NOTICE OF INTENT

North Station Phosphorous Control Improvements Project

Boston, Massachusetts

PREPARED FOR

Massachusetts Bay Transportation Authority
10 Park Plaza, Suite 6720
Boston, MA 02116
617.222.1580

PREPARED BY

101 Walnut Street
PO Box 9151
Watertown, MA 02471
617.924.1770

January 2021

January 28, 2021

Ref: 13389.10

Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

Re: **Notice of Intent:**
MBTA North Station Phosphorus Control Improvements Project
Boston, Massachusetts

Dear Commission Members:

On behalf of the applicant, the Massachusetts Bay Transportation Authority (MBTA), VHB, Inc. is submitting the attached Notice of Intent (NOI) for proposed phosphorus control measures (the Project) within the North Station railway layout in Boston, Massachusetts (the Site). This NOI is being filed under the Massachusetts Wetlands Protection Act, MGL c.131, §40 (WPA) and its implementing regulations (310 CMR 10.00). In accordance with Massachusetts General Law (M.G.L.) Chapter 161A Section 3(i), the MBTA is not subject to local zoning regulations and bylaws.

The proposed work consists of installing a proprietary Phosphorus absorbing sponge material inside an existing oil and water separator (the OWS) and one tide gate within the existing outfall (Outfall 001) downstream of the OWS. In addition, an access manhole will be installed above the OWS for accessing and replacing the sponge media. The proposed work is part of the Site's Phosphorous Control Plan (PCP) which has been developed in compliance with National Pollutant Discharge Elimination System Permit No. MA00028941. The full scope of work is described in the attached Notice of Intent Narrative.

The Project will require work within areas subject to jurisdiction under the WPA including: Land Under Water Bodies and Waterways (LUWW), Bordering Land Subject to Flooding (BLSF), and the 25-foot Riverfront Area associated with the Charles River. No permanent impacts will occur. Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program including pavement sweeping, dust control, erosion control barriers and dewatering filters.

In compliance with the WPA, notification to abutters regarding this NOI has been made by certified return receipt mail. A copy of the abutter notification form and a list of abutters are enclosed as part of the NOI. The MBTA is not subject to WPA filing fees. However, in the spirit of cooperation, a check in the amount of $1,100 made payable to the City of Boston has been included with this submission for the City share of the WPA filing fee.

Engineers | Scientists | Planners | Designers

101 Walnut Street
PO Box 9151
Watertown, Massachusetts 02471
P 617.924.1770
F 617.924.2286

Please advertise this matter for public hearing at the Commission's next scheduled meeting. Should you have any questions concerning this submittal, or require additional information please contact me at 617.607.1019.

Sincerely,

Dan Cannata
Environmental Scientist

Attachment: Notice of Intent: MBTA North Station Phosphorous Control Improvements Project

CC: DEP Northeast Regional Office (filed electronically via eNOI)
MBTA – Holly Palmgren

Table of Contents

Notice of Intent Forms

- WPA Form 3
- NOI Wetland Fee Transmittal Form
- Copies of Filing Fee Check

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 #:
eDEP Transaction #:1245386
City/Town:BOSTON

A.General Information

1. Project Location:

a. Street Address	135 CAUSEWAY STREET		
b. City/Town	BOSTON	c. Zip Code	02116
d. Latitude	42.36831N	e. Longitude	71.06359W
f. Map/Plat #	N/A	g.Parcel/Lot #	0301913000

2. Applicant:

☐ Individual ☑ Organization

a. First Name	HOLLY		b.Last Name	PALMGREN	
c. Organization	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY				
d. Mailing Address	10 PARK PLAZA				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02116
h. Phone Number		i. Fax		j. Email	

3.Property Owner:

☑ more than one owner

a. First Name			b. Last Name		
c. Organization	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY				
d. Mailing Address	10 PARK PLAZA				
e. City/Town	BOSTON	f.State	MA	g. Zip Code	02116
h. Phone Number		i. Fax		j.Email	

4.Representative:

a. First Name	DANIEL		b. Last Name	CANNATA	
c. Organization	VHB				
d. Mailing Address	101 WALNUT STREET				
e. City/Town	WATERTOWN	f. State	MA	g. Zip Code	02472
h.Phone Number	617-607-1019	i.Fax		j.Email	dcannata@vhb.com

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

a.Total Fee Paid	0.00	b.State Fee Paid	0.00	c.City/Town Fee Paid	exempt ($1,100)

6.General Project Description:

THE APPLICANT, THE MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (MBTA), IS PROPOSING TO IMPLEMENT PHOSPHOROUS CONTROL MEASURES WITHIN THE NORTH STATION RAILWAY LAYOUT IN BOSTON, MASSACHUSETTS. WORK ASSOCIATED WILL CONSIST OF INSTALLING A PROPRIETARY PHOSPHORUS ABSORBING SPONGE MATERIAL INSIDE AN EXISTING OIL AND WATER SEPARATOR (THE OWS) AND ONE TIDE GATE AT THE OUTFALL (OUTFALL 001) DOWNSTREAM OF THE OWS. THE PROPOSED WORK IS PART OF THE SITE?S PHOSPHOROUS CONTROL PLAN (PCP) WHICH HAS BEEN DEVELOPED IN COMPLIANCE WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT NO. MA00028941.

7a.Project Type:

1.☐ Single Family Home 2. ☐ Residential Subdivision

3. ☐ Limited Project Driveway Crossing
4. ☐ Commercial/Industrial
5. ☐ Dock/Pier
6. ☐ Utilities
7. ☐ Coastal Engineering Structure
8. ☐ Agriculture (eg., cranberries, forestry)
9. ☐ Transportation
10. ☑ Other

7b.Is any portion of the proposed activity eligible to be treated as a 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:
2. Limited Project

8.Property recorded at the Registry of Deeds for:

a.County:	b.Certificate:	c.Book:	d.Page:
SUFFOLK	DEED	21070	47
SUFFOLK	DEED	45774	1

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

1.Buffer Zone & Resource Area Impacts (temporary & permanent):

☐ This is a Buffer Zone only project - 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)

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	500 1. Square feet	500 2. square feet
	0 3. cubic yards dredged	
d. ☑ Bordering Land Subject to Flooding	225 1. square feet 0 3. cubic feet of flood storage lost	225 2. square feet 0 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	Charles River 1. Name of Waterway (if any)	
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: 5329 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.
127	127	0

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)

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. square feet 2. cubic yards dredged	
c. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coatstal Dunes, below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab, crea.
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	1. square feet	

4.Restoration/Enhancement

☐ Restoration/Replacement

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 entered the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5.Projects Involves Stream Crossings

☐ Project Involves Streams Crossings

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

a. number of new stream crossings

b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

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 of Endangered Species program (NHESP)?

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

b. Date of map:FROM MAP VIEWER

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18)....

c. Submit Supplemental Information for Endangered Species Review * (Check boxes as they apply)

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

3.☐ Project plans for entire project site, including wetland resource areas and areas outside of wetland 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

c.☐ MESA filing fee (fee information available at: http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa/mesa-fee-schedule.html)
Make check payable to "Natural Heritage & Endangered Species Fund" 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

d. 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/eea/agencies/dfg/dfw/laws-regulations/cmr/321-cmr-1000-massachusetts-endangered-species-act.html#10.14; 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 Number
   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.

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review...

2. For coastal projects only, is any portion of the proposed project located below the mean high waterline or in a fish run?
   a. ☐ Not applicable - project is in inland resource area only
   b. ☑ Yes ☐ No

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

South Shore - Cohasset to Rhode Island, and the Cape & Islands:	North Shore - Hull to New Hampshire:
Division of Marine Fisheries - Southeast Marine Fisheries Station Attn: Environmental Reviewer 836 S. Rodney French Blvd New Bedford, MA 02744	Division of Marine Fisheries - North Shore Office Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930

   If yes, it 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.

3. 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 DEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC Name

4. 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

5. 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

6. 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, Explain why the project is exempt:

1. ☐ Single Family Home

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

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 by regular mail delivery.

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.
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. ☑

a. Plan Title:	b. Plan Prepared By:	c. Plan Signed/Stamped By:	c. Revised Final Date:	e. Scale:
NORTH STATION PHOSPHORUS CONTROL	VHB		January 2021	

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:

363993	1/20/2021
2. Municipal Check Number	3. Check date
Fee Exempt	N/A
4. State Check Number	5. Check date
Vanasse Hangen Brustlin Inc.	
6. Payer name on check: First Name	7. Payer name on check: Last Name

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.

Holly Palmgren	1/14/2021
1. Signature of Applicant	2. Date
	1-27-21
3. Signature of Property Owner(if different)	4. Date
Daniel M Cota	1/14/2021
5. Signature of Representative (if any)	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 Section C, Items 1-3, 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

WPA Form 3 - Notice of Wetland FeeTransmittal Form

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

Provided by MassDEP:
MassDEP File #:
eDEP Transaction #:1245386
City/Town:BOSTON

A. Applicant Information

1. Applicant:

a. First Name	HOLLY		b.Last Name	PALMGREN	
c. Organization	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY				
d. Mailing Address	10 PARK PLAZA				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02116
h. Phone Number		i. Fax		j. Email	

2.Property Owner:(if different)

a. First Name			b. Last Name		
c. Organization	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY				
d. Mailing Address	10 PARK PLAZA				
e. City/Town	BOSTON	f.State	MA	g. Zip Code	02116
h. Phone Number		i. Fax		j.Email	

3. Project Location:

a. Street Address	135 CAUSEWAY STREET	b. City/Town	BOSTON

Are you exempted from Fee? ☐ (YOU HAVE SELECTED 'YES')

Note: Fee will be exempted if you are one of the following:

- City/Town/County/District
- Municipal Housing Authority
- Indian Tribe Housing Authority
- MBTA

State agencies are only exempt if the fee is less than $100

B. Fees

Activity Type	Activity Number	Activity Fee	RF Multiplier	Sub Total
		City/Town share of filling fee exempt ($1,100)	State share of filing fee $0.00	Total Project Fee $0.00

Notice of Intent Figures

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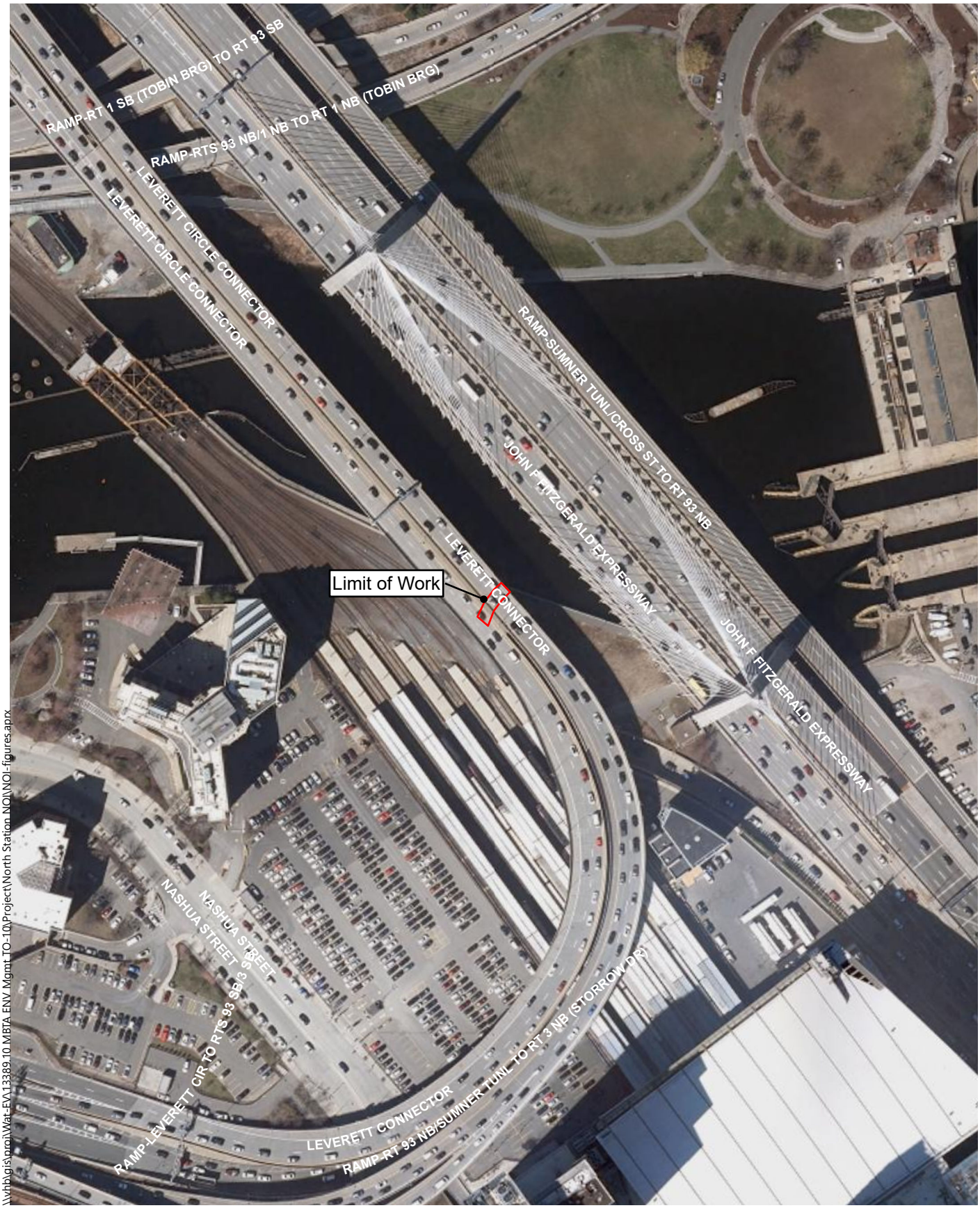
0 1000 2000 4000 Feet

North Station Phosphorous Reduction | Boston, MA

Legend

Limit of Work

Figure 1 - USGS Locus Map
Source Info: USGS, MassGIS, VHB



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0 87.5 175 350 Feet

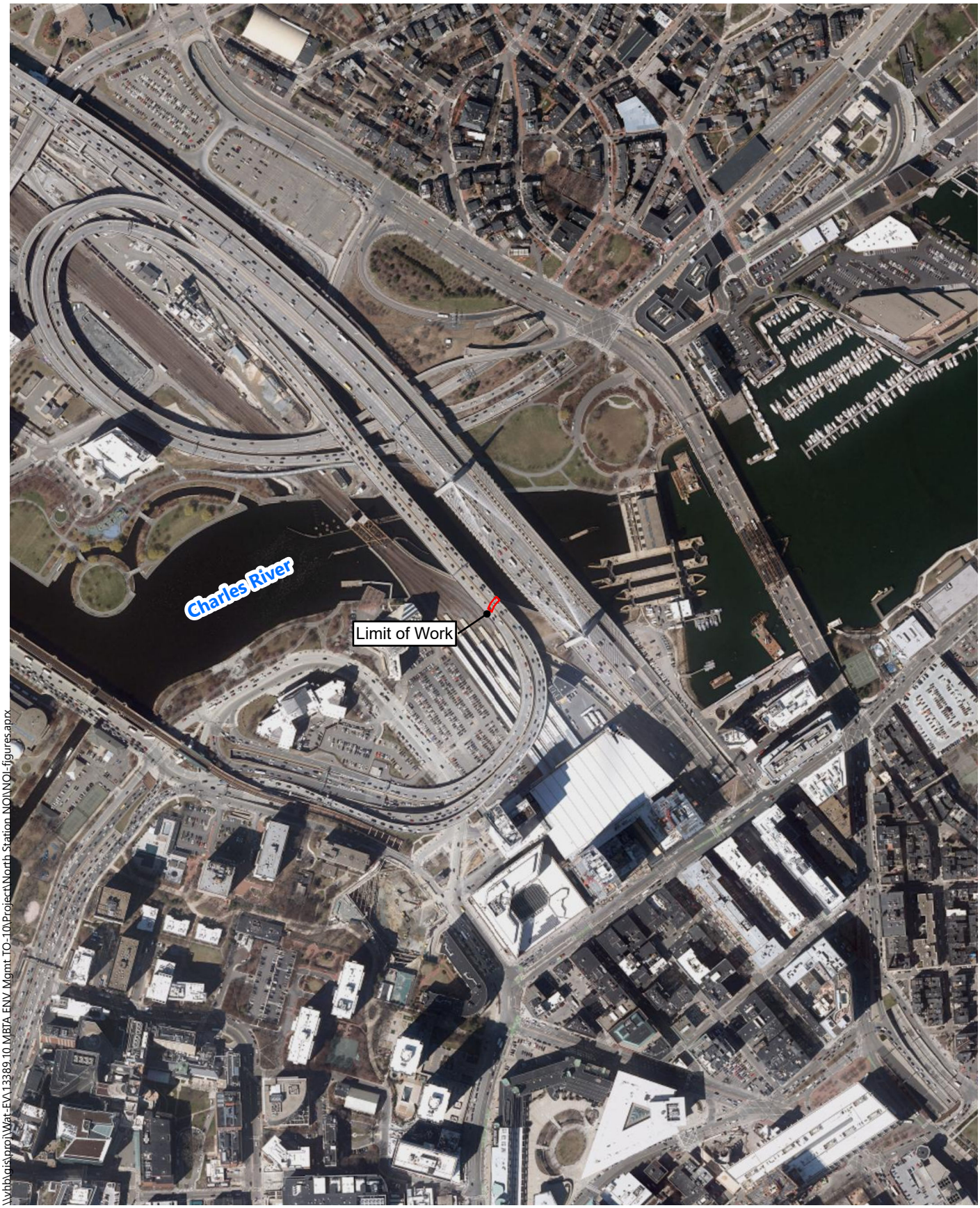
North Station Phosphorous Reduction | Boston, MA

Legend

Limit of Work

Figure 2 - Aerial Map

Source Info: USGS, MassGIS, VHB



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0 250 500 1000 Feet

North Station Phosphorous Reduction | Boston, MA

Legend

- Limit of Work
- NHESP Potential Vernal Pools - None Present
- NHESP Certified Vernal Pools - None Present
- NHESP Priority Habitats of Rare Species - None Present
- NHESP Estimated Habitats of Rare Wildlife - None Present

Figure 3 - NHESP Map
Source Info: USGS, MassGIS, VHB

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0 250 500 1000 Feet

North Station Phosphorous Reduction | Boston, MA

Legend

Limit of Work

FEMA Flood Zone Designations

AE: 1% Annual Chance of Flooding, with BFE

X: 0.2% Annual Chance of Flooding

Figure 4 - FEMA Map

Source Info: USGS, MassGIS, VHB

Attachment A
Notice of Intent Narrative

- Introduction
- Site Description
- Work Description
- Mitigation Measures
- Regulatory Compliance
- Summary

Attachment A - Notice of Intent Narrative

This Notice of Intent (NOI) is being filed pursuant to the Massachusetts Wetlands Protection Act (WPA), (MGL Chapter 131, Section 40) and its implementing regulations (310 CMR 10.00). In accordance with Massachusetts General Law (M.G.L.) Chapter 161A Section 3(i), the MBTA is not subject to local zoning regulations and bylaws. This narrative describes the wetland resource areas associated with the Project Site, the proposed work, impacts to wetland resource areas, mitigation measures, and how the Project meets the performance standards of the WPA and its implementing regulations.

Introduction

The Applicant, the Massachusetts Bay Transportation Authority (MBTA), is proposing to install new Phosphorous control measures to improve water quality (the Project) within the North Station property in Boston, Massachusetts (the Site). The proposed work is part of the Site's Phosphorous Control Plan (PCP) which has been developed in compliance with National Pollutant Discharge Elimination System Permit No. MA00028941. The permit requires that MBTA, Keolis and Delaware North Companies undertake measures to reduce phosphorous in the stormwater which currently discharges to the Charles River. Work associated with the Project will consist of installing a proprietary Phosphorus absorbing sponge material inside an existing oil and water separator (OWS) and installing an in-line check valve tide gate at the existing outfall (Outfall 001) downstream of the OWS.

The Project Site is located within resource areas subject to the jurisdiction of the WPA including: Land Under Water Bodies and Waterways (LUWW), Bordering Land Subject to Flooding (BLSF), the 100-foot buffer to Bank, and the 25-foot Riverfront Area associated with the Charles River. The project will require work in existing disturbed areas and is not expected to negatively impact any resource areas. The ultimate goal of the project is to improve water quality of stormwater discharge before it reaches the Charles River.

Areas of disturbance have been minimized to the extent practicable, and temporary impacts will be restored in place to their original condition and stabilized to prevent future erosion and degradation. Wetland resource areas will be protected from impacts during construction through the implementation of an erosion and sedimentation control program. This program includes provisions to minimize areas of disturbance through phasing and sequencing, limit erosion through stabilization, and prevent sediment from leaving the site by installing structural controls. Runoff generated from

the Project will be collected and treated in accordance with design guidelines[1] developed by Department of Environmental Protection (DEP) and standards contained in the WPA Regulations.

Site Description

The Site encompasses portions of the existing MBTA & DCR property in the vicinity of North Station and TD Garden (See Figure 1- USGS Locus and Figure 2- Aerial Map). The Site is located within the Charles River Watershed and is generally bounded on the west by a parking lot owned by Massachusetts General Hospital ("MGH"), on the east by Interstate 93 ("I-93"), to the south by Causeway Street and to the north by the Charles River. A concrete pathway runs along the river edge. There is one drainage outfall on the site, Outfall 001, that is located at the northeastern boundary of the site with an oil/water separator ("OWS") located directly upstream of the discharge point. Outfall 001 discharges to the Charles River, which is impaired for Phosphorous as well as other pollutants, according to the Massachusetts Department of Environmental Protection (MassDEP) 2016 Integrated List of Waters.[2]

According to the most recently available data provided by the Massachusetts Natural Heritage and Endangered Species Program[3] (NHESP), no portion of the Project Site is within Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife and there are no Certified or Potential Vernal Pools in the vicinity of the Project Site (Figure 3). The most recently issued Flood Insurance Rate Map (FIRM)[4] for the area, produced by the Federal Emergency Management Agency (FEMA), indicates that portions of the Project Site are within the mapped floodplain for the 100-year storm event (Figure 4).

According to the Massachusetts Department of Environmental Protection (DEP), the Project Site is not located within an Area of Critical Environmental Concern (ACEC) or an area designated as an Outstanding Resource Water (ORW)[5]. The Natural Resources Conservation Service (NRCS) soil survey[6] has mapped the surface soils within the Project Site as primarily Urban land, wet substratum with 0 to 3 percent slopes.

Wetland resource areas on/near the site are described below.

Wetland Resource Areas

Wetland resource areas have been mapped using topographical information and the latest data from MassGIS[7] for the Project Site. The state-regulated wetland resource areas identified near the Project Site include: Bank, LUWW, BLSF, and Riverfront Area. The following sections of this narrative describe the wetlands and identify resource areas

[1] DEP, 2008. *Massachusetts Stormwater Handbook.*

[2] DEP, 2016. https://www.mass.gov/doc/final-massachusetts-year-2016-integrated-list-of-waters/download

[3] NHESP, 2017. Massachusetts Natural Heritage Atlas. 13th Edition.

[4] Federal Emergency Management Agency, National Hazard Flood Layer, Digital Flood Insurance Rate Map (DFIRM).

[5] DEP, 2010. Designated Outstanding Resource Waters of Massachusetts.

[6] Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey

[7] MassGIS Data: MassDEP Wetlands *https://docs.digital.mass.gov/dataset/massgis-data-massdep-wetlands-2005*

on the Project Site that are regulated under the WPA Regulations (310 CMR 10.00). The resource areas are depicted on the attached Project Plans (Attachment D).

Wetland resource areas identified on or near the Project Site include Bank, LUWW, BLSF, and Riverfront Area. These resources are defined under the WPA Regulations (310 CMR 10.00) as follows:

- **Bank:** As defined at 310 CMR 10.54 (2), a Bank is the portion of the land surface, which normally abuts and confines a water body. The upper boundary of Bank is the first observable break in slope.
- **Land Under Water Bodies and Waterways (LUWW):** As defined at 310 CMR 10.56 (2), LUWW is the land beneath any creek, river, stream, pond or lake. The boundary of LUWW is the mean annual low water level.
- **Bordering Land Subject to Flooding (BLSF):** As defined by 310 CMR 10.57(2)(a), BLSF is "an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland." The boundary of BLSF is the estimated maximum lateral extent of flood water which will theoretically result from the statistical 100-year frequency storm. Areas identified by FEMA to be within the 100-year floodplain are regulated as BLSF.
- **Riverfront Area (RA):** As defined at 310 CMR 10.58 (a)(3)(a), RA is "the area of land between a river's mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away." except that the parallel line is located 25 feet away in Boston..."

Delineated wetlands on the Project Site are summarized in the table below and are described in more detail in the following sections of this attachment.

Table 1 Wetland Resource Areas

Resource	Resource Type	Description
Charles River	Bank, LUWW, Riverfront Area	The Charles River is a perennial waterway along the north side of the Site. Banks are well defined by existing granite block walls and the associated riverfront is a developed urban space

Source: VHB, 2020.

Charles River

The Charles River is located along the northern limit of the site of work. The Southern Bank associated with the Charles River is defined by granite block walls and other man-made structures associated with previous development of North Station and surrounding properties. Stormwater drainage from the site currently discharges to the

Charles River. No Bordering Vegetated Wetlands (BVW) are located in the vicinity of the Project Site.

The Charles River supports Bank and Land Under Waterbodies under the WPA. A 25-foot Riverfront Area extends from the edge of Bank and/or MAHW onto the Project Site.

Bordering Land Subject to Flooding

According to FEMA Flood Insurance Rate Map (FIRM) panel 25025C0077J for Suffolk County, Massachusetts, effective March 16, 2016, a portion of the Project Site is currently within the AE zone for 1% annual chance floodplain (See Figure 4 - FEMA). The base flood elevation as determined from the FEMA Flood Insurance Study (FIS) is 10 feet NAVD88 on the Project Site.

The entirety of the BLSF on the Site, is previously disturbed by development associated with the MBTA property and primarily consists of paved or gravel covered areas with some areas consisting of exposed soils with sparse vegetation.

Riverfront Area

A 25-foot Riverfront Area associated with the Charles River extends from the limits of MAHW, which is coincident with the top of Bank, onto the Project Site. Riverfront Area on the Project Site is previously developed and degraded, containing mostly impervious surfaces and features associated, gravel areas and a concrete pathway that runs along the river edge. The existing pipe that runs between the OWS and Outfall 001 extends underneath the developed surfaces within the Riverfront area.

Buffer Zone

The WPA regulations (310 CMR 10.02(2)(b)) establish a 100-foot buffer zone from the limits of Bank described above. The majority of the Buffer Zone on the Project Site is previously disturbed by adjacent paved surfaces and areas associated with the MBTA property.

Work Description

In 2018, EPA and DEP jointly issued a National Pollutant Discharge Elimination System (NPDES) permit renewal requiring that MBTA, Keolis Commuter Services (Keolis), and Delaware North develop a plan to reduce phosphorus from its stormwater discharges from the Site by 62% (phosphorus reduction target).

VHB, on behalf of MBTA and Keolis, conducted a detailed desktop review, as well as several site visits, to develop a baseline understanding of the existing land cover, use, operations, and stormwater management practices at the Site. Using this, as well as catchment area delineations and Environmental Protection Agency (EPA)-defined export rates, VHB calculated the average annual phosphorus load to Outfall 001. From this analysis, along with consideration of Site's limited available space for traditional phosphorus reduction Best Management Practices, it was determined that the installation of a proprietary phosphorus sponge material inside the OWS is the optimal solution for meeting the Site's phosphorus reduction target. The phosphorus sponge technology is developed and manufactured by AbTech Industries, Inc. (AbTech); coordination with EPA and MassDEP is on-going and both agencies have approved the proprietary technology as a pilot study for this site's PCP.

In addition to installing the phosphorus sponge, an in-line tide gate will be installed in the pipe immediately upstream of Outfall 001. The proposed tide gate is intended to limit backwater conditions in the OWS. This will prevent extended saturation of the sponge material following storm events, maximizing its phosphorus reduction capability for stormwater quality improvement. An access manhole is also proposed to be installed along the existing pipe approximately 15 feet south of the tide gate.

Work in Wetland Resource Areas

Work will take place within jurisdictional areas however, no permanent impacts to wetland resource areas are proposed. Temporary impacts include short-term disturbances to the waterway during construction that will cease once construction activities are complete. These include, installing erosion controls, establishing work areas, and installing coffer dams for dewatering activities.

Work in wetland resource areas and/or the buffer zone is described below. This work fully complies with all applicable WPA performance standards as demonstrated in the Regulatory Compliance section of this NOI.

Temporary impact areas to jurisdictional wetland resource areas are shown in Table 2 below.

Table 2 Summary of Wetland Impacts by Resource Type

Resource Area	Impacts	
	Temporary	Permanent
Bank	0 LF	0 LF
LUWW	500 SF	0 SF
BLSF	225 SF	0 SF
Riverfront Area	127 SF	0 SF

Source: VHB, 2020.

Impacts to Bank

Work will be required within the existing outfall at the Site that outlets to the Charles River at the granite block walls that make up the Bank. Constructing the tide gate will involve sliding the proposed structure into place at the existing outfall and will not require any temporary or permanent alteration of the Bank.

Impacts to LUWW

The Project will require work within LUWW to install coffer dams around the site of the installing the proposed tide gate at the existing outfall. Temporary impacts to LUWW will occur during construction due to cofferdams and subsequent dewatering. In total, approximately 500 square feet of LUWW will be temporarily impacted by construction. No permanent loss of LUWW is proposed to occur.

Cofferdam Installation and Site Dewatering

Installing the proposed tidegate at the existing stormwater outfall will need to take place in dry conditions, both to facilitate construction and to minimize impacts to the environment. Therefore, prior to installation, a cofferdam will be constructed around the outfall structure that will allow the work zone to be dewatered. A system to dewater the work area will be installed at the outfall and will include the following:

- Temporary cofferdams consisting of sheet piling and/or sandbags will be installed within the Charles River around the existing outfall. The proposed cofferdams will extend up to the bank to a sufficient elevation to prevent flow from entering the work area during work. The locations of the cofferdams are depicted on the accompanying Project plans. and the cofferdam will extend approximately 26 feet into the river from the bank and encompass an area of approximately 500 square feet.
- A dewatering system will be installed to pump water out of the excavation areas and will be operated throughout construction, as needed, to maintain a dry work area. The dewatering system will pump water into a filter bag on land set on filter fabric prior to being discharged back into the Charles. Water will be discharged back to the river on the northern side of Outfall 001 as depicted on the accompanying Project plans.

Impacts to BLSF

Proposed work within BLSF includes saw cutting to access the existing 42-inch pipe, installing phosphorous absorbing sponge, and access manhole. All work within BLSF will be temporary in nature and therefore not result in any changes to flood elevations or flood storage capacity on the Site. After installation of the sponge, the elevations above the manhole will be restored to current grade.

Impacts to Riverfront Area

The 25-foot Riverfront Area within the limits of work consists of previously disturbed and degraded areas associated with North Station. The Project constitutes a redevelopment project and proposed work will not alter the characteristic of the RFA. Because all proposed work within Riverfront Area will take place within previously degraded areas, the Project is not anticipated to adversely impact the protected interests of the Riverfront Area. Additionally, the proposed Phosphorous control measures will improve water quality treatment within the Riverfront Area on the Project Site.

Work in Buffer Zone

The 100-foot buffer zone to Bank extends onto the developed Project Site. Proposed work within buffer zone consists of installing one access manhole, grading and saw cutting excavation activities, stockpiling materials during construction, mobilizing dewatering systems and installing erosion and sedimentation controls around the limits of work.

Mitigation Measures

A suite of mitigation measures is proposed to prevent short- and long-term impacts to wetland resource areas and compensate for direct disturbances. Mitigation measures proposed for this Project include wetland replication, flood storage compensation, and a sediment and erosion control program, which will include structural and non-structural practices.

Erosion and Sediment Control

An erosion and sedimentation control program will be implemented to minimize temporary impacts to wetland resource areas during the construction phase of the project. The program incorporates Best Management Practices (BMPs) specified in guidelines developed by the DEP[8] and the U.S. Environmental Protection Agency (EPA)[9].

Proper implementation of the erosion and sedimentation control program will:

- minimize exposed soil areas through sequencing and temporary stabilization;
- place structures to manage stormwater runoff and erosion; and
- establish a permanent vegetative cover or other forms of stabilization as soon as practicable.

The following sections describe the controls that will be used and practices that will be followed during construction.

The installation of a cofferdam within the Charles River is not anticipated to have any significant permanent impact to resource areas and the cofferdam is, in itself, a BMP designed to contain the work zone and serve as an erosion and sedimentation control measure. This proposed construction methodology will minimize additional temporary and permanent impacts to resource areas during the construction phase of the Project. Areas dewatered during construction will be restored naturally once the cofferdam is removed and hydrology is restored.

Non-Structural Practices

Non-structural practices to be used during construction include temporary stabilization, temporary seeding, permanent seeding, pavement sweeping and dust control. These practices will be initiated as soon as practicable in appropriate areas upon the Project Site.

8 DEP, 1997. *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials.*

9 EPA, 2007. *Interim Developing Your Stormwater Pollution Prevention Plan: A Guide for Construction Sites*. Office of Water. Report EPA 833-R-060-04.

Pavement Sweeping

The interior roads and sidewalks and the portion of the street that fronts the Project Site shall be swept as needed during construction. The sweeping program will remove sediment and other contaminants directly from paved surfaces before their release into stormwater runoff. Pavement sweeping has been demonstrated to be an effective initial treatment for reducing pollutant loading into stormwater. A street sweeper shall be kept at the site or at a nearby location to facilitate this practice. Once construction has been completed, sweeping at the Project Site will occur as required under the Operation and Maintenance Plan.

Dust Control

The erosion and sediment control program includes provisions to minimize the generation of dust during dry and windy conditions. When necessary, larger areas of exposed soil will be wetted to prevent wind borne transport of fine-grained sediment. Enough water shall be applied to wet the upper 0.5 inches of soil. The water will be applied as a fine spray to prevent erosion. A water truck will be kept on the property (or at a nearby location) to facilitate this practice.

Structural Practices

Structural erosion and sedimentation controls to be used on the site include barriers, stabilized construction exits, temporary sediment basins, diversion swales, temporary check dams, catch basin inlet protection and dewatering filters.

Erosion Control Barriers

Prior to any ground disturbance, an approved erosion control barrier will be installed at the downgradient limit of work. As construction progresses, additional barriers will be installed around the base of stockpiles and other erosion prone areas. The barriers will be entrenched into the substrate to prevent underflow.

If sediment has accumulated to a depth which impairs proper functioning of the barrier, it will be removed by hand or by machinery operating upslope of the barriers. This material will be either reused at the Site or disposed of at a suitable offsite location. Any damaged sections of the barrier will be repaired or replaced immediately upon discovery.

Dewatering Filters

If necessary, sediment laden water that collects in trenches or excavated areas will be pumped into dewatering filter bags. The bags will be placed on relatively flat terrain, free of brush and stumps, to avoid ruptures and punctures. A maximum of one six-inch discharge hose will be allowed per filter bag. To help prevent punctures, geotextile fabric will be placed beneath the filter bag.

All dewatering structures will be placed as far away from wetland resources as possible. Filter bags used during construction will be bundled and removed for proper disposal. Proposed dewatering areas are shown on the accompanying Project plans.

Stormwater Management

Stormwater flow will not be altered by the Project. Under existing conditions, stormwater runoff from the MBTA tracks, half of the TD Garden garage, and the TD Garden service parking lot drains to Outfall 001. Prior to discharge, runoff flows through the OWS, which is designed to remove oil and settle out solids. One access manhole, located downstream of the OWS and upstream of the tide gate, will be installed, as well as two new access ports on the OWS. Proposed drainage patterns will not be altered as part of the project. A de minimis amount of new impervious surface will be added as part of the installation of the drainage manhole; however, this will not affect peak runoff rates from the site.

Compliance with the Massachusetts Stormwater Standards in accordance with the WPA Regulations is documented in the Stormwater Management Memorandum, provided as Attachment C of this NOI.

Regulatory Compliance

The proposed Project includes work in LUWW, BLSF, and the 25-foot Riverfront Area and the buffer zone. The Project includes controls and fully complies with applicable performance standards contained in the WPA regulations. Compliance with each of the applicable performance standards is demonstrated below.

Land Under Water Bodies and Waterways

The Project will fully comply with all performance standards for LUWW. The regulations for LUWW (310 CMR 10.56(4)) list general performance standards which require that work within LUWW not impair any of the following:

(a) The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;

The work within LUWW associated with the Project will not result in any permanent alteration or loss of LUWW. The Project will not reduce the width of the channel or restrict the ability of the new channel to convey water, so the carrying capacity will not be altered.

(b) Ground and surface water quality;

The Project is designed to result in a net benefit to surface water quality by providing reduced Phosphorous loading into the Charles River. Additionally, during construction, erosion and sedimentation controls will be in place during all construction activities to protect groundwater and surface water quality.

(c) The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and

Temporary impacts to LUWW will result from dewatering during construction. These areas will be fully restored once the cofferdams are removed and river flow returns. The Project will not permanently alter LUWW or its capacity to provide fisheries habitat within the work limits.

(d) The capacity of said land to provide important wildlife habitat functions.

The Project will not alter the capacity of LUWW to provide important wildlife functions. All impact to LUWW is temporary in nature.

310 CMR 10.56(4)(c) states that "Nothwithstanding the provisions of 310 CMR 10.56(4)(a) or (b), 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 10.59.

The Project is not located within a designated habitat of rare species.

Bordering Land Subject to Flooding

The Project will comply with all relevant performance standards for BLSF. The regulations for BLSF [310 CMR 10.57(4)(a)] specify the requirement for compensatory flood storage.

1. *Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within BLSF, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows.*

   Compensatory storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which will be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Further, with respect to waterways, such compensatory volume shall be provided within the same reach of the river, stream or creek.

   The Project will not result in a loss in flood storage capacity and therefore, compensatory flood storage areas are not provided.

2. *Work within BLSF, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.*

   The Project will not permanently alter any existing flood elevations will avoid any flow restrictions that may cause greater flood stage or velocity. No work within BLSF is in a location that would restrict flood flows the proposed tide gate has the potential to mitigate future flooding during large storm events.

3. *Work in those portions of BLSF found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions.*

   The Project will not permanently alter undisturbed BLSF in excess of 5,000 SF and BLSF at the Project Site does not provide important wildlife habitat; therefore, it is within the thresholds of the regulations and no assessment of wildlife habitat function is required.

310 CMR 10.57(4)(c) states that "Nothwithstanding the provisions of 310 CMR 10.57(4)(a) or (b), 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 10.59.

The Project is not located within a designated habitat of rare species.

Riverfront Area

Work will temporarily alter 127 square feet of previously disturbed Riverfront Area. The performance standard for redevelopment within previously developed Riverfront Area (310 CMR 10.58(5)) applies to the proposed Project. These standards require that the applicant prove that the proposed Project will result in an improvement over existing

conditions and that the work, including proposed restoration or mitigation, will have no significant adverse impact on the Riverfront Area. This standard includes:

(a) *At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131, § 40.*

The Project will not result in any permanent alteration of the Riverfront Area on the Site. Currently, the Riverfront. The Project will improve stormwater treatment within the Riverfront Area by installing phosphorous absorbing sponge.

(b) *Stormwater management is provided according to standards established by the Department.*

The Project has been designed to reduce Phosphorous load The proposed Project meets applicable stormwater management standards established by the Department, as described in detail in the Stormwater Memorandum provided as Attachment C.

(c) *Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less.*

The proposed work within previously degraded Riverfront Area will remain within the previously disturbed footprint created by existing railroad operations at the Project Site.

(d) *Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).*

The proposed work will require work within the Riverfront Area but will not alter the area from its current urban uses. The work is associated with installing the new tide gate (below grade within the existing pipe) and constructing an access manhole and will not result in any permanent alteration of Riverfront.

(e) *The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area except in accordance with 310 CMR 10.58(5)(f) or (g).*

The proposed work within previously degraded Riverfront Area will not exceed the amount of currently degraded area.

(f) *When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include: 1. removal of all debris, but retaining any trees or other mature vegetation; 2. grading to a topography which reduces runoff and increases infiltration; 3. coverage by topsoil at a depth consistent with natural conditions at the site; and 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;*

The Project will not involve restoration of any degraded Riverfront Area. No permanent alteration of Riverfront Area is proposed.

(g) *When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure.*

The Project will not propose Riverfront Area mitigation. No Permanent alteration of Riverfront Area is proposed.

(h) *The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition.*

Buffer Zone

The buffer zone is not a resource area and, therefore, work within a buffer zone is not governed by specific regulatory performance standards. In general, work within a buffer zone is permissible when said work has been designed, or can be conditioned, such that there will be no impact on the downgradient wetland resource area(s) being buffered. As stated in 310 CMR 10.53(1) of the WPA Regulations:

For work in Buffer Zone subject to review under 310 CMR 10.02(2)(b)3., the Issuing Authority shall impose conditions to protect the interests of the Act identified for the adjacent Resource Area… The issuing authority may consider the characteristics of the Buffer Zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on Resource Areas. Conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of Resource Areas. The Issuing Authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the Resource Area and/or other measures commensurate with the scope and location of work with the Buffer Zone to protect the interests of the Act.

The Project has been designed to address these considerations. Measures have been incorporated into the Project design to ensure that work will be done in a manner that prevents impacts wetland resources. A clear limit of work will be identified, and erosion and sedimentation control areas will be installed around the limits of work at the Project Site.

Summary

The Applicant is proposing Phosphorus control measures at North Station to improve water quality discharging from the site in compliance with the NPDES permit No. MA00028941. Work will consist of installing a proprietary phosphorus sponge material inside the Oil Water Separator on site and installing an in-line tide gate within in the pipe immediately upstream of Outfall 001 to limit backwater conditions in the OWS.

Portions of the Project Site contain resource areas subject to the jurisdiction of the WPA including: Bank, LUWW, BLSF, and Riverfront Area as well as the 100-foot buffer zone to Bank.

The Project will result in unavoidable temporary impacts to LUWW, BLSF and Riverfront Area. Work in LUWW is required to install coffer dams for dewatering activities required to install the proposed tide gate. Work will not result in any permanent impact to LUWW associated with the Charles River. Work is also proposed within BLSF and previously disturbed Riverfront Area, no alteration to flood storage capacity or habitat value of these resource areas is proposed. A suite of mitigation measures is proposed for the and a sediment and erosion control program. The Project has been designed in compliance with the performance standards of the WPA.

In accordance with Massachusetts General Law (M.G.L.) Chapter 161A Section 3(i), the MBTA is not subject to local zoning regulations and bylaws.

The Applicant respectfully requests that the Boston Conservation Commission find these measures are protective of the interests identified in the WPA and issue an Order of Conditions approving the work described in this NOI and shown on the accompanying plans.

Attachment B
Abutter Information

- Notice to Abutters
- List of Abutters

NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION

In accordance with the Massachusetts Wetlands Protection Act, Massachusetts General Laws Chapter 131, Section 40, and the Boston Wetlands Ordinance, you are hereby notified as an abutter to a project filed with the Boston Conservation Commission.

A. The **Massachusetts Bay Transportation Authority (MBTA)** has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity is proposed is **North Station (135 Causeway Street).**

C. The project involves **installing a proprietary Phosphorus absorbing sponge material inside an existing oil and water separator (OWS) and installing an in-line check valve tide gate at an existing outfall (Outfall 001) to the Charles River downstream of the OWS on the North Station property**.

D. Copies of the Notice of Intent may be obtained by contacting the Boston Conservation Commission at **CC@boston.gov**.

E. Copies of the Notice of Intent may be obtained from **Dan Cannata, Environmental Scientist (VHB Inc.) by emailing dcannata@vhb.com or calling 617-607-1019)** between the hours of **9 AM to 5 PM, on Monday through Friday**

F. In accordance with the Commonwealth of Massachusetts Executive Order Suspending Certain Provisions of the Open Meeting Law, the public hearing will take place **virtually** at https://zoom.us/j/6864582044. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.

G. Information regarding the date and time of the public hearing may be obtained from the **Boston Conservation Commission** by emailing **CC@boston.gov** or calling **(617) 635-3850** between the hours of **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 on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance.

NOTE: If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: You also may contact the Boston Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.

BABEL NOTICE

English:

IMPORTANT! This document or application contains **important information** about your rights, responsibilities and/or benefits. It is crucial that you understand the information in this document and/or application, and we will provide the information in your preferred language at no cost to you. If you need them, please contact us at cc@boston.gov or 617-635-3850.

Spanish:

¡IMPORTANTE! Este documento o solicitud contiene **información importante** sobre sus derechos, responsabilidades y/o beneficios. Es fundamental que usted entienda la información contenida en este documento y/o solicitud, y le proporcionaremos la información en su idioma preferido sin costo alguno para usted. Si los necesita, póngase en contacto con nosotros en el correo electrónico cc@boston.gov o llamando al 617-635-3850.

Haitian Creole:

AVI ENPÒTAN! Dokiman oubyen aplikasyon sa genyen **enfòmasyon ki enpòtan** konsènan dwa, responsablite, ak/oswa benefis ou yo. Li enpòtan ke ou konprann enfòmasyon ki nan dokiman ak/oubyen aplikasyon sa, e n ap bay enfòmasyon an nan lang ou prefere a, san ou pa peye anyen. Si w bezwen yo, tanpri kontakte nou nan cc@boston.gov oswa 617-635-3850.

Traditional Chinese:

非常重要！這份文件或是申請表格包含關於您的權利，責任，和／或福利的重要信息。請您務必完全理解這份文件或申請表格的全部信息，這對我們來說十分重要。我們會免費給您提供翻譯服務。如果您有需要請聯系我們的郵箱 cc@boston.gov 電話# 617-635-3850..

Vietnamese:

QUAN TRỌNG! Tài liệu hoặc đơn yêu cầu này chứa **thông tin quan trọng** về các quyền, trách nhiệm và/hoặc lợi ích của bạn. Việc bạn hiểu rõ thông tin trong tài liệu và/hoặc đơn yêu cầu này rất quan trọng, và chúng tôi sẽ cung cấp thông tin bằng ngôn ngữ bạn muốn mà không tính phí. Nếu quý vị cần những dịch vụ này, vui lòng liên lạc với chúng tôi theo địa chỉ cc@boston.gov hoặc số điện thoại 617-635-3850.

Simplified Chinese:

非常重要！这份文件或是申请表格包含关于您的权利，责任，和／或福利的重要信息。请您务必完全理解这份文件或申请表格的全部信息，这对我们来说十分重要。我们会免费给您提供翻译服务。如果您有需要请联系我们的邮箱 cc@boston.gov 电话# 617-635-3850.

CITY of BOSTON

Cape Verdean Creole:

INPURTANTI! Es dukumentu ó aplikason ten **informason inpurtanti** sobri bu direitus, rasponsabilidadis i/ó benefísius. Ê krusial ki bu intendi informason na es dukumentu i/ó aplikason ó nu ta da informason na língua di bu preferênsia sen ninhun kustu pa bó. Si bu prisiza del, kontata-nu na cc@boston.gov ó 617-635-3850.

Arabic:

مهم! يحتوي هذا المستند أو التطبيق على معلومات مهمة حول حقوقك ومسؤولياتك أو فوائدك. من الأهمية أن تفهم المعلومات الواردة في هذا المستند أو التطبيق. سوف نقدم المعلومات بلغتك المفضلة دون أي تكلفة عليك. إذا كنت في حاجة إليها، يرجى الاتصال بنا على cc@boston.gov أو 617-635-3850.

Russian:

ВАЖНО! В этом документе или заявлении содержится **важная информация** о ваших правах, обязанностях и/или льготах. Для нас очень важно, чтобы вы понимали приведенную в этом документе и/или заявлении информацию, и мы готовы бесплатно предоставить вам информацию на предпочитаемом вами языке. Если Вам они нужны, просьба связаться с нами по адресу электронной почты cc@boston.gov, либо по телефону 617-635-3850.

Portuguese:

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French:

IMPORTANT ! Ce document ou cette demande contient des **informations importantes** concernant vos droits, responsabilités et/ou avantages. Il est essentiel que vous compreniez les informations contenues dans ce document et/ou cette demande, que nous pouvons vous communiquer gratuitement dans la langue de votre choix. Si vous en avez besoin, veuillez nous contacter à cc@boston.gov ou au 617-635-3850.

CITY of BOSTON

City of Boston
Mayor Martin J. Walsh

City of Boston
Environment

波士頓濕地保護委員會

專案鄰近住戶通知

根據《麻塞諸塞州濕地保護法》、《麻塞諸塞州普通法》第 131 章第 40 節以及《波士頓濕地條例》的規定， 我們特此向您，即向波士頓濕地保護委員會提出申請的專案的鄰近住戶，發出以下通知。

A.**麻塞諸塞灣交通局（MBTA）**已向波士頓濕地保護委員會提出申請，請求批准改建一塊受《濕地保護法》（《普通法》第 131 章第 40 節）和《波士頓濕地條例》保護的地塊。

B. 擬開展改建活動的地塊地址為： **北站 (135 Causeway Street)。**

C. 該專案涉及以下建設內容：**在北站物業的已有油水分離器（OWS）內安裝專營 Phosphorus 海綿吸收材料，並在 OWS 通向查理斯河下游的已有排水口（Outfall 001）安裝單向止回閥防潮門 。**

D. 可通過聯繫波士頓保護委員會取得意向通知書的副本 ，電子郵件是 CC@boston.gov。

E. 您可於**週一至週五上午 9 時至下午 5 時通過電子郵件 dcannata@vhb.com 或致電 617-607-1019 联系環境科學家 Dan Cannata, (VHB Inc.)獲**取意向通知的副本。

F. 根據《馬薩諸塞州行政命令》（暫緩執行《公開會議法》聽證會將在網上 https://zoom.us/j/6864582044 進行。 如果無法上互聯網 (Internet)，則可致電 1-929-205- 6099，輸入會議編號(ID) 686 458 2044＃，然後使用＃作為您參與的編號(ID.)

G. 您可於週一至週五上午 **9** 點到下午 **5** 點聯繫波士頓濕地保護委員會，諮詢公開聽證會舉行的日期和時間， 郵箱地址：**CC@boston.gov**，電話：**(617) 635-4416**。

注：公開聽證會的通知（包括其舉行日期、時間和地點）將提前至少五天在《波士頓先驅報》上予以公佈。

注：公開聽證會的通知（包括其舉行日期、時間和地點）將提前至少四十八（48）小時發佈在以下網頁之上以及波士頓市政廳內：www.boston.gov/public-notices。如果您想提出意見或建議，您可以參加該公 開聽證會或將書面形式的意見或建議發送至 CC@boston.gov 或郵寄至以下地址：Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201。

注：您也可以聯繫波士頓濕地保護委員會或環境保護部東北地區辦公室，諮詢有關此項申請或《濕地保護 法》的更多資訊。如要聯繫環境保護部，請致電：東北地區：（978）694-3200。

注：如果您準備參加該公開聽證會並需要口譯服務，則請在聽證會舉行前一天中午 12 點前通過以下電子郵箱位址告知工作人員：CC@boston.gov。

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Mayor Martin J. Walsh

City of Boston
Environment

波士顿湿地保护委员会

项目邻近住户通知

根据《马萨诸塞州湿地保护法》、《马萨诸塞州普通法》第 131 章第 40 节以及《波士顿湿地条例》的规定， 我们特此向您，即向波士顿湿地保护委员会提出申请的项目的邻近住户，发出以下通知。

A. **麻塞諸塞灣交通局（MBTA）**已向波士顿湿地保护委员会提出申请，请求批准改建一块受《湿地保护法》（《普通法》第 131 章第 40 节）和《波士顿湿地条例》保护的地块。

B. 拟开展改建活动的地块地址为：**北站 (135 Causeway Street)。**

C. 该项目涉及以下建设内容：**在北站物業的已有油水分離器（OWS）內安裝專營 Phosphorus 海綿吸收材料，並在 OWS 通向查理斯河下游的已有排水口（Outfall 001）安裝單向止回閥防潮門 。。**

D. 可通過聯繫波士頓保護委員會取得意向通知書的副本， 電子郵件是 CC@boston.gov。

E. 您可于 **週一至週五上午 9 時至下午 5 時通過電子郵件 dcannata@vhb.com 或致電 617-607-1019 联系環境科學家 Dan Cannata, (VHB Inc.)**获取意向通知的副本。

F. 根據《馬薩諸塞州行政命令》（暫緩執行《公開會議法》聽證會將在網上 https://zoom.us/j/6864582044 進行。 如果無法上互聯網 (Internet)，則可致電 1-929-205- 6099，輸入會議編號(ID) 686 458 2044＃，然後使用＃作為您參與的編號(ID.)

G. 您可于周一至周五上午 **9** 点到下午 **5** 点联系波士顿湿地保护委员会，咨询公开听证会举行的日期和时间， 邮箱地址：**CC@boston.gov**，电话：**(617) 635-4416**。

注：公开听证会的通知（包括其举行日期、时间和地点）将提前至少五天在《波士顿先驱报》上予以公布。

注：公开听证会的通知（包括其举行日期、时间和地点）将提前至少四十八（48）小时发布在以下网页之 上以及波士顿市政厅内：www.boston.gov/public-notices。如果您想提出意见或建议，您可以参加该公 开听证会或将书面形式的意见或建议发送至 CC@boston.gov 或邮寄至以下地址：Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201。

注：您也可以联系波士顿湿地保护委员会或环境保护部东北地区办公室，咨询有关此项申请或《湿地保护 法》的更多信息。如要联系环境保护部，请致电：东北地区：（978）694-3200。

注：如果您准备参加该公开听证会并需要口译服务，则请在听证会举行前一天中午 12 点前通过以下电子邮 箱地址告知工作人员：CC@boston.gov。

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AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION

Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance

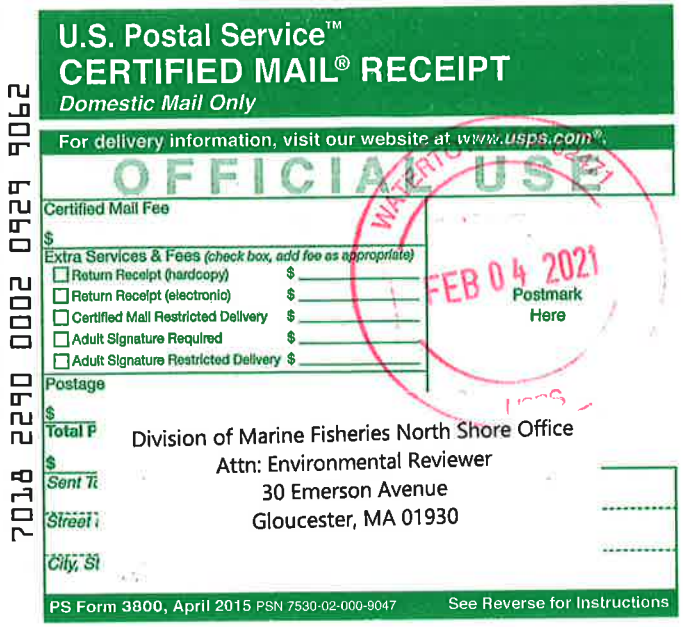
I, Daniel M Cannata, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by Massachusetts Bay Transportation Authority (MBTA) for the proposed Phosphorus Control Improvements Project located at North Station (135 Causeway Street).

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

Daniel M Cannata
Name

2/3/2021
Date



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Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930

Street
City, St

FEB 04 2021
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PID	OWNER	ADDRESSEE	MLG_ADDRESS	MLG_CITYSTATE	MLG_ZIPCODE	LOC_ADDRESS	LOC_CITY	LOC_ZIPCODE
3.02E+08	COMM OF MASS MDC	COMM OF MASS MDC	BEVERLY	BOSTON MA	2114	BEVERLY ST	BOSTON	2114
3.02E+08	COMM OF MASS	COMM OF MASS	122 BEVERLY ST	BOSTON MA	2114	150 CAUSEWAY ST	BOSTON	2114
3.02E+08	ONE-20 NASHUA STREET LLC	ONE-20 NASHUA STREET LLC	100 LEGENDS WY	BOSTON MA	2114	CAUSEWAY ST	BOSTON	2114
3.02E+08	PODIUM OWNER LP	PODIUM OWNER LP	800 BOYLSTON ST	BOSTON MA	2199	80 CAUSEWAY ST	BOSTON	2114
3.02E+08	BOSTON GARDEN DEVELOPMENT	BOSTON GARDEN DEVELOPMENT	100 LEGENDS WAY	BOSTON MA	2114	100 LEGENDS WY	BOSTON	2114
3.02E+08	MASS BAY TRANS AUTH	MASS BAY TRANS AUTH	ACCOLON WAY	BOSTON MA	2114	CAUSEWAY ST	BOSTON	2114
3.02E+08	UNITED STATES OF AMERICA	UNITED STATES OF AMERICA	CAUSEWAY	BOSTON MA	2114	10 CAUSEWAY ST	BOSTON	2114
3.02E+08	MASS BAY TRANSPORTATION AUTH	MASS BAY TRANSPORTATION AUTH	NASHUA ST	BOSTON MA	2114	NASHUA ST	BOSTON	2114
3.02E+08	AVALON NASHUA LLC	AVALON NASHUA LLC	671 N GLEBE RD SUITE 600	ARLINGTON VA	22203	120 NASHUA ST	BOSTON	2114
3.02E+08	ONE-20 NASHUA STREET LLC	ONE-20 NASHUA STREET LLC	100 LEGENDS WAY	BOSTON MA	2114	CAUSEWAY ST	BOSTON	2114
3.02E+08	GARDEN PARKING CORPORATION	GARDEN PARKING CORPORATION	100 LEGENDS WAY	BOSTON MA	2114	100 LEGENDS WY	BOSTON	2114
3.02E+08	DELAWARE NORTH COMPANIES	DELAWARE NORTH COMPANIES	100 LEGENDS WAY	BOSTON MA	2114	NASHUA ST	BOSTON	2114
3.02E+08	MASS BAY TRANSPORTATION AUTH	MASS BAY TRANSPORTATION AUTH	NASHUA ST	BOSTON MA	2114	NASHUA ST	BOSTON	2114
3.02E+08	THE GENERAL HOSPITAL CORP	THE GENERAL HOSPITAL CORP	55 FRUIT ST	BOSTON MA	2114	99 NASHUA ST	BOSTON	2114
3.02E+08	MASS DEPT OF TRANSPORTATION	MASS DEPT OF TRANSPORTATION	NASHUA ST	BOSTON MA	2114	NASHUA ST	BOSTON	2114
3.02E+08	THE GENERAL HOSPITAL CORP	THE GENERAL HOSPITAL CORP	55 FRUIT ST	BOSTON MA	2114	125 NASHUA ST	BOSTON	2114
3.02E+08	MASS DEPT OF TRANSPORTATION	MASS DEPT OF TRANSPORTATION	NASHUA ST	BOSTON MA	2114	NASHUA ST	BOSTON	2114
3.02E+08	COMMWLTH OF MASS	COMMWLTH OF MASS	NASHUA	BOSTON MA	2114	NASHUA ST	BOSTON	2114

Attachment C
Stormwater Memorandum

Memorandum

To: Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

Date: December 16, 2020

Project #: 13389.10

From: Jillian Baumbach, PE
Maria Briones, EIT
Ryan Lizewski, PE
Colin Bergmann

Re: Stormwater Management Memorandum
MBTA North Station Phosphorus Control

This Stormwater Management Memorandum has been prepared to show compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00).

Project Description

In 2018, the MBTA was issued a National Pollutant Discharge Elimination System (NPDES) permit requiring that the Massachusetts Bay Transport Authority (MBTA), Keolis Commuter Services (Keolis), and Delaware North Companies develop a plan to reduce phosphorus from its stormwater discharges from the Site by 62% (phosphorus reduction target). The Applicant, MBTA, is proposing to install a proprietary phosphorus adsorbing sponge material inside an existing oil and water separator (the OWS) to meet the phosphorus reduction permit requirement. The project also consists of installing an in-line tide gate at the outfall (Outfall 001). The outfall is located behind TD Garden, adjacent to North Station in the North End neighborhood of Boston (the Site) and downstream of the MBTA OWS (the Project).

As part of the project, a detailed desktop review, as well as several site visits, were conducted on behalf of MBTA and Keolis to develop a baseline understanding of the existing land cover, use, operations, and stormwater management practices at the Site. Using this, as well as catchment area delineations and Environmental Protection Agency (EPA)-defined export rates, VHB calculated the average annual phosphorus load to Outfall 001. From this analysis, along with consideration of Site's limited available space for traditional phosphorus reduction Best Management Practices, it was determined that the installation of a proprietary phosphorus sponge material inside the OWS is the optimal solution for meeting the Site's phosphorus reduction target. The phosphorus sponge technology is developed and manufactured by AbTech Industries, Inc. (AbTech); coordination with EPA and the Massachusetts Department of Environmental Protection (MassDEP) is on-going as the sponge is a proprietary technology.

In addition to the installation of the phosphorus sponge, an in-line tide gate will be installed in the pipe immediately upstream of Outfall 001. The proposed tide gate is intended to limit backwater conditions in the OWS. This will prevent extended saturation of the sponge material following storm events, maximizing its phosphorus reduction capability. To facilitate the operation and maintenance of the proposed design, a new drainage manhole will be installed downstream of the OWS and two access ports will be installed on the OWS.

The project will result in a de minimis increase in impervious cover of three (3) sqft and thus will not affect peak runoff rates from the Site. The project has been designed to fully comply with the MassDEP Stormwater Management Standards.

101 Walnut Street
Watertown, MA 02472
P 617.924.1770

Memorandum

Site Description

The Site is located within the Charles River Watershed and is generally bounded on the west by a parking lot owned by Massachusetts General Hospital (MGH), on the east by Interstate 93 (I-93), to the south by Causeway Street and to the north by the Charles River. The site provides multiple services which include: a commuter rail train station for the MBTA Commuter Rail (North Station), a "T" stop for the orange and green lines, and TD Garden, a multi-purpose arena owned by Delaware North Companies (DNC), which includes an underground parking garage. There is one drainage outfall on the site, Outfall 001, that is located at the northeastern boundary of the site with an oil/water separator located directly upstream of the discharge point. Outfall 001 discharges to the Charles River, which is impaired for phosphorous as well as other pollutants, according to MassDEP Just beyond the Site, east of Outfall 001, there is a second outfall that is assumed to discharge runoff from the on/off ramp from I-93 into the Charles River. This outfall is owned and operated by the Massachusetts Department of Transportation – Highway Division and, based on available information, runoff from the Site does not discharge to this outfall.

North Station consists of ten train tracks which are operated and maintained by Keolis. MBTA also owns a small parcel of undeveloped land located beyond the northeastern limit of the site, which is currently comprised of unstable soils. DNC, in addition to being responsible for the majority of the indoor facility on Site, owns and operates a parking lot at the southeast corner of the train tracks. The Massachusetts Department of Transportation – Highway Division also has an office building and an emergency generator building in the vicinity, just outside of the site limits.

Existing Drainage Conditions

According to existing drainage plans (CDW Consultants Facility Plan from 2016, VHB/URS/TAMS Central Artery I-93/Tunnel I-90 Project Plans from 1998), stormwater runoff from the MBTA tracks, half of the TD Garden garage, and the TD Garden service parking lot drains to Outfall 001. Prior to discharge, runoff flows through the OWS, which is designed to remove oil and settle out solids. Stormwater flow will not be altered by the Project.

Proposed Drainage Conditions

The proposed work includes the installation of an in-line tide gate directly upstream of Outfall 001 and the installation of a phosphorus sponge material in the OWS. One drainage manhole, located downstream of the OWS and upstream of the tide gate, will be installed, as well as two new access ports on the OWS. Proposed drainage patterns will not be altered as part of the project. A de minimis amount of new impervious surface will be added as part of the installation of the drainage manhole; however, this will not affect peak runoff rates from the site.

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Memorandum

Massachusetts Department of Environmental Protection (MassDEP) – Stormwater Management Standards

The project will result in a de minimis increase in impervious cover and thus fully complies with the MassDEP Stormwater Management Standards.

Standard 1: No New Untreated Discharges

The Project has been designed to fully comply with Standard 1. No new untreated discharges are proposed as part of the Project.

Standard 2: Peak Rate Attenuation

The Project has been designed to fully comply with Standard 2. A de minimis increase in impervious area is proposed as part of the Project and does not increase peak rates coming from the project site.

Standard 3: Stormwater Recharge

The Project has been designed to fully comply with Standard 3. A de minimis increase in impervious area is proposed as part of the Project.

Standard 4: Water Quality

The Project has been designed to fully comply with Standard 4. The goal of this project is to increase the water quality of the stormwater discharging from the site by installing a tide gate separating the Charles River from the site's stormwater system and then filter the stormwater through the proprietary phosphorus adsorbing sponge material.

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

The Project use is considered a land use with higher potential pollutant loads. The project will results in an increase of stormwater quality. Erosion controls are proposed during construction phases of the project to keep any potentially contaminated materials inside the project limits.

Standard 6: Critical Areas

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P 617.924.1770

The project does not discharge to an Outstanding Resource Water (ORW), Coldwater Fisheries or an Area of Critical Environmental Concern (ACEC).

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

Although the Project is a retrofit project and therefore classified as a redevelopment, the Project has been designed to fully comply with Standard 7 and all other Standards.

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

The stormwater portion of the project will disturb less than 1 acre of land and is therefore not required to obtain coverage under the Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit.

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 attached. Appropriate erosion and sedimentation controls will be installed during construction.

Standard 10: Prohibition of Illicit Discharges

During construction, the Project contractor will be required to verify there are no illicit connections to the drainage system. If an illicit connection is discovered, the applicable entity (MBTA, MassDOT, DCR, or Boston Department of Public Works and Board of Health will be notified to take appropriate action.

No statement is made regarding portions of existing drainage systems not included in the project area.

Attachments: Stormwater Checklist
Operation and Maintenance Plan and Long-Term Pollution Prevention Plan
HydroCAD Peak Rate Analysis Report

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P 617.924.1770

Memorandum

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Memorandum

Attachment 1

Stormwater Checklist

101 Walnut Street
Watertown, MA 02472
P 617.924.1770

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

Checklist for Stormwater Report

A. Introduction

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

A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

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

Jillian C. Baumbach 01/29/2021
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): Retrofit of existing structures to increase water quality

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 – N.A. De Minimis Increase in Impervious Area

☐ 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 – N.A.

☐ 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.

Memorandum

Attachment 2

Operation and Maintenance/Long Term Pollution Prevention Plan

■

101 Walnut Street
Watertown, MA 02472
P 617.924.1770

MBTA North Station Phosphorus Control
Boston, MA

Operation and Maintenance Plan (O&M)
and
Long Term Pollution Prevention Plan (LTPPP)

January 2021

This Stormwater Management System Operation and Maintenance Plan provides for the inspection and maintenance of an oil and water separator retrofitted with a phosphorus adsorbing sponge and for measures to prevent pollution associated with the proposed installation of the phosphorus adsorbing sponge in Boston, MA.

This document has been prepared in accordance with the requirements of the Stormwater Regulations included in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10).

Responsible Party

The Massachusetts Bay Transportation Authority (MBTA) will be responsible for the maintenance of the roadway facilities and associated stormwater management features, in accordance with their own standards.

Questions or concerns regarding maintenance activities may also be addressed to MBTA:

Massachusetts Bay Transportation Authority Main Office
10 Park Plaza
Boston, MA 02116
(617)-222-1592

Maintenance Measures

The stormwater management system covered by this Operation and Maintenance Plan consists of the following component:

- Oil Water Separator with Phosphorus Adsorbing Sponge

Maintenance of this component will be conducted in accordance with MBTA standard maintenance practices.

If inspection indicates the need for major repairs, the inspector should contact the MBTA maintenance supervisor to initiate procedures to effect repairs in accordance with MBTA's standard construction practices.

Practices for Long Term Pollution Prevention

In general, long term pollution prevention and related maintenance activities will be conducted consistent with MBTA and Keolis Management Plans. Further information can be requested via email: JKearney@MBTA.com or Ana.Pascoal@keoliscs.com.

For the facilities covered by this Operation and Maintenance Plan, long term pollution prevention includes the following measures:

Litter Pick-up
MBTA will conduct litter pick-up from the stormwater management facilities in conjunction with routine maintenance activities.

Routine Inspection and Maintenance
MBTA will conduct inspection and maintenance of the stormwater management practices in accordance with the guidelines discussed above.

Spill Prevention and Response

MBTA will implement response procedures for releases of significant materials such as fuels, oils, or chemical materials onto the ground or other areas that could reasonably be expected to discharge to surface or groundwater.

- Reportable quantities will immediately be reported to the applicable Federal, State, and local agencies as required by law.
- Applicable containment and cleanup procedures will be performed immediately. Impacted material collected during the response must be removed promptly and disposed of in accordance with Federal, State, and local requirements. A licensed emergency response contractor may be required to assist in cleanup of releases depending on the amount of the release and the ability of the responsible party to perform the required response.
- Reportable quantities of chemical, fuels, or oils are established under the Clean Water Act and enforced through DEP.

Snow and Ice Management

Snow and Ice Management shall be conducted according to standard MBTA practices.

Prohibition of Illicit Discharges

The DEP Stormwater Management Standards prohibit illicit discharges to the storm water management system. Illicit discharges are discharges that do not entirely consist of stormwater, except for certain specified non-stormwater discharges.

Discharges from the following activities are not considered illicit discharges:

firefighting	foundation drains
water line flushing	footing drains
landscape irrigation	individual resident car washing
uncontaminated groundwater	flows from riparian habitats and wetlands
potable water sources	dechlorinated water from swimming pools
water used to clean residential buildings without detergents	water used for street washing
	air conditioning condensation

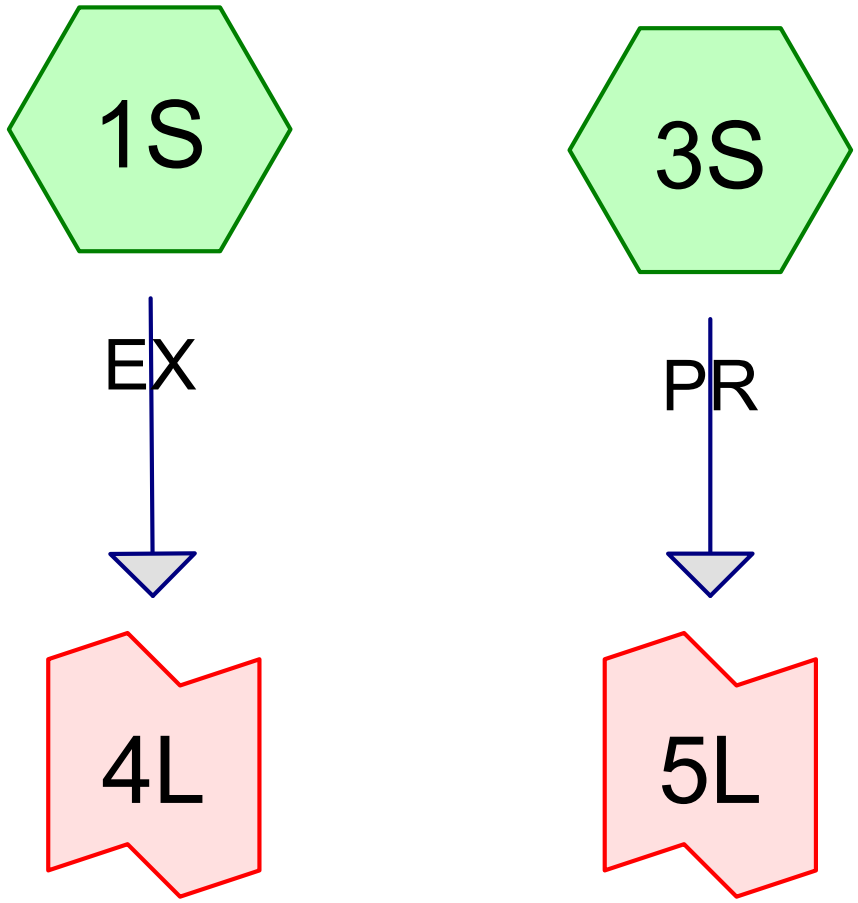
There are no known or proposed illicit connections associated with this project. If a potential illicit discharge to the facilities covered by this plan is detected (e.g., dry weather flows at any pipe outlet, evidence of contamination of surface water discharge by non-stormwater sources), the applicable parties shall be notified for assistance in determining the nature and source of the

Memorandum

Attachment 3

HydroCAD Peak Rate Analysis Report

101 Walnut Street
Watertown, MA 02472
P 617.924.1770



EX Design Point PR Design Point

Subcat Reach Pond Link

Routing Diagram for IC_Increase_PeakRates
Prepared by VHB, Printed 12/31/2020

Project Notes

Rainfall events imported from "Atlas-14-Rain.txt" for 448 MA Suffolk

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.72	2
2	2-Year	Type III 24-hr		Default	24.00	1	3.26	2
3	5-Year	Type III 24-hr		Default	24.00	1	4.11	2
4	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
5	25-Year	Type III 24-hr		Default	24.00	1	6.19	2
6	50-Year	Type III 24-hr		Default	24.00	1	7.39	2
7	100-Year	Type III 24-hr		Default	24.00	1	8.83	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.252	74	>75% Grass cover, Good, HSG C (1S, 3S)
0.030	96	Gravel surface, HSG C (1S, 3S)
0.037	98	Paved parking, HSG C (1S, 3S)
0.023	98	Water Surface, HSG C (1S, 3S)
0.342	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.342	HSG C	1S, 3S
0.000	HSG D	
0.000	Other	
0.342		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.252	0.000	0.000	0.252	>75% Grass cover, Good	1S, 3S
0.000	0.000	0.030	0.000	0.000	0.030	Gravel surface	1S, 3S
0.000	0.000	0.037	0.000	0.000	0.037	Paved parking	1S, 3S
0.000	0.000	0.023	0.000	0.000	0.023	Water Surface	1S, 3S
0.000	**0.000**	**0.342**	**0.000**	**0.000**	**0.342**	**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

Subcatchment1S: EX Runoff Area=7,443 sf 17.65% Impervious Runoff Depth>1.34"
Tc=6.0 min CN=80 Runoff=0.28 cfs 0.019 af

Subcatchment3S: PR Runoff Area=7,444 sf 17.71% Impervious Runoff Depth>1.34"
Tc=6.0 min CN=80 Runoff=0.28 cfs 0.019 af

Link 4L: EX Design Point Inflow=0.28 cfs 0.019 af
Primary=0.28 cfs 0.019 af

Link 5L: PR Design Point Inflow=0.28 cfs 0.019 af
Primary=0.28 cfs 0.019 af

Total Runoff Area = 0.342 ac Runoff Volume = 0.038 af Average Runoff Depth = 1.34"
82.32% Pervious = 0.281 ac 17.68% Impervious = 0.060 ac

Summary for Subcatchment 1S: EX

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

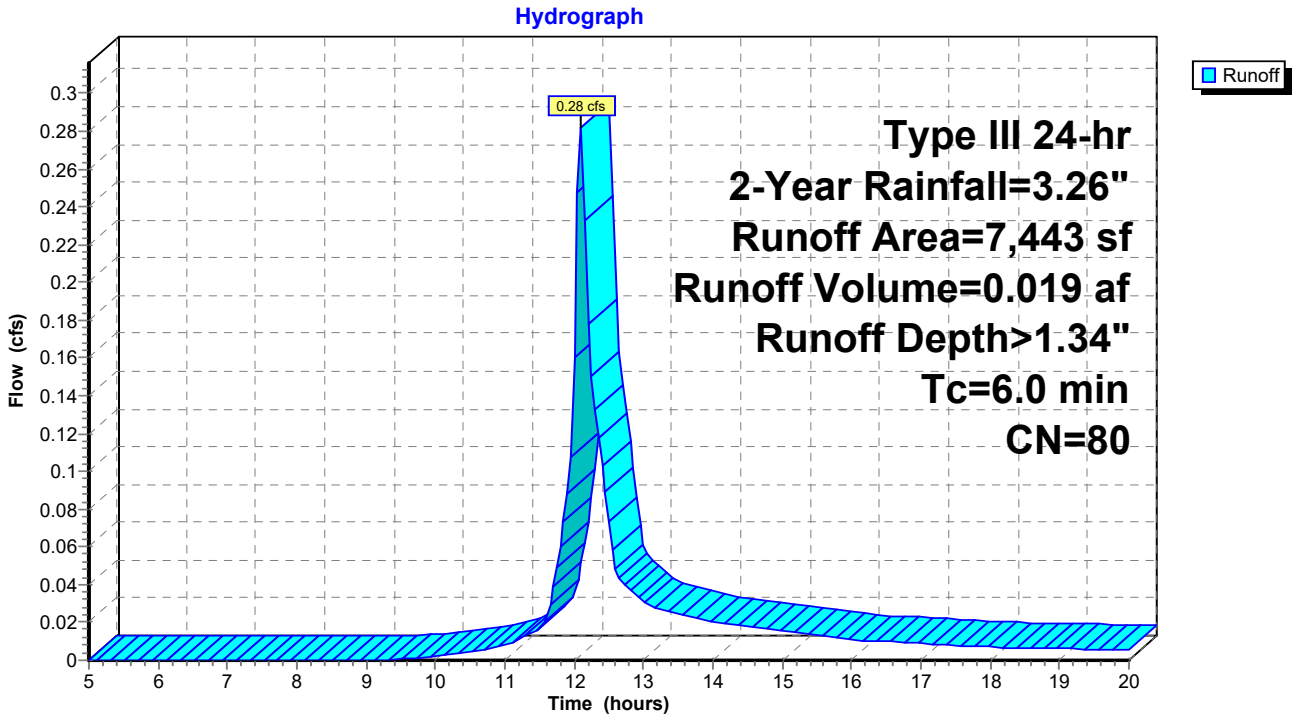
Runoff = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af, Depth> 1.34"

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
814	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
645	96	Gravel surface, HSG C
7,443	80	Weighted Average
6,129		82.35% Pervious Area
1,314		17.65% Impervious Area

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

Subcatchment 1S: EX



Summary for Subcatchment 3S: PR

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

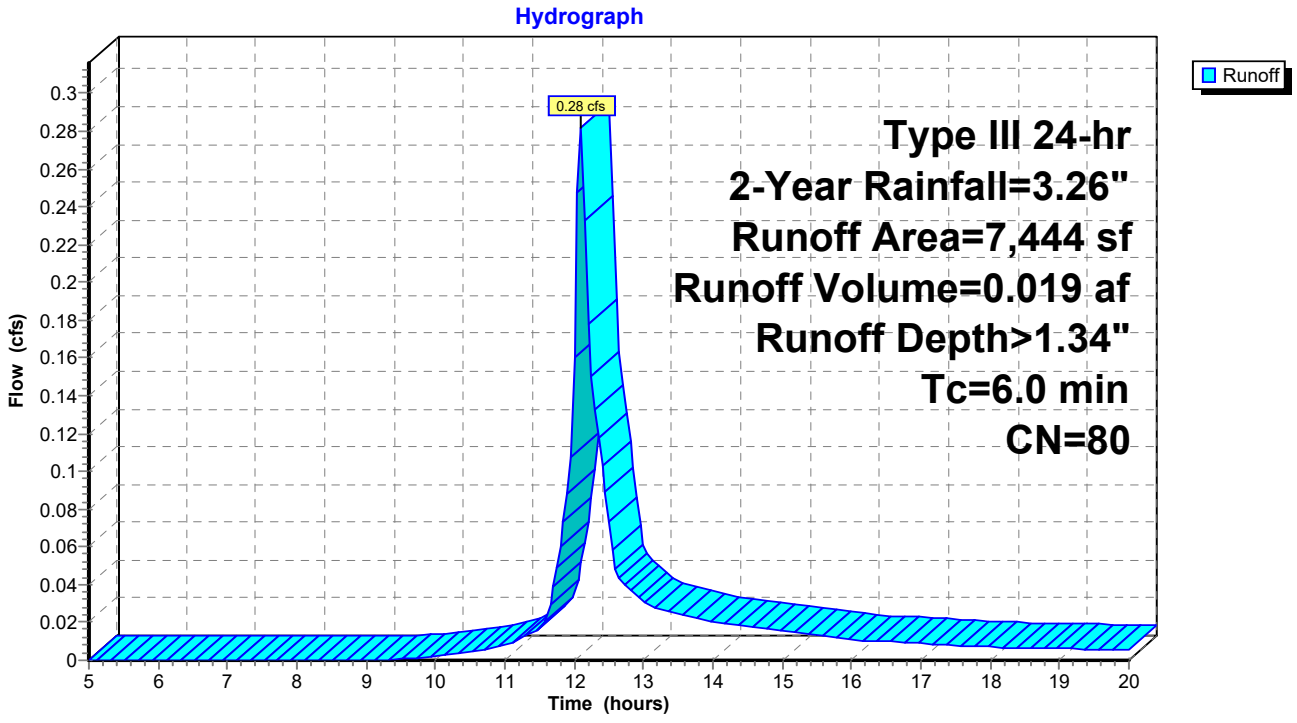
Runoff = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af, Depth> 1.34"

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
818	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
642	96	Gravel surface, HSG C
7,444	80	Weighted Average
6,126		82.29% Pervious Area
1,318		17.71% Impervious Area

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

Subcatchment 3S: PR

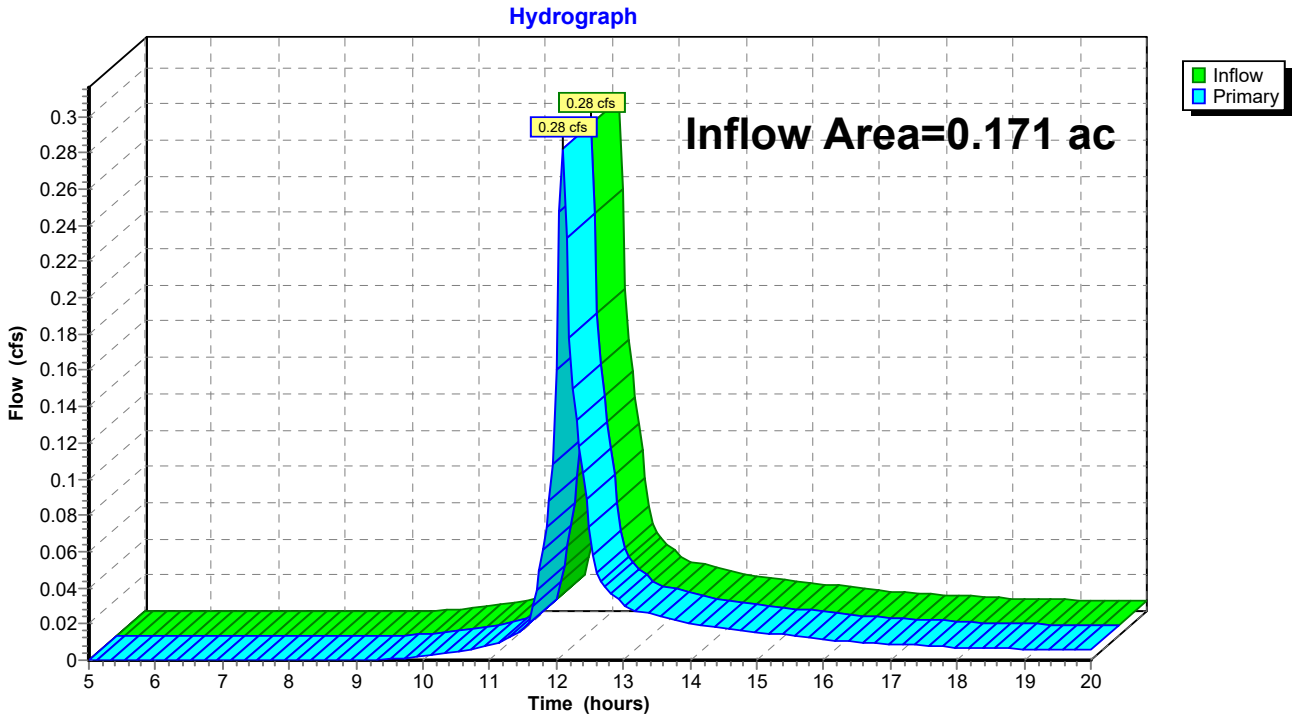


Summary for Link 4L: EX Design Point

Inflow Area = 0.171 ac, 17.65% Impervious, Inflow Depth > 1.34" for 2-Year event
Inflow = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af
Primary = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: EX Design Point

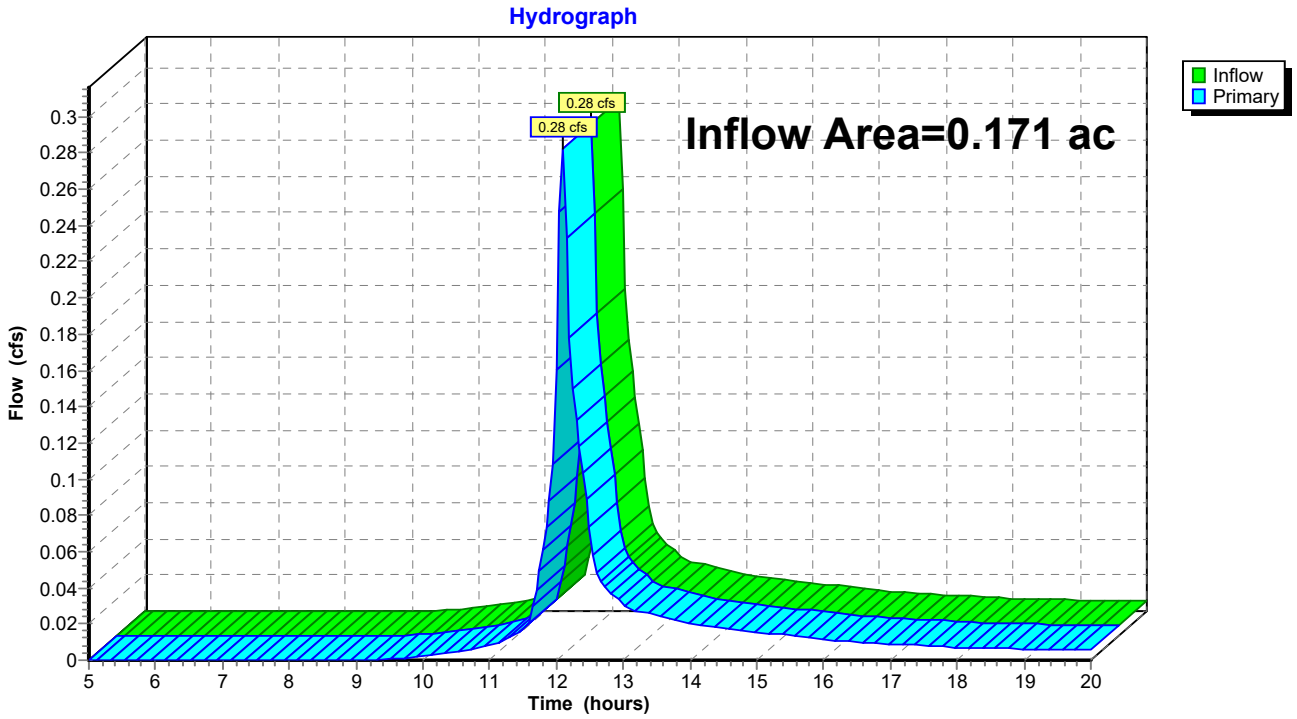


Summary for Link 5L: PR Design Point

Inflow Area = 0.171 ac, 17.71% Impervious, Inflow Depth > 1.34" for 2-Year event
Inflow = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af
Primary = 0.28 cfs @ 12.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

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

Link 5L: PR Design Point



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

Subcatchment1S: EX Runoff Area=7,443 sf 17.65% Impervious Runoff Depth>2.62"
Tc=6.0 min CN=80 Runoff=0.55 cfs 0.037 af

Subcatchment3S: PR Runoff Area=7,444 sf 17.71% Impervious Runoff Depth>2.62"
Tc=6.0 min CN=80 Runoff=0.55 cfs 0.037 af

Link 4L: EX Design Point Inflow=0.55 cfs 0.037 af
Primary=0.55 cfs 0.037 af

Link 5L: PR Design Point Inflow=0.55 cfs 0.037 af
Primary=0.55 cfs 0.037 af

Total Runoff Area = 0.342 ac Runoff Volume = 0.075 af Average Runoff Depth = 2.62"
82.32% Pervious = 0.281 ac 17.68% Impervious = 0.060 ac

Summary for Subcatchment 1S: EX

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

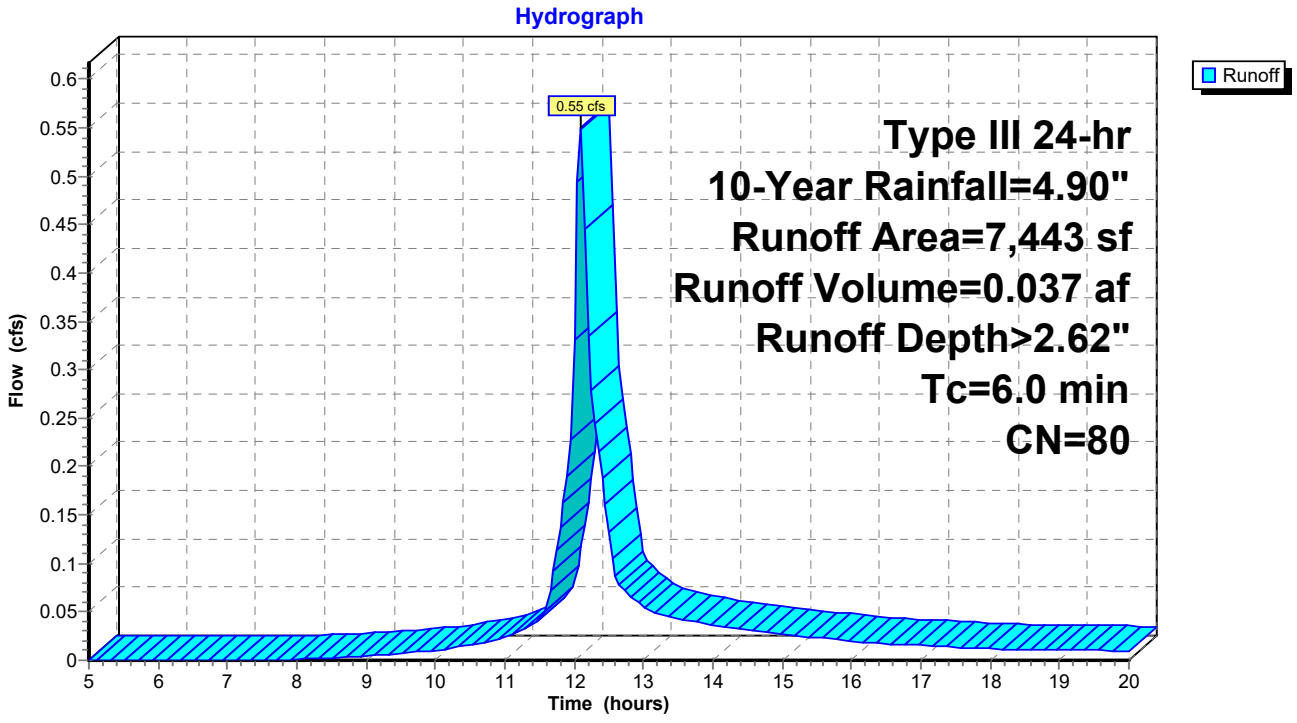
Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af, Depth> 2.62"

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=4.90"

Area (sf)	CN	Description
814	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
645	96	Gravel surface, HSG C
7,443	80	Weighted Average
6,129		82.35% Pervious Area
1,314		17.65% Impervious Area

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

Subcatchment 1S: EX



Summary for Subcatchment 3S: PR

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af, Depth> 2.62"

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=4.90"

Area (sf)	CN	Description
818	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
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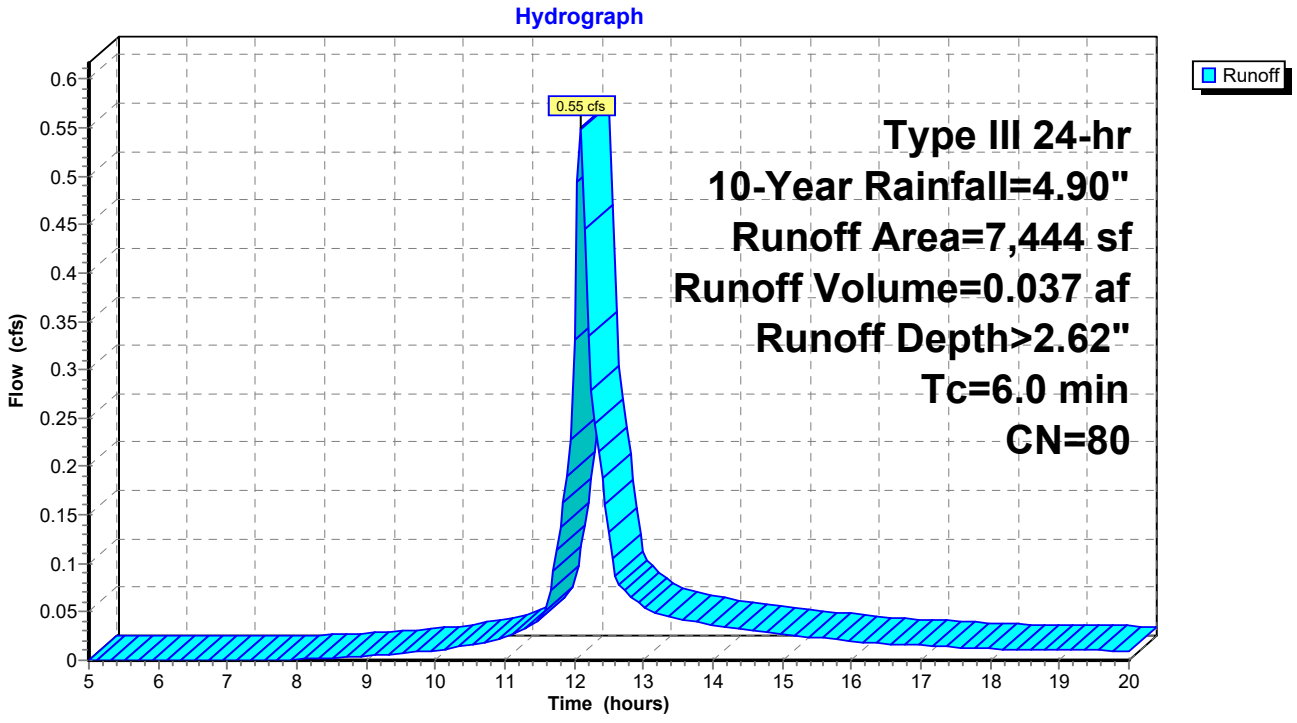
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: PR

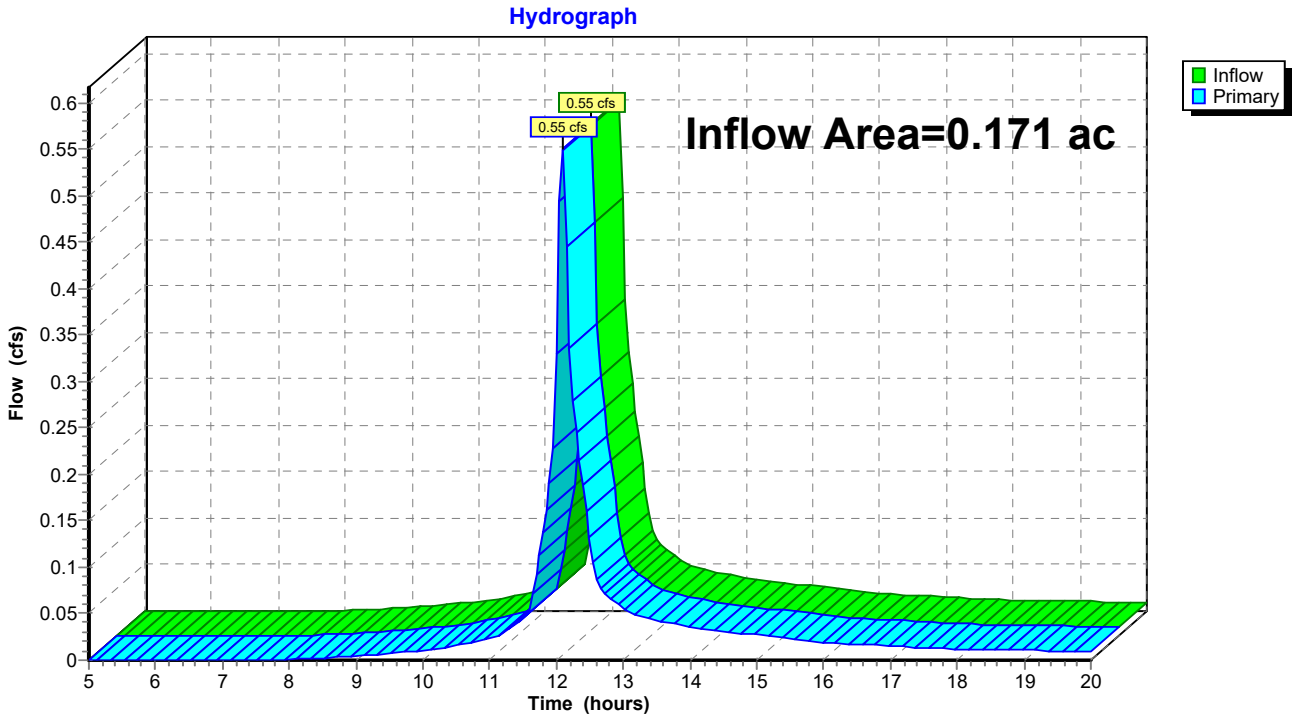


Summary for Link 4L: EX Design Point

Inflow Area = 0.171 ac, 17.65% Impervious, Inflow Depth > 2.62" for 10-Year event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: EX Design Point

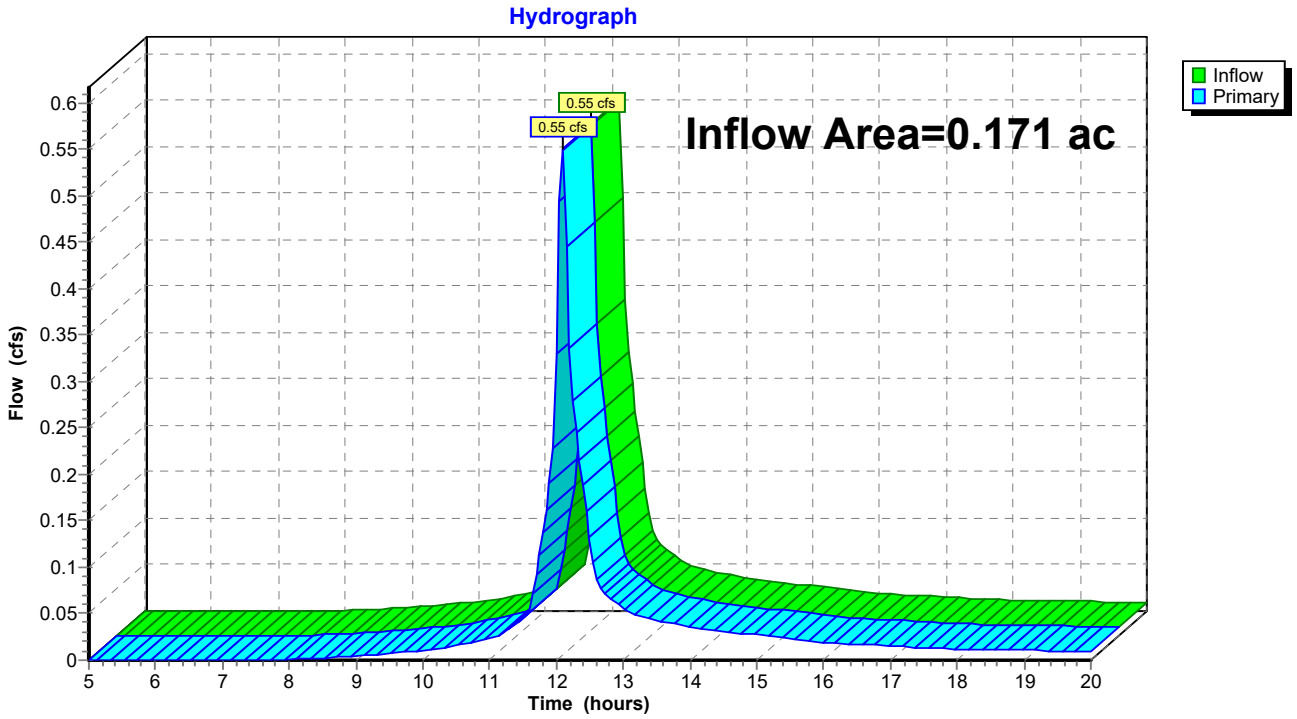


Summary for Link 5L: PR Design Point

Inflow Area = 0.171 ac, 17.71% Impervious, Inflow Depth > 2.62" for 10-Year event
Inflow = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af
Primary = 0.55 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

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

Link 5L: PR Design Point



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

Subcatchment1S: EX Runoff Area=7,443 sf 17.65% Impervious Runoff Depth>6.04"
Tc=6.0 min CN=80 Runoff=1.23 cfs 0.086 af

Subcatchment3S: PR Runoff Area=7,444 sf 17.71% Impervious Runoff Depth>6.04"
Tc=6.0 min CN=80 Runoff=1.23 cfs 0.086 af

Link 4L: EX Design Point Inflow=1.23 cfs 0.086 af
Primary=1.23 cfs 0.086 af

Link 5L: PR Design Point Inflow=1.23 cfs 0.086 af
Primary=1.23 cfs 0.086 af

Total Runoff Area = 0.342 ac Runoff Volume = 0.172 af Average Runoff Depth = 6.04"
82.32% Pervious = 0.281 ac 17.68% Impervious = 0.060 ac

Summary for Subcatchment 1S: EX

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

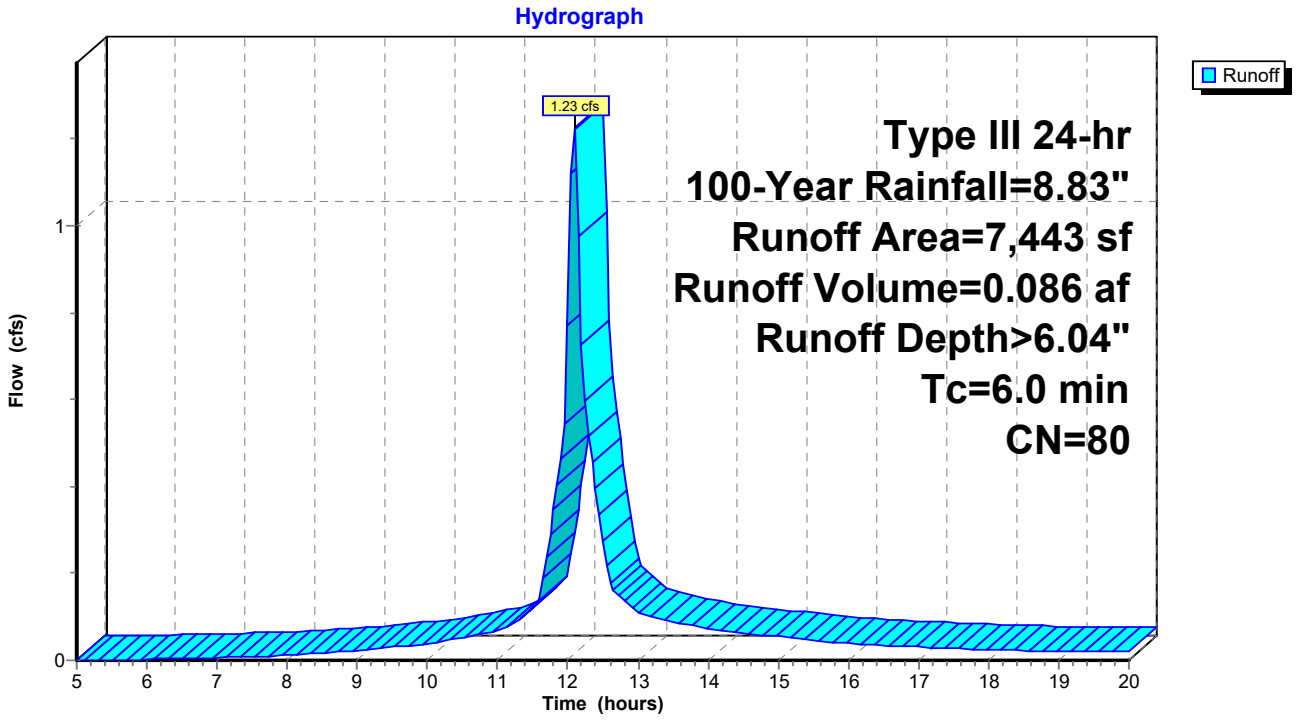
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af, Depth> 6.04"

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=8.83"

Area (sf)	CN	Description
814	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
645	96	Gravel surface, HSG C
7,443	80	Weighted Average
6,129		82.35% Pervious Area
1,314		17.65% Impervious Area

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

Subcatchment 1S: EX



Summary for Subcatchment 3S: PR

NRCS Web Soil Survey showed could not display soil types in this area. Soils assumed to be urban fill (HSG C)

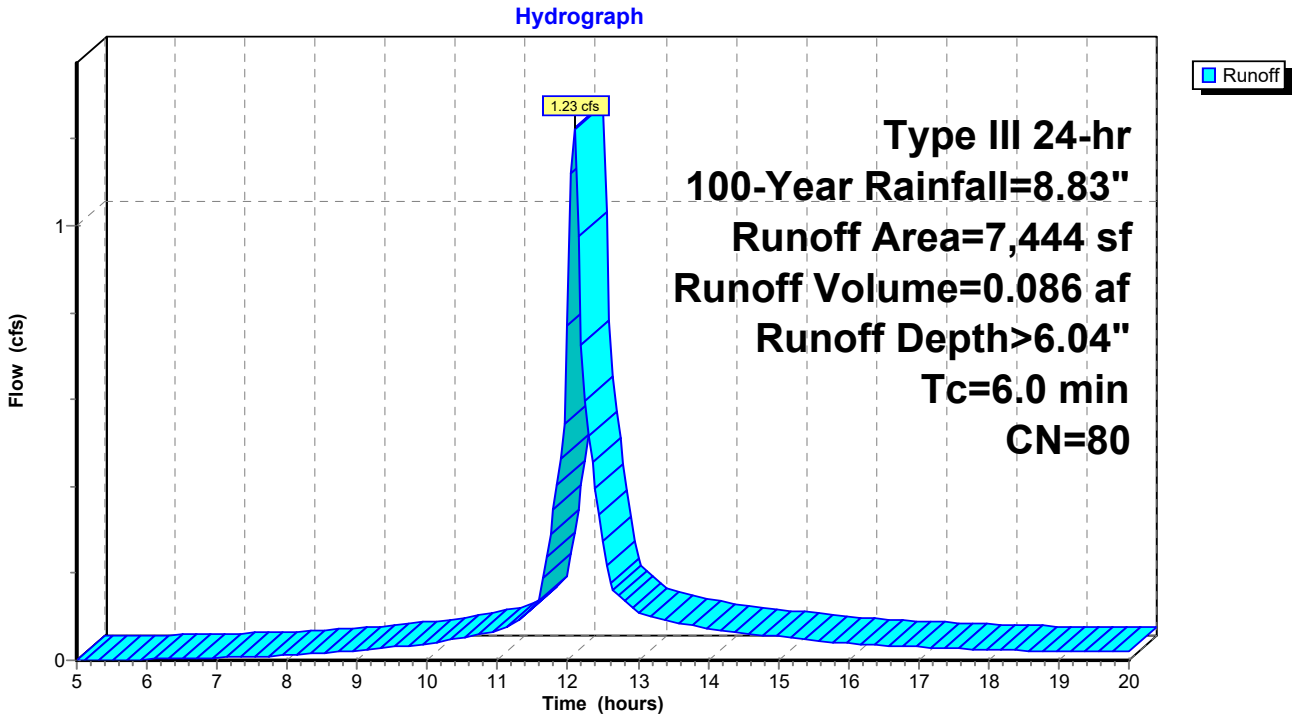
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af, Depth> 6.04"

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=8.83"

Area (sf)	CN	Description
818	98	Paved parking, HSG C
5,484	74	>75% Grass cover, Good, HSG C
500	98	Water Surface, HSG C
642	96	Gravel surface, HSG C
7,444	80	Weighted Average
6,126		82.29% Pervious Area
1,318		17.71% Impervious Area

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

Subcatchment 3S: PR

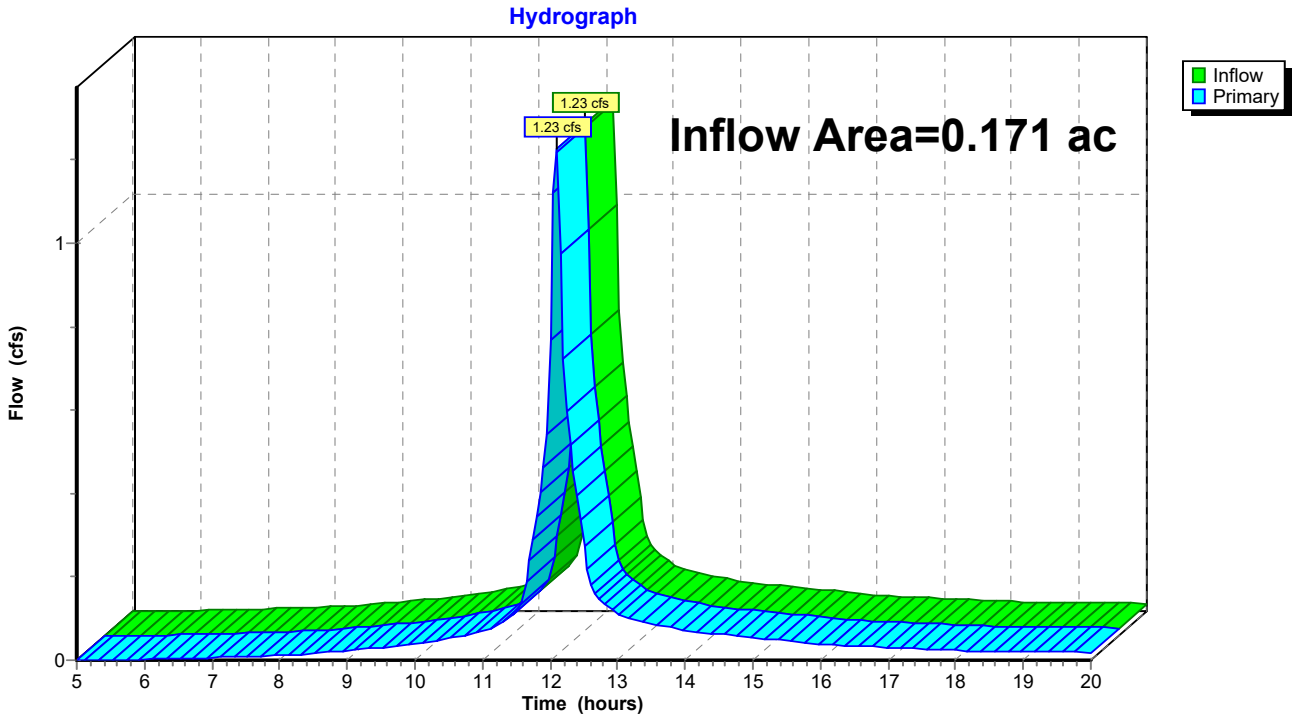


Summary for Link 4L: EX Design Point

Inflow Area = 0.171 ac, 17.65% Impervious, Inflow Depth > 6.04" for 100-Year event
Inflow = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af
Primary = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: EX Design Point

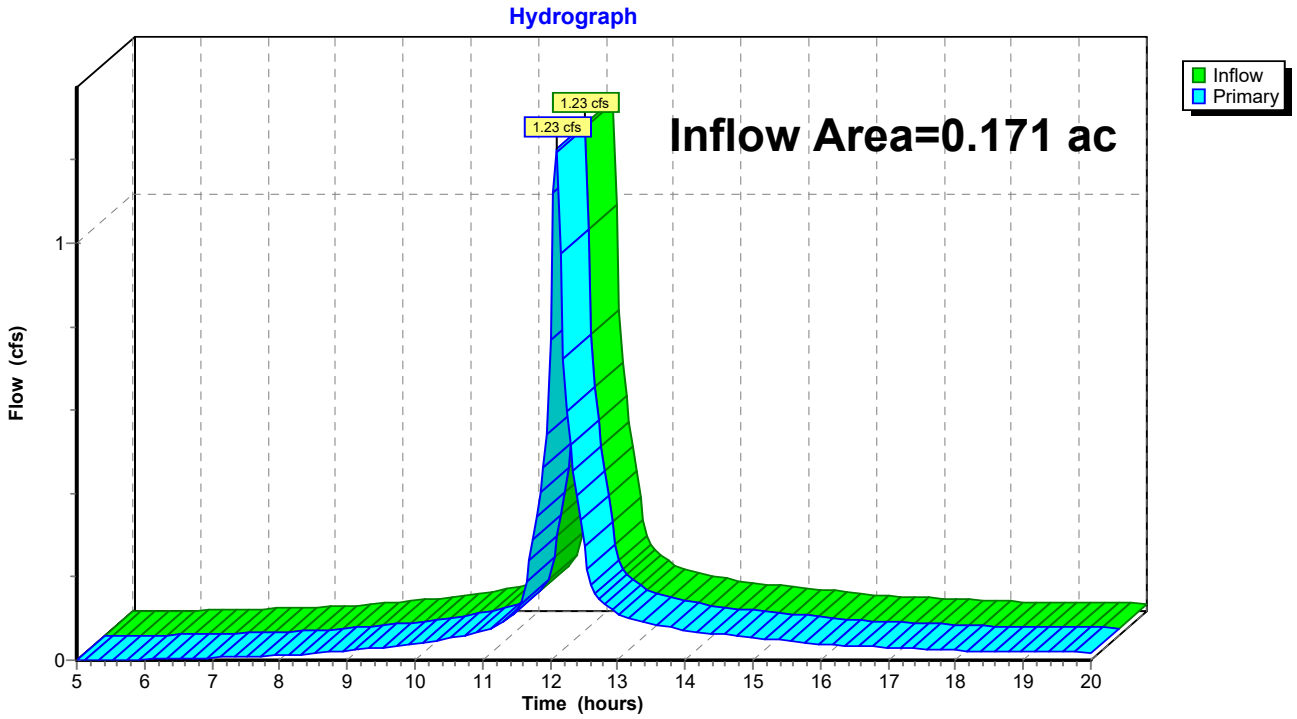


Summary for Link 5L: PR Design Point

Inflow Area = 0.171 ac, 17.71% Impervious, Inflow Depth > 6.04" for 100-Year event
Inflow = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af
Primary = 1.23 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

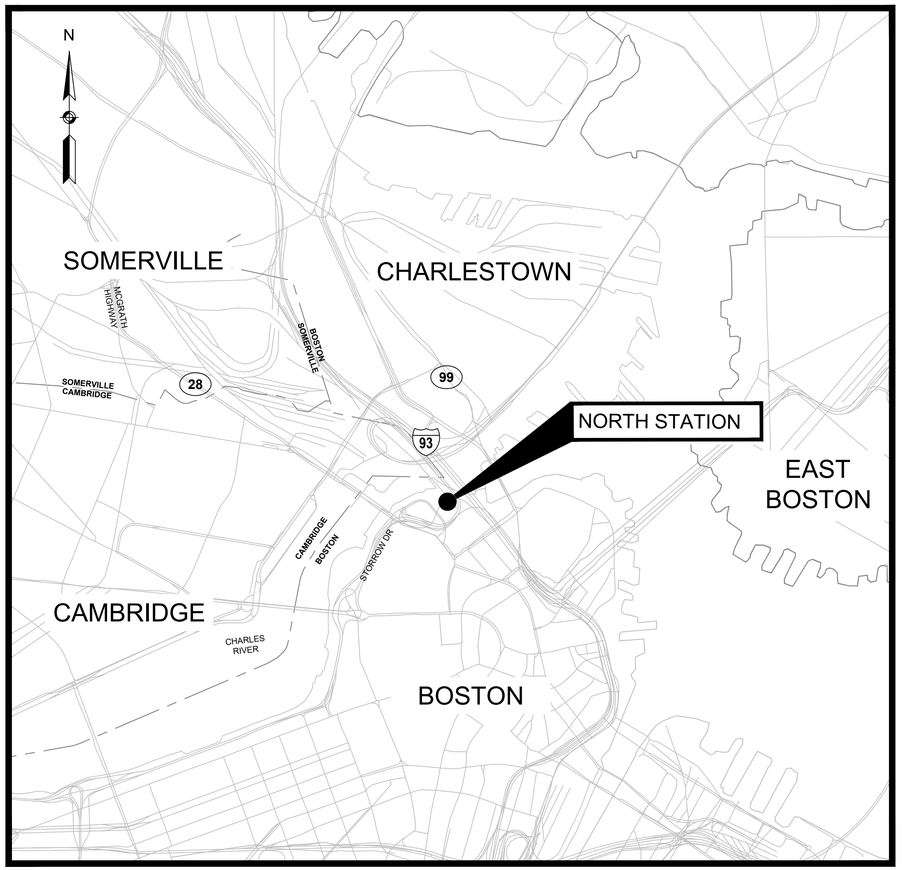
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 5L: PR Design Point



Attachment D
Project Plans

› Bound Separately



PROJECT LOCATION PLAN

0 2,000 4,000 FEET

SHEET NO.	DESCRIPTION
GENERAL	
G0.0.1	NORTH STATION - COVER SHEET & INDEX
G0.0.2	NORTH STATION - ABBREVIATIONS
G0.0.3	NORTH STATION- LEGEND
G0.0.4	NORTH STATION - GENERAL NOTES
SURVEY	
V1.0.1	NORTH STATION - EXISTING CONDITIONS PLAN
CIVIL	
C1.0.1	NORTH STATION - STAGING AND RESOURCE PLAN
C1.0.2	NORTH STATION - CONSTRUCTION PLAN
C1.0.3	NORTH STATION - DETAIL SHEET 1

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

North Station Phosphorus Control Boston, Massachusetts

MBTA Contract No. U90PS12 10

NOI SUBMISSION

JANUARY 2021

PLAN NUMBERS: TBD

101 WALNUT ST
WATERTOWN, MA 02472
(617) 607-1578

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER

02/04/2021

SHEET: G0.0.1

PLAN NO:

ABBREVIATIONS

GENERAL

ABD	ABANDON
A.C.	ASPHALT CONCRETE
AD	AREA DRAIN
ADJ	ADJUST
APPROX.	APPROXIMATE
BIT.	BITUMINOUS
BC	BOTTOM CENTER
BCB	BEEHIVE CATCH BASIN
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BP	BELOW PLATFORM
BR.	BRIDGE
CAB.	CABINET
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CO	CLEANOUT
COMMS	COMMUNICATIONS
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CONC L	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUED
CSXT	CSX TRANSPORTATION
CWK	CONCRETE WALK
DCB	DOUBLE CATCH BASIN
DI	DUCTILE IRON
DIA (or Ø)	DIAMETER
DIP	DUCTILE IRON PIPE
DMH	DRAIN MANHOLE
DWY	DRIVEWAY
EC	EROSION CONTROL
ELEC	ELECTRICAL
ELEV (or EL.)	ELEVATION
EMH	ELECTRIC MANHOLE
EOP (or EP)	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FT	FOOT
FO	FIBER OPTIC
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
IN	INCH
i	INVERT
JCT	JUNCTION
LT	LEFT
L	LENGTH (OF CURVE)
LB	LEACHING BASIN
LF	LINEAR FEET
LOW	LIMIT OF WORK
LP	LIGHT POLE
LS	LANDSCAPE

ABBREVIATIONS (CONT)

GENERAL

MAX	MAXIMUM
MB	MAILBOX
MBTA	MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
MCC	MONOLITHIC CONCRETE CURB
ME	MATCH EXISTING
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
MOCS	MULTI-STAGE OUTLET CONTROL STRUCTURE
MTD	MOUNTED
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
NIC	NOT IN CONTRACT
NO.	NUMBER
OCM	OUTLET CONTROL MANHOLE
OCS	OVERHEAD CONTACT SYSTEM
OFF	OFFSET
OHW	OVERHEAD WIRE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OWS	OIL WATER SEPARATOR
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PED	PEDESTRIAN
PERF	PERFORATED
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PROJ	PROJECT
PROP	PROPOSED
PS	PRESSURE SEWER
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
R	RIM
RT	RIGHT
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REC	RECORD
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
RGS	RIGID GALVANIZED STEEL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
S	SLOPE
SB	STONE BOUND
SCB	SHALLOW COVER CATCH BASIN
SD	STORM DRAIN
SDS	STORM DRAIN SYSTEM
SDCB	SHALLOW COVER DOUBLE CATCH BASIN
SGE	SLOPED GRANITE EDGING
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET, STONE
STA	STATION
STRUC	STRUCTURAL
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
SWL	SOLID WHITE LINE
SWEL	SOLID WHITE EDGE LINE
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
SYL	SOLID YELLOW LINE
TEMP	TEMPORARY
TC	TOP OF CURB
TMH	TELEPHONE MANHOLE
TOP	TOP OF PAVEMENT
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
UGND	UNDERGROUND
U.S.G.S.	UNITED STATES GEOLOGICAL SURVEY
VAR	VARIES
VERT	VERTICAL

ABBREVIATIONS (CONT)

GENERAL

VGC	VERTICAL GRANITE CURB
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER MAIN
WMH	WATER MANHOLE
X-SECT	CROSS SECTION

ENVIRONMENTAL ABBREVIATIONS

BF	BANK FLAG
BLSF	BORDERING LAND SUBJECT TO FLOODING
BVW	BORDERING VEGETATED WETLANDS
CVP	CERTIFIED VERNAL POOL
LSCSF	LAND SUBJECT TO COASTAL STORM FLOWAGE
LUW	LAND UNDER WATER
RA	RIVERFRONT AREA
WF	WETLAND FLAG
WL	WETLAND

NOI SUBMISSION

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION
ABBREVIATIONS

vhb
101 WALNUT STREET
WATERTOWN, MA 02110
(617) 617-1578

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER
02/04/2021

ISSUE	DATE	DESCRIPTION	BY	CHK'D	APP

SCALE: N/A	DRAWN BY	DESIGN BY	CHECK BY	PLAN NO.	ISSUE
DATE: 01/XX/2021				SHEET: G0.0.2	

PLOTTED: 1/4/2021 3:08 PM BY: Mbriones
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GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
		AREA DRAIN
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
		BORING HOLE (B), MONITORING WELL (MW), OR OBSERVATION WELL (OW)
		TEST PIT (TP)
		HYDRANT
		LANDSCAPE AREA LIGHT POLE
		VEHICULAR AREA LIGHT POLE
		SECURITY CAMERA
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		ACCESS MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
	TSV	TAPPING SLEEVE AND VALVE
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		GUY WIRE
		BOLLARD WITH LIGHT
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
		SITE BENCH
		SITE TRASH RECEPTACLES
WG	WG	WATER GATE
		WATER LINE REDUCER
PM	PM	PARKING METER
		TIDEGATE
		OVERHEAD CABLE/WIRE
		CURBING
		LIMIT OF CURB TYPE
100 99	99	CONTOURS (ON-THE-GROUND SURVEY DATA)
		UNDERGROUND DRAIN PIPE
EMBTA	EMBTA	UNDERGROUND MBTA ELECTRIC DUCT
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK FENCE
		HANDRAIL
		TEMPORARY CONSTRUCTION FENCE
		PROTECTION BARRIER
		COFFERDAM
		EROSION CONTROL BARRIER AND LIMIT OF WORK
		TREE LINE
		LIMIT OF EXCAVATION
		SAWCUT LINE
		BANK OF RIVER OR STREAM
		25 FT RIVERFRONT AREA
	100'BZ	100 FT BUFFER TO BANK

GENERAL SYMBOLS (CONT)

EXISTING	PROPOSED	DESCRIPTION
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD TRACK CENTERLINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT
		EV CHARGING STATION
		LIMIT OF WORK
		CONCRETE SIDEWALK
		ITEM TO BE REMOVED
		ITEM TO BE DEMOLISHED

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
Ø1	Ø1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
		CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER

	ISSUE	DATE	DESCRIPTION	BY	CHK'D	APP.
02/04/2021						

NOI SUBMISSION

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION LEGEND

vhb
101 WALNUT STREET
WATERTOWN, MA 02110
(617) 617-1578

SCALE: N/A	DRAWN BY	DESIGN BY	CHECK BY	PLAN NO.	ISSUE
DATE: 01/XX/2021				SHEET: G0.0.3	

PLOTTED: 1/4/2021 3:08 PM BY: Mbriones
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GENERAL

1. EACH PLAN IS PART OF A SET OF DRAWINGS AND SPECIFICATIONS, AND IS NOT TO BE USED AS A SOLE SOURCE OF INFORMATION.
2. ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
3. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
4. THE CONTRACTOR SHALL COORDINATE ANY WORK IMPACTING RAILROAD PROPERTY AND / OR RIGHT-OF-WAY WITH MBTA, KEOLIS, CSX, AND AMTRAK.
5. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. ALL CONSTRUCTION ACTIVITY SHALL BE IN ACCORDANCE WITH MASSDOT, MBTA, OSHA STANDARDS AND LOCAL REQUIREMENTS, WHICHEVER IS MORE STRINGENT.
6. THE CONTRACTOR SHALL PROVIDE 72 HOURS NOTICE TO ALL PRIVATE PROPERTY OWNERS ABUTTING CONSTRUCTION AREAS PRIOR TO COMMENCEMENT OF WORK.
7. ALL WORK PERFORMED WITHIN THE PUBLIC RIGHT-OF-WAY SHALL CONFORM TO APPLICABLE STANDARDS.
8. ALL SITE TRAFFIC CONTROL SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE 2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AS AMENDED UNLESS OTHERWISE NOTED.
9. ALL PROPOSED GRANITE BOUNDS AND ANY EXISTING MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A PROFESSIONAL LAND SURVEYOR (PLS) LICENSED IN THE COMMONWEALTH OF MASSACHUSETTS.
10. ALL EXISTING U.S.G.S. DISKS, HIGHWAY BOUNDS, RAILROAD MONUMENTS, PROPERTY BOUNDS, AND CITY BOUNDS SHALL BE PROTECTED AND RAISED TO FINISHED GRADE AS REQUIRED BY U.S.G.S., MASSDOT, OR OTHER APPLICABLE AUTHORITY. ANY DAMAGE TO U.S.G.S. DISKS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND THE U.S. GEOLOGICAL SURVEY AND SHALL BE REPAIRED AT NO COST TO THE RESPECTIVE AUTHORITY. ANY DAMAGE TO TOWN BOUNDS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND SHALL BE REPAIRED AT NO COST TO THE AUTHORITY. THE CONTRACTOR SHALL INVENTORY ALL SUCH BOUNDS, DISKS, AND MONUMENTS PRIOR TO THE START OF ANY WORK.
11. AREAS OUTSIDE THE LIMIT OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE PROJECT.
12. ALL AREAS DISTURBED DURING CONSTRUCTION EXCEPT PAVEMENT AND STRUCTURES SHALL RECEIVE LOAM AND SEEDING PER THE SPECIFICATIONS UNLESS OTHERWISE NOTED.
13. TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
14. JOINTS BETWEEN NEW BITUMINOUS CONCRETE PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HOT POURED RUBBERIZED ASPHALT SEALER AND BACKSANDED. SAWCUT SHALL BE VERTICAL, STRAIGHT, AND NOT IRREGULAR.

SITE PREPARATION

1. CONTRACTOR SHALL MONITOR WEATHER PATTERNS AND IMPLEMENT NECESSARY MEASURES TO MANAGE STORMWATER FLOWING FROM THE OUTFALL TO THE CHARLES RIVER..
2. DEMOLITION TO BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL BUILDING CODE.
3. ALL DEMOLITION MATERIALS, RUBBISH, EXCAVATED MATERIALS AND DEBRIS SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
4. DISPOSAL OF HAZARDOUS WASTE SHALL BE IN ACCORDANCE WITH APPLICABLE CODES, REGULATIONS, AND PROJECT SPECIFICATIONS.
5. CONTRACTOR SHALL RELOCATE EROSION CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND STABILIZED CONSTRUCTION SITE ENTRANCE/EXIT) AS NEEDED TO PROTECT ANY ADJOINING STRUCTURES AND SAFEGUARD THE NEIGHBORING AREAS (INCLUDING WETLAND RESOURCE AREAS) FROM DUST AND DEBRIS.
6. UNLESS OTHERWISE PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBLY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTE OR POLLUTANTS AT THE PROJECT SITE. ANY ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORSEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING THE WORK SHALL BE BROUGHT TO THE ENGINEER'S IMMEDIATE ATTENTION AND, IF APPROVED, COMPENSATED FOR THE ALLOWANCE ITEM.
7. EROSION CONTROL LIMITS SHALL BE CONSIDERED THE LIMIT OF WORK, UNLESS OTHERWISE NOTED.

UTILITIES

1. EXISTING UTILITIES, WHERE SHOWN HEREON, ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY LOCATING AND COORDINATING ANY ON-SITE ACTIVITY WITH DIG-SAFE AND THE APPROPRIATE UTILITY COMPANY AND MAINTAINING EXISTING UTILITY SYSTEM SERVICE. DIG-SAFE SHALL BE NOTIFIED PER THE COMMONWEALTH OF MASSACHUSETTS STATUTE CHAPTER 82, SECTION 40 THROUGH 40E, AT 1-888-344-7233. NO GUARANTEE IS IMPLIED OR INTENDED AS TO THE ACCURACY, LOCATION OR THAT ALL UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION AND INVERTS OR UTILITIES AND STRUCTURES AS REQUIRED PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION, SIZE, INVERTS, AND TYPES OF EXISTING PIPES AT ALL PROPOSED POINTS OF CONNECTION PRIOR TO ORDERING MATERIALS. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, 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 ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
3. FIELD VERIFY EXISTING MANHOLE, CATCH BASIN AND OIL/WATER SEPARATOR INVERTS AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE ENGINEER PRIOR TO START OF CONSTRUCTION.
4. ALL EXISTING UTILITIES SHALL BE MAINTAINED IN PLACE AND/OR KEPT OPERATIONAL DURING CONSTRUCTION EXCEPT AS NOTED ON THE CONTRACT DRAWINGS. ANY NECESSARY DISRUPTION TO OR ABANDONMENT OF EXISTING UTILITIES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL UTILITY COMPANIES AND CITIES / TOWNS THAT MAY BE AFFECTED BY ANY PORTION OF THIS CONSTRUCTION AND TO COORDINATE ALL WORK INVOLVING UTILITY COMPANIES OR CITY / TOWN FACILITIES, WHETHER THOSE FACILITIES ARE EXISTING OR PROPOSED. IT IS ALSO THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPORT AND PROTECT EXISTING UTILITIES IN AND AROUND EXCAVATIONS. PROTECTION AND/OR SUPPORT SHALL BE CONSIDERED INCIDENTAL WORK AND SHALL BE INCLUDED IN THE BID FOR THE ITEM BEING INSTALLED.
6. EXISTING UTILITIES TO BE RELOCATED SHALL BE VERIFIED WITH RESPECTIVE CONTROLLING AUTHORITY AS TO THEIR FINAL DISPOSITION.
7. ALL ABOVE GRADE STRUCTURES, POLES, TRANSFORMERS, ETC. TO BE RELOCATED SHALL BE PLACED AT OR BEYOND THE REQUIRED MBTA STANDARD CLEARANCE FROM THE CENTERLINE OF ANY EXISTING AND FUTURE TRACK.
8. ALL UTILITY SURFACE CASTINGS (COVERS, GRATES, GATE BOXES, ETC.) TO REMAIN SHALL BE ADJUSTED TO THE NEW SURFACE GRADE AS REQUIRED, WHETHER OR NOT CALLED FOR ON THE PLANS.
9. CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER, AND UTILITY FACILITIES FROM ALL DAMAGE DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
10. ALL UTILITIES SHOWN ON PLANS SHALL BE RETAINED UNLESS OTHERWISE INDICATED

EXISTING CONDITIONS

1. THE PROPERTY LINES SHOWN ON THIS PLAN ARE COMPILED FROM RECORD FILES.
2. THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. IN SEPTEMBER 2020; AND COMPILED CAD FILES FROM OTHER VHB PROJECTS IN THE AREA.
3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.
4. HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO MBTA DATUM.

EROSION CONTROL

1. CONTRACTOR SHALL INSTALL APPROVED EROSION CONTROL MEASURES PRIOR TO EARTHWORK OPERATION AND MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION. EROSION CONTROL SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
2. CONTRACTOR SHALL BE RESPONSIBLE TO INSTALL, MAINTAIN, AND REMOVE APPROVED EROSION CONTROL MEASURES AROUND CATCH BASIN FRAMES AND GRATES TO PREVENT RUNOFF SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM DURING CONSTRUCTION.
3. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO WETLAND RESOURCE AREAS AND OFFSITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO ADDITIONAL COST TO THE PROJECT.

NOI SUBMISSION

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION
GENERAL NOTES

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
No. 54866
REGISTERED PROFESSIONAL ENGINEER

02/04/2021

ISSUE	DATE	DESCRIPTION	BY	CHK'D	APP.

101 WALNUT STREET
WATERTOWN, MA 02110
(617) 617-1578

SCALE: N/A	DRAWN BY	DESIGN BY	CHECK BY	PLAN NO.	ISSUE
DATE: 01/XX/2021				SHEET: G0.0.4	

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General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE COMPILED FROM MASSGIS AND EXISTING VHB, INC CAD FILES.
2) THE EXISTING CONDITIONS SHOWN ON THIS PLAN ARE BASED UPON AN ACTUAL ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY VHB, INC. IN SEPTEMBER 2020; AND COMPILED CAD FILES FROM OTHER SOURCES.
3) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED ON FIELD OBSERVATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACTLY LOCATED NOR IS IT WARRANTED THAT ALL UNDERGROUND UTILITIES OR OTHER STRUCTURES ARE SHOWN ON THIS PLAN.
4) HORIZONTAL DATUM IS BASED ON MASS. GRID SYSTEM, NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO MBTA DATUM.

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SCALE IN FEET

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
No. 54866
REGISTERED PROFESSIONAL ENGINEER

02/04/2021	ISSUE	DATE	DESCRIPTION	BY	CHK'D	APP.

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION EXISTING CONDITIONS PLAN

101 WALNUT STREET
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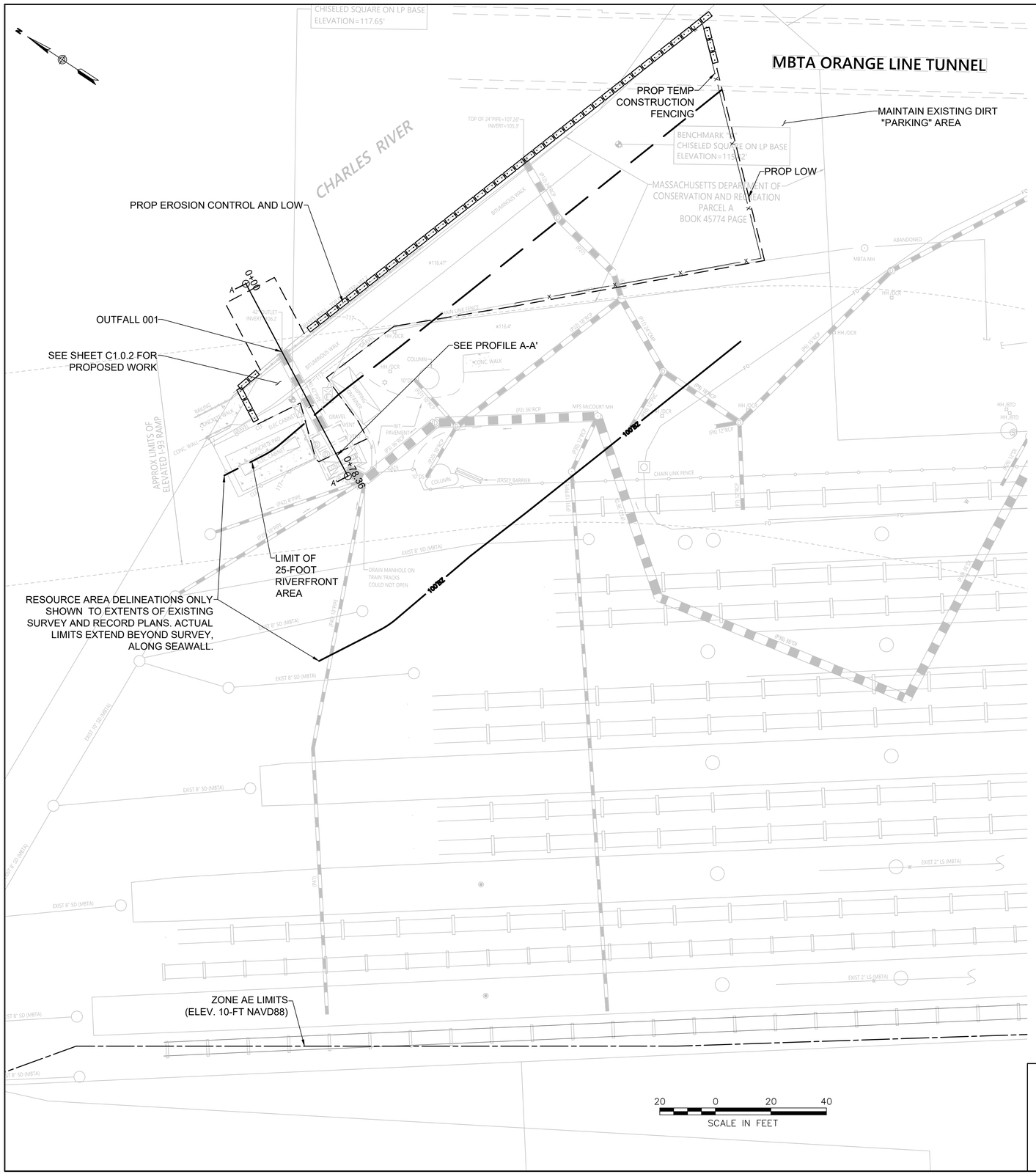
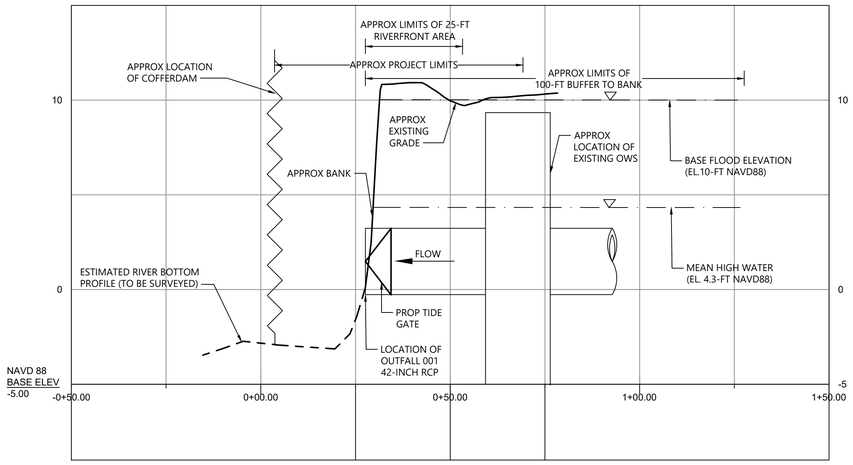


PROFILE A-A'



NOTES:
1. ALL ELEVATIONS IN PROFILE ARE SHOWN RELATIVE TO NAVD88 DATUM. ELEVATIONS ON CONSTRUCTION PLANS ARE RELATIVE TO MBTA DATUM.
2. BASE FLOOD ELEVATION EXTENDS BEYOND LIMITS OF PROFILE VIEW.
3. DEPTH OF OWS EXTENDS BEYOND LIMITS OF PROFILE VIEW.

HORIZONTAL SCALE 1"= 20'
VERTICAL SCALE 1"= 4'

NOI SUBMISSION

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION
STAGING AND RESOURCE AREA PLAN

COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER
02/04/2021

ISSUE	DATE	DESCRIPTION	BY	CHK'D	APP.

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NOTES:
CONTRACTOR SHALL RESTORE AREA WITHIN LIMIT OF WORK TO ORIGINAL CONDITIONS

NOI SUBMISSION

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION CONSTRUCTION PLAN

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COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER

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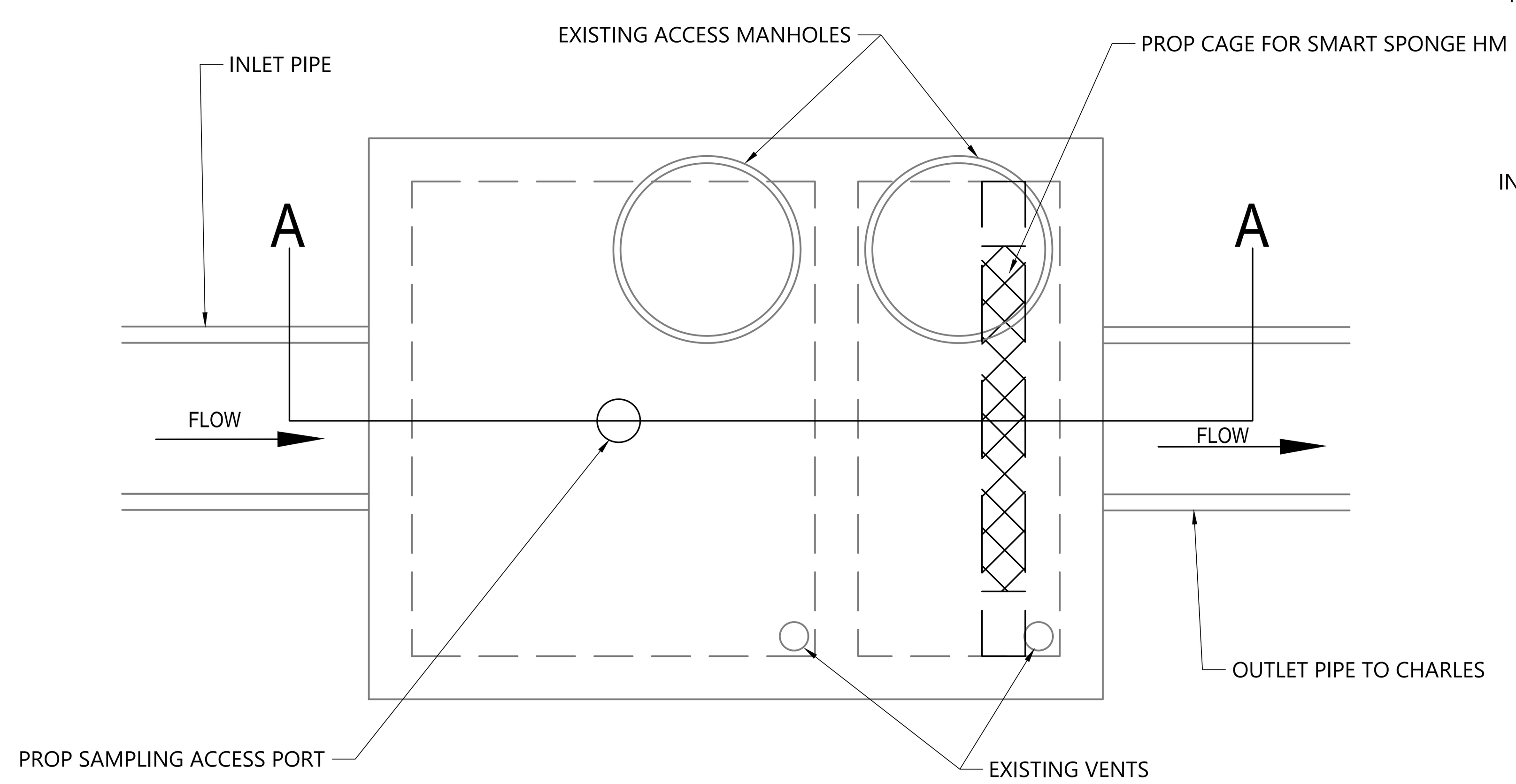
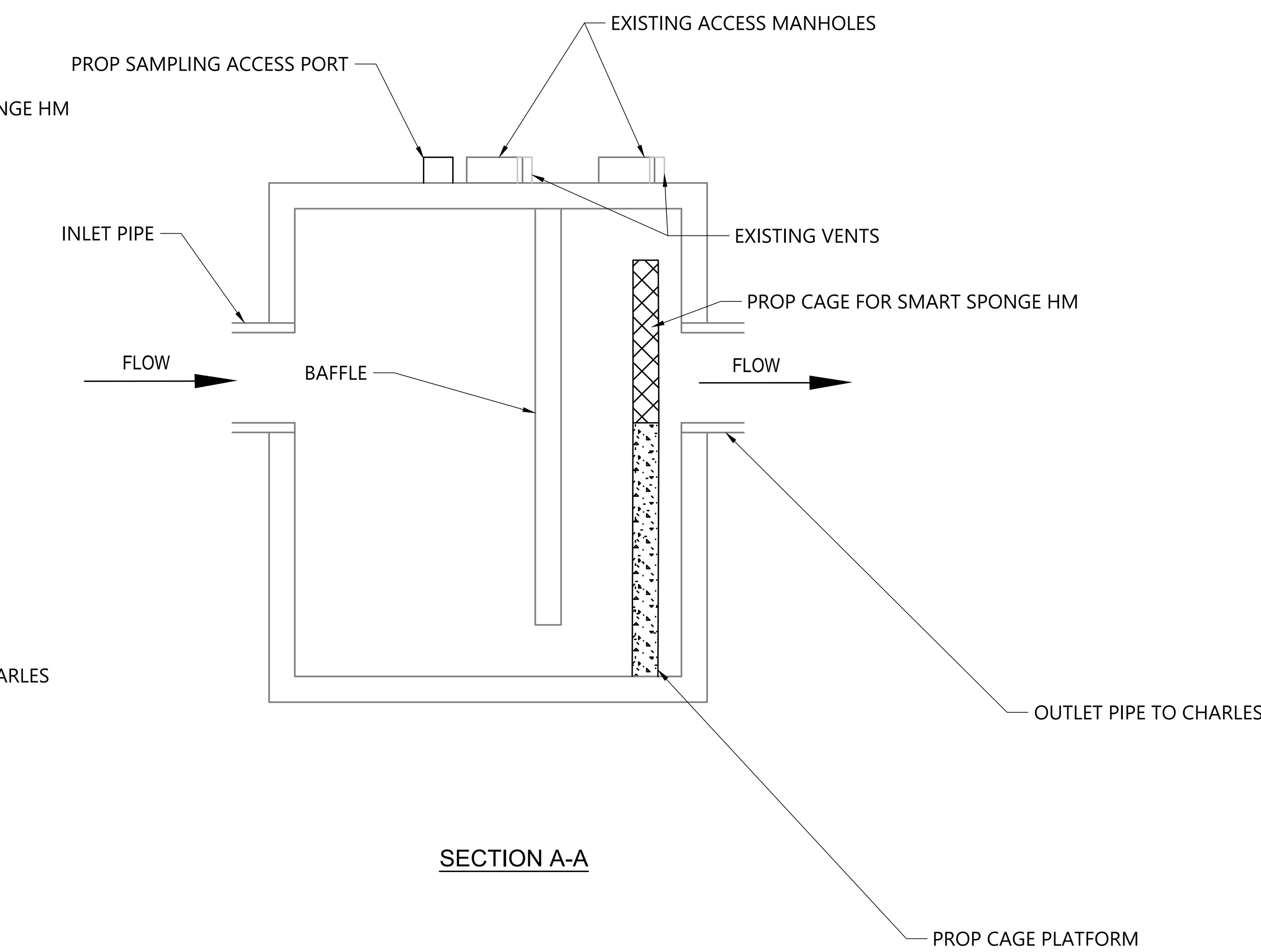


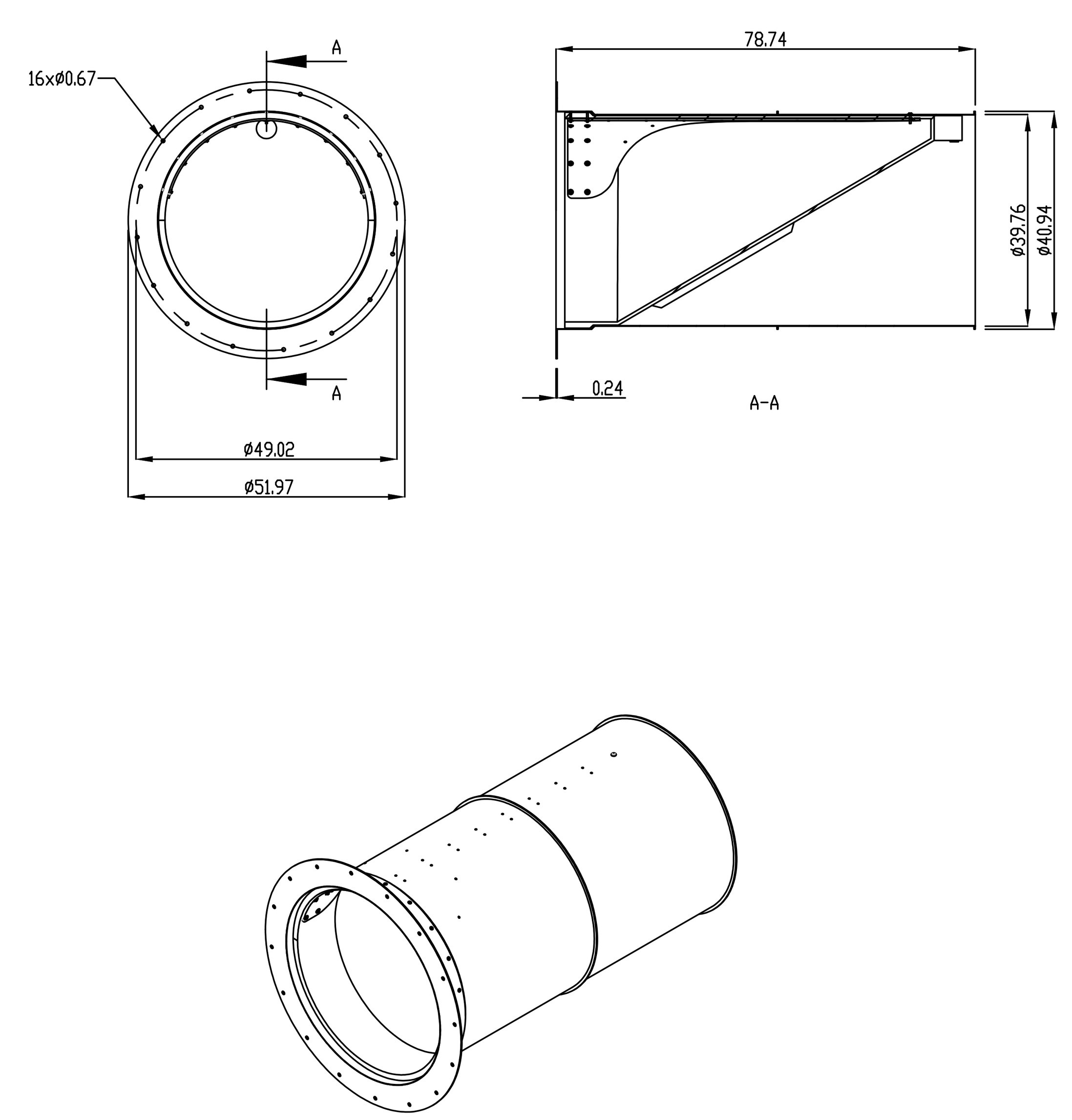
PLAN VIEW



SECTION A-A

OIL/WATER SEPARATOR

SCALE: N.T.S.

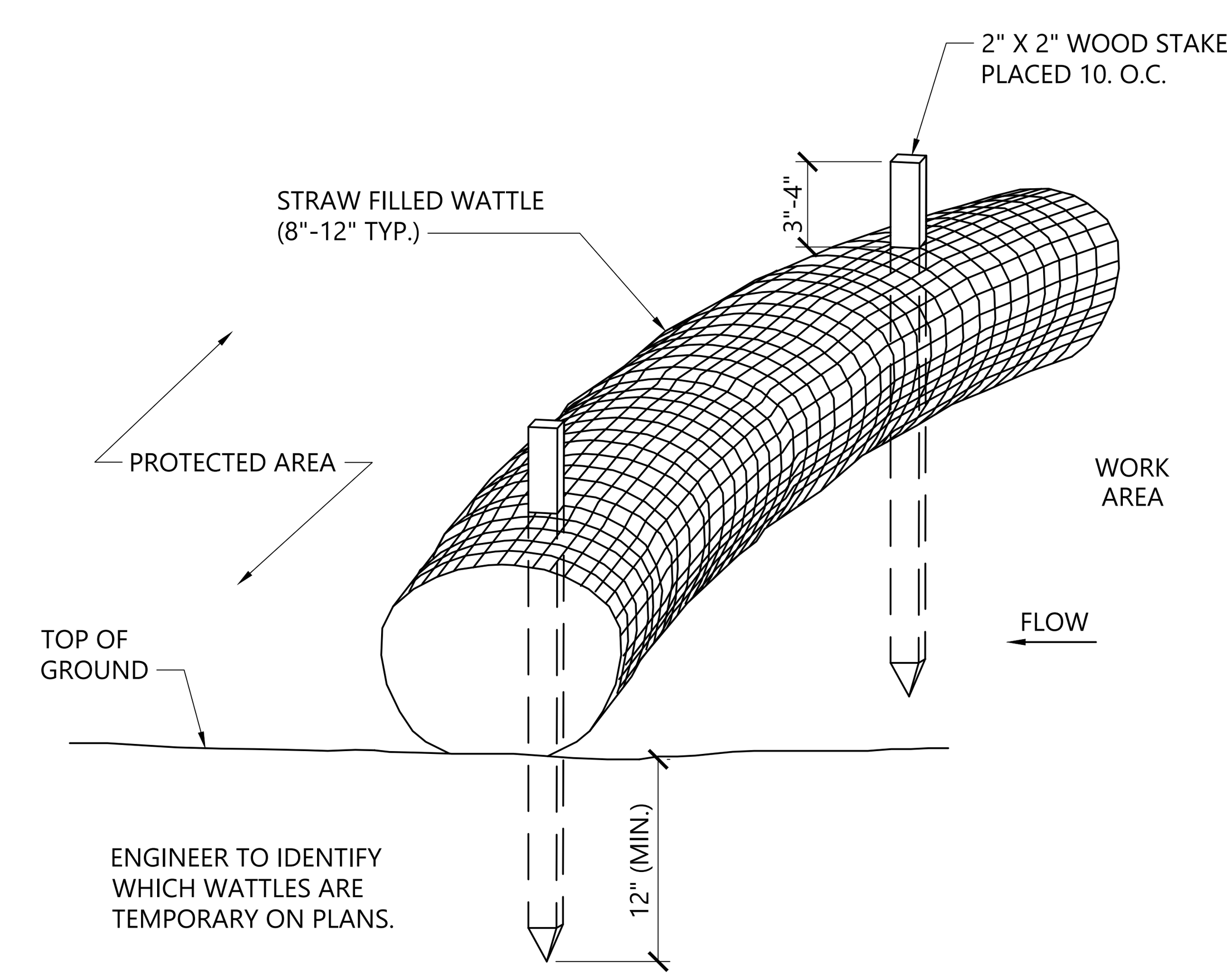


NOTES

1. RECOMMEND WASTOP NPS 42-INCH INLINE CHECK VALVE

42-INCH TIDEGATE

SCALE: N.T.S.

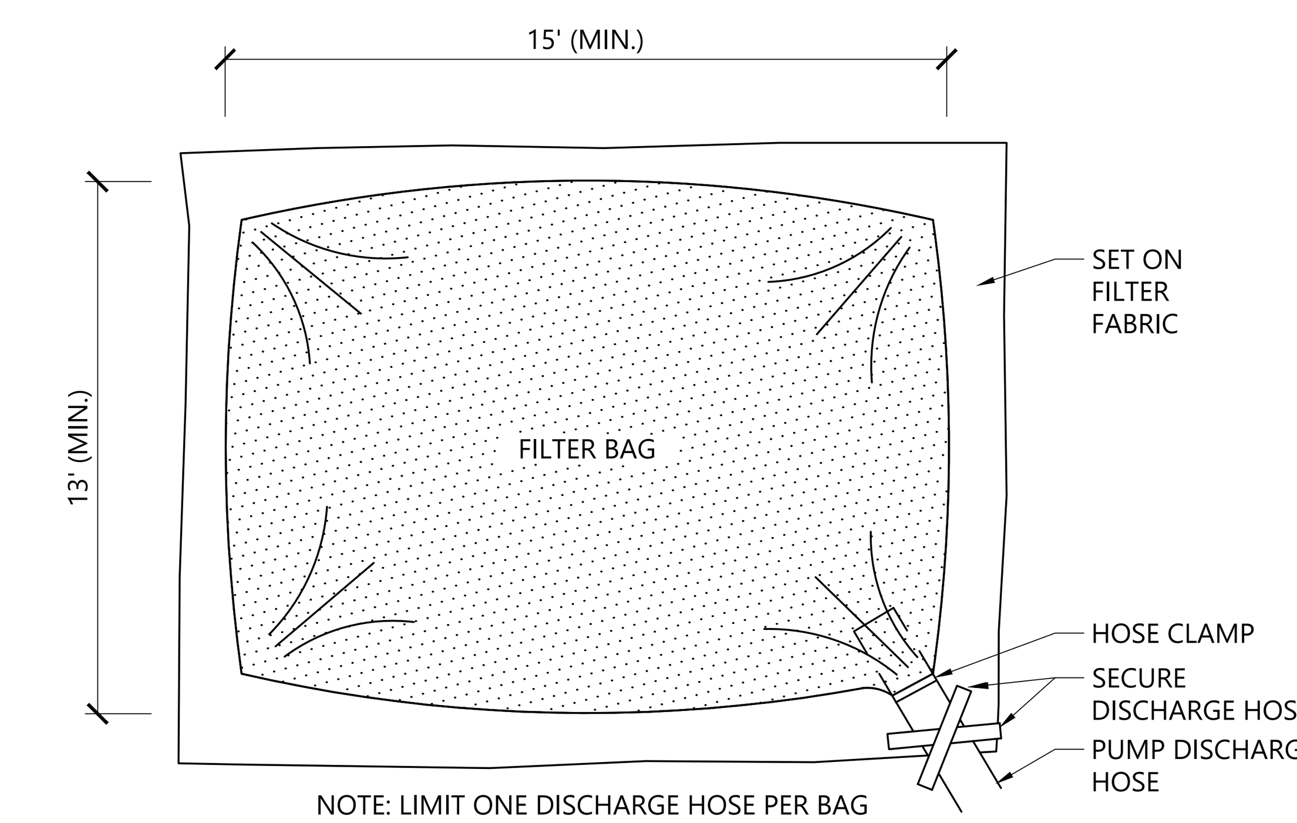


NOTES

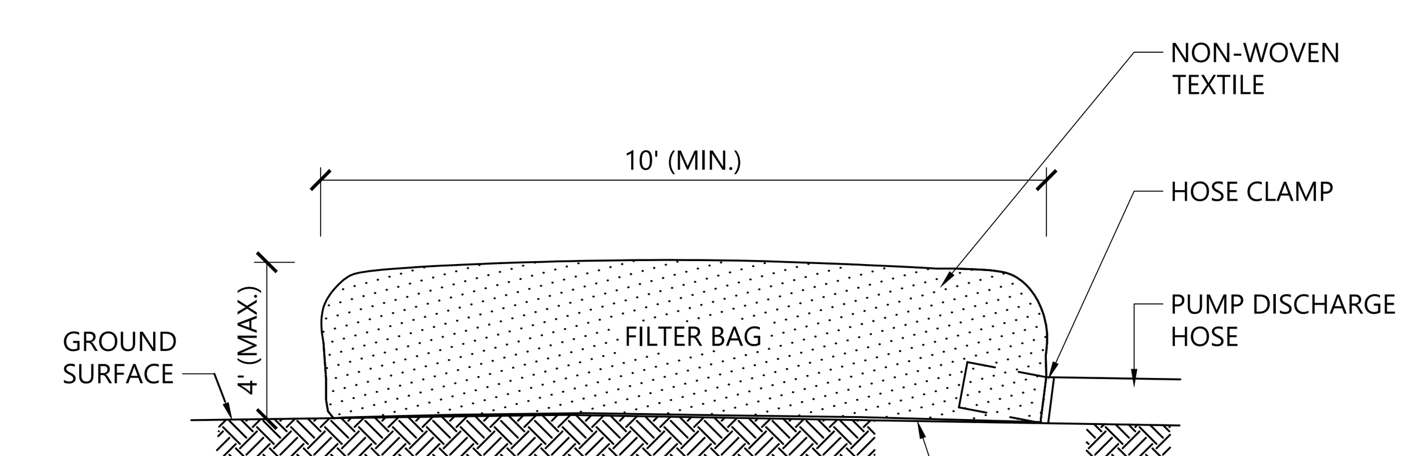
1. STRAW WATTLE SHALL BE AS MANUFACTURED BY EARTHSAVER OR APPROVED EQUAL.
2. STRAW WATTLES SHALL OVERLAP A MINIMUM OF 12 INCHES.
3. STRAW WATTLE SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
4. TEMPORARY STRAW WATTLES TO BE REMOVED BY CONTRACTOR. ALL OTHERS TO REMAIN IN PLACE UNLESS DIRECTED OTHERWISE BY ENGINEER.
5. STRAW WATTLE SHALL BE OF NATURAL FIBER NETTING.

STRAW WATTLE - EROSION CONTROL BARRIER

SCALE: N.T.S.



PLAN VIEW



CROSS-SECTION

NOTES

1. BAG TO BE USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

DEWATERING FILTER BAG

SCALE: N.T.S.

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NORTH STATION
PHOSPHORUS CONTROL
BOSTON, MASSACHUSETTS
MBTA CONTRACT NO. U90PS12 10

NORTH STATION
CONSTRUCTION DETAILS

101 WALNUT STREET
WATERTOWN, MA 02110
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COMMONWEALTH OF MASSACHUSETTS
JILLIAN C. BAUMBACH
CIVIL
REGISTERED PROFESSIONAL ENGINEER

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