Demolition of the Lee Pool Complex

Boston, Massachusetts

Notice of Intent

May 2, 2018

submitted to
Boston Conservation Commission

submitted by
Massachusetts Department of Conservation and Recreation

prepared by
Fort Point Associates, Inc.

in association with
Maryann Thompson Architects
Nitsch Engineering

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

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TRANSMITTAL FORM

Enter your transmittal number → X280313 (Transmittal Number)

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

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

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

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

3. Three copies of this form will be needed.

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

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

MassDEP
P.O. Box 4062
Boston, MA 02211

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

A. Permit Information

1. Permit Code: 4 to 7 character code from permit instructions	2. Name of Permit Category
WPA Form3	Wetlands Notice of Intent

3. Type of Project or Activity: Demolition

B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: Massachusetts Department of Conservation and Recreation

2. **Last Name** of Individual	3. **First Name** of Individual	4. MI
Geigis	Priscilla	

5. Street Address: 251 Causeway Street, Suite 700

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Boston	MA	02114	(617) 626-1389	

11. Contact Person	12. e-mail address
Wendy Pearl	wendy.pearl@state.ma.us

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual: Lee Pool Complex

2. Street Address: Charles River Esplanade / Embankment Road

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Boston	MA	02114		

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

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

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

2. Address: 31 State Street, 3rd Floor

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Boston	MA	02109	(617) 357-7044	205

8. Contact Person	9. LSP Number (BWSC Permits only)
Julie Conroy	

E. Permit - Project Coordination

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

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

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

Check Number	Dollar Amount	Date
3216	$512.50	5/2/18

3216

MARYANN THOMPSON ARCHITECTS
14 HILLSIDE AVENUE
CAMBRIDGE, MA 02140
(617) 491-4144

EZShield™ Check Fraud Protection for Business
53-59-113

DATE 5.2.2018

PAY TO THE ORDER OF Commonwealth of Massachusetts $ 512.00

five hundred and twelve dollars & No/100 ¢ DOLLARS

Security Features Included Details on Back.

01
Cambridge Trust Company
CAMBRIDGE, MASS.

FOR LEE POOL DEMO NO1

MP

⑈003216⑈ ⑆011300595⑆ ⑈51688001⑈

3217

MARYANN THOMPSON ARCHITECTS
14 HILLSIDE AVENUE
CAMBRIDGE, MA 02140
(617) 491-4144

EZShield™ Check Fraud Protection for Business
53-59-113

DATE 5.2.2018

PAY TO THE ORDER OF City of Boston $ 1500.00

one thousand five hundred dollars & No/100 ¢ DOLLARS

Security Features Included Details on Back.

01
Cambridge Trust Company
CAMBRIDGE, MASS.

FOR LEE POOL DEMO NO1

MP

⑈003217⑈ ⑆011300595⑆ ⑈51688001⑈

Application

WPA FORM 3

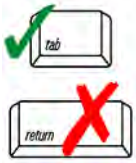
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Boston
City/Town

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



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

A. General Information

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

Charles River Esplanade/Embankment Road — a. Street Address
Boston — b. City/Town
02114 — c. Zip Code

Latitude and Longitude:
42° 21' 52" — d. Latitude
71° 04' 15" — e. Longitude

f. Assessors Map/Plat Number
0300943000 — g. Parcel /Lot Number

2. Applicant:

Wendy — a. First Name
Pearl — b. Last Name
Massachusetts Department of Conservation and Recreation — c. Organization
251 Causeway Street, Suite 700 — d. Street Address
Boston — e. City/Town
MA — f. State
02114 — g. Zip Code
(617) 626-1389 — h. Phone Number
i. Fax Number
wendy.pearl@state.ma.us — j. Email Address

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

Priscilla — a. First Name
Geigis — b. Last Name
MA DCR Deputy Commissioner for Conservation and Resource Stewardship — c. Organization
251 Causeway Street — d. Street Address
Boston — e. City/Town
MA — f. State
02114 — g. Zip Code
617-626-4986 — h. Phone Number
i. Fax Number
Priscilla.geigis@state.ma.us — j. Email address

4. Representative (if any):

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

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

$2,012.50 — a. Total Fee Paid
$512.50 — b. State Fee Paid
$1,500 (Boston) — c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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A. General Information (continued)

6. General Project Description:

The Project involves the demolition of the Lee Pool Complex, which includes an outdoor pool, diving pool, concrete bleachers and decking, a bathouse, and a wooden concession building. The Complex has been closed to the public for over 20 years and is currently in disrepair.

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

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

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

1. ☐ Yes ☒ No

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

2. Limited Project Type

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

8. Property recorded at the Registry of Deeds for:

Suffolk
a. County

b. Certificate # (if registered land)

c. Book

d. Page Number

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

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

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

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

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

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

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

2. Width of Riverfront Area (check one):

☒ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 8,250 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.
3,700	3,700	N/A

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

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

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

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

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Provided by MassDEP:

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

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

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

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

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

4. ☐ Restoration/Enhancement

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

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

   a. ☐ Yes ☒ No

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

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

   2017
   b. Date of map

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

   c. Submit Supplemental Information for Endangered Species Review*

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

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

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

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

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

   (b) ☒ Photographs representative of the site

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

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

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Bureau of Resource Protection - Wetlands
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C. Other Applicable Standards and Requirements (cont'd)

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

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

(d) ☐ Vegetation cover type map of site

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

(f) OR Check One of the Following

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

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

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

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

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

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

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

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

North Shore - Hull to New Hampshire border:

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

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

Massachusetts Department of Environmental Protection
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Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston
City/Town

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

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

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

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

   b. ACEC

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

   a. ☐ Yes ☒ No

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

   a. ☐ Yes ☒ No

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

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

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

      2. ☒ A portion of the site constitutes redevelopment

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

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

      1. ☐ Single-family house

      2. ☐ Emergency road repair

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

D. Additional Information

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

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

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

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

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

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Provided by MassDEP:

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City/Town

D. Additional Information (cont'd)

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

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

See Attachment A: Supplemental Information
a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

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

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

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

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

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

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

3217 2. Municipal Check Number	5/2/18 3. Check date
3216 4. State Check Number	5/2/18 5. Check date
Maryann 6. Payor name on check: First Name	Thompson 7. Payor 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.

1. Signature of Applicant — 2. Date: 4/27/18
3. Signature of Property Owner (if different) — 4. Date: 4/28/18
5. Signature of Representative (if any) — 6. Date: 5/2/18

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

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

A. Applicant Information

1. Location of Project:

Charles River Esplanade / Embankment Rd	Boston
a. Street Address	b. City/Town
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Wendy	Pearl	
a. First Name	b. Last Name	
Massachusetts Department of Conservation and Recreation		
c. Organization		
251 Causeway Street, Suite 700		
d. Mailing Address		
Boston	MA	02114
e. City/Town	f. State	g. Zip Code
(617) 626-1389		wendy.pearl@state.ma.us
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

Priscilla	Geigis	
a. First Name	b. Last Name	
MA DCR		
c. Organization		
251 Causeway Street		
d. Mailing Address		
Boston	MA	02114
e. City/Town	f. State	g. Zip Code
617-626-4986		Priscilla.geigis@state.ma.us
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

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

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

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

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
#3a Demolition (site preparation)	1	$1,050	$1,050

Step 5/Total Project Fee: $1,050

Step 6/Fee Payments:

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

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

Attachment A

SUPPLEMENTAL INFORMATION

ATTACHMENT A: SUPPLEMENTAL INFORMATION

A.1 INTRODUCTION

This Notice of Intent (NOI) is submitted by the Massachusetts Department of Conservation and Recreation ("DCR" or the "Applicant") to the City of Boston Conservation Commission (the "Commission") in order to obtain approval under the Massachusetts Wetland Protection Act (WPA) for work within a wetland resource area. The proposed project is the demolition of the Lee Pool Complex (the "Project") located within the Charles River Esplanade on Embankment Road, Boston. The entire property is approximately 165,528 square feet ("sf") or 3.8 acres however, the project site only includes the Lee Pool complex portion of the property, which is approximately 99,100 sf or 2.3 acres (the "Project Site").

A.2 BACKGROUND

The property is in the vicinity of the original "Charlesbank" area designed for the City of Boston by Frederick Law Olmsted in 1892, which has undergone approximately 100 years of park redevelopment. The original Charlesbank design featured men's and women's active recreation areas, a riverfront promenade, and a grassy tree-covered moraine. The men's recreation area was located near the existing Upper Lock Gatehouse and had open air equipment and a track. The women's recreation area was located to the west and included open air exercise areas, a track, and a large open field. Over time, the Charlesbank area was expanded and redesigned to accommodate the damming of the Charles River, the City's changing traffic patterns, and evolving park needs. In 1906, the Charles River Basin Commission expanded Charlesbank Park following a design by Guy Lowell, which only retained the men's recreation area from the original design. The Complex was not included in the 1929 schematic plan for Charlesbank by Arthur Shurcliff, however, a subsequent plan by Shurcliff drawn in 1949 shows a swimming pool located within land to be filled for the expansion of the Charlesbank. The property was transferred from the City of Boston to the Commonwealth, and the Complex was built in 1950 as mitigation for the Storrow Drive project. Today, most of the Olmsted design is gone, with only a small piece of the 1892 Charlesbank seawall remaining. The Applicant submitted a Project Notification Form to the Massachusetts Historical Commission on March 23, 2018. Property Abutters have been notified of the proposed Project according to the Wetlands Regulations (see Attachment B – Notification Information).

A.3 EXISTING CONDITIONS

The Project Site is located along the Charles River, just south of the Charles River Dam. The property is bound by Storrow Drive to the south and east, Teddy Ebersol Red Sox Fields to the west, and the Charles River to the north and west. The Project Site is located across Storrow Drive from the Massachusetts General Hospital main campus and a portion of the

West End Apartments development area. Please see Figure 1- Locus Map, Figure 2 - Aerial View / Photograph Key Plan, and Figure 3 - Existing Conditions Photographs.

Existing grades at the Project Site range from a low point of approximately 11 feet (ft) Boston City Base (BCB) along the bank of the Charles River to a high point of approximately 19 ft at the bathhouse. The pool deck area is located approximately 75 ft from the river, and there are no other structures located closer to the river, aside from the paved parking lot at the northern edge of the Site (approx. El. 13-14 ft).

According to the Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map, the 100-year floodplain (Zone AE) extends from the Charles River waterbody to El. 10.5' (BCB), which is land under water immediately adjacent to the riverbank (the ordinary high water line). There is only a very small portion of upland located within the current FEMA floodplain; located at the far eastern corner of the granite seawall where the parking lot ends. Please see Figure 4 – Flood Insurance Rate Map, and Attachment D - NOI Plans, Topographic Plan.

In terms of projected flood zones under sea level rise conditions (3.3 ft by 2070), the eastern edge of the existing pool deck and the parking lot - to the River - will be subject to flooding at base flood elevations from 12.8 to 13.5 feet (BCB).[1] Please see Figure 5: Projected Flood Areas.

The Project Site presently includes the remains of the Lee Pool Complex: bathhouse, two in-ground pools and associated concrete decks, a concrete bleacher structure, and vehicle parking area. The vast majority of the Project Site includes impervious surfaces (approximately 77,700 square feet), as listed in Table 7.1 below.

Table 7.1: Existing Impervious Surfaces

Existing Surfaces	Approx. Area (sf.)
Bathhouse (roof)	9,100
Bathhouse walkways(Storrow Drive)	4,600
Concrete pool deck and surrounding walkway	33,200
Concrete bleachers	2,400
Main Lap Pool	12,700
Diving Pool	3,000
Parking lot and driveway	12,700
	77,700

The bathhouse is a single story modern-era brick building with horizontal bands of high windows and a flat roof. Years of leakage and inadequate maintenance and heating has

[1] City of Boston, Climate Ready Boston; Climate Vulnerability Assessment. December, 2016.

caused finish surfaces within the bathhouse to deteriorate. The basement is generally flooded with water at varying levels and metal surfaces are rusted throughout. The diving pool has been filled-in to add more usable ground area for DCR operations, and the lap pool is filled with landscaping refuse. Other structures at the Site include an unused wooden concession stand, and miscellaneous concrete walkways associated with the structures. See Figure 3: Existing Conditions Photographs.

A.4 ALTERNATIVES ANALYSIS

An alternatives analysis was performed by DCR during the initial due diligence process to determine how to revitalize the underutilized Project Site. Alternatives that were considered included the following options:

- Repair the building for use by another public entity;
- Repair the building and structures to be reused as an active recreation center; or
- Demolish the building and structures to redevelop the site for alternative (and broader) public uses.

In 2017, DCR oversaw a public planning process to determine the future of the Complex and to identify a program for a proposed Esplanade Riverfront Pavilion that would meet the operational, recreational, and community needs in this part of the Esplanade. An evaluation of the suitability of the reuse of the bathhouse, in whole or in part, within the proposed Esplanade Riverfront Pavilion facility was undertaken. This evaluation was informed by a previous assessment to determine whether the current building would be suitable for temporary use by the State Police over a period of 6 to 8 years.[2] The assessment concluded that reusing the bathhouse for a temporary State Police facility was cost prohibitive, and that the existing building is in need of too many mechanical, electrical, and plumbing repairs and upgrades for building reuse. Therefore, demolition, and eventual redevelopment, was determined to be the best option to accommodate highest and best public use of the Riverfront site in the future.

A.5 PROPOSED PROJECT

The Project includes the demotion of all impervious surfaces and structures described above: the bathhouse, pools, concrete decking and seating, concession stand, and the parking lot and associated walkways. The demolition process will begin with the installation of site and tree protection (dripline) fencing and the removal of hazardous materials. The pools will be excavated, and paved and concrete surfaces will be removed. The concrete bleachers, bathhouse, and concession stand will be demolished. All debris will be taken away and disposed of properly. The total area scheduled for demolition is roughly 77,700 sf or 1.8

[2] DCR, Lee Pool Facility Existing Conditions Report, November 14, 2012.

acres, as shown in the attached plans (see Attachment D - NOI Plans). Upon completion of the demolition and removal activities, the Project Site will be regraded with loaming and seeding, and a temporary Esplanade pathway will be constructed for uninterrupted pedestrian access. Regrading of the Project Site will result in base flood elevations ranging from 14 to 18 feet (BCB). These elevations are higher than the projected base flood under sea level rise conditions (12.8 to 13.5 feet BCB). Please see Attachment C – Stormwater Report, and Attachment D – NOI Plans. The Project is anticipated to begin during the summer of 2018 and be completed in approximately 4-5 months.

Demolition will not begin until all required regulatory approvals have been obtained. Demolition will be staged to minimize impacts on the wetland resources on and surrounding the Site. All temporary structures, including trailers, portable restrooms, and equipment will be installed in accordance with the best industry standards.

The proposed Project will be undertaken in one phase, employing methods listed below.

1. Deployment of Sediment and Erosion Controls:
    a. Installation of construction fencing and site and tree protection (dripline) fencing;
    b. Installation of erosion and siltation controls including wattles-slope protection, silt fencing, erosion control barriers, and siltation sacks around remaining catch basins;
    c. Establishing a stabilized construction entrance with sediment trapping, filter fabric, and potentially a washrack and berm;
    d. Debris maintenance via wetting to prevent air pollution by dust rising from demolition work; and
    e. Stabilization of stockpiled topsoil via mulching and/or seeding, and containment prior to rain events.
2. Demolition:
    a. Testing and removal of hazardous materials;
    b. Excavation of the pools, decking, and concrete bleachers;
    c. Demolition of the bathhouse and concession stand structures;
    d. Removal and disposal of light poles and wiring, parking lot pavement and connecting concrete walkways; and
    e. Disconnection and removal of the existing stormwater conveyance system, area drains, and catch basins (see Attachment C – Stormwater report).

3. Site Stabilization and Public Amenities:
    a. Preservation of critical utility mains for future use (water / sewer cut and capped);
    b. Regrading of the site to base elevation 14 to 18 feet (BCB);
    c. Loaming and seeding to establish an open park area;
    d. Establishment of an interim pedestrian pathway to connect the Storrow Drive sidewalk and the existing riverfront pathway; and
    e. Creation of an interim vehicular drop-off loop, using existing curb cuts, with modifications for sight lines as needed, and handicap parking for improved site accessibility.

The redevelopment of the site would be a separate project, to take place at a future time, dependent upon funding and secured partnerships. If built, the Esplanade Riverfront Pavilion design would substantially reduce impervious cover from the existing structures and paving, providing much needed improvement to this sensitive site (see Figure 6 – Design Renderings).

A.6 WETLAND RESOURCES

The Project Site includes freshwater wetland resources that are protected under the Massachusetts Wetlands Protection Act, which include Bordering Vegetated Wetlands, Bordering Land Subject to Flooding, and Riverfront Area. However, the proposed Project does not touch any of these resource areas, aside from minimal work (pavement removal) within an altered Riverfront Area. The Project has been designed to largely avoid impacts to wetland resources, and mitigate for minor alterations to the Riverfront Area, as described in the following sections.

6.1 BORDERING VEGETATED WETLAND (310 CMR 10.55)

Bordering Vegetated Wetlands ("BVW") are freshwater wetlands that border on inland waterbodies such as rivers, streams, ponds, and lakes. According to the Wetlands Regulations, the BVW boundary is: "the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist." Wetland Indicator plants were identified at the Project Site, directly adjacent to the Charles River, including (but not limited to):

- American basswood (*Tilia americana*),
- Black tupelo (*Nyssa sylvatica*),
- Dewberry (*Rubus enslenii*),
- Interrupted fern (*Osmunda claytoniana*), and
- Fringed sedge (*Carex crinita*).

These tree, shrub, and wetland plants are all listed on the *National List of Plant Species That Occur in Wetlands: Massachusetts*[3].

Saturated conditions only exist directly along the riverbank at the break in slope between the stone bank materials and its grassy top. The proposed demolition activities will not occur within this resource area, and therefore, direct impacts to BVW are not anticipated. Temporary impacts are possible due to the removal of stormwater drainage pipes from the demolition site, and construction-related erosion and sedimentation. However, these impacts will be avoided via the use of controls such as a wattles-slope protection, silt fencing, a steep-slope erosion control barrier, and siltation sacks around remaining catch basins.

Specified habitat sites of rare vertebrate or invertebrate species were not identified within the Project Site, upon review of Natural Heritage and Endangered Species Program ("NHESP") spatial data. Therefore, impacts to NHESP habitat will not occur as a result of the proposed Project.

6.2 BORDERING LAND SUBJECT TO FLOODING (310 CMR 10.57)

According to the Wetlands Regulations, Bordering Land Subject to Flooding ("BLSF") is defined as: "an area with low, flat topography adjacent to, and inundated by, flood waters rising from creeks, rivers, streams, ponds or lakes." The BLSF boundary is "the estimated maximum lateral extent of flood water that will theoretically result from the statistical 100-year frequency storm." According to the Federal Emergency Management Agency ("FEMA") National Flood Hazard Layer, the 100-year floodplain extends from the Charles River elevation 10.5' (BCB) at the Project Site, which is immediately adjacent to the riverbank (the annual Mean High Water Line).

Although the Project Site includes BLSF, the area of demolition is located outside of this resource area, and therefore, direct impacts not anticipated. Temporary impacts are possible due to the removal of stormwater drainage pipes from the demolition site, and construction-related erosion and sedimentation. However, these impacts will be avoided via the use of sedimentation controls previously described.

6.3 RIVERFRONT AREA (310 CMR 10.58)

Typically, the Riverfront Area is the area of land between a river's Mean Annual High-Water ("MAHW") line, measured horizontally outward from the river and a parallel line located 200 feet away. However, in urbanized areas such as Boston, this parallel line is located 25 feet away from the MAHW line, per the regulations at 310 CMR 10.58(2)(a)3.a (see Attachment D - NOI Plans). Riverfront areas protect water supplies

[3] Fish & Wildlife Service, U.S. Department of the Interior, 1988.

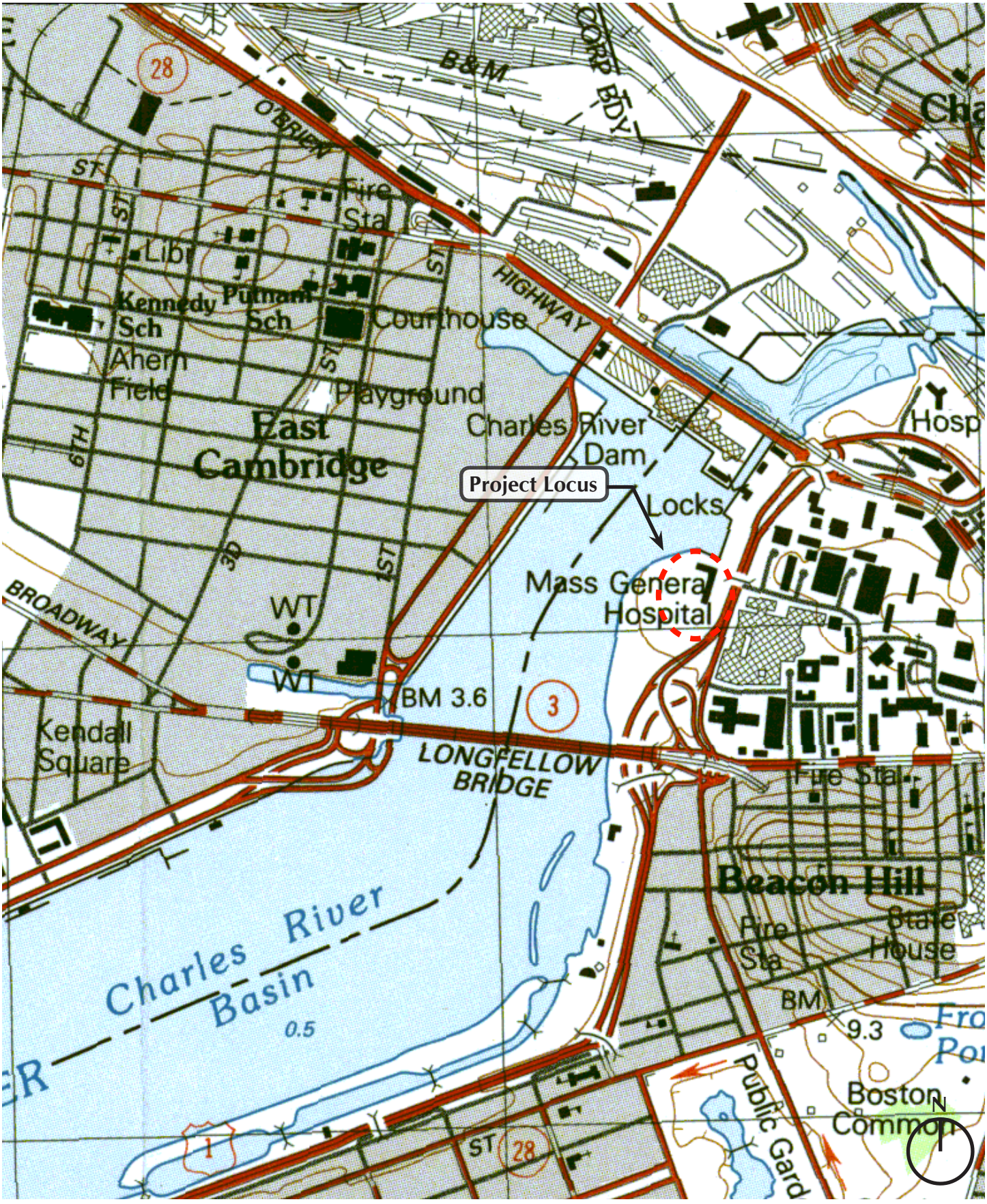
and groundwater sources, provide flood control, prevent pollution; and protect wildlife habitat and fisheries.

The removal of the existing parking lot pavement (approximately 3,700 sf), associated stormwater drainage lines (approximately 25 linear feet), ±15 ft of underground electric lines, and the singular catch basin, will occur within the Riverfront Area. A temporary asphalt path will be created within this area to connect the existing riverfront pathways surrounding the Site (approx. 230 sf), and the remaining area will be loamed and seeded to create a riverfront open space.

This area of the Riverfront buffer does not currently play a role in the protection of the Riverfront functions and values. Specifically, this impervious surface does not presently absorb floodwater to provide flood control, and it does not provide habitat for wildlife. There are no practicable alternatives to the proposed pavement removal that would have less adverse effects on riverfront values. In fact, removal of impervious surfaces within the Riverfront could potentially restore flood absorption, pollution attenuation, and habitat area functions. Retaining the parking lot within this area would continue to diminish natural functions of the resource area. The reduction of approx. 3,470 sf of impervious surfaces within the Riverfront Area is proposed to serve as mitigation for the remaining 230 sf of impervious pathway.

A.7 PLANS SUBMITTED WITH THIS NOI

Title	Date	Scale	Stamp and signature
Topographic Plan	4/11/18	1″ = 20′	Robert Miles, PLS; Nitsch Engineering
Civil Demolition Plan	4/11/18	1″ = 20′	Robert Miles, PLS; Nitsch Engineering
Grading & Materials Plan	4/11/18	1″ = 20′	Robert Miles, PLS; Nitsch Engineering
Civil Notes And Details	4/11/18	1″ = 20′	Robert Miles, PLS; Nitsch Engineering
Soil Erosion and Sediment Control (Notes/Details)	4/11/18	1″ = 20′	Robert Miles, PLS; Nitsch Engineering



Boston, Massachusetts

Figure 1
Locus Map
Source: USGS, 2017

Boston, Massachusetts

Figure 2
Aerial View / Photograph Key Plan
Source: Google Earth, 2017

1. View looking west to front of building

2. View looking southeast to side of Building

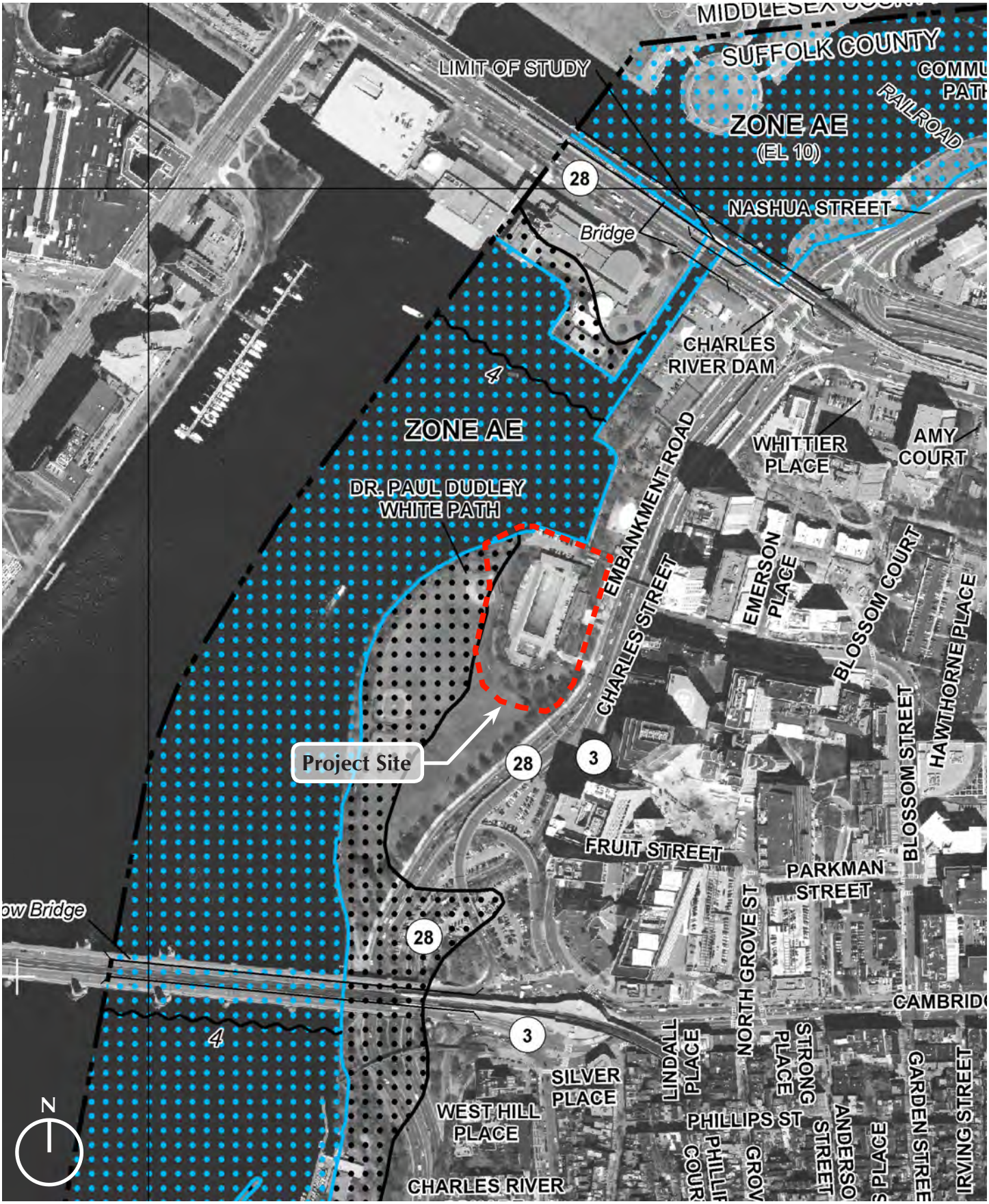
3. View looking northeast along riverside of Project Site

4. View looking east at landscape clippings in pool

Figure 3

Existing Conditions Photographs

Source: Google Maps & Department of Conservation and Recreation 2016



Boston, Massachusetts

Figure 4

Flood Insurance Rate Map

Source: Federal Emergency Management Agency, 2016

Boston, Massachusetts

Figure 5

Projected Flood Areas

Sources: Woods Hole Group 2016; Fort Point Associates, Inc. 2018

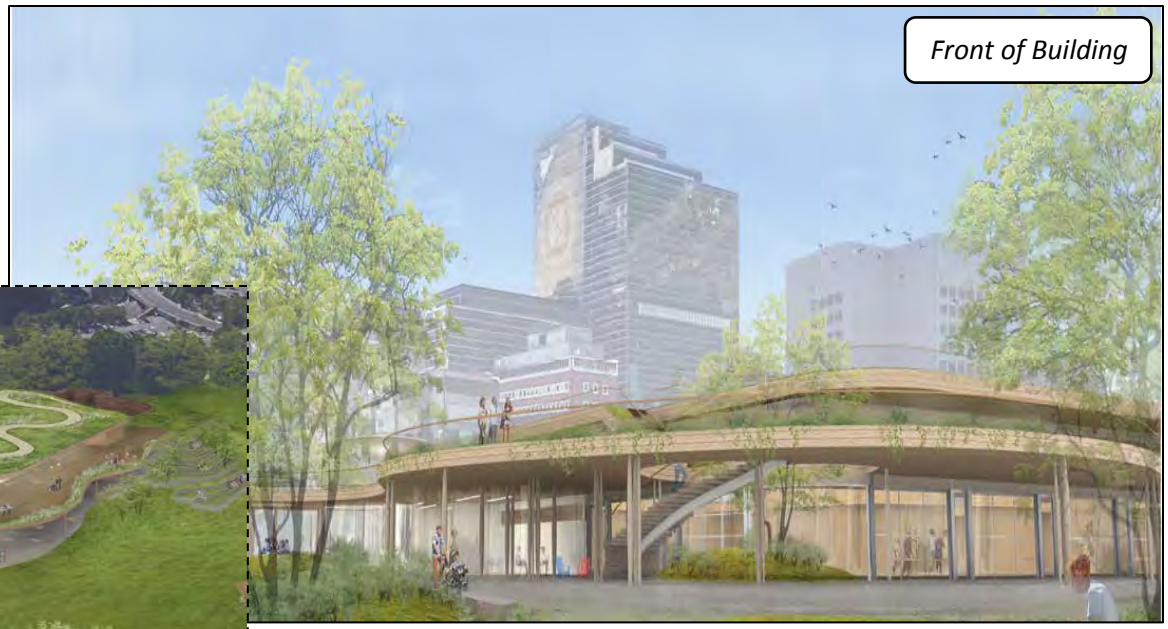


Figure 6
Concept Design Renderings
Source: Maryann Thompson Architects, 2017

Attachment B

NOTIFICATION INFORMATION

ATTACHMENT B: NOTIFICATION INFORMATION

The following table outlines abutters of the Project within 100 feet of the property line as gathered from the City of Boston Assessing Department.

Parcel ID	Property	Owner Name	Owner Address
0300942000	10 Charles River Dam Boston, MA 02114	Museum of Science	1 Museum Of Science Driveway Boston, MA 02114
0300448010	Leverett Street Boston 02114	Massachusetts Department of Transportation	10 Park Plaza #4160, Boston, MA 02116
0300452758	6-8 Whittier Place Boston, MA 02114	Whittier Place Condominium	6-8 Whittier Place Boston, MA 02114
0300449000	1-25 Emerson Place Boston, MA 02114	ERP Operating LP	1 Emerson Place Boston, MA 02114
0300371000	255-275 Charles Street Boston MA 02114	The General Hospital Corporation	55 Fruit St, Bulfinch 360 Boston, MA 02114-2621
0300381001	243-245 Charles Street Boston, MA 02114	MGH Eye and Ear	243 Charles Street Boston, MA 02114
0300445010	215 Charles Street Boston, MA 02114	Don't Look Back, LLC	7550 Wisconsin, 10th Fl. Bethesda MD 20814

Notification to Abutters Under the
Massachusetts Wetlands Protection Act

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the applicant is **MA Department of Conservation and Recreation.** The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of **Boston** seeking permission to remove, till, dredge, or alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40).

B. The address of the lot where the activity is proposed is **Charles River Esplanade / Embankment Road, Boston, Massachusetts 02114.**

C. Copies of the notice of Intent may be examined at **Boston City Hall** between the hours of **9 AM and 5 PM** on the following days of the weeks: **Monday through Friday**. For more information, call Boston City Hall at (**617) 635-4500.**

D. Copies of the Notice of Intent may be obtained from the applicant's representative by calling this telephone number (**617) 357-7044 x 205** between the hours of **9 AM and 5 PM** on the following days of the week: **Monday through Friday**

E. Information regarding the date, time, and place of the public hearing may be obtained from **Boston Conservation Commission** by calling this telephone number: **(617) 635-3850** between the hours of and on the following days of the week: **9 AM to 5 PM, Monday through Friday**

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald**

NOTE: Notice of the public hearing, including its date, tine, and place, will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.

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

Attachment C

STORMWATER REPORT

Nitsch Engineering

May 2, 2018

STORMWATER REPORT

For

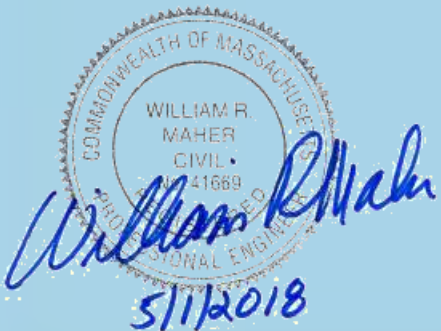
DEMOLITION OF THE LEE POOL COMPLEX
Charles River Esplanade
Embankment Road
Boston, Massachusetts

Prepared for:

Maryann Thompson Architects
741 Mt. Auburn Street
Watertown, Massachusetts 02472

Prepared by:

NITSCH ENGINEERING, INC.
2 Center Plaza, Suite 430
Boston, MA 02108



Nitsch Project #12046

Building better communities with you.

TABLE OF CONTENTS

FIGURES

APPENDICES

1.0 INTRODUCTION

Nitsch Engineering has prepared this Stormwater Report to support the proposed demolition of the Lee Pool Complex located within the Charles River Esplanade on Embankment Road, Boston, Massachusetts. The proposed project includes the demotion of the existing bathhouse, pools, concrete decking and seating, concession stand, parking lot and associated walkways.

2.0 EXISTING CONDITIONS

The Project Site is located along the Charles River, just south of the Charles River Dam. The property is bound by Storrow Drive to the south and east, Teddy Ebersol Red Sox Fields to the west, and the Charles River to the north and west. The Project Site is located across Storrow Drive from the Massachusetts General Hospital main campus and a portion of the West End Apartments development area. Please refer to Figure 1- USGS Map and Figure 2 - Aerial Locus Map.

Existing grades at the Project Site range from a low point of approximately 11 feet (ft) Boston City Base (BCB) along the bank of the Charles River to a high point of approximately 19 ft at the bathhouse. The pool deck area is located approximately 75 ft from the river, and there are no other structures located closer to the river, aside from the paved parking lot at the northern edge of the Site (approx. El. 13-14 ft).

The Project Site presently includes the remains of the Lee Pool Complex: bathhouse, two in-ground pools and associated concrete decks, a concrete bleacher structure, and vehicle parking area. The vast majority of the Project Site includes impervious surfaces (approximately 77,700 square feet).

The bathhouse is a single story modern-era brick building with horizontal bands of high windows and a flat roof. Years of leakage and inadequate maintenance and heating has caused finish surfaces within the bathhouse to deteriorate. The basement is generally flooded with water at varying levels and metal surfaces are rusted throughout. The diving pool has been filled-in to add more usable ground area for DCR operations, and the lap pool is filled with landscaping refuse. Other structures at the Site include an unused wooden concession stand, and miscellaneous concrete walkways associated with the structures.

2.1 Existing Drainage Infrastructure

Under existing conditions, a portion of the site flows to the northerly side of the site (Charles River) while the other portion flows to the east (existing storm drain system located in Storrow Drive). Stormwater runoff from the existing parking lot is captured in a single catch basin before ultimately discharging through an 8-inch outfall pipe to the Charles River, subsequently referred to as Design Point 1 (DP-1); stormwater runoff flows east to the existing storm drain system in Storrow Drive, subsequently referred to as Design Point 2 (DP-2). Refer to Figure DA-EX – Existing Drainage Areas Plan. The current stormwater management system provides no groundwater recharge and no water quality treatment and does not meet the MassDEP Stormwater Management Standards.

2.2 NRSC Soil Designations

The Natural Resources Conservation Service Classified the soils within the site as Urban Land (Hydrologic Soil Group “D”) and Udorthents (Hydrologic Soil Group “D”). Refer to Appendix B – NRCS Soils Map.

Table 1. NRCS Soil Classification Summary

Soil Unit	Soil Series	Hydrologic Soil Group
1	Water	---
603	Urban Land	D
655	Udorthents	D

2.3 Wetland Resource Areas

CLE Engineering delineated the Wetland Resource Areas on and adjacent to the project site which includes: Bank associated with the Charles River. The Bank associated with the Charles River (flagged CLE Bank 1 through CLE Bank 7) is located along the northerly side of the parking lot and to the northeast of the project site. Refer to Appendix C – Wetland Delineation Report.

3.0 PROPOSED CONDITIONS

3.1 Project Description

The Project includes the demotion of all impervious surfaces and structures as described above: the bathhouse, pools, concrete decking and seating, concession stand, parking lot and associated walkways. The demolition process will begin with the installation of site and tree protection (dripline) fencing and the removal of hazardous materials. The pools will be excavated and paved and concrete surfaces will be removed. The concrete bleachers, bathhouse, and concession stand will be demolished. All debris will be taken away and disposed of properly. The total impervious area scheduled for demolition is roughly 77,700 sf or 1.8 acres. Upon completion of the demolition and removal activities, the Project Site will be regraded with loaming and seeding, and a temporary Esplanade pathway will be constructed for uninterrupted pedestrian access. Regrading of the Project Site will result in base flood elevations ranging from 14 to 18 feet (BCB). These elevations are higher than the projected base flood under sea level rise conditions (12.8 to 13.5 feet BCB).

Table 2. Proposed land use (impervious areas) for Complex (in sf)

Land Use	Existing Site (sf)	Proposed Site (sf)	Change
Bathhouse (Roof)	9,100	0	- 9,100
Concrete Bleachers	2,400	0	-2,400
Main Pool/Diving Pool	15,700	0	-15,700
Parking Lot	12,700	0	- 12,700
Concrete Walkways	4,600	0	-4,600
Concrete Pool Deck & Walkway	33,200	0	-33,200
Drop-off Area, Parking, Sidewalk and Pathway	0	10,700	+10,700
OVERALL AREAS	77,700	10,700	-60,000

3.2 Stormwater Management System

The existing Stormwater Management system to Storrow Drive is comprised of deep sump hooded catch basins and drain manholes. Stormwater runoff will either discharge via overland flow to the Charles River and captured in catch basins before discharging to an existing off-site 18-inch storm drain pipe located in Storrow Drive.

3.3 Stormwater Management During Construction

The Site Contractor will be responsible for stormwater management of the active construction site and is required to adhere to the conditions of the 2017 Construction General Permit under the Environmental Protection Agency. A draft SWPPP will be prepared in accordance with the MassDEP Stormwater Management Standards and the 2017 Construction General Permit prior to construction activities.

4.0 STORMWATER MANAGEMENT ANALYSIS

4.1 Methodology

Nitsch Engineering completed a hydrologic analysis of the existing project site utilizing Soil Conservation Service (SCS) Runoff Curve Number (CN) methodology. The SCS method calculates the rate at which the runoff reaches the design point considering several factors: the slope and flow lengths of the subcatchment area, the soil type of the subcatchment area, and the type of surface cover in the subcatchment area. HydroCAD Version 10.00 computer modeling software was used in conjunction with the SCS method to determine the peak runoff rates and runoff volumes for the 2-, 10-, 25-, and 100-year, 24-hour storm events. The proposed project site is being analyzed with the same methodology.

The Site was divided into multiple drainage areas, or subcatchments, which drain to the design points along the property boundary and within the site. For each subcatchment area, SCS Runoff Curve Numbers (CNs) were selected by using the cover type and hydrologic soil group of each area. The peak runoff rates and runoff volumes for the 2-, 10-, 25- and 100-year 24-hour storm events were then determined by inputting the drainage areas, CNs, and time of concentration (T_c) paths into the HydroCAD model.

4.2 HydroCAD Version 10.00

The HydroCAD computer program uses SCS and TR-20 methods to model drainage systems. TR-20 (Technical Release 20) was developed by the Soil Conservation Service to estimate runoff and peak discharges in small watersheds. TR-20 is generally accepted by engineers and reviewing authorities as the standard method for estimating runoff and peak discharges.

HydroCAD Version 10.00 uses up to four types of components to analyze the hydrology of a given site: subcatchments, reaches, basins, and links. Subcatchments are areas of land that produce surface runoff. The area, weighted CN, and T_c characterize each individual subcatchment area. Reaches are generally uniform streams, channels, or pipes that convey water from one point to another. A basin is any impoundment that fills with water from one or more sources and empties via an outlet structure. Links are used to introduce hydrographs into a project from another source or to provide a junction for more than one hydrograph within a project. The time span for the model was set for 0-48 hours in order to prevent truncation of the hydrograph.

4.3 Precipitation Data

Nitsch Engineering, Inc. used NOAA Atlas 14 Point Precipitation Frequency Estimates as prepared by the Hydrometeorological Design Studies Center to estimate the rainfall for the 2-year, 10-year, 25-year and 100-year 24-hour storms. The rainfall values that will be used are as follows:

Storm Event	24–hour Rainfall
2-year	3.27 in.
10-year	5.17 in.
25-year	6.35 in.
100-year	8.17 in.

4.4 Existing Hydrologic Conditions

As summarized in Table 3, Nitsch Engineering delineated the project site into two (2) on-site subcatchment (watershed) areas discharging to two (2) design points utilizing an existing conditions survey and on-site observations (Refer to Figure DA-EX). The design points (DP) are defined as the Charles River (DP-1), and the existing storm drain system located in Storrow Drive (DP-2). The HydroCAD model for existing conditions is provided in Appendix D.

4.5 Proposed Hydrologic Conditions

The proposed project has been designed to mimic existing hydrologic conditions. The proposed watershed area to the Charles River has increased due to the proposed grading of the site. (Refer to Figure DA-PR). The HydroCAD model for proposed conditions is provided in Appendix E.

4.6 Peak Flow Rates

There is an increase of the flow rates and volumes discharging to the Charles River due to the increased water shed area from the proposed site regrading. However, the proposed overall peak rates and volumes will decrease to below the existing rates for Design Points DP-1 and DP-2 for all analyzed storm events based on a reduction of impervious area of approximately 60,000 square feet. Tables 3 through 8 below summarize the existing and proposed hydrologic analyses for the site at the design points.

Table 3 – Peak Rates of Runoff for Design Point DP-1 (in Cubic Feet per Second [cfs])

Storm Event	2-year	10-year	25-year	100-year
Existing	1.03	1.79	2.27	2.99
Proposed	1.73	4.15	5.80	8.41

Table 4 – Peak Rates of Runoff for Design Point DP-2 (in Cubic Feet per Second [cfs])

Storm Event	2-year	10-year	25-year	100-year
Existing	4.99	8.33	10.40	13.55
Proposed	1.22	2.54	3.41	4.75

Table 5 – Peak Volumes of Runoff for Design Point DP-1 (in Acre-Feet [af])

Storm Event	2-year	10-year	25-year	100-year
Existing	0.076	0.136	0.175	0.234
Proposed	0.131	0.301	0.420	0.613

Table 6 – Peak Volumes of Runoff for Design Point DP-2 (in acre-feet [af])

Storm Event	2-year	10-year	25-year	100-year
Existing	0.378	0.788	0.825	1.091
Proposed	0.089	0.185	0.249	0.352

Table 7 – OVERALL Peak Rates of Runoff for Design Points DP-1 and DP-2 (in Cubic Feet per Second [cfs])

Storm Event	2-year	10-year	25-year	100-year
Existing	6.02	10.12	12.67	16.54
Proposed	2.95	6.69	9.21	13.16

Table 8 – OVERALL Peak Volumes of Runoff for Design Points DP-1 and DP-2 (in acre-feet [af])

Storm Event	2-year	10-year	25-year	100-year
Existing	0.454	0.787	1.000	1.325
Proposed	0.220	0.486	0.669	0.965

5.0 MassDEP Stormwater Management Standards

The Project is considered a ***redevelopment*** under the DEP Stormwater Management System. The Site will be designed to meet the MassDEP Stormwater Management Standards to the maximum extent practicable as summarized below:

Standard 1: No New Untreated Discharges

No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

The Project is not proposing any new untreated discharges. This standard is met.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

The overall peak rates in the proposed conditions are less than peak rates in existing conditions for the combined discharges to the Charles River (DP-1) and to the existing storm drain system in Storrow Drive (DP-2). This standard is met to the maximum extent practicable.

Standard 3: Groundwater Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of Infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

This standard is met to the maximum extent practicable due to the decrease in impervious areas and the increase in pervious areas (grass).

Standard 4: Water Quality Treatment

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and

c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

On-site water quality measures are provided to the maximum extent practicable through the use of the existing storm drain system consisting of catch basins.

Standard 5: Land Uses with Higher Potential Pollutant Loads

For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

The project is not associated with any Land Uses with Higher Potential Pollutant Loads. Therefore, this standard is not applicable.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to

such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The Project is not located within any critical area. Therefore, this standard is not applicable.

Standard 7: Redevelopments

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

The project is a redevelopment and will meet all applicable standards to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention and Sedimentation Control

A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) will be developed and implemented during the Notice of Intent permitting process.

Since the Project will disturb more than one (1) acre of land, a Notice of Intent will be submitted to the Environmental Protection Agency (EPA) for coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit. As part of this application, the Applicant is required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and implement the measures in the SWPPP. The SWPPP, which is to be kept on site, includes erosion and sediment controls (stabilization practices and structural practices), temporary and permanent stormwater management measures, Contractor inspection schedules and reporting of all SWPPP features, materials management, waste disposal, off-site vehicle tracking, spill prevention and response, sanitation, and non-stormwater discharges. A draft SWPPP will be provided prior to construction.

Standard 9: Operation and Maintenance Plan

A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

A post-construction operation and maintenance plan has been prepared and will be implemented to ensure that stormwater management systems function as designed. Source control and stormwater BMP operation requirements for the site are summarized in the Long-Term Pollution Prevention Plan and Operation and Maintenance Plan provided in Appendix F.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

There will be no illicit discharges to the stormwater management system associated with the Project. An Illicit Discharge Compliance Statement is provided in Appendix G.

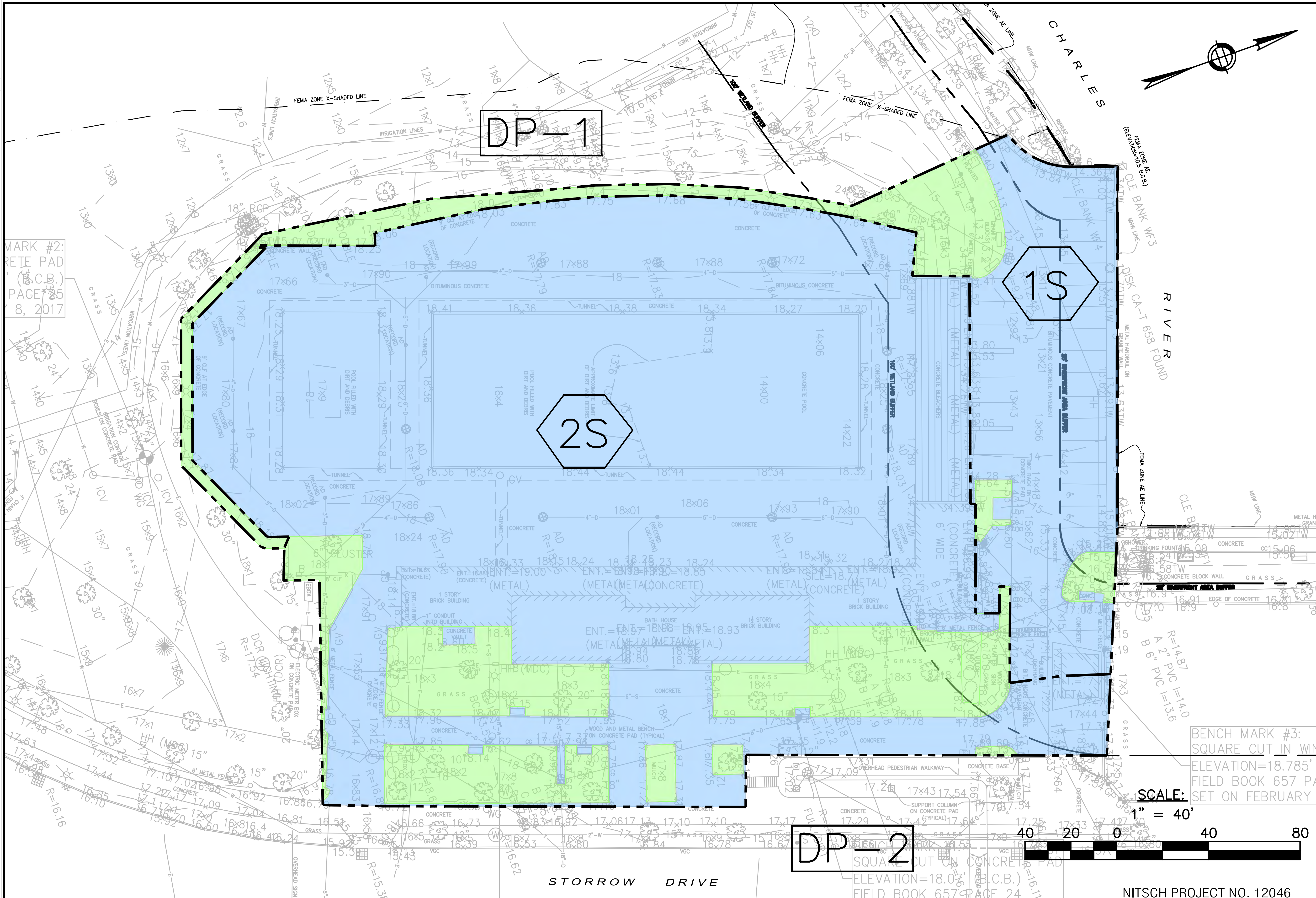
6.0 CLOSED DRAINAGE SYSTEM DESIGN

The existing closed drainage system consists of catch basins and drainage manholes connected with reinforced concrete pipe.

7.0 CONCLUSION

In conclusion, the Project's stormwater management systems will reduce peak runoff rates and volumes of stormwater through the use of reduced impervious areas, increase groundwater recharge through the increase of pervious areas (grass) and will improve the water quality of stormwater being discharged from the Site. The Project has been designed to meet and exceed the MassDEP Stormwater Management Standards to the maximum extent possible.

FIGURES



Nitsch Engineering
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Boston, MA 02108
T: (617) 338-0063
F: (617) 338-6472

- Civil Engineering
- Land Surveying
- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

EXISTING DRAIANGE AREAS

ESPLANADE RIVERFRONT PAVILION AT THE LEE POOL SITE
LEE POOL AT CHARLES RIVER ESPLANADE, BOSTON, MA 02114

PREPARED FOR:

BOSTON DEPARTMENT OF CONSERVATION AND RECREATION
251 CAUSEWAY STREET, BOSTON, MA 02114

PROJECT #	12046
FILE:	12046DA-EX.DWG
SCALE:	1"=40'
DATE:	05/01/2018
PROJECT MGR:	WRM
SURVEYOR:	RM
DRAFTED BY:	PES
CHECKED BY:	WRM

SHEET:

DA-EX

OF REV.

5/1/2018 4:35 PM

DP-1

4S

5S

DP-2

18.50

18.50

18.70

18.50

FEMA ZONE X-SHADED LINE

FEMA ZONE X-SHADED LINE

FEMA ZONE AE (ELEVATION=10.2 B.C.B.)

FEMA ZONE AE LINE

100' WETLAND BUFFER

100' WETLAND BUFFER

25' RIVERFRONT AREA BUFFER

CHARLES RIVER

CLE BANK WF3

DISK CA-T 658 FOUND

STORROW DRIVE

BENCH MARK #2:
CONCRETE PAD
(B.C.B.)
PAGE 85
8, 2017

BENCH MARK #3:
SQUARE CUT IN WIN
ELEVATION=18.785'
FIELD BOOK 657 PA
SET ON FEBRUARY

SQUARE CUT ON CONCRETE
ELEVATION=18.07' (B.C.B.)
FIELD BOOK 657 PAGE 24

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

NITSCH PROJECT NO. 12046

Nitsch Engineering
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- Civil Engineering
- Land Surveying
- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

PROPOSED DRAINAGE AREAS
ESPLANADE RIVERFRONT PAVILION
LEE POOL AT CHARLES RIVER ESPLANADE, BOSTON, MA 02114

PREPARED FOR:
BOSTON DEPARTMENT OF CONSERVATION AND RECREATION
251 CAUSEWAY STREET, BOSTON, MA 02114

PROJECT #	12046
FILE:	12046DA-PR.DWG
SCALE:	1"=40'
DATE:	05/01/2018
PROJECT MGR:	WRM
SURVEYOR:	RM
DRAFTED BY:	PES
CHECKED BY:	WRM

SHEET:

DA-PR

OF REV.

q:\12046 charlespavilion\civil\cad\stormwater\12046 da-pr.dwg

APPENDIX A

GIS Maps

Figure 1 – USGS Map

Figure 2 – Aerial Locus Map

Figure 3 – FEMA Floodplain Map

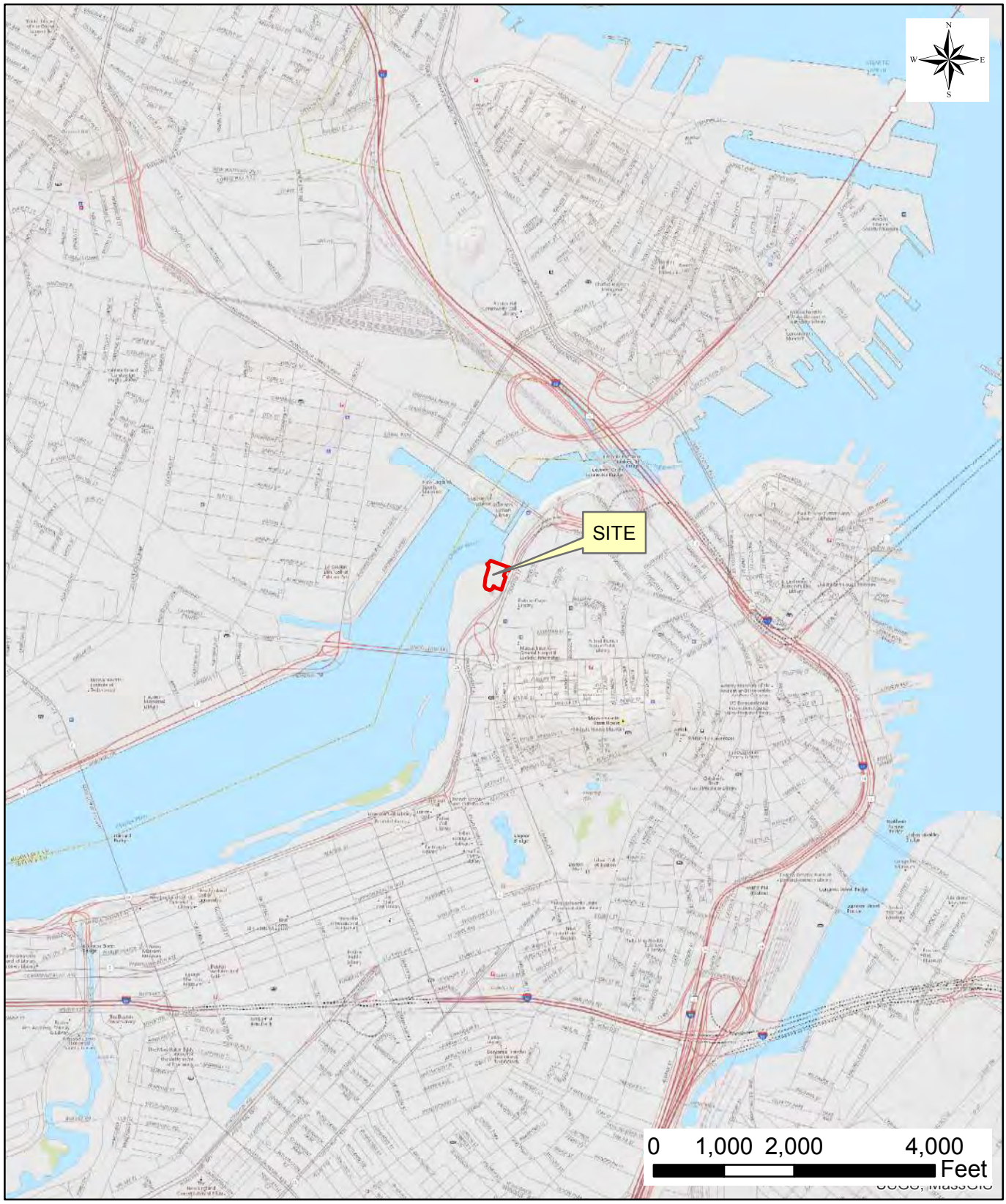


Figure 1: USGS Locus

Esplanade Riverfront Pavilion at the Lee Pool Site
Lee Pool at the Charles River Esplanade, Boston, MA 02114

Data Source: MassGIS
Nitsch Project #12046

Nitsch Engineering

Figure 2: Locus
Esplanade Riverfront Pavilion at the Lee Pool Site
Lee Pool at the Charles River Esplanade, Boston, MA 02114

Data Source: MassGIS
Nitsch Project #12046

Nitsch Engineering

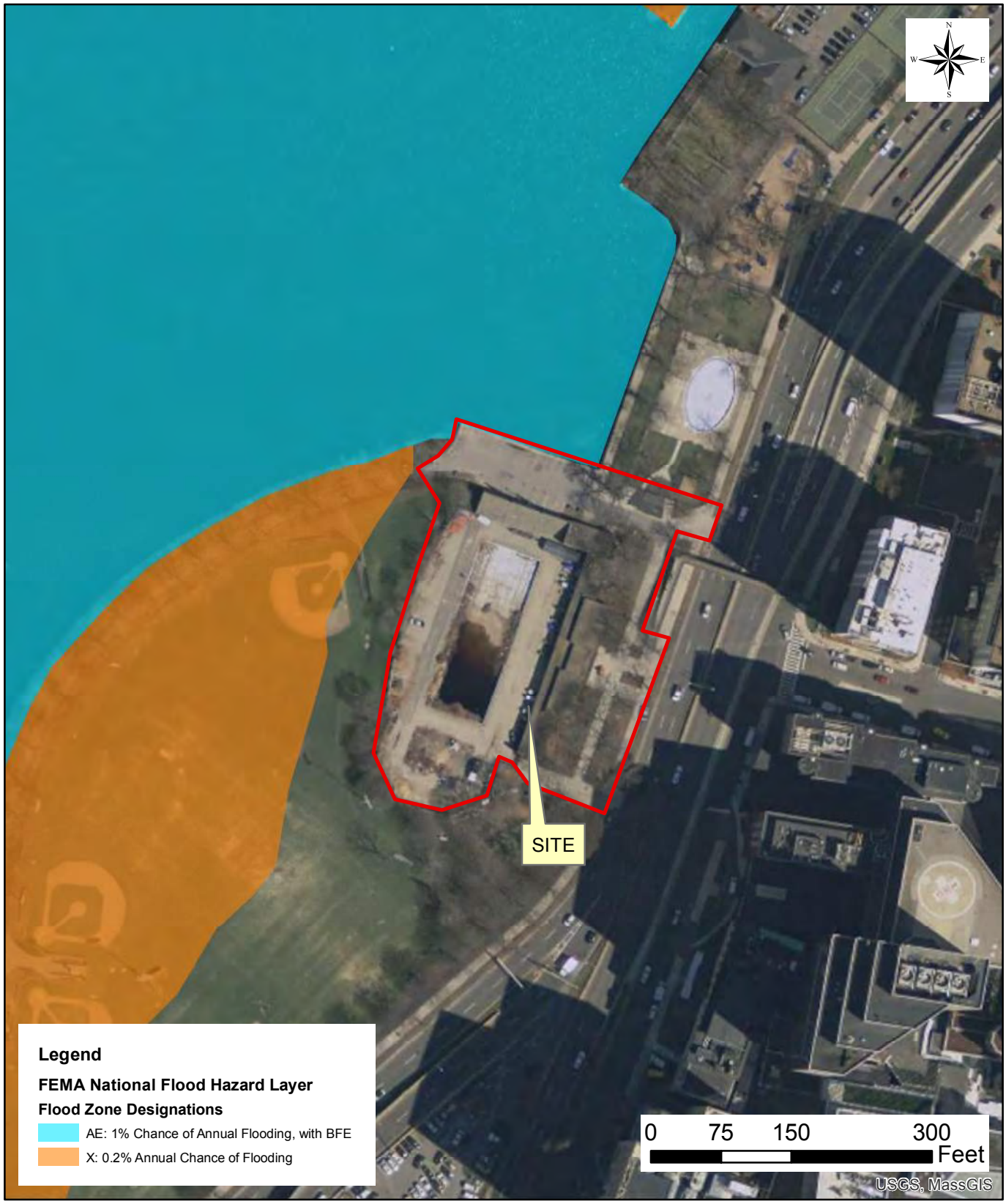


Figure 3: FEMA

Esplanade Riverfront Pavilion at the Lee Pool Site,
Lee Pool at the Charles River Esplanade, Boston, MA 02114

Data Source: MassGIS
Nitsch Project #12046

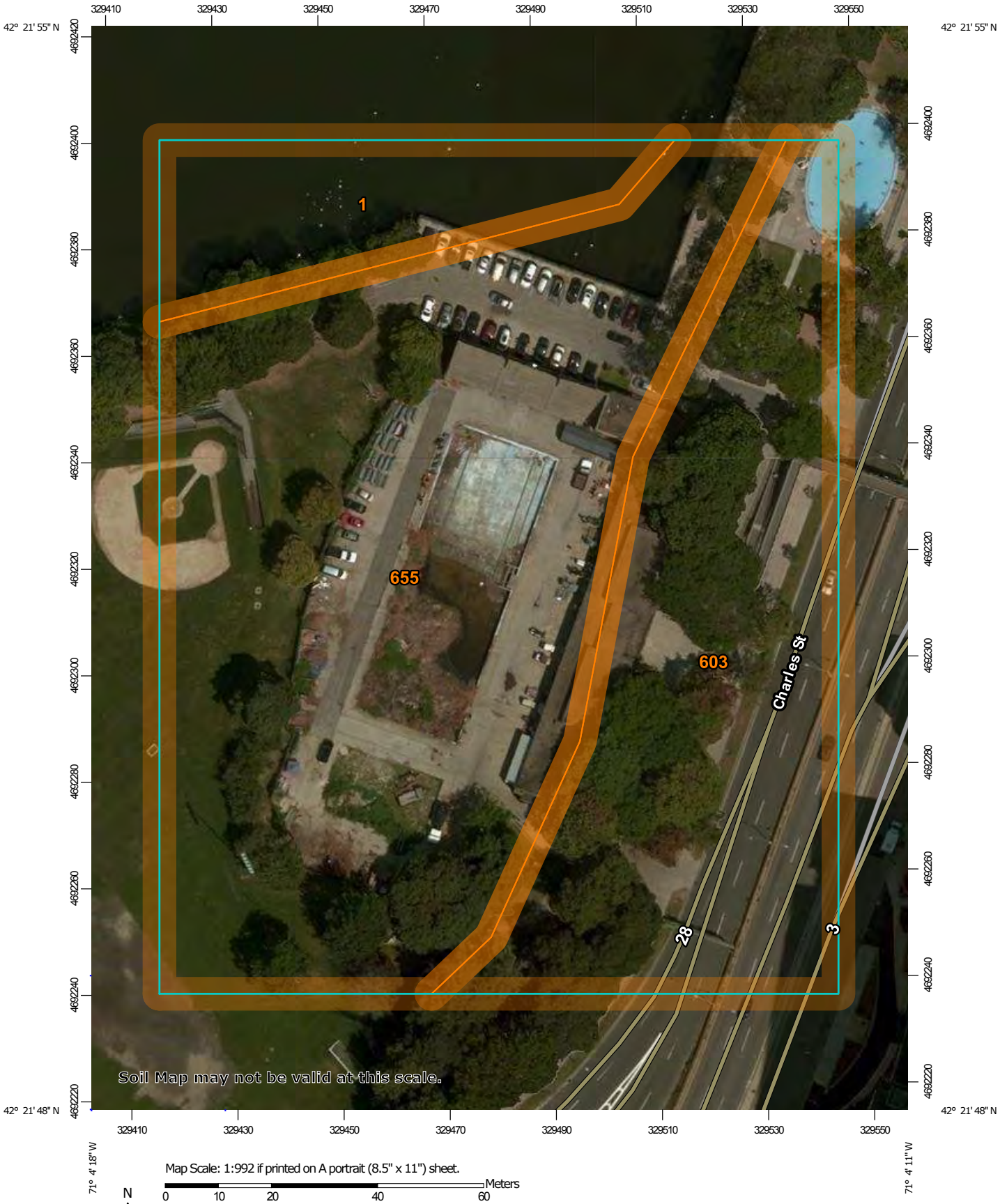
Nitsch Engineering

APPENDIX B

Soil Investigations

NRCS Soil Maps and Descriptions

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(Demolition of Lee Pool Complex)



Map Scale: 1:992 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

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

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 13, Oct 6, 2017

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

Date(s) aerial images were photographed: Aug 10, 2014—Aug 11, 2014

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Water	0.5	10.1%
603	Urban land, wet substratum, 0 to 3 percent slopes	1.6	32.4%
655	Udorthents, wet substratum	2.9	57.6%
Totals for Area of Interest		**5.1**	**100.0%**

APPENDIX C

Wetland Delineation Report

CLE Wetland Delineation Report

cleengineering

15 Creek Road | Marion, Massachusetts 02738
t: 508.748.0937 | 800.668.3220 | f: 508.748.1363

April 11, 2017

Sent electronically via email only

Mr. Robert Miles, PLS
Project Manager
Nitsch Engineering, Inc.
360 Merrimack Street,
Suite 49, Building 5, 2nd Floor
Lawrence, MA 01843

Via e-mail only

Re: Wetland Delineation, Lee Memorial Wading Pool, Boston, Massachusetts,
CLE JN 17056.100
Ref: Nitsch Survey Proposal 12046.1P, Limit of Survey, Boston Esplanade Lee Pool, January 4, 2017 provided by Nitsch Engineering, Inc.

Dear Mr. Miles:

CLE Engineering, Inc. (CLE) is pleased to submit this Wetland Delineation Report on the above referenced project.

Project Understanding:
Nitsch Engineering, Inc. (Nitsch) is responsible for the preparation of an existing conditions plan of the Lee Memorial Wading Pool on behalf of its client. CLE Engineering, Inc. (CLE) was subcontracted to provide a wetland resource field delineation and a report of findings. The site is at the Lee Memorial Wading Pool, Storrow Drive, Boston, Massachusetts.

Wetland Jurisdiction:
CLE reviewed local, federal and state wetland regulations for definitions of regulated wetland resources that might be found on or adjacent to the work area.

The federal Clean Water Act describes inland wetlands as "areas that are periodically or permanently inundated or saturated by surface or ground water and support vegetation adapted for life in saturated soils. Additionally, federal permits are required for work in, under or over navigable waters of the United States.

The Massachusetts Wetlands Protection Act and Regulations define a number of inland wetland resources that are potentially associated with water bodies such as:

- Bank
- Bordering Vegetated Wetland

- Land Under Water Bodies and Waterways
- Land Subject to Flooding
- Riverfront Area
- Estimated Habitat of Rare Wildlife

The MassGIS mapping of the various wetland resources on the site were reviewed prior to the site investigation and are attached.

The City of Boston does define or regulate any wetland resources other than those listed in the Massachusetts Wetlands Protection Act (WPA) and Regulations.

Field Investigation:
The wetland resource delineation was conducted in accordance with the definitions in the WPA and its Regulations. Additionally, the site was inspected for any federally regulated wetlands. It generally consisted of a visual inspection of the landform, hydrology, and vegetation. Pink numbered flags were tied onto permanent features such as the retaining wall guard rail and vegetation at approximately 50' spacing to delineate resource areas. The location of isolated lands subject to flooding, flood plains and any buffer zones are based on elevations and distances and were outside the scope of this field investigation as are the observations and documentation required to certify the presence of vernal pools.

On April 11, 2017 I inspected the site as identified in the plan referenced above A series of pink flags labeled CLE BANK 1 – CLE BANK 7 were hung on to delineate the top of Bank as regulated under the WPA.

Findings:
The attached figure "CLE Engineering, Inc., Sketch of Wetland Delineation and Flagging, April 11, 2017" provides depicts the location of the areas inspected for the presence of wetland resources. The areas inspected are described below:

1. A review of the MassGIS database indicated that no vegetated wetlands were identified on the site, and that presence of anadromous fish were indicate on the upstream side of the Amelia Earhart Dam.

2. The Massachusetts Mouth of Coastal River Maps identifies the mouth of the Charles River as the downstream side of the Amelia Earhart Dam, defining the upstream portion of the Charles River as River. The land beneath a River is regulated as Land Under a Water Body or Water Way under the WPA.

3. The WPA wetland resource of Bank was the only resource observed on the site. Bank is defined in 310 CMR 10.54(2) as "the portion of the land surface which normally abuts and confines a water body. It occurs between a water body and a vegetated bordering

wetland and adjacent flood plain, or, in the absence of these, it occurs between a water body and an upland. A Bank may be partially or totally vegetated, or it may be comprised of exposed soil, grave or stone." As shown in the attached photos, the Bank is comprised of granite boulders, with vegetation above consisting primarily of stump sprouts of Basswood (an upland species) and possibly Eastern Redbud trees. The top of the Bank is defined as "the first observable break in slope or the mean annual flood level, whichever is lower." The lower boundary of the Bank is the mean annual low flow level." As the mean annual low flow level was unknown and not observable, it was not delineated. As defined in 310 CMR 10.58(2)(a)2.a., "In most rivers, the first observable break in slope is coincident with bankful conditions and the mean annual high-water line" The mean annual flood elevation will fall on the vertical face of the retaining wall located by CLE 1 Bank – CLE 3 Bank and therefore is in the same horizontal location as the top of the retaining wall which was considered the first observable break in slope. The first observable break in slope was also used to identify the granite boulder and vegetated Bank between the River and the upland composed of lawn and sidewalk.

4. The WPA regulates activities within the Riverfront Area which is defined in 310 CMR 10.58(2)(a)3. as the "land between the 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". There is a 25' Riverfront Area extending landward from the delineated top of Bank.

5. As shown on the attached MassGIS NHESP Habitats and Vernal Pool map, the site is not within Estimated Habitats of Rare Wildlife, Priority Habitats of Rare Species nor does it contain a vernal pool.

6. The attached Flood Insurance Rate Map (FIRM) seems to indicate the site does not lie within land subject to flooding, however the actual flood elevation relative to the site elevation should be established by others and compared to make a definitive conclusion.

CLE appreciates the opportunity to provide this Wetland Delineation Report to Nitsch Engineering, Inc. and ask that if you have any questions, please do not hesitate to call me.

Sincerely,
CLE Engineering, Inc.

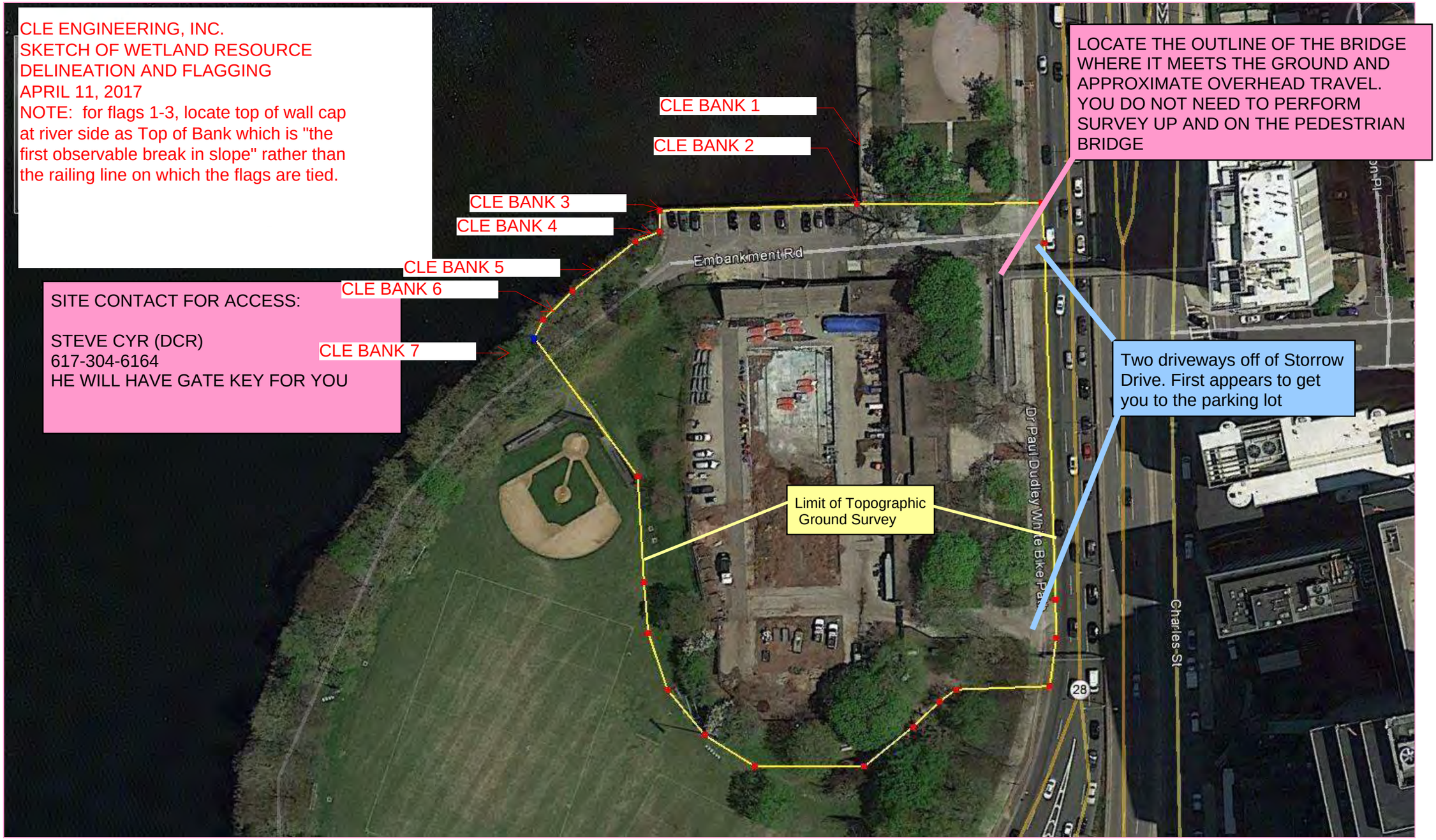
Jeffrey W. Oakes

Jeffrey Oakes, P.E.
Senior Project Manager
Enc.

CLE ENGINEERING, INC.
SKETCH OF WETLAND RESOURCE DELINEATION AND FLAGGING
APRIL 11, 2017
NOTE: for flags 1-3, locate top of wall cap at river side as Top of Bank which is "the first observable break in slope" rather than the railing line on which the flags are tied.

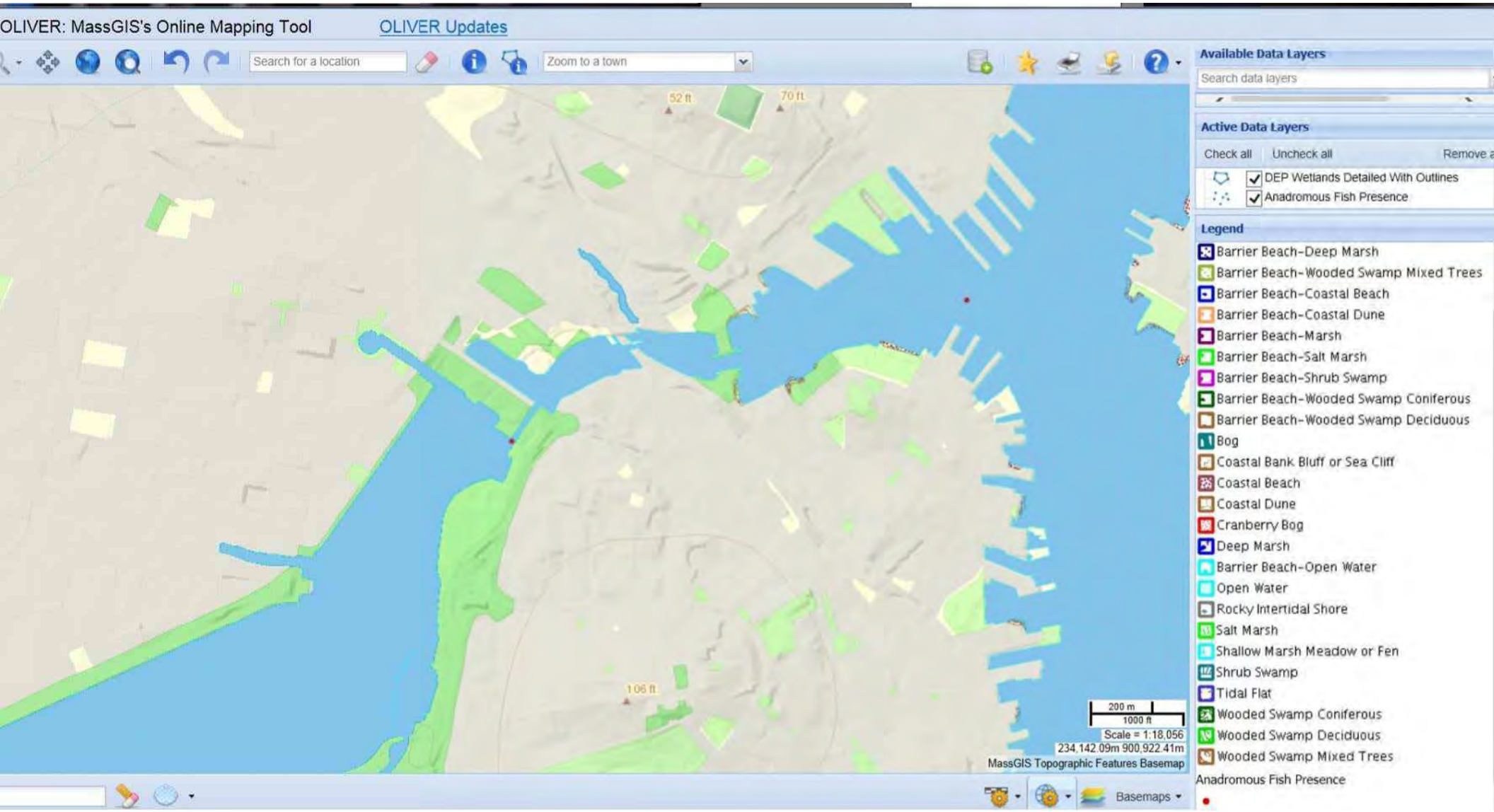
SITE CONTACT FOR ACCESS:

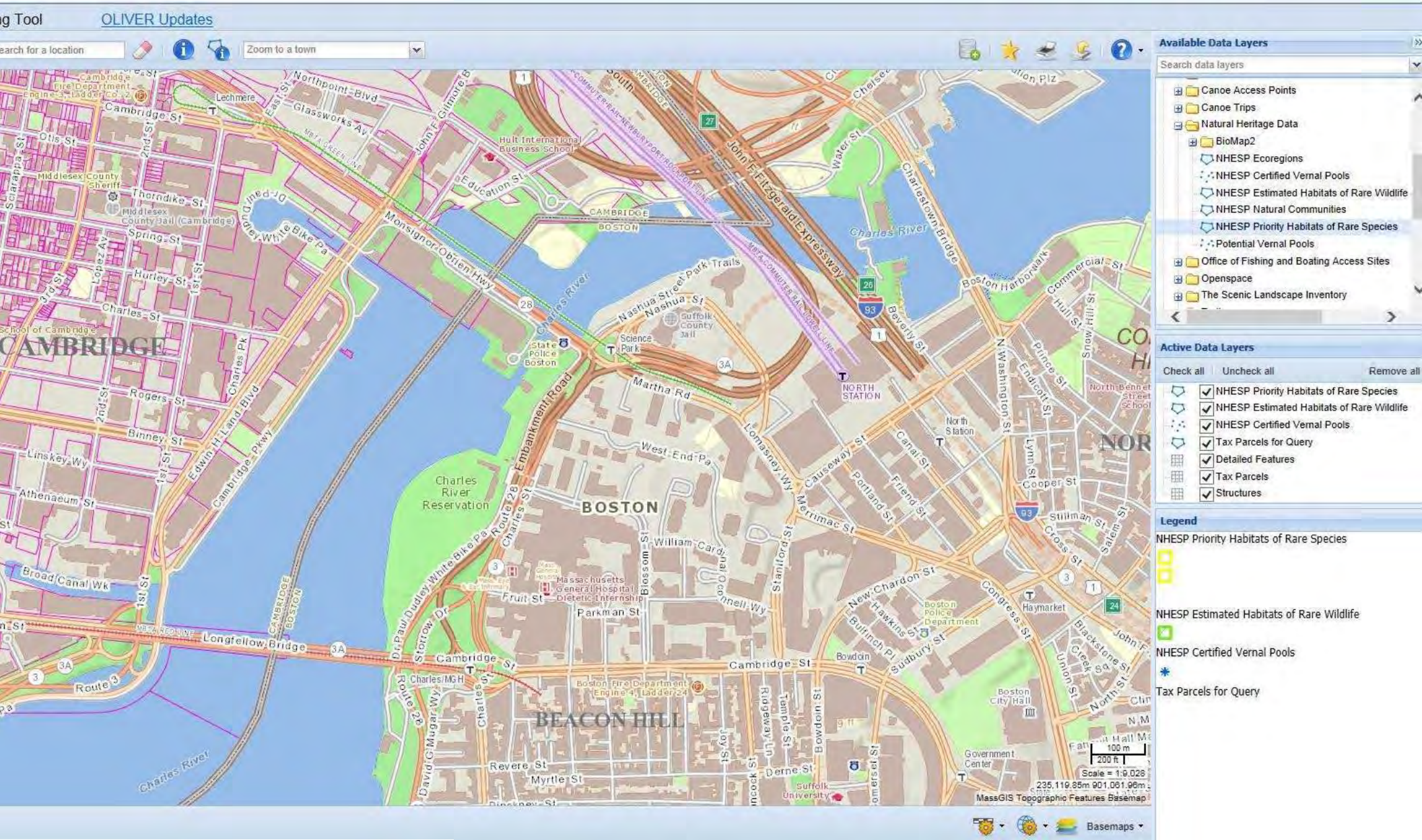
STEVE CYR (DCR)
617-304-6164
HE WILL HAVE GATE KEY FOR YOU

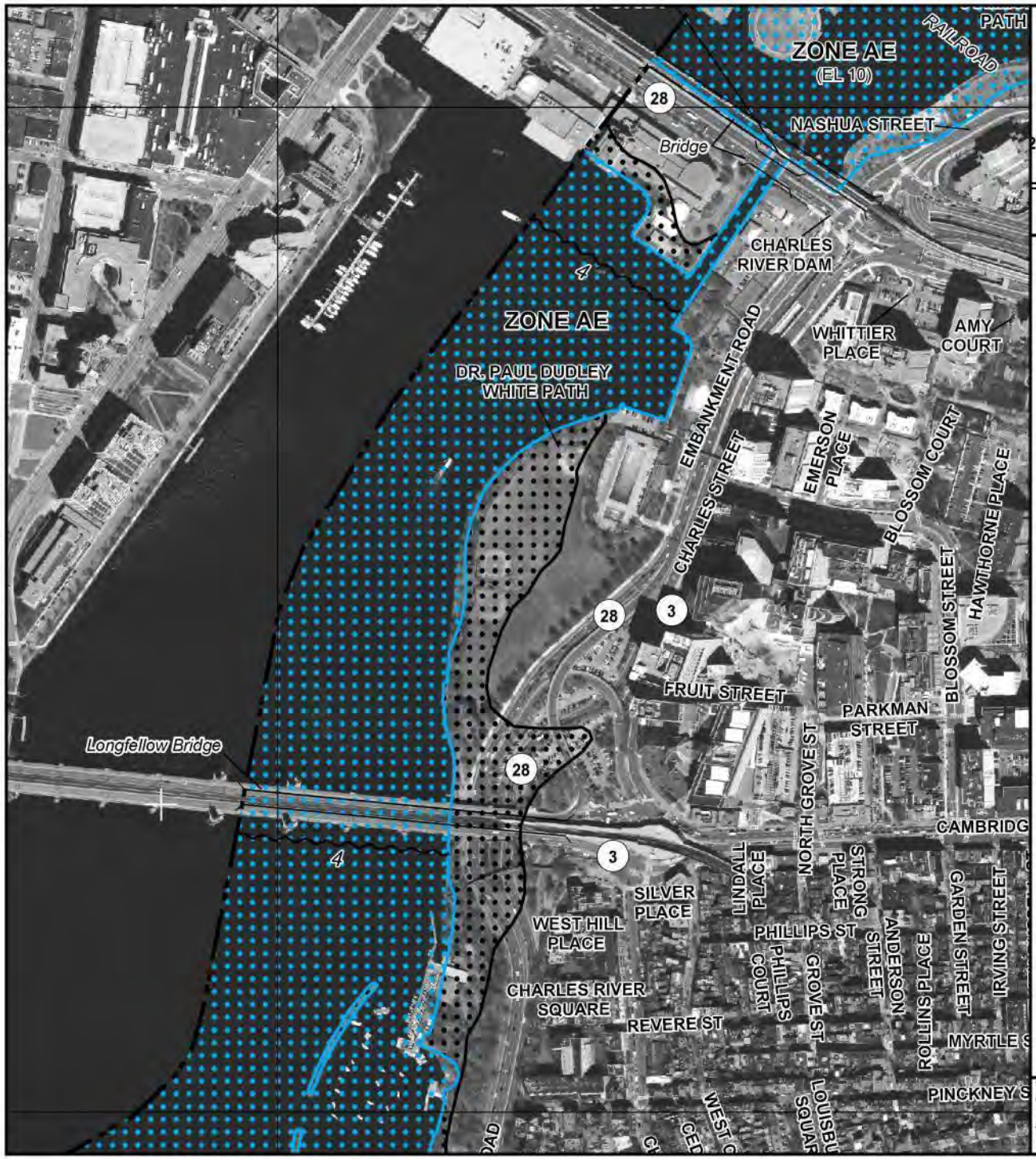


LOCATE THE OUTLINE OF THE BRIDGE WHERE IT MEETS THE GROUND AND APPROXIMATE OVERHEAD TRAVEL. YOU DO NOT NEED TO PERFORM SURVEY UP AND ON THE PEDESTRIAN BRIDGE

Two driveways off of Storrow Drive. First appears to get you to the parking lot


OLIVER: MassGIS's Online Mapping Tool
OLIVER Updates
Search for a location
Zoom to a town
52 ft
70 ft
106 ft
200 m
1000 ft
Scale = 1:18,056
234,142.09m 900,922.41m
MassGIS Topographic Features Basemap
Basemaps
Available Data Layers
Search data layers
Active Data Layers
Check all
Uncheck all
Remove a
DEP Wetlands Detailed With Outlines
Anadromous Fish Presence
Legend
Barrier Beach-Deep Marsh
Barrier Beach-Wooded Swamp Mixed Trees
Barrier Beach-Coastal Beach
Barrier Beach-Coastal Dune
Barrier Beach-Marsh
Barrier Beach-Salt Marsh
Barrier Beach-Shrub Swamp
Barrier Beach-Wooded Swamp Coniferous
Barrier Beach-Wooded Swamp Deciduous
Bog
Coastal Bank Bluff or Sea Cliff
Coastal Beach
Coastal Dune
Cranberry Bog
Deep Marsh
Barrier Beach-Open Water
Open Water
Rocky Intertidal Shore
Salt Marsh
Shallow Marsh Meadow or Fen
Shrub Swamp
Tidal Flat
Wooded Swamp Coniferous
Wooded Swamp Deciduous
Wooded Swamp Mixed Trees
Anadromous Fish Presence


g Tool
OLIVER Updates
earch for a location
Zoom to a town
Available Data Layers
Search data layers
Canoe Access Points
Canoe Trips
Natural Heritage Data
BioMap2
NHESP Ecoregions
NHESP Certified Vernal Pools
NHESP Estimated Habitats of Rare Wildlife
NHESP Natural Communities
NHESP Priority Habitats of Rare Species
Potential Vernal Pools
Office of Fishing and Boating Access Sites
Openspace
The Scenic Landscape Inventory
Active Data Layers
Check all
Uncheck all
Remove all
NHESP Priority Habitats of Rare Species
NHESP Estimated Habitats of Rare Wildlife
NHESP Certified Vernal Pools
Tax Parcels for Query
Detailed Features
Tax Parcels
Structures
Legend
NHESP Priority Habitats of Rare Species
NHESP Estimated Habitats of Rare Wildlife
NHESP Certified Vernal Pools
Tax Parcels for Query
CAMBRIDGE
BOSTON
BEACON HILL
Charles River
Charles River Reservation
Scale = 1:9,028
235,119.85m 901,061.96m
MassGIS Topographic Features Basemap
Basemaps



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0077J

FIRM

FLOOD INSURANCE RATE MAP

SUFFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 77 OF 176

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOSTON, CITY OF	250286	0077	J

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

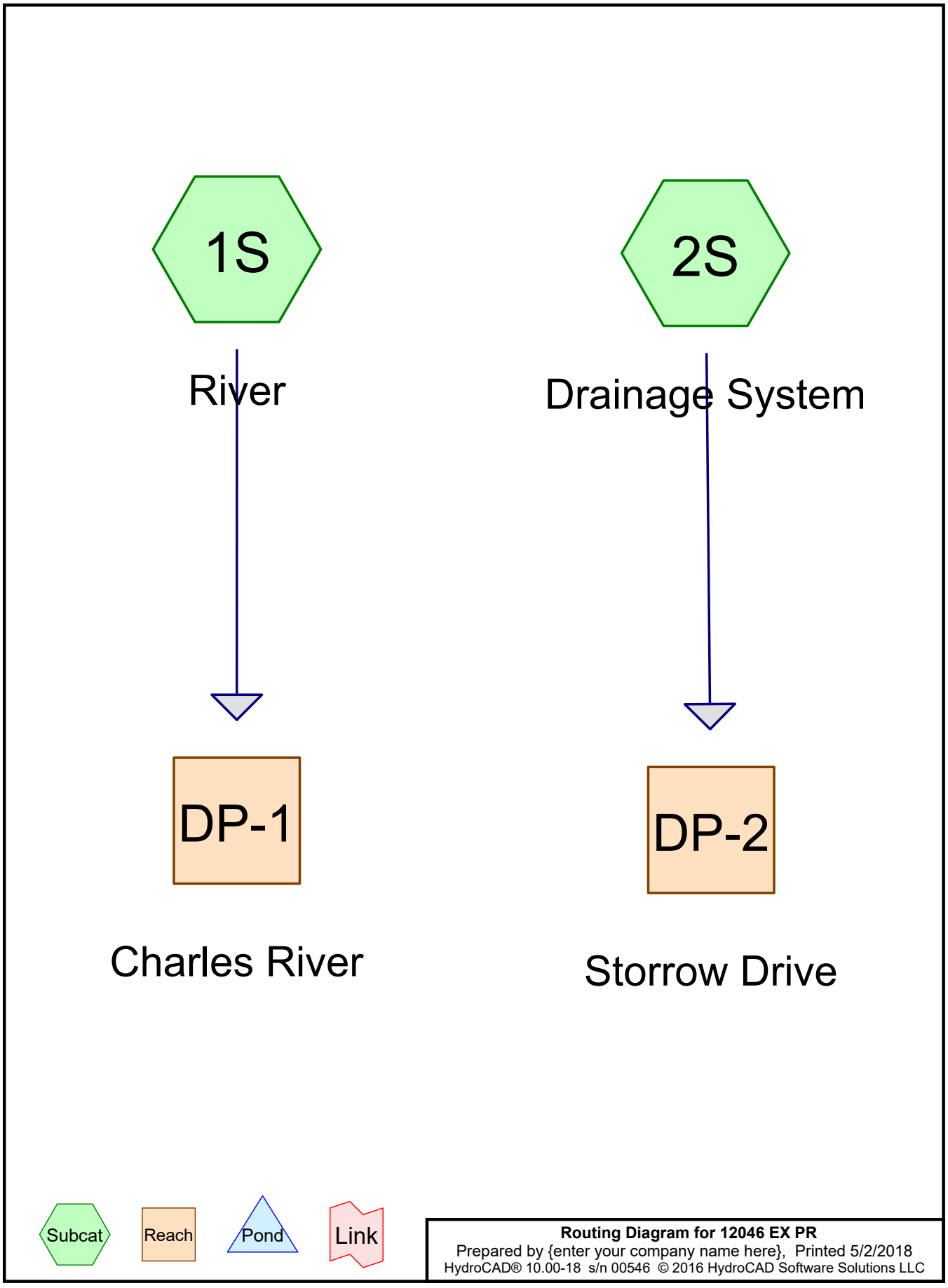
MAP NUMBER
25025C0077J

MAP REVISED
MARCH 16, 2016

Federal Emergency Management Agency

APPENDIX D

Pre-Development Conditions – HydroCAD Calculations



Routing Diagram for 12046 EX PR
Prepared by {enter your company name here}, Printed 5/2/2018

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.457	74	>75% Grass cover, Good, HSG C (1S, 2S)
0.209	98	Roofs, HSG C (2S)
1.575	98	Unconnected pavement, HSG C (1S, 2S)
2.240	**93**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.240	HSG C	1S, 2S
0.000	HSG D	
0.000	Other	
2.240		**TOTAL AREA**

Ground Covers (selected 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	0.457	0.000	0.000	0.457	>75% Grass cover, Good	1S, 2S
0.000	0.000	0.209	0.000	0.000	0.209	Roofs	2S
0.000	0.000	1.575	0.000	0.000	1.575	Unconnected pavement	1S, 2S
0.000	**0.000**	**2.240**	**0.000**	**0.000**	**2.240**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: River Runoff Area=18,001 sf 70.55% Impervious Runoff Depth=2.20"
Tc=6.0 min CN=91 Runoff=1.03 cfs 0.076 af

Subcatchment 2S: Drainage System Runoff Area=79,592 sf 81.67% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=94 Runoff=4.99 cfs 0.378 af

Reach DP-1: Charles River Inflow=1.03 cfs 0.076 af
Outflow=1.03 cfs 0.076 af

Reach DP-2: Storrow Drive Inflow=4.99 cfs 0.378 af
Outflow=4.99 cfs 0.378 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.454 af Average Runoff Depth = 2.43"
20.38% Pervious = 0.457 ac 79.62% Impervious = 1.784 ac

Summary for Subcatchment 1S: River

Runoff = 1.03 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.14"

Area (sf)	CN	Description
5,301	74	>75% Grass cover, Good, HSG C
12,700	98	Unconnected pavement, HSG C
18,001	91	Weighted Average
5,301		29.45% Pervious Area
12,700		70.55% Impervious Area
12,700		100.00% Unconnected

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

Summary for Subcatchment 2S: Drainage System

Runoff = 4.99 cfs @ 12.09 hrs, Volume= 0.378 af, Depth= 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.14"

Area (sf)	CN	Description
14,592	74	>75% Grass cover, Good, HSG C
55,900	98	Unconnected pavement, HSG C
9,100	98	Roofs, HSG C
79,592	94	Weighted Average
14,592		18.33% Pervious Area
65,000		81.67% Impervious Area
55,900		86.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 0.413 ac, 70.55% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 1.03 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 1.03 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 1.827 ac, 81.67% Impervious, Inflow Depth = 2.49" for 2-Year event
Inflow = 4.99 cfs @ 12.09 hrs, Volume= 0.378 af
Outflow = 4.99 cfs @ 12.09 hrs, Volume= 0.378 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: River Runoff Area=18,001 sf 70.55% Impervious Runoff Depth=3.95"
Tc=6.0 min CN=91 Runoff=1.79 cfs 0.136 af

Subcatchment 2S: Drainage System Runoff Area=79,592 sf 81.67% Impervious Runoff Depth=4.28"
Tc=6.0 min CN=94 Runoff=8.33 cfs 0.651 af

Reach DP-1: Charles River Inflow=1.79 cfs 0.136 af
Outflow=1.79 cfs 0.136 af

Reach DP-2: Storrow Drive Inflow=8.33 cfs 0.651 af
Outflow=8.33 cfs 0.651 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.788 af Average Runoff Depth = 4.22"
20.38% Pervious = 0.457 ac 79.62% Impervious = 1.784 ac

Summary for Subcatchment 1S: River

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.97"

Area (sf)	CN	Description
5,301	74	>75% Grass cover, Good, HSG C
12,700	98	Unconnected pavement, HSG C
18,001	91	Weighted Average
5,301		29.45% Pervious Area
12,700		70.55% Impervious Area
12,700		100.00% Unconnected

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

Summary for Subcatchment 2S: Drainage System

Runoff = 8.33 cfs @ 12.09 hrs, Volume= 0.651 af, Depth= 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.97"

Area (sf)	CN	Description
14,592	74	>75% Grass cover, Good, HSG C
55,900	98	Unconnected pavement, HSG C
9,100	98	Roofs, HSG C
79,592	94	Weighted Average
14,592		18.33% Pervious Area
65,000		81.67% Impervious Area
55,900		86.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 0.413 ac, 70.55% Impervious, Inflow Depth = 3.95" for 10-Year event
Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af
Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 1.827 ac, 81.67% Impervious, Inflow Depth = 4.28" for 10-Year event
Inflow = 8.33 cfs @ 12.09 hrs, Volume= 0.651 af
Outflow = 8.33 cfs @ 12.09 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: River Runoff Area=18,001 sf 70.55% Impervious Runoff Depth=5.07"
Tc=6.0 min CN=91 Runoff=2.27 cfs 0.175 af

Subcatchment 2S: Drainage System Runoff Area=79,592 sf 81.67% Impervious Runoff Depth=5.42"
Tc=6.0 min CN=94 Runoff=10.40 cfs 0.825 af

Reach DP-1: Charles River Inflow=2.27 cfs 0.175 af
Outflow=2.27 cfs 0.175 af

Reach DP-2: Storrow Drive Inflow=10.40 cfs 0.825 af
Outflow=10.40 cfs 0.825 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.999 af Average Runoff Depth = 5.35"
20.38% Pervious = 0.457 ac 79.62% Impervious = 1.784 ac

Summary for Subcatchment 1S: River

Runoff = 2.27 cfs @ 12.09 hrs, Volume= 0.175 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.12"

Area (sf)	CN	Description
5,301	74	>75% Grass cover, Good, HSG C
12,700	98	Unconnected pavement, HSG C
18,001	91	Weighted Average
5,301		29.45% Pervious Area
12,700		70.55% Impervious Area
12,700		100.00% Unconnected

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

Summary for Subcatchment 2S: Drainage System

Runoff = 10.40 cfs @ 12.09 hrs, Volume= 0.825 af, Depth= 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.12"

Area (sf)	CN	Description
14,592	74	>75% Grass cover, Good, HSG C
55,900	98	Unconnected pavement, HSG C
9,100	98	Roofs, HSG C
79,592	94	Weighted Average
14,592		18.33% Pervious Area
65,000		81.67% Impervious Area
55,900		86.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 0.413 ac, 70.55% Impervious, Inflow Depth = 5.07" for 25-Year event
Inflow = 2.27 cfs @ 12.09 hrs, Volume= 0.175 af
Outflow = 2.27 cfs @ 12.09 hrs, Volume= 0.175 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 1.827 ac, 81.67% Impervious, Inflow Depth = 5.42" for 25-Year event
Inflow = 10.40 cfs @ 12.09 hrs, Volume= 0.825 af
Outflow = 10.40 cfs @ 12.09 hrs, Volume= 0.825 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: River Runoff Area=18,001 sf 70.55% Impervious Runoff Depth=6.81"
Tc=6.0 min CN=91 Runoff=2.99 cfs 0.234 af

Subcatchment 2S: Drainage System Runoff Area=79,592 sf 81.67% Impervious Runoff Depth=7.16"
Tc=6.0 min CN=94 Runoff=13.55 cfs 1.091 af

Reach DP-1: Charles River Inflow=2.99 cfs 0.234 af
Outflow=2.99 cfs 0.234 af

Reach DP-2: Storrow Drive Inflow=13.55 cfs 1.091 af
Outflow=13.55 cfs 1.091 af

Total Runoff Area = 2.240 ac Runoff Volume = 1.325 af Average Runoff Depth = 7.10"
20.38% Pervious = 0.457 ac 79.62% Impervious = 1.784 ac

Summary for Subcatchment 1S: River

Runoff = 2.99 cfs @ 12.09 hrs, Volume= 0.234 af, Depth= 6.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.88"

Area (sf)	CN	Description
5,301	74	>75% Grass cover, Good, HSG C
12,700	98	Unconnected pavement, HSG C
18,001	91	Weighted Average
5,301		29.45% Pervious Area
12,700		70.55% Impervious Area
12,700		100.00% Unconnected

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

Summary for Subcatchment 2S: Drainage System

Runoff = 13.55 cfs @ 12.09 hrs, Volume= 1.091 af, Depth= 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.88"

Area (sf)	CN	Description
14,592	74	>75% Grass cover, Good, HSG C
55,900	98	Unconnected pavement, HSG C
9,100	98	Roofs, HSG C
79,592	94	Weighted Average
14,592		18.33% Pervious Area
65,000		81.67% Impervious Area
55,900		86.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 0.413 ac, 70.55% Impervious, Inflow Depth = 6.81" for 100-Year event
Inflow = 2.99 cfs @ 12.09 hrs, Volume= 0.234 af
Outflow = 2.99 cfs @ 12.09 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

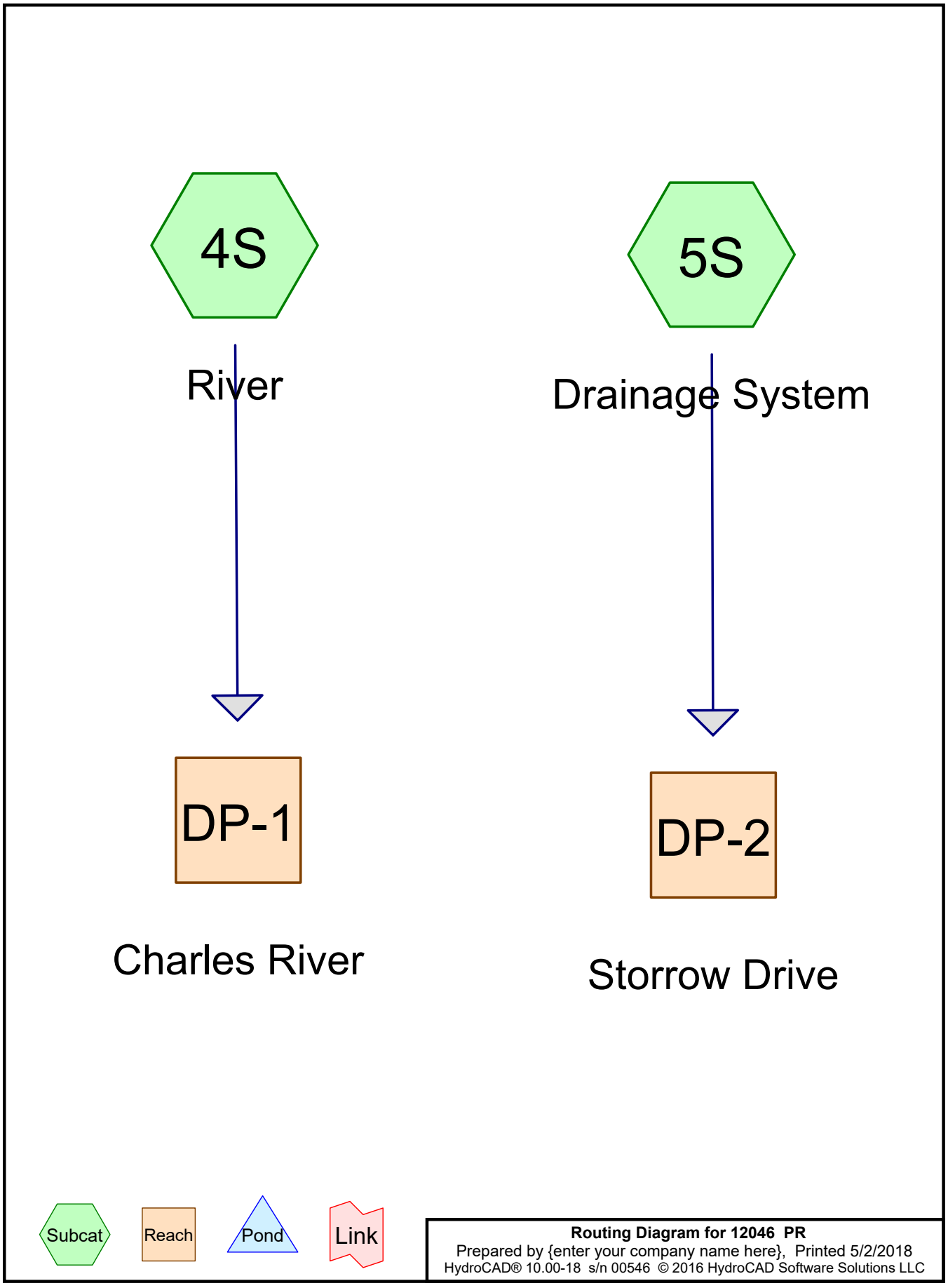
Summary for Reach DP-2: Storrow Drive

Inflow Area = 1.827 ac, 81.67% Impervious, Inflow Depth = 7.16" for 100-Year event
Inflow = 13.55 cfs @ 12.09 hrs, Volume= 1.091 af
Outflow = 13.55 cfs @ 12.09 hrs, Volume= 1.091 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

APPENDIX E

Post-Development Conditions – HydroCAD Calculations



Routing Diagram for 12046 PR
Prepared by {enter your company name here}, Printed 5/2/2018

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.937	74	>75% Grass cover, Good, HSG C (4S, 5S)
0.304	98	Unconnected pavement, HSG C (4S, 5S)
2.240	**77**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.240	HSG C	4S, 5S
0.000	HSG D	
0.000	Other	
2.240		**TOTAL AREA**

Ground Covers (selected 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	1.937	0.000	0.000	1.937	>75% Grass cover, Good	4S, 5S
0.000	0.000	0.304	0.000	0.000	0.304	Unconnected pavement	4S, 5S
0.000	**0.000**	**2.240**	**0.000**	**0.000**	**2.240**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 4S: River Runoff Area=64,937 sf 4.76% Impervious Runoff Depth=1.05"
Tc=6.0 min CN=75 Runoff=1.73 cfs 0.131 af

Subcatchment 5S: Drainage System Runoff Area=32,656 sf 31.03% Impervious Runoff Depth=1.42"
Tc=6.0 min CN=81 Runoff=1.22 cfs 0.089 af

Reach DP-1: Charles River Inflow=1.73 cfs 0.131 af
Outflow=1.73 cfs 0.131 af

Reach DP-2: Storrow Drive Inflow=1.22 cfs 0.089 af
Outflow=1.22 cfs 0.089 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.220 af Average Runoff Depth = 1.18"
86.45% Pervious = 1.937 ac 13.55% Impervious = 0.304 ac

Summary for Subcatchment 4S: River

Runoff = 1.73 cfs @ 12.10 hrs, Volume= 0.131 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.14"

Area (sf)	CN	Description
61,849	74	>75% Grass cover, Good, HSG C
3,088	98	Unconnected pavement, HSG C
64,937	75	Weighted Average
61,849		95.24% Pervious Area
3,088		4.76% Impervious Area
3,088		100.00% Unconnected

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

Summary for Subcatchment 5S: Drainage System

Runoff = 1.22 cfs @ 12.10 hrs, Volume= 0.089 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.14"

Area (sf)	CN	Description
22,523	74	>75% Grass cover, Good, HSG C
10,133	98	Unconnected pavement, HSG C
32,656	81	Weighted Average
22,523		68.97% Pervious Area
10,133		31.03% Impervious Area
10,133		100.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 1.491 ac, 4.76% Impervious, Inflow Depth = 1.05" for 2-Year event
Inflow = 1.73 cfs @ 12.10 hrs, Volume= 0.131 af
Outflow = 1.73 cfs @ 12.10 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 0.750 ac, 31.03% Impervious, Inflow Depth = 1.42" for 2-Year event
Inflow = 1.22 cfs @ 12.10 hrs, Volume= 0.089 af
Outflow = 1.22 cfs @ 12.10 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 4S: River Runoff Area=64,937 sf 4.76% Impervious Runoff Depth=2.42"
Tc=6.0 min CN=75 Runoff=4.15 cfs 0.301 af

Subcatchment 5S: Drainage System Runoff Area=32,656 sf 31.03% Impervious Runoff Depth=2.96"
Tc=6.0 min CN=81 Runoff=2.54 cfs 0.185 af

Reach DP-1: Charles River Inflow=4.15 cfs 0.301 af
Outflow=4.15 cfs 0.301 af

Reach DP-2: Storrow Drive Inflow=2.54 cfs 0.185 af
Outflow=2.54 cfs 0.185 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.486 af Average Runoff Depth = 2.60"
86.45% Pervious = 1.937 ac 13.55% Impervious = 0.304 ac

Summary for Subcatchment 4S: River

Runoff = 4.15 cfs @ 12.09 hrs, Volume= 0.301 af, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.97"

Area (sf)	CN	Description
61,849	74	>75% Grass cover, Good, HSG C
3,088	98	Unconnected pavement, HSG C
64,937	75	Weighted Average
61,849		95.24% Pervious Area
3,088		4.76% Impervious Area
3,088		100.00% Unconnected

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

Summary for Subcatchment 5S: Drainage System

Runoff = 2.54 cfs @ 12.09 hrs, Volume= 0.185 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.97"

Area (sf)	CN	Description
22,523	74	>75% Grass cover, Good, HSG C
10,133	98	Unconnected pavement, HSG C
32,656	81	Weighted Average
22,523		68.97% Pervious Area
10,133		31.03% Impervious Area
10,133		100.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 1.491 ac, 4.76% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 4.15 cfs @ 12.09 hrs, Volume= 0.301 af
Outflow = 4.15 cfs @ 12.09 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 0.750 ac, 31.03% Impervious, Inflow Depth = 2.96" for 10-Year event
Inflow = 2.54 cfs @ 12.09 hrs, Volume= 0.185 af
Outflow = 2.54 cfs @ 12.09 hrs, Volume= 0.185 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 4S: River Runoff Area=64,937 sf 4.76% Impervious Runoff Depth=3.38"
Tc=6.0 min CN=75 Runoff=5.80 cfs 0.420 af

Subcatchment 5S: Drainage System Runoff Area=32,656 sf 31.03% Impervious Runoff Depth=3.99"
Tc=6.0 min CN=81 Runoff=3.41 cfs 0.249 af

Reach DP-1: Charles River Inflow=5.80 cfs 0.420 af
Outflow=5.80 cfs 0.420 af

Reach DP-2: Storrow Drive Inflow=3.41 cfs 0.249 af
Outflow=3.41 cfs 0.249 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.670 af Average Runoff Depth = 3.59"
86.45% Pervious = 1.937 ac 13.55% Impervious = 0.304 ac

Summary for Subcatchment 4S: River

Runoff = 5.80 cfs @ 12.09 hrs, Volume= 0.420 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.12"

Area (sf)	CN	Description
61,849	74	>75% Grass cover, Good, HSG C
3,088	98	Unconnected pavement, HSG C
64,937	75	Weighted Average
61,849		95.24% Pervious Area
3,088		4.76% Impervious Area
3,088		100.00% Unconnected

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

Summary for Subcatchment 5S: Drainage System

Runoff = 3.41 cfs @ 12.09 hrs, Volume= 0.249 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.12"

Area (sf)	CN	Description
22,523	74	>75% Grass cover, Good, HSG C
10,133	98	Unconnected pavement, HSG C
32,656	81	Weighted Average
22,523		68.97% Pervious Area
10,133		31.03% Impervious Area
10,133		100.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 1.491 ac, 4.76% Impervious, Inflow Depth = 3.38" for 25-Year event
Inflow = 5.80 cfs @ 12.09 hrs, Volume= 0.420 af
Outflow = 5.80 cfs @ 12.09 hrs, Volume= 0.420 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 0.750 ac, 31.03% Impervious, Inflow Depth = 3.99" for 25-Year event
Inflow = 3.41 cfs @ 12.09 hrs, Volume= 0.249 af
Outflow = 3.41 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 4S: River Runoff Area=64,937 sf 4.76% Impervious Runoff Depth=4.93"
Tc=6.0 min CN=75 Runoff=8.41 cfs 0.613 af

Subcatchment 5S: Drainage System Runoff Area=32,656 sf 31.03% Impervious Runoff Depth=5.63"
Tc=6.0 min CN=81 Runoff=4.75 cfs 0.352 af

Reach DP-1: Charles River Inflow=8.41 cfs 0.613 af
Outflow=8.41 cfs 0.613 af

Reach DP-2: Storrow Drive Inflow=4.75 cfs 0.352 af
Outflow=4.75 cfs 0.352 af

Total Runoff Area = 2.240 ac Runoff Volume = 0.965 af Average Runoff Depth = 5.17"
86.45% Pervious = 1.937 ac 13.55% Impervious = 0.304 ac

Summary for Subcatchment 4S: River

Runoff = 8.41 cfs @ 12.09 hrs, Volume= 0.613 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.88"

Area (sf)	CN	Description
61,849	74	>75% Grass cover, Good, HSG C
3,088	98	Unconnected pavement, HSG C
64,937	75	Weighted Average
61,849		95.24% Pervious Area
3,088		4.76% Impervious Area
3,088		100.00% Unconnected

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

Summary for Subcatchment 5S: Drainage System

Runoff = 4.75 cfs @ 12.09 hrs, Volume= 0.352 af, Depth= 5.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.88"

Area (sf)	CN	Description
22,523	74	>75% Grass cover, Good, HSG C
10,133	98	Unconnected pavement, HSG C
32,656	81	Weighted Average
22,523		68.97% Pervious Area
10,133		31.03% Impervious Area
10,133		100.00% Unconnected

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

Summary for Reach DP-1: Charles River

Inflow Area = 1.491 ac, 4.76% Impervious, Inflow Depth = 4.93" for 100-Year event
Inflow = 8.41 cfs @ 12.09 hrs, Volume= 0.613 af
Outflow = 8.41 cfs @ 12.09 hrs, Volume= 0.613 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Reach DP-2: Storrow Drive

Inflow Area = 0.750 ac, 31.03% Impervious, Inflow Depth = 5.63" for 100-Year event
Inflow = 4.75 cfs @ 12.09 hrs, Volume= 0.352 af
Outflow = 4.75 cfs @ 12.09 hrs, Volume= 0.352 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

APPENDIX F

Long-Term Pollution Prevention and Stormwater Operation and Maintenance Plan

Nitsch Engineering

2 Center Plaza, Suite 430
Boston, MA 02108-1928
T: 617-338-0063
F: 617-338-6472
www.nitscheng.com

LONG-TERM POLLUTION PREVENTION PLAN AND STORMWATER OPERATION AND MAINTENANCE PLAN

Lee Pool Complex – Charles River Esplanade, Boston, MA

TABLE OF CONTENTS

INTRODUCTION

The purpose of this document is to specify the pollution prevention measures and stormwater management system operation and maintenance for the Lee Pool Complex, located in Boston, MA. The Responsible Party indicated below shall implement the management practices outlined in this document and proactively conduct operations at the project site in an environmentally responsible manner. Compliance with this Manual does not in any way dismiss the responsible party, owner, property manager, or occupants from compliance with other applicable federal, state or local laws.

Responsible Party: Massachusetts Department of Conservation & Recreation (DCR)
Attn: Wendy Pearl
251 Causeway Street, Suite 700
Boston, Massachusetts
617-626-1389

This Document has been prepared in compliance with Standards 4 and 9 of the 2008 Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards, which state:

Standard 4:
The Long-Term Pollution Prevention Plan shall include the proper procedures for the following:

- Good housekeeping
- Storing materials and waste products inside or under cover
- Vehicle washing
- Routine inspections of stormwater best management practices
- Spill prevention and response
- Maintenance of lawns, gardens, and other landscaped areas
- Pet waste management
- Proper management of deicing chemicals and snow

Standard 9:
The Long-Term Operation and Maintenance Plan shall at a minimum include:

- Stormwater management system(s) owner(s)
- The party or parties responsible for operation and maintenance, including how future property owners shall be notified of the presence of the stormwater management system and the requirement for operation and maintenance
- The routine and non-routine maintenance tasks to be undertaken after construction is complete and a schedule for implementing those tasks
- A plan that is drawn to scale and shows the location of all stormwater BMPs in each treatment train along with the discharge point
- A description of public safety features
- An estimated operations and maintenance budget

LONG-TERM POLLUTION PREVENTION PLAN

The Responsible Party shall implement the following good housekeeping procedures at the project site to reduce the possibility of accidental releases and to reduce safety hazards.

Storage of Hazardous Materials

To prevent leaks and spills, keep hazardous materials and waste products under cover. Use drip pans or spill containment systems to prevent chemicals from entering the drainage system. Inspect storage areas for materials and waste products at least once per year to determine amount and type of the material on site, and if the material requires disposal.

Securely store liquid petroleum products and other liquid chemicals in federally- and state-approved containers. Restrict access to maintenance personnel and administrators.

Storage of Waste Products

Collect and store all waste materials in securely lidded dumpster(s) or other secure containers as applicable to the material. Keep dumpster lids closed and the areas around them clean. Do not fill the dumpsters with liquid waste or hose them out. Legally dispose of collected waste on a regular basis.

Segregate liquid wastes, including motor oil, antifreeze, solvents, and lubricants, from solid waste and recycle through hazardous waste disposal companies, whenever possible. Separate oil filters, batteries, tires, and metal filings from grinding and polishing metal parts from common trash items and recycle. These items are not trash and are illegal to dump. Contact a hazardous waste hauler for proper disposal to a hazardous waste collection center.

Spill Prevention and Response

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

- For minor spills, keep fifty (50) gallon spill control kits, oil absorbent pillows and Speedy Dry at all shop and work areas.
- Immediately contact applicable Federal, State, and local agencies for reportable quantities as required by law.
- Immediately perform applicable containment and cleanup procedures following a spill release.
- Promptly remove and dispose of all material collected during the response 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 Contractor to perform the required response.
- Reportable quantities of chemicals, fuels, or oils are established under the Clean Water Act and enforced through Massachusetts Department of Environmental Protection (DEP).
- Perform sweeping after any chemical release equal to or greater than five (5) gallons.

Minimize Soil Erosion

Soil erosion facilitates mechanical transport of nutrients, pathogens, and organic matter to surface water bodies. Repair all areas where erosion is occurring throughout the project site. Stabilize bare soil with riprap, seed, mulch, or vegetation.

Vehicle Washing

Vehicle washing will not occur on the property.

Maintenance of Lawns, Gardens, and other Landscaped Areas

Pesticides and fertilizers shall not be used in the landscaped areas associated with the project site and shall not be stored on-site. Dumping of lawn wastes, brush or leaves or other materials or debris is not permitted in any Resource Area. Grass clippings, pruned branches and any other landscaped waste should be disposed of or composted in an appropriate location. No irrigation shall be used in the landscaped areas for this project.

Management of Deicing Chemicals and Snow

The qualified contractor selected for snow plowing and deicing shall be made fully aware of the requirements of this section.

There shall be no use of salts or other de-icing chemicals or compounds on the property. The snow plow contractor shall adhere to these calcium chloride uses and storage requirements.

During typical snow plowing operations, snow shall be pushed to the designated snow removal areas noted on the Snow Storage Plan. Snow shall not be stored and stockpiled in wetland resource areas or within the 100-foot Buffer Zone, catch basins, water quality swales, or rain garden/bioretention areas. In severe conditions where snow cannot be stockpiled on site, the snow shall be removed from the site and properly disposed of in accordance with DEP Guideline BRP601-01.

Use of sand is permitted only for impervious parking and sidewalk areas.

Before winter begins, the property owner and the contractor shall review snow plowing, deicing, and storage and stockpiling procedures. Areas designated for storage and stockpiling should be cleaned of any debris. Driveway and parking area sweeping should be followed in accordance with the Operation and Maintenance Plan.

Coordination with other Permits and Requirements

Certain conditions of other approvals affecting the long-term management of the property shall be considered part of this Long-Term Pollution Prevention Plan. The Owner shall become familiar with those documents and comply with the guidelines set forth in those documents.

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE PLAN

Introduction

This Operation and Maintenance Plan (O&M Plan) for the former Lee Pool Complex site is required under Standard 9 of the 2008 MassDEP Stormwater Handbook to provide best management practices (BMPs) for implementing maintenance activities for the stormwater management system in a manner that minimizes impacts to wetland resource areas.

The Owner shall implement this O&M Plan and proactively conduct operations at the site in an environmentally responsible manner. Compliance with this O&M Plan does not in any way dismiss the Owner from compliance with other applicable Federal, State or local laws.

Routine maintenance during construction and post-development phases of the project, as defined in the Operation and Maintenance Plan, shall be permitted.

All stormwater best management practices (BMPs) shall be operated and maintained in accordance with the design plans and the Operation and Maintenance Plan approved by the issuing authority. The Owner shall:

a. Maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal the log shall indicate the type of material and the disposal location). This is a rolling log in which the responsible party records all operation and maintenance activities for the past three years.

b. Make this log available to MassDEP and the City of Boston's Conservation Commission upon request; and

c. Allow members and agents of the MassDEP and the City of Boston's Conservation Commission to enter and inspect the premises to evaluate and ensure that the Owner complies with the Operation and Maintenance requirements for each BMP.

Stormwater Operation and Maintenance Requirements

Inspect and maintain the stormwater management system as directed below. Refer to the Stormwater Management System Location Map (Figure 1) for the location of each component of the system. Repairs to any component of the system shall be made as soon as possible to prevent any potential pollutants (including silt) from entering the resource areas.

Area Drains

Inspect area drains at least once per month and remove debris from the grate. Clean out accumulated sediments at least once per year and more frequently as necessary.

Deep Sump and Hooded Catch Basins

Inspect catch basins four times per year, including after the foliage season. Other inspection and maintenance requirements include:

- Remove organic material, sediment and hydrocarbons four times per year or whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin.
- Always clean out catch basins after sweeping. If any evidence of hydrocarbons is found during inspection, the material immediately remove using absorbent pads or other suitable measures

and dispose of legally. Remove other accumulated debris as necessary.

- Transport and disposal of accumulated sediment off-site shall be in accordance with applicable local, state and federal guidelines and regulations.

Driveway/Parking Area Sweeping

Perform parking area/driveway sweeping at least two (2) times per year, whenever there is significant debris present on the driveway and parking area and immediately after any chemical release equal to or greater than five (5) gallons. Street sweeping shall occur in the spring and fall. Sweepings must be handled and disposed of properly according to the Boston Conservation Commission.

Repair of the Stormwater Management System

The stormwater management system shall be maintained. The repair of any component of the system shall be made as soon as possible to prevent any potential pollutants including silt from entering the resource areas or the existing closed drainage system.

Reporting

The Owner shall maintain a record of drainage system inspections and maintenance (per this Plan) and submit a yearly report to the Boston Conservation Commission.

STORMWATER MANAGEMENT SYSTEM INSPECTION FORM

Lee Pool Complex – Charles River Esplanade **Inspected by:** _____

Embankment Road **Date:** _____

Boston, MA

Component	Status/Inspection	Action Taken
Deep Sump Hooded Catch Basins, Area Drains and Drain Manholes		
Driveway/Parking Area Sweeping		
General site conditions – evidence of erosion, etc.		

SUBMIT COPIES OF STORMWATER MANAGEMENT SYSTEM INSPECTION FORM TO THE BOSTON CONSERVATION COMMISSION WITH THE YEARLY REPORT.

APPENDIX G

Stormwater Management Standards Documentation

MassDEP Checklist for Stormwater Report

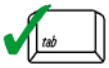
Standard 10: Illicit Discharge Compliance Statement

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.

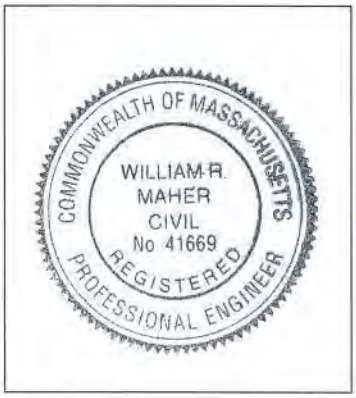
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the 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



William R Maher 5/1/2018
Signature and Date

Checklist

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

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

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

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

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

Standard 3: Recharge

☒ Soil Analysis provided.

☐ Required Recharge Volume calculation provided.

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

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

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

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

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

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

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

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

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

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

Standard 4: Water Quality

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

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

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

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

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

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

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

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

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

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

☐ All exposure has been eliminated.

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

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

Standard 6: Critical Areas

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

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

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

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

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

Checklist for Stormwater Report

Checklist (continued)

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

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

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

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

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

Standard 9: Operation and Maintenance Plan

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

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

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

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

Standard 10: Prohibition of Illicit Discharges

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

☒ An Illicit Discharge Compliance Statement is attached;

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

Nitsch Engineering

2 Center Plaza, Suite 430
Boston, MA 02108-1928
T: 617-338-0063
F: 617-338-6472
www.nitscheng.com

STANDARD 10: Illicit Discharge Compliance Statement

Project Name: Demolition of the Lee Pool Complex Charles River Esplanade	Nitsch Project #: 12046
Location: Embankment Road, Boston, MA	Checked by: WRM
Prepared by: WRM	Sheet No. 1 of 1
Date: May 1, 2018	

Standard 10 states: All illicit discharges to the stormwater management system are prohibited.

This is to verify:

1. Based on the information available there are no known or suspected illicit discharges to the stormwater management system located at the Lee Pool Complex – Charles River Esplanade site as defined in the MassDEP Stormwater Handbook.

2. The design of the stormwater system includes no proposed illicit discharges.

William Maher, PE

5/1/2018
Date

Attachment D

NOI PLANS

LEGEND

AD	AREA DRAIN
	CATCH BASIN
(D)	DRAIN MANHOLE
(E)	ELECTRIC MANHOLE
(M)	MISCELLANEOUS MANHOLE
(S)	SEWER MANHOLE
(W)	WATER MANHOLE
WG	WATER GATE
ICV	IRRIGATION CONTROL VALVE
GV	GATE VALVE
	LIGHT POLE
HH	HAND HOLE
EBOX	ELECTRIC BOX
TC	TRASH CAN
B	BOLLARD
S	SIGN POST
12"	TREE WITH TRUNK DIAMETER
	HANDICAP PARKING
17x78	SPOT ELEVATION
13x63TW	TOP OF WALL ELEVATION
ENT.=	ENTRANCE ELEVATION
CLF	CHAIN LINK FENCE
GP	GATE POST
SGC	SLOPED GRANITE CURB
VGC	VERTICAL GRANITE CURB
CC	VERTICAL CONCRETE CURB
CONC.	CONCRETE
R=	RIM ELEVATION EQUALS
I=	INVERT ELEVATION EQUALS
TH=	TOP OF HOOD ELEVATION EQUALS
TOW=	TOP OF WATER ELEVATION EQUALS
BC=	BOTTOM OF CHANNEL ELEVATION EQUALS
—D—	UNDERGROUND DRAIN LINE
—E—	UNDERGROUND ELECTRIC LINE
—S—	UNDERGROUND SEWER LINE
—T—	UNDERGROUND TELEPHONE LINE
—W—	UNDERGROUND WATER LINE
	BENCH MARK
WF	WETLAND FLAG

UTILITY INFORMATION STATEMENT

1. THE SUB-SURFACE UTILITY INFORMATION SHOWN HEREON IS COMPILED BASED ON FIELD SURVEY INFORMATION, RECORD INFORMATION AS SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES, AND PLAN INFORMATION SUPPLIED BY THE CLIENT, IF ANY; THEREFORE WE CANNOT GUARANTEE THE ACCURACY OF SAID COMPILED SUB-SURFACE INFORMATION TO ANY CERTAIN DEGREE OF STATED TOLERANCE. ONLY PHYSICALLY LOCATED SUB-SURFACE UTILITY FEATURES FALL WITHIN NORMAL STANDARD OF CARE ACCURACIES.

2. THE LOCATIONS OF UNDERGROUND PIPES, CONDUITS, AND STRUCTURES HAVE BEEN DETERMINED FROM SAID INFORMATION, AND ARE APPROXIMATE ONLY. COMPILED LOCATIONS OF ANY UNDERGROUND STRUCTURES, NOT VISIBLY OBSERVED AND LOCATED, CAN VARY FROM THEIR ACTUAL LOCATIONS.

3. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED.

4. THE STATUS OF UTILITIES, WHETHER ACTIVE, ABANDONED, OR REMOVED, IS AN UNKNOWN CONDITION AS FAR AS OUR COMPILATION OF THIS INFORMATION.

5. IT IS INCUMBENT UPON INDIVIDUALS USING THIS INFORMATION TO UNDERSTAND THAT COMPILING UTILITY INFORMATION IS NOT EXACT, AND IS SUBJECT TO CHANGE BASED UPON VARYING PLAN INFORMATION RECEIVED AND ACTUAL LOCATIONS.

6. THE ACCURACY OF MEASURED UTILITY INVERTS AND PIPE SIZES IS SUBJECT TO FIELD CONDITIONS, THE ABILITY TO MAKE VISUAL OBSERVATIONS, DIRECT ACCESS TO THE VARIOUS ELEMENTS AND OTHER MATTERS.

7. THE PROPER UTILITY ENGINEERING/COMPANY SHOULD BE CONSULTED AND THE ACTUAL LOCATIONS OF SUBSURFACE STRUCTURES SHOULD BE VERIFIED IN THE FIELD (V.I.F.) BEFORE PLANNING FUTURE CONNECTIONS. CONTACT THE DIG SAFE CALL CENTER AT 1-888-344-7233, SEVENTY-TWO HOURS PRIOR TO EXCAVATION, BLASTING, GRADING, AND/OR PAVING.

8. AS OF THE DATE OF THIS PLAN, RECORD INFORMATION HAS NOT BEEN RECEIVED BY NITSCH ENGINEERING, INC. FOR THE FOLLOWING UTILITIES:

RCN CABLE, VERIZON TELEPHONE, FIRE ALARM, MBTA, BOSTON TRAFFIC LIGHTING, FIBER OPTIC, BWSC

NOTES

1. THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF NITSCH ENGINEERING. IT IS ISSUED TO MARYANN THOMPSON ARCHITECTS FOR PURPOSES RELATED DIRECTLY AND SOLELY TO NITSCH ENGINEERING'S SCOPE OF SERVICES UNDER CONTRACT WITH MARYANN THOMPSON ARCHITECTS FOR LEE MEMORIAL WADING POOL. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT AND PROJECT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN AUTHORIZATION IS GIVEN THEREFOR BY NITSCH ENGINEERING.

2. THE PURPOSE OF THIS PLAN IS TO SHOW TOPOGRAPHY AS THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY WHICH OCCURRED FROM FEBRUARY 7, 2017 TO MARCH 7, 2017 AND AUGUST 2017.

3. ELEVATIONS SHOWN REFER TO BOSTON CITY BASE (B.C.B.).

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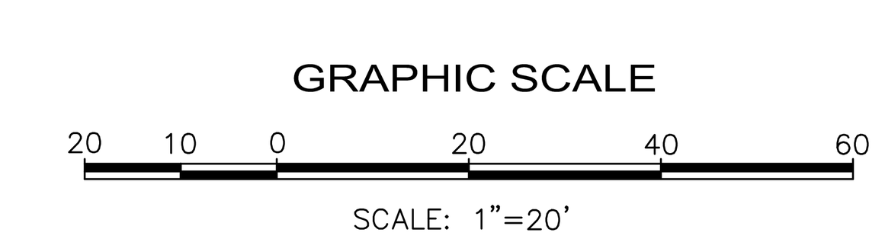
5. THE PROJECT PARCEL SHOWN HEREON LIES PARTIALLY WITHIN ZONE AE, ZONE X-SHADED, AND ZONE "X" AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE COUNTY OF SUFFOLK, MASSACHUSETTS. COMMUNITY PANEL NO. 250286 0077J, EFFECTIVE DATE: MARCH 16, 2016

COMMONWEALTH OF MASSACHUSETTS
ROBERT G. MILES
NO. 51608
PROFESSIONAL LAND SURVEYOR
REGISTERED

APRIL 24, 2018

ROBERT G. MILES, PLS
MASSACHUSETTS REG. NO. 51608
REGISTERED PROFESSIONAL LAND SURVEYOR

DATE



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- Civil Engineering
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- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

TOPOGRAPHIC PLAN
LEE MEMORIAL WADING POOL
THE ESPLANADE, BOSTON, MASSACHUSETTS

PREPARED FOR:
MARYANN THOMPSON ARCHITECTS
741 MT. AUBURN STREET, WATERTOWN, MASSACHUSETTS 02472

REV.	COMMENTS	DATE
B	FEMA LINE LOCATION	4-24-18
A	MHW and FEMA	4-11-18

REVISIONS

PROJECT #	12046.1
FILE:	12046_TOPO1.dwg
SCALE:	1"=20'
DATE:	AUGUST 2017
DES./COMP:	RGM
FIELD BOOK:	690
DRAFTED BY:	TAL/PAR/MBP
CHECKED BY:	RGM

SHEET:

EX-1

1 OF 2 REV. A

UTILITY INFORMATION STATEMENT

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RCN CABLE, VERIZON TELEPHONE, FIRE ALARM, MBTA, BOSTON TRAFFIC LIGHTING, FIBER OPTIC, BWSC

LEGEND

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	CATCH BASIN
D	DRAIN MANHOLE
E	ELECTRIC MANHOLE
M	MISCELLANEOUS MANHOLE
S	SEWER MANHOLE
W	WATER MANHOLE
WG	WATER GATE
ICV	IRRIGATION CONTROL VALVE
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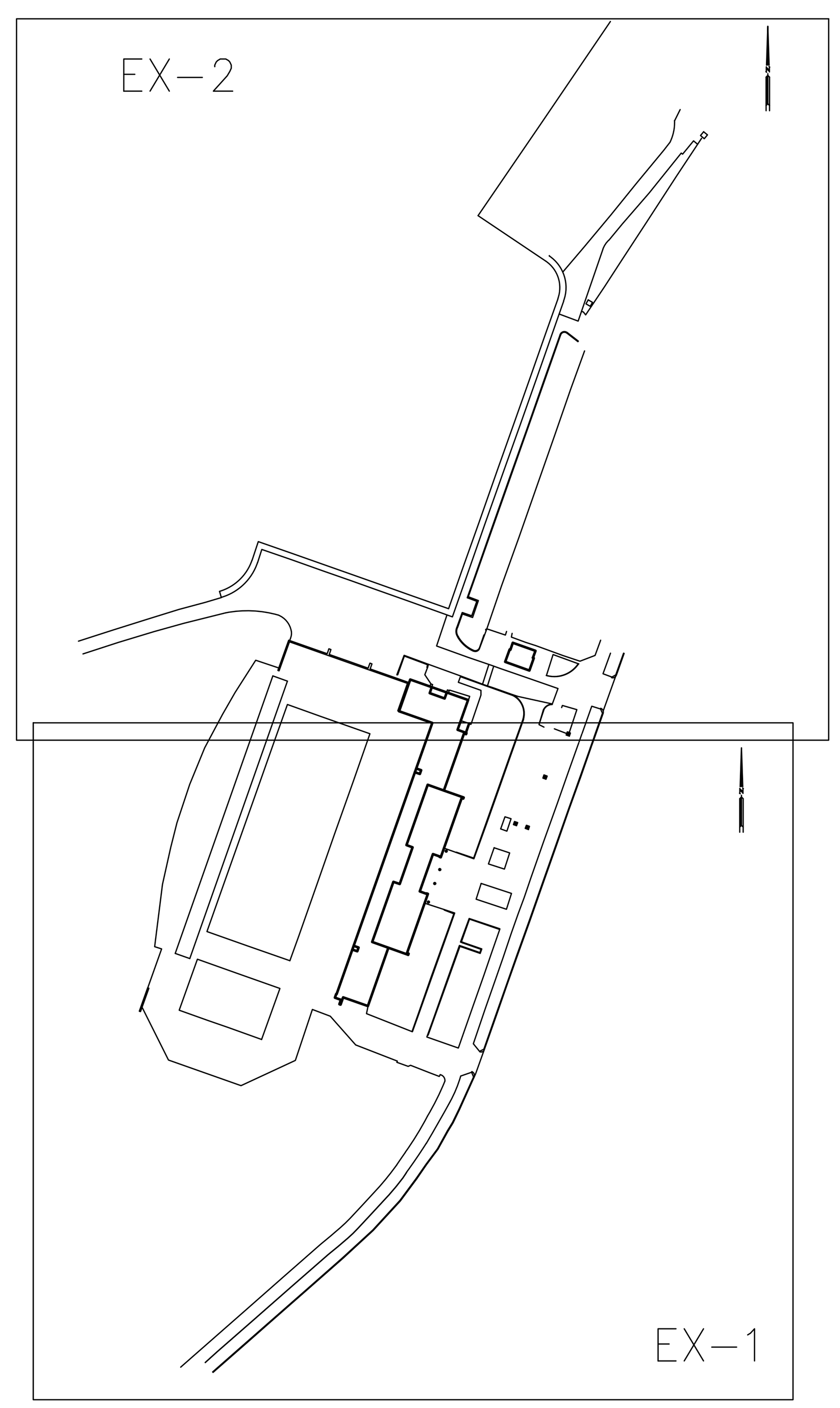
WF	WETLAND FLAG



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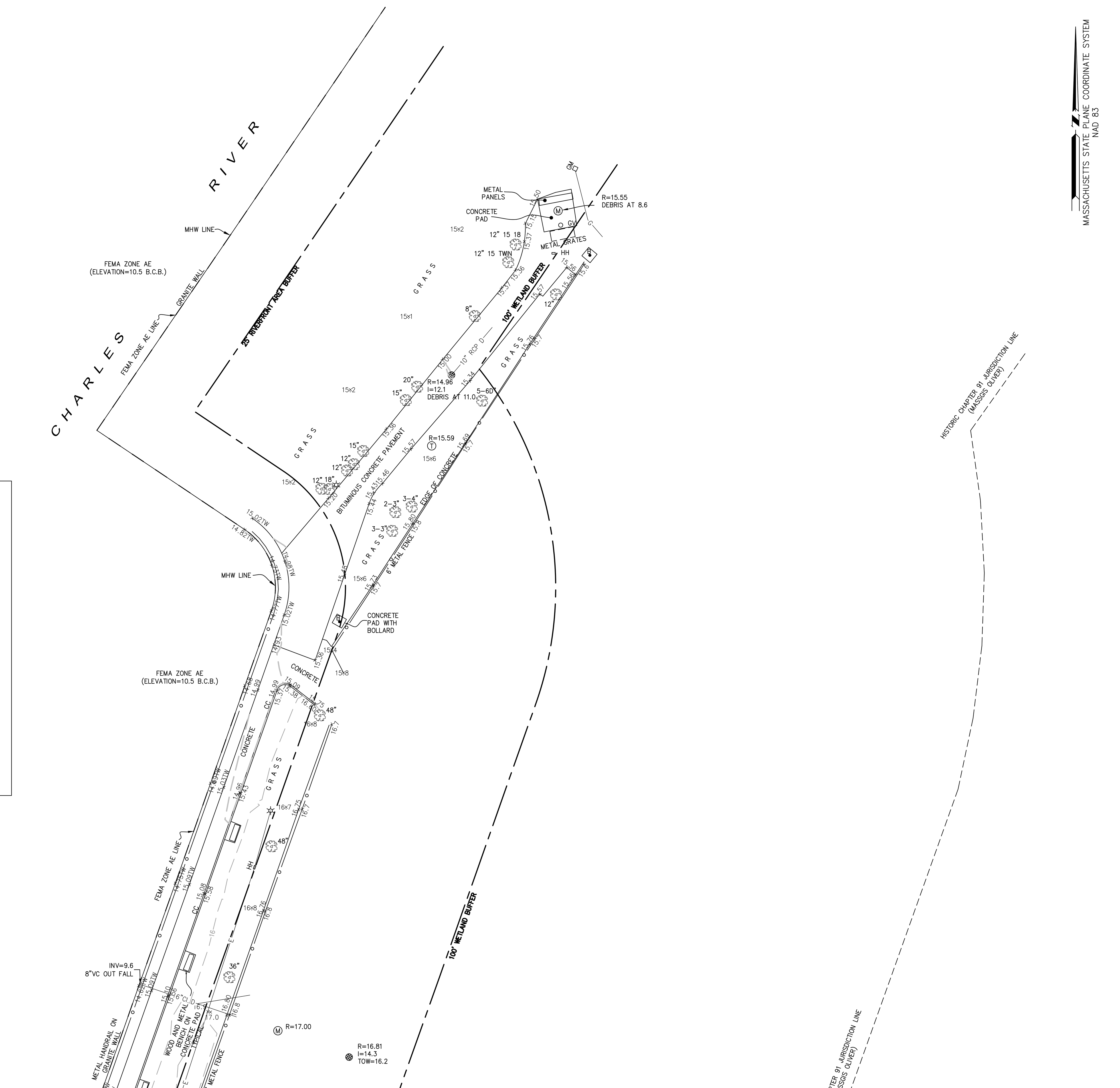
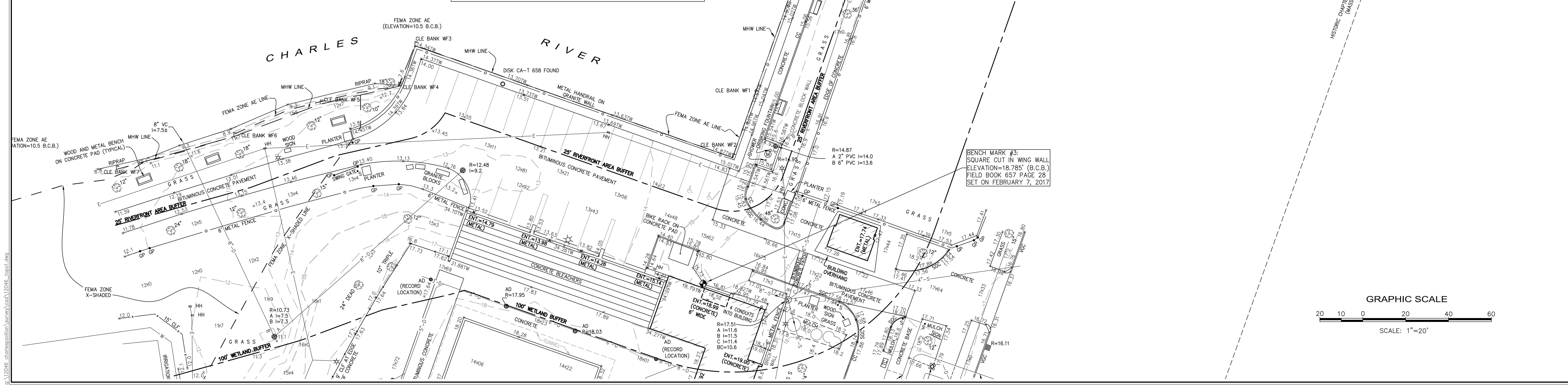
COMMONWEALTH OF MASSACHUSETTS — ROBERT G. MILES — NO. 51608 — REGISTERED PROFESSIONAL LAND SURVEYOR

APRIL 24, 2018

ROBERT G. MILES, PLS — DATE
MASSACHUSETTS REG. NO. 51608
REGISTERED PROFESSIONAL LAND SURVEYOR





GRAPHIC SCALE
20 10 0 20 40 60
SCALE: 1"=20'

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- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

TOPOGRAPHIC PLAN
LEE MEMORIAL WADING POOL
THE ESPLANADE, BOSTON, MASSACHUSETTS

PREPARED FOR:
MARYANN THOMPSON ARCHITECTS
741 MT. AUBURN STREET, WATERTOWN, MASSACHUSETTS 02472

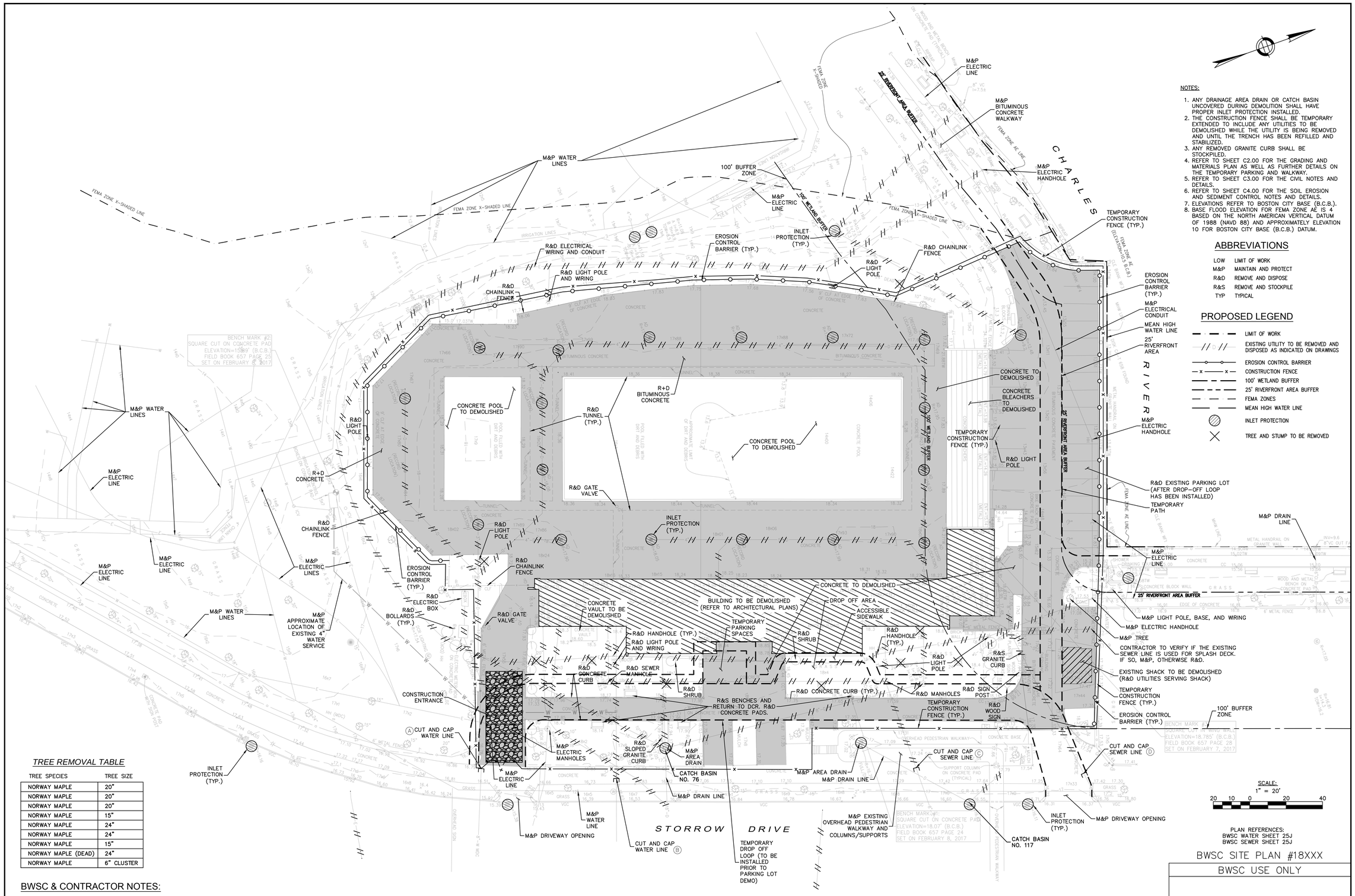
REV.	COMMENTS	DATE
B	FEMA LINE LOCATION	4-24-18
A	MHW and FEMA	4-11-18

REVISIONS

PROJECT #: 12046.1
FILE: 12046_TOPO1.dwg
SCALE: 1"=20'
DATE: AUGUST 2017
DES./COMP.: RGM
FIELD BOOK: 690
DRAFTED BY: TAL/PAR/MBP
CHECKED BY: RGM

SHEET: 2

EX-2



NOTES:

1. ANY DRAINAGE AREA DRAIN OR CATCH BASIN UNCOVERED DURING DEMOLITION SHALL HAVE PROPER INLET PROTECTION INSTALLED.
2. THE CONSTRUCTION FENCE SHALL BE TEMPORARY EXTENDED TO INCLUDE ANY UTILITIES TO BE DEMOLISHED WHILE THE UTILITY IS BEING REMOVED AND UNTIL THE TRENCH HAS BEEN REFILLED AND STABILIZED.
3. ANY REMOVED GRANITE CURB SHALL BE STOCKPILED.
4. REFER TO SHEET C2.00 FOR THE GRADING AND MATERIALS PLAN AS WELL AS FURTHER DETAILS ON THE TEMPORARY PARKING AND WALKWAY.
5. REFER TO SHEET C3.00 FOR THE CIVIL NOTES AND DETAILS.
6. REFER TO SHEET C4.00 FOR THE SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
7. ELEVATIONS REFER TO BOSTON CITY BASE (B.C.B.).
8. BASE FLOOD ELEVATION FOR FEMA ZONE AE IS 4 BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND APPROXIMATELY ELEVATION 10 FOR BOSTON CITY BASE (B.C.B.) DATUM.

ABBREVIATIONS

LOW	LIMIT OF WORK
M&P	MAINTAIN AND PROTECT
R&D	REMOVE AND DISPOSE
R&S	REMOVE AND STOCKPILE
TYP	TYPICAL

PROPOSED LEGEND

- LIMIT OF WORK
- EXISTING UTILITY TO BE REMOVED AND DISPOSED AS INDICATED ON DRAWINGS
- EROSION CONTROL BARRIER
- CONSTRUCTION FENCE
- 100' WETLAND BUFFER
- 25' RIVERFRONT AREA BUFFER
- FEMA ZONES
- MEAN HIGH WATER LINE
- INLET PROTECTION
- TREE AND STUMP TO BE REMOVED

PLAN REFERENCES:
BWSC WATER SHEET 25J
BWSC SEWER SHEET 25J

BWSC SITE PLAN #18XXX

BWSC USE ONLY

TREE REMOVAL TABLE

TREE SPECIES	TREE SIZE
NORWAY MAPLE	20"
NORWAY MAPLE	20"
NORWAY MAPLE	20"
NORWAY MAPLE	15"
NORWAY MAPLE	24"
NORWAY MAPLE	24"
NORWAY MAPLE	15"
NORWAY MAPLE (DEAD)	24"
NORWAY MAPLE	6" CLUSTER

BWSC & CONTRACTOR NOTES:

1. THE ESTIMATED SANITARY SEWAGE DISCHARGE IS 0 GALLONS PER DAY (GPD).
2. DYE TESTING SHALL BE PERFORMED ON NEW STORM DRAIN CONNECTIONS AFTER INSTALLATION IS COMPLETE. DYE TESTS SHALL BE WITNESSED BY THE BWSC.
3. A PREREQUISITE FOR FILING A GENERAL SERVICE APPLICATION WITH THE BWSC FOR NEW CONSTRUCTION IS THE ROUGH CONSTRUCTION SIGN-OFF DOCUMENT FROM THE CITY OF BOSTON'S INSPECTIONAL SERVICES DEPARTMENT.
4. IN ADDITION TO THE INSPECTION FEES, A DEPOSIT BASED ON THE SIZE OF THE WATER SERVICE, FIRE PIPE, SEWER OR DRAIN CONNECTION MUST ACCOMPANY THE GSA SUBMISSION. UPON RECEIPT OF THE APPROPRIATE DEPOSIT, THE COMMISSION WILL ESTABLISH A WATER AND SEWER ACCOUNT AND ASSIGN AN ACCOUNT NUMBER TO THE PROPERTY. THE TOTAL AMOUNT OF A DEPOSIT FOR A GSA SHALL NOT EXCEED TEN THOUSAND DOLLARS ($10,000.00).
5. AN AS-BUILT PLAN (AUTOCAD 2016 OR EARLIER RELEASE) SHALL BE PROVIDED BY THE CONTRACTOR AND ENDORSED BY A CIVIL ENGINEER OR PROFESSIONAL LAND SURVEYOR SHOWING THE LOCATION, DEPTH, AND INVERT OF EVERY BEND, FITTING, VALVE, CLEANOUT AND ANCHOR. THE AS-BUILT DRAWING SHALL BE SUBMITTED TO THE BOSTON AND WATER SEWER COMMISSION FOR REVIEW AND APPROVAL.
6. WATER SHUT DOWN SHALL BE COORDINATED WITH BWSC WATER OPERATIONS, (617) 989-7276, 24 HOURS NOTICE REQUIRED.
7. PROVIDE "DON'T DUMP" PLAQUES AT ALL EXISTING CATCH BASINS TO REMAIN AND DRAIN INLET LOCATIONS. "DON'T DUMP" PLAQUES TO BE PURCHASED FROM BWSC.
8. EXISTING WATER METER(S) TO BE REMOVED OR REPLACED SHALL BE RETURNED TO BWSC.

BWSC INSPECTION SIGNOFF SITE UTILITY PLAN

	INSPECTOR	DATE	DYE TEST	COMMENT
(A) 8" DCR WATER LINE CUT AND CAP				
(B) 8" WATER LINE CUT AND CAP				
(C) 8" SEWER LINE CUT AND CAP				
(C) 4" SEWER LINE CUT AND CAP				

1.	ACCOUNT/METER NUMBER BUILDING #1	XXX
2.	PARCEL NUMBER	0300943000
3.	WARD	03
4.	PROPERTY LOCATION	LEE POOL AT CHARLES RIVER ESPLANADE BOSTON, MA 02114
5.	OWNER	COMMONWEALTH OF MASSACHUSETTS - DEPARTMENT OF CONSERVATION AND RECREATION
6.	OWNER'S ADDRESS	251 CAUSEWAY STREET, SUITE 700 BOSTON, MA 02114
7.	OWNER CONTACT	WENDY PEARL, PROJECT MANAGER
8.	OWNER CONTACT TEL NO.	(617) 626-1389
9.	CIVIL ENGINEER CONTACT	WILLIAM R. MAHER, PE (NITSCH)
10.	ENGINEER CONTACT TEL. NO.	617-338-0063
11.	LAND USE CODE	TAX-EXEMPT

NITSCH PROJECT NO. 12046

dcr Massachusetts

Department of Conservation & Recreation
251 Causeway Street
Boston, MA 02114

Project Name:
ESPLANADE RIVERFRONT PAVILION AT THE LEE POOL SITE

DEMOLITION PACKAGE

DCR Project Number
P17-3155-D1A

Project Location
Lee Pool at the Charles River Esplanade

Project Architect
MARYANN THOMPSON ARCHITECTS
741 MOUNT AUBURN STREET
WATERTOWN, MA. 02472
T. 617.744.5187
F. 617.491.3844

PROJECT NO. 726

Project Consultant
Nitsch Engineering
www.nitscheng.com
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Boston, MA 02108
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F: (617) 338-6472
- Civil Engineering
- Land Surveying
- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

COMMONWEALTH OF MASSACHUSETTS
WILLIAM R. MAHER
CIVIL
No. 41161
REGISTERED PROFESSIONAL ENGINEER
4/30/2018

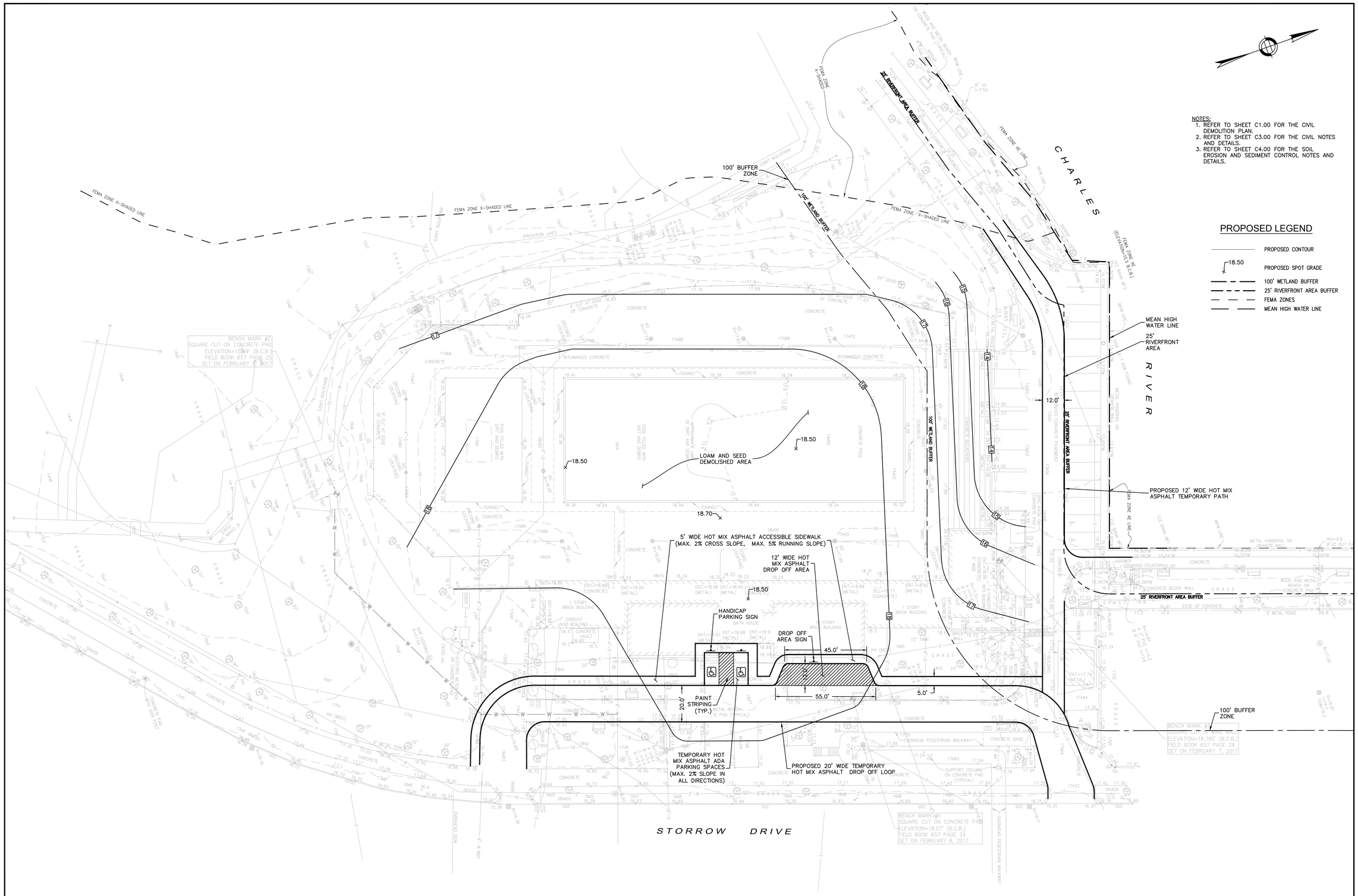
Original Issue Date
APRIL 11, 2018

Revisions

No.	Description	Date

Plan Name:
CIVIL DEMOLITION PLAN

Drawing Number:
C1.00
Drawing of



NOTES:
1. REFER TO SHEET C1.00 FOR THE CIVIL DEMOLITION PLAN.
2. REFER TO SHEET C3.00 FOR THE CIVIL NOTES AND DETAILS.
3. REFER TO SHEET C4.00 FOR THE SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.

PROPOSED LEGEND

- PROPOSED CONTOUR
- 18.50 PROPOSED SPOT GRADE
- 100' WETLAND BUFFER
- 25' RIVERFRONT AREA BUFFER
- FEMA ZONES
- MEAN HIGH WATER LINE

SCALE:
1" = 20'
20 10 0 20 40

NITSCH PROJECT NO. 12046

dcr Massachusetts

Department of Conservation & Recreation
251 Causeway Street
Boston, MA 02114

Project Name:
ESPLANADE RIVERFRONT PAVILION AT THE LEE POOL SITE

DEMOLITION PACKAGE

DCR Project Number
P17-3155-D1A

Project Location
Lee Pool at the Charles River Esplanade

Project Architect
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COMMONWEALTH OF MASSACHUSETTS
WILLIAM P. MAHER
CIVIL
No. 41161
REGISTERED PROFESSIONAL ENGINEER
4/30/2018

Original Issue Date
APRIL 11, 2018

Revisions

No.	Description	Date

Plan Name:
GRADING AND MATERIALS PLAN

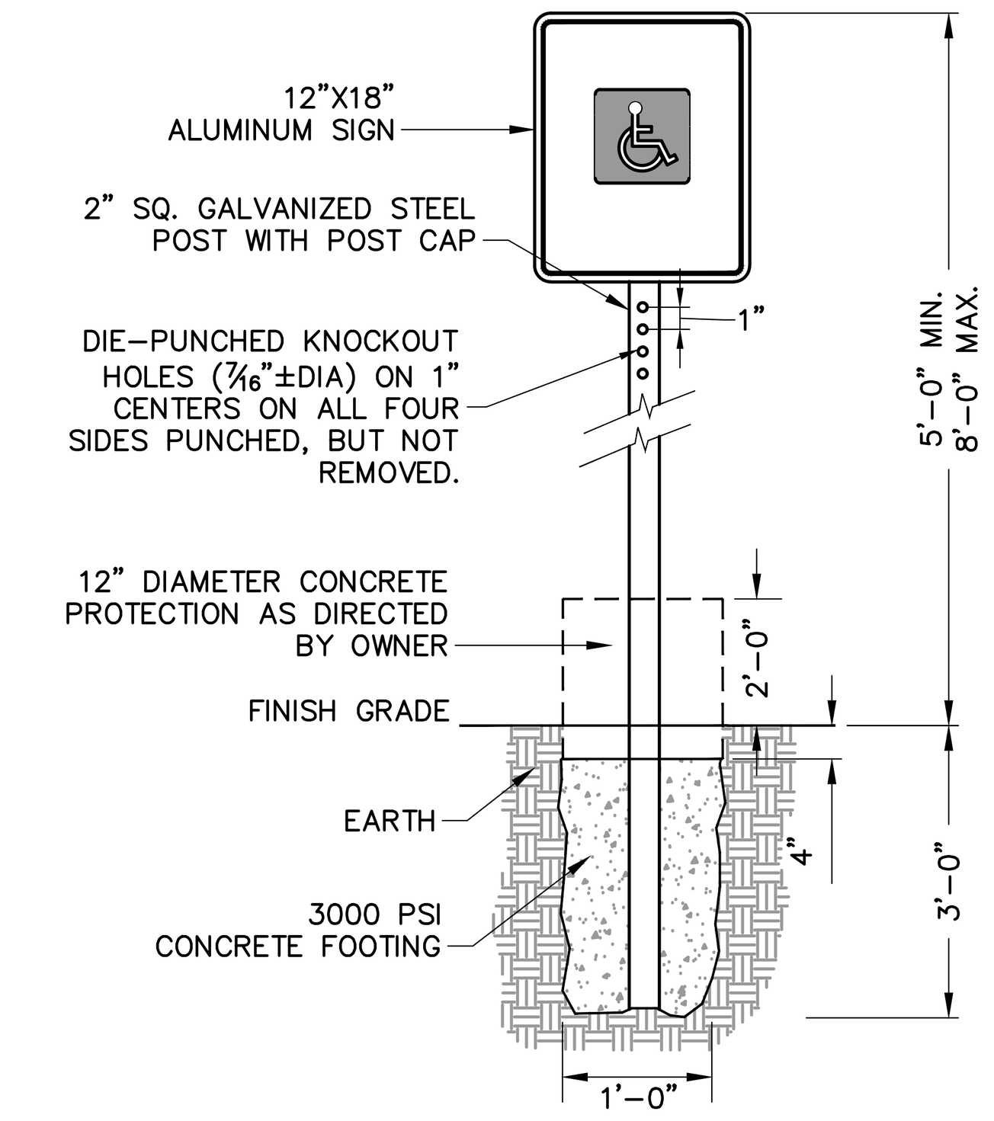
Drawing Number:
C2.00
Drawing of

DEMOLITION NOTES:

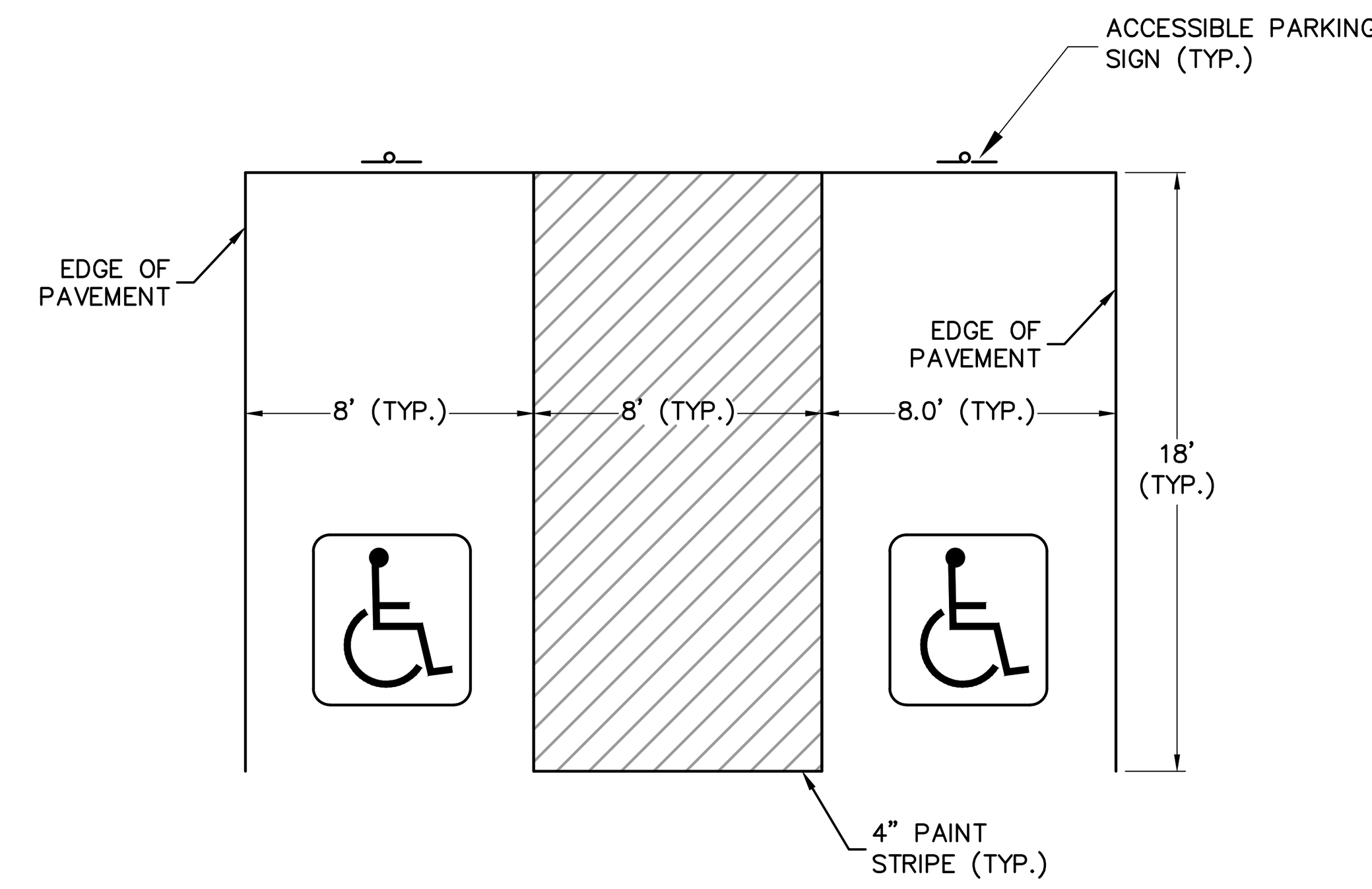
1. SITE PREPARATION AND DEMOLITION SHALL INCLUDE THOSE AREAS WITHIN THE LIMIT OF WORK LINE AS SHOWN ON THE CONTRACT DOCUMENTS.
2. ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
3. CONSULT ALL OF THE DRAWINGS AND SPECIFICATIONS FOR COORDINATION REQUIREMENTS BEFORE COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL COORDINATE SITE DEMOLITION EFFORTS WITH ALL TRADES THAT MAY BE AFFECTED BY THE WORK.
5. ALL ITEMS REQUIRING REMOVAL SHALL BE REMOVED TO FULL DEPTH TO INCLUDE BASE MATERIAL AND FOOTINGS OR FOUNDATIONS AS REQUIRED TO FACILITATE CONSTRUCTION, AND LEGALLY DISPOSED OF OFF-SITE BY CONTRACTOR. EXISTING PILE CAPS TO BE REMOVED. WOOD PILES CAN REMAIN.
6. UTILITY PIPES DESIGNATED TO BE ABANDONED IN PLACE SHALL BE PLUGGED AT THEIR ENDS WITH WATERTIGHT BRICK MASONRY OR CEMENT MORTAR WITH A MINIMUM THICKNESS OF 8 INCHES.
7. UTILITY PIPES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF THE ENTIRE LENGTH OF PIPE AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN THE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
8. UTILITY STRUCTURES DESIGNATED TO BE ABANDONED IN PLACE SHALL HAVE THEIR CAST IRON CASTINGS REMOVED AND DISPOSED, INLET AND OUTLET PIPES PLUGGED, THE BOTTOM OF THE STRUCTURES SHALL BE BROKEN, THE VOID OF THE STRUCTURES SHALL BE BACKFILLED AND COMPACTED TO 95% WITH ORDINARY BORROW OR FLOWABLE FILL, AND THE TOP OF THE STRUCTURE SHALL BE REMOVED SO THAT IT IS AT LEAST 36 INCHES BELOW FINISH GRADE.
9. UTILITY STRUCTURES DESIGNATED TO BE REMOVED SHALL CONSIST OF THE REMOVAL AND DISPOSAL OF CAST IRON CASTINGS, PLUGGING OF INLET AND OUTLET PIPES, REMOVAL OF THE STRUCTURE, AND BACKFILL AND 95% COMPACTION OF THE VOID WITH ORDINARY BORROW. WHEN HE VOID IS WITHIN THE FOOTPRINT OF THE NEW BUILDING, GRAVEL BORROW SHALL BE USED TO BACKFILL THE VOID.
10. ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFF SITE.
11. AT ALL LOCATIONS WHERE EXISTING CURBING, CONCRETE PAVEMENT OR BITUMINOUS CONCRETE ROADWAY ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE.
12. EXTEND DESIGNATED LIMIT OF WORK AS NECESSARY TO ACCOMPLISH ROUGH GRADING, EROSION CONTROL, TREE PROTECTION, AND SITE WORK AS REQUIRED BY THESE DRAWINGS AND SPECIFICATIONS.
13. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL RUBBISH AND DEBRIS FOUND THEREON. STORAGE OF SUCH MATERIALS ON THE PROJECT SITE WILL NOT BE PERMITTED. THE CONTRACTOR SHALL LEAVE THE SITE IN SAFE, CLEAN, AND LEVEL CONDITION UPON COMPLETION OF THE SITE DEMOLITION WORK.
14. REMOVE AND STOCKPILE ALL EXISTING SITE LIGHTS, BENCHES, TRASH RECEPTACLES, TRAFFIC SIGNS, GRANITE CURB, AND OTHER SITE IMPROVEMENTS WITHIN LIMIT OF WORK LINE UNLESS OTHERWISE NOTED.
15. ALL EXISTING TREES AND SHRUBS TO REMAIN SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE TIME OF CONSTRUCTION, AS SPECIFIED AND DIRECTED BY THE LANDSCAPE ARCHITECT.
16. BEFORE ANY TREES OR SHRUBS ARE REMOVED, THE CONTRACTOR SHALL ARRANGE A CONFERENCE ON THE SITE WITH THE OWNER OR OWNER'S REPRESENTATIVE TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE REMOVED, AS WELL AS THOSE WHICH ARE TO BE PROTECTED. DO NOT COMMENCE CLEARING OPERATIONS WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED.
17. THE CONTRACTOR SHALL REMOVE FROM THE AREA OF CONSTRUCTION PAVEMENT, CONCRETE, CURBING, POLES AND FOUNDATIONS, ISLANDS, TREE BERMS AND OTHER FEATURES WITHIN THE LIMITS OF CONSTRUCTION AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION WHETHER SPECIFIED ON THE DRAWINGS OR NOT.
18. CONTRACTOR SHALL REFER TO REPORT ENTITLED, 'PRE-DEMOLITION HAZARDOUS MATERIALS SURVEY, LEE POOL COMPLEX ON THE ESPLANADE, BOSTON, MASSACHUSETTS', DATED JUNE 13, 2017, PREPARED BY NOVER-ARMSTRONG ASSOCIATES, INC. FOR ABATEMENT INFORMATION.

GENERAL NOTES:

1. TOPOGRAPHIC DATA, PROPERTY LINE INFORMATION, AND EXISTING SITE FEATURES WERE OBTAINED FROM A PLAN ENTITLED "TOPOGRAPHIC PLAN", PREPARED BY NITSCH ENGINEERING INC., DATED AUGUST 2017.
2. FLOODPLAIN INFORMATION WAS OBTAINED FROM THE FLOOD INSURANCE RATE MAP (FIRM) NO. 25025C0077J, DATED MARCH 16, 2016. THE SITE IS LOCATED IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN).
3. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82, SECTION 40, AS AMENDED, WHICH STATES THAT NO ONE MAY EXCAVATE IN THE COMMONWEALTH OF MASSACHUSETTS EXCEPT IN AN EMERGENCY WITHOUT 72 HOURS NOTICE, EXCLUSIVE OF SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, TO NATURAL GAS PIPELINE COMPANIES, AND MUNICIPAL UTILITY DEPARTMENTS THAT SUPPLY GAS, ELECTRICITY, TELEPHONE, OR CABLE TELEVISION SERVICE IN OR TO THE CITY OR TOWN WHERE THE EXCAVATION IS TO BE MADE. THE CONTRACTOR SHALL CALL "DIG SAFE" AT 1-888-DIG-SAFE.
4. THE CONTRACTOR SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, ALSO REFERRED TO AS JACKIE'S LAW, AS DETAILED IN SECTION 520 CMR 14.00 OF THE CODE OF MASSACHUSETTS REGULATIONS.
5. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, REGULATIONS AND SAFETY CODES IN THE CONSTRUCTION OF ALL IMPROVEMENTS.
6. THE LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES ARE APPROXIMATE AND AND ALL UTILITIES MAY NOT BE SHOWN. PRESENCE AND LOCATIONS OF ALL UTILITIES WITHIN THE LIMIT OF WORK MUST BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND CONTACTING THE CONTROLLING AUTHORITIES AND/OR UTILITY COMPANIES RELATIVE TO THE LOCATIONS AND ELEVATIONS OF THEIR LINES. THE CONTRACTOR SHALL KEEP A RECORD OF ANY DISCREPANCIES OR CHANGES IN THE LOCATIONS OF ANY UTILITIES SHOWN OR ENCOUNTERED DURING CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER AND NITSCH ENGINEERING. ANY DAMAGE RESULTING FROM THE FAILURE OF THE CONTRACTOR TO MAKE THESE DETERMINATIONS AND CONTACTS SHALL BE BORNE BY THE CONTRACTOR.
7. THE CONTRACTOR SHALL, THROUGHOUT CONSTRUCTION, TAKE ADEQUATE PRECAUTIONS TO PROTECT ALL WALKS, GRADING, SIDEWALKS AND SITE DETAILS OUTSIDE OF THE LIMIT OF WORK AS DEFINED ON THE DRAWINGS AND SHALL REPAIR AND REPLACE OR OTHERWISE MAKE GOOD AS DIRECTED BY THE ENGINEER OR OWNER'S DESIGNATED REPRESENTATIVE ANY SUCH OR OTHER DAMAGE SO CAUSED.
8. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS.
9. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SITE AND CONSTRUCTION DOCUMENTS TO DEVELOP A THOROUGH UNDERSTANDING OF THE PROJECT, INCLUDING ANY SPECIAL CONDITIONS AND CONSTRAINTS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE PROJECT SITE AND TO VERIFY ALL CONDITIONS IN THE FIELD AND REPORT DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE OWNER OR OWNER'S REPRESENTATION IMMEDIATELY.
11. THE CONTRACTOR SHALL CONDUCT ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS.
12. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE ESTABLISHMENT AND USE OF ALL VERTICAL AND HORIZONTAL CONSTRUCTION CONTROLS.
13. ELEVATIONS REFER TO BOSTON CITY BASE (B.C.B.).
14. THE CONTRACTOR SHALL COMPLY WITH THE ORDER OF CONDITIONS DATED XXXX XX, XXXX AND ISSUED BY THE BOSTON CONSERVATION COMMISSION (DEP #XXX-XXX).



ACCESSIBLE PARKING SIGNAGE DETAIL
NOT TO SCALE



ACCESSIBLE PARKING DETAIL
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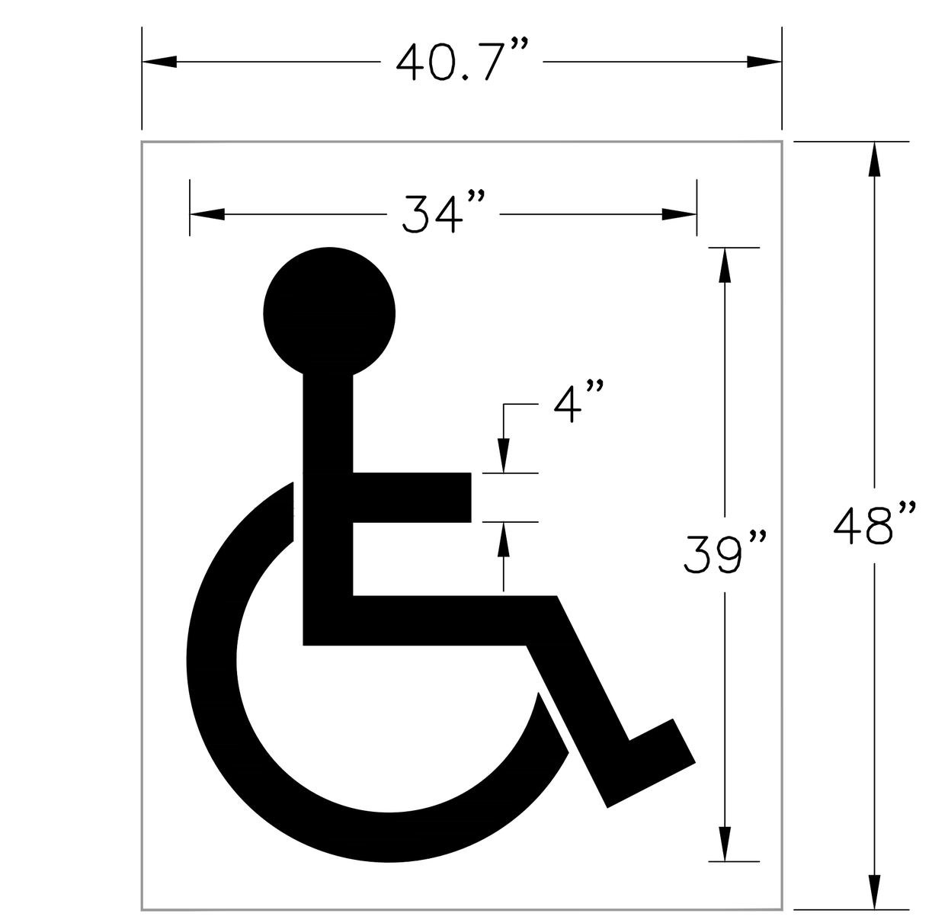
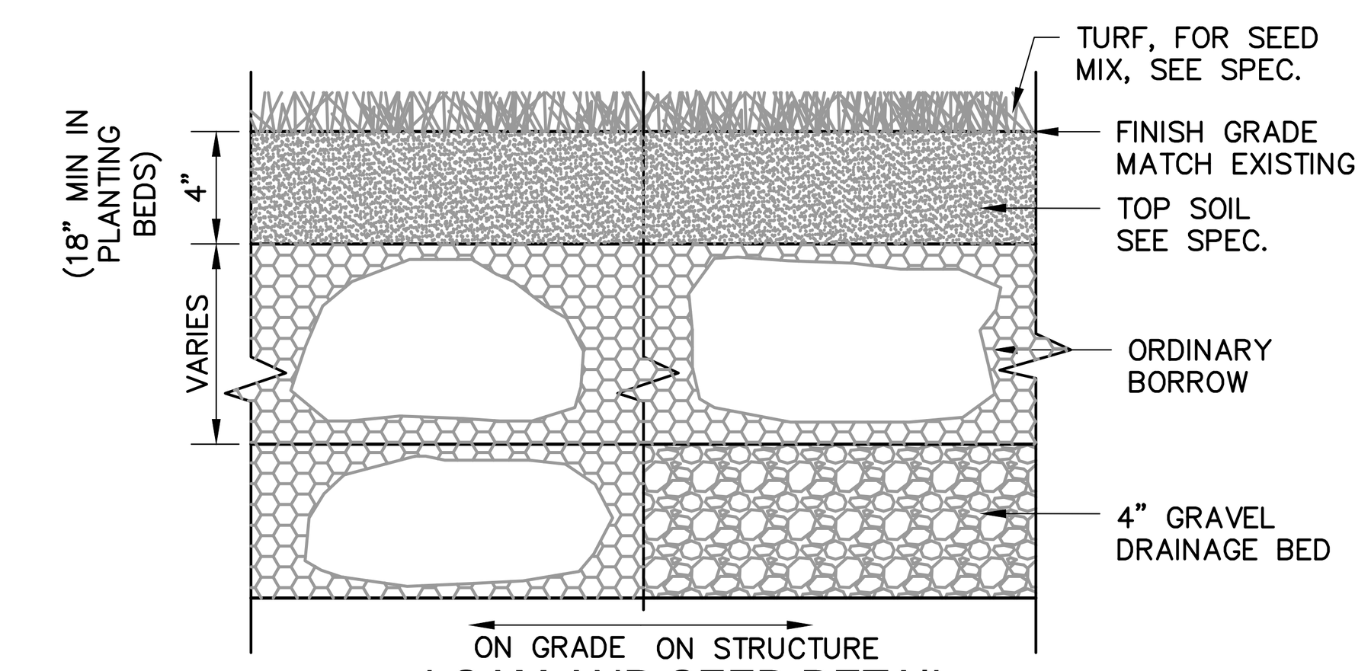
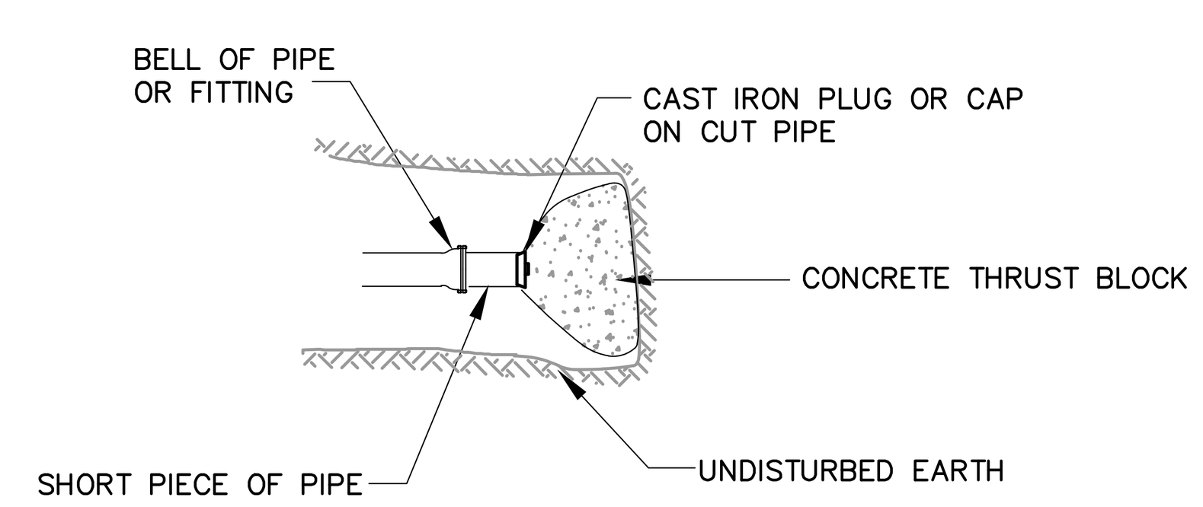


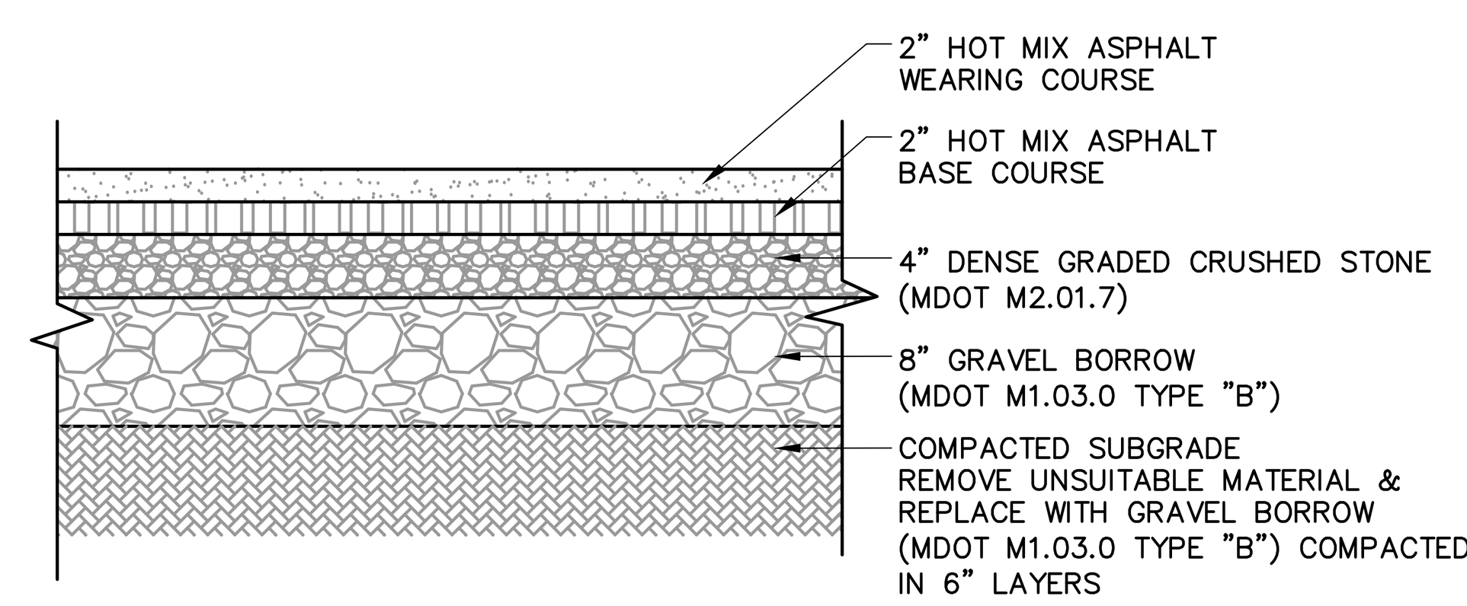
ACCESSIBLE PARKING STENCIL DETAIL
NOT TO SCALE



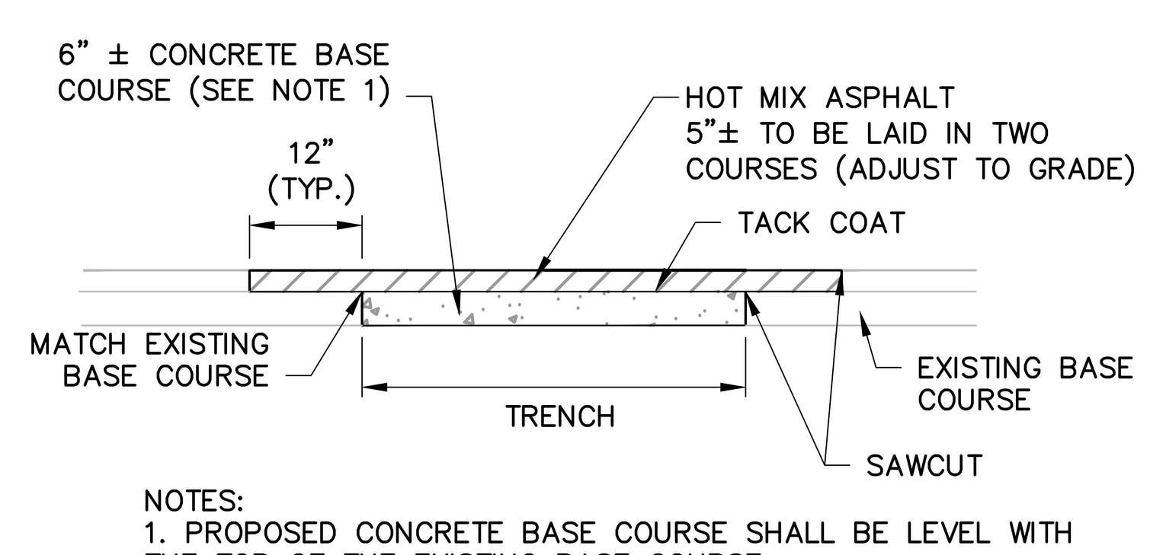
LOAM AND SEED DETAIL
NOT TO SCALE



PLUG OR CAP DETAIL
NOT TO SCALE

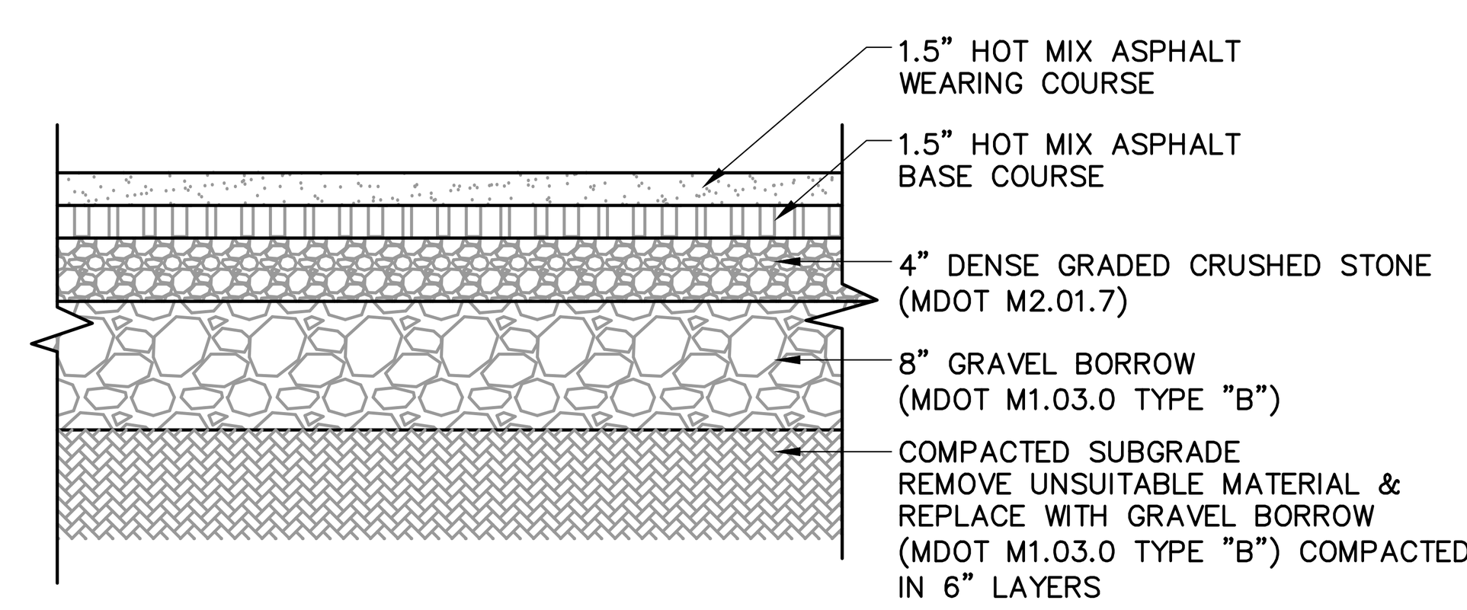


HOT MIX ASPHALT PAVING (TWO COURSES) DETAIL
(20' DROP-OFF LOOP)
NOT TO SCALE



NOTES:
1. PROPOSED CONCRETE BASE COURSE SHALL BE LEVEL WITH THE TOP OF THE EXISTING BASE COURSE

PAVEMENT RESTORATION OVER TRENCH DETAIL
NOT TO SCALE



HOT MIX ASPHALT PAVING (TWO COURSES) DETAIL
(12' WALKWAY PATH)
NOT TO SCALE

NITSCH PROJECT NO. 12046

dcr Massachusetts

Department of Conservation & Recreation
251 Causeway Street
Boston, MA 02114

Project Name:
ESPLANADE RIVERFRONT PAVILION AT THE LEE POOL SITE

DEMOLITION PACKAGE

DCR Project Number
P17-3155-D1A

Project Location
Lee Pool at the Charles River Esplanade

Project Architect
MARYANN THOMPSON ARCHITECTS
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PROJECT NO. 726

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Original Issue Date
APRIL 11, 2018

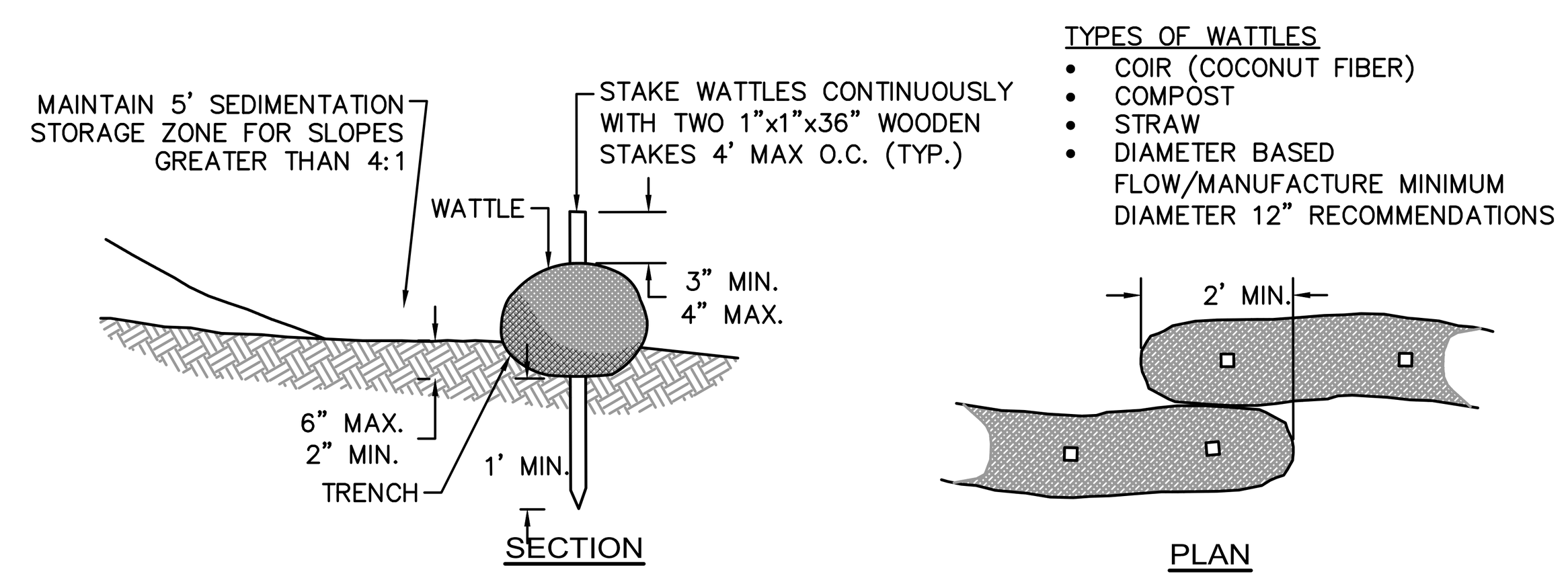
Revisions
No. Description Date

Plan Name:
CIVIL NOTES AND DETAILS

Drawing Number:
C3.00
Drawing of

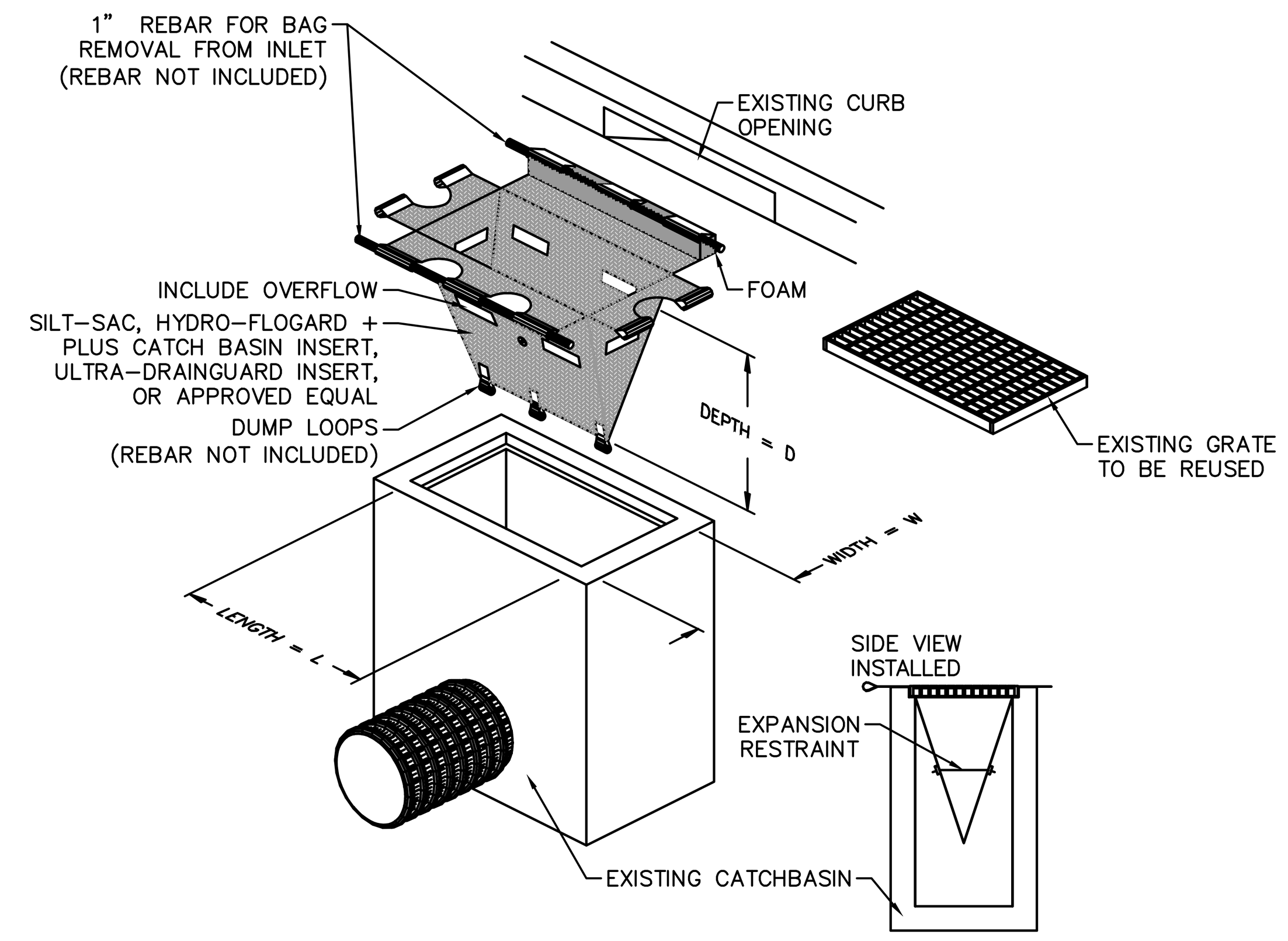
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE LATEST EDITION OF THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" PREPARED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, AND THE CURRENT NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES.
2. MEANS OF EROSION AND SEDIMENT PROTECTION AS NOTED ON THE DRAWINGS INDICATE MINIMUM RECOMMENDED PROVISIONS. THE CONTRACTOR IS RESPONSIBLE FOR FINAL SELECTION AND PLACEMENT OF EROSION AND SEDIMENTATION CONTROLS BASED ON ACTUAL SITE CONDITIONS AND CONSTRUCTION CONDITIONS. ADDITIONAL MEANS OF PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED FOR CONTINUED OR UNFORESEEN EROSION PROBLEMS, OR AS DIRECTED BY CONTROLLING MUNICIPAL AUTHORITIES, AT NO ADDITIONAL EXPENSE TO THE OWNER.
3. AN EROSION CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT AS INDICATED IN THE PLAN PRIOR TO COMMENCEMENT OF DEMOLITION OR CONSTRUCTION OPERATIONS.
4. SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF AND DURING ALL PHASES OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO AND IMMEDIATELY AFTER ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
5. AFTER ANY SIGNIFICANT RAINFALL (GREATER THAN 0.25 INCH OF RAINFALL WITHIN 24 HOURS), SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED FOR INTEGRITY. ANY DAMAGE SHALL BE CORRECTED IMMEDIATELY.
6. PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES SHALL BE PROVIDED TO ENSURE THAT THE INTENDED PURPOSE IS ACCOMPLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEDIMENT LEAVING THE LIMIT OF WORK. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORKING DAY.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING SEDIMENT FROM ENTERING ANY STORM DRAINAGE SYSTEM AND FROM BEING CONVEYED TO ANY WETLAND RESOURCE AREA, PUBLIC WAYS, ABUTTING PROPERTY, OR OUTSIDE OF THE PROJECT LIMITS.
8. THE CONTRACTOR SHALL PROTECT ALL DRAINAGE SWALES AND GROUND SURFACES WITHIN THE LIMIT OF WORK SHALL FROM EROSIVE CONDITIONS. STRAW BALE, CRUSHED STONE OR EQUIVALENT CHECK DAMS ARE TO BE PROVIDED AT A MAXIMUM OF TWO HUNDRED (200) FOOT SPACING, OR LESS AS SITE-SPECIFIC CONDITIONS WARRANT, WITHIN ALL DRAINAGE SWALES AND DITCHES AND AT UPSTREAM SIDES OF ALL DRAINAGE INLETS.
9. ALL STOCK PILES SHALL BE PROTECTED AND LOCATED A MINIMUM OF 100' FROM EXISTING WETLAND RESOURCE AREAS & WITHIN THE LIMIT OF WORK.
10. ANY SEDIMENT TRACKED ONTO PAVED AREAS SHALL BE SWEPT AT THE END OF EACH WORKING DAY.
11. ALL SEDIMENT RETAINED BY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LEGALLY DISPOSED OF OFF SITE.
12. TEMPORARY DIVERSION DITCHES DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS , AND ANY DENUDED SURFACE THAT WILL BE EXPOSED FOR A PERIOD OF 14 CALENDAR DAYS OR MORE SHALL BE CONSIDERED CRITICAL VEGETATION AREAS. THESE AREAS SHALL BE STABILIZED/PROTECTED WITH APPROPRIATE EROSION CONTROL MATTING OR OTHER EROSION CONTROL METHODS.
13. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS AS DIRECTED BY THE PERMITTING AUTHORITY OR OWNER.
14. THE CONTRACTOR SHALL USE TEMPORARY SEEDING, MULCHING OR OTHER APPROVED STABILIZATION MEASURES TO PROTECT EXPOSED AREAS DURING PROLONGED CONSTRUCTION OR OTHER LAND DISTURBANCE. STOCKPILES THAT WILL BE EXPOSED FOR LONGER THAN 14 DAYS SHALL BE STABILIZED.
15. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROLS AT THE COMPLETION OF SITE CONSTRUCTION, BUT ONLY WHEN DIRECTED BY THE CITY/TOWN OF XXXX CONSERVATION AGENT. STABILIZE OR SEED BARE AREAS LEFT AFTER EROSION CONTROL REMOVAL.



WATTLES - SLOPE PROTECTION FOR SLOPES LESS THAN 10:1

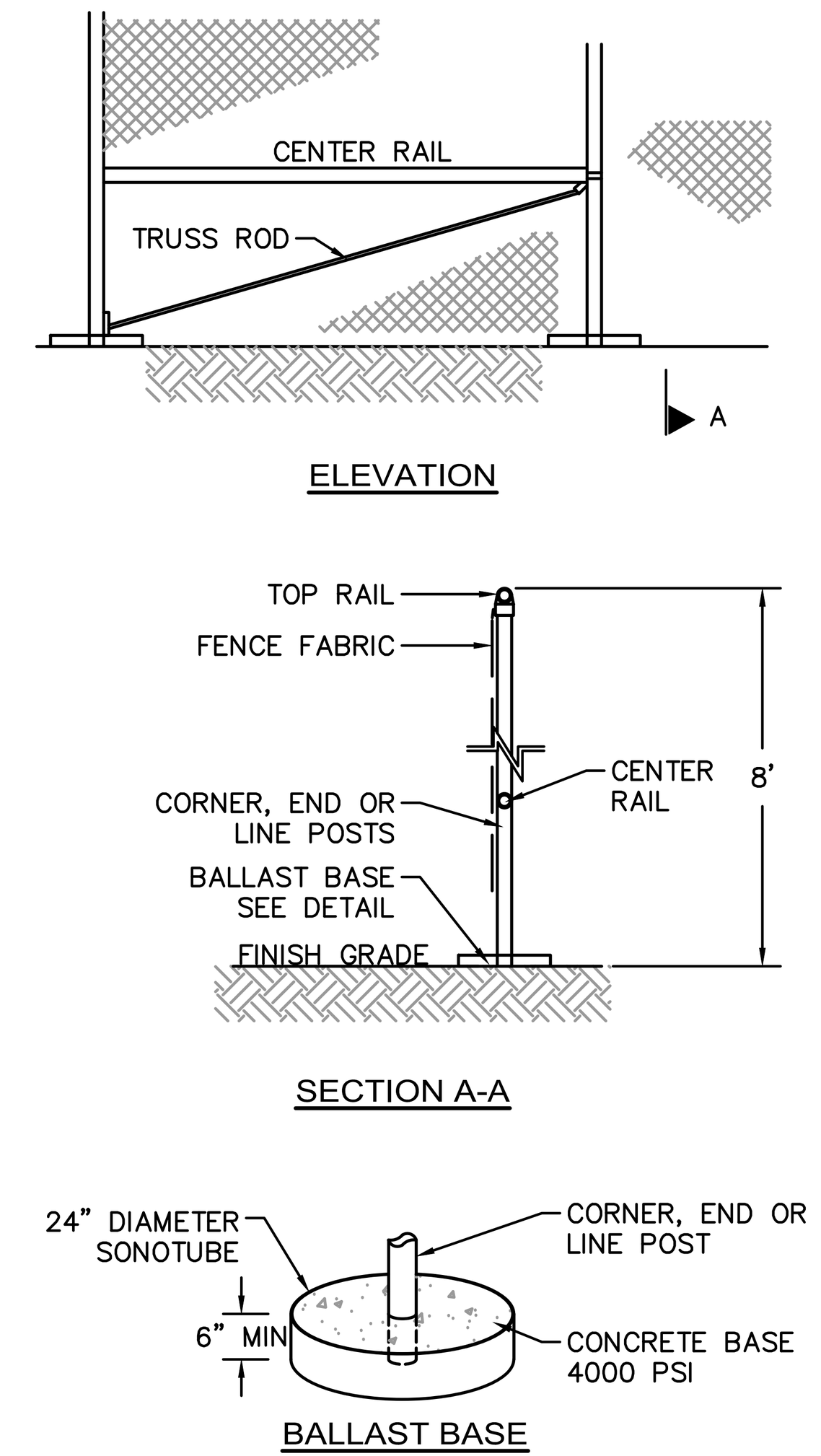
NOT TO SCALE



THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS SHEET, OVERLAND OR CONCENTRATED FLOWS (NOT GREATER THAN 1 CFS). THE METHOD CAN DRAIN FLAT AREA TO STEEP SLOPES. INLET CAPACITY WILL BE DECREASED WITH THIS METHOD AND THE CONTRACTOR SHALL EXPECT PONDING DURING HIGH FLOW EVENTS.

INLET PROTECTION (2) CATCH BASIN W/ SILTATION SACK

NOT TO SCALE

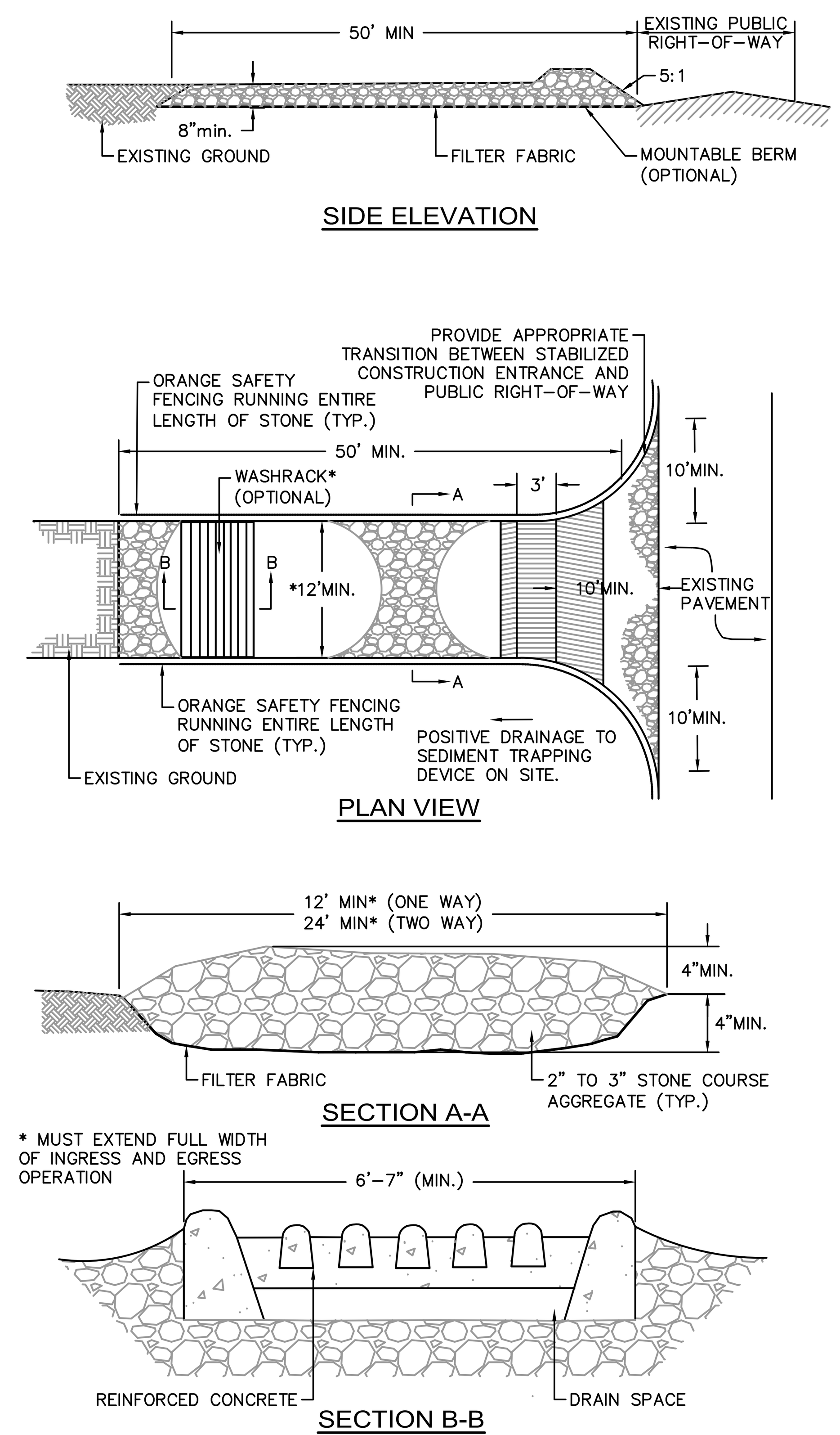


NOTES

1. END, GATE AND CORNER POSTS SHALL BE BRACED TO ADJACENT LINE POSTS. (MORE THAN 30° CHANGE IN DIRECTION CONSTITUTES A CORNER)
2. FABRIC SHALL BE 0.148" GAUGE MIN. WIRE, WOVEN INTO APPROXIMATELY 2" DIAMOND MESH.
3. ZINC-COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH PRIME WESTERN SPELTER OR EQUAL.
4. ALUMINUM COATED STEEL FABRIC BASE METAL SHALL BE COATED WITH ALUMINUM ALLOY.
5. LINE POSTS SHALL BE 2½" O.D. END OR CORNER POSTS SHALL BE 3" O.D.
6. THE CONTRACTOR IS RESPONSIBLE FOR SURFACE RESTORATION ONCE THE FENCE IS REMOVED.
7. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TEMPORARY CONSTRUCTION FENCE AT THE CONCLUSION OF THE PROJECT.

TEMPORARY CONSTRUCTION CHAIN LINK FENCE WITH BALLAST BASE

NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

CONSTRUCTION SPECIFICATIONS

LENGTH – GREATER THAN OR EQUAL TO 50 FEET

WIDTH – TWELVE FOOT MINIMUM (ONE WAY), TWENTY FOUR FOOT MINIMUM (TWO WAY), BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.

SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM SHALL BE PERMITTED.

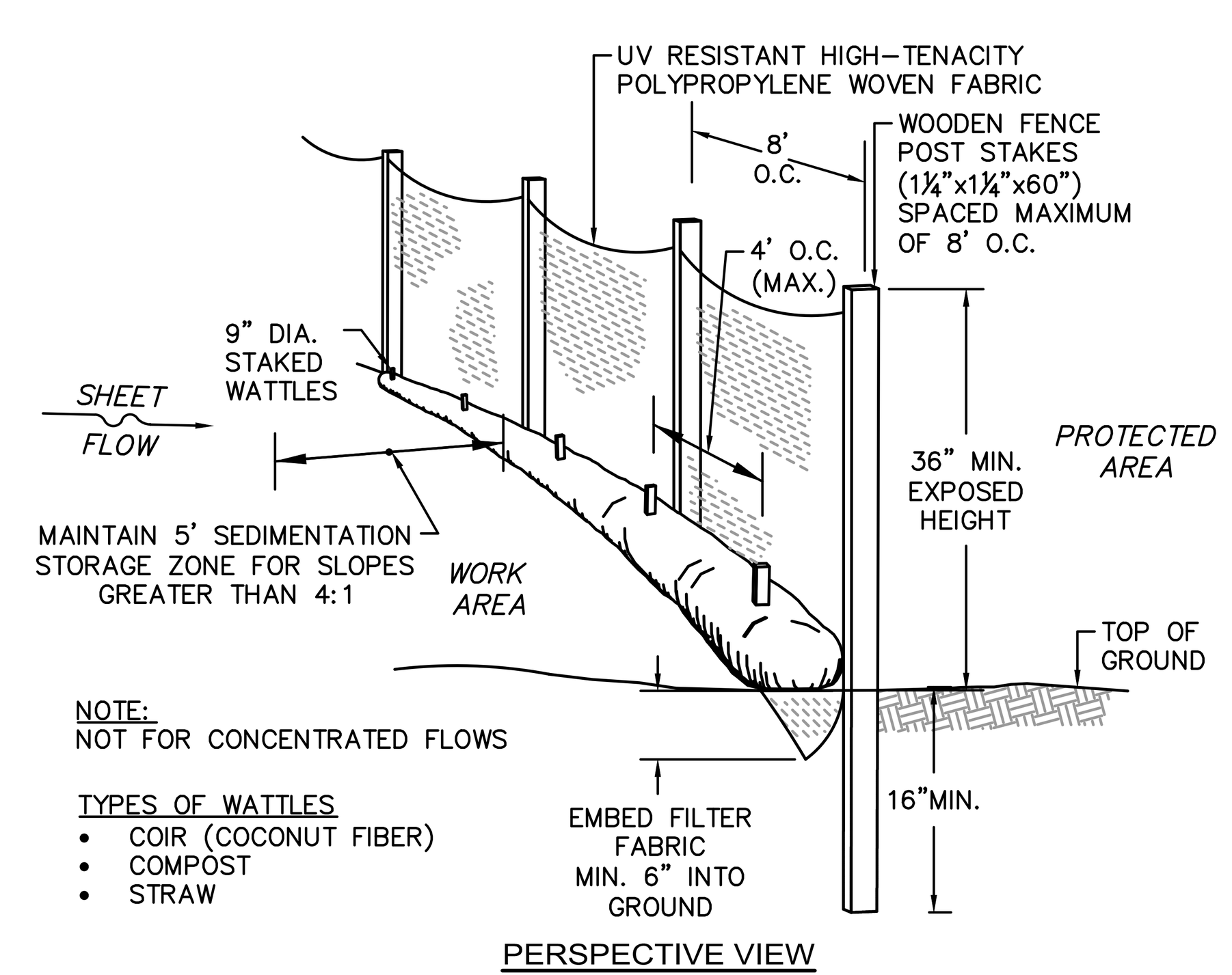
THICKNESS – 8"

MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED.

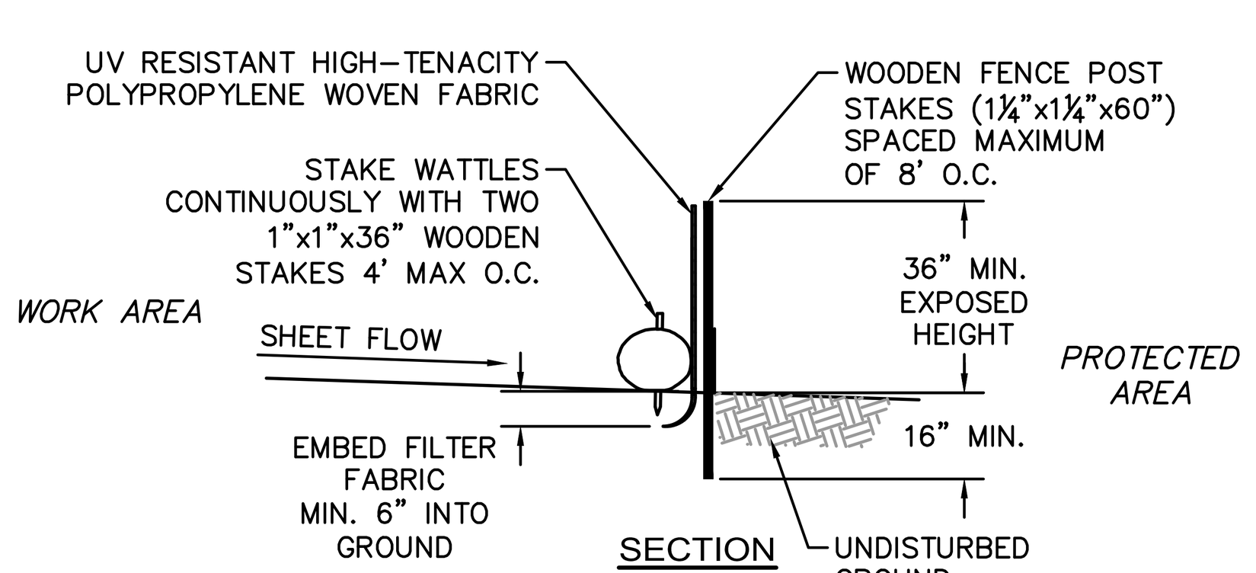
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



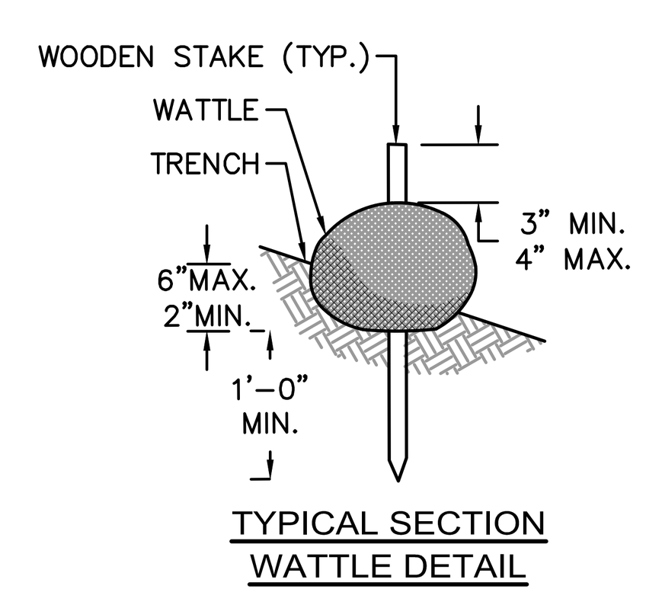
NOTE:
NOT FOR CONCENTRATED FLOWS

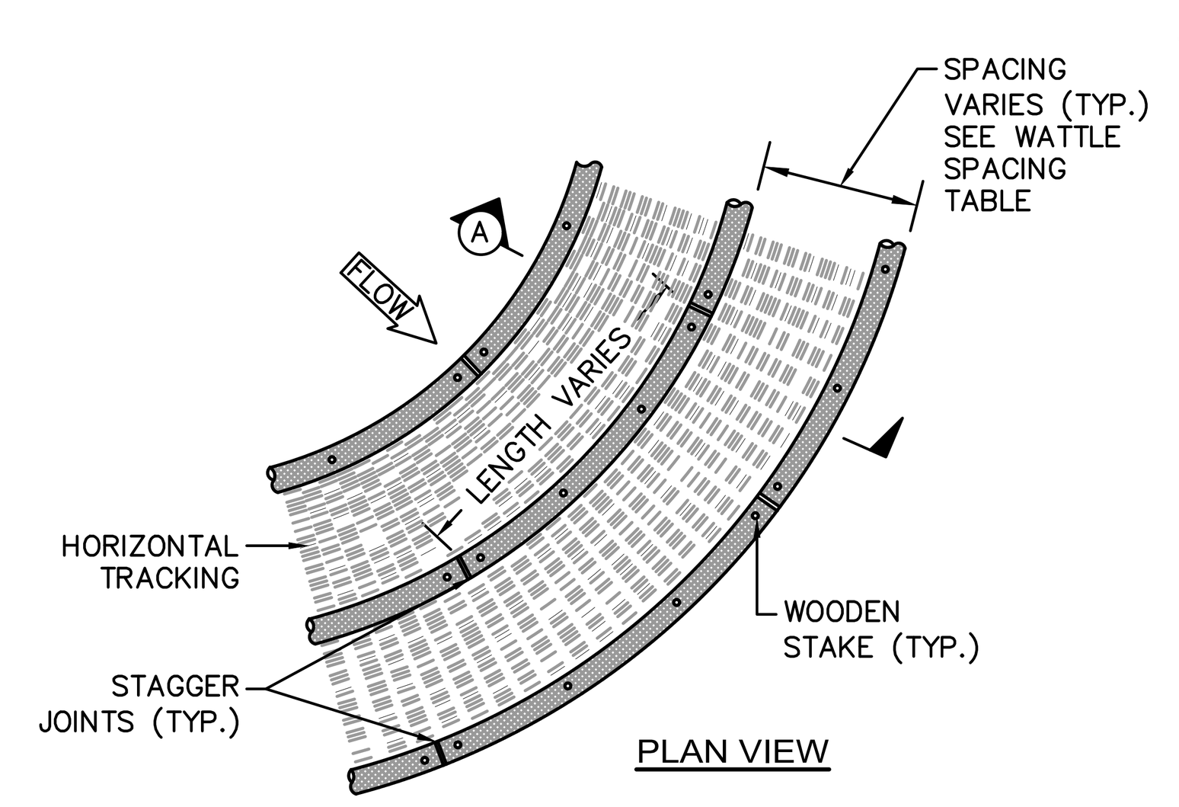
TYPES OF WATTLES
- COIR (COCONUT FIBER)
- COMPOST
- STRAW

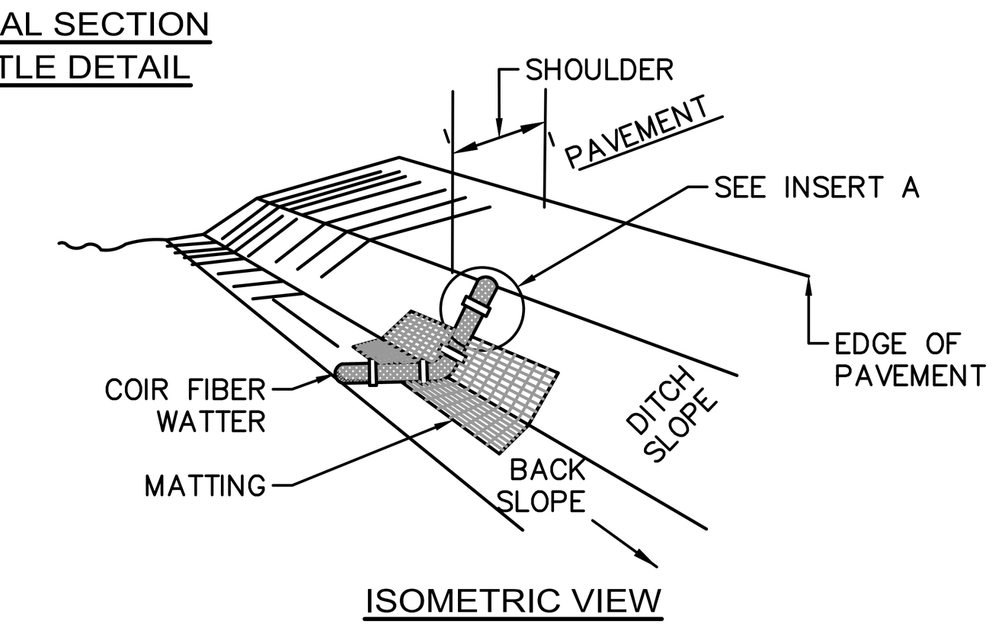


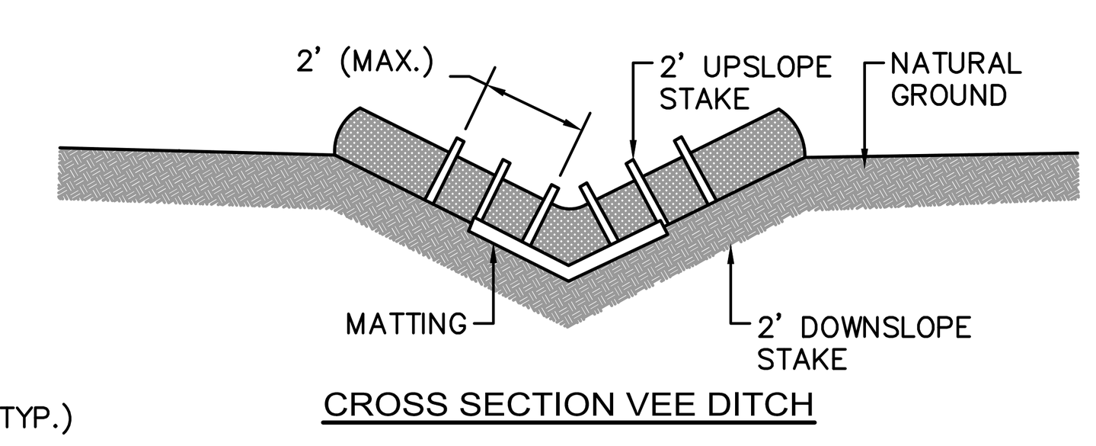
PERIMETER PROTECTION BARRIER SILT FENCE DETAIL WITH WATTLES

NOT TO SCALE

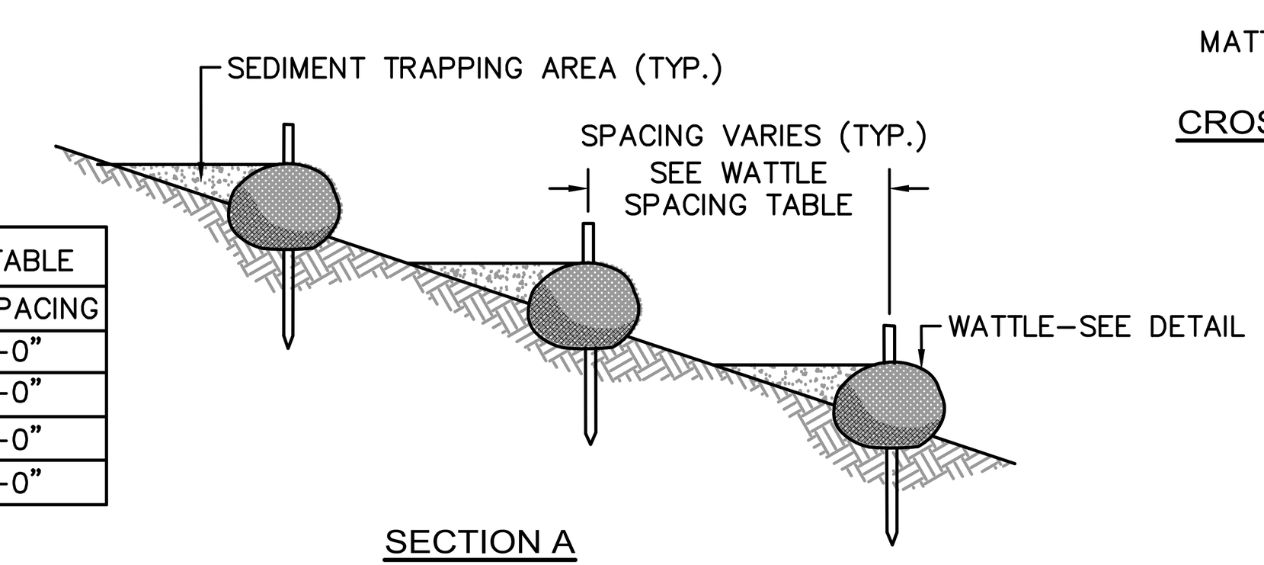






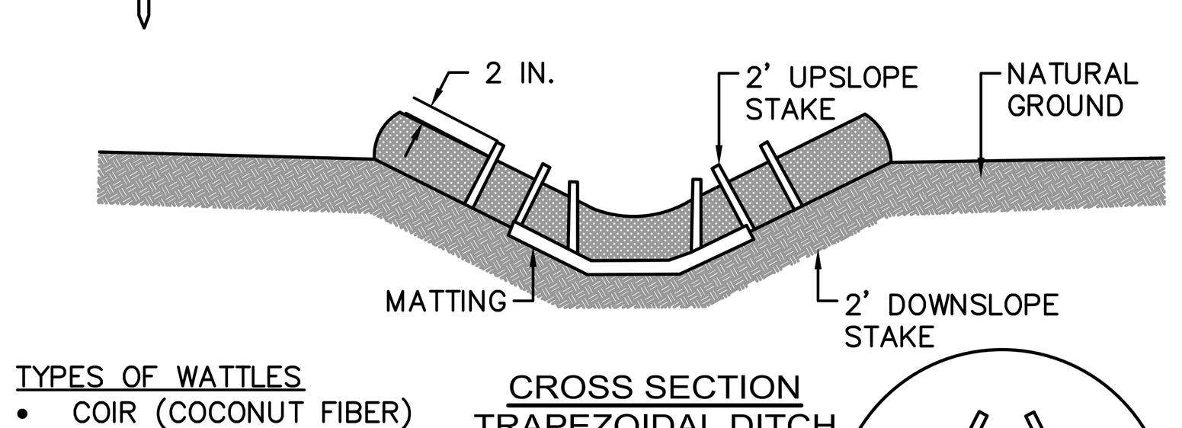


WATTLE SPACING TABLE	
SLOPE	MAX. SPACING
1:1	10'-0"
2:1	20'-0"
3:1	30'-0"
4:1	40'-0"

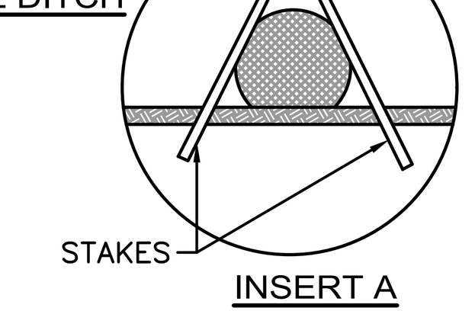


WATTLE SLOPE PROTECTION NOTES:

1. SECURELY KNOT EACH END OF WATTLE. ABUT ADJACENT WATTLES TIGHTLY, END TO END, WITHOUT OVERLAPPING THE ENDS.
2. PILOT HOLES MAY BE DRIVEN THROUGH THE WATTLES AND INTO THE SOIL WHEN SOIL CONDITIONS REQUIRE
3. WATTLES SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
4. ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.



TYPES OF WATTLES
- COIR (COCONUT FIBER)
- COMPOST
- STRAW



EROSION CONTROL BARRIER WATTLES - STEEP SLOPE PROTECTION

NOT TO SCALE

NITSCH PROJECT NO. 12046

Department of Conservation & Recreation
251 Causeway Street
Boston, MA 02114

Project Name:
ESPLANADE RIVERFRONT PAVILION AT THE LEE POOL SITE

DEMOLITION PACKAGE

DCR Project Number
P17-3155-D1A

Project Location
Lee Pool at the Charles River Esplanade

Project Architect
MARYANN THOMPSON ARCHITECTS
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PROJECT NO. 726

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Structural Engineering
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GIS

Original Issue Date
APRIL 11, 2018

Revisions

No.	Description	Date

Plan Name:
SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

Drawing Number:
C4.00
Drawing of