LEC WETLANDS WILDLIFE WATERWAYS

Notice of Intent Application

August 2, 2019

Proposed Project

Swampscott Rail Trail

Stetson Avenue to the Marblehead Town Line

Swampscott, Massachusetts

Applicant

Town of Swampscott

22 Monument Avenue

Swampscott, MA 01907

LEC Environmental Consultants, Inc.

100 Grove Street

Suite 302

Worcester, MA 01605

508-753-3077

508-753-3177 fax

www.lecenvironmental.com

August 2, 2019

Federal Express

Swampscott Conservation Commission
Town Hall
22 Monument Avenue
Swampscott, MA 01907

RE: Notice of Intent Application [LEC File #: SI\17-286.02]
Swampscott Rail Trail
Swampscott, Massachusetts

Dear Members of the Commission:

On behalf of the Applicant, the Town of Swampscott, LEC Environmental Consultants, Inc., (LEC) is submitting a Notice of Intent (NOI) Application to construct the Swampscott Rail Trail, a 1.9± mile portion from the Stetson Avenue to the Marblehead Town Line in Swampscott, Massachusetts. The Swampscott Rail Trail is a planned multipurpose trail located within an abandoned rail corridor that would create a safe, accessible, ADA compliant trail providing increased recreational opportunities, and off-road transportation alternatives to access work, school, and other modes of transportation (e.g., buses and trains). Portions of the proposed work activities are located within Bank to Intermittent Stream and Pond, Land Under Waterbodies and Waterways, and 100-foot Buffer Zone to Bank and Bordering Vegetated Wetland, as protected under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131 § 40, the *Act*) and its implementing Regulations (310 CMR 10.00, the *Act Regulations*). Project details are depicted on the attached *Swampscott Rail Trail* Plan Set, dated August 2, 2019 (*Plan Set*) prepared by Stantec.

Since the Town of Swampscott is the Applicant, under the *Act* at 310 CMR 10.03(7)(f), no filing fee is assessed for this project. As required, the Applicant will post a legal advertisement of the NOI Application and required Public Hearing in *The Daily Item* so as to appear on the Conservation Commission's August 29, 2019 agenda.

We trust that the information included herein is sufficient to facilitate your review. Should you have any questions regarding this NOI or require additional information, please contact me in our Worcester office at 508-753-3077 or at akendall@lecenvironmental.com. We look forward to meeting with the Commission on August 29, 2019.

Sincerely,

LEC Environmental Consultants, Inc.

Andrea Kendall

Andrea Kendall
Senior Environmental Scientist

cc: DEP, Northeast Regional Office
Sean Fitzgerald, Town Administrator, Town of Swampscott
Massachusetts Electric Company
Aleece D'Onofrio, Stantec

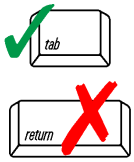
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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
Swampscott
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):

Swampscott Rail Trail-Stetson Avenue to Marblehead Town Line
a. Street Address

Swampscott
b. City/Town

01907
c. Zip Code

Latitude and Longitude:

42.474859
d. Latitude

-70.903341
e. Longitude

Parcel ID:16-175; 18-34; 18-4; 17-52; 22-1A
f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

Sean
a. First Name

Fitzgerald
b. Last Name

Town of Swampscott, Town Administrator's Office
c. Organization

22 Monument Avenue
d. Street Address

Swampscott
e. City/Town

MA
f. State

01907
g. Zip Code

781-596-8850
h. Phone Number

i. Fax Number

sfitzgerald@town.swampscott.ma.gov
j. Email Address

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

See Attached List of Property Owners
a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Andrea
a. First Name

Kendall
b. Last Name

LEC Environmental Consultants, Inc.
c. Company

100 Grove Street, Suite 302
d. Street Address

Worcester
e. City/Town

MA
f. State

01605
g. Zip Code

508-753-3077
h. Phone Number

508-753-3177
i. Fax Number

akendall@lecenvironmental.com
j. Email address

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

N/A-Fee Exempt
a. Total Fee Paid

b. State Fee Paid

c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Swampscott
City/Town

A. General Information (continued)

6. General Project Description:

The Applicant proposes to construct a 1.9± mile section of the Swampscott Rail Trail from Stetson Avenue to the Marblehead Town Line in Swampscott, Massachusetts. The planned 10-foot wide stone dust trail will occur within the existing, previously disturbed railroad corridor and the Swampscott Middle School. The project will involve one intermittent stream crossing and the relocation of a degraded intermittent stream. The remaining activities are located, in part, in the 100-foot Buffer Zone to BVW and/or Bank.

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 CMR 10.24(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:

See Attached List of Property Owners
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.

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

Swampscott
City/Town

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	687± (see attached) 1. linear feet	687± (see attached) 2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☒ Land Under Waterbodies and Waterways	3,342± (see attached) 1. square feet	3,342± (see attached) 2. square feet
	3. cubic yards dredged	

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet	2. square feet
	3. cubic feet of flood storage lost	4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet	
	2. cubic feet of flood storage lost	3. cubic feet replaced

f. ☐ Riverfront Area

1. Name of Waterway (if available) - **specify coastal or inland**

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

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

4. Proposed alteration of the Riverfront Area:

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

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

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

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

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

Wetland Resource Area Impacts

	Size of Proposed Alteration		
Wetland Resource Area	Stream Crossing	Stream Relocation	Total
Bank	99 lf (temporary)	586 lf (temporary)	685 lf (temporary)
Land Under Waterbodies and Waterways	306 sf (temporary)	3,036 sf (temporary)	3,042 sf (temporary)

	Size of Proposed Replacement		
Wetland Resource Area	Stream Crossing	Stream Relocation	Total
Bank	99 lf	586 lf	685 lf
Land Under Waterbodies and Waterways	306 sf	3,036 sf	3,042 sf

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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Swampscott
City/Town

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

1
a. number of new stream crossings

b. number of replacement stream crossings

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

Provided by MassDEP:

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Document Transaction Number

Swampscott
City/Town

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

   Phone: (508) 389-6360

   2017
   b. Date of map

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

   c. Submit Supplemental Information for Endangered Species Review*

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

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

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

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

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

   (b) ☐ Photographs representative of the site

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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MassDEP File Number

Document Transaction Number

Swampscott
City/Town

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

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

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

(d) ☐ Vegetation cover type map of site

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

(f) OR Check One of the Following

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

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

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

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

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

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

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

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

North Shore - Hull to New Hampshire border:

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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MassDEP File Number

Document Transaction Number

Swampscott
City/Town

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

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

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

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: *No impervious surfaces are proposed.*

      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.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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

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Swampscott
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D. Additional Information (cont'd)

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

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

Swampscott Rail Trail
a. Plan Title

Stantec
b. Prepared By

Aleece D'Onofrio
c. Signed and Stamped by

August 2, 2019
d. Final Revision Date

20
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:

N/A - Fee Exempt
2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name

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

Swampscott
City/Town

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.

Sean Fitzgerald — Aug 1, 2019

1. Signature of Applicant & Property Owner: Sean Fitzgerald, Town Administrator, Town of Swampscott — 2. Date

Signature to be provided prior to Public Hearing

3. Signature of Property Owner (if different): Massachusetts Electric Company — 4. Date

Andrea Kendall — August 1, 2019

5. Signature of Representative Andrea Kendall, LEC Environmental Consultants, Inc. — 7. Date

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

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

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

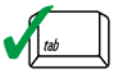
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

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



A. Applicant Information

1. Location of Project:

Swampscott Rail Trail	Swampscott
a. Street Address	b. City/Town
N/A Fee Exempt	
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Sean	Fitzgerald
a. First Name	b. Last Name

Town of Swampscott, Town Administrator's Office
c. Organization

22 Monument Avenue
d. Mailing Address

Swampscott	MA	01907
e. City/Town	f. State	g. Zip Code

781-596-8850		sfitzgerald@town.swampscott.ma.gov
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

See Attached List of Property Owners	
a. First Name	b. Last Name

c. Organization

d. Mailing Address

e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email Address

B. Fees

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

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

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

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

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

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

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

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

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

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

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 2(j) other	1	$500.00	N/A Fee Exempt

Step 5/Total Project Fee: N/A Fee Exempt

Step 6/Fee Payments:

Total Project Fee:	N/A Fee Exempt a. Total Fee from Step 5
State share of filing Fee:	N/A Fee Exempt b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	N/A Fee Exempt 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.)

List of Property Owners

Swampscott Rail Trail

Parcel ID	Property Owner	Street Address	Mailing Address	Essex South County Book/Page
16-175-0	Massachusetts Electric Company c/o Property Tax Department*	Paradise Road	40 Sylvan Road Waltham, MA 02451-2286	5245/522
18-34-0	Massachusetts Electric Company c/o Property Tax Department*	Rear Forest Road	40 Sylvan Road Waltham, MA 02451-2286	5245/522
18-4-0	Town of Swampscott Co-owner: High School	209 Forest Avenue	22 Monument Avenue Swampscott, MA 01907	4252/320
17-52-0	Town of Swampscott	Off Forest Avenue	22 Monument Avenue Swampscott, MA 01907	6372/89
22-1A-0	Massachusetts Electric Company c/o Property Tax Department*	Rear Humphrey Street	40 Sylvan Road Waltham, MA 02451-2286	5245/522

* Contact Information: Steven Towle, 781-907-2263, Steven.Towle@nationalgrid.com

AFFIDAVIT OF SERVICE

Under the *Massachusetts Wetlands Protection Act*

I, Sharon A. Sullivan, on behalf of the Town of Swampscott, hereby certify under the pains and penalties of perjury that on August XX, 2019 I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and 310 CMR 10.05 (4) (a), in connection with the following matter:

> A Notice of Intent filed under the *Massachusetts Wetlands Protection Act* by LEC Environmental Consultants, Inc., on behalf of the Town of Swampscott, with the Town of Swampscott Conservation Commission on August 2, 2019 to construct a 1.9± mile portion of the Swampscott Rail Trail in Swampscott, Massachusetts.

The form of notification, and a list of the abutters to whom it was given and their addresses, are attached to this Affidavit of Service.

Sharon A. Sullivan

Sharon A. Sullivan
Permitting Technician

8/XX/2019
Date

LEC WETLANDS WILDLIFE WATERWAYS

August XX, 2019

Certificate of Mailing

«Name»
«Name2»
«Address»
«City», «State» «Zip»

Re: Notice of Intent Application [LEC File #: SI\17-286.02]
Swampscott Rail Trail
Swampscott, Massachusetts

Dear Abutter:

On behalf of the Applicant, the Town of Swampscott, LEC Environmental Consultants, Inc. (LEC) has filed a Notice of Intent (NOI) Application with the Swampscott Conservation Commission to construct a 1.9± mile portion of the Swampscott Rail Trail, from Stetson Avenue to the Marblehead Town Line. Portions of the proposed activities are located within the 100-foot Buffer Zone, Bank and Land Under Waterbodies and Waterways, as protected under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40) and its implementing Regulations (310 CMR 10.00). The Applicant proposes to implement erosion controls to minimize the potential for impacts to the resource areas.

The report entitled *Notice of Intent Application* and accompanying site plans are available for review by the public at the Swampscott Conservation Commission. The Public Hearing will be held at the Swampscott High School, 200 Essex Street, Room B129 on August 29, 2019 at 7:30 p.m., in accordance with the provisions of the *Massachusetts Wetlands Protection Act* (M.G.L. Ch. 131, s. 40, as amended) and its implementing Regulations (310 CMR 10.00). Notice of the Public Hearing, including its date, time, and place, will be published at least five (5) days in advance in *The Daily Item*. Notice of the Public Hearing also will be posted at the Swampscott Town Hall at least 48 hours in advance.

Please do not hesitate to review the materials and/or attend the public hearing should you have questions or concerns about the proposed project.

Sincerely,

LEC Environmental Consultants, Inc.

Andrea Kendall
Senior Environmental Scientist

LEC Environmental Consultants, Inc. www.lecenvironmental.com

12 Resnik Road
Suite 1
Plymouth, MA 02360
508-746-9491
508-746-9492 (Fax)
PLYMOUTH, MA

380 Lowell Street
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781-245-6677 (Fax)
WAKEFIELD, MA

100 Grove Street
Suite 302
Worcester, MA 01605
508-753-3077
508-753-3177 (Fax)
WORCESTER, MA

P. O. Box 590
Rindge, NH 03461
603-899-6726
603-899-6726 (Fax)
RINDGE, NH

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 the Town of Swampscott, Town Administrator's Office, 22 Monument Avenue, Swampscott, Massachusetts.

B. The Applicant has filed a Notice of Intent with the Conservation Commission for the municipality of Swampscott, Massachusetts seeking permission to construct a 1.9± mile portion of the Swampscott Rail Trail in Swampscott, Massachusetts. Portions of the proposed activities are located within Bank, Land Under Waterbodies and Waterways and/or 100-foot Buffer Zone, as protected under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131, s. 40) and its implementing Regulations (310 CMR 10.00).

C. The activity is proposed within an existing abandoned railroad corridor from Stetson Avenue to the Marblehead Town Line in Swampscott, Massachusetts.

D. Copies of the Notice of Intent may be examined by contacting the Swampscott Conservation Commission at (781) 596-8829.

E. Copies of the Notice of Intent may be obtained from LEC Environmental Consultants, Inc. (the applicant's representative) by calling (781) 245-2500 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday. A fee may be charged for each copy requested.

F. Information regarding the Public Hearing may be obtained from the Swampscott Conservation Commission (the regulatory agency) by calling (781) 596-8829.

NOTE: Notice of the Public Hearing, including its date, time, and place, will be published at least five (5) days in advance in *The Daily Item*.

NOTE: Notice of the Public Hearing will also be posted at the Swampscott Town Hall not less than 48 hours in advance.

NOTE: You also may contact the nearest Department of Environmental Protection Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call:

Northeast Region: (978) 694-3200

Swampscott Rail Trail Abutters

16-114-0 – Lexington Circle
Town of Swampscott
22 Monument Avenue
Swampscott, MA 01907

16-152-0 – 29 Lexington Circle
Douglas L. Smith
Monique A. Myers
29 Lexington Circle
Swampscott, MA 01907

18-7E-0 – 64 Pine Hill Road
Roger D. Bieri & Daphne J. Bieri
TRS of the Roger D. & Daphne J. Bieri Trust
64 Pine Hill Road
Swampscott, MA 01907

18-12E-0 – 3 Burke Drive
Arik Aronov
Allison Aronov
3 Burke Drive
Swampscott, MA 01907

18-1-0 – off Forest Avenue
Tedesco Country Club
154 Tedesco Street
Marblehead, MA 01945

22-96-0 – 93 Nason Road
Brian Charles Tierney
Christine Marie Tierney
93 Nason Road
Swampscott, MA 01907

22-91-0 – 89 Nason Road
William M. Bochnak
Sharon P. Bochnak
89 Nason Road
Swampscott, MA 01907

17-31-0 – Salem Street
Tedesco Country Club
154 Tedesco Street
Marblehead, MA 01945

18-3-0 – off Forest Avenue
Tedesco Country Club
154 Tedesco Street
Marblehead, MA 01945

16-151-0 – 25 Lexington Circle
David K. Yang
Sheila Yang
25 Lexington Circle
Swampscott, MA 01907

18-8E-0 – 71 Pine Hill Road
Christopher W. White
Rebecca T. White
71 Pine Hill Road
Swampscott, MA 01907

18-14E-0 – 1 Burke Drive
James M. Bosworth
Barbara Y. Bosworth
1 Burke Drive
Swampscott, MA 01907

22-D1-0 – 95 Nason Road
Jeanne Breen
95 Nason Road
Swampscott, MA 01907

22-92-0 – 91 Nason Road
Joshua Williams
Toshya Williams
91 Nason Road
Swampscott, MA 01907

22-90-0 – 87 Nason Road
Mary M. O'Connell
David A. O'Connell, TRS
87 Nason Road
Swampscott, MA 01907

22-89-0 – 79 Nason Road
Paul D. Surette
Julie W. Surette
79 Nason Road
Swampscott, MA 01907

22-88-0 – 77 Nason Road
Kevin M. Maloney
Kathleen R. Maloney
77 Nason Road
Swampscott, MA 01907

22-87-0 – 73 Nason Road
Edward A. & Blanche L. Chateauneuf
TRS of the Edward A. & Blanche Chateauneuf TR
73 Nason Road
Swampscott, MA 01907

22-86-0 – 69 Nason Road
Laurence Zoll
Keiko Zoll
69 Nason Road
Swampscott, MA 01907

22-69-0 – 65 Nason Road
Kathleen M. Burke
Thomas E. Burke
65 Nason Road
Swampscott, MA 01907

22-68-0 – 61 Nason Road
Eric David Webb
Christina Principe Rey
61 Nason Road
Swampscott, MA 01907

22-67-0 – 57 Nason Road
Robert J. Barrows
Laurie S. Barrows
57 Nason Road
Swampscott, MA 01907

22-66-0 – 55 Nason Road
Matthew Smith
Angela Smith
55 Nason Road
Swampscott, MA 01907

22-65-0 – 41 Nason Road
Jeffrey R. Deveau
Danielle M. Deveau
41 Nason Road
Swampscott, MA 01907

22-64-0 – 33 Nason Road
Paul Marescalchi
Kristen Marescalchi
33 Nason Road
Swampscott, MA 01907

2-63-0 – 29 Nason Road
Ryan J. Patz
Jeanne M. Patz
29 Nason Road
Swampscott, MA 01907

22-15-0 – 23 Nason Road
Andrew P. Samalis
Kimberly Samalis
23 Nason Road
Swampscott, MA 01907

22-14-0 – 17 Nason Road
Edward P. Zitano
Sandra M. Zitano
17 Nason Road
Swampscott, MA 01907

22-13-0 – 15 Nason Road
Matthew A. Dragani
Jacqueline R.A. Dragani
15 Nason Road
Swampscott, MA 01907

22-12-0 – 7 Nason Road
Michael A. Penta
Marilyn A. Penta
7 Nason Road
Swampscott, MA 01907

22-11-0 – 1 Nason Road
Matthew A. Fallon
Lindy Aldrich
1 Nason Road
Swampscott, MA 01907

22-10-0 – 25 Neighborhood Road
Paul J. Dwyer
Sharon T. Kalosky
25 Neighborhood Road
Swampscott, MA 01907

22-9-0 – 21 Neighborhood Road
Bella M. Vaysman
Valentine Schuster
21 Neighborhood Road
Swampscott, MA 01907

22-1-0 – 868 Humphrey Street
Mark D. Greenman
868 Humphrey Street
Swampscott, MA 01907

22-2A-0 – 860 Humphrey Street
Stephanie E. Kelly
Elaine V. Kermet
860 Humphrey Street
Swampscott, MA 01907

18-10E-0 – 4 Burke Drive
Charles Comegys
4 Burke Drive
Swampscott, MA 01907

18-26-0 – 285 Forest Avenue
Linette M. Papazoglou
285 Forest Avenue
Swampscott, MA 01907

20-348-0 – 67 Walnut Road
Jarrett Bridge
Susan Bridge
67 Walnut Road
Swampscott, MA 01907

18-24-0 – 76 Sargent Road
Cynthia M. Akabane
76 Sargent Road
Swampscott, MA 01907

18-9A-0 – 202 Forest Avenue
Joseph Burke
James Burke
202 Forest Avenue
Swampscott, MA 01907

22-2-0 – 864 Humphrey Street
Paul J. Mignone
Maria E. Mignone
864 Humphrey Street
Swampscott, MA 01907

17-34-0 – Humphrey Street
MA Electric Company
c/o Property Tax Dept.
40 Sylvan Road
Waltham, MA 02451-2286

16-153-0 – 35 Lexington Circle
Subroto Bhattacharya
Semaletha T. Bhattacharya
35 Lexington Circle
Swampscott, MA 01907

18-11E-0 – 2 Burke Drive
James Lombard
Terri Lombard
2 Burke Drive
Swampscott, MA 01907

20-350-0 – 71 Walnut Road
Todd J. Mentuck
Amanda M. Mentuck
71 Walnut Road
Swampscott, MA 01907

20-347-0 – 63 Walnut Road
Roger A. Tuttle
Beth A. Rooks
63 Walnut Road
Swampscott, MA 01907

18-7-0 – 224 Forest Avenue
Heidi Legere
Donald R. Legere, Jr.
224 Forest Avenue
Swampscott, MA 01907

18-9-0 – 200 Forest Avenue
Jaren W. Landen
Ronald A. Landen
200 Forest Avenue
Swampscott, MA 01907

18-9C-0 – 198 Forest Avenue
Jeffrey P. Hirshberg
Sandra S. Hirshberg
198 Forest Avenue
Swampscott, MA 01907

23-88-0 – 194 Forest Avenue
Donald R. Granger
Ann E. Granger
194 Forest Avenue
Swampscott, MA 01907

18-16-0 – 26 Laurel Road
Diana M. Caplan
26 Laurel Road
Swampscott, MA 01907

18-18-0 – 20 Laurel Road
James K. Kalambokis
Margaret M. Upton
20 Laurel Road
Swampscott, MA 01907

18-20-0 – 12 Laurel Road
Mary Gail Brock
12 Laurel Road
Swampscott, MA 01907

18-22-0 – 82 Sargent Road
Louise E. Sanchez
82 Sargent Road
Swampscott, MA 01907

18-29-0 – 193 Forest Avenue
Matthew M. MacDonald
Richard B. MacDonald, Jr.
193 Forest Avenue
Swampscott, MA 01907

18-17-0 – 24 Laurel Road
Marcia A. Fawcett
24 Laurel Road
Swampscott, MA 01907

18-19-0 – 16 Laurel Road
Kimberly A. Hayes
16 Laurel Road
Swampscott, MA 01907

LEC

Notice of Intent Application

Swampscott Rail Trail
Stetson Avenue to the Marblehead Town Line
Swampscott, Massachusetts

August 2, 2019

1. Introduction

On behalf of the Applicant, the Town of Swampscott, LEC Environmental Consultants, Inc., (LEC) is submitting a Notice of Intent (NOI) Application for a public benefit project to construct the Swampscott Rail Trail, a 1.9± mile section from Stetson Avenue to the Marblehead town line (east of Bellevue Road) located within Swampscott, Massachusetts. The Swampscott Rail Trail is a planned multipurpose trail within an abandoned railroad corridor that will connect the neighborhoods and residents, provide increased recreational opportunities, and off-road transportation alternatives to access work, school, and other modes of transportation (e.g., buses and trains). The proposed 10-foot wide stabilized stone dust trail is a shared-use, all-season trail for pedestrians, bicyclists, and non-motorized vehicles.

Portions of the proposed work activities are located within Bank to Intermittent Stream and Pond, Land Under Waterbodies and Waterways, and the 100-foot Buffer Zone to Bank and Bordering Vegetated Wetland, as protected under the *Massachusetts Wetlands Protection Act* (M.G.L. c. 131 § 40, the *Act*) and its implementing Regulations (310 CMR 10.00, the *Act Regulations*). Proposed activities located within the 100-foot Buffer Zone and wetland resource areas are depicted on the site plans, entitled *Swampscott Rail Trail, Swampscott, MA*, prepared by Stantec, dated August 2, 2019 (Site Plan, attached).

The following NOI Application provides a description of the existing Wetland Resource Areas, proposed trail activities within Buffer Zone and Wetland Resource Areas, and mitigating measures proposed to protect the interests and values of the Wetland Resource Areas enumerated within the above-referenced statutes.

2. General Site Description

The Swampscott Rail Trail consists of a 1.9± mile section of the former Marblehead branch of the Boston and Maine Railroad and extends easterly from Stetson Avenue to the Marblehead town line (Appendix A, Figures 1 and 3). Located northeast of the Newbury/Rockport MBTA Commuter Rail and centrally located within Swampscott, the project site is comprised of the Swampscott Middle School and the former railroad corridor owned by the Massachusetts Electric Company (d/b/a National Grid). While the Tedesco Country Club's Golf Course and open space areas occur north of the railroad corridor at and near the Swampscott Middle School, the corridor is largely surrounded by

residential areas. The former rail bed is level and varies from being at, above or below grade of adjacent land. Where not overgrown with vegetation, the former rail bed is used as a trail and comprised of a narrow, compacted dirt/gravel, pavement or vegetated surface (Appendix B, Site Photographs). A National Grid electric distribution line comprised of utility poles, anchors, and overhead wires occurs within the 40 to 115 foot-wide railroad corridor as well as miscellaneous drainage and sewer lines and manholes. National Grid periodically maintains vegetation within the corridor for access to and maintenance of their infrastructure. Within the Swampscott Middle School, the project area includes the existing asphalt parking lot (the 'lower parking lot'), naturalized areas, and lawn adjacent to the athletic fields. Remnant railroad infrastructure occur in select areas. Encroachments from adjacent properties occur intermittently along the corridor and include pavement, fences, and other residential amenities. In addition, household/construction debris occurs intermittently along the trail.

Hydrologic features (i.e., wetlands, pond, and intermittent streams) and associated 100-foot Buffer Zones occur within the central portion of the project site, between Walker Road and Humphrey Street (i.e., between STA 39+50 and STA 76+75) within the Swampscott Middle School, National Grid, and Tedesco Country Club properties. A stormwater basin occurs on the northwest side of the Swampscott Middle School's lower parking lot and discharges north to adjacent wetlands.

An early successional plant community characterizes the portion of the corridor occupied by the electric distribution line and adjacent areas, while a forested upland characterizes the remaining portion (i.e., edges of the corridor). The early successional plant community is comprised of staghorn sumac (*Rhus typhina*), Japanese knotweed (*Polygonum cuspidatum*), multiflora rose, assorted grasses and forbs, oak saplings, bittersweet (*Celastrus* sp.), and grape (*Vitus* sp.). Where present, the adjacent forested upland contains Norway maple (*Acer platanoides*), red maple (*Acer rubrum*), northern red oak (*Quercus rubra*), and elm (*Ulmus* sp.). The understory contains saplings from the canopy, multiflora rose (*Rosa multiflora*), and staghorn sumac. The ground cover contains seedlings from the canopy and understory and grasses and forbs.

2.1 Natural Heritage & Endangered Species Program Designation

According to the 14th edition of the Massachusetts Natural Heritage Atlas (effective August 1, 2017) published by the Natural Heritage & Endangered Species Program (NHESP), the trail corridor is not located within a Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife. NHESP confirmed on July 30, 2019 that the locus

for Certified Vernal Pool (CVP) (#2214), which is currently depicted within the existing lower parking lot, was erroneously mapped and is actually located north of the tennis courts (Appendix A, NHESP Email Communication). As such no CVPs or Potential Vernal Pools (PVP) are mapped within the trail corridor. However, CVPs and PVPs are mapped in the vicinity of the trail corridor (Appendix A, Figure 3).

2.2 FEMA Floodplain Designation

According to the July 16, 2014 *Federal Emergency Management Agency Flood Insurance Rate Map* for Essex County, Massachusetts (Map Nos: 25009C0532G and 25009C0531G), the entire site is located within Zone X [unshaded]: *Areas determined to be outside the 0.2% annual chance floodplain (*Appendix A, Figure 2). Consequently, the site is not located within the 100-year floodplain.

3. Wetland Boundary Determination Methodology

On November 20 and 21, 2017, LEC conducted site evaluations to identify and characterize existing protectable Wetland Resource Areas located within and immediately adjacent to the trail corridor. Based on our field observations and review of pertinent mapping, LEC determined that the site contains Bordering Vegetated Wetlands (BVW), Bank to Pond, and Bank to intermittent stream. The 100-foot Buffer Zone extends from the most landward resource area, BVW or Bank.

LEC delineated the BVW/Bank boundary with sequentially-numbered, blaze-orange surveyor's tape with the words "LEC Resource Area" printed in black. LEC flagging stations W-1 through W-93 and W-200 though W-223, demarcate the BVW/Bank boundary as it relates to the Trail. All flagging stations were survey located and are shown on the attached *Plan Set*.

The extent of Wetland Resource Areas was confirmed through observations of existing plant communities, hydrologic indicators, and bankfull indicators in accordance with the *Act* and its implementing Regulations. A supplemental site evaluation was conducted by LEC on July 2, 2019, to reaffirm existing conditions during the growing season.

3.1 Plant Species Identification

LEC identified plant species comprising 5% or more of the vegetative cover along the BVW boundary. Identifications were made to the species level when morphologically

possible and were used along with other hydrologic indicators to define the BVW boundary in accordance with definitions and criteria in 310 CMR 10.55(2).

3.1.1 Identification of Wetland Indicator Species

The regional wetland indicator status for all identified plant species was obtained from the classification system described in the *National List of Plant Species that Occur in Wetlands: Massachusetts* (Reed, 1988). This classification system divides plant species into ten categories and identifies the wetland indicator status based on the frequency of their occurrence in wetland habitat. These include, in order of lowest to highest frequency within wetlands:

Facultative Upland Minus (FACU-),
Facultative Upland (FACU),
Facultative Upland Plus (FACU+),
Facultative Minus (FAC-),
Facultative (FAC),
Facultative Plus (FAC+),
Facultative Wetland Minus (FACW-),
Facultative Wetland (FACW),
Facultative Wetland Plus (FACW+), and
Obligate (OBL).

Plant species with a FAC, FAC+, FACW-, FACW, FACW+, or OBL wetland indicator status occur in wetlands more than 50% of the time and are considered "wetland indicator plants." Plant species with a FAC-, FACU+, FACU, FACU- wetland indicator status, and those not contained within the list occur in wetlands less than 50% of the time, are not considered "wetland indicator plants." This system of classification has been adopted by the Department of Environmental Protection (DEP) as the definitive source regarding the indicator status of wetland plants.

3.1.2 Measurement of Relative Abundance

The relative abundance or percent cover of each plant species occurring along the BVW boundary was determined visually. When completing DEP BVW (310 CMR 10.55) Delineation Field Data Forms, midpoints were utilized to determine the percent cover of each plant species according to the following classification system: 3% = 1-5%; 10.5% = 6-15%; 20.5 = 16-25%; 38% = 26-50%; 63% = 51-75%; 85.5% = 76-95%; and 98% = 96-100%. The purpose of using midpoints is to reduce variability between wetland

scientists when visually determining percent cover. Utilizing midpoints does not affect whether a given species within a sample layer will be a dominant plant and is recommended in DEP's handbook, *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*.

3.1.3 Measurement of Vegetative Distribution and Density

The relative pattern of plant distribution within each vegetative layer (canopy, sapling, shrub, lianas, and groundcover) was visually determined. Plant species within each layer were determined to occur as single plants, patches or clusters, entanglements, or as the dominant plant species. In addition, LEC observed the relative plant density between each vegetation layer, noting whether the sample layer is densely vegetated, contains moderately dense vegetation, is variably dense within the sample layer, or is sparsely vegetated.

3.2 Evaluation of Edaphic (Soil) Characteristics

3.2.1 General Soil Analysis

Prior to conducting the site evaluation, LEC reviewed United States Geologic Survey (USGS) Topographic Maps and United States Natural Resources Conservation Service (NRCS) Soil Survey Maps. The purpose of this review was to become familiar with the site's general soil characteristics. During site reconnaissance, LEC determined the approximate location of the BVW boundary and determined which areas along the BVW boundary would best represent the upland and wetland portions of the site. Using a Dutch-style, hand-held auger and/or spade, LEC investigated soil conditions within these representative areas by digging a test pit to a depth of at least 20 inches, or refusal. The purpose of this investigation was to confirm and document the difference in soil conditions between the wetland and adjacent upland areas. Specifically, LEC analyzed soil horizon thickness and depth, soil texture, and soil color, noting the presence or absence of redoximorphic features in accordance with *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (March 1995) and *Field Indicators for Identifying Hydric Soils in New England* (April 2004).

3.2.2 Soil Horizon Thickness and Depth

LEC noted the presence of all soil layers and horizons (e.g. O, A, E, B, and/or C) and their relative thickness and depth within the test pit. The thickness of the O soil layer may be directly related to wetness, and is critical to the identification of a hydric soil. Specifically, histosols (organic soil layers measuring greater than 16 inches thick) and

soils with a histic epipedon (an organic layer between 8 and 16 inches thick) always qualify as hydric soils, provided the hydrology that created these soil conditions still exists and has not been altered. Although not directly related to wetness, the thickness of the A or A_p horizons is a function of the depth of plowing (many of New England's forests today were historically agricultural fields) and/or a function of erosion and deposition of organic matter. Interpreting redoximorphic features within the A or A_p horizons can be difficult given their relatively dark color. Redoximorphic features are best observed in the soil layers beneath the A or A_p horizons.

3.2.3 Soil Texture

Soil texture refers to the relative proportions of sand, silt, and clay particles in the soil. Although there are several standard systems for determining soil texture, LEC utilized the United States Department of Agriculture (USDA) system, because it is widely accepted and referred to in the *Field Indicators* guide referenced above. Specifically, LEC identified whether the soil is classified as sand, loamy sand, sandy loam, loam, silt loam, silty clay loam, or clay. LEC also estimated the relative proportion of organic matter within the topsoil to determine if the soil is classified as an organic soil. Differences in soil texture affect how water moves through the soil and the type of hydrologic indicators that form when hydric conditions are present during the growing season.

3.2.4 Soil Color

Using the Munsell® Soil Color Charts, LEC examined the hue, value, and chroma of the different soil horizon matrixes (dominant soil color) and redoximorphic features present within the test pits. The purpose of examining the soil color within the A or A_p horizon is to determine whether these horizons are rich in organic material and meet the criteria for dark or very dark. This distinction refers to the relative amount of organic matter within the soil horizon and may indicate the presence of saturated conditions during the growing season.

Within the B and/or C horizons, the soil color and color patterns may indicate the movement of iron and/or other minerals within the soil. The movement and/or concentration of iron and other minerals, such as manganese, may indicate hydric conditions persist during the growing season. Specifically, a soil matrix color with a relatively low chroma (chroma 2 or less) and high value (value 4 or more) due to wetness is often defined as a depleted matrix - the iron and/or other minerals have been removed or depleted from the soil due to groundwater fluctuations, soil saturation, and reduction.

A soil with a depleted matrix due to wetness within the upper 20 inches will likely constitute a hydric soil.

3.2.5 Redoximorphic Features

During the soil evaluation, LEC documented the presence or absence of redoximorphic features within the soil sample. Redoximorphic features are changes in soil color and/or texture that contrast from the matrix color and dominant soil texture and include redox depletions (formerly referred to as "low-chroma mottles"), redox concentrations (formerly referred to as "high-chroma mottles"), nodules, concretions, pore linings, and oxidized rhizospheres. Redoximorphic features form through the processes of reduction, translocation, and oxidation of Fe and Mn oxides when groundwater levels fluctuate near the soil surface. Commonly observed redoximorphic features include redox depletions, occurring when minerals in the soil are reduced or removed, and redox concentrations or soil masses, occurring when minerals accumulate. Less commonly observed redoximorphic features include nodules and concretions, which are hardened, cemented soil masses. Pore linings are localized areas of brightly colored soils located adjacent to a pore within the soil. Oxidized rhizospheres are a form of pore lining that occurs on the surface of live roots of certain plants.

4. Wetland Resource Area Descriptions

Wetland Resource Areas located within or proximate to the railroad corridor include BVW, Bank to pond, Bank to intermittent stream, Land Under Waterbodies and Waterways, and Isolated Vegetated Wetland (IVW). Except for the IVW, all are jurisdictional under the *Act* and *Act Regulations*. Protectable Wetland Resource Areas associated with the proposed project are further described below.

4.1 Bank/Land Under Water Bodies and Waterways

Land Under Water Bodies and Waterways (LUW) is defined in 310 CMR 10.56 as *the land beneath any creek, river, stream, pond or lake. The boundary of Land Under Water Bodies and Waterways is the mean annual low water level.*

Bank is defined in 310 CMR 10.54 (2) (c) as *the first observable break in the slope or the mean annual flood level, whichever is lower. The lower boundary of a Bank is the mean annual low flow level.*

A pond occurs on the west side of the Swampscott Middle School property, south of the existing trail, and discharges northerly across the trail through an intermittent stream, which flows into the BVW at flags W35 and W36. Within the corridor, the Bank to pond is comprised of roots and soil and is primarily vegetated with multiflora rose (*Rosa multiflora*), Japanese knotweed, staghorn sumac, elderberry (*Sambucus* sp.), jewelweed (*Impatiens capensis*), and goldenrods (*Solidago* sp.). The bottom of the pond is comprised of mucky, leaf litter covered, substrate. The Bank to intermittent stream is comprised of soil and vegetated with jewelweed and goldenrod. The stream measures roughly six feet wide with banks measuring 6± inches high and a stream bottom comprised of coarse sand and small stones. The stream widens out further where disturbed from pedestrian, or similar, usage. Since the 2017 delineation, tree branches have been placed within a portion of the stream channel to provide pedestrian access through the stream/wet trail bed. Flags W303-W305 and W328-W322 demarcate the Bank to Pond, and flags W300-W302 and W333-335 demarcate the Bank to Intermittent Stream proximate to the trail.

An intermittent stream occurs within the trail corridor along the eastern extent of the W1-W92G series wetland. The stream appears to be a man-made drainage channel parallel to and on the north side of the former railroad bed. The stream conveys intermittent flow from the upgradient forested/scrub-shrub wetland system and terminates within a low spot in the trail corridor near Sta 64+25 (Appendix B, Site Photographs). Based on LEC's observations, surficial flow tapers in an easterly direction, presumably infiltrating into the ground along the way. Flags W82-W92G demarcate the Bank to Intermittent Stream proximate to the trail. Stream width and bank heights vary across its length. Proximate to the abutting wetland west/north of WF80 & WF81, the easterly-flowing stream is approximately 8± feet wide, narrowing to 4-5± feet in width between WF83-WF88. The northerly Bank varies in height from 1-4± feet in height, while the southerly Bank is generally 6-18± inches tall. Portions of the Bank are overgrown with jewelweed, poison ivy, multiflora rose, sweet pepperbush, pussy willow, and saplings of black cherry, American elm, and red maple. Jewelweed, poison ivy, sedges, Jack-in-the-pulpit (*Arisaema triphyllum*), and skunk cabbage (*Symplocarpus foetidus*) are also present along the toe of the Bank and within portions of the exposed, mucky substrate. The easterly terminus of the narrowing, 1-3± foot wide intermittent stream is primarily overgrown by jewelweed, poison ivy, and Japanese knotweed as Bank heights dissipate from 4-0± inches before gradually dissolving. Various slash/woody debris is strewn across portions of the stream.

4.2 Bordering Vegetated Wetlands (BVW)

Bordering Vegetated Wetland is defined at 310 CMR 10.55(2) as: *freshwater wetlands which border on creeks, rivers, streams, ponds, and lakes…Bordering Vegetated Wetlands are areas where the soils are saturated and/or inundated such that they support a predominance of wetland indicator plants…The boundary of Bordering Vegetated Wetlands is the line within which 50% or more of the vegetational community consists of wetland indicator plants and saturated or inundated conditions exist.*

A BVW (W-1 through W-92G) is located within or adjacent to the trail corridor. Between flags W1 through W20, the BVW is characterized as a forested/scrub-shrub wetland that transitions into an emergent marsh. Topography within this portion of the wetland is generally flat and gently slopes into the emergent marsh. The forested/scrub-shrub wetland contains a sparse canopy of predominantly Norway maple. The moderately sparse understory contains sweet pepperbush (*Clethra alnifolia*), with patches of highbush blueberry (*Vaccinium corymbosum*) and northern arrowwood (*Viburnum recognitum*), individual patches of sapling American beech (*Fagus grandifolia*), sapling river birch (*Betula nigra*), with individuals of sapling eastern hemlock (T*suga canadensis*), entanglements of poison ivy (*Toxicodendron radicans*), and sapling white oak (*Quercus alba*). The groundcover contains royal fern (*Osmunda regalis*), with patches of cinnamon fern (*Osmunda cinnamomea*), and individuals of sensitive fern (*Onoclea sensibilis*).

North of the forested/scrub-shrub wetland, the wetland transitions into an emergent marsh. The dense groundcover contains predominantly swamp-loosestrife (*Decodon verticillatus*), with patches of purple loosestrife, and individual common reed (*Phragmites australis*). Individual skunk cabbage and false nettle (*Boehmeria* sp.) are found at the edge of the emergent marsh.

Between flags W21 through W39, the boundary of the BVW is generally coincident with the chain link fence and/or toe of fill slope associated with the elevated former railroad bed. An intermittent stream channel parallels the BVW boundary. A red maple swamp and PVP is located north of the BVW proximate to flag W26. MHW 1 to MHW 5 demarcate the PVP's mean high-water line as it relates to the Trail.

As noted above, this BVW is hydrologically connected to the 300-series wetland (i.e., Pond) through an intermittent stream channel flowing northerly across the trail proximate to wetland flags 35 and 36. While a wetland occurs intermittently along the pond's edge, the wetland flags largely represent the Bank to Pond. The BVW canopy is sparse and

contains ash (*Fraxinus* sp.) and river birch, while the understory contains sweet pepperbush, maleberry (*Lyonia ligustrina*), highbush blueberry, sapling willow (*Salix* sp.), northern arrowwood, and Japanese knotweed. The ground cover contains sensitive fern and water horehound (*Lycopus americanus*), and dock (*Rumex* sp.).

Between flags W43 through W92G (Between STA 54+00 and STA 64+25), the BVW is characterized as a scrub-shrub wetland and contains red maple (*Acer rubrum*), speckled alder (*Alnus incana*), highbush blueberry, northern arrowwood, dogwood (*Cornus* sp.), elderberry, willow, multiflora rose, skunk cabbage, and sensitive fern. The boundary is generally coincident with the toe of fill slope. The BVW, which flows easterly through two (2) culverts located beneath cart paths connecting the athletic fields, terminates in a small depression within the trail corridor.

The 200-series BVW occurs north of the trail corridor between STA 69+00 and STA 76+00). Roadway drainage from the Nason Road area is piped to and discharges into the BVW through two box culverts near wetland flags W201 through W204. The boundary of this scrub-shrub and emergent wetland is generally coincident with the toe of fill slope. Vegetation within the scrub-shrub wetland includes sapling red maple, highbush blueberry, speckled alder, willow, and northern arrowwood, while the emergent wetland is dominated by cattail and includes patches of silky dogwood (*Cornus amomum*).

5. Proposed Project

Swampscott Rail Trail

The proposed Swampscott Rail Trail includes construction of a new multi-use trail extending from Stetson Avenue to the Marblehead Town Line (east of Bellevue Road). The project would create a safe, accessible, Americans with Disabilities Act (ADA) compliant trail providing increased recreational opportunities, and off-road transportation alternatives to access work, school, and other modes of transportation (e.g., buses and trains). Rail trail projects like the Swampscott Rail Trail are aligned with the Massachusetts Department of Transportation multi-modal long-range transportation plan.

The trail will consist of a 10-foot wide stabilized stone dust surface with vegetated shoulders. Representative trail cross sections for sections subject to the Notice of Intent Application are provided within the *Plan Set* (Sheet 5). The existing steel railroad tracks and timber ties, where present, and gravel or paved surfaces will be removed and the new trail will be comprised of an 8-inch minimum gravel base with a 4-inch stabilized stone

dust surface and will be graded at a 1.5% cross pitch to promote a dry trail bed. A minimum two-foot wide vegetated shoulders will be established along the trail, and minor grading beyond the shoulders may be required to blend into adjacent grades. The shoulders and adjacent temporarily disturbed areas will be vegetatively stabilized. The seed mix will be comprised of a native grass seed mix, comprised of low growing, native draught tolerant grass species with wildflowers. Clearing of naturalized vegetation will be required to accommodate the new alignment, grading, and provide clearance from branches or obstructions for trail users. However, to the extent practicable, existing trees will be retained and, where needed, permanent and temporary tree protection devises will be utilized. Household debris, if encountered, and select encroachments (e.g., chain link fences and pavement) will also be removed. New wood rail fencing will be installed in select areas. Where needed, the existing utility poles, anchors/guy wires, and overhead wires will be relocated to accommodate the new trail alignment.

The existing granite blocks from with the cattle pass culvert will be removed and area filled in to accommodate the trail. The granite blocks will either be repurposed along the trail or removed and used by the Town of Swampscott Department of Public Works.

A new 10-foot wide stone dust spur trail at STA 67+00 will provide access to the Tedesco trail system, and the existing gravel trail at the terminus of Neighborhood Road will be retained to continue to provide trail access.

Where the trail traverses the Middle School's lower parking lot, a barrier, comprised of curbing and wood rail fence guardrails, will be installed on the north side of the trail to separate the two uses. The south side of the trail abuts a hillside and concrete retaining wall.

Overall, there will be a net reduction in impervious surface due primarily to the conversion of pavement to stone dust trail within the lower parking lot. Since the gravel base and stone dust trail surface is pervious, compliance with the Stormwater Management Standards is not required. However, the vegetated shoulders, drainage channel, and/or naturalized areas immediately adjacent to the Trail will mitigate stormwater run-off that may occur from the pervious trail bed by slowing stormwater velocity, reducing erosion, and promoting infiltration.

Stream Relocation

To accommodate the trail alignment, the existing 293± foot long intermittent stream located east of WF82, between STA 61+33± to STA 64+20±, will be relocated slightly north of its existing position. It is important to note that one of the goals in designing the

trail was to retain as wide a vegetative buffer between the trail and adjacent residential properties as possible. To that end, tree protection fencing along the southerly Limit of Work will be implemented during construction. Another goal was to retain household encroachments to the extent practicable. Avoiding stream impacts along the narrow upland area would have resulted in significantly reducing the vegetative buffer and removal of select encroachments, like fences, a patio, and pavement. The proposed 290± foot long stream of variable width will be restored with a naturalized bank and stream bottom and has been designed to functionally improve the stream's natural capacity to protect the Interests of the *Act*. The bottom of the stream channel will be loamed and seeded with a FacW wet meadow seed mix, and the side slopes and bank will be seeded with a roadside matrix wet meadow seed mix comprised of assorted grasses, sedges, forbs, and shrubs (i.e., northern arrowwood, elderberry, and silky dogwood (*Conus amomum*)). Due to steeper slopes, a 10±foot segment of stream will be comprised of modified rockfill.

Drainage Channel

The relocated stream channel will discharge into the proposed 316± foot long drainage channel located between STA 64+20± and STA 67+36±, north of Nason Road. The vegetated drainage channel will convey any runoff generated from the trail and surrounding hillside area as well as the relocated stream channel and discharge to vegetated areas located roughly 150 feet west of the 200 series wetland, where runoff is expected to overland sheet flow towards the BVW.

Stream Crossing

A precast box culvert, designed in compliance with the Massachusetts Stream Crossing Standards, is planned to provide access over the intermittent stream at STA 48+00. As required, the culvert will be embedded a minimum of two feet to accommodate a reconstructed stream channel. The existing stream channel substrate will be reused to form the bottom 18-inches of stream and bank substrate and will be topped with a 6-inch layer of rounded river stone, 2-4 inches in diameter. Beyond the banks, the overall width of the (dry) wildlife passage will be a minimum of 2.6 feet. Since low light levels are anticipated within the culvert, vegetation is not anticipated to thrive. As such, in order to provide a stabilized surface treatment for the wildlife passage area, stone will similarly be used

The project is located within Bank and LUW to pond and intermittent stream and the 100-foot Buffer Zone to Bank and/or BVW. Work within these areas include installing

erosion controls to establish the limit of work, implementing trail improvements, installing the box culvert at the stream crossing, and/or relocating the stream.

The following table summarizes the temporary wetland resource area impacts:

Wetland Resource Area Impacts (Temporary)	Activity		Total
	Stream Crossing (STA 48+00)	Stream Relocation (STA 61+33 to STA 64+20)	
Bank (linear feet)	99	586	685
LUW (square feet)	306	3,036	3,036

6. Wildlife Habitat

LEC has completed the following wildlife habitat assessment in compliance with the WPA for the proposed project. Brian Madden (Wildlife Scientist) of LEC conducted the wildlife habitat evaluation on July 2, 2019. Mr. Madden has over 17 years of experience conducting rare species surveys and wildlife habitat evaluations in Massachusetts, therefore meeting the qualifications criteria referenced in 310 CMR 10.60(1)(b) of the WPA.

As stated above, the project will result in the temporary alteration of 99± linear feet of Bank to an intermittent stream associated with the stream crossing and 586± linear feet of man-made Bank to an intermittent stream (drainage channel). The stream crossing conforms with Stream Crossing Standards, and the intermittent stream (drainage channel) and associated 586± linear feet of Bank will be recreated with a natural stream channel.

Banks are presumed to be significant to the protection of wildlife habitat under the WPA. However, under existing conditions, wildlife habitat value is somewhat diminished due to the landscape context and artificial nature of the intermittent streams, most notably the easterly stream that was presumably created for drainage purposes associated with the railroad. Furthermore, the easterly stream does not discharge to a downgradient Resource Area, but simply dissipates over its length.

The following reviews the existing wildlife habitat conditions associated with the Wetland Resource Areas to be altered. Detailed descriptions of the Wetland Resource Areas are provided above (e.g., vegetation, soils, topography, hydrology, etc.). In

addition to reviewing wildlife habitat features on-site, habitat continuity, more specifically, landscape context, connectivity with adjoining natural habitats, and (existing) habitat degradation must be taken into consideration to evaluate potential cumulative adverse effects on wildlife habitat. Proposed mitigation, described in Section 7 below, has been specifically designed to avoid an impairment of the capacity of the Wetland Resource Area's ability to provide applicable important wildlife habitat functions, while in fact maintaining or providing an improvement to wildlife habitat in comparison to existing conditions.

6.1 Wildlife Habitat Protection Guidance

In consideration of the proposed Bank (temporary) alteration, LEC has completed the attached "Appendix A" *Simplified Wildlife Habitat Evaluation Form* (Appendix D) in accordance with the Massachusetts *Wildlife Habitat Protection Guidance for Inland Wetlands* March 2006 (*Wildlife Habitat Guidance*) prepared by DEP. As (temporary) impacts to Bank are more than twice the threshold at 310 CMR 10.54 (4)(a)5., LEC has completed "Appendix B" *Detailed Wildlife Habitat Evaluation Form* (Appendix D).

The "Appendix A" *Simplified Wildlife Habitat Evaluation* contains two sections: *Important Habitat Features* and *Activities*.

The *Important Habitat Features* section for Appendix A contains a list of specific habitat features that, if present or within the alteration footprint, should be avoided if possible, and if not possible, should be incorporated into any mitigation or wetland replacement plan to ensure such features are preserved on the site and that the alteration does not substantially reduce the capacity of the Wetland Resource Area to provide important wildlife habitat functions.

Habitat for State-listed Animal Species

According to the 14th edition of the *Massachusetts Natural Heritage Atlas* (effective August 1, 2017) and NHESP MassGIS data layer, the proposed project is not located within a Priority/Estimated Habitat.

Sphagnum hummocks and pools suitable to serve as nesting habitat for four-toed salamanders

No sphagnum hummocks or potential nesting habitat for four-toed salamanders exists along the intermittent streams.

Trees with large cavities (>18" tree diameter at cavity entrance)

No trees with large cavities were observed on the Banks associated with the intermittent streams.

Direct disturbance to existing beaver, mink or otter dens

Beaver, mink or otter dens are not associated with the on-site intermittent streams.

Areas within 100 feet of existing beaver, mink or otter dens (if significant disturbance)

See above.

Existing bald eagle, osprey, and great blue heron nesting trees

Habitat for these species does not exist within the proposed Limit of Work. Bald eagles and ospreys nest within large trees or elevated platforms, respectively, typically adjacent to or within close proximity to large water bodies with abundant fish resources. Great blue heron usually breed in colonies; typically nesting in trees (usually snags) high above marshes or wet meadows.

Land containing freshwater mussel beds

Land containing freshwater mussel beds is found within perennial rivers, ponds or lakes with appropriate substrate; conditions not associated with the on-site intermittent streams.

Wetlands and waterbodies known to contain open water in winter with the capacity to serve as waterfowl winter habitat

The on-site intermittent streams do not provide waterfowl winter habitat.

Turtle Nesting Areas

Turtles typically prefer nesting sites comprised of open sandy areas with little vegetation and appropriate sun exposure for incubation purposes. The corridor is primarily overgrown by vegetation, deterring potential turtle nesting habitat.

Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

The embankments, both natural and artificial, of the intermittent streams are inadequate to provide such habitat. These bird species typically nest along larger river/pond systems and taller embankments that provide protection from nest predators.

Stream bed riffle zones (especially rare in eastern MA, Cape, and the Islands)

Characteristic stream bed riffle zones are not present within the on-site intermittent streams.

Springs (important for maintaining base flows and moderating water temperatures)

No springs were observed on-site. The westerly intermittent stream (stream crossing) discharges flow from a small pond, while the easterly intermittent stream originates from a scrub shrub swamp.

Gravel stream bottoms (trout and salmon nesting substrate)

The shallow intermittent stream bed does not provide fisheries habitat.

Plunge pools (deep holes) in rivers or streams

No plunge pools or deep holes are present within the on-site intermittent stream channels.

Medium to large, flat rock substrates in streams

No medium to large, flat rocks are present within the intermittent streams.

The *Activities* section of Appendix A includes a list of specific activities that may adversely affect wildlife habitat functions. If present within a Wetland Resource Area proposed to be altered, the activity should be avoided if possible, and if not possible, should be incorporated into any mitigation or wetland replacement to ensure such features are preserved on a site and that the alteration does not substantially reduce the capacity of the Wetland Resource Area to provide important wildlife habitat functions.

Activities located in mapped "Habitat of Potential Regional or Statewide Importance"

According to the "Habitat of Potential Regional or Statewide Importance" map for Swampscott, the project site is not mapped as "Important Wildlife Habitat" by the MA DEP CAPS (Conservation Assessment and Prioritization Systems) program.

Activities affecting Certified or documented vernal pool habitat (including habitat within 100' of a Certified or documented vernal pool when within a resource area)

No Certified Vernal Pools (CVP) occur immediately proximate to temporary work areas impacting Bank. However, CVP #2150 is located within the eastern extent of the 200-series wetland (W 218 through W223). While a 115± foot section of the trail is located approximately 80 feet from this CVP, the proposed work immediately abuts existing residential development along the utility corridor. As noted above, CVP # 2214 is also identified within the lower parking lot of the Middle School, however, NHESP has provided clarification to LEC that the actual location of the CVP is north of the tennis courts within the Tedesco Country Club property.

Activities in Bank, Land Under Water, Bordering Land Subject to Flooding (presumed significant), where alterations are more than twice the size of thresholds

As stated above, the project will result in the temporary alteration of 586± linear feet of man-made Bank to an intermittent stream; however, will restore 586± linear feet of Bank with the recreated, natural stream channel.

Activities affecting vegetated wetlands >5,000 square feet occurring in resource areas other than Bordering Vegetated Wetlands

The proposed project does not impact vegetated wetlands.

Activities affecting the sole connector between habitats >50 acres in size

The on-site wetland system does not function as a sole connector of habitats greater than 50 acres in size. As described above, the on-site wetlands occur within a moderately dense residential neighborhood that is highly fragmented.

Installation of structures that prevent animal movement

The stream crossing and restored Bank will serve to maintain animal passage along/across the stream in comparison to existing conditions.

Activities for the purpose of Bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage

Aside from the 10± linear feet of the modified rock stabilizing a small length of the restored stream, no hard structures that negatively impact the stream channel and disrupt continuity are proposed.

Dredging (greater than 5,000 square feet)

No dredging is proposed.

Furthermore, the proposed project will not permanently impair or remove any important habitat features listed in Section III of Appendix B Detailed Wildlife Habitat Evaluation (Appendix D).

7. Mitigation Measures

7.1 Sedimentation and Erosion Control

A sedimentation and erosion control program will be implemented to protect the adjacent Wetland Resource Areas from sedimentation during the proposed construction activities. As shown throughout the *Plan Set*, erosion controls consisting of 12-inch diameter compost filter tubes will be installed to demarcate the limit of work in the vicinity of Wetland Resource Areas and will provide additional assurance that construction equipment will not further intrude upon the Buffer Zone to protectable Wetland Resource Areas. In addition to the compost filter tubes, silt sacks are proposed within

nearby/downgradient catch basins during construction. All barriers will remain in place until disturbed areas are stabilized with vegetation.

At the stream crossing, silt curtains will be installed along the pond edge to allow for installation of the box culvert and wingwalls. If needed, sand bags will also be installed at the pond outlet in an effort to conduct the stream bed excavations in the dry. As needed, an outlet diversion will be utilized.

Similar to the stream crossing, the goal is to conduct stream relocation activities in the dry. An erosion control barrier and/or sand bags will be installed along the BVW boundary, and a stream diversion will be utilized as needed. Due to limited space, phasing the activities (i.e., construction of new stream before eliminated the existing stream) may not be feasible.

7.2 Bank and LUW Replication

Approximately 586 linear feet of Bank (i.e., 293 feet of Bank on each side of the stream) will be constructed to replace the 586± linear feet of Bank associated with the stream relocation. In addition, roughly 3,036 square feet of LUW will be constructed to replace the 3,036 square feet of LUW loss. Minor grading within the adjacent BVW may be required to achieve stream continuity for the proposed stream channel. A wetland seed mix (PA New England Province FacW Mix by Ernst Conservation Seeds) will be applied to the stream bottom, and a wetland/shrub seed mix (Roadside Matrix Wet Meadow Mix by New England Wetland Plans) will be applied to the side slopes, Bank, and adjacent areas, and raked.

8. Regulatory Compliance

Portions of the proposed activities will occur within Bank and LUW. As a result, the project includes measures to ensure compliance with the applicable performance standards within the *Act Regulations.* Below are citations of the pertinent performance standards and an explanation of the project's compliance with the performance standards.

8.1 Bank

The following Bank performance standards are stated under 310 CMR 10.54(4) as follows:

(a) Where the presumption set forth in 310 CMR 10.54(3) is not overcome, any proposed work on a Bank shall not impair the following:

1. the physical stability of the Bank;

2. the water carrying capacity of the existing channel within the Bank;

3. ground water and surface water quality;

4. the capacity of the Bank to provide breeding habitat, escape cover and food for fisheries;

5. the capacity of the Bank to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 50 feet (whichever is less) of the length of the bank found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. In the case of a bank of a river or an intermittent stream, the impact shall be measured on each side of the stream or river. Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.

The project proposes to relocate a 293± lf segment of an intermittent stream between WF82-WF92G. As stated above, this intermittent stream appears to have been excavated in the past for drainage purposes, presumably associated with the railroad. Under existing conditions, the stream does not connect to a downgradient wetland, but simply dissipates into the ground.

In order to ensure that the water carrying capacity and wildlife habitat are maintained post-construction, the physical and vegetative characteristics of the stream and its associated Bank and Land Under Water are to be re-established in kind and/or enhanced. The water carrying capacity within the Bank, as well as the groundwater and surface water quality, will be maintained, if not improved, by establishing a vegetated bank. The existing intermittent stream does not support fisheries.

As stated above, the existing Bank is vegetated, in part, with multiflora rose and Japanese knotweed. As noted, the Bank, will be revegetated with native shrubs and forbs that will enhance wildlife habitat functions (i.e., food) associated with Bank. The proposed structure and composition of the Bank will continue to provide shelter, overwintering, and breeding areas for birds, mammals, reptiles, and amphibians. Thus, creating a continuous stream channel with natural bank conditions will serve to maintain and enhance wildlife habitat functions associated with Bank.

For the stream crossing, the following Bank performance standard applies:

6. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.54(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirement of 310 CMR 10.54(4)(a)5., the impact on bank caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures contained in 310 CMR 10.60.

As noted on the *Plans* (Sheet 7), this stream crossing exceeds the 1.2x the bankfull width, maintains an openness ratio of >0.82 (i.e., 1.03), and meets the Massachusetts Stream Crossing Standards, and is therefore presumed to meet the Bank performance standards at 310 CMR 10.54 (4)(a)(6).

8.2 **Land Under Water Bodies and Waterways**

The project involves 3,036± square feet of temporary LUW alteration. In-kind restoration of the LUW is proposed for temporary alteration. The *Act Regulations* at 310 CMR 10.56 (4)(a) provide specific performance standards for work within LUW as provided below:

(4) General Performance Standards.

(a) Where the presumption set forth in 310 CMR 10.56(3) is not overcome, any proposed work within Land under Water Bodies and Waterways shall not impair the following:

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

2. Ground and surface water quality;

3. The capacity of said land to provide breeding habitat, escape cover and food for fisheries; and

4. The capacity of said land to provide important wildlife habitat functions. A project or projects on a single lot, for which Notice(s) of intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions.

Additional alterations beyond the above threshold may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures established under 310 CMR 10.60.

The water carrying capacity and groundwater and surface water quality of the channel will be maintained, if not improved, by establishing a vegetated stream bottom and bank. As noted above, the existing intermittent stream does not support fisheries. Finally, wildlife habitat functions of LUW will be maintained, when compared to the existing channel bottom. Thus, LUW's ability to provide wildlife habitat functions will be maintained by re-establishing the stream bottom with a diversified species mix.

For the stream crossing, the following LUW performance standard applies:

5. Work on a stream crossing shall be presumed to meet the performance standard set forth in 310 CMR 10.56(4)(a) provided the work is performed in compliance with the Massachusetts Stream Crossing Standards by consisting of a span or embedded culvert in which, at a minimum, the bottom of a span structure or the upper surface of an embedded culvert is above the elevation of the top of the bank, and the structure spans the channel width by a minimum of 1.2 times the bankfull width. This presumption is rebuttable and may be overcome by the submittal of credible evidence from a competent source. Notwithstanding the requirements of 310 CMR 10.56(4)(a)4., the impact on Land under Water Bodies and Waterways caused by the installation of a stream crossing is exempt from the requirement to perform a habitat evaluation in accordance with the procedures established under 310 CMR 10.60…

As noted on the *Plans* (Sheet 7), this stream crossing exceeds the 1.2x the bankfull width, maintains an openness ratio of >0.82 (i.e., 1.03), and meets the Massachusetts Stream Crossing Standards, and is therefore presumed to meet the LUW performance standards at 310 CMR 10.56 (4)(a)(5).

9. Summary

On behalf of the Applicant, the Town of Swampscott, LEC is submitting this Notice of Intent Application to construct the Swampscott Rail Trail, a multi-use trail extending from Stetson Avenue to the Marblehead Town Line. Portions of the proposed project are located within Bank, LUW, and/or the 100-foot Buffer Zone to BVW and/or Bank as protected under the *Massachusetts Wetlands Protection Act* (M.G.L., c. 131, s. 40) and its implementing *Regulations* (310 CMR 10.00).

The proposed project has been designed to comply with the applicable performance standards associated with Bank and LUW as described herein. Therefore, the Applicant is requesting that the Commission issue an Order of Conditions approving the project as proposed.

Massachusetts Department of Environmental Protection - Division of Wetlands and Waterways, Delineating *Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, A Handbook*, dated 1995.

Massachusetts Natural Heritage and Endangered Species Program Atlas of Estimated Habitat of State-listed Rare Wetlands Wildlife. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife, Route 135, Westborough, MA 01581, www.state.ma.us/dfwele/dfw

Massachusetts Wetlands Protection Act (M.G.L. c. 131, §. 40), www.state.ma.us/dep
Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00), www.state.ma.us/dep

National Flood Insurance Program, Federal Emergency Management Agency Flood Insurance Rate Map for Essex County (*Community Panels 25009C0531G* and *25009C0532G*), July 16, 2014.

New England Hydric Soils Technical Committee. May 2017, 4th ed., *Field Indicators for Identifying Hydric Soils in New England.*

Reed, P.B. 1988. *National List of Plant Species that Occur in Wetlands: 1988 Massachusetts*. U.S. Department of the Interior, Fish and Wildlife Service. NERC-88/18.21.

Appendix A

Locus Maps

Figure 1: USGS Topographic Quadrangle

Figures 2A &2B: FEMA Flood Insurance Maps

Figure 3: Aerial Orthophoto & NHESP Mapping

NHESP Email Communication

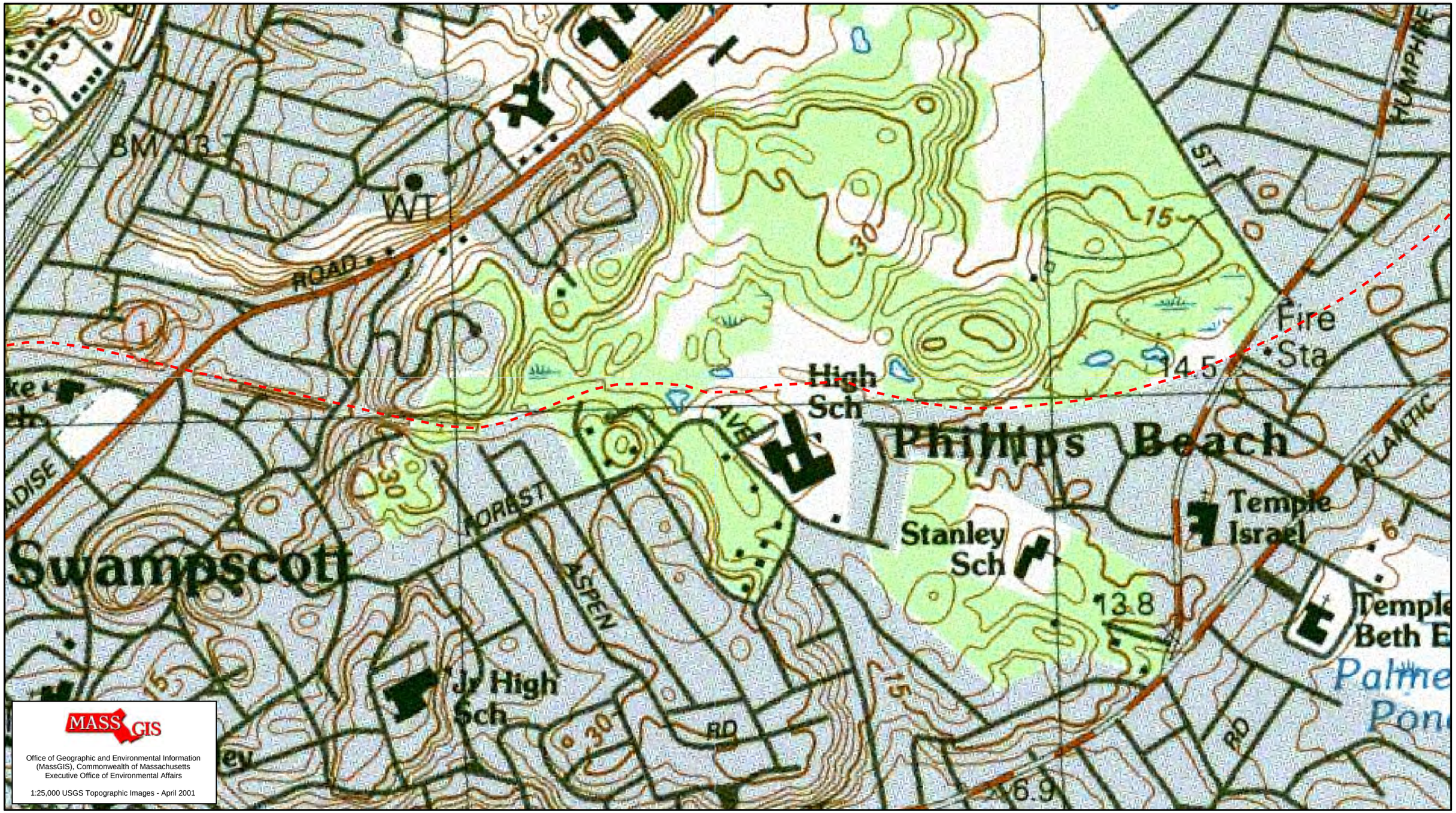

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Figure 1: USGS Topographic Map
Swampscott Rail Trail
Swampscott, MA

June 19, 2019

Figure 2A: FEMA Flood Insurance Rate Map

MAP SCALE 1" = 500'

250 0 500 1000 FEET METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0531G

FIRM

FLOOD INSURANCE RATE MAP

ESSEX COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 531 OF 600

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LYNN, CITY OF	250088	0531	G
SALEM, CITY OF	250102	0531	G
SWAMPSCOTT, TOWN OF	250105	0531	G

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.

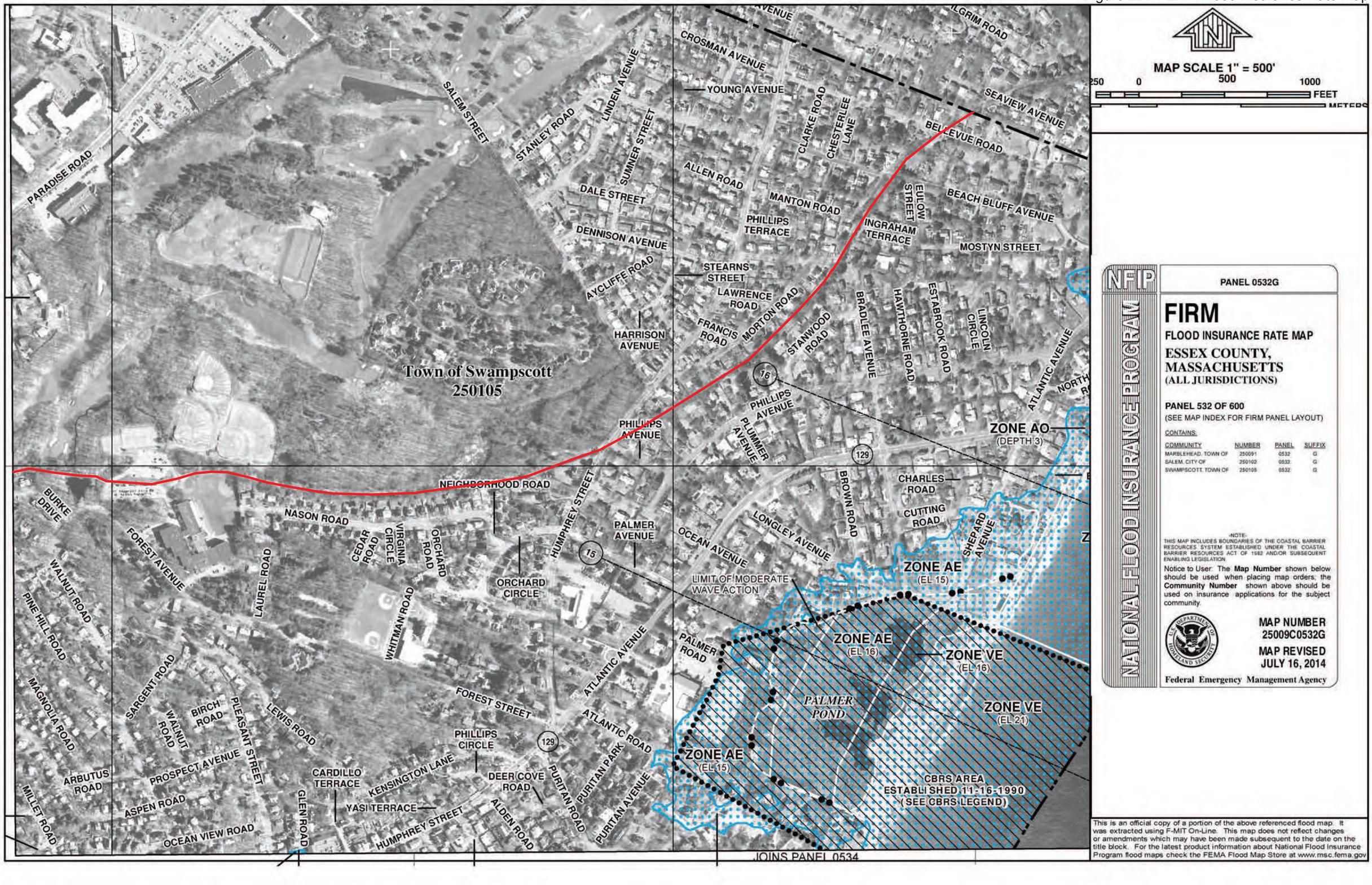
MAP NUMBER
25009C0531G

MAP REVISED
JULY 16, 2014

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Figure 2B: FEMA Flood Insurance Rate Map



LEC
Environmental Consultants, Inc.
Wakefield, MA
781.245.2500
www.lecenvironmental.com

Figure 3: MassGIS Orthophoto & NHESP Map
Swampscott Rail Trail
Swampscott, MA

June 19, 2019

N
0 150 300 Feet

From: Kubel, Jacob (FWE)
To: Andrea Kendall
Subject: RE: CVP mapping
Date: Tuesday, July 30, 2019 2:57:53 PM
Attachments: image003.emz
image004.png

Hi Andrea,

I pulled the file for this pool (CVP #2214) and another (CVP #2147) in the vicinity and see that our locus points for both are mapped imprecisely. Both pools are on the country club property, in the wetland complex north of the school tennis courts. CVP #2147 is ~150 ft north of the east end of the courts (42.476060, -70.903123). I need a little more time to determine where, exactly, within the complex CVP #2214 is situated, but I can say for now that it is within 300 ft of #2147, to its west. Once I have that figured out, we will proceed with a correction to each pool locus.

Please let me know if this information is sufficient for your needs. If not, I can provide the specific geographic coordinates of #2214 later this week.

Thanks,
Jake

Jacob E. Kubel
Conservation Scientist
Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6373 | e: jacob.kubel@mass.gov
mass.gov/masswildlife | facebook.com/masswildlife

From: Andrea Kendall [mailto:AKendall@lecenvironmental.com]
Sent: Tuesday, July 30, 2019 9:35 AM
To: Cheeseman, Melany (FWE)
Subject: CVP question

Hi Melany-

I see that CVP #2214 is mapped within a parking lot at the Swampscott Middle School. Can you provide clarification on its intended location? There is a stormwater basin directly to the west and a pond to the southwest and various wetland systems to the east and northeast.

Thank you.
Andrea

Please note I will be on vacation from August 5th through August 18th.

Visit our Website at: www.lecenvironmental.com for a full listing of our services.

Andrea Kendall

Senior Environmental Scientist
LEC Environmental Consultants, Inc.

508-365-8321 Mobile

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Suite 302	Suite 101	Suite 1	Rindge, NH 03461
Worcester, MA 01605	Wakefield, MA 01880	Plymouth, MA 02360	
508-753-3077	781-245-2500	508-746-9491	603-899-6726
508-753-3177 Fax	781-245-6677 Fax	508-746-9492 Fax	603-899-6726 Fax
www.lecenvironmental.com			
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LEC is a certified Women's Business Enterprise (WBE) in MA & RI and a Disadvantaged Business Enterprise (DBE) in CT, MA, ME, NH, RI & VT.

Appendix B

Site Photographs

Photo 1. Representative view of inaccessible trail corridor north of Nason Road before implementation of National Grid's vegetation maintenance program.

Photo 2. Representative view of trail corridor north of Nason Road after implementation of National Grid's vegetation maintenance program.

Photo 3. Representative view of narrow path within trail corridor.

Photo 4. Easterly view of paved path within trail corridor west of Humphrey Street.

Photo 5. Westerly view of trail corridor west of Humphrey Street.

Photo 6. Representative view of trail corridor within cut section.

Photo 7. Westerly view of trail corridor within Swampscott Middle School lower parking lot.

Photo 8. Easterly view of trail corridor within Swampscott Middle School lower parking lot.

Photo 9. Easterly view of trail corridor adjacent to Swampscott Middle School athletic fields.

Photo 10. Representative view of trail corridor west of Swampscott Middle School.

Photo 11. Westerly view of proposed stream crossing at STA 48+00

Photo 12. Northerly view of proposed stream crossing at STA 48+00.

Photo 13. Southerly view of proposed stream crossing at STA 48+00. Pond in background.

Photo 14. Easterly view of stream to be relocated.

Photo 15. View of existing railroad infrastructure adjacent to existing stream to be relocated.

Appendix C

MassDEP Bordering Vegetated Wetland Delineation Field Data Forms

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Swampscott

Prepared by: LEC Environmental Consultants, Inc.
LEC File #: SI\17-286.02

Project location: Swampscott Rail Trail, Swampscott, MA
DEP File #:_____

Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number: 2 (upland)		Transect Number: 1 (W-2)	Date of Delineation: 11/21/2017
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (Midpoints used)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Ground Cover (Absent)				
Shrubs				
Norway maple (*Acer platanoides*)	3.0%	100%	Yes	UPL
Saplings				
Norway maple (*Acer platanoides*)	3.0%	100%	Yes	UPL
Climbing woody vines (Absent)				
Tree				
Norway maple (*Acer platanoides*)	20.5%	55%	Yes	UPL
White oak (*Quercus alba*)	3.0%	8%	No	
Shagbark hickory (*Carya ovata*)	10.5%	28%	Yes	FACU
Yellow birch (*Betula alleghaniensis*)	3.0%	8%	No	

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 0

Number of dominant non-wetland indicator plants: 4

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? yes (no)

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? (yes) no
title/date: NRCS Web Soil Survey, Essex County Massachusetts, Southern Part, Version 14, October 6, 2017
map number: N/A
soil type mapped: Whitman Fine Sandy Loam, 0 to 3 percent slopes, extremely stony
hydric soil inclusions:

Are field observations consistent with soil survey? yes (no)
Remarks: The textures and colors are similar, but the depths of the horizons differ from what is described in the soil survey.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-11”	10YR 3/2 fsl	
B	11-12”	10YR 3/3 coarse sl	
Refusal @ 12”			

Remarks:

3. Other:

Conclusion: Is soil hydric? yes (no)

Other Indicators of Hydrology: (check all that apply & describe)

- ❑ Site Inundated: _____
- ❑ Depth to free water in observation hole: _____
- ❑ Depth to soil saturation in observation hole: _____
- ❑ Water marks: _____
- ❑ Drift lines: _____
- ❑ Sediment Deposits: _____
- ❑ Drainage patterns in BVW: _____
- ❑ Oxidized rhizospheres: _____
- ❑ Water-stained leaves:_____
- ❑ Recorded Data (streams, lake, or tidal gauge; aerial photo; other):
  _____
  _____
  _____
- ❑ Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ # of non-wetland indicator plants		X
Wetland hydrology present:		
Hydric soil present		X
Other indicators of hydrology present		X
Sample location is in a BVW		X

Submit this form with the Request for Determination of Applicability or Notice of Intent.

MassDEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form

Applicant: Town of Swampscott

Prepared by: LEC Environmental Consultants, Inc.
LEC File #: SI\17-286.02

Project location: Swampscott Rail Trail, Swampscott, MA
DEP File #:_____

Check all that apply:

- ❑ Vegetation alone presumed adequate to delineate BVW boundary: fill out Section I only
- ☑ Vegetation and other indicators of hydrology used to delineate BVW boundary: fill out Sections I and II
- ❑ Method other than dominance test used (attach additional information)

Section I.

Vegetation	Observation Plot Number: 1 (wetland)		Transect Number: 1 (W-2)	Date of Delineation: 11/21/2017
A. Sample Layer & Plant Species (by common/scientific name)	B. Percent Cover (Midpoints used)	C. Percent Dominance	D. Dominant Plant (yes or no)	E. Wetland Indicator Category*
Ground Cover				
Sensitive fern (*Onoclea sensibilis*)	3.0%	50%	Yes	FACW*
Cinnamon fern (*Osmunda cinnamomea*)	3.0%	50%	Yes	FACW*
Shrubs				
Sweet pepperbush (*Clethra alnifolia*)	10.5%	54%	Yes	FAC*
Norway maple (*Acer platanoides*)	3.0%	15%	No	
Northern arrowwood (*Viburnum dentatum*)	3.0%	15%	No	
Winterberry holly (*Ilex verticillata*)	3.0%	15%	No	
Sapling				
Norway maple (*Acer platanoides*)	3.0%	100%	Yes	UPL
Climbing woody vines				
Poison ivy (*Toxicodendron radicans*)	3.0%	100%	Yes	FAC*
Tree				
Red maple (*Acer rubrum*)	10.5%	39%	Yes	FAC*
Red oak (*Quercus rubra*)	10.5%	39%	Yes	FACU
Yellow birch (*Betula alleghaniensis*)	3.0%	11%	No	
Beech (*Fagus grandifolia*)	3.0%	11%	No	

* *Use an asterisk to mark wetland indicator plants: plant species listed in the Wetlands Protection Act (MGL c.131, s.40); plants in the genus Sphagnum; plants listed as FAC, FAC+, FACW-, FACW, FACW+, or OBL; or plants with physiological or morphological adaptations. If any plants are identified as wetland indicator plants due to physiological or morphological adaptations, describe the adaptation next to the asterisk.*

Vegetation conclusion:

Number of dominant wetland indicator plants: 5

Number of dominant non-wetland indicator plants: 2

Is the number of dominant wetland plants equal to or greater than the number of dominant non-wetland plants? (yes) no

If vegetation alone is presumed adequate to delineate the BVW boundary, submit this form with the Request for Determination of Applicability or Notice of Intent

Section II. Indicators of Hydrology

Hydric Soil Interpretation

1. Soil Survey

Is there a published soil survey for this site? (yes) no
title/date: NRCS Web Soil Survey, Essex County Massachusetts, Southern Part, Version 14, October 6, 2017
map number: N/A
soil type mapped: Whitman Fine Sandy Loam, 0 to 3 percent slopes
hydric soil inclusions:

Are field observations consistent with soil survey? yes (no)
Remarks: The textures and colors are similar, but the depths of the horizons differ from what is described in the soil survey.

2. Soil Description

Horizon	Depth	Matrix Color	Mottles Color
A	0-14”	10YR 2/1 mucky fsl	
B	14-19”	10YR 2/2 mucky sl	

Remarks:

3. Other:

Conclusion: Is soil hydric? (yes) no

Other Indicators of Hydrology: (check all that apply & describe)

- ❑ Site Inundated: _____
- ❑ Depth to free water in observation hole: _____
- ☑ Depth to soil saturation in observation hole: soil saturated to surface
- ❑ Water marks: _____
- ❑ Drift lines: _____
- ❑ Sediment Deposits: _____
- ❑ Drainage patterns in BVW: _____
- ❑ Oxidized rhizospheres: _____
- ☑ Water-stained leaves: present
- ❑ Recorded Data (streams, lake, or tidal gauge; aerial photo; other):
  _____
  _____
  _____
- ❑ Other: _____

Vegetation and Hydrology Conclusion

	Yes	No
Number of wetland indicator plants ≥ # of non-wetland indicator plants	X	____
Wetland hydrology present:		
Hydric soil present	X	_____
Other indicators of hydrology present	X	_____
Sample location is in a BVW	X	_____

Submit this form with the Request for Determination of Applicability or Notice of Intent.

Appendix D

Appendix A - Simplified Wildlife Habitat Evaluation Form

Appendix B - Detailed Wildlife Habitat Evaluation

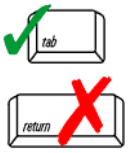
Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Wetlands program

Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Project Information

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



Swampscott Rail Trail, Stetson Avenue to Marblehead Town Line, Swampscott
Project Location (from NOI)

Brian Madden, LEC Environmental Consultants, Inc. — 7/2/2019
Name of Person Completing Form — Date

Important Habitat Features

Direct alterations to the following important habitat features in resource areas may be permitted only if they will have no adverse effect (refer to Section V).

- ☐ Habitat for state-listed animal species (receipt of a positive opinion or permit from MNHESP shall be presumed to be correct. Do not refer to Section V).
- ☐ Sphagnum hummocks and pools suitable to serve as nesting habitat for four-toed salamanders
- ☐ Trees with large cavities (≥18" tree diameter at cavity entrance)
- ☐ Existing beaver, mink or otter dens
- ☐ Areas within 100 feet of existing beaver, mink or otter dens (if significant disturbance)
- ☐ Existing nest trees for birds that traditionally reuse nests (bald eagle, osprey, great blue heron)
- ☐ Land containing freshwater mussel beds
- ☐ Wetlands and waterbodies known to contain open water in winter with the capacity to serve as waterfowl winter habitat
- ☐ Turtle nesting areas
- ☐ Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

The following habitat characteristics when not commonly encountered in the surrounding area:

- ☐ Stream bed riffle zones (e.g. in eastern MA)
- ☐ Springs
- ☐ Gravel stream bottoms (trout and salmon nesting substrate)
- ☐ Plunge pools (deep holes) in rivers or streams
- ☐ Medium to large, flat rock substrates in streams

Wildlife Habitat Protection Guidance

Appendix A: Simplified Wildlife Habitat Evaluation

Activities

When any one of the following activities is proposed within resource areas, applicants should complete a Detailed Wildlife Habitat Evaluation (refer to Appendix B).

☐ Activities located in mapped "Habitat of Potential Regional or Statewide Importance"

☐ Activities affecting certified or documented vernal pool habitat, including habitat within 100' of a certified or documented vernal pool when within a resource area

☒ Activities in bank, land under water, bordering land subject to flooding (presumed significant) where alterations are more than twice the size of thresholds

☐ Activities affecting vegetated wetlands >5000 sq. ft. occurring in resource areas other than Bordering Vegetated Wetland

☐ Activities affecting the sole connector between habitats >50 acres in size

☐ Installation of structures that prevent animal movement

☐ Activities for the purpose of bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage

☐ Dredging (greater than 5,000 sf)

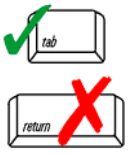
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Wildlife Habitat Protection Guidance

Appendix B: Detailed Wildlife Habitat Evaluation

Part 1. Summary Sheet

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



Swampscott Rail Trail
Project Name

Former Railroad Corridor- Stetson Avenue to Marblehead Town Line
Location

586± lf Bank / 586± lf Bank (restored) & 3036± sf LUW / 3036± sf LUW (restored) — Size of Area Being Impacted

7/2/2019 — Date

Impact Areas (linear feet, square feet, or acres for each of the impact areas within the site)

Name	Waterbody/ Waterway	Wetland	Upland*	Total Area
1. Relocated Int. Stream	586 lf Bank	0	0	586 lf Bank
	3036 sf LUW	0	0	3036 sf LUW
2.				
3.				
4.				
5.				

Attach Sketch map and/or photos of the Impact Areas *(see site plans)*

Narrative Description of Site (attach separate page if necessary)

See LEC's August 2, 2019 Notice of Intent Application + and accompanying site plans

Certification

I hereby certify that this project has been designed to avoid, minimize, and mitigate adverse effects on wildlife habitat, and that it will not, following two growing seasons of project completion and thereafter, substantially reduce its capacity to provide important wildlife habitat functions.

Signature of Wildlife Specialist (per 310 CMR 10.60 (1) (b))

Brian T. Madden
Typed or Printed Name

Part 2. Field Data Form (for each wetland or non-wetland resource area)

I. General Information

Swampscott Rail Trail, from Stetson Avenue to Marblehead Town Line
Project Location (from NOI page 1)

Relocated Int. Stream:586±lf Bank/ 586±lf Bank (restored) & 3036±sf LUW / 3036±sf LUW (restored)
Impact Area (number/name)

7/2/2019
Date(s) of Site Visit(s) and Data Collection

Sunny ±80°F
Weather Conditions During Site Visit (if snow cover, include depth)

Brian T. Madden — 8/1/2019
Person completing form per 310 CMR 10.60(1)(b) — Date this form was completed

The information on this data sheet is based on my observations unless otherwise indicated


Signature

II. Site Description (complete A or B under Classification - see instructions for full description)

A. Classification

1. For Wetland Resource Areas, complete the following:

System: Palustrine — Subsystem: N/A

Class: Forested Wetland — Subclass: Broad-leaved Deciduous

Hydrology/Water Regime

- ☐ Permanently flooded
- ☒ Saturated
- ☒ Intermittently exposed *(stream)*
- ☐ Temporarily flooded
- ☐ Semi-permanently flooded
- ☒ Intermittently flooded *(stream)*
- ☒ Seasonally flooded
- ☐ Artificially flooded

2. For Riverfront or Bordering Land Subject to Flooding Resource Areas, complete the following. Use a terrestrial classification system such as one of the two listed below:
   a. "Classification of the Natural Communities of Massachusetts (Draft)" by Patricia C. Swain and Jennifer B. Kearsley, MA DFW NHESP, Westborough, MA. July 2000. (Department of Fish & Game Website)
   b. "New England Wildlife: Habitat, Natural History, and Distribution" by Richard M. DeGraaf and Deborah D. Rudis, USDA Forest Service, Northeastern Forest Experiment Station. General Technical Report NE-108. August 1992. 491 pages.

See attached Report
Community Name

See attached Report
Vegetation Description

See attached Report
Physical Description

Part 2. Field Data Form (continued)

B. Inventory (Plant community)—*Refer to NOI*

% Cover:	Trees (> 20')	Shrubs (< 20')	Woody vines	Mosses	Herbaceous
	0	<20±%	<10%	N/A	+75%

Plant Lists (species that comprise 10% or more of the vegetative cover in each strata; "*" designates a dominant plant species for the strata): *Refer to NOI*

Strata	Plant Species	Strata	Plant Species
Shrub	Multiflora rose		
Groundcover	Poison ivy		
Groundcover	Jewelweed		
Groundcover	Japanese knotweed		

C. Inventory (Soils)

Chatfield-Hollis Rock outcrop complex Soil Survey Unit	Well to excessively drained Drainage Class
Gravelly fine sandy loam Texture (upper part)	N/A Depth
streambeds Depth to Water Table	

III. Important Habitat Features (complete for all resource areas)

If the following habitat characteristics are present, describe & quantify them on a separate sheet & attach.

Wildlife Food

Important Wetland/Aquatic Food Plants (smartweeds, pondweeds, wild rice, bulrush, wild celery)

☐ Abundant ☐ Present ☒ Absent

Important Upland/Wetland Food Plants (hard mast and fruit/berry producers)

☐ Abundant ☒ Present ☐ Absent *(Sparse)*

Shrub thickets or streambeds with abundant earthworms (American woodcock)

☐ Present ☒ Absent

Shrub and/or herbaceous vegetation suitable for veery nesting

☐ Present ☒ Absent (Sparse understory)

Part 2. Field Data Form (continued)

Number of trees (live or dead) > 30" DBH: 0

Number (or density) of Standing Dead Trees (potential for cavities and perches):

6-12" dbh	12-18" dbh	18-24" dbh	> 24" dbh
0	0	0	0

Number of Tree Cavities in trunks or limbs of:

0

6-12” diameter (e.g., tree swallow, saw whet owl, screech owl, bluebird, other songbirds)

0

12-18” diameter (e.g., hooded merganser, wood duck, common goldeneye, mink)

0

>18” diameter (e.g., hooded merganser, wood duck, common goldeneye, common merganser, barred owl, mink, raccoon, fisher)

Small mammal burrows

☐ Abundant ☐ Present ☒ Absent

Cover/Perches/Basking/Denning/Nesting Habitat

☒ Dense herbaceous cover (voles, small mammals, amphibians & reptiles)

☒ Large woody debris on the ground (small mammals, mink, amphibians & reptiles)

☐ Rocks, crevices, logs, tree roots or hummocks under water’s surface (turtles, snakes, frogs)

☐ Rocks, crevices, fallen logs, overhanging branches or hummocks at, or within 1m above the water’s surface (turtles, snakes, frogs, wading birds, wood duck, mink, raccoon)

☐ Rock piles, crevices, or hollow logs suitable for:

☐ otter ☐ mink ☐ porcupine ☐ bear ☐ bobcat ☐ turkey vulture

☐ Live or dead standing vegetation overhanging water or offering good visibility of open water (e.g., osprey, kingfisher, flycatchers, cedar waxwings)

Depressions that may serve as seasonal (vernal/autumnal) pools

☐ Present ☒ Absent

Standing water present at least part of the growing season, suitable for use by

☐ Breeding amphibians ☒ Non-breeding amphibians (foraging, re-hydration)

☒ Turtles ☐ Foraging waterfowl

Sphagnum hummucks or mats, moss-covered logs or saturated logs, overhanging or directly adjacent to pools of standing water in spring (four-toed salamander)

☐ Present ☒ Absent

Part 2. Field Data Form (continued)

Important habitat characteristics (if present, describe and quantify them on a separate sheet)

Medium to large (> 6”), flat rocks within a stream (cover for stream salamanders and nesting habitat for spring & two-lined salamanders)

☐ Present ☒ Absent

Flat rocks and logs on banks or within exposed portions of streambeds (cover for stream salamanders and nesting habitat for dusky salamanders)

☐ Present ☒ Absent

Underwater banks of fine silt and/or clay (beaver, muskrat, otter)

☐ Present ☒ Absent

Undercut or overhanging banks (small mammals, mink, weasels)

☐ Present ☒ Absent

Vertical sandy banks (bank swallow, kingfisher)

☐ Present ☒ Absent

Areas of ice-free open water in winter

☐ Present ☒ Absent

Mud flats

☐ Present ☒ Absent

Exposed areas of well-drained, sandy soil suitable for turtle nesting

☐ Present ☒ Absent

Wildlife dens/nests (if present, describe & quantify them on the back of this sheet)

Turtle nesting sites

☐ Present ☒ Absent

Bank swallow colony

☐ Present ☒ Absent

Nest(s) present of	☐ Bald Eagle	☐ Osprey	☐ Great Blue Heron
Den(s) present of	☐ Otter	☐ Mink	☐ Beaver

Part 2. Field Data Form (continued)

Project area is within:

☐ 100' of beaver, mink or otter den, bank swallow colony or turtle nesting area

☐ 200' of Great Blue Heron or osprey nest(s)

☐ 1400' of a Bald Eagle nest[1]

Emergent Wetlands (if present, describe & quantify them on a separate sheet)

Emergent wetland vegetation at least seasonally flooded during the growing season (wood duck, green heron, black-crowned night heron, king rail, Virginia rail, coot, etc.)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (pied-billed grebe)	☐ Present	☒ Absent

Persistent emergent wetland vegetation at least seasonally flooded during the growing season (mallard, American bittern, sora, common snipe, red-winged blackbird, swamp sparrow, marsh wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Cattail emergent wetland vegetation at least seasonally flooded during the growing season

Flooded > 5 cm (marsh wren)	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

Fine-leafed emergent vegetation (grasses and sedges) at least seasonally flooded during the growing season (common snipe, spotted sandpiper, sedge wren)

Flooded > 5 cm	☐ Present	☒ Absent
Flooded > 25 cm (least bittern, common moorhen)	☐ Present	☒ Absent

IV. Landscape Context

A. **Habitat Continuity** (if present, describe the landscape context on a separate sheet and its importance for area-sensitive species)

Is the impact area part of an emergent marsh at least	1.0 acre in size?	☐ Yes	☒ No
(marsh and waterbirds)	2.0 acres in size?	☐ Yes	☒ No
	5.0 acres in size?	☐ Yes	☒ No
	10.0 acres in size?	☐ Yes	☒ No

[1] 1400 feet is the distance used by NHESP for evaluating potential disturbance impacts on eagle nests under MESA. Keep in mind, however, that this doesn't give jurisdiction within 1400' of an eagle's nest; it only identifies it on the checklist so that adverse effects can be avoided if work in a resource area is within 1400 feet.

Part 2. Field Data Form (continued)

Is the impact area part of a wetland complex at least	2.5 acres in size?	☐ Yes	☒ No
(turtles, frogs, waterfowl, mammals)	5.0 acres in size?	☒ Yes	☐ No
	10.0 acres in size?	☐ Yes	☒ No
	25.0 acres in size?	☐ Yes	☒ No

For upland resource areas is the impact area part of contiguous forested habitat at least

(forest interior nesting birds)	50 acres in size?	☐ Yes	☒ No
	100 acres in size?	☐ Yes	☒ No
	250 acres in size?	☐ Yes	☒ No
	500 acres in size?	☐ Yes	☒ No
(grassland nesting birds)	> 1.0 acre in size?	☐ Yes	☒ No
(special habitat such as gallery floodplain forest, alder thicket, etc.)	> 1.0 acre in size?	☐ Yes	☒ No

B. **Connectivity with adjoining natural habitats**

☒ No direct connections to adjacent areas of wildlife habitat (little connectivity function)—*see above*

☐ Connectors numerous or impact area is embedded in a large area of natural habitat (limited connectivity function)—

☐ Impact area contributes to a limited number of connectors to adjacent areas of habitat (somewhat important for connectivity function)

☐ Impact area serves as *part of* a sole connector to adjacent areas of habitat (important for connectivity function)

☐ Impact area serves as *only* connector to adjacent areas of habitat (very important for connectivity function)

V. Habitat Degradation (describe degradation and wildlife impacts on the back of the sheet)

☐ Evidence of significant chemical contamination

☐ Evidence of significant levels of dumping

☐ Evidence of significant erosion or sedimentation problems

☒ Significant invasion of exotic plants (e.g., purple loosestrife, *Phragmites*, glossy buckthorn) *Multiflora rose & Japanese knotweed*

☐ Disturbance from roads or highways

☒ Other human disturbance-*within former railroad corridor and existing electric distribution line ROW. Stream adjacent to remnant railroad bed.*

☐ Is the site the only resource area in the vicinity of an otherwise developed area

Note: These are not the only important habitat features that may be observed on a site. If the wildlife specialist identifies other features they should be noted in the application.

Part 2. Field Data Form (continued)

VI. Quantification Table for Important Habitat Characteristics*

Habitat Characteristic	Amount Impacted in Impact Area	Current (entire site)	Post-Construction

* *Refer to NOI*

TOWN OF

SWAMPSCOTT

MASSACHUSETTS

SWAMPSCOTT RAIL TRAIL

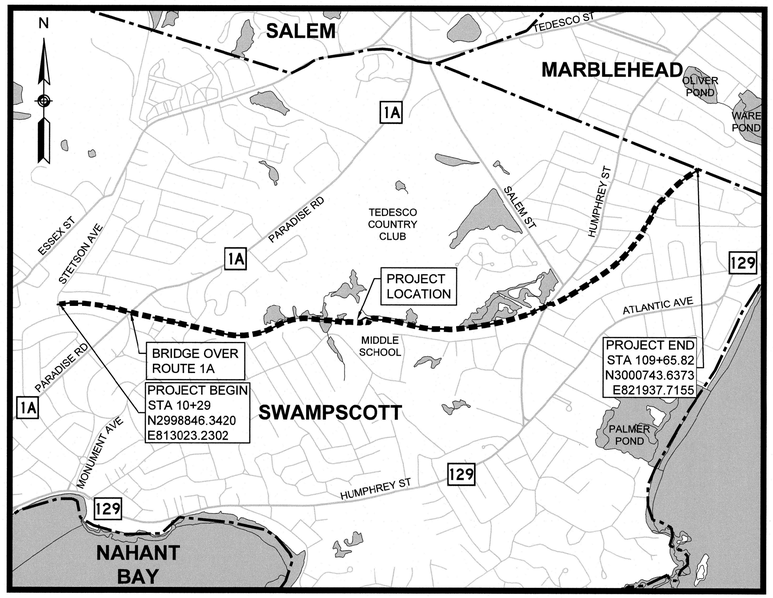
SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	1	20
STANTEC PROJECT NO. 179410549			

TITLE SHEET & INDEX

NOTICE OF INTENT SUBMISSION

INDEX



0 1,000 2,000 3,000 4,000

SCALE: 1" = 1,000'

LENGTH OF PROJECT = 9,936.82 FEET = 1.882 MILES

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

AUGUST 2, 2019

COMMONWEALTH OF MASSACHUSETTS
ALEECE E. D'ONOFRIO
CIVIL
No. 49594
REGISTERED PROFESSIONAL ENGINEER
8/2/19

Stantec
5 BURLINGTON WOODS | BURLINGTON, MA 01803

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		COMPOST FILTER TUBES
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		EDGE OF PAVEMENT
		LIMIT OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

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

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	2	20
STANTEC PROJECT NO. 179410549			

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

NOI_SWAMP_RT_TITLE_SHEET.DWG Plotted on 1-Aug-2019 11:49 AM

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	3	20
STANTEC PROJECT NO. 179410549			

GENERAL NOTES

GENERAL NOTES:

1. EXISTING GROUND SURFACES SHOWN ON PLANS, PROFILES AND CROSS SECTIONS ARE BASED UPON DATA OBTAINED BY FIELD SURVEYS.
2. THE LOCATIONS OF EXISTING SUBSURFACE STRUCTURES, SUCH AS SEWERS, WATER MAINS, DRAINS AND OTHER UTILITIES ARE APPROXIMATE ONLY AND THE ENGINEER DOES NOT GUARANTEE THEIR NUMBER OR LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE EXCAVATING.
3. ALL GAS GATES, ELECTRIC MANHOLES, AND TELEPHONE MANHOLES WITHIN THE LIMITS OF WORK SHALL BE ADJUSTED BY THE OWNING AGENCY. ALL GAS, ELECTRIC, TELEPHONE AND CATV WORK SHALL BE DONE BY THE OWNING AGENCY. THE CONTRACTOR SHALL NOTIFY THE OWNING AGENCIES TO ADJUST AND/OR RELOCATE THESE STRUCTURES TO AVOID IMPACTING THE CONTRACTOR'S SCHEDULE OF OPERATIONS.
4. ANY CLEANING OF CATCH BASINS OR DRAIN PIPES NECESSARY FOR THE PROPOSED WORK SHALL BE COMPLETED BY THE RESPECTIVE MUNICIPALITY INVOLVED.
5. ANY DRAINAGE / SEWER / WATER CASTINGS BROKEN THROUGH NO FAULT OF THE CONTRACTOR SHALL BE SUPPLIED BY THE RESPECTIVE MUNICIPALITY FOR ADJUSTMENT UNDER THE CONTRACT ITEMS.
6. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY COMPANIES DOING WORK IN THE SAME AREA THE CONTRACTOR SHALL ALLOW THE UTILITY COMPANIES AND THEIR REPRESENTATIVES TO ADJUST AND/OR INSTALL THEIR SYSTEMS WITHIN TOWN / STATE OWNED STREETS AND EASEMENTS.
7. CURB SHALL BE FURNISHED AND SET AT LOCATIONS SHOWN ON THE PLANS AND/OR AS REQUIRED BY THE ENGINEER.
8. CONSTRUCT DRIVEWAYS AND WALKS AS SHOWN ON THE PLANS AND/OR AS REQUIRED BY THE ENGINEER.
9. EXISTING GRANITE CURB AND EDGING SUITABLE FOR REUSE WITHIN THE PROJECT SITE SHALL BE REMOVED AND RESET IN ACCORDANCE WITH THE PLANS AND/OR AS REQUIRED BY THE ENGINEER.
10. SAW CUT EXISTING BITUMINOUS CONCRETE ROADWAYS, CEMENT CONCRETE SIDEWALKS AND BITUMINOUS CONCRETE DRIVEWAYS AS SHOWN ON THE PLANS AND AT THE PROPOSED MATCH LINE.
11. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
12. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
13. ALL ACCESSIBLE ROUTES, WALKWAYS, CURB CUTS, RAMPS, SIDEWALKS, DRIVEWAY OPENINGS, CLEARANCES AND SLOPE TOLERANCES SHALL CONFORM WITH THE ARCHITECTURAL ACCESS BOARD (AAB), 521 CMR AND MASSHIGHWAY CONSTRUCTION AND TRAFFIC STANDARD DRAWINGS.
14. ITEMS LABELED "REM" SHALL BE REMOVED AND DISCARDED BY CONTRACTOR.
15. THE CONTRACTOR SHALL PROTECT EXISTING SURVEY MONUMENTS AND SHALL RESET ANY MONUMENTATION DISTURBED BY HIS OPERATIONS.
16. THE CONTRACTOR SHALL INSTALL OTHER NECESSARY TEMPORARY REGULATORY AND WARNING SIGNS DURING CONSTRUCTION AS REQUIRED BY THE ENGINEER FOR OTHER INCIDENTAL CONSTRUCTION ACTIVITIES. ALL SIGNAGE AND TRAFFIC CONTROL DEVICES USED MUST CONFORM TO THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD)
17. THE CONTRACTOR SHALL PERFORM HIS WORK IN A MANNER ACCEPTABLE TO THE ENGINEER SO THAT INTERFERENCE WITH AND INCONVENIENCE TO BUSINESS CONCERNS AND ABUTTERS, ON ACCOUNT OF THE CONSTRUCTION WORK, IS KEPT TO A MINIMUM.
18. THE CONTRACTOR SHALL NOT BE ALLOWED TO PARK EQUIPMENT OR STOCKPILE EQUIPMENT OR MATERIAL ON THE TRAVELED WAYS OVERNIGHT OR WHEN NOT IN USE.
19. THE CONTRACTOR SHALL MAINTAIN SAFE AND RESPONSIBLE ACCESS TO AND FROM ABUTTING PROPERTY, PRIVATE WAYS, DRIVEWAYS AND ALL ALLEYS AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
20. ALL DETECTABLE WARNING PANELS SHALL BE MOUNTED IN CEMENT CONCRETE AND INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD DETAIL E107.6.5.

UTILITY NOTES:

1. RECORD UTILITY INFORMATION FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES, ARE APPROXIMATE ONLY AND ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.
2. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING OR REPAVING.
3. THE LOCATION OF EXISTING PIPES OR OTHER UNDERGROUND STRUCTURES OR PROPERTY LINES ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL CALL "DIG SAFE" (1-811-344-7233) 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO ANY EXCAVATION TO OBTAIN ACCURATE UTILITY LOCATIONS.
4. INVERTS SHOWN ON PLAN ARE NOT GUARANTEED TO BE ACCURATE. DUE TO THE LIMITATIONS OF FIELD OBSERVATION AND SURVEY TECHNIQUES THE INVERTS ARE SHOWN AS APPROXIMATE ONLY AND SHALL NOT BE WARRANTED TO BE CORRECT. ADDITIONAL FIELD INVESTIGATION IS NECESSARY WHERE ACCURATE MEASUREMENTS ARE REQUIRED FOR DESIGN OF CRITICAL AREAS.
5. THE EXISTING CONDITIONS PLAN IS TO BE USED FOR THE SPECIFIED PROJECT ONLY AND IS NOT WARRANTED TO BE COMPLETE FOR ANY OTHER FUTURE PROJECTS.
6. NATIONAL GRID EMERGENCY TELEPHONE NUMBERS:

GAS:
EMERGENCY: 1-800-233-5325
NEW SERVICE: 1-877-696-4743
CUSTOMER SUPPORT: 1-800-732-3400

ELECTRIC:
OUTAGE/EMERGENCY: 1-800-465-1212
NEW SERVICE: 1-800-375-4730
CUSTOMER SERVICE: 1-800-322-3223

LEGEND

XX – CONSTRUCTION PLAN SHEET NUMBER

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	4	20
STANTEC PROJECT NO. 179410549			

KEY PLAN

N

PROJECT BEGIN
STA 10+29
N2998846.3420
E813023.2302

PROJECT END
STA 109+65.82
N3000743.6373
E821937.7155

SWAMPSCOTT
MALL

TEDESCO
COUNTRY
CLUB

ATHLETIC
FIELDS

SWAMPSCOTT
MIDDLE
SCHOOL

SWAMPSCOTT

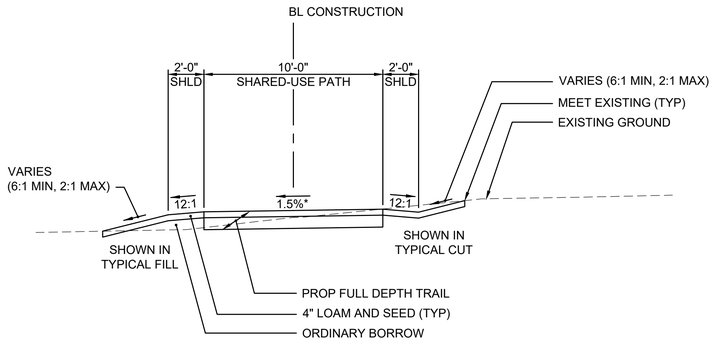
MARBLEHEAD

PALMER
POND

**ATLANTIC
OCEAN**

DANVERS RD
ESSEX ST
EASTMAN AVE
DORY WAY
MINERVA ST
FAIRVIEW AVE
PROSPECT ST
BRISTOL AVE
SUNSET DR
SUMMIT VIEW DR
LONGWOOD DR
BELLEAIR DR
MERRYMOUNT DR
WORCESTER AVE
PARADISE RD
PARSONS DR
BARNSTABLE ST
PLYMOUTH AVE
FRANKLIN AVE
STETSON AVE
SUFFOLK AVE
NORFOLK AVE
OAKLEDGE RD
SWAMPSCOTT AVENUE
WALKER ROAD
BANKS CIRCLE
ELLIS ROAD
FARRAGUT ROAD
GRANT RD
BANKS TER
BROOKS TER
SUPREME CT
FULLER AVE
SHERWOOD RD
ASPEN RD
MAGNOLIA RD
PINE HILL RD
WALNUT RD
LEXINGTON CIRCLE
FOREST AVE
BURKE DR
NASON RD
SARGENT RD
LAUREL RD
WHITMAN RD
FOREST ST
LEWIS RD
KENSINGTON LN
PROSPECT AVE
PLEASANT ST
ASPEN RD
MILLETT LN
HAMPDEN ST
ANDREW RD
DEVENS RD
THOMAS RD
ELMWOOD RD
MONUMENT AVE
BURRILL ST
REDINGTON ST
KING ST
HIGHLAND ST
GREENWOOD AVE
HUMPHREY STREET
PILGRIM RD
MAY ST
OLIVER POND
CROSMAN AVE
YOUNG AVE
STANLEY ROAD
SALEM ST
LINDEN AVE
SUMNER ST
ALLEN RD
DALE ST
DENNISON AVE
HUMPHREY ST
BELLEVUE RD
SEAVIEW AVE
BEACH BLUFF AVE
MANTON ROAD
INGRAHAM TERRACE
MOSTYN ST
MORTON RD
STANWOOD RD
BRADLEE AVE
HAWTHORNE RD
ESTABROOK RD
LINCOLN CIR
PHILLIPS AVE
ATLANTIC AVE
CHARLES RD
BROWN RD
BRADLEE AVE
OCEAN AVE
LONGLEY AVE
PALMER AVE
SHEPARD AVE
PALMER RD
ATLANTIC RD
PURITAN PARK
PURITAN AVE
PURITAN RD
PHILLIPS BEACH AVENUE
ALDEN RD
HUMPHREY ST
NEIGHBORHOOD ROAD

0 300 600 900 1,200
SCALE: 1" = 300'



TYPICAL FULL DEPTH TRAIL SECTION

NOT TO SCALE
STA 14+50± TO STA 19+89±
STA 35+50± TO STA 44+90±
STA 45+50± TO STA 50+83±
STA 54+15± TO STA 61+33±
STA 67+36± TO STA 78+13±
STA 81+14± TO STA 96+20±
STA 100+40± TO STA 103+70±
STA 106+60± TO STA 107+64±
STA 107+88± TO STA 109+66±

MATERIAL NOTES

PROPOSED FULL DEPTH TRAIL SECTIONS

SURFACE: 4" STABILIZED STONEDUST

BASE: 8" (MIN) GRAVEL BORROW, TYPE b

PROPOSED FULL DEPTH GRAVEL DRIVEWAY SECTIONS

SURFACE: 12" (MIN) GRAVEL BORROW, TYPE b

PROPOSED FULL DEPTH HOT MIX ASPHALT DRIVEWAY PAVEMENT SECTIONS

SURFACE: 1-1/2" HOT MIX ASPHALT - STANDARD TOP COURSE

INTERMEDIATE: 2-1/2" HOT MIX ASPHALT - DENSE BINDER COURSE

BASE: 8" (MIN) GRAVEL BORROW, TYPE b

PROPOSED FULL DEPTH CURB SETTING PAVEMENT SECTIONS

SURFACE: 1-1/2" HOT MIX ASPHALT - STANDARD TOP COURSE

INTERMEDIATE: 3" HOT MIX ASPHALT - DENSE BINDER COURSE

BASE: 6" (MIN) HIGH EARLY STRENGTH CEMENT CONCRETE
8" (MIN) GRAVEL BORROW, TYPE b

PROPOSED CEMENT CONCRETE SIDEWALK AND WHEELCHAIR RAMP SECTIONS

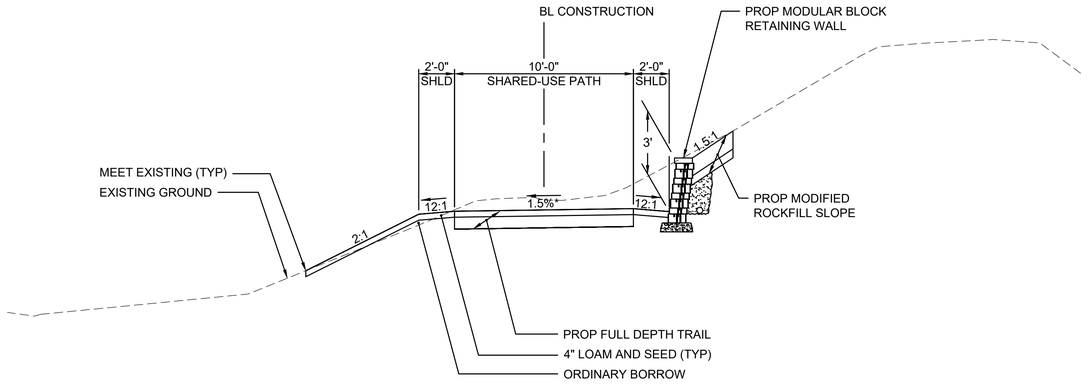
SURFACE: 6" CEMENT CONCRETE
(4000psi, ¾", 610 lbs. AIR ENTRAINED)

BASE: 8" (MIN) GRAVEL BORROW, TYPE b

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

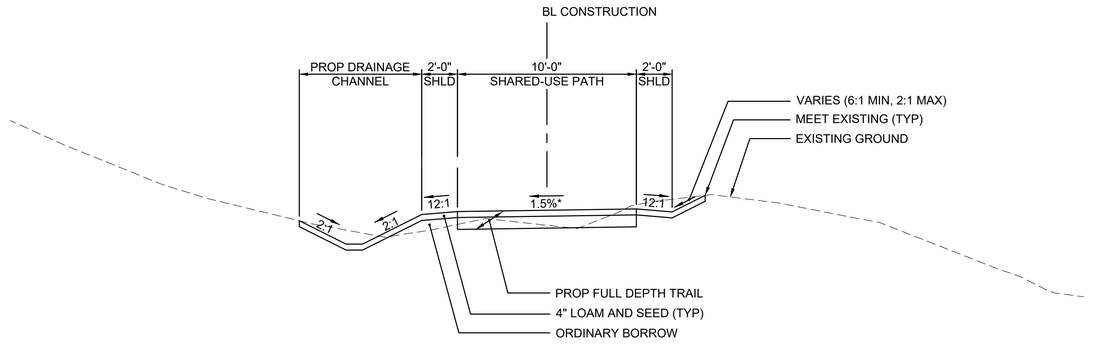
STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	5	20
STANTEC PROJECT NO. 179410549			

TYPICAL SECTIONS



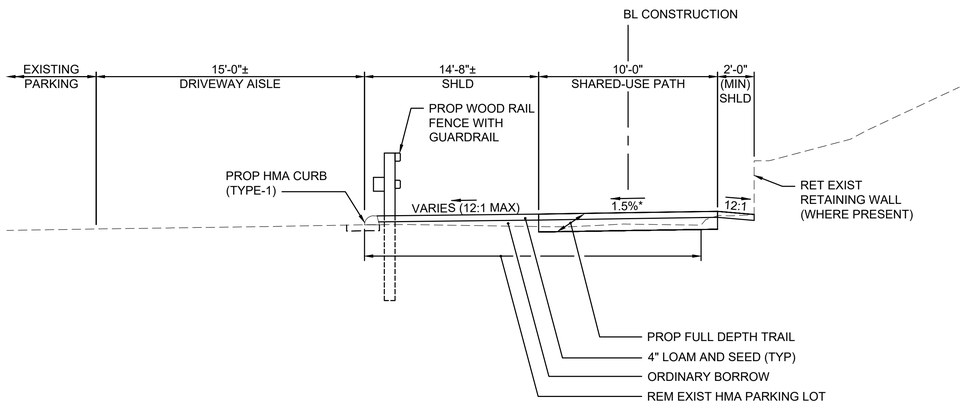
TYPICAL FULL DEPTH TRAIL SECTION

NOT TO SCALE
STA 44+90± TO STA 45+50±



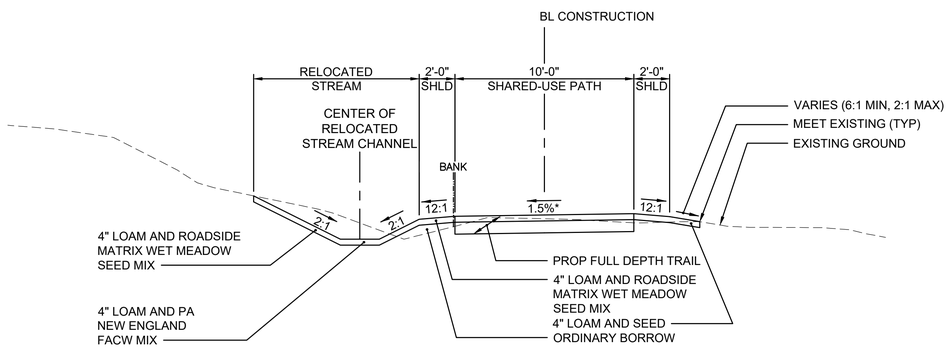
TYPICAL FULL DEPTH TRAIL SECTION

NOT TO SCALE
STA 64+20± TO STA 67+36±



TYPICAL FULL DEPTH TRAIL SECTION

NOT TO SCALE
STA 51+06± TO STA 53+97±



TYPICAL FULL DEPTH TRAIL SECTION

NOT TO SCALE
STA 61+33± TO STA 64+20±

NOI_SWAMP_RT_TYPICAL_SECTIONS.DWG Plotted on 1-Aug-2019 11:50 AM

RESOURCE AREA LEGEND:

- BVW / MHW / BANK
- 100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	6	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 1 OF 7

N

MAP 16 LOT 114
N/F
TOWN OF SWAMPSCOTT

100' WETLAND BUFFER

WF #1 WF #2 WF #3 WF #4 WF #5 WF #6 WF #7 WF #8 WF #9 WF #10 WF #11 WF #12 WF #13 WF #14 WF #15 WF #16 WF #17 WF #18 WF #19 WF #20 WF #21 WF #22 WF #23 WF #24 WF #25

MAP 18 LOT 3
N/F
TEDESCO COUNTRY CLUB

MHW #1 MHW #2

MATCH LINE
STA 43+50

RET EXIST BOUND
RET EXIST UP
PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
RET EXIST UP
RET EXIST FENCE

PCC +23.02
PRC +54.94

38 39 40 41 42 43 44

SB/DH FOUND

RET EXIST DRAIN LINE

ADJ EXIST BOUND
PROP LOAM AND SEED
APPROX SLOPE LIMITS

RET EXIST STRUCTURE
RET EXIST BOUND

MAP 16 LOT 153
N/F
SUBROTO & SOMALETHA
BHATTACHARYA

MAP 16 LOT 152
N/F
DOUGLAS L. SMITH &
MONIQUE A. MYERS

MAP 16 LOT 151
N/F
DAVID K. & SHEILA YANG

MAP 18 LOT 6E
N/F
GAIL & RICHARD M. GELB

MAP 18 LOT 7E
N/F
ROGER D. & DAPHNE
BIERI

MAP 18 LOT 8E
N/F
CHRISTOPHER W. & REBECCA WHITE

MAP 18 LOT 12E
N/F
ARIK & ALLISON
ARONOV

LEXINGTON CIRCLE

PINE HILL ROAD

CONTINUED ON SHEET NO. 7

0 20 50 100
SCALE: 1" = 20'

RESOURCE AREA LEGEND:

- BVW / MHW / BANK
- 100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	7	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 2 OF 7

STREAM AND CULVERT DATA TABLE	
ASSUMED BANKFULL WIDTH =	12.6'
1.2 x BANKFULL WIDTH =	15.2'
CULVERT WIDTH (W) =	15.5'
CULVERT LENGTH (L) =	18.0'
OPEN HEIGHT OF CULVERT (H) =	1.2'
OPENESS RATIO (HxW/L) =	1.03

N

MATCH LINE STA 43+50

MHW #1
MHW #2
MHW #3
MHW #4
MHW #5

RET EXIST UP
RET EXIST FENCE
F #21
WF #22
WF #23
WF #24
WF #25
WF #26
WF #27
WF #28
WF #29
WF #30
WF #31
WF #32
WF #33
WF #34
WF #35
WF #36
WF #37
WF #38
WF #39
WF #200
WF #301
WF #302
WF #303
WF #304
WF #305
WF #306
WF #307
WF #308
WF #309
WF #310
WF #311
WF #312
WF #313
WF #314
WF #315
WF #316
WF #317
WF #318
WF #319
WF #320
WF #321
WF #322
WF #323
WF #324
WF #325
WF #326
WF #327
WF #328
WF #329
WF #330
WF #331
WF #332
WF #333
WF #334

PCC +18.91
PRC +06.73
PRC +42.44
PRC +71.66
PT +21.25
PC +23.37
PT +47.26

44 45 46 47 48 49

PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
RET EXIST UP

MAP 18 LOT 1
N/F
TEDESCO COUNTRY CLUB

PROP WOOD RAIL FENCE
PROP PRECAST CONCRETE BOX CULVERT WITH PRECAST CONCRETE HEADWALLS

RET EXIST SMH
PROP LOAM AND SEED
APPROX SLOPE LIMITS
PROP COMPOST FILTER TUBES

RET EXIST DMH
PROP MODIFIED ROCKFILL SLOPE
PROP MODULAR BLOCK RETAINING WALL
RET EXIST DMH
RET EXIST DRAIN LINE

MAP 18 LOT 14E
N/F
JAMES M & BARBARA BOSWORTH

PROP WOOD RAIL FENCE
PROP TURBIDITY CURTAIN
PROP COMPOST FILTER TUBES

TEMPORARY IMPACT RELATING TO EXCAVATION FOR CULVERT AND WINGWALLS

NOTE:

IF THE INTERMITTENT STREAM IS FLOWING AT THE TIME OF CULVERT INSTALLATION A SANDBAG COFFERDAM SYSTEM WILL BE TEMPORARILY INSTALLED TO FACILITATE STREAM DIVERSION.

POND

100' WETLAND BUFFER

MAP 18 LOT 12E
N/F
ARIK & ALLISON ARONOV

MAP 18 LOT 10E
N/F
CHARLES COMEGYS

MAP 18 LOT 4
N/F
TOWN OF SWAMPSCOTT
HIGH SCHOOL

BURKE DRIVE

FOREST AVENUE

CONTINUED ON SHEET NO. 6
CONTINUED ON SHEET NO. 8

0 20 50 100
SCALE: 1" = 20'

NOI_SWAMP_RT_CONST_PLANS.DWG Plotted on 1-Aug-2019 11:52 AM

RESOURCE AREA LEGEND:

- BVW / MHW / BANK
- 100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	8	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 3 OF 7

N

MAP 17 LOT 52
N/F
TOWN OF
SWAMPSCOTT

CONTINUED ON SHEET NO. 7

PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
MAP 17 LOT 52
N/F
TOWN OF SWAMPSCOTT
PT +81.93
PC +55.48
MATCH LINE STA 49+50
PT +17.10
PC +53.27
#327
WF #326
REM EXIST HMA
PROP LOAM
AND SEED
WF #325
PROP LOAM AND SEED
APPROX SLOPE LIMITS
PROP COMPOST FITLER TUBES
WF #324
100' WETLAND BUFFER
WF #323
MAP 18 LOT 4
N/F
TOWN OF SWAMPSCOTT
HIGH SCHOOL

RET EXIST UP
PROP 10' STONEDUST TRAIL
REM EXIST BIT CONC
PROP LOAM AND SEED
APPROX SLOPE LIMIT
R&D EXIST CURB
PT +53.76
15'±
PROP HMA CURB (TYPE-1)
PROP WOOD RAIL FENCE GUARDRAIL
R&R EXIST GUY WIRE
PRC +23.59
PC +08.29
RET EXIST DRAIN LINE
RET EXIST LIGHT POLE
R&D EXIST CURB
PROP LOAM AND SEED
APPROX SLOPE LIMITS
RET EXIST RETAINING WALL
R&R EXIST TRAILER (WORK BO)
PC +97.39
PRC +30.51
PRC +42.70
PT +87.91
ADJ CB
PRC +77.17
PROP CEM CONC
WHEELCHAIR RAMP
PROP HMA
SIDEWALK (TYP)
100' WETLAND BUFFER

PROP 10' STONEDUST TRAIL
R&D EXIST TREE
RET EXIST DRAIN LINE
PRC +13.63
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST
FILTER TUBES
PROP WOOD
RAIL FENCE
PRC +29.05
PC +14.44
WF #44
WF #45
WF #43
WF #46
WF #47
WF #48
WF #49
WF #50
WF #51
WF #52
WF #53
WF #54
PIPE END EXPOSED WITH METAL GRATE
APPROX LOCATION OF STORMWATER CONNECTION TO HIGH SCHOOL STORMWATER DRAINAGE SYSTEM PIPE END EXPOSED WITH METAL GRATE
MATCH LINE STA 55+50
RET EXIST DRAIN LINE
PROP LOAM AND SEED
APPROX SLOPE LIMITS
PROP WOOD RAIL FENCE
MAP 18 LOT 4
N/F
TOWN OF SWAMPSCOTT
HIGH SCHOOL

CONTINUED ON SHEET NO. 9

0 20 50 100
SCALE: 1" = 20'

RESOURCE AREA LEGEND:

BVW / MHW / BANK

100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	9	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 4 OF 7

Plotted on 1-Aug-2019 1:27 PM
NOI_SWAMP_RT_CONST_PLANS.DWG

CONSTRUCTION METHODOLOGY FOR RELOCATED STREAM CHANNEL

DESIGN INTENT IS TO RECREATE THE CHANNEL IN DRY CONDITIONS.

SHOULD CONSTRUCTION NEED TO OCCUR IN WET CONDITIONS, THE FOLLOWING MEASURES ARE RECOMMENDED:

1. INSTALL SANDBAGS AT THE END OF BVW TO CONTROL FLOW OF WATER;
2. PUMP TO MOVE THE WATER THROUGH TEMPORARY CHANNEL;
3. GRADE PROPOSED STREAM CHANNEL. MINOR GRADING WITHIN WETLAND MAY BE REQUIRED TO ACHIEVE STREAM CONTINUITY FOR PROPOSED STREAM CHANNEL;
4. INSTALL EROSION CONTROL BLANKET WITHIN STREAM CHANNEL AND SIDE SLOPES IF NECESSARY AND SEED;
5. AFTER STREAM CHANNEL IS STABILIZED WITH VEGETATION, REMOVE EROSION CONTROL AND SANDBAGS TO ALLOW WATER TO FLOW

N

MAP 17 LOT 52
N/F
TOWN OF
SWAMPSCOTT

MATCH LINE
STA 55+50

APPROX LOCATION 24" FES

APPROX LOCATION OF STORMWATER CONNECTION TO HIGH SCHOOL STORMWATER DRAINAGE SYSTEM PIPE END EXPOSED WITH METAL GRATE

CONTINUED ON SHEET NO. 8

PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
RET EXIST UP

PRC +76.73
PT +42.65
PRC +13.16
PRC +80.45
PRC +28.57

100' WETLAND BUFFER

RET EXIST FENCE
RET EXIST BENCHES
PROP LOAM AND SEED
APPROX SLOPE LIMITS

PROP MODIFIED ROCKFILL
RET EXIST UP

RET EXIST TREE
RET EXIST FENCE
RET EXIST PATIO

PROP TEMPORARY TREE PROTECTION FENCE
RET EXIST TREE
RET EXIST FENCE
RET EXIST TREE

LIMIT OF BORDERING VEGETATED WETLANDS
LIMIT OF BANK TO INTERMITTENT STREAM

PROP MODIFIED ROCKFILL
RET EXIST UP
CENTER OF RELOCATED STREAM CHANNEL

PC +95.83
PRC +57.56
PRC +27.95
PRC +63.84

PROP TEMPORARY TREE PROTECTION FENCE
R&D EXIST TREE
RET EXIST FENCE
RET EXIST UP
RET EXIST GUY WIRE

MATCH LINE
STA 61+50

CONTINUED ON SHEET NO. 10

MAP 22 LOT 1A
N/F
MASS ELECTRIC COMPANY

MAP 22 LOT D1
N/F
JEANNE BREEN

MAP 22 LOT 96
N/F
BRIAN CHARLES & CHRISTINE TIERNEY

MAP 22 LOT 92
N/F
JOSHUA & TOSHYA WILLIAMS

MAP 22 LOT 91
N/F
WILLIAM M. & SHARON P. BOCHNAK

MAP 22 LOT 90
N/F
MARY M. O'CONNELL 2013 REVOCABLE TRUST

MAP 18 LOT 4
N/F
TOWN OF SWAMPSCOTT
HIGH SCHOOL

NASON ROAD

0 20 50 100
SCALE: 1" = 20'

RESOURCE AREA LEGEND:

BVW / MHW / BANK

100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	10	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 5 OF 7

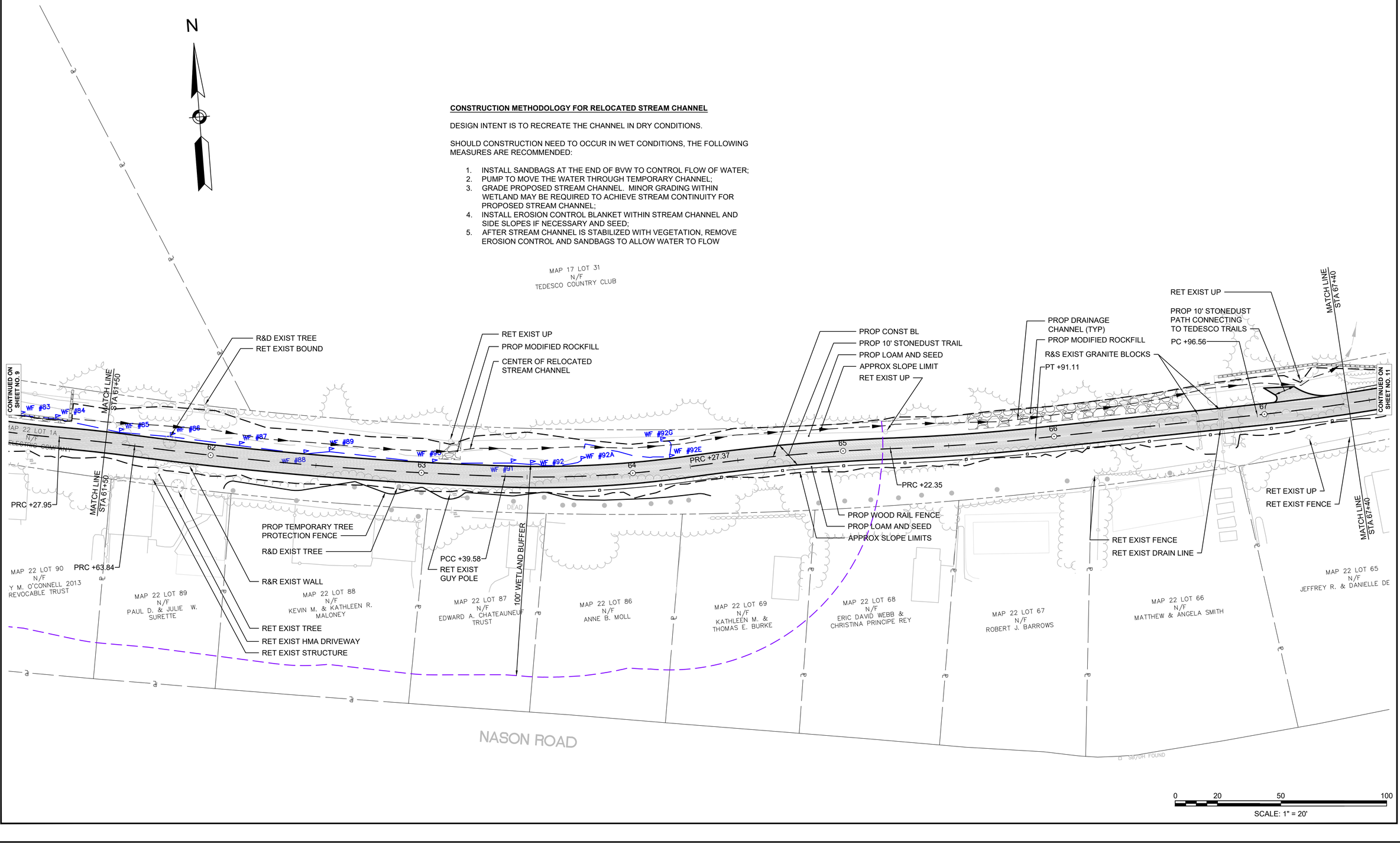
Plotted on 1-Aug-2019 1:27 PM
NOI_SWAMP_RT_CONST_PLANS.DWG

CONSTRUCTION METHODOLOGY FOR RELOCATED STREAM CHANNEL

DESIGN INTENT IS TO RECREATE THE CHANNEL IN DRY CONDITIONS.

SHOULD CONSTRUCTION NEED TO OCCUR IN WET CONDITIONS, THE FOLLOWING MEASURES ARE RECOMMENDED:

1. INSTALL SANDBAGS AT THE END OF BVW TO CONTROL FLOW OF WATER;
2. PUMP TO MOVE THE WATER THROUGH TEMPORARY CHANNEL;
3. GRADE PROPOSED STREAM CHANNEL. MINOR GRADING WITHIN WETLAND MAY BE REQUIRED TO ACHIEVE STREAM CONTINUITY FOR PROPOSED STREAM CHANNEL;
4. INSTALL EROSION CONTROL BLANKET WITHIN STREAM CHANNEL AND SIDE SLOPES IF NECESSARY AND SEED;
5. AFTER STREAM CHANNEL IS STABILIZED WITH VEGETATION, REMOVE EROSION CONTROL AND SANDBAGS TO ALLOW WATER TO FLOW



RESOURCE AREA LEGEND:

- BVW / MHW / BANK
- 100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	11	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 6 OF 7

NOTES:
1. GAPS IN THE WOOD RAIL FENCING SHALL BE PROVIDED TO ALLOW ACCESS FROM ADJACENT PROPERTIES WHERE SPECIFICALLY REQUESTED. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN PRIOR TO INSTALLATION OF THE WOOD RAIL FENCE IN THIS AREA.
2. CLEARING LIMITS SHALL BE COORDINATED WITH THE TOWN TO ALLOW FOR INSTALLATION OF VEGETATED SCREENING (WORK BY ADJACENT OWNERS).

N

100' WETLAND BUFFER

MAP 17 LOT 31
N/F
TEDESCO COUNTRY CLUB

MATCH LINE
STA 67+40

PC +96.56

RETAIN EXISTING DRAINAGE PATH

PCC +86.23

RET EXIST UP

BOX CULVERT

WF #201
WF #200
WF #202
WF #205
WF #203
WF #204
WF #206
WF #207
WF #208
WF #209
WF #210
WF #211
WF #212
WF #213
WF #214

PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
PROP WOOD RAIL FENCE

PCC +94.83

RET EXIST UP

CONTINUED ON SHEET NO. 10

CONTINUED ON SHEET NO. 12

MATCH LINE
STA 73+00

67
68
69
70
71
72
73

PROP INDIVIDUAL TREE PROTECTION
PROP TEMPORARY TREE PROTECTION FENCE
PROP WOOD RAIL FENCE
PROP LOAM AND SEED
APPROX SLOPE LIMITS

RET EXIST FENCE
PROP TEMPORARY TREE PROTECTION FENCE
R&R EXIST BOUND

PROP TEMPORARY TREE PROTECTION FENCE
PROP INDIVIDUAL TREE PROTECTION
PROP TEMPORARY TREE PROTECTION FENCE
RET EXIST GRAVEL TRAIL CONNECTION

MATCH LINE
STA 67+40

PROP TEMPORARY TREE PROTECTION FENCE
RET EXIST FENCE

RET EXIST UP
PROP INDIVIDUAL TREE PROTECTION
RET EXIST STAIRS
PROP INDIVIDUAL TREE PROTECTION
PROP TEMPORARY TREE PROTECTION FENCE

MAP 22 LOT 65
N/F
JEFFREY R. & DANIELLE DEVEAU

MAP 22 LOT 64
N/F
PAUL & KRISTEN MARESCALCHI

MAP 22 LOT 63
N/F
RYAN J. & JEANNE M. PATZ

MAP 22 LOT 15
N/F
ANDREW P. & KIMBERLY SAMALIS

MAP 22 LOT 14
N/F
EDWARD P. & SANDRA ZITANO

MAP 22 LOT 13
N/F
MATTHEW A. & JACQUELINE DRAGANI

MAP 22 LOT 12
N/F
MICHAEL A. PENTA

MAP 22 LOT 11
N/F
MATTHEW A. FALLON & LINDY ALDRICH

MAP 22
N/
PAUL J. D
SHARON T.

NASON ROAD

NEIGHBORHOOD ROAD

MATCH LINE
STA 73+00

BELLA N

0 20 50 100
SCALE: 1" = 20'

RESOURCE AREA LEGEND:

- BVW / MHW / BANK
- 100-FT BUFFER ZONE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	12	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION PLANS
PART 7 OF 7

N

MATCH LINE STA 73+00

WF #214 WF #215 WF #216 WF #217

MHW #1A MHW #2A MHW #3A MHW #4A MHW #5A MHW #6A MHW #7A MHW #8A MHW #9A MHW #10A
WF #218 WF #219 WF #220 WF #221 WF #222 WF #223

100' WETLAND BUFFER

PROP CONST BL
PROP 10' STONEDUST TRAIL
PROP LOAM AND SEED
APPROX SLOPE LIMIT
PROP COMPOST FILTER TUBES
PROP WOOD RAIL FENCE

RET EXIST UP

PCC +94.83

CONTINUED ON SHEET NO. 11

MAP 17 LOT 34
N/F
MASS. ELECTRIC COMPANY

RET EXIST WALL
PROP 8' STONEDUST TRAIL
PROP LOAM AND SEED

PROVIDE STONEDUST AT DRIVEWAY CROSSING

PRC +20.59
PT +40.16

MAP 17A
N/
LESLIE O. GO
REVOCAB

R&R EXIST GUY WIRE

PCC +99.88

R&D EXIST CURB
R&D EXIST HMA
PROP 18' GRAVEL DRIVEWAY FOR NGRID VEHICLE ACCESS
PROP WOOD RAIL FENCE WITH GUARDRAIL

RET EXIST UP
RET EXIST TREES AND HEDGES

RET EXIST UP
PROP LOAM AND SEED
APPROX SLOPE LIMITS

PROP WOOD RAIL FENCE

MAP 22 LOT 10
N/F
PAUL J. DWYER &
SHARON T. KALOSKY

MAP 22 LOT 22-2
N/F
PAUL J. & MARIA E.
MIGNONE

MAP 22 LOT 22-1
N/F
MARK D. GREENMAN

MATCH LINE STA 73+00

MAP 22 LOT 9
N/F
BELLA M. & SHESHA VAYSMAN

HUMPHREY STREET
OCEAN AVENUE

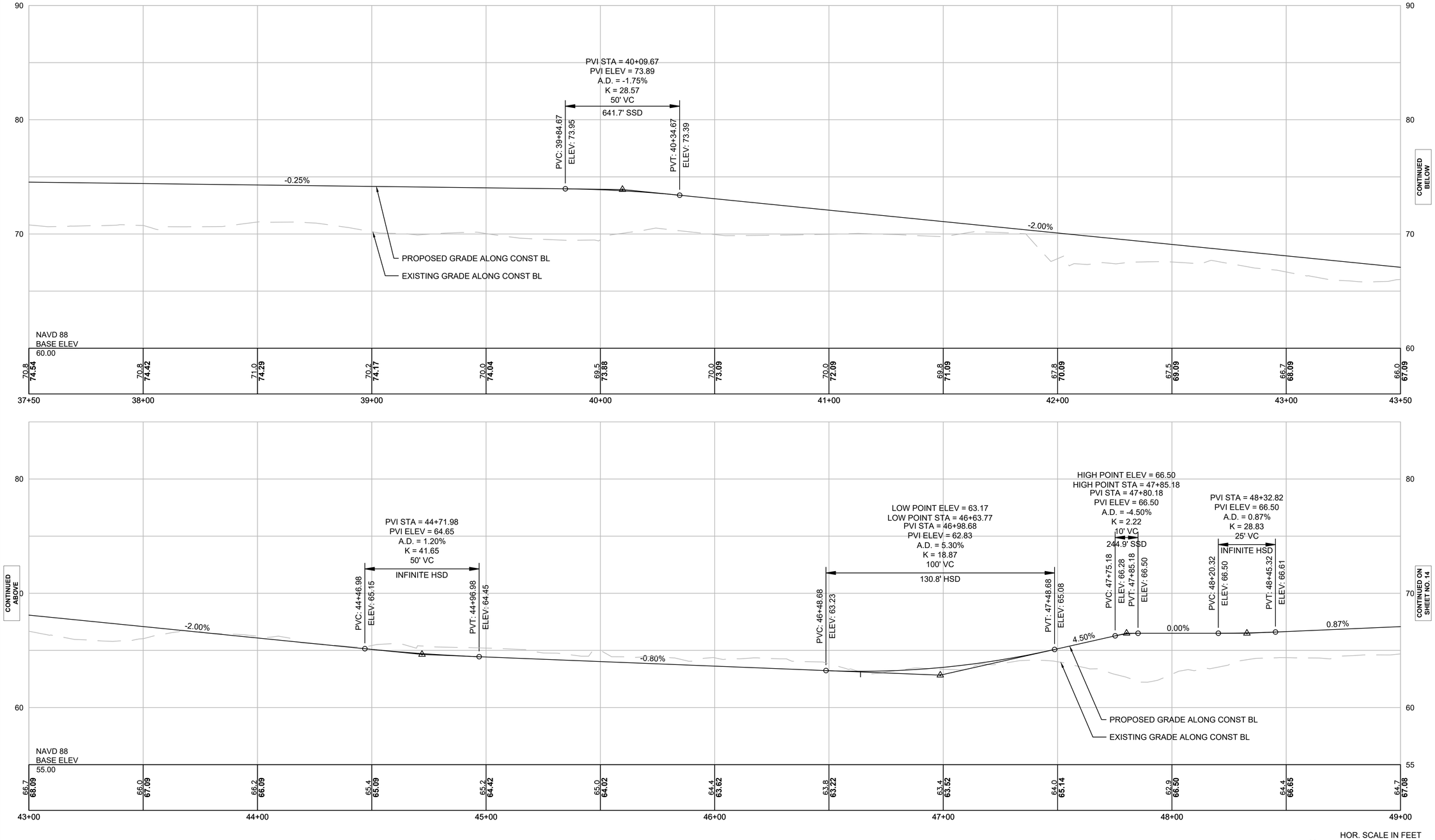
MAG. NAIL FOUND

0 20 50 100
SCALE: 1" = 20'

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	13	20
STANTEC PROJECT NO. 179410549			

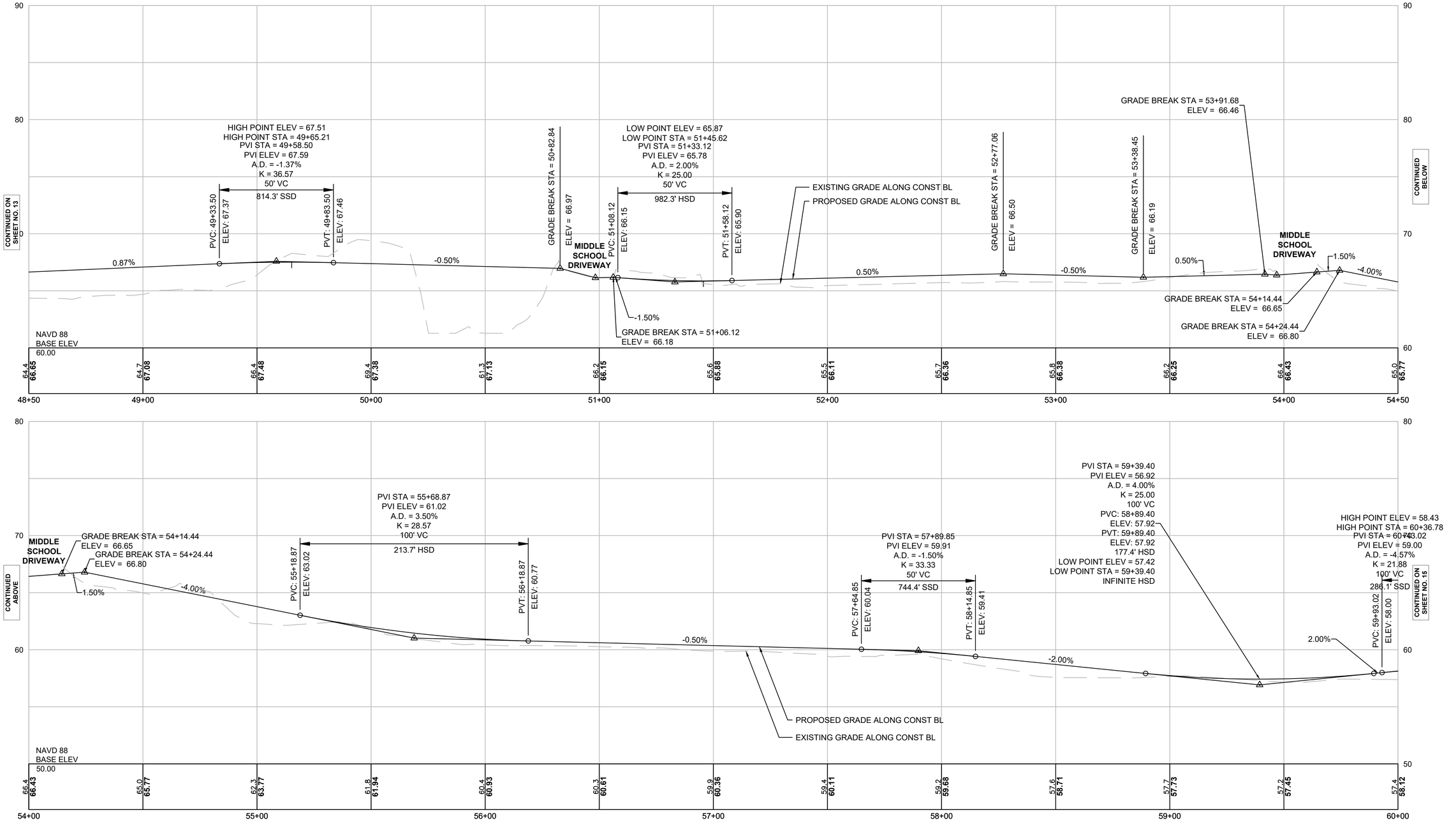
PROFILES
PART 1 OF 4



SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	14	20
STANTEC PROJECT NO. 179410549			

PROFILES
PART 2 OF 4



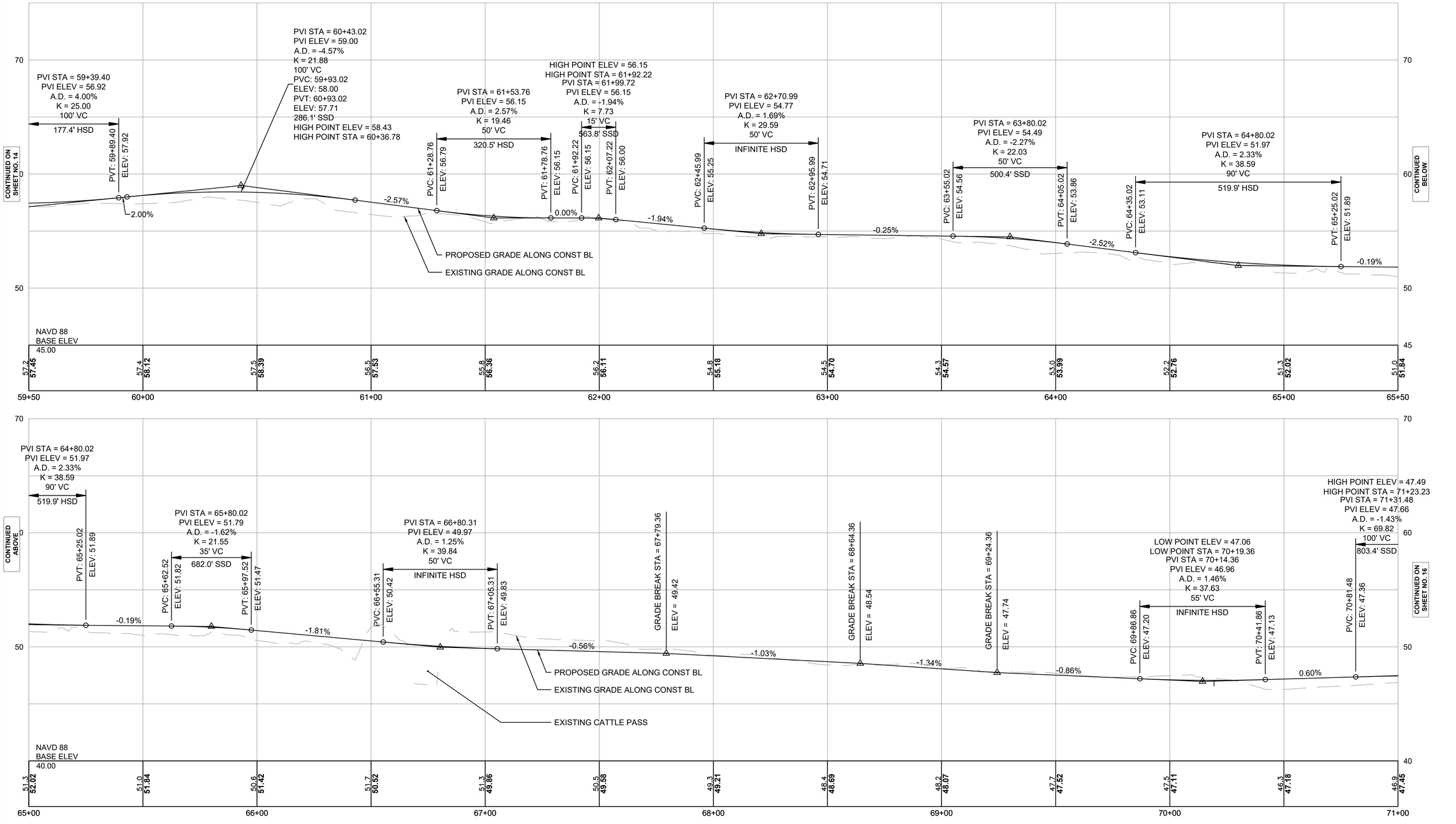
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

NOI_SWAMP_RT_PROFILES.DWG Plotted on 1-Aug-2019 11:54 AM

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	15	20
STANTEC PROJECT NO. 179410549			

PROFILES
PART 3 OF 4

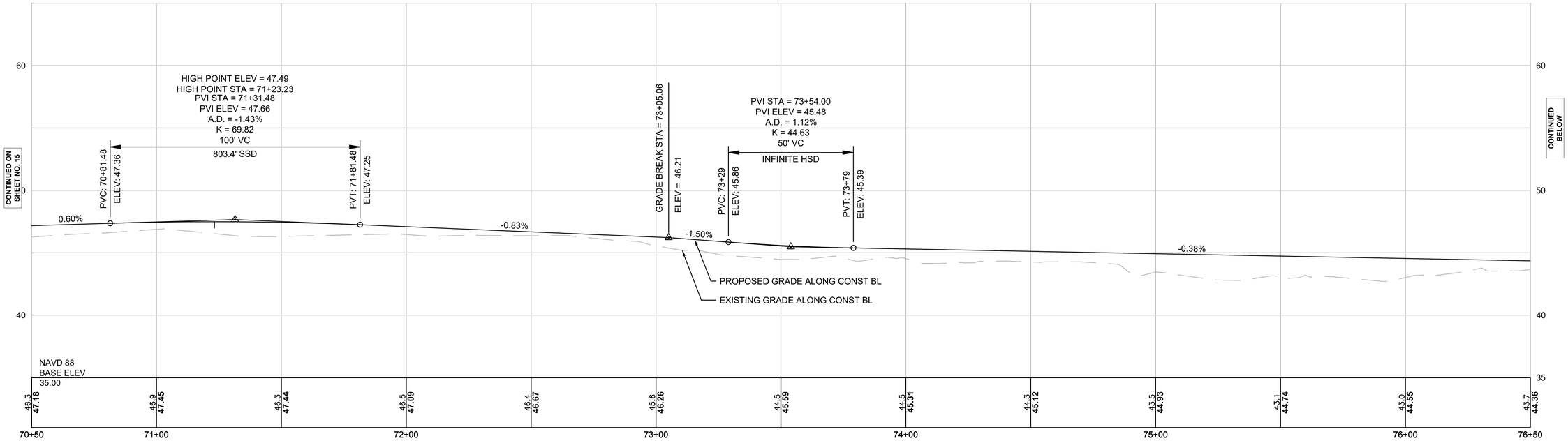


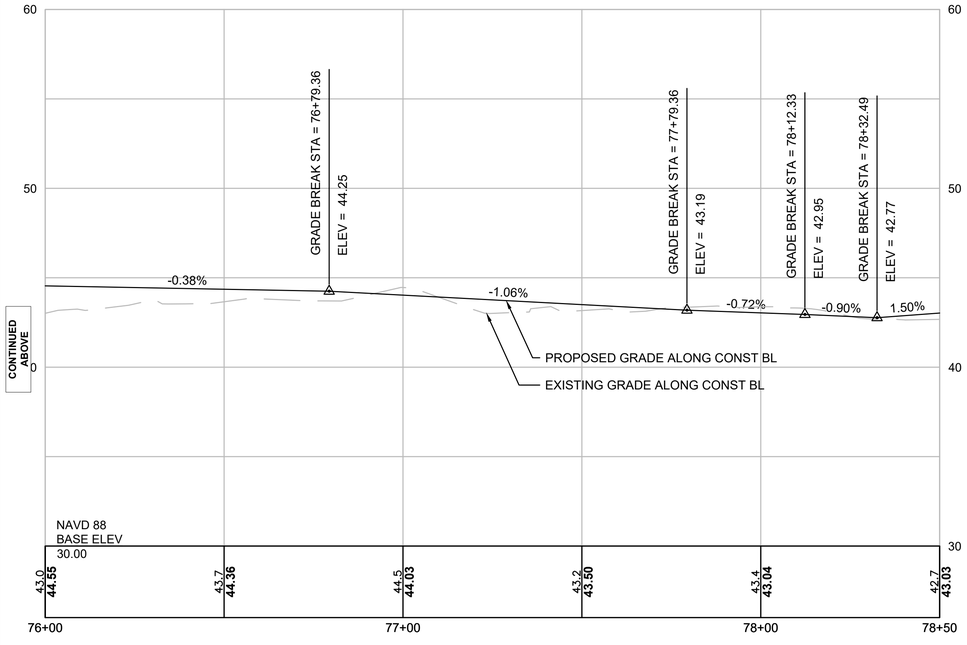
HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	16	20
STANTEC PROJECT NO. 179410549			

PROFILES
PART 4 OF 4





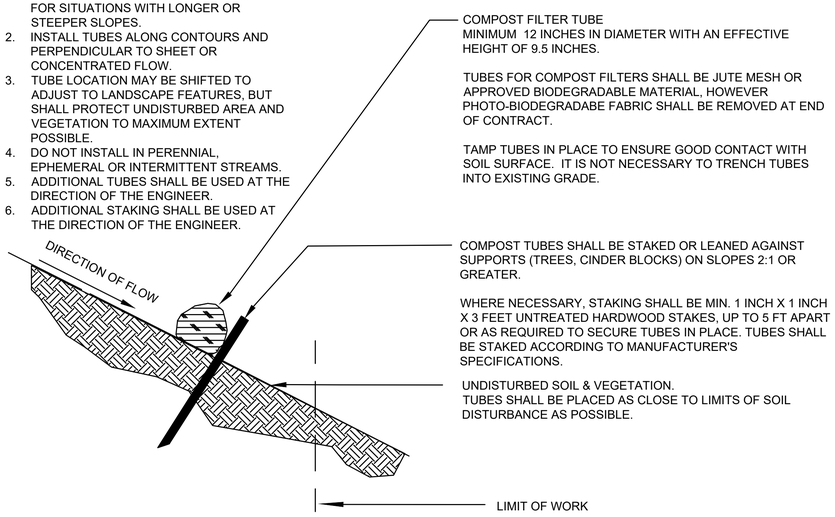
HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

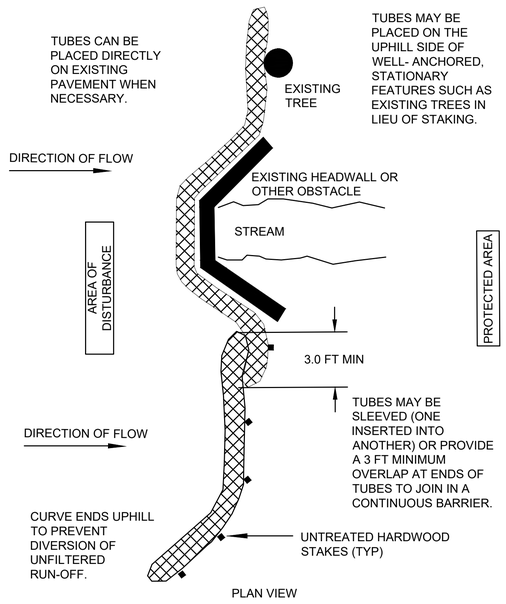
SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	17	20
STANTEC PROJECT NO. 179410549			

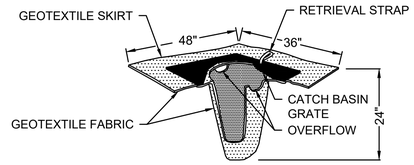
CONSTRUCTION DETAILS
PART 1 OF 4

NOTES:
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.

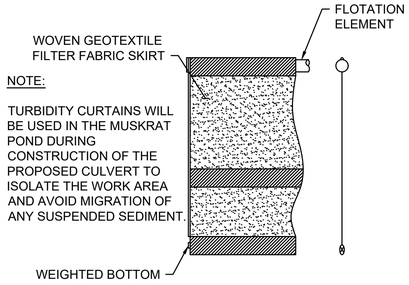




12" COMPOST FILTER TUBE DETAILS
NOT TO SCALE



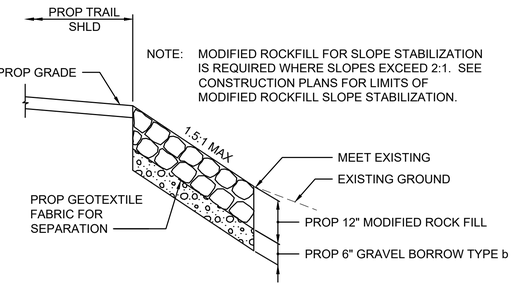
SILT SACK FOR SEDIMENT CONTROL
NOT TO SCALE



NOTE:

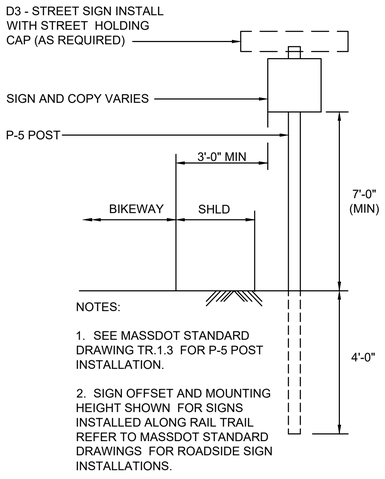
TURBIDITY CURTAINS WILL BE USED IN THE MUSKRAT POND DURING CONSTRUCTION OF THE PROPOSED CULVERT TO ISOLATE THE WORK AREA AND AVOID MIGRATION OF ANY SUSPENDED SEDIMENT.

TURBIDITY CURTAIN
NOT TO SCALE



NOTE: MODIFIED ROCKFILL FOR SLOPE STABILIZATION IS REQUIRED WHERE SLOPES EXCEED 2:1. SEE CONSTRUCTION PLANS FOR LIMITS OF MODIFIED ROCKFILL SLOPE STABILIZATION.

MODIFIED ROCK FILL DETAIL
NOT TO SCALE

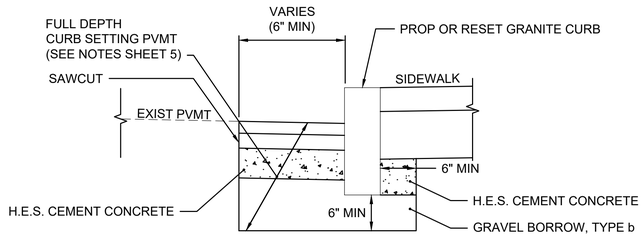


NOTES:

1. SEE MASSDOT STANDARD DRAWING TR.1.3 FOR P-5 POST INSTALLATION.

2. SIGN OFFSET AND MOUNTING HEIGHT SHOWN FOR SIGNS INSTALLED ALONG RAIL TRAIL REFER TO MASSDOT STANDARD DRAWINGS FOR ROADSIDE SIGN INSTALLATIONS.

TYPICAL SIGN LOCATION
NOT TO SCALE



NOTES:
1. H.E.S. CEMENT CONCRETE SHALL BE PAID FOR UNDER ITEM 431. - HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE.
2. H.E.S. CEMENT CONCRETE SHALL BE PLACED ON BOTH SIDES OF GRANITE CURBING.
3. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE FOR H.E.S. CONCRETE.
4. SAWCUTTING EXISTING PAVEMENT SHALL BE INCLUDED IN THE PRICE BID FOR PROPOSED OR RESET GRANITE CURB.
5. MAXIMUM CURB REVEAL SHALL BE 6 INCHES

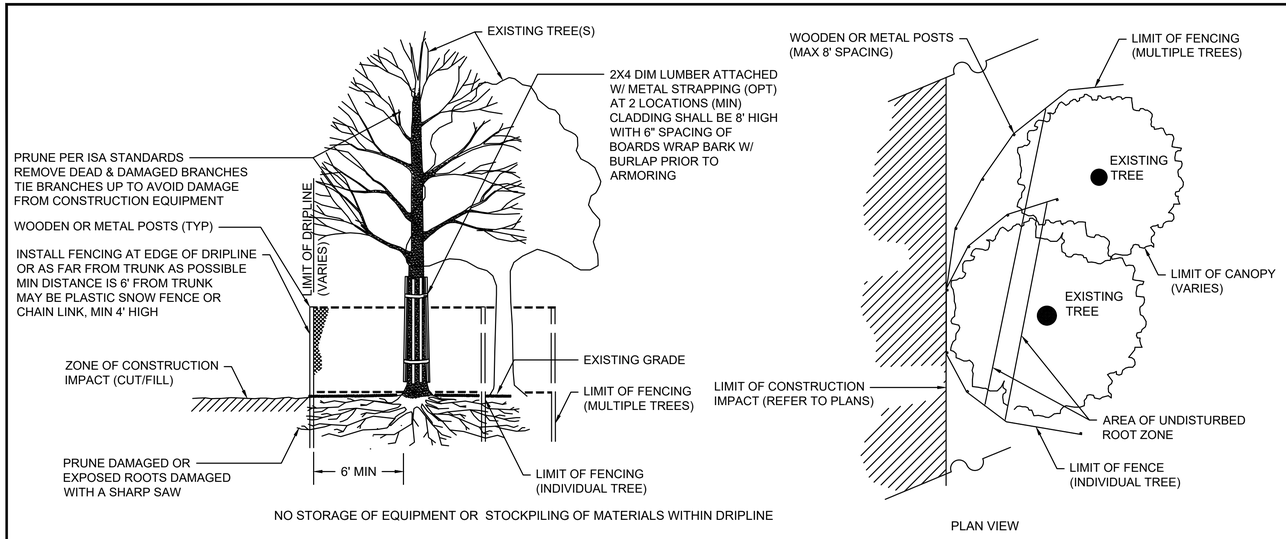
METHOD OF SETTING GRANITE CURB (AGAINST EXISTING PAVEMENT)

PA NEW ENGLAND FACW MIX

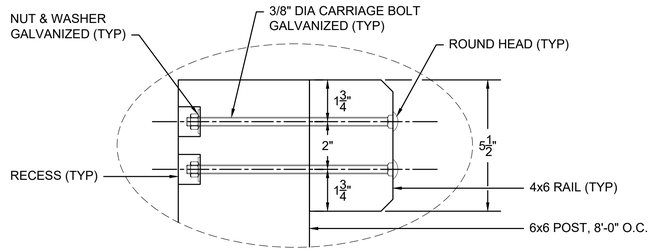
BOTANICAL NAME	COMMON NAME
CAREX VULPINOIDEA	FOX SEDGE
ELYMUS VIRGINICUS	VIRGINIA WILDRYE
PANICUM ANCEPS	BEAKED PANICGRASS
PANICUM RIGIDULUM	REDTOP PANICGRASS
CAREX LUPULINA	HOP SEDGE
CAREX LURIDA	LURID SEDGE
CAREX SCOPARIA	BLUNT BROOM SEDGE
CAREX INTUMESCENS	STAR SEDGE
CINNA ARUNDINACEA	WOOD REEDGRASS
JUNCUS EFFUSUS	SOFT RUSH
VERBENA HASTATA	BLUE VERVAIN
HELIOPSIS HELIANTHOIDES	OXEYE SUNFLOWER
ASCLEPIAS INCARNATA	SWAMP MILKWEED
CAREX COMOSA	COSMOS SEDGE
EUPATORIUM PERFOLIATUM	BONESET
LOBELIA SIPHILITICA	GREAT BLUE LOBELIA
ALISMA SUBCORDATUM	MUD PLANTAIN
ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER
ASTER UMBELLATUS	FLAT TOPPED WHITE ASTER
HELENIUM AUTUMNALE	COMMON SNEEZEWEED
SCIRPUS CYPERINUS	WOOLGRASS
VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED
EUPATORIUM FISTULOSUM	JOE PYE WEED
CHELONE GLABRA	TURTLEHEAD

ROADSIDE MATRIX WET MEADOW SEED MIX

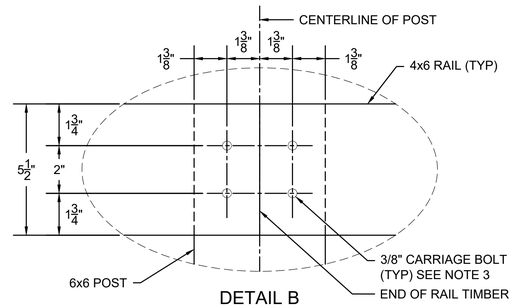
BOTANICAL NAME	COMMON NAME
ELYMUS RIPARIUS	RIVERBANK WILD RYE
ELYMUS VIRGINICUS	VIRGINIA WILD RYE
FESTUCA RUBRA	RED FESCUE
PANICUM VIRGATUM	SWITCH GRASS
CAREX SCOPARIA	BLUNT BROOM SEDGE
CORNUS AMOMUM	SILKY DOGWOOD
CAREX LURIDA	LURID SEDGE
IRIS VERSICOLOR	BLUE FLAG
ASCLEPIAS INCARNATA	SWAMP MILKWEED
VIBURNUM DENTATUM	ARROW WOOD VIBURNUM
ASTER NOVAE-ANGLIAE (SYMPHYOTRICHUM NOVAE-ANGLIA)	NEW ENGLAND ASTER
EUPATORIUM PERFOLIATUM	BONESET
EUPATORIUM MACULATUM (EUTROCHIUM MACULATUM)	SPOTTED JOE PYE WEED
SAMBUCUS CANADENSIS	ELDERBERRY
SCIRPUS ATROVIRENS	GREEN BULRUSH
ASTER UMBELLATUS (DOELLINGERIA U.)	FLAT TOPPED/UMBRELLA ASTER



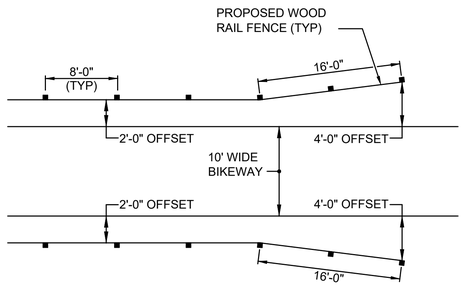
TREE PROTECTION - EXISTING TREE(S)
NOT TO SCALE



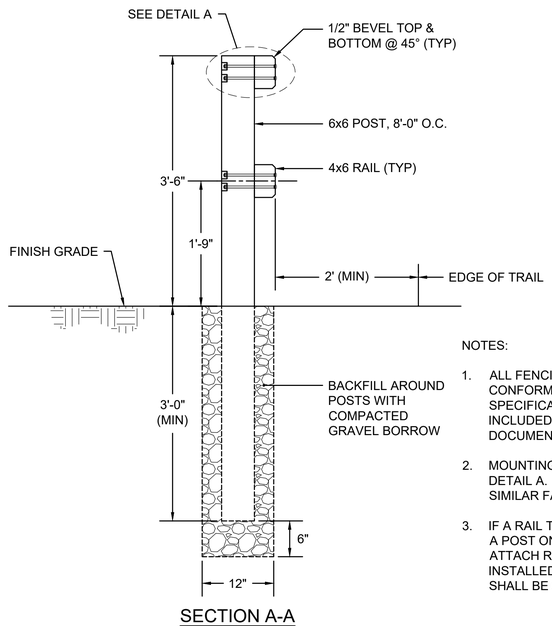
DETAIL A
NOT TO SCALE



DETAIL B
NOT TO SCALE



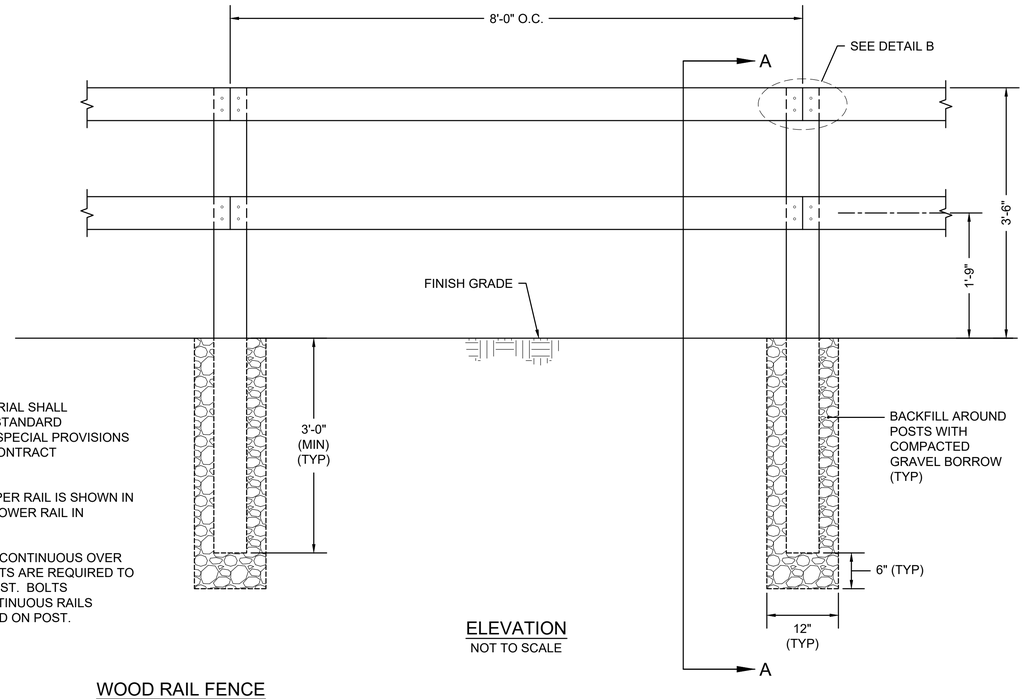
WOOD RAIL FENCE FLARED-END TREATMENT
NOT TO SCALE



SECTION A-A
NOT TO SCALE

NOTES:

1. ALL FENCING MATERIAL SHALL CONFORM TO THE STANDARD SPECIFICATIONS & SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
2. MOUNTING FOR UPPER RAIL IS SHOWN IN DETAIL A. MOUNT LOWER RAIL IN SIMILAR FASHION.
3. IF A RAIL TIMBER IS CONTINUOUS OVER A POST ONLY 2 BOLTS ARE REQUIRED TO ATTACH RAIL TO POST. BOLTS INSTALLED ON CONTINUOUS RAILS SHALL BE CENTERED ON POST.



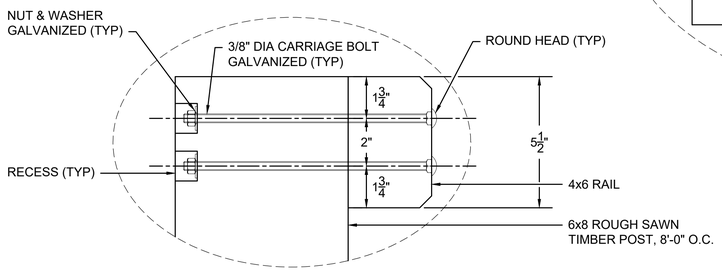
ELEVATION
NOT TO SCALE

WOOD RAIL FENCE
NOT TO SCALE

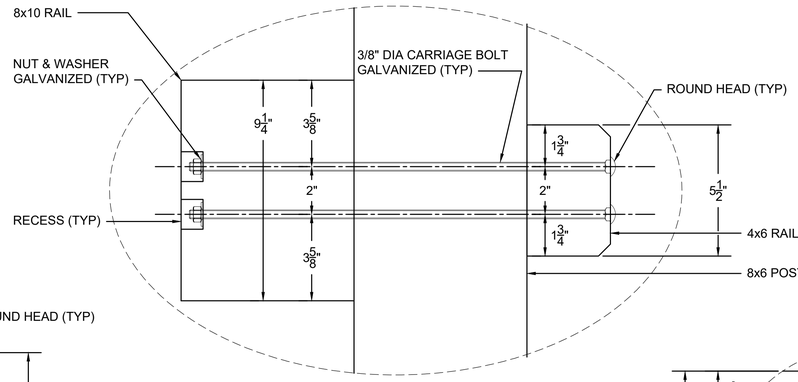
SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	19	20
STANTEC PROJECT NO. 179410549			

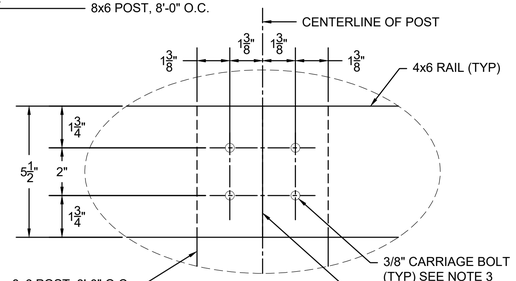
CONSTRUCTION DETAILS
PART 3 OF 4



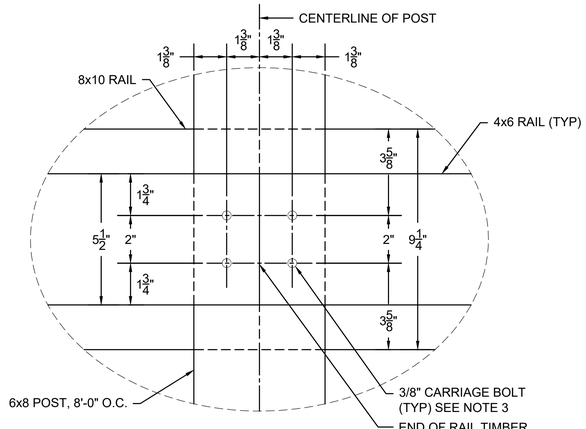
DETAIL A
NOT TO SCALE



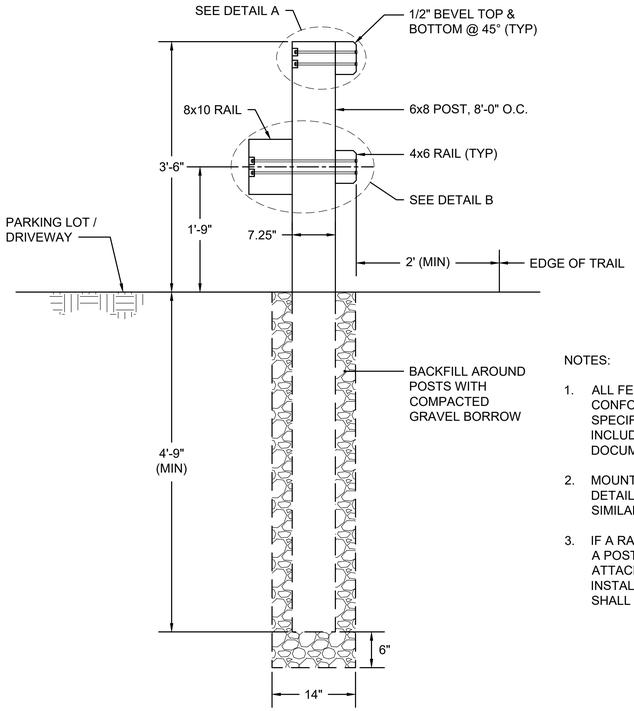
DETAIL B
NOT TO SCALE



DETAIL C
NOT TO SCALE



DETAIL D
NOT TO SCALE



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NOT TO SCALE

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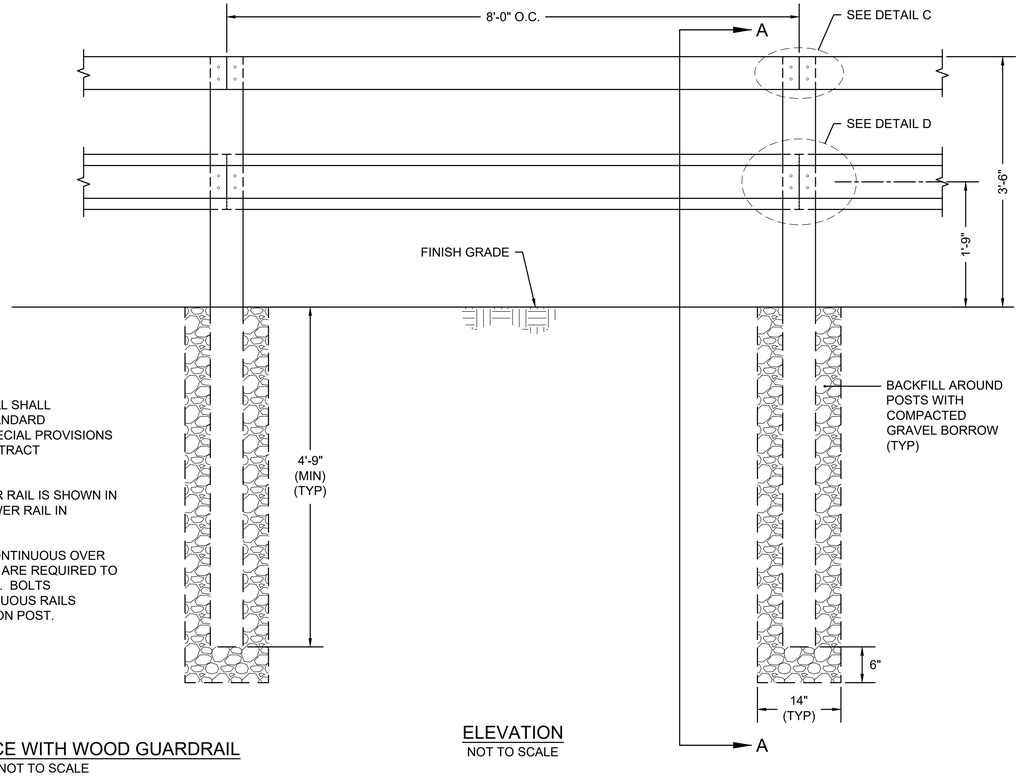
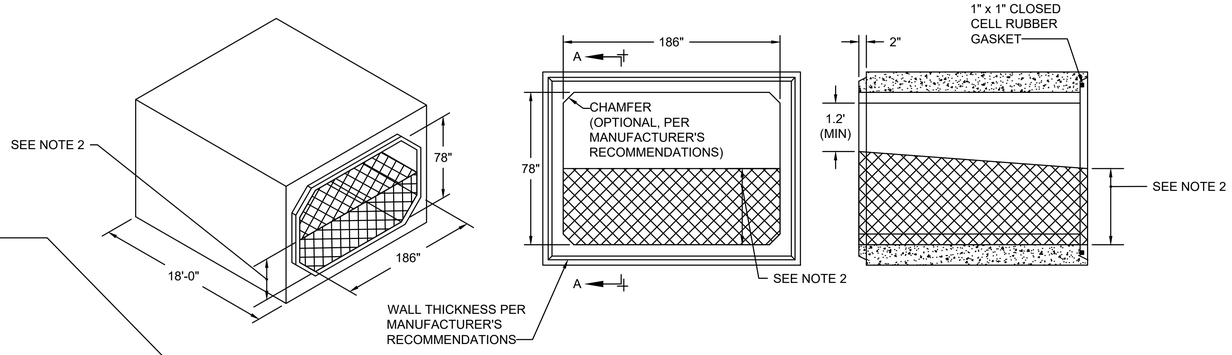
WOOD RAIL FENCE WITH WOOD GUARDRAIL
NOT TO SCALE



ELEVATION
NOT TO SCALE

NOTES:

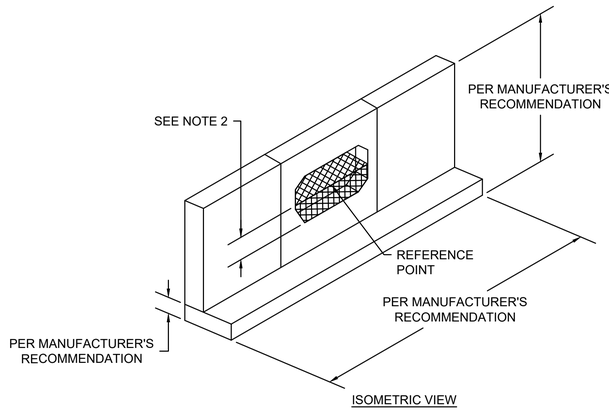
1. INVERTS DEPICTED ON THE PLANS SHALL BE VERIFIED IN THE FIELD PRIOR TO ORDERING MATERIALS. ANY DISCREPANCIES BETWEEN INVERTS SHOWN ON THE PLANS AND EXISTING CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION. THE DESIGN INTENT IS TO MAINTAIN THE EXISTING STREAM ELEVATION.
2. BOX CULVERT TO BE BACKFILLED WITH 24" (MIN) OF STREAM CHANNEL SUBSTRATE. STREAM CHANNEL SUBSTRATE SHALL CONSIST OF A 6" LAYER OF ROUNDED RIVER STONE (2"-4"Ø) OVER 18" OF RE-USED EXISTING MATERIAL PRESENT BEFORE EXCAVATION FOR CULVERT INSTALLATION. TEMPORARY IMPACTS TO BANK SHALL BE RESTORED IN KIND, MATERIAL SHALL MATCH STREAM CHANNEL SUBSTRATE UPSTREAM AND DOWNSTREAM OF CROSSING.



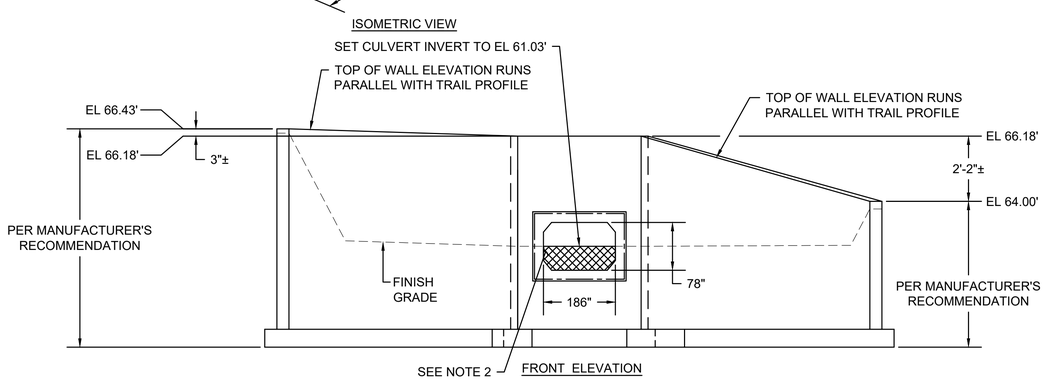
ISOMETRIC VIEW | FRONT VIEW | SECTION A-A

CULVERT STRUCTURE
PRECAST REINFORCED CONCRETE BOX
CULVERT DETAIL STATION 47+93.93

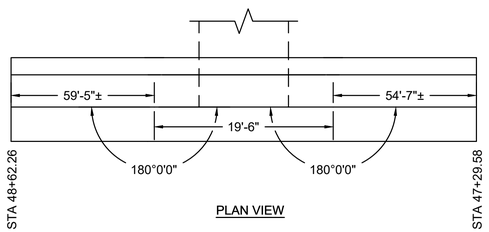
NOT TO SCALE



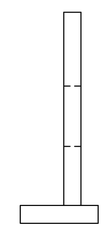
ISOMETRIC VIEW



FRONT ELEVATION



PLAN VIEW



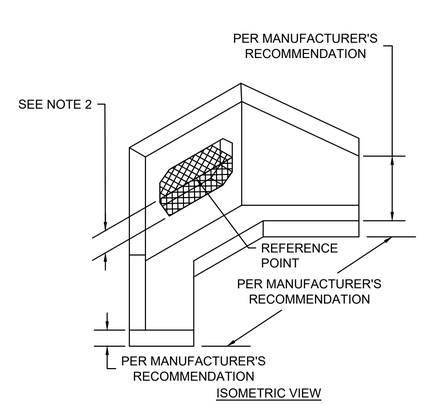
SIDE ELEVATION

NOTES:

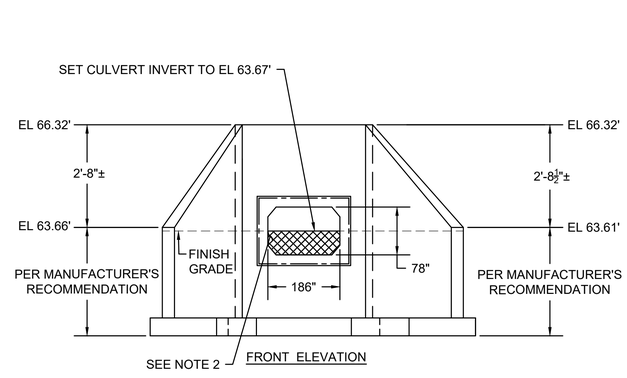
1. 28 DAY COMPRESSIVE STRENGTH F'C = 5,000PSI.
2. REBAR; GRADE 60 PER ASTM A615.
3. DESIGN LOADING; H-20 WITH 0' TO 2'-0" COVER.
4. JOINTS TO BE SEALED WITH 1" SQ. NEOPRENE CORD IN SHIPLAP JOINT.
5. TOLERANCES; PER ASTM C850.
6. ANY HARDWARE SHOWN BUT NOT DIMENSIONED IS FOR VISUAL REFERENCE ONLY. DO NOT SCALE FOR PLACEMENT.

PRECAST CONCRETE HEADWALL DETAIL
STATION 47+93.93, 9.00' LT

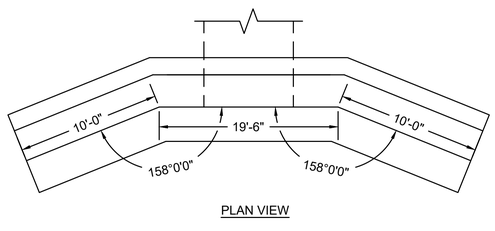
NOT TO SCALE



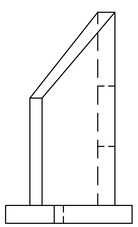
ISOMETRIC VIEW



FRONT ELEVATION



PLAN VIEW



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PRECAST CONCRETE HEADWALL DETAIL
STATION 47+93.93, 9.00' RT

NOT TO SCALE

SWAMPSCOTT
SWAMPSCOTT RAIL TRAIL

STATE	SUBMISSION	SHEET NO.	TOTAL SHEETS
MA	NOI - AUGUST 2, 2019	20	20
STANTEC PROJECT NO. 179410549			

CONSTRUCTION DETAILS
PART 4 OF 4

NOI_SWAMP_RT_CONST_DETAILS.DWG Plotted on 1-Aug-2019 11:57 AM