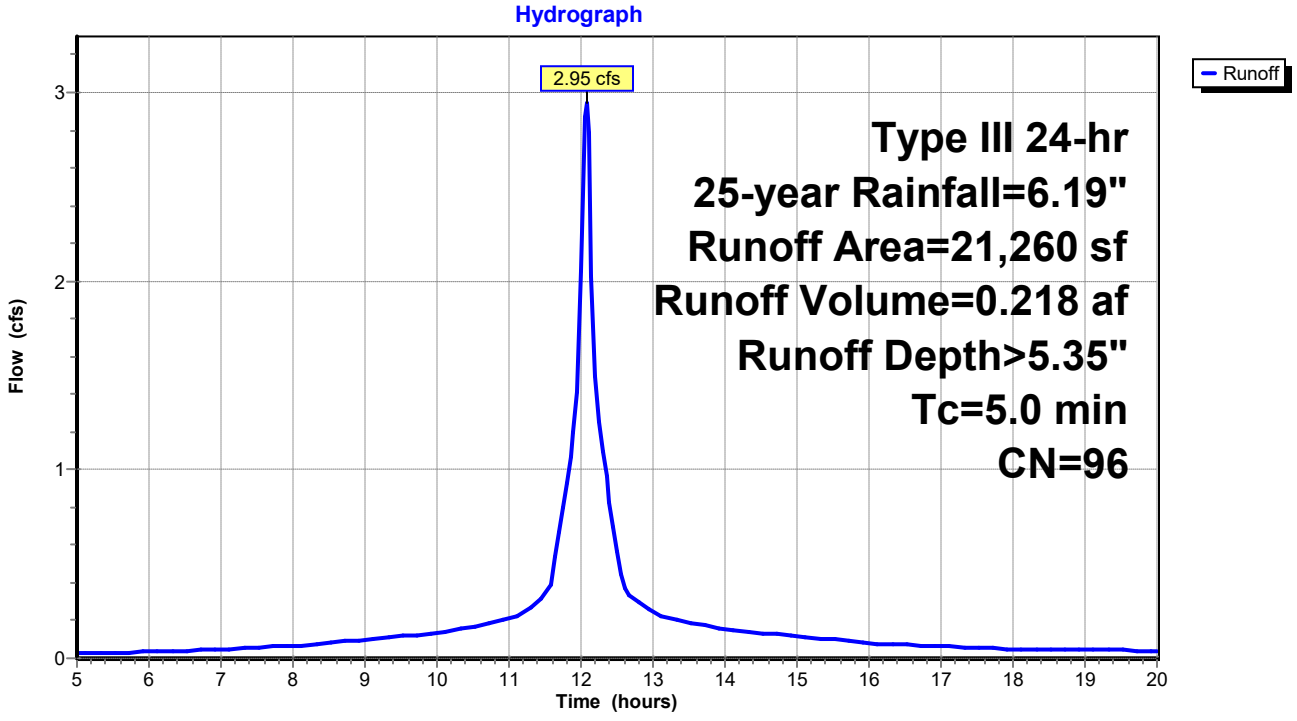
Runoff = 2.95 cfs @ 12.07 hrs, Volume= 0.218 af, Depth> 5.35"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 16,108 | 98 | Unconnected pavement, HSG D |
| 5,152 | 89 | <50% Grass cover, Poor, HSG D |
| 21,260 | 96 | Weighted Average |
| 5,152 | | 24.23% Pervious Area |
| 16,108 | | 75.77% Impervious Area |
| 16,108 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-12: Public Plaza



## Summary for Subcatchment PR-13: Proposed Bldg

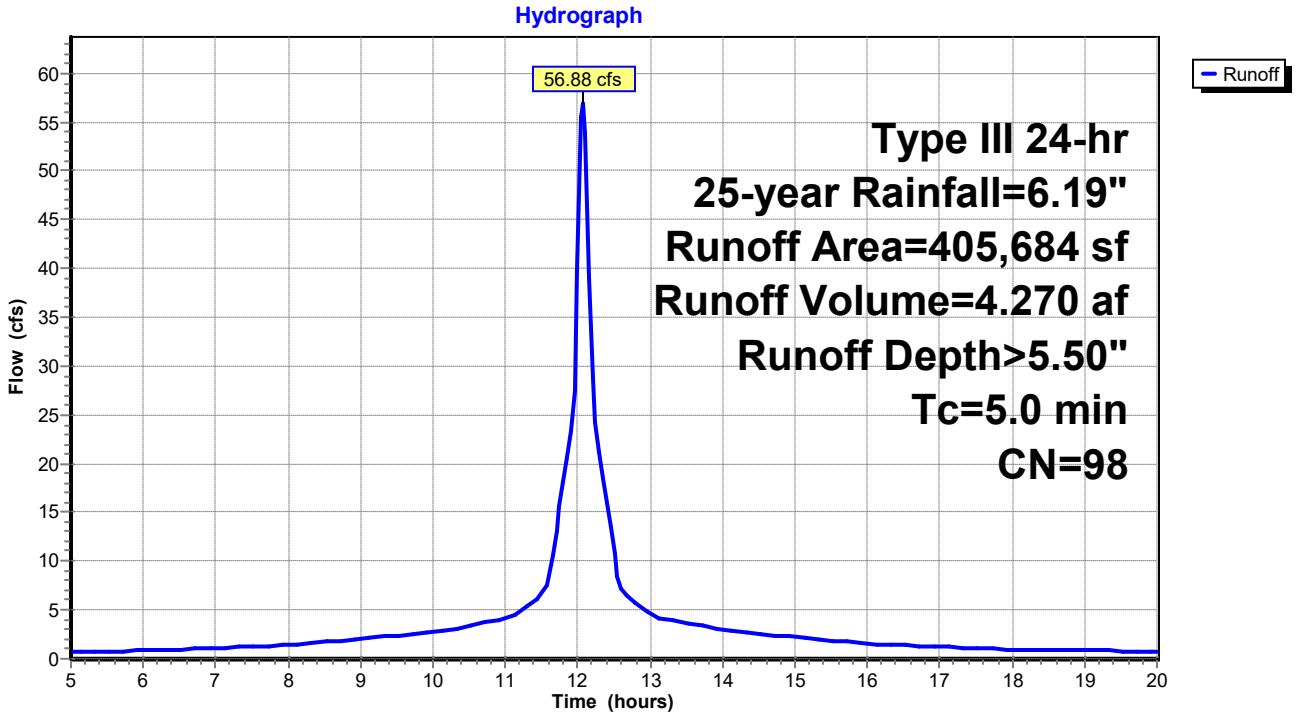
Runoff = 56.88 cfs @ 12.07 hrs, Volume= 4.270 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 395,602 | 98 | Roofs, HSG D |
| 10,082 | 89 | <50% Grass cover, Poor, HSG D |
| 405,684 | 98 | Weighted Average |
| 10,082 | | 2.49% Pervious Area |
| 395,602 | | 97.51% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-13: Proposed Bldg



## Summary for Subcatchment PR-14: Apron to Hanging Drains

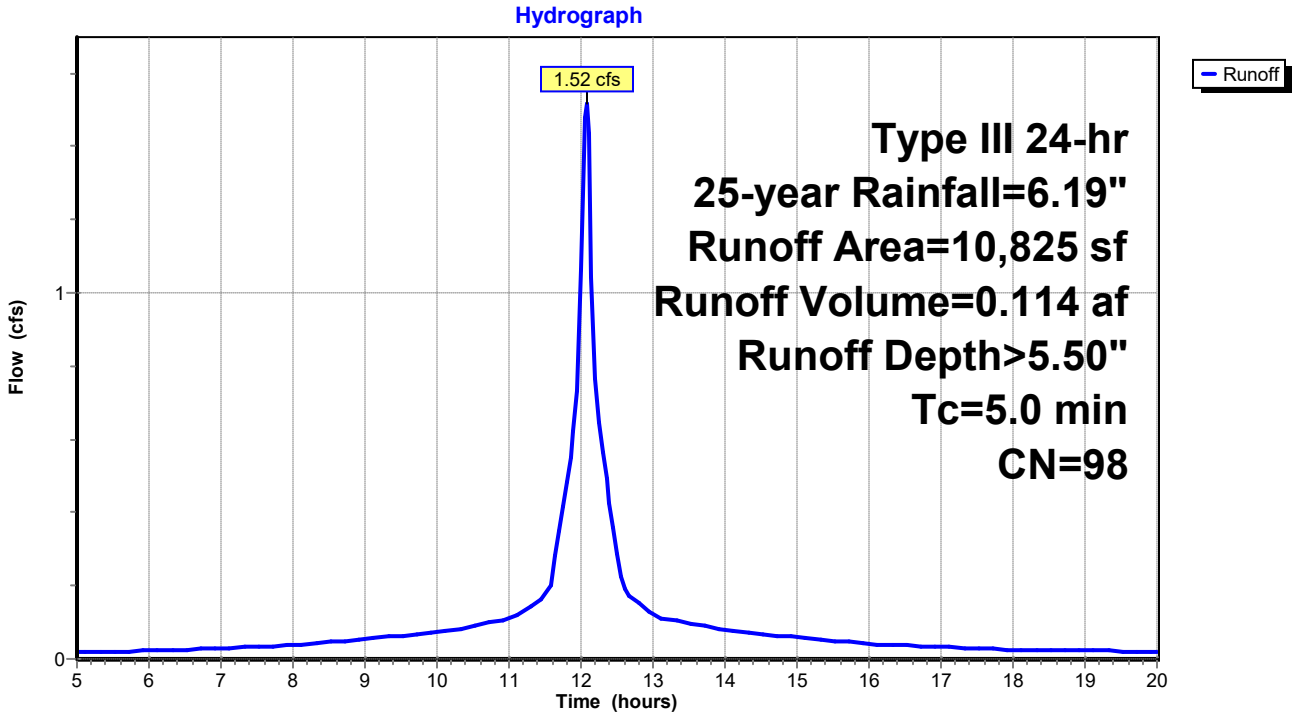
Runoff = 1.52 cfs @ 12.07 hrs, Volume= 0.114 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 10,825 | 98 | Unconnected pavement, HSG D |
| 10,825 | | 100.00% Impervious Area |
| 10,825 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

### Subcatchment PR-14: Apron to Hanging Drains



## Summary for Subcatchment PR-2: PR-2

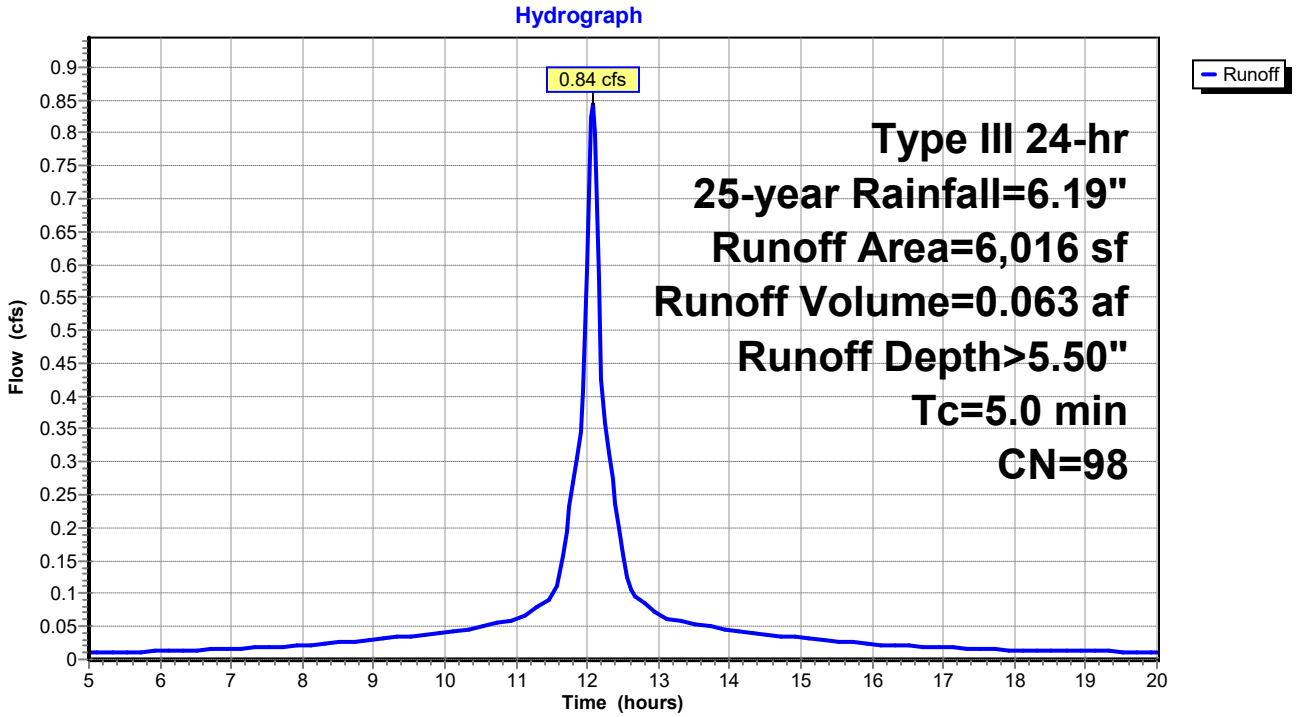
Runoff = 0.84 cfs @ 12.07 hrs, Volume= 0.063 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 6,016 | 98 | Paved roads w/curbs & sewers, HSG D |
| 6,016 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-2: PR-2



## Summary for Subcatchment PR-3: PR-3

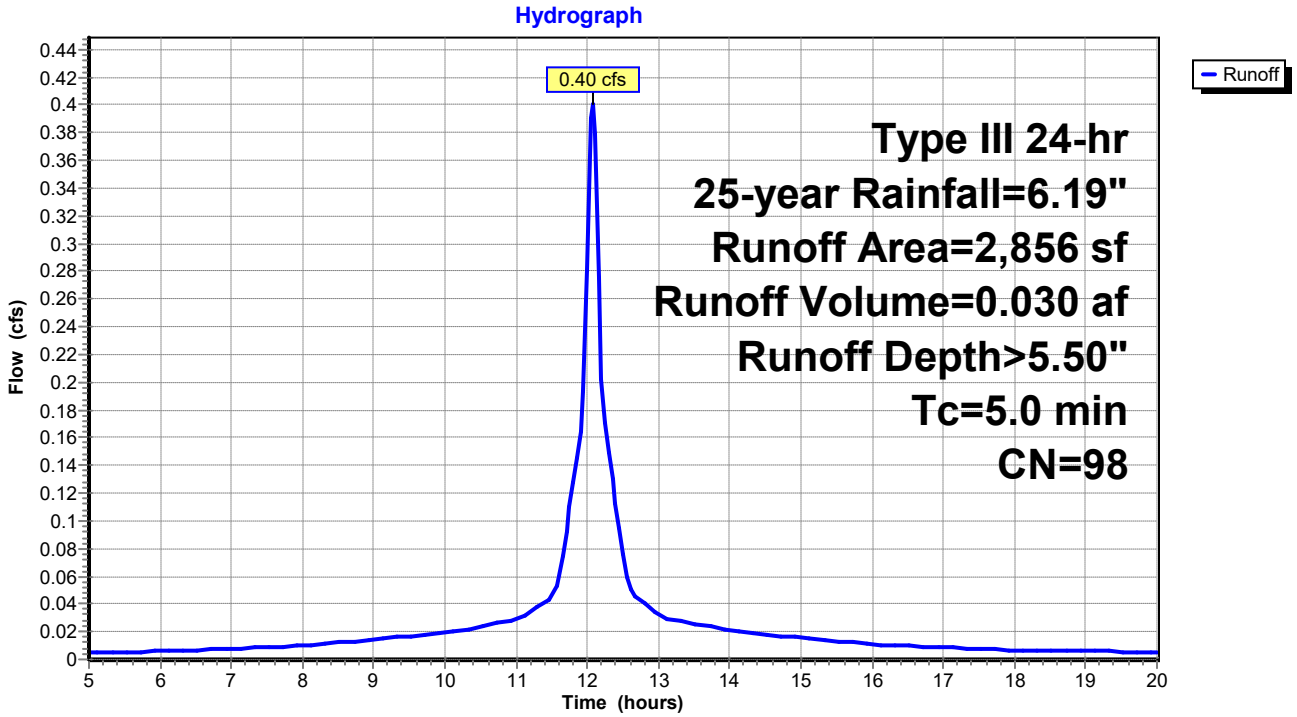
Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 2,856 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,856 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-3: PR-3



## Summary for Subcatchment PR-4: PR-4

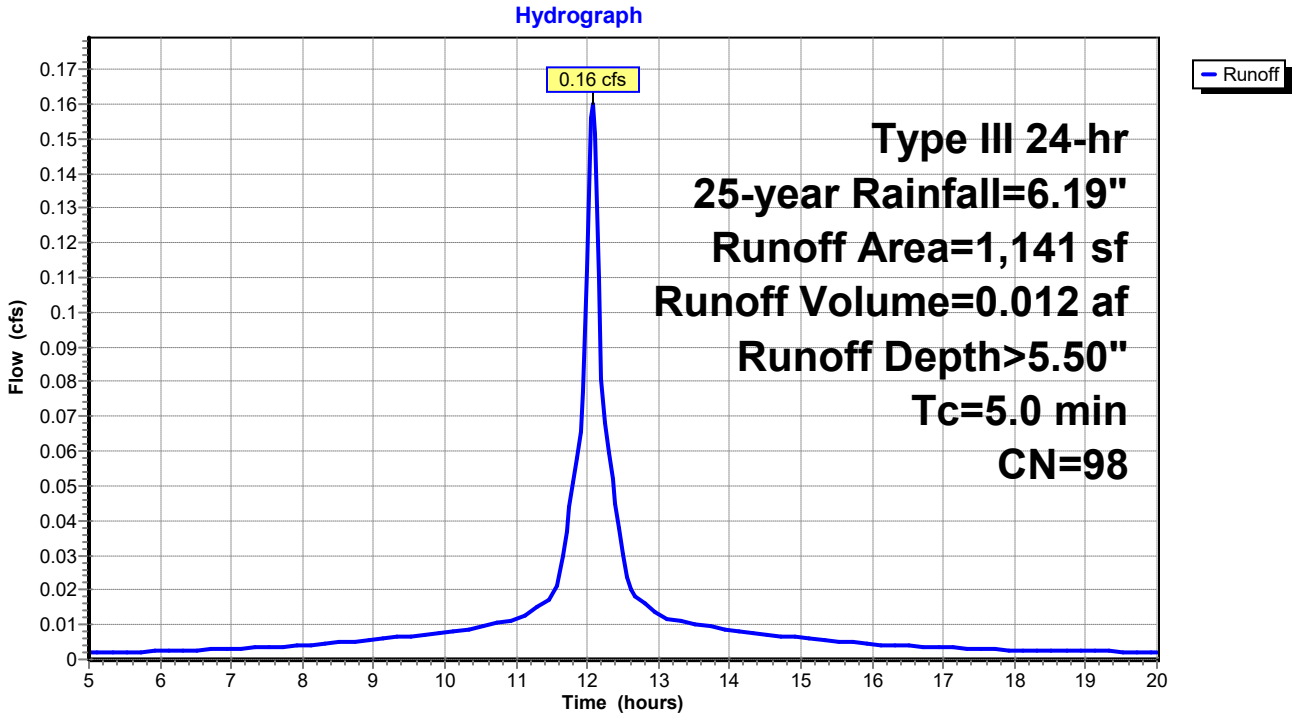
Runoff = 0.16 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 1,141 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,141 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-4: PR-4



## Summary for Subcatchment PR-5: PR-5

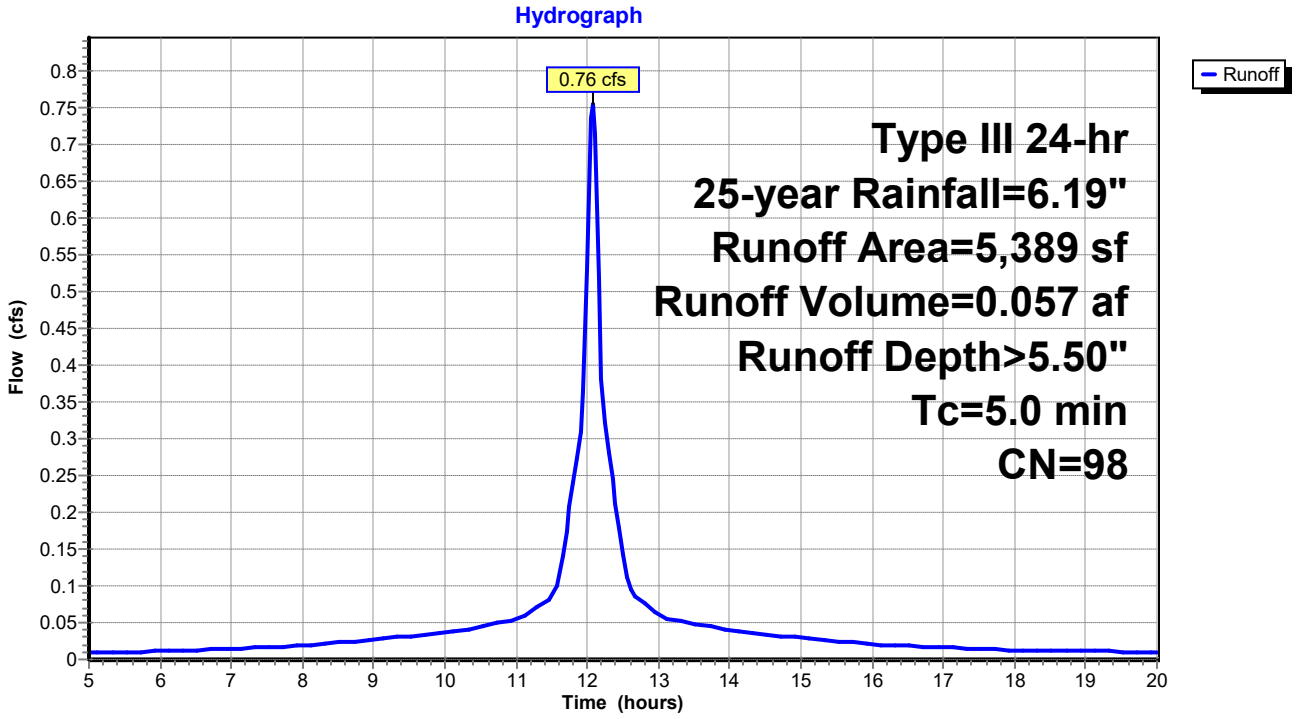
Runoff = 0.76 cfs @ 12.07 hrs, Volume= 0.057 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 5,389 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,389 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-5: PR-5



## Summary for Subcatchment PR-6: PR-6

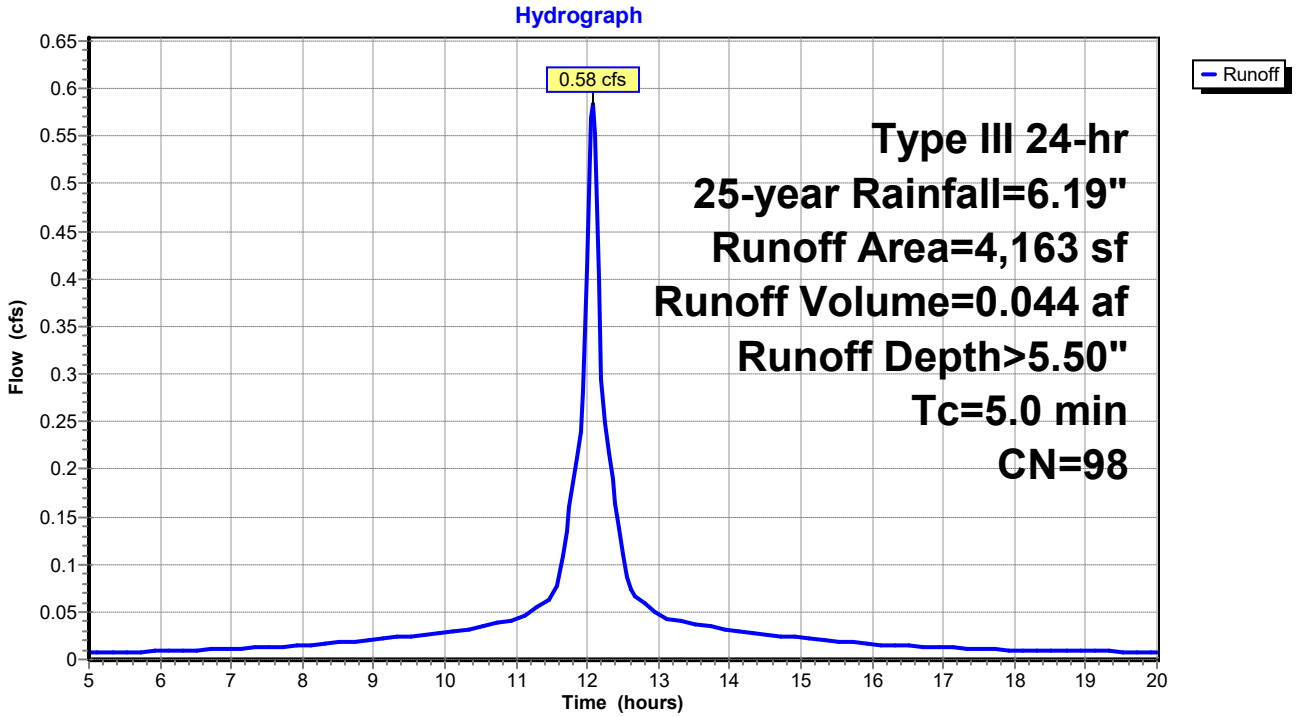
Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.044 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 4,163 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,163 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-6: PR-6



## Summary for Subcatchment PR-7: PR-7

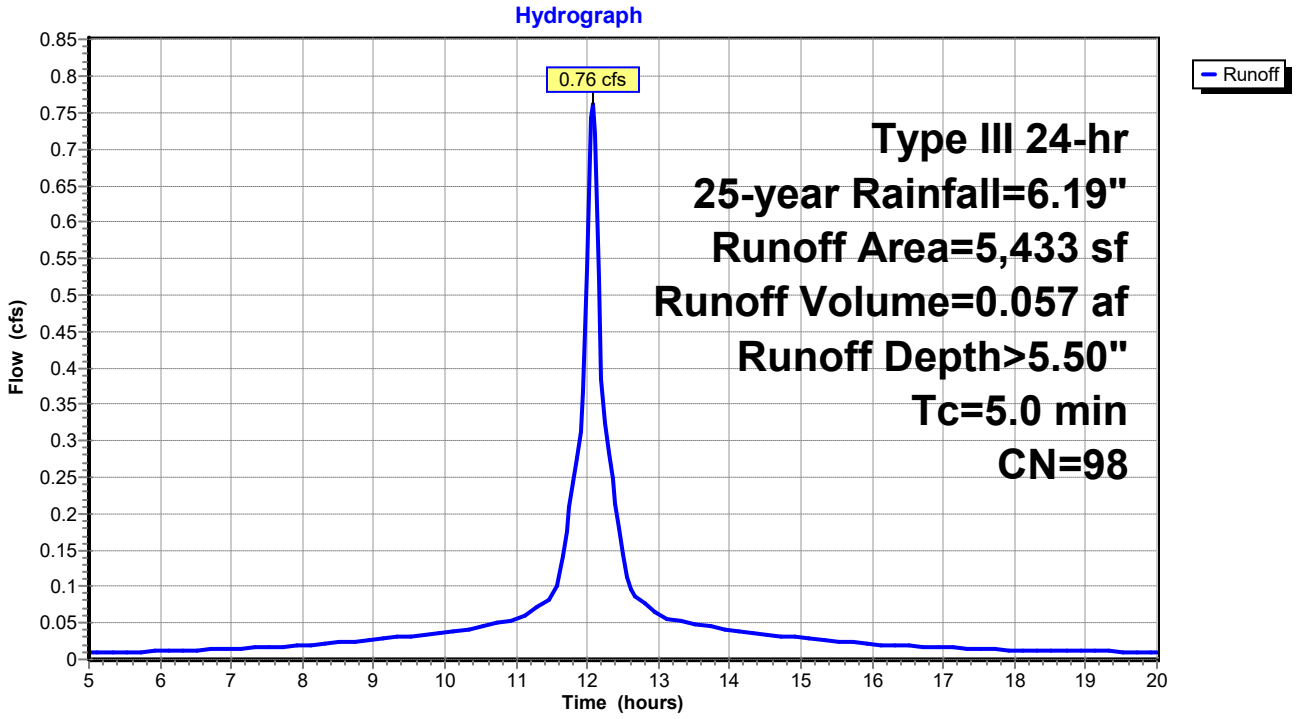
Runoff = 0.76 cfs @ 12.07 hrs, Volume= 0.057 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 5,433 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,433 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-7: PR-7



## Summary for Subcatchment PR-8: PR-8

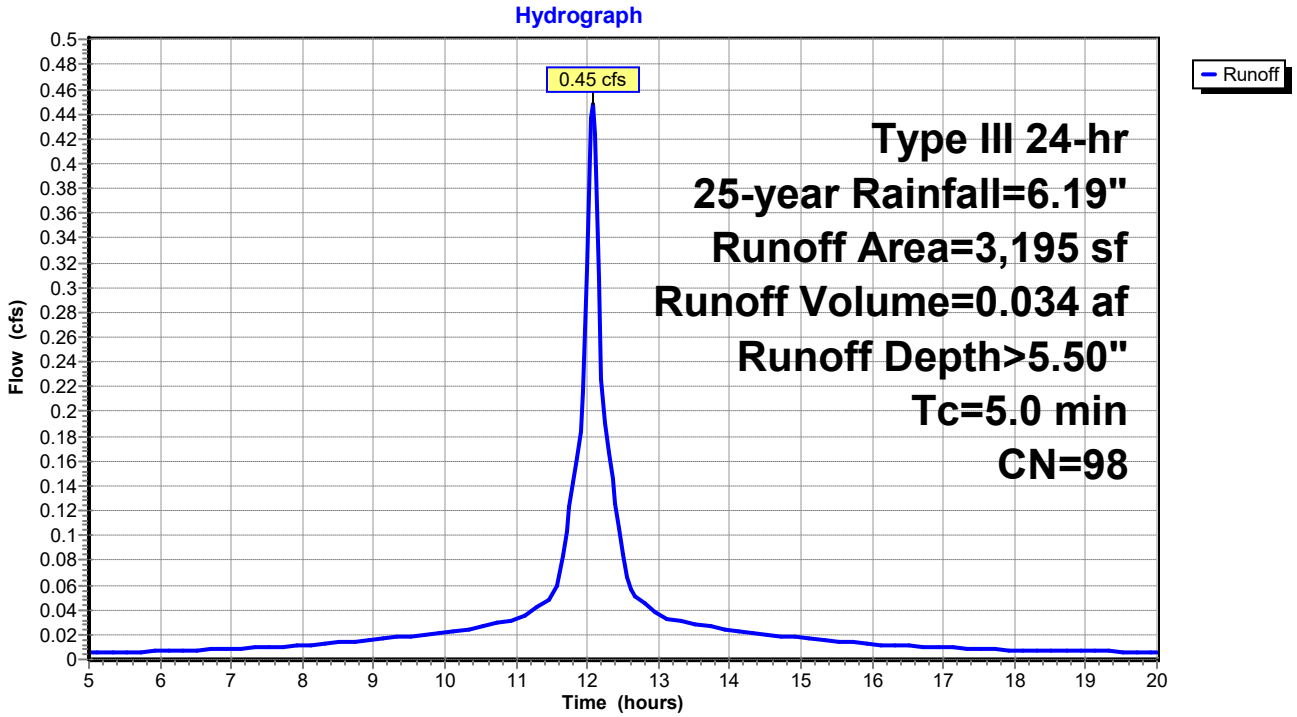
Runoff = 0.45 cfs @ 12.07 hrs, Volume= 0.034 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 3,195 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,195 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-8: PR-8



## Summary for Subcatchment PR-9: PR-9

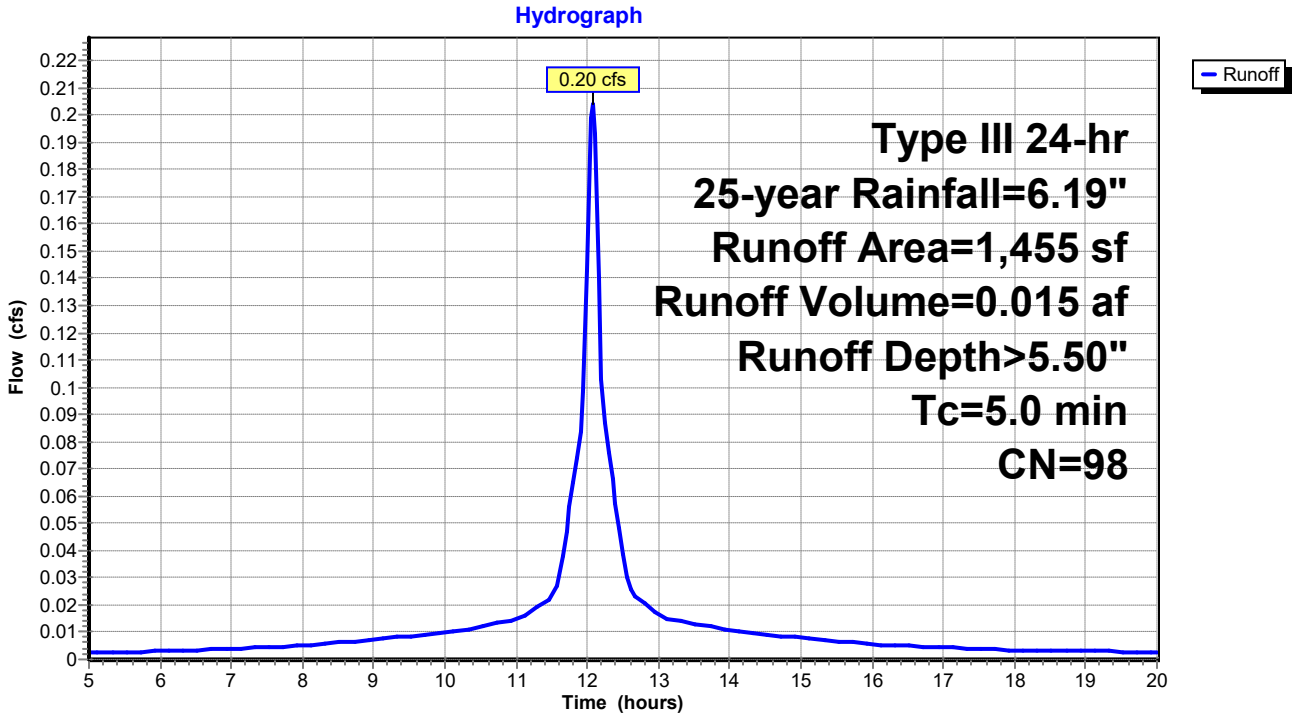
Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 5.50"

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=6.19"

| Area (sf) | CN | Description |
|---|---|---|
| 1,455 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,455 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-9: PR-9

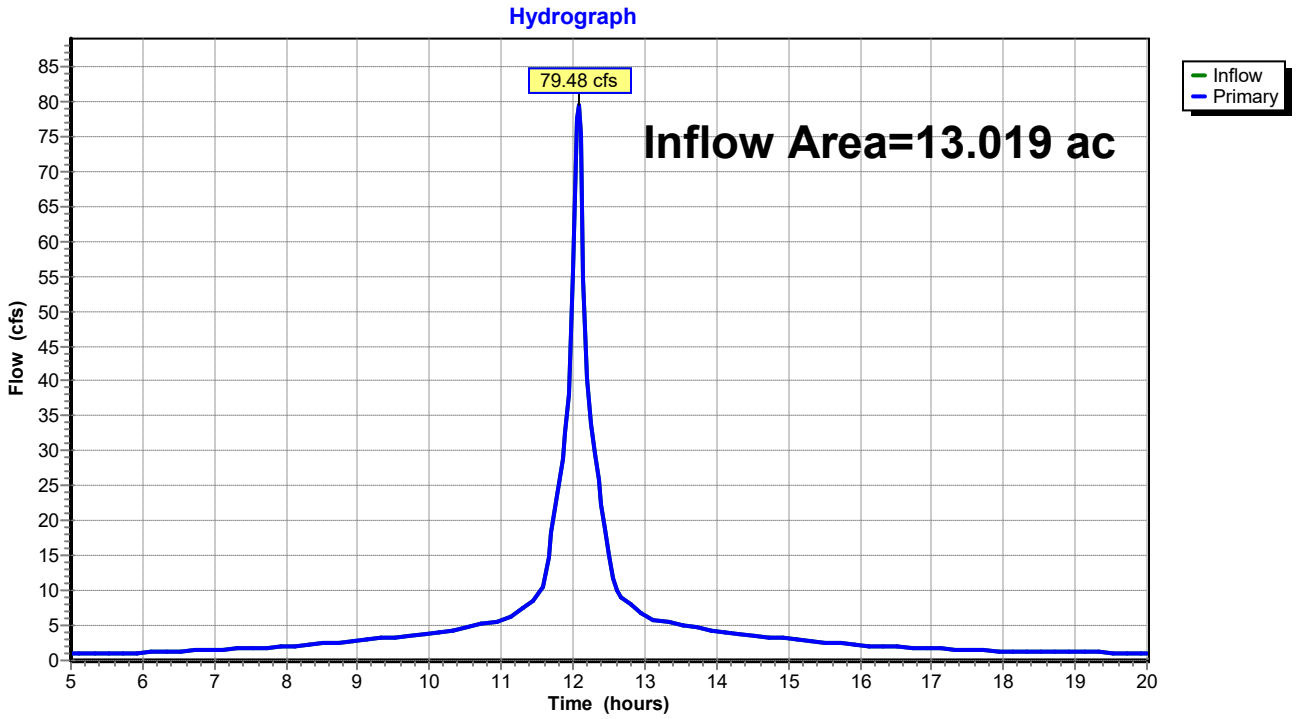


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 97.31% Impervious, Inflow Depth > 5.50" for 25-year event
Inflow = 79.48 cfs @ 12.07 hrs, Volume= 5.963 af
Primary = 79.48 cfs @ 12.07 hrs, Volume= 5.963 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



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 PR-1: PR-1** Runoff Area=2,026 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.36 cfs 0.027 af

**Subcatchment PR-10: Building** Runoff Area=93,270 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=16.67 cfs 1.255 af

**Subcatchment PR-11: Apron to Hanging** Runoff Area=4,405 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.79 cfs 0.059 af

**Subcatchment PR-12: Public Plaza** Runoff Area=21,260 sf 75.77% Impervious Runoff Depth>6.90"
Tc=5.0 min CN=96 Runoff=3.77 cfs 0.280 af

**Subcatchment PR-13: Proposed Bldg** Runoff Area=405,684 sf 97.51% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=72.52 cfs 5.461 af

**Subcatchment PR-14: Apron to Hanging** Runoff Area=10,825 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=1.93 cfs 0.146 af

**Subcatchment PR-2: PR-2** Runoff Area=6,016 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=1.08 cfs 0.081 af

**Subcatchment PR-3: PR-3** Runoff Area=2,856 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.038 af

**Subcatchment PR-4: PR-4** Runoff Area=1,141 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.20 cfs 0.015 af

**Subcatchment PR-5: PR-5** Runoff Area=5,389 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.96 cfs 0.073 af

**Subcatchment PR-6: PR-6** Runoff Area=4,163 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.74 cfs 0.056 af

**Subcatchment PR-7: PR-7** Runoff Area=5,433 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.97 cfs 0.073 af

**Subcatchment PR-8: PR-8** Runoff Area=3,195 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.57 cfs 0.043 af

**Subcatchment PR-9: PR-9** Runoff Area=1,455 sf 100.00% Impervious Runoff Depth>7.04"
Tc=5.0 min CN=98 Runoff=0.26 cfs 0.020 af

**Link DP-1: Boston Harbor** Inflow=101.34 cfs 7.628 af
Primary=101.34 cfs 7.628 af

**Total Runoff Area = 13.019 ac Runoff Volume = 7.628 af Average Runoff Depth = 7.03"**
**2.69% Pervious = 0.350 ac 97.31% Impervious = 12.670 ac**

## Summary for Subcatchment PR-1: PR-1

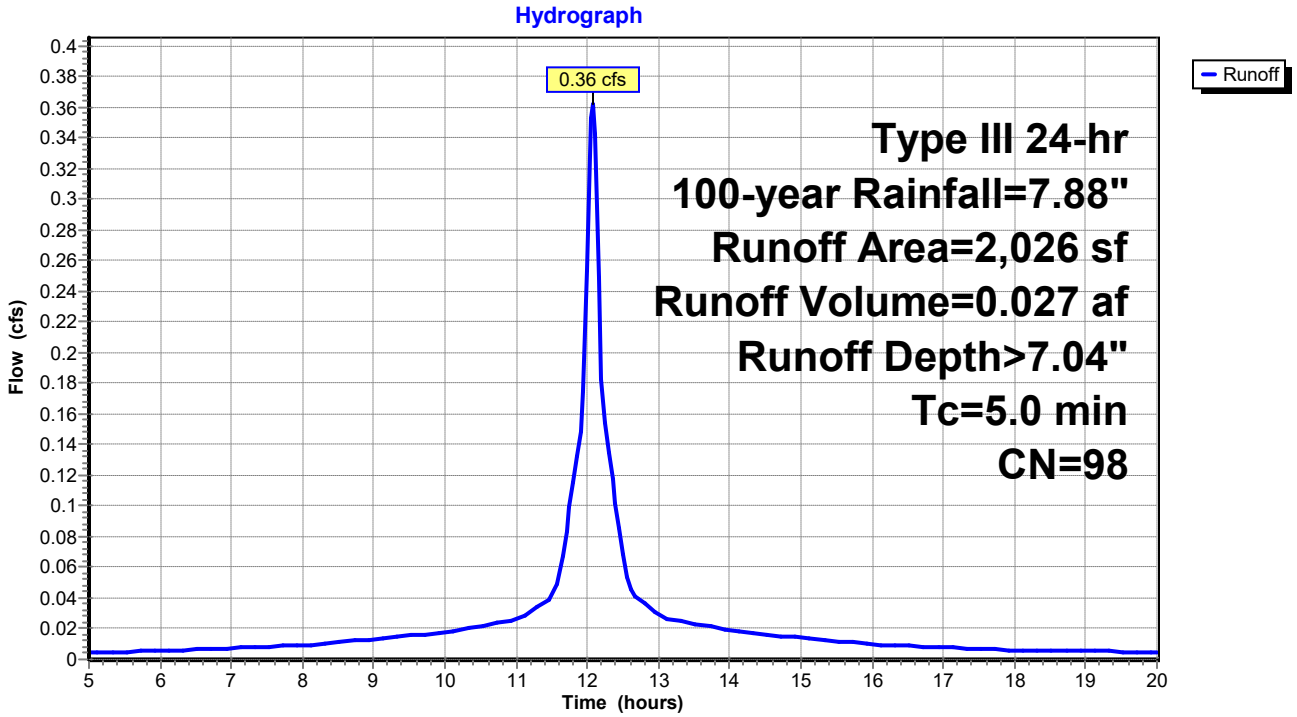
Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 2,026 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,026 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-1: PR-1



## Summary for Subcatchment PR-10: Building Apron/Dock

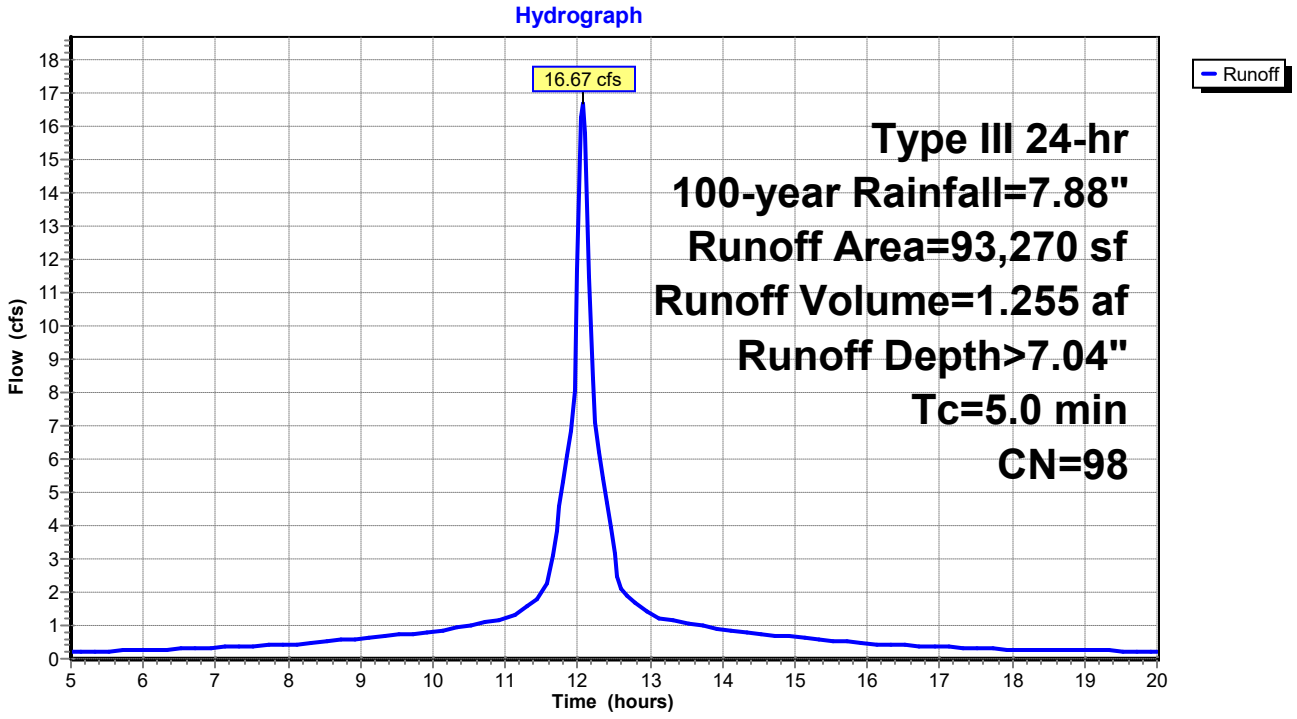
Runoff = 16.67 cfs @ 12.07 hrs, Volume= 1.255 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 43,144 | 98 | Unconnected pavement, HSG D |
| 50,126 | 98 | Water Surface, HSG D |
| 93,270 | 98 | Weighted Average |
| 93,270 | | 100.00% Impervious Area |
| 43,144 | | 46.26% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-10: Building Apron/Dock



## Summary for Subcatchment PR-11: Apron to Hanging Drains

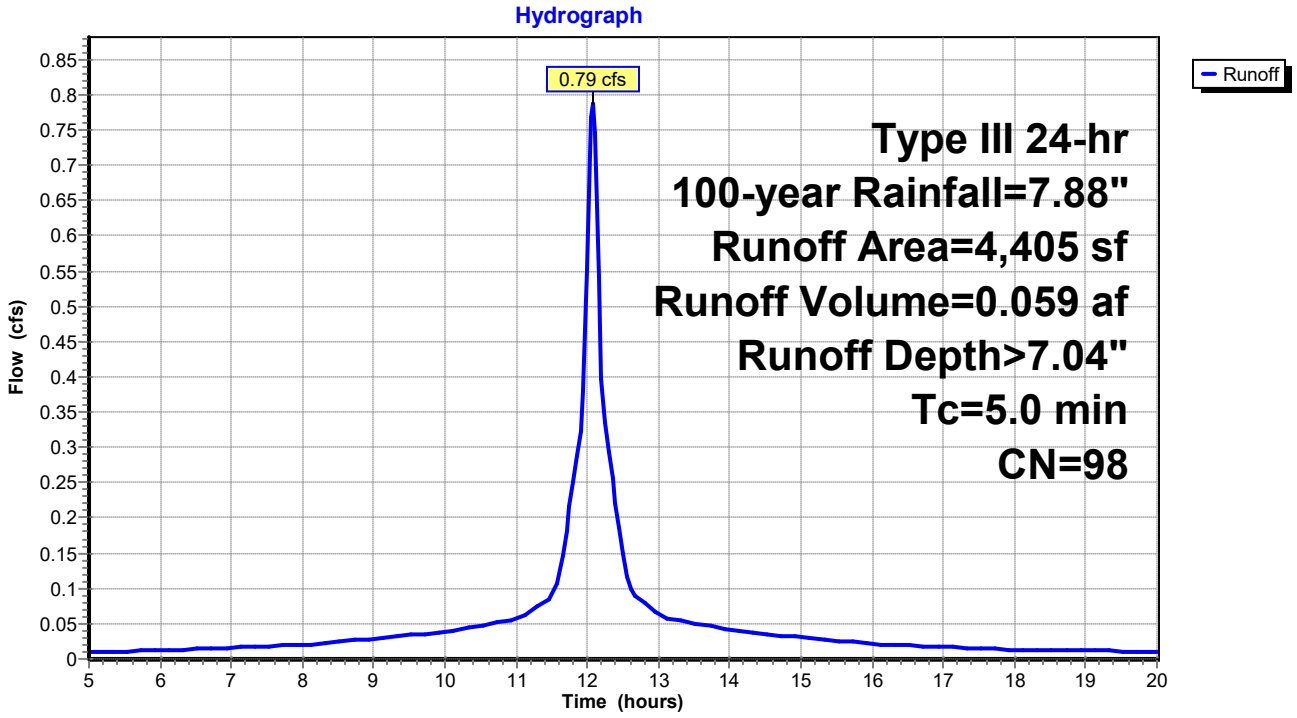
Runoff = 0.79 cfs @ 12.07 hrs, Volume= 0.059 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 4,405 | 98 | Unconnected pavement, HSG D |
| 4,405 | | 100.00% Impervious Area |
| 4,405 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-11: Apron to Hanging Drains



## Summary for Subcatchment PR-12: Public Plaza

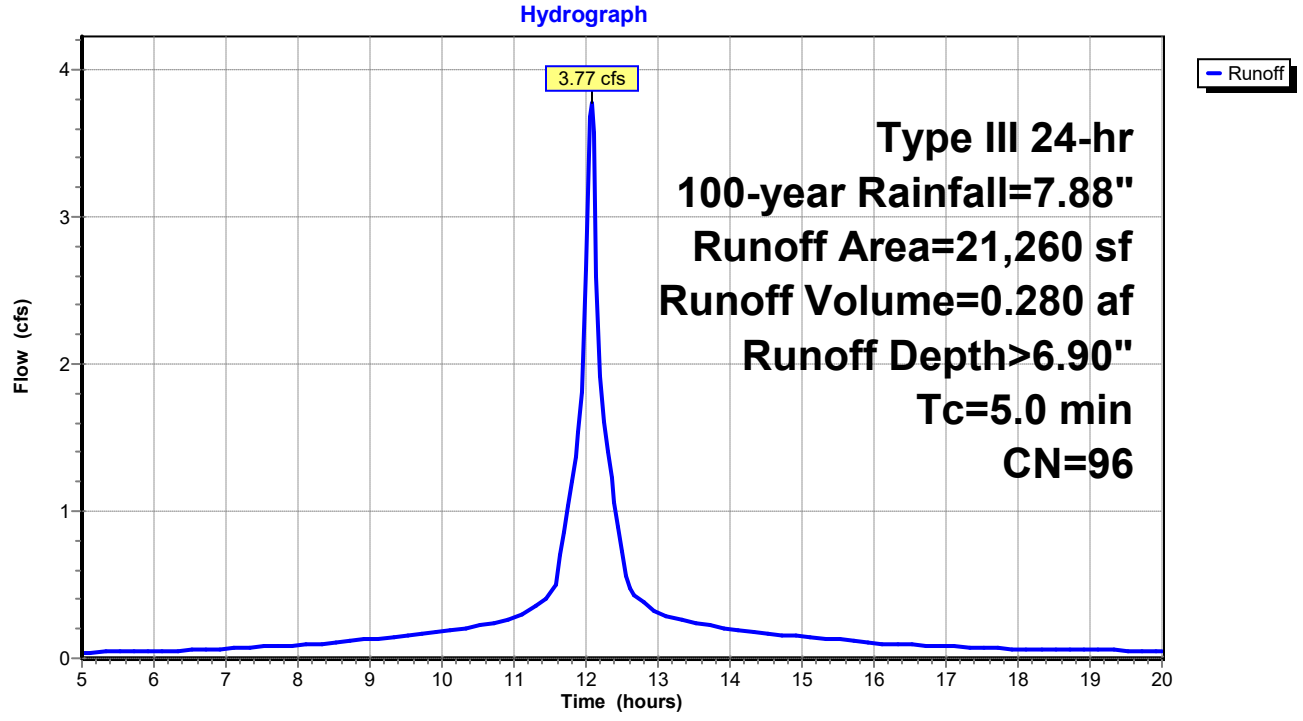
Runoff = 3.77 cfs @ 12.07 hrs, Volume= 0.280 af, Depth> 6.90"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 16,108 | 98 | Unconnected pavement, HSG D |
| 5,152 | 89 | <50% Grass cover, Poor, HSG D |
| 21,260 | 96 | Weighted Average |
| 5,152 | | 24.23% Pervious Area |
| 16,108 | | 75.77% Impervious Area |
| 16,108 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-12: Public Plaza



## Summary for Subcatchment PR-13: Proposed Bldg

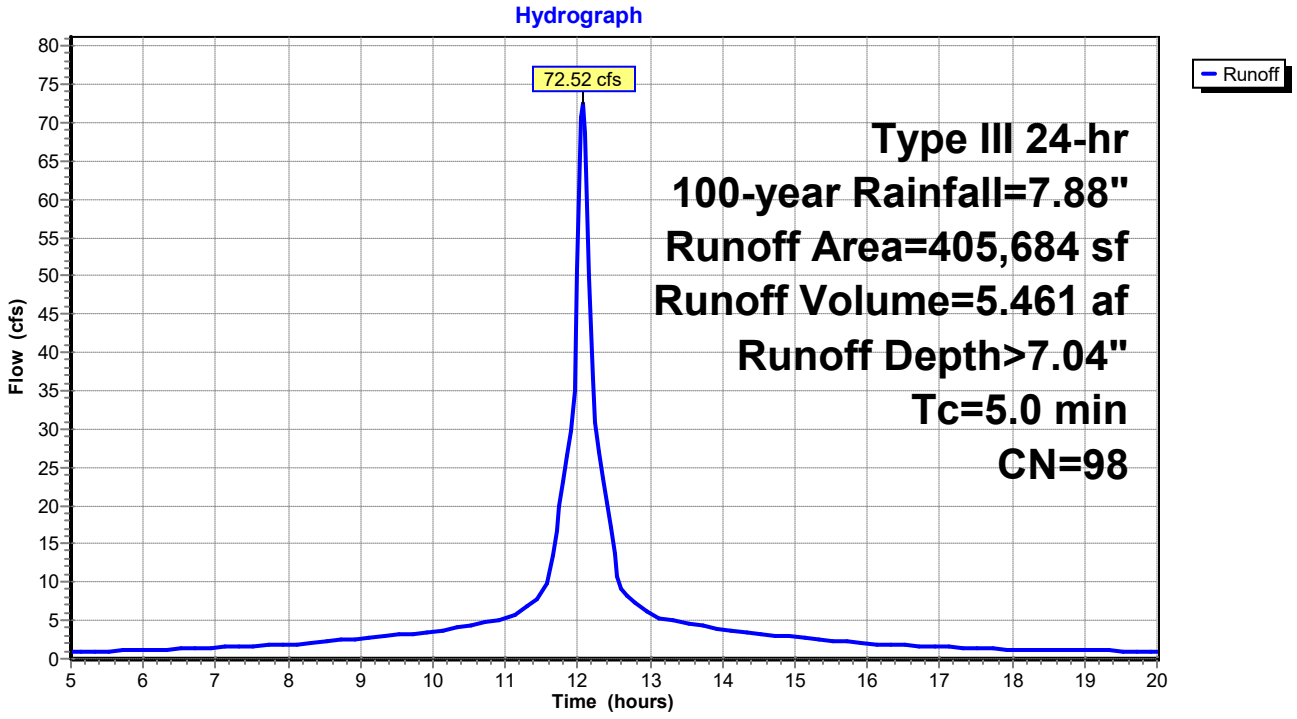
Runoff = 72.52 cfs @ 12.07 hrs, Volume= 5.461 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 395,602 | 98 | Roofs, HSG D |
| 10,082 | 89 | <50% Grass cover, Poor, HSG D |
| 405,684 | 98 | Weighted Average |
| 10,082 | | 2.49% Pervious Area |
| 395,602 | | 97.51% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-13: Proposed Bldg



## Summary for Subcatchment PR-14: Apron to Hanging Drains

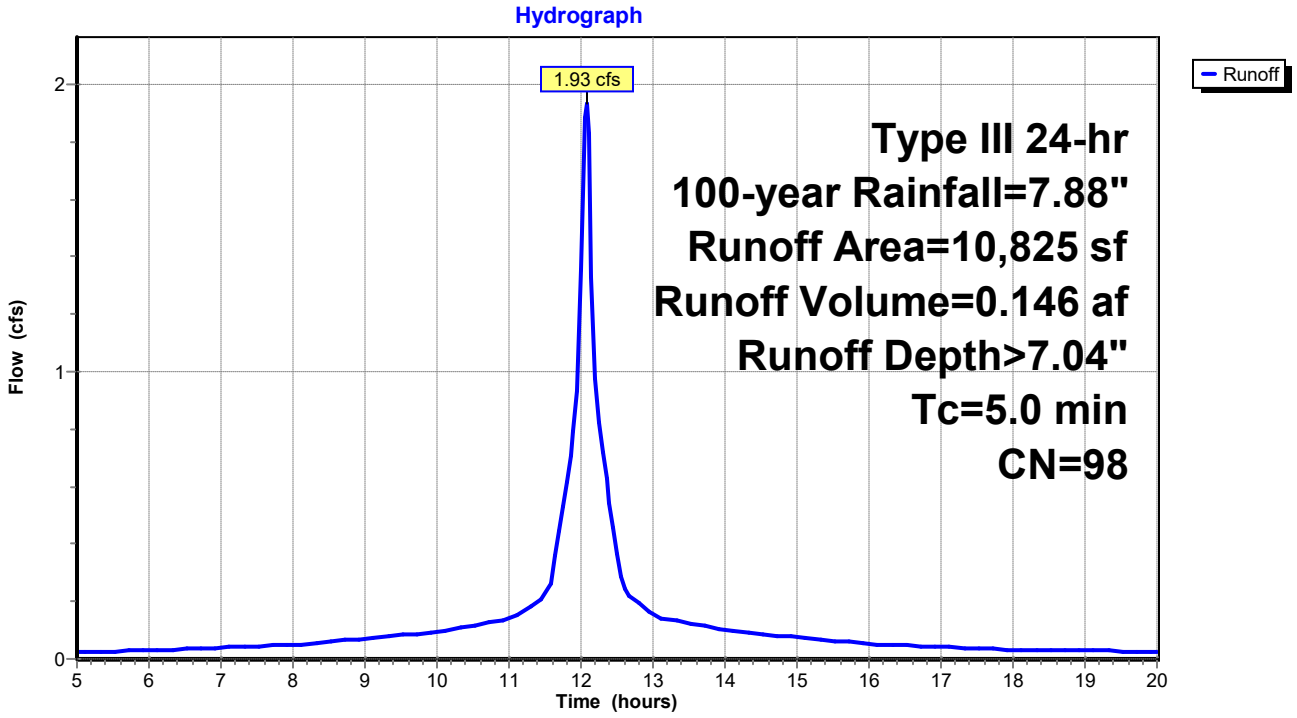
Runoff = 1.93 cfs @ 12.07 hrs, Volume= 0.146 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 10,825 | 98 | Unconnected pavement, HSG D |
| 10,825 | | 100.00% Impervious Area |
| 10,825 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-14: Apron to Hanging Drains



## Summary for Subcatchment PR-2: PR-2

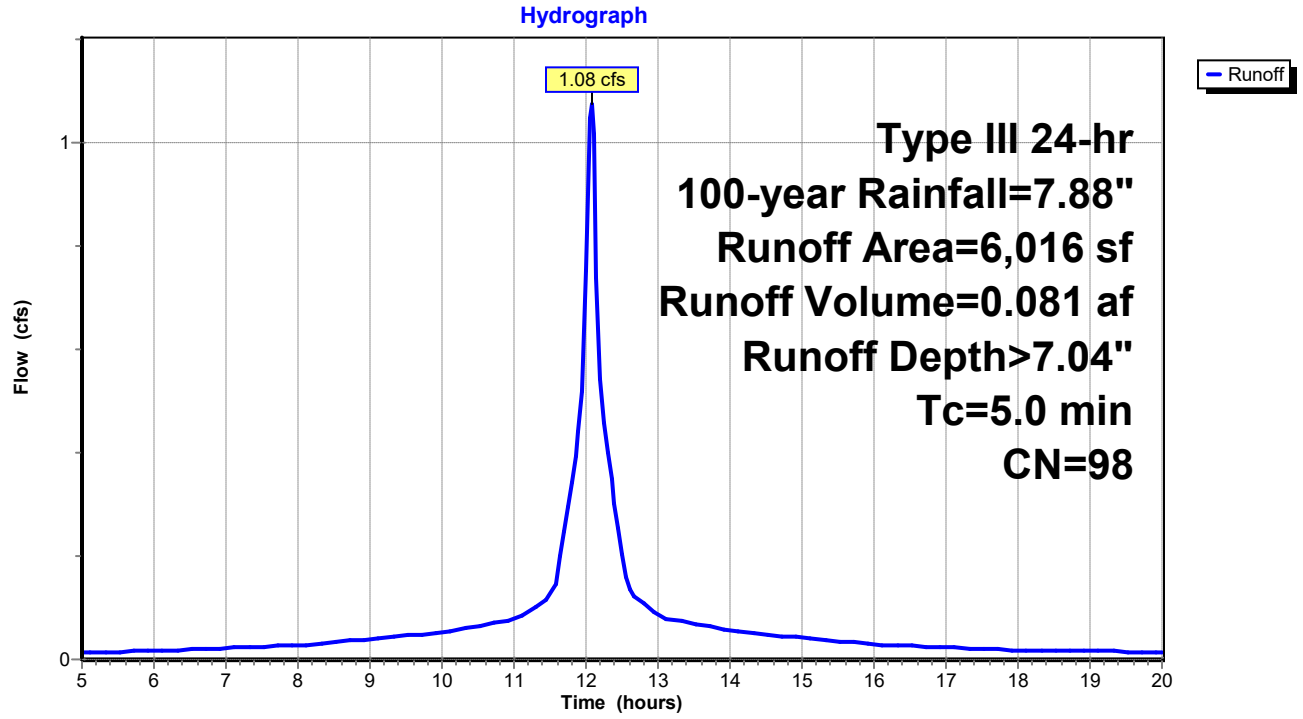
Runoff = 1.08 cfs @ 12.07 hrs, Volume= 0.081 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 6,016 | 98 | Paved roads w/curbs & sewers, HSG D |
| 6,016 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-2: PR-2



## Summary for Subcatchment PR-3: PR-3

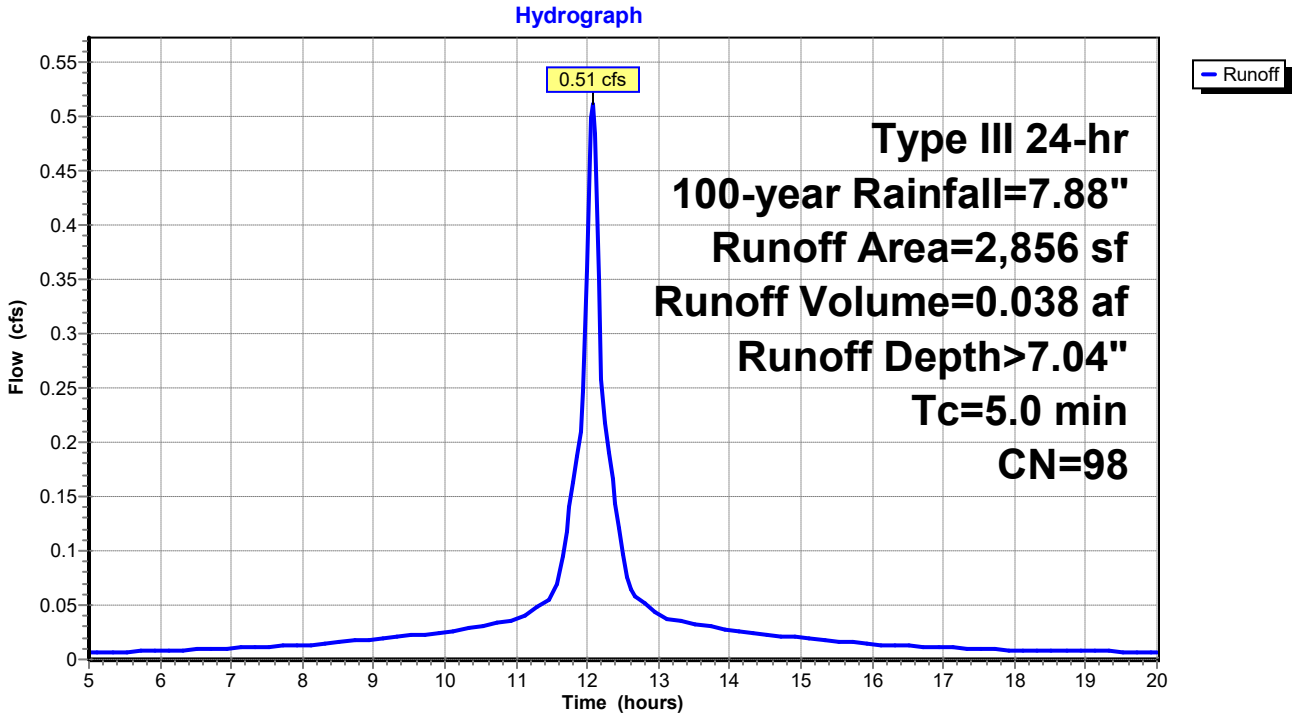
Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.038 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 2,856 | 98 | Paved roads w/curbs & sewers, HSG D |
| 2,856 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-3: PR-3



## Summary for Subcatchment PR-4: PR-4

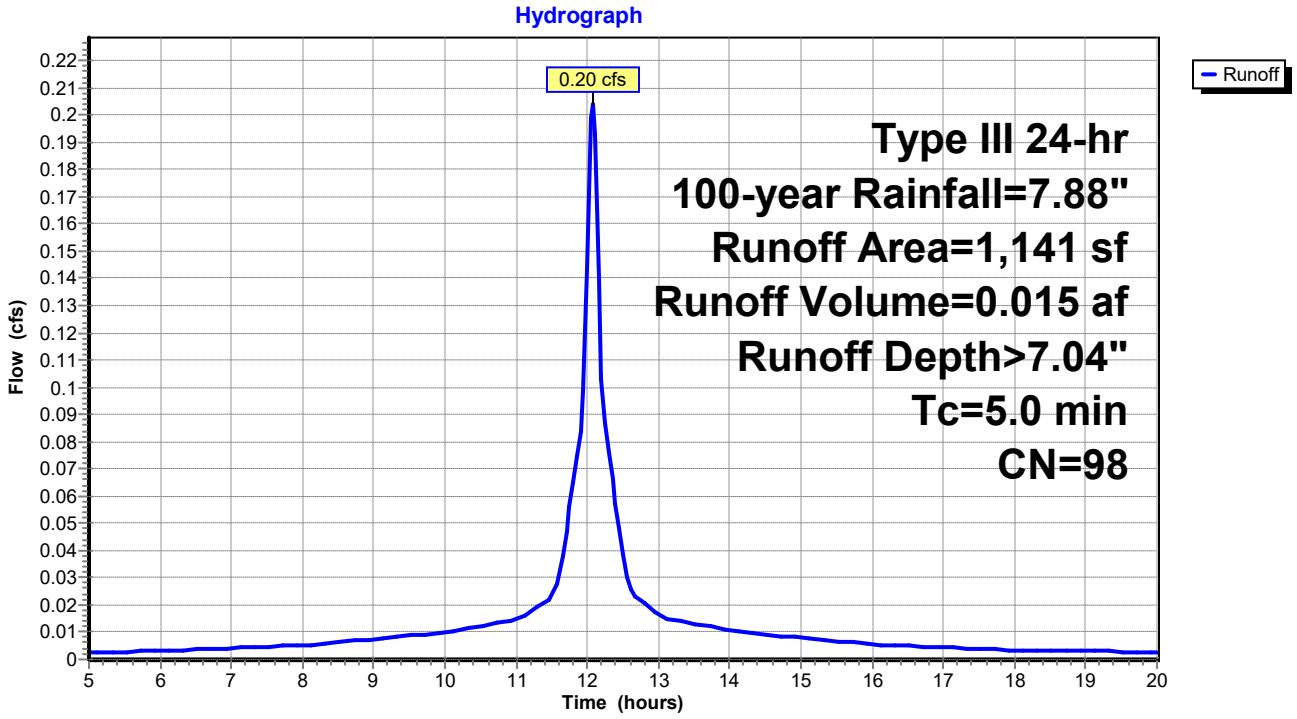
Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 1,141 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,141 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-4: PR-4



## Summary for Subcatchment PR-5: PR-5

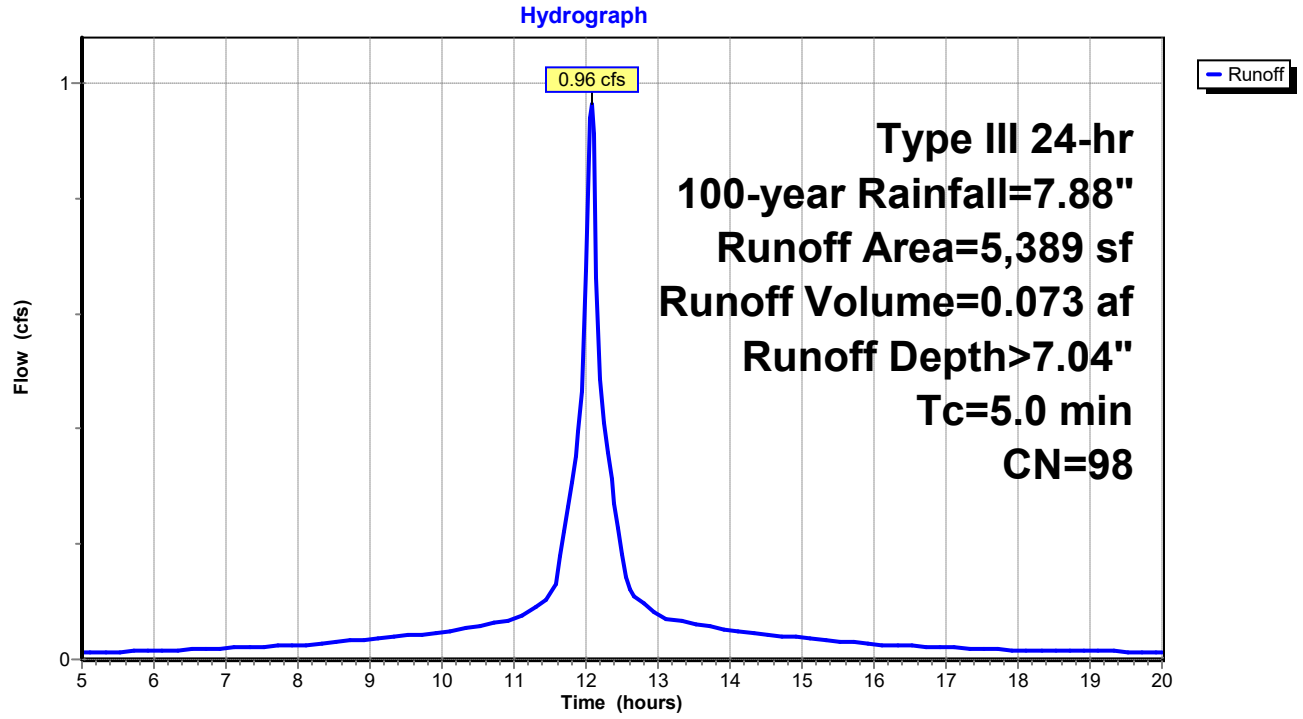
Runoff = 0.96 cfs @ 12.07 hrs, Volume= 0.073 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 5,389 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,389 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-5: PR-5



## Summary for Subcatchment PR-6: PR-6

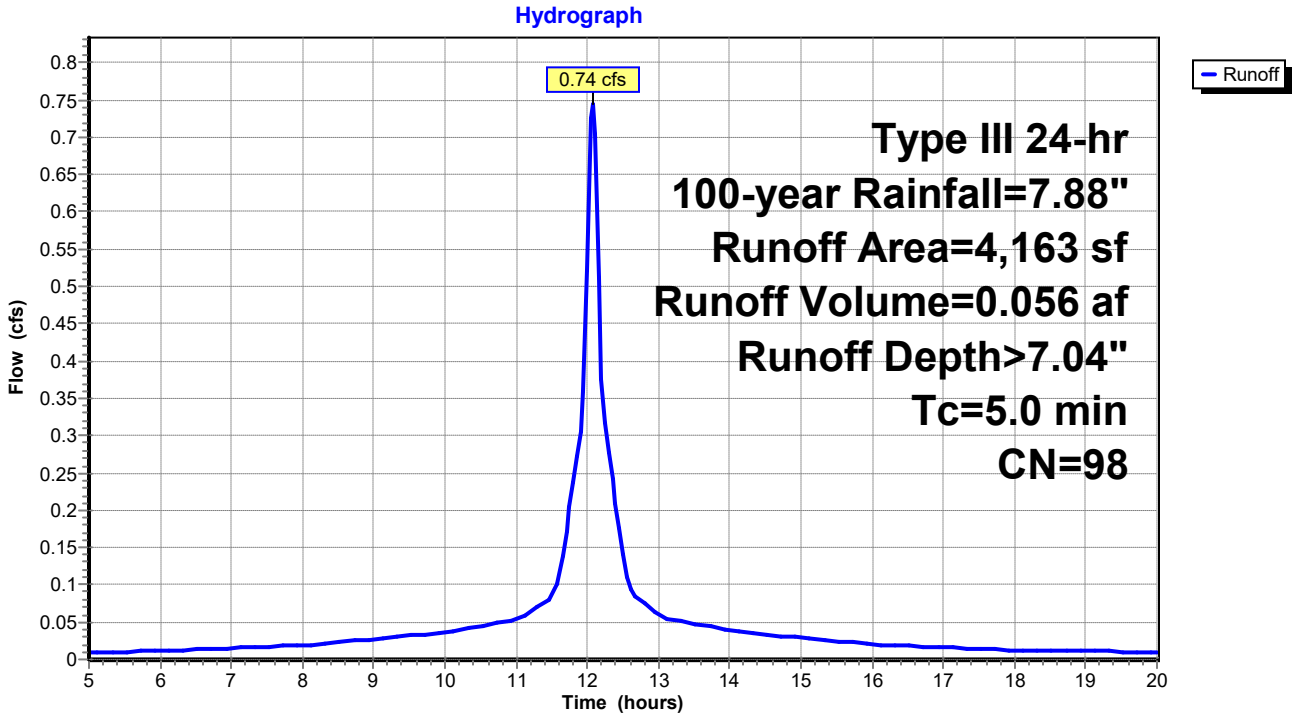
Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.056 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 4,163 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4,163 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-6: PR-6



## Summary for Subcatchment PR-7: PR-7

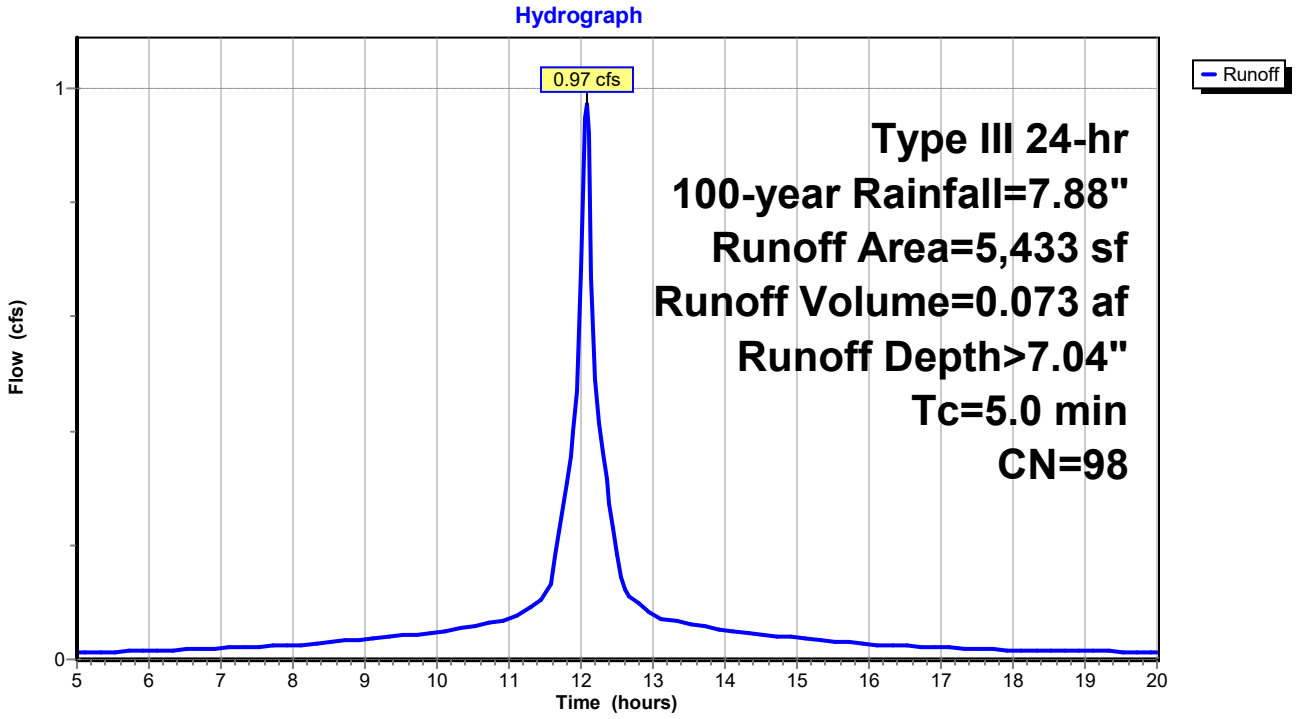
Runoff = 0.97 cfs @ 12.07 hrs, Volume= 0.073 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 5,433 | 98 | Paved roads w/curbs & sewers, HSG D |
| 5,433 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-7: PR-7



## Summary for Subcatchment PR-8: PR-8

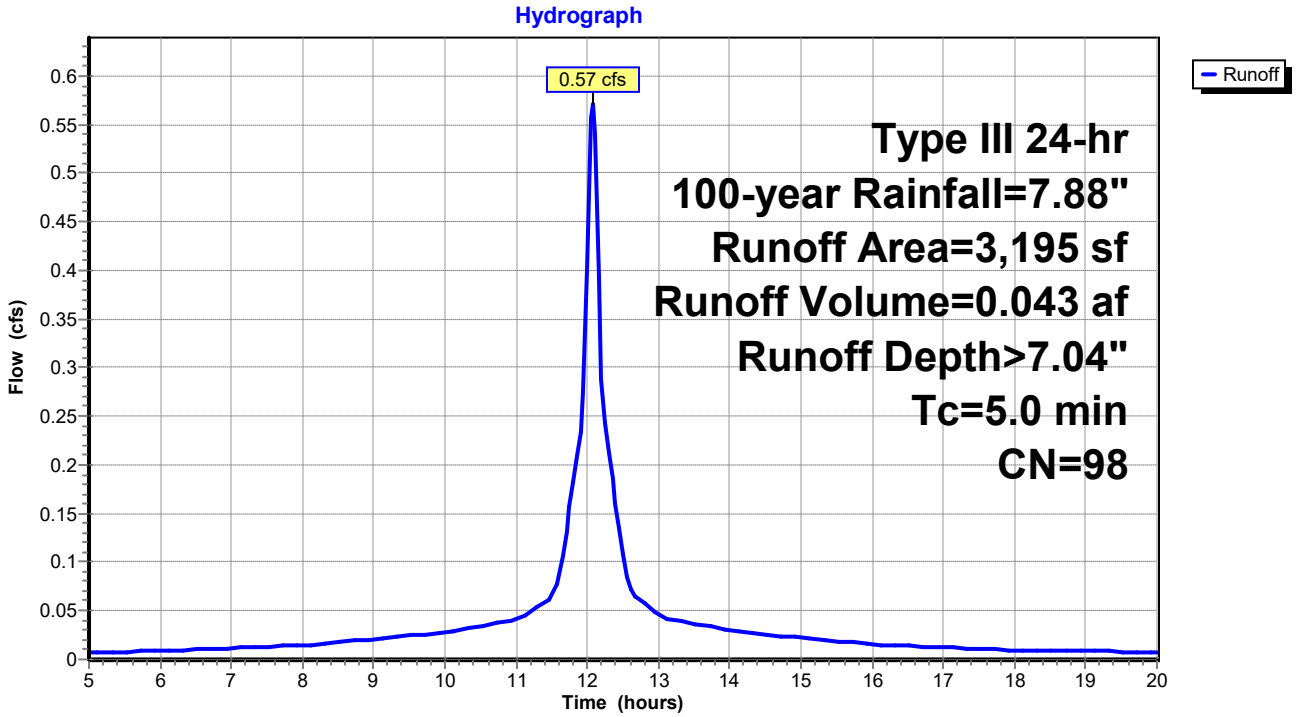
Runoff = 0.57 cfs @ 12.07 hrs, Volume= 0.043 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 3,195 | 98 | Paved roads w/curbs & sewers, HSG D |
| 3,195 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-8: PR-8



## Summary for Subcatchment PR-9: PR-9

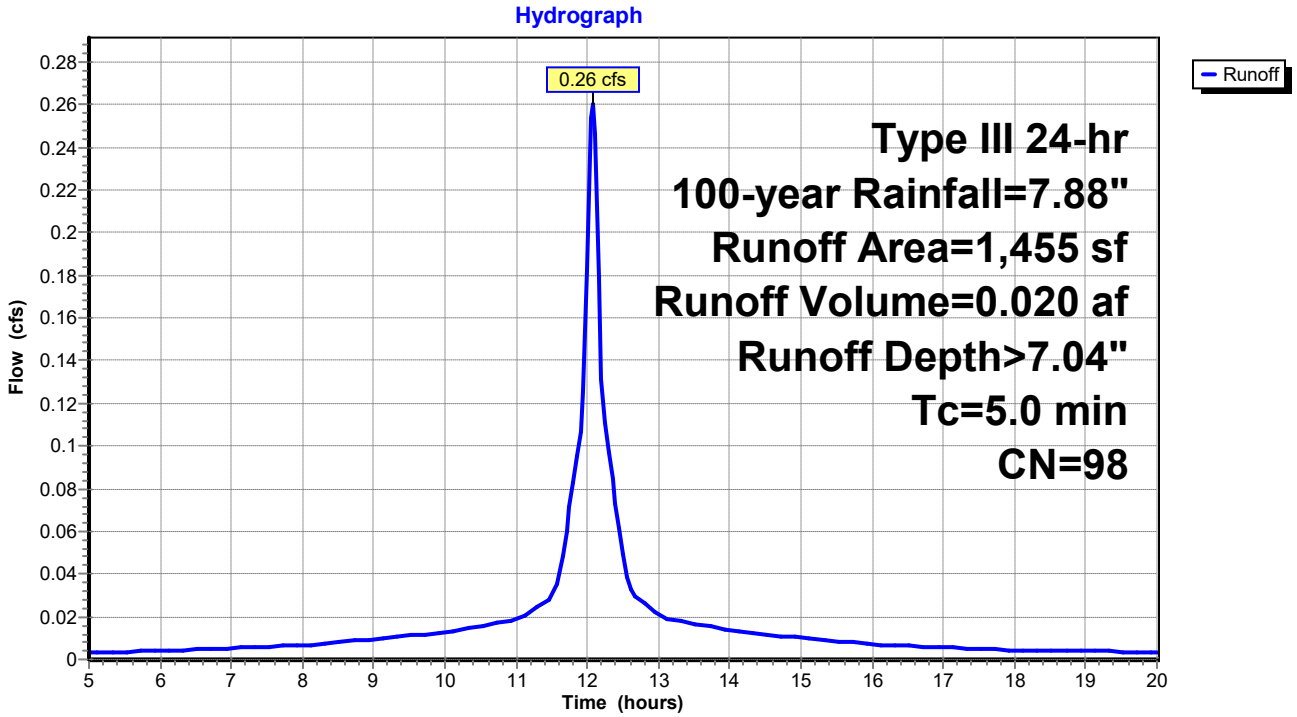
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.020 af, Depth> 7.04"

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 100-year Rainfall=7.88"

| Area (sf) | CN | Description |
|---|---|---|
| 1,455 | 98 | Paved roads w/curbs & sewers, HSG D |
| 1,455 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, TC** |

## Subcatchment PR-9: PR-9

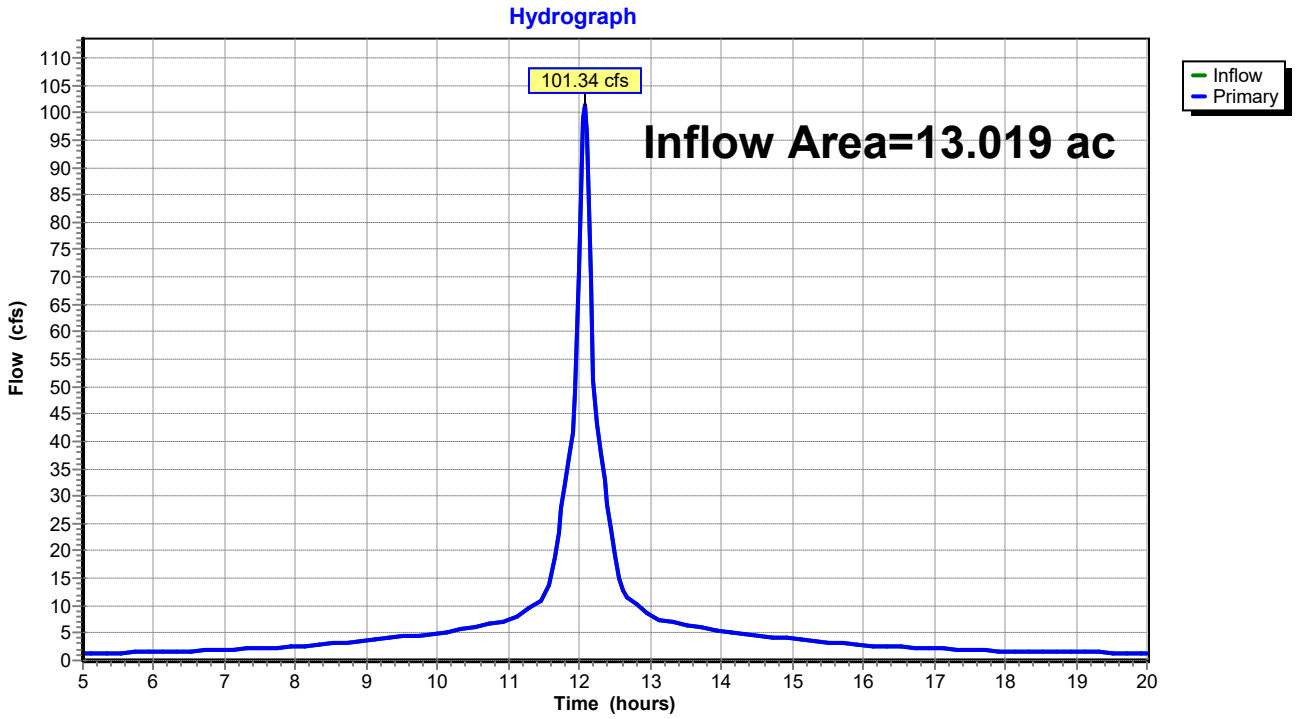


## Summary for Link DP-1: Boston Harbor

Inflow Area = 13.019 ac, 97.31% Impervious, Inflow Depth > 7.03" for 100-year event
Inflow = 101.34 cfs @ 12.07 hrs, Volume= 7.628 af
Primary = 101.34 cfs @ 12.07 hrs, Volume= 7.628 af, Atten= 0%, Lag= 0.0 min

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

## Link DP-1: Boston Harbor



# Appendix C
# Standard 4 Computations and Supporting Information

- Long-Term Pollution Prevention Plan
- TSS Removal Worksheets

# Long –Term Pollution Prevention Plan

# Long-Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan has been developed to establish site management practices that improve the quality of stormwater discharges from the Project. This plan applies to the proposed building and pier redevelopment site. The maintenance obligations for the site will reside with the building owner.

## Description of Pollutant Sources

Potential pollutants sources for the project includes the pier apron, loading dock, dumpster pads, exterior courtyards and landscaped areas.

## Pollutant Control Approach

### Maintenance of Pavement Systems

#### Standard Concrete Pavement

Regular maintenance of pavement surfaces will prevent pollutants such as oil and grease, trash, and sediments from entering the stormwater management system and open water. The following practices should be performed:

- Sweep or vacuum vehicular concrete pavement areas quarterly with a commercial cleaning unit and properly dispose of removed material
- Check loading areas and dumpster areas frequently for spillage and/or pavement staining and clean as necessary
- Pick up and remove litter from the exterior courtyards, perimeter pier apron and landscaping areas on weekly basis.

## Maintenance of Vegetated Areas

Proper maintenance of vegetated areas can prevent the pollution of stormwater runoff by controlling the source of pollutants such as suspended sediments, excess nutrients, and chemicals from landscape care products. Practices that should be followed under the regular maintenance of the vegetated landscape:

- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming.
- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- The grass vegetation should be cut to a height between three and four inches.

## Pesticides/Herbicides/Fertilizers

- Pesticide/Herbicide Usage – No pesticides/herbicides are to be used unless a single spot treatment is required for a specific control application.
- Fertilizer usage should be avoided. If deemed necessary, slow release fertilizer should be used. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas, but should not be applied on a regular basis unless necessary.
- No fertilizers/herbicides/pesticides shall be stored outside. Any such materials shall preferably be stored off-site. If required on-site, these materials shall be stored indoors

## Management of Snow and Ice

### Storage and Disposal

In general, snow shall be stockpiled on standard pavement surfaces. Additional snow may be stockpiled in a second area to be designated by the property owner.

### Salt and Deicing Chemicals

The amount of salt to be used on the site shall be reduced to the minimum amount needed to provide safe pedestrian and vehicle travel. The following practices should be followed to control the amount of salt that come into contact with stormwater runoff:

- Devices used for spreading salt should be capable of varying the rate of application based on the site specific conditions.
- Salt should be stockpiled under covered storage facilities that prevent precipitation and adjacent runoff from coming in contact with the deicing materials

# Spill Prevention and Response Plan

Spill prevention equipment and training will be provided by the property management company.

## Initial Notification

In the event of a spill the facility and/or construction manager or supervisor will be notified immediately.

**COMMONWEALTH PIER PARCEL SITE MANAGER**

| | | | |
|---|---|---|---|
| Name: | Mark Sullivan | Home Phone: | |
| | | | mark.sullivan@am.jll.com |
| Phone: | 617 830 5783 | E-mail: | |

**CONSTRUCTION MANAGER**

| | | | |
|---|---|---|---|
| Name: | TBD | Home Phone: | |
| Phone: | Xxxxxxxxxx | E-mail: | xxxxxxxxxxx |

The supervisor will first contact the Fire Department and then notify the Police Department, the Public Health Commission and the Conservation Commission. The Fire Department is ultimately responsible for matters of public health and safety and should be notified immediately.

## Further Notification

Based on the assessment from the Fire Chief, additional notification to a cleanup contractor may be made. The Department of Environmental Protection (DEP) and the EPA may be notified depending upon the nature and severity of the spill. The Fire Chief will be responsible for determining the level of cleanup and notification required. The attached list of emergency phone numbers shall be posted in the main construction/facility office and readily accessible to all employees. A hazardous waste spill report shall be completed as necessary using the attached form.

# Facility Manager Training

The facility manager shall be responsible for record-keeping, submission of yearly reports to the Conservation Commission and training of facility staff involved with implementation of the LTPPP.

## Emergency Notification Phone Numbers

**1. COMMONWEALTH PIER PARCEL SITE MANAGER**

Name: Mark Sullivan Home Phone:

Phone: 617 830 5783 E-mail: mark.sullivan@am.jll.com

**ALTERNATE**

Name: Home Phone:

Phone: E-mail:

**2. BOSTON FIRE DEPARTMENT**

Emergency: **911**

Business: (617) 343-2880

**3. BOSTON POLICE DEPARTMENT**

Emergency: **911**

Business: (617) 343-4240

**4. CLEANUP CONTRACTOR:**

Address:

Phone:

**5. MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION**

Emergency: (888) 304-1133

Boston Office: (617) 292-5500

**6. EPA NATIONAL EMERGENCY RESPONSE CENTER**

Phone: (800) 424-8802

**7. U.S. ENVIRONMENTAL PROTECTION AGENCY**

Emergency: (800) 439-2370

Business Call Center: (888) 372-7341

**8. CONSERVATION COMMISSION**

Contact:

Phone: (617) 635-3850

**9. DEPARTMENT OF PUBLIC HEALTH**

Contact:

Phone: (617) 624-6000

## Hazardous Waste / Oil Spill Report

Date _____ Time _____ AM / PM

Exact location (Transformer #) _____

Type of equipment _____ Make _____ Size _____

S / N _____ Weather Conditions _____

On or near Water ☐ Yes If Yes, name of body of Water _____

☐ No

Type of chemical/oil spilled _____

Amount of chemical/oil spilled _____

Cause of Spill _____

Measures taken to contain or clean up spill _____

Amount of chemical/oil recovered _____ Method _____

Material collected as a result of cleanup:

_____ Drums containing _____

_____ Drums containing _____

_____ Drums containing _____

Location and method of debris disposal

_____

Name and address of any person, firm, or corporation suffering damages:

_____

Procedures, method, and precautions instituted to prevent a similar occurrence from recurring:

_____

Spill reported to General Office by _____ Time _____ AM / PM

Spill reported to DEP / National Response Center by _____

DEP Date _____ Time _____ AM / PM Inspector _____

NRC Date _____ Time _____ AM / PM Inspector _____

Additional comments: _____

## Assessment - Initial Containment

The supervisor or manager will assess the incident and initiate containment control measures with the appropriate spill containment equipment included in the spill kit kept on-site. A list of recommended spill equipment to be kept on site is included on the following page.

| | |
|---|---|
| Emergency Fire / Police Department | 911 |
| Boston Department of Public Health | (617) 624-6000 |
| Boston Conservation Commission: | (617) 635-3850 |

## Emergency Response Equipment

The following equipment and materials shall be maintained at all times and stored in a secure area for long-term emergency response need.

| Supplies | Quantity | Recommended Suppliers |
|---|---|---|
| SORBENT PILLOWS/"PIGS" | **2** | http://www.newpig.com |
| SORBENT BOOM/SOCK | **25 FEET** | Item # KIT276 — mobile container with two pigs, 26 feet of sock, 50 pads, and five pounds of absorbent (or equivalent) |
| SORBENT PADS | **50** | |
| LITE-DRI® ABSORBENT | **5 POUNDS** | http://www.forestry-suppliers.com |
| SHOVEL | **1** | Item # 33934 — Shovel (or equivalent) |
| PRY BAR | **1** | Item # 43210 — Manhole cover pick (or equivalent) |
| GOGGLES | **1 PAIR** | Item # 23334 — Goggles (or equivalent) |
| GLOVES – HEAVY | **1 PAIR** | Item # 90926 — Gloves (or equivalent) |

## Stormwater Operation and Maintenance Plan

### Project Information

#### Site

Commonwealth Pier Revitalization
200 Seaport Boulevard
Boston, MA 012210

#### Site Owner

Commonwealth Pier Trust II
c/o Pembroke Real Estate LLC
255 State Street
Boston, MA, 02109
(617) 563-3100

#### Site Supervisor

To Be Determined

Name: _____

Telephone: _____

Cell phone: _____

Email: _____

## Description of Stormwater Maintenance Measures

The following Operation and Maintenance (O&M) program is proposed to ensure the continued effectiveness of the stormwater management system. Attached to this plan are a Stormwater Best Management Practices Checklist for use during the long-term operation and maintenance of the stormwater management system.

### Sump Catch Basins

- All catch basins shall be inspected and cleaned a minimum of at least four times per year.
- Sediment (if more than six inches deep) and/or floatable pollutants shall be pumped from the basin and disposed of at an approved offsite facility in accordance with all applicable regulations.
- Any structural damage or other indication of malfunction will be reported to the site manager and repaired as necessary
- During colder periods, the catch basin grates must be kept free of snow and ice.
- During warmer periods, the catch basin grates must be kept free of leaves, litter, sand, and debris.

### Structural Water Quality Devices

- Inspect devices monthly for the first three months after construction.
- After initial three month period, all water quality units are to be inspected at least four times per year and cleaned a minimum of at least once per year or when sediment reaches 8 inches in depth.
- Follow manufacturer instructions for inspection and cleaning and contact manufacturer if system is malfunctioning.

### Stormwater Outfalls

- Inspect outfall locations monthly for the first three months after construction to ensure proper functioning and correct any areas that have settled or experienced washouts.
- Inspect outfalls annually after initial three month period.
- Annual inspections should be supplemented after large storms, when washouts may occur.
- Maintain rip rap around outfalls to prevent erosion.
- Remove and dispose of any trash or debris at the outfall.

## Roof Drain Leaders

- Perform routine roof inspections quarterly.
- Keep roofs clean and free of debris.
- Keep roof drainage systems clear.
- Keep roof access limited to authorized personnel.

# TSS Removal Worksheets

99 High Street
10th Floor
Boston, MA 02110
P 617.728.7777

# TSS Removal Calculation Worksheet

| | | | |
|---|---|---|---|
| Project Name: | **Commonwealth Pier Revitalization** | Sheet: | **1 of 3** |
| Project Number: | **13862.00** | Date: | **1/24/2019** |
| Location: | **Boston, MA** | Computed by: | **CL** |
| Discharge Point: | **DP 1: Boston Harbor** | Checked by: | **LC** |
| Drainage Area(s): | **PR-1-9** | | |

## 1. Pre-Treatment prior to Discharge

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |

**Pre-Treatment TSS Removal =** **25%**

## 2. Total TSS Removal including Pretreatment 1.

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1. Removal rates for proprietary devices are from approved studies and/or manufacturer data. Stormceptor sizing calculations give a TSS removal rate of at least 75%. To be conservative, 50% removal is used for this calculation.

** Equals remaining load from previous BMP (E)

**Treatment Train TSS Removal =** **25%**

99 High Street
10th Floor
Boston, MA 02110
P 617.728.7777

# TSS Removal Calculation Worksheet

| | | | |
|---|---|---|---|
| Project Name: | **Commonwealth Pier Revitalization** | Sheet: | **2 of 3** |
| Project Number: | **13862.00** | Date: | **1/24/2019** |
| Location: | **Boston, MA** | Computed by: | **CL** |
| Discharge Point: | **DP 1: Boston Harbor** | Checked by: | **LC** |
| Drainage Area(s): | **PR 11,14** | | |

## 1. Pre-Treatment prior to Discharge

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Hanging Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | | **Pre-Treatment TSS Removal =** | | **25%** |

## 2. Total TSS Removal including Pretreatment 1.

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Hanging Deep Sump and Hooded Catch Basin** | **25%** | **100%** | **25%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |
| | **0%** | **75%** | **0%** | **75%** |

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1. Removal rates for proprietary devices are from approved studies and/or manufacturer data. Stormceptor sizing calculations give a TSS removal rate of at least 75%. To be conservative, 50% removal is used for this calculation.

** Equals remaining load from previous BMP (E)

**Treatment Train TSS Removal =** **25%**

99 High Street
10th Floor
Boston, MA 02110
P 617.728.7777

# TSS Removal Calculation Worksheet

| | | | |
|---|---|---|---|
| Project Name: | **Commonwealth Pier Revitalization** | Sheet: | **3 of 3** |
| Project Number: | **13862.00** | Date: | **1/24/2019** |
| Location: | **Boston, MA** | Computed by: | **CL** |
| Discharge Point: | **DP 1: Boston Harbor** | Checked by: | **LC** |
| Drainage Area(s): | **PR 12** | | |

## 1. Pre-Treatment prior to Discharge

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Structural Water Quality Device: Contech Inline Vortechs Unit** | **80%** | **100%** | **80%** | **20%** |
| | **0%** | **20%** | **0%** | **20%** |
| | **0%** | **20%** | **0%** | **20%** |
| | | **Pre-Treatment TSS Removal =** | | **80%** |

## 2. Total TSS Removal including Pretreatment 1.

| BMP* | TSS Removal Rate* | Starting TSS Load** | Amount Removed (C*D) | Remaining Load (D-E) |
|---|---|---|---|---|
| **Structural Water Quality Device: Contech Inline Vortechs Unit** | **80%** | **100%** | **80%** | **20%** |
| | **0%** | **20%** | **0%** | **20%** |
| | **0%** | **20%** | **0%** | **20%** |
| | **0%** | **20%** | **0%** | **20%** |

* BMP and TSS Removal Rate Values from the MassDEP Stormwater Handbook Vol. 1. Removal rates for proprietary devices are from approved studies and/or manufacturer data. Stormceptor sizing calculations give a TSS removal rate of at least 75%. To be conservative, 50% removal is used for this calculation.

** Equals remaining load from previous BMP (E)

**Treatment Train TSS Removal =** **80%**

Attachment C

# CLIMATE CHANGE QUESTIONNAIRE

boston planning & development agency

# Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

## A.1 - Project Information

| | | | | |
|---|---|---|---|---|
| Project Name: | **Seaport World Trade Center** | | | |
| Project Address: | **200 Seaport Boulevard** | | | |
| Project Address Additional: | **N/A** | | | |
| Filing Type (*select*) | *Initial (**PNF**, EPNF, NPC or other substantial filing)*<br>*Design / Building Permit (prior to final design approval), or*<br>*Construction / Certificate of Occupancy (post construction completion)* | | | |
| Filing Contact | *Name*<br>**Andrew Dankwerth** | *Company*<br>**Pembroke** | *Email*<br>**Andrew.Dankwerth@pembroke.com** | *Phone*<br>**617 563 2658** |
| Is MEPA approval required | **Yes**/*no* | | *Date*<br>**Under Review** | |

## A.3 - Project Team

| | |
|---|---|
| Owner / Developer: | **Commonwealth Pier Trust II c/o Pembroke Real Estate** |
| Architect: | **CBT Architects (AOR) and SHL** |
| Engineer: | **VHB** |
| Sustainability / LEED: | **Arup** |
| Permitting: | **VHB, Fort Point Associates (Chapter 91 Licensing)** |
| Construction Management: | **General Contractor not selected yet** |

## A.3 - Project Description and Design Conditions

| | |
|---|---|
| List the principal Building Uses: | **Office, Event, Retail, and Associated Support** |
| List the First Floor Uses: | **Office, Retail, and Building Support** |
| List any Critical Site Infrastructure and or Building Uses: | **N/A** |

**Site and Building:**

| | | | |
|---|---|---|---|
| Site Area: | **420,801 SF** | Building Area: | **759,250 GFA** |
| Building Height: | **77'-0" BCB FT.** | Building Height: | **2 Stories** |
| Existing Site Elevation – Low: | **17.37 Ft BCB** | Existing Site Elevation – High: | **18.09 Ft BCB** |
| Proposed Site Elevation – Low: | **17.37 Ft BCB** | Proposed Site Elevation – High: | **18.09 Ft BCB** |
| Proposed First Floor Elevation: | **Slab: 18'-6" Ft BCB**<br>**Ground Floor: 19'-2" Ft BCB** | Below grade levels: | **None** |

**Article 37 Green Building:**

| | | | |
|---|---|---|---|
| LEED Version - Rating System: | **LEED-CS v4** | LEED Certification: | **Yes** |
| Proposed LEED rating: | **Gold** | Proposed LEED point score: | **61 Pts.** |

**Building Envelope**

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

| | | | |
|---|---|---|---|
| Roof: | **R-40** | Exposed Floor: | **R-30** |
| Foundation Wall: | **N/A** | Slab Edge (at or below grade): | **On-grade is existing – no proposed change R30-40 being studied for apron slab below pier** |

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

| | | | |
|---|---|---|---|
| Area of Opaque Curtain Wall & Spandrel Assembly: | **10-15(%)** | Wall & Spandrel Assembly Value: | **Wall U-0.055 Spandrel U-0.200** |
| Area of Framed & Insulated / Standard Wall: | **20-35(%)** | Wall Value | **R-18** |
| Area of Vision Window: | **55-65%** | Window Glazing Assembly Value: | **U-0.35** |
| | | Window Glazing SHGC: | **SHGC 0.3** |
| Area of Doors: | **3-5 %** | Door Assembly Value: | **U-0.500** |

**Energy Loads and Performance**

| | | | |
|---|---|---|---|
| For this filing – describe how energy loads & performance were determined | **Preliminary parametric energy modeling for envelope and IES-VE energy modeling for HVAC systems options.** | | |
| Annual Electric: | **7,631,260 (kWh)** | Peak Electric: | **2,904 (kW)** |
| Annual Heating: | **10,302 (MMbtu)** | Peak Heating: | **9,097 (kBtu/hr)** |
| Annual Cooling: | **3,336 (MMbtu)** | Peak Cooling: | **248 (Tons/hr)** |
| Energy Use - Below ASHRAE 90.1 - 2013: | **Target 25%** | Have the local utilities reviewed the building energy performance?: | *Yes / **No, not at this early stage of design*** |
| Energy Use - Below Mass. Code: | **Target 25%** | Energy Use Intensity: | **44 (kBtu/SF)** |

**Back-up / Emergency Power System**

| | | | |
|---|---|---|---|
| Electrical Generation Output: | **800 (kW)** | Number of Power Units: | **1** |
| System Type: | **800 (kW)** | Fuel Source: | **Gas** |

**Emergency and Critical System Loads** (in the event of a service interruption)
**There are no critical systems on this project.**

| | | | |
|---|---|---|---|
| Electric: | N/A (kW) | Heating: | N/A (MMbtu/hr) |
| | | Cooling: | N/A (Tons/hr) |

## B – Greenhouse Gas Reduction and Net Zero /Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

### B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: N/A

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Preliminary parametric energy modeling has been completed to determine the energy impacts of different energy conservation measures for the building envelope and HVAC systems. The parametric energy model utilizes Energy Plus as the energy modeling engine and the modeling interface uses via Rhino with Grasshopper providing the scripting for the iterative scenarios. It allows multiple iterations to be run quickly across a range of design scenarios. This allows a design team to explore many more options than a traditional energy model and establishes relative improvement against each other to determine an optimal design scenario. Each scenario is compared to a baseline case, which is defined as ASHRAE 90.1-2010 compliant.

With the building envelope and HVAC base building systems identified through the parametric modeling, a preliminary LEED energy model was prepared to set a target for EAc2 Optimize Energy Performance. IES-VE version 2018.0.1.0 software was used to develop an ASHRAE 90.1-2010 compliant model and the proposed design model considering the full building and program.

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

The Project has focused attention on first principals of an energy efficient design to reduce loads (and energy demand) for the building by optimizing the building envelope thermal performance and daylight design. Several options have been analyzed including window to wall ratios, roof and slab insulation, glazing thermal performance and external shading. Refer to section 3.4.1 of Chapter 3 of the PNF for full details of the results.

A combination of sustainable strategies is under consideration for the sizable roof area including a white membrane roof with the potential for increased insulation above code, and green roof areas.

Daylight will be provided within the building through several strategies. First, the envelope walls will introduce vision glass for views as well as daylight into the perimeter spaces. The Plaza and four (4) courtyards will be cut into the existing massing to bring daylight to the interior of the floor plate. Additionally, clerestory lighting at the high roof further daylights the interior of the Viaduct level.

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Energy efficient HVAC systems are being considered for the Project and include a highly efficient water-cooled chiller plant with condensing natural gas boilers. The office spaces are designed for dedicated outdoor air systems (DOAS) with fan coil units (FCUs) and variable air volume (VAV) systems with energy recovery will serve the ballrooms and function spaces. Fans and pumps will have variable speed/frequency drives. This combination of systems balance space use, energy efficiency, flexibility and resilience.

Incorporation of highly efficient LED lighting with daylight and occupancy/vacancy controls to reduce energy consumption associated with electric lighting.

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

Structural analysis has concluded there are limitations in available structural capacity at large portions of the roof such that the available area for a solar PV system is limited to the high roof areas only. The Project will be solar-ready meaning the conduit to the roof and interconnection breakers will be provided in the main electrical switchgear. This allows for a solar photovoltaic system to be more easily installed in the future by either a future tenant or Proponent.

The building will also be energy-storage-ready meaning a space has been identified for a future system, structural capacity has been provided in the slab and spare breakers will be provided in the main electrical switchgear.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

See above for narrative. As noted below, demand response will be discussed with the utilities for its feasibility.

Describe any energy efficiency assistance or support provided or to be provided to the project:

The Project will reach out to the private utility companies to discuss opportunities for energy efficiency incentives as well as demand response once the HVAC system and lighting design have been further developed.

## B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The Proponent is committed to constructing a building that exceeds minimum energy code and will not preclude the advancement toward net zero, as technology becomes available over the life span of the project. The project is currently being designed and constructed towards this goal by reducing energy demand through incorporation of an efficient building envelope and systems, and extensive daylight design.

The Project is also working toward the goal of net zero by evaluating an on-site solar PV system and has committed to being “solar ready” in the high roof areas as well as energy storage ready.

In addition, the Project will incorporate best practices by developing tenant design guidelines to explain the sustainable design strategies in the base building design that can contribute to the tenant fit out energy efficiency as well as make recommendations for an energy efficient fit out.

As technology becomes available, and operational processes are refined, the Project will evaluate opportunities for improving efficiency during equipment and system life cycles and upgrades with favorable ROIs for energy efficiency retrofits.

---

## C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

### C.1 – Extreme Heat - Design Conditions

| | | | |
|---|---|---|---|
| Temperature Range - Low: | 0 Deg. | Temperature Range - High: | 95 Deg. |
| Annual Heating Degree Days: | 5596 | Annual Cooling Degree Days | 750 |

What Extreme Heat Event characteristics will be / have been used for project planning

| | | | |
|---|---|---|---|
| Days - Above 90°: | 30 | Days – Above 100°: | 2 |
| Number of Heatwaves / Year: | 3 to 5 | Average Duration of Heatwave (Days): | 3 |

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

The Project will reduce heat island impacts through the use of hardscape materials with low solar reflectance, introduction of green space to the courtyards and Plaza and use of a combination of a white membrane and green roof.

### C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

The Project is utilizing first principles of an energy efficient design to reduce loads (energy demands) through passive design strategies of a high-performance building envelope, daylighting and reduction in heat island effects.
Active systems will be designed to be energy efficient in excess of minimum code requirements. The HVAC system capacity will be designed for higher temperatures, e.g. 95-degree peak day.

At equipment end of life, the opportunity to increase cooling capacity can be considered to further adapt to increased temperatures.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

**Mechanical, electrical, plumbing and fire protection equipment has predominantly been raised above the ground floor and SLR-DFE of 20.5 BCB. Major equipment is planned to be located on the mezzanine or roof levels. Equipment that needs to be on the ground floor level has been raised on platforms to an elevation of 23.5'. Therefore, all critical systems and equipment will be raised above the Massport-designated DFE of 23.46' BCB for *New Facilities***

The building is also being designed to be solar ready and energy storage ready.

## D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

### D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm: **6.0 in.**

Describe all building and site measures for reducing storm water run-off:

**The Project has included approximately 20,000 SF of roof area to be a green roof. Green space, planting and pervious surfaces are also being introduced at the Plaza and four (4) courtyard spaces. These strategies not only reduce stormwater generation but also reduce peak flow during events.**

### D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

**The stormwater system will be sized for 6" 24-hour rainfall event thereby future-proofing the system to handle increased rainfall. Approximately 20,000 SF of green roof will be provided and the landscape design at the apron, Plaza, and courtyards will look for opportunities to further reduce stormwater.**

## E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA? **Yes** / *No*

What Zone: A, **AE**, AH, AO, AR, A99, V, VE

Current FEMA SFHA Zone Base Flood Elevation: **17.46 Ft BCB**

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site. **Yes** / *No*

***If you answered YES to either of the above questions, please complete the following questions.***
***Otherwise you have completed the questionnaire; thank you!***

### E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance

coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

| | | | |
|---|---|---|---|
| Sea Level Rise - Base Flood Elevation: | 19.3 Ft BCB | | |
| Sea Level Rise - Design Flood Elevation: | 20.3 Ft BCB | First Floor Elevation: | First Floor: 19'-2" Ft BCB |
| Site Elevations at Building: | 18.0 Ft BCB (average existing site elevation) | Accessible Route Elevation: | 46.25 Ft BCB (Represents the Viaduct, which provides an elevated pedestrian and vehicular connection from the Project Site to Summer Street.) |

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Several site strategies are being implemented including;

- Structural enhancements will be implemented at both the apron and building to deal with rising sea levels and associated buoyancy. Structural tie-downs (i.e. mini piles) along the entire apron perimeter will be installed to mitigate buoyancy.
- For longer-term adaptation, the apron structure is also being studied to evaluate the ability to add a future crash barrier along the apron perimeter, should it be needed in the future
- Entries to the building and at the Plaza and niches around the apron will implement dry flood-proofing strategies to keep water out of the interior of the building. The entrances are at a higher elevation than the apron and are sloped away from the entry. Deployable barriers and/or flood gates as well as additional floor drains are being considered and will be refined as the design develops. The design includes planned storage locations for storing deployable flood barriers on-site.
- Incorporation of backflow preventers and duckbill check valves to ensure that storm drainage and sewage conveyance do not back up during storm surges.
- Stormwater conveyance systems are capable of handling increased peak rain events. Systems can accommodate 6" rainfall for the 2070 10-year, 24-hour design storm.
- Landscape planting and hardscape materials will be saltwater tolerant.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Several building strategies are being implemented including;

- Structural enhancements will also be implemented at the building to deal with rising sea levels and associated buoyancy. Additional structural tie-downs (i.e. mini piles) will be installed at the slabs on grade and low-density concrete fill to mitigate buoyancy.
- The façade design has incorporated a 3'-0" resilient, waterproofed concrete curb wall to elevation 21.5' BCB (i.e. the project DFE) around the perimeter of the building envelope to protect against flooding. This wall has also been designed to withstand wave impacts as an additional adaptation strategy.

- A waterproof membrane will be included between the pier and the apron and inside the 3' resilient curb.
- Raising critical mechanical, electrical, plumbing and fire protection equipment above the ground floor and SLR-DFE of 20.5 BCB
- An 8" raised access floor with suspended cable trays is planned at the ground floor to raise the interior floor level to 19'-2" BCB from 18'-6" BCB existing. A drainage mat between the layers of topping slab also extends to the line of the sheeting.
- Mold resilient materials will be explored in vulnerable areas to support a rapid recovery scenario
- Plumbing sewage ejector pits and exterior grease trap, sand/oil/gas interceptor are installed within the first-floor slab. Sewage ejectors are submersible pumps. Backflow valves have been included on the sanitary drain lines as they connect out to the street.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

The ability to have occupants shelter in place is not anticipated at the Project Site.

Describe any strategies that would support rapid recovery after a weather event:

Elevating critical mechanical, electrical, plumbing and fire protection equipment above the ground floor and SLR-DFE. Mold resilient materials will be explored in vulnerable areas to support a rapid recovery scenario. The building will also use supplemental deployable flood barriers during a flood event for additional floor protection. The Viaduct (el. 46.25 ft. BCB), as previously stated provides an added level of resilience for both pedestrian and vehicular access to the Project Site.

## E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

These are discussed in E.1 above and include strategies such as;

- An elevated access route on the Viaduct level
- A 3-ft. resilient curb at the building envelope
- Use of backflow preventers and duckbill check valves on the drainage systems,
- The apron structure is also being studied to evaluate the ability to add a future crash barrier along the apron perimeter, should it be needed in the future

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

These are discussed in E.1 above. The majority of building critical systems will be elevated significantly above the SLR-DFE to the mezzanine or roof levels. Critical equipment that needs to be on the ground floor level has been raised on platforms to an elevation of 23.5'. Therefore, all critical systems and equipment will be raised above the Massport-designated DFE of 23.46' BCB for New Facilities. These are unlikely to require additional elevation or further protection in the future.

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

# Attachment D

# NOTIFICATIONS

# ATTACHMENT D – NOTIFICATIONS

## ABUTTERS

| Parcel Number | Property Address | Owner Name | Owner Address |
|---|---|---|---|
| 0602671065 | 140 Northern Ave<br>Boston, MA 02210 | One-40 Northern Avenue LLC | 125 High Street, 8th Floor<br>Boston, MA 02110 |
| 0602671055 | 130 Northern Ave<br>Boston, MA 02210 | One-30 Northern Avenue LLC | 125 High Street, 8th Floor<br>Boston, MA 02110 |
| 0602641050 | 142 Northern Ave<br>Boston, MA 02210 | Pier 4 LLC | 1745 Shea Center Drive, Suite #200<br>Highlands Ranch, CO 80129 |
| 0602673147 | 280 Northern Ave<br>Boston, MA 02210 | Massachusetts Port Authority | 1 Harborside Drive, Suite #200S<br>East Boston, MA 02128 |
| 0602678025 | 2 Seaport Ln<br>Boston, MA 02210 | Massachusetts Port Authority | 1 Harborside Drive, Suite #200S<br>East Boston, MA 02128 |
| 0602671105 | 146 Seaport Blvd<br>Boston, MA 02210 | Cronin Holdings LP | 250 Northern Ave, Suite #400<br>Boston, MA 02210 |
| 0602671115 | 148 Northern Ave<br>Boston, MA 02210 | Cronin Holdings LP | 250 Northern Ave, Suite #400<br>Boston, MA 02210 |
| 0602671120 | 150 Seaport Blvd<br>Boston, MA 02210 | Cronin Holdings LP | 250 Northern Ave, Suite #400<br>Boston, MA 02210 |
| 0602677010 | 155 Seaport Blvd<br>Boston, MA 02210 | Commonwealth Flats West | 155 Seaport Boulevard<br>Boston, MA 02210 |
| 0602679010 | 1 Seaport Ln<br>Boston, MA 02210 | Commonwealth Flats Hotel | 200 Seaport Boulevard, Suite 50<br>Boston, MA 02210 |

**Notification to Abutters Under the**
**Massachusetts Wetlands Protection Act**

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the applicant is **Commonwealth Pier Trust II**. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of **Boston** seeking permission to remove, till, dredge, or alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40).

B. The address of the lot where the activity is proposed is **200 Seaport Boulevard, South Boston, Massachusetts 02210**.

C. Copies of the Notice of Intent may be examined at **Boston City Hall** between the hours of **9 AM and 5 PM** on the following days of the weeks: **Monday through Friday**. For more information, call Boston City Hall at **(617) 635-3850**.

D. Copies of the Notice of Intent may be obtained from the applicant's representative by calling this telephone number (**617) 357-7044 x 207** between the hours of **9 AM and 5 PM** on the following days of the week: **Monday through Friday**

E. Information regarding the date, time, and place of the public hearing may be obtained from **Boston Conservation Commission** by calling this telephone number: **(617) 635-3850** between the hours of and on the following days of the week: **9 AM to 5 PM, Monday through Friday**.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald**.

*NOTE: Notice of the public hearing, including its date, tine, and place, will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.*

*NOTE: You also may contact your local Conservation Commission or the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.*

**AFFIDAVIT OF SERVICE**
**Under the Massachusetts Wetlands Protection Act**

I, Cara Pattullo, hereby certify under the pains and penalties of perjury that on April 3, 2019 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

The applicant has filed a Notice of Intent for the Revitalization of Commonwealth Pier at 200 Seaport Boulevard, South Boston, Massachusetts, 02210.

The form of the notification, and a list of the abutters to whom it was given and their addresses are attached to the Affidavit of Service.

Name

April 3, 2019
Date

COMMONWEALTH OF MASSACHUSETTS

Fort Point Associates, Inc.
*Urban Planning Environmental Consulting Project Permitting*
A TETRA TECH COMPANY

April 3, 2019

Division of Marine Fisheries
30 Emerson Avenue
Gloucester, MA 01930

Subject: Commonwealth Pier Revitalization

To Whom It May Concern:

On behalf of Commonwealth Pier Trust II (the "Applicant"), please accept the enclosed Notice of Intent (NOI) for the proposed revitalization of the World Trade Center (the "Project") at 200 Seaport Boulevard in South Boston, Massachusetts (the "Project Site"). The Applicant is submitting this NOI to obtain approval under the Massachusetts Wetland Protection Act (WPA) for work within coastal wetland resources. We are seeking your review and comment on the proposed Project.

Work below the Mean High Water Line will include the cutting of timber fender piles at the mudline along the perimeter of the pier; the installation of approximately 226 sf of new piles for an apron expansion, approximately 98 sf of new float piles, and approximately 153 sf of new fender piles; and approximately 690 sf of new steel sheet pile bulkhead. These specific work elements, associated impacts, and WPA compliance and mitigation are described in the NOI and supporting materials.

Please feel free to contact me at 617-357-7044, ext. 207, with any questions or concerns.

Sincerely,

Cara Pattullo, AICP
Environmental Planner

Encl: Notice of Intent and Attachments

# Attachment E

# PILE REMOVAL LETTER

CHILDS ENGINEERING CORPORATION
34 WILLIAM WAY, BELLINGHAM, MA 02019 (508) 966-9092 FAX (508) 966-9096

April 2, 2019

Amelia Croteau
Executive Secretary, Boston Conservation Commission
Mayor's Office of Environment, Energy and Open Space
Boston City Hall - Room 709
Boston, MA 02201

Re: Commonwealth Pier – Timber Piles

Dear Ms. Croteau,

This letter outlines the design intent of not pulling the timber piles, as was done with past repairs. As is common in the marine environment the areas exposed to oxygen above the mudline have much more advanced deterioration than areas below the mudline where there is often minimal deterioration. We believe that pulling the timber piles would cause unnecessary structural destabilization of the seawall and bulkhead recommend at a minimum cutting them off at the mudline. This will apply to both the timber fender piles around the perimeter of the pier and the timber piles under the concrete apron adjacent to the head house.

If you have any questions or would like additional information, please don't hesitate to reach out.

Respectfully Submitted,
CHILDS ENGINEERING CORPORATION

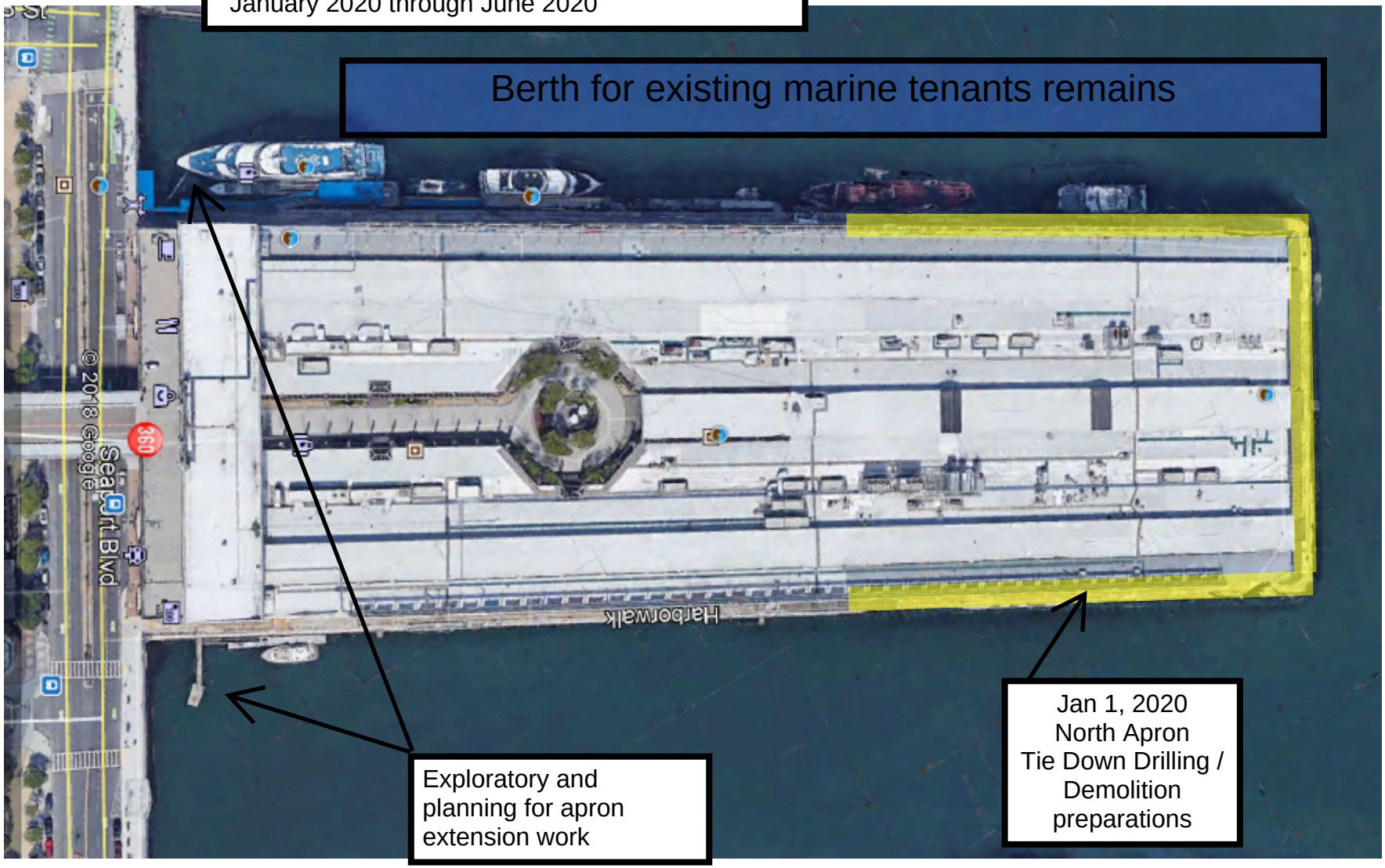
Charlie M. Roberts, P.E., D. PE
President

# Attachment F

# STAGING PLAN

Mayflower Project
Marine Scope Logistics
February 25, 2019

Enabling stage prior to construction
January 2020 through June 2020



# Mayflower Project
# Marine Scope Logistics
# February 25, 2019

## Marine Site Logistics
## Stage 1 - Project Start - June 2020

WEST

B. STREET

Ticket office and Loading Queuing

New temporary ramping from Seaport Blvd to current marine operations

West Apron provides support utilities to marine tenants but is closed to the public. Construction demolition access only

Berth for existing marine tenants remains

SOUTH

MATCH LINE

MID

MATCH LINE

NORTH

Crane Barge 30X 90

PV CELLS

COURTYARD

HEAD HOUSE ROOF

SKYLIGHT

BALLROOM ROOF

SEAPORT BOULEVARD

B. STREET

Crane Barge 30 x 90

Crane Barge 30 x 90

Crane Barge 30 x 90

Delivery Barge 30 x 90 (TYP)

Marine based apron demolition and apron reconstruction North and East

Construction of Apron Extension East Includes driving new sheeting from barge crane

Ocean Boom

EAST

REVISIONS
# DATE DESCRIPTION

PROJECT MAYFLOWER

BOSTON, MA


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

schmidt hammer lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEY PLAN

TRUE N PROJECT NORTH

SOUTH MID NORTH

GENERAL NOTES

SEAL

TITLE
100% SCHEMATIC DESIGN

VOLUME

DRAWING TITLE
ARCHITECTURAL SITE PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**A02**

9/14/2018 2:52:33 PM

# Mayflower Project
# Marine Scope Logistics
# February 25, 2019

## Marine Site Logistics
## Stage 2 - Transitions during Q1-Q2 2021

WEST

Construction of Apron Extension West Includes driving new sheeting from barge crane

Marine based apron demolition and apron reconstruction West

Crane Barge 30 x 90

Delivery Barge 30 x 90 (TYP)

Crane Barge 30 x 90

Crane Barge 30 x 90

B. STREET

APPROXIMATE LIMIT OF WO

SOUTH

MID

NORTH

MATCH LINE

MATCH LINE

SOUTH

NORTH

SEAPORT BOULEVARD

HEAD HOUSE ROOF

BALLROOM ROOF

PV CELLS

SKYLIGHT

COURTYARD

B. STREET

Berth for existing marine tenant moves east

Access to Marine tenants now from newly constructed apron extension. Includes ticketing and queuing

North and East Apron Construction Access only for facade installation No Public Access

Ocean Boom

EAST

REVISIONS
# DATE DESCRIPTION

PROJECT MAYFLOWER

BOSTON, MA


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

schmidt/hammer/lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS
A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service
VT - Vertical Transportation

KEY PLAN
TRUE PROJECT NORTH
SOUTH MID NORTH

GENERAL NOTES

SEAL

TITLE
100% SCHEMATIC DESIGN

VOLUME

DRAWING TITLE
ARCHITECTURAL SITE PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**A02**

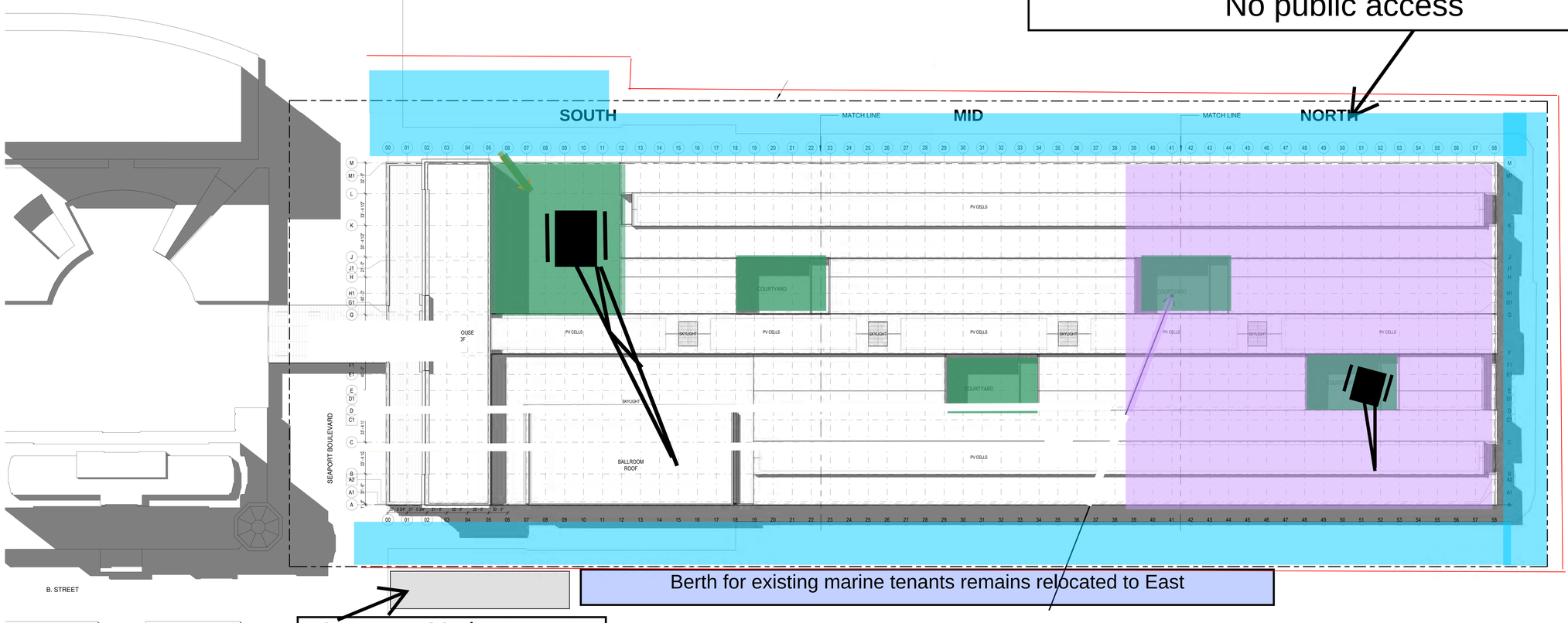
9/14/2018 2:53:13 PM

# Mayflower Project
# Marine Scope Logistics
# February 25, 2019

## Marine Site Logistics
## Stage 3 - Apron work Complete, Apron Dedicated to Curtainwall and Envelope Work

WEST

Apron West, East and North Dedicated to Exterior wall & Curtainwall
No public access




SOUTH

NORTH

Berth for existing marine tenants remains relocated to East

Access to Marine tenants now from newly constructed apron extension. Includes ticketing and queuing

Ocean Boom

EAST

REVISIONS
# DATE DESCRIPTION

PROJECT MAYFLOWER

BOSTON, MA


Pembroke REAL ESTATE
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schmidt/hammer/lassen
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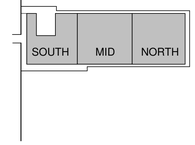
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEY PLAN




GENERAL NOTES

SEAL

TITLE
100% SCHEMATIC DESIGN

VOLUME

DRAWING TITLE
ARCHITECTURAL SITE PLAN

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**A02**

9/14/2018 2:53:23 PM

Mayflower Project
Marine Scope Logistics
February 25, 2019

Marine Site Logistics
Stage 4 - Interior and Landscaping Stage

WEST

Advance Landscaping on East and West Apron Extension to provide Marine tenants access, ticketing and queueing

Entire Apron, Apron Extensions, and Square Closed to the public for landscaping construction

B. STREET

APPROXIMATE LIMIT OF WORK LINE

Berth for Permanent marine tenants returns permanently to the west

SOUTH

MID

NORTH

MATCH LINE

MATCH LINE

PV CELLS

COURTYARD

SKYLIGHT

HEAD HOUSE ROOF

BALLROOM ROOF

SEAPORT BOULEVARD

SOUTH

NORTH

B. STREET

Berth for Permanent marine tenants East

Berth for Permanent marine tenants East

Ocean Boom

EAST

REVISIONS
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KEY PLAN
TRUE NORTH
PROJECT NORTH
SOUTH MID NORTH

GENERAL NOTES

SEAL

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VOLUME

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|---|---|---|
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A02

9/14/2018 2:53:33 PM

# Attachment G

## PLANS

# COMMONWEALTH PIER REVITALIZATION

BOSTON, MA

**OWNER**

**PEMBROKE REAL ESTATE**
**255 STATE STREET**
BOSTON, MA 02109
p. 617 563 3100

**OWNER'S PROJECT MANAGER**

**REDGATE**
**265 FRANKLIN STREET, 6TH FLOOR**
BOSTON, MA 02110
p. 617 904 7000

**PRECONSTRUCTION SERVICES**

**TURNER CONSTRUCTION**
**TWO SEAPORT LANE SUITE 200**
BOSTON, MA 02210
p. 617 247 6400

**ARCHITECTS**

**SHL - DESIGN**
**NJALSGADE 17A, PARKHUS 2**
2300 COPENHAGEN S, DENMARK
p. 45 70 20 19 00

**CBT- ARCHITECT OF RECORD**
110 Canal Street
Boston, MA 02114
p. 617 262 4354

**GEOTECHNICAL**

**HALEY & ALDRICH**
**465 MEDFORD STREET, SUITE 2200**
BOSTON, MA 02129
p. 617 886-7400

**CIVIL / TRAFFIC / HISTORIC**

**VHB**
**99 HIGH STREET, 10TH FLOOR**
BOSTON, MA 02110
p. 617 728 7777

**LANDSCAPE**

**SASAKI**
**64 PLEASANT STREET**
WATERTOWN, MA 02472
p. 617 926 3300

**STRUCTURAL**

**THORNTON TOMASETTI**
**27 WORMWOOD STREET**
BOSTON, MA 02210
p. 617 250 4100

**MEPFP / SUSTAINABILITY**

**ARUP**
**60 STATE STREET**
BOSTON, MA 02109
p. 617 864 2987

**CODE**

**CODE RED**
**154 TURNPIKE ROAD, SUITE 200**
SOUTHBOROUGH, MA 01772
p. 617 500 7633

**FOOD SERVICE**

**RICCA DESIGN STUDIOS**
**5325 S. VALENTIA WAY**
GREENWOOD VILLAGE, CO 80111
p. 303 221 0500

**MARINE STRUCTURAL**

**CHILDS ENGINEERING CORPORATION**
**34 WILLIAM WAY**
BELLINGHAM, MA 02019
p. 508 966 9092

**PERMITTING**

**FORT POINT ASSOCIATES, INC.**
**A TETRA TECH COMPANY**
31 STATE STREET, 3RD FLOOR,
BOSTON, MA 02109

**SURVEY**

**WSP USA**
**9 EXECUTIVE PARK DRIVE**
SUITES 101
MERRIMACK, NH 03054

NOTICE OF INTENT PLANS 02.15.2019 cbt

2/11/2019 7:48:56 AM

## DRAWING INDEX

| DRAWING NO. | DRAWING TITLE | DRAWING NO. | DRAWING TITLE |
|---|---|---|---|
| **GENERAL** | | | |
| G001 | DRAWING INDEX AND NOTES | | |
| G101 | EXISTING DECK PLAN | | |
| G102 | EXISTING DECK PLAN | | |
| G103 | EXISTING UNDER DECK PLAN | | |
| G104 | EXISTING UNDER DECK PLAN | | |
| **CIVIL** | | | |
| C001 | LEGEND AND GENERAL NOTES | | |
| C100 | LAYOUT AND MATERIALS PLAN | | |
| C200 | GRADING AND DRAINAGE PLAN - SEAPORT BLVD | | |
| C300 | UTILITY PLAN - SEAPORT BLVD | | |
| C400 | DETAILS | | |
| C501 | EROSION CONTROL & SEDIMENTATION PLAN | | |
| C502 | EROSION CONTROL & SEDIMENTATION PLAN | | |
| | | | |
| | | | |
| **LANDSCAPING** | | | |
| LA100 | NOI OVERALL SITE PLAN | | |
| LA201 | NOI LAYOUT + MATERIALS PLAN | | |
| LA202 | NOI LAYOUT + MATERIALS PLAN | | |
| LA301 | NOI GRADING PLAN | | |
| LA302 | NOI GRADING PLAN | | |
| **MARINE STRUCTURAL** | | | |
| MS101 | EXISTING CONDITION PLAN | | |
| MS102 | EXISTING CONDITION PLAN | | |
| MS103 | PROPOSED PILE/PILE CAP PLAN | | |
| MS104 | PROPOSED PILE/PILE CAP PLAN | | |
| MS105 | PROPOSED FRAMING PLAN | | |
| MS106 | PROPOSED FRAMING PLAN | | |
| MS107 | PROPOSED FLOAT PLAN | | |
| MS301 | EXISTING SECTIONS | | |
| MS302 | PROPOSED SECTIONS | | |
| MS303 | PROPOSED SECTIONS | | |
| MS304 | PROPOSED FLOAT SECTIONS | | |
| MS501 | DETAILS | | |
| **PLUMBING** | | | |
| P400.1 | PLUMBING PLAN UNDERSLAB - SOUTH | | |
| P400.2 | PLUMBING PLAN UNDERSLAB - MID | | |
| P400.3 | PLUMBING PLAN UNDERSLAB - NORTH | | |
| P401.1 | PLUMBING PLAN LEVEL 1 - SOUTH | | |
| P401.2 | PLUMBING PLAN LEVEL 1 - MID | | |
| P401.3 | PLUMBING PLAN LEVEL 1 - NORTH | | |
| P404.1 | PLUMBING PLAN ROOF LEVEL - SOUTH | | |
| P404.2 | PLUMBING PLAN ROOF LEVEL - MID | | |
| P404.3 | PLUMBING PLAN ROOF LEVEL - NORTH | | |

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

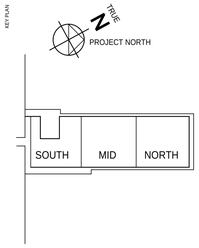
schmidt hammer lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEYPLAN




GENERAL NOTES

SEAL

TITLE

NOTICE OF INTENT

VOLUME

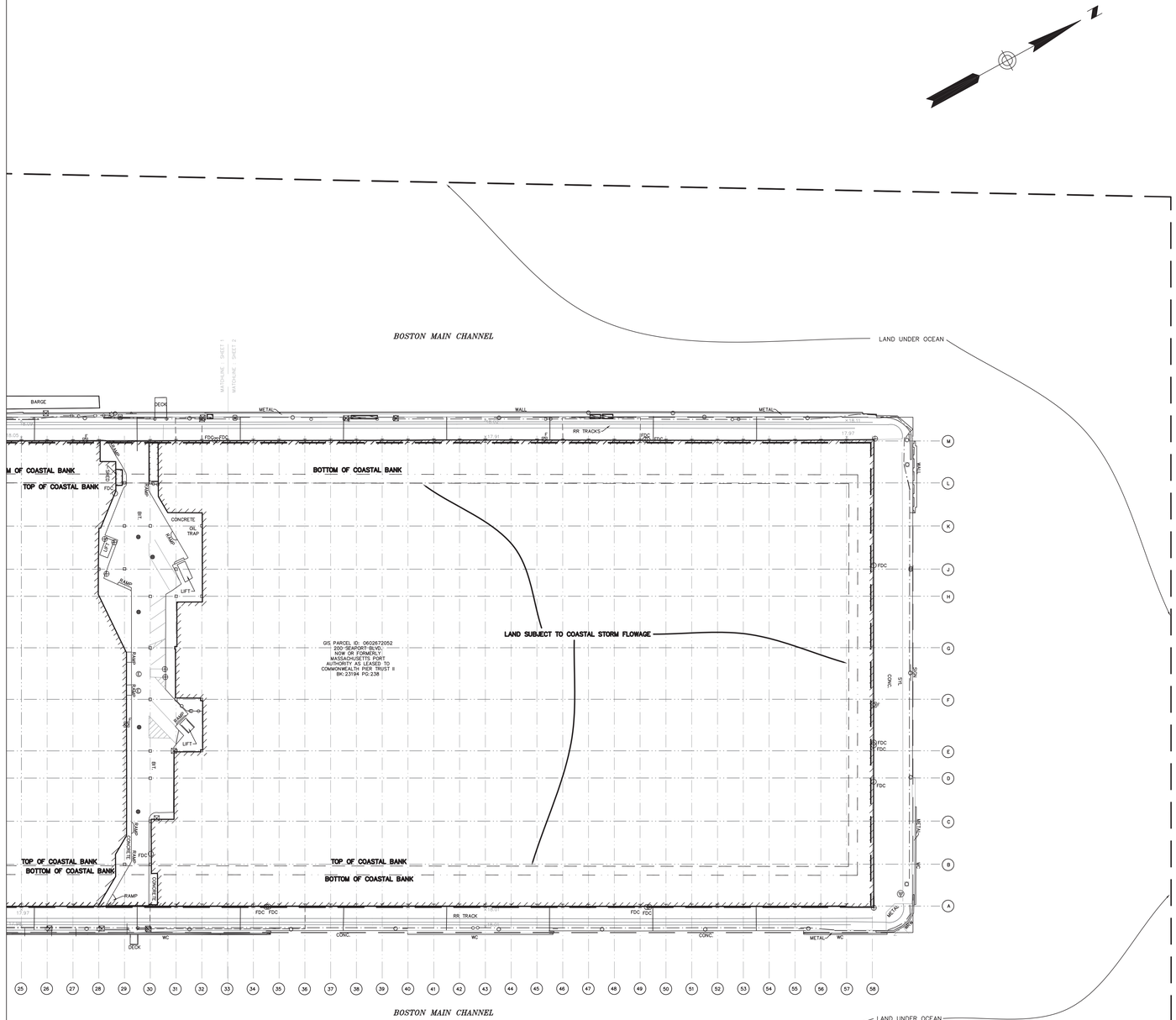
DRAWING TITLE

SHEET INDEX AND NOTES

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

# G001

8/27/2018 11:20:10 AM



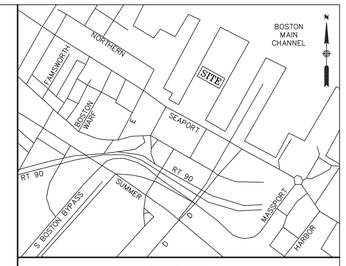

## UTILITY STATEMENTS

THE LOCATION OF THE UTILITIES AS SHOWN HEREON HAVE BEEN COMPILED FROM VISIBLE STRUCTURES AND INFORMATION OBTAINED FROM VARIOUS SOURCES. NO STRUCTURES WERE OPENED TO DETERMINE ANY INVERTS, PIPE SIZES OR TYPES. THE ACTUAL LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHALL BE CONSIDERED APPROXIMATE AND SHALL BE VERIFIED BY THE OWNER PRIOR TO ANY CONSTRUCTION. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICES OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.

## PLAN REFERENCES

SUFFOLK COUNTY REGISTRY OF DEEDS

1. PLAN BOOK 10437 PLAN 19 DATED FEBRUARY 1983. (2 SHEETS)
2. PLAN BOOK 10437 PLAN 24 DATED FEBRUARY 1983.
3. PLAN BOOK 10437 PLAN 28 DATED FEBRUARY 1983.
4. PLAN BOOK 10437 PLAN 32 DATED FEBRUARY 1983.
5. PLAN BOOK 10437 PLAN 36 DATED FEBRUARY 1983.
6. PLAN BOOK 17567 PLAN 342 DATED MAY 21, 1992.
7. PLAN BOOK 20543 PLAN 186 DATED DECEMBER 23, 1995. (6 SHEETS)
8. PLAN BOOK 28087 PLAN 111 DATED DECEMBER 20, 2001. (3 SHEETS)




LOCUS MAP
(N.T.S.)

## NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL ON THE GROUND FIELD SURVEY CONDUCTED BY WSP FROM OCTOBER 2, 2017 TO NOVEMBER 14, 2017 AND UPDATED BETWEEN MARCH 20 TO APRIL 3, 2018.

2. THE HORIZONTAL DATUM SHOWN HEREON REFERENCES THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM NAD83.

3. THE VERTICAL DATUM SHOWN HEREON REFERENCES BOSTON CITY BASE.

4. ALL SPOT GRADES SHOWN IN GRAY WERE OBTAINED BY 3D SCANNING. ALL SPOT GRADE ELEVATIONS WITHIN THE EDGE OF CARPET REPRESENT THE TOP OF THE CARPET.

5. THE LOCATION OF THE COLUMN LINES SHOWN HEREON BETWEEN COLUMN LINES "6" THRU "23" AND "B" THRU "L" ARE BASED ON THE CENTER LOCATION OF THE CONCRETE BASES IN THE EXHIBIT HALL OBTAINED BY 3D SCANNING. TO KEEP THE GRID PARALLEL AND PERPENDICULAR TO EACH OTHER ALL OTHER COLUMN LINES ARE BEST FIT USING THE LOCATION OF THE EXPOSED STEEL ON THE EXTERIOR OF THE BUILDING AND REFERENCING RECORD DOCUMENTS AND CAD FILES PROVIDED TO WSP.

## LEGEND

| | | | |
|---|---|---|---|
| | SPOT GRADE | LPEP | LEAD PLUG WITH E–PIN |
| | VENT | SBLPEP | STONE BOUND WITH LEAD PLUG AND E–PIN |
| | TRAFFIC CONTROL BOX | | MONITORING WELL |
| | GAS HANDHOLE | | BIKE LANE |
| | ELECTRIC HANDHOLE | | CABLE MANHOLE |
| | GAS VALVE | | NO DUMPING PLAQUE |
| | TELEPHONE MANHOLE | UI | UNKNOWN HANDHOLE |
| | WATER METER | MH | MASS HIGHWAY HANDHOLE |
| | WATER GATE | × | SPOT GRADE |
| | IRRIGATION CONTROL VALVE | NAIL | NAIL MONUMENT |
| | FIRE HYDRANT | | DISK |
| | DECIDUOUS TREE | W | WATER HANDHOLE |
| | SIGN (SINGLE POSTED) | | AREA DRAIN |
| | SIGN (DOUBLE POSTED) | | CATCH BASIN |
| WC | WOOD CURB | | DRAIN MANHOLE |
| CC | CONCRETE CURB | | NO LABEL MANHOLE |
| SGC | SLOPED GRANITE CURB | | SEWER MANHOLE |
| DLW | DASHED LINE – WHITE | | ELECTRIC BOX |
| GDC | GRANITE DROP CURB | TS | TRAFFIC SIGNAL |
| SRW | STONE RETAINING WALL | | POST |
| HTP | HANDICAPPED TRACTION PAD | | MOORING BOLLARD |
| VGC | VERTICAL GRANITE CURB | CO | CLEANOUT |
| LSA | LANDSCAPED AREA | | MAILBOX |
| FFE | FINISHED FLOOR ELEVATION | | LIGHT POLE |
| WRW | WOOD RETAINING WALL | | BOLLARD |
| SWL | SOLID WHITE LINE | | HANDICAP PARKING |
| SYL | SINGLE YELLOW LINE | FDC | FIRE DEPARTMENT CONNECTION |
| DYL | DOUBLE YELLOW LINE | F | FIRE ALARM |
| BRK | BRICK | | BENCHMARK |
| TC | TOP OF CURB | | TEST PIT |
| BC | BOTTOM OF CURB | | BIKE LANE |
| | | | GROUND LIGHT |
| | | | CONC. COLUMN 2.1' X 1.9' (TYP) LOCATION TAKEN AT ELEV.=18.50' |
| | | | COLUMN – EXPOSED STEEL ASSUMED DIMENSION OF 2' X 2' |
| | | | LEASE AREA |
| | | | RIGHT OF WAY LINE |
| | | | EASEMENT AREA |
| | | | INTERIOR WALL – ELEV.=32.00' |
| | | | METAL GUARDRAIL |
| | | | METAL FENCE |
| | | | METAL HANDRAIL |
| | | OHW | OVERHEAD WIRES |
| | | | TREE LINE |
| | | 16 | INTERMEDIATE CONTOURS |
| | | 15 | INDEX CONTOURS |
| | | | EDGE OF TIDAL FLATS |
| | | | TOP OF COASTAL BANK |
| | | | BOTTOM OF COASTAL BANK |

GRAPHIC SCALE

40 0 20 40 80 160

( IN FEET )
1 inch = 40 ft.

REVISION

| DATE | DESCRIPTION |
|---|---|
| | |

# EXISTING CONDITIONS SURVEY
# WETLAND OVERLAY
# HARBOR LEVEL
## 200 SEAPORT BOULEVARD
## BOSTON, MASSACHUSETTS
PREPARED FOR
COMMONWEALTH PIER TRUST II


WSP USA Inc.
9 Executive Park Drive Suite 101
Merrimack, NH 03054
603.595.7900


| | | |
|---|---|---|
| Drawn By LA, MS | Date MARCH 29, 2019 | Job No. 190107A |
| Surveyed By TO, JT, JF | | |
| Checked By DPP | Scale 1" = 40' | Sheet No. 2 OF 2 |
| Book No. N–286 | | |

190107A–4–HARBOR WETLAND OVERLAY.dwg

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|
| | | |

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


617 563 3100
255 State Street
Boston, MA 02109

45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark


J:\pc_174079_MacKeown_North Reconst_Central_2018_post\dn_bim\pdfs\A0A-190210.dgn

QUICK LINKS

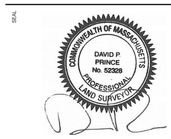
A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEY PLAN




GENERAL NOTES

SEAL




DAVID P. PRINCE, P.L.S.
REG. NO. 52328
WSP USA, Inc.

DATE: 03/29/2019

TITLE

## NOTICE OF INTENT

VOLUME

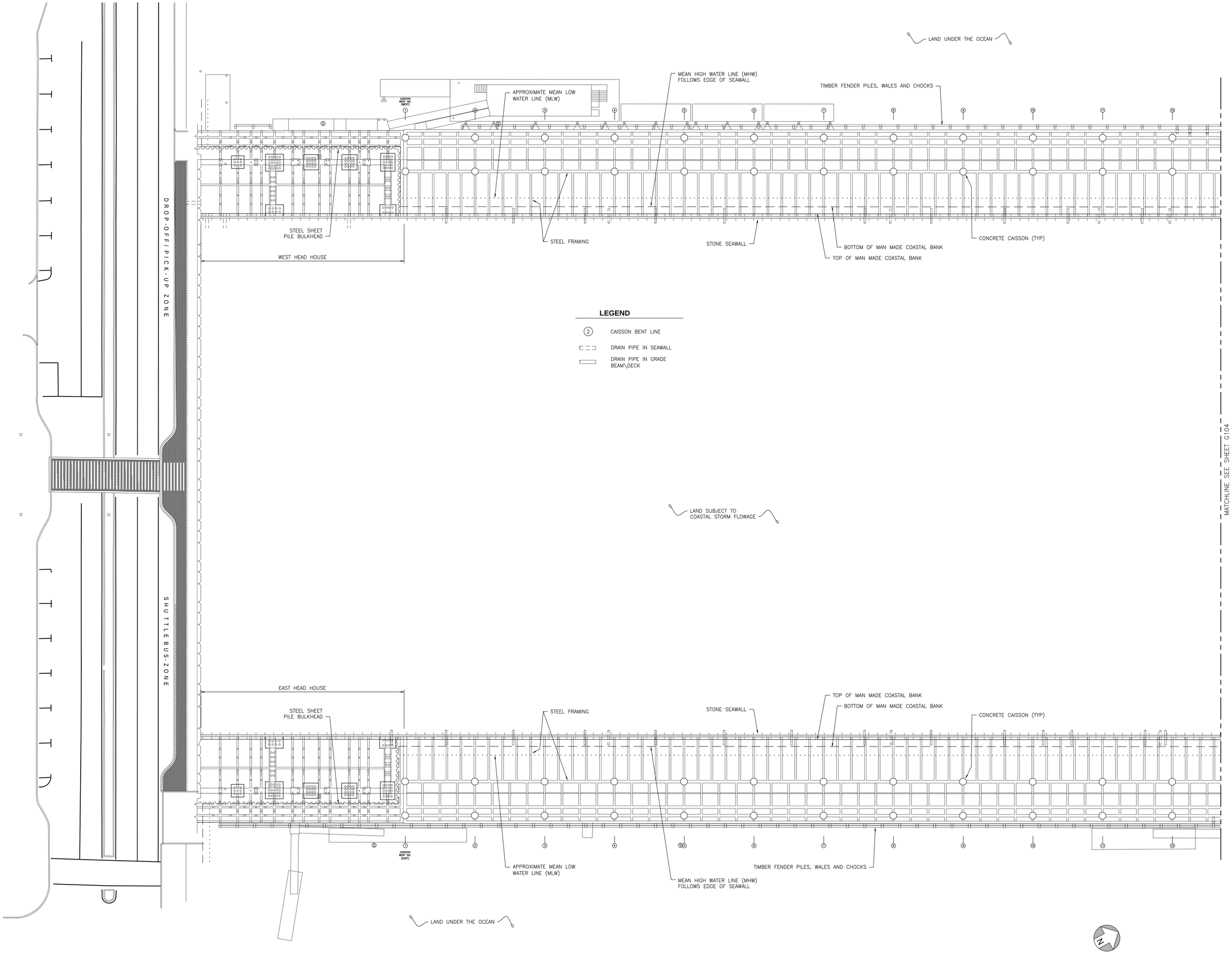
DRAWING TITLE

## EXISTING DECK PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 40'-0" | 174079 | 03.04.2019 |

# G102

WP 2017 IT 3D PLOT V5




**PLAN**
SCALE: 1"=20'-0"

N

20 0 20 40
1"=20'-0" SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

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**BOSTON, MA**


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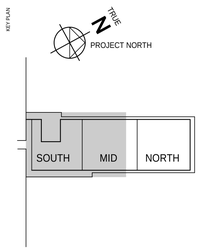
KEYPLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

VOLUME

DRAWING TITLE

EXISTING UNDER DECK PLAN

| SCALE | PROJECT # | DATE ISSUED |
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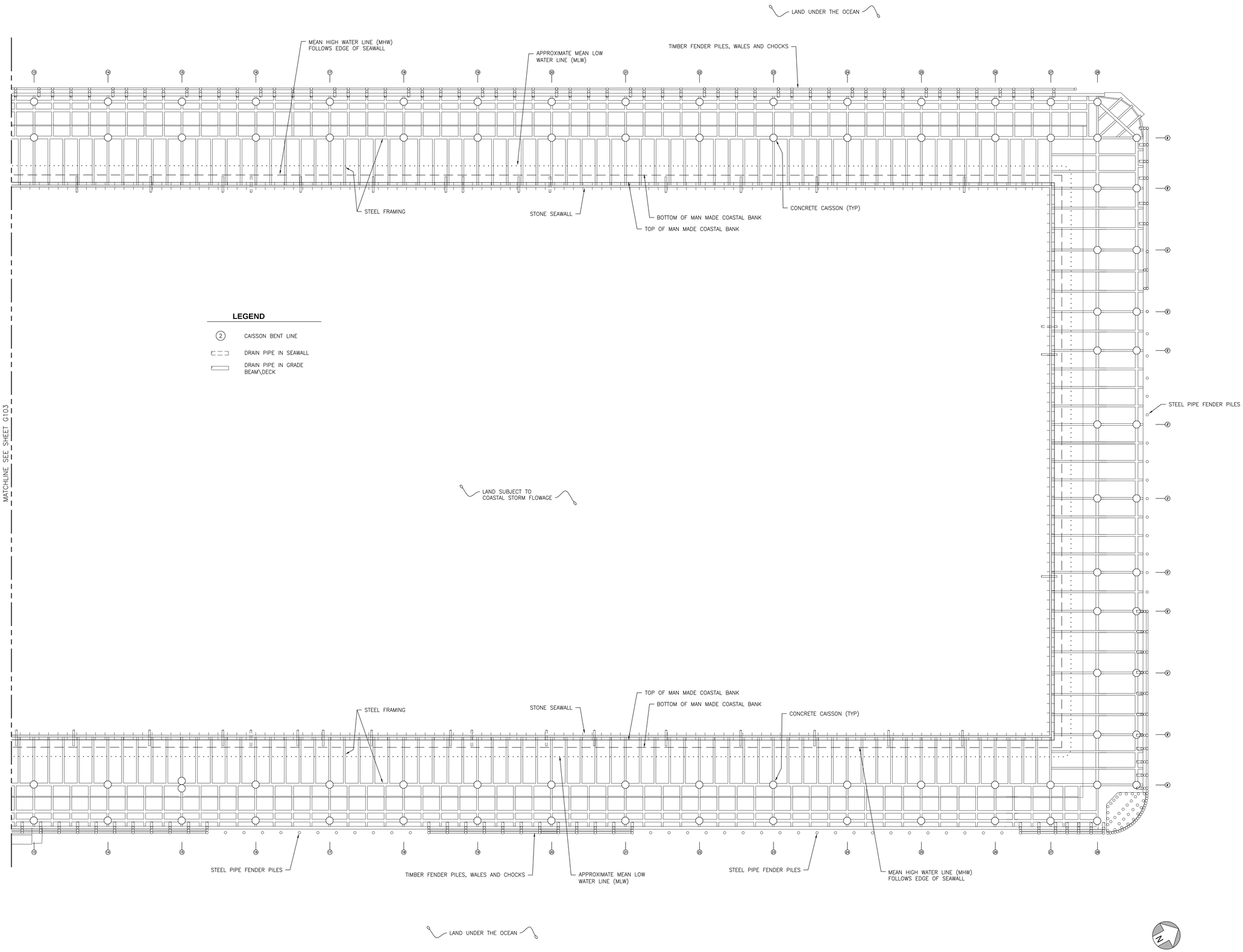
| 1" = 50'-0" | 174079 | 09.14.2018 |

**G103**

8/27/2018 11:20:19 AM




**PLAN**
SCALE: 1"=20'-0"

1"=20'-0" 20 0 20 40
SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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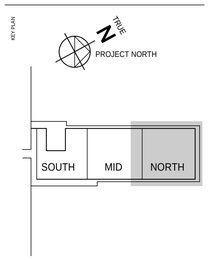
QUICK LINKS



KEYPLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

VOLUME

DRAWING TITLE

EXISTING UNDER DECK PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**G104**

8/27/2018 11:20:19 AM

# Legend

| Exist. | Prop. | |
|---|---|---|
| | | PROPERTY LINE |
| | | PROJECT LIMIT LINE |
| | | RIGHT-OF-WAY/PROPERTY LINE |
| | | EASEMENT |
| | | BUILDING SETBACK |
| | | PARKING SETBACK |
| 10+00 | 10+00 | BASELINE |
| | | CONSTRUCTION LAYOUT |
| | | ZONING LINE |
| | | TOWN LINE |
| | | LIMIT OF DISTURBANCE |
| | | WETLAND LINE WITH FLAG |
| | | FLOODPLAIN |
| BLSF | | BORDERING LAND SUBJECT TO FLOODING |
| BZ | | WETLAND BUFFER ZONE |
| NDZ | | NO DISTURB ZONE |
| 200'RA | | 200' RIVERFRONT AREA |
| | | GRAVEL ROAD |
| EOP | EOP | EDGE OF PAVEMENT |
| BB | BB | BITUMINOUS BERM |
| BC | BC | BITUMINOUS CURB |
| CC | CC | CONCRETE CURB |
| CG | CG | CURB AND GUTTER |
| ECC | ECC | EXTRUDED CONCRETE CURB |
| MCC | MCC | MONOLITHIC CONCRETE CURB |
| PCC | PCC | PRECAST CONC. CURB |
| SGE | SGE | SLOPED GRAN. EDGING |
| VGC | VGC | VERT. GRAN. CURB |
| | | LIMIT OF CURB TYPE |
| | | SAWCUT |
| | | BUILDING |
| | EN | BUILDING ENTRANCE |
| | LD | LOADING DOCK |
| | | BOLLARD |
| D | D | DUMPSTER PAD |
| | | SIGN |
| | | DOUBLE SIGN |
| | | STEEL GUARDRAIL |
| | | WOOD GUARDRAIL |
| | | PATH |
| | | TREE LINE |
| | | WIRE FENCE |
| | | FENCE |
| | | STOCKADE FENCE |
| | | STONE WALL |
| | | RETAINING WALL |
| | | STREAM / POND / WATER COURSE |
| | | DETENTION BASIN |
| | | HAY BALES |
| | | SILT FENCE |
| | | SILT SOCK / STRAW WATTLE |
| 4 | 4 | MINOR CONTOUR |
| 20 | 20 | MAJOR CONTOUR |
| 10 | 10 | PARKING COUNT |
| | C10 | COMPACT PARKING STALLS |
| DYL | DYL | DOUBLE YELLOW LINE |
| SL | SL | STOP LINE |
| | | CROSSWALK |
| | | ACCESSIBLE CURB RAMP |
| | | ACCESSIBLE PARKING |
| VAN | VAN | VAN-ACCESSIBLE PARKING |

| Exist. | Prop. | |
|---|---|---|
| | | CONCRETE |
| | | HEAVY DUTY PAVEMENT |
| | | BUILDINGS |
| | | RIPRAP |
| | | CONSTRUCTION EXIT |
| 27.35 TC× | 27.35 TC× | TOP OF CURB ELEVATION |
| 26.85 BC× | 26.85 BC× | BOTTOM OF CURB ELEVATION |
| 132.75 × | 132.75 × | SPOT ELEVATION |
| 45.0 TW 38.5 BW | 45.0 TW 38.5 BW | TOP & BOTTOM OF WALL ELEVATION |
| | | BORING LOCATION |
| | | TEST PIT LOCATION |
| MW | MW | MONITORING WELL |
| UD | UD | UNDERDRAIN |
| 12"D | 12"D | DRAIN |
| 6"RD | 6"RD | ROOF DRAIN |
| 12"S | 12"S | SEWER |
| FM | FM | FORCE MAIN |
| OHW | OHW | OVERHEAD WIRE |
| 6"W | 6"W | WATER |
| 4"FP | 4"FP | FIRE PROTECTION |
| | 2"DW | DOMESTIC WATER |
| 3"G | G | GAS |
| E | E | ELECTRIC |
| STM | STM | STEAM |
| T | T | TELEPHONE |
| FA | FA | FIRE ALARM |
| CATV | CATV | CABLE TV |
| | | CATCH BASIN |
| | | DOUBLE CATCH BASIN |
| | | GUTTER INLET |
| | | DRAIN MANHOLE |
| TD | | TRENCH DRAIN |
| C | C | PLUG OR CAP |
| CO | CO | CLEANOUT |
| | | FLARED END SECTION |
| | | HEADWALL |
| | | SEWER MANHOLE |
| CS | CS | CURB STOP & BOX |
| WV | WV | WATER VALVE & BOX |
| TSV | TSV | TAPPING SLEEVE, VALVE & BOX |
| | | SIAMESE CONNECTION |
| HYD | HYD | FIRE HYDRANT |
| WM | WM | WATER METER |
| PIV | PIV | POST INDICATOR VALVE |
| W | W | WATER WELL |
| GG | GG | GAS GATE |
| GM | GM | GAS METER |
| EMH | EMH | ELECTRIC MANHOLE |
| EM | EM | ELECTRIC METER |
| | | LIGHT POLE |
| TMH | TMH | TELEPHONE MANHOLE |
| T | T | TRANSFORMER PAD |
| | | UTILITY POLE |
| | | GUY POLE |
| | | GUY WIRE & ANCHOR |
| HH | HH | HAND HOLE |
| PB | PB | PULL BOX |
| Matchline | | MATCHLINE |

# Abbreviations

## General

| | |
|---|---|
| ABAN | ABANDON |
| ACR | ACCESSIBLE CURB RAMP |
| ADJ | ADJUST |
| APPROX | APPROXIMATE |
| BIT | BITUMINOUS |
| BS | BOTTOM OF SLOPE |
| BWLL | BROKEN WHITE LANE LINE |
| CONC | CONCRETE |
| DYCL | DOUBLE YELLOW CENTER LINE |
| EL | ELEVATION |
| ELEV | ELEVATION |
| EX | EXISTING |
| FDN | FOUNDATION |
| FFE | FIRST FLOOR ELEVATION |
| GRAN | GRANITE |
| GTD | GRADE TO DRAIN |
| LA | LANDSCAPE AREA |
| LOD | LIMIT OF DISTURBANCE |
| MAX | MAXIMUM |
| MIN | MINIMUM |
| NIC | NOT IN CONTRACT |
| NTS | NOT TO SCALE |
| PERF | PERFORATED |
| PROP | PROPOSED |
| REM | REMOVE |
| RET | RETAIN |
| R&D | REMOVE AND DISPOSE |
| R&R | REMOVE AND RESET |
| SWEL | SOLID WHITE EDGE LINE |
| SWLL | SOLID WHITE LANE LINE |
| TS | TOP OF SLOPE |
| TYP | TYPICAL |

## Utility

| | |
|---|---|
| CB | CATCH BASIN |
| CMP | CORRUGATED METAL PIPE |
| CO | CLEANOUT |
| DCB | DOUBLE CATCH BASIN |
| DMH | DRAIN MANHOLE |
| CIP | CAST IRON PIPE |
| COND | CONDUIT |
| DIP | DUCTILE IRON PIPE |
| FES | FLARED END SECTION |
| FM | FORCE MAIN |
| F&G | FRAME AND GRATE |
| F&C | FRAME AND COVER |
| GI | GUTTER INLET |
| GT | GREASE TRAP |
| HDPE | HIGH DENSITY POLYETHYLENE PIPE |
| HH | HANDHOLE |
| HW | HEADWALL |
| HYD | HYDRANT |
| INV | INVERT ELEVATION |
| I= | INVERT ELEVATION |
| LP | LIGHT POLE |
| MES | METAL END SECTION |
| PIV | POST INDICATOR VALVE |
| PWW | PAVED WATER WAY |
| PVC | POLYVINYLCHLORIDE PIPE |
| RCP | REINFORCED CONCRETE PIPE |
| R= | RIM ELEVATION |
| SMH | SEWER MANHOLE |
| TSV | TAPPING SLEEVE, VALVE AND BOX |
| UG | UNDERGROUND |
| UP | UTILITY POLE |

# Notes

## General

1. CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE 6 INCHES LOAM AND SEED.
5. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
6. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
13. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.
14. THIS PROJECT DISTURBS MORE THAN ONE ACRE OF LAND AND FALLS WITHIN THE NPDES CONSTRUCTION GENERAL PERMIT (CGP) PROGRAM AND EPA JURISDICTION. PRIOR TO THE START OF CONSTRUCTION CONTRACTOR IS TO FILE A CGP NOTICE OF INTENT WITH THE EPA AND PREPARE A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE NPDES REGULATIONS. CONTRACTOR SHALL CONFIRM THE OWNER HAS ALSO FILED A NOTICE OF INTENT WITH THE EPA.

## Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET CATCH BASIN RIMS, AND INVERTS OF SEWERS, DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
4. RIM ELEVATIONS FOR DRAIN AND SEWER MANHOLES, WATER VALVE COVERS, GAS GATES, ELECTRIC AND TELEPHONE PULL BOXES, AND MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:
   A. PAVEMENTS AND CONCRETE SURFACES: FLUSH
   B. ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
   C. LANDSCAPE, LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
5. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
6. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
7. UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:
   A. WATER PIPES SHALL BE DUCTILE IRON CEMENT LINED (DICL) CLASS 56 ZINC COATED
   B. SANITARY SEWER PIPES SHALL BE POLYVINYL CHLORIDE (PVC) SEWER PIPE
   C. STORM DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE (RCP) CLASS IV, UNLESS OTHERWISE NOTED ON THE PLANS
   D. PIPE INSTALLATION AND MATERIALS SHALL COMPLY WITH THE STATE PLUMBING CODE WHERE APPLICABLE. CONTRACTOR SHALL COORDINATE WITH LOCAL PLUMBING INSPECTOR PRIOR TO BEGINNING WORK.
8. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEWORK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. SITE CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS.
9. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

## Layout and Materials

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
2. CURB RADII ARE 3 FEET UNLESS OTHERWISE NOTED.
3. CURBING SHALL BE VERTICAL GRANITE CURB (VGC) WITHIN THE SITE UNLESS OTHERWISE INDICATED ON THE PLANS.
4. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
6. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.

## Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4. THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

## Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

## Existing Conditions Information

1. BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY AN ACTUAL FIELD SURVEY CONDUCTED BY WSP SURVEYORS. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY WSP, FROM OCTOBER 2017 TO NOVEMBER 2017.
2. TOPOGRAPHY: THE VERTICAL DATUM SHOWN REFERENCES BOSTON CITY BASE.

## Document Use

1. THESE PLANS AND CORRESPONDING CADD DOCUMENTS ARE INSTRUMENTS OF PROFESSIONAL SERVICE, AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS CREATED WITHOUT THE EXPRESSED, WRITTEN CONSENT OF VHB. ANY UNAUTHORIZED USE, REUSE, MODIFICATION OR ALTERATION, INCLUDING AUTOMATED CONVERSION OF THIS DOCUMENT SHALL BE AT THE USER'S SOLE RISK WITHOUT LIABILITY OR LEGAL EXPOSURE TO VHB.
2. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.
3. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.

REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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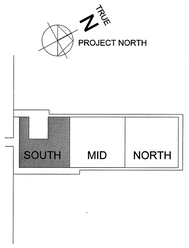
QUICK LINKS



KEY PLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT PLANS

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NOT FOR CONSTRUCTION

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LEGEND AND GENERAL NOTES

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| | 174079 | 04.01.2019 |

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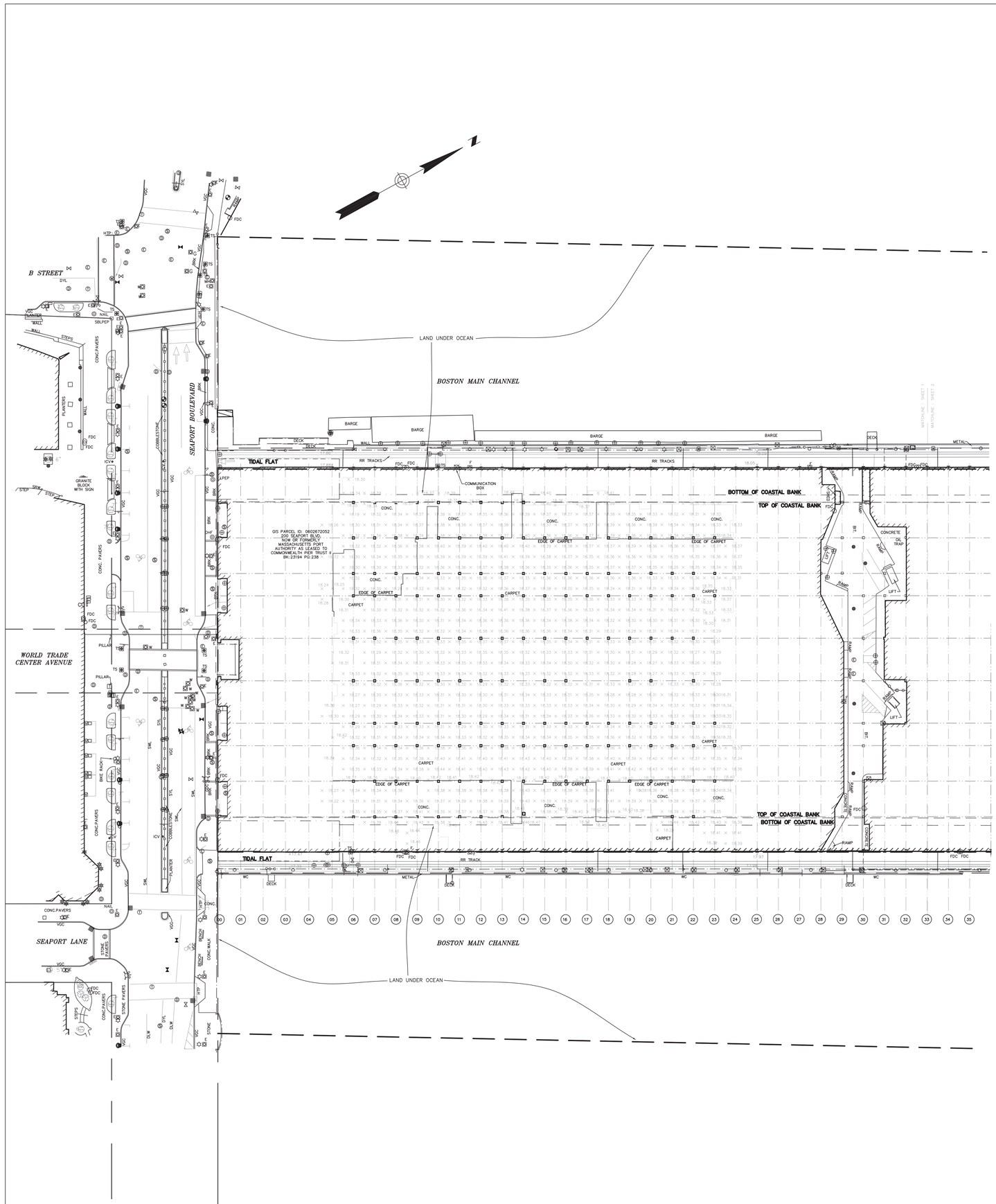



GRAPHIC SCALE

40 0 20 40 80 160

( IN FEET )
1 inch = 40 ft.

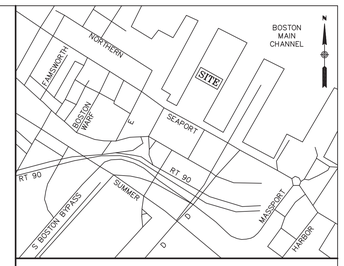
## UTILITY STATEMENTS

THE LOCATION OF THE UTILITIES AS SHOWN HEREON HAVE BEEN COMPILED FROM VISIBLE STRUCTURES AND INFORMATION OBTAINED FROM VARIOUS SOURCES. NO STRUCTURES WERE OPENED TO DETERMINE ANY INVERTS, PIPE SIZES OR TYPES. THE ACTUAL LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHALL BE CONSIDERED APPROXIMATE AND SHALL BE VERIFIED BY THE OWNER PRIOR TO ANY CONSTRUCTION. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICES OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.

## PLAN REFERENCES

SUFFOLK COUNTY REGISTRY OF DEEDS

1. PLAN BOOK 10437 PLAN 19 DATED FEBRUARY 1983. (2 SHEETS)
2. PLAN BOOK 10437 PLAN 24 DATED FEBRUARY 1983.
3. PLAN BOOK 10437 PLAN 28 DATED FEBRUARY 1983.
4. PLAN BOOK 10437 PLAN 32 DATED FEBRUARY 1983.
5. PLAN BOOK 10437 PLAN 36 DATED FEBRUARY 1983.
6. PLAN BOOK 17567 PLAN 342 DATED MAY 21, 1992.
7. PLAN BOOK 20543 PLAN 186 DATED DECEMBER 23, 1995. (6 SHEETS)
8. PLAN BOOK 28087 PLAN 111 DATED DECEMBER 20, 2001. (3 SHEETS)




LOCUS MAP
(N.T.S.)

## NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL ON THE GROUND FIELD SURVEY CONDUCTED BY WSP FROM OCTOBER 2, 2017 TO NOVEMBER 14, 2017 AND UPDATED BETWEEN MARCH 20 TO APRIL 3, 2018.

2. THE HORIZONTAL DATUM SHOWN HEREON REFERENCES THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM NAD83.

3. THE VERTICAL DATUM SHOWN HEREON REFERENCES BOSTON CITY BASE.

4. ALL SPOT GRADES SHOWN IN GRAY WERE OBTAINED BY 3D SCANNING. ALL SPOT GRADE ELEVATIONS WITHIN THE EDGE OF CARPET REPRESENT THE TOP OF THE CARPET.

5. THE LOCATION OF THE COLUMN LINES SHOWN HEREON BETWEEN COLUMN LINES "6" THRU "23" AND "B" THRU "L" ARE BASED ON THE CENTER LOCATION OF THE CONCRETE BASES IN THE EXHIBIT HALL OBTAINED BY 3D SCANNING. TO KEEP THE GRID PARALLEL AND PERPENDICULAR TO EACH OTHER ALL OTHER COLUMN LINES ARE BEST FIT USING THE LOCATION OF THE EXPOSED STEEL ON THE EXTERIOR OF THE BUILDING AND REFERENCING RECORD DOCUMENTS AND CAD FILES PROVIDED TO WSP.

## LEGEND

- SPOT GRADE
- VENT
- TRAFFIC CONTROL BOX
- GAS HANDHOLE
- ELECTRIC HANDHOLE
- GAS VALVE
- TELEPHONE MANHOLE
- WATER METER
- WATER GATE
- IRRIGATION CONTROL VALVE
- FIRE HYDRANT
- DECIDUOUS TREE
- SIGN (SINGLE POSTED)
- SIGN (DOUBLE POSTED)
- WC WOOD CURB
- CC CONCRETE CURB
- SGC SLOPED GRANITE CURB
- DLW DASHED LINE – WHITE
- GDC GRANITE DROP CURB
- SRW STONE RETAINING WALL
- HTP HANDICAPPED TRACTION PAD
- VGC VERTICAL GRANITE CURB
- LSA LANDSCAPED AREA
- FFE FINISHED FLOOR ELEVATION
- WRW WOOD RETAINING WALL
- SWL SOLID WHITE LINE
- SYL SINGLE YELLOW LINE
- DYL DOUBLE YELLOW LINE
- BRK BRICK
- TC TOP OF CURB
- BC BOTTOM OF CURB
- LPEP LEAD PLUG WITH E–PIN
- SBLPEP STONE BOUND WITH LEAD PLUG AND E–PIN
- MONITORING WELL
- BIKE LANE
- CABLE MANHOLE
- NO DUMPING PLAQUE
- UNKNOWN HANDHOLE
- MH MASS HIGHWAY HANDHOLE
- SPOT GRADE
- NAIL NAIL MONUMENT
- DISK
- WATER HANDHOLE
- AREA DRAIN
- CATCH BASIN
- DRAIN MANHOLE
- NO LABEL MANHOLE
- SEWER MANHOLE
- ELECTRIC BOX
- TS TRAFFIC SIGNAL
- POST
- MOORING BOLLARD
- CO CLEANOUT
- MAILBOX
- LIGHT POLE
- BOLLARD
- HANDICAP PARKING
- FDC FIRE DEPARTMENT CONNECTION
- F FIRE ALARM
- BENCHMARK
- TEST PIT
- BIKE LANE
- GROUND LIGHT
- CONC. COLUMN 2.1' X 1.9' (TYP) LOCATION TAKEN AT ELEV.=18.50'
- COLUMN – EXPOSED STEEL ASSUMED DIMENSION OF 2' X 2'
- LEASE AREA
- RIGHT OF WAY LINE
- EASEMENT AREA
- INTERIOR WALL – ELEV.=32.00'
- METAL GUARDRAIL
- METAL FENCE
- METAL HANDRAIL
- OHW OVERHEAD WIRES
- TREE LINE
- 16 INTERMEDIATE CONTOURS
- 15 INDEX CONTOURS
- EDGE OF TIDAL FLATS
- TOP OF COASTAL BANK
- BOTTOM OF COASTAL BANK

REVISION

| DATE | DESCRIPTION |
|---|---|

# EXISTING CONDITIONS SURVEY WETLAND OVERLAY HARBOR LEVEL

200 SEAPORT BOULEVARD
BOSTON, MASSACHUSETTS
PREPARED FOR
COMMONWEALTH PIER TRUST II

WSP USA Inc.
9 Executive Park Drive Suite 101
Merrimack, NH 03054
603.595.7900

| | | |
|---|---|---|
| Drawn By LA, MS | Date MARCH 29, 2019 | Job No. 190107A |
| Surveyed By TO, JT, JF | | |
| Checked By DPP | Scale 1" = 40' | Sheet No. 1 OF 2 |
| Book No. N–286 | | |

190107A–4–HARBOR WETLAND OVERLAY.dwg

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**

617 563 3100
255 State Street
Boston, MA 02109

45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

J:\jobs\174079_MacKeown_Arch Record_Central_2018_post\dtr_bim\pdfs\ACA-192210.pdf

QUICK LINKS

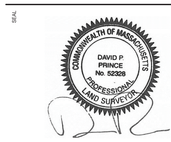


KEY PLAN




GENERAL NOTES

SEAL




DAVID P. PRINCE, P.L.S.
REG. NO. 52328
WSP USA, Inc.

DATE: 03/29/2019

TITLE

## NOTICE OF INTENT

VOLUME

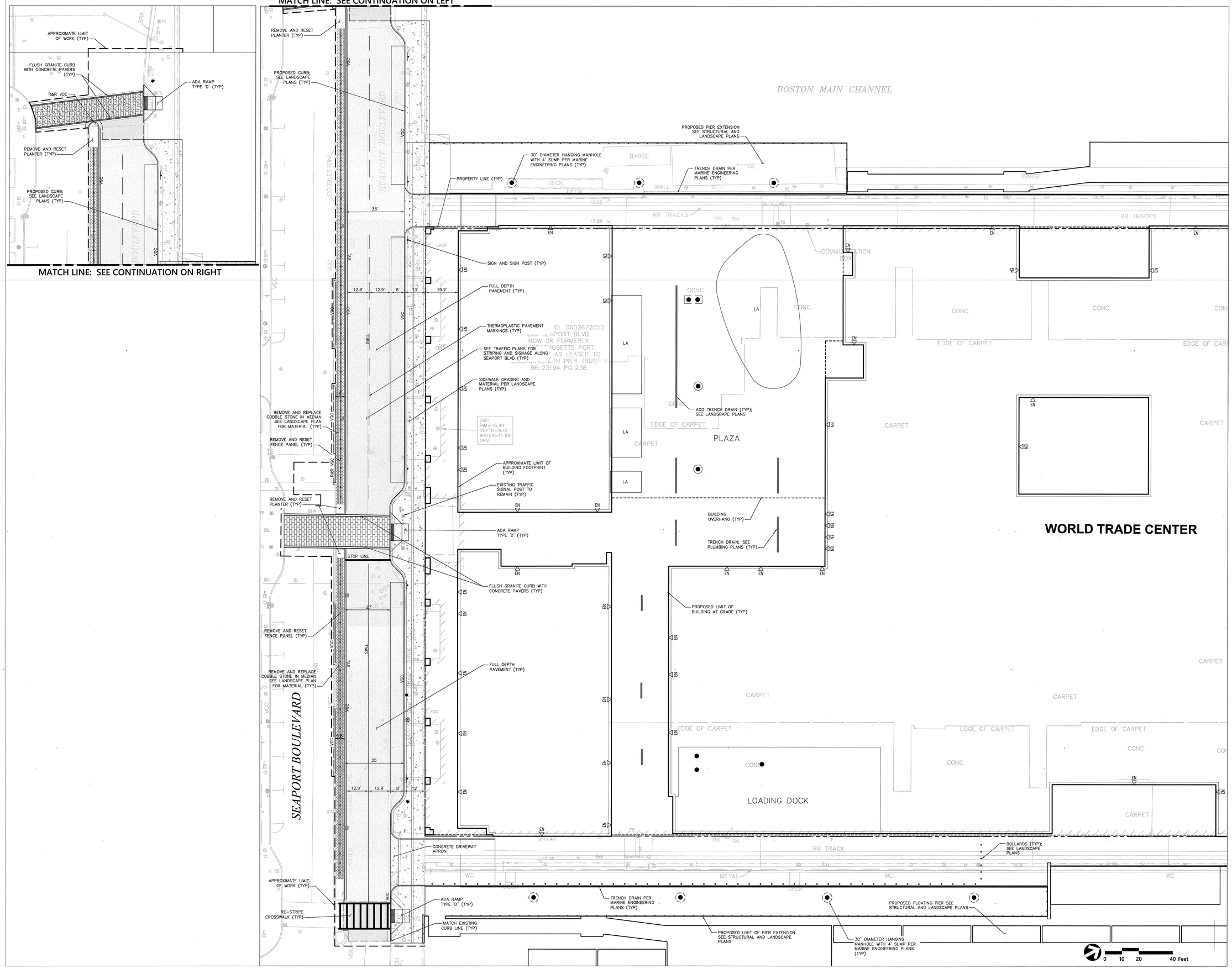
DRAWING TITLE

## EXISTING DECK PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 40'-0" | 174079 | 03.04.2019 |

# G101

MM DD/YY BY/TM




**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
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Boston, MA 02109

schmidt/hammer/lassen/
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Nørregade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114

vhb
99 High Street
Boston, Massachusetts 02110
617.728.7777 • FAX 617.728.7782


QUICK LINKS



KEY PLAN


GENERAL NOTES

GENERAL NOTE:
1. REFER TO SHEETS LA301 AND LA302 FOR LAYOUT AND MATERIALS ON PIER AND APRON

SEAL


TITLE

NOTICE OF INTENT PLANS

VOLUME

NOT FOR CONSTRUCTION

DRAWING TITLE

LAYOUT AND MATERIALS PLAN - SEAPORT BLVD

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1"=20' | 174079 | 04.01.2019 |

# C100

MATCH LINE: SEE CONTINUATION ON LEFT

MATCH LINE: SEE CONTINUATION ON RIGHT

SEE LANDSCAPE PLANS FOR SIDEWALK/HARBORWALK RECONSTRUCTION (TYP)

TIE INTO EXISTING CURB (TYP)

ADJUST CATCH BASIN RIM TO GRADE

CONNECT TO EXISTING DMH; INV EL=12.00

ADJUST EXISTING CASTINGS TO GRADE (TYP)

CONNECT TO EXISTING DMH; INV EL=12.00

ADJUST EXISTING CASTINGS TO GRADE (TYP)

PROPERTY LINE (TYP)

30" DIAMETER HANGING MANHOLE WITH A 4' SUMP PER MARINE ENGINEERING PLANS (TYP OF 3)

TRENCH DRAIN PER MARINE ENGINEERING PLANS RIM=18.23

CB-5 R=16.30 I=13.50 (OUT)

CB-4 R=16.50 I=14.00 (OUT)

CB-3 R=16.60 I=14.00 (OUT)

CB-1 R=16.00 I=12.90 (OUT)

FULL DEPTH PAVEMENT RECONSTRUCTION

SEAPORT BOULEVARD

APPROXIMATE LOCATION OF EXISTING 10" DRAIN OUTFALL; INV EL=9.00 EX

10" DICL DRAIN PIPE; INV=AT BLDG=12.90' SEE PLUMBING PLAN FOR CONTINUATION

ACO TRENCH DRAIN, HS-20 RATED; RIM=18.42

VORTECHS WQU R=19.20 I=14.20 (IN) I=14.20 (OUT) DMH 2

COLLECTION DRAIN FROM LANDSCAPE AREA TO WQU; INV=±14.8

6" DRAIN PIPE FOR LANDSCAPE AREA; SEE LANDSCAPE PLANS

10" DICL PIPE; INV EL=15.60

DMH 2 R=18.45 I=15.45 10" DICL I=14.80 DMH 1 I=14.70 (OUT)

SEE LA PLANS FOR GRADING WITHIN COURTYARD AREA

DMH 1 R=18.45 I=15.30 10" DICL I=15.30 10" DICL I=15.20 (OUT)

TRENCH DRAIN, HS-20 RATED;RIM=18.42; INV OUT=15.70

BUILDING OVERHANG (TYP)

REMOVE EXISTING CATCH BASIN

CONNECT TO EXISTING DRAIN WITH TEE CONNECTION; INV EL=13.70±

CONNECT TO EXISTING DRAIN WITH TEE CONNECTION; INV EL=15.00±

TRENCH DRAIN, HS-20 RATED;RIM=18.42; INV OUT=15.70

INSTALL 10" DI DRAIN IF EXISTING DRAIN PIPE DOES NOT EXIST

CONNECT TO EXISTING DMH; INV EL=13.90

REMOVE EXISTING CATCH BASIN

ADJUST EXISTING CASTINGS WITHIN SEAPORT BOULEVARD TO GRADE (TYP)

ADJUST EXISTING CASTINGS WITHIN SIDEWALK TO GRADE (TYP)

REMOVE EXISTING CATCH BASIN

CONNECT TO EXISTING DMH; INV EL=12.45

TRENCH DRAINS (TYP); SEE PLUMBING PLANS

PROPOSED LIMIT OF BUILDING AT GRADE (TYP)

LOADING DOCK

EDGE OF CARPET

CARPET

FFE = SEE ARCHITECTURAL PLANS

APPROXIMATE LIMIT OF WORK (TYP)

TIE INTO EXISTING CURB (TYP)

TRENCH DRAIN PER MARINE ENGINEERING PLANS RIM=18.08

30" DIAMETER HANGING MANHOLE WITH A 4" SUMP PER MARINE ENGINEERING PLANS (TYP OF 4)

WORLD TRADE CENTER

0 10 20 40 Feet

REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke Real Estate
617 563 3100
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110 canal street boston, ma 02114

vhb
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Boston, Massachusetts 02110
617.728.7777 • FAX 617.728.7782


QUICK LINKS



KEY PLAN

TRUE NORTH
PROJECT NORTH

SOUTH | MID | NORTH

GENERAL NOTES

GENERAL NOTE:
1. REFER TO SHEETS LA301 AND LA302 FOR GRADING ON PIER AND APRON

SEAL

COMMONWEALTH OF MASSACHUSETTS
LISA CHOW
CIVIL
No. 50431
REGISTERED PROFESSIONAL ENGINEER

TITLE
NOTICE OF INTENT PLANS

VOLUME
NOT FOR CONSTRUCTION

DRAWING TITLE
GRADING AND DRAINAGE PLAN - SEAPORT BLVD

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1"=20' | 174079 | 04.01.2019 |

# C200

CONNECT TO EXISTING DMH; INV EL=12.00

PROPERTY LINE (TYP)

30" DIAMETER HANGING MANHOLE WITH A 4' SUMP PER MARINE ENGINEERING PLANS (TYP OF 3)

TRENCH DRAIN PER MARINE ENGINEERING PLANS RIM=18.23

CB-5
R=16.30
I=13.50 (OUT)

APPROXIMATE LOCATION OF EXISTING 10" DRAIN OUTFALL; INV EL=9.00 EX

10" DICL DRAIN PIPE; INV AT BLDG=12.90 SEE PLUMBING PLAN FOR CONTINUATION

VORTECHS WQU
R=19.20
I=14.20 DMH 3
I=14.20 (OUT)

ACO TRENCH DRAIN, HS-20 RATED;RIM=18.42

COLLECTION DRAIN FROM LANDSCAPE AREA TO WQU; INV=±14.8

GIS PARCEL ID: 0602572052
200 SEAPORT BLVD
NORTH
MASSACHUSETTS
AUTHORITY
COMMONWEALTH
REC 21194 PG 238

6" DRAIN PIPE FOR LANDSCAPE AREA; SEE LANDSCAPE PLANS

PERFORM TEST PITS TO CONFIRM DEPTH OF EXISTING UTILITIES FOR NEW PIPE CROSSINGS (TYP)

DMH 2
R=18.45
I=15.45 10" DICL
I=14.80 DMH 1
I=14.70 (OUT)

10" DICL PIPE; INV EL=15.60

CB-4
R=16.50
I=14.00 (OUT)

REMOVE EXISTING CATCH BASIN STRUCTURE

MAINTAIN EXISTING SANITARY SERVICE

CONNECT TO EXISTING DRAIN WITH TEE CONNECTION; INV EL=15.00±

TELECOM SERVICE; SIZE TO BE DETERMINED; SEE ELECTRICAL PLANS

DMH 1
R=18.45
I=15.30 10" DICL
I=15.30 10" DICL
I=15.20 (OUT)

TRENCH DRAIN, HS-20 RATED;RIM=18.42; INV OUT=15.70

BUILDING OVERHANG (TYP)

CONNECT TO EXISTING DRAIN WITH TEE CONNECTION; INV EL=13.70±

4X5" ELECTRICAL SERVICE; CONCRETE ENCASED

TRENCH DRAIN, HS-20 RATED;RIM=18.42; INV OUT=15.70

RECORD MANHOLE

**WORLD TRADE CENTER**

FFE = SEE ARCHITECTURAL PLANS

INSTALL 10" DI DRAIN IF EXISTING DRAIN PIPE DOES NOT EXIST

CB-3
R=16.60
I=14.00 (OUT)

CONNECT TO EXISTING DMH; INV EL=13.90

REMOVE EXISTING CATCH BASIN STRUCTURE

CUT AND CAP EXISTING TELECOM SERVICE (TYP)

MAINTAIN EXISTING SANITARY SERVICE

MAINTAIN EXISTING SANITARY SERVICE

TRENCH DRAINS (TYP); SEE PLUMBING PLANS

CUT CAP AND RESTRAIN EXISTING UTILITY CONNECTIONS AT MAIN OR MANHOLE (TYP)

RELOCATE STREET LIGHT

RELOCATE FIRE HYDRANT

CONNECT FIRE SERVICE TO EXISTING 12" SOUTHERN HIGH PRESSURE WATER MAIN WITH TAPPING SLEEVE AND GATE VALVE

(2) 10" FIRE PROTECTION SERVICE

CONNECT DOMESTIC WATER SERVICE TO EXISTING 12" SOUTHERN LOW PRESSURE WATER MAIN WITH TAPPING SLEEVE AND GATE VALVE

6" DOMESTIC WATER SERVICE

CONNECT TO EXISTING 18" SEWER WITH CHIMNEY CONNECTION; INV AT MAIN EL=3.70

6" SEWER CONNECTION; SEE PLUMBING PLANS

REMOVE EXISTING CATCH BASIN STRUCTURE

CONNECT TO EXISTING DMH; INV EL=12.45

*SEAPORT BOULEVARD*

PROPOSED LIMITS OF BUILDING AT GRADE (TYP)

4,000 GALLON GREASE TRAP; SEE PLUMBING PLANS

GAS OIL SEPARATOR IN LOADING DOCK; SEE PLUMBING PLANS

WATER METER INSIDE BUILDING; SEE PLUMBING PLANS

RELOCATE STREET LIGHT

GAS METER INSIDE BUILDING; SEE PLUMBING PLANS

CB-1
R=16.00
I=12.90 (OUT)

GAS SERVICE

CONNECT TO EXISTING GAS MAIN WITH TEE CONNECTION AND GATE VALVE

TRENCH DRAIN PER MARINE ENGINEERING PLANS RIM=18.08

30" DIAMETER HANGING MANHOLE WITH A 4' SUMP PER MARINE ENGINEERING PLANS (TYP OF 4)

APPROXIMATE LIMIT OF WORK (TYP)

0 10 20 40 Feet

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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vhb
99 High Street
Boston, Massachusetts 02110
617.728.7777 • FAX 617.728.7782


QUICK LINKS



KEY PLAN

TRUE NORTH
PROJECT NORTH

SOUTH | MID | NORTH

GENERAL NOTES

GENERAL NOTE:
1. CONTRACTOR SHALL PERFORM TEST PITS IN SEAPORT BOULEVARD TO CONFIRM DEPTH OF EXISTING UTILITIES FOR NEW CATCH BASINS AND DRAIN PIPES PRIOR TO DESIGN DEVELOPMENT PHASE.

SEAL

LISA CHOW CIVIL No. 50131 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

TITLE
NOTICE OF INTENT PLANS

VOLUME
NOT FOR CONSTRUCTION

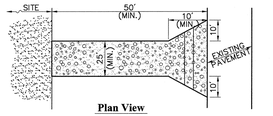
DRAWING TITLE
UTILITY PLAN - SEAPORT BLVD

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1"=20' | 174079 | 04.01.2019 |

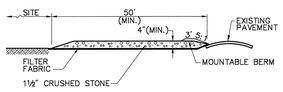
**C300**

## Stabilized Construction Exit

N.T.S. Source: VHB 6/08 LD_682




Plan View



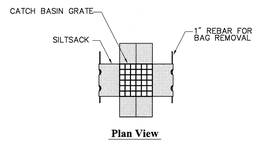

Cross-section

**Notes:**

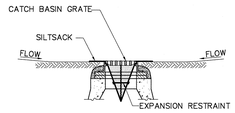
1. ENTRANCE WIDTH SHALL BE A TWENTY–FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY. BERM SHALL BE PERMITTED. PERIODIC INSPECTION AND MAINTENANCE SHALL BE PROVIDED AS NEEDED.
3. STABILIZED CONSTRUCTION EXIT SHALL BE REMOVED PRIOR TO FINAL FINISH MATERIALS BEING INSTALLED.

## Siltsack Sediment Trap

N.T.S. Source: VHB 6/08 LD_674




Plan View



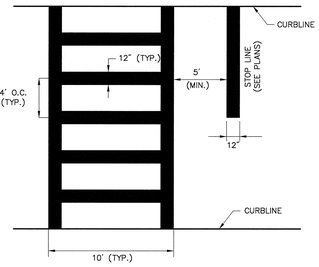

Section View

**Notes:**

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

## Crosswalk - City of Boston Detail A308

N.T.S. Source: City of Boston

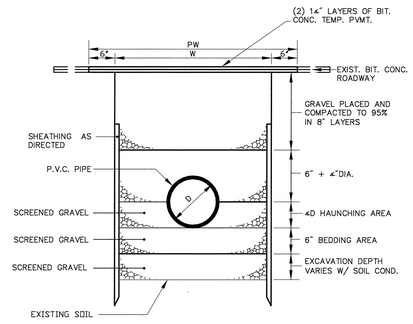



**Notes:**

1. TWELVE INCH (12") LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO – 6 INCH LINES) WILL BE ACCEPTED.
2. LAYOUT OF CROSSWALK SHALL BE APPROVED BY A BTD ENGINEER PRIOR TO INSTALLATION.
3. CROSS WALK SIDESLOPE SHALL NOT EXCEED 1.5%.
4. MARKING SHALL BE REFLECTORIZED THERMOPLASTIC.

## BWSC - Trench Detail for RCP or DICL Pipe

N.T.S. 1/31/99 B–08

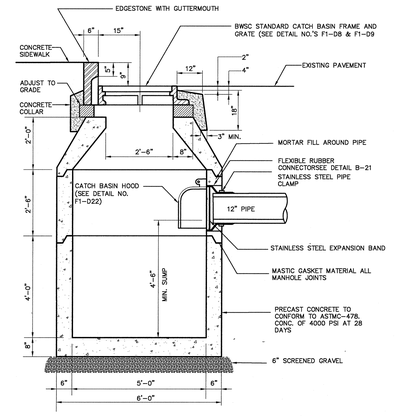



W = MAXIMUM TRENCH WIDTH
PW = MAXIMUM PAVING WIDTH = W+1'–0"
D = OUTSIDE DIAMETER
UNSHEATHED TRENCH: W = D+2'(3'–0" MIN.)
SHEATHED TRENCH: W = D+2'+SHEATHING WIDTH (4'–2"MIN. WALERS)
(5'–0" MIN. W/WALERS)

TRENCH BOX OR HYDRAULIC SHORING: W = D + 2' + [WALL SHIELD WIDTH x 8"] + 1' FOR TRENCH BOX

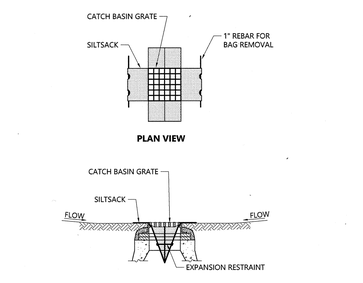
## BWSC - Typical Field (Boot) Connection

N.T.S. Source: VHB 1/3/05 B–05




## Straw Wattle - Erosion Control Barrier

N.T.S. Source: VHB REV 1/16 LD_659

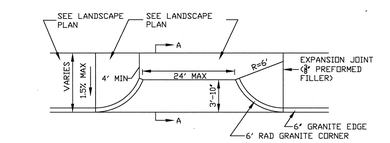



**NOTES**

1. STRAW WATTLE SHALL BE AS MANUFACTURED BY EARTHSAVER OR APPROVED EQUAL.
2. STRAW WATTLES SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. STRAW WATTLE SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. TEMPORARY STRAW WATTLES TO BE REMOVED BY CONTRACTOR. ALL OTHERS TO REMAIN IN PLACE UNLESS DIRECTED OTHERWISE BY ENGINEER.
5. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

## Bituminous Concrete Pavement Section

N.T.S. Source: MassDOT




Pavement Section

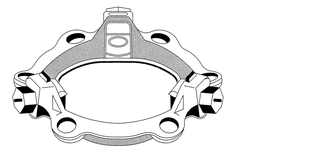
**Note:**

PAVEMENT SECTION IS SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF FURTHER GEOTECHNICAL INVESTIGATIONS.

## BWSC - Typical Thrust Restraint

N.T.S. 11/07/07 F1–023

1. DEVICES NEED TO BE PLACED BEYOND THE AREA OF RESTRAINTS IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS.



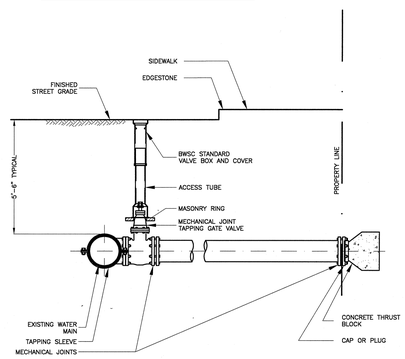
WEDGE ACTION
RESTRAINT DEVICE

TYPICAL THRUST RESTRAINT USING
WEDGE ACTION RESTRAINT DEVICE

## BWSC - Typical Water Pipe Connection with Tapping Sleeve and Gate Valve

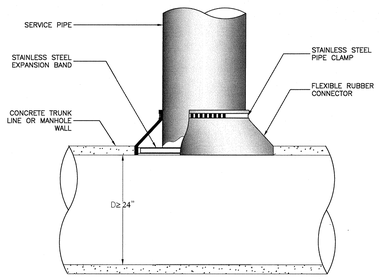
N.T.S. 8/30/99 A–33

NOTES:
- CONCRETE THRUST BLOCK TO BE USED ONLY WHERE IT WILL BEAR ON UNDISTURBED EARTH.
- USE RESTRAINED JOINT FITTINGS (MEGALUG OR APPROVED EQUAL) WHERE CONCRETE THRUST BLOCK IS UNACCEPTABLE.
- SIZE OF BLOCK OR MEGALUG TO BE DESIGNED FOR SPECIFIC CONDITIONS.




## BWSC - Standard Catch Basin No. 5

N.T.S. Source: VHB REV B–05




NOTES:

1. OPENING IN CONCRETE WALL SHALL BE CORED USING HIGH SPEED DIAMOND DRILL.
2. ALL METAL FIXTURES SHALL BE OF STAINLESS STEEL.
3. SERVICE LINE SHALL BE FLUSH WITH THE INSIDE OF THE CONCRETE PIPE OR WALL.
4. IF TRUNK LINE DIAMETER IS LESS THAN 24" THEN A SADDLE TYPE CONNECTION WILL BE USED.

## Siltsack Sediment Trap

N.T.S. Source: VHB LD_674




**NOTES**

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

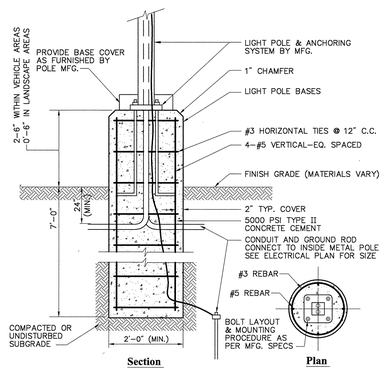
## City of Boston Standard Driveway

N.T.S. Source: VHB 8/11 LD_300




## Light Pole Foundation Detail (Up to 40' Pole)

N.T.S. Source: VHB REV 2/11 LD_310

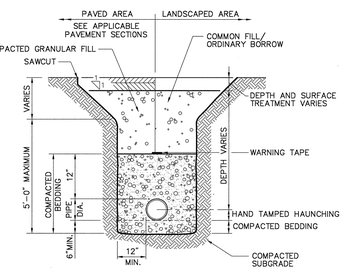



**Notes:**

LIGHT POLE FOUNDATION DESIGN IS SUBJECT TO CHANGE BASED ON FINAL POLE AND FIXTURE SELECTION AND GEOTECHNICAL SITE INVESTIGATION.

## Utility Trench

N.T.S. Source: VHB REV 8/11 LD_300

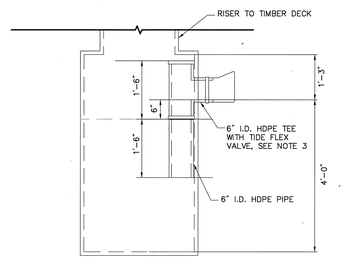



**Notes:**

1. WHERE UTILITY TRENCHES ARE CONSTRUCTED THROUGH DETENTION BASIN BERMS OR OTHER SUCH SPECIAL SECTIONS, PLACE TRENCH BACKFILL WITH MATERIALS SIMILAR TO THE SPECIAL SECTION REQUIREMENTS.
2. USE METALLIC TRACING/WARNING TAPE OVER ALL PIPES.

## Drain Outlet Detail

N.T.S. Source: VHB 8/11




GENERAL NOTES:

1. ACCESS HATCH AND COVER PER MARINE ENGINEERING PLANS.
2. STRUCTURAL SUPPORT AND ANCHOR DESIGN AND DETAIL FOR DRAIN PER MARINE ENGINEERING PLANS.
3. HDPE PIPE SHALL BE POLYPIPE DR 32.5 OR APPROVED EQUAL. BOTTOM CAP AND TOP FLANGE SHALL BE THE SAME MATERIAL AND THICKNESS AS PIPE WALL AND SHALL BE WELDED TO THE PIPE BY THE MANUFACTURER IN THE SHOP.
4. HDPE TEE SHALL BE WELDED TO THE PIPE BY THE MANUFACTURER IN THE SHOP.

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke Real Estate — 617 563 3100, 255 State Street, Boston, MA 02109

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cbt — 617 262 4354 cbtarchitects.com, 110 canal street boston, ma 02114

vhb — 99 High Street, Boston, Massachusetts 02110, 617.728.7777 • FAX 617.728.7782


QUICK LINKS



KEY PLAN


GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT PLANS

VOLUME

NOT FOR CONSTRUCTION

DRAWING TITLE

DETAILS

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| | 174079 | 04.01.2019 |

**C400**

## Erosion Control Notes

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

CONSTRUCTION GATE (TYP)
LOCATION TO VARY BASED
ON CONSTRUCTION LOGISTICS

CONSTRUCTION FENCE (TYP)
LOCATION TO VARY BASED
ON CONSTRUCTION LOGISTICS

WHEEL WASH IN EXISTING
LOADING DOCK (TYP)

STRAW WATTLE (TYP)
LOCATION TO VARY BASED
ON CONSTRUCTION LOGISTICS

WORLD TRADE CENTER

SEAPORT BOULEVARD

PROPERTY LINE (TYP)

LIMIT OF WORK
LINE (TYP)

SILT SACK (TYP)

STRAW WATTLE (TYP)
LOCATION TO VARY BASED
ON CONSTRUCTION LOGISTICS

See Sheet C601

Match Line

0 10 20 40 Feet

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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QUICK LINKS



KEY PLAN

TRUE NORTH
PROJECT NORTH

SOUTH

GENERAL NOTES

SEAL

LIN A CHOW CIVIL No. 50731 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

TITLE
NOTICE OF INTENT PLANS

VOLUME
NOT FOR CONSTRUCTION

DRAWING TITLE
EROSION CONTROL & SEDIMENTATION PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1"=40' | 174079 | 04.01.2019 |

**C501**

## Erosion Control Notes

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
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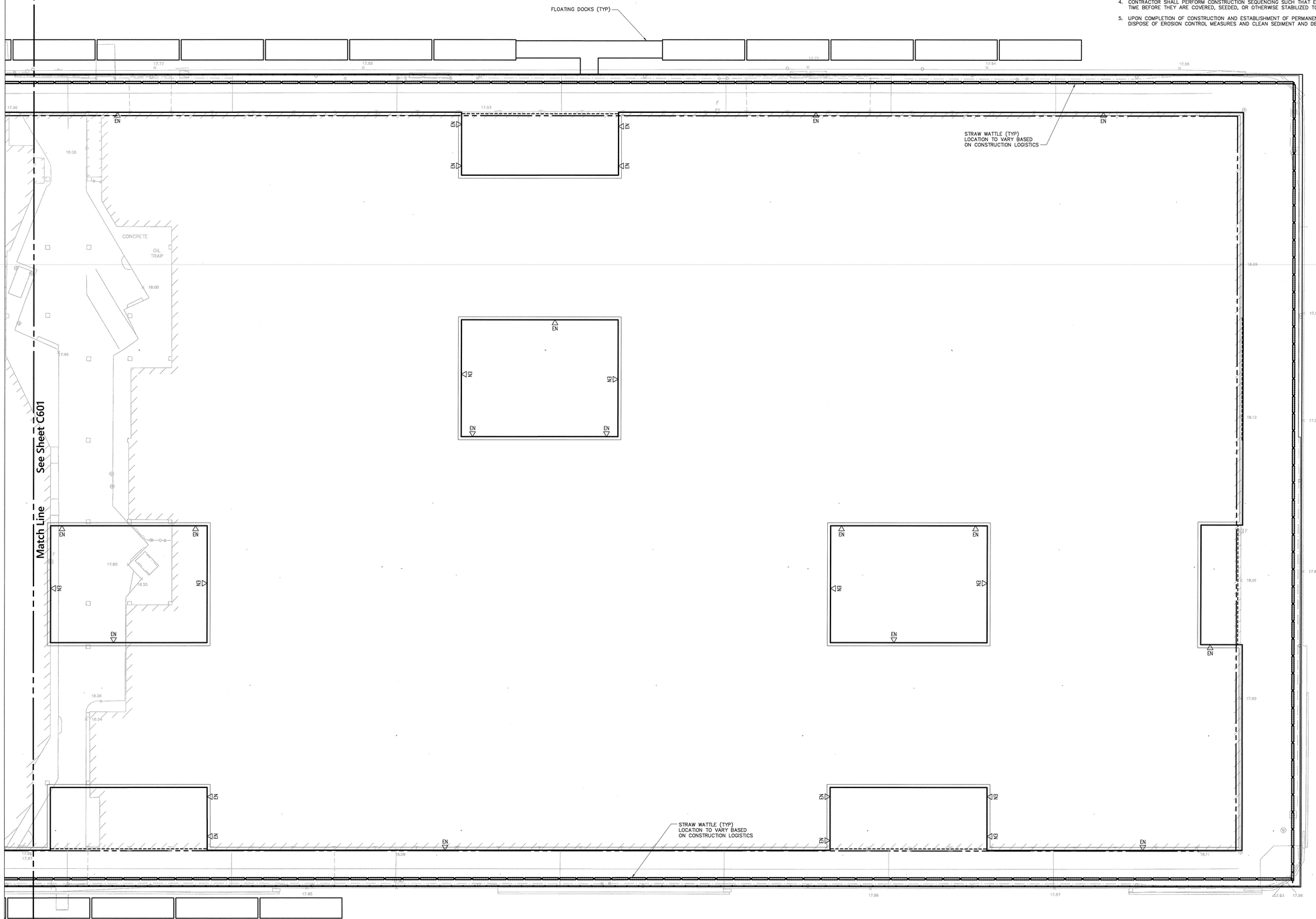


0 10 20 40 Feet

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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QUICK LINKS



KEY PLAN

TRUE NORTH
PROJECT NORTH

SOUTH | MID | NORTH

GENERAL NOTES

SEAL

LISA CHOW CIVIL No. 50431 COMMONWEALTH OF MASSACHUSETTS REGISTERED PROFESSIONAL ENGINEER

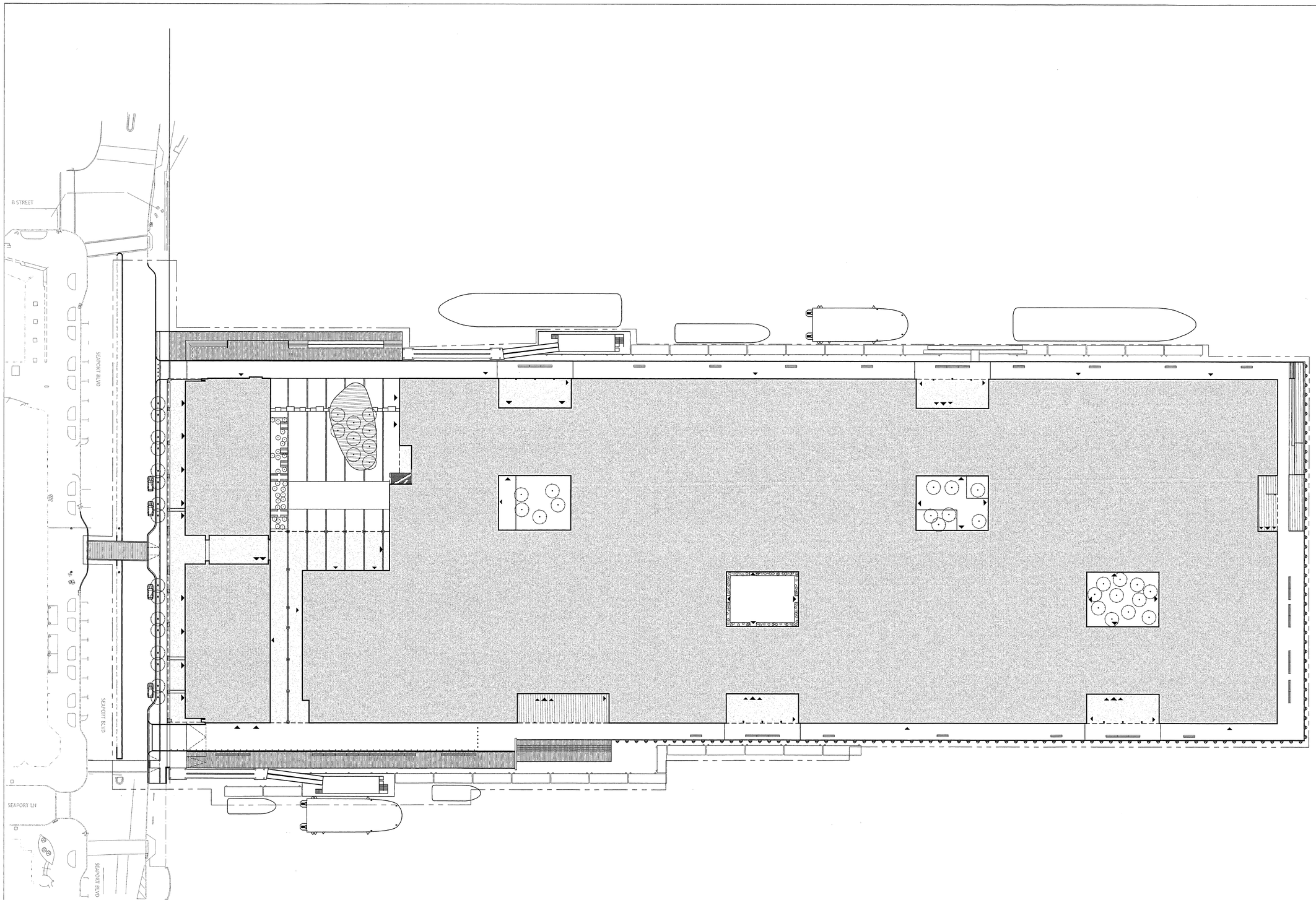
TITLE
NOTICE OF INTENT PLANS

VOLUME
NOT FOR CONSTRUCTION

DRAWING TITLE
EROSION CONTROL & SEDIMENTATION PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1"=40' | 174079 | 04.01.2019 |

**C502**




**REVISIONS**

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

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110 canal street boston, ma 02114

SASAKI
617 926 3300
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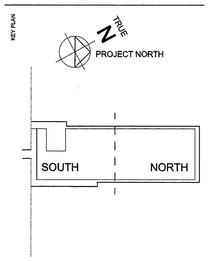
KEY PLAN




GENERAL NOTES

-

SEAL


TITLE

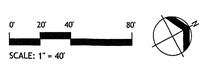
NOTICE OF INTENT PLANS

VOLUME

NOT FOR CONSTRUCTION

DRAWING TITLE

NOI Overall Site Plan




| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20" | 174079 | 04.01.2019 |

**LA100**

SEAPORT BLVD

TIMBER BENCHES. TYP
TIMBER DECKING PIER EXTENSION, TYP.
TIMBER DECKING STEPS, TYP.
DOCK ( SEE MARINE PLANS)
CONCRETE ARPON
TIMBER BENCH. TYP
CURB CUT
BOLLARDS
GRANITE CURB
PRECAST UNIT PAVING
CONCRETE PAVEMENT
FLUSH TIMBER DECKING ON PLANTING SOIL
FLUSH METAL BAND, TYP.
GRANITE STONE BAND
TREE PITS, TYP.
CONCRETE PAVEMENT, TYP.
CONCRETE APRON WITHIN NICHE
BUILDING ENTRANCE INDICATOR, TYP.
EXTERIOR SPACE BELOW BUILDING STRUCTURE, TYP.
BUILDING OVERHANG, TYP.
EXISTING CURB, TYP.
GRANITE CURB, TYP.
VEGETATED AREA
EXTERIOR STAIR TO VIADUCT LEVEL
PERMEABLE UNIT PAVERS
BUILDING COLUMNS, TYP.
CONCRETE PAVEMENT
CONCRETE PAVEMENT, TYP.
FLUSH METAL BAND, TYP.
GRANITE BANDING
CONCRETE PAVEMENT
PRECAST UNIT PAVERS
EXTERIOR SPACE BELOW BUILDING STRUCTURE, TYP.
BUILDING OVERHANG, TYP.
CONCRETE PAVEMENT
FLUSH METAL BAND, TYP.
STREET TREES & TREE GRATES, TYP.
EXISTING CURB, TYP.
GRANITE CURB, TYP.
BOLLARDS
CURB CUT
EXISTING CURB
CONCRETE APRON. TYP
TIMBER BENCHES. TYP
TIMBER DECKING ON CONCRETE BASE WITHIN NICHE
TIMBER DECKING STEPS
TIMBER DECKING PIER EXTENSION
CONCRETE APRON
DOCK ( SEE MARINE PLANS)
TIMBER DECKING PIER EXTENSION
FLOATING DOCK ( SEE MARINE PLANS)
CONCRETE PAVE
EDGE PLANTER
FLOATING DO

140'-0"
80'-0"
18'-9"
12'-0"
30'-8"
108'-3"
91'-6"
49'-10"
29'-3"
23'-4"
41'-2"
34'-0"
25'-0"
18'-3"
100'-0"
13'-3"
7'-6"
19'
18'-0"
26'-2" ROADWAY
8'-6" CURB SIDE LANE
5'-6" 7'-0" SIDEWALK
3'-0" 16'-3" NEW ARCADE

0' 10' 20' 40'
SCALE: 1" = 20'

LN

**REVISIONS**

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

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cbt — 617 262 4354 cbtarchitects.com, 110 canal street boston, ma 02114

SASAKI — 617 926 3300, 64 Pleasant Street, Watertown, MA 02472


KEY PLAN

TRUE N — PROJECT NORTH

SOUTH NORTH

GENERAL NOTES

SEAL

COMMONWEALTH OF MASSACHUSETTS — ZACHARY P. CHRISOO — CIVIL — NO. 52139 — REGISTERED PROFESSIONAL ENGINEER — 04/1/19

TITLE: NOTICE OF INTENT PLANS

VOLUME: NOT FOR CONSTRUCTION

DRAWING TITLE: NOI Layout + Materials Plan

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20' | 174079 | 04.01.2019 |

# LA201

TIMBER BENCH. TYP

FLOATING DOCK ( SEE MARINE PLANS)

18'-9"
12'-0"
80'-0"
30'-8"

CONCRETE APRON WITHIN NICHE

TIMBER STEPS

TIERED TIMBER SEATING ELEMENTS

TIMBER DECKING ON CONCRETE BASE

CONCRETE PAVEMENT

VEGETATED AREA

23'-6"
58'-7"

TIMBER DECKING ON CONCRETE BASE WITHIN NICHE

TIMBER STEPS

12'-0"

28'-8"

12'-0"

TIMBER BENCH TYP.

STONE DUST PAVING

CONCRETE PAVEMENT

EDGE PLANTER, TYP.

CONCRETE APRON WITHIN NICHE

BUILDING ENTRANCE INDICATOR, TYP.

EXTERIOR SPACE BELOW BUILDING STRUCTURE, TYP.

BUILDING OVERHANG, TYP.

CONCRETE APRON WITHIN NICHE

TIMBER BENCH TYP.

CONCRETE ARPON

FENDER PILES (SEE MARINE PLANS)

FLOATING DOCK ( SEE MARINE PLANS)

0' 10' 20' 40'

SCALE: 1" = 20'

**REVISIONS**

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

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SASAKI — 617 926 3300, 64 Pleasant Street, Watertown, MA 02472


KEY PLAN

TRUE N — PROJECT NORTH

SOUTH NORTH

GENERAL NOTES

SEAL

COMMONWEALTH OF MASSACHUSETTS — ZACHARY P. CHRISCO — CIVIL NO. 52133 — REGISTERED PROFESSIONAL ENGINEER

TITLE: NOTICE OF INTENT PLANS

VOLUME: NOT FOR CONSTRUCTION

DRAWING TITLE: NOI Layout + Materials Plan

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20' | 174079 | 04.01.2019 |

**LA202**

MAP-CCGBK-KEP-NOI-71

REFER TO CIVIL ROADWAY GRADING PLAN FOR NORTH CURB ELEVATIONS

REFER TO MEP PLANS FOR DRAINAGE AND UNDERDRAINAGE WITHIN COURTYARDS

SEAPORT BLVD

SCALE: 1" = 20'

**REVISIONS**

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


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KEY PLAN

TRUE PROJECT NORTH

SOUTH NORTH

GENERAL NOTES

SEAL

COMMONWEALTH OF MASSACHUSETTS — ZACHARY P. CHRISCO — CIVIL — NO. 52133 — REGISTERED PROFESSIONAL ENGINEER — 4/11/19

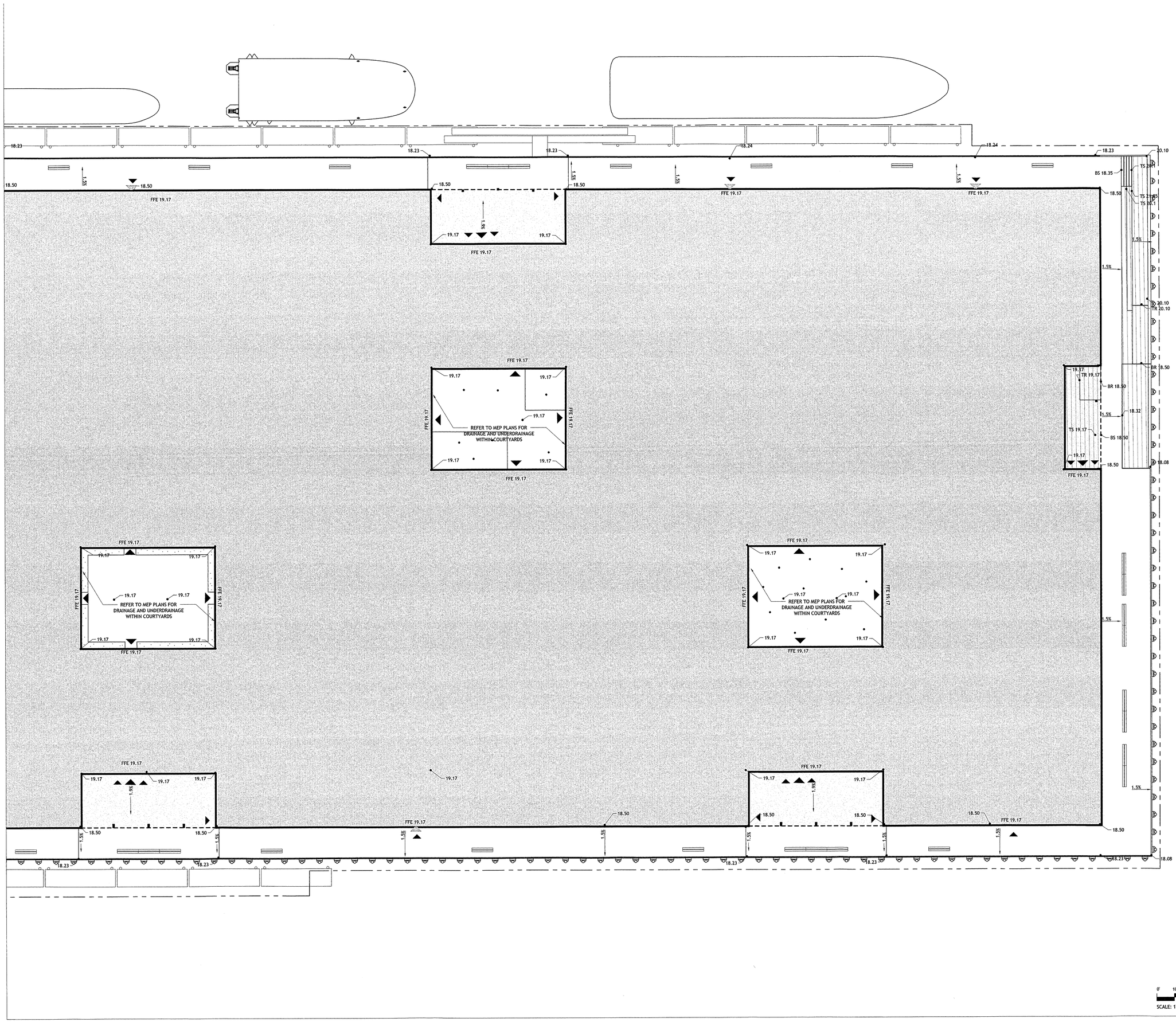
TITLE: NOTICE OF INTENT PLANS

VOLUME: NOT FOR CONSTRUCTION

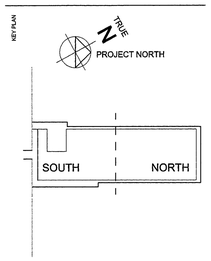
DRAWING TITLE: NOI Grading Plan

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20' | 174079 | 04.01.2019 |

**LA301**




KEY PLAN




SCALE: 1" = 20'

REVISIONS

| DATE | DESCRIPTION |
|---|---|
| 03/01/19 | NOI SUBMISSION |

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**

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2300 Copenhagen S, Denmark

SASAKI 617 926 3300
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Watertown, MA 02472

GENERAL NOTES

SEAL

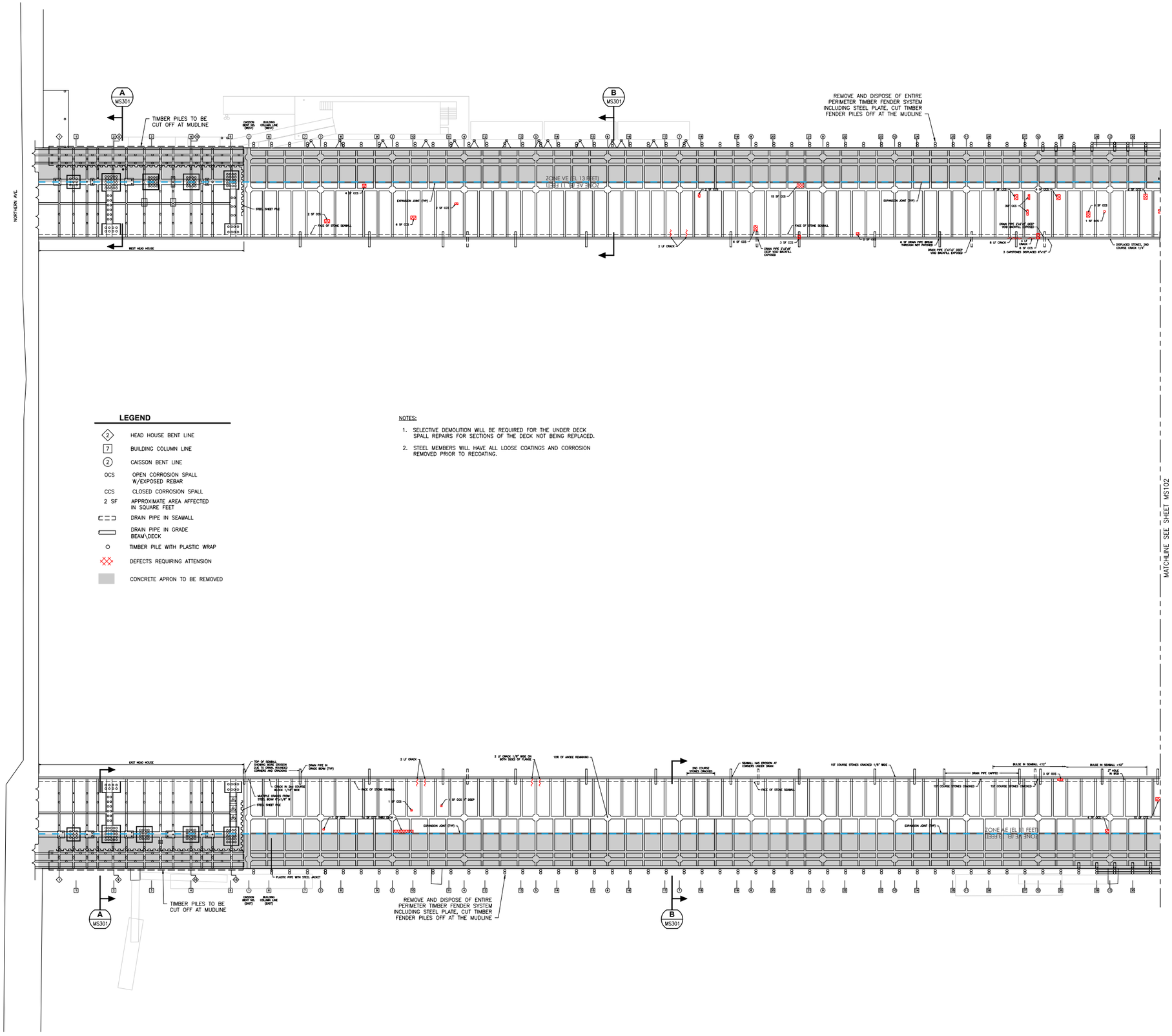

TITLE
NOTICE OF INTENT PLANS

VOLUME
NOT FOR CONSTRUCTION

DRAWING TITLE
NOI Grading Plan

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 20" | 174079 | 04.01.2019 |

**LA302**




## LEGEND

| | |
|---|---|
| 2 | HEAD HOUSE BENT LINE |
| 7 | BUILDING COLUMN LINE |
| 2 | CAISSON BENT LINE |
| OCS | OPEN CORROSION SPALL W/EXPOSED REBAR |
| CCS | CLOSED CORROSION SPALL |
| 2 SF | APPROXIMATE AREA AFFECTED IN SQUARE FEET |
| | DRAIN PIPE IN SEAWALL |
| | DRAIN PIPE IN GRADE BEAM\DECK |
| | TIMBER PILE WITH PLASTIC WRAP |
| | DEFECTS REQUIRING ATTENSION |
| | CONCRETE APRON TO BE REMOVED |

NOTES:

1. SELECTIVE DEMOLITION WILL BE REQUIRED FOR THE UNDER DECK SPALL REPAIRS FOR SECTIONS OF THE DECK NOT BEING REPLACED.
2. STEEL MEMBERS WILL HAVE ALL LOOSE COATINGS AND CORROSION REMOVED PRIOR TO RECOATING.

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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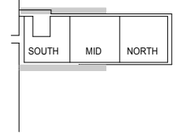
SHEET LIST

A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEY PLAN




GENERAL NOTES

**NOTE: FEMA Flood Hazard Boundaries added by Fort Point Associates, Inc. April 19, 2019**

SEAL


TITLE

NOTICE OF INTENT

VOLUME

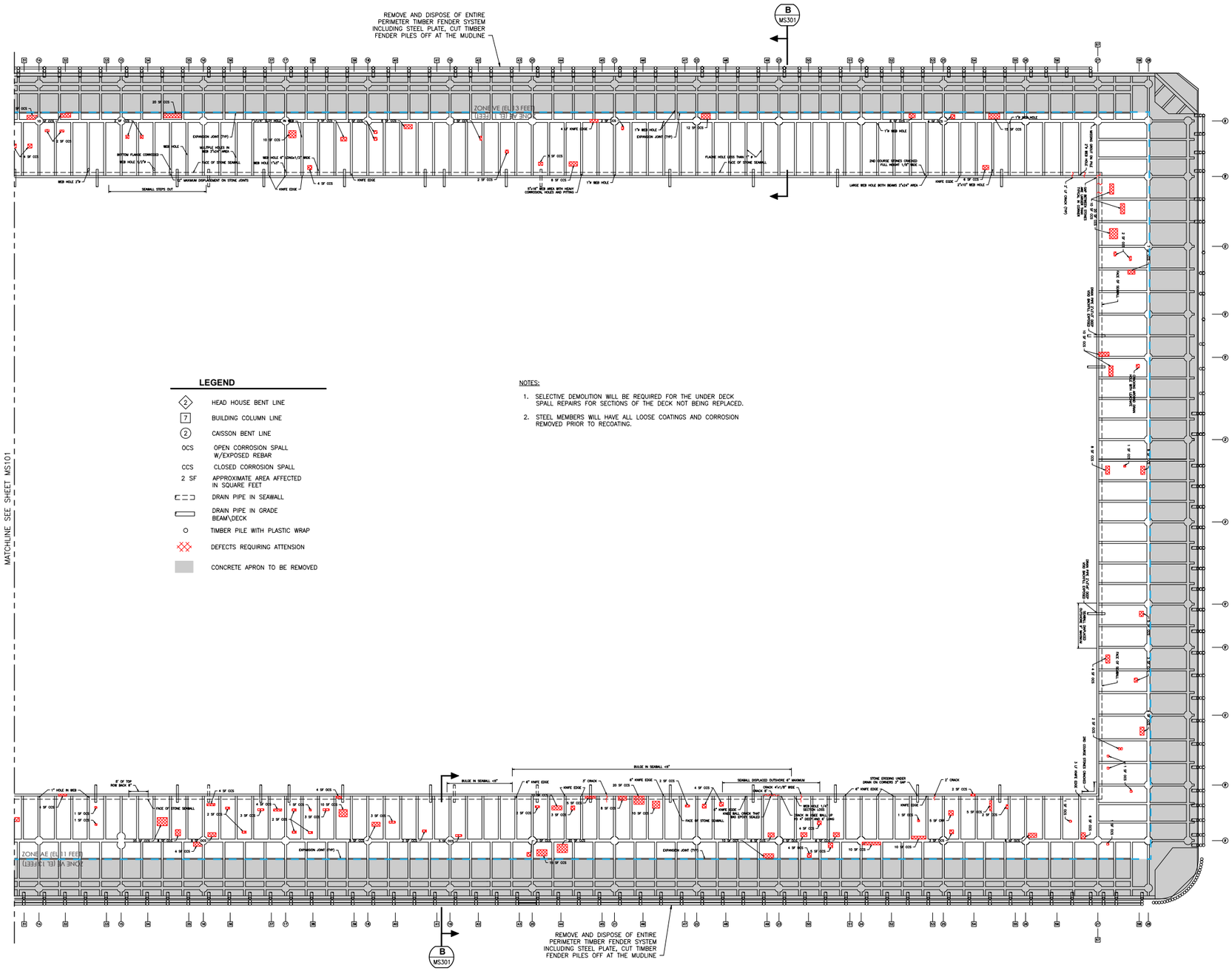
DRAWING TITLE

EXISTING CONDITION PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS101**

W:\2018\08 11:20:03 AM




**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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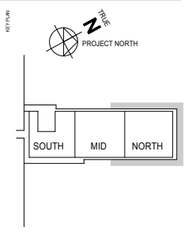
DESIGNERS

A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEYPLAN




GENERAL NOTES

**NOTE: FEMA Flood Hazard Boundaries added by Fort Point Associates, Inc. April 19, 2019**

SEAL


TITLE

NOTICE OF INTENT

VOLUME

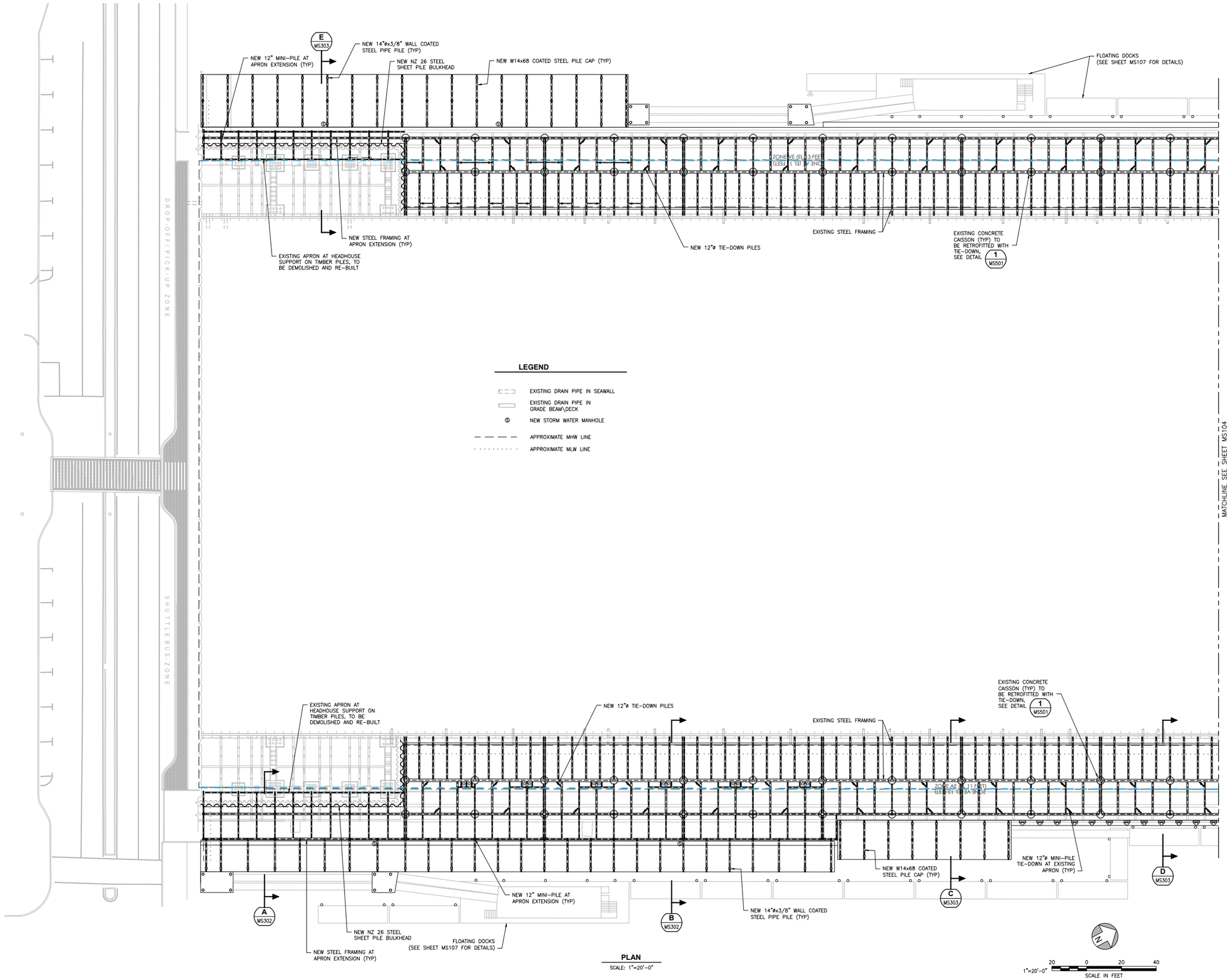
DRAWING TITLE

EXISTING CONDITION PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS102**

M 9/27/2018 12:29:01 AM




**PLAN**
SCALE: 1"=20'-0"

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke Real Estate
617 563 3100
255 State Street
Boston, MA 02109

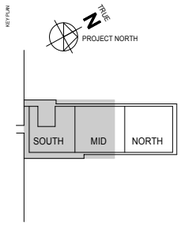
schmidt hammer lassen
45 70 20 19 00
Nyhavnsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


SHEETS

A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEYPLAN




ORIENTATION

**NOTE: FEMA Flood Hazard Boundaries added by Fort Point Associates, Inc. April 19, 2019**

SEAL


TITLE

NOTICE OF INTENT

VOLUME

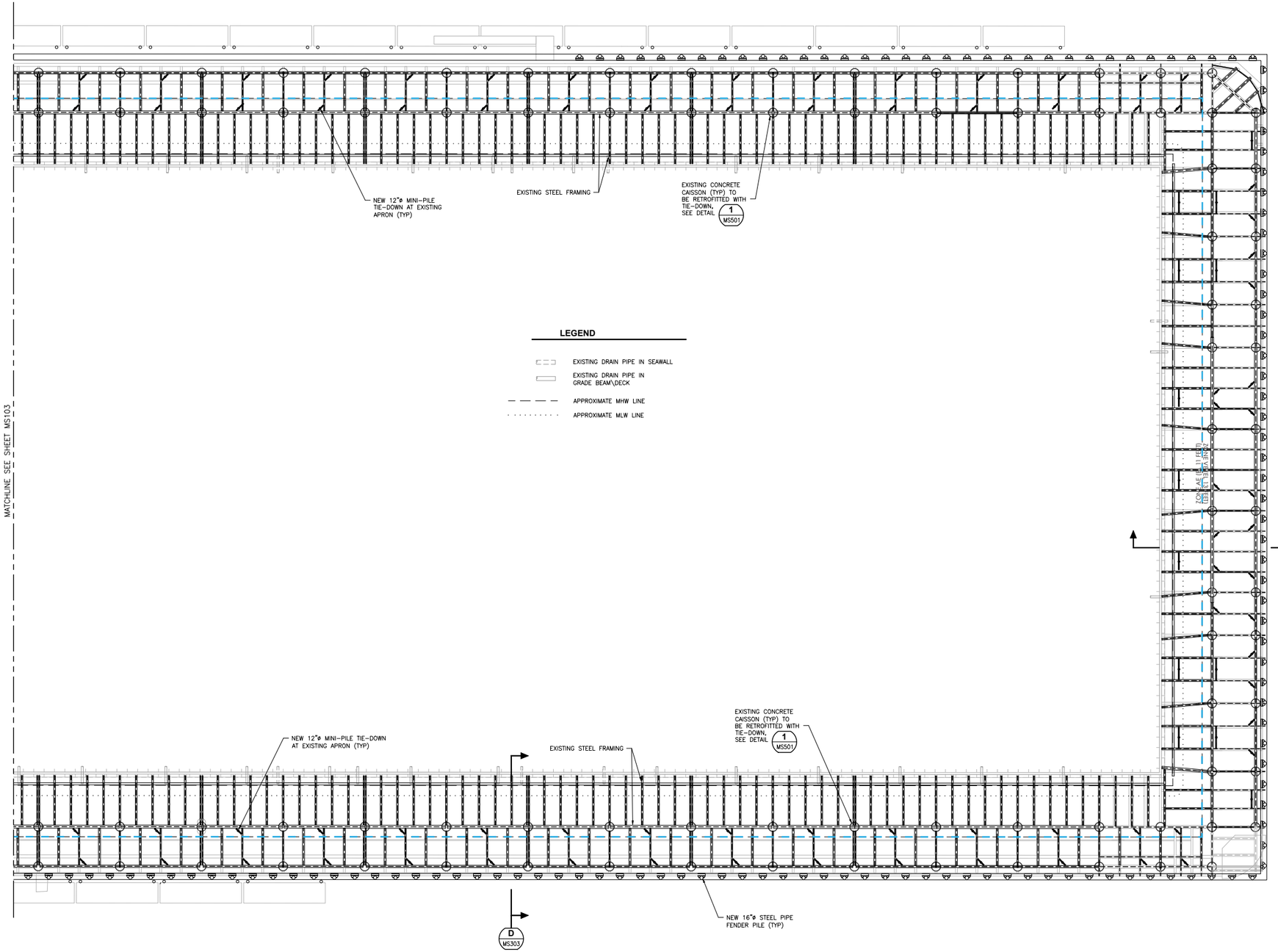
DRAWING TITLE

PROPOSED PILE/PILE CAP PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS103**

4/27/2018 12:29:01 AM




**PLAN**
SCALE: 1"=20'-0"

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
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Boston, MA 02109

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110 canal street boston, ma 02114


SHEET LIST
A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEY PLAN
PROJECT NORTH
SOUTH MID NORTH

GENERAL NOTES
**NOTE: FEMA Flood Hazard Boundaries added by Fort Point Associates, Inc. April 19, 2019**

SEAL
COMMONWEALTH OF MASSACHUSETTS
CHARLES MARSHALL ROBERTS
CIVIL
No. 50331
REGISTERED PROFESSIONAL ENGINEER
3/29/19

TITLE
NOTICE OF INTENT

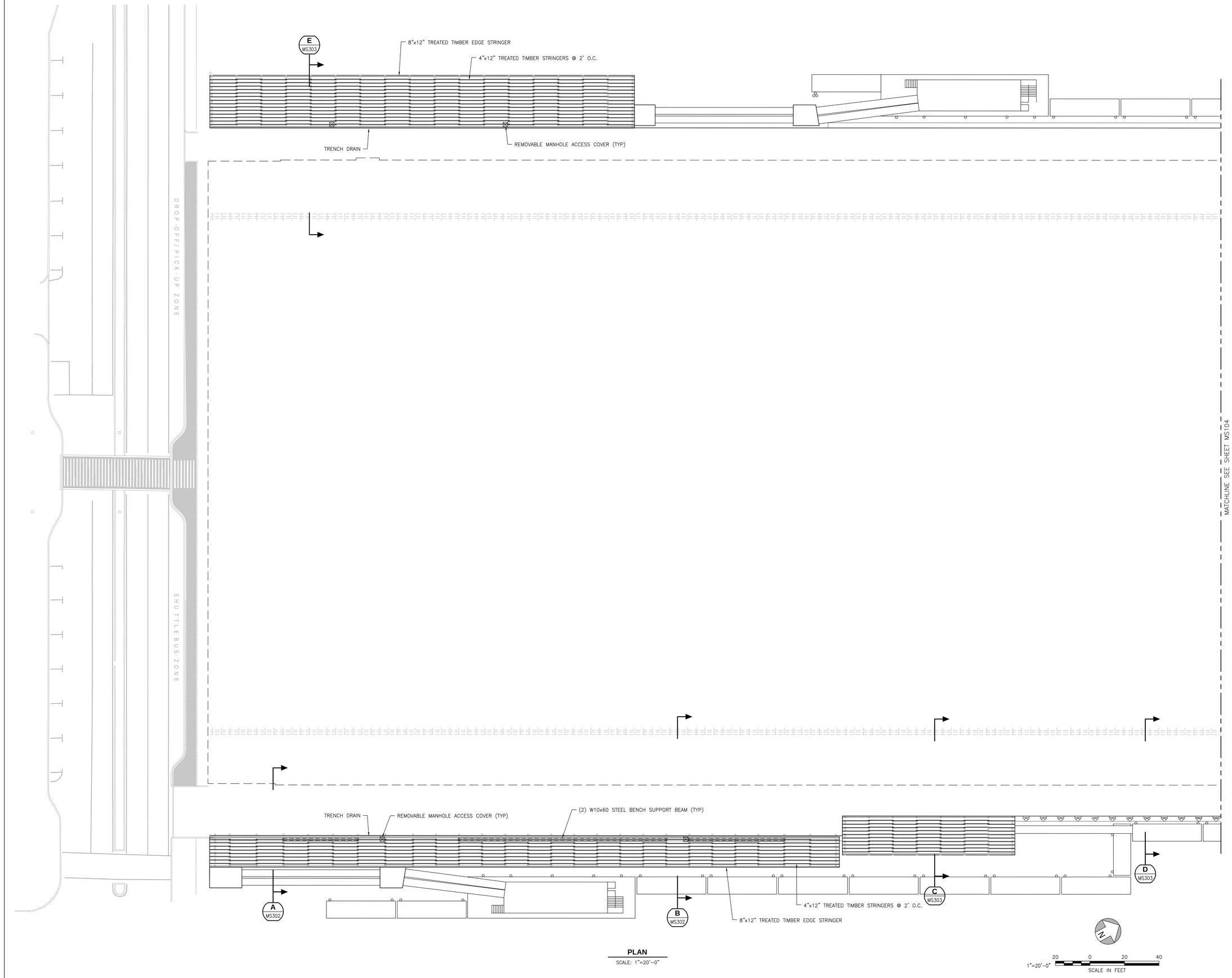
VOLUME

DRAWING TITLE
PROPOSED
PILE/PILE CAP PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS104**

3/29/2019 11:01:01 AM




**PLAN**
SCALE: 1"=20'-0"

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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QUICK LINKS
- A0 – Cover Sheets
- D – Architectural Demolition
- C – Civil
- L – Landscape
- A – Architectural
- S – Structural
- MEP – MEP
- QF – Food Service

KEYPLAN




GENERAL NOTES

SEAL


TITLE
NOTICE OF INTENT

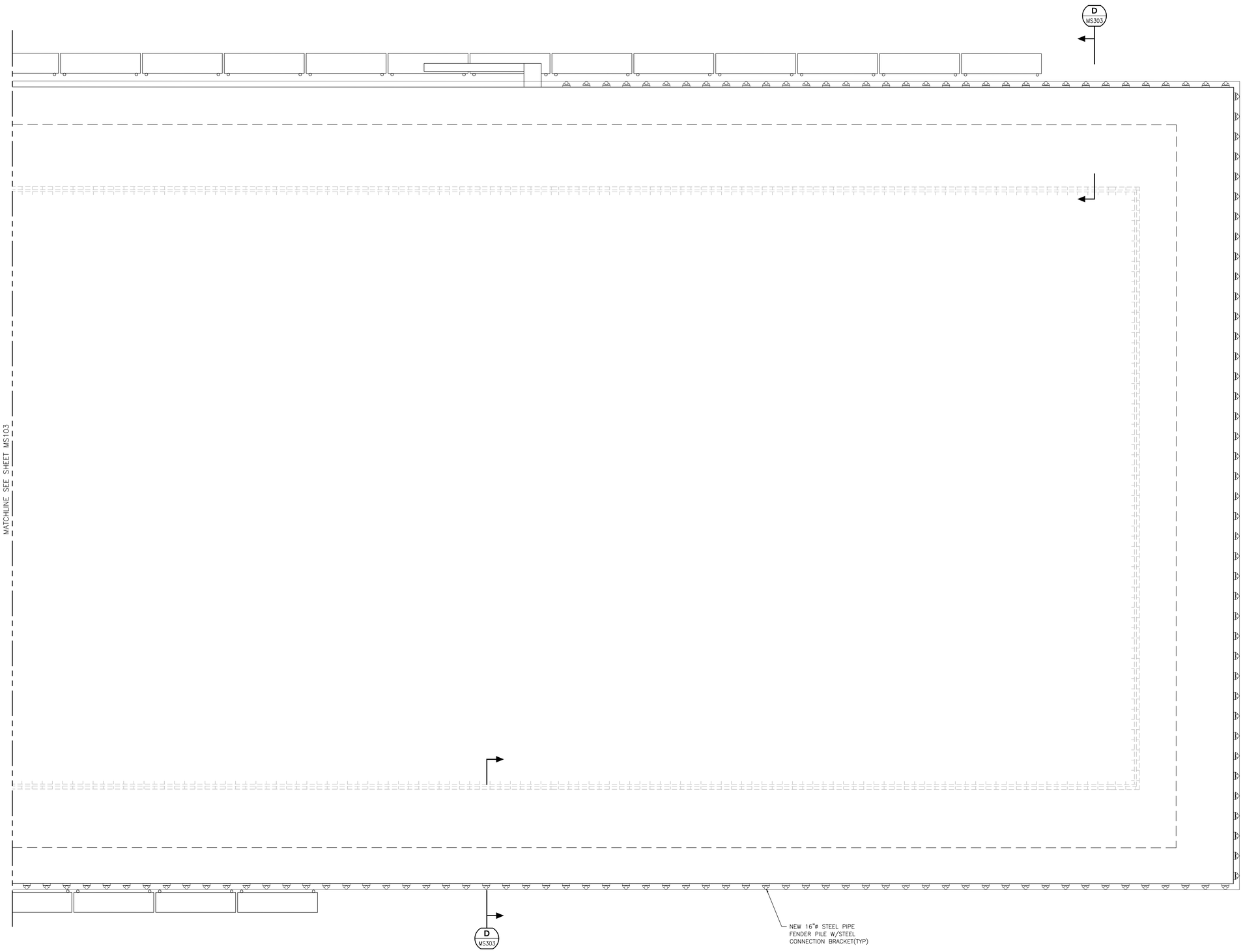
VOLUME

DRAWING TITLE
PROPOSED FRAMING PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS105**

8/27/2018 11:20:19 AM




**PLAN**
SCALE: 1"=20'-0"

N

1"=20'-0" 20 0 20 40
SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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2300 Copenhagen S, Denmark

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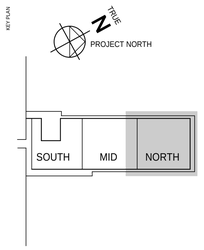
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEYPLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

VOLUME

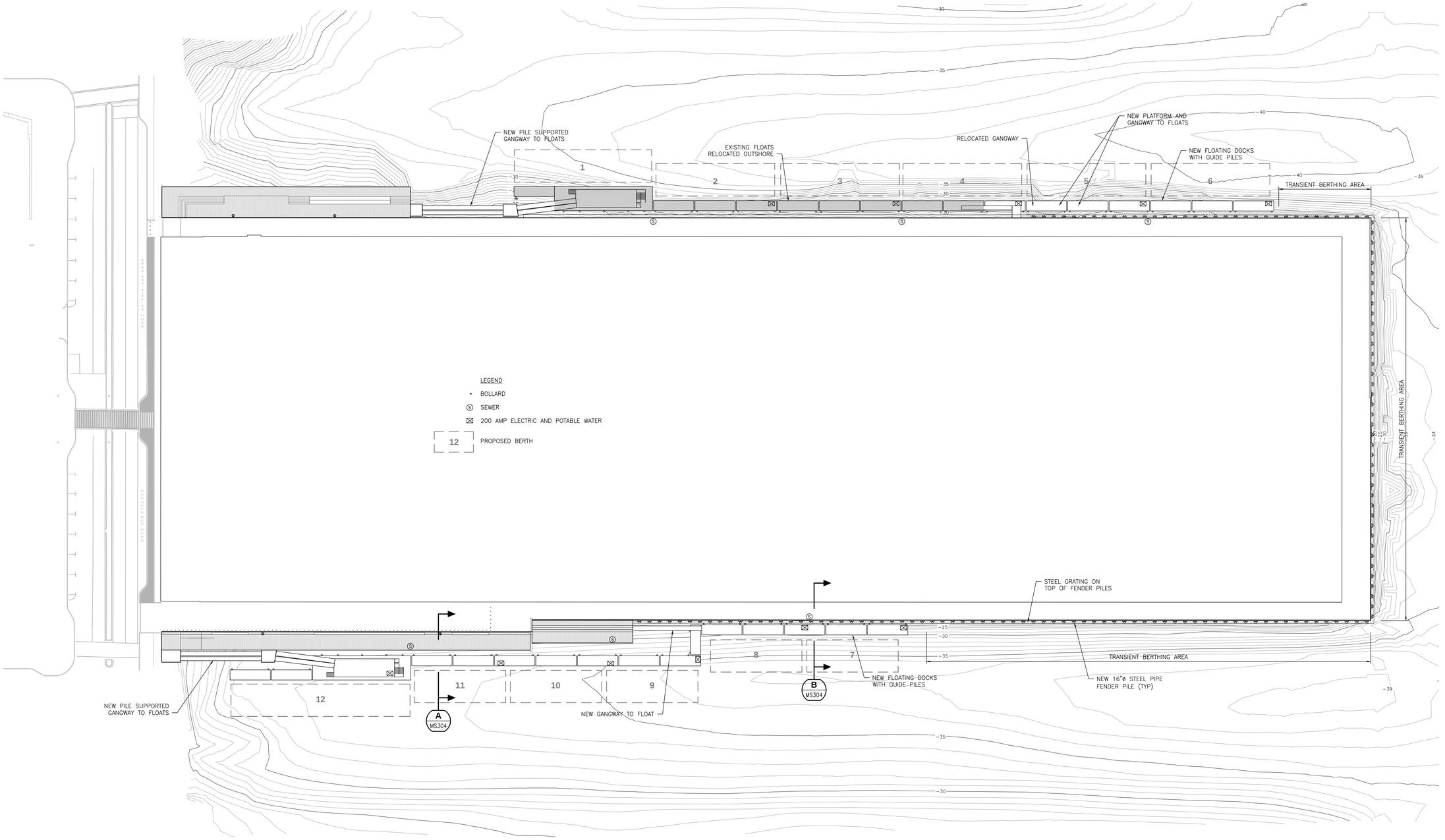
DRAWING TITLE

PROPOSED
FRAMING PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS106**

8/27/2018 11:20:19 AM




**PLAN**
SCALE: 1"=40'-0"

1"=40'-0" 40 0 40 80 SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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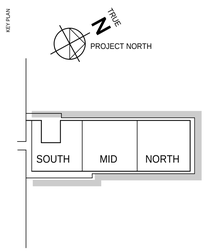
QUICK LINKS



KEYPLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

VOLUME

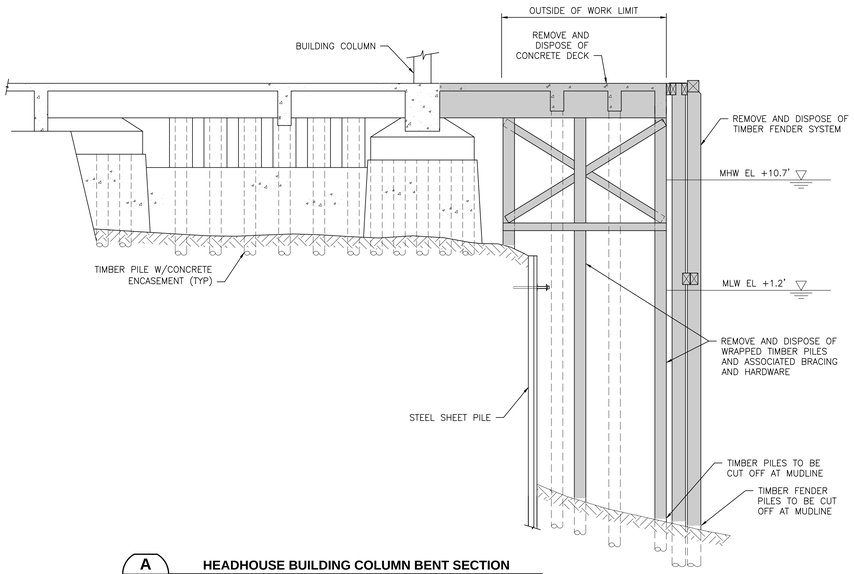
DRAWING TITLE

PROPOSED FLOAT PLAN

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

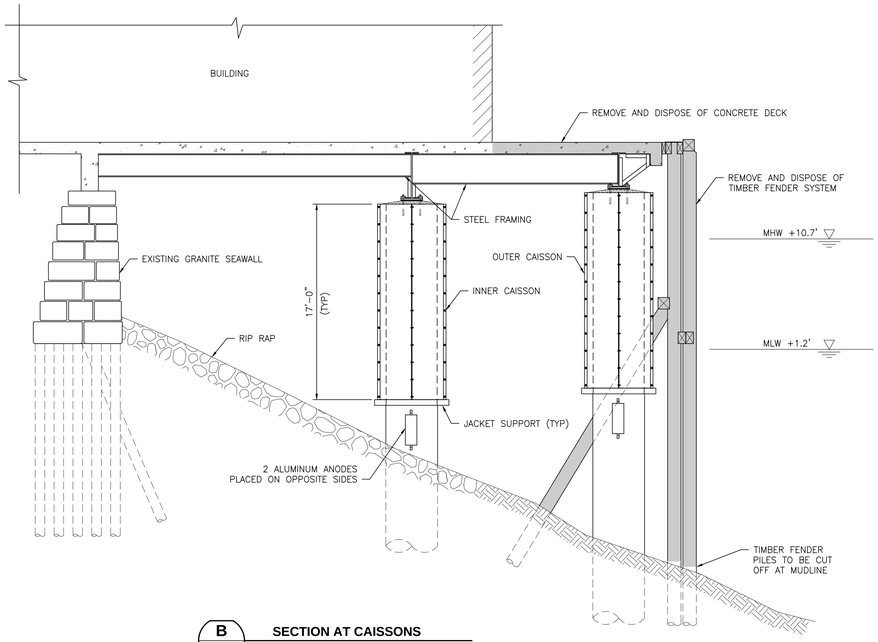
**MS107**

8/27/2018 11:20:13 AM




**A** MS101 **HEADHOUSE BUILDING COLUMN BENT SECTION**

SCALE: 3/16"=1'-0"




**B** MS101 **SECTION AT CAISSONS**

SCALE: 3/16"=1'-0"

3/16"=1'-0" 4 0 4 8 12

SCALE IN FEET

8/27/2018 11:20:15 AM

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**

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2300 Copenhagen S, Denmark

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617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114

QUICK LINKS



KEYPLAN


GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

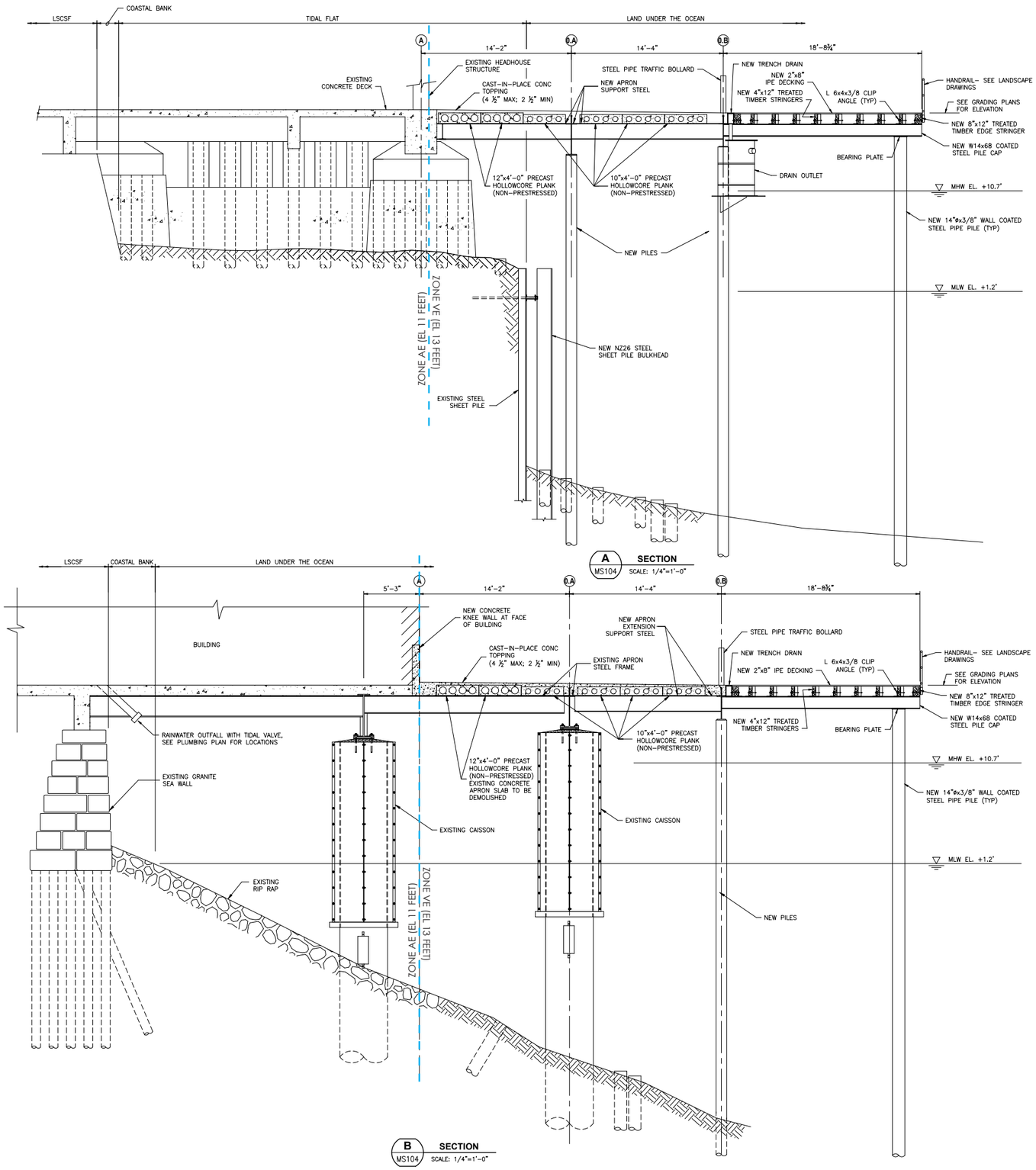
VOLUME

DRAWING TITLE

EXISTING SECTIONS

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS301**




**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**

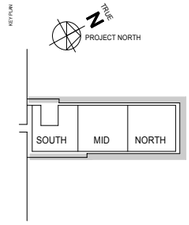

Pembroke Real Estate — 617 563 3100, 255 State Street, Boston, MA 02109

schmidt hammer lassen — 45 70 20 19 00, Njalsgade 17A, Pakhus 2, 2300 Copenhagen S, Denmark

cbt — 617 262 4354 cbtarchitects.com, 110 canal street boston, ma 02114


DISCIPLINES
A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEYPLAN




GENERAL NOTES

**NOTE: FEMA Flood Hazard Boundaries added by Fort Point Associates, Inc. April 19, 2019**

SEAL

COMMONWEALTH OF MASSACHUSETTS
CHARLES MARSHALL ROBERTS
No. 34029
REGISTERED ARCHITECT
3/29/19

TITLE

NOTICE OF INTENT

VOLUME

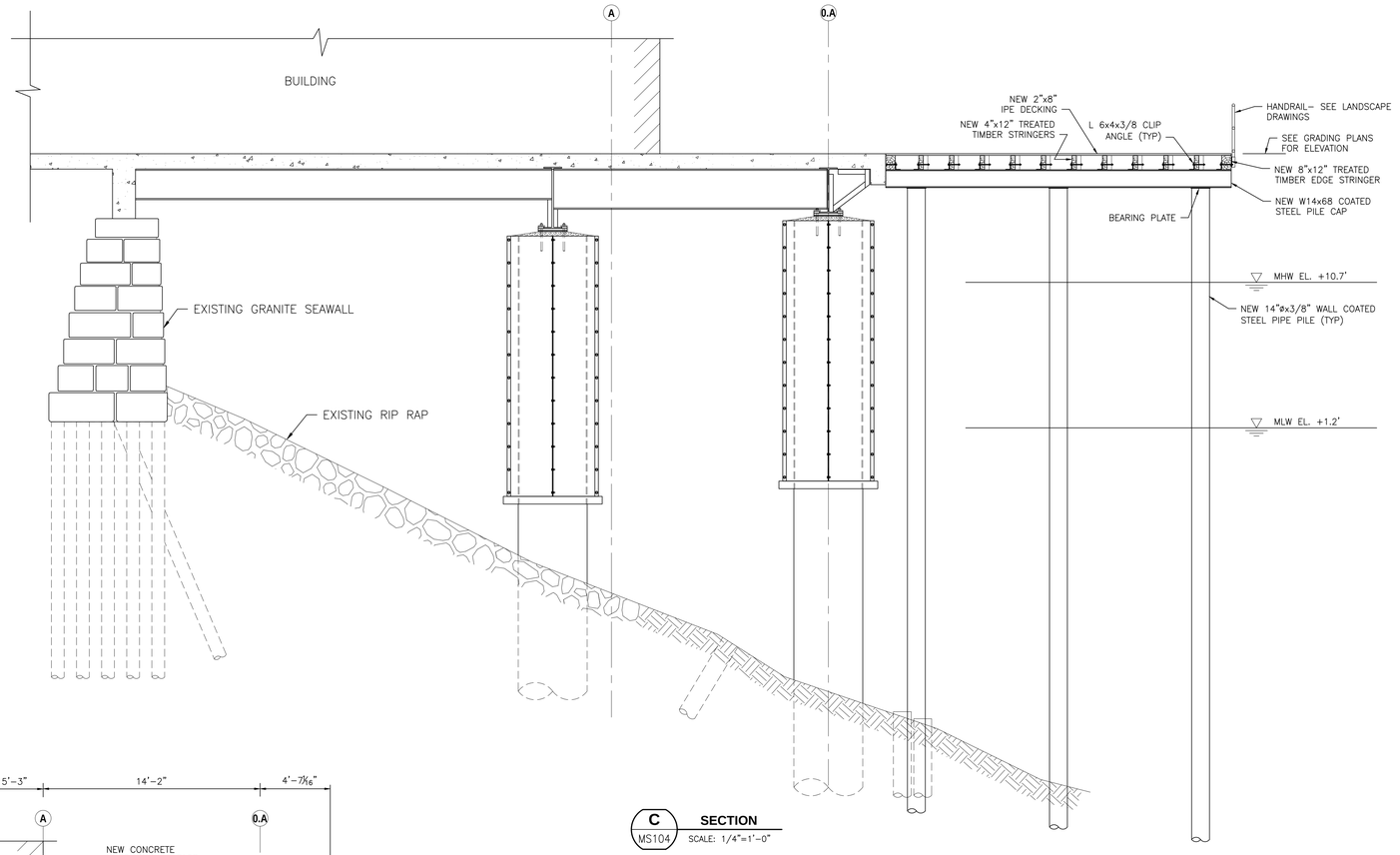
DRAWING TITLE

PROPOSED SECTIONS

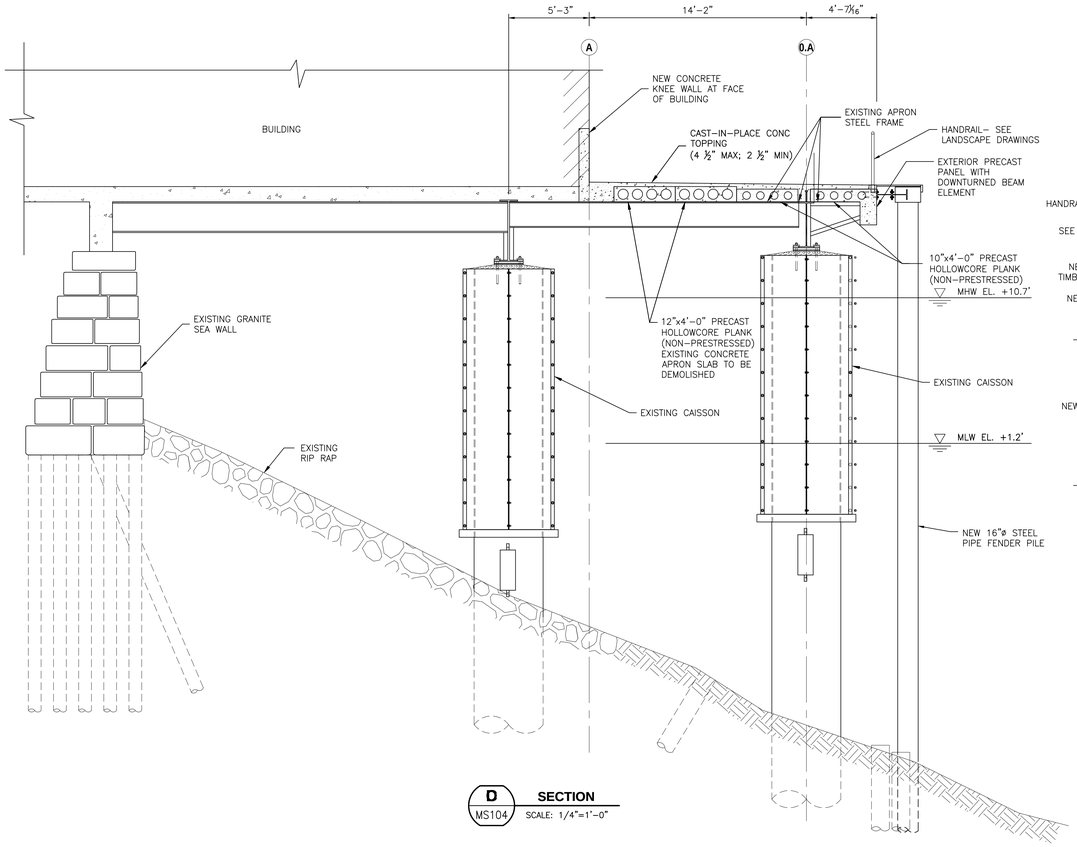
| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS302**

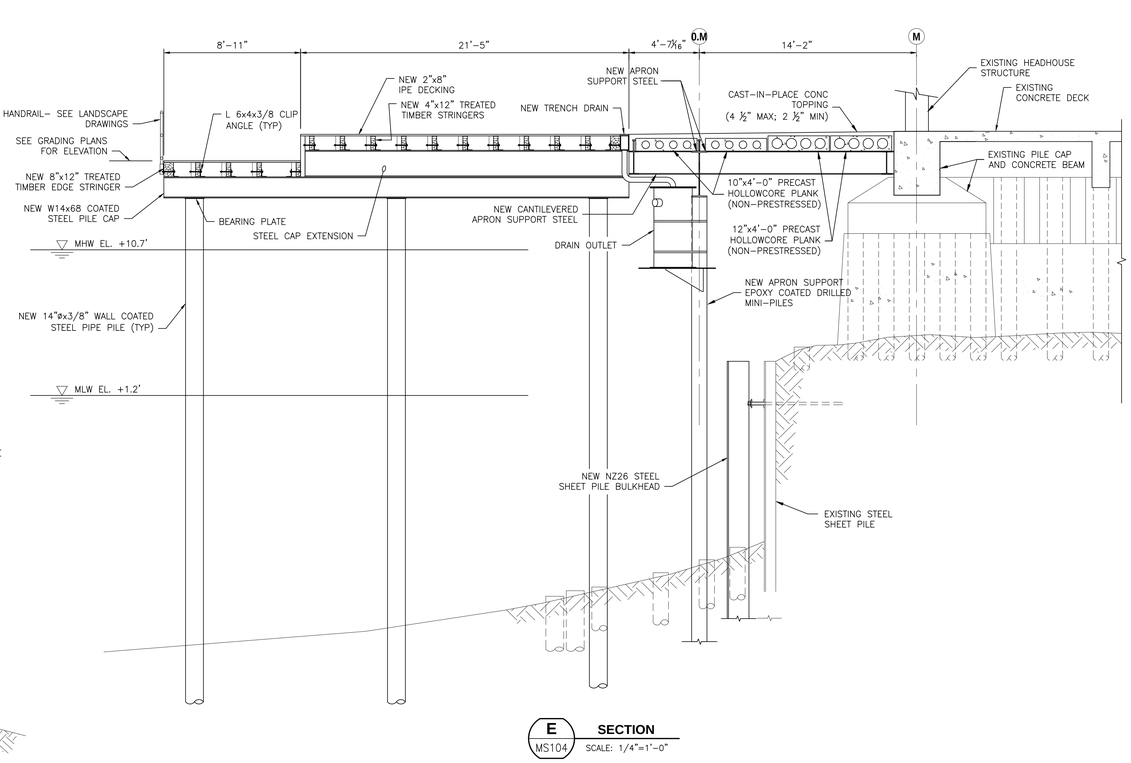
N:\2018\18 1129\18 MS




C MS104 **SECTION**
SCALE: 1/4"=1'-0"




D MS104 **SECTION**
SCALE: 1/4"=1'-0"




E MS104 **SECTION**
SCALE: 1/4"=1'-0"

3/16"=1'-0" 4 0 4 8 12
SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

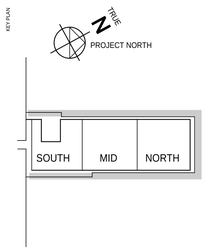
schmidt hammer lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEYPLAN




GENERAL NOTES

SEAL


3/29/19

TITLE

NOTICE OF INTENT

VOLUME

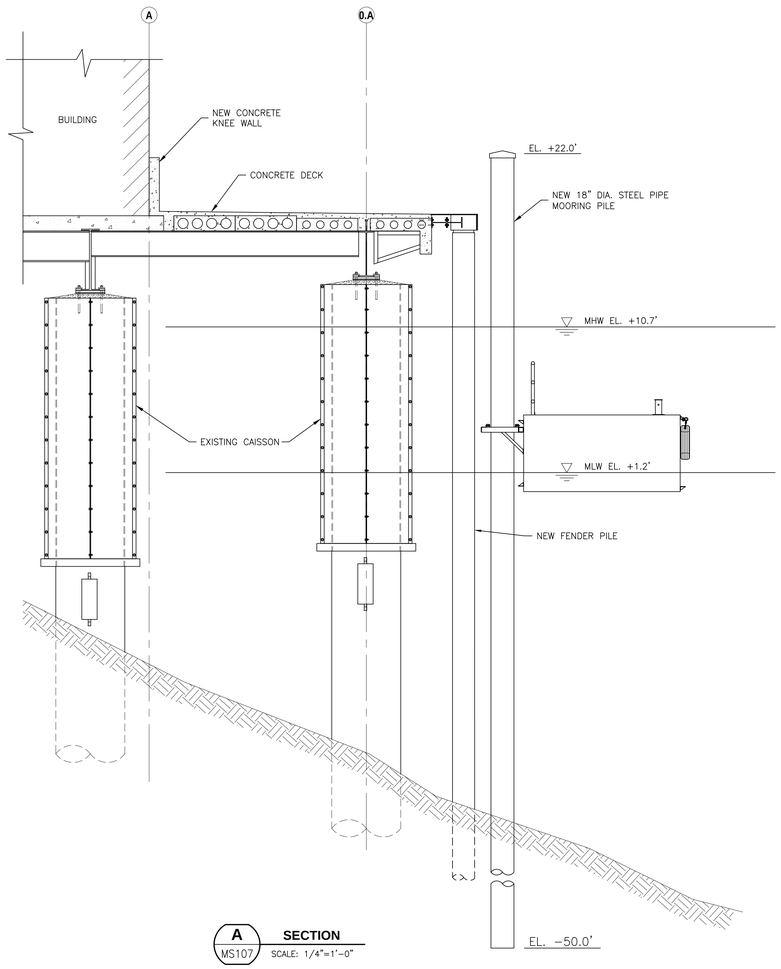
DRAWING TITLE

PROPOSED SECTIONS

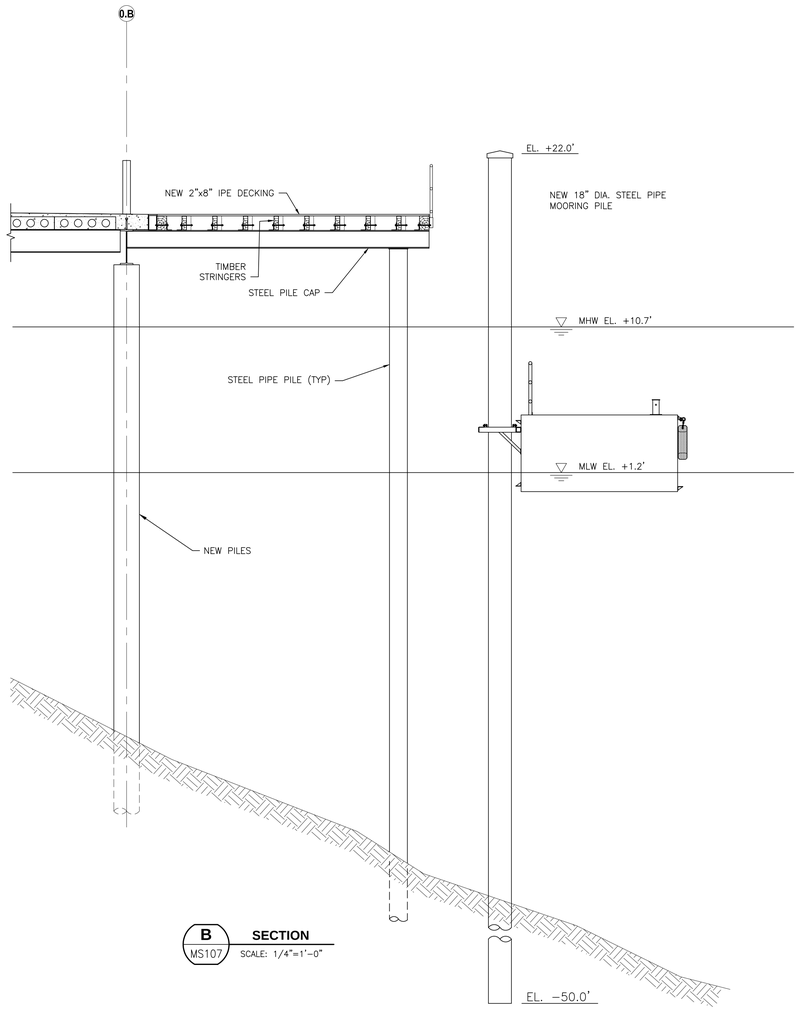
| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS303**

8/27/2018 11:20:10 AM




**A** MS107 **SECTION**
SCALE: 1/4"=1'-0"




**B** MS107 **SECTION**
SCALE: 1/4"=1'-0"

1/4"=1'-0" 4 0 4 8
SCALE IN FEET

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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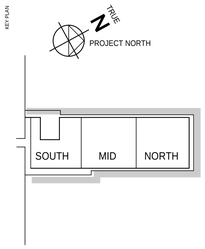
QUICK LINKS
A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEYPLAN




GENERAL NOTES

SEAL


TITLE
NOTICE OF INTENT

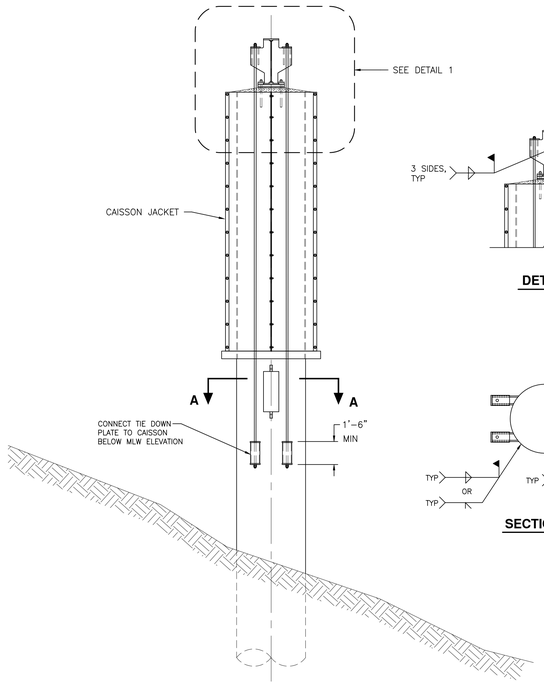
VOLUME

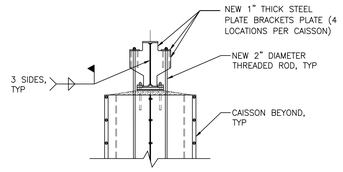
DRAWING TITLE
PROPOSED FLOAT SECTIONS

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

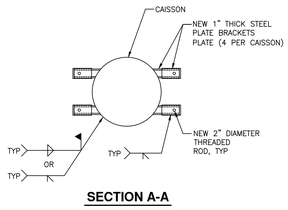
**MS304**

8/27/2018 11:20:19 AM



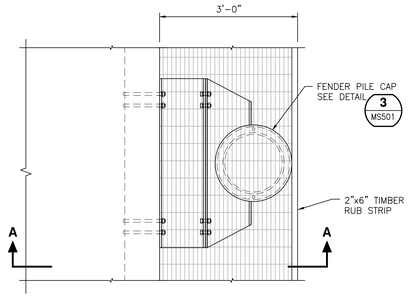

**DETAIL 1**



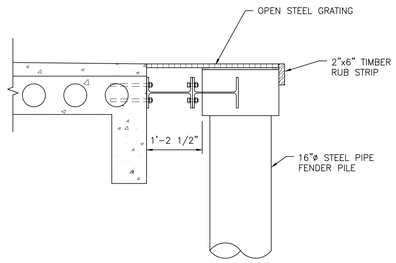

**SECTION A-A**

**1 MS501 CAISSON TIE-DOWN DETAIL**

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



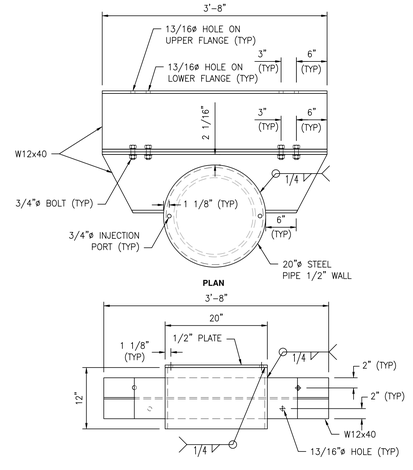

**PLAN**




**SECTION A-A**

**2 MS501 PIER EDGE FENDER AND GRATING**

SCALE: 3/4"=1'-0"




**PLAN**

**ELEVATION**

**3 MS501 FENDER PILE CAP DETAIL**

SCALE: 1"=1'-0"

1/4"=1'-0" 4 0 4 8 SCALE IN FEET

8/27/2018 11:20:10 AM

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

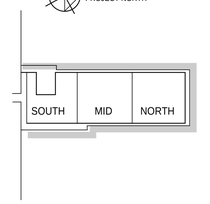
schmidt hammer lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114


QUICK LINKS



KEY PLAN




GENERAL NOTES

SEAL


TITLE

NOTICE OF INTENT

VOLUME

DRAWING TITLE

DETAILS

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1" = 50'-0" | 174079 | 09.14.2018 |

**MS501**

## SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| —S— | SANITARY PIPING BELOW GRADE |
| S | SANITARY PIPING ABOVE GRADE |
| | VENT PIPING |
| ST | STORM DRAINAGE PIPING |
| ST | STORM DRAINAGE PIPING BELOW GRADE |
| | COLD WATER PIPING |
| | HOT WATER PIPING |
| | HOT WATER RETURN PIPING |
| LG | LOW PRESSURE GAS PIPING |
| MG | MEDIUM PRESSURE GAS PIPING |
| MG-T | MEDIUM PRESSURE GAS PIPING - TENANT OWNED |
| | SHUT-OFF VALVE |
| | CHECK VALVE |
| | PRESSURE REDUCING VALVE |
| | BALANCING VALVE ASSEMBLY |
| | COCK VALVE |
| | MIXING VALVE |
| | PIPE DROP, RISE OR DOWN |
| | PIPE CONNECTION, TOP |
| | PIPE CONNECTION, BOTTOM |
| | PIPE UP |
| | "P" TRAP |
| | CLEANOUT |
| | CLEANOUT DECK PLATE |
| E | CAPPED OUTLET |
| | DIELECTRIC UNION |
| | VENT THROUGH ROOF |
| | FLOOR DRAIN, AREA DRAIN |
| | FLOOR SINK |
| | ROOF DRAIN, OVERFLOW DRAIN |
| | YARD HYDRANT |
| | HOSE BIBB |
| | WALL HYDRANT |
| VB | VACUUM BREAKER ASSEMBLY |
| | THERMOMETER |
| | PRESSURE GAUGE W/VALVE |
| BFP | BACKFLOW PREVENTER |
| | FLOOR, AREA DRAIN (RISER) |
| | ROOF DRAIN (RISER) |
| | WATER HAMMER ARRESTOR |
| | FRESH AIR INLET (FAI) |
| M | METER |
| F | WATER FILTER |
| | PUMP |
| | DIRECTION OF FLOW |
| | PIPE BREAK |
| SP / # | RISER DESIGNATION |
| ST / # | LEADER DESIGNATION |
| * / # | EQUIPMENT DESIGNATION |

## SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| AV | ACID VENT PIPING |
| AW | ACID WASTE PIPING |
| CA | COMPRESSED AIR PIPING (INSTRUMENT GRADE) |
| GRW | GRAY WATER PIPING |
| EPD | EJECTOR PUMP DISCHARGE PIPING |
| FAI | FRESH AIR INLET |
| GW | GREASE WASTE PIPING |
| IW | INDIRECT WASTE PIPING |
| SPD | SUMP PUMP DISCHARGE PIPING |
| OD | OVERFLOW DRAINAGE PIPING |
| TF | TANK FILL PIPING |
| TW | TEPID WATER PIPING |
| NP | NON-POTABLE WATER PIPING |
| VAC | VACUUM PIPING |
| O2 | OXYGEN PIPING |
| TP | TRAP PRIMER PIPING |
| | ELECTRIC HEAT TRACING |
| | EXISTING PIPING TO BE REMOVED |
| | EXISTING PIPING TO BE ABANDONED |
| | POINT OF DISCONNECTION FOR EXISTING WORK |
| | POINT OF CONNECTION NEW PIPE TO EXISTING |
| | MOTOR VALVE |
| | SOLENOID VALVE |
| | DIAPHRAGM VALVE |
| | BALANCING VALVE |
| | ANGLE VALVE |
| | OS & Y VALVE |
| | OS & Y VALVE IN VERTICAL |
| | GAS PRESSURE REGULATOR |
| | AUTOMATIC AIR VENT VALVE |
| | T & P RELIEF VALVE |
| | BACKWATER VALVE |
| TP | TRAP PRIMER |
| | HOUSE TRAP |
| | AQUASTAT |
| EJ | EXPANSION JOINT |
| | FLEXIBLE CONNECTION |
| | EXPANSION LOOP |
| | CONCENTRIC REDUCER |
| | STRAINER Y-TYPE |
| | BASKET STRAINER |
| | STANDPIPE (RISER) |
| | WATERTIGHT PIPE SLEEVE, BEAM PENETRATION |
| GD | GUTTER DRAIN (RISER) |
| | FUNNEL DRAIN (RISER) |
| FS | FLOOR SINK (RISER) |
| MS | MOP SINK (RISER) |
| SH | SHOWER DRAIN (RISER) |

## ABBREVIATIONS

| SYMBOL | DESCRIPTION |
|---|---|
| AD | AREA DRAIN |
| ARCH | ARCHITECTURAL |
| BFP | BACKFLOW PREVENTER |
| BLDG | BUILDING |
| CA | COMPRESSED AIR |
| CLG | CEILING |
| CO | CLEANOUT |
| CODP | CLEANOUT DECK PLATE |
| COWP | CLEANOUT WALL PLATE |
| CONN | CONNECTION |
| CONT | CONTINUATION |
| CW | DOMESTIC COLD WATER |
| DCV | DOUBLE CHECK VALVE |
| DET | DETAIL |
| DFU | DRAINAGE FIXTURE UNIT |
| DIA | DIAMETER |
| DIM | DIMENSION |
| DN | DOWN |
| DR | DRAIN |
| DWG | DRAWING |
| EA | EACH |
| EJ | EXPANSION JOINT |
| EL | ELEVATION |
| EQ | EQUAL |
| ETR | EXISTING TO REMAIN |
| EWC | ELECTRIC WATER COOLER |
| EWH | ELECTRIC WATER HEATER |
| EXIST | EXISTING |
| FAI | FRESH AIR INLET |
| FCO | FLOOR CLEANOUT |
| FD | FLOOR DRAIN |
| FS | FLOOR SINK |
| F.F. | FINISH FLOOR |
| FL | FLOOR |
| G | GAS PIPING |
| GAL | GALLON |
| GD | GUTTER DRAIN |
| GH | GROUND HYDRANT |
| GPM | GALLON PER MINUTE |
| HB | HOSE BIBB |
| HW | DOMESTIC HOT WATER |
| HWR | DOMESTIC HOT WATER RETURN |
| I.E. | INVERT ELEVATION |
| IW | INDIRECT WASTE |
| LG | LOW PRESSURE GAS |
| MAX | MAXIMUM |
| MECH | MECHANICAL |
| MG | MEDIUM PRESSURE GAS |
| MH | MANHOLE |
| MIN | MINIMUM |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| OD | OVERFLOW DRAIN |
| PRV | PRESSURE REDUCING VALVE |
| RD | ROOF DRAIN |
| RPZ | REDUCED PRESSURE ZONE |
| S | SANITARY WASTE |
| SF | SQUARE FEET |
| ST | STORM DRAINAGE |
| TD | TRENCH DRAIN |
| TP | TRAP PRIMER |
| TYP | TYPICAL |
| V | VENT |
| UON | UNLESS OTHERWISE NOTED |
| VIF | VERIFY IN FIELD |
| VLV | VALVE |
| VTR | VENT THROUGH ROOF |
| W | WASTE |
| W/ | WITH |
| WC | WATER CLOSET |
| WCO | WALL CLEANOUT |
| W/O | WITHOUT |
| WH | WALL HYDRANT |
| WHA | WATER HAMMER ARRESTOR |
| YH | YARD HYDRANT |

## SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| F | FIRE MAIN |
| FSP | FIRE STANDPIPE |
| CSP | COMBINATION STANDPIPE |
| SP | SPRINKLER PIPING (WET) |
| DR | DRAIN PIPING |
| DSP | DRY SPRINKLER SYSTEM PIPING |
| PA | PREACTION SPRINKLER PIPING |
| DL | DELUGE SPRINKLER PIPING |
| | SHUT-OFF VALVE |
| | CHECK VALVE |
| | CHECK VALVE WITH ABD |
| | PRESSURE REDUCING VALVE |
| | OS & Y VALVE |
| | OS & Y VALVE IN VERTICAL |
| | ANGLE HOSE VALVE |
| | PIPE DROP, RISE OR DOWN |
| | PIPE CONNECTION, TOP |
| | PIPE CONNECTION, BOTTOM |
| | PIPE UP |
| E | CAPPED OUTLET |
| | PRESSURE GAUGE W/VALVE |
| | DELUGE VALVE ASSEMBLY |
| | PREACTION VALVE ASSEMBLY |
| | DRY VALVE ASSEMBLY |
| | SPRINKLER ALARM CHECK VALVE ASSEMBLY |
| | SPRINKLER CONTROL ASSEMBLY |
| FHR(FHC) | FIRE HOSE RACK/CABINET |
| | FIRE HOSE RACK/CABINET (RISER) |
| | FIRE DEPARTMENT CONNECTION |
| | FREE STANDING FIRE DEPARTMENT CONNECTION |
| | DIRECTION OF FLOW |
| | PIPE BREAK |
| SP / # | RISER DESIGNATION |
| * / # | EQUIPMENT DESIGNATION |

## SYMBOLS

| SYMBOL | DESCRIPTION |
|---|---|
| | ELECTRIC HEAT TRACING |
| | EXISTING PIPING TO BE REMOVED |
| | EXISTING PIPING TO BE ABANDONED |
| | EXISTING SPRINKLER CONTROL ASSEMBLY |
| | POINT OF DISCONNECTION FOR EXISTING WORK |
| | POINT OF CONNECTION NEW PIPE TO EXISTING |
| WM | WATER MIST PIPING |
| FW | FOAM WATER PIPING |
| CG | CLEAN AGENT GASEOUS PIPING |
| FS | FLOW SWITCH |
| TS | TAMPER SWITCH |
| | OS & Y VALVE WITH TAMPER SWITCH |
| | BACKFLOW PREVENTER |
| | FIRE HOSE VALVE IN CABINET (RISER) |
| FVC | FIRE HOSE VALVE CABINET |
| | MANIFOLD VALVE |
| | SIDEWALL SPRINKLER HEAD |
| | EXTENDED COVERAGE SIDEWALL SPRINKLER HEAD |
| | DRY TYPE SIDEWALL SPRINKLER HEAD |
| | CONCEALED PENDENT SPRINKLER HEAD |
| E | EXTENDED COVERAGE CONCEALED PENDENT SPRINKLER HEAD |
| | UPRIGHT SPRINKLER HEAD |
| E | EXTENDED COVERAGE UPRIGHT SPRINKLER HEAD |
| | UPRIGHT SPRINKLER HEAD (UNDER DUCT/EQUIPMENT) |
| | PENDENT SPRINKLER HEAD |
| E | EXTENDED COVERAGE PENDENT SPRINKLER HEAD |
| D | DRY TYPE PENDENT SPRINKLER HEAD |
| | RECESSED PENDENT SPRINKLER HEAD |
| E | EXTENDED COVERAGE RECESSED PENDENT SPRINKLER HEAD |
| | OPEN SPRINKLER HEAD |
| | WINDOW SPRINKLER HEAD |
| | SPRINKLER WITH GUARD |
| | ZONE BOUNDARY |
| | SPRINKLER ZONE |
| | WATERTIGHT PIPE SLEEVE, BEAM PENETRATION |

## ABBREVIATIONS

| SYMBOL | DESCRIPTION |
|---|---|
| ABD | AUTOMATIC BALL DRIP |
| ARCH | ARCHITECTURAL |
| BLDG | BUILDING |
| CA | COMPRESSED AIR PIPING |
| CLG | CEILING |
| CONN | CONNECTION |
| CONT | CONTINUATION |
| DET | DETAIL |
| DIA | DIAMETER |
| DIM | DIMENSION |
| DN | DOWN |
| DR | DRAIN |
| DSP | DRY SPRINKLER PIPING |
| DWG | DRAWING |
| EA | EACH |
| EL | ELEVATION |
| EQ | EQUAL |
| EXIST | EXISTING |
| FCA | FLOOR CONTROL ASSEMBLY |
| FDC | FIRE DEPARTMENT CONNECTION |
| FE | FIRE EXTINGUISHER |
| FHC | FIRE HOSE CABINET |
| FHR | FIRE HOSE RACK |
| FHV | FIRE HOSE VALVE |
| F.F. | FINISH FLOOR |
| FL | FLOOR |
| FS | FLOW SWITCH |
| GAL | GALLON |
| GPM | GALLON PER MINUTE |
| I.E. | INVERT ELEVATION |
| MAX | MAXIMUM |
| MECH | MECHANICAL |
| MIN | MINIMUM |
| NC | NORMALLY CLOSED |
| NO | NORMALLY OPEN |
| NTS | NOT TO SCALE |
| PA | PREACTION SPRINKLER PIPING |
| PRV | PRESSURE REDUCING VALVE |
| SP | SPRINKLER |
| TS | TAMPER SWITCH |
| TYP | TYPICAL |
| UON | UNLESS OTHERWISE NOTED |
| VIF | VERIFY IN FIELD |
| VLV | VALVE |
| W/ | WITH |
| W/O | WITHOUT |

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**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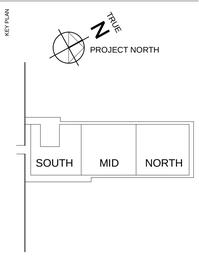
QUICK LINKS

A0 – Cover Sheets
D – Architectural Demolition
C – Civil
L – Landscape
A – Architectural
S – Structural
MEP – MEP
QF – Food Service

KEY PLAN

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SEAL


TITLE

NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

PLUMBING & FIRE PROTECTION GENERAL NOTES & LEGEND

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 12" = 1'-0" | 174079 | 03.29.2019 |

**P001**

4/1/2019 12:21:06 PM

WEST

SOUTH

NORTH

EAST

10"STORM, INV. EL.=13'-8" ABOVE SEA WALL

10" ST

RETAIL 1400 SF

CAFE 1294 SF

SSP 1

PROVIDE 4" SAN CONNECTION FOR RETAIL

10"STORM, INV. EL.=14'-4" REFER TO CIVIL DWGs FOR CONTINUATION

4" S

4" S UP

8" ST UP

EXISTING 8"S, INV.ELEV.= 8.3'

8" S

PROVIDE 4" SAN CONNECTION FOR RETAIL

8" ST

4" CW UP
4" FSP UP

8" ST CONNECT TO EXTG MH. REFER TO CIVIL DRAWINGS FOR CONTINUATION.

10" ST CONNECT TO EXTG MH. REFER TO CIVIL DRAWINGS FOR CONTINUATION.

CODP

4" SD UP

EXISTING 6"PD, INV.ELEV.= 8.65'
EXISTING 8"S, INV.ELEV.= 8.5'

PUBLIC LOBBY 672 SF

Elevator Shaft

6" ST UP

6" ST

6" PD UP

6" PD

8" S

8" ST UP

4" AD-1

RESTROOM

Corridor

OPS 479 SF

Mail & POST ROOM 1939 SF

OPS Office Locker R 346 SF

Banquet hold temp Cooler 215 SF

Banquet hold temp freezer 356 SF

Emer Storm Locker/Ceiling Tiles 182 SF

Snow Equipment 201 SF

HVAC ST/Filters/Locker R 164 SF

Dock Master's Office 205 SF

Scissor Lift 126 SF

Banquet temp hold/ F&B/ dry goods 428 SF

FS JIS 44 SF

8" ST (ETR)

4" S UP

10" FSP UP
10" FSP UP
6" CW UP

4" W&T UP

4000 GALLON IN-GROUND GREASE INTERCEPTOR

GI 1

4" S

LOADING DOCK 753 SF

10" ST UP EXISTING TO REMAIN

4" MG UP

ETR 8" ROOF LEADER UP

ETR 10" OUTFALL FROM ROOF TO HARBOR

(2) NEW 10" FIRE MAIN
(1) NEW 6" DCW

10" FSP

10" FSP

6" CW

PROVIDE 4" SAN CONNECTION FOR RETAIL

NEW MP NATURAL GAS MAIN.

F&G 1

SSP 1

Corridor 289 SF

E Staircase 444 SF

GUARD'S ROOM 196 SF

4" MG

OI 2

4" AD-1 @

RECEPTION Not Enclosed

SECURITY 324 SF

Corridor 1762 SF

10" ST UP EXISTING TO REMAIN

ETR 6" ROOF LEADER UP

KITCHEN 6462 SF

CANTEEN 1 1,129 1,129 SF

CANTEEN TERRACE 3942 SF

N Staircase 288 SF

CODP

DRAINAGE TYPICAL IN COURTYARDS

GARBAGE

ETR 10" OUTFALL FROM ROOF TO HARBOR

ETR 8" ROOF LEADER UP

EXISTING TO REMAIN

ETR 6" ROOF LEADER UP

CO-WORKING SPACE 8" ST (ETR)

E Staircase 388 SF

MEP 1,040 SF

TD-1

4" AD-1

4" ST

ETR 6" ROOF LEADER UP

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23

M L K J H G F E D C B A1 A

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

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QUICK LINKS



KEY PLAN

TRUE N PROJECT NORTH

SOUTH | MID | NORTH

GENERAL NOTES

Drawing stamped for Notice of Intent permit application as it pertains to new and existing storm drainage connections to the harbor and to Seaport Boulevard

SEAL

COMMONWEALTH OF MASSACHUSETTS
MARK WALSH-COOKE
MECHANICAL
No. 49299
REGISTERED PROFESSIONAL ENGINEER

TITLE

NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

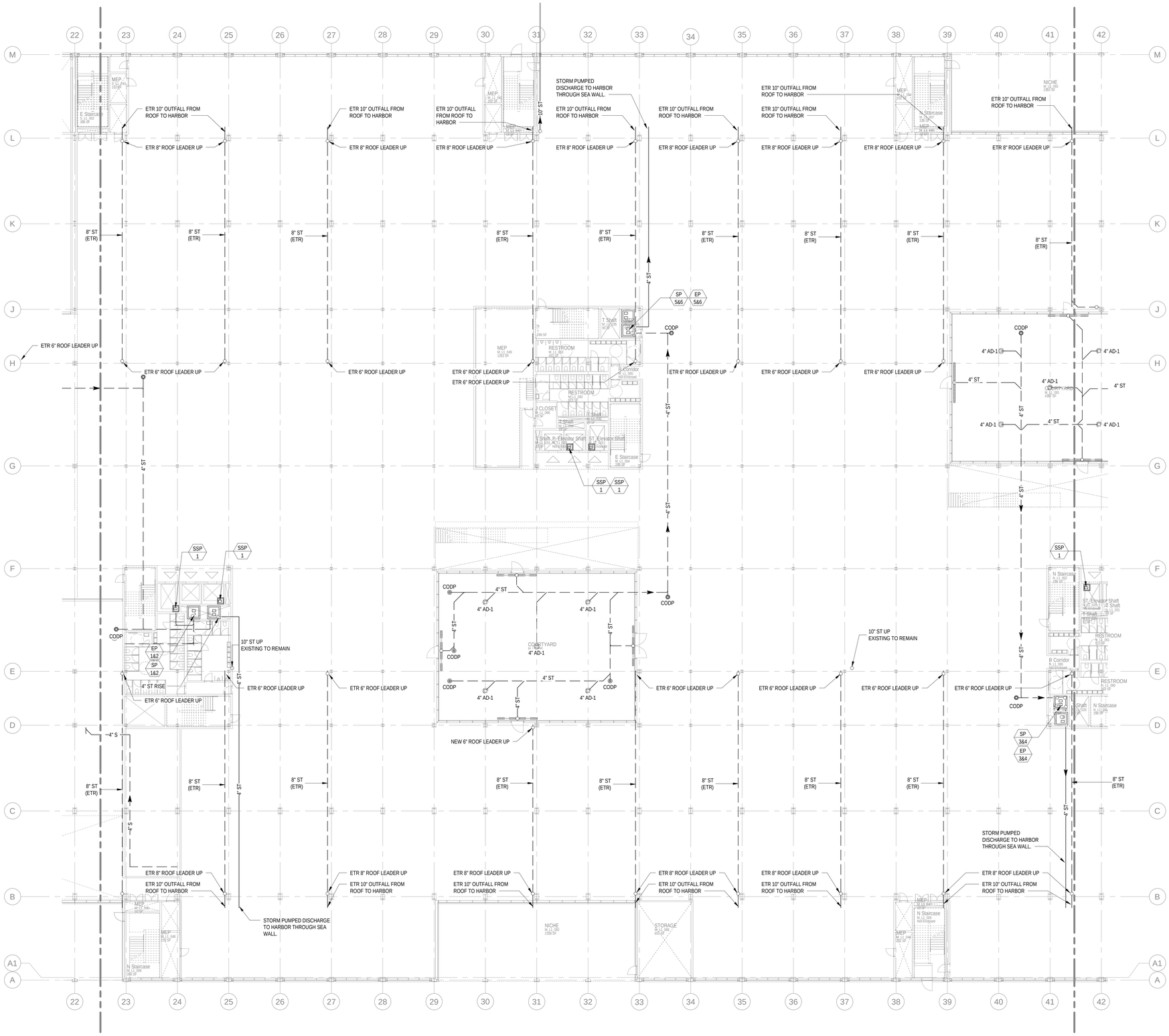
PLUMBING PLAN UNDERSLAB - SOUTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

**P400.1**

2/13/2019 5:07:07 PM

WEST




EAST

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

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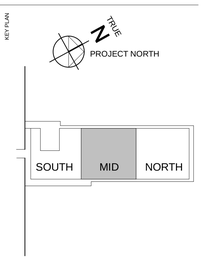
KEY PLAN




GENERAL NOTES

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SEAL


TITLE

## NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

## PLUMBING PLAN UNDERSLAB - MID

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

# P400.2

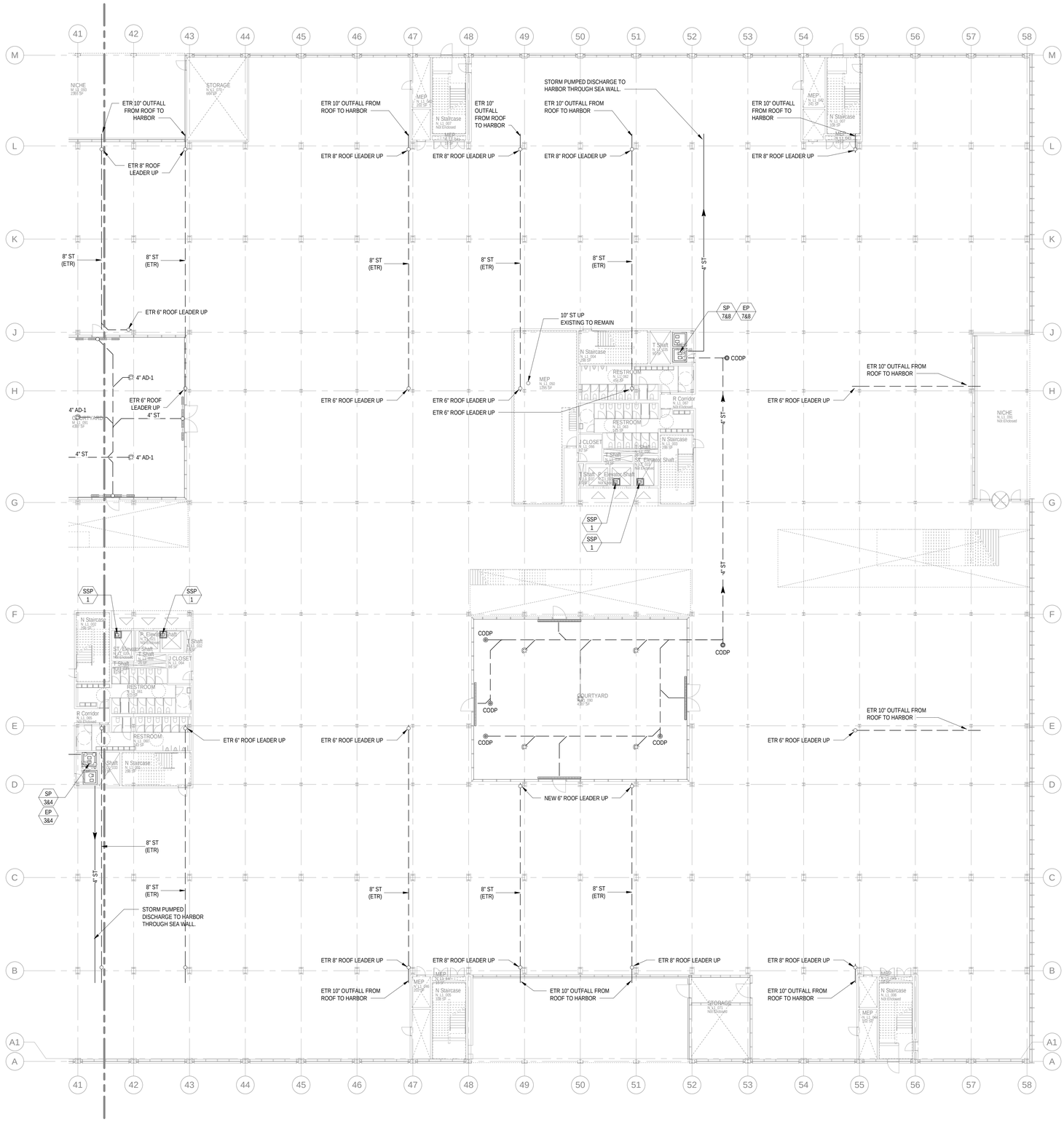
2/13/2019 6:07:19 PM

WEST

SOUTH

NORTH

EAST





REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|

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TITLE

NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

PLUMBING PLAN UNDERSLAB - NORTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

**P400.3**

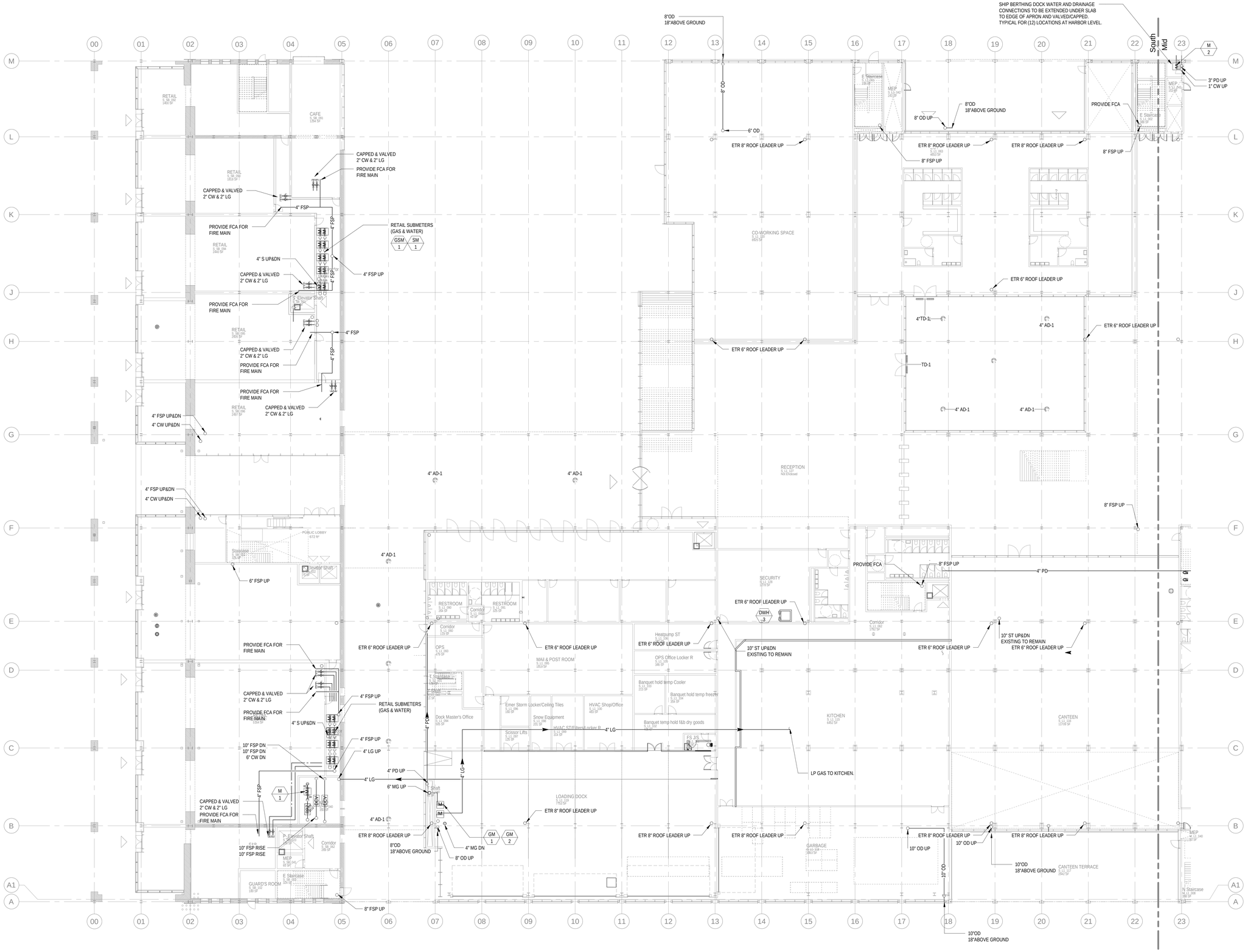
2/13/2019 5:07:03 PM

WEST

SOUTH

NORTH

EAST

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| # | DATE | DESCRIPTION |
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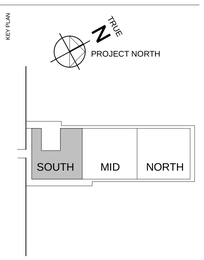


GENERAL NOTES

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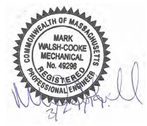
SEAL




TITLE

NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

PLUMBING PLAN
LEVEL 1 - SOUTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

**P401.1**

2/13/2019 5:05:59 PM

WEST

SOUTH

NORTH

EAST

FOR CLARIFICATION OF STORM DRAINAGE SYSTEM SCOPE, REFER TO DRAWING P401.3 BETWEEN GRIDLINES 52 AND 58.

SHIP BERTHING DOCK WATER AND DRAINAGE CONNECTIONS TO BE EXTENDED UNDER SLAB TO EDGE OF APRON AND VALVED/CAPPED. TYPICAL FOR (12) LOCATIONS AT HARBOR LEVEL.

8"OD 18"ABOVE GROUND

10" ST UP&DN EXISTING TO REMAIN

10"OD 18"ABOVE GROUND


**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|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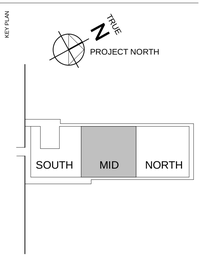
KEY PLAN




GENERAL NOTES

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SEAL

COMMONWEALTH OF MASSACHUSETTS
MARK WALSH-COOKE
MECHANICAL
No. 49299
REGISTERED PROFESSIONAL ENGINEER

TITLE

## NOTICE OF INTENT PLANS

VOLUME

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## PLUMBING PLAN LEVEL 1 - MID

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

# P401.2

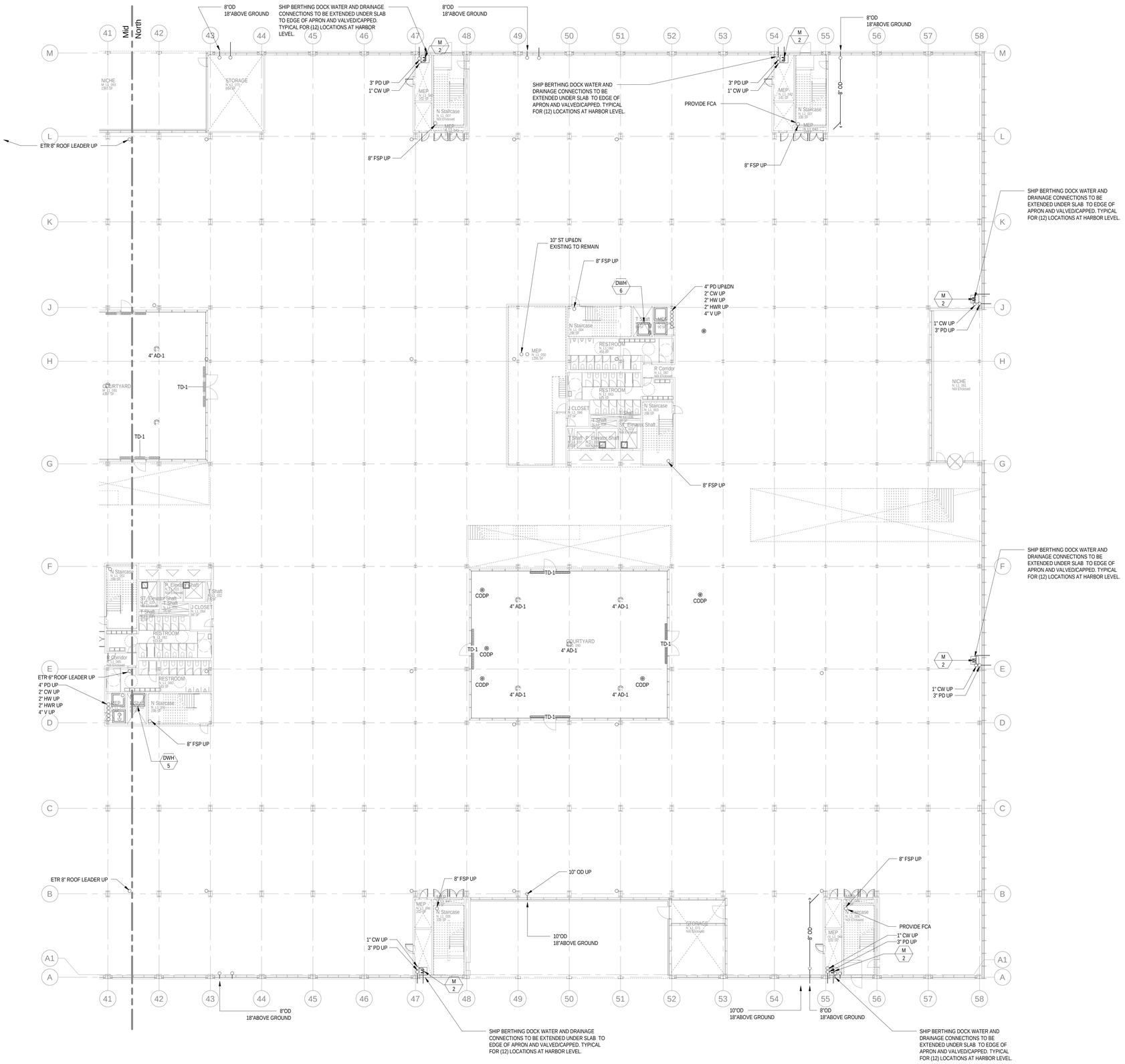
2/13/2019 5:06:09 PM

WEST

SOUTH

NORTH

EAST





**REVISIONS**

| # | DATE | DESCRIPTION |
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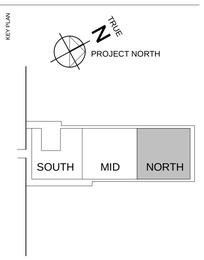
QUICK LINKS



KEY PLAN




GENERAL NOTES

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SEAL


TITLE

## NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

## PLUMBING PLAN LEVEL 1 - NORTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

# P401.3

2/13/2019 5:06:11 PM

WEST

SOUTH

NORTH

EAST

NEW PAVING TO BE DRAINED TO STORM DRAINAGE SYSTEM IN SEAPORT BOULEVARD VIA 2x10" STORM DRAIN CONNECTIONS - REFER TO DRAWING P400.1 FOR DETAILS OF LOCATIONS.

PLAZA AREA TO BE DRAINED AND DISCHARGED TO HARBOR BY CIVIL ENGINEER. REFER TO DRAWING P400.1 FOR LOCATION

1. EXISTING ROOF DRAIN LOCATION - PROVIDE NEW ROOF DRAIN AT EACH EXISTING LOCATION (TYPICAL).
2. NEW OVERFLOW DRAIN (TYPICAL).

TO GENERATOR

AREA DRAIN AND OVERFLOW AREA DRAIN

TYPICAL DOUBLE GRID DRAINAGE BAY = 7,700 SF OF AREA DRAINS TO EXISTING 10" UNDERSLAB DRAIN SPILLING TO HARBOR. REFER TO P400 SERIES DRAWINGS FOR OUTFALL LOCATIONS

4" VTR

6" MG

6" MG DN

6" MG-T

RD-1

OD-1

6" RD-1

6" OD-1

South Mid

2/12/2019 5:06:27 PM

**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

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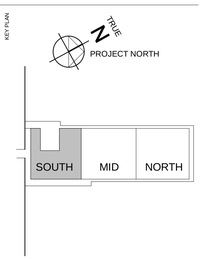
QUICK LINKS



KEY PLAN




GENERAL NOTES

Drawing stamped for Notice of Intent permit application as it pertains to new and existing storm drainage connections to the harbor and to Seaport Boulevard

SEAL


TITLE

NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

PLUMBING PLAN ROOF LEVEL - SOUTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

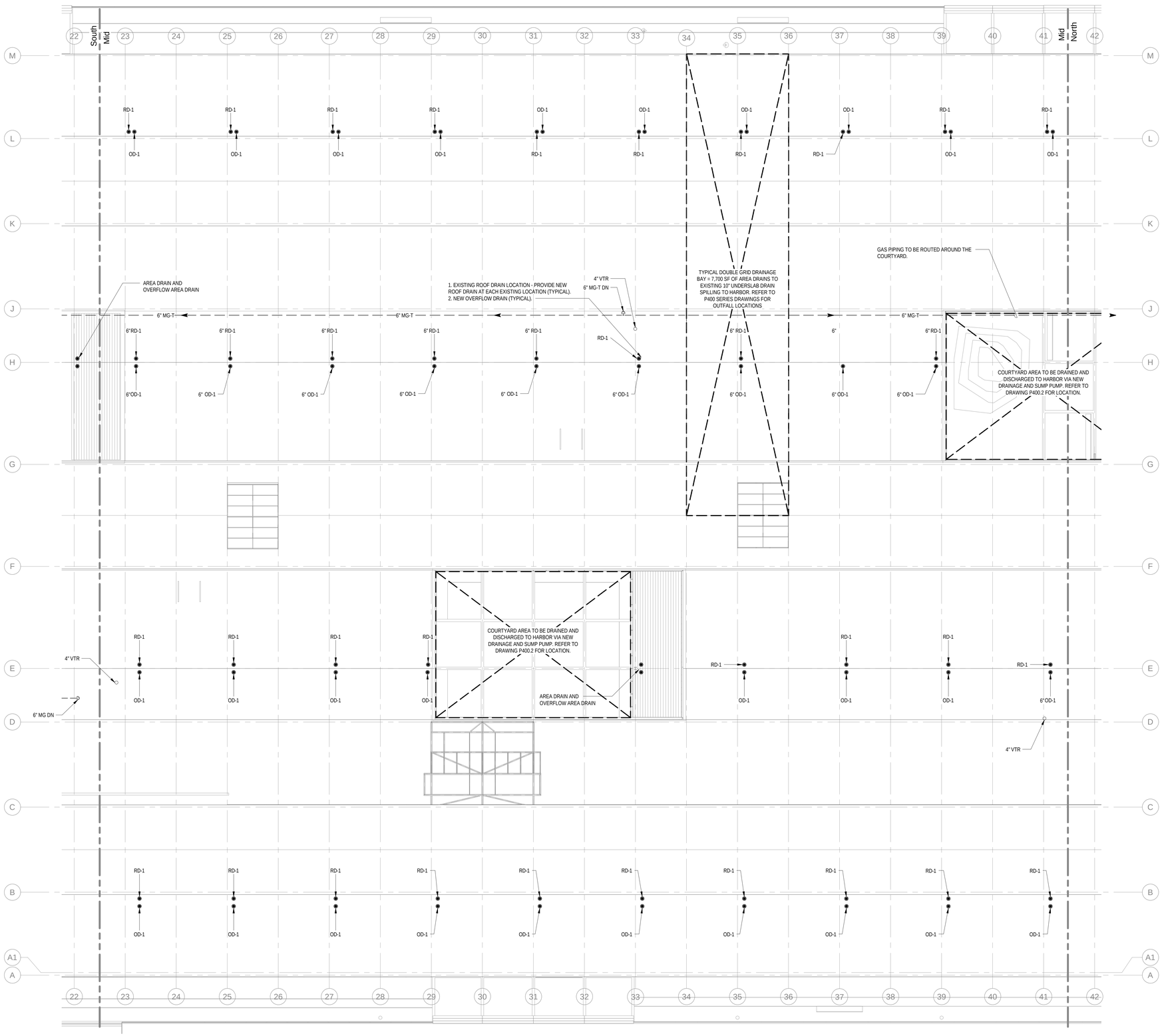
# P404.1

WEST

SOUTH

NORTH

EAST




**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

schmidt hammer lassen
45 70 20 19 00
Njalsgade 17A, Pakhus 2
2300 Copenhagen S, Denmark

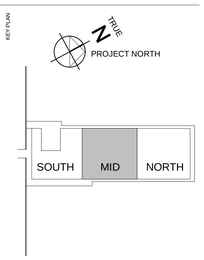
cbt
617 262 4354 cbtarchitects.com
110 canal street boston, ma 02114

ARUP
Arup USA Inc
60 State Street
Boston MA 02109 USA
617.864.2987 www.arup.com


QUICK LINKS



KEY PLAN




GENERAL NOTES

Drawing stamped for Notice of Intent permit application as it pertains to new and existing storm drainage connections to the harbor and to Seaport Boulevard

SEAL


TITLE

## NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

## PLUMBING PLAN ROOF LEVEL - MID

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

# P404.2

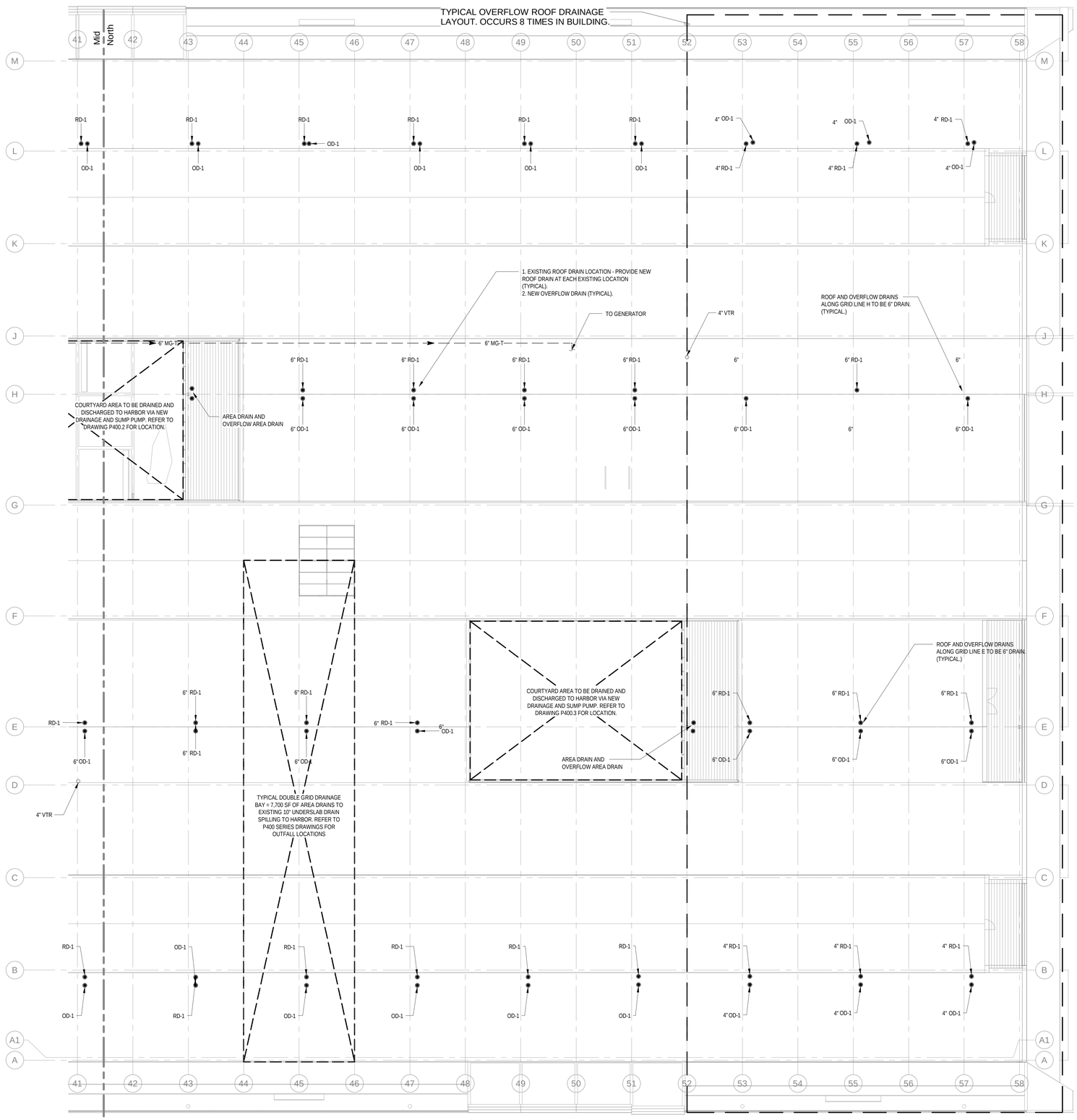

2/13/2019 5:06:45 PM

WEST

SOUTH

NORTH

EAST




**REVISIONS**

| # | DATE | DESCRIPTION |
|---|---|---|

# COMMONWEALTH PIER REVITALIZATION

**BOSTON, MA**


Pembroke REAL ESTATE
617 563 3100
255 State Street
Boston, MA 02109

schmidt hammer lassen
45 70 20 19 00
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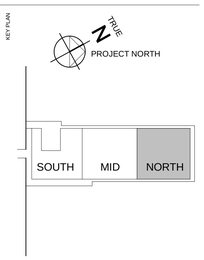
Arup USA Inc
60 State Street
Boston MA 02109 USA
617.864.2987 www.arup.com


QUICK LINKS



KEY PLAN




GENERAL NOTES

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SEAL


TITLE

## NOTICE OF INTENT PLANS

VOLUME

DRAWING TITLE

## PLUMBING PLAN ROOF LEVEL - NORTH

| SCALE | PROJECT # | DATE ISSUED |
|---|---|---|
| 1/16" = 1'-0" | 174079 | 02.15.2019 |

# P404.3

2/13/2019 5:07:00 PM