



Notice of Intent

Hingham Waterfront Resiliency Project

Hingham, MA



210 Central Street
Hingham, MA
August 2026
Project ID: 23H011.00

**Solving our clients' toughest
science and engineering challenges.**

Hingham Waterfront Resiliency Project

Project ID: 23H011.00

Prepared for
The Town of Hingham
210 Central Street
Hingham, MA 02043

Prepared by
Foth Infrastructure & Environment, LLC

August 2026

REUSE OF DOCUMENTS

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Hingham Waterfront Resiliency Project

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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

Hingham

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):

<u>0, 95 & 3 Otis Street, 12 Summer Street</u>	<u>Hingham</u>	<u>02043</u>
a. Street Address	b. City/Town	c. Zip Code
<u>Latitude and Longitude:</u>	<u>42°14' 44" N</u>	<u>70°53' 02" W</u>
	d. Latitude	e. Longitude
<u>50; 51</u>	<u>49, 50; 151, 2, 58</u>	
f. Assessors Map/Plat Number	g. Parcel /Lot Number	

2. Applicant:

<u>Town of Hingham</u>	<u></u>
a. First Name	b. Last Name
<u>210 Central Street</u>	
c. Organization	
<u>Hingham</u>	<u>MA</u>
d. Street Address	e. City/Town
<u>(781) 804-2305</u>	<u>02043</u>
h. Phone Number	f. State
<u></u>	<u>g. Zip Code</u>
i. Fax Number	<u>freyj@hingham-ma.gov</u>
	j. Email Address

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

<u></u>	<u></u>
a. First Name	b. Last Name
<u></u>	
c. Organization	
<u></u>	
d. Street Address	
<u></u>	<u></u>
e. City/Town	f. State
<u></u>	<u>g. Zip Code</u>
h. Phone Number	i. Fax Number
<u></u>	<u>j. Email address</u>

4. Representative (if any):

<u>Fiona</u>	<u>Vardy</u>
a. First Name	b. Last Name
<u>Foth Infrastructure & Environment, LLC</u>	
c. Company	
<u>114 Touro Street</u>	
d. Street Address	
<u>Newport</u>	<u>RI</u>
e. City/Town	f. State
<u>401-910-7720</u>	<u>02840</u>
h. Phone Number	g. Zip Code
<u></u>	<u>fiona.vardy@foth.com</u>
i. Fax Number	j. Email address

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

<u>N/A - Municipal Exempt</u>	<u>N/A - Municipal Exempt</u>	<u>N/A - Municipal Exempt</u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The Town of Hingham is seeking to address existing and future coastal flooding concerns across the southerly shoreline of Hingham Harbor to protect critical public infrastructure and enhance public access to the Harbor and its amenities. Please refer to Attachments 1 (Project Narrative) and 14 (Project Plans) for further details.

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:

Plymouth

a. County

1493

c. Book

b. Certificate # (if registered land)

266

d. Page Number

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

- ☐ 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.
- ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

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



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

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

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

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



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

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

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

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
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	9,981 sf 1. square feet _____	2. cubic yards beach nourishment _____
e. ☒ Coastal Dunes	21,347 sf 1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. ☒ Coastal Banks	358 lf 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	4,160 sf 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	140,021 sf 1. square feet _____	

4. ☐ Restoration/Enhancement

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

a. square feet of BVW _____

b. square feet of Salt Marsh _____

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings _____

b. number of replacement stream crossings _____



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C. Other Applicable Standards and Requirements

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

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

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

a. ☐ Yes ☒ No

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

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

August 2021

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 <https://www.mass.gov/mas-endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

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



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

- (c) ☐ MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; 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 - Bourne to Rhode Island border, and the Cape & Islands:

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

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.

- c. ☐ Is this an aquaculture project?

- d. ☐ Yes ☒ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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

Online Users:

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

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. ☒ A portion of the site constitutes redevelopment
 3. ☒ Proprietary BMPs are included in the Stormwater Management System.
- b. ☐ No. Check why the project is exempt:
 1. ☐ Single-family house
 2. ☐ Emergency road repair
 3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

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

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

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

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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D. Additional Information (cont'd)

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

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

Hingham Waterfront Resiliency Project

a. Plan Title

Foth Infrastructure & Environment, LLC

Jeremy Packard, P.E.

b. Prepared By

c. Signed and Stamped by

August 2026

As noted

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☒ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☒ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed.

E. Fees

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

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

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



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F. Signatures and Submittal Requirements

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

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

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

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

For MassDEP:

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

Other:

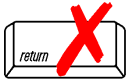
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

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.



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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:

Bathing Beach to POW/MIA Memorial Park

a. Street Address

N/A - Municipal Exempt

c. Check number

Hingham

b. City/Town

N/A - Municipal Exempt

d. Fee amount

2. Applicant Mailing Address:

a. First Name

Town of Hingham

c. Organization

210 Central Street

d. Mailing Address

Hingham

e. City/Town

(781) 804-2305

h. Phone Number

i. Fax Number

b. Last Name

MA

f. State

02043

g. Zip Code

freyj@hingham-ma.gov

j. Email Address

3. Property Owner (if different):

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

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.

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



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee:	<u>N/A - Municipal Exempt</u> a. Total Fee from Step 5
State share of filing Fee:	<u>N/A - Municipal Exempt</u> b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:	<u>N/A - Municipal Exempt</u> c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

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

Department of Environmental Protection
Box 4062
Boston, MA 02211

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

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

Attachment 1
Project Narrative

PROJECT NARRATIVE

Hingham Waterfront Resiliency Project

Town of Hingham, MA

1. Introduction

The Town of Hingham (“Town” or “Proponent”) is submitting this Notice of Intent (NOI) to the Hingham Conservation Commission (“Commission”) to obtain an Order of Conditions (OOC) for proposed activities within coastal resource areas subject to protection under the Town of Hingham Wetlands Protection Bylaw (General Bylaws of the Town of Hingham, Article 22, as amended June 2026) and the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40).

The Hingham Waterfront Resilience Project as a whole (the “Full Build-out Project”) is designed to address sea level rise and increasing storm severity along the Hingham Harbor (the “Harbor”) waterfront. The improvements proposed under the Full Build-out Project have been identified as the most effective long-term solution for coastal resilience within the Full Build-out Project area (detailed in Section 5.0), based on a comprehensive alternatives analysis and ongoing coordination with applicable regulatory agencies, which have informed the selection and refinement of the preferred design. The Full Build-out Project advances a comprehensive flood protection strategy along approximately six-tenths (0.6) of a mile of shoreline, extending west to east along the southerly edge of the Harbor, commonly referred to as the “Inner Harbor,” as shown on Figure 1 below.

As further described in Section 5.0, the Full Build-out Project will be implemented in phases to account for funding availability and scheduling, as well as to coordinate with planned improvements to State Highway Route 3A (Otis Street) by the Massachusetts Department of Transportation (MassDOT). This phased approach is also intended to ensure that the issued OOCs remain active throughout construction and do not expire prior to the initiation or completion of individual components, recognizing the extended timeline required to fully implement the Full Build-out Project.

This NOI represents the first phase of implementation (“Phase I”), which advances initial coastal resilience measures within the broader Full Build-out Project area. This NOI presents the technical analyses, coastal modeling, and alternatives evaluations completed to date for the Full Build-out Project, all of which comprehensively address existing conditions and future coastal flood risks across the entire Full Build-out Project area. In addition, this filing describes specific improvements at priority locations, including Hingham Bathing Beach (“Bathing Beach”), the Town boat ramp, associated parking areas, and the P.O.W./M.I.A. Memorial Park shoreline. The Project is described in detail in Section 4.0 and is shown on the Project Plans included as Attachment 14. Separate NOIs will be submitted for future Full Build-out Project phases, as outlined in Section 5.0.

The Full Build-out Project area includes a mix of Town-owned and privately owned properties, many of which support active commercial and public uses. Route 3A, and the heavily traveled Summer Street, form the northern boundary of the historic downtown area that requires protection from coastal flooding. The Route 3A corridor supports a range of commercial activities including offices, marine services, and automotive repair and fuel sales. Town-owned properties within the Full Build-out Project area include Bathing Beach and the adjacent picnic grove and bandstand, the Town boat ramp parking lot, Town Wharf (also known as Iron Horse Park and Town Pier), Whitney Wharf Park, the P.O.W./M.I.A. Memorial, 30 Summer Street, and Barnes Wharf. Additional jurisdictional interests include land controlled by the Commonwealth of Massachusetts at the rotary and along Route 3A, as well as the westernmost portion of the Project area managed by the Trustees of Bathing Beach.

The Full Build-out Project’s comprehensive approach to resiliency improvements aims to eliminate existing storm tide pathways (as illustrated in Figure 2 below) through 2050, while minimizing storm-driven wave overtopping of seawalls and revetments. Any overtopping that does occur is intended to be localized,

confined to areas immediately adjacent to shoreline protection structures, and limited in magnitude (e.g., requiring only minor post-storm maintenance). The design also incorporates flexibility to allow for future adaptation, including potential modifications to address 100-year flood conditions projected for 2070. Overall, the Full Build-out Project is designed to enhance the resilience of critical coastal infrastructure in an environmentally responsible manner while allowing for future expansion and adjustment as climate conditions evolve.

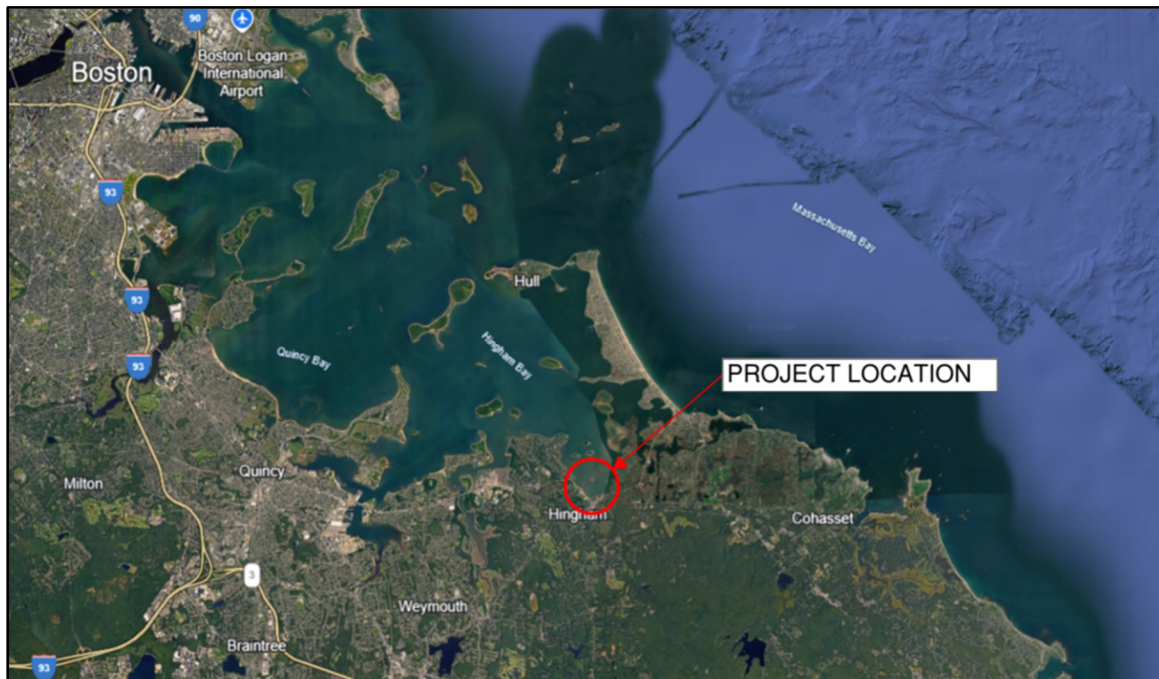


Figure 1: Full Build-out Project Area Location



Figure 2: Existing topography along the Hingham Harbor shoreline for the Full Build-out Project area. The black line indicates the approximate 10-ft NAVD88 contour (~100-year storm surge level), where lower-lying areas are shown in light green or blue. Potential storm tide pathways are indicated by the red arrows.

2. Existing Inner Harbor Conditions and Historic Development

The Inner Harbor shoreline is presently characterized by a highly developed waterfront consisting of man-made quays, piers, seawalls, revetments, roadways, parking areas, and other public and commercial infrastructure. Although the area was historically known as “Bare Cove” and developed over time as a working harbor supporting fishing, transportation, and waterfront commerce, the shoreline has since been substantially altered from its natural condition. Existing conditions along the Harbor reflect this long-term transition to a hardened and actively used waterfront, with remaining historic waterfront features integrated among modern transportation, marine, recreational, and commercial uses.

While downtown Hingham continues to thrive, the historic Harbor-front infrastructure was constructed at a time when sea levels were over one foot lower than they are today. With ongoing sea-level rise, existing coastal infrastructure is not capable of withstanding impacts of severe coastal flooding associated with storm surge. As shown in Figure 3, unimproved shoreline infrastructure is currently flooded during substantial extra-tropical storm events; in this case during Winter Storm “Riley” in March 2018. In addition, much of the downtown business district, which consists of a significant number of historic structures dating to the 1700s, is below the existing 100-year storm surge level in the Harbor. Historically, flooding associated with storm surge alone has found storm tide pathways to inundate developed areas along the Inner Harbor. As shown above in Figure 2, significant portions of the developed Inner Harbor are susceptible to storm surge flooding during the 100-year event and storm tide pathways can allow flooding from the Harbor.



Figure 3: Town Wharf area flooded during the March 2018 Storm (Winter Storm “Riley”)

3. Purpose and Need

Coastal infrastructure plays a crucial role in supporting economic development, especially in coastal towns facing frequent flooding and storm damage. Hingham serves as a compelling example of how strategic investment in coastal infrastructure can foster economic growth and resilience. Hingham, like many coastal communities, has been contending with the adverse effects of climate change. Rising sea levels and more frequent storms have led to persistent flooding, threatening local businesses and the longevity of the shoreline. To address these challenges Hingham has initiated the coastal flood hazard mitigation strategies involving elevating seawalls, revetments, and coastal dune, as well as a self-regulating tide gate that will close to prevent upstream flood caused by coastal storms.

Overall, the purpose of the Full Build-out Project is to mitigate coastal flood damage by elevating shore protection infrastructure along the Harbor-front to provide contiguous coastal flood protection for historic downtown Hingham. The proposed infrastructure will assuredly improve the Town's long-term viability. Existing businesses will benefit from additional protection, and new businesses may be encouraged to open. With reduced flood risks and beach erosion, property values may increase, providing a stronger tax base. By protecting residential, commercial, and recreational areas, as well as enhancing transportation networks and attracting tourism. This financial stability allows for further investments in public amenities and services and therefore will contribute to economic growth and community development.

4. Proposed Project – Phase I

The following sections describe the first sequence of the coastal flood hazard mitigation strategy for the Inner Harbor area extending from the northwest of Bathing Beach to the P.O.W./M.I.A. Memorial Park shoreline, where the site limits connect the higher topographic elevations to both west and east. In this manner, eliminating storm tide pathways into historic downtown from the Harbor will provide long-term coastal resiliency for this critical portion of the community (see Attachment 14). As described above in Section 1.0, the Proponent will submit separate NOIs for the future phases of work. The phased approach is also intended to ensure that issued OOCs remain active and do not expire prior to the commencement and completion of associated work, recognizing the extended timeline required to fully implement the Full Build-out Project. To mitigate coastal flood damage, elevating shore protection infrastructure along the Harbor-front is critical to the Full Build-out Project area.

A Conditional Letter of Map Revision (CLOMR) will be required from the Federal Emergency Management Agency (FEMA) due to the placement of proposed fill within the mapped VE flood zone within the Full Build-out Project area. The CLOMR hydraulic and coastal analysis is currently underway and is anticipated to demonstrate modifications to the existing floodplain, including a reduction in the extent of the current flood zones between Route 3A and the shoreline within downtown Hingham. The Town will submit the CLOMR application to FEMA for review and approval prior to the initiation of construction activities that would alter the existing floodplain conditions. Upon completion of construction, a Letter of Map Revision (LOMR) will be filed to reflect as-built conditions and formally revise the effective Flood Insurance Rate Map (FIRM).

4.1 Project Overview

To address existing and future coastal flooding concerns, the Foth Infrastructure & Environment, LLC and Sustainable Coastal Solutions, Inc. (collectively, "Foth/SCS") team was tasked by the Town to develop a comprehensive coastal flood hazard mitigation strategy for the Inner Harbor area extending from west of Bathing Beach to Barnes Wharf, where the Full Build-out Project limits connect to higher topographic elevations to both the west and east. In this manner, eliminating storm tide pathways into historic downtown from the Harbor will provide long-term coastal resiliency for this critical portion of the community.

As all properties along the shoreline are not Town-owned, the Project team has been working with private landowners, as well as Massachusetts Department of Transportation (MassDOT) consultants, to ensure contiguous coastal flood protection along the shoreline. Planned MassDOT improvements to Route 3A (Otis Street) will provide a minimum sidewalk elevation of +11.0 ft to +11.5 ft relative to NAVD88 (North American Vertical Datum of 1988) along the seaward side of the roadway, which is above the expected 100-year stillwater storm surge level in 2050, and a vertical curve has been introduced to the roadway between Ship Street and North Street to provide passive flood protection to expected 100-year stillwater storm surge in 2070. The remaining non-Town-owned property requiring additional coastal flood hazard mitigation is Bare Cove Marina, immediately to the east of Town Wharf. As the Town moves forward with the comprehensive flood mitigation approach, alternatives for protecting or isolating the Bare Cove Marina property have been considered within the overall plan. To ensure protection against severe storm flooding to at least 2050, with the ability to increase flood protection out to 2070 with minor modifications, an assessment of site-specific engineering strategies was completed for each of the areas described below in Section 4.1.1 and shown in Figure 4.

Quantitative analyses of future sea-level projections and local site-specific storm wave conditions were performed to provide appropriate design conditions for future flood protection improvements. Overall, the Project team has taken a pragmatic science-based approach to ensure that (a) coastal flood protection improvements are designed to projected elevations consistent with the most recent scientific information that is supported by the historical water elevation data and (b) the designs allow for straight-forward incremental increases to flood protection structures, if necessary, in the future. The quantitative coastal processes analyses served as the basis for developing coastal flood mitigation alternatives. Where possible, nature-based flood protection measures were considered to allow potentially enhanced coastal resource areas to respond to the influence of sea-level rise.

4.1.1 Revetment Redesign

The Town completed the reconstruction of a pre-existing stone revetment in December 2014. The pre-2014 revetment was considered to be in “failing” condition and required improvements due to Coastal Bank erosion observed along the upland. Based upon observations since this revetment was reconstructed, scour is occurring along the southeast end of the structure. Part of the ongoing coastal resiliency efforts include improvements to this structure to address “end-effect” erosion and scour issues, as well as appropriate elevations and slopes to provide long-term coastal flood protection. An updated revetment, tapered into the armored dune, will help mitigate wave reflection and associated end scour.

Presently, the revetment crest has an elevation of +11.0 ft NAVD88, with an approximate slope of 1.5H:1V. The connection between the coastal dune and revetment is formed as the revetment armor stones curve upland to meet the elevation of the dune (see Figure 4). The adjacent dune consists of a concrete core along the extent of the north parking lot (see Figure 5). Following the implementation of these measures in 2014, additional erosion continued to be documented. The physical reconstruction of “hard” and “soft” elements of flood protection along the Inner Harbor are intended to work in conjunction with a beach sediment management plan¹ (BSMP) to improve upon the existing revetment and coastal dune system by reducing “end-effect” erosion, encouraging a natural rate of sand migration, and providing a plan for regularly scheduled monitoring and maintenance that will maintain the usability and enjoyment of the public beach and the safe access for the public to the water at the Town boat ramp.

¹ As described in the NPC, a new Beach Sediment Management Plan (BSMP) is proposed, replacing the current practice of limiting sand removal to the surface of the Town boat ramp (as directed by MA DFW for public access). The NPC also outlines associated monitoring (Sections 6.0 and 6.3) to ensure the BSMP functions effectively and meets erosion control objectives. Additional details regarding implementation will be provided in a future NOI filing, as described in Section 5.0 of this NOI.



Figure 4: 2014 Reconstructed Western Revetment (Facing Northwest)



Figure 5: Dune core placed as an early attempt to stabilize the later constructed coastal dune

Post-reconstruction of the Western Revetment, a concern was raised by regulatory agencies of seaward encroachment onto the adjacent Coastal Beach. A subsequent analysis of aerial photography was used to confirm that the shoreline position of the revetment did not drastically shift seaward; however, it is clear that the 2014 structure reconstructed the Coastal Bank at a steeper slope. The position of the 2014 revetment toe and top of bank fence line are illustrated in Figures 6 and 7. As shown, the comparison of revetment toe location between 2014 (pre-reconstruction) and 2020 (post-reconstruction) are nearly identical. However, the steeper revetment required infilling of the area landward of the reconstructed revetment. Proposed improvements to this revetment will ensure the updated design will maintain or decrease encroachment of existing coastal engineering structures on Coastal Beach resource areas.



Figure 6: Shoreline position aerial photography in 2014. The red line indicates the position of the revetment toe in 2014, and the blue line represents the location of the fence line along the bank crest in 2014.



Figure 7: Shoreline position aerial photography in 2020. The red line indicates the position of the revetment toe in 2014, and the blue line represents the location of the fence line along the bank crest in 2014.

4.1.2 Hingham Bathing Beach and Parking Lot

To ensure that coastal flood waters cannot propagate across Bathing Beach area and impact Town infrastructure and/or Route 3A, a contiguous dune has been designed to withstand storm surge and wave action from a 100-year storm event in 2050. It should be noted, erosion of the dune will occur during severe storms; therefore, maintenance of the dune feature will be required to ensure it maintains appropriate volume. The proposed dune construction will extend from the Western Revetment at Bathing Beach, easterly to the Town boat ramp. The dune will be constructed in a similar fashion to the existing dune fronting Bathing Beach, with constructed walkways over the dune. It is anticipated that compatible material for dune construction will be sourced from an upland site.

To optimize the dune design, a cross-shore morphological model was employed to determine the dimensions of a dune which would serve as an erodible barrier to ocean surges up to the 1% annual chance of recurrence (100-year) still water level (SWEL). The cross-shore transport model XBeach was used to determine a dune fill elevation and crest width which would withstand a major storm event with some remaining flood protection capacity. 100-year wave conditions applied to the model open boundary were derived from the SWAN wave model of Boston and Hingham Harbors, by applying 100-year winds from the north (52.0 kts). The duration of the storm was based upon a typical severe storm; in this case, the December 23, 2022, northeast storm. The storm surge component of the historic storm was scaled up so that the peak total water level would reach the present FEMA-designated 1% SWEL (+9.7 ft NAVD88 for present MSL conditions). Details regarding the numerical modeling can be found in Attachment 8.

For present sea levels, the existing dune at Bathing Beach is able to withstand the 1% storm; however, gaps in the dune used for at-grade walking paths will need to be modified to ensure these areas do not act as storm tide pathways. Proposed dune modifications require constructed walkways over the dunes, as shown in Attachment 14. It is anticipated that compatible material for dune construction will be sourced from an upland site. The dune toe (start of the foreshore slope on the beach) is at an elevation of about +7.0 ft NAVD88. For 2050 MSL conditions, the dune is able to withstand the 1% storm if the crest elevation is increased to +11.0 ft NAVD88. For 2070 MSL conditions, the dune crest elevation would need to be increased to +12.0 ft NAVD88 to withstand the 1% storm (Figure 8). The Project Plans (Attachment 14) include dune dimensions necessary to withstand the 100-year storm event in 2050 and a slightly wider dune crest of 25 ft, with the understanding that simple modifications to the dune profile can increase storm protection in future decades.

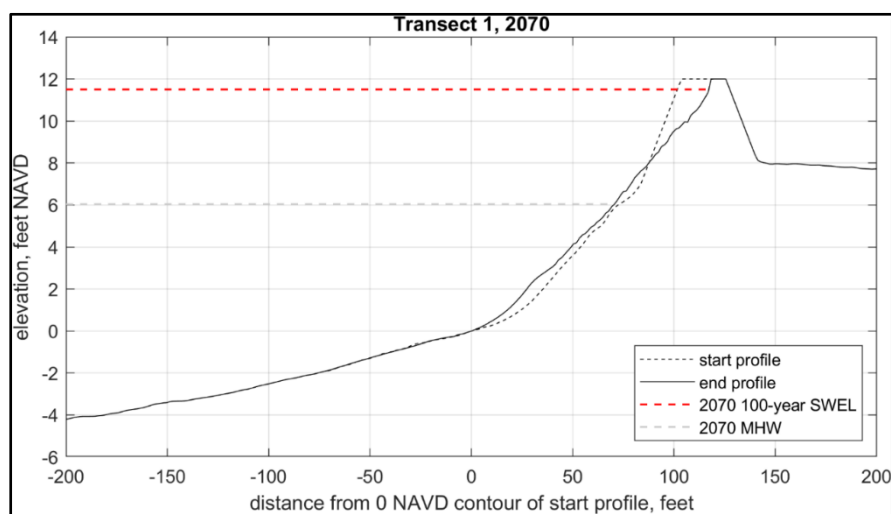


Figure 8: Xbeach model output for the modeled 1% (100-year) storm at Bathing Beach (Transect 1 in Attachment 8), with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070 MHW and the 2070 100-year SWEL are also indicated.

4.1.3 Town Boat Ramp and Parking Lot

The Town boat ramp profile and associated parking area will also be elevated to +12.0 ft NAVD88. The coastal flooding and wave analysis (Attachment 8) indicated that increasing the elevation of Town Wharf and Town boat ramp parking lot, as well as providing a sloped revetment along P.O.W./M.I.A. Memorial Park would provide the most appropriate method for enhancing flood protection along the Harbor-front area. The increased coastal flood protection incorporated the planned increase in Route 3A roadway elevation planned by MassDOT.

Between the Town boat ramp and the existing armoring at Town Wharf, the site transitions to a lawn area. Along this approximately 100-ft shoreline segment, the Project proposes an elevated grassed berm, raising the area to a crest elevation of +12.0 ft NAVD88 with a seaward slope of 1V:6H (vertical:horizontal). This feature maintains a 25-ft crest width, consistent with the coastal dunes proposed at Bathing Beach and the Town boat ramp parking lot (see Attachment 14) and is graded landward to the +12.0-ft NAVD88 contours to eliminate potential storm tide pathways. To ensure continuity of flood protection, the elevated berm will tie into the +12.0-ft contour at both Town Wharf and the eastern side of the Town boat ramp. This will require extension of the existing concrete wall along the eastern side of the Town boat ramp landward to meet the crest of the raised lawn area, thereby creating a continuous barrier to storm tide intrusion.

4.1.4 P.O.W./M.I.A. Memorial Park Shoreline

To improve storm wave attenuation and decrease wave reflection along the P.O.W./M.I.A. Memorial Park shoreline, the preferred alternative is a sloped armor stone revetment with a 1V:2H slope. To minimize environmental impacts on the existing beach, the toe of the revetment will be placed no further seaward than the existing armoring. Temporary environmental impacts will occur as a result of excavation for the toe stones within the existing beach. In addition, it is anticipated that a temporary sheet pile cofferdam may be needed by the contractor to protect the excavation required to set the revetment toe stones. As described in Attachment 8, shoreline segments consisting of revetments will require a crest elevation of +13.0 ft NAVD88 to withstand storm surge and wave action projected during 100-year storm conditions in 2050 and a crest elevation of +14.0 ft NAVD88 to withstand storm surge and wave action projected during 100-year storm conditions in 2070.

To enhance the utility of the park, the upper portion of the revetment (above +10.0 ft NAVD88) will consist of large granite blocks to form a contiguous seating area and flood protection along the top of the revetment (see Attachment 14 for details). Since minimal effort is required to bring the flood protection up to projected 100-year storm conditions in 2070 and a public benefit could be included in the form of seating built into the revetment, the proposed structure will have a crest elevation of +14.0 ft NAVD88. In addition, the land between the revetment and Route 3A will be elevated to +11.0 ft NAVD88 to be consistent with the previously improved Whitney Wharf.

East of P.O.W./M.I.A. Memorial Park, the land elevation along the Harbor shoreline increases and this area of higher elevation land extends to the area just east of Hingham Rotary, adjacent to Barnes Wharf. Flood protection along this stretch will be provided by the proposed MassDOT roadway improvements along Route 3A, which will ensure flood protection to elevation +11.5 ft NAVD88 along the seaward side of the roadway. Similar to the 3 Otis Street property, the private parcel (26 Otis Street) and public parcel (30 Otis Street) along this stretch of shoreline will be isolated and future flood protection will be the responsibility of the landowner.

4.1.5 Proposed Stormwater Improvements

The Project includes stormwater management improvements intended to improve runoff collection, treatment, and infiltration within the Bathing Beach parking lot area. Along the western edge of the parking lot, the existing concrete curb will be removed and replaced with a proposed 20-foot-wide rain garden and

gravel extension, as shown on Sheet 5 of the Project Plans included as Attachment 14. The rain garden is designed to collect and treat stormwater runoff from adjacent paved areas before discharge to the existing drainage system. The proposed system will promote infiltration, improve water quality, and reduce the potential for untreated runoff to enter nearby coastal resource areas.

The stormwater improvements have been designed to comply with the Massachusetts Stormwater Standards to the maximum extent practicable (MEP), recognizing the constraints of an existing developed coastal site. The Project is not anticipated to result in an increase in untreated stormwater discharge and is expected to provide a water quality benefit compared to existing conditions through the incorporation of stormwater best management practices. Additional information regarding the proposed stormwater management system, design assumptions, and compliance with the applicable Stormwater Standards is provided in the Stormwater Management System Report included as Attachment 11.

4.1.6 Coordination and Construction Phasing with MassDOT Route 3A Improvements

The Town is coordinating with MassDOT to ensure that the Full Build-out Project and the Route 3A project can proceed in either sequence while maintaining site functionality at the limits of their respective work areas. This coordination may include the implementation of temporary grading and retaining structures to facilitate proper tie-ins at the project site interfaces.

5. Full Build-out Project

5.1 Full Build-out Project Site Description

The Town of Hingham, including the Harbor, is located along Massachusetts' South Shore, approximately 15 miles south of Boston (see Figure 1 above). The Harbor is a historic, high-use area that supports significant recreational and commercial activity. Route 3A runs directly along the Harbor, at some locations within approximately 40 ft of the shoreline. As mentioned previously, flood-protection improvements are proposed at targeted locations along the Inner Harbor waterfront and are coordinated with the Route 3A State Highway Layout Improvements Project, which provides additional passive flood-resiliency benefits to Hingham's downtown. Figure 9 illustrates the overall Full Build-out Project site. As described in further detail below, the Full Build-out Project will be implemented in phases, with only areas "A", "B", and "E" included in this NOI filing. Descriptions of all proposed work elements are provided below for context and to illustrate the full extent of the Full Build-out Project.

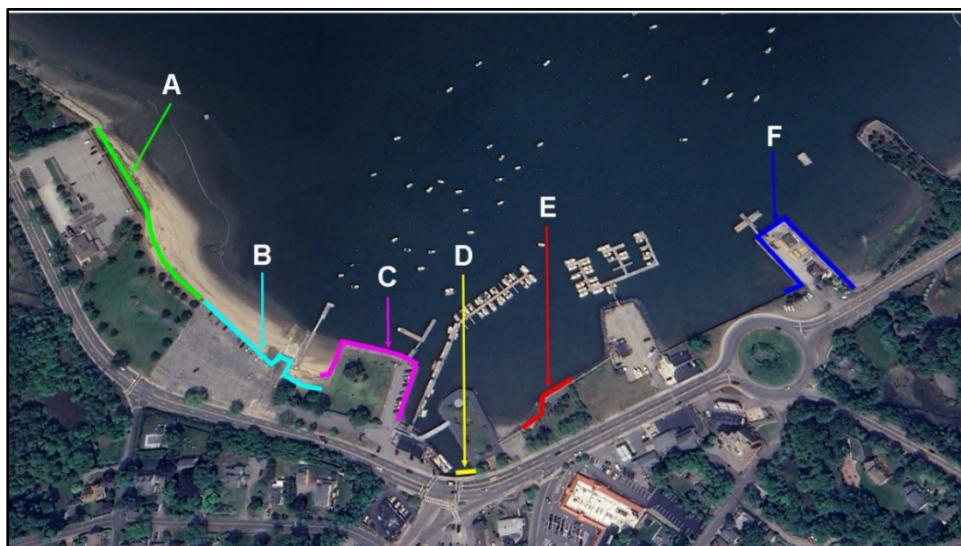


Figure 9: Areas of proposed flood protection improvements along Town-owned parcels.

Section “A” includes Bathing Beach and its associated parking, which comprises approximately 725 ft of shoreline, including approximately 375 ft fronted by a low-elevation constructed dune system. Periodic accessways connect the beach to adjacent parking areas, which are situated at elevations of approximately +9.0 ft NAVD88. Landward of the dune, the site includes planted trees, a vegetated park area to the east, and a brick pedestrian pathway lined in many locations with a continuous granite block wall along its seaward edge. Ground elevations landward of the beach and dune generally range from approximately +9.0 ft to +10.0 ft NAVD88, which are at or below the current 100-year stillwater flood elevation. As a result, the area is vulnerable to coastal flooding, and the adjacent parking lot already experiences inundation during severe storm events. Figure 10 illustrates these low-lying beach and upland conditions. Proposed coastal resilience improvements for this area are addressed in Section 4.1.2 of this NOI.



Figure 10: Existing topography along the Inner Harbor shoreline for the Full Build-out Project area. The black line indicates the approximate +10.0 ft NAVD88 contour (the approximate 100-year stillwater elevation), where lower-lying areas are shown in light green or blue.

At the western end of the Project area, an existing stone revetment (the “Western Revetment”), shown in Figure 11, extends above the 100-year stillwater elevation (approximately +10.0 ft NAVD88). The revetment was reconstructed in December 2014 within its original footprint, following Commission approval and U.S. Army Corps of Engineers (USACE) filing, to replace a failing structure that had been impacted by severe erosion of the upper Coastal Bank.

Despite its elevation, the revetment’s steep slope and abrupt transition to the adjacent beach contribute to wave reflection, overtopping, and localized scour, commonly referred to as “end-effect” erosion. Continued erosion in this area underscores the need for improved sediment management and shoreline stabilization. As described in Section 4.1.2, the Project will modify this area by tapering the armored dune to create a more gradual transition, thereby reducing wave reflection and minimizing end-effect erosion while enhancing long-term stability. Approximately 150 linear feet (LF) of the Western Revetment will be removed and reconstructed (see Attachment 14).

Maintaining the coastal beach system’s function for storm damage protection requires ongoing management, including periodic nourishment to sustain beach form and resilience. The Town’s original beach management framework, the “Bathing Beach Management Plan” (May 2015), was developed in

conjunction with a 2014-2015 erosion control project (ECP) that established a program to address coastal erosion. Bathing Beach has been actively managed by the Town Bathing Beach Trustees for over ninety years.



Figure 11: The Harbor, located south of Boston, Massachusetts. Bathing Beach is shown in green. The Western Revetment is shown in red (discussed above), and area of the Town boat ramp (shown in yellow) is at the eastern end of the beach system.

Section “B” includes the Town boat ramp, adjacent parking lot, and the beach area to the east, collectively representing approximately 400 ft of shoreline. The unarmored portions of this shoreline lack a coastal dune. This area functions as a municipally maintained access point that provides both public recreational and operational marine access to the Harbor. The facility includes a paved boat ramp, limited parking, and maneuvering areas used for the launching and retrieval of trailered vessels.

The site supports a range of uses throughout the year, with activity levels varying seasonally. Use of the Town boat ramp is most active during the late spring, summer, and early fall months, corresponding with peak recreational boating season. During this period, the area is regularly used by residents, visitors, and commercial operators for boating, fishing, and general water access. The ramp also serves as an important access point for municipal and emergency response vessels. During the off-season, use declines but continues on a limited basis for cold-weather boating, maintenance operations, and municipal needs. Overall, the Town boat ramp represents a critical piece of coastal infrastructure supporting both recreational use and public safety access. Existing ground elevations within the parking area range from approximately +8.0 ft to +9.0 ft NAVD88, which are below the current 100-year stillwater coastal flood elevation. As a result, the site is vulnerable to coastal flooding during storm events. Figures 12 and 13 show the existing conditions at the Town boat ramp area. Proposed coastal resilience improvements are addressed in Section 4.1.3 of this NOI.



Figure 12: View of the Town Boat Ramp Facing North Seaward towards the Harbor



Figure 13: View of the Town Boat Ramp Facing West Toward Bathing Beach (Source: North and South Rivers Watershed Association)

Section "C" includes Town Wharf, a central waterfront facility that provides public access to the Harbor and supports a range of recreational and marine-related uses. The wharf includes docking infrastructure, pedestrian areas, and access points for both transient and seasonal vessels, serving as a key hub for boating activity within the Inner Harbor. Its proximity to the Hingham Shipyard, as well as nearby commercial and residential areas, contributes to a high level of seasonal use. Adjacent to the wharf is the Iron Horse monument, a historic maritime marker reflecting Hingham's shipbuilding heritage. The existing

elevation of Town Wharf is approximately +7.5 ft NAVD88, which is more than two (2) ft below the current 100-year stillwater elevation, making the area vulnerable to coastal flooding. As noted previously, proposed coastal resilience improvements for Town Wharf will be included under a future NOI filing.

Section “D” includes the Home Meadows culvert area. While the Home Meadows culvert area was evaluated during the early stages of Project development, improvements within Section D are no longer included in the proposed Project.

Section “E” includes the P.O.W./M.I.A. Memorial Park shoreline. The approximate 200-ft shoreline along P.O.W./M.I.A. Memorial Park consists of both dilapidated armor stone revetment sections and granite block seawalls, as shown in Figure 14. East of P.O.W./M.I.A. Memorial Park the land elevation along the Harbor shoreline increases and this area of higher elevation land extends to the area just east of Hingham Rotary, adjacent to Barnes Wharf. Flood protection along this stretch will be provided by the proposed MassDOT roadway improvements along Route 3A, which will ensure flood protection to elevation +11.5 ft NAVD88 along the seaward side of the roadway. Similar to the 3 Otis Street property, the private parcel (26 Otis Street) and public parcel (30 Otis Street) along this stretch of shoreline will be isolated and future flood protection will be the responsibility of the landowner. Proposed coastal resilience improvements for this area are described in Section 4.1.4 of this NOI.



Figure 14: Existing shoreline armoring along P.O.W./M.I.A. Memorial Park

Section “F” includes Barnes Wharf, which is a developed waterfront area located along the Harbor that provides marine access and supports a mix of recreational and commercial uses. The site consists of a fixed pier structure with associated floats, docking areas, and upland support space. The wharf is constructed of timber and/or concrete elements typical of coastal marine infrastructure and is subject to regular tidal influence, wave action, and vessel traffic. The upland portion of the site includes paved and/or hardened surfaces used for pedestrian access, limited staging, and operational needs. Existing shoreline conditions in the immediate vicinity of the wharf are characterized by armored or modified edges, with little to no natural coastal features such as dunes or vegetated buffer areas. As a result, the site functions primarily as hardened coastal infrastructure rather than a natural resource area. Elevations at Barnes Wharf are relatively low and susceptible to tidal inundation and coastal storm flooding, particularly during high tide and storm surge events. The wharf and surrounding areas are influenced by daily tidal fluctuations and are exposed to wave activity within the Inner Harbor. Barnes Wharf represents an important local marine resource supporting Harbor access and waterfront activity but is vulnerable to coastal flooding due to its low elevation and lack of natural protective features. Proposed coastal resilience improvements for Barnes Wharf will be addressed in a future NOI filing.

5.2 Full Build-out Project Sequencing

The Full Build-out Project is being implemented in a phased approach due to funding availability, as well as to allow time for coordination with the planned MassDOT improvements to Route 3A. Additionally, elements of the Full Build-out Project's development have been supported by the Massachusetts Office of Coastal Zone Management (CZM) Coastal Resilience Grants, such as the Hingham Shore Protection Alternatives Analysis, to determine the preferred alternative for Harbor-front coastal infrastructure, preliminary design, and draft permit application submittals. The Town will submit separate NOIs for the future phases of work, as outlined below. This phased approach is also intended to ensure that issued OOCs remain active and do not expire prior to the commencement and completion of associated work, recognizing the extended timeline required to fully implement the Full Build-out Project.

NOI 1 – Coastal Resiliency Efforts at Hingham Bathing Beach, Town Boat Ramp, associated parking areas, and the P.O.W./M.I.A. Memorial Park Shoreline: The proposed Project, as described in this NOI, focuses on coastal resilience measures at Bathing Beach, the Town boat ramp, associated parking areas, and the P.O.W./M.I.A. Memorial Park seawall, as further detailed in Section 4.0 and Attachment 14 (Project Plans).

NOI 2 – Beach Operations & Maintenance (O&M) Plan: NOI 2 will amend the Town's O&M Plan for Bathing Beach and the Town boat ramp areas, including maintenance dredging within the footprint of the Town boat ramp as required, general beach maintenance (e.g., raking and sediment management), and dredge sediment placement within the dune between the Town boat ramp and the western end of Bathing Beach. Based upon the extent of coastal armoring and development in the vicinity of Bathing Beach, historical sediment sources to this shoreline have essentially been eliminated. To ensure that the coastal beach system continues to provide coastal storm damage protection, ongoing maintenance of the beach system is required, including nourishment to maintain the beach form and function.

NOI 3 – Town Wharf Improvements: NOI 3 will detail the proposed Town Wharf improvements. The Town Wharf is currently vulnerable to severe storm conditions because its elevation (about +7.5 ft NAVD88) is more than two (2) feet below projected 100-year storm surge levels. To improve resilience, the Full Build-out Project proposes to raise the wharf area, including the paved pathway and parking, to an elevation of +12.0 ft NAVD88. Vertical seawalls will also be designed to this 12-ft elevation to better withstand future storm surge and wave impacts. Although waves may still overtop the seawalls during extreme storms, elevating the wharf will help protect existing infrastructure from damage. Additionally, the seawall foundations will be built to support a potential future increase of up to two (2) more feet in height if needed. The existing pile-supported timber pier at the northeast corner of Town Wharf will be reconstructed to match the proposed raised wharf elevation. The pier length will be reduced to maintain gangway slopes and accessibility to the floating docks. The floating docks are currently bottom-anchored, the Full Build-out Project proposes installation of new float-anchor piles to replace the existing anchoring system. The existing Harbormaster building on Town Wharf will be relocated to a more landward location at the southwest edge of the lawn area to the east of the Town boat ramp. This building location is not within the existing V-Zone, nor is it in filled tidelands and will be designed to appropriate building code standards.

NOI 4 – Barnes Wharf Improvements: NOI 4 will describe the proposed resiliency improvements at Barnes Wharf. The improvements aim to increase resilience to future storm conditions by raising shoreline protection and the wharf elevation. Vertical seawalls will be constructed with a crest elevation of +12.0 ft NAVD88 to better withstand projected 100-year storm surge and wave action by 2050. The wharf surface, including paved pathways and parking areas, will also be elevated to +12.0 ft NAVD88 to reduce the risk of damage to Town infrastructure, even though waves may still overtop the seawalls during severe storms. The seawall foundations will allow for a future height increase of up to two (2) more feet in height if needed. A new seawall will connect to the existing MassDOT seawall along Route 3A and will not extend farther seaward than the current structure. On the upland side, the existing Hingham Maritime Center buildings will be replaced with a single structure positioned as far landward as possible, with no increase in total building footprint.

6. Existing Site Conditions: Storms, Sea Level Rise and Coastal Flooding, and Sediment Dynamic

6.1 Storms

The Harbor, located within the larger Boston Harbor area, is typically protected from high wave energy. A large peninsula, the Town of Hull (Hull), lies directly to the east of the Harbor and extends out approximately four (4) miles nearly perpendicular to Hingham's shoreline. However, periodic high energy events, such as nor'easters, that normally last for several tidal cycles, result in increased storm surge and flooding in this area. Generally, even minor nor'easters can cause moderate and localized flooding. Table 1 below includes the highest monthly water elevations observed over the time frame of the Boston Harbor gauge operation between 1921 and 2023. These water elevations represent the highest observed tides and do not include the influence of local wave action.

Table 1: Highest Historical Monthly Water Levels Observed Since 1921 in Boston Harbor

Rank	Date	Elevation (ft NAVD88)
1	January, 2018	9.66
2	February, 1978	9.59
3	March, 2018	9.12
4	January, 1987	8.69
5	October, 1991	8.63
6	January, 1979	8.53
7	December, 1992	8.52
8	December, 1959	8.47
9	February, 1972	8.38
10	January, 2014	8.33

6.2 Sea Level Rise and Coastal Flooding

Due to the existence of the Nantasket Beach barrier complex and the series of Harbor Islands, the mainland shoreline of the Harbor is protected from storm wave conditions often associated with the open Atlantic Ocean, providing relatively safe conditions for development of communities along the shoreline. However, this stretch of coastline is particularly susceptible to coastal flooding due to the low-lying topography in some areas. Based upon the topography of the Harbor shoreline and associated coastal structures, much of the landward area is presently between +7.0 ft and +11.0 ft NAVD88. The FEMA stillwater 100-year flood elevation for the area is +10.0 ft NAVD88, where nearby Boston Harbor recorded water elevations of +9.6 ft NAVD88 in both February 1978 and January 2018.

The Massachusetts Sea Level Assessment and Projections technical memorandum (DeConto and Kopp, 2017) is presently being utilized by the Commonwealth of Massachusetts as guidance regarding future projections of sea level rise in Boston Harbor. The range of varying projections are determined based on the probability of exceedance given possible future atmospheric greenhouse gas concentration pathways, as well as methods of accounting for Antarctic ice sheet projections. These projections have been incorporated into the Resilient MA analyses tools and serve as the basis for guiding Massachusetts sea level rise policy in the near-term. Tools developed with the DeConto and Kopp (2017) sea level rise projections include the Massachusetts Coastal Flood Risk Model (MC-FRM) and the Resilient Massachusetts Action Team (RMAT) Design Guidance. The quantitative analyses depicted by the tools represented in Resilient MA are directly dependent upon the specific sea level rise scenario (Attachment 8).

Based upon the existing land elevations along the Inner Harbor shoreline, as well as through the downtown area, significant portions of the developed downtown area are below the existing 100-year flood elevation (see Figure 2). As described in Attachment 8, intermediate sea level rise projections indicate that mean sea level will increase to +1.0 ft NAVD88 by 2050 and +1.8 ft NAVD88 by 2070. Therefore, the future 100-year stillwater flood level will increase by approximately 1.3 ft by 2050 and 2.1 ft by 2070 from present-day conditions. Thus, the future 100-year stillwater flood levels can be expected to be approximately +10.9 ft NAVD88 and +11.7 ft NAVD88 for 2050 and 2070, respectively. The exposure of population and infrastructure to flooding along the Inner Harbor shoreline has significantly increased over the last several decades, exacerbated by sea level rise.

6.3 Sediment Transport along Bathing Beach

Based upon the extent of coastal armoring in the vicinity of Bathing Beach, historical sediment sources to this shoreline have essentially been eliminated. To ensure that the coastal beach system continues to provide coastal storm damage protection, ongoing maintenance of the beach system will be required, including nourishment to maintain the beach form and function. Due to the extensive coastal armoring in the region, the alongshore sediment transport system associated with Bathing Beach is predominantly a “closed” littoral system, where no significant sediment source exists to naturally maintain the beach. A littoral cell is a system that includes the area of sediment source, transport, and ultimately sink. The armored shoreline and geographic location of the beach means that the primary source of sediment for the beach is the beach system itself. To illustrate the extent of local coastal armoring, Attachment 6 indicates the coastal infrastructure inventory for the area. The wave-induced littoral drift direction also limits sediment sourcing for the area. Predominantly, sediment is transported by wind-driven waves along the Inner Harbor shoreline from a northwest to southeast direction (see Figure 15). As mentioned previously, this is largely due to the geography of Hingham Bay, which has an opening oriented towards the northwest, but also the predominant wind direction, which causes locally generated wind waves to transport material in the same direction (west-to-east), as shown in Figure 16. The result is a closed system that cycles sediment within the bounds of Bathing Beach shoreline to the southeast; the Town boat ramp obstructs flow, and sediments accrete at this structure. Previous sediment management efforts have involved excavation of material adjacent to the northwest side of the Town boat ramp and placement of this dredged material along the Bathing Beach shoreline.



Figure 15: Predominant direction of wave-induced littoral drift (northwest-to-southeast) is illustrated by the red arrows, providing limited natural nourishment for Bathing Beach. Additionally, armored shorelines (orange) directly updrift from the beach restrict sediment inputs. The result is a closed littoral system with its terminus at the Town boat ramp.

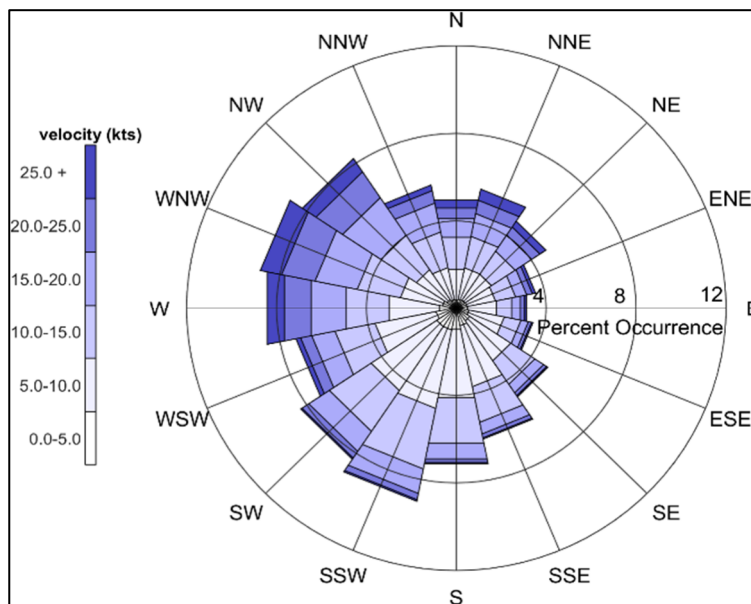


Figure 16: Rose plot of wind speed (knots) for the WIS hindcast record at station 63052 offshore Boston Harbor. Grey-tone segments indicate the percentage of time winds in the record blow within the indicated speed range from the indicated compass sector. The shoreline angle is indicated, demonstrating that the majority of applicable winds are coming from the northwestern direction, driving the sediment transport along the beach towards the Town boat ramp

6.4 Selected Coastal Resilience Model

The selected coastal resilience model for the Full Build-out Project focuses on providing continuous flood protection along the Inner Harbor shoreline to address projected 100-year storm conditions through 2050, while allowing for incremental adaptation to future 2070 conditions if warranted. This approach was selected because it provides a practical balance between coastal flood protection, constructability, environmental impact minimization, public access, and long-term adaptability.

Prior planning and technical evaluations considered a range of potential flood protection strategies, including no-action and higher-elevation protection scenarios. These approaches were not advanced because they either did not meet the Project's flood protection objectives, resulted in disproportionate cost or environmental impacts, or relied on storm surge assumptions beyond the typical design life of the proposed infrastructure. The selected model advances a phased and adaptable approach that addresses near-term flood risk while preserving flexibility for future modifications.

The selected model is based on updated sea level rise projections and site-specific coastal modeling completed for the Inner Harbor. The model provides flood protection to likely 2050 100-year storm conditions, including consideration of storm surge and wave action, while establishing design features that can be incrementally raised or modified to address projected 2070 conditions if future sea level rise warrants additional protection. More detailed information regarding the sea level rise and coastal process analyses is provided in Attachment 8.

For planning of future infrastructure, incorporating a safety factor to accommodate potential future sea level rise is warranted; therefore, the Resilient MA 'High' sea level rise projections are useful to ensure that future development is safe from the impacts of sea level rise. However, when developing flood mitigation strategies for existing infrastructure, designing for future sea level conditions that are 'extremely unlikely to occur' can be both cost-prohibitive and unnecessary. Specifically for the sites evaluated along the Harbor shoreline, appropriate design levels for flood mitigation strategies should be based upon expected future sea levels, which NOAA project to be approximately +1.0 ft NAVD88 in 2050 and +1.8 ft NAVD88 in 2070.

As the proposed flood mitigation strategies involve elevating seawalls, revetments, and coastal dunes, it will be a simple process to modify the design if future sea level rise exceeds the intermediate projections developed by NOAA (Sweet, et al., 2022). Table 2 provides expected future sea level rise for 2030, 2050, and 2070, based upon NOAA estimates (Sweet, et al., 2022). Figure 17 provides both the 2022 NOAA projections and the projections that have been utilized for project planning by SCS engineers over the past decade that was based on Intergovernmental Panel on Climate Change (IPCC) modeling with the addition of ice sheet contribution from Rignot et al., 2011. Good agreement between these two sets of projections indicates that this pragmatic approach continues to provide a valid science-based methodology for evaluating future sea level rise, especially in the near-term (next 30 to 40 years).

Table 2: Relative Mean Sea Level (ft NAVD88) Projections for Boston, MA as Presented in Sweet, et al., 2022

Scenario	Probabilistic Projections	2030	2050	2070
NOAA - Intermediate	Conditions that are about as likely as not to occur or, in other words, a 50% chance of occurrence (RCP 8.5)	0.4	1.0	1.8

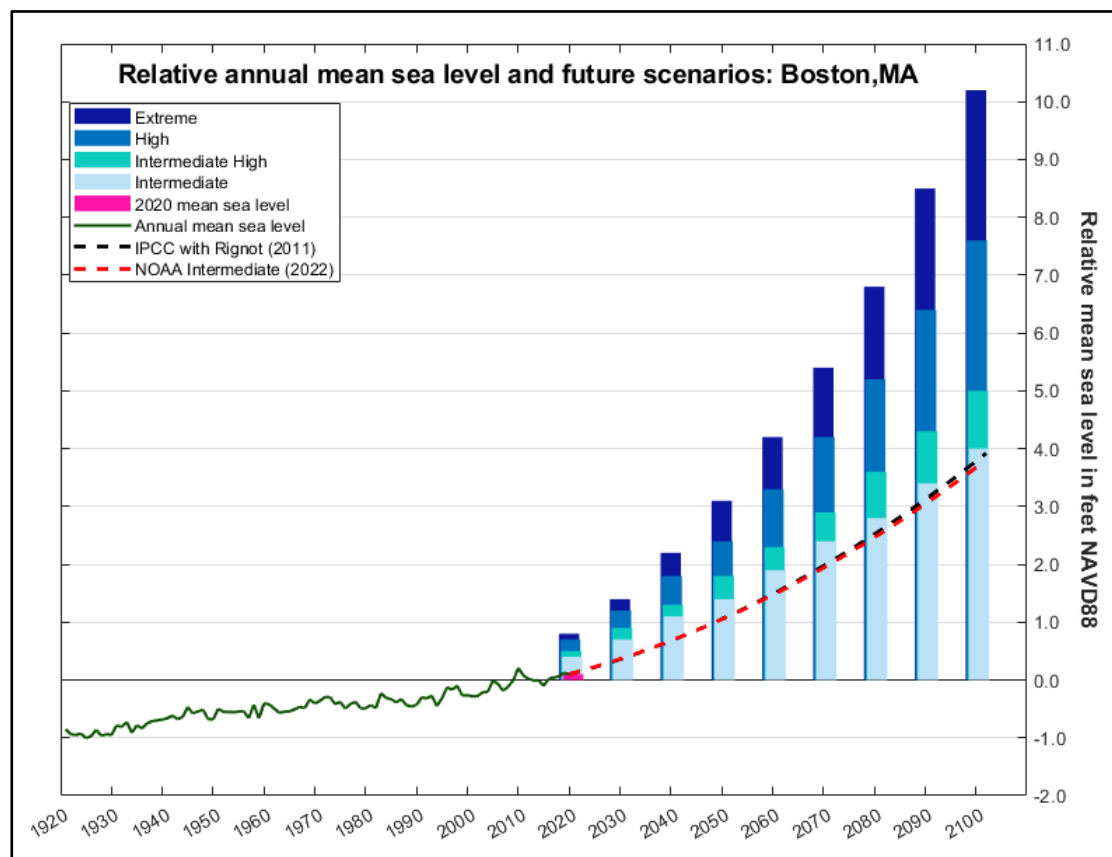


Figure 17: Sea level rise projections with the latest NOAA projections (adjusted to account for current mean sea level; dashed red line) and a curve representing flood projections from the IPCC augmented by sheet ice contributions determined by Rignot et al. (2011; dashed black line). The bar plot represents the sea level rise projections presented in Resilient MA.

To achieve the Full Build-out Project goals relative to initial flood protection to 2050, with the ability to increase flood protection elevations to 2070 levels in the future, a general assessment of flood protection improvements from the eastern portion of Bathing Beach to the seawall north of the P.O.W./M.I.A. Memorial Park were evaluated. As described previously, planned MassDOT improvements to Route 3A will ensure a minimum sidewalk elevation of +11.0 ft to +11.5 ft NAVD88 along the seaward side of the roadway, which is above the expected 100-year stillwater storm surge level in 2050. This overall approach was selected as the preferred alternative through the MEPA process. This alternative focuses on providing appropriate 100-year storm flood protection for the Harbor shoreline to 2050, including the influence of storm wave action, as quantified in Attachment 8. The shoreline was divided into the following six (6) segments of Town-owned shoreline, understanding that other flood protection efforts will be required along specific additional areas (e.g., 3 Otis Street and Route 3A elevations east of Bare Cove Marina)²:

- a) Hingham Bathing Beach
- b) Town Boat Ramp and Parking Lot
- c) Town Wharf
- d) P.O.W./M.I.A. Memorial Park
- e) Barnes Wharf

Where feasible, the Full Build-out Project prioritizes nature-based shoreline protection, providing flood protection through continuous dunes or vegetated berms. A dune system will be established along Bathing Beach and the Town boat ramp parking lot, with elevated access ramps constructed over the dunes to eliminate low pedestrian pathways that could otherwise serve as storm tide pathways. The Town boat ramp parking lot will also be elevated, and a vegetated berm, set at the same elevation as the proposed dune, will extend between the Town boat ramp and Town Wharf to maintain continuous protection. In more developed areas, structural improvements will complement these nature-based measures. Flood protection through 2050 will be achieved by raising the elevations of the Town Wharf seawall and deck, as well as similar infrastructure at the P.O.W./M.I.A. Memorial Park and Barnes Wharf, to withstand projected storm surge and wave action. All proposed improvements are being designed with adaptability in mind, allowing for future elevation increases to accommodate anticipated sea level rise, storm surge, and wave conditions through 2070. The Town also has been working proactively with both MassDOT and the private property owner at 3 Otis Street to ensure that the remaining Full Build-out Project area shoreline is protected to projected 2050 100-year storm conditions. Presently, it is anticipated that the Route 3A improvements will elevate the sidewalk at 3 Otis Street to approximately +11.5 ft NAVD88 to ensure contiguous protection from the P.O.W./M.I.A. Memorial Park to Bathing Beach. If elevation grades are problematic due to the 3 Otis Street parking lot, appropriate elevation curbing along the north side of the sidewalk will be added, with deployment of 'stop logs' across driveway entrances prior to predicted coastal storms. Further, MassDOT plans to extend the +11.5-ft NAVD88 sidewalk elevation along the Harbor side of Route 3A from the Home Meadows Culvert east beyond Barnes Wharf.

The Protection to Likely 2050 Flood Conditions with Incremental Improvement alternative provides the appropriate level of coastal flood protection in the most practicable manner possible. Overall environmental impacts are generally temporary and associated with the construction of the elevated shore protection structures. Based on the above assessment, the Protection to Likely 2050 Flood Conditions with Incremental Improvement alternative was selected as the preferred alternative.

² The Project is being implemented in a phased permitting and development approach due to the availability and timing of funding, as well as coordination with the planned MassDOT improvements to Route 3A (see Section 4.1.6). The six (6) segments referenced above include the overall Project site in its entirety (Full Build-out), and the associated modeling and alternatives analysis evaluated the site comprehensively to address existing and future coastal flooding concerns.

7. Regulatory Review

The Full Build-out Project requires the local, state, and federal approvals listed in Table 3 and described below.

Table 3: Anticipated Permits and Approvals

Agency	Permit / Approval
U.S. Army Corps of Engineers (USACE)	Clean Water Act, Section 404 Pre-Construction Notification; Rivers and Harbors Act of 1899, Section 408 Permit (authorization to alter an existing civil works project)
Massachusetts Environmental Policy Act (MEPA) Review	Expanded Environmental Notification Form (Secretary's Certificate issued October 11, 2024); Notice of Project Change (Secretary's Certificate issued March 27, 2026)(see Attachment 9)
Massachusetts Department of Environmental Protection (MassDEP)	M.G.L. Chapter 91 Waterways License and Permit; and 314 CMR 9.00: Section 401 Water Quality Certification
Massachusetts Office of Coastal Zone Management (CZM)	Coastal Zone Management Act Consistency Certification
Town of Hingham Conservation Commission (HCC)	Order of Conditions
Massachusetts Historic Commission (MHC)	Determination of Effect
Hingham Historic District Commission (HDC)	Certificate of Appropriateness
Hingham Zoning Board of Appeals (ZBA)	Special Permit (as applicable)
Hingham Planning Board (HPB)	Site Plan Review (as applicable)

7.1 Local Permits and Approvals

The Proponent is submitting this NOI to the Hingham Conservation Commission to obtain an Order of Conditions for the proposed activities within coastal resource areas subject to protection under the Town of Hingham Wetlands Protection Bylaw (General Bylaws of the Town of Hingham, Article 22, as amended June 2026) and the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40). Future NOI filings are anticipated for the remaining work not currently included in this filing.

The Full Build-out Project site contains historic markers and resources that fall under the jurisdiction of the Hingham Historic District Commission (HDC). The Proponent will coordinate with the Hingham Historical Commission (HHC) in accordance with applicable local requirements, including Article 31 of the Town of Hingham Bylaw (Demolition of Historically Significant Buildings or Structures) and the HDC's broader review authority over historic features and markers. The Proponent will submit the required applications and continue consultation with the HDC throughout permitting and development. Additionally, the Proponent will file the necessary applications with the Planning Board and Zoning Board of Appeals (ZBA) for project components within their respective jurisdictions, in accordance with the Town of Hingham Zoning By-law.

7.2 State Permits and Approvals

The Full Build-out and Project will obtain a Chapter 91 License and a 401 Water Quality Certification from the Massachusetts Department of Environmental Protection (MassDEP) in accordance with the Massachusetts Public Waterfront Act (M.G.L. c. 91) and the Massachusetts Clean Waters Act (M.G.L. c. 21), respectively.

The Full Build-out Project site contains historic resources, including structures that are considered historically significant under local and state criteria. In addition, the Full Build-out Project has received federal funding, which triggers review under applicable historic preservation regulations. Accordingly, the Proponent will submit a Project Notification Form (PNF) to the Massachusetts Historical Commission (MHC) to initiate review under Massachusetts General Laws Chapter 9, Sections 26-27C, to assess potential impacts to historic and archaeological resources.

7.3 Federal Permits and Approvals

The proposed work includes the installation of structures in navigable waters of the United States (WOTUS) and is therefore within the jurisdiction of the U.S. Army Corps of Engineers (USACE). The Proponent will submit an application to the USACE for authorization under the applicable Nationwide Permit (NWP). The Project will also be subject to federal consistency review by CZM.

8. Coastal Resource Impacts

The Project is a water-dependent project and has been designed and will be implemented using the best available measures to avoid and minimize adverse environmental impacts to coastal resource areas. Pursuant to the Town of Hingham Wetlands Protection Bylaw (General By-Law 22) and the Massachusetts Wetlands Protection Act (310 CMR 10.00), coastal resource areas are regulated to protect and promote the public interests of flood control, storm damage prevention, prevention of pollution, protection of fisheries, protection of shellfish, protection of wildlife habitat, and protection of rare species habitat. In addition, the Hingham Wetlands Regulations recognize the importance of preserving water quality, groundwater and surface water resources, aquatic habitat, recreational and aesthetic values, marine productivity, and the ecological functions of coastal resource areas that support the Town's coastal environment and resilience.

Table 4 summarizes the coastal resource areas affected by the Project, the associated impacts resulting from Project implementation, and the Project's compliance with the WPA and HWR performance standards for each resource area. Attachment 10 provides a detailed summary of coastal resource area impacts and compares the impacts evaluated in the EENF with those proposed under the current NPC filing.

Table 4: Coastal Resource Area Impacts

Resource Area	Phase I - Total Impacts
Coastal Beach (sf)	2,180 sf (temp) 9,981 sf (perm)
Coastal Dune (sf)	21,347 sf (perm)
Coastal Bank (lf)	358 lf (perm)
Land Containing Shellfish (sf)	1,811 sf (temp) 4,160 sf (perm)
Land Subject to Coastal Storm Flowage (sf)	14,850 sf (temp) 140,021 sf (perm)

8.1 Compliance with Wetland Performance Standards

The Project has been designed to comply with the performance standards for the impacted coastal resource areas as described below.

8.1.1 Coastal Beach (310 CMR 10.27; HWR 18.2)

The WPA defines Coastal Beach as unconsolidated sediment subject to wave, tidal and coastal storm action that forms the gently sloping shore of a body of salt water. Coastal Beaches extend from the Mean Low Water (MLW) line landward to the dune line, coastal bank line or the seaward edge of existing man-made structures, when these structures replace one of the above lines, whichever is closest to the ocean. Tidal flats are defined in the WPA as any level part of a Coastal Beach which usually extends from the MLW line landward to a more steeply sloping face of a Coastal Beach, or which may be separated by LUO. The HWR definition of Coastal Beach is the same as 310 CMR 10.27(2). Discussion of the WPA performance standards is provided in Table 5 below. Table 6 includes responses to the HWR performance standards.

Table 5: Responses to Coastal Beach WPA Performance Standards

<i>WHEN A COASTAL BEACH IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION, FLOOD CONTROL, OR PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(3) THROUGH (7) SHALL APPLY. WHEN A TIDAL FLAT IS DETERMINED TO BE SIGNIFICANT TO MARINE FISHERIES OR THE PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(6) SHALL APPLY.</i>	
<i>(3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.</i>	By addressing coastal resilience and reducing storm damage, the Project aims to reduce episodic erosion associated with extreme storm events. The Project will not have an adverse effect on the coastal beach or any adjacent or downdrift coastal beach. The Project preserves existing coastal processes, maintains sediment dynamics, and supports the long-term stability and resilience of the shoreline.
<i>(4) Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:</i>	
<i>(a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.</i>	The length, height and slope of the proposed dune and coastal resilience efforts are designed to maintain and fortify beach form and volume, ensure slope stability, and create a more ideal topography for native fauna to populate.
<i>(b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.</i>	A groin is not proposed in the Project.

Table 5: Responses to Coastal Beach WPA Performance Standards (Continued)

<i>WHEN A COASTAL BEACH IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION, FLOOD CONTROL, OR PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(3) THROUGH (7) SHALL APPLY. WHEN A TIDAL FLAT IS DETERMINED TO BE SIGNIFICANT TO MARINE FISHERIES OR THE PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(6) SHALL APPLY.</i>	
<i>(c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically dredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.</i>	A jetty is not proposed in the Project.
<i>(5) Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.</i>	The Project will use clean, grain size-compatible sediment, ensuring that the coastal beach's form, volume, and sediment dynamics are maintained and fortified without adverse impact.
<i>(6) In addition to complying with the requirements of 310 CMR 10.27(3) and (4), a project on a tidal flat shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries and wildlife habitat caused by:</i>	The Project consists of water-dependent activities and will be designed and constructed using best available measures to minimize adverse effects.
<i>(a) alterations in water circulation;</i>	The Project is not anticipated to impact or alter water circulation.
<i>(b) alterations in the distribution of sediment grain size; and</i>	It is not anticipated that the Project would result in adverse alterations in sediment grain size distribution within the tidal flat. The use of compatible materials (shown in Attachment 7), combined with construction practices and preservation of natural processes, will maintain sediment characteristics and protect associated marine habitat.
<i>(c) changes in water quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.</i>	The Project will not result in measurable or sustained changes to water quality parameters. Any temporary and localized changes during construction (e.g., minor increases in turbidity) will be short-term, controlled with BMPs, and within acceptable limits, returning to baseline conditions shortly after construction activities are complete. Construction activities will employ erosion and sediment control BMPs to prevent sediment release into adjacent waters.

Table 5: Responses to Coastal Beach WPA Performance Standards (Continued)

<i>WHEN A COASTAL BEACH IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION, FLOOD CONTROL, OR PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(3) THROUGH (7) SHALL APPLY. WHEN A TIDAL FLAT IS DETERMINED TO BE SIGNIFICANT TO MARINE FISHERIES OR THE PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(6) SHALL APPLY.</i>	
<i>(7) Notwithstanding the provisions of 310 CMR 10.27(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites or rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).

Table 6: Responses to Coastal Beach HWR Performance Standards

<i>When a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat or land within a minimum distance of 100 feet of a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(1) Any project on a coastal beach shall not cause an adverse effect or cumulative adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or rocky intertidal shore, or an adjacent or downdrift coastal beach or rocky intertidal shore.</i>	By addressing coastal resilience and reducing storm damage, the Project aims to reduce episodic erosion associated with extreme storm events. The Project will not have an adverse effect on the coastal beach or any adjacent or downdrift coastal beach. The Project aims to preserve existing coastal processes, maintains sediment dynamics, and supports the long-term stability and resilience of the shoreline. The proposed dune nourishment is not expected to impede the transport of beach sediments along the Project area. The dune enhancement will provide an improved sediment supply.
<i>(2) Notwithstanding the above, beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted provided there is no permanent adverse effect upon the wetland values or upon submerged aquatic vegetation, intertidal vegetation such as but not limited to salt marshes, or shellfish habitat.</i>	The Project will use clean, grain size-compatible sediment, ensuring that the coastal beach's form, volume, and sediment dynamics are maintained and fortified without adverse impact. The Project is not anticipated to adversely affect submerged aquatic vegetation, salt marsh, or shellfish habitat. The Proponent will coordinate with the Hingham Shellfish Constable to ensure that any necessary protective measures are implemented.
<i>(3) When tidal flats are significant to protection of shellfish, shellfish habitat, fish or fisheries, the performance standards for Land Containing Shellfish (HWR 18.5) shall apply. All Coastal Beaches and Tidal Flats within the Town of Hingham have been designated by the Commonwealth of</i>	The Project has been designed to comply with these standards. The Project is not anticipated to result in adverse impacts to shellfish resources, shellfish habitat, or associated fisheries functions. The Proponent has engaged in discussions with local, state, and federal resource agencies, including DMF, and will continue to coordinate with

Table 6: Responses to Coastal Beach HWR Performance Standards (Continued)

<i>When a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat or land within a minimum distance of 100 feet of a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>Massachusetts as Designated Shellfish Growing Areas. A Designated Shellfish Growing Area is considered to be significant to the growth and health of shellfish whether or not shellfish are present. Thus the performance standards for Land Containing Shellfish (HWR 18.5) shall apply to all Coastal Beaches and Tidal Flats in the Town of Hingham.</i>	these agencies throughout the permitting process. Based on the nature and scope of work, the Project is not anticipated to adversely affect submerged aquatic vegetation, salt marsh, or shellfish habitat. The Proponent will coordinate with the Hingham Shellfish Constable to ensure that any necessary protective measures are implemented.
<i>(4) In addition to complying with the requirements of HWR 18.5, a project on a tidal flat shall have no adverse effect or cumulative adverse effect, on fisheries and/or wildlife habitat caused by alterations in water circulation, alterations in the distribution of sediment grain size, and changes in water quality, including, but not limited to, other than natural fluctuations in the levels of dissolved oxygen, temperature or turbidity, or the addition of pollutants.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>(5) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect or cumulative adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>(6) Refer to Section HWR 23.0 et seq. for additional project-specific performance standards.</i>	The Project has been designed to avoid and minimize adverse impacts to wetland resource areas and their associated values, and it is not anticipated to result in cumulative adverse effects.
<i>(7) Performance standards for activities or work proposed in the buffer zone to a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat are specified in HWR 22.0.</i>	Activities proposed within the buffer zone(s) have been designed to avoid and minimize adverse impacts to adjacent wetland resource areas and associated values. The Project will be implemented in a manner that ensures no indirect impacts, such as sedimentation, erosion, or runoff, will adversely affect these resource areas. BMPs will be employed to minimize turbidity and prevent sedimentation impacts to adjacent waters, resource areas, and habitats.

Table 6: Responses to Coastal Beach HWR Performance Standards (Continued)

<i>When a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat or land within a minimum distance of 100 feet of a Coastal Beach, Rocky Intertidal Shore, or Tidal Flat is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(8) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.</i>	The Proponent acknowledges this standard.

8.1.2 Coastal Dune (310 CMR 10.28; HWR 18.3)

The MA WPA defines Coastal Dune as any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control. The HWR definition of Coastal Dune is the same as 310 CMR 10.28(2). Discussion of the WPA performance standards for Coastal Bank is provided in Table 7 below. Table 8 includes responses to the HWR performance standards.

Table 7: Responses to Coastal Dune WPA Performance Standards

<i>(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:</i>	
<i>(a) affecting the ability of waves to remove sand from the dune;</i>	The Project is not anticipated to negatively affect the ability of waves to remove sand from the dune. The proposed dune will fortify the site by stabilizing sediment and enhancing coastal resilience while still allowing for natural geomorphic processes to occur.
<i>(b) disturbing the vegetative cover so as to destabilize the dune;</i>	The proposed dune includes the installation of native and adaptive plant materials, as shown on Attachment 14.
<i>(c) causing any modification of the dune form that would increase the potential for storm or flood damage;</i>	The purpose of the proposed dune is to enhance coastal protection and decrease the potential for existing and future flood damage to the area.
<i>(d) interfering with the landward or lateral movement of the dune;</i>	The proposed dune is designed to improve the overall coastal resilience of the Project site by restoring and enhancing the functional value of the coastal dune resource area, consistent with 310 CMR 10.28. The dune will provide storm damage prevention and flood control by dissipating wave energy, reducing erosion, and acting as a natural barrier to coastal storm surge and flooding, while increasing the site's adaptive capacity to sea level rise.

Table 7: Responses to Coastal Dune WPA Performance Standards (Continued)

<i>(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:</i>	
<i>(e) causing removal of sand from the dune artificially; or</i>	The proposed dune will not cause the removal of sand from the existing dune artificially.
<i>(f) interfering with mapped or otherwise identified bird nesting habitat.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>(4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.</i>	The purpose of the proposed dune is to enhance coastal protection and decrease the potential for existing and future flood damage to the area.
<i>5): The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):</i>	
<i>(a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;</i>	The proposed walkways associated with the Project have been designed to minimize disturbance of existing vegetative cover to the maximum extent practicable. The proposed dune includes the installation of native and adaptive plant materials, as shown on Attachment 14.
<i>(b) fencing and other devices designed to increase dune development; and</i>	The Project includes a sand fence on either side of the proposed dune crest. Seasonal mobility mats will be located on either side of the dune for beach access.
<i>(c) plantings compatible with the natural vegetative cover.</i>	The proposed dune will include compatible vegetative coverage to the existing conditions.
<i>(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).

Table 8: Responses to Coastal Dune HWR Performance Standards

<i>When a Coastal Dune or land within a minimum distance of 100 feet of a Coastal Dune is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(1) A proposed project shall not cause any adverse effect or cumulative adverse effect on the ability of a Coastal Dune to migrate or undergo other change in shape, volume of sediment or location due to natural processes.</i>	The Project has been designed to avoid adverse and cumulative adverse effects on the ability of the existing Coastal Dune to migrate and naturally adjust in shape, sediment volume, and location. The proposed engineered dune will fortify the site by stabilizing sediment and enhancing coastal resilience while still allowing for natural geomorphic processes to occur.
<i>(2) With the exception of engineered coastal dunes, no new coastal revetments or coastal engineering structures of any type shall be constructed on a Coastal Dune.</i>	The Project includes the development of an engineered coastal dune. No other coastal revetments or coastal engineering structures of any type are proposed to be constructed on the dune.
<i>(3) Pedestrian walkways must be designed as determined by the Commission so as to minimize disturbance of vegetative cover.</i>	The proposed walkways associated with the Project have been designed to minimize disturbance of existing vegetative cover to the maximum extent practicable. The proposed dune includes the installation of native and adaptive plant materials, as shown on Attachment 14.
<i>(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>(5) Refer to HWR 23.0 et seq. for additional project-specific performance standards.</i>	The Project has been designed to avoid and minimize adverse impacts to the resource area and its associated functions and values. The proposed dune aims to fortify the site by enhancing coastal storm damage protection while maintaining the natural characteristics and dynamic processes of Coastal Dune.
<i>(6) Performance standards for activities or work proposed in the buffer zone to a Coastal Dune are specified in HWR 22.0.</i>	Proposed activities within the buffer zone have been designed to avoid and minimize indirect impacts to the dune resource area and its associated values. The Project will be implemented in a manner to avoid adverse effects such as erosion, sedimentation, or runoff from affecting the Coastal Dune.

Table 8: Responses to Coastal Dune HWR Performance Standards (Continued)

<i>When a Coastal Dune or land within a minimum distance of 100 feet of a Coastal Dune is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(7) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.</i>	The Proponent acknowledges this standard.

8.1.3 Coastal Bank (310 CMR 10.30; HWR 18.1)

The MA WPA defines Coastal Bank as the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a Coastal Beach, land subject to tidal action, or other wetlands. The HWR definition of Coastal Bank is the same as 310 CMR 10.30(2). In addition, a Sediment Source (*i.e.*, eroding) Coastal Bank is a coastal bank which is or could be, as determined by the Conservation Commission, undergoing erosion or landward retreat and which is supplying sediment to a nearby Coastal Beach (including Tidal Flat), or Coastal Dune. A non-eroding, Vertical Buffer Coastal Bank is a coastal bank which is stable and is not undergoing and never will be, as determined by the Conservation Commission, erosion or landward retreat and which is not supplying sediment to a nearby Coastal Beach, or Coastal Dune.

Table 9: Responses to Coastal Bank WPA Performance Standards

WHEN A COASTAL BANK IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION OR FLOOD CONTROL BECAUSE IT IS A VERTICAL BUFFER TO STORM WATERS, 310 CMR 10.30(6) THROUGH (8) SHALL APPLY:	
<i>(6) Any project on such a coastal bank or within 100 feet landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank.</i>	The purpose of the Project is to enhance coastal protection and decrease the potential for existing and future flood damage to the area. No additional impervious surfaces are not proposed on site, reducing the risk of erosion from surface water runoff. BMPs will be employed to minimize turbidity and prevent sedimentation impacts to adjacent waters, resource areas, and habitats.
<i>(7) Bulkheads, revetments, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank except when such bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches.</i>	The purpose of the Project is to enhance coastal protection and decrease the potential for existing and future flood damage to the area.
<i>(8) Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).

Table 10: Responses to Coastal Bank HWR Performance Standards

<i>(1) When a Coastal Bank is determined to be a Sediment Source (i.e., eroding coastal bank), the following regulations shall apply:</i>	
<i>a) Proposed work shall not cause any adverse effect or cumulative adverse effect on the wetland values of the Coastal Bank.</i>	The purpose of the Project is to enhance coastal protection and decrease the potential for existing and future flood damage to the area.
<i>b) All projects shall be restricted to activities as determined by the Commission to have no adverse effect and no cumulative adverse effect on the ability of the eroding coastal bank to serve as a sediment source to coastal Resource Areas, bank height, bank stability, bank vegetation and wildlife habitat.</i>	By maintaining natural coastal processes while improving the site's ability to withstand storm events and coastal flooding, the Project advances coastal resilience without compromising the critical functions of the eroding coastal bank. The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>c) All projects must provide a buffer strip to the top of the Coastal Bank that is sufficient to protect the values and functions of this type of Coastal Bank and to allow such Coastal Banks to continue to serve as a sediment source to coastal Resource Areas.</i>	By maintaining a protective buffer and preserving the natural form and function of the Coastal Bank, the Project supports ongoing sediment transport processes while improving the site's ability to withstand coastal storm events and flooding.
<i>d) Notwithstanding the above, minimal elevated walkways designed not to affect bank vegetation and sediment transport may be permitted to allow for pedestrian passage over a bank, provided that the ability of the bank to serve as a sediment source and its stability are not adversely affected. Public access must not be limited or impaired in any way.</i>	The proposed walkways associated with the Project have been designed to minimize disturbance of existing vegetative cover to the maximum extent practicable. The Project includes the installation of native and adaptive plant materials, as shown on Attachment 14.
<i>e) Refer to HWR 23.0 et seq. for additional project-specific performance standards.</i>	The Project has been designed to avoid and minimize adverse impacts to the resource area and its associated functions and values.
<i>f) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.</i>	The Proponent acknowledges this standard.

8.1.4 Land Containing Shellfish (310 CMR 10.34; HWR 18.5)

The WPA defines Land Containing Shellfish (LCS) as land under the ocean, tidal flats, rocky intertidal shores, salt marshes and land under salt ponds when any such land contains shellfish. Shellfish species as described in 310 CMR 10.34 as Bay Scallop (*Argopecten irradians*), Blue Mussel (*Mytilus edulis*), Ocean Quahog (*Arctica islandica*), Oyster (*Crassostrea virginica*), Quahog (*Mercenaria mercenaria*), Razor Clam (*Ensis directus*), Sea Clam (*Spisula solidissima*), Sea Scallop (*Placopecten magellanicus*), and Soft shell Clam (*Mya arenaria*). The HWR definition of LCS is the same as 310 CMR 10.34(2).

The Proponent has engaged in discussions with local, state, and federal resource agencies, including DMF, and will continue to coordinate with these agencies throughout the permitting process. The proposed work is not anticipated to adversely affect shellfish productivity. Discussion of the performance standards for LCS are provided in Table 11 below. Table 12 includes responses to the HWR performance standards.

Table 11: Responses to Land Containing Shellfish WPA Performance Standards

<i>WHEN A RESOURCE AREA, INCLUDING LAND UNDER THE OCEAN, TIDAL FLATS, ROCKY INTERTIDAL SHORES, SALT MARSHES, OR LAND UNDER SALT PONDS IS DETERMINED TO BE SIGNIFICANT TO THE PROTECTION OF LAND CONTAINING SHELLFISH AND THEREFORE TO THE PROTECTION OF MARINE FISHERIES, 310 CMR 10.34(4) THROUGH (8) SHALL APPLY:</i>	
<i>(4) Except as provided in 310 CMR 10.34(5), any project on land containing shellfish shall not adversely affect such land or marine fisheries by a change in the productivity of such land caused by:</i>	
<i>(a) alterations of water circulation;</i>	The proposed work will not alter water circulation because the design ensures that there are no obstructions or alterations to the flow patterns.
<i>(b) alterations in relief elevation;</i>	There are no alterations in relief elevation in Land Under Ocean.
<i>(c) the compacting of sediment by vehicular traffic;</i>	Construction activities may temporarily compact sediment. When appropriate, construction mats will be installed in coastal resource areas. Disturbed areas will be restored to pre-construction condition.
<i>d) alterations in the distribution of sediment grain size;</i>	There will be no changes to the distribution of sediment grain size because Land Under Ocean and Coastal Beach/Tidal Flats will be restored using sediments already available on site.
<i>(e) alterations in natural drainage from adjacent land; or</i>	The Project does not propose any additional impervious surfaces on site and includes measures to prevent pollution, such as controlling runoff and avoiding the release of contaminants.
<i>(f) changes in water quality, including, but not limited to, other than natural fluctuations in the levels of salinity, dissolved oxygen, nutrients, temperature or turbidity, or the addition of pollutants.</i>	The Project includes measures to prevent pollution, such as erosion and sediment BMPs to control runoff and avoid the release of contaminants. Additionally, the coastal resilience efforts including the installation of the coastal dune will prevent sediment erosion from the upland.
<i>(5) Notwithstanding the provisions of 310 CMR 10.34(4), projects which temporarily have an adverse effect on shellfish productivity but which do not permanently destroy the habitat may be permitted if the land containing shellfish can and</i>	There may be temporary impacts to LCS during the removal of existing structures and construction of the dune. The Proponent has engaged in discussions with local, state, and federal resource agencies, including DMF, and will continue to coordinate with these agencies throughout the

**Table 11: Responses to Land Containing Shellfish WPA Performance Standards
(Continued)**

<i>WHEN A RESOURCE AREA, INCLUDING LAND UNDER THE OCEAN, TIDAL FLATS, ROCKY INTERTIDAL SHORES, SALT MARSHES, OR LAND UNDER SALT PONDS IS DETERMINED TO BE SIGNIFICANT TO THE PROTECTION OF LAND CONTAINING SHELLFISH AND THEREFORE TO THE PROTECTION OF MARINE FISHERIES, 310 CMR 10.34(4) THROUGH (8) SHALL APPLY:</i>	
<i>will be returned substantially to its former productivity in less than one year from the commencement of work, unless an extension of the Order of Conditions is granted, in which case such restoration shall be completed within one year of such extension.</i>	permitting process. The Proponent will also coordinate with the Hingham Shellfish Constable at appropriate stages of development and implementation to ensure protection of shellfish resources.
<i>(6) In the case of land containing shellfish defined as significant in 310 CMR 10.34(3)(b) (i.e., those areas identified on the basis of maps and designations of the Shellfish Constable), except in Areas of Critical Environmental Concern, the issuing authority may, after consultation with the Shellfish Constable, permit the shellfish to be moved from such area under the guidelines of, and to a suitable location approved by, the Division of Marine Fisheries, in order to permit a proposed project on such land. Any such project shall not be commenced until after the moving and replanting of the shellfish have been commenced.</i>	The Project site is not located in an ACEC. The Proponent has engaged in discussions with local, state, and federal resource agencies, including DMF, and will continue to coordinate with these agencies throughout the permitting process. The Proponent will also coordinate with the Hingham Shellfish Constable to ensure protection of shellfish resources.
<i>(7) Notwithstanding 310 CMR 10.34(4) through (6), projects approved by the Division of Marine Fisheries that are specifically intended to increase the productivity of land containing shellfish may be permitted. Aquaculture projects approved by the appropriate local and state authority may also be permitted.</i>	Aquaculture is not proposed in the Project
<i>(8) Notwithstanding the provisions of 310 CMR 10.34(4) through (7), no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).

Table 12: Responses to Land Containing Shellfish HWR Performance Standards

<i>d) Performance Standards. When a Land Containing Shellfish or land within a minimum distance of 100 feet of Land Containing Shellfish is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(1) A proposed project shall not cause any adverse effect or cumulative adverse effect on Land Containing Shellfish.</i>	The purpose of the Project is to enhance coastal resilience. No permanent or temporary obstructions to access routes, harvesting areas, or shellfish habitat are proposed. Construction activities will be sequenced and managed to avoid disruption to shellfishing to the maximum extent practicable, and any temporary impacts will be minimized and promptly restored.
<i>(2) A proposed project shall not change water quality (including but not limited to changes in turbidity, temperature, salinity, dissolved oxygen, nutrients and pollutants), water circulation, or natural drainage from adjacent land.</i>	The proposed Project will not have an adverse impact on water quality, water circulation, or natural drainage. Overall, there will be no net change in the balance of impervious and pervious surface areas. In addition, the Project incorporates BMPs, including a proposed rain garden and grassed berm, which will improve water quality, stormwater infiltration, and overall site drainage. These features are expected to provide a net benefit to stormwater management by promoting increased permeability, improving water quality, and reducing runoff.
<i>(3) A proposed project shall not obstruct or limit the ability of the public to gather shellfish recreationally or the ability of commercial fishermen to harvest shellfish or obstruct or limit an existing aquaculture project.</i>	The Project will not obstruct or limit the ability of the public to gather shellfish recreationally, the ability of commercial fishermen to harvest shellfish, or interfere with any existing aquaculture operations.
<i>(4) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>(5) Refer to HWR 23.0 et seq. for additional project-specific performance standards.</i>	The Project incorporates BMPs to avoid, minimize, and mitigate potential impacts to wetland resource areas and associated buffer zones, including measures related to erosion and sedimentation control, stormwater management, and protection of water quality and habitat functions. Construction methods and sequencing will be implemented to limit temporary disturbance and ensure prompt stabilization of affected areas.

**Table 12: Responses to Land Containing Shellfish HWR Performance Standards
(Continued)**

<i>d) Performance Standards. When a Land Containing Shellfish or land within a minimum distance of 100 feet of Land Containing Shellfish is determined to be significant to a wetland value, the following regulations shall apply:</i>	
<i>(6) Performance standards for activities or work proposed in the buffer zone to Land Containing Shellfish are specified in HWR 22.0.</i>	The purpose of the Project is to enhance coastal resilience. It is not anticipated to have an adverse effect on shellfish habitat and associated resource area functions.
<i>(7) The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.</i>	The Proponent acknowledges this standard.

8.1.5 Land Subject to Coastal Storm Flowage (310 CMR 10.04; HWR 20.1)

The WPA defines Lands Subject to Coastal Storm Flowage (LSCSF) as "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater." The areas mapped by the FEMA FIRM as the 100-year flood plain within the coastal zone are included within LSCSF. While there are currently no performance standards, LSCSF is significant to flood control and storm damage prevention and no part of the Project will divert floodwater, therefore preserving these interests of the WPA.

The Town amended its Wetlands Protection Regulations in June 2026, including updates applicable to Land LSCSF. As part of these amendments, the regulations now incorporate specific performance standards for work within LSCSF. These standards establish criteria intended to ensure that projects avoid adverse impacts to flood storage capacity, storm damage prevention, and public safety, and are designed to be consistent with the function of LSCSF areas under increasingly severe coastal storm conditions. Discussion of the HWR performance standards for LSCSF are provided in Table 13 below.

Table 13: Responses to LSCSF HWR Performance Standards

<i>WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:</i>	
<i>(1) A proposed project shall not cause any adverse effect or cumulative adverse effect upon the wetland values of LSCSF.</i>	The Project has been designed to enhance coastal resilience and improve site conditions without increasing flood risk. The proposed improvements incorporate features that support coastal resilience and will not result in adverse effects on LSCSF.
<i>(2) When LSCSF is significant to protection of wildlife habitat, a proposed activity shall not impair the capacity of LSCSF to provide important wildlife habitat functions.</i>	No long-term adverse changes to habitat structure, function, or connectivity are proposed. Temporary disturbances, if any, will be limited in duration and will be restored to pre-existing or will improve conditions using appropriate native coastal

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(2) When LSCSF is significant to protection of wildlife habitat, a proposed activity shall not impair the capacity of LSCSF to provide important wildlife habitat functions.	vegetation. The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
(3) When LSCSF is significant to pollution prevention, a proposed activity shall not cause ground, surface, or salt water pollution triggered by coastal storm flowage or flooding. For those areas within at least 100 feet of another Resource Area, activities shall minimize adverse effects in order to maintain the capability to remove suspended solids and other contaminants from runoff before it enters other Resource Areas.	Stormwater management measures have been incorporated into the Project to control runoff, reduce erosion and turbidity during and after construction, promote infiltration where feasible, and facilitate the natural attenuation of pollutants prior to discharge to adjacent coastal resource areas (see Attachment 11). The Project includes drainage and stormwater management improvements designed to maintain or improve existing water quality conditions within this developed coastal waterfront setting. The proposed work will not diminish the ability of LSCSF to perform its pollution prevention and water quality protection functions. No significant increase in impervious area is proposed, and the Project has been designed to maintain or improve existing drainage patterns while reducing the potential for pollutant transport associated with coastal flooding and storm damage. The Project is intended to reduce existing and future coastal flood risks by improving shoreline protection, eliminating low storm tide pathways, enhancing dune and berm features, modifying existing armoring, and incorporating stormwater management improvements throughout the Project area. By reducing the frequency and extent of coastal flooding and improving stormwater management, the Project is expected to maintain and enhance the ability of LSCSF to protect water quality while improving the long-term resilience of the shoreline and surrounding community.
(4) For activities proposed in VE-zones and AE-zones, at a minimum, the historic rate of relative sea level rise in Massachusetts of 1 foot per 100 years shall be incorporated into the project design and	The purpose of the Project is to enhance coastal resilience and complies with applicable performance standards for LSCSF within VE- and AE-zone flood hazard areas. Project elevations, grading, and design elements have been developed

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

<i>WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:</i>	
<i>construction. The Commission may also take other credible evidence of projected sea level rise, such as the Intergovernmental Panel on Climate Change into consideration.</i>	to account for anticipated increases in base flood elevations and coastal storm conditions associated with sea level rise. The design also incorporates flexibility to allow for future adaptation, including potential modifications to address 100-year flood conditions projected for 2070.
<i>(5) The following activities proposed within VE-zones and/or AE-zones are likely to have an adverse effect on the protected values and are therefore prohibited:</i>	
<i>(5a) New construction or placement of new structures, including buildings, sheds, garages, and retaining walls. Existing buildings may be renovated or reconstructed but, at a minimum, must be built using flood-resistant construction.</i>	The proposed revetments and coastal resiliency improvements at P.O.W./M.I.A. Memorial Park and west of the Bathing Beach have been designed to enhance storm wave attenuation, reduce wave reflection, and improve shoreline stability.
<i>(5b) Impermeable surfaces for new roads, driveways, and parking lots, and the conversion of existing permeable roads, driveways and parking lots into impermeable surfaces.</i>	The Project does not include the creation of new impermeable surfaces, nor does it involve the conversion of existing permeable roads, driveways, or parking areas into impermeable surfaces.
<i>(5c) New or proposed expansions (height and footprint) of coastal engineering structures unless such structures are soft engineering solutions, such as, but not limited to, living shorelines, vegetated terraces, or other natural vegetated designs, or hybrid shoreline infrastructure, or the applicant has provided an alternatives analysis demonstrating that a soft engineering solution or hybrid shoreline infrastructure is not feasible or practicable and that the preferred alternative is proven to provide climate change resiliency improvements and will not create or exacerbate storm damage and flooding impacts on adjacent or nearby properties. The Commission will evaluate the following elements of all proposals for new or proposed expansions of coastal engineering structures, and may request additional information as follows:</i>	Through the MEPA review process, a comprehensive alternatives analysis was conducted to evaluate various shoreline protection and adaptation strategies. Based on this analysis, the proposed revetment alignment, elevations, and grading plan were determined to represent the most practicable alternative for addressing existing and future coastal flooding, wave overtopping, and sea level rise impacts while avoiding and minimizing adverse effects on coastal resource areas to the maximum extent feasible. The proposed design balances the need for reliable shoreline protection with the preservation of coastal resource area functions and values and is consistent with the Project's public resiliency objectives.
<i>(5)(c)(i) Coastal engineering structures shall not cause or create the likelihood of the following: reduction in the ability of the land to absorb and contain waters; reduction in the ability of the land to buffer more inland areas from flooding and wave</i>	The purpose of the Project is to enhance coastal resilience by reducing the vulnerability of existing development to coastal flooding, storm surge, and sea level rise. The Project will not reduce the ability of LSCSF to absorb, contain, or convey floodwaters, as no additional impervious surfaces

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
damage; displacement or diversion of floodwaters to other areas; damage to other structures or properties; increase in the elevation or velocity of floodwaters; increase in water pollution; reduction in the protection of the habitat and wetland values of other adjacent Resource Areas; and/or prevention of the migration of Resource Areas, such as salt marshes, due to sea level rise.	are proposed and existing drainage and infiltration functions will be maintained or improved. Where grading modifications are proposed, they are designed to create more gradual and permeable land surfaces that better dissipate wave energy and reduce storm wave velocity. Elevation of existing structures and associated resilience measures represent the most practicable means of reducing flood and storm damage while preserving the flood storage and storm flowage functions of the resource area. As such, the Project will maintain the capacity of LSCSF to protect public safety and minimize storm-related flooding impacts.
(5)(c)(ii) A loose, sloped-stone design shall be prioritized over other hard engineering solutions, either as part of hybrid shoreline infrastructure proposal or as a standalone proposal accompanied by an alternatives analysis. If another hard engineering solution is proposed, the Commission may require an additional alternatives analysis demonstrating that a loose, sloped-stone design is not feasible or practicable.	The Protection to Likely 2050 Flood Conditions with Incremental Improvement alternative provides the appropriate level of coastal flood protection in the most practicable manner possible. Overall environmental impacts are generally temporary and associated with the construction of the elevated shore protection structures. Based on the above assessment, the Protection to Likely 2050 Flood Conditions with Incremental Improvement alternative was selected as the preferred alternative. Through the MEPA review process, a comprehensive alternatives analysis was conducted to evaluate various shoreline protection and adaptation strategies. Based on this analysis, the proposed revetment alignment, elevations, and grading plan were determined to represent the most practicable alternative for addressing existing and future coastal flooding, wave attack, and sea level rise impacts while avoiding and minimizing adverse effects on coastal resource areas to the maximum extent feasible.
(5)(c)(iii) The Commission will consider whether the proposed coastal engineering structure is an overall benefit to the coastal community and the wellbeing of the marine environment and/or whether there is an overriding public interest.	The Project's comprehensive approach to resiliency improvements aims to eliminate existing storm tide pathways (as illustrated in Figure 2) through 2050, while minimizing storm-driven wave overtopping of seawalls and revetments. Any overtopping that does occur is intended to be localized, confined to areas immediately adjacent to shoreline protection structures, and limited in

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(5)(c)(iii) <i>The Commission will consider whether the proposed coastal engineering structure is an overall benefit to the coastal community and the wellbeing of the marine environment and/or whether there is an overriding public interest.</i>	magnitude (e.g., requiring only minor post-storm maintenance). The design also incorporates flexibility to allow for future adaptation, including potential modifications to address 100-year flood conditions projected for 2070. Overall, the Project is designed to enhance the resilience of critical coastal infrastructure in an environmentally responsible manner while allowing for future expansion and adjustment as climate conditions evolve.
(5)(c)(iv) <i>The Commission may require a scientifically validated study of the proposal with appropriate methodology, especially where wave and wind action may be a substantial cause of seeking the installation or modification of a coastal engineering structure; or where impacts to marine life are anticipated; or where the proposed work may impact abutting properties not owned by the applicant, a study of changes in flowage and sediment transport.</i>	The Project narrative and supporting documentation included with this NOI demonstrate that the proposed work is expected to effectively achieve its primary objective of enhancing coastal resilience. The design has been developed to provide a reasonable, long-term benefit consistent with the Project goals, while accounting for anticipated future conditions, including sea level rise and increased storm intensity. Recognizing that a continuous and coordinated approach is necessary to effectively reduce coastal flooding, the Project team has actively collaborated with abutting property owners and MassDOT's consultants throughout project development. These efforts are intended to ensure that flood protection measures are integrated across property boundaries, minimize the potential for unintended flood pathways, and provide a cohesive shoreline resilience strategy. Through this coordinated approach, the Project is designed to maximize flood risk reduction benefits while avoiding the transfer of flood impacts to neighboring properties.
(5)(c)(v) <i>The Commission may require a statement from a qualified professional on the effectiveness of the proposed work, based on issues such as climate change, and whether such work will have a reasonable, long-term, beneficial impact, as desired by the applicant, as sea levels continue to rise.</i>	The proposed work is expected to be effective in achieving its intended purpose of improving coastal resilience. Based on the engineering, coastal flooding, and sea level rise analyses completed for the Project, the design has been developed to provide a reasonable and durable long-term solution for reducing coastal flood risks

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
<i>(5)(c)(v) The Commission may require a statement from a qualified professional on the effectiveness of the proposed work, based on issues such as climate change, and whether such work will have a reasonable, long-term, beneficial impact, as desired by the applicant, as sea levels continue to rise.</i>	and protecting critical infrastructure. The Project incorporates adaptive design elements that will allow for future modifications, if necessary, to address evolving coastal conditions, including projected 100-year flood elevations and sea level rise through 2070 and beyond. By balancing current resiliency needs with flexibility for future adaptation, the Project is expected to provide long-term flood protection benefits while remaining responsive to changing climate conditions and coastal hazards.
<i>(5d) New or expanded septic systems. Replacement or repair of an existing septic system shall be allowed only if no alternative location is available on the lot or other parcel under the ownership or control of the owner of the system proposed and, where applicable, provided that variance of property line and/or street layout setbacks have been applied for from the Town of Hingham Board of Health.</i>	The Project does not include new or expanded septic systems.
<i>(6) Notwithstanding the above, the Commission may permit the following activities in VE- and AE-zones provided that the applicant demonstrates to the satisfaction of the Commission that best available measures are utilized to avoid or minimize adverse effects on all wetland values of all Resource Areas:</i>	
<i>(6a) Beach, dune, and bank nourishment and restoration projects that incorporate natural vegetative cover and do not otherwise impede the landward migration of these landforms over time.</i>	The Project is designed to restore and enhance the functional integrity of existing coastal resource areas while maintaining their capacity to adapt to changing coastal conditions. A primary component of the Project is the enhancement of the existing dune system, which serves as an important natural barrier to coastal flooding, storm surge, and wave action. The Project includes construction and expansion of dune features in strategic locations, including the addition of a vegetated dune seaward of the boat ramp parking area and enhancement of existing dune areas throughout the site. Native dune vegetation will be established to promote sediment stability, support natural dune processes, and improve the long-term effectiveness of the landform.

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(6a) Beach, dune, and bank nourishment and restoration projects that incorporate natural vegetative cover and do not otherwise impede the landward migration of these landforms over time.	The proposed dune enhancements are expected to strengthen existing shore protection, storm damage prevention, and flood control functions by increasing the elevation, width, and continuity of the dune system. The design has been developed to work with natural coastal processes and is not expected to impede the long-term adaptation of the shoreline. While localized changes in dune position and morphology may occur over time due to natural coastal processes and major storm events, the enhanced dune system is expected to remain functional as a resilient coastal feature. Periodic maintenance and vegetation management may be required following severe storm events to restore design contours and maintain the intended flood protection and shoreline stabilization benefits. Accordingly, the Project will enhance the ability of the coastal landforms to provide long-term storm damage prevention and flood protection while preserving their natural capacity for adaptation.
(6b) Elevated pedestrian walkways that are minimal. Walkways must meet the performance standards for docks and piers specified in HWR 23.4.	The Project has been designed to minimize the placement of infrastructure within LSCSF to the maximum extent practicable. With the exception of elevated pedestrian dune crossings necessary to maintain shoreline access, the proposed circulation improvements will relocate existing pathways and pedestrian infrastructure outside of flood-prone areas where feasible. By moving these pathways landward and away from areas most susceptible to coastal flooding and storm damage, the Project reduces the vulnerability of public infrastructure to flood-related impacts and decreases the need for future repairs and maintenance within LSCSF. The limited dune crossings proposed as part of the Project have been specifically designed to span and protect the dune resource area while maintaining public access. Overall, the Project represents a net improvement by reducing the extent of infrastructure located within LSCSF, minimizing interference with coastal processes, and enhancing the site's long-term resilience to coastal flooding, storm surge, and sea level rise.

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(6c) <i>Docks and piers provided they meet the performance standards specified in HWR 23.4.</i>	The proposed activities included in this NOI do not include docks or piers. The NOI filings associated with the future aspects of the proposed work will address this standard.
(6d) <i>Projects to restore salt marsh, freshwater wetland, shellfish habitat, or fisheries.</i>	The Project has been designed to avoid and minimize encroachments within LSCSF to the maximum extent practicable. Areas where work may extend below MHW are limited and are primarily associated with the toe of the proposed revetment improvements, the resiliency enhancements adjacent to the parking lot, and shoreline stabilization measures near P.O.W./M.I.A. Park. These elements have been carefully sited and designed to address existing coastal flooding, erosion, and storm damage vulnerabilities while minimizing impacts to coastal resource areas. The footprint of the proposed improvements has been refined through the design process to limit disturbance within LSCSF and avoid unnecessary encroachment into areas below MHW. The proposed work is necessary to provide effective and continuous shoreline protection, reduce flood pathways, and enhance the long-term resilience of critical public infrastructure and community assets. As a result, any encroachments within LSCSF are limited to the minimum area necessary to achieve the Project's coastal resilience and flood protection objectives while maintaining the flood control and storm damage prevention functions of the resource area.
(6e) <i>Improvements necessary to maintain the structural integrity or stability of existing coastal engineering structures.</i>	The primary purpose of the Project is to enhance coastal resilience and reduce the risk of coastal flooding to critical public infrastructure, community assets, and historic downtown Hingham. The Project narrative, supporting analyses, and coastal flood modeling included with this NOI demonstrate that the proposed work is expected to be effective in achieving these objectives through a comprehensive and coordinated flood hazard mitigation strategy.

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(6e) <i>Improvements necessary to maintain the structural integrity or stability of existing coastal engineering structures.</i>	A key component of the Project is the strategic elevation of shoreline infrastructure and coastal protection features to reduce vulnerability to storm surge, wave action, and sea level rise while maintaining the flood control and storm damage prevention functions of LSCSF. The design has been developed to provide a reasonable and durable long-term solution that accounts for anticipated future conditions, including rising sea levels, increased storm intensity, and projected future flood elevations. Specifically, the Project will establish a continuous coastal flood protection system along the Inner Harbor shoreline extending from west of Bathing Beach to Barnes Wharf, where the Project limits connect to naturally higher elevations to the west and east. By raising and enhancing shoreline protection features and eliminating known storm tide pathways from the Harbor into low-lying inland areas, the Project will substantially reduce opportunities for coastal floodwaters to reach historic downtown Hingham and other vulnerable infrastructure. The proposed elevations and resilience measures have been carefully selected to provide effective flood protection under both current and future conditions while allowing for future adaptation as climate and flood risks evolve. As a result, the Project will provide long-term coastal flood risk reduction benefits and strengthen the overall resilience of the shoreline and surrounding community while preserving the functions and values of LSCSF.
(6f) <i>Improvements that contribute to climate change resiliency and do not create or exacerbate storm damage and flooding impacts on adjacent or nearby properties.</i>	The purpose of the Project is to enhance coastal resilience through the implementation of a comprehensive coastal flood hazard mitigation strategy for the Inner Harbor shoreline. The Project has been developed in accordance with current coastal engineering and climate resilience best practices, including the use of coastal flood

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(6f) <i>Improvements that contribute to climate change resiliency and do not create or exacerbate storm damage and flooding impacts on adjacent or nearby properties.</i>	modeling, consideration of projected sea level rise, evaluation of future storm surge conditions, incorporation of adaptive design principles, and the strategic elevation of shoreline infrastructure and protective features to address long-term flood risks. A primary objective of the Project is to interrupt and eliminate known storm tide pathways that currently allow floodwaters from the Harbor to inundate low-lying inland areas, including portions of historic downtown Hingham. The proposed design establishes a more continuous and resilient shoreline protection system through targeted elevation enhancements, dune improvements, shoreline stabilization measures, and related flood protection features. These measures have been designed to reduce the frequency and extent of coastal flooding while maintaining compatibility with natural coastal processes. The Project also accounts for anticipated future conditions, including sea level rise, increased storm intensity, and long-term shoreline evolution. By incorporating elevations and protection measures capable of addressing both current and future coastal flood hazards, the Project is expected to provide durable, long-term resilience benefits. Overall, the design reflects modern coastal resilience principles by prioritizing flood pathway elimination, strategic elevation of vulnerable areas, adaptation to future climate conditions, and protection of critical community infrastructure while maintaining the functions and values of LSCSF.
(6g) <i>Projects designed to protect critical public infrastructure from storm surge and sea level rise.</i>	A primary component of the Project is the strategic elevation of vulnerable shoreline areas and flood protection features to reduce the frequency and extent of coastal flooding under both existing and future conditions. The proposed design establishes a more continuous and resilient shoreline profile that addresses known low points and storm tide pathways through which Harbor floodwaters can enter inland areas

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
(6g) <i>Projects designed to protect critical public infrastructure from storm surge and sea level rise.</i>	By raising key coastal infrastructure and enhancing shoreline protection features, the Project is intended to reduce flood risks to historic downtown Hingham and other critical public assets while improving the overall performance of the shoreline during major coastal storm events. The Project also incorporates adaptive design principles that allow for future modification and enhancement as coastal conditions evolve. By accounting for projected sea level rise, changing storm patterns, and future flood elevations, the proposed work is expected to provide durable, long-term flood protection benefits while maintaining the flood control and storm damage prevention functions of Land Subject to Coastal Storm Flowage. Overall, the Project represents a proactive and forward-looking approach to coastal resilience that emphasizes elevation, flood pathway elimination, and long-term protection of public infrastructure and community resources.
(6h) <i>Projects and activities associated with water-dependent uses such as boat yards and yacht clubs.</i>	The Project has been designed to provide continuous coastal flood protection along the Inner Harbor shoreline while minimizing impacts to coastal resource areas to the maximum extent practicable. Through the strategic elevation of shoreline infrastructure, enhancement of existing natural and engineered protective features, and elimination of storm tide pathways, the Project will provide long-term resilience benefits that can only be achieved through work occurring at the water's edge. Accordingly, the proposed activities are water-dependent and require a coastal location to fulfill their intended flood protection, storm damage prevention, and coastal resilience functions.
(6i) <i>Maintenance dredging and channel maintenance dredging.</i>	The Project does not include maintenance dredging or channel maintenance dredging.

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
<i>(7) Notwithstanding the above provisions, no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.</i>	The Project is not located within designated Priority Habitats of Rare Species or Estimated Habitats of Rare Wildlife (see Attachment 4).
<i>Refer to HWR 23.0 et seq. for additional project-specific performance standards.</i>	The placement of fill associated with the Project is necessary to enhance coastal resilience and reduce the impacts of coastal flooding, storm surge, wave action, and sea level rise on critical Town infrastructure and community assets. The proposed fill will be used to establish and support resilience-focused design elements, including shoreline grading improvements, dune enhancements, and the elevation of vulnerable areas to reduce flood risks and improve the long-term performance of the shoreline during coastal storm events. The fill will be limited to the minimum extent necessary to achieve the Project's flood protection objectives. A primary purpose of the fill is to raise and reinforce areas that currently serve as pathways for storm tide flooding, thereby reducing the ability of coastal floodwaters to propagate inland from the Harbor. By strategically increasing elevations in vulnerable locations and enhancing existing coastal landforms, the Project will provide a more continuous and effective coastal flood protection system. In addition, proposed dune enhancements and associated native vegetation plantings will improve the storm damage prevention, flood control, and shoreline stabilization functions of the coastal resource areas. Overall, the placement of fill will result in a net resilience benefit by strengthening existing protective features, reducing coastal flooding impacts, and supporting the long-term adaptation of the shoreline to future sea level rise and increased storm intensity.

Table 13: Responses to LSCSF HWR Performance Standards (Continued)

WHEN A LSCSF IS DETERMINED TO BE SIGNIFICANT TO A WETLAND VALUE, THE FOLLOWING REGULATIONS SHALL APPLY:	
<i>The Commission may impose such additional requirements as are necessary to protect the wetland values protected under the Bylaw.</i>	The Proponent acknowledges this performance standard.

9. Summary

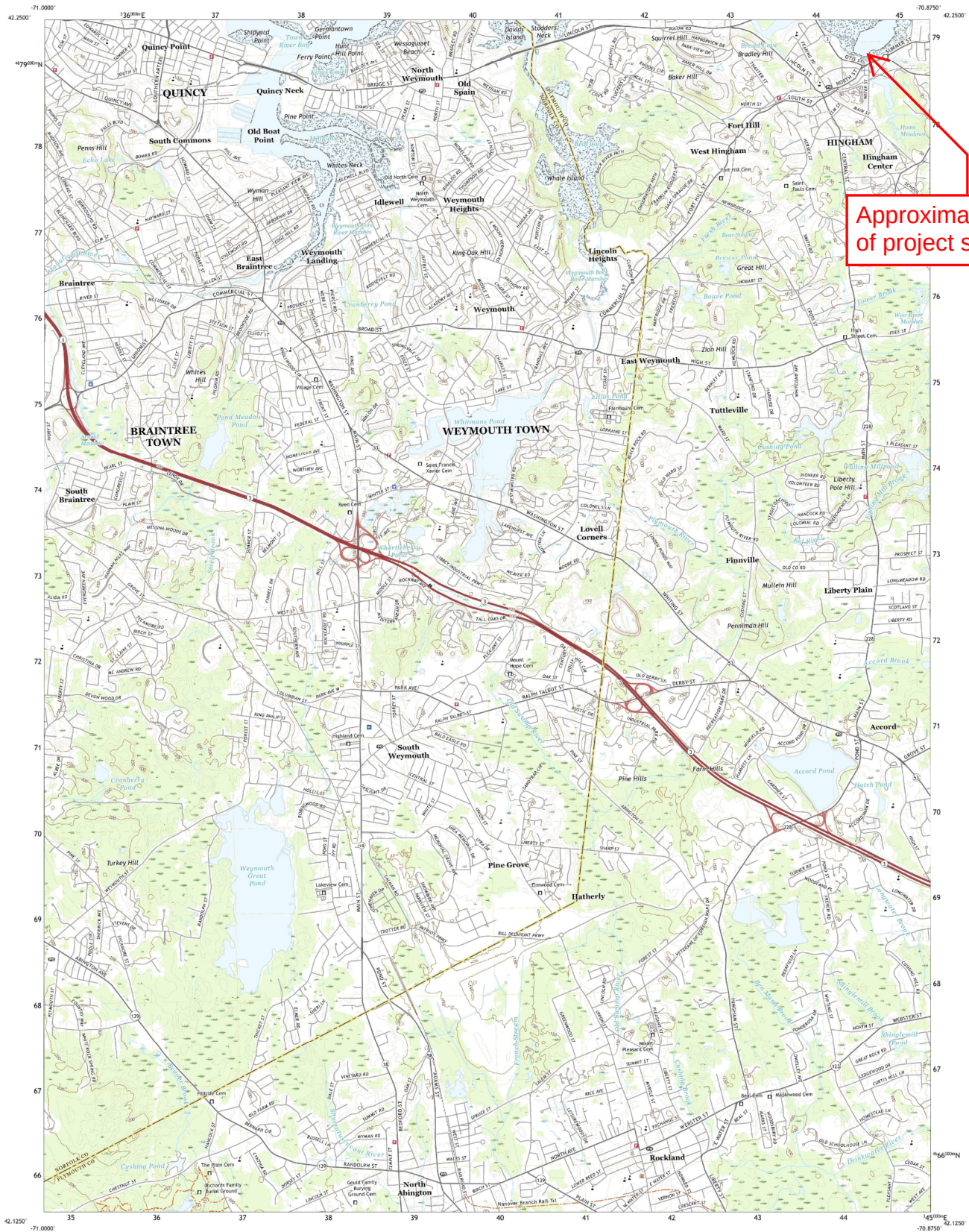
The Town of Hingham is submitting this Notice of Intent to the Hingham Conservation Commission to obtain an Order of Conditions for the first phase of the Hingham Waterfront Resiliency Project. The Project as described herein focuses on coastal resilience improvements at Hingham Bathing Beach, the Town boat ramp and associated parking areas, and the P.O.W./M.I.A. Memorial Park shoreline. The proposed work is intended to reduce existing and future coastal flooding risks by improving shoreline protection, eliminating low storm tide pathways, enhancing dune and berm features, modifying existing armoring, and incorporating stormwater management improvements within a developed coastal waterfront setting.

The Project will temporarily and permanently affect coastal resource areas protected under the Massachusetts Wetlands Protection Act and the Town of Hingham Wetlands Protection Bylaw and Regulations, including Coastal Beach, Coastal Dune, Coastal Bank, Land Containing Shellfish, and Land Subject to Coastal Storm Flowage. These impacts are summarized in Attachment 10 and Table 4 of this narrative. The proposed work has been designed to avoid and minimize adverse effects on these coastal resource areas to the maximum extent practicable while maintaining or enhancing their functions related to flood control, storm damage prevention, water quality protection, sediment stability, and habitat protection.

The Project has been developed in accordance with the applicable performance standards of the Massachusetts Wetlands Protection Act regulations (310 CMR 10.00) and the Town of Hingham Wetlands Protection Regulations. The design incorporates measures to minimize construction-related impacts, manage stormwater, protect water quality, maintain coastal sediment processes, and avoid adverse effects on shellfish resources and rare species habitat. Where work is proposed within resource areas or buffer zones, the Project prioritizes nature-based and hybrid resilience measures, utilizes compatible beach and dune materials, restores disturbed areas, and implements erosion and sedimentation controls and other construction best management practices.

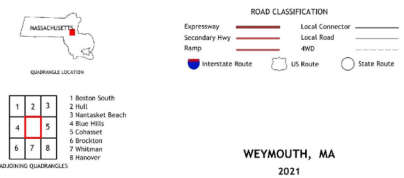
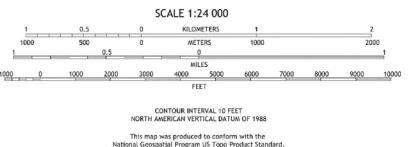
Consistent with the objectives of the Massachusetts Wetlands Protection Act and the Town of Hingham Wetlands Regulations, the proposed improvements are intended not only to protect coastal resource areas and their functions, but also to enhance the long-term resilience of these resources and adjacent public infrastructure to climate change, sea-level rise, and increased storm intensity. By strengthening vulnerable shoreline areas, improving resistance to storm surge and wave action, and reducing pathways for coastal floodwaters to reach low-lying developed areas, the Project will provide meaningful flood risk reduction while supporting the continued ecological functions of the coastal environment. The proposed dune, berm, revetment, grading, access, and stormwater improvements are designed to provide protection under projected 2050 conditions while preserving flexibility for future adaptation as sea levels continue to rise. Accordingly, this NOI presents a practicable, environmentally responsible, and resilient first phase of the Town's broader Inner Harbor waterfront adaptation strategy.

Attachment 2
USGS Locus Map



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1:60,000 meter grid Universal Transverse Mercator, Zone 18T
This map is not a legal document. Boundaries may be
generated for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery: NADP, September 2018 - November 2018
Roads: U.S. Census Bureau, 2018
Names: GNS, 1974 - 2020
Hydrography: National Hydrography Dataset, 2005
Contours: National Elevation Dataset, 2019
Boundaries: Multiple sources; see metadata file 2018 - 2019
Wetlands: FWS National Wetlands Inventory 1992 - 2011



Attachment 3
FEMA FIRMette

National Flood Hazard Layer FIRMette



70°53'35"W 42°15'1"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes, Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/25/2025 at 6:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment 4
MAGIS Data

MAGIS DATA



DEP Seagrass

- Eelgrass
- Ruppia
- Freshwater Species

Shellfish Growing Areas

- APPROVED
- CONDITIONALLY APPROVED
- RESTRICTED
- CONDITIONALLY RESTRICTED
- PROHIBITED

NHESP Priority Habitats of Rare Species

-
-

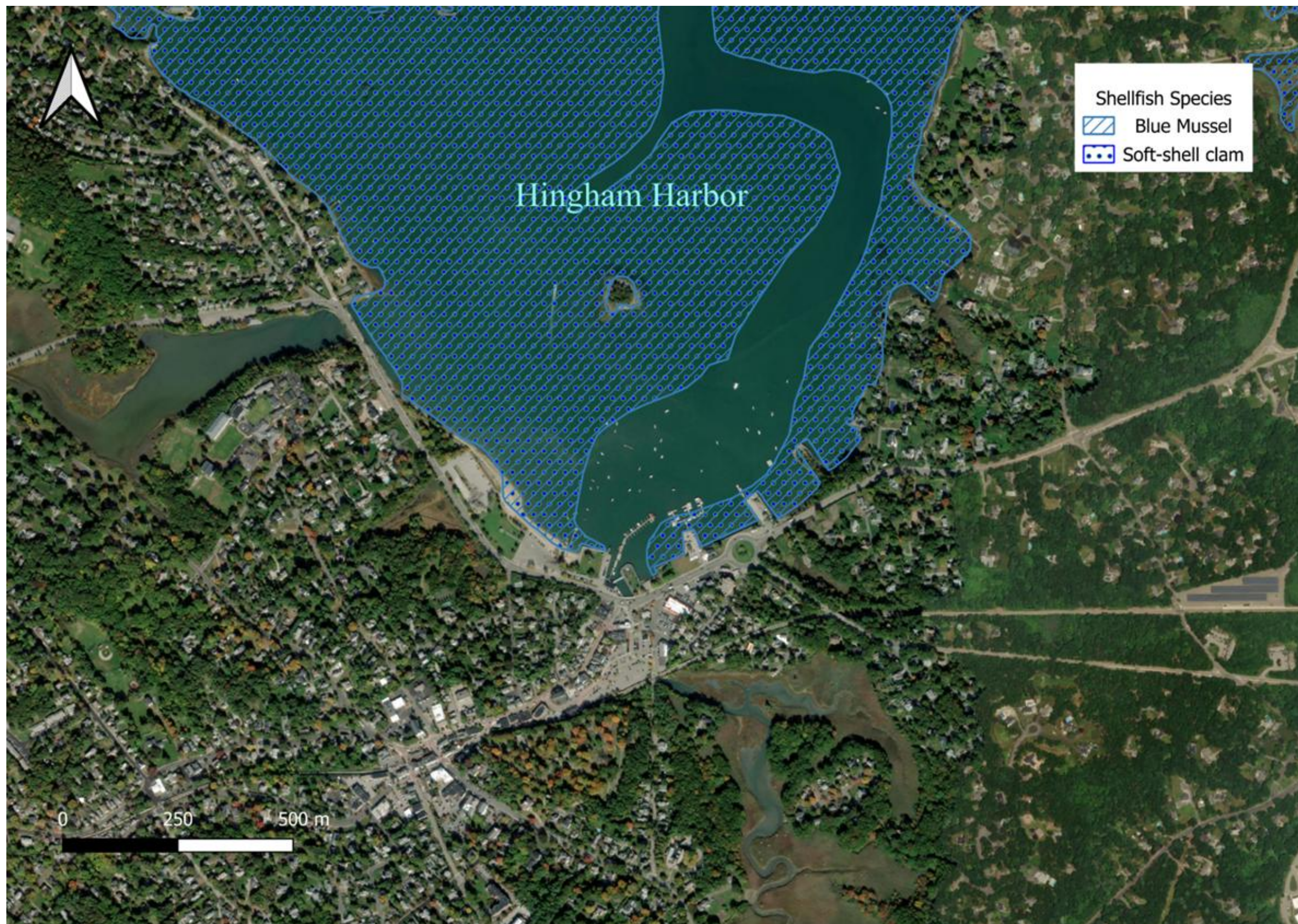
NHESP Estimated Habitats of Rare Wildlife

-

Shellfish Suitability Areas

- AMERICAN OYSTER
- BAY SCALLOP
- BLUE MUSSEL
- EUROPEAN OYSTER
- OCEAN QUAHOG
- QUAHOG
- RAZOR CLAM
- SEA SCALLOP
- SOFT-SHELLED CLAM
- SURF CLAM

Attachment 5
Shellfish Suitability Area



Inner Harbor shellfish habitat suitability map. Two species, the Blue mussel (*Mytilus edulis*) and Soft-shell clam (*Mya arenaria*) habitat covers the Project area.

Attachment 6
Coastal Infrastructure Inventory

***South Shore Coastal Infrastructure Inventory
and Assessment Demonstration Project
Coastal Hazards Commission***

Town of Hingham



**Prepared for:
Office of Coastal Zone Management
Boston, MA**

February 28, 2007

**Presented by:
Bourne Consulting Engineering
Franklin, Massachusetts**

**In Association With:
Applied Coastal Research & Engineering, Inc.
Alpha Land Surveying & Engineering Associates**



COASTAL STRUCTURE LOCATION PLAN

TOWN OF HINGHAM

SOUTH SHORE COASTAL INFRASTRUCTURE INVENTORY
AND ASSESSMENT DEMONSTRATION PROJECT

AUGUST 2006



Structure Assessment Form

Town: **Hingham**

Structure ID: 034-039-000-008-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Otis St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$258,258.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
430		V4	14
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Placed rip rap slope (45 degree) along coastal bank with park and road directly inshore. Slope toed into beach. Stone size 500 to 2000lb. Northern 100 feet is smaller stone and loose with some erosion.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-039-000-008-100-PHO1A.jpg

034-039-000-008-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-039-000-009-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Otis St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$494,894.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
824		V4	14
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Placed rip rap slope (45 degree) about 10 feet high. Toed into beach, but some locations are scoured out. Some stones loose or dislodged. Fill at top of wall washed out. Top of wall not well defined. Road directly behind revetment.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-039-000-009-100-PHO1A.jpg

034-039-000-009-100-PHO1B.jpg

034-039-000-009-100-PHO1C.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-050-000-050-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

DEP - Ch 91 License

Owner Name:

Hingham

Earliest Structure Record:

1986

Estimated Reconstruction/Repair Cost:

\$35,195.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
293	9	V4	14
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Concrete

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Public boat ramp (concrete) with revetment on south side and precast barriers on north side (some revetment). Some cracking of concrete ramp. Exposed, corroded reinforcing at top of ramp (approximately mean high water). Toe of ramp buried in sand.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

I

Rating

None

Action

Long Term Planning Considerations

Description

No Inshore Structures or Residential Dwelling Units Present

Structure Images:

034-050-000-050-100-PHO1A.jpg

034-050-000-050-100-PHO1B.jpg

034-050-000-050-100-PHO1C.jpg

Structure Documents:

DEP CH.91

OCT 22 198

PLAN

034-050-000-050-100-LIC1A

TOWN

JUN 1986

PROPOSED

034-050-000-050-100-COE1A

TOWN

MAR 1994

BOAT RAMP

034-050-000-050-100-COE2A

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-050-000-050-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

DEP - Ch 91 License

Owner Name:

Hingham

Earliest Structure Record:

1986

Estimated Reconstruction/Repair Cost:

\$131,168.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
523	9	V4	14
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dryset) for park and town landing. Some fill loss inshore of seawall. No noted movement or bulging.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-050-000-050-200-PHO2A.jpg

034-050-000-050-200-PHO2B.jpg

034-050-000-050-200-PHO2C.jpg

Structure Documents:

DEP CH.91

OCT 22 198

PLAN

034-050-000-050-200-LIC2A

DEP CH.91

JAN 5 1990

PLANS

034-050-000-050-200-LIC2B

Structure Assessment Form

Property Owner:

Local

Location:

Otis St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$108,108.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
180		A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Revetment

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Dumped rip rap along coastal bank. Coastal beach outshore. Stone size varied from 4 inches diameter to 8 inches diameter.*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***I***Rating***None***Action***Long Term Planning Considerations***Description***No Inshore Structures or Residential Dwelling Units Present**

Structure Images:

034-050-000-051-100-PHO1A.jpg**034-050-000-051-100-PHO1B.jpg**

Structure Documents:

TOWN**FEB 2001****HINGHAM BEACH****034-050-000-051-100-COE1A**

Structure Assessment FormTown: **Hingham**

Structure ID: 034-051-000-001-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$77,748.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
310	15	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:	Primary Material:	Primary Height:
Bulkhead/ Seawall	Stone	10 to 15 Feet
Secondary Type:	Secondary Material:	Secondary Height:



Structure Summary :

Stone block seawall (dryset) with 30 inch wide concrete cap and railing. Minor fill loss inshore of seawall.

Condition

B

Priority

II

Rating

Good

Rating

Low Priority

Level of Action

Minor

Action

Future Project Consideration

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-001-100-PHO1A.jpg

034-051-000-001-100-PHO1B.jpg

Structure Documents:

DEP CH.91

APR 10 200

PLANS

034-051-000-001-100-LIC1A

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-001-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$163,944.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
108	8	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dry set). Eastern portion failed previously and repaired with dumped rip rap (1 to 3 ton stones). Median strip between seawall and Route 3A. Remaining seawall is stable, although heavy fill loss inshore.

Condition

D

Rating

Poor

Level of Action

Major

Description

Structure exhibits advanced levels of deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure has strong risk of significant damage and possible failure during a major coastal storm. Structure should be monitored until repairs/reconstruction can be initiated. Actions taken to reconstruct structure to regain full capacity to resist a major coastal storm. Landform eroded, stability threatened. Landform not adequate to provide protection during major coastal storm. Actions taken to recreate landform to adequate limits for full protection from a major coastal storm.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-001-200-PHO2A.jpg

034-051-000-001-200-PHO2B.jpg

Structure Documents:

DEP CH.91

APR 10 200

PLANS

034-051-000-001-200-LIC2A

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-001-300

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$57,182.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
228	10		
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Revetment

Secondary Material:

Stone

Secondary Height:

Structure Summary :

Same as adjacent structure with inclusion of dumped rip rap at base of wall. Stone size is 100 to 1000 lb. Slope is 8 feet wide by 5 feet high.

*Condition*

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-001-300-PHO3A.jpg

034-051-000-001-300-PHO3B.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-001-400

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$24,077.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
96	15	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

10 to 15 Feet

Secondary Type:

Bulkhead/ Seawall

Secondary Material:

Stone

Secondary Height:



Structure Summary :

Concrete wall constructed on top of mortared stone foundation for Route 3A. Outshore face is satisfactory condition, constructed 1970.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-051-000-001-400-PHO4A.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**Structure ID: **034-051-000-003-100**

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

DEP - Ch 91 License

Owner Name:

Hingham

Earliest Structure Record:

2001

Estimated Reconstruction/Repair Cost:

\$283,404.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
226	15	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dryset) that leans inshore noticeably (possible constructed this way). 3 foot wide concrete slabs directly inshore of wall which are broken and deteriorated along outshore face. Significant fill loss behind seawall (5 feet wide by 2 to 4 feet diameter). Building and park directly inshore.

*Condition***C***Rating***Fair***Level of Action***Moderate***Description*

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

*Priority***III***Rating***Moderate Priority***Action*

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-003-100-PHO1A.jpg**034-051-000-003-100-PHO1B.jpg**

Structure Documents:

DEP CH.91**APR 10 200****PLANS****034-051-000-003-100-LIC1A**

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-004-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$481,536.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
384		A5	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Concrete

Primary Height:

10 to 15 Feet

Secondary Type:

Revetment

Secondary Material:

Stone

Secondary Height:



Structure Summary :

12 inch wide concrete seawall with revetment slope outshore. Concrete seawall is mixture of cast in place sections and stacked precast sections. Peastone fill inshore. Concrete is spalling at top with precast sections moved or loose. Revetment is 100 lb to 1000 lb stones dumped along face (1 vertical to 2 horizontal)

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-004-100-PHO1A.jpg

034-051-000-004-100-PHO1B.jpg

034-051-000-004-100-PHO1C.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-005-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$112,860.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
450	13	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dryset) with route 3A rotary directly inshore. 2 feet wide by 1 foot high concrete cap. Some fill loss behind seawall in median strip. (1 foot wide by 1 to 2 foot diameter)

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

IV

Rating

High Priority

Action

Consider for Next Project Construction Listing

Description

High Value Inshore Structures with Potential for Infrastructure Damage and/or Moderate Density Residential Dwellings (1-10 dwellings impacted / 100 feet of shoreline)

Structure Images:

034-051-000-005-100-PHO1A.jpg

034-051-000-005-100-PHO1B.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-005B-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$315,744.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
416	8	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dryset) with paved walkway inshore. Heavy fill loss behind. A few stones appeared to be "pushed" outshore (horizontal movement). Very western end along side Route 3A.

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-005B-100-PHO1A.jpg

Structure Documents:

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-005B-200

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

DEP - Ch 91 License

Owner Name:

Hingham

Earliest Structure Record:

1990

Estimated Reconstruction/Repair Cost:

\$78,784.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
519	10	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

5 to 10 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dryset) around filled wharf. Heavy fill loss at outshore end. Patching with dumped stone (1 inch or less) and concrete to fill washed out areas. Minor movement of stones noted.

Condition

B

Rating

Good

Level of Action

Minor

Description

Structure observed to exhibit very minor problems, superficial in nature. Minor erosion to landform is present. Structure / landform adequate to provide protection from a major coastal storm with no damage. Actions taken to prevent / limit future deterioration and extend life of structure.

Priority

III

Rating

Moderate Priority

Action

Consider for Active Project Improvement Listing

Description

Inshore Structures with potential for Infrastructure Damage and/or Limited Residential Dwellings (<1 dwelling impacted / 100 feet of shoreline)

Structure Images:

034-051-000-005B-200-PHO2A.jpg

034-051-000-005B-200-PHO2B.jpg

Structure Documents:

DEP CH.91

DEC 27 198

PLANS

034-051-000-005B-200-LIC2A

Structure Assessment Form

Town: **Hingham**

Structure ID: 034-051-000-059-100

Key: community-map-block-parcel-structure

Property Owner:

Local

Location:

Summer St. (Rt. 3A)

Date:

8/16/2006

Presumed Structure Owner:

Local

Based On Comment:

Property Ownership

Owner Name:

Hingham

Earliest Structure Record:

0

Estimated Reconstruction/Repair Cost:

\$916,674.00

Length:	Top Elevation:	FIRM Map Zone:	FIRM Map Elevation:
731	10	A3	11
Feet	Feet NAVD 88		Feet NGVD

Primary Type:

Bulkhead/ Seawall

Primary Material:

Stone

Primary Height:

10 to 15 Feet

Secondary Type:

Secondary Material:

Secondary Height:



Structure Summary :

Stone block seawall (dry set) around park area. Major fill loss behind seawall (4 feet wide by 1 to 2 foot deep). Many voids (typical 6 inches by 2 to 4 feet long)

Condition

C

Rating

Fair

Level of Action

Moderate

Description

Structure is sound but may exhibit minor deterioration, section loss, cracking, spalling, undermining, and/or scour. Structure adequate to withstand major coastal storm with little to moderate damage. Actions taken to reinforce structure to provide full protection from major coastal storm and for extending life of structure. Moderate wind or wave damage to landform exists. Landform may not be sufficient to fully protect shoreline during a major coastal storm. Actions taken to provide addition material for full protection and extended life.

Priority

II

Rating

Low Priority

Action

Future Project Consideration

Description

Inshore Structures Present with Limited potential for Significant Infrastructure Damage

Structure Images:

034-051-000-059-100-PHO1A.jpg

034-051-000-059-100-PHO1B.jpg

034-051-000-059-100-PHO1C.jpg

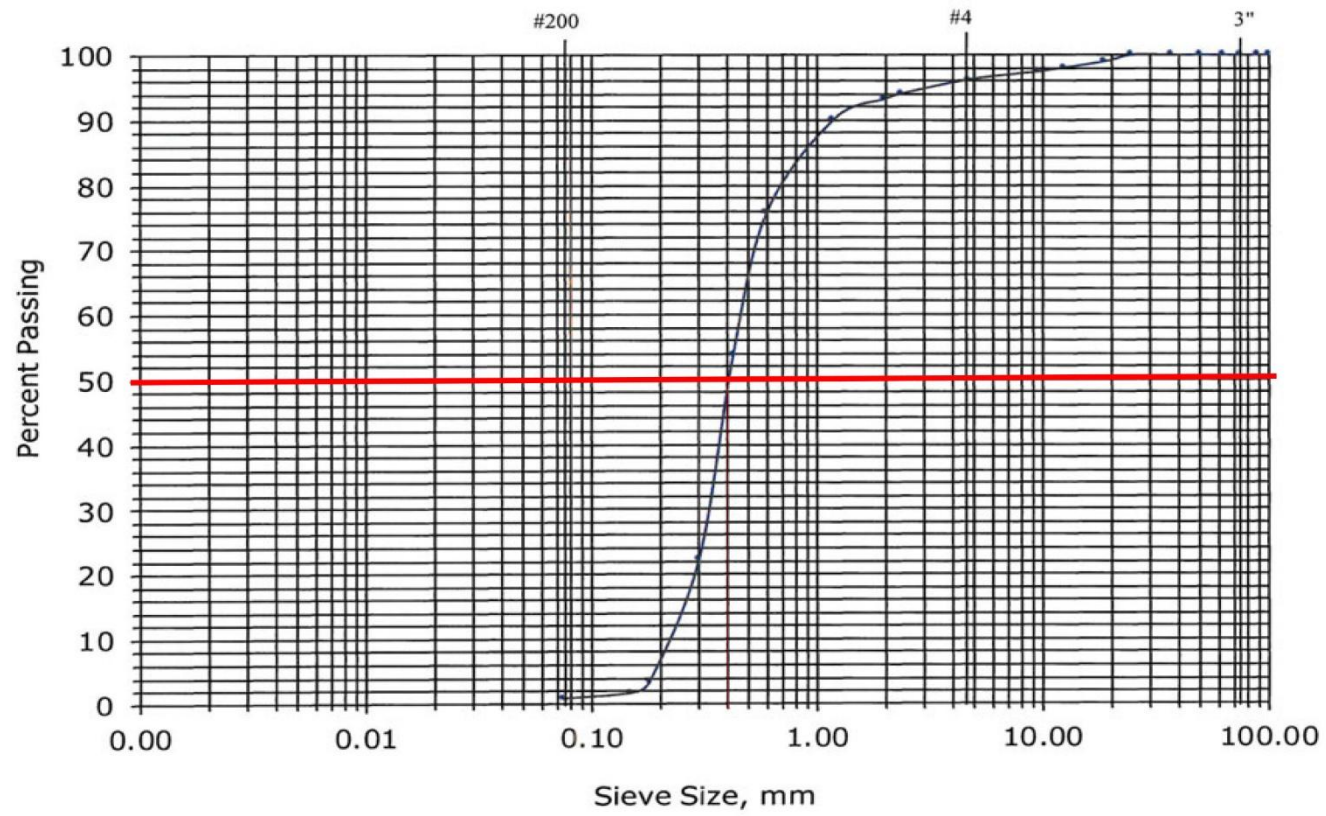
Structure Documents:

Attachment 7
Bathing Beach Grain Size Analysis

Site location	D50* [mm]
Bathing High	0.40
Bathing Mid	0.65
Boat Ramp High	0.37
Boat Ramp Mid	0.70
* D50 indicates the median particle diameter	

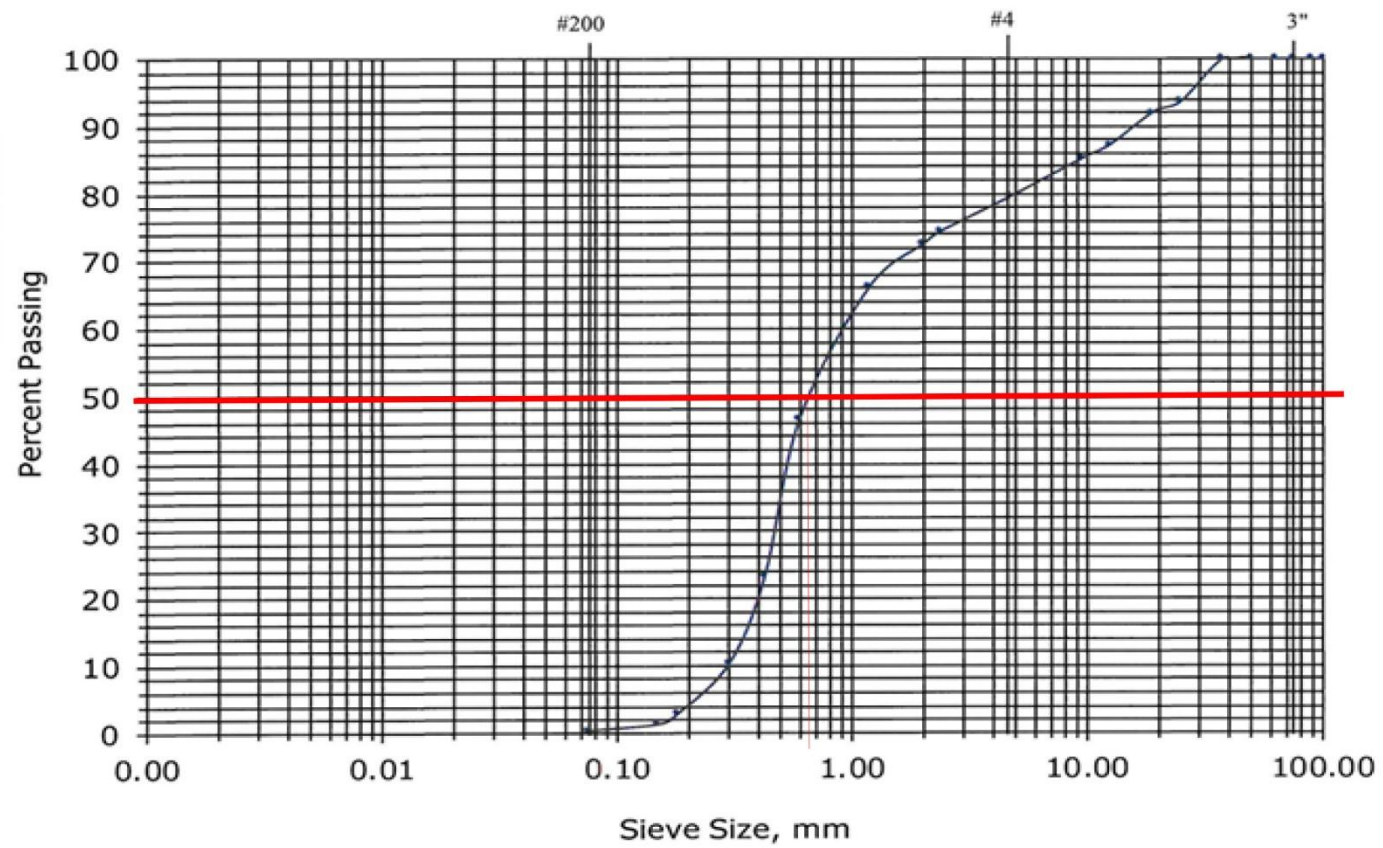


Site Location: Bathing High



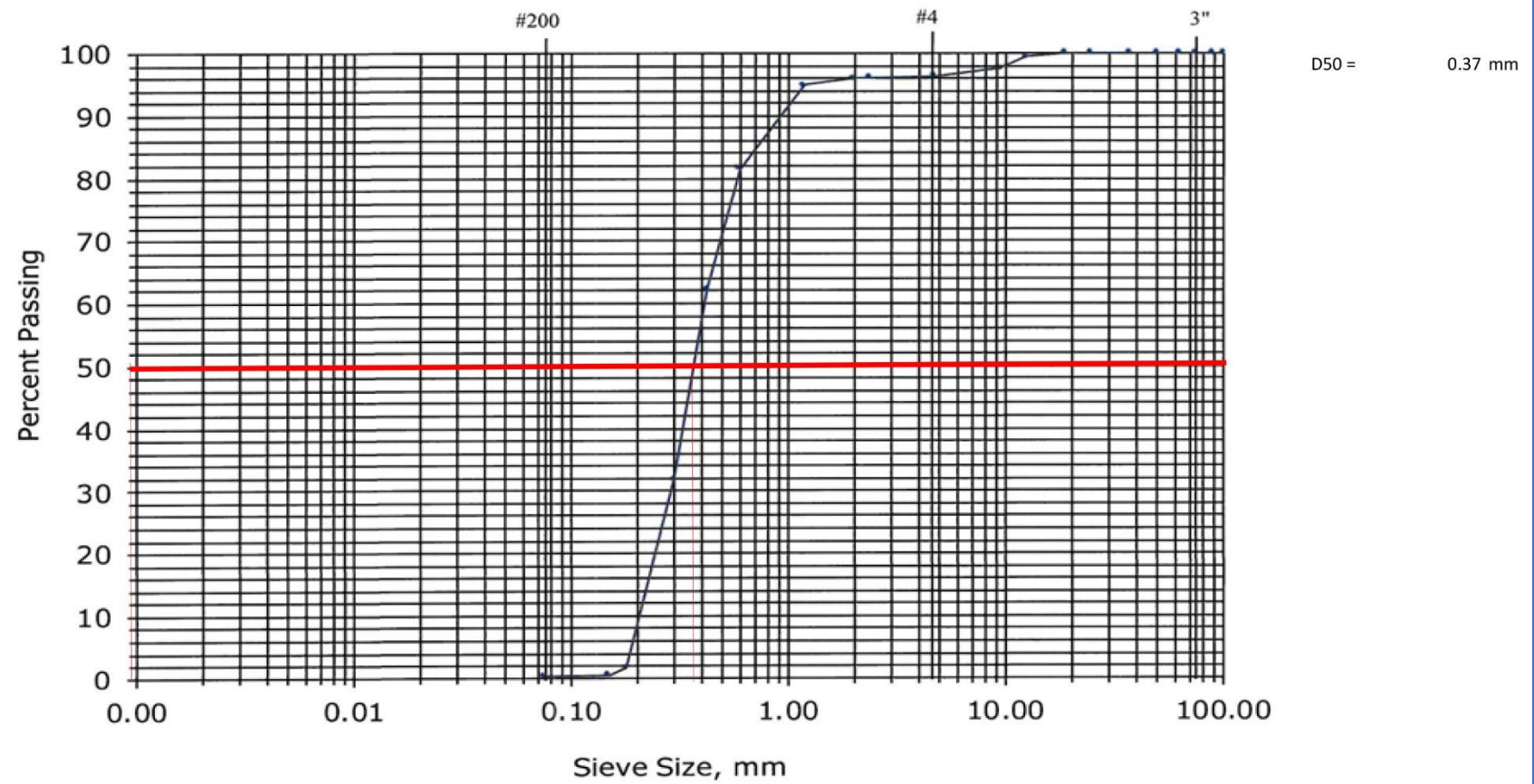
D50 = 0.4 mm

Site: Bathing mid



D50 = 0.65 mm

Site: Boat ramp high



Attachment 8

Technical Memorandum Provided by SCS (November 15, 2023)



Sustainable Coastal Solutions, Inc.

107A County Road

North Falmouth, MA 02556

508-365-2900

sustainablecoastalsolutions.com

November 15, 2023

TECHNICAL MEMORANDUM

To: Carlos G. Peña, P.E., Foth Infrastructure & Environment, LLC

From: John Ramsey, P.E. and Sean W. Kelley, P.E.

Re: Hingham waterfront design water levels and wave conditions

Storm generated flood inundation is not a new challenge for communities surrounding Boston Harbor. Flood records dating back to the mid-1800s detail episodic storm events that have generated catastrophic storm surge and subsequently causing damage to residential and commercial infrastructure, roadways, and the natural environment. However, rising sea levels threaten to increase the occurrence of these events as well as chronic nuisance flooding from periodic spring tide cycles. East facing shorelines are most susceptible to flooding induced by extratropical storms (or Nor'easters), which may last as long as multiple days, creating prolonged exposure to atypical water elevations over and above normal astronomical tide levels, as well as storm wave action. The timescale of these storms often results in longer duration flooding that may persist until the storm has passed.

Due to the existence of the Nantasket Beach barrier complex and the series of Harbor Islands, the mainland shoreline of Hingham Harbor is protected from storm wave conditions often associated with the open Atlantic Ocean, providing relatively safe conditions for development of communities along the shoreline. However, this stretch of coastline is particularly susceptible to coastal flooding due to the low-lying topography in some areas. Based upon the topography of the Hingham downtown shoreline, much of the site is presently between 7 and 11 feet NAVD. The FEMA Stillwater 100-year flood elevation for the area is 10 feet NAVD, where nearby Boston Harbor recorded water elevations of 9.6 feet NAVD in both February 1978 and January 2018. A portion of the effective FEMA Flood Insurance Rate Map (FIRM) is shown in Figure 1. Portions of the downtown area with FEMA Zone AE at elevation 11 feet NAVD indicate low-lying areas that are inundated to approximately 10 feet NAVD with a 1-ft storm wave envelope above the still water flood elevation.

With the above understanding, most coastal flood mitigation efforts for site improvements can be focused specifically on elevating the infrastructure. As depicted in Figure 1, the seaward edge of the site is exposed to storm wave action; however, according to FEMA, waves impacting the site are relatively small and wave action within developed areas is limited, with only minor influence in the developed areas beyond the

wharves. Elevating the flood protection infrastructure along the harbor shoreline can provide effective means for eliminating storm tide pathways through the downtown Hingham area.

To quantify design requirements for both coastal storm surge and wave action, an analysis of potential future sea level rise impacts and storm wave impacts was performed for the site-specific conditions. In support of the coastal engineering design analysis, and the development of management alternatives, past and future sea level rise (SLR) trends were analyzed. The analysis of projected SLR is necessary to understand appropriate design levels for future infrastructure improvements. In addition, an assessment of storm wave conditions associated with existing and future storm surge levels is necessary to design the level of shore protection necessary for future conditions.

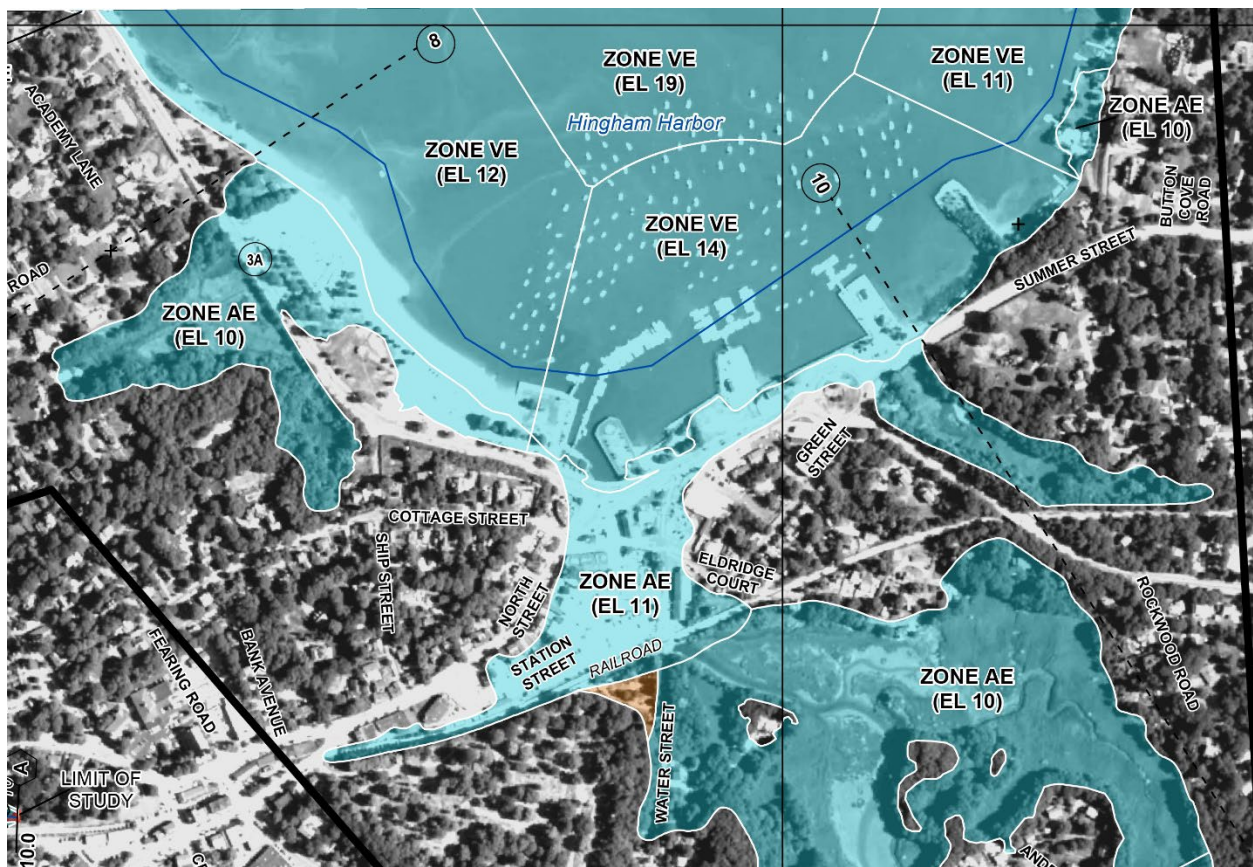


Figure 1. Portion of updated FEMA Flood Insurance Rate Map (FIRM) for Hingham, last updated on August 14, 2015

A. Updated Sea Level Rise Analysis

The exposure of population and infrastructure to flooding along the Hingham Harbor shoreline has significantly increased over the last several decades. Several factors including coastal urbanization, aging infrastructure, alterations to the natural environment, and sea level rise have all contributed to the increase in flood exposure

and are anticipated to continue as mechanisms promoting the acceleration of future flood vulnerability (Sundermann et al., 2014). Indeed, it has been concluded that sea levels are rising; however, the pace and extent to which they may rise over the next 60 to 80 years are the topic of much scientific debate. Historical evidence indicates that over the past 100 years the relative sea level in Boston, Massachusetts has been rising generally in a linear fashion, with an average rate of approximately 0.114 inches per year or 0.95 feet per century (Figure 2).

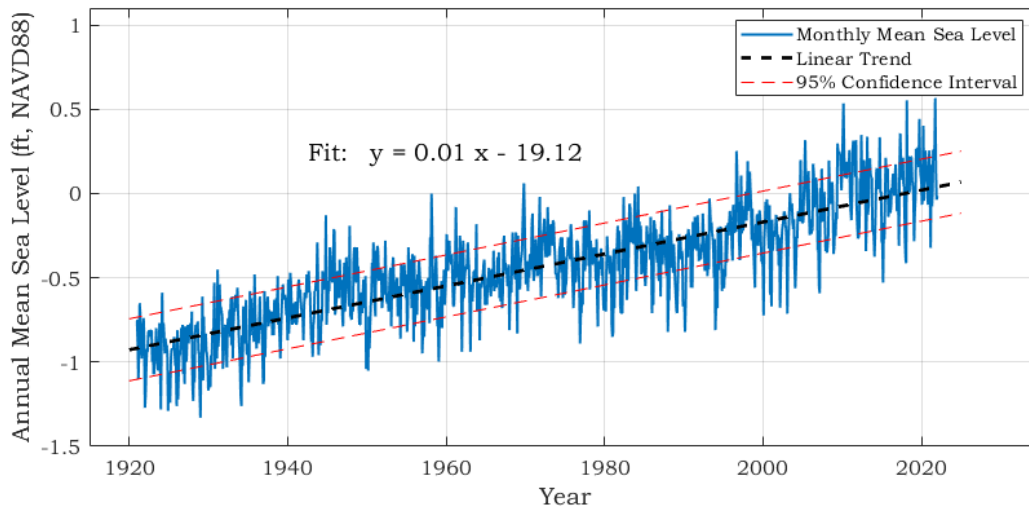


Figure 2. Monthly mean water levels recorded in Boston Harbor between 1921 and 2021 indicate a linear trend in sea level rise over the past 100 years of approximately 0.01 feet per year (Source: NOAA)

While long-term tide records (e.g., Boston Harbor) provide valuable insight into historical changes over the past century, they do not necessarily dictate future response of sea level rise due to changing environmental and anthropogenic conditions. Predictive models have been developed to project the effects of climate change on relative sea level rise in coming decades. New and existing models used to predict sea level rise are continually refined with augmented data sets to reduce output uncertainty; however, there still exists a large range of potential sea level rise scenarios.

Based on the Massachusetts Sea Level Assessment and Projections technical memorandum (DeConto and Kopp, 2017) regarding local mean sea level rise, plots were developed for the Commonwealth of Massachusetts to provide guidance regarding future projections of sea level rise in Boston Harbor (Figure 3). The range of varying projections are determined based on the probability of exceedance given two future atmospheric greenhouse gas concentration pathways, medium (RCP4.5) and high (RCP8.5; van Vuuren et al., 2011), and for two methods of accounting for Antarctic ice sheet projections: one based on expert elicitation (Kopp et al., 2014) and one where Antarctic ice sheet projections are driven by a more recent, process-based numerical ice sheet model simulations (DeConto and Pollard, 2016; Kopp, 2017). These localized projections are downscaled from regional and international projections. A brief description of the probabilistic projections is provided in Table 1.

These projections have been incorporated into the Resilient MA analyses tools and serve as the basis for guiding Massachusetts sea level rise policy in the near-term. Tools developed with the DeConto and Kopp (2017) sea level rise projections include the Massachusetts Coastal Flood Risk Model (MC-FRM) and the Resilient Massachusetts Action Team (RMAT) Design Guidance. Therefore, all quantitative analyses depicted by the tools represented in Resilient MA are directly dependent upon the selected sea level rise scenarios. In this case, the state selected the “High” or 99.5% chance of non-occurrence set of sea-level scenarios from Table 1 as the baseline. As indicated below, this sea level rise scenario is shown to substantially over-predict actual water levels in 2020 and more recent NOAA analyses of sea level rise (Sweet, et al., 2022) do not support an acceleration in sea level rise that will cause regional water levels to “catch up” to the “High” scenario depicted in Table 1. Therefore, use of MC-FRM modeling results dependent upon this sea level rise scenario is becoming increasingly moot over time.

Table 1. Relative mean sea level (feet, NAVD88) projections for Boston, MA as presented in DeConto and Kopp, 2017					
Scenario	Probabilistic projections	2030	2050	2070	2100
Intermediate	Unlikely to exceed (83% probability) given a high emissions pathway (RCP 8.5)	0.7	1.4	2.3	4.0
Intermediate - High	Extremely unlikely to exceed (95% probability) given a high emission pathway (RCP 8.5)	0.8	1.7	2.9	5.0
High	Extremely unlikely to exceed (99.5% probability) given a high emission pathway (RCP 8.5)	1.2	2.4	4.2	7.6
Extreme (Maximum physically plausible)	Exceptionally unlikely to exceed (99.9% probability) given a high emissions pathway (RCP 8.5)	1.4	3.1	5.4	10.2

As the technical report for the statewide MC-FRM model has not been released (i.e., the Bosma, et al., 2020 report referenced in the MC-FRM metadata is unavailable) and the RMAT tool output (which directly depends on MC-FRM results) provides no method for the user to verify the results, it remains unclear how these tools can meaningfully inform actual coastal flood protection design efforts. Further, the MC-FRM metadata states that the model results are for “discussion and research purposes only” and “information is provided with the understanding that these data are not guaranteed to be accurate, correct or complete”, which only further raises questions regarding the utility of the results to inform coastal flood protection planning efforts. Perhaps as more information is made publicly available regarding the technical assumptions and calibration of the MC-FRM model (e.g., storm surge calibrations for numerous tropical/extra-tropical storm events for locations around the state, wave overtopping and runup methodology/calibration for a variety of shoreline types and storm wave conditions, etc.) and the model developers provide more detailed information regarding computational accuracy and uncertainties, the results could be more meaningful for coastal resiliency planning.

Understandably, accurate projections of sea level rise are critical for engineers and coastal managers responsible for developing future coastal hazard mitigation and improvement strategies. Enhanced accuracy in the prediction of future storm driven flood and tidal elevations ensures the consideration of sufficient safety measures, while also maintaining economic feasibility and reducing the potential for adverse environmental impacts. Using the recorded water elevations measured in Boston Harbor for 2020, a direct comparison between measured and projected relative sea level can be evaluated to assess the near-term accuracy of the sea level rise projection from Resilient MA (Figure 4). The results of this assessment indicate that sea level projections over the first decade, when utilizing the recommended “High” scenario, are overestimated by nearly an order of magnitude relative to the NAVD88 datum.

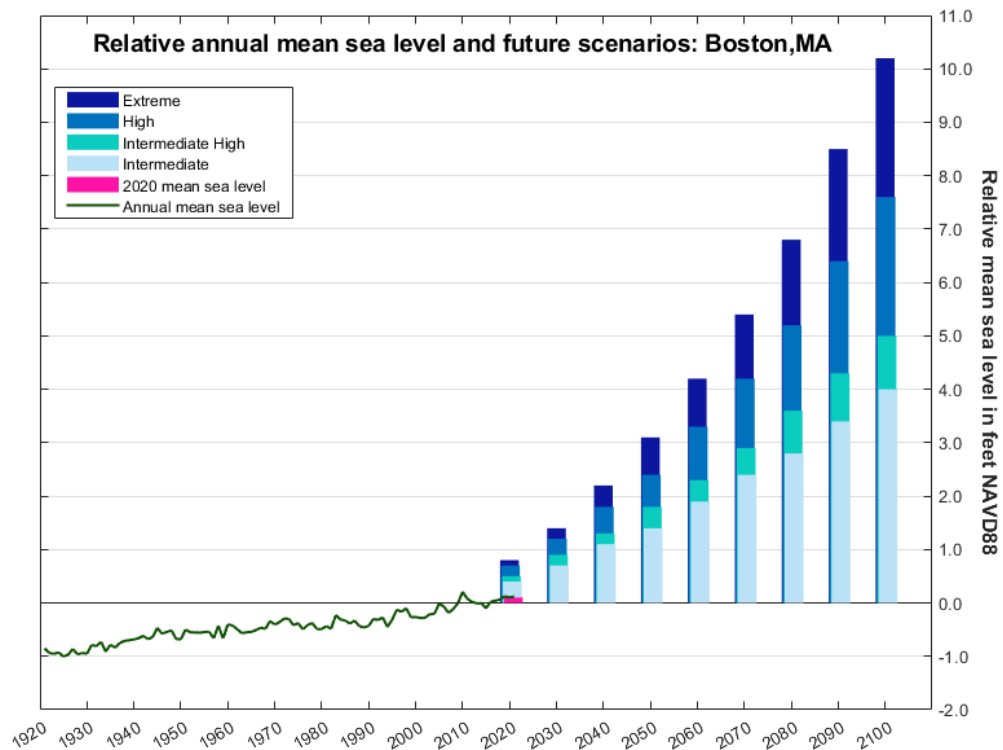


Figure 3. Relative mean sea level projections for the Boston, MA tide station based on four National Climate Assessment global scenarios with associated probabilistic model outputs from the Northeast Climate Science Center. The probabilistic projections are listed in Table 1. The pink bar denotes the 2020 recorded mean sea level in Boston Harbor. The green curve represents the annual mean sea level calculated from the data record presented in Figure 2.

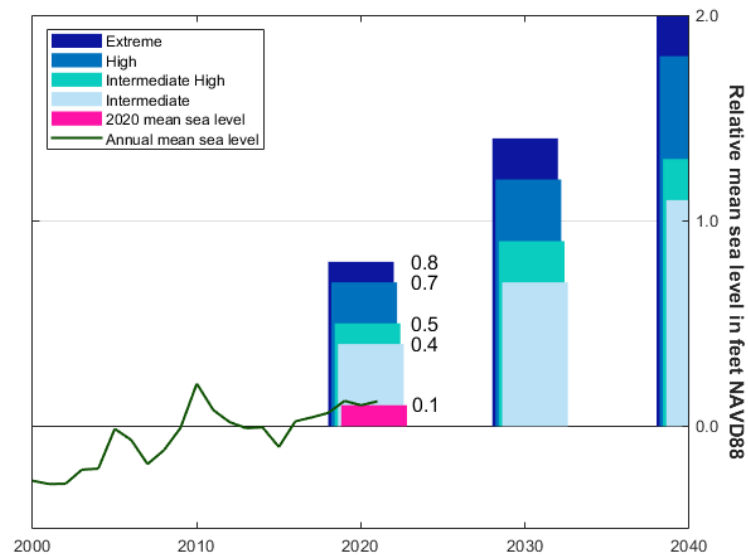


Figure 4. Comparison of probabilistic sea level rise projections from Resilient MA (DeConto and Kopp, 2017) and measured annual mean sea level for Boston Harbor, Massachusetts.

More recent sea level rise projections from NOAA (Sweet, et al., 2022) suggest significantly lower projected future sea level rise rates for Boston (downscaled from the full U.S. analysis), especially between the present and 2050. Figure 5 provides the updated NOAA projections, where the ‘intermediate’ projection represents conditions that are about as likely as not to occur or, in other words, a 50% chance of occurrence. It should be noted that the NOAA utilization of the term ‘intermediate’ follows standard statistical terminology, where the intermediate result represents the middle curve between the two extremes (high and low) or the 50% chance of occurrence. The Resilient MA documents use a different definition of the ‘intermediate’ scenario, which likely leads to further confusion when attempting to compare the various sea level rise projections. In the case of Resilient MA, the ‘intermediate’ sea level rise projection represents a more unlikely scenario, i.e., the ‘unlikely to exceed’ threshold or a 17% probability of exceedance, rather than the 50% probability of exceedance used by NOAA.

As illustrated in Figure 5, the ‘intermediate’ NOAA sea level rise projection generally matches the ‘observed trajectory’ projection to 2050, which was based upon extrapolating the observed sea level rise trends between 1970 and 2020. Further, Figure 6 demonstrates the applicability of utilizing more moderate sea level rise projections, as the observed sea level rise in Boston between 2000 and 2020 (shown in gray) is below all of the projections evaluated by Sweet, et. al. (2022). Based on the NOAA tide data, the Boston sea level rose 0.33 feet between 2000 and 2020; therefore, in 2020, the mean sea level was 0.03 feet NAVD88 since the mean sea level in 2000 was -0.30 feet NAVD88.

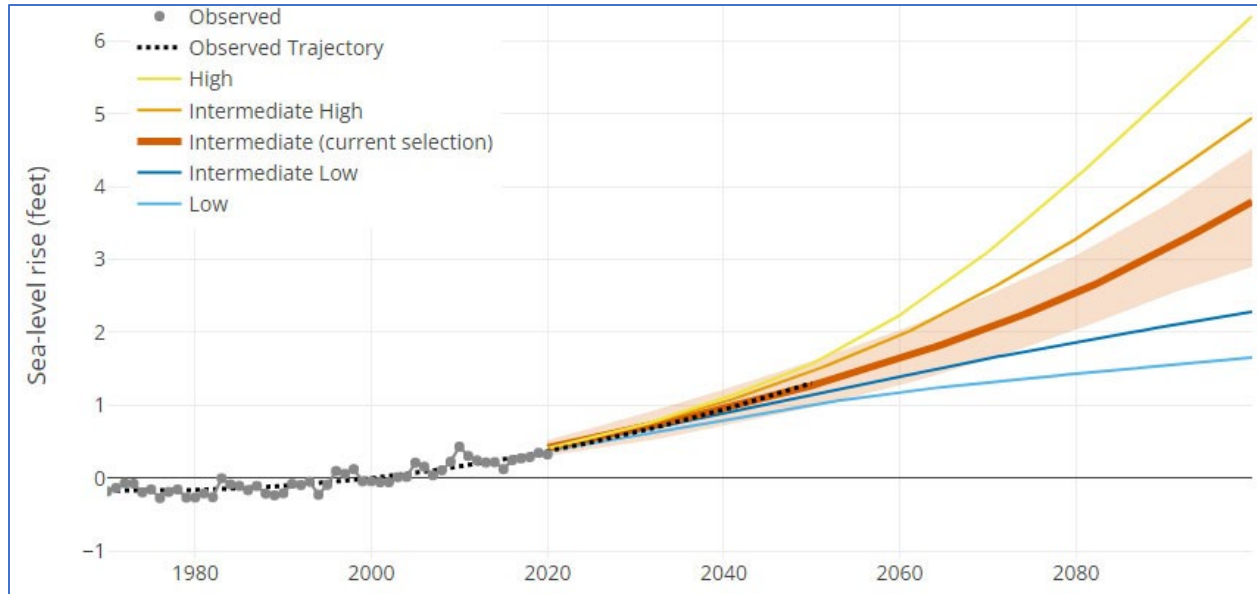


Figure 5. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). Results for a full range of scenarios can be found at: <https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding?>

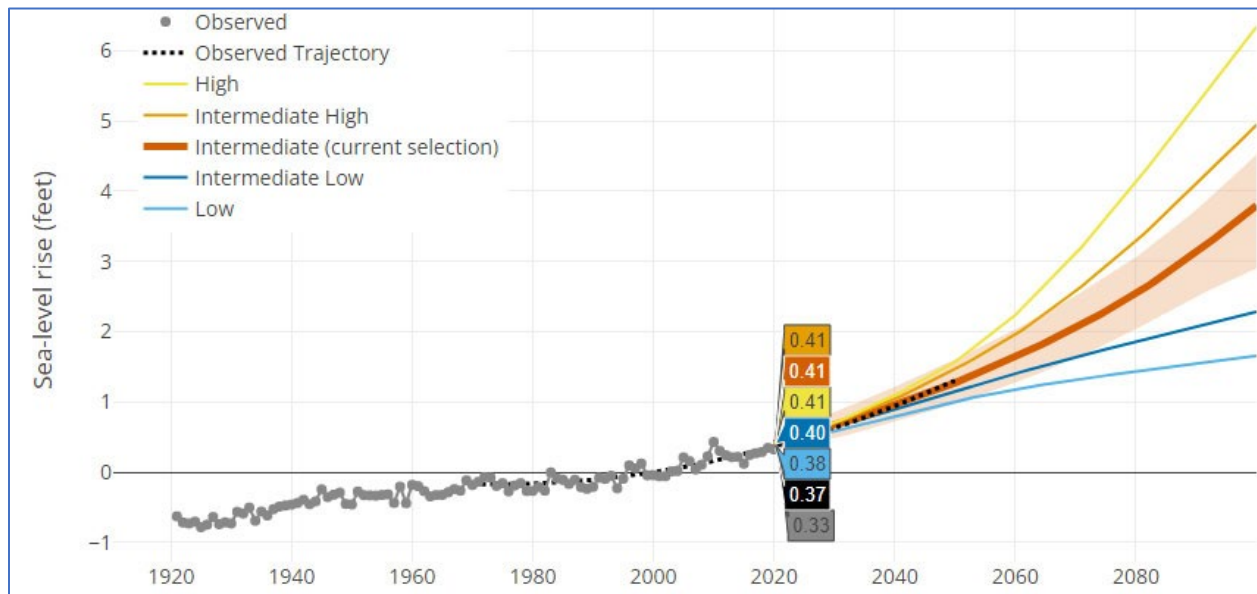


Figure 6. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). The colored numbers represent the modeling results for the various scenarios for 2020, as well as the observed mean sea level. Results for a full range of scenarios can be found at: <https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding?>

For Boston, the NOAA projections for 2050 are shown in Figure 7. According to Sweet, et al. (2022):

As a result of improved science and the updated framework and procedure for generating the Global Mean Sea Level (GMSL) scenarios, the time path of the scenarios - particularly the higher scenarios - is now more realistic and consistent with current process-based understanding. In this report, the range between the Low and High scenarios in 2020, 2030, 2040, and 2050 is now 0.02 m [0.07 feet], 0.06 m [0.20 feet], 0.15 m [0.49 feet], and 0.28 m [0.92 feet], respectively. In other words, there is less divergence between the GMSL scenarios in this near-term time period, which reduces uncertainty in the projected amount of GMSL rise up to the year 2050. The Low scenario remains largely the same between this report and Sweet et al. (2017); this range reduction reflects a downward shift in the higher scenarios in 2050 and times prior, as discussed above. As an example, the projected value in 2050 for the High scenario in this report (~0.4 m [1.31 feet]) is the same as that for the Intermediate-High projected value in 2050 in Sweet et al. (2017).

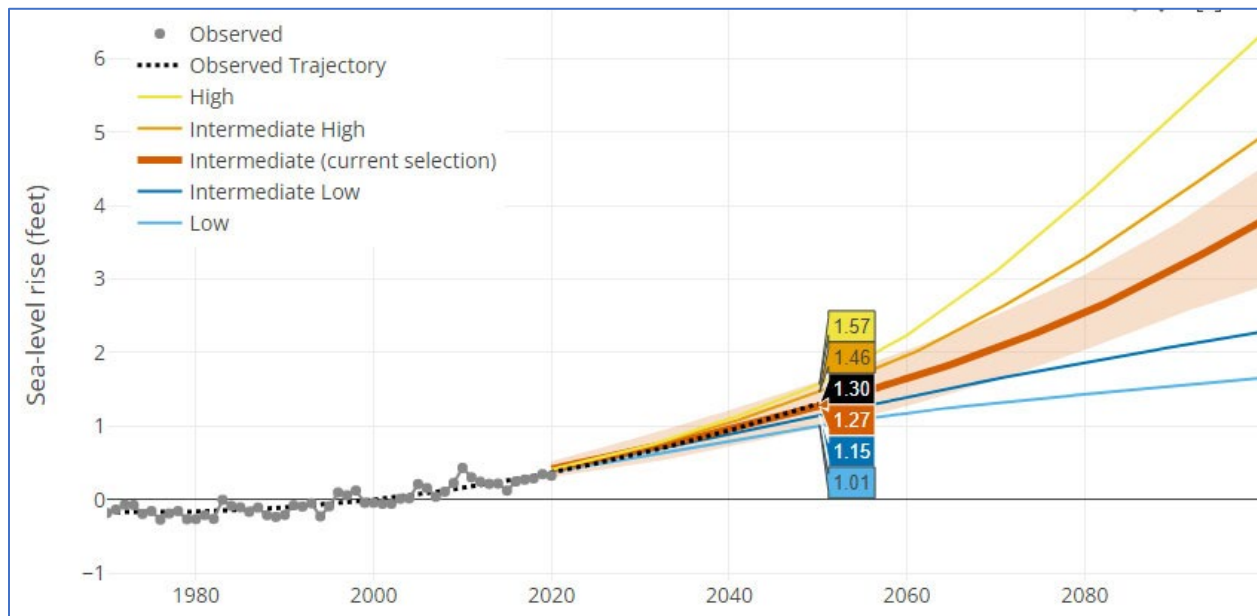


Figure 7. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). The colored numbers represent the modeling results for the various scenarios for 2050. Results for a full range of scenarios can be found at: <https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding?>

Based on this updated information, a reasonable expectation for near-term (through 2050) sea level rise in the Boston region, inclusive of the project area, is within the range of sea level rise projections illustrated in Figure 7. In this case, the 2050 mean sea level can be expected to be approximately 1.3 feet above the 2000 level or approximately 1.0 ± 0.3 feet NAVD88. This value is substantially lower than the projections provided in the Resilient MA documentation (Table 1). Specifically, the updated NOAA evaluation indicates that expected sea level rise in Boston by 2050 is ~40% of the value recommended for planning by Resilient MA.

For planning of future infrastructure, incorporating a safety factor to accommodate potential future sea level rise is warranted; therefore, the Resilient MA ‘High’ sea level rise projections are useful to ensure that future development is safe from the impacts of sea level rise. However, when developing flood mitigation strategies for existing infrastructure, designing for future sea level conditions that are ‘extremely unlikely to occur’ can be both cost-prohibitive and unnecessary. Specifically for the sites evaluated along the Hingham Harbor shoreline, appropriate design levels for flood mitigation strategies should be based upon expected future sea levels, which NOAA project to be approximately 1.0 feet NAVD in 2050 and 1.8 feet NAVD in 2070. As the proposed flood mitigation strategies involve elevating seawalls, revetments, and coastal dunes, it will be a simple process to modify the design if future sea level rise exceeds the intermediate projections developed by NOAA (Sweet, et al., 2022). Table 2 provides expected future sea level rise for 2030, 2050, and 2070, based upon NOAA estimates (Sweet, *et al.*, 2022). Figure 8 provides both the 2022 NOAA projections and the projections that have been utilized for project planning by SCS engineers over the past decade that was based on Intergovernmental Panel on Climate Change (IPCC) modeling with the addition of ice sheet contribution from Rignot et al., 2011. Good agreement between these two sets of projections indicates that this pragmatic approach continues to provide a valid science-based methodology for evaluating future sea level rise, especially in the near-term (next 30 to 40 years).

Table 2. Relative mean sea level (feet, NAVD88) projections for Boston, MA as presented in Sweet, et al., 2022				
Scenario	Probabilistic projections	2030	2050	2070
NOAA - Intermediate	Conditions that are about as likely as not to occur or, in other words, a 50% chance of occurrence (RCP 8.5)	0.4	1.0	1.8

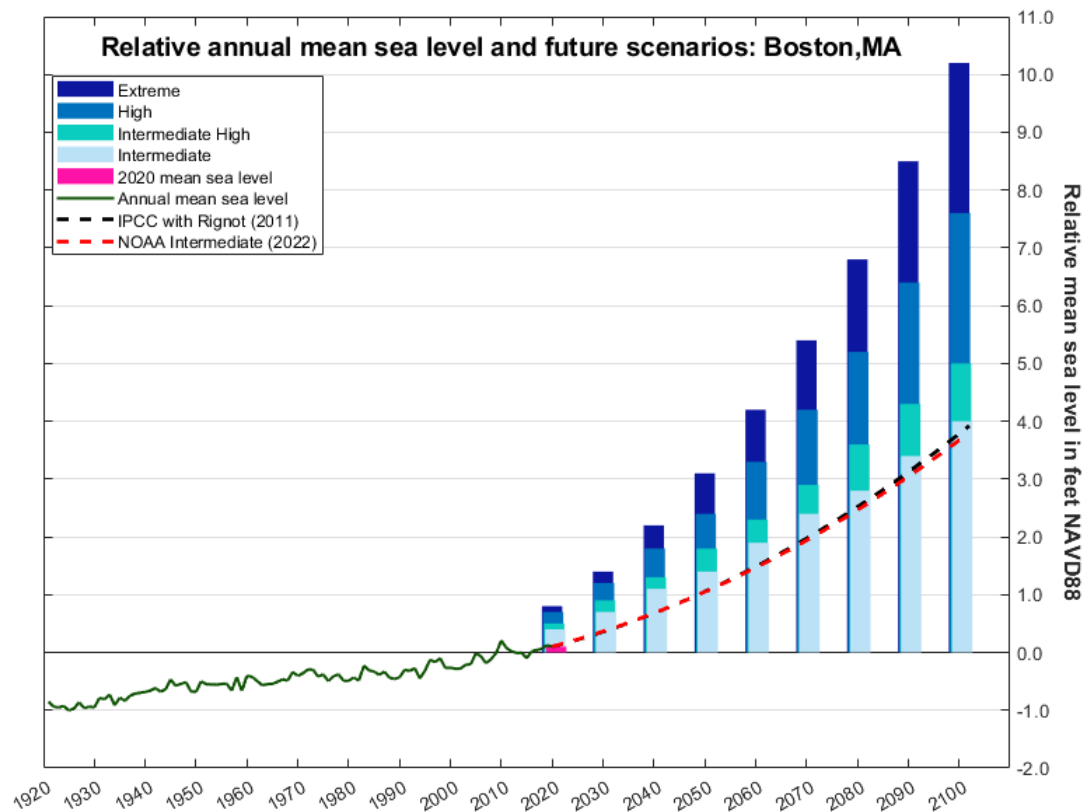


Figure 8. Sea level rise projections with the latest NOAA projections (adjusted to account for current mean sea level; dashed red line) and a curve representing flood projections from the IPCC augmented by sheet ice contributions determined by Rignot et al. (2011; dashed black line). The bar plot represents the sea level rise projections presented in Resilient MA.

B. Design Wave and Overtopping Analysis

A coastal engineering analysis was performed at 10 transects along the Hingham Harbor waterfront (Figure 9) to determine specifications for structural and soft-engineering interventions to improve storm resiliency in this area. General information about each transect is provided in Table 3. For this analysis, a two-dimensional (2D) wave model was developed in order to determine storm wave conditions along the Hingham Harbor waterfront. For shoreline reaches where hard engineering structures are in place, a wave overtopping analysis was performed in order to determine structure heights that would reduce wave overtopping discharges to levels that would be safe for paved surfaces during storms. At the two analysis transects placed at Bathing Beach, a cross-shore morphological model analysis was performed in order to determine attributes of a dune that would be necessary to withstand storms and be an effective barrier to storm surges and waves in Boston Harbor.



Figure 9. Map of Hingham Harbor waterfront with the location of the ten coastal analysis transects along the study area shoreline. The US Army Corps of Engineers' navigation channel limits are indicated by the black-dashed line.

Table 3. Coastal analysis transects (as mapped in Figure 9).

Transect no.	Transect description	Foth plan wall station	present condition	present crest elev. ft, NAVD	proposed intervention
1	Bathing Beach W, dune		beach	10.8	dune
2	Bathing Beach E, no dune		beach	8.5	dune
3	Otis Street	0+50	beach	8.7	dune/berm
4	Town Wharf	3+25	vertical wall	7.2	wall crest extension
5	Witney Wharf	11+50	vertical wall	10.5	wall crest extension
6	Summer Street, W of rotary	15+00	vertical wall	7.3	revetment
7	Kimball's Wharf	18+25	vertical wall/toe revetment	8.6	wall crest extension
8	Rotary	21+00	vertical wall	10.6	wall crest extension
9	Barnes Wharf	25+75	vertical wall	7.2	wall crest extension
10	Summer Street, E of rotary	31+00	vertical wall	9.6	wall crest extension

Data Sources

Several data sets were compiled as part of this analysis. These data are intended to represent the present, site-specific physical conditions in Hingham Harbor and along the shoreline reach of this study. Most data used in this analysis were retrieved from public sources of quality-controlled data (for example, bathymetry, tide, and wind data). Some data used in this analysis were available from other work funded by the Town (for example, sediment grain size data and an elevation survey of the waterfront).

Elevation Data. Though recent LiDAR topography is available for the study area, topobathy LiDAR surveys in this region of Boston Harbor do not provide complete coverage of ocean bottom elevations in Hingham Harbor. Therefore, the main source of topography and bathymetry depended upon as the main source of elevation data is the 2016 USGS Coastal National Elevation Database (CoNED) digital elevation model (DEM), which incorporates several data sets from many government sources to create a continuous topographic surface on a one-meter grid. Sources include recent (up to 2016) LiDAR surveys where coverage is available, and NOAA single-beam fathometer measurements in areas that have no LiDAR data. A contour map of the 2016 USGS DEM data in the vicinity of Hingham Harbor is shown in Figure 10.



Figure 10. Map of 2016 USGS CoNED elevation data, in the vicinity of Hingham Harbor. Contours lines are shown at 10-foot intervals.

Wave Data. The USACE Wave Information Study (WIS) hindcast provides wave data time series at dozens of stations along the US coastline. Wave parameters (including H_s wave height, T_p Peak Period, and mean direction for sea and swell components of the sea state) are available at a regular hourly interval starting January 1, 1980 through to January 1, 2021. Though NOAA (through is National Data Buoy Center, NDBC) maintains a wave buoy in Massachusetts Bay (station 44013), this record does not have directional wave data until June 2012, and there are significant periods within the time span of the record (1984 to present) where no data are available. Because of this, WIS hindcast is better suited for the development of the extreme wave conditions.

The hindcast record from WIS station 63052 (mapped in Figure 11) was used for this study. This station is about 13 nautical miles northeast of the entrance to Boston Harbor, in Massachusetts Bay, in an area with ocean depths of about 180 feet. 63052 is the closest WIS station to Boston Light on Little Brewster Island, at the entrance to Boston Harbor. Rose plots showing the occurrence of wave height and periods by compass sector is shown in Figure 12. From this plot is it seen that the most commonly occurring wave direction is the east sector, from where wave come from 26.6% of the record. 72.6% of wave heights in the record have a H_s significant wave height that is less than 3 feet. In 43.7% of the span of the record, wave periods are between 6.5 and 9.5 seconds.

An extremal analysis of wave heights was performed to develop appropriate wave heights and periods to represent storm conditions of various return periods (for example, the 10-year or 100-year storm events). The largest H_s wave height in each compass sector for every year of the 41-year-long hindcast record were determined sorted from smallest to largest. Weibull and Fischer-Tippet (FT) probability density functions (PDF) were used to fit the sorted extreme wave height data. The FT PDF provides the best fit of the data with an R^2 correlation of the FT PDF is 0.99 and an RMS error of 0.2 feet for waves from the north. This analysis results in a 100-year offshore wave height from the SE of 14.8 feet. Extreme periods were determined using a linear fit of wave height vs. mean period for all wave records in the WIS hindcast. Using this linear fit, the mean period of the 100-year wave from the north sector is calculated to be 11.5 feet. A linear regression of extreme wave heights and associated periods from the WIS record was used to determine a mean period of 7.4 seconds for this particular wave height at station 63052.

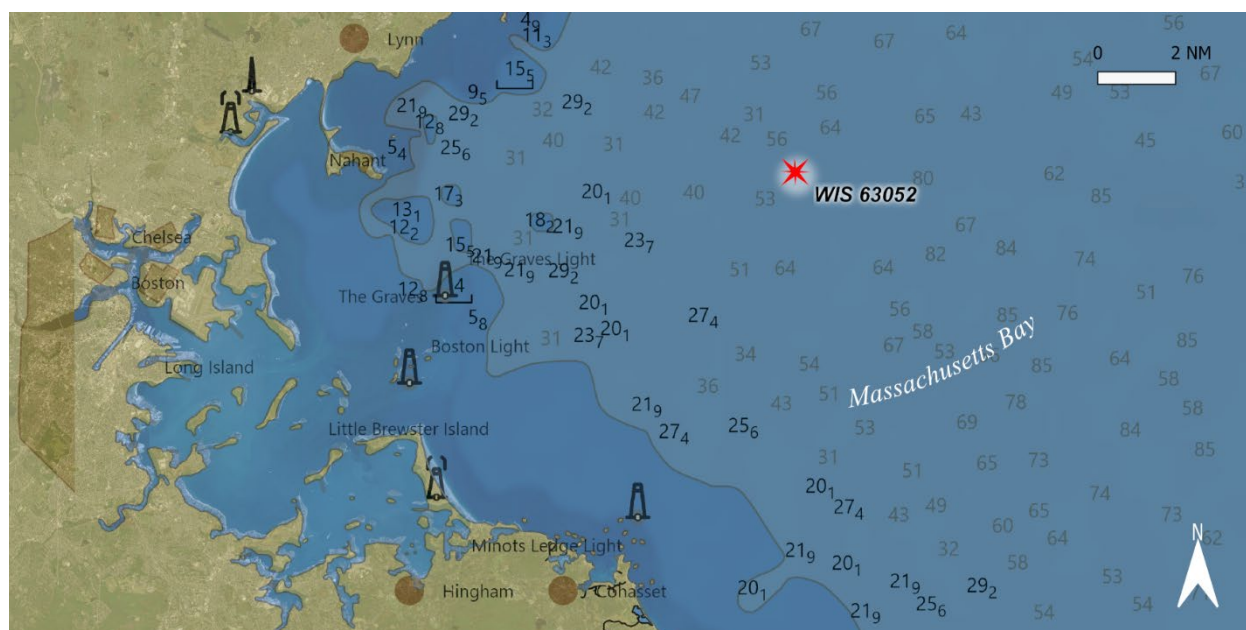


Figure 11. Location of WIS hindcast station 63052 in Massachusetts Bay, overlain on NOAA ENC chart of Massachusetts Bay (depths in meters and tenths).

Wind Data. Sources of wind data in the Boston Harbor region include the WIS hindcast, the Massachusetts Bay wave buoy (station 44013), and the record from Boston Logan International Airport (BOS). The record from BOS starts in 1943, and the record from buoy 44013 starts in 1984. Of these three sources, the WIS record is considered the best available option due to its offshore location, length of the record (because it is a reliably continuous record), and because it both wind speed and wave parameters together for each record. A rose plot of wind records from the WIS hindcast is presented in Figure 13. Most (50.2%) of the records are broadly distributed between the SSW and NW compass sectors, and the predominant direction is the SSW. The Fischer-Tippet II (FT) PDF is the best fit of annual extreme wind speeds taken from the WIS record. A plot of extreme return period winds from the north, based on the WIS record is presented in Figure 14. For the north sector, the 100-year sustained wind speed is 52.0 knots

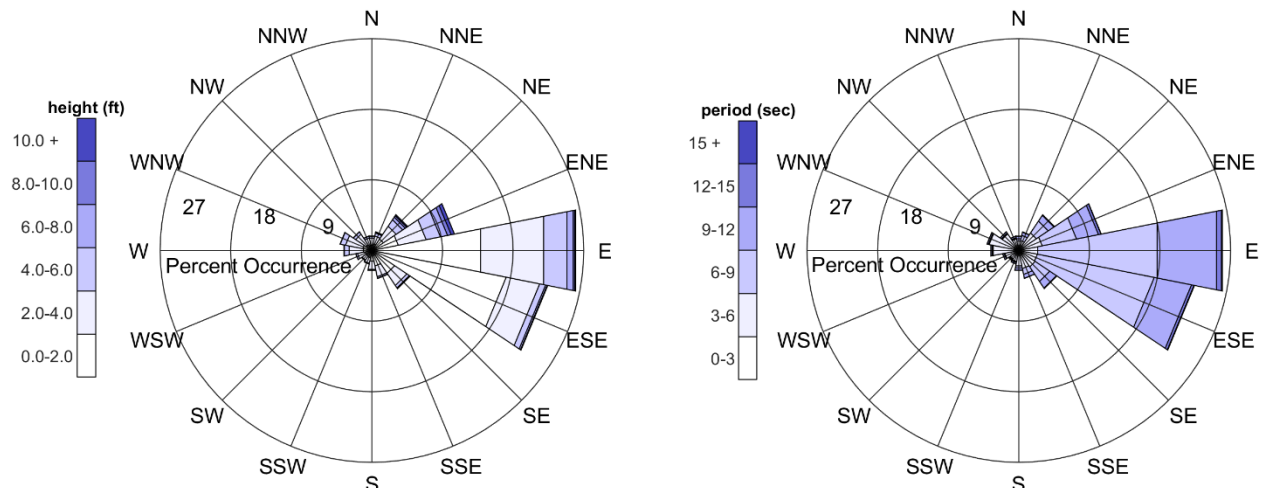


Figure 12. Rose plots of significant wave height (Hs, left) and peak wave period (Tp, right), for the WIS hindcast record at station 63052. Grey-tone segments indicate the percentage of time wave weights and periods in the record are within the indicated ranges for each compass sector.

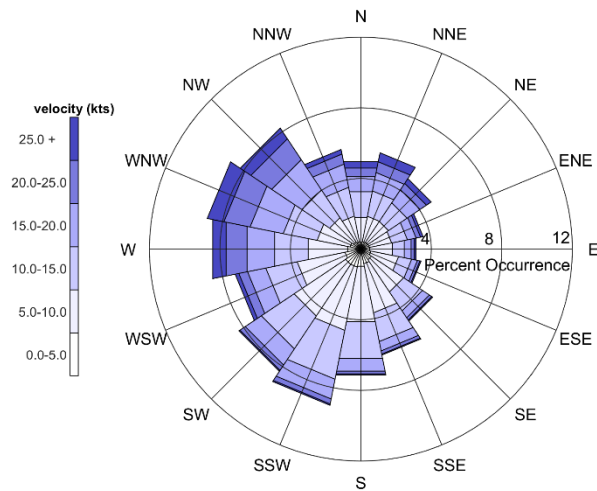


Figure 13. Rose plots of wind speed (knots) for the WIS hindcast record at station 63052. Grey-tone segments indicate the percentage of time winds in the record blow within the indicated speed range from the indicated compass sector.

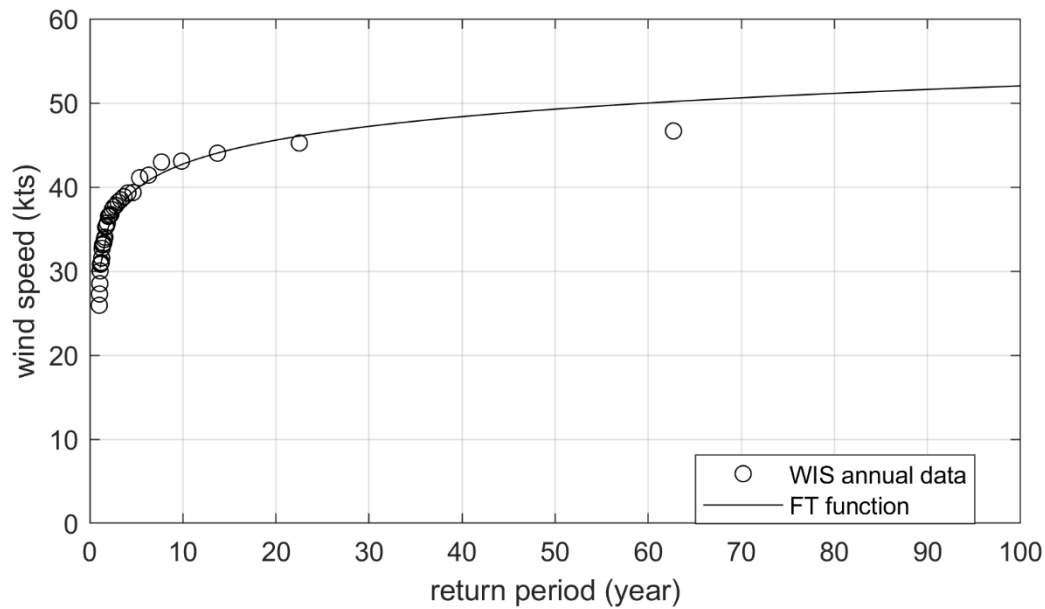


Figure 14. Plot of return period wind speeds for the north compass sector, using the WIS hindcast record (1980 through 2020) at station 63052. Sorted annual maximum windspeeds are indicated by the circle markers, and the Fischer-Tippett (FT) fit of the data is shown as the solid line. R^2 correlation of the FT PDF is 0.98, with an RMS error of 1.1 knots.

Water Level Data. Water elevation data used in this analysis include tide data available from the NOAA tide station in Boston Harbor, and extremal return period water levels available from the FEMA Flood Insurance Study (FIS) for Plymouth County (2021). NOAA Boston tide data recorded during the recent December 23, 2022 northeast storm (Figure 15) that impacted the region were downloaded from the NOAA Tides and Currents website (<https://tidesandcurrents.noaa.gov>). FEMA publishes return period still water elevation (SWEL) data for several transects along the shoreline of Plymouth County, including a transect in Hingham Harbor that is next to Barnes Wharf. At this transect (Plymouth County FIS Transect 10) the reported 10-year SWEL is 8.4 feet NAVD, and the 100-year SWEL is 9.7 feet NAVD. The maximum water level recorded during the Dec 23, 2023 northeast storm is 8.4 feet, equal to the 10-year SWEL Hingham Harbor. A tide time series for the 100-year return period event was created by scaling the surge component of the total water level (which is the combination of the astronomical tide + surge) so that the maximum water level reached the 100-year SWEL.

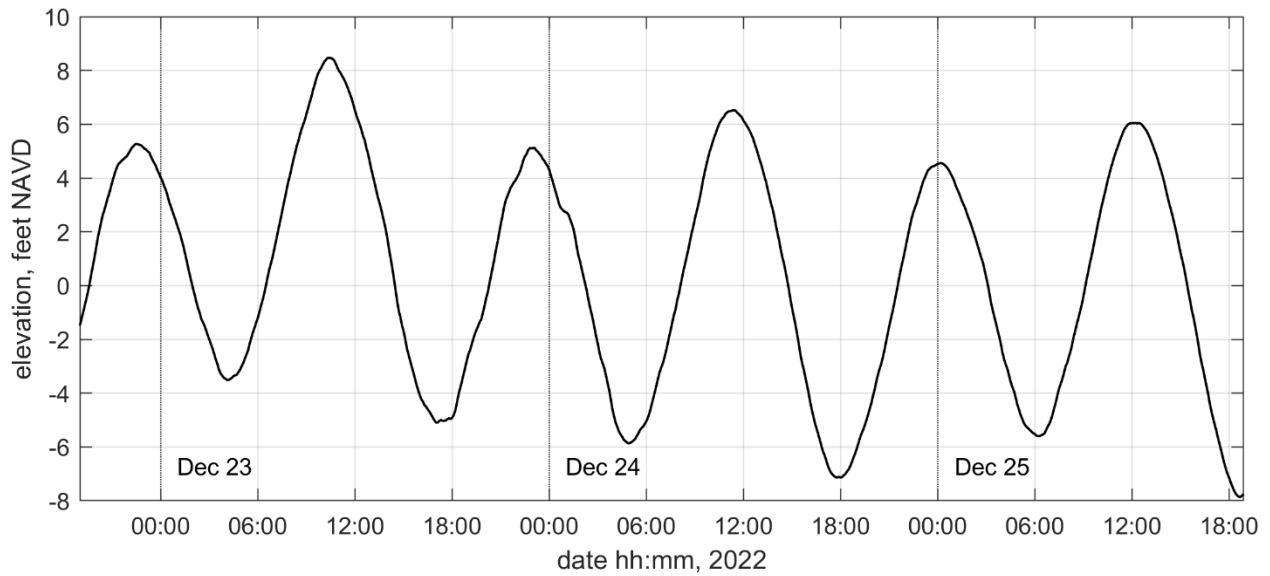


Figure 15. NOAA measured tides in Boston Harbor during the Dec 2022 northeast storm, when peak water levels reached 8.4 feet NAVD.

Sediment Data. For coastal analysis transects in this study that are for beach areas along the Hingham waterfront, sediment grain size data was taken from an existing construction specification for Bathing Beach. In this specification, a minimum and maximum acceptable grain size distribution is provided (Figure 16). Median (D50) sediment grain sizes from these two distributions are 0.50 mm for the minimum, and 1.18 mm for the maximum.

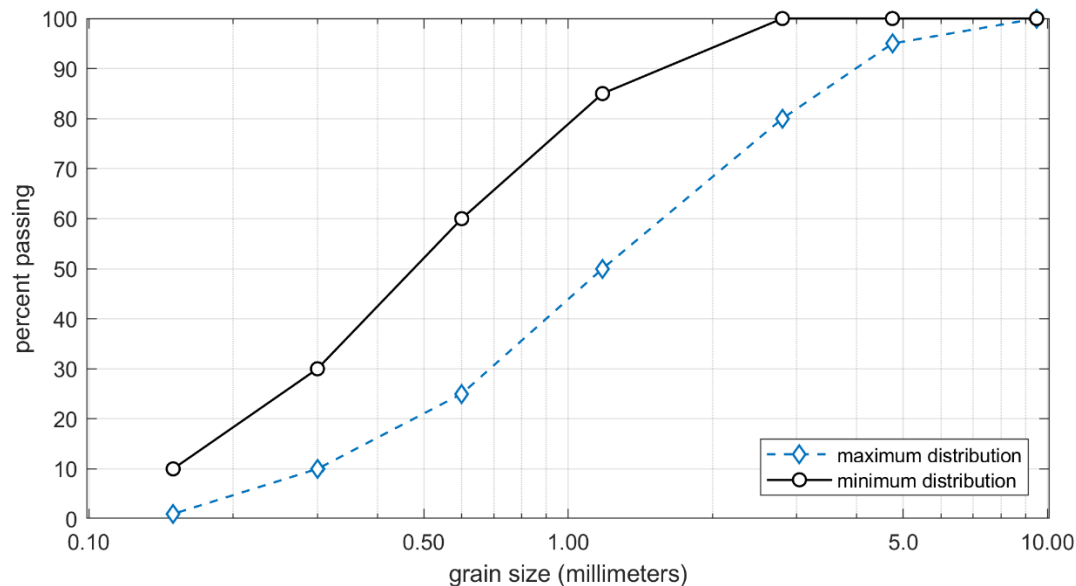


Figure 16. Bathing Beach specified grain size distribution curves that designate the minimum (solid black line) and maximum (dashed blue line) allowable percent passing for indicated sand grain sizes. The D50 grain size resulting from these two distributions is 0.50 and 1.18 mm for the minimum and maximum specified distributions, respectively.

Design Wave and Overtopping Analysis

As part of this analysis, design wave conditions were computed for the waterfront area of the Hingham Harbor using the SWAN 2D wave model (Booij, 1999). Model inputs included wind speeds and wave parameters developed from the extremal analysis of the USACE WIS wave hindcast record (Table 4). Wave model outputs were used to determine seawall height elevations that would limit wave overtopping rates in the waterfront area to levels that would not cause damage to structures or paved surfaces. SWAN wave model output was also used as inputs to 2D cross-shore profile models of two transects at Bathing Beach. These cross-shore models were used to determine dune elevation and crest widths that would be required to capably withstand extreme storm conditions.

Table 4. Storm wind and wave characteristics (1% return frequency) used in the runs of the Hingham SWAN wave model.

Storm parameter	Compass sector						
	WNW	NW	NNW	N	NNE	NE	ENE
Sustained wind speed (kts)	42.7	44.9	48.7	52.0	50.6	48.4	48.1
Offshore wave height (ft)	8.8	9.2	9.5	11.5	15.2	21.7	23.3
Offshore wave mean period (sec)	6.8	6.9	7.0	7.4	8.3	9.9	10.3
Still water level (ft, NAVD)	9.7	9.7	9.7	9.7	9.7	9.7	9.7

SWAN Model Development. Development of the Hingham Harbor SWAN model proceeded by first creating the numerical grid, using available topography and bathymetry elevation data. Storm conditions run with the model were developed from the extremal analysis of winds and waves from the WIS hindcast record in Massachusetts Bay, at station 63052. The SWAN model for Hingham Harbor consists of three cartesian grid meshes. They range from a coarse mesh with a 131-foot (40-meter) mesh that covers all of Boston Harbor and its entrance to Massachusetts Bay, a 49-foot (15-meter) mesh intermediate mesh that covers Hingham Bay, and finally a 2.2-foot (2-meter) fine-scale mesh in the area of the Hingham Harbor waterfront. The bathymetry and extents of these three grids is shown in Figure 17. Boundary conditions for each of the finer scale grids is extracted from the next-courser grid, which allows for a high level of grid refinement in the particular area of interest, while allowing for a larger grid mesh in areas where fine detail is not needed. In this case the Hingham Harbor grid is nested within the Hingham Bay grid, which in turn is nested within the Boston Harbor/Massachusetts Bay grid.

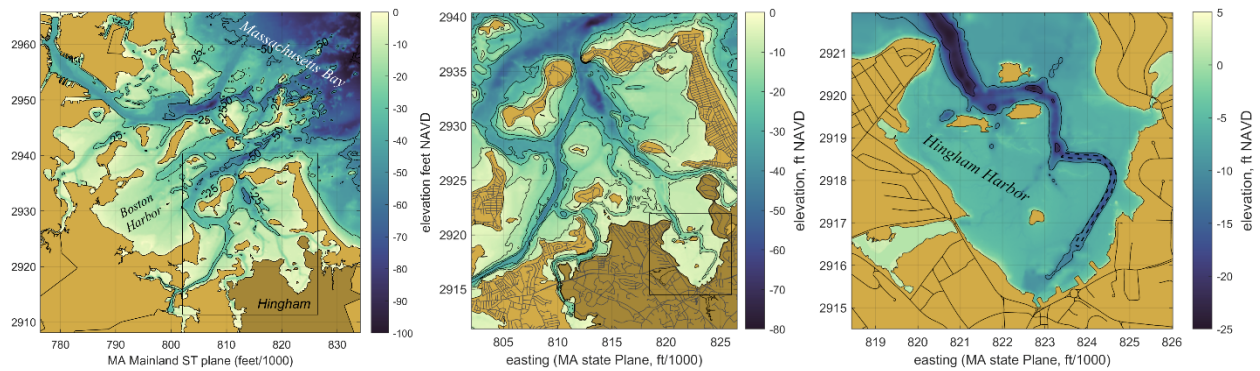


Figure 17. Contour plots of bathymetry used in the wave model coarse 40-meter grid of Boston Harbor, the intermediate 15-meter grid of Hingham Bay, and the fine nested 2-meter grid of Hingham Harbor, including the shoreline of the project area.

Winds blowing from the north compass sector generate the largest waves in Hingham Harbor. For this wave case, significant H_s wave heights range between 2.5 and 2.8 feet between Bathing Beach and Barnes Wharf. Peak wave periods range between 2.7 and 3.3 seconds. In addition to the 1% storm with present mean sea level, the same wave model cases were run for expected 2050 and 2070 mean sea levels. Wave heights in the harbor do increase slightly for these projected future conditions, but by only about a maximum of 5% even for 2070 water levels.

Shaded contour plots of wave heights in Boston Harbor, Hingham Bay, and Hingham Harbor are presented in Figure 18 for 100-year storm conditions with winds blowing from the north, and with present mean sea level.

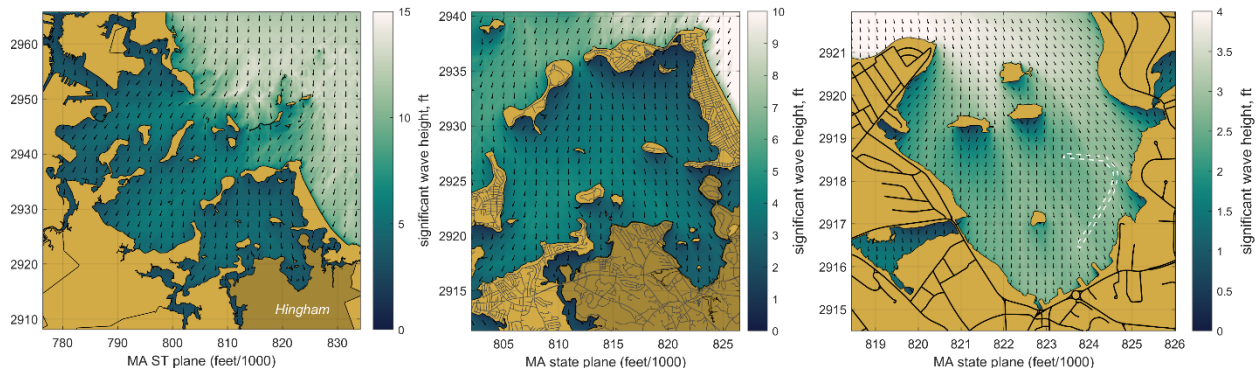


Figure 18. Contour plots of wave height (H_s) and direction (arrows) for the modeled 100-year storm conditions with winds blowing from the north, for the Boston Harbor grid (left), Hingham Bay grid (center), and the Hingham Harbor fine grid (right).

Wave Overtopping of Structures. For the eight total analysis transects where coastal structure improvements are being considered, wall crest elevations were determined that limit the amount of wave overtopping flows to acceptable rates. Basically, given wave conditions and water levels that occur at each analysis transect, wall crest elevations were iterated to reduce overtopping rates to 50 liters/second per meter length of wall (0.54 cfs/foot), which according to Table VI-5-6 of the USACE Coastal Engineering Manual (2011) is the upper limit where paved surfaces will resist damage.

Wall crest height determinations were performed using methods available from the EurOtop Manual (2018), for vertical walls (transects 4, 5, and 7 through 10) and for sloped revetment (transect 6).

Vertical Wall Transects. From the EurOtop Manual, the overtopping rate (q) on a vertical wall is found using the equation:

$$\frac{q}{\sqrt{g \cdot H_{mo}^3}} = 0.054 \exp \left[- \left(2.12 \frac{R_c}{H_{mo}} \right)^{1.3} \right]$$

where R_c is the structure freeboard

H_{mo} is the offshore significant wave height

Revetted Transects. The discharge of water from waves over the crest of a structure is referred to as wave overtopping. Methods presented in the EurOtop manual (2018) were used to determine overtopping rates for

From the EurOtop Manual, the overtopping rate (q) on a simple slope is found using the equation:

$$\frac{q}{\sqrt{g \cdot H_{mo}^3}} = \frac{0.026}{\sqrt{\tan \alpha}} \cdot \xi_{m-1.0} \cdot \exp \left[- \left(2.5 \frac{R_c}{\xi_{m-1.0} \cdot H_{mo}} \right)^{1.3} \right]$$

where R_c is the structure freeboard

H_{mo} is the offshore significant wave height

α is the structure slope angle

ξ is the surf similarity parameter, as before

and h_{wall} as the crown wall height above the revetment.

For the two revetment transects, wall crest elevations were determined for slopes of 1:1.5 (v:h) and 1:2.0 (v:h). 1:1.5 is generally accepted as the maximum slope for stone revetments. Flatter slopes generally reduce wave runoff elevations and overtopping volumes for walls with the same crest elevation.

Overtopping Analysis Results. Wall crest elevation determined using the EurOtop methodology are presented in Table 5 for the vertical wall transects and Table 6 for revetment sections.

Table 5. Vertical wall crest elevations, in feet NAVD88, to prevent damage to paved surfaces from wave overtopping, for present, 2050, and 2070 sea level scenarios.

	Sea level scenario		
transect	present	2050	2070
4	11.0	12.1	12.9
5	11.0	12.0	12.9
7	10.9	12.0	12.9
8	10.9	12.0	12.8
9	10.9	12.0	12.8
10	11.0	12.1	12.9

Table 6. Revetment slope crest elevations, in feet NAVD88, to prevent damage to paved surfaces from wave overtopping, for structures with 1:1.5 and 1:2.0 slopes, and for present, 2050, and 2070 sea level scenarios.

	Sea level scenario					
	present		2050		2070	
slope	1.5	2.0	1.5	2.0	1.5	2.0
transect						
6	13.0	11.9	14.0	12.9	14.8	13.7

Beach Transects. For the two beach transects at Bathing Beach (transects 1 and 2), a cross-shore morphological model was employed to determine the dimensions of a dune which would serve as an erodible barrier to ocean surges up to the 1% (100-year) still water level (SWEL), for the same three different MSL scenarios used in the overtopping analysis. The cross-shore transport model XBeach-X (Roelvink, *et al.*, 2015) was used to determine a dune fill elevation and crest width which would withstand a major storm event with some remaining flood protection capacity. 1-percent wave conditions applied to the model open boundary were derived from the SWAN wave model of Boston and Hingham Harbors, by applying 1-percent winds from the north (52.0 kts). The Boston tide record from the December 23, 2022 northeast storm was used as the source of input water levels during the XBeach simulation. The storm surge component of the recorded Boston tide was scaled up so that the peak total water level would reach the present FEMA-designated 1-percent SWEL (9.7 feet NAVD for present MSL conditions). Circa 2016 topography/bathymetry elevation data from the USGS CoNED DEM was interpolated to the Bathing Beach Point XBeach model transects.

Constructed dune crest width and elevation were iterated with the goal finding a configuration which would have some portion of the dune remain at its original height after the duration of the storm. For present sea levels, the existing dune at Bathing Beach is able to withstand the 1-percent storm (Figure 19). The present dune has a foreshore and backside slope of approximately 1:4, a dune crest of 10.7 feet NAVD, and a crest width of about 22 feet. The dune toe (start of the foreshore slope on the beach) is at an elevation of about +7 feet NAVD. For 2050 MSL conditions, the dune is able to withstand the 1-percent storm if the crest elevation is increased to +11 feet NAVD. For 2070 MSL conditions, the dune crest elevation would need to be increased to +12 feet NAVD to withstand the 1-percent storm (Figure 20).

At Transect 2 (Figure 21), there is presently no dune in place, and the beach berm has a crest elevation of +8.5 feet NAVD. A dune with similar dimensions to the existing dune at Transect 1 was added to the profile of Transect 2 (+11 feet NAVD crest, 22-foot crest width, with 1:4 foreshore and backside slopes). Similar to Transect 1, this dune is adequate for present and 2050 projected MSL with 1-percent storm conditions. For projected 2070 MSL, the dune crest must be raised to +12 feet NAVD in order to withstand the 1-percent storm (Figure 22), similar to Transect 1. A summary of dune design requirements to withstand coastal erosion and wave overtopping during 100-year storm events is provided in Table 7.

For Transect 3 (Figure 9), located between Town Wharf and the boat ramp, incorporation of a dune with similar dimensions to Transects 1 and 2 would be required to provide upland flood protection. However, this dune feature would not be effective as coastal flood mitigation if the storm tide pathway through the boat ramp is not addressed. Additional engineering analyses will be required to ensure that potential incorporation of a dune/berm west of Town Wharf is incorporated into flood mitigation improvements at the boat ramp.

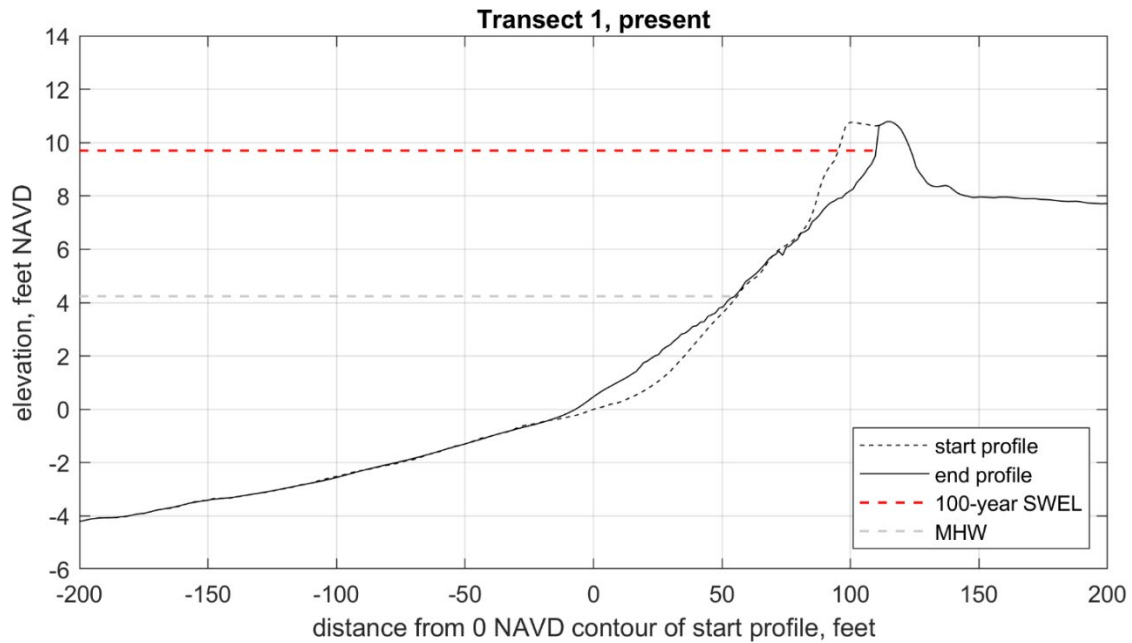


Figure 19. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for present MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. Present MHW and the present 1-percent SWEL are also indicated.

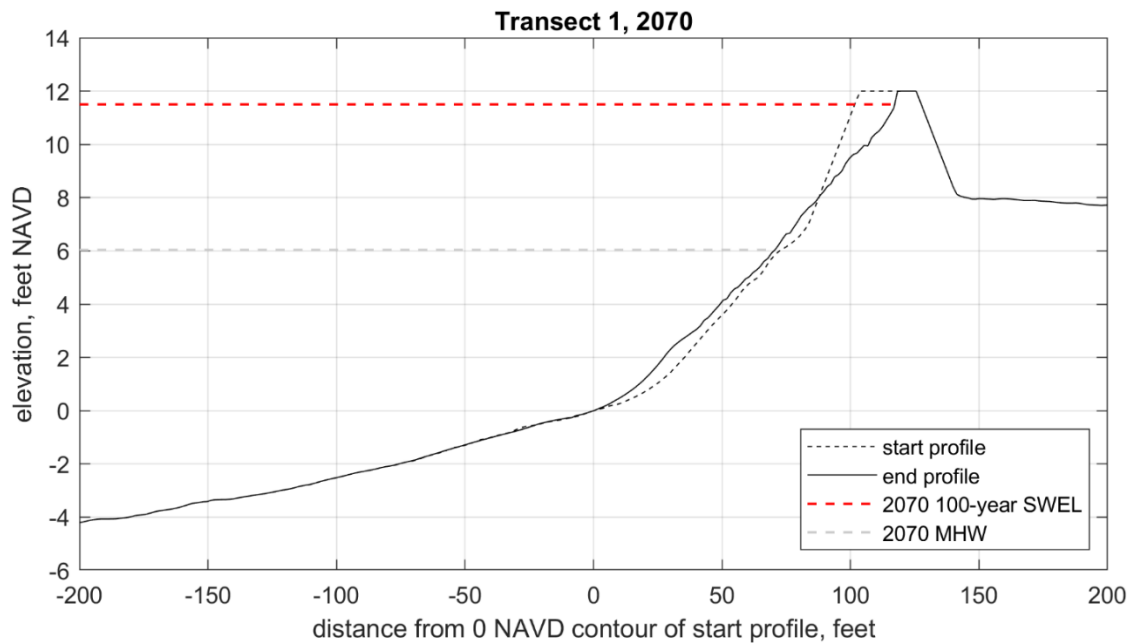


Figure 20. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070 MHW and the 2070 1-percent SWEL are also indicated.

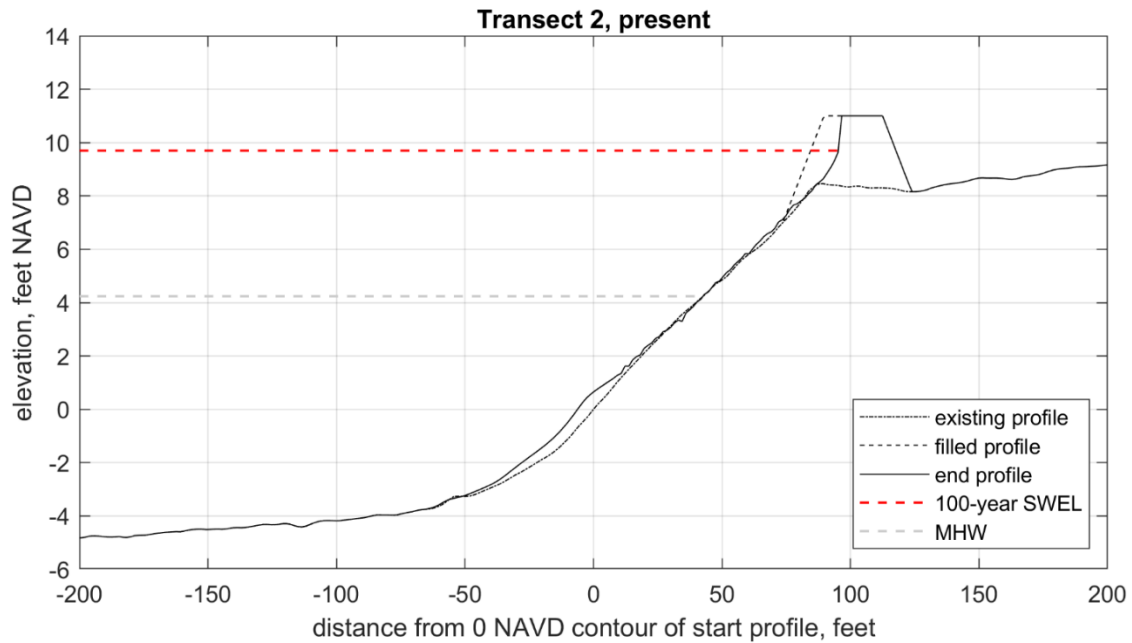


Figure 21. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for present MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. Present MHW and the present 1-percent SWEL are also indicated.

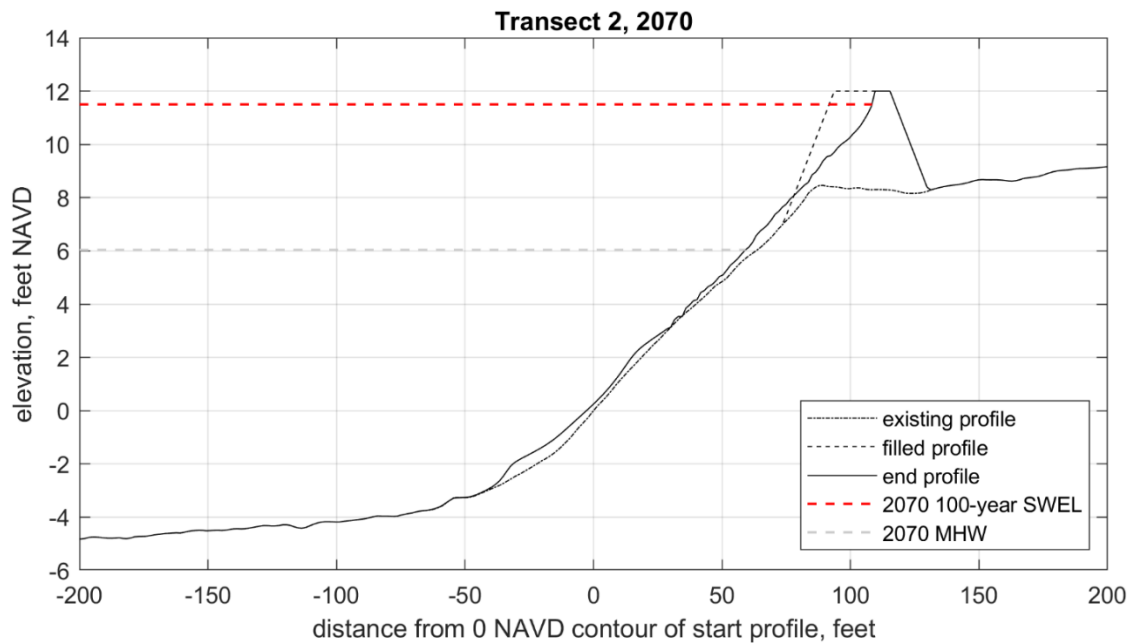


Figure 22. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070 MHW and the 2070 1-percent SWEL are also indicated.

Table 7. Dune crest elevations and crest widths, in feet NAVD88, to prevent wave overtopping and erosion during 100-year storm event; for present, 2050, and 2070 sea level scenarios.

	Sea level scenario					
	present		2050		2070	
	elevation	crest width (ft)	elevation	crest width (ft)	elevation	crest width (ft)
Transect 1	10.7	22	11.0	22	12.0	22
Transect 2	10.7	22	11.0	22	12.0	22

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Attachment 9

Secretary's Certificates for the EENF and NPC (EEA #16464)



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October 11, 2024

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : Hingham Waterfront Resiliency Project
PROJECT MUNICIPALITY : Hingham
PROJECT WATERSHED : Boston Harbor
EEA NUMBER : 16464
PROJECT PROPONENT : Town of Hingham
DATE NOTICED IN MONITOR : August 23, 2024

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62L) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **does not require** an Environmental Impact Report (EIR).

Project Description

As described in the Environmental Notification Form (ENF), the project consists of a combination of coastal engineering structures, grading, and nourishment to eliminate storm tide pathways in the Hingham Waterfront area and back-shore areas through 2050, with the designed ability to incrementally adapt to predicted 2070 100-year flood conditions in the future. Specifically, the project includes: the construction of a Coastal Dune with a crest elevation (el.) of 16 feet (ft) NAVD88¹ and crest width of 25 ft at Hingham Bathing Beach and boat ramp parking lots; elevating and grading turfed areas adjacent to Town Wharf to el. 11 ft (to match adjacent proposed grades to avoid creating flood pathways); relocating the existing Harbormaster office inland/east of the boat ramp, out of the existing velocity zone; increasing the elevation of the solid fill Town Wharf to el. 12 ft; installing a new tide gate structure (also referred to as a storm gate in the ENF) within the existing 60-inch culvert between Hingham Harbor and the Home Meadows Marsh (where a tide gate was historically installed and

¹ All elevations noted in this Certificate reference North American Vertical Datum 1988 (NAVD88) unless otherwise noted.

subsequently removed); replacing a 200-ft section of existing, dilapidated granite block seawall along POW/MIA Memorial Park with a sloped armor stone revetment (with a 1:2 slope and a crest elevation of 13 ft); and increasing the elevation of the solid filled Barnes Wharf to el. 12 ft. The proposed seawall will be no further seaward than the existing seawall. As discussed further below, a site-specific analysis of future water levels and wave conditions was developed to inform the project design. As described in the ENF, the project, proposed by the Town of Hingham (Town), has been designed with consideration of privately owned waterfront properties and planned Massachusetts Department of Transportation (MassDOT) improvements to Route 3A (Otis Street) in the development of a comprehensive resiliency strategy.²

Project Site

As described in the ENF, the 12.14-acre project site consists of an approximately 0.6-mile section of the southerly shoreline of Hingham Harbor (extending in an east-west direction). According to the ENF, this area of Hingham is commonly referred to as the “inner harbor” and includes a mixture of Town-owned properties and privately held properties with active commercial establishments and is primarily used for recreational purposes. Town-owned properties within the project area include the Bathing Beach and picnic grove, bandstand, boat ramp parking lot, Town Wharf (aka “Iron Horse” Park and Town Pier), Whitney Wharf Park, P.O.W./M.I.A. memorial, and Barnes Wharf. State highway Route 3A (owned and operated by MassDOT) and Summer Street define the southern boundary of the historic downtown area requiring coastal flood protection. The ENF states that the proposed coastal infrastructure will provide long-term resiliency for these community assets, therefore enhancing the public’s enjoyment of the Town’s public open and recreational spaces.

The project site includes mapped Flood Zone VE (an area inundated during a 100-year storm, with additional hazard associated with storm waves) with a base flood elevation (BFE) of el. 12 to 14 ft and Zone AE (an area inundated during a 100-year storm) with a BFE of el. 10 to 11 ft, as delineated on Federal Emergency Management Agency (FEMA) map 25023C0019J (effective date July 17, 2012). The ENF indicates that a majority of the shoreline is currently at or below el. 10 ft. Much of the downtown business district (located further inland), which contains a significant number of historic structures dating to the 1700s, is also below the existing 100-year storm surge level.

The project contains several coastal resource areas, including Coastal Beach, Coastal Dune, Coastal Bank, Land Containing Shellfish, and Land Subject to Coastal Storm Flowage (LSCSF). Hingham Harbor is listed as an impaired waterbody due to the presence/concentration of various nutrients/pollutants. The project site does not contain *Estimated and Priority Habitat of Rare Species* as delineated by the Natural Heritage and Endangered Species Program (NHESP) in the 15th Edition of the Massachusetts Natural Heritage Atlas, or an Area of Critical Environmental Concern (ACEC). The site contains several structures listed in the State Register of Historic Places and/or the Massachusetts Historical Commission’s (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth; however, the ENF indicates that there will be no alteration of historic resources and that the project is expected to provide resiliency benefits to historic structures in the downtown business

² According to the ENF, planned MassDOT improvements to Route 3A (Otis Street) will ensure a minimum sidewalk elevation of 11.0-to-11.5 ft along the seaward side of the roadway, and create a vertical curve in the roadway between Ship Street and North Street to provide passive flood protection to the expected 100-year stillwater storm surge in 2070. This MassDOT project has not yet undergone MEPA review.

district. The ENF indicates that there are no Environmental Justice (EJ) populations³ located in whole or in part of the 1-mile Designated Geographic Area (DGA) for the project, as defined in 301 CMR 11.02 (definition of “DGA”).

Environmental Impacts and Mitigation

The ENF indicates that potential environmental impacts associated with the project are limited to the alteration of coastal resources, including the alteration of 16,880 square feet (sf) (± 0.39 acres) of Coastal Beach; 28,665 sf (± 0.66 acres) of Coastal Dune; 1,259 linear feet (lf) of Coastal Bank; 4,160 sf of Land Containing Shellfish; and 174,907 sf (± 4.02 acres) of LSCSF. An estimated 154,190 sf (3.54 acres) of existing LSCSF is expected to be converted to upland areas⁴ following the completion of the project. The project will temporary dredge (and subsequently replace) approximately 6,300 cubic yards (cy) of material associated with revetment and seawall reconstruction.

Measures to avoid, minimize, and mitigate environmental impacts include performing site-specific modeling to inform future flood conditions and project design, dune nourishment and plantings, construction period best management practices (BMPs) to reduce construction period impacts (further described below), use of erosion and sedimentation controls (including encircling all stockpiles with sedimentation barriers and protecting all infiltration systems and stormwater structures), and restoration of any temporarily altered resource areas.

Jurisdiction and Permitting

This project is subject to MEPA review and preparation of an ENF⁵ pursuant to 301 CMR 11.03(3)(b)(1)(a), 11.03(3)(b)(1)(e), 11.03(3)(b)(1)(f), and 11.03(3)(b)(6) because it requires Agency Action and will result in the alteration of coastal dune, barrier beach or coastal bank (coastal dune); new fill or structure or Expansion of existing fill or structure, except a pile-supported structure, in a velocity zone or regulatory floodway; the alteration of $\frac{1}{2}$ or more acres of any other wetlands; and the construction, reconstruction or Expansion of an existing solid fill structure of 1,000 or more sf base area or of a pile-supported or bottom-anchored structure of 2,000 or more sf base area, provided the structure occupies flowed tidelands or other waterways, respectively. The project requires a Chapter 91 (c.91) License from the Massachusetts Department of Environmental Protection (MassDEP), comments from MassDEP indicate a 401 Water Quality Certification (WQC) is also required. The project requires Federal Consistency Review by the Massachusetts Office of Coastal Zone Management (CZM).

The project will require an Order of Conditions from the Hingham Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from MassDEP). The project requires Pre-Construction Notification to the U.S. Army Corps of Engineers (USACE). The project will require

³ “Environmental Justice Population” is defined in M.G.L. c. 30, § 62 under four categories: Minority, Income, English Isolation, and a combined category of Minority and Income.

⁴ Upon completion of the project, these areas will no longer be subject to coastal storm flowage. No physical alteration of these former resource areas is proposed beyond the scope of the project; the Town intends to submit a Letter of Map Revision (LOMR) to document the changes in coastal floodplain.

⁵ An ENF for an earlier version of this project was filed with MEPA in October 2021 (also assigned EEA#16464), but subsequently withdrawn from review. The ENF notes that there are several other projects within the project site that have previously been filed with MEPA (EEA# 13305, 13281, 6201, and 839).

review by MHC acting as the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800).

Because the project will receive Financial Assistance through a Coastal Resilience Grant administrated by CZM, MEPA jurisdiction is broad in scope and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in MEPA regulations.

Review of the ENF

The ENF provided a description of existing and proposed conditions, preliminary project plans, an alternatives analysis, an analysis of current and future coastal flooding, and an analysis of the Home Meadows watershed and upland area flooding. It identified historic permits and approvals issued for projects/structures within the project site, and measures to avoid, minimize and mitigate environmental impacts. Consistent with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency, the EENF contained an output report from the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the “MA Resilience Design Tool”),⁶ together with information on climate resilience strategies to be undertaken by the project.

A 2.5-week extension of the comment period was granted at the request of the Proponent to allow for additional public review of supplemental information, which provided additional information regarding impacts to coastal resources and operation and maintenance of the tide gate. The extended comment period closed on October 1, 2024. The Proponent also provided additional information to the MEPA Office on October 1 and 11, 2024, including the area of coastal resources potentially impacted by the tide gate, Tidal Flat surveys, the volume of dredge/fill, and mitigation measures. For purposes of clarity, all supplemental materials provided by the Proponent are included in references to the “ENF,” unless otherwise indicated.

Comments from Agencies do not request further analysis in the form of an EIR but identify additional information that should be provided during the subsequent permitting processes, including the monitoring and maintenance of the Coastal Dune fronting the Bathing Beach and boat ramp parking lots and coastal resource impacts related to the proposed tide gate (further discussed below). Comments from MassDEP recommend that no further MEPA review be required for wetlands/coastal resource impacts, and comments from CZM note that CZM will continue to offer support during the permitting process to help address and resolve any outstanding issues.

Alternatives Analysis

As described in the ENF, quantitative analyses of future sea-level projections and local site-specific storm wave conditions were performed to provide appropriate design conditions for future flood protection improvements (provided in the ENF as Attachment 9). A preliminary assessment of tide gate operations to mitigate potential coastal and/or upland flooding impacts to properties surrounding Home Meadows was also provided. Three alternatives were evaluated in detail: a No Action Alternative (Alternative 1), Protection to Potential 2070 Flood Conditions Alternative (Alternative 2), and a Protection to Likely 2050 Flood Conditions with Incremental Improvements Alternative (the Preferred Alternative). As described in the ENF, these alternatives were evaluated for feasibility (including cost,

⁶ https://resilientma.org/rmat_home/designstandards/

available technology, and logistics) and environmental impacts to both coastal and upland resources areas. The ENF included a comparison of these factors for each alternative in tabular format (Table 2.1).

As described in the ENF, the No Action Alternative would leave the site in its current condition, and would not result in new direct impacts to environmental resources. Under this Alternative, coastal flooding would continue during significant storm events. The Proponent assessed historical maximum observed water levels to estimate the frequency of these events. As described in the ENF, the significant storms that impact the Harbor cause relatively frequent moderate flooding, with a difference in storm tide elevations between the 5-year and 100-year storm events of only 1.6 ft. Based upon existing land elevations, significant portions of the developed downtown area are currently below the present-day 100-year storm stillwater flood elevation of 9.5 ft. As stated in the ENF, based on intermediate sea-level rise projections, the future 100-year stillwater flood levels are expected to be approximately el. 10.9 ft and 11.7 ft for 2050 and 2070, respectively. Due to the ongoing flood damage and impacts to public safety and emergency access to flooded properties during the peak of significant extra-tropical storm events, the No Action alternative was dismissed.

Alternative 2 would involve constructing the project to protect against the future flooding conditions in 2070, based on modeling informed by a review of the Massachusetts Coastal Flood Risk Model (MC-FRM), the MA Resilience Design Tool, and a 2021 study undertaken by Woods Hole Group. A review of this data indicated that the stillwater flood elevation in 2070 during a 200-year storm would reach el. 15 ft. As described in the ENF, based on more recent analyses/data, it is unlikely that storm surge levels would reach el. 15 ft for at least another 70 to 100 years. The ENF states that, as the design life of a typical coastal engineering structure is approximately 50 years, designing to this level of flood protection is currently unwarranted. Building to el. 15 ft would require the construction of a massive flood barrier, resulting in additional cost and environmental impacts as compared to the Preferred Alternative. As such, Alternative 2 was dismissed.

The ENF indicates that the Preferred Alternative (described herein) was selected as it provides appropriate 100-year storm flood protection for the Harbor shoreline through 2050, based on recent sea level rise projections from the National Oceanic and Atmospheric Administration (NOAA), released in 2022 and site-specific modeling, which the ENF indicates is more accurate to future climate change conditions at the site. The Preferred Alternative will provide coastal flooding resiliency in the intermediate term, and has been specifically designed to allow for incremental increases in elevation to accommodate anticipated sea level, storm surge, and storm wave action through 2070. The ENF indicates that nature-based solutions were implemented where possible, including the establishment of a dune along the Hingham Bathing Beach and boat ramp parking lots.

Wetlands / Coastal Resources

The project will involve the temporary alteration of 4,300 sf of Coastal Beach and the permanent alteration of 12,580 sf of Coastal Beach, 28,665 sf of Coastal Dune, 1,259 lf of Coastal Bank, 4,160 sf of Land Containing Shellfish, and 174,907 sf of LSCSF. The Hingham Conservation Commission will review the project for its consistency with the Wetlands Protections Act (WPA), the Wetland Regulations (310 CMR 10.00), and associated performance standards. Comments from MassDEP note that portions of the project site may be classified as Tidal Flats. According to the ENF, the project area has been surveyed multiple times between 2010 and 2024 to obtain topographic data and delineate

resources areas. The most recent survey was conducted by the project team on June 11, 2024 and confirmed the delineation of Coastal Beach (including Tidal Flats), Coastal Dune, and LSCSF. The ENF does not indicate that the project will alter Tidal Flats seaward of Route 3A, although there have not yet been any surveys completed for the Salt Marsh inland of Route 3A (connected to the culvert, where the tide gate is proposed).

As noted above, the project requires a 401 WQC from MassDEP due to the proposed dredging during project construction, associated with the reconstruction of the existing seawalls and stone revetments. Specifically, excavation below mean high water will be required for the placement of revetment toe stones and construction of seawall foundations. Temporary sheet pile cofferdams seaward of the proposed structures at Town Wharf, the POW/MIA Memorial Park, and Barnes Wharf will be required for the construction of the new footings and pile foundations. The temporary cofferdams will be constructed approximately four feet seaward of the existing seawall toe and will be removed at the end of construction. As noted above, the proposed seawall and revetments are not proposed to encroach seaward beyond the existing footprints, and the dredged material will be placed back once the work is complete. The total volumes of dredge and fill for this work are anticipated to be approximately 6,300 cy, with no net change in volume below the mean high-water elevation. Comments from the Massachusetts Department of Marine Fisheries (DMF) recommend time-of-year (TOY) restrictions for silt-producing activities (specifically, the construction and removal of the cofferdams) between February 15 and June 30 to protect winter flounder (*Pseudopleuronectes americanus*).

As noted above, the project includes the installation of Coastal Dune fronting the Bathing Beach and boat ramp parking lots; additionally, a vegetated berm will be established at the same elevation as the proposed dune between the boat ramp and Town Wharf. The ENF notes that construction of ramps over the dune will be required to ensure that unpermitted walkways through the dune are eliminated, as these eroded paths would create storm tide pathways. It further indicates that the dune will be planted in order to stabilize the underlying material, and that the sediment consistency (i.e., grain size, will be consistent with sediment from the native beach. Comments from CZM note that a monitoring and maintenance plan should be developed to periodically assess the status of the dune and fronting beach. The plan should include shore parallel transects, as recommended by CZM; transect measurements should be taken annually, at a minimum, and should include provisions for supplemental evaluation following significant storm events. The maintenance plan should identify maintenance thresholds that will trigger the addition of compatible material to restore the design profile in order to maintain the designed resiliency function and value of the dunes. The Proponent is expected to develop a monitoring and maintenance plan in coordination with CZM during subsequent permitting. I am satisfied that the required Federal Consistency Review by CZM, as well as MassDEP permitting, will provide adequate opportunity to do so.

A 60-inch culvert in the project area connects Hingham Harbor to the Home Meadows Marsh, running under Route 3A (referred to in the ENF as the "Home Meadows Culvert"). The project proposes to install a tidal gate (also referred to as storm surge gate in the ENF) in order to address the concern of flooding of the (lowest-lying) downtown area from the marsh during higher storm surge tides under projected sea level rise scenarios. As noted above, the culvert historically contained a tide gate that was subsequently removed. The ENF states that it is anticipated that the existing concrete box from the former tide gate can accommodate a self-regulating tide gate that will close to prevent upstream flood caused by coastal storms. To ensure upstream flooding could be mitigated, a preliminary hydrologic

analysis of the Home Meadows watershed was conducted (included in the ENF), to determine the cumulative volume of rainwater that is discharged to Home Meadows and subsequently the marsh.

The ENF states that the tide gate will only be closed when necessary to avoid potential flooding caused by coastal storms. The preliminary analyses conducted by the Proponent indicate that, under the worst-case scenario, the gate may need to be closed at elevation 6.2 ft to ensure adequate capacity within the marsh for the storage of stormwater from the surrounding watershed while still ensuring flood protection of infrastructure surrounding the marsh. Under existing conditions, with gate closure set at el. 6.2 ft, the gate would be closed approximately 0.8% of the year, though this would be expected to increase in frequency in the future due to climate change impacts (in particular, sea level rise). The ENF asserts that daily flooding and draining of the marsh plain would not result in gate closures, as the elevation of the marsh is significantly lower than proposed closure elevation of 6.2 ft; specifically, the upstream marsh has an elevation of approximately 4 ft, with marsh plain elevations as low as 2.5 ft in some areas, according to the ENF.

The ENF states that the Town is planning to use anticipated grant funding to conduct the necessary field investigations and hydrodynamic and hydrologic analyses required to support the final design of the storm gate and analyze associated impacts. I refer the Proponent to comments from CZM for specific information that should be gathered/incorporated into the subsequent modeling. Comments from MassDEP note that no alteration area values were provided for the proposed tide gate installation at the Home Meadows Culvert. The ENF indicates that the installation of the tide gate is not expected to result in the alteration of any coastal or wetland resources areas due to the elevation of the gate closure as compared to the elevation of the marsh and associated resource areas; however, no surveys have been performed in the Home Meadows Marsh to-date. This work is anticipated to be completed as part of the future tide gate analysis. Should the results of this analysis determine that the project will result in additional environmental impacts beyond those described in this ENF, the Proponent is directed to consult with MEPA Office to determine whether a Notice of Project Change (NPC) is required for the project.

During MEPA review the Proponent provided an Operation and Maintenance Plan (O&M Plan) for an unrelated but similar facility currently operated by the Town, in order to demonstrate the Town's current practices for responsibly operating and maintaining a tide gate. An O&M Plan specific to the proposed gate will be drafted, reviewed, and finalized during the future phases of the project as the additional analyses are completed. Comments from CZM state that the O&M Plan should describe the specifics of how the tide gate will be operated to achieve flood prevention goals without negatively impacting the sensitive and ecologically valuable Home Meadows Salt Marsh ecosystem. This plan should be made enforceable by including it as a Special Condition of the relevant local, state, and federal permits for the project, as stated in comments from CZM. Comments from U.S. Environmental Protection Agency (EPA) note that there is demonstrated substantial non-compliance with permits terms and O&M Plans for tide gates in Massachusetts. This has resulted in tidal flooding, unintentionally altered hydrology, and associated impacts to coastal and wetland resources. I note the importance of developing and executing a comprehensive O&M Plan to avoid unintended impacts to the Salt Marsh ecosystem. I expect the Proponent to coordinate with Agencies during subsequent permitting to ensure that the O&M Plan addresses these concerns.

Plans included in the ENF indicate that the mean low water (MLW) of Hingham Harbor in the area of the Home Meadows Culvert is approximately 300 ft downstream of the culvert's outfall. Comments from MassDEP note that, based on the information provided in the ENF, this area may be considered a perennial stream under 310 CMR 10.58. Further investigation should be undertaken to determine if this area should be classified as Land Under Water Bodies and Waterways (310 CMR 10.56) with accompanying Riverfront Area (310 CMR 10.58). MassDEP further notes that structures and activities subject to a Chapter 91 Waterways License or Permit may be exempt from Riverfront Area performance standards. This information should be provided during the subsequent permitting processes. As noted above, the project requires a 401 WQC and c.91 License, and comments from MassDEP state that outstanding issues and revisions can be managed through these permitting processes. Comments from MassDEP note that the project will be reviewed as a water-dependent use project in accordance with the Waterways Regulations at 310 CMR 9.12(2)(a).

Climate Change Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the ENF, the project has a "High" risk for sea level rise/storm surge, extreme precipitation (urban flooding), and extreme heat; the project also received a "Moderate" ecosystem benefits score. Based on the 50-year useful life identified for Barnes Wharf, Town Wharf, the Dune and Parking Lots, and Home Meadows Culvert (entered as four separate assets) and the self-assessed criticality of these assets, the MA Resilience Design Tool recommends a planning horizon of 2070 when designing these assets for all identified High risk parameters. For the Home Meadows Culvert, the MA Resilience Design Tool recommends a planning horizon of 2070 and a return period associated with a 100-year (1% chance) storm event when designing for sea level rise/storm surge, and a return period associated with a 50-year (2% chance) storm event when designing for extreme precipitation. The Tool also recommends planning for the 90th percentile for applicable extreme heat parameters when designing the culvert (and the 50th percentile for all other assets). The project does not propose to create any impervious surface, nor does it propose any tree clearing.

As noted above, the current 100-year BFEs in the project area range from el. 12 to 14 ft in the VE Zone and el. 10 to 11 ft in the AE Zone based on current FEMA mapping. According to the MA Resilience Design Tool output attached to the ENF, the projected water surface elevation identified for the Home Meadows Culvert associated with a 100-year storm event in 2050 (the recommended intermediate planning horizon) will range from a minimum of el. 12.4 ft to a maximum of el. 12.8 ft, with a wave action water elevation ranging from el. 12.8 ft to el. 18.3 ft. For the recommended 2070, 100-year storm event, the MA Resilience Design Tool identifies a projected water surface elevation ranging from a minimum of el. 14.2 ft to a maximum of el. 14.5 ft, and a projected wave action water elevation ranging from el. 15.2 ft to el. 20.4 ft.

The ENF notes that these projections were developed in part by utilizing sea level rise projections released in 2017, and in particular, the "High" (or 99.5% chance of non-occurrence) sea level rise scenario. The Proponent undertook site-specific modeling utilizing more recent NOAA analyses of sea level rise (released in 2022) and an intermediate sea-level rise scenario based on observed sea level rise trends between 1970 and 2020 in Boston Harbor. Based on this data, future sea levels are projected to rise an additional 1.0 ft by 2050 and 1.8 ft by 2070. Coastal engineering analyses

were performed at 10 transects along the Hingham Harbor waterfront to determine potential wave overtopping under these future storm scenarios to identify the appropriate elevation of the proposed infrastructure to mitigate coastal flooding. These analyses resulted in a recommended crest elevation of 11.0 ft in 2050 and 12.0 ft in 2070 for the dune; a crest elevation of 12.9 ft in 2050 and el. 13.7 ft in 2070 for the proposed stone revetment (when constructing with a 2:1 slope); and a wall crest elevation of el. 12.0-12.1 ft in 2050 and el. 12.8-12.9 ft in 2070 for all other transects (where vertical walls currently exist/are proposed). While these elevations do not fully reach recommended standards in the MA Resilience Design Tool, they do consider future climate data as explained above and are higher than current BFEs for the FEMA AE and VE zones.

The project has been designed based on this analysis, with all infrastructure at or above the 2050 elevations identified for each project component at the respective transect. The project will eliminate the existing storm tide pathways through 2050, as well as minimize any storm wave overtopping the seawalls and/or revetments to a level that is both localized (i.e., immediately adjacent to the shore protection structure) and minimal (i.e., potentially requiring some minor fill after the most severe storms). The project incorporates flexible adaptation strategies, with the project components being designed to be easily modified to be resilient to future (2070) 100-year storm conditions. These measures will result in areas that are currently mapped as LSCSF being removed from the floodplain, which indicates that areas behind coastal engineering structures would be better protected against future storm events. The ENF states that the Proponent will submit a Letter of Map Revision (LOMR) to FEMA, to determine and document the changes in coastal floodplain.

In addition to the proposed improvements to the coastal engineering structures, the project involves moving the existing Harbormaster building on Town Wharf to a more landward location east of the boat ramp, out of the VE Zone, to reduce the building's vulnerability to coastal flooding. The existing buildings associated with the Hingham Maritime Center will also be removed and reconstructed as a single structure as far landward as possible on the reconstructed wharf. The ENF states that, once revised flood elevations have been determined (through the LOMR process), the Hingham Maritime Center structure will be designed to meet appropriate building code standards for the revised FEMA flood zone. Comments from MassDEP commend the Proponent's proposal to shift the buildings landward, further away from coastal resource areas, and the proposed submittal of a LOMR to FEMA to update floodplain mapping following completion of the project.

Comments from the Massachusetts Water Resources Commission (WRC) Flood Hazard Management Program (FHMP), acting as the state coordinating agency for the National Flood Insurance Program (NFIP) note that project plans included in the ENF show the proposed location of the Harbormaster building as being located within Zone AE with a BFE of el. 10 ft. While the ENF indicates that the design of relocated Harbormaster building and Hingham Maritime Center has not been finalized, comments from WRC note that both structures will be required to meet the requirements for Flood Resistant Construction standards in the Massachusetts State Building Code, 9th Edition. WRC further notes that, included in the Massachusetts State Building Code is the provision of Substantial Repair of a Foundation; under this provision, the relocation of the Harbormaster building would most likely require the structure to be altered, as needed, to meet the requirements for Zone AE. I refer the Proponent to comments from WRC for more information regarding Building Code and NFIP requirements for the relocated buildings.

Construction Period

The ENF indicates that construction will commence in 2026 and conclude in 2028. As described in the ENF, the Town will implement comprehensive mitigation measures during the construction period, addressing air quality, TOY restrictions, traffic management, public safety, and the restoration of temporary impacts to resource areas. Construction management and scheduling practices including plans for contractors commuting and parking, routing plans, scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, control of noise and dust, and public safety will be employed to minimize impacts on the surrounding environment and community. Plans for controlling fugitive dust during grading and construction include wetting soils prior to disturbing, covering stockpiles, and careful removal of debris by covered trucks. In addition to measures to control earth material particulate dust, the contractor will also minimize diesel emissions during construction to the maximum extent possible through the use of diesel emission control devices, maintenance of an idle free work zone, and using ultra-low sulfur diesel fuel (ULSD) for all trucks and construction machinery.

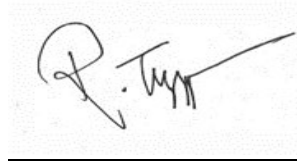
All construction and demolition activities should be managed in accordance with applicable MassDEP's regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11). I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards, or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. If oil and/or hazardous materials are found during construction, the Proponent should notify MassDEP in accordance with the Massachusetts Contingency Plan (310 CMR 40.00). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle construction and demolition (C&D) debris to the maximum extent.

Conclusion

The ENF has adequately described and analyzed the project and its alternatives, and assessed its potential environmental impacts and mitigation measures. Based on review of the ENF and comments received on it, and in consultation with Agencies, I have determined that an EIR is not required. As noted above, should the Proponent determine that the project will result in additional environmental impacts beyond those disclosed in this ENF as the project design is finalized (in particular, as the design and analysis of the proposed tide gate is finalized), the Proponent should consult with the MEPA Office to determine if an NPC is required.

October 11, 2024

Date

Rebecca L. Tepper

Comments received:

09/12/2024 Massachusetts Division of Marine Fisheries (DMF)
09/12/2024 Massachusetts Office of Coastal Zone Management (CZM)
09/12/2024 Massachusetts Water Resources Commission (WRC)
09/12/2024 Massachusetts Water Resources Authority (MWRA)
09/24/2024 U.S. Environmental Protection Agency (EPA)
09/27/2024 Massachusetts Department of Environmental Protection (MassDEP), Southeast Regional Office (SERO)

RLT/ELV/elv



The Commonwealth of Massachusetts

Division of Marine Fisheries

(617) 626-1520 | www.mass.gov/marinefisheries



MAURA T. HEALEY
Governor

KIMBERLEY DRISCOLL
Lt. Governor

REBECCA L. TEPPER
Secretary

THOMAS K. O'SHEA
Commissioner

DANIEL J. MCKIERNAN
Director

September 9, 2024

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Eva Vaughan, EEA No. 16464
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Tepper:

The Division of Marine Fisheries (MA DMF) staff have reviewed the Environmental Notification Form (ENF) for the proposed Hingham Waterfront Resiliency Project submitted by The Town of Hingham to develop coastal flood protection along the Hingham Harbor shoreline. The project includes the dune modifications along Hingham Bathing Beach and the boat ramp parking lot, increasing the elevation of the boat ramp parking lot, Town Wharf, Barnes Wharf, POW/MIA Memorial Park and stone revetment, reconstruction of Town Wharf and Barnes Wharf seawalls, and the installation of a self-regulating tide gate along Home Meadows culvert.

The proposed seawall reconstructions at Town Wharf and Barnes Wharf require temporary sheet pile cofferdams which will temporarily impact Land Containing Shellfish (310 CMR 10.34). Hingham Harbor provides important spawning habitat for winter flounder (*Pseudopleuronectes americanus*) [1]. Intertidal and shallow water habitats, such as those of the project area, help sustain commercial and recreational fisheries by providing habitat for forage species and juvenile fish development. The site is adjacent to and within mapped soft shell clam (*Mya arenaria*) and blue mussel (*Mytilus edulis*) habitat within shellfish growing areas GBH7.9, classified as prohibited for shellfish harvest, and GBH7.8, classified as conditionally restricted for shellfish harvest.

- We recommend silt-producing activities (specifically the construction and removal of the proposed cofferdams at Town Wharf and Barnes Wharf) be sequenced to avoid time periods from February 15 to June 30 to protect winter flounder [1].

Questions regarding this review may be directed to Kate Frew in our Gloucester office at Kate.Frew@mass.gov.

Sincerely,

Daniel J. McKiernan
Director

Cc:
Sylvia Schuler, Hingham Conservation Commission
Jason Burtner, India Mackinson, CZM

References:

[1] Evans, NT, KH Ford, BC Chase and JJ Sheppard (2011) Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts Technical Report [DMF TR-47](#).

DM/KF/sd



MASSACHUSETTS WATER RESOURCES AUTHORITY

Deer Island
33 Tafts Avenue
Boston, MA 02128

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
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September 12, 2024

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge St, Suite 900
MEPA Office, Eva Vaughan
Boston, MA 02114

Subject: EOEEA #16464 – Environmental Notification Form
Hingham Waterfront Resiliency Project, Hingham, MA

Dear Secretary Tepper,

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the Environmental Notification Form (ENF) submitted by the Town of Hingham (the “Proponent”) for Hingham Waterfront Resiliency Project (“the Project”) in Hingham, Massachusetts. The purpose of the Project is to develop coastal flood protection along the Hingham Harbor shoreline to initially address potential severe coastal flooding through 2050, with the additional ability to elevate this protection to anticipated severe coastal flood levels in 2070. The Project will mitigate coastal flood damage and provide shore protection infrastructure so the Harbor shoreline is capable of withstanding coastal flooding and storm surge. The Project Site extends from Bathing Beach to Steamboat Wharf in Hingham, Massachusetts.

The existing Harbormaster building on Town Wharf will be relocated to a more landward location at the southwest edge of the lawn area to the east of the boat ramp. The existing buildings associated with the Hingham Maritime Center will be removed and reconstructed as a single structure as far landward as possible on the reconstructed wharf. Establishment of a dune along Hingham Bathing Beach and the Boat Ramp Parking Lot will require construction of ramps over the dune to ensure that walkways through the dune are eliminated, as these low access paths create storm tide pathways. The Boat Ramp Parking Lot also will be elevated, and a vegetated berm will be established at the same elevation as the proposed dune between the Boat Ramp and Town Wharf. Improvements to provide flood protection to 2050 involve increasing the elevation of the Town Wharf seawall and surface to a level that will withstand expected storm surge and storm wave action.

MWRA’s comments on this ENF relate to Toxic Reduction and Control (TRAC) discharge permitting.

TRAC Discharge Permitting

MWRA prohibits the discharge of groundwater and stormwater into the sanitary sewer system, pursuant to 360 C.M.R. 10.023(1) except in a combined sewer area when permitted by the Authority and the local community. The Project site has access to separate sewer and storm drain systems. Therefore, the discharge of groundwater or stormwater to the sanitary sewer system associated with this Project is prohibited.

On behalf of the MWRA, thank you for the opportunity to provide comments on this Project. Please do not hesitate to contact Hillary Monahan of my staff at (857) 324-0554 or Hillary.Monahan@mwra.com with any questions or concerns.

Sincerely,



Colleen Rizzi, P.E.
Director
Environmental and Regulatory Affairs



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION
100 CAMBRIDGE STREET, BOSTON MA 02114

September 12, 2024

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs
Attn: Eva Vaughan, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: MEPA File No. 16464 - Hingham

Dear Secretary Tepper:

The Water Resources Commission (WRC) staff has reviewed the Environmental Notification Form (ENF) for the Hingham Waterfront Resiliency Project in the Town of Hingham.

As proposed, the Project involves activities within a 100-year floodplain as delineated on the current effective Flood Insurance Rate Map (FIRM) for Plymouth County dated July 3, 2024. In its role as the state coordinating agency for the National Flood Insurance Program (NFIP), I submit the following comments on behalf of the WRC.

WRC's Flood Hazard Management Program (FHMP), under agreement with the Federal Emergency Management Agency (FEMA), is the state coordinating agency for the NFIP. As such, the FHMP provides technical assistance to communities that participate in the NFIP related directly to the program and also related to floodplain management in general. Communities that participate in the NFIP are required by FEMA, as a condition of their participation, to regulate development within the 100-year floodplain in a manner that meets or exceeds the minimum standards established by FEMA, located at 44 CFR 60.3. Participating communities such as the Town of Hingham are required to adopt the NFIP requirements through locally enforceable measures. In Massachusetts, many of the requirements contained in 44 CFR 60.3 are enforced through existing state regulations such as the State Building Code (780 CMR) and Wetlands Protection Act regulations (310 CMR 10.00). Communities typically adopt the remainder of the requirements as part of a zoning ordinance or other locally enforceable measure. The Town of Hingham has a Zoning By-Law which has been accepted by FEMA as meeting their requirements under the NFIP.

In our role as NFIP coordinator, the FHMP offers comments on the proposed Project's relationship to many of the above regulations and requirements. The FHMP does not administer any of these requirements and therefore does not provide official determinations as to compliance with them; rather, our comments are provided as an overview of the requirements and the documentation that the FHMP believes may be necessary to demonstrate compliance with these requirements.

The Project includes improving coastal resiliency within Hingham Harbor, which includes a mixture of Town-owned properties and privately held properties with commercial establishments. Elements of the Project include development of a contiguous dune, elevation of the Town Wharf, and other flood protection techniques along the Harbor shoreline. Based on information submitted with the ENF, the project area is located within the 100-year floodplain on the current effective FIRM in the following zones: Zone VE with a base flood elevation of 14 feet above North American Vertical Datum (NAVD), Zone VE with a base flood elevation of 12 feet above NAVD, Zone AE with a base flood elevation of 11 feet above NAVD, and Zone AE with a base flood elevation of 10 feet above NAVD. Because of its location in the 100-year floodplain, compliance with the requirements of several federal, state and local measures related to floodplain development are required.

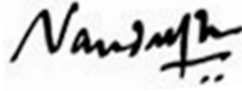
It is described within the ENF document that the existing Harbormaster building on Town Wharf will be relocated to a more landward location, which is shown on the Proposed Conditions Site Plan 2 of 3 to be within a Zone AE with a base flood elevation of 10 feet above NAVD. It is also noted that the existing Hingham Maritime Center will be removed and reconstructed as a single structure as far landward as possible on the reconstructed wharf. While the proponent has indicated that final design for these structures has not been completed at this time, the proponent should note that both structures will be required to meet the requirements for Flood Resistant Construction standards in the Massachusetts State Building Code, 9th Edition. Related requirements, including design flood elevations and floodproofing measures, are located in Section 1612 of the Base Code and as amended, and ASCE 24-14, a referenced standard.

Included in the Massachusetts State Building Code, 9th Edition, is the provision of Substantial Repair of a Foundation. This provision states “when work to repair or replace a foundation results in the repair or replacement of a portion of the foundation with a perimeter along the base of the foundation that equals or exceeds 50% of the perimeter of the base or the foundation measured in linear feet, or repair or replacement of 50% of the piles, columns or piers of a pile, column or pier supported foundation, the building official shall determine it to be substantial repair of a foundation. Applications determined by the building official to constitute substantial repair of a foundation shall require all existing portions of the entire building or structure to meet the requirements of 780 CMR.” Under this provision, the relocation of the Harbormaster building would most likely require the structure to be altered, as needed, to meet the requirements for Zone A in the above referenced codes.

Additionally, projects within the 100-year floodplain involving any federal action (e.g., permit, funding) must also comply with federal Executive Order 11988, Floodplain Management, as amended by Executive Orders 13690 and 14030. Executive Order 11988 requires an eight-step decision-making process which includes analysis of alternatives, avoiding impacts when possible, and minimizing impacts when avoidance is not possible. Because this project requires a pre-construction notification from the US Army Corps of Engineers, compliance with the eight-step decision-making process is necessary. Compliance with these orders will also require meeting the Federal Flood Risk Management Standard (FFRMS) which can involve design and construction to a higher standard, to be determined by the applicable federal agency.

The proponent should be aware that climate change can bring further impacts to the proposed development. Changes to the state’s precipitation regime are ongoing with further predicted changes to the amount and timing of rainfall. This may increase the potential for flooding to properties located in the 100-year floodplain.

Thank you for the opportunity to comment on the ENF. If you have any questions regarding these comments, or to request additional information or coordination with the FHMP, please contact Katie Paight at katie.o.paight@mass.gov or 857-283-0583.

A handwritten signature in black ink, appearing to read "Vandana Rao", with a stylized flourish at the end.

Vandana Rao, PhD
Executive Director, MA Water Resources
Commission

cc: Katie Paight, Department of Conservation and Recreation
Nadia Madden, Department of Conservation and Recreation
Eric Carlson, Department of Conservation and Recreation
Joy Duperrault, Department of Conservation and Recreation
Michael J. Clancy, Building Commissioner, Town of Hingham
Shannon Palmer, Conservation Officer, Town of Hingham



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
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MEMORANDUM

TO: Rebecca L. Tepper, Secretary, EEA
ATTN: Eva Vaughn, MEPA Office
FROM: Alison Brizius, Director, CZM
DATE: September 12, 2024
RE: EEA# 16464 – Hingham Waterfront Resiliency Project; Hingham

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the *Environmental Monitor* dated August 23, 2024. Based on our review of that filing, participation in the MEPA Consultation Session held on September 6, 2024, and our familiarity with the project through our on-going participation in the Project Management Team (PMT) as a Coastal Resilience Grant Program funded initiative, CZM provides the following comments for consideration.

Project Description

As described in the ENF, the proposed project entails a suite of actions to improve the coastal resiliency of the Hingham Waterfront and back-shore areas including Hingham Bathing Beach, the boat ramp parking lot and boat ramp, Town Wharf, the Home Meadows Culvert, the POW/MIA Park and Barnes Wharf. As part of this initiative, a site-specific analysis of waterfront design water levels and wave conditions was developed, which was provided as Attachment 9 in the filing. The stated goal of the resiliency approach is to eliminate storm tide pathways, as depicted in the ENF, through 2050 with the ability to incrementally adapt to predicted 100-year flood conditions in 2070. Actions to achieve 2050 planning horizon goals include: construction of a Coastal Dune with a crest elevation of EL 11 North American Vertical Datum of 1988 (NAVD88) and crest width of 25 feet (ft) at Hingham Bathing Beach and the boat ramp parking lots; elevating and contouring turfed areas adjacent to Town Wharf to the EL 11 NAVD88 (to match adjacent proposed grades to avoid creating flood pathways), relocation of the existing Harbormaster office to a more landward location to the east of the existing boat ramp and out of the existing velocity zone, and increasing the elevation of the solid filled Town Wharf to elevation EL 12 NAVD88; installation of a new tide gate structure in an existing vault associated with a 60-inch culvert between Hingham Harbor and the Home Meadows Marsh; replacing a 200-ft section of dilapidated granite block seawall along POW/MIA Memorial Park sloped armor stone revetment with a 1:2 (vertical:horizontal) slope with a crest elevation of EL 13 NAVD88; and increasing the elevation of the solid filled Barnes Wharf to EL 12 NAVD88. Temporary sheet pile cofferdams seaward of the proposed structures at Town Wharf, the POW/MIA Memorial Park, and Barnes Wharf will be required for the construction of the new footings and pile foundations. The temporary cofferdams will be constructed ~4 feet seaward of the existing seawall toe and will be removed at the end of construction. The proposed seawall will be no further seaward than the existing seawall. The proposed improvements to municipal infrastructure also take into consideration privately owned waterfront properties and planned MassDOT improvements to Route 3A (Otis Street) in the development of a comprehensive resiliency strategy.

As described in the ENF, the project will result in (cumulatively) 12,580 square feet (sf) of permanent and 4,300 sf of temporary impact to Coastal Beaches, 28,665 sf of permanent impact to Coastal Dune, 1,259 linear feet (lf) of permanent impact to Coastal Bank, 4,160 sf of permanent impact



to Land Containing Shellfish, and 174,907 sf of permanent impact to Land Subject to Coastal Storm Flowage (LSCSF). The above-listed impacts include augmentation of coastal areas such as Coastal Dune and reductions in LSCSF through actions that will reduce flooding to the waterfront and back-shore areas.

Project Comments

As identified above, project elements include installation of Coastal Dune fronting the Bathing Beach and Boat Ramp parking lots. The dunes should be vegetated in order to stabilize the underlying dune material and the dune material should be characterized and sourced to be compatible with the native material. A monitoring and maintenance plan should be developed, including shore parallel transects, to periodically assess the status of the dune and fronting beach. Transect measurements should be taken annually, at a minimum, and should include provisions for supplemental evaluation following significant storm events. The maintenance plan should identify maintenance thresholds that will trigger the addition of compatible material to restore the design profile in order to maintain the designed resiliency function and value of the dunes.

Wharf reconstruction and replacement of granite seawalls with a sloping revetment will require work to take place below mean high water. In order to avoid turbidity issues associated with (re)construction, a cofferdam will be utilized, offset from the structures by approximately 4 ft, to isolate the work area to allow activities to take place in the dry. The Massachusetts Division of Marine Fisheries (MA DMF) has identified Hingham Harbor as habitat for Winter Flounder (*Pseudopleuronectes americanus*). Therefore in-water work will require a Time of Year (TOY) restriction between February 15 and June 30 of any year, acknowledging that if the proposed cofferdam is installed prior to the beginning of the TOY then in-the-dry work landward of the cofferdam may proceed during the TOY. The proponent should consult with MA DMF regarding this consideration.

Project elements include the relocation of the Hingham Harbormaster facility at Town Wharf and the building and pavilion at Barnes Wharf. When reconstructed, the projects should be designed to conform to the appropriate building code. The American Society of Civil Engineers Flood Resistant Design and Construction publication indicates that buildings and structures that contain essential services necessary for emergency response and recovery fall within Flood Design Class 4 which should be built to a higher flood resiliency standard. The proponent should evaluate this document and ensure that the proposed structure meets the correct standard for its intended use. If relocation and reconstruction of the structures take place subsequent to the proposed resiliency actions, the town may wish to apply for a Letter of Map Revision as this may reduce the mapped flood zones and associated building code requirements for construction in flood prone areas.

The ENF also describes the installation of a new tide gate structure within an existing vault associated with a 60-inch culvert between Hingham Harbor and the Home Meadows Marsh in order to address the concern of flooding of the downtown area from the marsh from higher storm surge tides from projected sea level rise. The proponent should perform hydrodynamic modeling of the harbor-culvert-marsh system to determine at what sea level rise threshold flooding of the downtown area via the culvert will become an issue. This will help to prioritize the implementation of the sequence of the actions identified in the filing and inform the operation of the tide gate to avoid any negative impacts to the Home Meadow Marsh wetland system. As discussed during the MEPA consultation meeting, to develop and calibrate an accurate model, in-situ water levels in the harbor and marsh will need to be obtained to quantify the hydraulic capacity of the culvert. The duration of this data should include a full lunar tidal regime. In the past, armor stone from the adjacent wharves

has been entrained into the 60-inch culvert thereby reducing its hydraulic capacity. The proponent should inspect the culvert prior to collection of in-situ water level data to confirm that no obstructions are present to accurately characterize the hydraulics of the system. As part of the environmental review and permitting of this project element a Tide Gate Operation and Maintenance plan should be developed which articulates the specifics of how the tide gate will be operated to achieve flood prevention goals without negatively impacting the sensitive and ecologically valuable Home Meadows salt marsh ecosystem. This plan should be made enforceable by including it as a Special Condition of the relevant local, state, and federal permits for the project.

As previously indicated, the development of this project was funded, in part, through a CZM Coastal Resiliency grant and CZM continues to participate in the ongoing PMT for this initiative. CZM would like to use this opportunity to offer our continuing support to help address and resolve any issues identified during the MEPA review as the project continues to the permitting process.

Federal Consistency Review

This project may be subject to CZM federal consistency review, which requires that the project be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Sean Duffey, Project Review Coordinator, at sean.duffey@mass.gov or visit the CZM website at <https://www.mass.gov/federal-consistency-review-program>.

TS/jb/im

Cc: Paul Maniccia, USACE
Katelyn Rainville, USACE
Greg DeCesare, MassDEP
Amy Walkey, MassDEP
David Wong, MassDEP
Brendan Mullaney, MassDEP
Kate Frew, MA DMF
Katie Paight, MA DCR
Eric Carlson, MA DCR
Shannon Palmer, Hingham Conservation Officer

Vaughan, Eva (EEA)

From: Reiner, Edward <reiner.ed@epa.gov>
Sent: Tuesday, September 24, 2024 1:45 PM
To: Vaughan, Eva (EEA)
Cc: Vardy, Fiona C; Duffey, Sean (EEA); Burtner, Jason (EEA); kaitlyn.shaw@noaa.gov; Eric Hutchins
Subject: EEA# 16464 Hingham Waterfront Resiliency Project - HINGHAM

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

EPA has reviewed the ENF and Supplemental Information for EEA # 16464, Hingham Waterfront Resiliency Project and offers the following comments with respect to wetlands.

New Tide Gate

The project proposes to install a new tide gate referred to as a storm gate within the 60-inch Home Meadows Culvert for the purpose of flood control and storm water storage. The project has the potential to cause adverse water quality impacts by the intended operation and maintenance of this new storm gate. If the storm gate is closed during a low tide as is proposed in advance of a predicted still water elevation exceeding 6.2 feet NAVD 88, the waters in the Home Meadows salt marsh and intertidal mudflat would likely freshen from its normal saline condition. This could result in fish and benthic mortality.

The use of saltwater wetlands for storm water storage would appear on face value to violate the anti-degradation provisions of the Massachusetts Clean Water Act (314 CMR 4.04) due to this potential adverse impact. While the information provided states that in 2023, this would have resulted in a closure of only 0.8% of the time, this may not include the closure time if the storm gate is closed at a low tide, in comparison to closing only when the still water level reaches elevation 6.2 feet. Furthermore, the Home Meadows culvert due to its small size and long length, results in lower upstream water levels due to this tidal restriction. As sea level increases in the future, the number of closures would increase.

Consistent with other tide gate projects that EPA has reviewed, we suggest that if a tide gate is installed, the closure of the tide gate should only occur after the marsh is flooded. This is easily accomplished at Home Meadows based on the lower elevations of the marsh and the need for only 1.8 feet of stormwater storage to avoid impacts of flooding above elevation 8.0 NAVD88.

While the draft operation and maintenance plan included appears to support this premise, it also mentions closure in advance of water levels exceeding three feet above Mean Higher High Water during a low tide.

Implications for flood plain regulation

For other projects that installed or intended to install tide gates in Massachusetts, previous MEPA policy has been to require flood storage mitigation upstream of tide gates in accordance with the standards for freshwater wetland impacts. Will this policy be extended to any filling around Home Meadows? EPA suggests that this policy issue be

evaluated with respect to the proposed storm gate operation and potential cumulative impacts of interior filling to raise properties out of the 100-year floodplain.

Technical details

To install a tide gate that combines the virtues of a flap gate with a slide gate, the existing culvert will need to be modified to install a larger vault opening to accommodate the new gate and stem riser structure. The specific location for this culvert modification will need to be determined to evaluate the feasibility and costs of the structure. Installation of the gate needs to be done in a manner that does not diminish the hydraulic capacity and function of the 60-inch culvert.

Our experience with other tide gates in Massachusetts has revealed substantial non-compliance with permit terms and operation and maintenance plans. Electronics and motorized parts of sluice gates have failed and needed to be replaced at numerous projects. When electronic or mechanized structures fail, tidal flooding can occur, and wetlands can be impacted by the altered hydrology. Maintenance of Self-Regulating Tide gates has also been a problem that EPA has identified to the USACE and DEP. The non-compliance has continued for more than 12 years. This dismal failure has created a distrust with respect to the use of tide gates as a flood mitigation tool.

Edward Reiner
Senior Wetland Scientist
USEPA
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From: Vaughan, Eva (EEA) <Eva.Vaughan@mass.gov>
Sent: Friday, September 20, 2024 4:42 PM
To: Vaughan, Eva (EEA) <Eva.Vaughan@mass.gov>
Cc: Vardy, Fiona C <Fiona.Vardy@foth.com>
Subject: SUPPLEMENTAL INFORMATION: EEA# 16464 Hingham Waterfront Resiliency Project - HINGHAM

Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Good afternoon,

Please find attached supplemental information regarding the Hingham Waterfront Resiliency Project (EEA# 16464). As a reminder, the extended comment period deadline closes on October 1st, 2024. The Certificate will be issued on October 11th, 2024.

Please don't hesitate to reach out with any questions or concerns.

Thank you,
Eva

Eva Vaughan | Environmental Analyst
Massachusetts Environmental Policy Act (MEPA) Office
100 Cambridge Street, 10th Floor, Boston, MA 02114



Cell: (857) 408-6381 | Eva.Vaughan@mass.gov

Note: the MEPA Office has issued straw proposals to update the [2010 MEPA Greenhouse Gas Emissions Policy and Protocol](#) and the [2021 MEPA Interim Protocol on Climate Change Adaptation and Resiliency](#).

*The straw proposals are available on the [MEPA website](#), and public comments are due by **September 30, 2024** (to MEPA-regs@mass.gov).*

From: Vaughan, Eva (EEA)

Sent: Thursday, September 12, 2024 3:39 PM

To: Vaughan, Eva (EEA) <Eva.Vaughan@mass.gov>

Cc: Vardy, Fiona C <Fiona.Vardy@foth.com>

Subject: NOTICE OF COMMENT PERIOD EXTENSION: EEA# 16464 Hingham Waterfront Resiliency Project - HINGHAM

Good afternoon,

The comment period for the Hingham Waterfront Resiliency Project (EEA# 16464) has been extended to October 1st, 2024 in anticipation of supplemental information. The certificate will be issued on October 11th, 2024.

Thank you,
Eva



Eva Vaughan | Environmental Analyst

Massachusetts Environmental Policy Act (MEPA) Office

100 Cambridge Street, 10th Floor, Boston, MA 02114

Cell: (857) 408-6381 | Eva.Vaughan@mass.gov

The MEPA Office has issued straw proposals to update the [2010 MEPA Greenhouse Gas Emissions Policy and Protocol](#) and the [2021 MEPA Interim Protocol on Climate Change Adaptation and Resiliency](#).

*The straw proposals are available on the [MEPA website](#), and public comments are due by **September 16, 2024** (to MEPA-regs@mass.gov).*



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

September 27, 2024

Rebecca L. Tepper,
Secretary of Environment and Energy
Executive Office of Environmental Affairs
100 Cambridge Street, Suite 900
ATTN: MEPA Office
Boston, MA 02114

RE: EENF Review EOEEA # 16464
HINGHAM. Hingham Waterfront Resiliency
Project at Bathing Beach to Steamboat Wharf

Dear Secretary Tepper,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Expanded Environmental Notification Form (EENF) for the Seawall Repair at 77 Point Allerton Avenue, Hingham Waterfront Resiliency Project at Bathing Beach to Steamboat Wharf, Hull, Massachusetts (EOEEA #16464). The Project Proponent provides the following information for the Project:

The overall alternatives assessment concluded that developing coastal flood protection along the Hingham Harbor shoreline to initially address potential severe coastal flooding through 2050, with the additional ability to elevate this protection to anticipated severe coastal flood levels in 2070, was the preferred alternative. As the Harbor shoreline within the project area consists of both armored and unarmored shorelines, a 'one size fits all' approach is not possible. In addition, several private coastal engineering structures in various states of repair exist along the shoreline, as well. Utilizing a combination of planned MassDOT roadway improvements to Route 3A and potential Town-funded work along the road layout, contiguous protection along the entire shoreline inclusive of both public and private parcels can be achieved.

The overall project is divided into segments of Town-owned parcels, as depicted in Figure 1.2. Additionally, coastal flood protection strategies along the 3 Otis Street property and along the unimproved seawall sections between POW/MIA Memorial Park and Barnes Wharf are presented separately. The project plans provided in Attachment 11 depict the contiguous coastal flood protection along the entire shoreline. More detailed descriptions of each shoreline segment from west-to-east are provided below.

Bureau of Water Resources (BWR) Comments

Wetlands: The Project is subject to the Massachusetts Wetlands Protection Act (WPA) for proposed work within Coastal Beach (310 CMR 10.27), Coastal Dune (310 CMR 10.28), Coastal Bank (310 CMR 10.30), Land Containing Shellfish (310 CMR 10.34), and Land Subject to Coastal Storm Flowage (LSCSF).

Work within Resource Area consists of coastal resiliency improvements designed to withstand a 100-year storm event in 2050, including 1) enhancement and enlargement of the existing Coastal Dune along Hingham Bathing Beach and the boat ramp parking lot, 2) elevating existing lawns/parks and parking lots adjacent to the waterfront, 3) relocation and/or reconstruction of buildings further from the shoreline, 4) reconstruction and crest elevation increases of seawalls, revetments, and the boat ramp, and 5) installation of a tide gate at the Home Meadows Culvert. The Project's design allows for future expansion and crest elevation increases of the Coastal Dune and seawalls, respectively, should future projections of 100-year storm events and sea level rise require this additional work to maintain resiliency of the Hingham waterfront.

As described in the EENF and provided in the table in Attachment 2, impacts of the work are proposed as follows: 12,580 square feet of permanent alteration and 4,300 square feet of temporary alteration in Coastal Beach, 28,665 square feet of permanent alteration to Coastal Dune, 1,259 linear feet of permanent alteration to Coastal Bank, 4,160 square feet of permanent alteration in Land Containing Shellfish, and 179,067 square feet of permanent alteration in Land Subject to Coastal Storm Flowage.

The Proponent will be required to submit a Notice of Intent (NOI) to MassDEP and the Hingham Conservation Commission for the Project. MassDEP notes that if the minimum submittal requirements have been met a File Number will be issued. It is anticipated that the Hingham Conservation Commission will conduct a Public Hearing and issue an Order of Conditions. A Final Order of Conditions must be obtained before any work within Areas Subject to Jurisdiction commences. Further coordination with the Hingham Conservation Commission may be required to determine if there are any additional filing requirements under the Hingham Wetlands Protection By-law and Hingham Wetland Regulations.

Plans submitted with the EENF indicate the Mean Low Water (MLW) of Hingham Harbor, in proximity of the Home Meadows Culvert, is located approximately 300 feet downstream of the culvert's outfall. Based on the description of the culvert as an outlet for Home Meadow, as well as the channelized shape of this area between the Town Wharf, 3 Otis Street, and Whitney's Wharf (4 Summer Street) directing flow into the ocean, this area may be considered a perennial stream under 310 CMR 10.58. Further investigation should be undertaken to determine if this area should be classified as Land Under Water Bodies and Waterways (310 CMR 10.56) with accompanying Riverfront Area (310 CMR 10.58). Note that structures and activities subject to a Chapter 91 Waterways license or permit may be exempt from Riverfront Area performance standards.

No alteration area values were provided for the proposed tide gate installation at the Home Meadows culvert (Section D) in the table in Attachment 2. Please clarify whether any Resource Area alterations, permanent and/or temporary, are expected from this installation work and/or operation of the tide gate.

The MassDEP Wetlands GIS layer indicates that portions of the Coastal Beach within the Project area may be classified as Tidal Flats. If determined to be present, areas of alteration within Tidal Flat should be calculated and depicted on Project plans, differentiated from the Coastal Beach areas. These

Tidal Flat areas would be subject to the performance standards at 310 CMR 10.27(6) – (7) in addition to 10.27(3) – (5).

Plans submitted with the EENF indicate the depicted Land Containing Shellfish boundaries were imported from MAGIS. This GIS layer does not constitute a jurisdictional boundary and coordination should be undertaken with the Hingham Shellfish Constable, Hingham Conservation Commission, and/or Massachusetts Division of Marine Fisheries to determine the extent of Land Containing Shellfish in and near the proposed work, per 310 CMR 10.34.

A Stormwater Report must be submitted with the NOI to document compliance with the Stormwater Management Standards. If the work is classified as redevelopment, per 310 CMR 10.05(6)(k)7., a redevelopment project is required to meet Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5 and 6 only to the maximum extent practicable. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards, improve existing conditions, and incorporate structural stormwater Best Management Practices to attenuate pollutants.

Although not required under the WPA, the MassDEP Wetlands Program commends the Proponent's proposed effort to shift buildings landward, further away from coastal resource areas, and the proposed submittal of a FEMA Letter of Map Revision (LOMR) to update floodplain mapping following completion of the project.

The ENF indicates that 401 Water Quality Certification (WQC) will be required. As currently proposed, the Project may be considered an Activity Requiring an Application per 314 CMR 9.04; however, specific dredge and/or fill areas or volumes were not provided. The Proponent may wish to schedule a 401 WQC Pre-Filing Meeting with MassDEP to determine if a WQC Application is required.

Outstanding issues and revisions can be managed through the permitting process. The MassDEP Wetlands Program recommends that no further MEPA review should be required for this Project.

Waterways: The existing coastal structures at Town Pier, POW/MIA Memorial Park and Barnes Wharf have been authorized under six or more separate Chapter 91 licenses. While some of the proposed work will require the submittal of a Chapter 91 (c.91) License Application, other portions of the work could be authorized under a Minor Project Modification to a prior c.91 license. It is the recommendation of the Waterways Program that the Town submit as single c.91 license application for all Town properties in this vicinity of Hingham Harbor. The Department would issue one comprehensive c.91 License to include all existing and proposed structures and uses, including seawalls, wharfs, piers, ramps, floats, buildings, utilities, tidegates and other structures along the waterfront and within filled tidelands. Proposed work on private waterfront parcels should reviewed under separate c.91 applications. The Project will be reviewed as a water-dependent use project in accordance with the Waterways Regulations at 310 CMR 9.12(2)(a).

Bureau of Waste Site Cleanup (BWSC) Comments

Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications that have occurred at or might impact the proposed Project area. A disposal site is a location where there has been a release to the environment of oil and/or hazardous material that is regulated under M.G.L. c. 21E, and the Massachusetts Contingency Plan [MCP – 310 CMR 40.0000].

Please be advised that there are many listed BWSC disposal sites located within and near the proposed Project area. Many of the disposal sites have been closed under the MCP, but other disposal sites are open and require continued response actions under the MCP. A listing and discussion of each MCP site will not be presented here. Release Tracking Number (RTN) 4-0027844 is located within the Proposed Project and was not addressed by the Proponent. There are four RTNs (4-0021542, 4-0021622, 4-3002788, 4-0029712) located in close proximity of the Proposed Project.

RTN 4-0027844 is associated with Veterans Park located at 12 Summer Street in Hingham, Massachusetts. Concentrations of lead were detected in shallow soil representing a potential Imminent Hazard. The release was reported to MassDEP on July 19, 2019. The release was discovered during excavation to repair the seawall. The source of the lead contamination was attributed to historic fill. Approximately 62 tons of contaminated soil was excavated and disposed of off-site. A Permanent Solution Statement with Conditions (PSC) was filed on July 27, 2023.

RTNs 4-0021542, 4-0021622, 4-3002788 are associated with the former Mobil Station at 24 Summer Street located on the lot to the east of the Proposed Project. The RTNs are related to petroleum contaminated from the former underground storage tanks at the property. These RTNs have been closed but residual petroleum contamination may be present in the vicinity of the release.

RTN 4-0029712 is located at 26 Summer Street and is associated with the detection of lead at concentrations exceeding the Reportable Concentration RCS-1. The source of lead was attributed to fill at the property. A Permanent Solution Statement with No Conditions was filed on March 3, 2023.

Historic fill containing lead was detected under RTN 4-0027844 and RTN 4-0029712 potentially indicating that the presence of historic fill is potentially widespread in the Hingham waterfront area and may be encountered in other areas of the Proposed Project. As soils containing historic fill may be excavated as part of the Proposed Project, the Proponent should ensure that soils are stored and managed in compliance with the MCP. If off-site disposal is required, soils should be disposed of at an appropriately licensed facility.

Interested parties may view a map showing the location of BWSC disposal sites using the MassGIS data viewer at [MassMapper](https://massmapper.com/). Under the Available Data Layers listed on the right sidebar, select “Regulated Areas”, and then “DEP Tier Classified 21E Sites”. MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeaonline.eea.state.ma.us/portal/dep/wastesite/>

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this Project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate

opinions. The LSP may evaluate whether risk reduction measures are necessary if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

Spills Prevention and Control: The Project Proponent is advised that a spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from construction and post-construction activities should be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases.

The Project Proponent is advised that if contaminated media is encountered a Licensed Site Professional (LSP) must be employed or engaged to manage, supervise or actually perform the necessary response actions at the site for excavating, removing and/or disposing of contaminated soil or contaminated media (which includes contaminated sediment) must be conducted under the provisions of Massachusetts General Law Chapter 21E (and, potentially, c.21C) and all other applicable federal (including the Environmental Protection Agencies Toxic Substance Control Act - TSCA), state, and local laws, regulations, and bylaws. Contaminated media cannot be managed without prior submittal of appropriate plan to MassDEP (such as a Release Abatement Measure (RAM) Plan), which describes the proposed handling and disposal approach for any contaminated media encountered and health and safety precautions for those conducting the work. If contamination at the site is known or suspected, the appropriate tests should be conducted well in advance of the start of construction and professional environmental consulting services should be readily available to provide technical guidance to facilitate any necessary permits

Bureau of Air and Waste (BAW) Comments

Air Quality: Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to:

- 310 CMR 7.09 Dust, Odor, Construction, and Demolition
- 310 CMR 7.10 Noise

In order to comply with 310 CMR 7.09(2), the Proponent must file a BWP AQ-06 notification form ten days prior to site activities. More information can be found here: <https://www.mass.gov/doc/instructions-aq-06-constructiondemolition-notification/download> and here: <https://www.mass.gov/files/documents/2019/09/04/edep-aq06.pdf>

Construction-Related Measures

The Project Proponent reports: “No refueling of construction equipment will be permitted in the immediate vicinity of any coastal resource areas. Equipment used will be in accordance with 310 CMR 7.11 and there will be no unnecessary operation of motor vehicles while said vehicle is stopped for a foreseeable period of time in excess of five minutes.”

MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA’s Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-

approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). Regarding construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure install permanent signs limiting idling to five minutes or less on-site.

Solid Waste Management: The Project Proponent reports “the contractor will be responsible for proper disposal of all materials being removed from the Project site at a facility that is licensed to accept such materials. Recycling may be performed by the off-site disposal facility.”

As a reminder, the Project Proponent is advised of the following requirements:

1. *Compliance with Waste Ban Regulations:* Waste materials discovered during construction that are determined to be solid waste (e.g., construction and demolition waste) and/or recyclable material (e.g., metal, asphalt, brick, and concrete) shall be disposed, recycled, and/or otherwise handled in accordance with the Solid Waste Regulations including *310 CMR 19.017: Waste Bans*. Waste Ban regulations prohibit the disposal, transfer for disposal, or contracting for disposal of certain hazardous, recyclable, or compostable items at solid waste facilities in Massachusetts, including, but not limited to, metal, wood, asphalt pavement, brick, concrete, and clean gypsum wallboard. The goals of the waste bans are to promote reuse, waste reduction, or recycling; reduce the adverse impacts of solid waste management on the environment; conserve capacity at existing solid waste disposal facilities; minimize the need for construction of new solid waste disposal facilities; and support the recycling industry by ensuring that large volumes of material are available on a consistent basis. Further guidance can be found at: <https://www.mass.gov/guides/massdep-waste-disposal-bans>.

MassDEP recommends the Proponent consider source separation or separating different recyclable materials at the job site. Source separation may lead to higher recycling rates and lower recycling costs. Further guidance can be found at: <https://recyclingworksma.com/construction-demolition-materials-guidance/>

For more information on how to prevent banned materials from entering the waste stream the Proponent should contact the RecyclingWorks in Massachusetts program at (888) 254-5525 or via email at info@recyclingworksma.com. RecyclingWorks in Massachusetts also provides a website that includes a searchable database of recycling service providers, available at <http://www.recyclingworksma.com>.

2. *Asphalt, brick, and concrete (ABC) rubble*, such as the rubble generated by the demolition of buildings or other structures must be handled in accordance with the Solid Waste regulations. These regulations allow, and MassDEP encourages, the recycling/reuse of ABC rubble. The Proponent should refer to MassDEP's Information Sheet, entitled "Using or Processing Asphalt Pavement, Brick and Concrete Rubble, Updated February 27, 2017", that answers commonly asked questions about ABC rubble and identifies the provisions of the solid

waste regulations that pertain to recycling/reusing ABC rubble. This policy can be found on-line at the MassDEP website: <https://www.mass.gov/files/documents/2018/03/19/abc-rubble.pdf>.

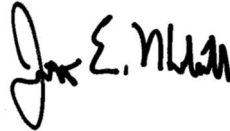
If you have any questions regarding the Solid Waste Management Program comments above, please contact Jennifer Wharff at Jennifer.Wharff@mass.gov or Mark Dakers at Mark.Dakers@mass.gov.

Proposed s.61 Findings

The “Certificate of the Secretary of Energy and Environmental Affairs on the Expanded Environmental Notification Form” may indicate that this Project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this proposed Project. If you have any questions regarding these comments, please contact George Zoto at George.Zoto@mas.gov or Jonathan Hobill at Jonathan.Hobill@mass.gov.

Very truly yours,



Jonathan E. Hobill,
Regional Engineer,
Bureau of Water Resources

JH/GZ

Cc: DEP/SERO

ATTN:Gerard Martin, Regional Director

Seth Pickering, Deputy Regional Director, BAW
John Handrahan, Deputy Regional Director, BWSC
Jennifer Viveiros, Deputy Regional Director, ADMIN
Maissoun Reda, Chief, Wetlands and Waterways, BWR
Peter Backhaus, Wetlands, BWR
Greg DeCesare, Wetlands, BWR
Brendan Mullaney, Waterways, BWR
David Hill, Waterways, BWR
Mark Dakers, Chief, Solid Waste Management, BAW
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Mark Poudrier, Chief, Air/New Source Review, BAW

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Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

March 27, 2026

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS ON
THE NOTICE OF PROJECT CHANGE

Project Name : Hingham Waterfront Resiliency Project
Project Municipality : Hingham
Project Watershed : Boston Harbor
EEA Number : 16464
Project Proponent : Town of Hingham
Date Noticed in Monitor : February 25, 2026

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62L) and Section 11.10 of the MEPA regulations (301 CMR 11.00), I have reviewed the Notice of Project Change (NPC) submitted for this project and hereby determine that it **does not require** an Environmental Impact Report (EIR).

Original Project Description and Procedural History

An Environmental Notification Form (ENF) was submitted for an earlier version of this project in October 2021 (also assigned EEA#16464), which was subsequently withdrawn from review based on Agency feedback provided during the MEPA review process at that time. A new ENF was submitted in August 2024 for a modified and expanded project (detailed below). A Certificate was issued on October 11, 2024, which found that the project did not require the preparation of an EIR (references to the “ENF” herein are to the 2024 ENF). The project included a combination of coastal engineering structures, grading, and nourishment to eliminate storm tide pathways in the Hingham Waterfront and back-shore areas through 2050, with the design able to incrementally adapt to predicted 2070 100-year flood conditions in the future.

Specifically, as described in the ENF, the project includes: the construction of a Coastal Dune with a crest elevation (el.) of 16 feet (ft) NAVD88¹ and crest width of 25 ft at Hingham Bathing Beach and boat ramp parking lots; elevating and grading turfed areas adjacent to Town Wharf to el. 11 ft (to match adjacent proposed grades to avoid creating flood pathways);

¹ All elevations noted in this Certificate reference North American Vertical Datum 1988 (NAVD88) unless otherwise noted.

relocating the existing Harbormaster office inland/east of the boat ramp, out of the existing velocity zone; increasing the elevation of the solid fill Town Wharf to el. 12 ft; installing a new tide gate structure (also referred to as a storm gate in the ENF) within the existing 60-inch culvert between Hingham Harbor and the Home Meadows Marsh (where a tide gate was historically installed and subsequently removed); replacing a 200-ft section of existing, dilapidated granite block seawall along POW/MIA Memorial Park with a sloped armor stone revetment (with a 1:2 slope and a crest elevation of 13 ft); and increasing the elevation of the solid filled Barnes Wharf to el. 12 ft. As proposed in the ENF, the seawall would be no further seaward than the existing seawall. A site-specific analysis of future water levels and wave conditions was developed to inform the project design. As described in the ENF, the project, proposed by the Town of Hingham (Town), was designed with consideration of privately owned waterfront properties and planned Massachusetts Department of Transportation (MassDOT) improvements to Route 3A (Otis Street) in the development of a comprehensive resiliency strategy.²

The NPC describes an existing beach management plan developed by the Town, the “Hingham Bathing Beach Management Plan,” which was approved by the Hingham Conservation Commission in May 2015 (the “2015 Management Plan”). The 2015 Management Plan was prepared in conjunction with a 2014-2015 Town erosion control project (ECP) that established a program to deal specifically with coastal erosion. According to the NPC, while the 2015 Management Plan served mostly as a beach maintenance document, it also detailed coastal resilience projects near the Bathing Beach undertaken in 2014-2015, including the reconstruction of an armor stone/rip-rap wall just to the west of the Bathing Beach parcel (the “Western Revetment”). The Western Revetment was designed in 2014 to maintain the same footprint as the original structure (existing prior to 2014) and was approved by the Hingham Conservation Commission and filed with the U.S. Army Corps of Engineers (USACE) earlier that year; the Town completed the reconstruction of the revetment in December 2014. However, during recent reviews of existing conditions by the Town within the project area, it was determined that the Western Revetment, as constructed in 2014, was expanded beyond the original/approved footprint and that the revetment (and in turn the 2015 Management Plan) required additional review and permitting. As described further below, the NPC also proposes modifications to the Western Revetment to improve resiliency and reduce “end-effect” erosion/scour. Additional work to improve resiliency, such as expanded sediment management and flood protection improvements, are also proposed as further described below.

Project Change Description

The NPC describes several changes to the project since the filing of the ENF. In addition to minor modifications to the original project design and retroactive permitting of the already-constructed Western Revetment structure, the NPC proposes to expand the original project to include sediment management of the beach system between the Town boat ramp and the western end of the Bathing Beach, modifications to the revetment west of the Bathing Beach, and coastal

² According to the ENF, planned MassDOT improvements to Route 3A (Otis Street) will ensure a minimum sidewalk elevation of 11.0-to-11.5 ft along the seaward side of the roadway, and create a vertical curve in the roadway between Ship Street and North Street to provide passive flood protection to the expected 100-year stillwater storm surge in 2070. This MassDOT project has not yet undergone MEPA review.

flood protection improvements to the Bathing Beach dune and parking lot. As described above, the Western Revetment was reconstructed and expanded in 2014, with an elevation (el.) crest of el. 11.0 ft with a 1.5H:1V slope. As described in the NPC, the project includes retroactive permitting of this structure and additional proposed modifications to the revetment to address the potential for significant end-effect scour under the current design. These modifications are proposed to include a tapered design in slope from the existing 1.5H:1V to 3H:1V as the structure transitions into the adjacent dune, and modifications to the toe position of the structure at the southeastern end of the revetment in order to transition landward to match the shoreline positions associated with the adjacent dune system. As stated in the NPC, while ongoing beach maintenance will be required in this area due to lack of littoral sediment supply, the more gradual transition between the coastal engineering structure and the dune system will reduce maintenance requirements and provide better protection during storm wave events.

The NPC also proposes a new beach sediment management plan (BSMP). Currently, sand removal occurs only from the surface of the Town boat ramp, consistent with direction from the Massachusetts Department of Fisheries and Wildlife (MassWildlife) to maintain safe access to the water by the public. As described in the NPC, the 2015 Management Plan utilized sediment back-passing³ between the Town boat ramp and the northern extent of the Hingham Bathing Beach. The NPC continues to propose sediment back-passing, in accordance with a new sediment management plan. The proposed sediment back-passing operation will dredge approximately 1,440 cubic yards (cy) of material from an area adjacent to the Town boat ramp (including sediment deposited on the boat ramp) annually and place the material seaward of the Coastal Dune at the northern portion of the Bathing Beach. Proposed limits for the dredge and nourishment areas are provided on plans included in the NPC (sheets C-108 and C-107, respectively). The NPC also provides dredging triggers associated with depth of sediment on, and adjacent to, the boat ramp and a Bathing Beach Monitoring Plan, which includes monitoring transects in the proposed dredge and nourishment areas.

In addition to the above expansions in the scope of work, the project is now proposed to include the reconstruction of an existing pile-supported timber pier at the northeast corner of Town Wharf to match the proposed raised wharf elevation (the increase in elevation in this area was previously proposed in the ENF, as noted above, to match adjacent proposed grades to avoid creating flood pathways). As stated in the NPC, the pier length will be reduced to maintain gangway slopes and meet accessibility requirements for the floating docks. The floating docks are currently bottom-anchored; the NPC proposes replacing the existing bottom-anchored piles with new float-anchored piles that will allow the floating docks to move safely up and down with changing tides and water levels, improving long-term durability, safety, and resilience. According to the NPC, this change will also reduce substrate impacts, as the existing anchor system has a larger footprint than the proposed system and restricts movement, creating lateral forces on the seabed.

The original project (as described in the ENF) included the installation of a new tide gate structure within the existing 60-inch culvert within Otis Street, between Hingham Harbor and the

³ As described in the NPC, sediment back-passing is a coastal management tool that strategically moves sediment from accretion areas resulting from an obstruction (such as the Town boat ramp), to updrift eroded areas (in this case, Bathing Beach).

Home Meadows Marsh, in order to reduce upstream flooding within the Home Meadows system during coastal storm events. As described in the NPC, based on further investigations conducted since the filing of the ENF, the project now proposes to raise the existing Otis Street concrete frame and grate to el. 12.0 ft to prevent floodwater from exceeding the designated flood protection elevation as it passes through the culvert. As stated in the NPC, subsequent hydrodynamic analysis determined that the existing culvert system, together with elevating the concrete frame and grate, provides adequate flood mitigation; therefore, a new storm gate would not meaningfully improve system performance or flood protection beyond these modifications and is no longer proposed as part of the project.

The NPC indicates that the project changes occur within the project area previously identified in the ENF. The proposed changes (and particularly, the expansion in proposed work) will result in changes to environmental impacts associated with the project as compared to the ENF, including 7.7 acres of land alteration (whereas no land alteration was previously proposed), as well as increase in alteration to Coastal Beach by 33,356 sf (previously 16,880 sf), to Coastal Bank by 137 linear feet (previously 1,259 linear feet (lf)), to Land Containing Shellfish by 18,256 sf (previously 4,160 sf), to Land Under Ocean (LUO) by 52 sf (no alteration previously proposed), and to Land Subject to Coastal Storm Flowage (LSCSF) by 106,790 sf (previously 174,907 sf). The project change will result in a reduction in permanent alteration to Coastal Dune by 7,318 sf (previously 28,665 sf) due to the modifications to the Western Revetment.

Project Site

The 12.14-acre project site consists of an approximately 0.6-mile section of the southerly shoreline of Hingham Harbor (extending in an east-west direction). As previously described in the ENF, this area of Hingham is commonly referred to as the “inner harbor” and includes a mixture of Town-owned properties and privately held properties with active commercial establishments and is primarily used for recreational purposes. Town-owned properties within the project area include the Bathing Beach and picnic grove, bandstand, boat ramp parking lot, Town Wharf (aka “Iron Horse” Park and Town Pier), Whitney Wharf Park, P.O.W./M.I.A. memorial, and Barnes Wharf. State highway Route 3A (owned and operated by MassDOT) and Summer Street define the southern boundary of the historic downtown area requiring coastal flood protection. According to the Town, the proposed coastal infrastructure will provide long-term resiliency for these community assets, therefore enhancing the public’s enjoyment of the Town’s public open and recreational spaces.

The project site includes mapped Flood Zone VE (an area inundated during a 100-year storm, with additional hazard associated with storm waves) with a base flood elevation (BFE) of el. 12 to 14 ft and Zone AE (an area inundated during a 100-year storm) with a BFE of el. 10 to 11 ft, as delineated on Federal Emergency Management Agency (FEMA) map 25023C0019J (effective date July 17, 2012). As previously noted in the ENF, the majority of the shoreline is currently at or below el. 10 ft. Much of the downtown business district (located further inland), which contains a significant number of historic structures dating to the 1700s, is also below the existing 100-year storm surge level.

Hingham Harbor is listed as an impaired waterbody due to the presence/concentration of various nutrients/pollutants. The project site does not contain *Estimated and Priority Habitat of Rare Species* as delineated by the Natural Heritage and Endangered Species Program (NHESP) in the 15th Edition of the Massachusetts Natural Heritage Atlas, or an Area of Critical Environmental Concern (ACEC). The site contains several structures listed in the State Register of Historic Places and/or the Massachusetts Historical Commission's (MHC) Inventory of Historic and Archaeological Assets of the Commonwealth; however, no alteration of historic resources is proposed, and the project is expected to provide resiliency benefits to historic structures in the downtown business district. There are no Environmental Justice (EJ) populations⁴ located in whole or in part of the 1-mile Designated Geographic Area (DGA) for the project, as defined in 301 CMR 11.02 (definition of "DGA").

Environmental Impacts and Mitigation

Previously identified environmental impacts associated with the project include the alteration of 16,880 sf (± 0.39 acres) of Coastal Beach; 28,665 sf (± 0.66 acres) of Coastal Dune; 1,259 linear feet (lf) of Coastal Bank; 4,160 sf of Land Containing Shellfish; and 174,907 sf (± 4.02 acres) of LSCSF; and the temporary dredging (and subsequent replacement) of approximately 6,300 cy of material associated with revetment and seawall reconstruction. Additionally, an estimated 154,190 sf (3.54 acres) of existing LSCSF was and continues to be expected to be converted to upland areas⁵ following the completion of the project.

As described in the NPC, in total the project is now expected to result in the alteration of 7.7 acres of land and 48,056 sf (± 1.10 acres) of Coastal Beach; 21,347 sf (± 0.49 acres) of Coastal Dune; 1,396 lf of Coastal Bank; 22,416 sf (± 0.51 acres) of Land Containing Shellfish; 52 sf of LUO; and 281,697 sf (± 6.47 acres) of LSCSF (in addition to the area expected to be converted to upland). In addition to the temporary dredging of 6,300 cy of material previously proposed in the ENF, the project now includes the periodic dredging of up to 1,440 cy of material from the Town boat ramp area, to be used as nourishment at the adjacent Bathing Beach.

Previously identified measures to avoid, minimize, and mitigate environmental impacts include performing site-specific modeling to inform future flood conditions and project design, dune nourishment and plantings, construction period best management practices (BMPs) to reduce construction period impacts (further described below), use of erosion and sedimentation controls (including encircling all stockpiles with sedimentation barriers and protecting all infiltration systems and stormwater structures), and restoration of any temporarily altered resource areas. Additional mitigation measures associated with the project change include altering the existing revetment to reduce end-effect erosion, replacing the existing bottom-anchored system at the Town Wharf with a pile-supported system, implementing a monitoring plan to inform back-passing/beach nourishment, preparing annual monitoring reports, and

⁴ "Environmental Justice Population" is defined in M.G.L. c. 30, § 62 under four categories: Minority, Income, English Isolation, and a combined category of Minority and Income.

⁵ Upon completion of the project, these areas will no longer be subject to coastal storm flowage. No physical alteration of these former resource areas is proposed beyond the scope of the project; the Town intends to submit a Letter of Map Revision (LOMR) to document the changes in coastal floodplain.

implementation of time of year (TOY) restrictions determined in conjunction with the Massachusetts Department of Marine Fisheries (DMF).

Jurisdiction and Permitting

This project was originally subject to MEPA review and preparation of an ENF pursuant to 301 CMR 11.03(3)(b)(1)(a), 11.03(3)(b)(1)(e), 11.03(3)(b)(1)(f), and 11.03(3)(b)(6) because it requires Agency Action and will result in the alteration of coastal dune, barrier beach or coastal bank; new fill or structure or Expansion of existing fill or structure, except a pile-supported structure, in a velocity zone or regulatory floodway; the alteration of ½ or more acres of any other wetlands; and the construction, reconstruction or Expansion of an existing solid fill structure of 1,000 or more sf base area or of a pile-supported or bottom-anchored structure of 2,000 or more sf base area, provided the structure occupies flowed tidelands or other waterways, respectively. The project as revised continues to exceed these thresholds.

The project originally required a Chapter 91 (c.91) License and a 401 Water Quality Certification (WQC) from the Massachusetts Department of Environmental Protection (MassDEP) and Federal Consistency Review by the Massachusetts Office of Coastal Zone Management (CZM). The project as revised continues to require these permits/approvals.

The project originally requires multiple Orders of Conditions from the Hingham Conservation Commission (or in the case of an appeal of any, a Superseding Order of Conditions from MassDEP); Section 404 Pre-Construction Notification to the USACE; and review by MHC acting as the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). In addition to these permits/approvals, the NPC identifies the need for a Rivers and Harbors Act of 1899, Section 408 Permit from USACE (authorization to alter an existing civil works project).

Because the project received Financial Assistance through a Coastal Resilience Grant administrated by CZM, MEPA jurisdiction is broad in scope and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in MEPA regulations.

Review of the NPC

The NPC included a description of the original project, a discussion of the project change, estimates of impacts related to the project change, updated site plans, an expanded alternatives analysis, Bathing Beach grain size analysis, and copies of correspondence with the Massachusetts DMF. The Proponent also provided additional information to the MEPA Office on March 25, 2026 regarding time of year restrictions, construction mitigation measures and proposed nourishment. For purposes of clarity, all supplemental materials provided by the Proponent are included in references to the “NPC,” unless otherwise indicated.

Comments from Agencies do not request additional analysis in the form of an EIR, but do identify information that should be provided during subsequent permitting, including identifying

triggers for nourishment and construction period best management practices, further discussed below.

Alternatives Analysis

The NPC evaluated a No Action Alternative and the Preferred Alternative for the Western Revetment, based on an analysis of sea level rise, coastal flooding, and historical shoreline change. The No Action Alternative would leave the revetment in its current state, which is vulnerable to end-effect erosion. The NPC states that, following reconstruction of the Western Revetment in 2014, the scour at the end of the revetment (where it connects to the Bathing Beach) has continued to erode, primarily due to the lack of sediment input to the system and the abrupt transition between the armored shoreline and the unarmored shoreline. While additional nourishment is currently placed along the northwest limit of the Bathing Beach, it does not address structural problems with the revetment itself. Due to the erosive effects of the revetment as currently designed, this Alternative was dismissed.

The Preferred Alternative for the Western Revetment involves tapering the revetment slope and elevation to reduce the magnitude of adjacent beach erosion. As noted above, the tapered revetment design includes a gradual shift in revetment slope from the existing 1.5H:1V slope to 3H:1V slope as the structure transitions into the adjacent dune system. Further, the toe position of the structure at the southeastern end of the revetment will also transition landward to match the shoreline positions associated with the adjacent dune system. The NPC indicates that while this Alternative involves alteration of coastal resources associated with the modification of the existing revetment, the more gradual transition between the coastal engineering structure and the dune system will reduce end-effect erosion, reduce maintenance requirements, and provide better protection during storm wave events. Ongoing beach maintenance (nourishment) will still be required due to lack of littoral sediment supply; as noted above, this will be provided via dredging and back-filling sediments that accumulate at the adjacent Town boat ramp. The NPC indicates that the proposed modifications to the revetment were developed in coordination with CZM. Comments from CZM concur that the proposed tapering of the structure will help to reduce the “end effect” erosion hot spot where the revetment ends.

Coastal Resources and Waterways

As detailed in the NPC, the project change will result in an additional 33,356 sf of alteration to Coastal Beach (2,180 sf temporary / 31,176 sf permanent); an additional 137 lf of alteration to Coastal Bank (permanent); an additional 18,256 sf of alteration to Land Containing Shellfish (1,811 sf temporary / 16,445 sf permanent); an additional 52 sf of alteration to LUO (permanent); an additional 106,790 sf of alteration to LSCSF (14,850 sf temporary / 91,940 sf permanent); and up to 1,440 cy of additional dredging on an annual basis. As noted above, the project change will also result in a reduction in alteration to Coastal Dune by 7,318 sf (associated with the tapering of the existing Western Revetment). The Hingham Conservation Commission will review the project for its consistency with the Wetlands Protections Act (WPA), the Wetland Regulations (310 CMR 10.00), and associated performance standards. Comments from MassDEP on the NPC note that portions of the Coastal Beach within the project area may be classified as Tidal Flats and should be differentiated from the Coastal Beach areas in any WPA

permitting. Comments from MassDEP further state that outstanding issues and revisions can be managed through the permitting process, and recommends that no further MEPA review should be required for this project based on impacts to wetlands/coastal resources.

The Town has indicated that separate filings will be submitted for the Sediment Management Plan, as recommended in comments from MassDEP, which will require the filing of a separate Notice of Intent (NOI) with the Conservation Commission (in addition to the NOI/Order of Conditions required for the original project), a Section 401 WQC application, a c.91 Waterways License application, and authorization from USACE. The Town has committed to coordinating with the Hingham Shellfish Constable, Hingham Conservation Commission, and DMF prior to commencement of any work to determine the presence and extent of Land Containing Shellfish in and near the proposed work area, consistent with the requirements of 310 CMR 10.34 and as recommended in comments from MassDEP. The NPC states that this coordination will support and inform the final design, timing, and permitting of project activities to ensure protection of shellfish resources. The Town has also committed to adhering to the TOY recommended in comments from DMF; specifically, all intertidal work will be avoided from May 1 through September 30 to protect shellfish resources.

As noted above, the project change includes the development and implementation of a sediment management plan describing the proposed back-passing operation that will dredge up to 1,440 cy of material annually from an area adjacent to the Town boat ramp (including sediment deposited on the boat ramp) and placement of the material seaward of the Coastal Dune at the northern portion of the Bathing Beach. Comments from DMF recommend that the Town develop an annual beach management plan to ensure that sediment management activities do not adversely affect the beach system by increasing erosion or reducing the volume or altering the form of the coastal beach or adjacent beaches. In response, the Town clarified that the Town intends to develop and implement an annual beach management plan to guide future sediment management activities. The annual plan will be distinct/separate from the sediment management plan discussed in the NPC and will be designed to ensure that sediment placement, redistribution, and maintenance activities do not adversely affect beach morphology, sediment volume, erosion patterns, or adjacent beach areas. The Town anticipates working collaboratively with applicable stakeholders, including the Conservation Commission and other regulatory agencies, in the development and ongoing refinement of the annual beach management plan.

The NPC identifies dredging triggers associated with depth of sediment on, and adjacent to, the boat ramp and an associated Bathing Beach Monitoring Plan. The Bathing Beach Monitoring Plan will measure and document any changes in shoreline position through elevation measurements along a series of eight (8) monitoring transects perpendicular to the shore along the length of the Inner Harbor (in the proposed dredge and nourishment areas), and will also involve monitoring changes in the observed high-water mark through differential GPS surveys. Monitoring reports will be prepared annually. As described in the NPC, these reports will include a summary of all data collected, information regarding the wave climate and storm activity, volume change over time, and an evaluation of shoreline change. Comments from CZM recommend that action triggers also be included, based on beach elevation adjacent to the revetment, to identify when the beach elevation or dry beach width is reduced to a pre-defined

threshold; the Town has stated that this will be determined through the subsequent permitting process.

Comments from CZM further recommend that the Town consider using the relatively fine-grained material present in the project area for the proposed dune construction (previously detailed identified in the ENF), and augment that dredge volume with coarser-grained material from an off-site location, which will be more stable and less mobile in the littoral system. Similarly, should it be necessary to augment the volume of beach sediment material over time, CZM recommends that the Town consider use of a coarser grained sediment that would be more stable on the beach and reduce the frequency and volume of back-passing needed. The Town has indicated that it will incorporate sediment gradation considerations, and that final material selections, sources, and placement methods will be confirmed through subsequent permitting, including documentation of grain size compatibility, performance monitoring, and coordination with the Hingham Conservation Commission and applicable state and federal agencies.

As noted above, the project as revised continues to require a c.91 License for the proposed coastal engineering structures. Comments from MassDEP Waterways Regulation Program state that the additional project components are relatively minor and within the same general scope as the original project. Comments from MassDEP further state that the additional project components described in the NPC can be included in the same License application, and that any outstanding issues can be addressed during the application process.

Climate Change

The ENF previously included an output report from the MA Resilience Design Tool which identified the project as having a “High” risk for sea level rise/storm surge, extreme precipitation (urban flooding), and extreme heat; the project also received a “Moderate” ecosystem benefits score. The ENF included site-specific modeling to support the proposed design to eliminate the existing storm tide pathways through 2050, as well as minimize any storm wave overtopping the seawalls and/or revetments to a level that is both localized (i.e., immediately adjacent to the shore protection structure) and minimal (i.e., potentially requiring some minor fill after the most severe storms). The project continues to incorporate flexible adaptation strategies, with the project components being designed to be easily modified to be resilient to future (2070) 100-year storm conditions. The NPC does not propose to change the top elevations of previously proposed project components. As noted in the ENF Certificate, while these elevations do not fully reach recommended standards in the MA Resilience Design Tool, they do consider future climate data as explained above and are higher than current BFEs for the FEMA AE and VE zones.

According to the NPC, additional analysis was conducted to develop the updated revetment design. Specifically, three model cases were developed for different steady state wind speeds, a 100-year (1% chance) storm scenario with present mean sea level, as well as expected 2050 and 2070 mean sea levels. Under existing conditions, the Western Revetment has a crest elevation of 11.0 ft with a 1.5H:1V slope. Updated modeling of the revetment area indicates that an elevation of 13.4 ft is required to ensure protection of the adjacent paved surfaces for predicted sea-levels up to 2070. Under the proposed conditions, the westernmost end of the

revetment will have a maximum elevation of 13.5 ft with a 2H:1V slope. The revetment will transition from this high point/slope to 2.5H:1V in the center (with a crest elevation of 13.0 ft), and finally to a 3H:1V slope where the revetment meets the adjacent dune (approximate elevation of 12.0 ft).

As noted above, the project change includes replacing the existing bottom-anchored piles associated with the timber pier at the northeast corner of Town Wharf with new float-anchored piles that will allow the floating docks to move safely up and down with changing tides and water levels, improving long-term durability, safety, and resilience. Specifically, the NPC states that this change will allow the floats to move more freely with changes in tide levels, storms, and long-term sea level rise.

Construction Period

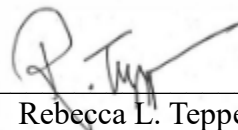
The NPC indicates that construction will commence in 2026 and conclude in 2028 (as previously indicated in the ENF). The comprehensive construction period mitigation measures previously described in the ENF continue to be proposed, including TOY restrictions, traffic management, public safety, and the restoration of temporary impacts to resource areas. The NPC additionally indicates that silt curtains may be employed during dredging for turbidity control. I refer the Town to comments from CZM, which state that the use of silt curtains in this location could cause damage to benthic areas as the curtain lifts and settles on the benthos, and recommend that the Town evaluate alternate turbidity best practices to meet project goals and minimize water quality and benthic impacts. As noted by the Town, evaluation and refinement of appropriate turbidity control measures will be addressed through the subsequent permitting process. Comments from the Massachusetts Water Resources Authority (MWRA) state that, since the project site is served by a separate storm sewer, any groundwater generated during construction must be discharged to a storm drain or other location with the appropriate permits. According to the Town, the project is not anticipated to generate groundwater and as such, there will be no groundwater discharge to the sewer system associated with this project.

Conclusion

The NPC has sufficiently described the nature and general elements of the project change for the purposes of MEPA review and described measures to avoid, minimize and mitigate the project's environmental impacts. Comments from Agencies do not request additional MEPA review. Accordingly, I find that an EIR is not required for this project change.

March 27, 2026

Date



Rebecca L. Tepper

Comments received

03/16/2026 Massachusetts Water Resources Authority (MWRA)
03/17/2026 Massachusetts Office of Coastal Zone Management (CZM)

03/18/2026 Massachusetts Department of Marine Fisheries (DMF)
03/18/2026 Massachusetts Department of Environmental Protection (MassDEP), Southeast
Regional Office (SERO)

RLT/ELV/elv



MASSACHUSETTS WATER RESOURCES AUTHORITY

Deer Island
33 Tafts Avenue
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Frederick A. Laskey
Executive Director

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TTY: (617) 788-4971

March 17, 2026

Rebecca Tepper, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge St, Suite 900
MEPA Office, Eva Vaughan
Boston, MA 02114

Subject: EOEEA #16464 – Notice of Project Change
Hingham Waterfront Resiliency Project, Hingham, MA

Dear Secretary Tepper,

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the Notice of Project Change (NPC) submitted by the Town of Hingham (the “Proponent”) for Hingham Waterfront Resiliency Project (“the Project”) in Hingham, Massachusetts. The Project proposes to develop coastal flood protection along the Hingham Harbor shoreline to initially address potential severe coastal flooding through 2050, with the additional ability to elevate this protection to anticipated severe coastal flood levels in 2070. The Project will mitigate coastal flood damage and provide shore protection infrastructure so the Harbor shoreline is capable of withstanding coastal flooding and storm surge. The Project Site extends from Bathing Beach to Barnes Wharf in Hingham. This NPC details proposed changes since the Project’s previous filing, including an expansion of the existing Project to include sediment management of the beach system between the Town boat ramp and the western end of Bathing Beach, modifications to the revetment west of Bathing Beach, and coastal flood protection improvements to the Bathing Beach dune and parking lot.

MWRA previously commented on the Project Environmental Notification Form (ENF) on September 12, 2024. MWRA’s comments on this NPC continue to relate to Toxic Reduction and Control (TRAC) discharge permitting.

TRAC Discharge Permitting

If the Proponent proposes to discharge construction site dewatering from this Project Site, it must obtain the applicable discharge permit. The MWRA prohibits the discharge of groundwater to the sanitary sewer system, either directly or indirectly, pursuant to MWRA Sewer Use Regulations, 360 C.M.R. 10.023(1) except in a combined sewer area when permitted by the Authority and the Municipality. Since this Project Site is served by a separate storm sewer, not a combined sewer, any

generated groundwater must be discharged to a storm drain or other location with the appropriate permits.

On behalf of the MWRA, thank you for the opportunity to provide comments on this Project. Please do not hesitate to contact Hillary Coolidge of my staff at (857) 324-0554 or Hillary.Coolidge@mwra.com with any questions or concerns.

Sincerely,

A handwritten signature in blue ink that reads "Colleen C. Rizzi".

Colleen Rizzi, P.E.
Director
Environmental and Regulatory Affairs

cc: George Zoto, MassDEP



The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
Office of Coastal Zone Management
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Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Alison Brizius
Director

MEMORANDUM

TO: Rebecca L. Tepper, Secretary, EEA
ATTN: Eva Vaughn, MEPA Office
FROM: Alison Brizius, Director, CZM
DATE: March 17, 2026
RE: EEA#16464 – Hingham Waterfront Resiliency Project; Hingham



The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC) noticed in the *Environmental Monitor* dated February 25, 2026, and offers the following comments.

Project Description

The Expanded Environmental Notification Form (EENF) for the Hingham Waterfront Resiliency Project was reviewed by the MEPA Office in August 2024. The NPC identifies several modifications to the project as presented in the EENF. These include: raising the existing Otis Street concrete frame and grate to Elevation (El) +12.0 NAVD88 to prevent floodwater from exceeding the designated flood protection elevation as it passes through the culvert; modifying a armor stone revetment fronting the Coastal Bank at the northern extent of the project area; and, conducting sediment back-passing operations between the boat ramp area and the northern extent of the Hingham Bathing Beach. The revetment was reconstructed and expanded in 2014 with an elevation crest of El +11.0 NAVD88 with a 1.5H:1V slope. This will be modified with a tapered design in slope from the existing 1.5H:1V to 3H:1V as the structure transitions into the adjacent dune, and the toe position of the structure at the southeaster end of the revetment will also transition. The proposed sediment back-passing operation will dredge approximately 1,400 cubic yards of material from an area adjacent to the town boat ramp (including sediment deposited on the boat ramp) annually and place the material seaward of the Coastal Dune at the northern portion of the Bathing Beach. Proposed limits for the dredge and nourishment areas are presented in the project plans, sheets C-108 and C-107, respectively. The NPC provides dredging triggers associated with depth of sediment on, and adjacent to, the boat ramp and a

Bathing Beach Monitoring Plan including monitoring transects in the proposed dredge and nourishment areas.

Project Comments

The revetment at the northern end of the project area was reconstructed and expanded in 2014 to address erosion of the Coastal Bank. This Coastal Bank was both a vertical buffer and sediment source. Tapering of the structure, as proposed, will help to reduce the “end effect” erosion hot spot where the revetment ends. The proposed sediment back-passing operation identifies action triggers based on the depth of sediment on and adjacent to the town boat ramp. CZM recommends that action triggers also be included, based on beach elevation adjacent to the revetment, to identify when the beach elevation or dry beach width is reduced to a pre-defined threshold. The dredging, back-passing, and beach nourishment activities and plans identified in the NPC (and other relevant beach management activities) should be compiled in a single stand-alone document and included in the relevant permit applications and referenced as a special condition within the permits to make the plan enforceable. CZM notes that the existing beach sediment is relatively fine grained, which is due, in part, to past nourishment sources. Should the construction of the proposed Coastal Dunes, identified in the EENF, take place during the proposed dredging the Town should consider using the relatively fine-grained material for dune construction and augment that dredge volume with coarser-grained material from an off-site location, which will be more stable and less mobile in the littoral system. Similarly, should it be necessary to augment the volume of beach sediment material over time the Town should consider use of a coarser grained sediment that would be more stable on the beach and reduce the frequency and volume of back-passing needed.

The MA DMF Shellfish Suitability data layer indicates that dredging and beach nourishment activities will be taking place within, or immediately adjacent to, mapped shellfish habitat for soft-shell clam and Blue Mussel. Materials in the NPC appear to indicate, per correspondence with MA DMF, that no time-of-year (TOY) restrictions would be necessary and that best practices, including the use of turbidity curtains during sediment removal, would address ecological considerations. However, this information in the NPC only appears to pertain to ramp-clearing activities and not the larger dredging/back-passing operations. This should be clarified, and the need for TOY restrictions for all relevant activities evaluated. Given the intertidal area and tidal range of the area use of silt curtains could cause damage to benthic areas as the curtain lifts and settles on the benthos. The Town should evaluate alternate turbidity best practices to meet project goals and minimize water quality and benthic impacts.

Federal Consistency Review

The proposed project may be subject to CZM federal consistency review and, if so, must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Sean Duffey, Project Review Coordinator, at sean.duffey@mass.gov or visit the CZM website at www.mass.gov/federal-consistency-review-program.

AB/sd/jb/rh

cc: Greg DeCesare, MassDEP
Peter Backhaus, MassDEP
Kate Frew, MA DMF
Jason Burtner, CZM
Rebecca Haney, CZM



The Commonwealth of Massachusetts
Division of Marine Fisheries
(617) 626-1520 | mass.gov/MarineFisheries



Maura T. Healey
Governor

Kimberly Driscoll
Lt. Governor

Rebecca L. Tepper
Secretary

Thomas K. O'Shea
Commissioner

Daniel J. McKiernan
Director

March 18, 2026

Secretary Rebecca L. Tepper
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Eva Vaughan, EEA No. 16464
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Tepper:

The Division of Marine Fisheries (MA DMF) staff have reviewed the Notice of Project Form (NPC) for the proposed Hingham Waterfront Resiliency Project submitted by The Town of Hingham to develop coastal flood protection along the Hingham Harbor shoreline. Updates proposed since the original ENF submission in August 2024 include sediment management of the beach system between the Town boat ramp and the western end of Bathing Beach, modifications to a revetment, and coastal flood protection improvements to the dune and adjacent parking lot. Sediment management includes sediment backpassing, involving mechanical dredging of an intertidal area west of the boat ramp during low tide and placement of the material at the western end of Bathing Beach. This method allows beach nourishment material to be recycled within the same littoral system.

The site is within mapped soft shell clam (*Mya arenaria*) and blue mussel (*Mytilus edulis*) habitat [1] within shellfish growing areas GBH7.9. Hingham Harbor provides important spawning habitat for winter flounder (*Pseudopleuronectes americanus*).

MA DMF originally recommended that in-water, silt-producing work avoid February 15 through June 30 to protect winter flounder. After reviewing the proposed project modifications, including that all work would occur during low tide within the intertidal zone, we no longer recommend a winter flounder Time of Year (TOY) restriction. However, we recommend that all intertidal work be avoided from May 1 through September 30 to protect shellfish resources. In addition, we recommend that the Town of Hingham develop an annual beach management plan to ensure that sediment management activities do not adversely affect the beach system by increasing erosion or reducing the volume or altering the form of the coastal beach or adjacent beaches.

Questions regarding this review may be directed to Kate Frew in our Gloucester office at Kate.Frew@mass.gov.

Sincerely,

Daniel J. McKiernan
Director

Cc:
Hingham Conservation Commission

Jason Burtner, Sean Duffey CZM

References:

[1] Evans, NT, KH Ford, BC Chase and JJ Sheppard (2011) Recommended Time of Year Restrictions (TOYs) for Coastal Alteration Projects to Protect Marine Fisheries Resources in Massachusetts Technical Report [DMF TR-47](#).

DM/KF



Commonwealth of Massachusetts | Executive Office of Energy and Environmental Affairs

Department of Environmental Protection

Southeast Regional Office

Address: 20 Riverside Drive, Lakeville, MA 02347 | Phone: 508-946-2700

Maura T. Healey
Governor

Kim Driscoll
Lieutenant Governor

Rebecca Tepper
Secretary

Bonnie Heiple
Commissioner

March 17, 2026

Rebecca L. Tepper,
Secretary of Environment and Energy
Executive Office of Energy and
Environmental Affairs
ATTN: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: NPC Review. EOEEA #16464
HINGHAM. Hingham Waterfront
Resiliency Project at Bathing Beach to
Barnes Wharf

Dear Secretary Tepper,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC) for the Hingham Waterfront Resiliency Project at Bathing Beach to Barnes Wharf, Hingham, Massachusetts (EOEEA # 16464). The Project Proponent provides the following information for the Project:

“The Town of Hingham (the “Town”) submitted an Expanded Environmental Notification Form (ENF) for the Hingham Waterfront Resiliency Project (the “Project”) to the MEPA Office on August 15, 2024. The filing was published in the Environmental Monitor on August 23, 2024, and the Secretary’s Certificate was issued on October 11, 2024 (EEA No. 16464).

This Notice of Project Change (NPC) details the proposed changes to the Project since the filing of the ENF. The Town has expanded the existing Project to include sediment management of the beach system between the Town boat ramp and the western end of the Bathing Beach, modifications to the revetment west of the Bathing Beach, and coastal flood protection improvements to the Bathing Beach dune and parking lot. The Project changes as described herein build upon the Project’s proposed flood protection and coastal resiliency efforts that were originally reviewed in the ENF filing. In addition to minor changes to the originally reviewed Project, the proposed changes address Town actions prior to 2015 associated with shore protection northwest of the Bathing Beach, and sand management along the Bathing Beach.”

Bureau of Water Resources Comments

Wetlands: Work described in the Notice of Project Change (NPC) is subject to the Massachusetts Wetlands Protection Act (WPA) for proposed work within Coastal Beach (310 CMR 10.27), Coastal Dune (310 CMR 10.28), Coastal Bank (310 CMR 10.30), Land Containing Shellfish (310 CMR 10.34), and Land Subject to Coastal Storm Flowage (LSCSF).

The proposed changes include the reconstruction of the western revetment to taper it into the coastal dune area and the proposal of a new beach sediment management plan. The previously proposed tide gate installation at the Home Meadows culvert (ENF Section D) has also been removed from the project.

While the western revetment and coastal dune work may be incorporated into the permitting already proposed under the ENF, the Department recommends a separate filing of a NOI and 401 WQC for the beach sediment management plan. The proposed dredging and beach nourishment activities may need to consider recurring impacts, action triggers for dredging and nourishment, ongoing conditions, and potential permitting exemptions separate from the one-time construction impacts of the ENF's proposed work. NOI and 401 WQC filing guidance were provided in the Department's ENF comments.

The Wetlands Program reiterates that portions of the Coastal Beach within the project area may be classified as Tidal Flats and should be differentiated from the Coastal Beach areas in any Wetlands Protection Act permitting. These Tidal Flat areas would be subject to the performance standards at 310 CMR 10.27(6) – (7) in addition to 10.27(3) – (5). Similarly, coordination should be undertaken with the Hingham Shellfish Constable, Hingham Conservation Commission, and/or Massachusetts Division of Marine Fisheries to determine the extent of Land Containing Shellfish in and near the proposed work, per 310 CMR 10.34.

Outstanding issues and revisions can be managed through the permitting process. The MassDEP Wetlands Program recommends that no further MEPA review should be required for this project.

Waterways: As stated in the original ENF, the proposed Project will require submittal of a Chapter 91 License application. The additional Project components are relatively minor and within the same general scope as the original Project. Additional Project components that are described in the NPC can be included in the License application. The Waterways Program believes that any outstanding issues can be addressed during the application process.

Stormwater: *National Pollutant Discharge Elimination System (NPDES) Construction General Stormwater Permit:* The Project construction activities appear to disturb more than an acre of land and therefore may require a NPDES Stormwater Permit for Construction Activities. The Proponent can access information regarding the NPDES Stormwater requirements and an application for the Construction General Permit by completing and submitting a Notice of Intent (NOI) to EPA via the [Stormwater Discharges from Construction Activities | National Pollutant Discharge Elimination System \(NPDES\) | US EPA](#).

The Proponent is advised to consult with Meridith Finegan at finegan.meridith@epa.gov, 617-918-1533) for questions regarding EPA's NPDES Construction General Permit requirements.

Bureau of Waste Site Cleanup (BWSC) Comments:

Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications that have occurred at or might impact the proposed Project area. A disposal site is a location where there has been a release to the environment of oil and/or hazardous material that is regulated under M.G.L. c. 21E, and the Massachusetts Contingency Plan [MCP – 310 CMR 40.0000].

No additional releases have been reported in the vicinity of the Project area since the submittal of the ENF. BWSC has no further comments or questions.

As stated previously, historic fill containing lead was detected under RTN 4-0027844 and RTN 4-0029712 potentially indicating that the presence of historic fill is potentially widespread in the Hingham waterfront area and may be encountered in other areas of the Proposed Project. As soils containing historic fill may be excavated as part of the Proposed Project, the Proponent should ensure that soils are stored and managed in compliance with the MCP. If off-site disposal is required, soils should be disposed of at an appropriately licensed facility.

Interested parties may view a map showing the location of BWSC disposal sites using the MassGIS data viewer at [MassMapper](https://massgis.state.ma.us/massmapper/). Under the Available Data Layers listed on the right sidebar, select “Regulated Areas”, and then “DEP Tier Classified 21E Sites”. MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeaonline.eea.state.ma.us/portal/dep/wastesite/>

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this Project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions. The LSP may evaluate whether risk reduction measures are necessary if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

Spills Prevention and Control: The Project Proponent is advised that a spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from construction activities should be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases.

Bureau of Air and Waste (BAW) Comments:

The Proponent should implement measures to alleviate dust, noise, and odor nuisance conditions, which may occur during the construction activities. Such measures must comply with MassDEP Bureau of Air and Waste Prevention (former BWP) Regulations 310 CMR 7.01, 7.09, and 7.10. To determine the appropriate requirements please refer to:

- 310 CMR 7.09 Dust, Odor, Construction, and Demolition
- 310 CMR 7.10 Noise

Construction-Related Measures:

MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Massachusetts Idling Regulation:

"The Project Proponent reports: "The contractor selected by the City of New Bedford will adhere to anti-idling and other measures to limit emissions from construction equipment."

MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

Solid Waste Management: As reported, the Project's Order of Conditions: SW has reviewed the NPC and does not have any further comments:

- All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- Any refuse material found on the site shall be disposed of at an approved landfill and in no case may these materials be buried or disposed of in or near a wetland.
- All construction refuse shall be removed from the site and disposed of in compliance with all local, State, and Federal laws and regulations.

MassDEP's Solid Waste Section provides the Project Proponent with the following information:

1. *Compliance with Waste Ban Regulations:* Waste materials and/or recyclable material (e.g., metal, asphalt, brick, and concrete) generated during dredging shall be disposed, recycled, and/or otherwise handled in accordance with the Solid Waste Regulations including *310 CMR 19.017: Waste Bans*. Waste Ban regulations prohibit the disposal, transfer for disposal, or contracting for disposal of certain hazardous, recyclable, or compostable items at solid waste facilities in Massachusetts, including, but limited to, metal, wood, asphalt pavement, brick, concrete, and clean gypsum wallboard. The goals of the waste bans are to: promote reuse, waste reduction, or recycling; reduce the adverse impacts of solid waste management on the environment; conserve capacity at

existing solid waste disposal facilities; minimize the need for construction of new solid waste disposal facilities; and support the recycling industry by ensuring that large volumes of material are available on a consistent basis. Further guidance can be found at: <https://www.mass.gov/guides/massdep-waste-disposal-bans>.

MassDEP recommends the Project Proponent consider source separation or separating different recyclable materials at the job site. Source separation may lead to higher recycling rates and lower recycling costs. Further guidance can be found at: <https://recyclingworksma.com/construction-demolition-materials-guidance/>

For more information on how to prevent banned materials from entering the waste stream the Proponent should contact the RecyclingWorks in Massachusetts program at (888) 254-5525 or via email at info@recyclingworksma.com. RecyclingWorks in Massachusetts also provides a website that includes a searchable database of recycling service providers, available at <http://www.recyclingworksma.com>.

2. *Tree removal/land clearing/clean wood*: As defined in 310 CMR 16.02, clean wood means “discarded material consisting of trees, stumps and brush, including but limited to sawdust, chips, shavings, bark, and new or used lumber” ...etc. Clean wood does not include wood from commingled construction and demolition waste, engineered wood products, and wood containing or likely to contain asbestos, chemical preservatives, or paints, stains or other coatings, or adhesives. The Proponent should be aware that wood is not allowed to be buried or disposed of at the Site pursuant to 310 CMR 16.00 & 310 CMR 19.000 unless otherwise approved by MassDEP. Clean wood may be handled in accordance with 310 CMR 16.03(2)(c)7 which allows for the on-site processing (i.e., chipping) of wood for use at the Site (i.e., use as landscaping material) and/or the wood to be transported to a permitted facility (i.e., wood waste reclamation facility) or other facility that is permitted to accept and process wood.

If the Project Proponent has any questions regarding the Solid Waste Management Program comments above, please contact Mathew Ferris at Mathew.Ferris@mass.gov or Jennifer Wharff at Jennifer.Wharff@mass.gov.

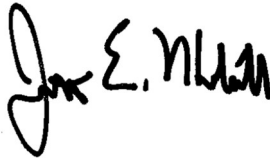
Proposed s.61 Findings

The “Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change” may indicate that this Project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the Project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC. If you have any questions regarding these comments, please contact George Zoto at George.Zoto@mass.gov or Jonathan Hobill at Jonathan.Hobill@mass.gov.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jon E. Hobill". The signature is stylized with a large initial "J" and a cursive "Hobill".

Jonathan E. Hobill,
Regional Engineer,
Bureau of Water Resources

JH/GZ

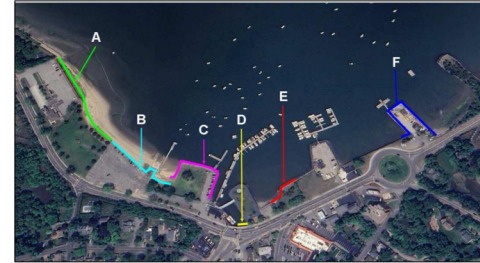
Cc: DEP/SERO

ATTN: Gerard Martin, Regional Director
John Handrahan, Deputy Regional Director, BWSC
Brian Donovan, Deputy Regional Director, BWR
Mark Dakers, Deputy Regional Director, BAW
Jennifer Viveiros, Deputy Regional Director, ADMIN
Maissoun Reda, Chief, Wetlands, BWR
Brandon Costa, Wetlands, BWR
Brendan Mullaney, Chief, Waterways, BWR
Jennifer Wharff, Acting Chief, Solid Waste Management, BAW
Michelle McCloud, Solid Waste Management, BAW
Michael Ferris, Solid Waste Management, BAW
Christopher Redus, Air/New Source Review, BAW
Angela Gallagher, Chief, Site Management, BWSC
Amanda Boustany, Site Management, BWSC

Attachment 10
Coastal Resource Area Impacts Summary

Summary of Changes from ENF to NPC				
Component	Resource Area Impacted	Delta	Unit	Permanent/Temporary
Change in Dune Geometry	Coastal Beach	(2,599.29)	SF	Permanent
Change in Dune Geometry	Coastal Dune	(7,318.00)	SF	Permanent
Change in Dune Geometry	LSCSF	(16,599.60)	SF	Permanent
Bathing Beach Revetment (Not including area that overlaps dune)	LSCSF	4,026.68	SF	Permanent
Bathing Beach Revetment (Not including area that overlaps dune)	Coastal Bank	137.46	LF	Permanent
Bathing Beach Parking Lot	LSCSF	53,057.26	SF	Permanent
Beach Management Plan - Material Placement (Not including area that overlaps dune)	Coastal Beach	20,312.25	SF	Permanent
Beach Management Plan - Material Placement (Not including area that overlaps dune)	LSCSF	20,312.25	SF	Permanent
Beach Management Plan - Dredge Adjacent to Boat Ramp	Coastal Beach	11,139.42	SF	Permanent
Beach Management Plan - Dredge Adjacent to Boat Ramp	LSCSF	11,139.42	SF	Permanent
Beach Management Plan - Dredge on Boat Ramp	Coastal Beach	2,322.34	SF	Permanent
Beach Management Plan - Dredge on Boat Ramp	LSCSF	2,322.34	SF	Permanent
Beach Management Plan - Dredge on Boat Ramp	Land Under the Ocean	28.92	SF	Permanent
Beach Management Plan - Material Placement	Land Containing Shellfish	5,587.01	SF	Permanent
Beach Management Plan - Dredge Adjacent to Boat Ramp, Dredge on Boat Ramp	Land Containing Shellfish	10,857.51	SF	Permanent
Change in Boat Ramp Parking Lot and Rain Garden	LSCSF	2,477.99	SF	Permanent
Ten (10) 120" Piles at Town Wharf	Land Under the Ocean	21.82	SF	Permanent
Two (2) 12" Piles Seaward of MLW at Town Wharf	Land Under the Ocean	1.57	SF	Permanent
Two (2) 12" Piles Landward of MLW at Town Wharf	Coastal Beach	1.57	SF	Permanent
Two (2) 12" Piles Landward of MLW at Town Wharf	LSCSF	1.57	SF	Permanent
Temporary Sheet Pile Wall at POW/MIA Park (Section E) During Construction	Coastal Beach	2,180.00	SF	Temporary
Temporary Sheet Pile Wall at POW/MIA Park (Section E) During Construction	Land Containing Shellfish	1,811.00	SF	Temporary
Temporary Sheet Pile Wall at POW/MIA Park (Section E) During Construction	LSCSF	2,180.00	SF	Temporary
Staging area at POW/MIA Park	LSCSF	12,669.53	SF	Temporary

Section



Updated Total Impacts						
Section A	Area (SF)	Temporary/Permanent	Δ ENF to NPC	New Total (SF)	Δ NPC to NOI	NOI-1A Total (SF)
Coastal Beaches	7,810	Permanent	18,577	26,387	(20,312)	6,075
Coastal Dunes	25,795	Permanent	(5,920)	19,875	-	19,875
Coastal Bank (LF)	-	Permanent	137	137	-	137
Land Containing Shellfish	4,160	Permanent	5,587	9,747	(5,587)	4,160
LSCSF	9,940	Permanent	63,630	73,570	(20,312)	53,258
Section B	Area (SF)	Temporary/Permanent	Δ ENF to NPC	New Total (SF)	Δ NPC to NOI	NOI-1A Total (SF)
Coastal Beaches	4,770	Permanent	12,598	17,368	(13,462)	3,906
Coastal Dunes	2,870	Permanent	(1,398)	1,472	-	1,472
Coastal Banks (LF)	30	Permanent	-	30	-	30
Land Containing Shellfish	-	Permanent	10,858	10,858	(10,858)	-
Land Under the Ocean	-	Permanent	29	29	(29)	-
LSCSF	59,500	Permanent	28,308	87,808	(13,462)	74,346
Section E	Area (SF)	Temporary/Permanent	Δ ENF to NPC	New Total (SF)	Δ NPC to NOI	NOI-1A Total (SF)
Coastal Bank (LF)	191	Permanent	-	191	-	191
Land Containing Shellfish	-	Temporary	1,811	1,811	-	1,811
Coastal Beach	-	Temporary	2,180	2,180	-	2,180
LSCSF	12,417	Permanent	-	12,417	-	12,417
LSCSF	-	Temporary	14,850	14,850	-	14,850
Total Impacts by Resource Area		Temporary/Permanent	Total Δ ENF to NPC	Total (SF)	Δ NPC to NOI	NOI-1A Total (SF)
Coastal Beach		Temporary	2,180	2,180	-	2,180
Coastal Beach		Permanent	31,175	43,755	(33,774)	9,981
Coastal Dunes		Permanent	(7,318)	21,347	-	21,347
Coastal Bank (LF)		Permanent	137	358	-	358
Land Containing Shellfish		Temporary	1,811	1,811	-	1,811
Land Containing Shellfish		Permanent	16,445	20,605	(16,445)	4,160
Land Under the Ocean		Permanent	29	29	(29)	-
LSCSF		Temporary	14,850	14,850	-	14,850
LSCSF		Permanent	91,938	173,795	(33,774)	140,021

Hingham NOI - 1A Resource Area Impacts Summary		
Total Impacts by Resource Area	Temporary/Permanent	NOI-1A Total (SF)
Coastal Beach	Temporary	2,180
Coastal Beach	Permanent	9,981
Coastal Dunes	Permanent	21,347
Coastal Bank (LF)	Permanent	358
Land Containing Shellfish	Temporary	1,811
Land Containing Shellfish	Permanent	4,160
LSCSF	Temporary	14,850
LSCSF	Permanent	140,021

Attachment 11
Stormwater Management System Report, Provided by Field Engineering
Co., Inc. (June 16, 2025)

**STORMWATER MANAGEMENT SYSTEM REPORT
HINGHAM WATERFRONT RESILIENCY PROJECT
TOWN OF HINGHAM**

Project Location:
95 Otis Street and 0 Summer Street
Hingham, Massachusetts

Prepared for:

Town of Hingham
210 Central Street
Hingham, MA 02043

Foth Infrastructure and Environment LLC
c/o Mr. Carlos Pena
15 Creek Road
Marion, MA 02738

11D Industrial Drive
P.O. Box 1178
Mattapoisett, MA 02739
Tel. (508) 758-2749
Fax (508) 758-2849

Project No. 2658

June 16, 2025

Preface

Stormwater Management Standards Compliance Checklist



Checklist for Stormwater Report

A. Introduction

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



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

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

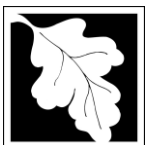
In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans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

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

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

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

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



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

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

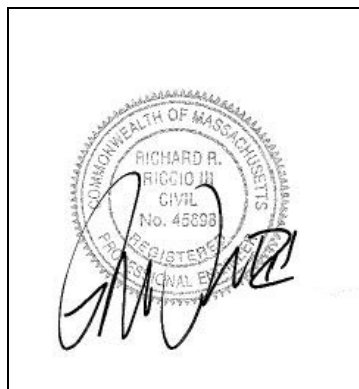
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

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

Registered Professional Engineer's Certification

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

Registered Professional Engineer Block and Signature



Signed and Stamped Electronically 6/16/2025

Signature and Date

Checklist

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

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

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

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

Standard 1: No New Untreated Discharges

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



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- ☒ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge (NOT APPLICABLE-NO NEW IMPERVIOUS SURFACES)

- ☐ Soil Analysis provided.
- ☐ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☐ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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



Checklist for Stormwater Report

Checklist (continued)

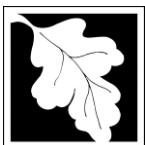
Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

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

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
 - ☒ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs) - NOT APPLICABLE

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- ☒ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

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

- ☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
 - ☒ Redevelopment Project
 - ☒ Redevelopment portion of mix of new and redevelopment.
- ☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

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

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

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

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

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☐ Name of the stormwater management system owners;
 - ☐ Party responsible for operation and maintenance;
 - ☐ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☐ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

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Section 1 – Stormwater Management System Report Narrative

Section 1

Hydrologic Overview

1.0 INTRODUCTION

1.1 Project Description

The Town of Hingham is seeking to address existing and future coastal flooding concerns across the southerly shoreline of Hingham Harbor to protect critical public infrastructure and enhance public access to the Harbor and its amenities. The project team was tasked by the Town to develop a comprehensive coastal flood hazard mitigation strategy for the inner harbor area extending from west of the Hingham Bathing Beach to the P.O.W./M.I.A. Memorial Park, where the project limits connected the higher topographic elevations to both the west and east. In this manner, eliminating storm tide pathways into historic downtown from the Harbor will provide long-term coastal resiliency for this critical portion of the community.

Where possible, nature-based shore protection would provide flood protection in the form of either a contiguous dune or berm. Proposed dune construction will extend from Hingham Bathing Beach to the boat ramp. The dune will be constructed in a similar fashion to the dune fronting Hingham Bathing Beach, with constructed walkways over the dune. It is anticipated that compatible material for dune construction will be sourced from an upland site. It is also anticipated that the Boat Ramp Parking Lot will be elevated, and a vegetated berm will be established at the same elevation as the proposed dune between the Boat Ramp and Town Wharf. By using native vegetation to stabilize the dune, the project will provide aesthetically pleasing shoreline protection.

As part of this project to raise the existing parking lots to provide flood protection and long-term coastal resiliency, the Town is also proposing a number of stormwater improvements to provide some treatment and recharge of the runoff that will be generated from the paved parking area and improve existing conditions in the project vicinity. The BMP's being proposed include new deep sump catch basins, a proposed water quality inlet and a number of rain garden areas to provide for some treatment and attenuation of the runoff prior to discharge to adjacent lawn areas and eventually towards Hingham Harbor.

The project is being designed and permitted in accordance with the Massachusetts Wetlands Protection Act (310 CMR 10.000) and the Town of Hingham Wetland Protection By-Law for the proposed activities within the coastal areas subject to protection. The coastal resource areas within the project site include Land Under the Ocean (LUO), Land Containing Shellfish (LCS), Coastal Beach, Coastal Dune, Coastal Bank and Land Subject to Coastal Storm Flowage.

1.2 Hydrologic Overview

The Plymouth County Soil Conservation Service (SCS) mapping for this area indicates a number of soil types in the project area. The soil classification is as follows:

- Urban land, wet substratum (603A), 0 to 3 percent slopes, Hydrologic Soil Group B/D.
- Udorthents, wet substratum (655A), Hydrologic Soil Group B/D.

In existing conditions, the runoff from the majority of the paved parking areas (westerly trailer parking area) flows through a closed conduit drainage system consisting of catch basins (with minimal sumps) and reinforced concrete piping to a direct discharge to Hingham Harbor. The runoff from the remaining portions of the paved parking areas (Town Wharf parking area) flows directly towards the existing lawn areas and eventually into Hingham Harbor with no stormwater BMP's providing pre-treatment.

In proposed conditions, the runoff from the westerly trailer parking area will continue to flow through a closed conduit drainage system which will be equipped with new deep sump catch basins and a water quality unit prior to utilizing the same discharge to the Harbor. A portion of this area will flow through a crushed stone edge drain area to a proposed rain garden for pre-treatment prior to overtopping towards the Harbor. The runoff from the Town Wharf parking area will flow through a series of rain gardens for pre-treatment prior to eventually flowing towards the Harbor. There are no increases in impervious surface following completion of this project, therefore there should be no additional runoff being generated from the project site.

1.3 Stormwater Management System Summary

The proposed stormwater management system incorporates Best Management Practices (BMPs) as prescribed in the Department of Environmental Protection Stormwater Management Handbook. These practices include structural and non-structural measures providing stormwater quantity and quality management. These BMPs will function to minimize potential adverse water quality impacts to the surrounding ecosystem. The following sections describe the temporary and permanent stormwater BMPs proposed for the proposed coastal resiliency project.

The proposed stormwater management plan has been developed based on the projected site conditions and the present condition of the water resource areas that receive stormwater runoff from the site. The proposed BMPs have been designed to comply, to the greatest extent practicable, with the Massachusetts Stormwater Management Handbook. As the project area is

discharging runoff towards a coastal resource area and flooding due to storm events is not a direct concern, attenuation under the Stormwater Management Standards 2 is not required so the focus of the stormwater management system design is on water quality. The proposed improved paved parking areas are the primary target area for water quality measures for the project. The runoff from the paved parking areas will either flow through a closed conduit drainage system consisting of deep sump catch basins and a water quality inlet prior to direct discharge to Hingham Harbor or overland through a series of stone edge drains and/or rain gardens prior to discharge to existing lawn areas and ultimately towards the Harbor.

1.4 Select Structural Best Management Practices (BMP's)

Hooded Catch Basins with Deep Sumps

Stormwater from portions of the paved parking areas will be collected in a closed conduit piping system fitted with 4-foot-deep sump catch basins with hooded outlets. Catch basin sump systems are effective devices for removal of large matter and pollutants that adsorb to sediments and other particulates. Catch basins with sumps and hooded outlets are designed to trap sediment particles and floating contaminants (e.g., oil and greases), that are typically the most significant constituents of the urban runoff pollutant load. Regular maintenance and cleaning of catch basins is required to assure adequate performance of these structures. A specific maintenance schedule is submitted in this document.

Crushed Stone Edge Drain

Runoff from a portion of the paved trailer parking area will flow to a crushed stone infiltration trench located along the westerly side of the parking area. This trench will consist of crushed stone wrapped in filter fabric with an additional layer of crushed stone to the surface. This trench will serve as a conduit to facilitate recharge into the subsurface soils as well as provide a means to slow the runoff down prior to discharge to the adjacent rain garden area. This trench will help to minimize the effects of erosion and sedimentation towards the adjacent lawn areas following construction of the proposed improvements. The top 6" of crushed stone above the filter fabric can be inspected and maintained on a regular basis to function as a filter strip for the runoff coming from the paved parking area.

Rain Garden/Bioretention Areas

Stormwater from portions of the paved areas will discharge directly to surface rain gardens which are also effective devices for removal of large matter and pollutants that adsorb to sediments and other particulates. The rain gardens consist of depressed areas which allow

pollutants to settle out prior to discharging either via a surface spillway or a closed piping system. The rain garden areas will be planted with shrubs and grasses that are salt tolerant and will promote nutrient removal of the runoff prior to overtopping. The rain garden areas are constructed with a mulch surface over a soil amendment zone which will also promote some recharge throughout the site.

1.5 Select Non-Structural Best Management Practices (BMP's)

Stormwater Management System Maintenance Program

All structural components of the stormwater management system will be inspected and maintained on a regular basis in accordance with the requirements of the Stormwater Management Policy. A detailed Stormwater Management System Operation and Maintenance Plan has been prepared in accordance with the Stormwater Management Standards and Stormwater Management Handbook prepared by the Massachusetts Department of Environmental Protection.

1.6 Regulatory Compliance

The Massachusetts Stormwater Handbook, Volume 3 (February, 2008), has been used as the primary guidance for the selection and design of permanent non-structural and structural BMPs for the long-term protection of existing resource areas. The Stormwater Management Plan developed for this project incorporates water quality controls that will protect surface and groundwater resources, wetlands and adjacent properties from potential impacts.

The stormwater performance standards developed by the DEP and a brief discussion on how the proposed project will achieve the standards are provided below. The Stormwater Management System Compliance Certification and Checklist has been included as a Preface to this report.

Standard 1. No new stormwater conveyances may discharge untreated stormwater directly to, or cause erosion in wetlands or waters of the Commonwealth.

- No proposed site stormwater conveyance system will discharge untreated stormwater runoff directly to wetlands. Stormwater runoff from a portion of the existing improved parking area will now be directed through deep sump catch basins and a water quality inlet prior to discharge. The remaining portions of the paved parking areas will flow through a combination of stone edge drains and/or rain gardens prior to overtopping towards downgradient areas. These BMP's will eliminate any potential erosive flow velocities and

dissipate the energy of the discharged stormwater, thereby avoiding sedimentation to the downgradient areas.

Standard 2. Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.

- Standard 2 is not applicable as the project is located in land subject to coastal storm flowage.

Standard 3. Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post- development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

- There are no new proposed impervious surfaces as a result of the project, therefore recharge characteristics will not be impacted by the project. Some recharge will occur through the crushed stone edge drain and rain garden areas being proposed around the project.

Standard 4. Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:

- a) Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;**
 - b) Structural stormwater best management practices are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and**
 - c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.**
- The proposed deep sump catch basins and water quality inlet will provide substantial improvements to the stormwater leaving the site from the paved trailer parking area. The remaining portions of the paved parking areas will flow through a combination of stone edge

drains and/or rain gardens which will also provide a substantial improvement to the quality of the runoff reaching the Harbor. A Long-Term Pollution Prevention Plan is included as an Appendix to this report.

Standard 5. For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If, through source control and/or pollution prevention, all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L.c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

- The proposed project is not considered a high intensity use with higher potential pollutant loads.

Standard 6. Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.

- The runoff discharging to Hingham Harbor has been treated, to the greatest extent practicable, as required by the project's redevelopment status.

Standard 7. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all

other requirements of the Stormwater Management Standards and improve existing conditions.

- The redevelopment project meets Standards 1, 2, 8, 9, 10.
- Standards 3, 4, and 6 have been met to the greatest extent practicable.
- Standard 5 is not applicable for this project.
- The proposed project significantly improves existing conditions by raising the parking area and providing stormwater management features downgradient of the parking area to reduce TSS loading to the adjacent lawn areas and eventually towards Hingham Harbor.

Standard 8. A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

- The proposed development will incorporate erosion and sedimentation controls to minimize the potential for sedimentation in down gradient resources. These controls will include a silt curtain as shown on the NOI Plans. A Construction Period Pollution Prevention Plan has been completed and is included in the following sections.

Standard 9. A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

- The Stormwater Management Plan for this project has been developed in compliance with the DEP Stormwater Management Policy. The Plan is based on a multi-dimensional approach to stormwater management that recognizes the need for source control of potential contaminants, and implementation of structural and non-structural treatment methods to ensure the protection of water resources in the vicinity of the site and adjacent properties. A Long-Term Operation and Maintenance Plan is included in the in the following sections.

Standard 10. Illicit Discharges to the Stormwater Management System are prohibited.

- An Illicit Discharge Compliance Statement has been completed and is attached to this report.

Section 2

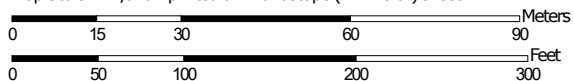
Supplemental Data

Soil Map—Plymouth County, Massachusetts



Soil Map may not be valid at this scale.

Map Scale: 1:1,340 if printed on A landscape (11" x 8.5") sheet.



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



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

3/13/2025
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Plymouth County, Massachusetts

Survey Area Data: Version 17, Aug 27, 2024

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
603A	Urban land, wet substratum. 0 to 3 percent slopes	3.9	77.9%
608	Water, ocean	0.2	4.9%
610	Beaches, sand	0.8	16.5%
655A	Udorthents, wet substratum, 0 to 3 percent slopes	0.0	0.7%
Totals for Area of Interest		5.0	100.0%

Cascade Separator Project Details

Description

The Cascade Separator® is the latest innovation in hydrodynamic separation from Contech. The Cascade uses advanced sediment capture technology to provide the highest sediment removal efficiency of any Contech HDS product.

Project Information

Project Name 78160 - New Water Quality Inlet
Location Hingham, MA
Date June 15 2025

Design Parameters	
System Type	Cascade Separator
Particle Size D50	110
System Model	CS-4
Sizing Method	Net Annual Removal
Drainage Area	1.02 acres
Runoff Coefficient	.90
Time of Concentration	6 min
Peak Conveyance	5ft ³ /sec
100% Trash Capture?	No
Primary Access Casting	Grate Inlet
Target Removal %	80%

Outlet Pipe Information	
# of Pipes	1
Outlet Diameter	15 inches
Outlet Invert Elev	4.37 ft
Outlet Angle	180°
Outlet Material	RCP
Inlet Pipe Information	
# of Pipes	1
Inlet Diameter	15 inches
Inlet Invert Elev	4.37 ft
Inlet Angle	0°
Inlet Material	RCP

SECTION (____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

- 1.1 This item shall govern the furnishing and installation of the Cascade Separator™ by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.
- 1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.
- 1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Cascade Separator™ device manufactured by:

Contech Engineered Solutions LLC
9100 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4 Related Sections

- 1.4.1 Section 02240: Dewatering
 - 1.4.2 Section 02260: Excavation Support and Protection
 - 1.4.3 Section 02315: Excavation and Fill
 - 1.4.4 Section 02340: Soil Stabilization
- 1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.
 - 1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.
 - 1.7 The SWTD manufacturer shall submit to the Engineer of Record a "Manufacturer's Performance Certification" certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

- 1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

- 2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:
- 2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
 - 2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
 - 2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
 - 2.1.4 Aggregates shall conform to ASTM C 33;
 - 2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
 - 2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
 - 2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.
- 2.2 Internal Components and appurtenances shall conform to the following:
- 2.2.1 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
 - 2.2.2 Support brackets shall be manufactured of 5052 Aluminum
 - 2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
 - 2.2.4 Polypropylene copolymer components shall conform to a tensile strength of 3,600 psi (ASTM D-638), and Izod impact value of "no break" (ASTM D-256).
 - 2.2.5 Access system(s) conform to the following:
Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

3.0 PERFORMANCE

- 3.1 The SWTD shall be capable of achieving an annualized weighted reduction of at least 80% of the OK-110 particle distribution having particles ranging from 53 microns to 212 microns with a d_{50} of approximately 110 microns unless otherwise stated.
- 3.2 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table

1. The boundaries of the sump chamber shall be limited to that which do not degrade the SWTD's treatment efficiency as captured pollutants accumulate. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.
- 3.3 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.
- 3.4 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

4.0 EXECUTION

- 4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.
- 4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.
- 4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.
- 4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

TABLE 1: Storm Water Treatment Device Storage Capacities

Cascade Model	Minimum Sump Storage Capacity (yd ³)	Minimum Oil Storage Capacity (gal)
CS-3	0.41	59.0
CS-4	0.70	141.0
CS-5	1.09	269.3
CS-6	1.57	475.9
CS-8	2.79	1128.0
CS-10	4.36	2203.2
CS-12	6.28	3807.1

END OF SECTION

A cross-sectional diagram of a manhole structure. The structure is a vertical cylinder with a concrete wall and a dashed rectangular area in the center. At the top, there is a rim with a red horizontal line. At the bottom, there is an outlet with a hatched area. Two vertical dimension lines are on the right side: one from the rim to the outlet invert, labeled $7'-1\frac{1}{4}"$, and another from the outlet invert to the outside bottom, labeled $4'-6"$. Three horizontal elevation lines are on the right side: the top one is labeled "RIM ELEV. 10.8 (FT)", the middle one is labeled "OUTLET INVERT ELEV. 4.37 (FT)", and the bottom one is labeled "OUTSIDE BOTTOM ELEV. -0.13 (FT)".

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

* OUTSIDE TOP AND BOTTOM OF SYSTEM
MAY DIFFER DEPENDING ON
MANUFACTURING LOCATION.

CONTECH
DYOHDS
DRAWING

DESIGN PARAMETERS

- TREATMENT METHOD = Cascade Separator
- MODEL = CS-4

MATERIAL LIST		
COUNT	DESCRIPTION	INSTALLED BY
1	CS-4 CYLINDER INSERT, STD	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	24" x 24" FRAME & GRATE, EJ#45624050A01, OR EQUIV.	CONTRACTOR
1	24" INLET TRAY	CONTRACTOR

Cascade Separator CS-4
HINGHAM COASTAL RESILIENCY
NEW WATER QUALITY INLET
HINGHAM, MA

CONTECH
ENGINEERED SOLUTIONS LLC
www.ContechES.com

CASCADE
separator™

DATE: 06/15/2025	
DESIGNED: DYO	DRAWN: DYO
CHECKED: DYO	APPROVED: DYO
PROJECT No.: 56538	DESIGN No.: 78160
SHEET: 1 OF 1	

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POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.305 (0.240-0.382)	0.377 (0.297-0.473)	0.495 (0.387-0.623)	0.594 (0.463-0.752)	0.729 (0.551-0.976)	0.830 (0.614-1.14)	0.938 (0.676-1.35)	1.07 (0.721-1.56)	1.26 (0.820-1.92)	1.43 (0.905-2.22)
10-min	0.432 (0.340-0.541)	0.534 (0.420-0.670)	0.702 (0.550-0.883)	0.841 (0.655-1.07)	1.03 (0.780-1.38)	1.18 (0.870-1.62)	1.33 (0.958-1.91)	1.51 (1.02-2.21)	1.79 (1.16-2.72)	2.02 (1.28-3.14)
15-min	0.508 (0.400-0.636)	0.629 (0.494-0.788)	0.827 (0.648-1.04)	0.991 (0.771-1.26)	1.22 (0.918-1.63)	1.38 (1.02-1.90)	1.56 (1.13-2.25)	1.78 (1.20-2.60)	2.10 (1.36-3.20)	2.38 (1.51-3.70)
30-min	0.708 (0.557-0.887)	0.877 (0.689-1.10)	1.15 (0.904-1.45)	1.38 (1.08-1.75)	1.70 (1.28-2.27)	1.93 (1.43-2.65)	2.18 (1.57-3.14)	2.48 (1.68-3.63)	2.94 (1.91-4.47)	3.33 (2.11-5.18)
60-min	0.908 (0.715-1.14)	1.12 (0.884-1.41)	1.48 (1.16-1.86)	1.77 (1.38-2.25)	2.18 (1.64-2.92)	2.48 (1.83-3.40)	2.80 (2.02-4.03)	3.19 (2.15-4.66)	3.78 (2.45-5.75)	4.29 (2.72-6.66)
2-hr	1.15 (0.915-1.44)	1.45 (1.15-1.81)	1.94 (1.53-2.42)	2.34 (1.83-2.94)	2.89 (2.20-3.85)	3.30 (2.46-4.51)	3.75 (2.73-5.37)	4.29 (2.91-6.22)	5.13 (3.34-7.72)	5.86 (3.73-9.00)
3-hr	1.34 (1.06-1.66)	1.69 (1.34-2.09)	2.25 (1.78-2.81)	2.72 (2.14-3.41)	3.37 (2.57-4.46)	3.85 (2.88-5.23)	4.37 (3.19-6.22)	5.01 (3.40-7.21)	5.99 (3.91-8.96)	6.84 (4.36-10.4)
6-hr	1.76 (1.41-2.16)	2.18 (1.75-2.69)	2.88 (2.30-3.57)	3.46 (2.74-4.31)	4.26 (3.27-5.59)	4.85 (3.65-6.53)	5.49 (4.02-7.73)	6.27 (4.28-8.94)	7.46 (4.89-11.0)	8.48 (5.43-12.8)
12-hr	2.30 (1.85-2.81)	2.80 (2.26-3.43)	3.62 (2.91-4.45)	4.30 (3.43-5.32)	5.24 (4.04-6.81)	5.94 (4.49-7.90)	6.69 (4.91-9.28)	7.58 (5.21-10.7)	8.91 (5.87-13.0)	10.0 (6.46-15.0)
24-hr	2.80 (2.27-3.40)	3.41 (2.76-4.15)	4.41 (3.56-5.38)	5.24 (4.21-6.43)	6.38 (4.96-8.23)	7.23 (5.50-9.54)	8.14 (6.01-11.2)	9.24 (6.38-12.9)	10.9 (7.20-15.7)	12.3 (7.93-18.1)
2-day	3.17 (2.59-3.82)	3.93 (3.21-4.75)	5.18 (4.22-6.28)	6.22 (5.03-7.58)	7.65 (5.98-9.81)	8.71 (6.67-11.4)	9.86 (7.35-13.5)	11.3 (7.81-15.6)	13.5 (8.95-19.3)	15.4 (9.96-22.4)
3-day	3.46 (2.84-4.16)	4.29 (3.52-5.16)	5.64 (4.61-6.81)	6.76 (5.49-8.20)	8.31 (6.52-10.6)	9.44 (7.27-12.3)	10.7 (8.00-14.6)	12.2 (8.50-16.8)	14.6 (9.74-20.8)	16.7 (10.8-24.2)
4-day	3.75 (3.09-4.49)	4.60 (3.78-5.52)	6.00 (4.91-7.22)	7.16 (5.83-8.66)	8.76 (6.89-11.1)	9.94 (7.66-12.9)	11.2 (8.42-15.2)	12.8 (8.92-17.5)	15.3 (10.2-21.6)	17.4 (11.3-25.1)
7-day	4.55 (3.76-5.42)	5.44 (4.50-6.49)	6.90 (5.68-8.26)	8.12 (6.64-9.76)	9.78 (7.73-12.3)	11.0 (8.52-14.2)	12.4 (9.28-16.6)	14.0 (9.78-18.9)	16.5 (11.0-23.1)	18.6 (12.1-26.5)
10-day	5.29 (4.39-6.28)	6.21 (5.15-7.38)	7.71 (6.37-9.19)	8.96 (7.36-10.7)	10.7 (8.46-13.4)	12.0 (9.26-15.3)	13.3 (10.0-17.7)	15.0 (10.5-20.1)	17.4 (11.7-24.2)	19.4 (12.7-27.6)
20-day	7.42 (6.20-8.74)	8.42 (7.03-9.93)	10.1 (8.37-11.9)	11.4 (9.44-13.6)	13.3 (10.6-16.4)	14.7 (11.4-18.5)	16.2 (12.1-21.0)	17.8 (12.6-23.7)	20.1 (13.6-27.6)	21.9 (14.4-30.7)
30-day	9.17 (7.69-10.8)	10.2 (8.58-12.0)	12.0 (10.0-14.1)	13.4 (11.2-15.9)	15.4 (12.3-18.9)	17.0 (13.2-21.1)	18.5 (13.8-23.7)	20.1 (14.3-26.6)	22.3 (15.1-30.3)	23.9 (15.7-33.2)
45-day	11.4 (9.57-13.3)	12.5 (10.5-14.6)	14.4 (12.1-16.9)	15.9 (13.3-18.8)	18.1 (14.4-21.9)	19.7 (15.4-24.4)	21.4 (15.9-27.1)	22.9 (16.3-30.1)	24.9 (17.0-33.7)	26.4 (17.4-36.4)
60-day	13.2 (11.2-15.4)	14.4 (12.2-16.8)	16.4 (13.8-19.1)	18.0 (15.0-21.1)	20.2 (16.2-24.4)	22.0 (17.2-27.0)	23.7 (17.7-29.8)	25.2 (18.0-32.9)	27.1 (18.5-36.5)	28.4 (18.8-39.0)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

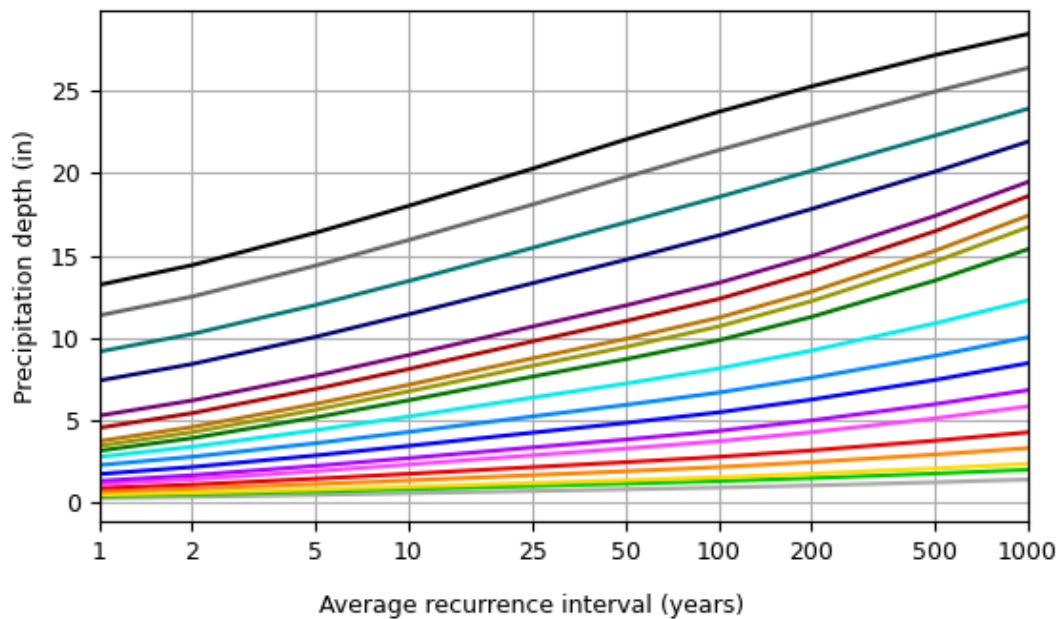
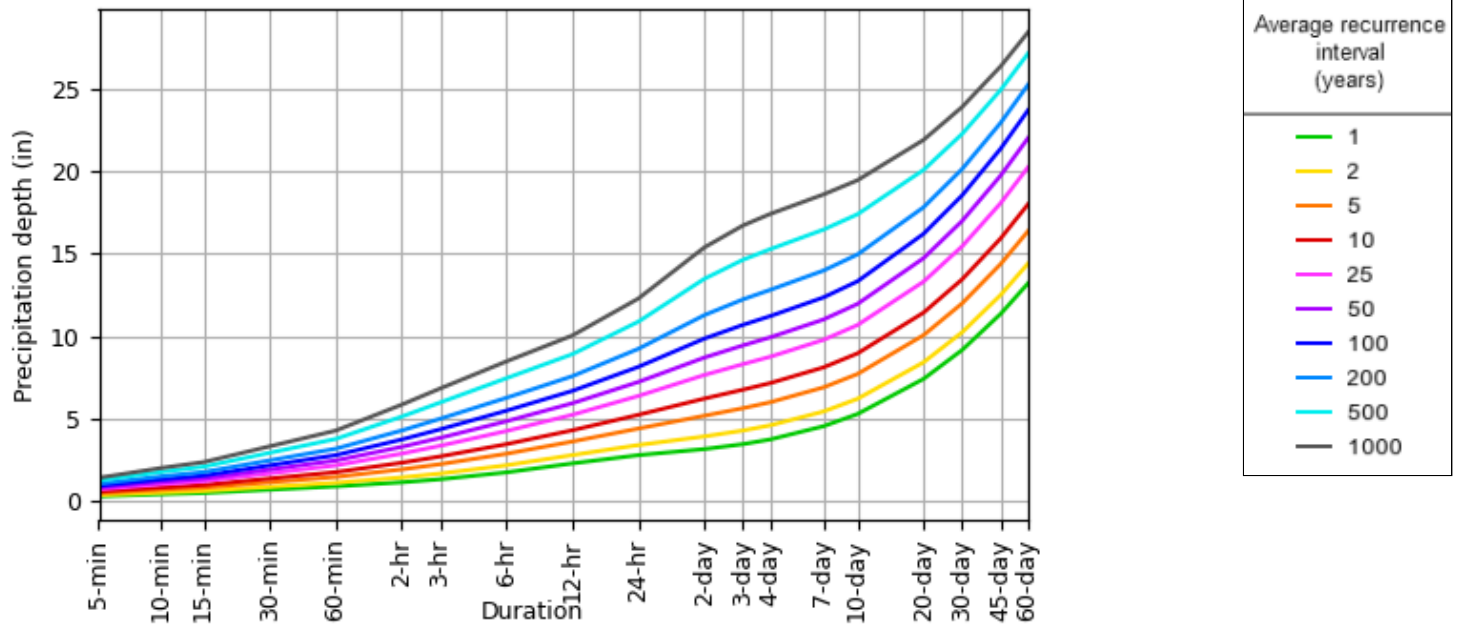
Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

Latitude: 42.2458°, Longitude: -70.8856°



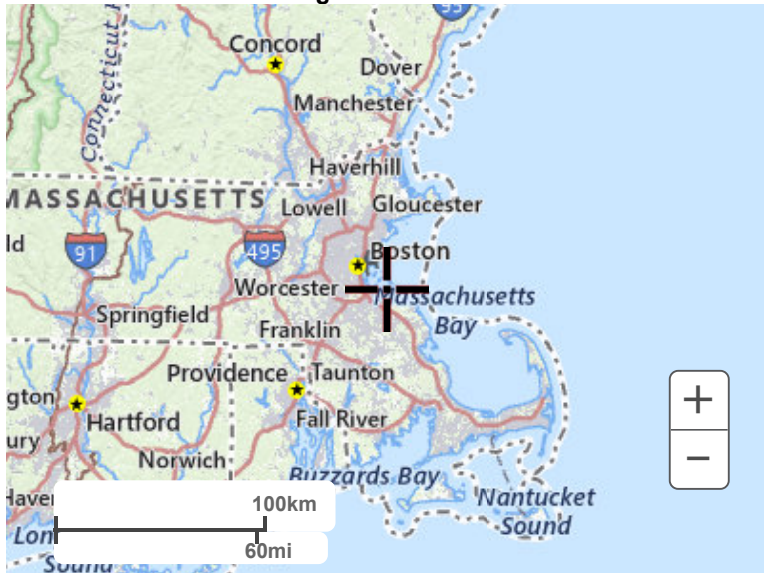
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Maps & aerials

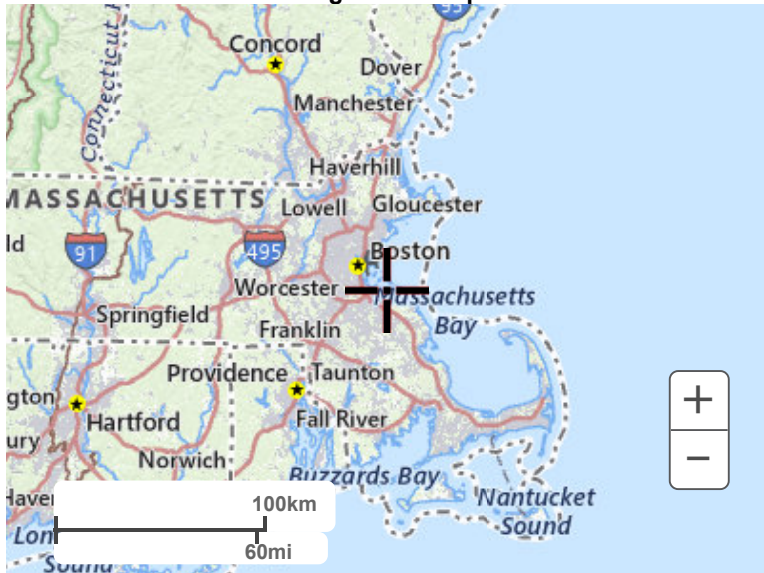
Small scale terrain



Large scale terrain



Large scale map



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Stormwater Management Facility Operation and Maintenance Cost

Methodology for determining costs:

Unit costs based on review of available literature including the 1999 "Preliminary Data Summary for Urban Storm Water Management Best Practices" prepared by the United States Environmental Protection Agency and have been prorated assuming an inflation rate of 3.0%.

Catch Basins

Assume \$500.00/Structures to inspect and clean

2 Structures on site

Estimated Annual O&M Cost = 2 Structures * \$500/Basin * 4 Cleanings a Year = \$4,000

Water Quality Inlets

Assume \$1,000.00/Structures to inspect and clean

1 Structures on site

Estimated Annual O&M Cost = 2 Structures * \$1,000/Structure * 2 Cleanings a Year = \$2,000

Rain Gardens

Approximate Volume – 4,000 CF

Assume Construction Cost of \$15.00 per CF

Estimated Cost to Construct - \$60,000

O&M Cost for Constructed Wetland Assumed to be 2% of Construction Cost (See Table 6-10, Attached)

Estimated Annual O&M Cost = 2% * \$60,000 = \$1,200 Say \$1,500

Total Estimated Cost for Operation and Maintenance of Proposed Stormwater BMP'S = \$7,000/year

maintenance, others need more frequent but less costly maintenance.⁵ Accordingly, selection of appropriate structural BMPs must factor in maintenance cost (and a responsible party to carry out maintenance) to ensure the necessary long-term performance. Typical maintenance activities are included in Table 5-3.

Table 6-10. Annual Maintenance Costs

BMP	Annual Maintenance Cost (% of Construction Cost)	Source(s)
Retention Basins and Constructed Wetlands	3%-6%	Wiegand et al, 1986 Schueler, 1987 SWRPC, 1991
Detention Basins¹	<1%	Livingston et al, 1997; Brown and Schueler, 1997b
Constructed Wetlands¹	2%	Livingston et al, 1997; Brown and Schueler, 1997b
Infiltration Trench	5%-20%	Schueler, 1987 SWRPC, 1991
Infiltration Basin¹	1%-3%	Livingston et al, 1997; SWRPC, 1991
	5%-10%	Wiegand et al, 1986; Schueler, 1987; SWRPC, 1991
Sand Filters¹	11%-13%	Livingston et al, 1997; Brown and Schueler, 1997b
Swales	5%-7%	SWRPC, 1991
Bioretention	5%-7%	(Assumes the same as swales)
Filter strips	\$320/acre (maintained)	SWRPC, 1991

1. Livingston et al (1997) reported maintenance costs from the maintenance budgets of several cities, and percentages were derived from costs in other studies

⁵ Maintenance costs can also vary significantly based on a variety of site- and region-specific parameters, therefore the maintenance costs presented in Table 6-10 should be considered only as general guidelines.

Table 6-1. Typical Base Capital Construction Costs for BMPs

BMP Type	Typical Cost* (\$/cf)	Notes	Source
Retention and Detention Basins	0.50-1.00	Cost range reflects economies of scale in designing this BMP. The lowest unit cost represents approx. 150,000 cubic feet of storage, while the highest is approx. 15,000 cubic feet. Typically, dry detention basins are the least expensive design options among retention and detention practices.	Adapted from Brown and Schueler (1997b)
Constructed Wetland	0.60-1.25	Although little data are available to assess the cost of wetlands, it is assumed that they are approx. 25% more expensive (because of plant selection and sediment forebay requirements) than retention basins..	Adapted from Brown and Schueler (1997b)
Infiltration Trench	4.00	Represents typical costs for a 100-foot long trench.	Adapted from SWRPC (1991)
Infiltration Basin	1.30	Represents typical costs for a 0.25-acre infiltration basin.	Adapted from SWRPC (1991)
Sand Filter	3.00-6.00	The range in costs for sand filter construction is largely due to the different sand filter designs. Of the three most common options available, perimeter sand filters are moderate cost whereas surface sand filters and underground sand filters are the most expensive.	Adapted from Brown and Schueler (1997b)
Bioretention	5.30	Bioretention is relatively constant in cost, because it is usually designed as a constant fraction of the total drainage area.	Adapted from Brown and Schueler (1997b)
Grass Swale	0.50	Based on cost per square foot, and assuming 6 inches of storage in the filter.	Adapted from SWRPC (1991)
Filter Strip	0.00-1.30	Based on cost per square foot, and assuming 6 inches of storage in the filter strip. The lowest cost assumes that the buffer uses existing vegetation, and the highest cost assumes that sod was used to establish the filter strip.	Adapted from SWRPC (1991)

* Base year for all cost data: 1997

In some ways there is no such value as the "average" construction cost for some BMPs, because many BMPs can be designed for widely varying drainage areas. However, there is some

Appendix A

Construction Period Stormwater Pollution Prevention Plan

**CONSTRUCTION PERIOD
POLLUTION PREVENTION AND
EROSION AND SEDIMENTATION
CONTROL PLAN
HINGHAM WATERFRONT RESILIENCY PROJECT
HINGHAM, MASSACHUSETTS**

1. Narrative

The Town of Hingham is seeking to address existing and future coastal flooding concerns across the southerly shoreline of Hingham Harbor to protect critical public infrastructure and enhance public access to the Harbor and its amenities. The project team was tasked by the Town to develop a comprehensive coastal flood hazard mitigation strategy for the inner harbor area extending from west of the Hingham Bathing Beach to the P.O.W./M.I.A. Memorial Park, where the project limits connected the higher topographic elevations to both the west and east. In this manner, eliminating storm tide pathways into historic downtown from the Harbor will provide long-term coastal resiliency for this critical portion of the community.

Where possible, nature-based shore protection would provide flood protection in the form of either a contiguous dune or berm. Proposed dune construction will extend from Hingham Bathing Beach to the boat ramp. The dune will be constructed in a similar fashion to the dune fronting Hingham Bathing Beach, with constructed walkways over the dune. It is anticipated that compatible material for dune construction will be sourced from an upland site. It is also anticipated that the Boat Ramp Parking Lot will be elevated, and a vegetated berm will be established at the same elevation as the proposed dune between the Boat Ramp and Town Wharf. By using native vegetation to stabilize the dune, the project will provide aesthetically pleasing shoreline protection.

As part of this project to raise the existing parking lots to provide flood protection and long-term coastal resiliency, the Town is also proposing a number of stormwater improvements to provide some treatment and recharge of the runoff that will be generated from the paved parking area and improve existing conditions in the project vicinity. The BMP's being proposed include new deep sump catch basins, a proposed water quality inlet and a number of rain garden areas to provide for some treatment and attenuation of the runoff prior to discharge to adjacent lawn areas and eventually towards Hingham Harbor.

2. Construction Plan Pollution Prevention Measures and Operation and Maintenance Plan

Prior to the performance of any construction the contractors shall install floating booms/silt curtains around the work area. These booms will prevent the migration of any construction debris outside of the work area to downgradient and off-site receptors.

The floating booms will be inspected and maintained/repared at the beginning of each work day until all work has been completed. Debris will be removed on a regular basis.

Additionally, the contractor will also install silt fence and/or straw wattles on the landward side of the work area to protect adjacent properties from the potential of any erosion and/or sedimentation from the construction site. Finally, silt sacks will be installed in any existing catch basins along adjacent streets in close proximity to the construction site. Erosion control measures will be shown on the Construction drawings prepared by Foth.

Upon completion of the work and stabilization of all disturbed surfaces, the erosion controls will be removed and properly disposed of by the contractor.

3. Person or Entity Responsible for Plan Compliance

Foth Infrastructure and Environment, LLC
15 Creek Road
Marion, MA 02738

Upon a transfer of ownership, the future owner shall assume the responsibilities for compliance with this O&M Plan.

4. Construction Plan Pollution Prevention Measures

The previously described floating booms will be used for pollution prevention to the surrounding coastal resource areas. Additionally, silt protection shall be installed in any stormwater inlets within close proximity of the project site to minimize the potential for debris entering the stormwater management system.

5. Vegetation Planning

Any disturbed surfaces will be restored to pre-existing conditions. Areas not being covered by pavement or gravel will be loamed and seeded to establish vegetation and stabilize these areas.

6. Site Plan Erosion and Sedimentation Control Plan Drawings

The proposed site plans that have been previously prepared and submitted for the project by Foth Infrastructure and Environment for the applicant shall serve as the erosion and sedimentation control plan drawings for the project. Floating booms, silt curtains, and erosion control barriers have been specified on the plans and in the narrative.

7. Inspection and Maintenance Log Form

A sample inspection and maintenance log form is attached.

**CONSTRUCTION PERIOD POLLUTION PREVENTION AND
EROSION AND SEDIMENTATION CONTROL PLAN
HINGHAM COASTAL RESILIENCY PROJECT
HINGHAM, MASSACHUSETTS**

INSPECTION AND MAINTENANCE REPORT FORM

INSPECTOR: _____ DATE: _____

INSPECTOR'S QUALIFICATIONS:

DAYS SINCE LAST RAINFALL: _____ AMOUNT OF LAST RAINFALL ____ INCHES

STABILIZATION MEASURES

AREA	DATE SINCE LAST DISTURBED	DATE OF NEXT DISTURBANCE	STABILIZED? (YES/NO)	STABILIZED WITH	CONDITION

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STRUCTURAL CONTROLS – FLOATING BOOMS/SILT CURTAINS

AREA	ARE BOOMS IN PLACE	IS THERE EVIDENCE OF OVER-TOPPING OR DEBRIS LEAVING THE SITE?	IF YES, WHERE?

MAINTENANCE REQUIRED FOR EROSION CONTROLS:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STRUCTURAL CONTROLS – FIBER ROLLS/STRAW WATTLES

AREA	ARE CONTROLS IN PLACE	IS THERE EVIDENCE OF OVER-TOPPING OR DEBRIS LEAVING THE SITE?	IF YES, WHERE?

MAINTENANCE REQUIRED FOR FIBER ROLLS/STRAW WATTLES:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

STRUCTURAL CONTROLS – STABILIZED CONSTRUCTION ENTRANCE

AREA	ARE CONTROLS IN PLACE	IS THERE EXTENSIVE SEDIMENT LEAVING THE SITE?	IF YES, WHERE?

MAINTENANCE REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE:

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

CHANGES REQUIRED TO THE POLLUTION PREVENTION PLAN:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE: _____ DATE: _____

Appendix B

Post Construction (Long-Term) Operation and Maintenance Plan

Post Construction (Long Term) Operation and Maintenance Plan

Name and address of the Owner/Applicant of Record

Town of Hingham
210 Central Street
Hingham, MA 02043

Name and address of the Contractor of Record

The contractor as not yet been chosen for this project.

Plans of Record

Refer to the Site Plans prepared by Foth Infrastructure and Environment LLC for the Town of Hingham. Refer to the Order of Conditions to be issued by the Hingham Conservation Commission for additional information regarding the operation and maintenance of the stormwater management BMP's on site.

1. The contractor shall be responsible for the proper inspection and maintenance of all stormwater management facilities until such time as the Stormwater Management System is accepted by the Owner. Thereafter the Owner shall be responsible for the proper inspection and maintenance of the stormwater facilities in accordance with this Operation and Maintenance Plan as well as the continuing conditions of the Certificate of Compliance on the property.
2. All Structural Best Management Practices (BMP's) should be inspected after every major rainfall event exceeding 1.0-inch for the first 6 months after construction to ensure proper stabilization, construction, and function.
3. Thereafter, regular BMP inspections should be conducted according to the following schedule:

<u>BMP Structure</u>	<u>Inspections per Year</u>
Deep Sump Catch Basin	4
Crushed Stone Edge Drain	2
Rain Garden	4
Water Quality Inlet	Per Manufacturer's Specifications

4. The contractor and the owner shall maintain and submit to the Conservation Commission a BMP Inspection Report following each site inspection as recommended above. The BMP

Inspection report shall identify the Date of Inspection, the name and contact number of the responsible party, specific structures inspected, specific maintenance required and observations at a minimum, inspection reports should address the following conditions:

1. Embankment Subsidence
 2. Erosion
 3. Condition of Stone Filter Berm
 4. Inlet/Outlet Conditions
 5. Sediment Accumulations
 6. Slope Stability
-
5. All removed sediments are to be properly disposed of at a location to be approved by the Board of Health. Transportation and disposal of sediments shall comply with all applicable local, state, and federal regulations.
 6. The crushed stone edge drain shall be inspected twice per year. If it is determined that the top stone above the filter fabric is silted or compromised, the top stone shall be removed, any damaged filter fabric shall be removed and replaced and clean stone shall be placed over the filter fabric.
 7. The paved parking areas shall be swept at least twice per year.
 8. The site shall be monitored to ensure proposed drainage patterns are maintained following construction. Should channel flow from runoff develop within the site that requires corrective measures, these measures shall be reviewed with the Conservation Commission prior to their implementation.
 9. The site should be inspected for trash on a regular basis. Any accumulated trash, litter, and discarded materials should be removed.
 10. No disposal of materials shall be permitted within the buffer zones or resource areas on the project site. This prohibition applies to trash, fill material, construction debris, grass clippings, collected leaves and cut branches.
 11. Any deficiencies noted during an inspection shall be reported to and corrected to the satisfaction of the project engineer and/or Conservation Commission.
 12. An Operation and Maintenance Inspection Form shall be developed and copies of the completed forms shall be submitted to the Conservation Commission in accordance with the determined schedule.

13. The Town shall either conduct the maintenance themselves or contract with a maintenance company to perform the operation and maintenance of the stormwater management system. The contact information for this company, if applicable, shall be provided to the Conservation Commission for their files.

Invasive Species Control Plan (LSCP)

The Town will monitor the landscaped areas, shoreline, and rain garden areas for invasive species pursuant to the recommendations outlined in the USACE document titled "New England District Compensatory Mitigation Guidance" document, pages 24-26 section 4.f. Invasive species. Due to the proximity of the site to coastal resource areas, the applicant has chosen a mechanical control method of removal. Invasive species will be removed by hand (pulling, mowing or excavating on-site). No chemical control will be utilized.

Special attention will be given to assure that none of the following invasive species populate the landscaped areas, shoreline, and storm water bmp's: Common Reed (*Phragmites Australis*), Purple Loosestrife (*Lythrum Salicaria*), Smooth and Common Buckthorn (*Frangula Alnus*, *Rhamnus Carthartica*), Russian and Autumn Olives (*Elaeagnus Angustifolia* and *E. Umbellata*), Multiflora Rose (*Rosa Multiflora*), Reed Canary-Grass (*Phalaris Arundinacea*), And Japanese Knotweed (*Fallopia Japonica*).

Appendix C

Long Term Pollution Prevention Plan

LONG TERM POLLUTION PREVENTION PLAN HINGHAM WATERFRONT RESILIENCY PROJECT HINGHAM, MASSACHUSETTS

1.0 Introduction

This Long-Term Pollution Prevention Plan has been prepared in accordance with the Massachusetts Stormwater Handbook for Compliance with Stormwater Standards 4-6. The responsible party for implementing this plan will be the owner of record of the subject property.

2.0 Good Housekeeping Practices/Storage Provisions

Good housekeeping practices including periodic inspections of stormwater management system components will be performed in accordance with the Stormwater Management System Operation and Maintenance Plan. It is not anticipated that any high pollutant materials would be stored on site in areas that would discharge directly to the stormwater management systems.

3.0 Routine Maintenance of Stormwater BMP's

The Stormwater BMP's including the deep sump catch basins, rain gardens, crushed stone edge drain, and proprietary water quality inlet will be operated and maintained in accordance with the Post Construction Stormwater Management System Operation and Maintenance Plan which is discussed in this Report.

4.0 Spill Prevention and Response Plans

It is anticipated that Town employees would be on site on a regular basis trained in spill prevention and response. No leaking vehicles or obsolete vehicles will be stored on site. MSDS sheets are required to be on site for the handling of any chemicals or compounds that may be associated with any of the approved uses at the site. Emergency contact numbers will be at the facility with a 24-hour contact number in the event of any spills on-site.

5.0 Landscaping Provisions

Proper maintenance of vegetated areas can prevent the pollution of stormwater runoff by controlling the source of pollutants such as suspended sediments, excess nutrients, and chemicals from landscape care products. Practices that should be followed under the regular maintenance of the vegetated landscape include:

- Inspect planted areas on a semi-annual basis and remove any litter.
- Maintain planted areas adjacent to pavement to prevent soil washout.
- Immediately clean any soil deposited on pavement.
- Re-seed bare areas: install appropriate erosion control measures when native soil is exposed, or erosion channels are forming.

- Plant alternative mixture of grass species in the event of unsuccessful establishment.
- Grass vegetation should not be cut to a height less than four inches.
- Pesticide/Herbicide Usage – No pesticides are to be used unless a single spot treatment is required for a specific control application.
- Fertilizer usage should be avoided. If deemed necessary, slow-release fertilizer should be used. Fertilizer may be used to begin the establishment of vegetation in bare or damaged areas but should not be applied on a regular basis unless necessary.

6.0 Pet Waste Management Provisions

It is not anticipated that a significant number of pets will be on site at this waterfront facility. In the event that pets are on-site, their owners will be encouraged to pick up any pet waste and dispose of it properly.

7.0 Provisions for Solid Waste Management

Dumpsters or trash receptacles may be provided on-site for the disposal of solid waste. Dumpsters shall be covered, sealed and inspected for leaks on a bi-monthly basis. These dumpsters/receptacles will be emptied on a regular basis in accordance with Board of Health regulations.

8.0 Snow Disposal Guidelines

Should significant snow fall events occur, which result in stockpiled snow impacting the operation of the Project Site, through the temporary loss of parking or limiting access in any way, the property manager may choose to have snow removed from the site. All significant snowfall events will be plowed onto the loam and seed areas of site, away from the Harbor. All snow removal operations will be done in accordance with Massachusetts DEP guidelines BRPG01-01, effective date March 8, 2001. No snow shall be dumped directly into the Harbor.

9.0 Winter Road Salt and Sand Use

The amount of salt and deicing chemicals to be used on the site shall be reduced to the minimum amount needed to provide safe pedestrian and vehicle travel. The following practices should be followed to control the amount of salt and deicing materials that come into contact with stormwater runoff:

- Devices used for spreading salt and deicing chemicals should be capable of varying the rate of application based on the site-specific conditions.
- Sand and salt shall NOT be stockpiled onsite.

10.0 Illicit Discharge Prevention

Illicit connections to the stormwater management system will be strictly prohibited. Any contractors performing work at the site will be notified of the prohibition of any illicit connections to the stormwater management system. All work done on site shall be per the approved design plans. Vehicle or equipment maintenance shall not be performed onsite.

11.0 Training for Staff

Training of personnel is essential to achieving proper operation and maintenance of the stormwater management system. Therefore, Town personnel who are responsible for operation and maintenance will be trained on the following subjects:

- Environmental laws and regulations relating to stormwater,
- The components and goals of the current Erosion and Sediment Control Plan,
- Site specific permit conditions and requirements,
- General Facility spill response procedures,
- General good housekeeping procedures, and
- General material management procedures.

Refresher training sessions will be held once a year following the completion of the Site Compliance Evaluation. Records of inspections and maintenance shall be up to date and available for review and inspection.

12.0 Emergency Contacts

The applicants of the project, the Town of Hingham, would be the emergency contacts for any implementation measures that may be required on this Long-Term Pollution Prevention Plan. It would be anticipated that emergency contact numbers would be posted throughout the site and facilities should any situations arise.

Appendix D

Illicit Discharge Compliance Statement

**ILLICIT DISCHARGE COMPLIANCE STATEMENT
HINGHAM WATERFRONT RESILIENCY PROJECT
HINGHAM, MASSACHUSETTS**

1.0 Description of Illicit Discharges

Illicit discharges are discharges to the stormwater management system that are not entirely composed of stormwater. Illicit discharges include (but are not limited to) wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease.

2.0 Illicit Discharge Prevention

The project, as designed, does not provide for any illicit connections to the proposed stormwater management system. As part of the long-term pollution prevention plan that will be on file at the City, illicit connections to the stormwater management system will be strictly prohibited. Any contractors performing work at the site will be notified of the prohibition of any illicit connections to the stormwater management system.

3.0 Training for Staff

All staff will be properly trained as required to detect any unauthorized illicit discharges to the stormwater management system and eliminate them as soon as possible. It is anticipated that the staff will be performing routine maintenance on the stormwater management system and at this time would be able to detect any unauthorized illicit discharges.

4.0 Site Map

Refer to Permitting Drawings entitled "Hingham Waterfront Resiliency Project" prepared by Sustainable Coastal Solutions, Inc. and Foth Environmental and Infrastructure for locations and information on the proposed stormwater management system associated with this project.

5.0 Certification

As the design plan shows, there are no provisions for illicit discharges to the stormwater management system being proposed. Additionally, there are no proposed connections between any stormwater and wastewater management systems. Illicit discharges will be prohibited to the new stormwater management system associated with the proposed parking and wharf improvements and Town staff will be trained to detect any unauthorized illicit discharges and to eliminate them as soon as possible.



Signed Electronically 6/16/2025

Richard R. Riccio III, P.E.

Attachment 12
Notification to Abutters

TOWN OF HINGHAM

BOARD OF ASSESSORS



CERTIFICATION SHEET

Property Address: 0 Otis Street

95 Otis Street

3 Otis Street

Parcel ID: Parcel 50-0-50

Parcels 50-1-51, 50-0-51

Parcel 50-0-49

Pursuant to the provisions of Chapter 131 Section 40 of the MA General Laws and Article 22 of the Town of Hingham General Bylaws (Wetlands Protection By-law), we hereby certify that the list attached hereto is a true list of names and addresses of abutters concerning a matter to be heard by the Hingham Conservation Commission involving the above-referenced property.

As used herein the term "abutter" means:

Owners of adjoining land within 100 feet of the property line where the activity proposed;

Owners of adjoining land within 300 feet of the property line where the activity proposed for coastal projects; or

Owners of land directly opposite on any public or private street or way; or across a body of water.

All as they appear on the most recent applicable tax list.

BOARD OF ASSESSORS

Kenn. W. ...
John M. ...
Sam ...

CERTIFICATION DATE

May 26, 2026

TOWN OF HINGHAM

BOARD OF ASSESSORS



CERTIFICATION SHEET

Property Address: 12 Summer Street

Parcel ID: 51-0-2

Pursuant to the provisions of Chapter 131 Section 40 of the MA General Laws and Article 22 of the Town of Hingham General Bylaws (Wetlands Protection By-law), we hereby certify that the list attached hereto is a true list of names and addresses of abutters concerning a matter to be heard by the Hingham Conservation Commission involving the above-referenced property.

As used herein the term “abutter” means:

Owners of adjoining land within 100 feet of the property line where the activity proposed;

Owners of adjoining land within 300 feet of the property line where the activity proposed for coastal projects; or

Owners of land directly opposite on any public or private street or way; or across a body of water.

All as they appear on the most recent applicable tax list.

BOARD OF ASSESSORS

Kim W. [Signature]
John M. [Signature]
Sam [Signature]

CERTIFICATION DATE June 10, 2026

Abutters List[print this list](#)

Date: May 21, 2026

Subject Property Address: 95 OTIS STREET Hingham, MA
Subject Property ID: 50-1-51

Subject Property Address: 3 OTIS STREET Hingham, MA
Subject Property ID: 50-0-49

Subject Property Address: 0 OTIS STREET Hingham, MA
Subject Property ID: 50-0-50

Subject Property Address: 95 OTIS STREET Hingham, MA
Subject Property ID: 50-0-51

Search Distance: 300 Feet

Owner: DAVENPORT JOHN L & SARAH H
Prop ID: 39-0-6
Prop Location: 63 BURDITT AVENUE Hingham, MA
Mailing Address:

63 BURDITT AVENUE
HINGHAM, MA 02043

Owner: DREW JOHN E & KATHLEEN M
Prop ID: 39-0-7
Prop Location: 73 BURDITT AVENUE Hingham, MA
Mailing Address:
73 BURDITT AVENUE
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Prop ID: 39-0-8
Prop Location: 0 OTIS STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: PALERMO JOHN & KARA
Prop ID: 50-0-2

Prop Location: 104 OTIS STREET Hingham, MA
Mailing Address:
104 OTIS STREET
HINGHAM, MA 02043

Owner: SADHWANI AJAY & RACHEL LARSON
Prop ID: 50-0-20
Prop Location: 94 OTIS STREET Hingham, MA
Mailing Address:
94 OTIS STREET
HINGHAM, MA 02043

Owner: CASHMAN GILLIS S & LORI W
Prop ID: 50-0-3
Prop Location: 100 OTIS STREET Hingham, MA
Mailing Address:
100 OTIS STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: 210 CENTRAL STREET
Prop ID: 50-0-36
Prop Location: 0 OTIS STREET Hingham, MA
Mailing Address:
OTIS STREET
HINGHAM, MA 02043

Owner: LYLE WESTON TORREY JR 2006 TRUST &
Co-Owner: ELIZABETH CARTER TORREY 2006 TRUST
Prop ID: 50-0-38
Prop Location: 32 SHIP STREET Hingham, MA
Mailing Address:
34 SHIP STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: HINGHAM CONSERVATION COMMISSION
Prop ID: 50-0-38.B

Prop Location: 36 SHIP STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: TORREY AMY B & MATTHEW C TT
Co-Owner: AMY B TORREY 2007 TRUST
Prop ID: 50-0-40
Prop Location: 31 SHIP STREET Hingham, MA
Mailing Address:
31 SHIP STREET
HINGHAM, MA 02043

Owner: MCCURREN NATHAN & LINDSAY
Prop ID: 50-0-41
Prop Location: 21 COTTAGE STREET Hingham, MA
Mailing Address:
21 COTTAGE STREET
HINGHAM, MA 02043

Owner: CRAIG MARGARET M
Prop ID: 50-0-42
Prop Location: 15 COTTAGE STREET Hingham, MA
Mailing Address:
15 COTTAGE STREET
HINGHAM, MA 02043

Owner: BARCLAY LOLA LYNN TT
Co-Owner: THE LOLA LYNN BARCLAY REVOCABLE TRUST
Prop ID: 50-0-43
Prop Location: 11 COTTAGE STREET Hingham, MA
Mailing Address:
11 COTTAGE STREET
HINGHAM, MA 02043

Owner: GRANAHAH TERRANCE E
Prop ID: 50-0-44
Prop Location: 7 COTTAGE STREET Hingham, MA
Mailing Address:

7 COTTAGE STREET
HINGHAM, MA 02043

Owner: MANGIA REALTY TRUST
Co-Owner: %EDWARD A KANE TRUSTEE
Prop ID: 50-0-45
Prop Location: 2 OTIS STREET Hingham, MA
Mailing Address:
2 OTIS STREET
HINGHAM, MA 02043

Owner: THOMPSON J CHRISTIAN TT
Co-Owner: 8 NORTH STREET REVOCABLE TRUST
Prop ID: 50-0-46
Prop Location: 8 NORTH STREET Hingham, MA
Mailing Address:
8 NORTH ST
HINGHAM, MA 02043

Owner: 4 NORTH STREET HINGHAM LLC
Prop ID: 50-0-47
Prop Location: 6 MILL STREET Hingham, MA
Mailing Address:
4 NORTH STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: DPW/CONSERVATION
Prop ID: 50-0-48
Prop Location: 0 NORTH STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: SMITH JUDY REED TT
Co-Owner: JUDY REED SMITH TRUST-2020 THE
Prop ID: 50-0-52
Prop Location: 90 OTIS STREET Hingham, MA
Mailing Address:

90 OTIS STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: HARBOR DEVELOPMENT
Prop ID: 51-0-1
Prop Location: 4 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: ANTWERP STREET REALTY TRUST
Co-Owner: MIGNOSA VINCENT D TRUSTEE
Prop ID: 51-0-10
Prop Location: 71 WATER STREET Hingham, MA
Mailing Address:
338 GRANITE AVE
2ND FL
MILTON, MA 02186

Owner: TOWN OF HINGHAM
Co-Owner: HARBOR DEVELOPMENT
Prop ID: 51-0-2
Prop Location: 12 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: DPW/CONSERVATION
Prop ID: 51-0-6
Prop Location: 0 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: SUMMER 3 LLC OF HINGHAM
Prop ID: 51-0-7

Prop Location: 3 SUMMER STREET Hingham, MA
Mailing Address:
3 SUMMER ST
HINGHAM, MA 02043

Owner: HING HAM RTA LLC
Prop ID: 51-0-8
Prop Location: 9 SUMMER STREET Hingham, MA
Mailing Address:
244 RIVER STREET
DEDHAM, MA 02026

Owner: WARNECK STEPHEN C & VICTORIA R
Prop ID: 61-0-111
Prop Location: 14 COTTAGE STREET Hingham, MA
Mailing Address:
14 COTTAGE STREET
HINGHAM, MA 02043

Owner: BUSH JAMES W & SUSAN TT & BUSH REALTY TRUST
Prop ID: 61-0-112
Prop Location: 10 COTTAGE STREET Hingham, MA
Mailing Address:
10 COTTAGE STREET
HINGHAM, MA 02043

Owner: MARKET REALTY TRUST EDWARD A KANE TR
Co-Owner: %EDWARD A KANE
Prop ID: 61-0-90
Prop Location: 14 NORTH STREET Hingham, MA
Mailing Address:
2-4 OTIS STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: SELECTMEN
Prop ID: 61-0-91
Prop Location: 0 STATION STREET Hingham, MA
Mailing Address:

210 CENTRAL STREET
HINGHAM, MA 02043

Owner: COTTAGE STREET INC
Prop ID: 61-0-92
Prop Location: 15 NORTH STREET Hingham, MA
Mailing Address:
2 OTIS STREET
HINGHAM, MA 02043-2720

Abutters List[print this list](#)

Date: June 09, 2026

Subject Property Address: 12 SUMMER STREET Hingham, MA

Subject Property ID: 51-0-2

Search Distance: 300 Feet

Owner: TOWN OF HINGHAM
Co-Owner: DPW/CONSERVATION
Prop ID: 50-0-48
Prop Location: 0 NORTH STREET Hingham, MA
Mailing Address:

210 CENTRAL STREET
HINGHAM, MA 02043

Owner: BARE COVE PROPERTIES LLC
Prop ID: 50-0-49
Prop Location: 3 OTIS STREET Hingham, MA
Mailing Address:
3 OTIS STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Prop ID: 50-0-50
Prop Location: 0 OTIS STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: HARBOR DEVELOPMENT
Prop ID: 51-0-1
Prop Location: 4 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: ANTWERP STREET REALTY TRUST
Co-Owner: MIGNOSA VINCENT D TRUSTEE
Prop ID: 51-0-10
Prop Location: 71 WATER STREET Hingham, MA
Mailing Address:
338 GRANITE AVE
2ND FL
MILTON, MA 02186

Owner: 19 SUMMER STREET LLC
Prop ID: 51-0-12
Prop Location: 19 SUMMER STREET Hingham, MA
Mailing Address:
198 JERUSALEM ROAD
COHASSET, MA 02025

Owner: 29 SUMMER STREET HINGHAM LLC
Prop ID: 51-0-14
Prop Location: 29 SUMMER STREET Hingham, MA
Mailing Address:
50 BRAINTREE HILL OFFICE PARK
SUITE 309
BRAINTREE, MA 02184

Owner: NYNEX
Co-Owner: PROPERTY TAX DEPARTMENT
Prop ID: 51-0-15
Prop Location: 30 GREEN STREET Hingham, MA
Mailing Address:
PO BOX 2749
ADDISON, TX 75001

Owner: JENKINS LELAND H & LEONORA C TT
Co-Owner: LELAND H JENKINS & LEONORA C REV TRUST
Prop ID: 51-0-16
Prop Location: 26 GREEN STREET Hingham, MA
Mailing Address:
198 JERUSALEM ROAD
COHASSET, MA 02045

Owner: MAGNER ROBERT J & JANET V (LE)
Co-Owner: MAGNER BRIAN
Prop ID: 51-0-18
Prop Location: 16 GREEN STREET Hingham, MA
Mailing Address:
16 GREEN STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Prop ID: 51-0-3
Prop Location: 16 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: AMJ PROPERTIES LLC
Prop ID: 51-0-4
Prop Location: 26 SUMMER STREET Hingham, MA
Mailing Address:
302 NEWBURY STREET
BOSTON, MA 02115

Owner: TOWN OF HINGHAM
Prop ID: 51-0-5
Prop Location: 30 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: TOWN OF HINGHAM
Co-Owner: DPW/CONSERVATION
Prop ID: 51-0-6
Prop Location: 0 SUMMER STREET Hingham, MA
Mailing Address:
210 CENTRAL STREET
HINGHAM, MA 02043

Owner: SUMMER 3 LLC OF HINGHAM

Prop ID: 51-0-7
Prop Location: 3 SUMMER STREET Hingham, MA
Mailing Address:
3 SUMMER ST
HINGHAM, MA 02043

Owner: HING HAM RTA LLC
Prop ID: 51-0-8
Prop Location: 9 SUMMER STREET Hingham, MA
Mailing Address:
244 RIVER STREET
DEDHAM, MA 02026

NOTIFICATION TO ABUTTERS

Under the MA Wetlands Protection Act and
Hingham Wetlands Protection By-Law

In accordance with the second paragraph of the Massachusetts General Laws Ch. 131 §40, and Section 7.5 of the Hingham Wetland Regulations, you are hereby notified of the following:

Town of Hingham has filed a Notice of Intent
Applicant Name *Application Type*

with the Town of Hingham Conservation Commission seeking permission to remove, fill, dredge, or alter an Area Subject to Protection under the Wetlands Protection Act, M.G.L. Ch. 131 §40, and/or the Town of Hingham Wetlands Protection By-Law [Article 22].

The address of the property where work is proposed: Bathing Beach to POW/MIA Memorial Park

The proposed work includes: The Town of Hingham is seeking to address existing and future coastal flooding concerns across its southerly shoreline of Hingham Harbor to protect critical public infrastructure and enhance public access to the Harbor and its amenities.

Copies of the application may be examined at the Conservation Office located at Hingham Town Hall, 210 Central Street, Hingham, MA during the following business hours:

Monday, Wednesday, Thursday: 7:30AM- 5:00PM
Tuesday: 7:30AM - 7:00PM
Fridays: closed

For more information, to request copies of the application, or obtain information about the public hearing please contact the Conservation Office at (781)741-1445 or by emailing Conservation@hingham-ma.gov

You may also request copies of the application from the ☐ applicant or ☒ applicant's representative by contacting Fiona Vardy (Foth Infrastructure & Environment, LLC) at (401) 910 7720 between the hours of 8AM and 5PM on the following days: Monday - Friday.

An Administrative fee may be applied for providing copies of the application or plans.

Notice of the public hearing, including the date, time, and place will be published at least five (5) business days in advance of the hearing in the Patriot Ledger. Notice will also be posted on the town website at least forty-eight (48) hours in advance of the public hearing. <https://www.hingham-ma.gov/>

The Department of Environmental Protection (DEP) Southeast Regional Office can also provide information about this application or the MA Wetlands Protection Act. DEP is located at 20 Riverside Drive, Lakeville, MA 02347 and can be reached by telephone at (508) 946-2700.

AFFADAVIT OF SERVICE
Under the MA Wetlands Protection Act and
Hingham Wetlands Protection Bylaw

(To be submitted to the Hingham Conservation Commission and the MA Department of
Environmental Protection when filing an application requiring abutter notification)

I, Fiona Vardy, hereby certify under the pains and penalties
Name of person making Affidavit

of perjury that on 8/13/26 I gave notification to abutters in compliance with the
Date

second paragraph of the Massachusetts General Laws Chapter 131, Section 40, and the Hingham

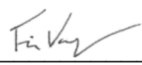
Wetlands Protection Bylaw and Wetland Regulations, by Certificate of Mailing in
Type of Service

connection with the following matter:

A Notice of Intent ☒ or Abbreviated Notice of Resource Area Delineation ☐ was filed under the
MA Wetlands Protection Act and/or Hingham Wetlands Protection Bylaw with the Hingham
Conservation Commission on:

8/13/26 for property located at Bathing Beach to POW/MIA Park.
Date *Property Address*

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


Signature

8/13/26
Date

Attachment 13
Hingham Conservation Commission Forms

HINGHAM WETLAND REGULATIONS

APPENDIX C

Policy on Receipt of Information

(Revised March 4, 2024)

1. New applications/filings must be submitted to the Conservation office (by certified mail or hand delivery) two weeks prior to the meeting date, on Monday by noon, to facilitate the placement of the legal ad and to allow timely review by the Conservation Officer (if the office is closed on Monday due to a holiday, then the information is due on the preceding Friday by noon). Conservation staff will review the application for administrative completeness. Upon receipt of a complete application, a hearing or meeting will be scheduled in accordance with the 310 CMR 10.05(5) and the Wetland Regulations, Section 7.6.
2. If deemed necessary, based on the Commission's meeting schedule, Conservation staff may request the applicant *voluntarily* waive the 21 day statutory deadline for holding a public hearing or issuing a Determination of Applicability.
3. Requests for additional information may be made by the Commission members or their agent to clarify the scope of the project or determine compliance with the 310 CMR 10.00 and/or the Hingham Wetland Regulations. Such requests, if not made at the public hearing, will be communicated to the applicant or their representative as promptly as possible.
4. Additional information requested by the Commission or their agent in accordance with No.3, must be submitted to the Conservation office a minimum of 7 days prior to the meeting date, on Monday by noon. If the office is closed on Monday due to a holiday, the information is due on the preceding Friday by noon. *Revisions submitted after the established deadline may not receive a review, thereby resulting in a continuance to the next available meeting.*
5. The Commission may engage the peer review services of an outside consultant as provided by M.G.L. Ch. 44, § 53G, to be paid for by the applicant, for specific expert review deemed necessary to come to a final decision on a submitted application. Specific consultant services may include but are not limited to, review of a Notice of Intent, Wetland Resource Area Delineation, Stormwater/Drainage Reports, etc. The consultant shall be chosen by the Conservation Commission by vote at the public hearing, and report only to the Commission or its agent. *Requested additional information/revisions by the peer reviewer is required a minimum of two weeks prior to the hearing date.*
5. All supplemental documentation and revised plans must include a revision date and must be date stamped by the Conservation office upon receipt. If this information is not present, the documents may be considered incomplete and may not receive a timely review, thereby resulting in a continuance to the next available meeting.
6. Please note that all supplemental documentation and revised plans submitted to the Commission for a pending application, subject to the MA Wetlands Protection Act, must also be sent to the DEP Southeast Regional Office, 20 Riverside Dr., Lakeville, MA 02347

The Hingham Conservation Commission is committed to a thorough and timely review of each application and an efficient hearing process. Cooperation with this policy is appreciated to facilitate these efforts. Exceptions to this policy may be made by the Conservation staff if deemed warranted. Please sign and include with your filing. Thank you.



Applicant or Applicant's Representative Signature

6/4/2026

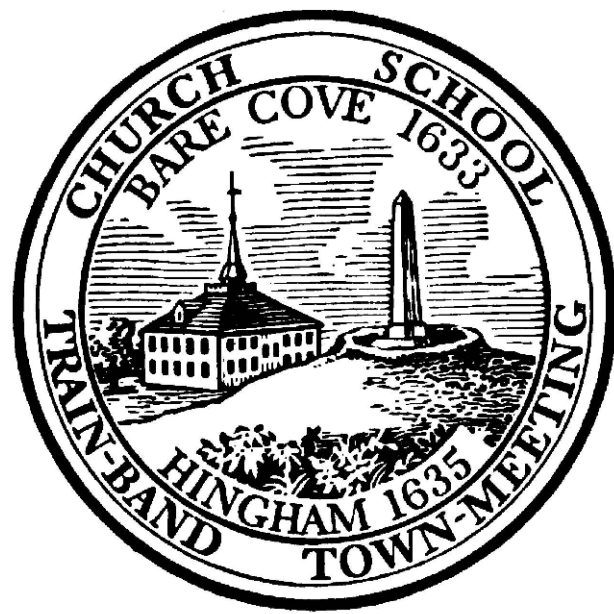
Date

Attachment 14
Project Plans Titled “Hingham Waterfront Resiliency Project”,
Dated August 2026 (10 Sheets)

HINGHAM WATERFRONT RESILIENCY PROJECT

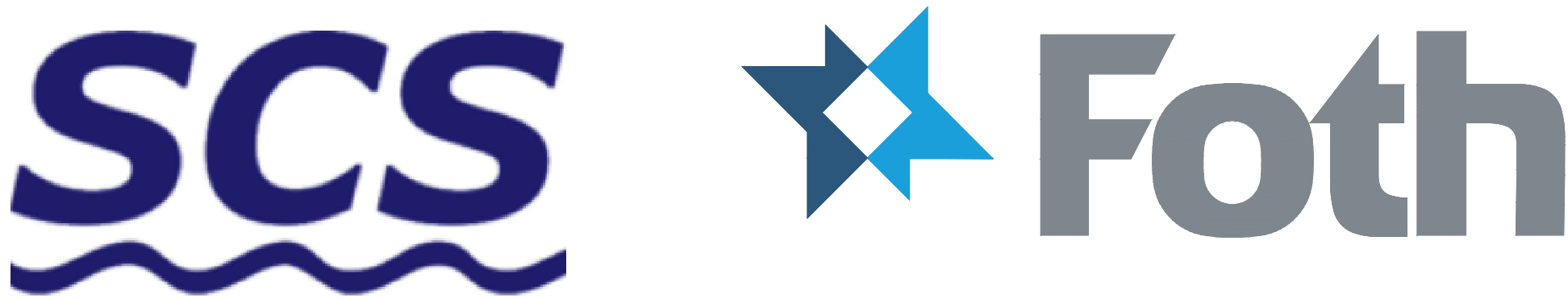
HINGHAM, MA
AUGUST 2026

Prepared for:
Town of Hingham, MA



Prepared by:
Sustainable Coastal Solutions, Inc.

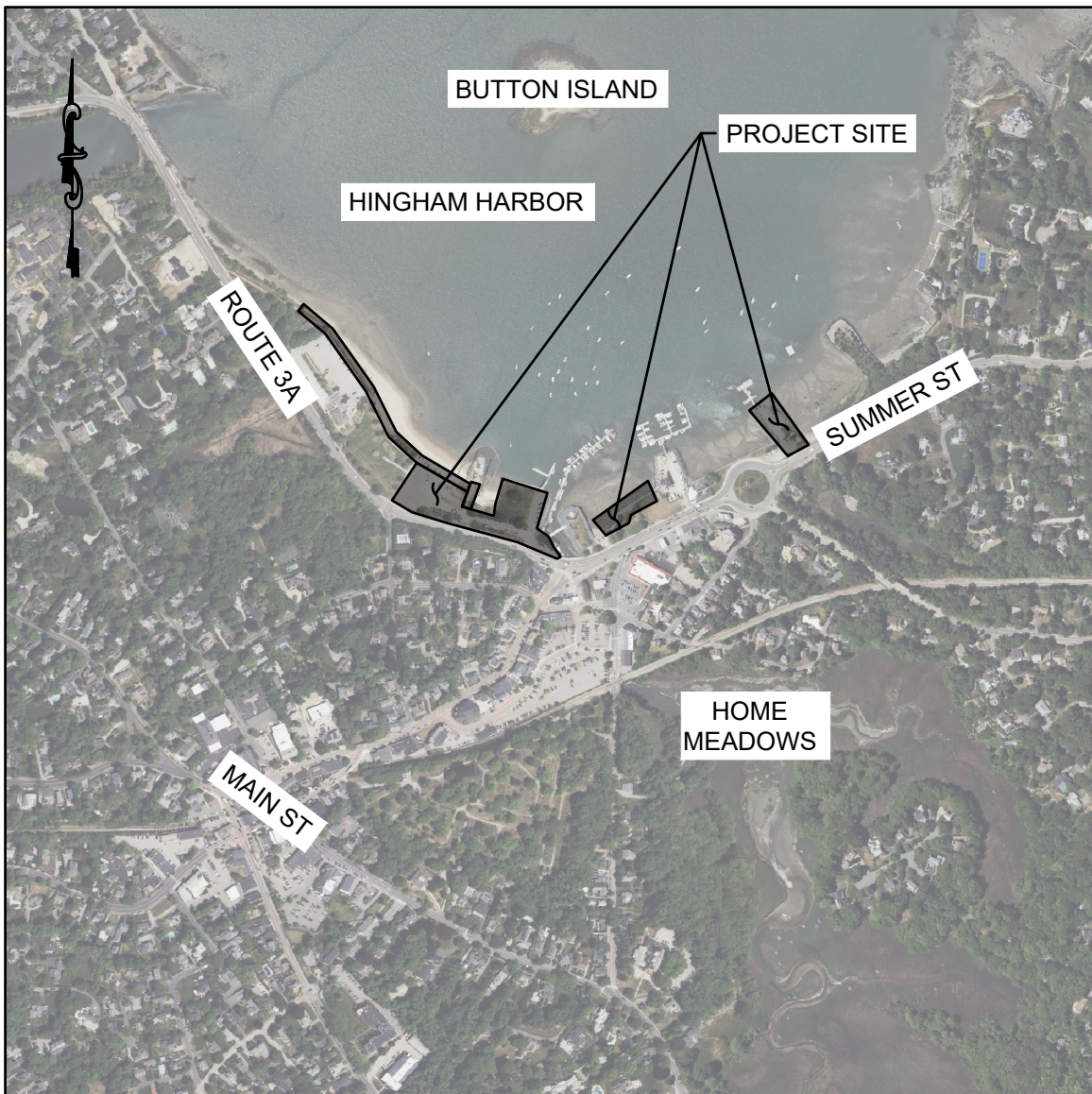
&
Foth Infrastructure & Environment, LLC



Sheet List Table	
Sheet Number	Sheet Title
G-101	COVER SHEET
G-102	EXISTING CONDITIONS
G-103	EXISTING CONDITIONS
C-101	PROPOSED SITE PLAN
C-102	PROPOSED SITE PLAN
C-401	SECTIONS
C-402	SECTIONS
C-403	SECTIONS
C-404	SECTIONS
C-405	SECTIONS
C-501	DETAILS



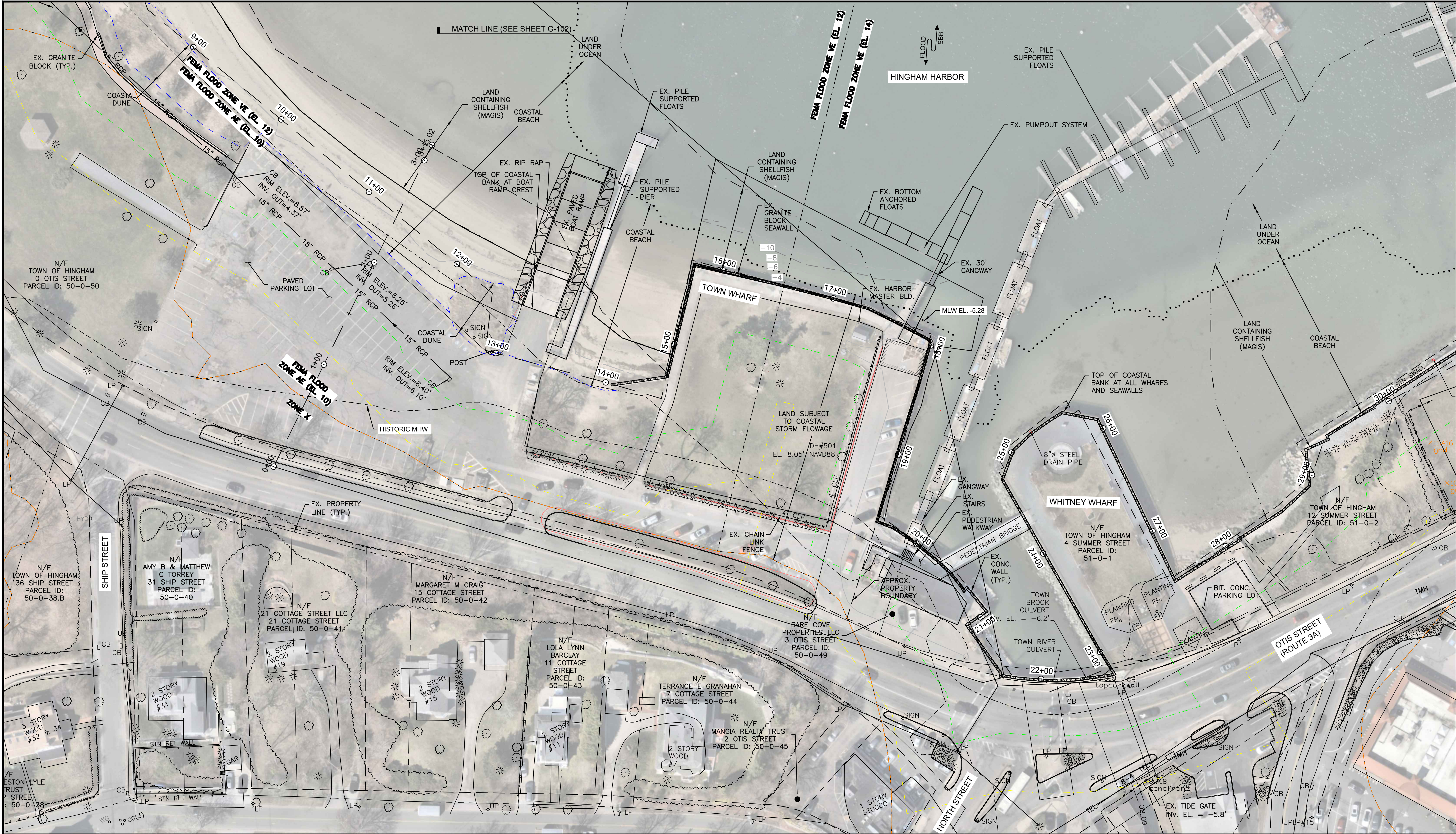
VICINITY MAP
NTS



LOCATION MAP
NTS



SHEET TITLE
COVER SHEET
SHEET NUMBER
G-101



DATUM OFFSETS

MLW	NAVD88
11.92	6.64
9.96	4.68
9.51	4.23
5.28	0.00
4.92	-0.36
0.00	-5.28
-0.34	-5.62

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

LEGEND

COASTAL WETLAND BOUNDARY	---
50' BUFFER ZONE	---
100' BUFFER ZONE	---
LIMIT OF LSCSF	---

GRAPHIC SCALE

0 20 40 80

(IN FEET)

1 INCH = 40 FEET

NAVIGATIONAL

NAVD88

MLW

AAHTL

MHHW

MHW

NAVD 88

NGVD1929

MLW

MLLW

EXISTING CONDITIONS

FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0024H024.00

SHEET NUMBER

G-103

Foth

SCS

TOWN OF HINGHAM, MA

95 OTIS STREET - 0 SUMMER STREET

HINGHAM WATERFRONT RESILIENCY PROJECT

NO.	DATE	DESCRIPTION
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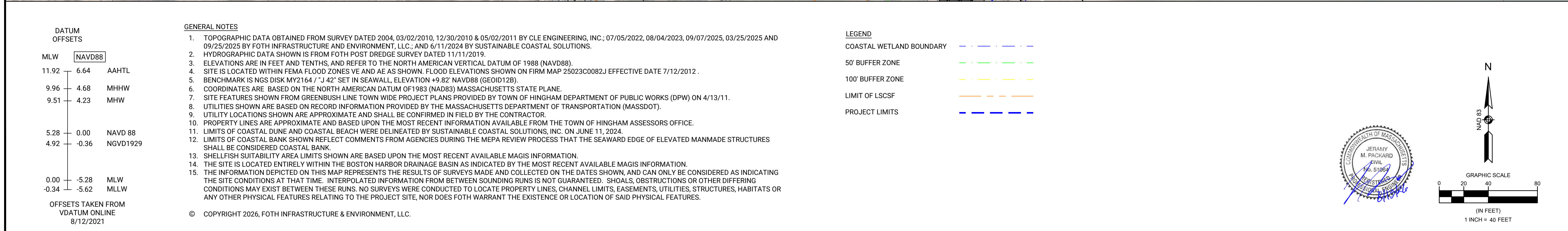
EXISTING CONDITIONS

FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0024H024.00

SHEET NUMBER

G-103



**TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT**

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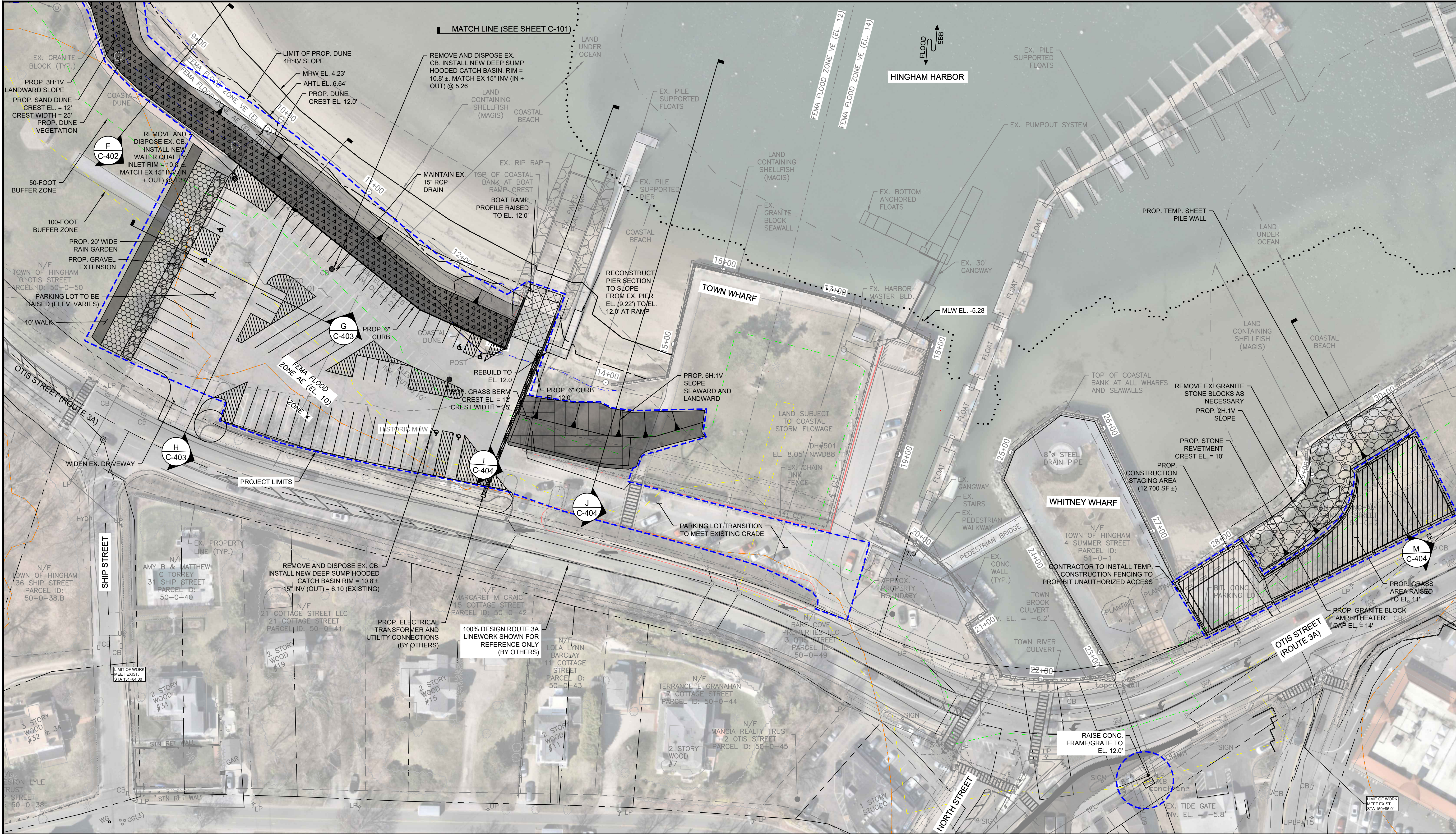
PROPOSED SITE PLAN

ISSUANCE:

**FOR PERMITTING
PURPOSES ONLY**

PROJECT NO: 0024H024.00

NUMBER
C-101



DATUM OFFSETS

MLW	NAVD88
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9.96	4.68
9.51	4.23
5.28	0.00
4.92	-0.36
0.00	-5.28
-0.34	-5.62

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

LEGEND

COASTAL WETLAND BOUNDARY	---
50' BUFFER ZONE	---
100' BUFFER ZONE	---
LIMIT OF LSCSF	---
PROJECT LIMITS	---

GRAPHIC SCALE

0 20 40 80

(IN FEET)

1 INCH = 40 FEET

PROPOSED SITE PLAN

ISSUANCE: FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0024H024.00

SHEET NUMBER C-102

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SCS

TOWN OF HINGHAM, MA

95 OTIS STREET - 0 SUMMER STREET

HINGHAM WATERFRONT RESILIENCY PROJECT

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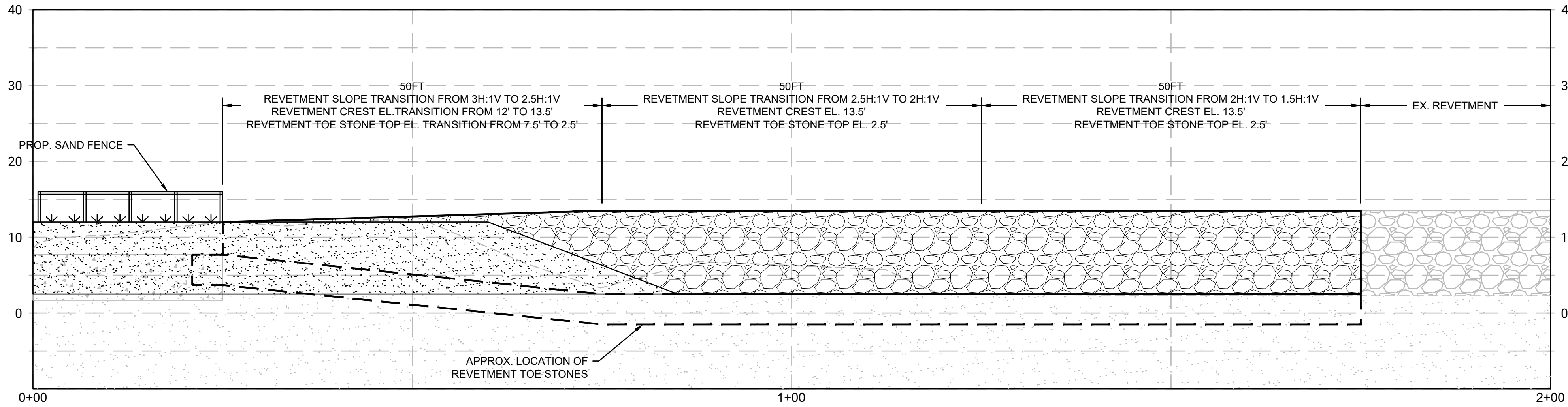
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PROPOSED SITE PLAN

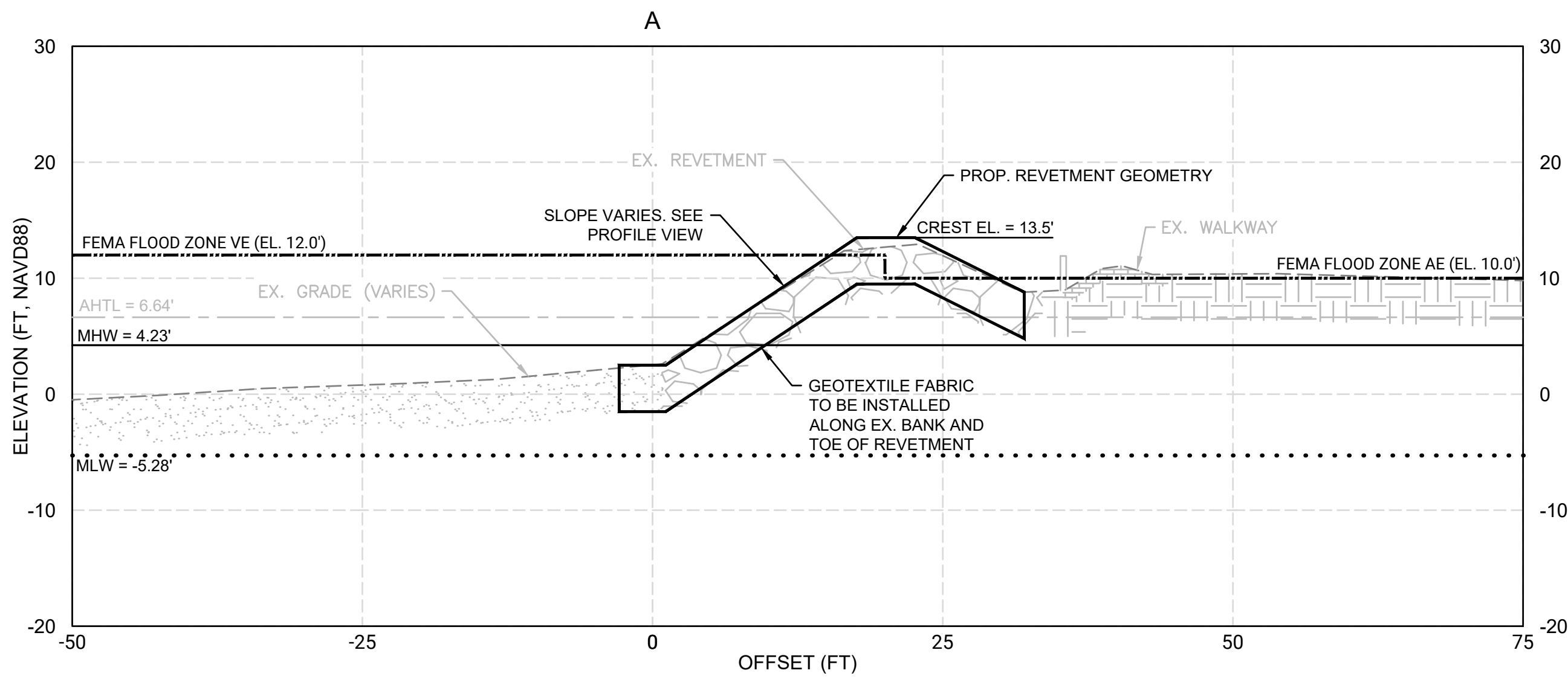
ISSUANCE: FOR PERMITTING PURPOSES ONLY

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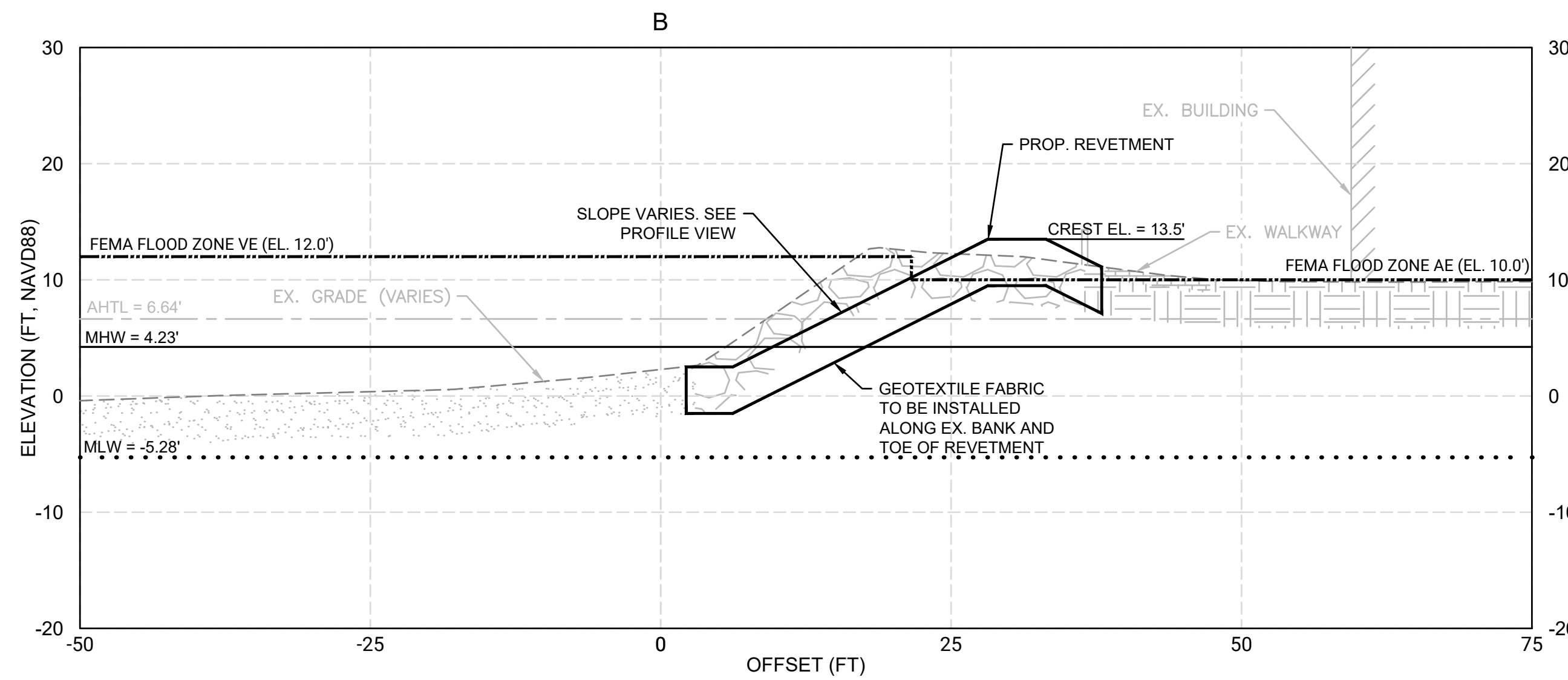
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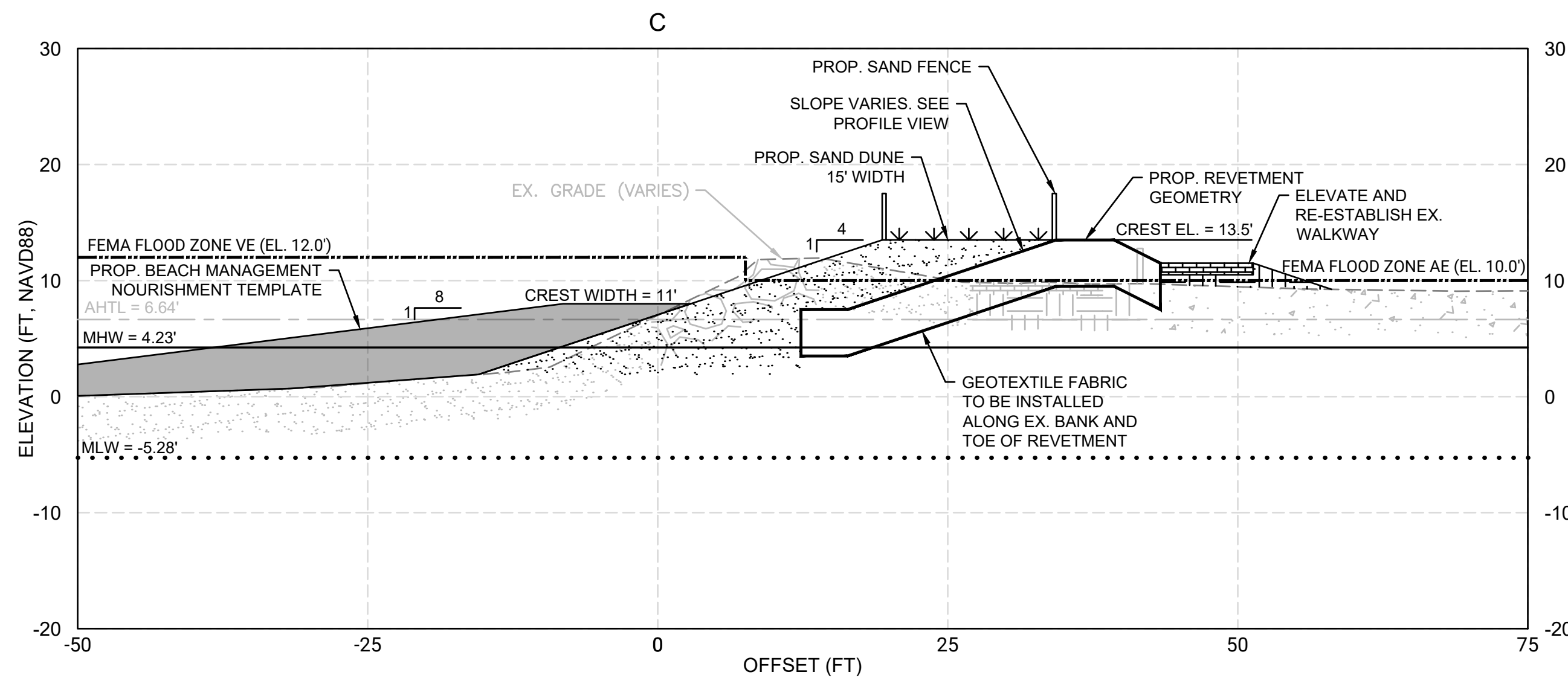
P1
C-101 DUNE TO REVETMENT TRANSITION PROFILE
SCALE: 1" = 10'



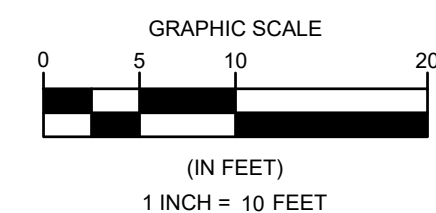
A
C-101 PROPOSED REVETMENT
SCALE: 1" = 10'



B
C-101 PROPOSED REVETMENT
SCALE: 1" = 10'

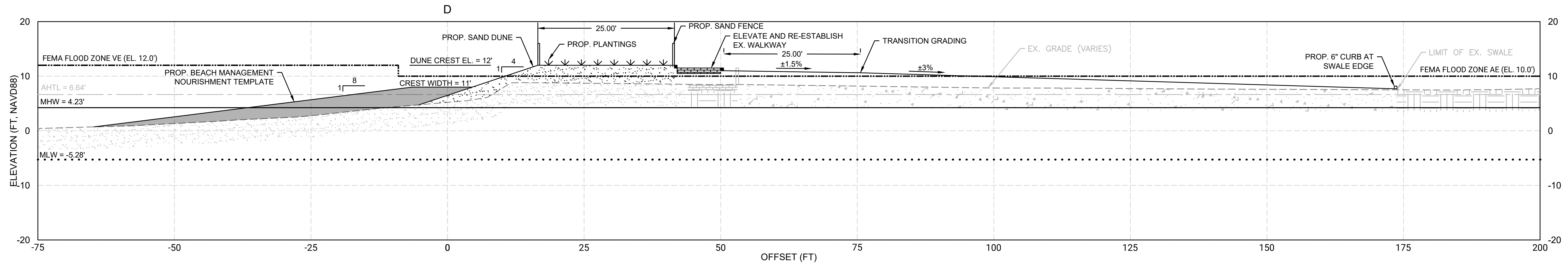


C
C-101 PROPOSED REVETMENT TO DUNE TRANSITION
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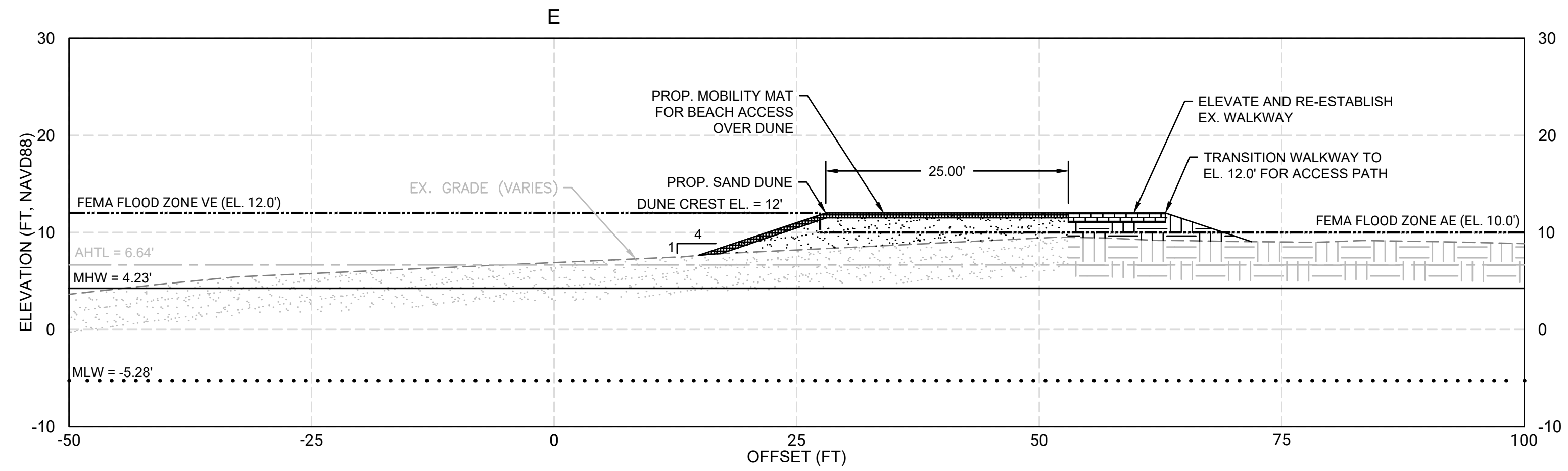


TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

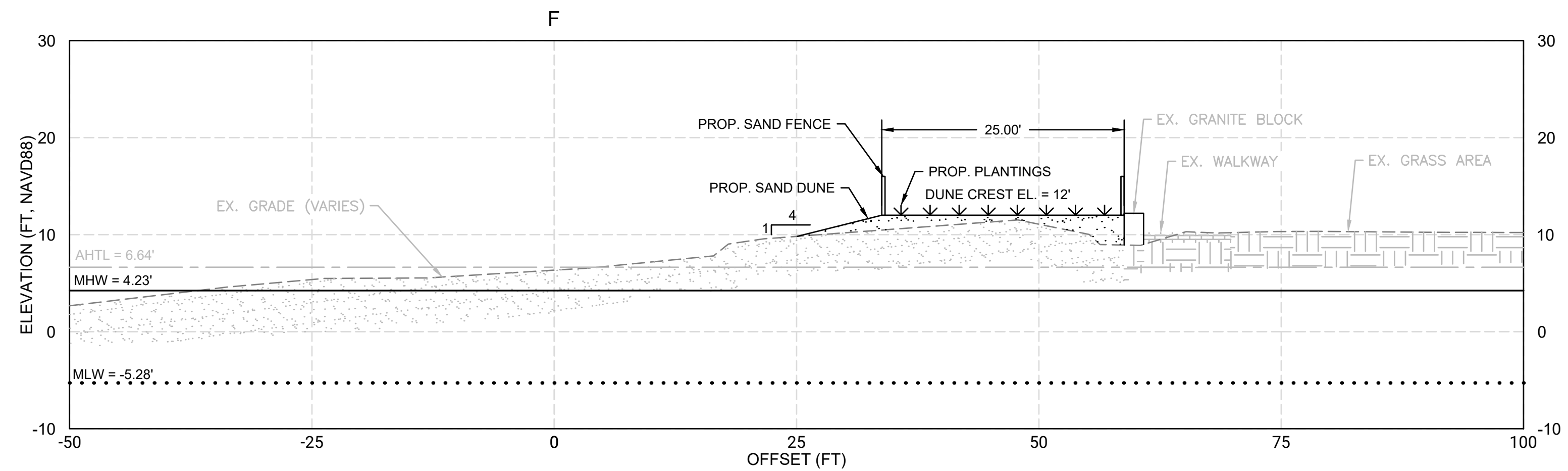
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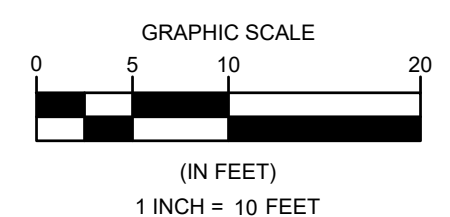
D BATHING BEACH PARKING LOT AND DUNE
C-101 SCALE: 1" = 10'



E PROPOSED DUNE
C-101 SCALE: 1" = 10'



F PROPOSED DUNE
C-102 SCALE: 1" = 10'



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS						
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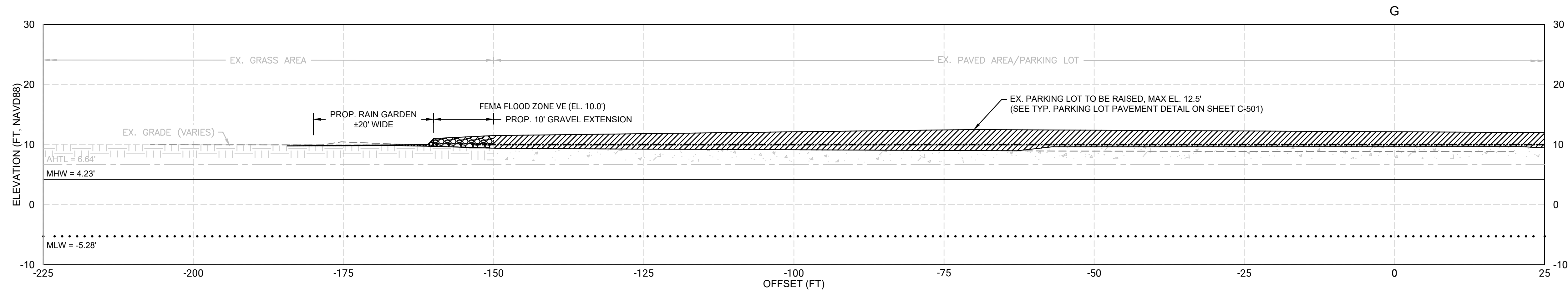
ISSUANCE:

FOR PERMITTING PURPOSES ONLY

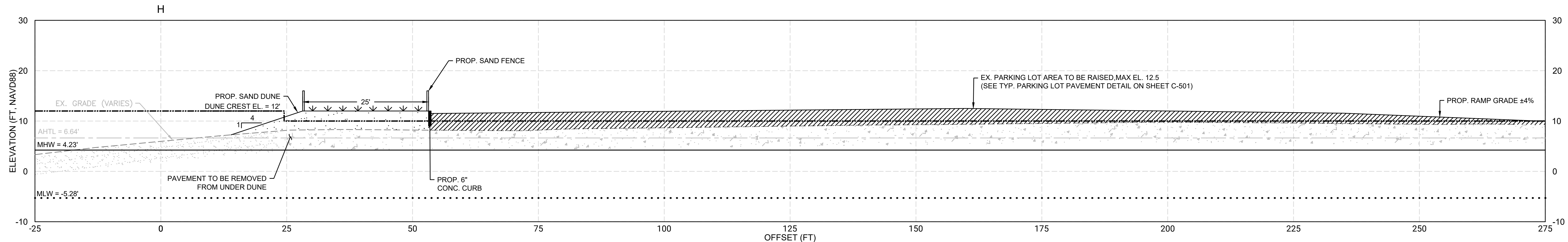
PROJECT NO: 0024H024.00

SHEET NUMBER

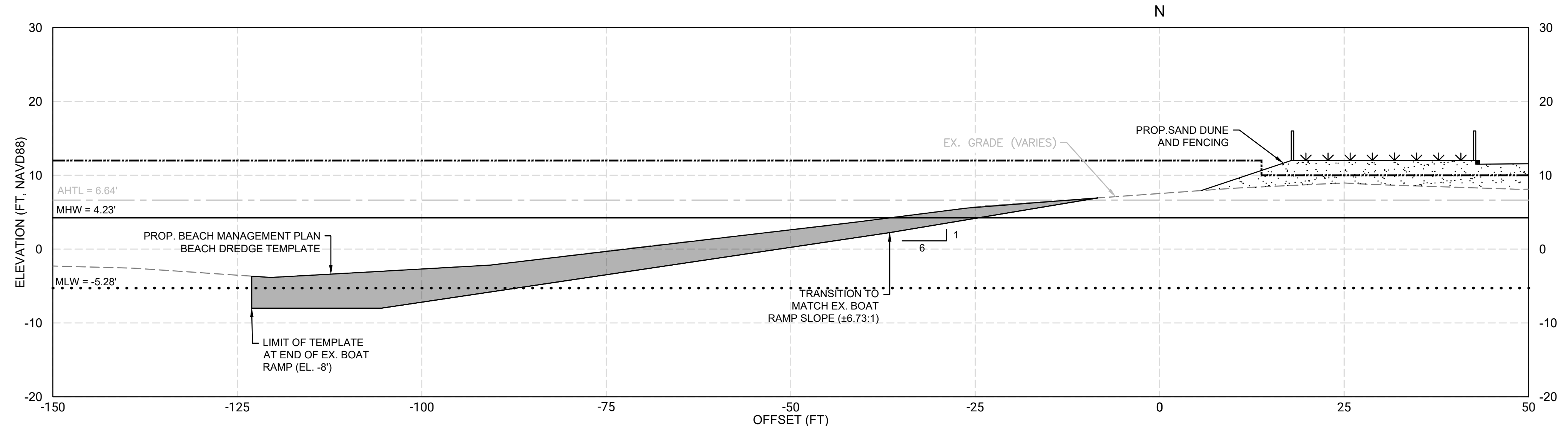
C-402



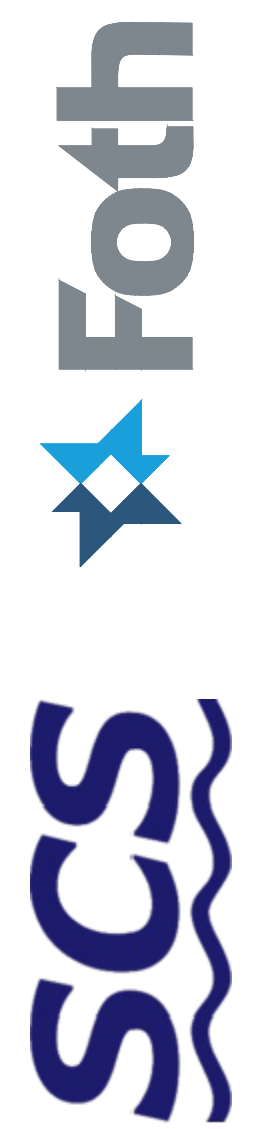
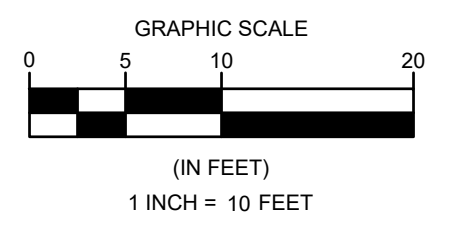
G PROPOSED PARKING LOT
C-102 SCALE: 1" = 10'



H PROPOSED PARKING LOT
C-102 SCALE: 1" = 10'



N PROPOSED BEACH MANAGEMENT PLAN - DREDGE TEMPLATE
C-104 SCALE: 1" = 10'



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

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SHEET TITLE:

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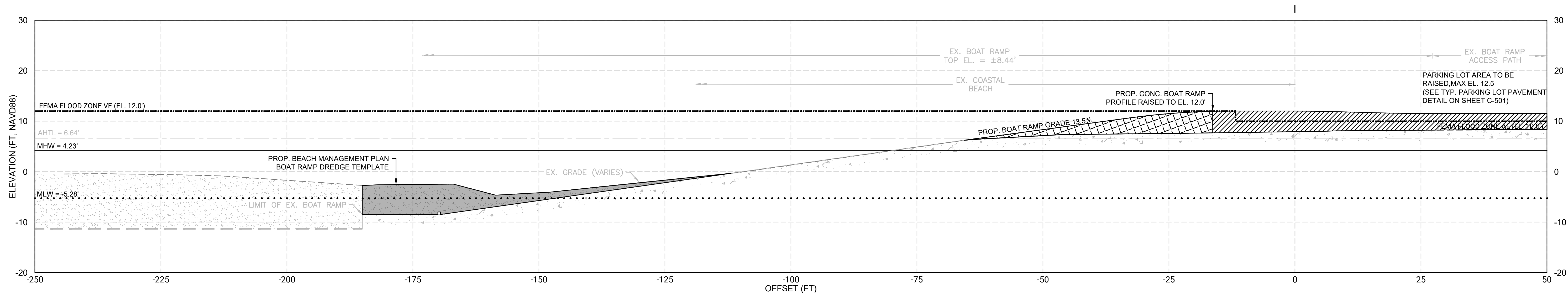
ISSUANCE:

FOR PERMITTING PURPOSES ONLY

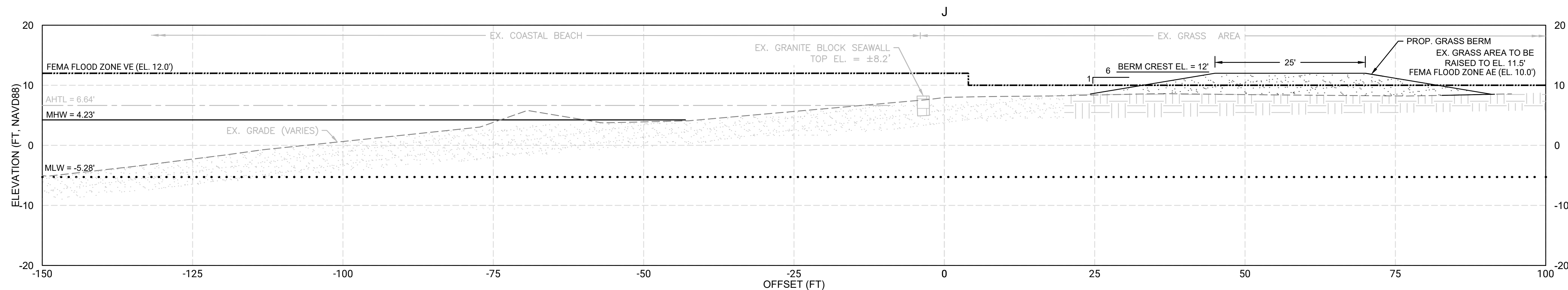
PROJECT NO: 0024H024.00

SHEET NUMBER

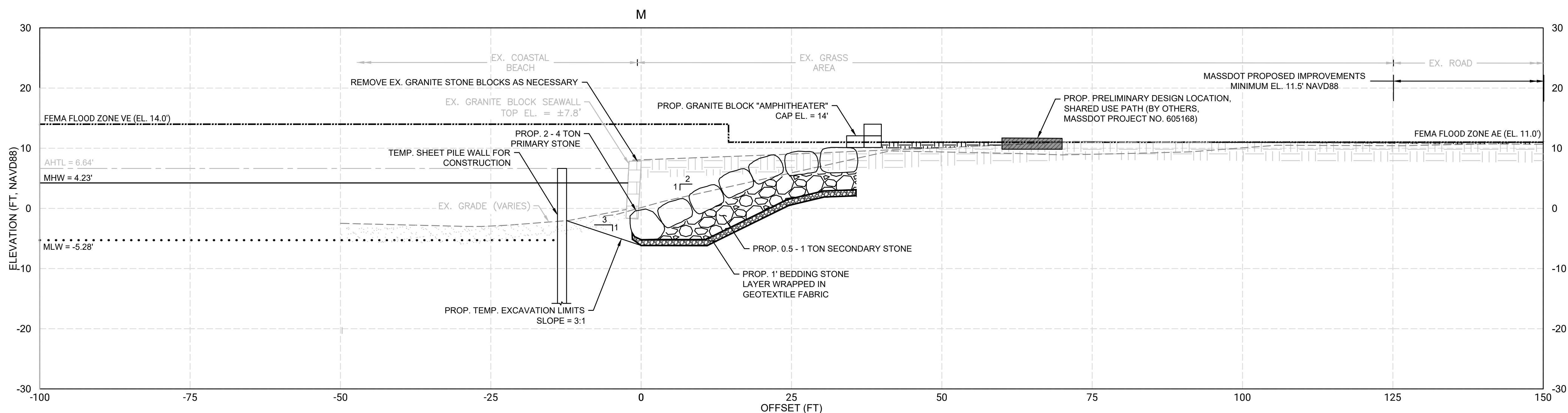
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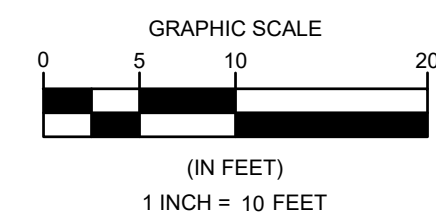
I
C-102
PROPOSED BOAT RAMP IMPROVEMENTS
SCALE: 1" = 10'



J
C-102
PROPOSED GRASS BERM
SCALE: 1" = 10'



M
C-102
PROPOSED POW/MIA PARK REVETMENT
SCALE: 1" = 10'



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

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SHEET TITLE:

SECTIONS

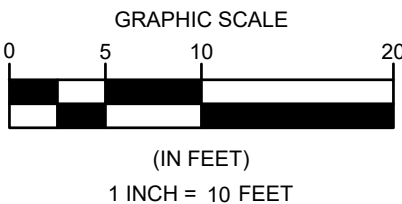
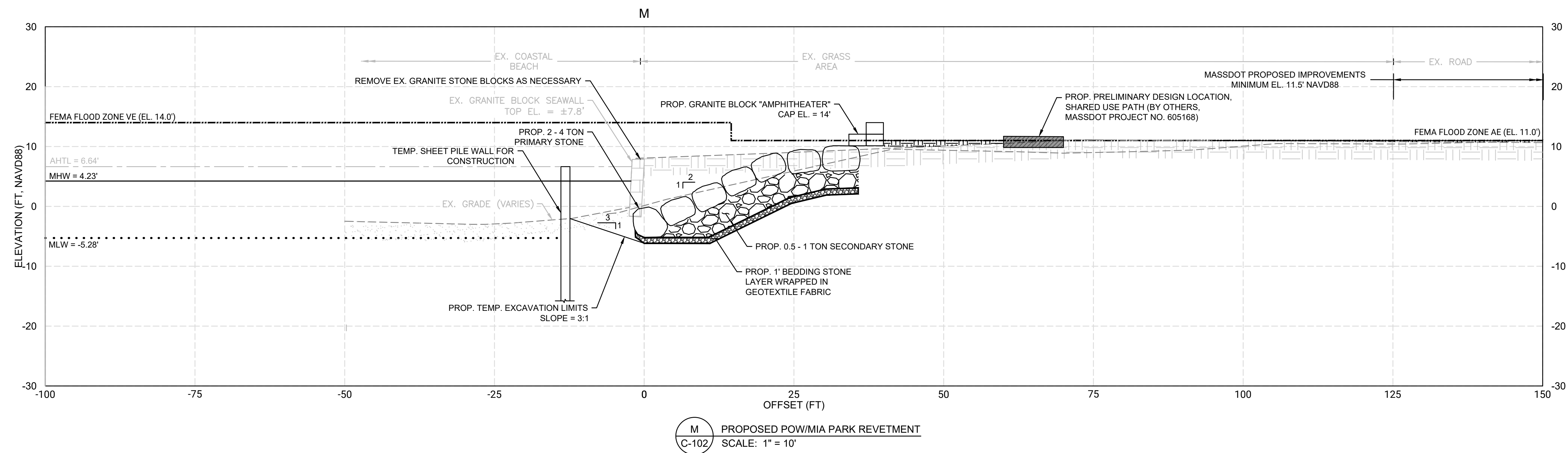
ISSUANCE:

FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0024H024.00

SHEET NUMBER

C-404



TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

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	BY	DATE
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SHEET TITLE:

SECTIONS

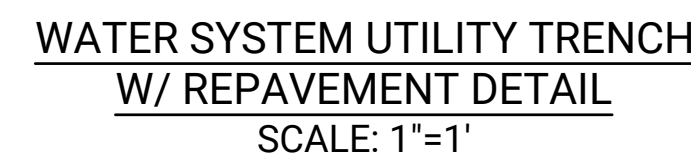
ISSUANCE:

FOR PERMITTING PURPOSES ONLY

PROJECT NO: 0024H024.00

SHEET NUMBER

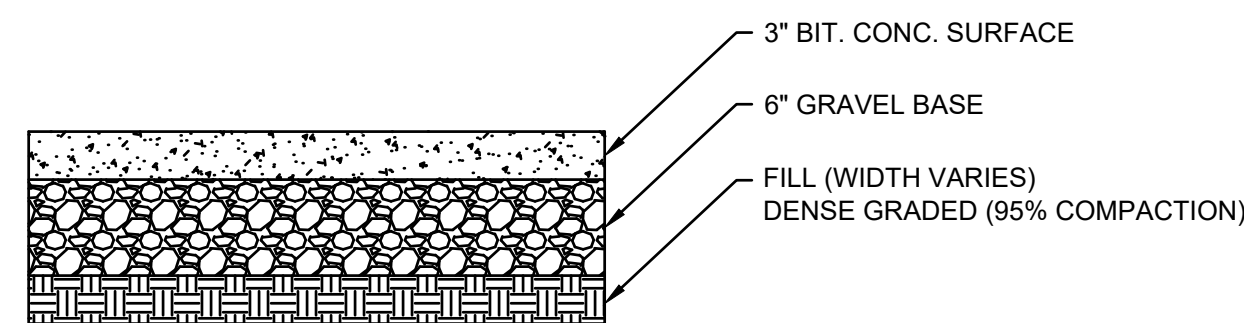
C-405



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- STANDARD C.I. CATCH BASIN FRAME & GRATE, EAST JORDAN IRON WORKS TYPE LF24-2 OR APPROVED EQUAL
- BRICK RISER 2 COURSES (MIN.) FOR GRADE ADJUSTMENTS FRAME TO BE SET IN FULL BED OF MORTAR.
- GRATE
- 24" SQUARE
- 48" DIA.
- 5" MIN.
- HEIGHT OF RISER SECTIONS VARY FROM 1 TO 4'
- SHIPLAP JOINT W/1" DIA. BUTYL RUBBER SEAL
- 4'-0" SLUMP
- 6"
- OUTLET PIPE PER PLAN PROVIDE "V" OPENINGS AND NON-SHRINK GROUT AT ALL OPENINGS TO BE PRECAST IN BARREL SECTION
- ELIMINATOR OIL & DEBRIS TRAP OR EQUAL
- 6" DEPTH OF 3/4" CRUSHED STONE FOUNDATION (MASSDOT SPEC M2.01.4)
- PIPE
- 0.072

NOTES

1. CATCH DESIGN TO CONFORM TO ASTM C478 LATEST REVISION.
2. CONCRETE SHALL BE WET CAST 4000 P.S.I. @ 28 DAYS.
3. FILL OUTSIDE FACE OF ALL MANHOLE JOINTS WITH NON-SHRINK MORTAR.
4. BASE SECTION TO BE MONOLITHIC.
5. WHERE CATCH BASIN OF GREATER DIAMETER ARE SPECIFIED ON THE PLANS, THEIR CONSTRUCTION SHALL MEET THE TYPICAL CATCH BASIN SPECIFICATIONS.



3 SHREDDED
HARDWOOD MULCH

2:1 (MIN)

15 CM
PLANTING SOIL

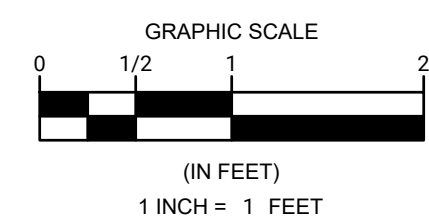
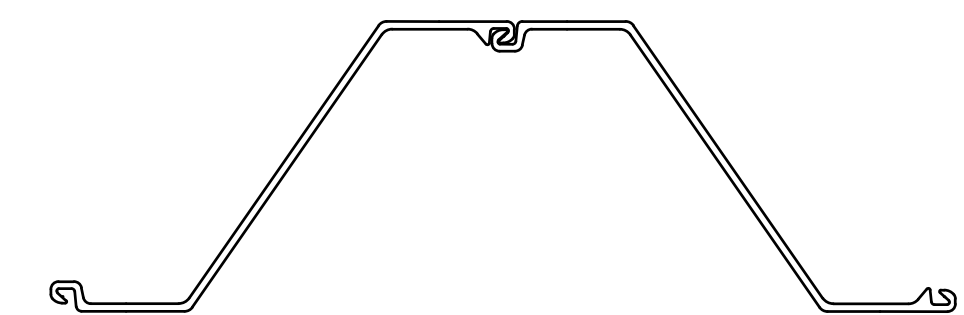
5 CM
SAND BED

2:1 (MIN)

NOTES

1. PLANTING SOIL MIX SHALL BE A MIXTURE OF SAND COMPOST AND SOIL COMPRISED OF THE FOLLOWING:

40% SAND
20-30% SCREENED TOPSOIL
30-40% COMPOST
CLAY CONTENT <5%
PH 5.5-6.5
SOLUBLE SALT < 500 PPM
2. RAIN GARDEN BOTTOM AREA AND SIDE SLOPES TO BE SEED WITH NEW ENGLAND WETLAND SEED MIX AS SUPPLIED BY NEW ENGLAND WETLAND PLANTS, INC. (OR APPROVED EQUAL)

[illegible]

DATE OF PREPARATION

	BY	DATE
SURVEYED		
DRAWN		
DESIGNED		
CHECKED		

SHEET TITLE:

DETAILS

ISSUANCE:

**FOR PERMITTING
PURPOSES ONLY**

PROJECT NO: 0024H024.00

SHEET NUMBER

C-501