Environmental Notification Form

Hingham Waterfront Resiliency Project

Hingham, MA

210 Central Street
Hingham, MA

August 2024

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 2024

114 Touro Street • Newport, RI 02840 • (401) 236-0360
foth.com

Hingham Waterfront Resiliency Project

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Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: _____

MEPA Analyst: _____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Hingham Waterfront Resiliency Project**		
Street Address: **Bathing Beach to Steamboat Wharf**		
Municipality: **Hingham**	Watershed: **Boston Harbor**	
Universal Transverse Mercator Coordinates: **344579, 4678758, UTM Zone 19N**	Latitude: **42°14' 44" N** Longitude: **70°53' 02" W**	
Estimated commencement date: **2026**	Estimated completion date: **2028**	
Project Type: **Coastal (Other Infrastructure)**	Status of project design: **75**% complete	
Proponent: **Town of Hingham**		
Street Address: **210 Central Street**		
Municipality: **Hingham**	State: **MA**	Zip Code: **02043**
Name of Contact Person: **Fiona Vardy**		
Firm/Agency: **Foth Infrastructure & Environment, LLC**	Street Address: **114 Touro Street**	
Municipality: **Newport**	State: **RI**	Zip Code: **02840**
Phone: **508-762-0784**	Fax:	E-mail: **Fiona.Vardy@Foth.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8)) ☐Yes ☒No
a Rollover EIR? (see 301 CMR 11.06(13)) ☐Yes ☒No
a Special Review Procedure? (see 301CMR 11.09) ☐Yes ☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11) ☐Yes ☒No
a Phase I Waiver? (see 301 CMR 11.11) ☐Yes ☒No
(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?
301 CMR 11.03(3)(b)(1)(a) – alteration of coastal dune;
301 CMR 11.03(3)(b)(1)(e) – new fill and structures in a velocity zone or regulatory floodway;
301 CMR 11.03(3)(b)(1)(f) – alteration of one half or more acres of other wetlands;
301 CMR 11.03(3)(b)(6) – construction of temporary solid fill structures of 1,000 or more square feet base area

Which State Agency Permits will the project require?
Massachusetts Department of Environmental Protection (MassDEP) Chapter 91 Waterways License; Massachusetts Office of Coastal Zone Management (CZM) Federal Consistency Review; Massachusetts Historic Commission (MHC) Project Notification Form

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres: **Executive Office of Energy & Environmental Affairs (EEA) – Office of Coastal Zone Management Coastal Resilience Grant ($268,771.00 for FY24).**	

Summary of Project Size & Environmental Impacts	**Existing**	**Change**	**Total**
LAND			
Total site acreage	±12.14		
New acres of land altered		0	
Acres of impervious area	±3.685	0	±3.685
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration		See Attachment 2	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage[1]	2,178 sf	+1,100 sf	3,278 sf
Number of housing units	N/A	N/A	N/A
Maximum height (feet)[2]	Varies	Varies	Varies
TRANSPORTATION			
Vehicle trips per day	N/A	N/A	N/A
Parking spaces[3]	117	See below	See below
WASTEWATER			
Water Use (Gallons per day)	N/A	N/A	N/A
Water withdrawal (GPD)	N/A	N/A	N/A
Wastewater generation/treatment (GPD)	N/A	N/A	N/A
Length of water mains (miles)	N/A	N/A	N/A
Length of sewer mains (miles)	N/A	N/A	N/A

Has this project been filed with MEPA before?
☒ Yes (EEA #__) ☐No
The Hingham Wharf Infrastructure Resiliency Master Plan ENF submitted in October 2021 (EEA #16464) included flood protection enhancements in the project area. However, following consultation with MEPA, the ENF was withdrawn, and it was decided that the project as described herein would undergo separate development and review than the scope originally outlined in EEA #16464.

Has any project on this site been filed with MEPA before?
☒ Yes (EEA #16464; 13305; 13281; 6201; 839) ☐No

[1]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. The square footage of these structures will not change (see Attachment 1).
[2]The project narrative provided in Attachment 1 details the proposed elevations across the project site.
[3]The project will address parking requirements set by the Office of Fisheries and Boating Access (OFBA), which oversees the Land Management Agreement (Agreement) between the Department of Fish and Game and the Town, authorized under G.L. c.21A, §2(8) and §11B. As outlined in the Agreement, parking will be provided for 32 vehicles with boat trailers and 20 vehicles with car-top boats. Additionally, Town parking spaces are available within close walking distance (0.25-mi) of the Harbor.

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

Describe the existing conditions and land uses on the project site:

Please see the attached narrative (Attachment 1).

Describe the proposed project and its programmatic and physical elements:

Please see the attached narrative (Attachment 1).

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

Please see attached narrative (Attachment 1).

NOTE*: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.*

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

Please see attached narrative (Attachment 1).

If the project is proposed to be constructed in phases, please describe each phase:
The project's specific purpose is to develop coastal flood protection along the Hingham Harbor (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 be implemented in phased development to allow for realistic planning. Refer to the project narrative included in Attachment 1.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:
Is the project within or adjacent to an Area of Critical Environmental Concern?
☐Yes (Specify_____)
☒No
if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;

If yes, describe how the project complies with this plan.
_____
Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes ___ No;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.
_____

RARE SPECIES:
Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)
☐Yes (Specify_____) ☒No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:
Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?
☒Yes (Specify: **HIN.926 Herbert Cole Bandstand; HIN.925 Iron Horse Marker; HIN.992 Hingham Town Pier; HIN.924 Soldiers and Sailors of All Wars Memorial; HIN.923 Memorial Park; HIN.992 Hingham Town Pier; HIN.1060 3 Otis Street; HIN.955 Whitney's Wharf**) ☐No
If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify_____) ☒No

WATER RESOURCES:
Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site? ___Yes _X_ No;
if yes, identify the ORW and its location. _____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? _X_Yes ___No; if yes, identify the water body and pollutant(s) causing the impairment:
Hingham Harbor: Fecal Coliform, PCB in Fish Tissue, Escherichia Coli (E.Coli), Other

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes _X_No

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:
The project serves a singular purpose to mitigate coastal flood damage and provide shore protection infrastructure so the Harbor shoreline is capable of withstanding coastal flooding and storm surge. The proposed improvements, as described in further detail in the attached project narrative, have been designed to comply with the MassDEP Stormwater Management Regulations.

MASSACHUSETTS CONTINGENCY PLAN:
Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ No _X_ ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No _X_;
if yes, describe which portion of the site and how the project will be consistent with the AUL:
_____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN?
Yes ___ No _X_ ; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:
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.

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes ___ No _X__ ;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Describe anti-idling and other measures to limit emissions from construction equipment:
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.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No _X_;
if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River?
Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated "outstandingly remarkable" resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes,describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
   Attachment 1 – Project Narrative
   Attachment 2 – Wetland Alteration Summary
   Attachment 3 – USGS Locus Map
   Attachment 4 – MassGIS Layers
   Attachment 5 – Historic/Record Permits and Approvals
   Attachment 6 – Circulation List
   Attachment 7 – Anticipated Local and Federal Permits and Approvals
   Attachment 8 – RMAT Report
   Attachment 9 – Waterfront Design Water Levels and Wave Conditions
   Attachment 10 – Home Meadows Watershed and Upland Flooding Analysis
   Attachment 11 – Plans entitled "Hingham Waterfront Resiliency Project", dated July 2024 (13 sheets)
2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries. **Attachment 3**
3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities. **Attachment 11**
4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts. **Attachment 11**
5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase). **Attachment 11**
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2). **Attachment 6**
7. List of municipal and federal permits and reviews required by the project, as applicable. **Attachment 7**
8. Printout of output report from RMAT Climate Resilience Design Standards Tool, available here. **Attachment 8**
9. Printout from the EEA EJ Maps Viewer showing the project location relative to Environmental Justice (EJ) Populations located in whole or in part within a 1-mile and 5-mile radius of the project site. **Attachment 1, Section 5.0**

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___ Yes _X_ No; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings[1]	0.05	0	0.05
Internal roadways	0	0	0
Parking and other paved areas[2]	3.61	0	3.61
Other altered areas	3.47	0	3.47
Undeveloped areas	5.01	0	5.01
Total: Project Site Acreage	12.14	0	12.14

[1]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. The square footage of these structures will not change.

[2]The footprint of the wharves and parking areas will not change; the structures will be elevated (see Attachment 1).

B. Has any part of the project site been in active agricultural use in the last five years?
___ Yes_X_No; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes _X_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes _X_ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes _X_ No; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _X_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _X_; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title: **Town of Hingham Master Plan** Date: **August 23, 2021**

B. Describe the project's consistency with that plan with regard to:

1) economic development

One of the stated goals in the Town of Hingham Master Plan (Plan) is to promote Hingham as a destination and attract nonresidential development to increase tax revenue.

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.

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.

2) adequacy of infrastructure

As noted in the Plan, the Town endeavors to protect critical public infrastructure along the coast from sea level rise and enhance public access to the Harbor and its amenities while protecting the shoreline.

While downtown Hingham continues to thrive, the historic Harbor-front infrastructure was constructed at a time when sea levels were over 1-ft lower than they are today. With ongoing sea-level rise, existing seawall and wharf infrastructure is not capable of withstanding impacts of severe coastal flooding associated with storm surge.

State Highway Route 3A (Otis Street), the Greenbush Line of the Massachusetts Bay Transportation Authority (MBTA) Commuter Rail, and the heavily traveled Summer Street are in proximity to the proposed resiliency improvements and define the southern boundary of the downtown area that needs coastal flood protection. Commercial businesses remain along the Harbor and provide a mix of offices, marine services, and automotive repair/gasoline sales. The planned MassDOT improvements to Route 3A will ensure a minimum sidewalk elevation of 11.0-to-11.5 feet NAVD along the seaward side of the roadway, which is above the expected 100-year stillwater storm surge level in 2050. The Route 3A project is a critical transportation initiative aimed at improving connectivity,

reducing traffic congestion, and enhancing safety for residents and visitors. The success of this project, however, hinges on the Town's ability to manage the persistent flooding and threats from storm surge. By mitigating the risk of flooding, the project will also protect the roads from potential storm damage, erosion and flooding that can lead to costly repairs.

3) open space impacts

The Plan describes that Hingham Harbor is among Hingham's most character-defining natural features because it contributes to the Town's aesthetic, recreational, and economic appeal. The Town-owned lands include the Bathing Beach and picnic grove, bandstand, the 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. The proposed coastal infrastructure will provide long-term resiliency for these integral community assets, therefore enhancing the public's enjoyment of the Town's public open and recreational spaces.

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 anticipated that 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. By using native vegetation to stabilize the dune, the project will provide aesthetically pleasing shoreline protection.

4) compatibility with adjacent land uses

The Harbor is currently used principally for recreational purposes and is enjoyed by boaters, bathers, beach walkers and visitors to the waterfront. The focus of coastal flood hazard mitigation extends approximately six-tenths of a mile from west-to-east along the southerly shoreline of Hingham Harbor, commonly referred to as the "inner harbor", and includes a mixture of Town-owned properties and privately held properties with active commercial establishments.

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 project plans provided in Attachment 11 depict the contiguous coastal flood protection along the entire shoreline.

Consistent with the Town's stated collective value in sustainability, the project's holistic approach ensures that the benefits of the project contribute to the overall prosperity and sustainability of Hingham. By protecting residential, commercial, and recreational areas, the project fosters a cohesive and resilient community.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: **Metropolitan Area Planning Council**

Title: **MetroCommon 2050** Date: **September 2021**

D. Describe the project's consistency with that plan with regard to:

1) economic development

The benefits of the infrastructure improvements extend beyond flood protection. By safeguarding the beach and adjacent properties, Hingham will also enhance its attractiveness as a tourist destination. Moreover, the improved coastal infrastructure directly enhances the public's enjoyment of the beach by making it a safer and more reliable destination. An influx of visitors will stimulate the local economy, leading to increased revenue for existing businesses. The proposed coastal infrastructure will assuredly improve the Town's long-term viability. With reduced flood risks, property values may increase, providing a stronger tax base. This financial stability allows for further investments in public amenities and services, and therefore will contribute to economic growth and community development.

2) adequacy of infrastructure

MetroCommon 2050 includes recommendations and strategies to prepare and respond to the threats of climate change. Strategy 2 in the Climate Mitigation & Resiliency Action Area focuses on preparing buildings, infrastructure and the natural environment to withstand and be resilient to the impacts of climate change.

For planning of future infrastructure, incorporating a safety factor to accommodate potential future sea level rise is warranted. State highway Route 3A and the heavily traveled Summer Street define the southern boundary of the downtown area requiring coastal flood protection. Commercial businesses remain along the Harbor and provide a mix of offices, marine services and automotive repair/gasoline sales. The planned MassDOT improvements to Route 3A will ensure a minimum sidewalk elevation of 11.0-to-11.5 feet NAVD along the seaward side of the roadway, which is above the expected 100-year stillwater storm surge level in 2050. The Route 3A project is a critical transportation initiative aimed at improving connectivity, reducing traffic congestion, and enhancing safety for residents and visitors. The success of this project, however, hinges on the Town's ability to manage the persistent flooding and threats from storm surge. By mitigating the risk of flooding, the project will also protect the roads from potential storm damage, erosion and flooding that can lead to costly repairs.

3) open space impacts

The Town-owned lands along the Harbor include Bathing Beach and picnic grove, "Iron Horse" Park, Town Pier, Whitney Wharf Park, and Barnes Wharf. The proposed coastal infrastructure will provide long-term resiliency for these integral community assets, therefore enhancing the public's enjoyment of the Town's public open and recreational spaces.

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 anticipated that 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. By using native vegetation to stabilize the dune, the project will provide aesthetically pleasing shoreline protection.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? ___ Yes _X_ No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes _X_ No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? ___ Yes ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? ___Yes ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes ___ No; if yes, attach the letter of determination to this submission.

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

3. Which rare species are known to occur within the Priority or Estimated Habitat?

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ No

4. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___ Yes ___ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___ Yes ___ No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes ___ No; if yes, provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? _X_ Yes ___ No; if yes, specify, in quantitative terms:

301 CMR 11.03(3)(b)(1)(a) – alteration of coastal dune;
301 CMR 11.03(3)(b)(1)(e) – new fill and structures in a velocity zone or regulatory floodway;
301 CMR 11.03(3)(b)(1)(f) – alteration of one half or more acres of other wetlands;
301 CMR 11.03(3)(b)(6) – construction of temporary solid fill structures of 1,000 or more square feet base area

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? _X_ Yes ___ No; if yes, specify which permit:

MassDEP Chapter 91 Waterways License;
CZM Federal Consistency Review
Order of Conditions – Hingham Conservation Commission

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? _X_ Yes ___ No; if yes, has a Notice of Intent been filed? ___ Yes _X_ No; if yes, list the date and MassDEP file number: _____; if yes, has a local Order of Conditions been issued? ___ Yes ___ No; Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a Variance from the Wetlands regulations? ___ Yes ___ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:
The affected coastal resource areas include Coastal Beach, Coastal Dune and Land Subject to Coastal Storm Flowage. The summary of impact areas within the coastal resources affected by the project is included in the table below. Attachment 11 includes the project plans that depict the existing and proposed conditions with the vicinity of the project site, including permanent and temporary considerations. A detailed description of resource area impacts is included in Section 4 of the project narrative (Attachment 1).

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent: **Also see Attachment 2.**

	Area (square feet) or length (linear feet)	Temporary or Permanent Impact?
Coastal Wetlands		
Land Under the Ocean		
Designated Port Areas		
Coastal Beaches	12,580 sf / 4,300 sf	permanent / temporary
Coastal Dunes	28,665 sf	permanent
Barrier Beaches		
Coastal Banks	1,259 lf	permanent
Rocky Intertidal Shores		
Salt Marshes		
Land Under Salt Ponds		

Land Containing Shellfish	4,160 sf	permanent
Fish Runs		
Land Subject to Coastal Storm Flowage	174,907 sf	permanent

Inland Wetlands		
Bank (lf)	0	N/A
Bordering Vegetated Wetlands	0	N/A
Isolated Vegetated Wetlands	0	N/A
Land under Water	0	N/A
Isolated Land Subject to Flooding	0	N/A
Bordering Land Subject to Flooding	0	N/A
Riverfront Area	0	N/A

D. Is any part of the project:
1. proposed as a **limited project**? ___ Yes _X_ No; if yes, what is the area (in sf)?____
2. the construction or alteration of a **dam**? ___ Yes_X_No; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? _X_ Yes ___No
4. dredging or disposal of dredged material? ___ Yes _X_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? ___ Yes _X_ No
6. subject to a wetlands restriction order? ___ Yes_X_No; if yes, identify the area (in sf):
7. located in buffer zones? _X_ Yes ___No; if yes, how much (in sf) **121,600 sf**

E. Will the project:
1. be subject to a local wetlands ordinance or bylaw? _X_ Yes ___ No
2. alter any federally-protected wetlands not regulated under state law? ___ Yes _X_ No; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? _X_ Yes ___ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? _X_ Yes ___No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands: **Please see Attachment 5 for the historic/record permits.**

C. Does the project require a new or modified license or permit under M.G.L.c.91? _X_ Yes ___ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current _0__ Change _0__ Total _0__

If yes, how many square feet of solid fill or pile-supported structures (in sf)? **The focus of the proposed coastal flood hazard mitigation extends approximately six-tenths of a mile from west-to-east along the southerly shoreline of the Harbor. The project narrative (Attachment 1) details the proposed work and reconstruction of the site elements to a higher elevation.**

C. For non-water-dependent use projects, indicate the following:

Area of filled tidelands on the site:_____

Area of filled tidelands covered by buildings:_____

For portions of site on filled tidelands, list ground floor uses and area of each use:

_____

Does the project include new non-water-dependent uses located over flowed tidelands?

Yes ___ No ___

Height of building on filled tidelands_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-

dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes _X_No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes _X__ No; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ___ Yes _X_ No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes _X_ No; if yes, answer the following questions:
What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _____
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);
Will dredging impact the following resource areas?
Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__; if yes __
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?
Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.
Sediment Characterization
Existing gradation analysis results? __Yes ___No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes ____No; if yes, provide results.
Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? _X_ Yes ___ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

Overall, the project is focused on improving coastal resiliency to critical Town infrastructure in an environmentally sound manner. The Town has and will continue to coordinate with agencies, including CZM, to assess climate change vulnerability and identify opportunities to increase resilience. The Foth/SCS team and the Town of Hingham have worked to develop a comprehensive coastal flood hazard mitigation strategy for the downtown area, consistent with CZM policies as described below. Please refer to the project narrative in Attachment 1 for further project details.

<u>Coastal Hazards Policy 1</u>

Preserve, protect, restore, and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.

The project's specific purpose 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.

Where possible, nature-based shore protection would provide flood protection in the form of either a contiguous dune or berm. 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. It is anticipated that 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. The same strategy is planned for POW/MIA Memorial Park and Barnes Wharf. For all of the areas described above, the engineering strategies will be designed to allow for required design elevation increases to accommodate anticipated sea level, storm surge, and storm wave action to 2070.

<u>Coastal Hazards Policy 2</u>

Ensure that construction in water bodies and contiguous land areas will minimize interference with water circulation and sediment transport. Flood or erosion control projects must demonstrate no significant adverse effects on the project site or adjacent or downcoast areas.

With ongoing sea-level rise, existing seawall and wharf infrastructure is not capable of withstanding impacts of severe coastal flooding associated with storm surge. To mitigate coastal flood damage, elevating shore protection infrastructure along the harbor-front will be critical. 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 Hingham Harbor; therefore, preventing storm surge from entering Home Meadows will prevent coastal flooding from impacting the lower elevation properties adjacent to the salt marsh. The project will greatly enhance the shoreline's resilience and longevity and will also prevent flooding in adjacent areas. The project will not interfere with water circulation or sediment transport.

Growth Management Policy 1

Encourage sustainable development that is consistent with state, regional, and local plans and supports the quality and character of the community.

As previously discussed, the project is consistent with both the Hingham Master Plan and MAPC's MetroCommon 2050 regional plan. The project does not introduce new development; however, 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. The project will greatly contribute to protecting residential, commercial, and recreational areas, as well as safeguarding transportation networks and attracting tourism. The project will enhance the character and long-term viability of the Town.

Growth Management Policy 3

Encourage the revitalization and enhancement of existing development centers in the coastal zone through technical assistance and financial support for residential, commercial, and industrial development.

Coastal infrastructure plays a crucial role in supporting economic development in coastal towns such as Hingham. The project 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. The project will greatly contribute to protecting residential, commercial, and recreational areas, as well as safeguarding 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.

Habitat Policy 1

Protect coastal, estuarine, and marine habitats—including salt marshes, shellfish beds, submerged aquatic vegetation, dunes, beaches, barrier beaches, banks, salt ponds, eelgrass beds, tidal flats, rocky shores, bays, sounds, and other ocean habitats—and coastal freshwater streams, ponds, and wetlands to preserve critical wildlife habitat and other important functions and services including nutrient and sediment attenuation, wave and storm damage protection, and landform movement and processes.

The project as proposed has limited impacts to marine habitats and significantly improves the storm damage protection and coastal resiliency of the existing shoreline.

Habitat Policy 2

Advance the restoration of degraded or former habitats in coastal and marine areas.

The project will enhance habitats by ensuring these areas are protected, allowing for them to thrive and increase resiliency.

Protected Areas Policy 3

Ensure that proposed developments in or near designated or registered historic places respect the preservation intent of the designation and that potential adverse effects are minimized.

The project will protect existing historic structures.

Public Access Policy 1

Ensure that development (both water-dependent or nonwater-dependent) of coastal sites subject to state waterways regulation will promote general public use and enjoyment of the water's edge, to an extent commensurate with the Commonwealth's interests in flowed and filled tidelands under the Public Trust Doctrine.

The project does not propose any new development at the water's edge and seeks only to protect existing coastal resources areas, structures, and infrastructure.

Public Access Policy 3

Expand existing recreation facilities and acquire and develop new public areas for coastal recreational activities, giving highest priority to regions of high need or limited site availability. Provide technical assistance to developers of both public and private recreation facilities and sites that increase public access to the shoreline to ensure that both transportation access and the recreation facilities are compatible with social and environmental characteristics of surrounding communities.

The benefits of the coastal infrastructure improvements extend beyond flood protection. By safeguarding the beach and adjacent properties, the project will provide long-term coastal resiliency for this critical community and enhance the public's enjoyment of the Town's public open and recreational spaces.

B. Is the project located within an area subject to a Municipal Harbor Plan? __ Yes _X_ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **water supply**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	_____	_____	_____
Withdrawal from groundwater	_____	_____	_____
Withdrawal from surface water	_____	_____	_____
Interbasin transfer	_____	_____	_____

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? ___ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. _____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? _____Will the project require an increase in that withdrawal? ___Yes ___No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? ___ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	_____	_____	_____	_____
Capacity of water treatment plant (gpd)	_____	_____	_____	_____

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed?

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes ___ No
2. a Watershed Protection Act variance? ___ Yes ___ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes ___ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	Existing	Change	Total
Discharge to groundwater	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Discharge to municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	_____	_____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes ____ No; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ____ Yes ____ No; if yes, generally describe:

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ___Yes ___No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos?
___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? ___ Yes _X_ No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes _X_ No; if yes, attach correspondence.

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? _X_ Yes ___No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes _X_ No; if yes, please describe:

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _X_ No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes _X_ No; if yes, please describe:

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources:

The project will not have an adverse impact on historic or archaeological resources but will in fact protect them from damage caused by sea level rise, storm surge and flooding. A Project Notification Form (PNF) will be filed with the Massachusetts Historic Commission (MHC), and all applicable agencies will continue to be consulted during the design, review and permitting processes. Protective measures will be taken during construction.

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources:

A Project Notification Form (PNF) will be filed with the Massachusetts Historic Commission (MHC), and the U.S. Army Corps of Engineers (USACE) will review the project through the Section 106 process. All applicable agencies will continue to be consulted during the review and permitting processes.

CLIMATE CHANGE ADAPTATION AND RESILIENCY SECTION

This section of the Environmental Notification Form (ENF) solicits information and disclosures related to climate change adaptation and resiliency, in accordance with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency (the "MEPA Interim Protocol"), effective October 1, 2021. The Interim Protocol builds on the analysis and recommendations of the 2018 Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (SHMCAP), and incorporates the efforts of the Resilient Massachusetts Action Team (RMAT), the inter-agency steering committee responsible for implementation, monitoring, and maintenance of the SHMCAP, including the "Climate Resilience Design Standards and Guidelines" project. The RMAT team recently released the RMAT Climate Resilience Design Standards Tool, which is available here.

The MEPA Interim Protocol is intended to gather project-level data in a standardized manner that will both inform the MEPA review process and assist the RMAT team in evaluating the accuracy and effectiveness of the RMAT Climate Resilience Design Standards Tool. Once this testing process is completed, the MEPA Office anticipates developing a formal Climate Change Adaptation and Resiliency Policy through a public stakeholder process. Questions about the RMAT Climate Resilience Design Standards Tool can be directed to rmat@mass.gov.

All Proponents must complete the following section, referencing as appropriate the results of the output report generated by the RMAT Climate Resilience Design Standards Tool and attached to the ENF. In completing this section, Proponents are encouraged, but not required at this time, to utilize the recommended design standards and associated Tier 1/2/3 methodologies outlined in the RMAT Climate Resilience Design Standards Tool to analyze the project design. However, Proponents are requested to respond to a respond to a user feedback survey on the RMAT website or to provide feedback to rmat@mass.gov, which will be used by the RMAT team to further refine the tool. Proponents are also encouraged to consult general guidance and best practices as described in the RMAT Climate Resilience Design Guidelines.

Climate Change Adaptation and Resiliency Strategies

I. Has the project taken measures to adapt to climate change for all of the climate parameters analyzed in the RMAT Climate Resilience Design Standards Tool (sea level rise/storm surge, extreme precipitation (urban or riverine flooding), extreme heat)? _X__Yes __ No

Note: Climate adaptation and resiliency strategies include actions that seek to reduce vulnerability to anticipated climate risks and improve resiliency for future climate conditions. Examples of climate adaptation and resiliency strategies include flood barriers, increased stormwater infiltration, living shorelines, elevated infrastructure, increased tree canopy, etc. Projects should address any planning priorities identified by the affected municipality through the Municipal Vulnerability Preparedness (MVP) program or other planning efforts, and should consider a flexible adaptive pathways approach, an adaptation best practice that encourages design strategies that adapt over time to respond to changing climate conditions. General guidance and best practices for designing for climate risk are described in the RMAT Climate Resilience Design Guidelines.

A. If no, explain why.

B. If yes, describe the measures the project will take, including identifying the planning horizon and climate data used in designing project components. If applicable, specify the return period and design storm used (e.g., 100-year, 24-hour storm).

In 2018, the Town received a Municipal Vulnerability Preparedness (MVP) Planning Grant from the Massachusetts Office of Energy and Environmental Affairs (EEA) to:

- **Define top local natural and climate-related hazards of concern;**
- **Identify existing and future strengths and vulnerabilities;**

- **Develop prioritized actions for the community; and**
- **Identify immediate opportunities to collaboratively advance planning actions to increase resilience.**

The Town completed the MVP process in early 2019 and has since become an MVP-certified community. The top climate-related hazards identified through this process were coastal flooding, inland flooding, severe storms, and heat/drought; these vulnerabilities are also indicated in the recent review of the Climate Resilience Design Standards Tool (included in Attachment 8). As an MVP-certified community, the Town is now eligible to apply to EEA through implementation grants to advance the actions identified out of the MVP process to address Hingham's top climate-related hazards.

To address existing and future coastal flooding concerns, the Foth/SCS team has been tasked by the Town to develop a comprehensive coastal flood hazard mitigation strategy for the downtown area extending from west of the Hingham Bathing Beach to Barnes Wharf, where the project limits connected the higher topographic elevations to both the west and east. In this manner, eliminating storm tide pathways into downtown from Hingham Harbor will provide long-term coastal resiliency for this critical portion of the community. The overall goal of the comprehensive approach is to eliminate storm tide pathways through 2050, as well as minimize any storm wave overtopping the seawalls/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 design of the flood mitigation strategy also requires flexibility to ensure modifications can be made to adapt to potential 100-year flood conditions in 2070.

As all properties along the shoreline are not Town-owned, the project team has been working with specific private landowners, as well as the Massachusetts Department of Transportation (MassDOT) consultants to ensure contiguous coastal flood protection along the shoreline. Planned MassDOT improvements to Route 3A (Otis Street) will ensure a minimum sidewalk elevation of 11.0-to-11.5 feet NAVD 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 shown in Figure 1.3 in the project narrative (Attachment 1).

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. A summary of this assessment is provided in Attachment 9. Further, a preliminary assessment of tide gate operations to mitigate potential coastal and/or upland flooding impacts to properties surrounding Home Meadows. Overall, the design 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.

Overall, the project is focused on improving coastal resiliency to critical Town infrastructure in an environmentally sound manner. Please refer to Attachment 1 for additional information on studies and data which has been consulted to develop the project plans depicted in Attachment 11.

C. Is the project contributing to regional adaptation strategies? __ Yes _X__ No; If yes, describe.

II. Has the Proponent considered alternative locations for the project in light of climate change risks? ___ Yes _X__ No

A. If no, explain why.

The project's purpose is to develop coastal flood protection specific to the Hingham Harbor shoreline. Therefore, no alternative locations were considered for the project.

B. If yes, describe alternatives considered.

III. Is the project located in Land Subject to Coastal Storm Flowage (LSCSF) or Bordering Land Subject to Flooding (BLSF) as defined in the Wetlands Protection Act? _X_Yes ____No

If yes, describe how/whether proposed changes to the site's topography (including the addition of fill) will result in changes to floodwater flow paths and/or velocities that could impact adjacent properties or the functioning of the floodplain. General guidance on providing this analysis can be found in the CZM/MassDEP Coastal Wetlands Manual, available here.

Pursuant to 310 CMR 10.04, Land Subject to Coastal Storm Flowage (LSCSF) means "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater". The areas mapped by the Federal Emergency Management Agency (FEMA) on community Flood Insurance Rate Maps (FIRM) as the 100-year flood plain within the coastal zone are included within LSCSF. LSCSF may be significant to the interests of storm damage prevention, flood control, pollution prevention, and wildlife habitat. LSCSF in this area contains other jurisdictional resource areas which are important for storm damage prevention and flood control. The proposed beach nourishment will enhance the storm damage and flood control aspects of the existing barrier beach system.

The current FIRM for this area, depicted as Figure 4.1 in the project narrative (Attachment 1), indicates that the 100-year storm encompasses the entire project area. According to FEMA and the National Flood Insurance Program, any building located in an A or V zone is considered to be in a Special Flood Hazard Area and is lower than the Base Flood Elevation. V zones are the most hazardous of the Special Flood Hazard Areas and the entirety of Crescent Beach is within the V Zone. There are currently no performance standards for work in LSCSF. The proposed fill to elevate the boat ramp parking area, Town Wharf, POW/MIA Memorial Park, and Barnes Wharf will affect approximately 174,870 square feet (sf) of LSCSF; however, the proposed project will improve the storm damage and flood protection aspects of this resource area.

Where possible, nature-based shore protection would provide flood protection in the form of either a contiguous dune or berm. 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. It is anticipated that 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. For all of the areas described above, the engineering strategies will be designed to allow for required design elevation increases to accommodate anticipated sea level, storm surge, and storm wave action to 2070.

ENVIRONMENTAL JUSTICE SECTION

I. Identifying Characteristics of EJ Populations

A. If an Environmental Justice (EJ) population has been identified as located in whole or in part within 5 miles of the project site, describe the characteristics of each EJ populations as identified in the EJ Maps Viewer (i.e., the census block group identification number and EJ characteristics of "Minority," "Minority and Income," etc.). Provide a breakdown of those EJ populations within 1 mile of the project site, and those within 5 miles of the site.

There are no EJ populations located within the one mile designated geographic area (DGA) of the project site. Please see the attached project narrative for the EJ populations that have been identified within a five mile radius of the project site.

B. Identify all languages identified in the "Languages Spoken in Massachusetts" tab of the EJ Maps Viewer as spoken by 5 percent or more of the EJ population who also identify as not speaking English "very well." The languages should be identified for each census tract located in whole or in part within 1 mile and 5 miles of the project site, regardless of whether such census tract contains any designated EJ populations.

Within the census tracts containing EJ populations within five miles of the project site, Chinese was identified as a language spoken by 5% or more of residents who also identify as not speaking English very well. The two census tracts are identified below and shown on Figure 5.3 in the attached project narrative.

Block Group 1, Census Tract 4178.02, Quincy – Chinese (25.6%)
Block Group 6, Census Tract 4179.01, Quincy – Chinese (6.2%)

C. If the list of languages identified under Section I.B. has been modified with approval of the EEA EJ Director, provide a list of approved languages that the project will use to provide public involvement opportunities during the course of MEPA review. If the list has been expanded by the Proponent (without input from the EEA EJ Director), provide a list of the additional languages that will be used to provide public involvement opportunities during the course of MEPA review as required by Part II of the MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Public Involvement Protocol"). If the project is exempt from Part II of the protocol, please specify. **N/A**

II. Potential Effects on EJ Populations

A. If an EJ population has been identified using the EJ Maps Viewer within 1 mile of the project site, describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

There are no EJ populations located within the one-mile DGA of the project site.

B. If an EJ population has been identified using the EJ Maps Viewer within 5 miles of the project site, will the project: (i) meet or exceed MEPA review thresholds under 301 CMR 11.03(8)(a)-(b) __ Yes _X_ No; or (ii) generate150 or more new average daily trips (adt) of diesel vehicle traffic, excluding public transit trips, over a duration of 1 year or more. ___ Yes _X_ No

C. If you answered "Yes" to either question in Section II.B., describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

III. Public Involvement Activities

A. Provide a description of activities conducted prior to filing to promote public involvement by EJ populations, in accordance with Part II of the MEPA EJ Public Involvement Protocol. In particular:

1. If advance notification was provided under Part II.A., attach a copy of the Environmental Justice Screening Form and provide list of CBOs/tribes contacted (with dates). Copies of email correspondence can be attached in lieu of a separate list.

2. State how CBOs and tribes were informed of ways to request a community meeting, and if any meeting was requested. If public meetings were held, describe any issues of concern that were raised at such meetings, and any steps taken (including modifications to the project design) to address such concerns.

3. If the project is exempt from Part II of the protocol, please specify.

B. Provide below (or attach) a distribution list (if different from the list in Section III.A. above) of CBOs and tribes, or other individuals or entities the Proponent intends to maintain for the notice of the MEPA Site Visit and circulation of other materials and notices during the course of MEPA review.

C. Describe (or submit as a separate document) the Proponent's plan to maintain the same level of community engagement throughout the MEPA review process, as conducted prior to filing.

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   (Name) **The Hingham Journal** (Date) **August 22, 2024**

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

8/14/24		8/14/24	
Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above) or Proponent
Tom Mayo		**Fiona Vardy**	
Name (print or type)		Name (print or type)	
Town of Hingham		**Foth Infrastructure and Environment, LLC**	
Firm/Agency		Firm/Agency	
210 Central Street		**114 Touro Street**	
Street		Street	
Hingham, MA 02043		**Newport, RI 02840**	
Municipality/State/Zip		Municipality/State/Zip	
(781) 741-1451		**(508) 762-0784**	
Phone		Phone	

Attachment 1

Project Narrative

1. Introduction

The Town of Hingham (Town) is approximately 15 miles south of Boston and includes 21 miles of shoreline. Hingham Harbor (Harbor) is located in Hingham Bay, north of historic downtown Hingham Center and east of Weymouth Back River. The Harbor is currently used principally for recreational purposes and is enjoyed by boaters, bathers, beach walkers and visitors to the waterfront. The focus of coastal flood hazard mitigation extends approximately six-tenths of a mile from west-to-east along the southerly shoreline of Harbor, commonly referred to as the "inner harbor" and includes a mixture of Town-owned properties and privately held properties with active commercial establishments. State highway Route 3A and heavily traveled Summer Street define the southern boundary of the historic downtown area requiring coastal flood protection. Commercial businesses remain along the Harbor-front Route 3A corridor and provide a mix of offices, marine services and automotive repair/gasoline sales. The Town-owned lands include the Bathing Beach and picnic grove, bandstand, the 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. The Commonwealth of Massachusetts controls the land at the rotary and Route 3A. The Trustees of the Bathing Beach control the westernmost portion of the project area.

The overall goal of the comprehensive approach is to eliminate the storm tide pathways illustrated in Figure 1.2, 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 design of the flood mitigation strategy also requires flexibility to ensure modifications can be made to adapt to potential 100-year flood conditions in 2070.

The English settlers who established the Town near the present-day study area along North Street originally named the Harbor "Bare Cove." Commercial fishing and regional transportation played an important role in establishing the Harbor as a port of trade in the years between 1750 and 1850. Many businesses were established along the waterfront; and this commercial activity transformed the Harbor from its natural shoreline condition to a mixture of man-made quays and "finger" piers, some of which are still in evidence today. Steam-powered boats in the 1800s and early 1900s provided regular passenger service to Boston from the Harbor. Commercial fishing and passenger ferry service declined partly due to the arrival of regularly scheduled passenger and freight train service in 1849. The increased use of motorcars in the 20th century led to the construction of highways and other related automotive businesses along the Harbor that continue to this day.

While downtown Hingham continues to thrive, the historic Harbor-front infrastructure was constructed at a time when sea levels were over 1-ft lower than they are today. With ongoing sea-level rise, existing seawall and wharf infrastructure is not capable of withstanding impacts of severe coastal flooding associated with storm surge. As shown in Figure 1.1, unimproved shoreline infrastructure is presently flooded during substantial extra-tropical storm events; in this case during Winter Storm 'Riley' in March 2018. To mitigate coastal flood damage, elevating shore protection infrastructure along the Harbor-front will be critical. 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; therefore, preventing storm surge from entering Home Meadows will prevent coastal flooding from impacting the lower elevation properties adjacent to the salt marsh. Historically, flooding associated with storm surge alone has found storm tide pathways to inundate developed areas along the inner harbor. As shown in Figure 1.2, 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 and Home Meadows.

To address existing and future coastal flooding concerns, the 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 the Hingham Bathing Beach to Barnes Wharf, 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.

Figure 1.1 Town Wharf area flooded during the March 2018 Storm (Winter Storm 'Riley)

As all properties along the shoreline are not Town-owned, the project team has been working with specific private landowners, as well as the Massachusetts Department of Transportation (MassDOT) consultants to ensure contiguous coastal flood protection along the shoreline. Planned MassDOT improvements to Route 3A (Otis Street) will ensure a minimum sidewalk elevation of 11.0-to-11.5 feet NAVD 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 shown in Figure 1.3.

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. A summary of this assessment is provided in Attachment 9. Further, a preliminary assessment of tide gate operations to mitigate potential coastal and/or upland flooding impacts to properties surrounding Home Meadows. Overall, the design 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.

Figure 1.2 **Existing topography along the Hingham Harbor shoreline for the project area. The black line indicates the approximate 10-ft NAVD 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.**

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.

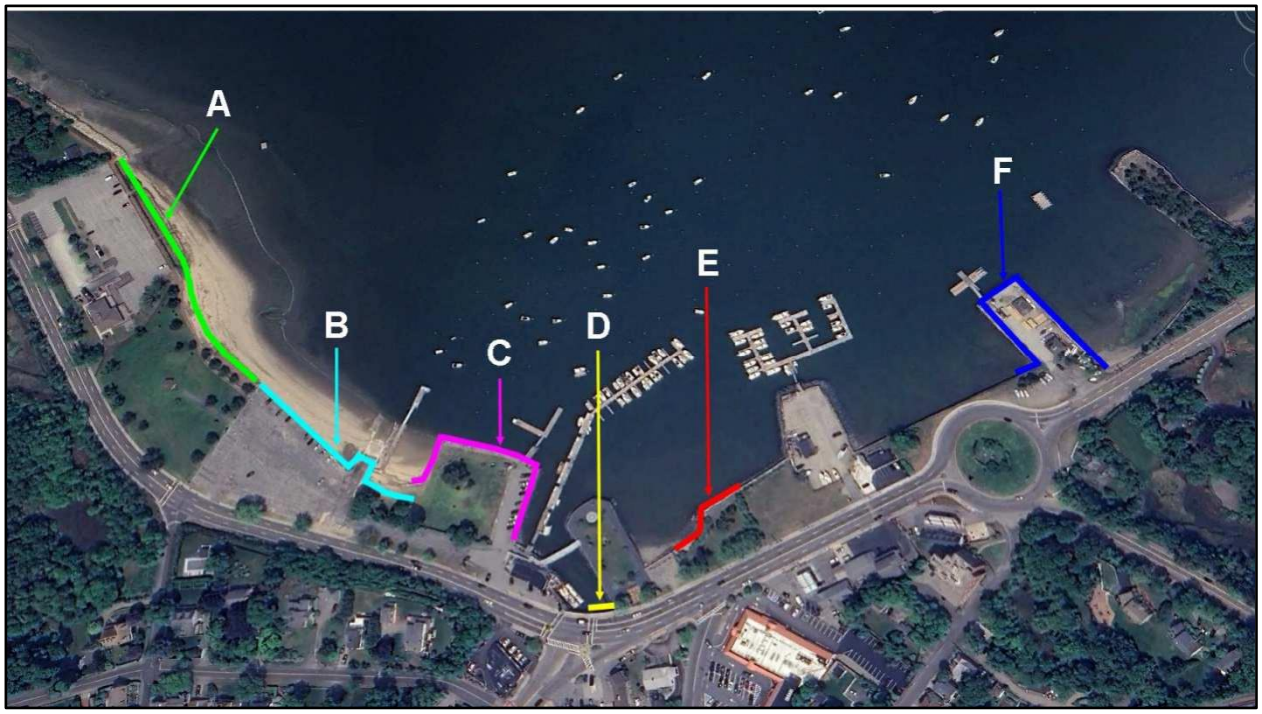


Figure 1.3 Areas of proposed flood protection improvements along Town-owned parcels. Upland flood protection also will be accomplished by proposed Route 3A improvements.

1.1 MEPA Review Thresholds

Under current MEPA review thresholds, the project triggers an ENF and other MEPA review, if the Secretary so requires, as it involves new fill and structures in a velocity zone or regulatory floodway [301 CMR 11.03(3)(b)(1)(e)] and alteration of one half or more acres of other wetland resource areas [301 CMR 11.03(3)(b)(1)(f)]. In addition, the project also requires a Chapter 91 License [301 CMR 11.03(3)(b)(5)] and involves construction of temporary solid fill structures of 1,000 or more square-feet base area [301 CMR 11.03(3)(b)(6)]. A detailed description of resource area impacts is provided in Section 4.

This ENF application fully describes the project and its alternatives, and assesses its potential environmental impacts and mitigation measures, as described in 301 CMR 11.05(7). Due to the large-scale flood protection along approximately six-tenths of a mile Harbor-front area proposed, it is anticipated that an Expanded ENF is needed to provide a thorough analysis of alternatives, potential environmental impacts, and mitigation measures. Overall, the project is focused on improving coastal resiliency to critical Town infrastructure in an environmentally sound manner.

2. Alternatives Analysis

A number of alternatives were considered to reduce coastal flooding impacts to the downtown Hingham shoreline relative to the *status quo*, "No Action" option.

Initially, an assessment of a broad range of potential alternatives was performed to help 'screen' options that either contained 'fatal flaws', did not accomplish the overall project objectives (*i.e.*, did not provide contiguous coastal flood protection for historic downtown Hingham), or were determined to be cost-prohibitive based upon more likely future sea-level rise metrics. Prior to the more detailed quantitative coastal processes analysis utilized to refine the preferred alternative, a qualitative evaluation of the

alternatives was performed to determine which methodologies were appropriate to evaluate further. Due to the length of shoreline considered, different potential alternatives existed for each area, where portions of the Harbor front that had been heavily influenced by historic wharf and seawall infrastructure were evaluated differently than the more natural shorelines typified by coastal beach.

The preliminary alternatives were considered to develop options that would provide coastal flood protection for infrastructure along the Harbor shoreline, as well as throughout the historic downtown area. While a range of seawall, revetment, and coastal berm options were previously evaluated, the present alternatives analysis focused on providing the appropriate level of coastal flood protection in a manner that minimizes adverse environmental impacts. For this reason, shorelines presently protected by coastal engineering structures (*i.e.*, seawalls, bulkheads, and/or revetments) were evaluated differently than areas where only coastal beach and/or dunes provided flood protection. While the level of flood protection along the Harbor-front was required to be contiguous for each of the alternatives evaluated, the engineering strategy varied depending on the existing shore protection along a given stretch of shoreline. Specifically, appropriate coastal flood protection along the Harbor-front in areas without coastal engineering structures involved enhancement of "soft" shore and flood protection measures, as described in Attachment 9. Further, the coastal flooding and wave analysis (Attachment 9) indicated that increasing the elevation of Town Wharf and Barnes Wharf, 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.

Once the types of appropriate coastal flood protection strategies for each stretch of shoreline were determined, the analysis focused on the level of flood protection provided for each set of alternatives, where the following options were evaluated in more detail:

- Alternative 1 – No Action
- Alternative 2 – Protection to Potential 2070 Flood Conditions
- Alternative 3 – Protection to Likely 2050 Flood Conditions with Incremental Improvements

These alternatives were screened relative to practicability, where practicability is defined as an alternative that is or was available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose(s). Once a set of alternatives was identified based on the project purpose and project criteria, an assessment of potential adverse environmental impacts was conducted. The environmental considerations included impacts to both the aquatic environment and upland resource areas. A summary of the practicability assessment of alternatives is provided in Table 2.1.

Table 2.1: Practicability Assessment Summary for Hingham Harbor Shoreline

Practicability Category	Factor	Alternative 1 (No Action)	Alternative 2 (Protection to Potential 2070 Flood Conditions)	Alternative 3 (Protection to Likely to 2050 Flood Conditions with Incremental Improvements)
Ability to Achieve Project Goals	Eliminate coastal flooding during the 100-year storm event	NO	YES	YES
Environmental Impacts	Resource Area Alteration	Continued flooding of downtown area which is predominantly Land Subject to Coastal Storm Flowage (LSCSF)	Temporary impacts within Land Under the Ocean and Coastal Beach surrounding Town, Whitney, and Barnes Wharves for cofferdam necessary to reconstruct seawalls to higher elevation. Limited conversion of LSCSF to Coastal Dune along unarmored shoreline.	Temporary impacts within Land Under the Ocean and Coastal Beach surrounding Town, Whitney, and Barnes Wharves for cofferdam necessary to reconstruct seawalls to higher elevation. Limited conversion of LSCSF to Coastal Dune along unarmored shoreline.
	Other Impacts	Coastal storm flooding damages existing critical infrastructure, which will increase as sea-level rise continues to impact the Harbor shoreline. Downtown area is inaccessible during peak storm surge levels.	Reduced access to the Harbor shoreline due to the potential elevation of flood protection structures.	Minimal for flood protection to 2050. Some reduced public access may occur by 2070 if elevations associated with downtown development are not adjusted.
Cost (No cost threshold established)	Upfront	NO	Cost-prohibitive to design flood protection to worst-case 2070 conditions, especially understanding that this likely is unnecessary within the design life of the protection.	Substantial, but phased implementation will allow for realistic planning
	Long-Term Maintenance	Repairs associated with ongoing and future flood damage. Costs associated with flood damage repairs will increase as sea-level rise continues to impact the Harbor shoreline.	Limited, although proactive maintenance of the dune fronting the Bathing Beach and boat ramp parking lot may be required after significant storm events	Limited, although proactive maintenance of the dune fronting the Bathing Beach and boat ramp parking lot may be required after significant storm events. Additional costs associated with incremental flood protection in the future.

2.1 Alternative 1 – No Action

Under the No Action alternative, coastal flooding will persist during significant extra-tropical storm events, as illustrated in Figure 1.1. Typically, these storms last for several tidal cycles and can generate persistent storm waves accompanied by wave set-up. To best measure the likelihood of storm events of a particular magnitude (*i.e.*, water elevation), an assessment of historical annual maximum observed water levels to generate return periods (Figure 2.1). For example, existing Mean Higher High Water (MHHW) is approximately 4.77 feet NAVD88, where the 100-year storm tide reaches about 9.5 ft NAVD, a storm tide of 4.73 ft above MHHW, respectively. In general, the significant storms that impact the Harbor cause relatively frequent moderate flooding, with the difference in storm tide elevations between the 5-year and 100-year return period storms of only 1.6 ft. This minor difference allows even a generally minor nor'easter to cause some localized flooding problems, depending on the specific tidal and wind conditions. Table 2.2 shows the highest monthly water elevations observed over the time frame of the Boston Harbor gauge operation between 1921 and 2023. Two of the three highest recordings have been in the past six years. Both of these events occurred during the winter storms of 2018.

Based upon the existing land elevations along the Harbor shoreline, as well as through the historic downtown area, significant portions of the developed downtown area are below the existing 100-year (Figure 2.2). As described in Attachment 9, intermediate sea-level rise projections indicate that mean sea level will increase to 1.0 feet NAVD by 2050 and 1.8 feet NAVD by 2070. Therefore, the future 100-year stillwater flood level will increase by approximately 1.3 feet by 2050 and 2.1 feet by 2070 from present-day conditions. Therefore, the future 100-year Stillwater flood levels can be expected to be approximately 10.9 feet NAVD and 11.7 feet NAVD for 2050 and 2070, respectively.

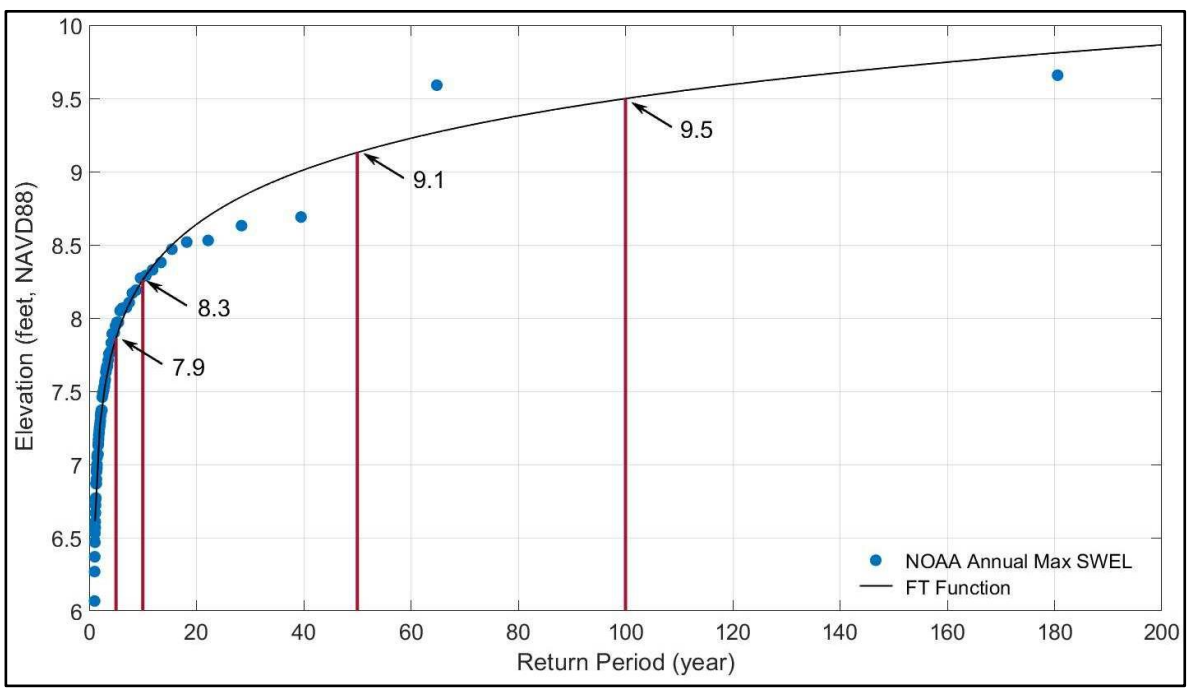


Figure 2.1 **The historical tide gauge record in Boston Harbor, that extends back over 100 years to 1921, was utilized to develop a return frequency curve for stillwater storm tide elevations. Results indicate 7.9, 8.3, 9.1, and 9.5-foot elevations for the 5, 10, 50, and 100-year return period storm events respectively. See 2.2 for tabular format of this data.**

Table 2.2: The 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

Due to the ongoing flood damage and impacts to emergency access to flooded properties during the peak of significant extra-tropical storm events, the No Action alternative was deemed unacceptable to the Town. The existing conditions require substantial Town financial resources to maintain infrastructure. Further, the No Action alternative does not protect public safety, as substantial portions of the Hingham downtown are flooded during severe storms, making emergency egress impossible. As the level of flooding is expected to increase in the coming decades, the adverse impacts to both infrastructure and public safety are anticipated to become more problematic.

2.2 Alternative 2 – Protection to Potential 2070 Flood Conditions

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. In this case, the state selected the “High” or 99.5% chance of non-occurrence sea-level scenario. While this scenario represents an extreme sea-level rise rate that is likely physically implausible (Sweet, et al., 2022), this scenario has been utilized as the basis for previous coastal flood planning efforts in Hingham. Therefore, a cursory evaluation of this planning scenario was deemed appropriate for consideration in the alternatives analysis.

Figure 2.2 **Existing topography along the Hingham Harbor shoreline for the project area. The black line indicates the approximate 10-ft NAVD contour, where lower-lying areas are shown in light green or blue.**

As part of a 2021 study, Woods Hole Group/CLS (WHG) developed preliminary design approaches to mitigate for the potential "worst-case" sea-level rise scenario, which would protect the Harbor shoreline to a level commensurate with the 200-year stillwater flood level in 2070, which ResilientMA estimated to be an elevation of 15 feet NAVD (Figure 2.3) or about 5 feet above the existing Route 3A roadway elevation in this area. Although not stated, it does not appear that the level of protection afforded by this design approach considered storm waves overtopping the seawall, which would require protection up to 17-to-19 feet NAVD, according to the WHG analysis. Numerous private properties along the shoreline also are impacted by the WHG plan, which would require buy-in by these property owners. Further, the landforms landward of the proposed seawall improvements are significantly lower than the seawall crest, allowing potential ponding of flood water throughout the historic downtown area. Finally, the proposed improvements shown in Figure 2.3 do not address emergency egress along Route 3A, as the plan involves deployment of a flood barrier across Route 3A in the vicinity of the boat ramp.

Protecting downtown Hingham from future potential storm surge levels approaching 15 feet NAVD would be extremely challenging. It should be noted that constructing adequate flood protection for this level of storm surge likely would be even more problematic for other Boston Harbor communities including Hull, Weymouth, Quincy, and Boston. Fortunately, this "worst-case" sea level rise scenario utilized by WHG is now considered physically implausible. Instead, a more pragmatic approach using an updated sea-level rise analysis from NOAA (Sweet, et al., 2022) yields a more plausible assessment that can serve as the basis for design (see below).

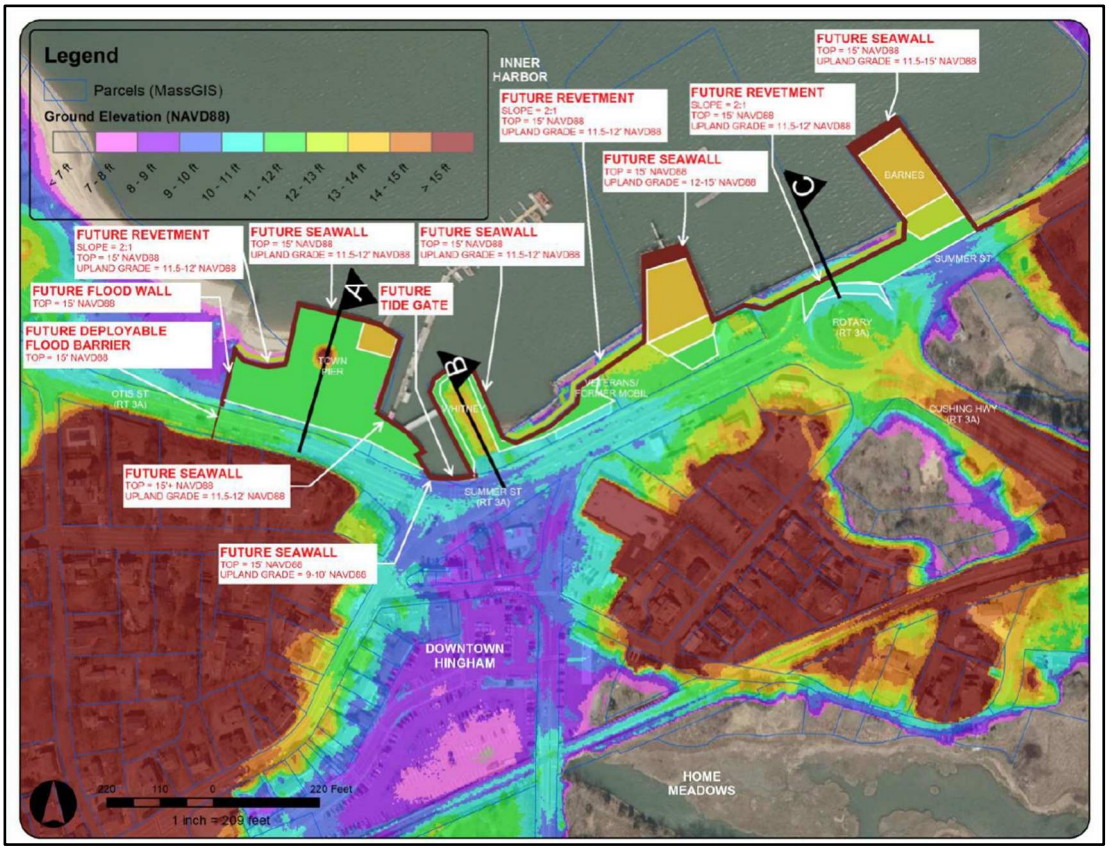


Figure 2.3 **Planning-level design for coastal flood protection to a Stillwater flood elevation of 15 feet NAVD (from WHG presentation. This flood elevation corresponds to the anticipated flood level for a 200-year storm event in 2070, according to the Massachusetts Coastal – Flood Risk Model (MC-FRM). This planning design does not accommodate the influence of storm waves and overtopping that would cause additional flooding.**

While developing a plan to protect the downtown Hingham area from coastal storms that have storm surge levels approaching 15 feet NAVD may be possible, this level of storm surge likely will not occur for at least another 70-to-100 years. Therefore, the cost and additional environmental impacts associated with this massive flood barrier construction is not warranted. Specifically, planning flood protection to a level that exceeds the design life of coastal engineering structures, typically ~50 years, is inappropriate. For the reasons stated above, the Protection to Potential 2070 Flood Conditions alternative was deemed unacceptable.

2.3 Alternative 3 – Protection to Likely 2050 Flood Conditions with Incremental Improvements

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) than the information presented by ResilientMA, 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 2.4. 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 2.3). 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. More detailed information regarding the sea level rise analysis can be found in Attachment 9.

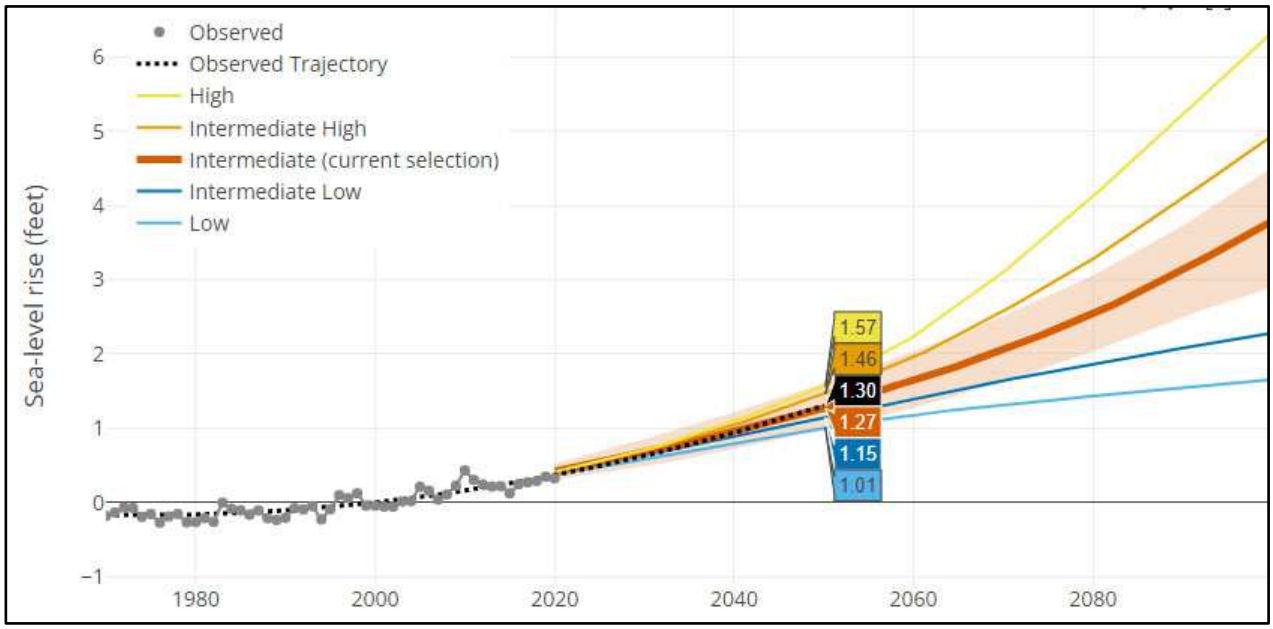


Figure 2.4 **Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). The colored numbers represent the modeling results for the various scenarios for 2050. Results for a full range of scenarios can be found at: https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding**

Table 2.3: 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

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 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 2.3 provides expected future sea level rise for 2030, 2050, and 2070, based upon NOAA estimates (Sweet, et al., 2022). Figure 2.5 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).

To achieve the 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 Hingham Bathing Beach to the seawall east of Barnes Wharf were evaluated. Figure 1.2 illustrates the various public shoreline stretches where flood protection improvements are warranted. As described previously, planned MassDOT improvements to Route 3A (Otis Street) will ensure a minimum sidewalk elevation of 11.0-to-11.5 feet NAVD along the seaward side of the roadway, which is above the expected 100-year stillwater storm surge level in 2050.

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 9. The shoreline was divided into the following six (6) segments of Town-owned shoreline (Figure 1.2), 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):

a) Hingham Bathing Beach
b) Boat Ramp Parking Lot and Boat Ramp
c) Town Wharf
d) Home Meadows Culvert
e) POW/MIA Memorial Park
f) Barnes Wharf

Where possible, nature-based shore protection would provide flood protection in the form of either a contiguous dune or berm. 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. It is anticipated that 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. The same strategy is planned for POW/MIA Memorial Park and Barnes Wharf. For all of the areas described above, the engineering strategies will be designed to allow for required design elevation increases to accommodate anticipated sea level, storm surge, and storm wave action to 2070.

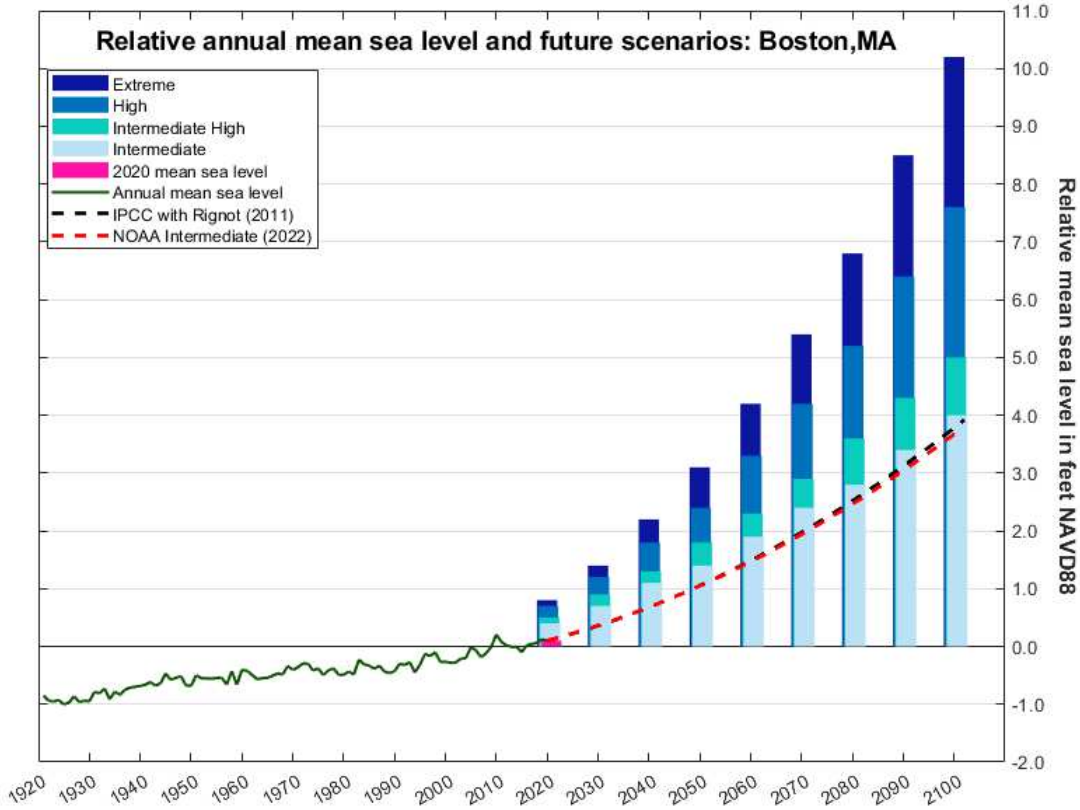


Figure 2.5 Sea level rise projections with the latest NOAA projections (adjusted to account for current mean sea level; dashed red line) and a curve representing flood projections from the IPCC augmented by sheet ice contributions determined by Rignot et al. (2011; dashed black line). The bar plot represents the sea level rise projections presented in Resilient MA.

For the Home Meadows Culvert, a previous tide gate existed along the south side of Otis Street (see Figure 2.6). It is anticipated that the existing concrete box can accommodate either a self-regulating tide gate that will close to prevent upstream flood caused by coastal storms or, alternatively, a manually operated gate that can be closed after a low tide, when a coastal storm is predicted (similar to the operation of the nearby Straits Pond tide gate). This updated tide gate will prevent coastal storms from flooding the lowest-lying areas of downtown.

The Town also has been working proactively with both Massachusetts Department of Transportation (MassDOT) and the private property owner at 3 Otis Street to ensure that the remaining 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 feet NAVD to ensure contiguous protection from the Home Meadows Culvert to the Hingham 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 NAVD sidewalk elevation along the Harbor side of Route 3A from the Home Meadows Culvert east beyond Barnes Wharf.

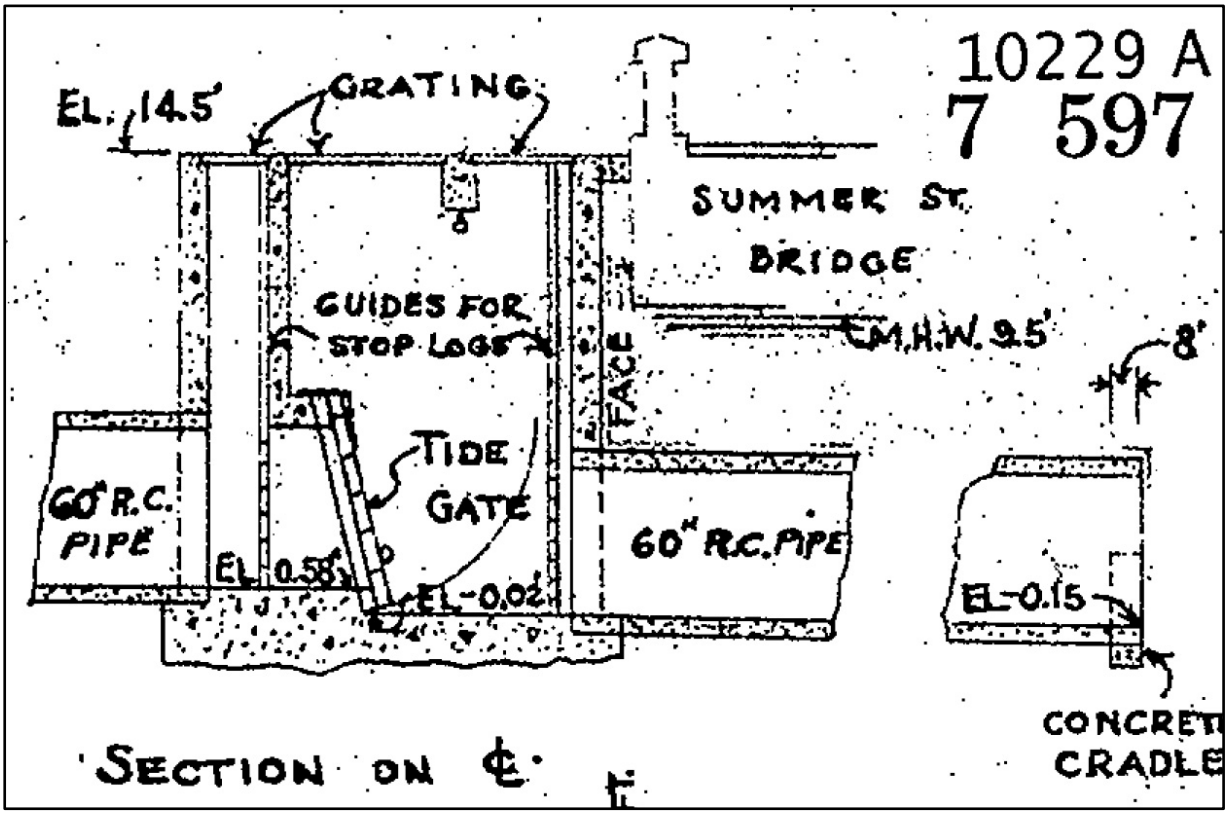


Figure 2.6 **Portion of the 1948 Chapter 91 License Plan for the tide gate that previously existed within the Home Meadows culvert immediately south of Otis Street.**

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.

3. Project Description

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.

3.1 Hingham Bathing Beach

The Hingham Bathing Beach represents approximately 725 feet of shoreline that is fronted by a low-elevation constructed dune, with periodic pathways through the dune at parking lot elevation, which in this area is approximately 9 feet NAVD. The eastern portion of the Bathing Beach is backed by a vegetated park area, where a paved path fronted by granite blocks runs along the backside of the beach. Existing landform elevations landward of the dune and beach are between 9 and 10 feet NAVD, which is at or below the existing 100-year stillwater coastal flood elevation.

To ensure that coastal flood waters cannot propagate across the Bathing Beach area and impact Town infrastructure and/or the Route 3A, a contiguous dune with appropriate volume and elevation 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.

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-percent SWEL (9.7 feet NAVD for present MSL conditions). Details regarding the numerical modeling can be found in Attachment 9.

For present sea levels, the existing dune at Bathing Beach is able to withstand the 1-percent 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 11. 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 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 3.1). The project plans (Attachment 11) include dune dimensions necessary to withstand the 100-year storm event in 2050 and a slightly wider dune crest of 25 feet, with the understanding that simple modifications to the dune profile can increase storm protection in future decades.

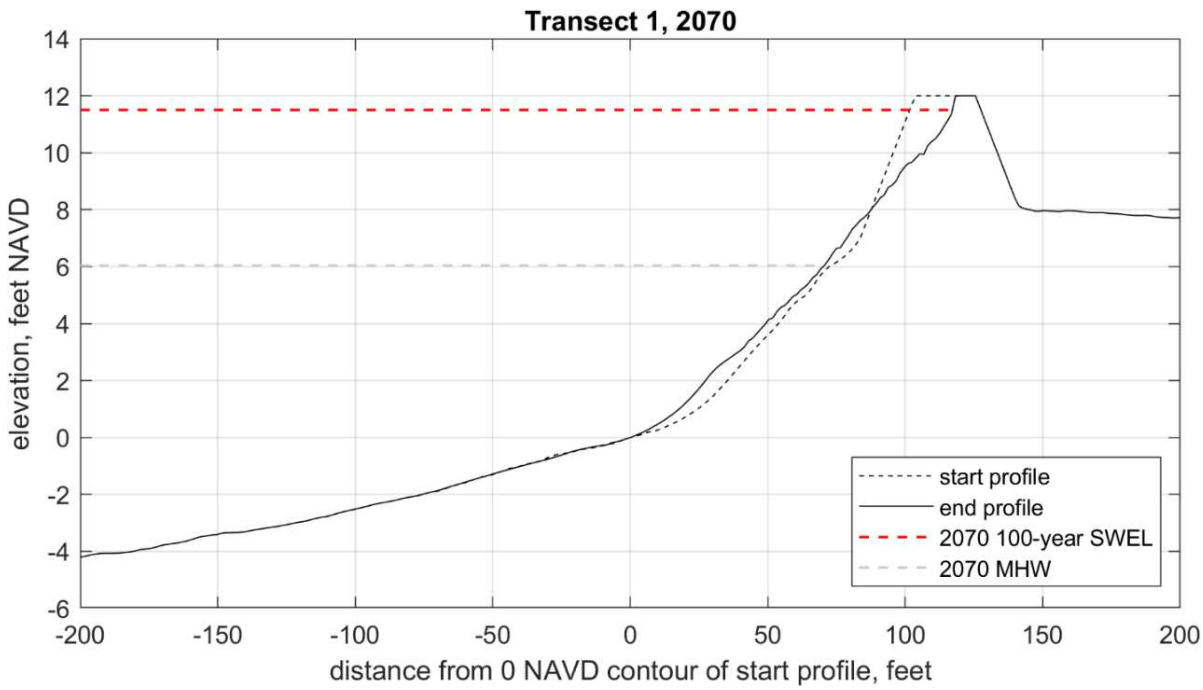


Figure 3.1 **Xbeach model output for the modeled 1-percent (100-year) storm at Hingham Bathing Beach (Transect 1 in Attachment 9), with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070 MHW and the 2070 100-year SWEL are also indicated.**

3.2 Boat Ramp Parking Lot and Boat Ramp

The boat ramp parking lot, boat ramp, and beach area to the east of the boat ramp represents approximately 400 feet of shoreline that has no dune in the unarmored sections. The parking lot elevation in this area is approximately 8-to-9 feet NAVD, indicating existing landform elevations are below the existing 100-year stillwater coastal flood elevation.

To ensure that coastal flood waters cannot propagate across the Bathing Beach area and impact Town infrastructure and/or the Route 3A, a contiguous dune with appropriate volume and elevation 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.

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 and the duration of the storm was based upon a typical severe 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-percent SWEL. Details regarding the numerical modeling can be found in Attachment 9.

Proposed dune construction will extend from Hingham Bathing Beach to the boat ramp. This dune will be constructed in a similar fashion to the dune fronting Hingham Bathing Beach, with constructed walkways over the dunes, as shown in Attachment 11. The dune toe (start of the foreshore slope on the beach) is proposed at an elevation of about 7 feet NAVD on the existing beach, as shown in Attachment 10. It is anticipated that compatible material for dune construction will be sourced from an upland site. For 2050 MSL conditions, the dune is able to withstand the 100-year 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 100-year storm (Figure 3.2). The project plans (Attachment 11) include dune dimensions necessary to withstand the 100-year storm event in 2050 and a slightly wider dune crest of 25 feet, with the understanding that simple modifications to the dune profile can increase storm protection in future decades. As shown, the dune will be constructed over the seaward edge of the existing parking lot; therefore, this portion of the parking lot will be removed. The existing parking lot elevation will be increased to 11 feet NAVD to withstand the 100-year SWEL in 2050. In addition, the crest of the boat ramp will be increased in elevation to 11.5 feet NAVD to ensure this Harbor-facing infrastructure can withstand both the 100-year SWEL in 2050, as well as the local storm wave setup, since the smooth surface of the boat ramp will not dissipate wave energy as effectively as the natural beach system.

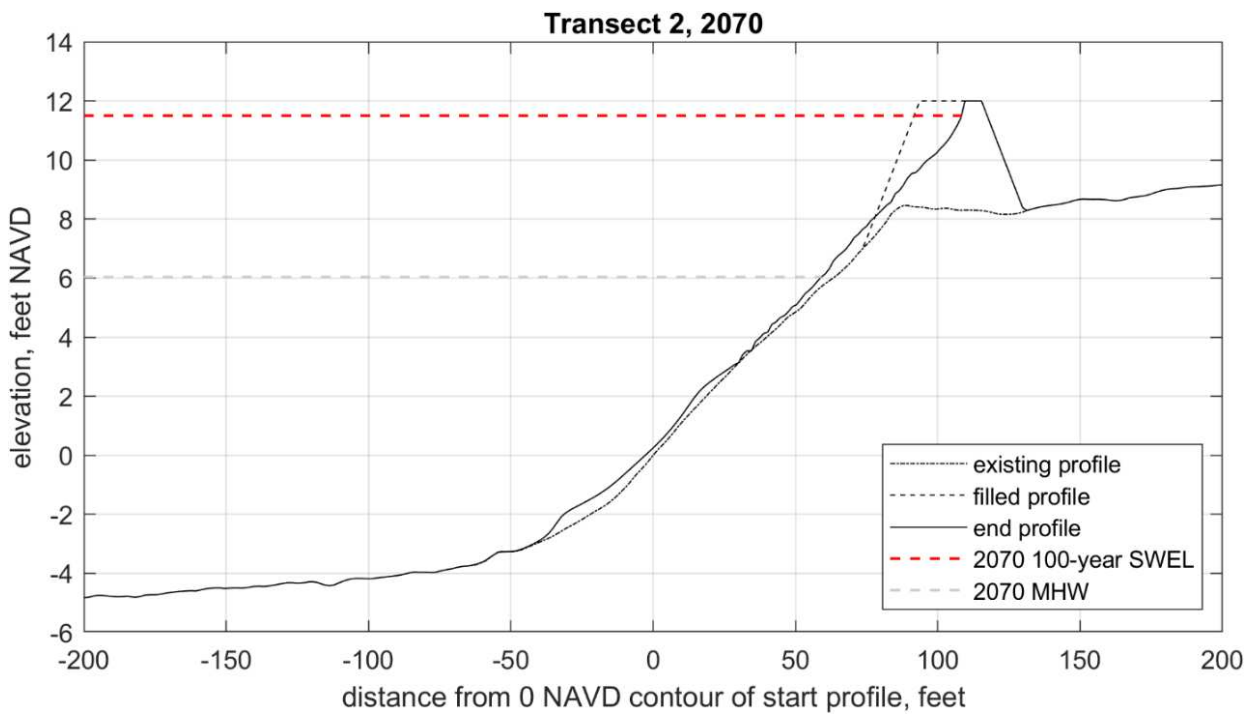


Figure 3.2 **Xbeach model output for the modeled 1-percent (100-year) storm for the beach fronting the boat ramp parking lot (Transect 2 in Attachment 9), with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070 MHW and the 2070 100-year SWEL are also indicated.**

Between the boat ramp and the existing armoring at Town Wharf the back beach area transitions to a lawn area. Rather than attempting to maintain a dune along the upland in this ~100-ft length of shoreline, the proposed improvements would elevate the lawn area to a crest elevation of 12 feet NAVD with a seaward lope of 1:6 (vertical:horizontal). Similar to the coastal dunes proposed along Hingham Bathing Beach and

the boat ramp parking lot, the crest width of this feature is 25 feet (see Attachment 11). The lawn area will be graded along the landward side to the 11-ft and 12-ft NAVD contours, as appropriate to match the proposed grades in this area to prevent formation of storm tide pathways.

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, as shown in Attachment 11. 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.

3.3 Town Wharf

Figure 1.1 illustrates severe storm conditions at Town Wharf during present conditions, where the existing wharf elevation is approximately 7.5 feet NAVD, which is more than 2 feet below the 100-year SWEL. As described in Attachment 9, shoreline segments consisting of vertical seawalls will require a crest elevation of 12 feet NAVD to withstand storm surge and wave action projected during 100-year storm conditions in 2050. Based on the wave analysis, storm waves will overtop the seawalls during severe conditions in the future; therefore, maintaining the existing paved pathway/parking area and elevating the filled wharf area to 12 feet NAVD will prevent damage to existing Town infrastructure (see Attachment 11 for details). The seawall footings have been designed to ensure that future improvements can accommodate an additional 2 feet of seawall elevation added to the structure in the future, if required. As described above, the existing Harbormaster building will be removed from Town Wharf and relocated outside the existing V-Zone.

Unlike the dune construction to the west, reconstruction of the existing wharf seawalls will require temporary in-water construction activity. Specifically, temporary sheet pile cofferdams seaward of the proposed structures will be required for 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 area between Town Wharf and Town Brook/Home Meadows culverts consists of a private parcel with seawall in a range of conditions and elevations (see Figure 3.3). This property located at 3 Otis Street has a building that is close as 30-inches from the top of the seawall. At present, the property owner has no plans to improve the existing seawall; however, conversations between the Town and property owner are ongoing. To ensure contiguous flood protection for Town infrastructure in the historic downtown area, it has been determined that the 3 Otis Street parcel can be isolated and the elevation along the seaward edge of Route 3A (Otis Street) can be elevated to 11.5 feet NAVD, including the driveway connections into the property. MassDOT is working with the Town to ensure that this transition is possible and an elevation of 11.5 feet along the seaward side of the road can be maintained between Town Wharf and the headwall for the Town Brook/Home Meadows culverts.

Figure 3.3 Elevations along the seawall at 3 Otis Street, where spot elevations along the seawall crest are shown in feet NAVD.

3.4 Home Meadows Culvert

Historically, the Station Street parking lot was a mill pond with connections to the Harbor on the north, Home Meadows on the east and Town Brook on the west. Today railroad tracks form the southern boundary of the parking lot. The first railroad through the site was built in 1849 by Braintree Cohasset Railroad connecting Hingham to Boston. In 1953 the Mill Pond was filled to create the Station Street Parking Lot. Flow of water between Town Brook and Home Meadows to the Harbor was sustained through underground culverts. The 60-inch Town Brook culvert presently has a tide gate in place that prevents storm surge from entering the culvert and flooding the downtown area, where the tide gate is located in a parking lot south of North Street near the intersection of Otis Street.

For the Home Meadows culvert, a previous tide gate existed along the south side of Otis Street (see Figure 2.6). The preferred alternative includes a self-regulating tide gate that will close to prevent upstream flood caused by coastal storms. An alternative of a manually operated gate that can be closed after a low tide, when a coastal storm is predicted (similar to the operation of the nearby Straits Pond tide gate) was considered; however, a cursory analysis of Home Meadows hydrology indicated that a less complex system incorporating a self-regulating tide gate would be most appropriate. The updated tide gate will operate in a manner that prevents coastal storms from flooding the lowest-lying areas of downtown through the Home Meadows culvert.

To ensure upstream flooding can be mitigated, a preliminary hydrologic analysis of the Home Meadows watershed was conducted (Attachment 10). This analysis focused upon potential operation of a tide gate that would (a) prevent flooding of upland structures surrounding Home Meadows and (b) maintain adequate compensatory storage for a period of 24 hours following a major rainfall event. The requirement that the upstream marsh system be required to hold this amount of rainfall from the watershed is overly conservative, as low tides would occur twice in the Harbor over that time period. However, this approach provides a conservative estimate for the duration of closures likely required for a typical year, as these gate closures could impact environmental resources within the upstream marsh system.

Figure 3.4 illustrates the topography surrounding Home Meadows, where it was determined that surrounding properties would be impacted by flood waters above elevation 8 feet NAVD. Home Meadows consists of approximately 18.1 acres of salt marsh and 7.3 acres of tidal flat. Based upon the hydrologic analysis, the cumulative volume of rain from the watershed that is discharged to Home Meadows is 97.0 acre-feet. The total volume of rainfall during the 100-year event is the sum of the discharge from the watershed and the direct rainfall to the marsh. The direct rainfall component was calculated to be 64.6 acre-feet, which results in a total rainfall volume of 161.6 acre-feet, which is discharged to the marsh over the span of about an hour.

The results of the Home Meadows watershed analysis provide an estimate of the expected increase in water level in the marsh that would be expected from a 100-year, 24-hour extreme rainfall event. 161.6 acre-feet of rainwater would be discharged to the marsh over the time span of about an hour, resulting in an increase in water level of about 1.8 feet. In order to ensure that there is adequate storage capacity within the marsh basin to deal with this volume of water, it would be necessary to limit ocean tide and surge elevations in the marsh so that the combination of tide, surge and rainfall would not exceed an elevation of 8 feet NAVD 88. Above this elevation, low lying properties situated around the marsh would begin to be impacted by flooding waters.

To keep maximum water levels resulting from the 1%, 24-hour rainfall event from exceeding the elevation 8 feet, NAVD88, it would be required to limit the water level in the marsh prior to the addition of rainfall to 1.8 feet below this elevation, or 6.2 feet, NAVD. This elevation coincides, coincidentally, with annual astronomical high tide (AHT) elevation in Boston Harbor. The AHT is the highest tide level that occurs due to the astronomical component of the tide alone (not including storm surges). An analysis of measured tides in Boston Harbor (6-minute water levels from the NOAA tide station) shows that water levels at that station where greater than 6.2 feet NAVD88 for a total of 70 hours over the course of the entire span of the year 2023. This indicates that if a tide gate was used to limit tides in the marsh to 6.2 feet NAVD88, the tide gate would be closed to tidal flow from the Harbor for approximately 0.8 percent of any given year.

Site observations indicate that tidal attenuation through the 60-inch culvert connecting Home Meadows to the Harbor is substantial, which suggests that tide gate operation may require less frequent closures than estimated by the simplified hydrologic analysis provided in Attachment 10. It is anticipated that more detailed hydraulic and hydrologic analyses will be required as part of the overall environmental permitting process for the project. It is anticipated that environmental impacts associated with tide gate operation will be negligible. However, the cursory conservative analysis performed indicate that required closures of the culvert (a) will be extremely infrequent and of short duration, and (b) can effectively be controlled by a self-regulating tide gate that would minimize the need for a complex operations plan. Further, no discernable impact to the upstream wetland resource areas (a combined area of 25.5 acres of salt marsh and tidal flat) is anticipated as part of the gate operation.

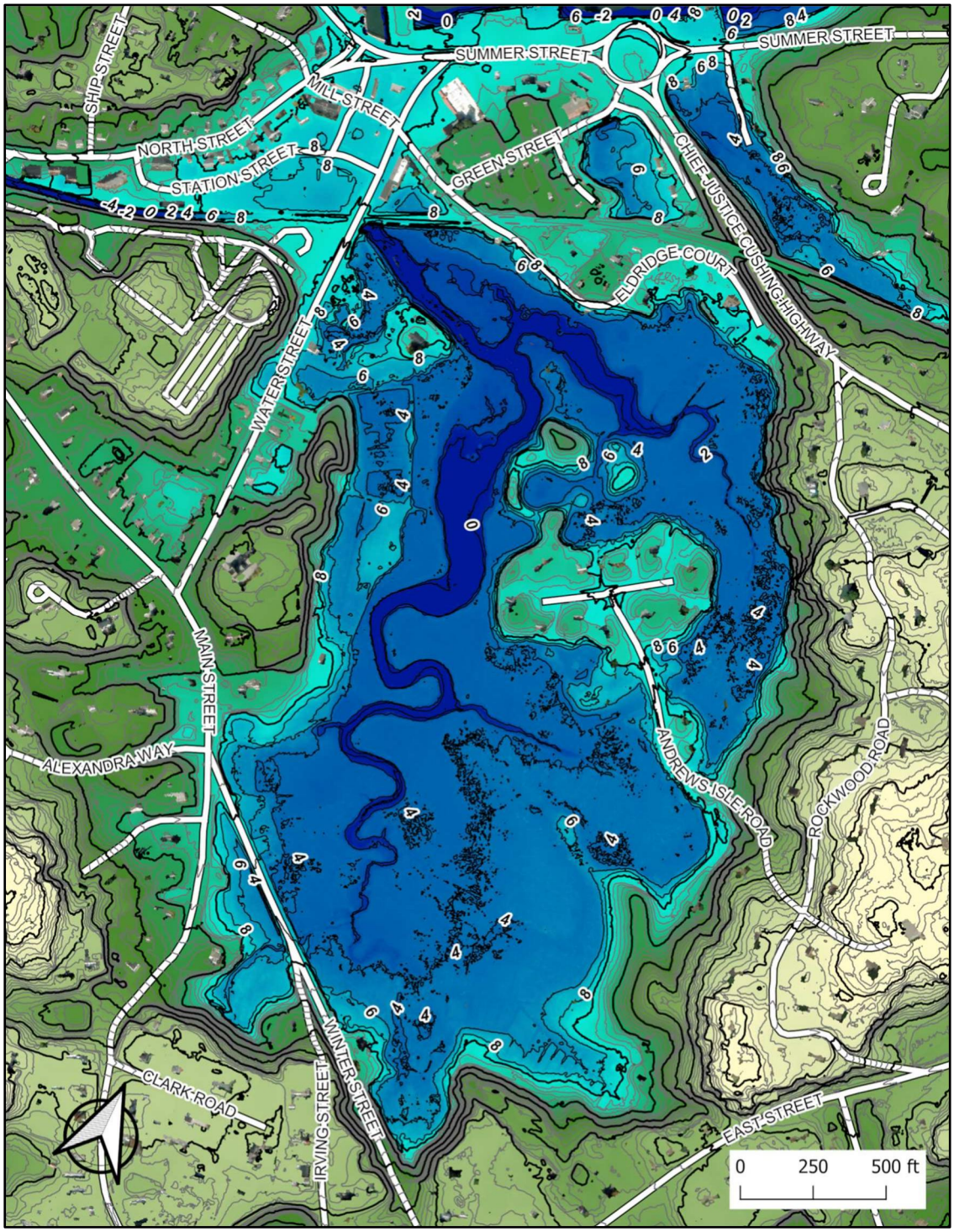


Figure 3.4 **Contour map of Home Meadows vicinity. 2-foot contours lines are mapped with color shading of elevations (Feet NAVD). Contours at 10-foot intervals are shown as thick black lines.**

3.5 POW/MIA Memorial Park

The approximate 200-ft shoreline along POW/MIA Memorial Park consists of both dilapidated armor stone revetment sections and granite block seawalls, as shown in Figure 3.5. To improve storm wave attenuation and decrease wave reflection, the preferred alternative for this segment of shoreline is a sloped armor stone revetment with a 1:2 (vertical:horizontal) slope. To minimize environmental impacts to 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. As described in Attachment 9, shoreline segments consisting of revetments will require a crest elevation of 13 feet NAVD to withstand storm surge and wave action projected during 100-year storm conditions in 2050 and a crest elevation of 14 feet NAVD 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 feet NAVD) will consist of large granite blocks to form a contiguous seating area and flood protection along the top of the revetment (see Attachment 11 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 feet NAVD. In addition, the land between the revetment and Route 3A will be elevated to 11 feet NAVD to be consistent with the previously improved Whitney Wharf.

East of POW/MIA 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 feet NAVD 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.

Figure 3.5 Existing shoreline armoring along POW/MIA Memorial Park.

3.6 Barnes Wharf

As described in Attachment 9, shoreline segments consisting of vertical seawalls will require a crest elevation of 12 feet NAVD to withstand storm surge and wave action projected during 100-year storm conditions in 2050. Based on the wave analysis, storm waves will overtop the seawalls during severe conditions in the future; therefore, maintaining the existing paved pathway/parking area and elevating the

filled wharf area to 12 feet NAVD will prevent damage to existing Town infrastructure (see Attachment 11 for details). The seawall footings have been designed to ensure that future improvements can accommodate an additional 2 feet of seawall elevation added to the structure in the future, if required. At the eastern side of Barnes Wharf, the proposed improved seawall will be tied into the MassDOT seawall along Route 3A.

Similar to Town Wharf, reconstruction of the existing wharf seawalls will require temporary in-water construction activity. Specifically, temporary sheet pile cofferdams seaward of the proposed structures will be required for construction of the new footings and pile foundations. The temporary cofferdams will be constructed ~4 feet landward 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 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. The total building square footage for the proposed structure will be no larger than the combined footprint of the existing structures. Due to the improved elevation of the wharf, future submittal of a FEMA Letter of Map Revision (LOMR) is planned. Once revised flood elevations have been determined, the Hingham Maritime Center structure will be designed to meet appropriate building code standards for the revised FEMA flood zone.

4. Massachusetts Wetlands Protection Act

The proposed project has been designed and will be constructed using the best available measures to minimize adverse impacts to coastal resource areas as defined by the Massachusetts Wetlands Protection Act (WPA). The Proposed project is located within the following coastal resource areas:

- Land Subject to Coastal Storm Flowage (310 CMR 10.04)
- Coastal Beach (310 CMR 10.27)
- Coastal Dune (310 CMR 10.28)
- Coastal Banks (310 CMR 10.30)
- Land Containing Shellfish (310 CMR 10.34)

The following sections provide definitions of coastal resource areas that will be affected by the proposed project, a description of the proposed work to occur within each resource area, and how the project meets performance standards.

4.1 Land Subject to Coastal Storm Flowage

Pursuant to 310 CMR 10.04, Land Subject to Coastal Storm Flowage (LSCSF) means “land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater”. The areas mapped by the Federal Emergency Management Agency (FEMA) on community Flood Insurance Rate Maps (FIRM) as the 100-year flood plain within the coastal zone are included within LSCSF. LSCSF may be significant to the interests of storm damage prevention, flood control, pollution prevention, and wildlife habitat. LSCSF in this area contains other jurisdictional resource areas which are important for storm damage prevention and flood control. The proposed beach nourishment will enhance the storm damage and flood control aspects of the existing barrier beach system.

The current flood insurance rate map (FIRM) for this area, depicted as Figure 4.1, indicates that the 100-year storm encompasses the entire project area. According to FEMA and the National Flood Insurance Program, any building located in an A or V zone is considered to be in a Special Flood Hazard Area and is lower than the Base Flood Elevation. V zones are the most hazardous of the Special Flood Hazard Areas

and the entirety of Crescent Beach is within the V Zone. There are currently no performance standards for work in LSCSF. The proposed fill to elevate the boat ramp parking area, Town Wharf, POW/MIA Memorial Park, and Barnes Wharf will affect approximately 174,870 square feet (sf) of LSCSF; however, the proposed project will improve the storm damage and flood protection aspects of this resource area.

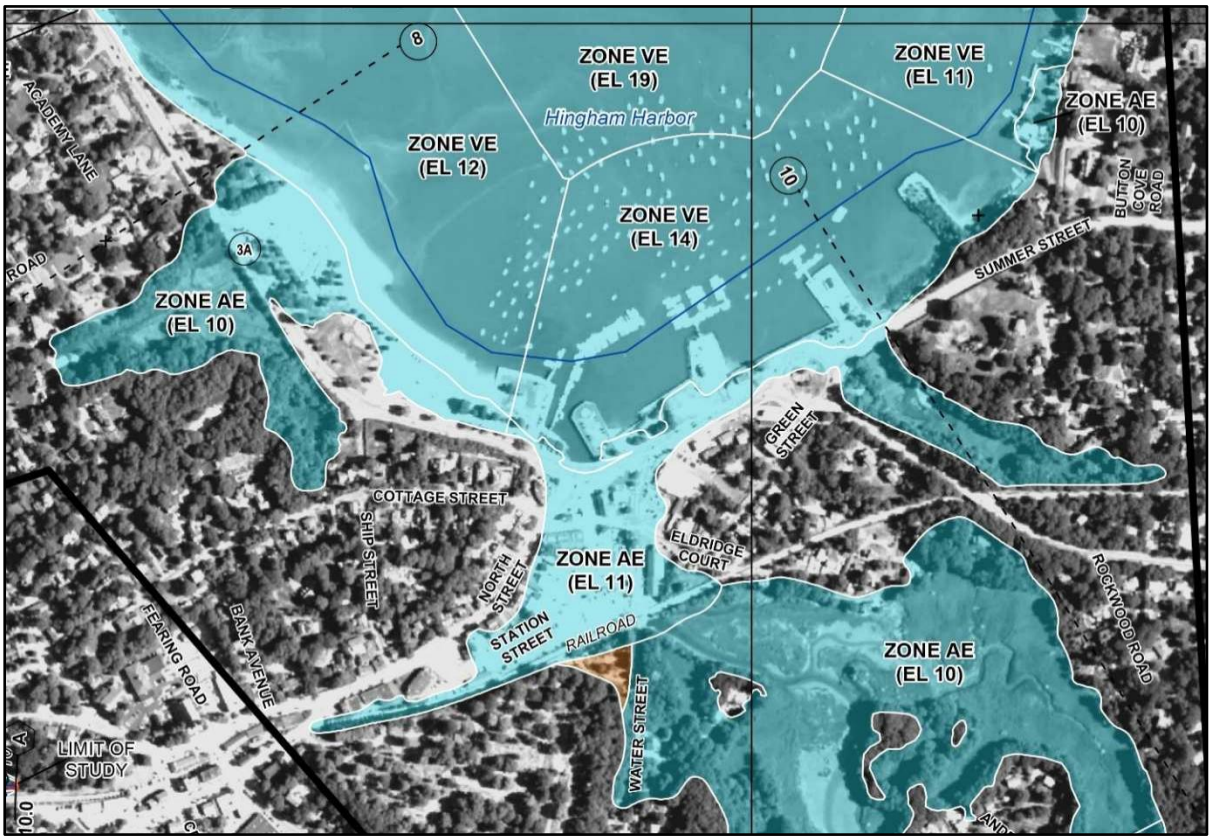


Figure 4.1 Effective FEMA flood insurance rate map. Shaded regions are subject to inundation by the 1% annual chancel flood, as determined by the Federal Emergency Management Agency (FEMA).

4.2 Coastal Beach

Pursuant to 310 CMR 10.27(2), Coastal Beach refers to unconsolidated sediment subject to wave, tidal, and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line to the coastal bank or the seaward edge of existing man-made structures. Coastal beaches dissipate wave energy, serve as sediment source, serve the purposes of storm damage prevention and flood control by dissipating wave energy, and provide habitats for shellfish, marine fisheries, birds and marine mammals.

Based on the existing conditions shown on the project plans (Attachment 11), a coastal beach exists along the Hingham Bathing Beach, the boat ramp parking lot, and a section between the boat ramp and Town Wharf. As low tide line is offshore of the coastal armoring along the inner harbor shoreline, all areas fronting the coastal engineering structures are also classified as Coastal Beach.

A total of approximately 16,040 sf of Coastal Beach, in the project area, will be enhanced by the proposed dune nourishment along Hingham Bathing Beach and the boat ramp parking lot. The performance standards for Coastal Beach state that any project on a Coastal Beach shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent downdrift coastal beach.

The proposed project will protect the critical characteristics for Coastal Beaches (310 CMR 10.27(1)) as follows:

a) Volume (quantity of sediments) and form: The proposed dune nourishment is not expected to impede the transport of beach sediments along the project area. The berm will provide an improved sediment supply.

b) Ability to respond to wave action: The proposed dune nourishment will have a greater elevation and volume compared to the existing beach, and have a greater ability to dissipate wave energy.

c) Distribution of sediment grain size: Sediment consistency (*i.e.*, grain size) of the nourishment will be consistent with sediment from the native beach.

d) Water circulation: The proposed dune nourishment will not affect water circulation.

e) Water quality: No impacts to water quality will be caused by the proposed dune nourishment. Dune material will consist of clean sand with minimal fines.

The proposed project will meet the performance standards for Coastal Beach (310 CMR 10.27(3, 4, and 5)) as follows:

a) 310 CMR 10.27(3): The proposed nourishment will not increase erosion, decrease the volume, or change the form of the existing beach. As designed, the project will increase the overall flood protection of the beach system by adding a contiguous shore protection dune feature.

b) 310 CMR 10.27(4): The proposed temporary sheet pile cofferdam has been designed to have minimal effects on sediment transport and will be constructed immediately adjacent to the toe of the existing granite seawall(s). The temporary cofferdam will be removed at the completion of seawall completion and no long-term impacts related to littoral drift will occur.

c) 310 CMR 10.27(5): The project consists of a nourishment of clean sediment of a grain size compatible with the native beach.

4.3 Coastal Dune

The Act defines Coastal Dune (310 CMR 10.28(2)) 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." A total of approximately 28,660 sf of Coastal Dune, in the project area, will be enhanced by the proposed dune nourishment along Hingham Bathing Beach and the boat ramp parking lot.

The proposed project will meet the performance standards for Coastal Dune (310 CMR 10.28(3 and 5)) as follows:

a) 310 CMR 10.28(3): The proposed nourishment will not affect the ability of waves to remove sand from the dune, destabilize the dune, or interfere with landward migration of the feature. As designed, the project will increase the overall flood protection of the dune system by adding a contiguous shore protection dune feature. This enhanced dune will be planted and function in a similar fashion to the existing dunes at the site.

b) 310 CMR 10.27(5): The project will minimize disturbance to the vegetative cover of the dune. As designed, the pedestrian walkways will be constructed over the dune to ensure contiguous flood protection for the area landward of the dune.

4.4 Coastal Banks

The Act defines Coastal Dune (310 CMR 10.30(2)) as "the seaward face of any landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland." A total of approximately 1,260 linear feet (lf) of Coastal Bank, in the project area, will be enhanced by the reconstruction of seawall/revetment along Town Wharf, POW/MIA Memorial Park, and Barnes Wharf.

The proposed project will meet the performance standards for Coastal Banks (310 CMR 10.30(6) and (7)) as follows:

a) 310 CMR 10.30(6): The proposed reconstruction of existing seawalls and/or revetments will provide increased stability of the coastal bank, as the new structures will replace existing structures that are nearing the end of their design life.

b) 310 CMR 10.30(7): The proposed seawall and revetment improvements provide storm damage protection and flood control; however, the armored coastal banks associated with the project do not provide sediment to downdrift shorelines.

4.5 Land Containing Shellfish

Land Containing Shellfish is defined as "those resource areas likely to contain shellfish, to provide criteria for determining the significance of land containing shellfish, and to establish regulations for projects which will affect such land." Land Containing Shellfish can include Land under the Ocean, Tidal Flats, Rocky Intertidal Shores, Salt Marshes, and Land under Salt Ponds when any such land contains shellfish." A total of approximately 4,160 sf of Land Containing Shellfish in the project area will be temporarily impacted by the installation of sheet pile to facilitate reconstruction of the seawall along Town Wharf and Barnes Wharf. In accordance with 310 CMR 10.34(5), the project will only cause temporary impacts and will be substantially returned to its former productivity within one year from the commencement of work.

5. Evaluation of Environmental Justice Communities

The following information is provided as required by 301 CMR 11.05(4) and detailed in Part II of the MEPA Interim Protocol for Analysis of Project Impacts on EJ Populations and intends to provide an assessment or existing unfair or inequitable environmental burden and related public health consequences impacting the environmental justice population from any prior or current private, industrial, commercial, state, or municipal operation or project that has damaged the environment. The proposed project is approximately 2.9 miles from the nearest environmental justice (EJ) population, as shown in Figure 5.1. The following EJ populations have been identified within a 5-mile radius of the project site:

- Minority and Income - Block Group 1, Census Tract 4178.02, Quincy
- Minority, Income, and English Isolation - Block Group 2, Census Tract 4178.02, Quincy
- Minority - Block Group 1, Census Tract 4179.01, Quincy
- Minority and Income - Block Group 2, Census Tract 4179.01, Quincy
- Minority and Income - Block Group 5, Census Tract 4179.01, Quincy
- Minority - Block Group 6, Census Tract 4179.01, Quincy
- Minority and English Isolation - Block Group 1, Census Tract 4194, Braintree

- Minority - Block Group 1, Census Tract 4193, Braintree
- Minority - Block Group 2, Census Tract 4193, Braintree
- Minority - Block Group 3, Census Tract 4194, Braintree
- Minority - Block Group 2, Census Tract 4194, Braintree
- Minority - Block Group 1, Census Tract 4195, Braintree
- Minority - Block Group 2, Census Tract 4195, Braintree
- Minority - Block Group 4, Census Tract 4227, Weymouth
- Income - Block Group 2, Census Tract 4224.02, Weymouth
- Minority and Income - Block Group 2, Census Tract 4224.01, Weymouth
- Minority - Block Group 3, Census Tract 4224.01, Weymouth
- Minority - Block Group 3, Census Tract 4225.02, Weymouth
- Minority - Block Group 1, Census Tract 4225.02, Weymouth
- Minority - Block Group 2, Census Tract 4225.02, Weymouth
- Minority - Block Group 1, Census Tract 4224.01, Weymouth
- Minority - Block Group 4, Census Tract 4225.02, Weymouth
- Minority - Block Group 1, Census Tract 4225.01, Weymouth
- Minority - Block Group 2, Census Tract 4225.01, Weymouth
- Minority - Block Group 3, Census Tract 4223.03, Weymouth
- Minority - Block Group 2, Census Tract 4223.03, Weymouth
- Minority - Block Group 1, Census Tract 4223.03, Weymouth
- Income - Block Group 3, Census Tract 5012.04, Hingham

The proposed coastal resiliency improvement project does not trigger an EIR under the MEPA regulations and the project is over 1-mile from the nearest EJ population (Figure 5.2) and therefore does not trigger a Single EIR based on the updated MEPA regulations for EJ Populations. The Town of Hingham has designed the proposed project to enhance the coastal resiliency, while which minimizing and mitigating potential environmental and public health impacts. Project impacts will not negatively affect EJ populations within the designated geographic area. There are no unfair or inequitable environmental burdens or related health consequences related to this project.

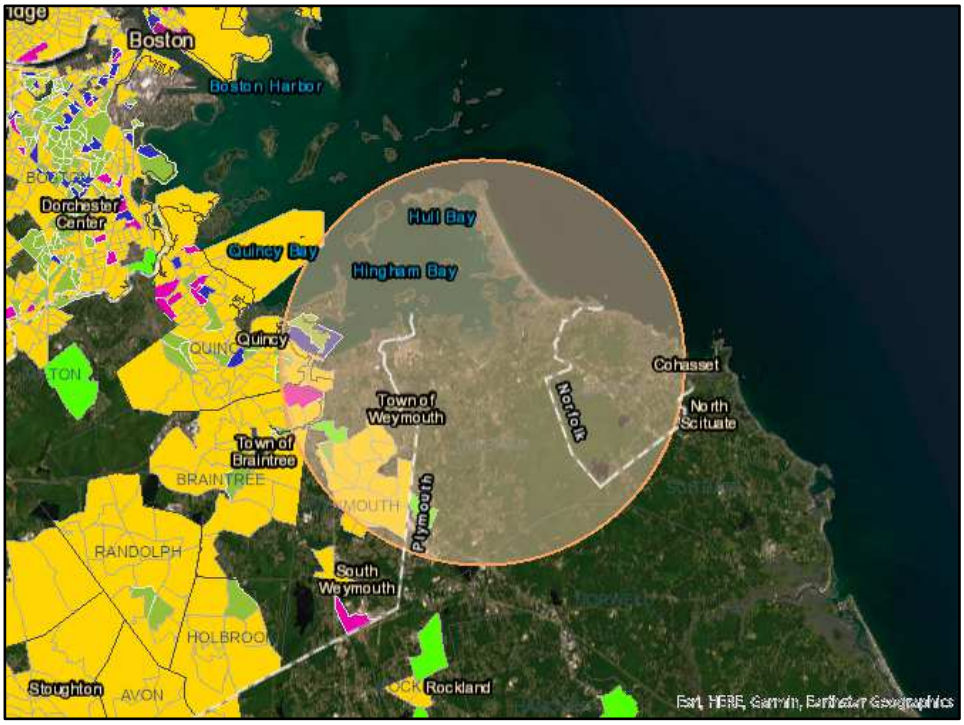


Figure 5.1 Environmental justice communities within 5 miles of the project location.

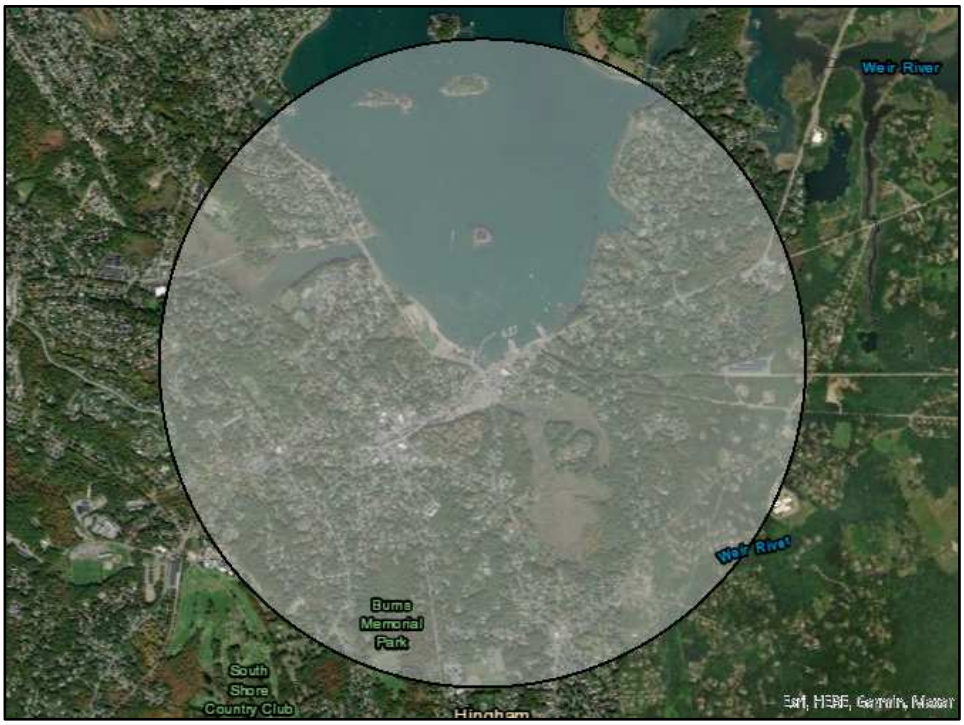


Figure 5.2 Environmental justice communities within 1 mile of the project location.

Within the census tracts containing EJ populations within five miles of the project site, Chinese was identified as a language spoken by 5% or more of residents who also identify as not speaking English very well. The two census tracts are identified below and shown on Figure 5.3.

- Block Group 1, Census Tract 4178.02, Quincy – Chinese (25.6%)
- Block Group 6, Census Tract 4179.01, Quincy – Chinese (6.2%)

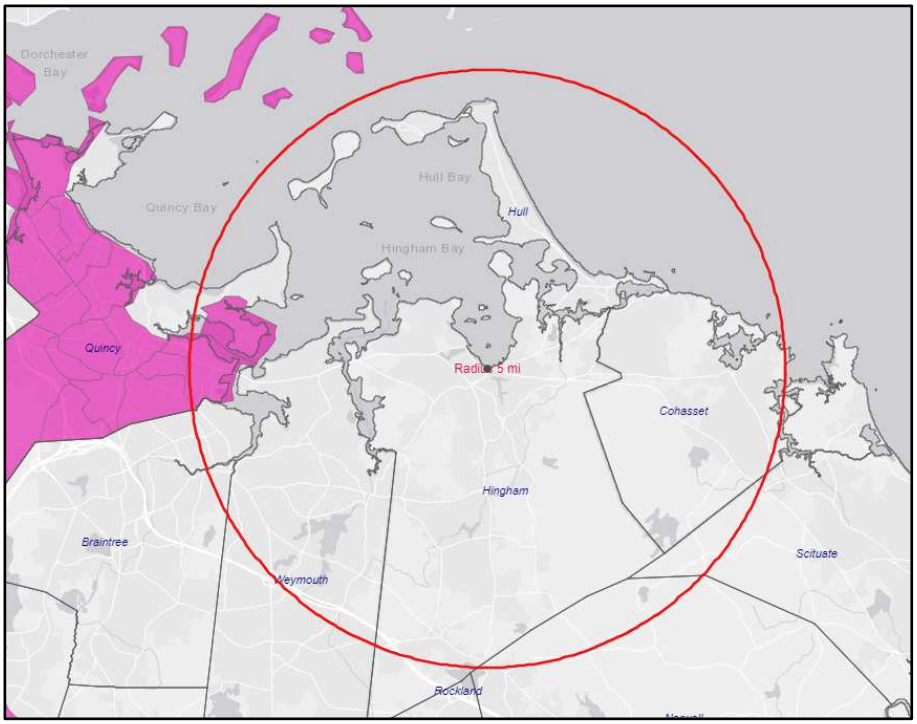


Figure 5.3 Languages spoken within five miles of the project location

Attachment 2

Wetland Alteration Summary

Project Section (See Figure 1.3 in Attachment 1)	Area (square feet) or length (linear feet)	Temporary or Permanent Impact
Coastal Wetlands		
Section A		
Coastal Beaches	7,810 SF	Permanent
Coastal Dunes	25,795 SF	Permanent
Land Containing Shellfish	4,160 SF	Permanent
Land Subject to Coastal Storm Flowage	9,940 SF	Permanent
Section B		
Coastal Beaches	4,770 SF	Permanent
Coastal Dunes	2,870 SF	Permanent
Coastal Banks	30 LF	Permanent
Land Subject to Coastal Storm Flowage	59,500 SF	Permanent
Section C		
Coastal Beaches	1,990 SF / 0 SF	Temporary / Permanent
Coastal Banks	480 LF	Permanent
Land Subject to Coastal Storm Flowage	57,700 SF	Permanent
Section E		
Coastal Banks	191 LF	Permanent
Land Subject to Coastal Storm Flowage	12,417 SF	Permanent
Section F		
Coastal Beaches	2,310 SF / 0 SF	Temporary / Permanent
Coastal Banks	558 LF	Permanent
Land Subject to Coastal Storm Flowage	35,350 SF	Permanent

*Please note there are no anticipated impacts to coastal or inland wetlands in Section D

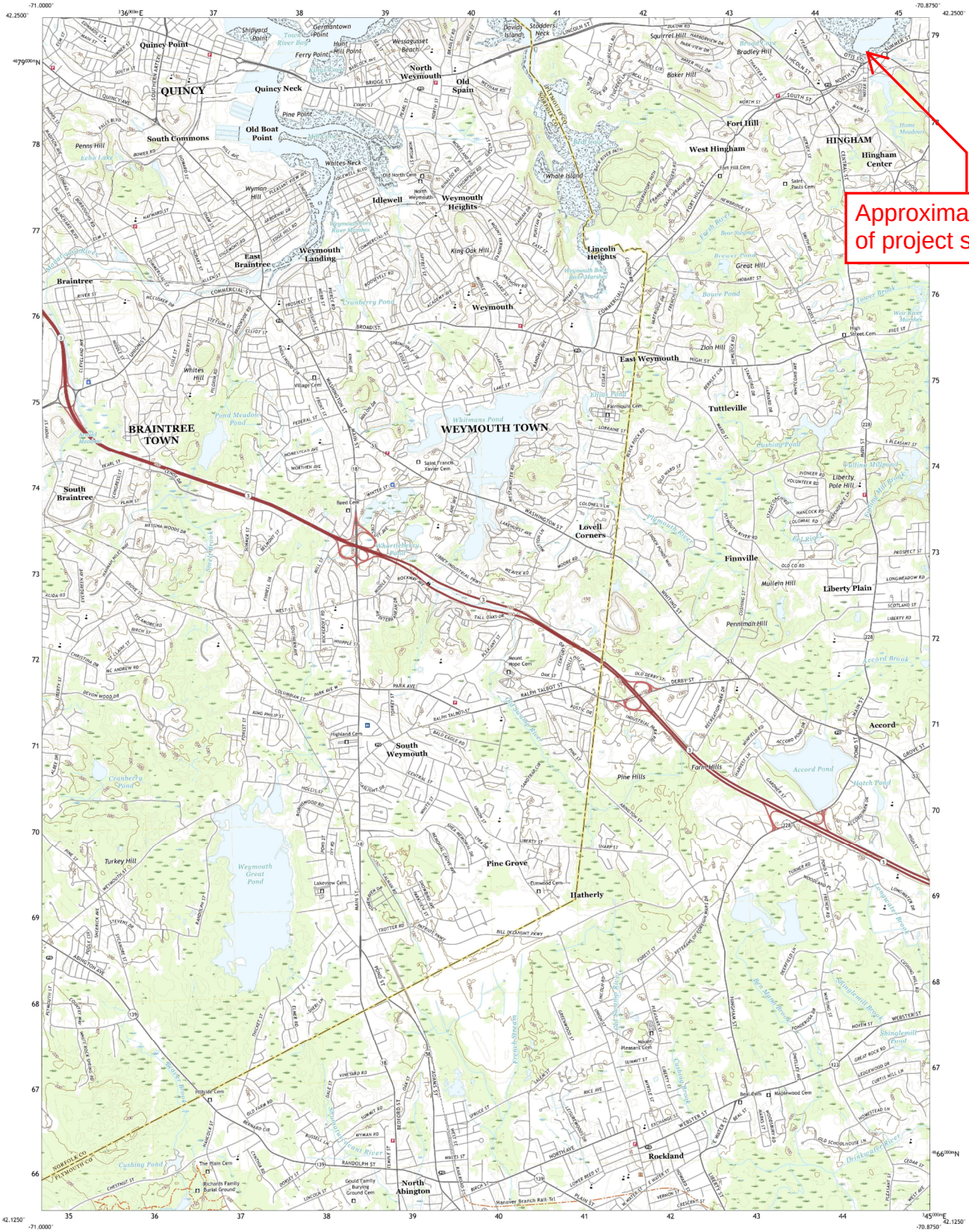
Attachment 3

USGS Locus Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

WEYMOUTH QUADRANGLE
MASSACHUSETTS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, September 2018 - November 2018		
Roads	U.S. Census Bureau,		2018
Names	GNIS,	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

MN
GN
14°28'
287 MILS
4°10'
23 MILS

UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
CG
Grid Zone Designation
19T

SCALE 1:24 000

KILOMETERS 1 0.5 0 1 2
METERS 1000 500 0 1000 2000
MILES 1 0.5 0 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.

MASSACHUSETTS
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Boston South
2 Hull
3 Nantasket Beach
4 Blue Hills
5 Cohasset
6 Brockton
7 Whitman
8 Hanover

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

WEYMOUTH, MA
2021

NSN 7643-01-839-9880
NGA REF NO. USGS24K8505

Attachment 4

MassGIS Layers

MassGIS Layers

MassHistoric Commission Inventory (Points)

- National Register of Historic Places
- Preservation Restriction
- Massachusetts Historic Landmark
- Local Historic District
- NRHP and LHD
- Inventoried Property

MassHistoric Commission Inventory (Areas)

- National Register of Historic Places
- Preservation Restriction
- Massachusetts Historic Landmark
- Local Historic District
- NRHP and LHD
- Inventoried Property

Openspace Article 97

Areas of Critical Environmental Concern ACECs

NHESP Priority Habitats of Rare Species

NHESP Estimated Habitats of Rare Wildlife

Tidelands Jurisdiction Chapter 91 Historic High Water

Tidelands Jurisdiction Chapter 91 Inferred Contemporary High Water

Tidelands Jurisdiction Chapter 91 Contemporary High Water

Tidelands Jurisdiction Chapter 91 Jurisdiction

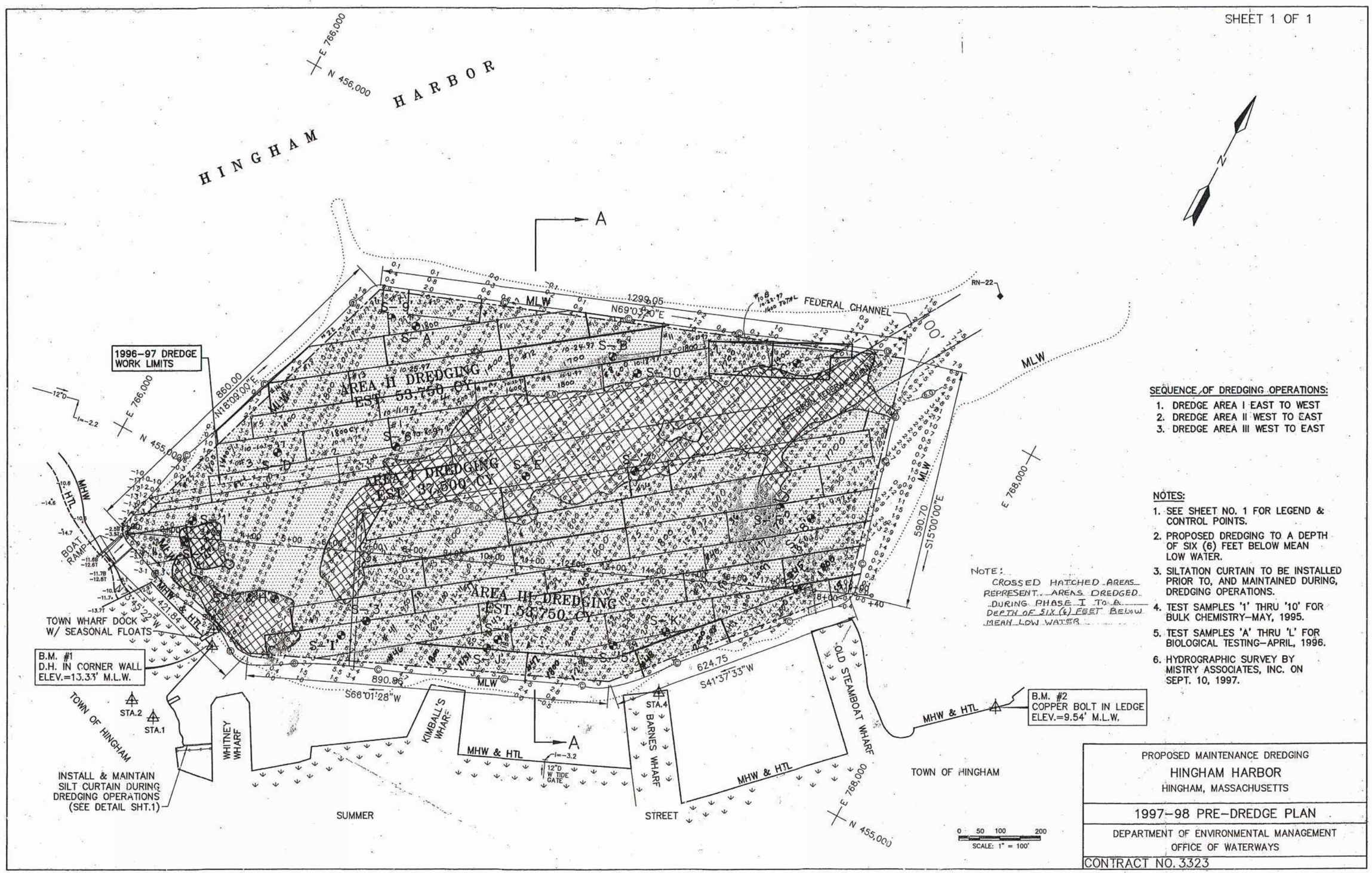
Attachment 5

Historic/Record Permits and Approvals

List of DEP Chapter 91 License Authorizations within Hingham Harbor

Authority	No.	Date Issued	Licensee	Location	Work Authorized
Harbor & Lands Commission	641	11/10/1881	Charles B Barnes	Barnes Wharf	Ext. of Exist Wharf (Humphrey fts Wharf)
Port of Boston Authority	159	7/18/1950	Town of Hingham	Whitney Wharf	Maintain concrete foundation supported by 52 timber piles
Port of Boston Authority	153	5/9/1950	Town of Hingham	Town Landing	Construct/maintain 12 ft x 41 ft timber pier with 18 ft x 40 ft float
DEP	2227	1/5/1990	Town of Hingham	Town Landing	Repair/maintain ex. seawall, walkway, and solid fill
DEQE	1709	10/21/1987	Town of Hingham	Town Boat Ramp	Reconstruct/maintain 10 ft x 41 ft timber pier, gangway (exist), pile held T-floats 8 ft x 35 ft (new) and 16 ft x 48 ft (replacement) and piles
DEP	3140	10/21/1992	Town of Hingham	Town Landing	Maintain solid filled pier as waterfront park w/ wooden observation deck and arbor; To construct/maintain gangway and bottom anchored float (east side of wharf)
DEP	5794	7/24/1996	Kehoes' Ships Chandlery	Bare Cove Marina 3 Otis St.	Maintain pier, bottom anchored floats, and gangways
DEP	12025	2/20/2008	Old Salt Outfitters	Bare Cove Marina 3 Otis St.	Install/maintain 11 timber mooring piles, 17 seasonal 3 ft x 24 ft fingers, 8 ft x 225 ft year-round main and 8 ft x 48 ft year-round end bottom anchored floats and concrete containment structure

Authority	No.	Date Issued	Licensee	Location	Work Authorized
DEP	9550	5/21/2003	Hingham Cove, LLC	Hingham Harbor Marina 26 Summer St.	Place and maintain 8 piles and maintain existing floats; **Note: Ex. Conditions on Lic. Plan calls out existing docks as bottom anchored float system annually approved by HM
Harbor & Lands Commission	165	8/1/1889	Wilder & Kimball's Wharf	Hingham Harbor Marina 26 Summer St.	Orig. Kimball's Wharf License Plan
DEP	3080	9/3/1992	Roger Merrill	Hingham Harbor Marina 26 Summer St.	Maintenance 26.5 ft x 9 ft timber pile supported pier and gangway at Kimball's Wharf
DEP	15470	2/15/2022	Town of Hingham & MA OFBA	0 Otis Street	Boat Ramp Reconstruction and Pier, Ramp, and Float Construction



NOTE:
CROSSED HATCHED AREAS REPRESENT AREAS DREDGED DURING PHASE I TO A DEPTH OF SIX (6) FEET BELOW MEAN LOW WATER

SEQUENCE OF DREDGING OPERATIONS:

1. DREDGE AREA I EAST TO WEST
2. DREDGE AREA II WEST TO EAST
3. DREDGE AREA III WEST TO EAST

NOTES:

1. SEE SHEET NO. 1 FOR LEGEND & CONTROL POINTS.
2. PROPOSED DREDGING TO A DEPTH OF SIX (6) FEET BELOW MEAN LOW WATER.
3. SILTATION CURTAIN TO BE INSTALLED PRIOR TO, AND MAINTAINED DURING, DREDGING OPERATIONS.
4. TEST SAMPLES '1' THRU '10' FOR BULK CHEMISTRY–MAY, 1995.
5. TEST SAMPLES 'A' THRU 'L' FOR BIOLOGICAL TESTING–APRIL, 1996.
6. HYDROGRAPHIC SURVEY BY MISTRY ASSOCIATES, INC. ON SEPT. 10, 1997.

PROPOSED MAINTENANCE DREDGING

HINGHAM HARBOR

HINGHAM, MASSACHUSETTS

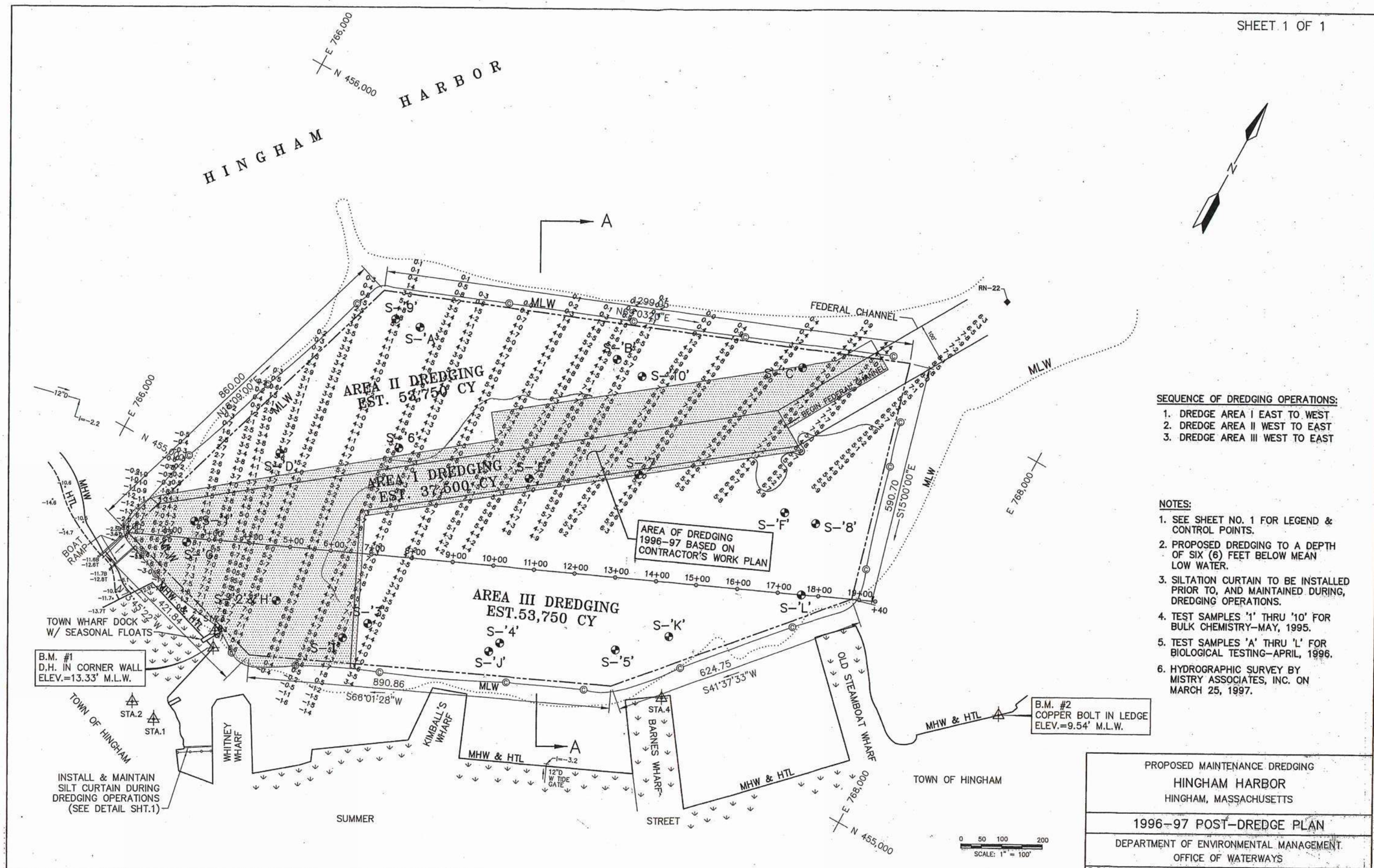
1997–98 PRE–DREDGE PLAN

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATERWAYS

CONTRACT NO. 3323

QUANT COPY

FILE NAME: 20013-9.DWG



SEQUENCE OF DREDGING OPERATIONS:

1. DREDGE AREA I EAST TO WEST
2. DREDGE AREA II WEST TO EAST
3. DREDGE AREA III WEST TO EAST

NOTES:

1. SEE SHEET NO. 1 FOR LEGEND & CONTROL POINTS.
2. PROPOSED DREDGING TO A DEPTH OF SIX (6) FEET BELOW MEAN LOW WATER.
3. SILTATION CURTAIN TO BE INSTALLED PRIOR TO, AND MAINTAINED DURING, DREDGING OPERATIONS.
4. TEST SAMPLES '1' THRU '10' FOR BULK CHEMISTRY–MAY, 1995.
5. TEST SAMPLES 'A' THRU 'L' FOR BIOLOGICAL TESTING–APRIL, 1996.
6. HYDROGRAPHIC SURVEY BY MISTRY ASSOCIATES, INC. ON MARCH 25, 1997.

PROPOSED MAINTENANCE DREDGING

HINGHAM HARBOR

HINGHAM, MASSACHUSETTS

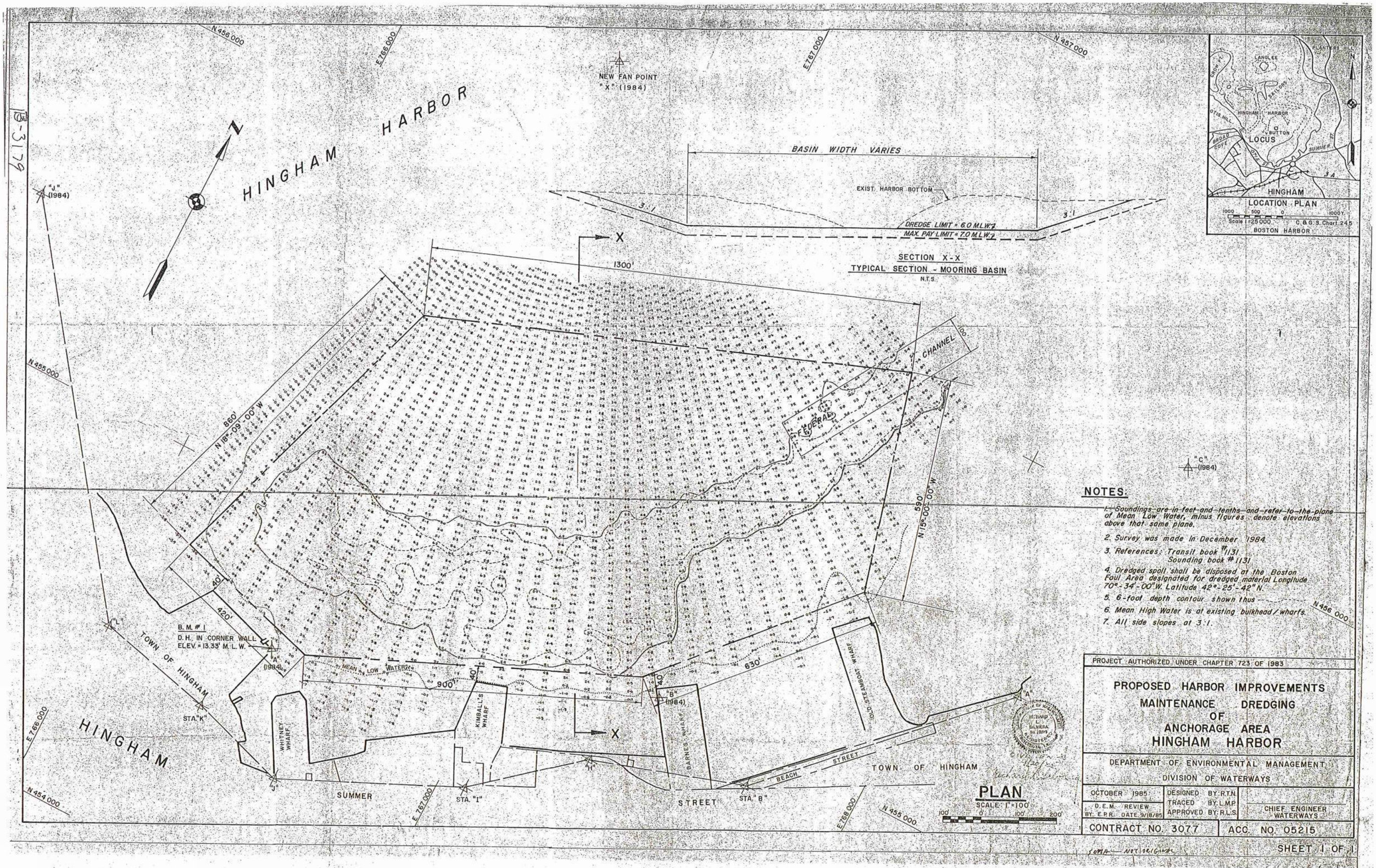
1996–97 POST–DREDGE PLAN

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

OFFICE OF WATERWAYS

CONTRACT NO. 3323 4/7/97

FILE NAME: 23013-6.DWG



NOTES:

1. Soundings are in feet and tenths and refer to the plane of Mean Low Water, minus figures denote elevations above that same plane.
2. Survey was made in December 1984.
3. References: Transit book #1131
   Sounding book #1131
4. Dredged spoil shall be disposed at the Boston Foul Area designated for dredged material Longitude 70°-34'-00" W. Latitude 42°-25'-42" N.
5. 6-foot depth contour shown thus
6. Mean High Water is at existing bulkhead/wharfs.
7. All side slopes at 3:1.

PROJECT AUTHORIZED UNDER CHAPTER 723 OF 1983

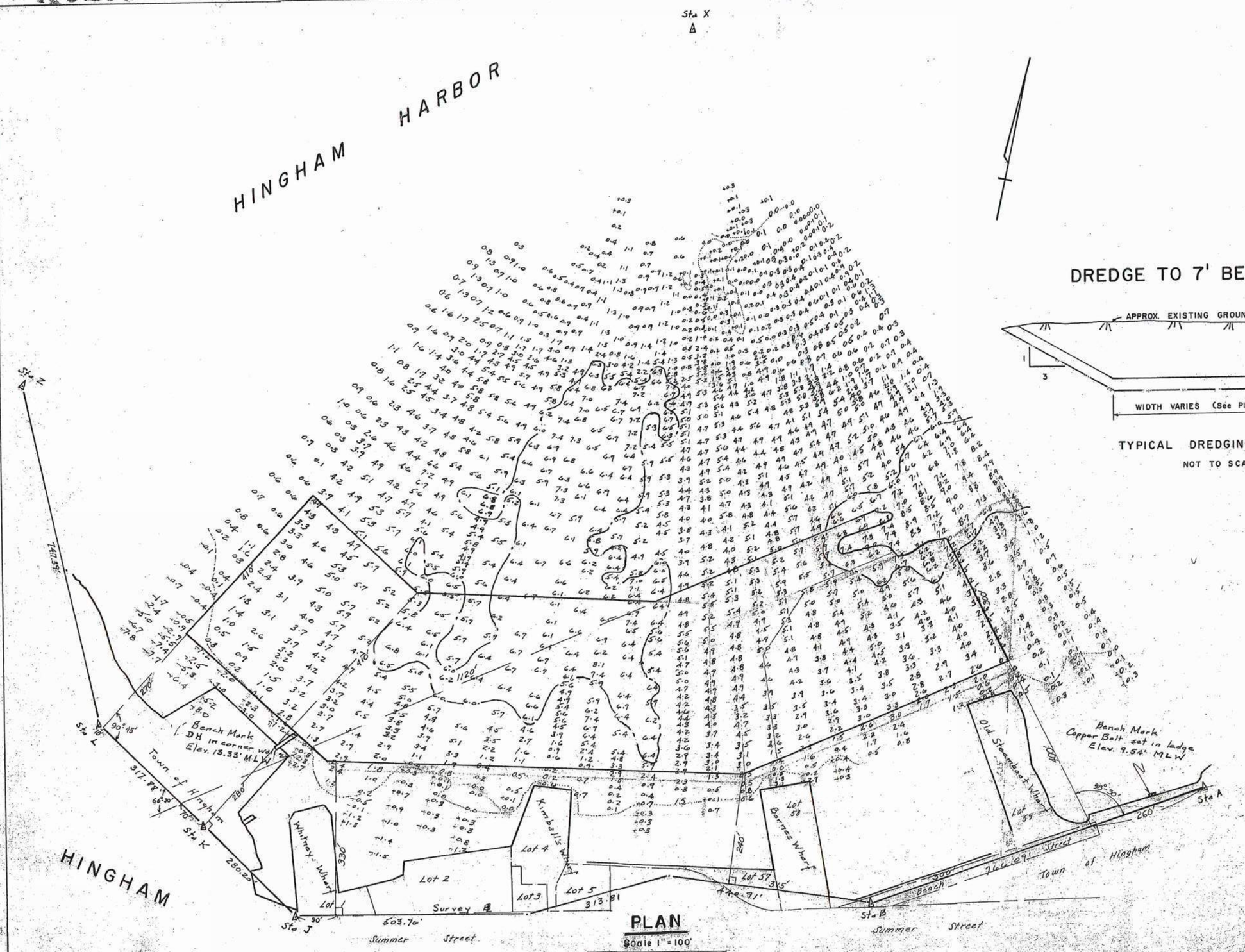
PROPOSED HARBOR IMPROVEMENTS
MAINTENANCE DREDGING OF ANCHORAGE AREA HINGHAM HARBOR

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATERWAYS

OCTOBER 1985	DESIGNED BY: R.T.N.	
D.E.M. REVIEW BY: E.P.R. DATE: 9/18/85	TRACED BY: L.M.P. APPROVED BY: R.L.S.	CHIEF ENGINEER WATERWAYS
CONTRACT NO. 3077	ACC. NO. 05215	

SHEET 1 OF 1

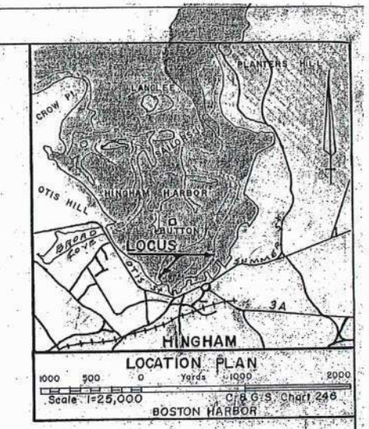
TE-3179



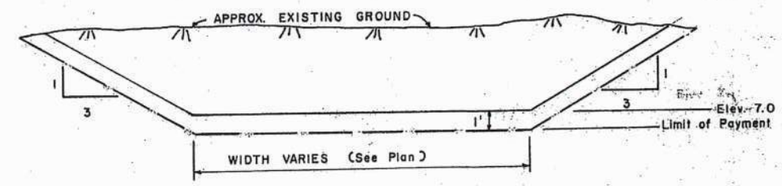
PLAN

Scale 1" = 100'

100' 0' 100' 200'



DREDGE TO 7' BELOW M.L.W.



TYPICAL DREDGING SECTION

NOT TO SCALE

NOTE:

Soundings are in feet and tenths and indicate depths below the plane of Mean Low Water. Minus figures show elevations above the same plane. Survey made in April 1973. Refer to transit book I.H. 426 & sounding book 933. Mean range of tide 9.5'. All Property Lines are approximate.

PROPERTY OWNERS:

LOT 1 - Wolfe-Sullivan, Inc.
2 Summer St., Hingham, Ma. 02043

LOTS 2,3 & 5 - Mobil Oil Corporation
670 White Plain Rd., Scarsdale,
New York 10583

LOT 4 - Vernon A. Conlin
Summer Street, Hingham, Ma. 02043

LOTS 57, 58 & 59 - Town of Hingham
% Town Office Building, Hingham, Ma.

PROPOSED HARBOR IMPROVEMENTS

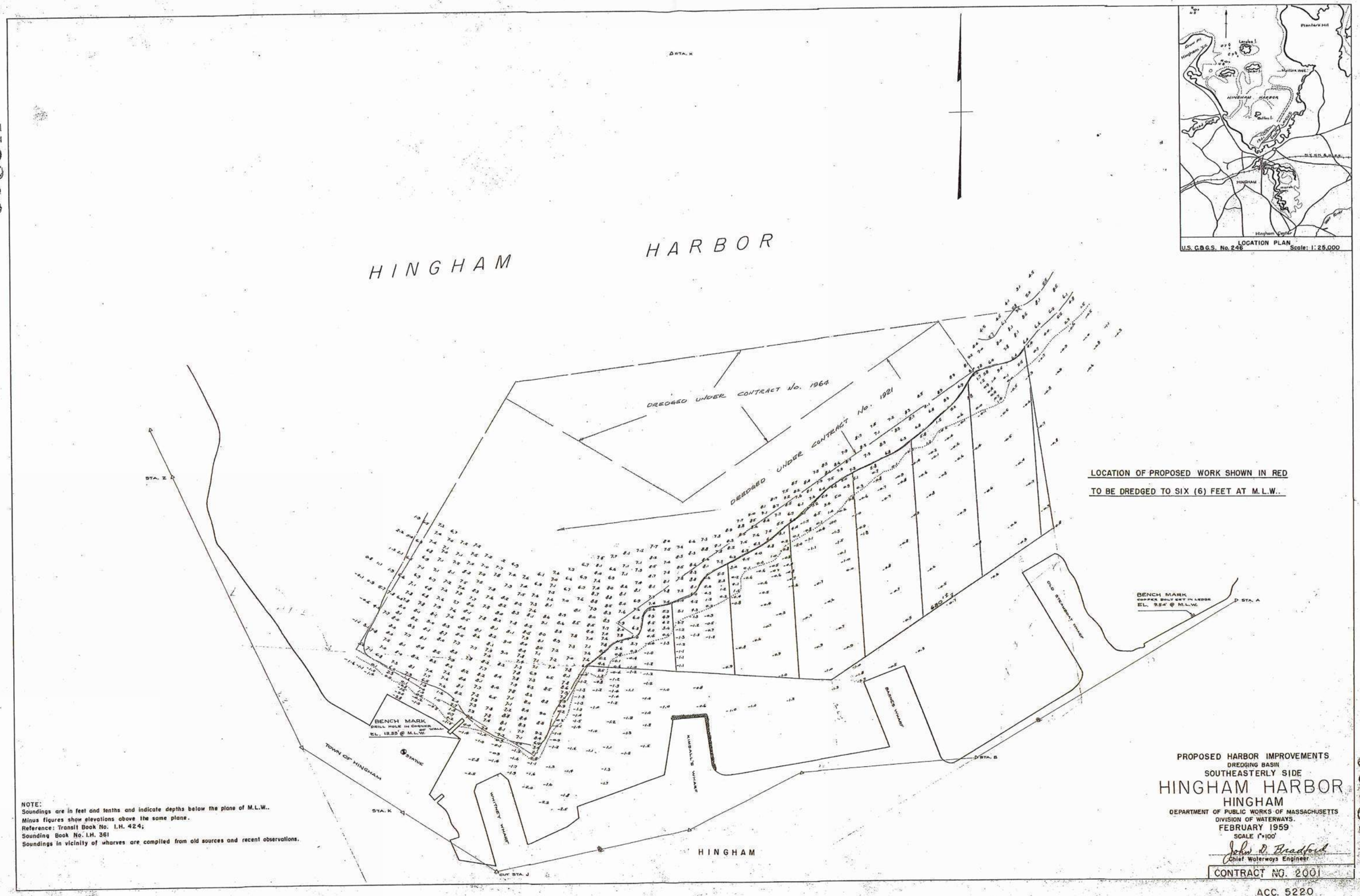
DREDGING OF MOORING BASIN

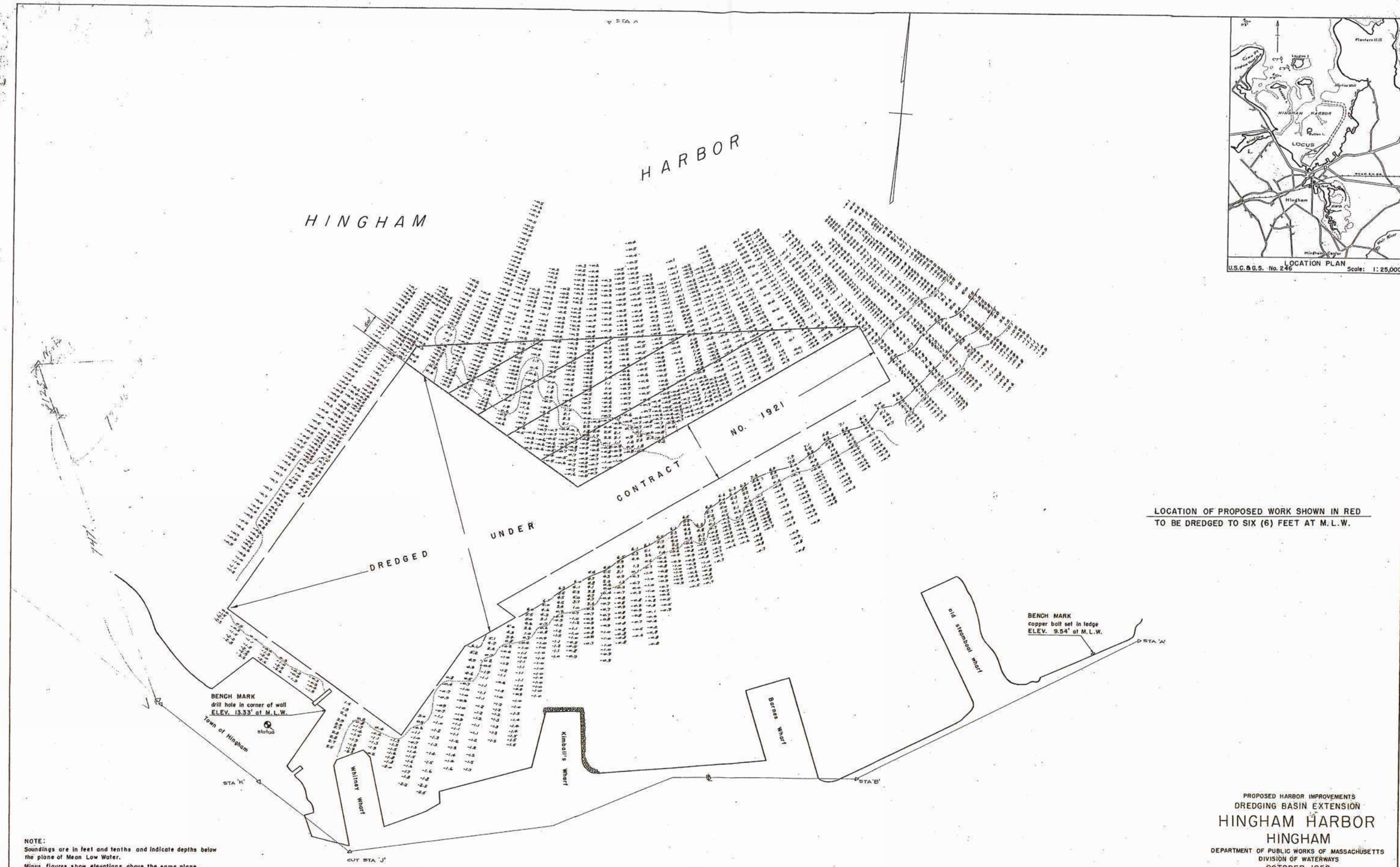
HINGHAM HARBOR

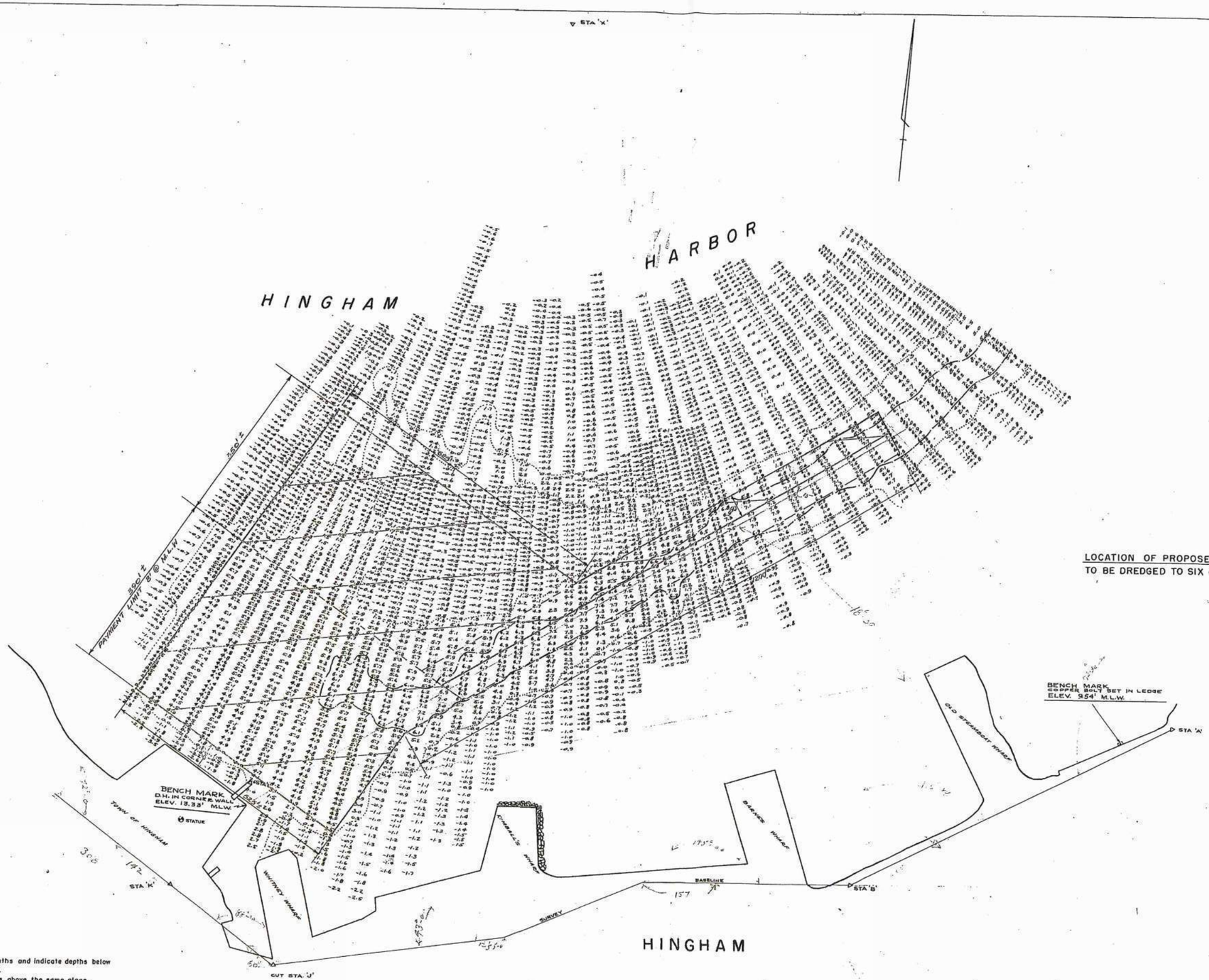
HINGHAM

DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS

AUGUST 1974	DESIGNED BY DRL TRACED BY DRL	Norman L. Dugan DEPUTY CHIEF ENGINEER FOR WATERWAYS
SHEET 1 OF 1	APPROVED BY	
CONTRACT NO. 2801	ACC. NO. 04981	


HINGHAM HARBOR
DREDGED UNDER CONTRACT No. 1964
DREDGED UNDER CONTRACT No. 1921
LOCATION OF PROPOSED WORK SHOWN IN RED
TO BE DREDGED TO SIX (6) FEET AT M.L.W..
STA. Z
STA. K
STA. J
STA. B
STA. A
BENCH MARK
DRILL HOLE IN CORNER OF WALL
EL. 18.85' @ M.L.W.
BENCH MARK
COPPER BOLT SET IN LEDGE
EL. 9.54' @ M.L.W.
TOWN OF HINGHAM
STATUE
WHITNEY WHARF
KIMBALL'S WHARF
BARGE WHARF
OLD STEAMBOAT WHARF
HINGHAM
LOCATION PLAN
U.S. C.&G.S. No. 246
Scale: 1:25,000
Hingham Harbor
Langlee I.
Button I.
Button Neck
Plantation Hill
Hingham Cove
Weir River
N.Y.N.H. & H. R.R.
Hingham Center
NOTE:
Soundings are in feet and tenths and indicate depths below the plane of M.L.W..
Minus figures show elevations above the same plane.
Reference: Transit Book No. I.H. 424;
Sounding Book No. I.H. 361
Soundings in vicinity of wharves are compiled from old sources and recent observations.
PROPOSED HARBOR IMPROVEMENTS
DREDGING BASIN
SOUTHEASTERLY SIDE
HINGHAM HARBOR
HINGHAM
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS.
FEBRUARY 1959
SCALE 1"=100'
John D. Bradford
Chief Waterways Engineer
CONTRACT NO. 2001
ACC. 5220


HINGHAM
HARBOR
CONTRACT
NO. 1921
UNDER
DREDGED
BENCH MARK
drill hole in corner of wall
ELEV. 13.33' at M.L.W.
Town of Hingham
STA 'K'
Whitney Wharf
Kimball's Wharf
Barnes Wharf
old steamboat wharf
BENCH MARK
copper bolt set in ledge
ELEV. 9.54' at M.L.W.
STA 'A'
STA 'B'
CUT STA 'J'
HINGHAM
LOCATION OF PROPOSED WORK SHOWN IN RED
TO BE DREDGED TO SIX (6) FEET AT M.L.W.
NOTE:
Soundings are in feet and tenths and indicate depths below the plane of Mean Low Water.
Minus figures show elevations above the same plane.
Reference: Transit Book No. I.H. 424,
Sounding Book No. I.H. 361.
PROPOSED HARBOR IMPROVEMENTS
DREDGING BASIN EXTENSION
HINGHAM HARBOR
HINGHAM
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
OCTOBER 1958
SCALE : 1" = 100'
Chief Waterways Engineer
CONTRACT NO. 1964
ACC. 03922
LOCATION PLAN
U.S.C.&G.S. No. 246
Scale: 1:25,000
Planters Hill
HINGHAM HARBOR
LOCUS
Hingham
Weir River
Hingham Center



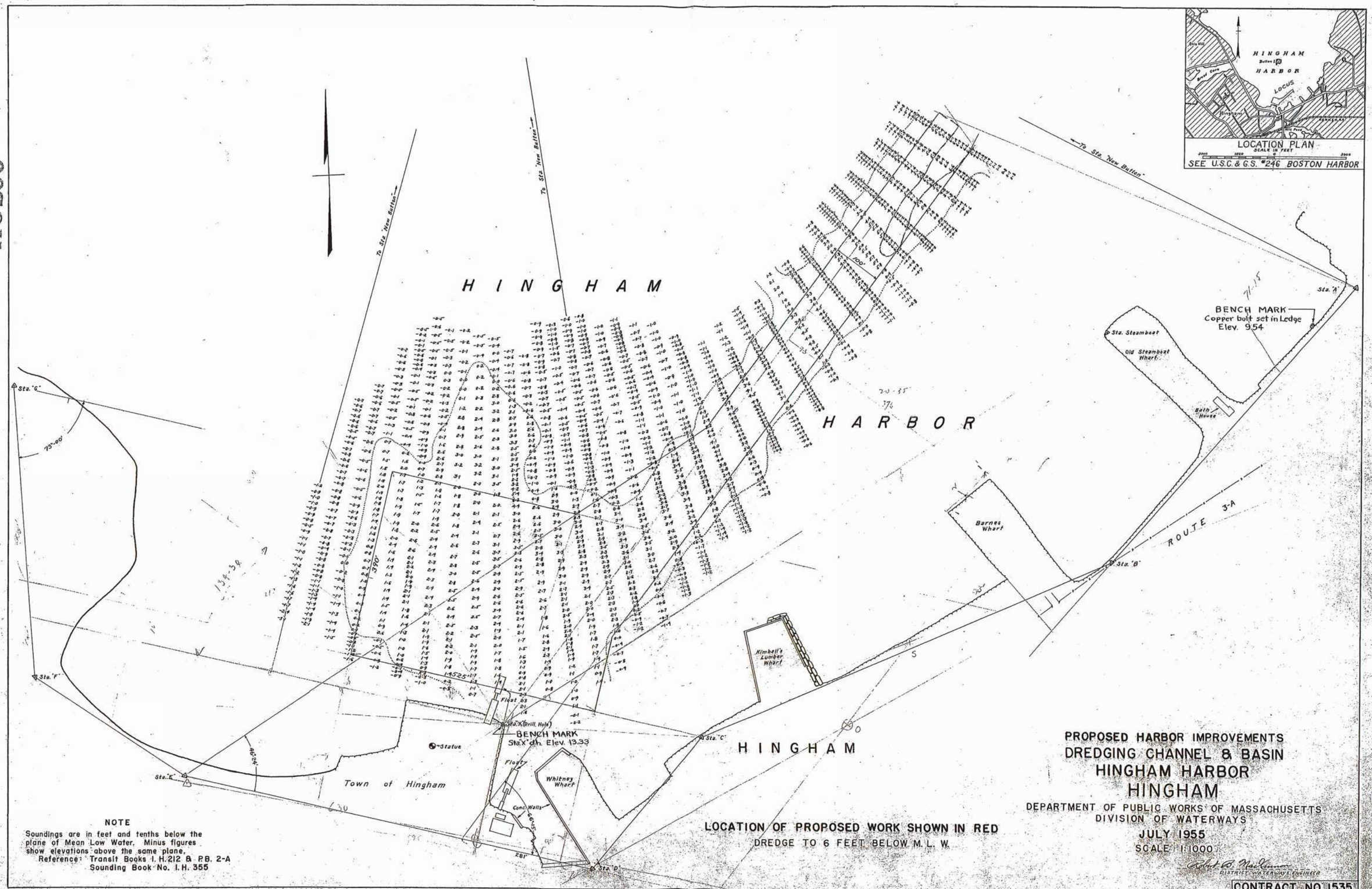
LOCATION OF PROPOSED WORK SHOWN IN RED
TO BE DREDGED TO SIX (6) FEET BELOW M. L. W.

NOTE:
Soundings are in feet and tenths and indicate depths below the plane of Mean Low Water.
Minus figures show elevations above the same plane.
Reference: Transit Book No. I.H. 424,
Sounding Book No. I.H. 361

PROPOSED HARBOR IMPROVEMENTS
DREDGING BASIN AND CHANNEL
HINGHAM HARBOR
HINGHAM
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JUNE 1958
SCALE: 1" = 100'
Robert B. Madison
Chief Waterways Engineer

CONTRACT NO. 1921
ACC. 5209

K0200


HINGHAM
HARBOR
HINGHAM
HARBOR
To Sta. "New Button"
To Sta. "New Button"
To Sta. "New Button"
LOCATION PLAN
SCALE IN FEET
SEE U.S.C.& G.S. #246 BOSTON HARBOR
LOCUS
Sta. "A"
Sta. "B"
Sta. "C"
Sta. "D"
Sta. "E"
Sta. "F"
Sta. "G"
BENCH MARK
Copper bolt set in Ledge
Elev. 9.54
Sta. Steamboat
Old Steamboat Wharf
Bath House
Barnes Wharf
ROUTE 3-A
Kimball's Lumber Wharf
Whitney Wharf
Float
Sta. "X" (Drill Hole)
BENCH MARK
Sta. "X" dh. Elev. 13.33
Statue
Town of Hingham
Conc. Walls
75°-00'
100'
390'
630'
287'
NOTE
Soundings are in feet and tenths below the plane of Mean Low Water. Minus figures show elevations above the same plane.
Reference: Transit Books I. H. 212 & P.B. 2-A
Sounding Book No. I. H. 355
LOCATION OF PROPOSED WORK SHOWN IN RED
DREDGE TO 6 FEET BELOW M. L. W.
PROPOSED HARBOR IMPROVEMENTS
DREDGING CHANNEL & BASIN
HINGHAM HARBOR
HINGHAM
DEPARTMENT OF PUBLIC WORKS OF MASSACHUSETTS
DIVISION OF WATERWAYS
JULY 1955
SCALE 1:1000
DISTRICT WATERWAYS ENGINEER
CONTRACT NO. 1535
ACC. 5170

No. 641

Whereas Charles B. Barnes has given written notice to this Board of his intention to extend his wharf, formerly known as Humphreys wharf in Hingham Harbor, on piles, and has submitted plans of the same

Now therefore, the said Charles B. Barnes is hereby authorized to proceed and extend said wharf as aforesaid on piles, in conformity to a plan filed in this office and numbered 641 and on and within lines described as follows:

Beginning at the north westerly corner of the present wharf and running northerly in line with the westerly side of the present wharf extended a distance of thirty (30) feet, thence running easterly at right angles to the last named line a distance of sixty-five (65) feet, thence running southerly at right angles to the last named line a distance of thirty (30) feet to the north easterly corner of the present wharf.

Nothing in this license shall be construed to impair the legal rights of any person or corporation municipal or otherwise.

Due notice has been given to the Selectmen of the town of Hingham of the time and place fixed for a hearing on the petition of said Charles B. Barnes.

This license is void unless recorded with the accompanying plan in the Registry of Deeds for the County of Plymouth, within one year from the date of these presents.

In witness whereof a majority of the Board of Harbor and Land Commissioners have

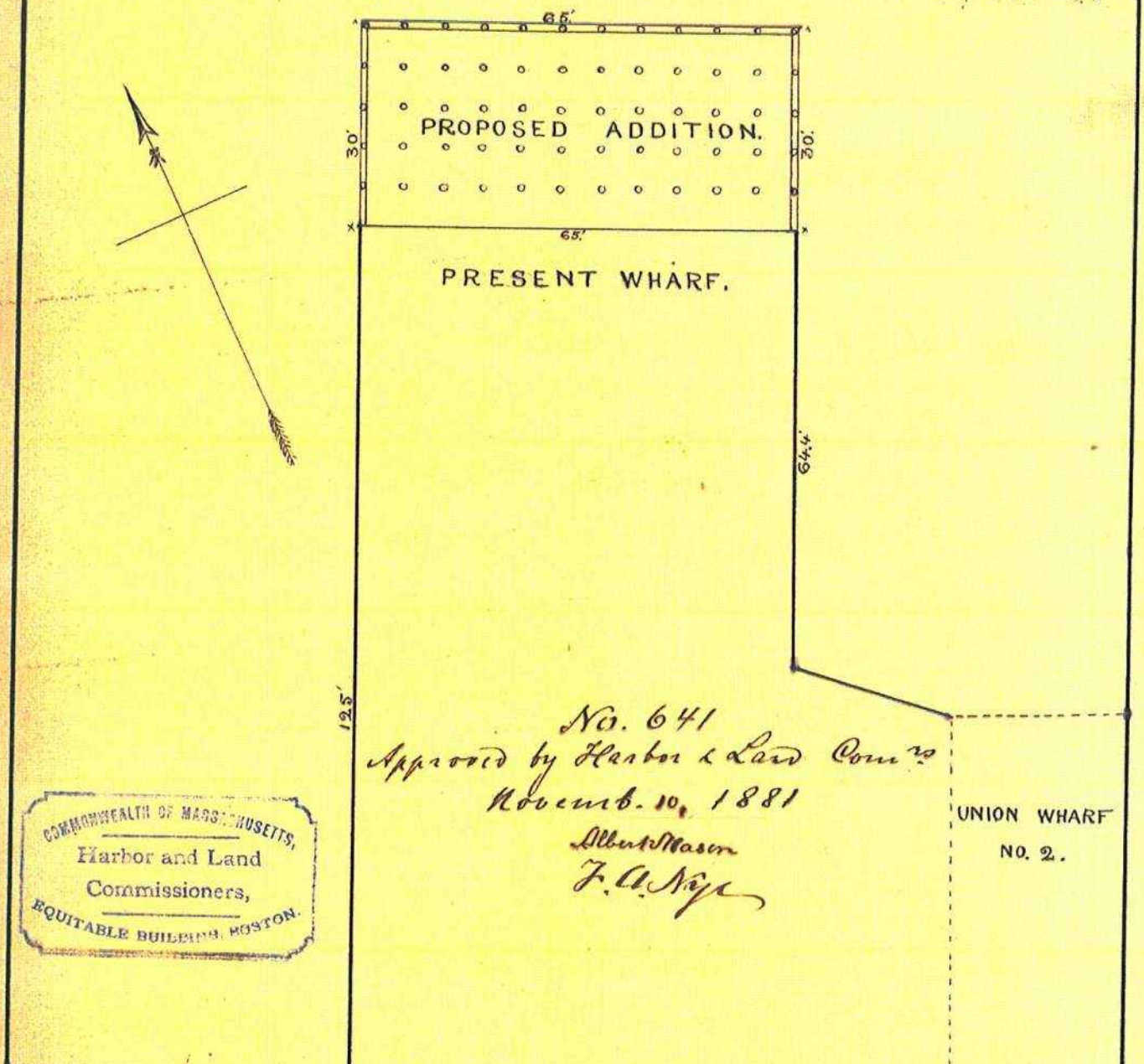
hereto affixed their signatures this tenth day of November A. D. 1881

A true Copy, Attest
Albert Mason
Chairman

Albert Mason
F. A. Nye

Cross Ref.

HINGHAM HARBOR.



PLAN OF BARNES' WHARF
formerly Humphrey's
HINGHAM,

SHOWING PRESENT WHARF
AND
PROPOSED ADDITION.

SCALE 1 INCH TO 20 FEET.

1881.

Form WD 54.

500-(e)-9-46—19408.

The Commonwealth of Massachusetts

No. 159

Whereas, Wolfe-Sullivan Inc.----------

of Hingham-------- , in the County of Plymouth---------- and Commonwealth aforesaid, has applied to the Port of Boston Authority for license to maintain piling as now placed in and over the tidewaters of Hingham Harbor in the town of Hingham---------- and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Board of Selectmen----of the town---------- of Hingham----------;

Now, said Authority, having heard all parties desiring to be heard, and having fully considered said application, hereby, ~~subject to the approval of the Governor and Council~~, authorizes and licenses the said ----------

Wolfe-Sullivan Inc.----------, subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to maintain piling as now placed at its property in Hingham, in conformity with the accompanying plan No. 159.

A concrete foundation supported by fifty two (52) timber

piles may be maintained in the location shown on said plan and in accordance with the details of construction there indicated.

The plan of said work, numbered ----------159---------- is on file in the office of said Authority and duplicate of said plan accompanies this License, and is to be referred to as a part hereof.

The amount of tide-water displaced by the work hereby authorized shall be ascertained by said Authority and compensation therefor shall be made by the said ---------- Wolfe-Sullivan Inc.---------- heirs, successors

Form WD 54.

500-(f)-9-46—19408.

and assigns, by paying into the treasury of the Commonwealth thirty seven and one half (37½) cents for each cubic yard so displaced, being the amount hereby assessed by said Authority.

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plan are recorded within one year from the date hereof, in the Registry of Deeds for the District of the County of Plymouth.

In Witness Whereof, said Port of Boston Authority have hereunto set their hands this eighteenth----------day of July---------- in the year nineteen hundred and fifty.

Alexander Macomber
Walter A. McDonough
Gerald Henderson
} *Port of Boston Authority*

THE COMMONWEALTH OF MASSACHUSETTS

~~This license is approved in consideration of the payment into the treasury of the Com-~~ monwealth by the said
of the further sum of

the amount determined by the Governor and council as a just and equitable charge for rights and privileges hereby granted in land of the Commonwealth.

BOSTON, ...

~~Approved by the Governor and Council.~~

.....
Executive Secretary.

A true copy. Attest: Mary Richardson *Secretary.*

License 159.

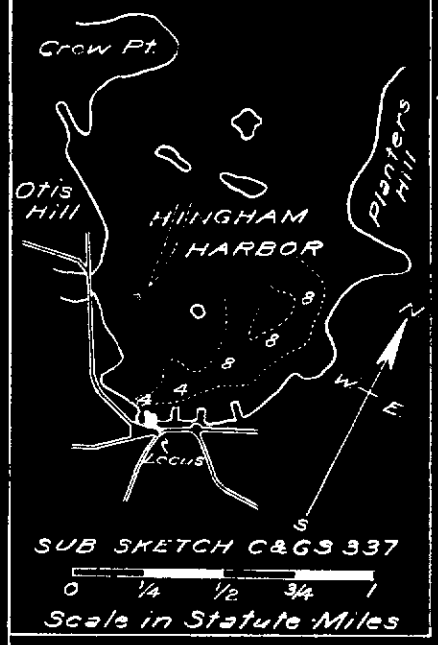
Plan accompanying Petition of Wolfe-Sullivan, Inc.

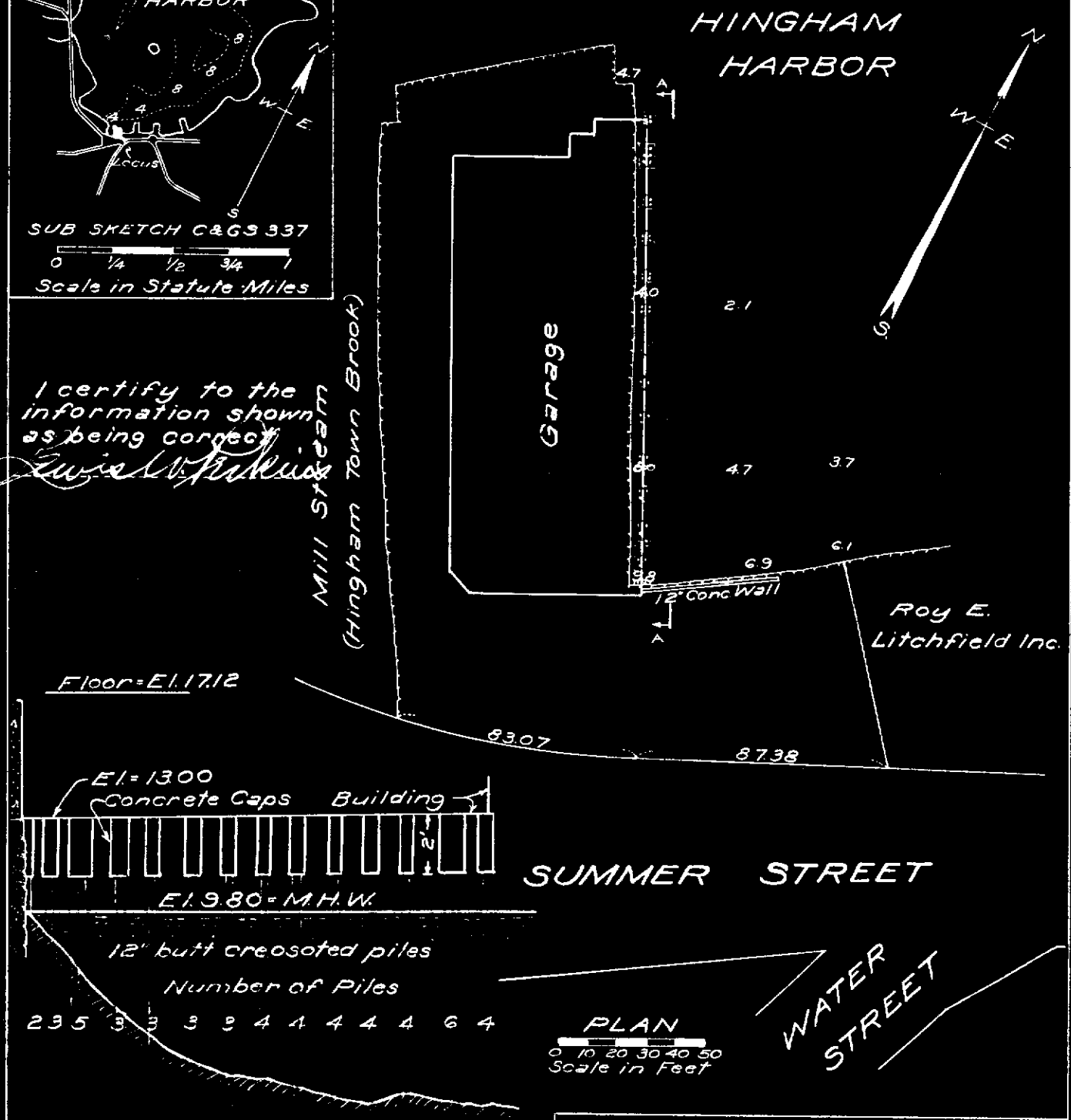
to maintain 14 pile clusters as now placed

Hingham Harbor-Hingham, Mass.

May 1950.

Lewis W. Perkins, Eng'r., Hingham, Mass.





I certify to the information shown as being correct

Lewis W. Perkins

SECTION A-A

Horizontal Scale: 1 inch = 50 feet

Vertical Scale: 1 inch = 5 feet

LICENSE NO. 159

APPROVED JULY 18, 1950.

THE PORT OF BOSTON AUTHORITY

shown as lot 6 on said plan. All of said boundaries are shown on Plan of Land in Hull, Massachusetts, Walter B.Foster,C.E., dated May 12, 1924, and filed in the Plymouth County Registry of Deeds, Plan Book 3, Page 649. Being the same premises conveyed to me by Andrew D.Bonanno and Letizia L.Bonanno, husband and wife, by deed dated this date and recorded with Plymouth County Deeds. The foregoing premises are conveyed subject to and with the benefit of restrictions and other encumbrances of record insofar as the same are now in force and to taxes assessed as of January 1, 1950.This deed is given to confirm the deed recorded in Plymouth County Deeds, Book 2077, Page 429. The consideration for this deed is less than $100.00. WITNESS my hand and seal this 24th day of July, 1950.

Witnessed by: Silas D.Wyman Winifred Franklin Seal

THE COMMONWEALTH OF MASSACHUSETTS

Suffolk,ss. July 24, 1950. Then personally appeared the above named Winifred Franklin and acknowledged the foregoing instrument to be her free act and deed, before me,

Richard M.Wyman Notary Public Seal
My commission expires December 17, 1954.

Rec'd July 27, 1950 at 9:00 A.M. & recorded.

Port of Boston Authority to Town of Hingham

THE COMMONWEALTH OF MASSACHUSETTS

No.153

WHEREAS, the Town of Hingham by its Hingham Dredging Committee, of Hingham, in the County of Plymouth and Commonwealth aforesaid, has applied to the PORT OF BOSTON AUTHORITY for license to erect a town landing with a float and has submitted plans of the same; and whereas due notice of said application, and of the time and place fixed for a hearing thereon, has been given, as required by law, to the Board of Selectmen of the Town of Hingham; Now, said Authority, having heard all parties desiring to be heard, and having fully considered said application, hereby, authorizes and licenses the said TOWN OF HINGHAM, subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to construct and maintain a pier and landing float in the tidewaters of Hingham Harbor off of Memorial Park in the town of Hingham in conformity with the accompanying plan No.153. A pier, 12 feet wide, projecting approximately 41 feet from the northerly seawall enclosing the park may be constructed, consisting of timber supported on five bents of two timber piles each. A landing float approximately 18 feet wide by 40 feet long about 14 feet outboard from the pier and a gangway may be installed and maintained. By the acceptance of this license the licensee agrees to remove the float in the event it sinks to the harbor bottom or becomes a menance to navigation. This license is granted according to the laws of the United States. The plan of said work, numbered 153 is on file in the office of said Authority, and duplicate of said plan accompanies this License, and is to be referred to as a part hereof. Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same and the accompanying plan are recorded within one year from the date hereof, in the Registry of Deeds for the District of the County of Plymouth. IN WITNESS WHEREOF, said Port of Boston Authority have hereunto set their hands this eighth day of May in the year nineteen hundred and fifty.

See Plan Book 8 Page 323

Walter McDonough) Port of
James R.Nolen) Boston
Gerard Henderson) Authority

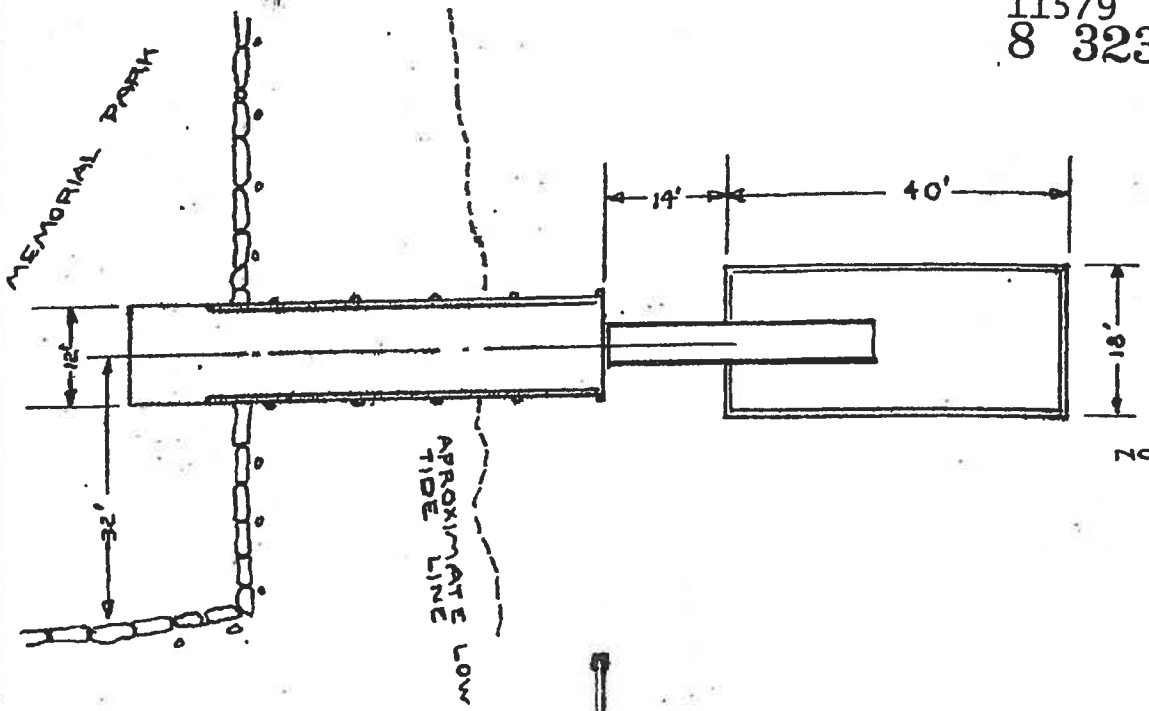
Rec'd July 27, 1950 at 9:00 A.M. & recorded.

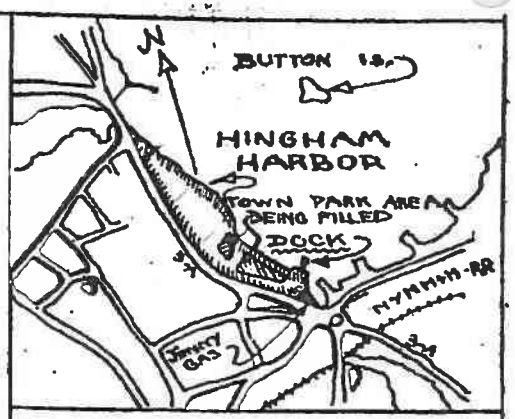
Filiurin to Filiurin

I, MIRON FILIURIN, holder of a mortgage from MALIA FILIURIN, to Miron Filiurin, dated June 11,1945, recorded with Plymouth County Registry of Deeds, Book 1885,Pages 528-29, acknowledge satisfaction of the same. WITNESS my hand and seal this 10th day of July, 1950.

Miron Filiurin

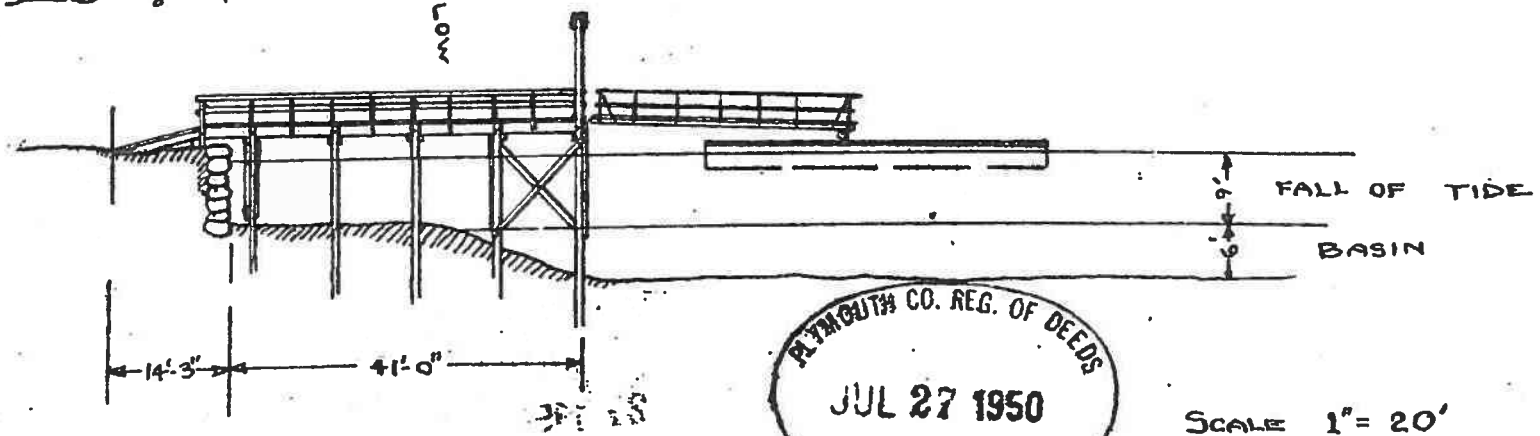
11579
8 323





GENERAL LOCATION

NOTE:
THIS DOCK IS WHOLEY ON AND EXTENDED OUT FROM TOWN PROPERTY



PLYMOUTH CO. REG. OF DEEDS
JUL 27 1950
RECORDED

SCALE 1" = 20'

TOWN LANDING
FOR
HINGHAM MASS.
SUBMITTED BY
DREDGING COMMITTE
HINGHAM MASS.
DATE-

PLANS DRAWN BY
STEVEN POPE
HINGHAM, MASS.

APPROVAL: MAY 9, 1950.
LICENSE NO. 153
THE PORT OF BOSTON AUTHORITY

Form WD 54

The Commonwealth of Massachusetts

No. 2227

Whereas. Town of Hingham

of -- Hingham --, in the County of -- Plymouth -- and Commonwealth aforesaid, has applied to the Department of Environmental Protection* for license to -- repair and maintain a seawall, walkway and solid fill --

and has submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon,~~ has been given, as required by law, to the -- Board of Selectmen -- of the Town -- of -- Hingham ----------

NOW, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, ~~subject to the approval of the Governor~~, authorizes and licenses the said ----------

Town of Hingham -- subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to -- repair and maintain a seawall, walkway and solid fill ----------

in and over the waters of -- Hingham Harbor -- in the -- Town -- of -- Hingham -- and in accordance with the locations shown and details indicated on the accompanying DEP License Plan No. 2227, (2 sheets).

*Pursuant to Stat. 1989, c.240, s.101, "The Department of Environmental Quality Engineering shall be known as the Department of Environmental Protection," hereinafter in this document referred to as "the Department" or "DEP".

The structures hereby authorized shall be limited to the following use: provide shoreline stabilization from coastal erosion. ----------

Please see page three for additional conditions to this license. -------

Duplicate of said plan, number 2227 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This license is granted upon the expressed condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s.40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEP Division of Water Pollution Control.

The amount of tide-water displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Town of Hingham -- by paying into the treasury of the Commonwealth ----- zero dollars and zero cents ($0.00) ----- for each cubic yard so displaced, being the amount hereby assessed by the said Department.

Nothing in this License shall be construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plans are recorded within 60 days from the date hereof, in the Registry of Deeds for the County of Plymouth.

IN WITNESS WHEREAS, said Department of Environmental Protection have hereunto set their hands this fifth day of January in the year nineteen hundred and ninety

Commissioner

Director

Section Chief

Department of Environmental Protection

THE COMMONWEALTH OF MASSACHUSETTS

~~This License is approved in consideration of the payment into the~~ treasury of the Commonwealth by the said

of the further sum of

the amount determined by the Governor as a just and equitable charge for rights and privileges ~~hereby~~ granted in the land of the Commonwealth.

BOSTON

~~Approved by the Governor~~

~~Governor~~

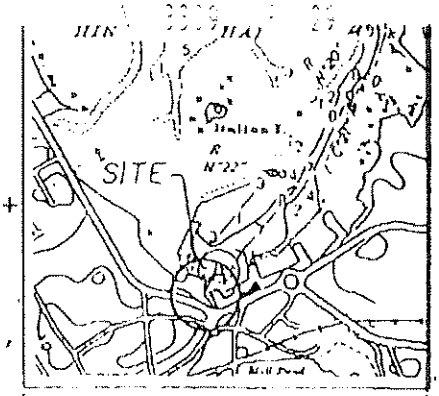
A TRUE COPY — ATTEST

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
Commonwealth of Massachusetts

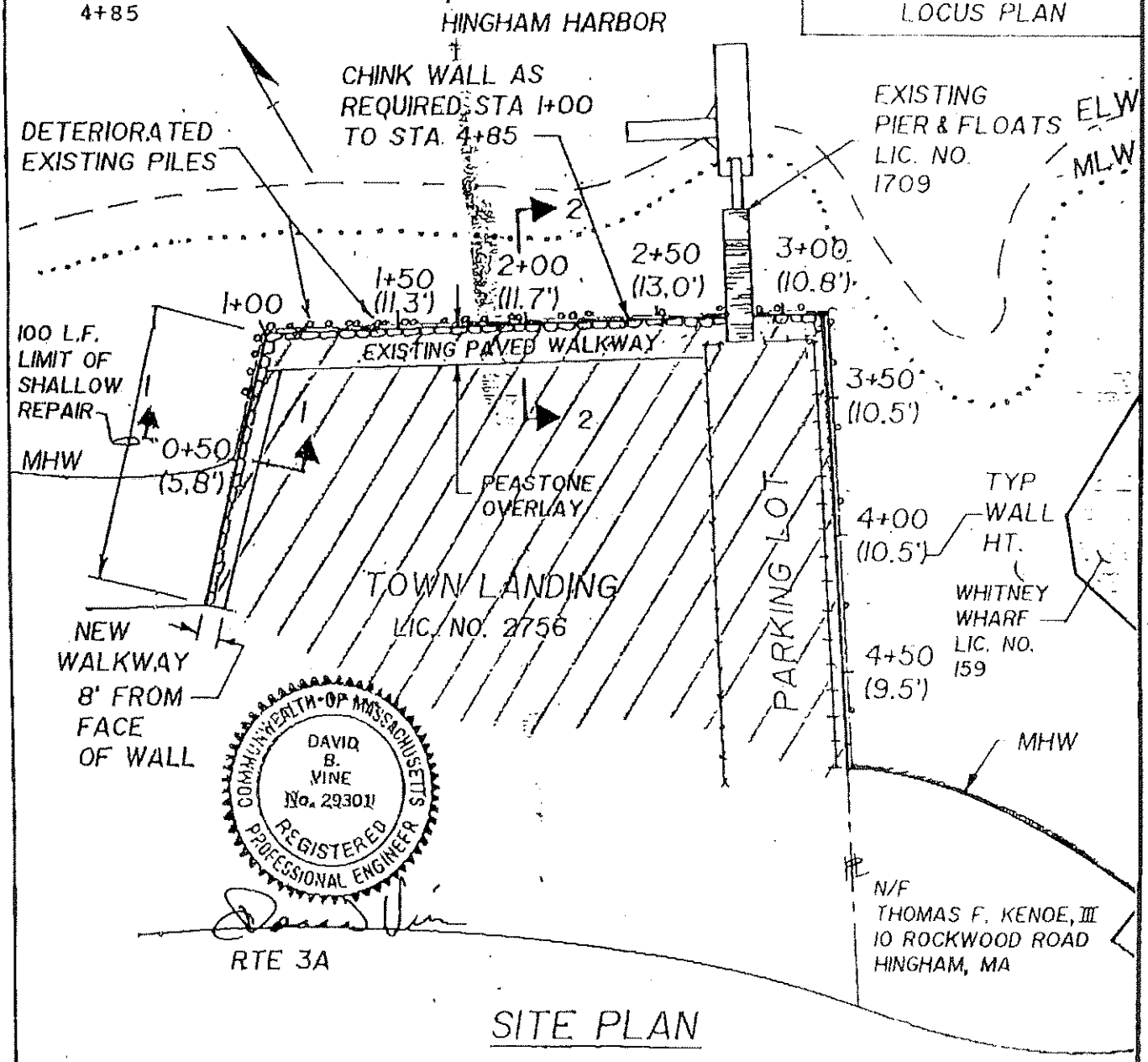
Sep. 2. 2009 1:22PM

NOTES:

1. DATUM: MLW=0, MHW=9.5, ELW=-1.0
2. TOWN OF HINGHAM OWNS TOWN LANDING SITE
3. LICENSE NO. 2756 (1903) LICENSED THE SEAWALL FROM APPROXIMATE STATION 0+76 TO STATION 2+60+ AND 2425 CUBIC YARDS OF FILL DISPLACING MEAN TIDE.
4. NO DREDGING OR FILLING PROPOSED. PROJECT TO LICENSE 8000± CUBIC YARDS DISPLACING MEAN TIDE, NOT LICENSED IN 1903.
5. WALL TO BE REPAIRED & MAINTAINED STA 0+00 TO 4+85



LOCUS PLAN



SITE PLAN

0 25 50 75

SCALE IN FEET

SHEET 1 OF 2

PLANS ACCOMPANYING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN EXISTING
SEAWALL, WALKWAY & SOLID FILL
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
OCTOBER 23, 1989

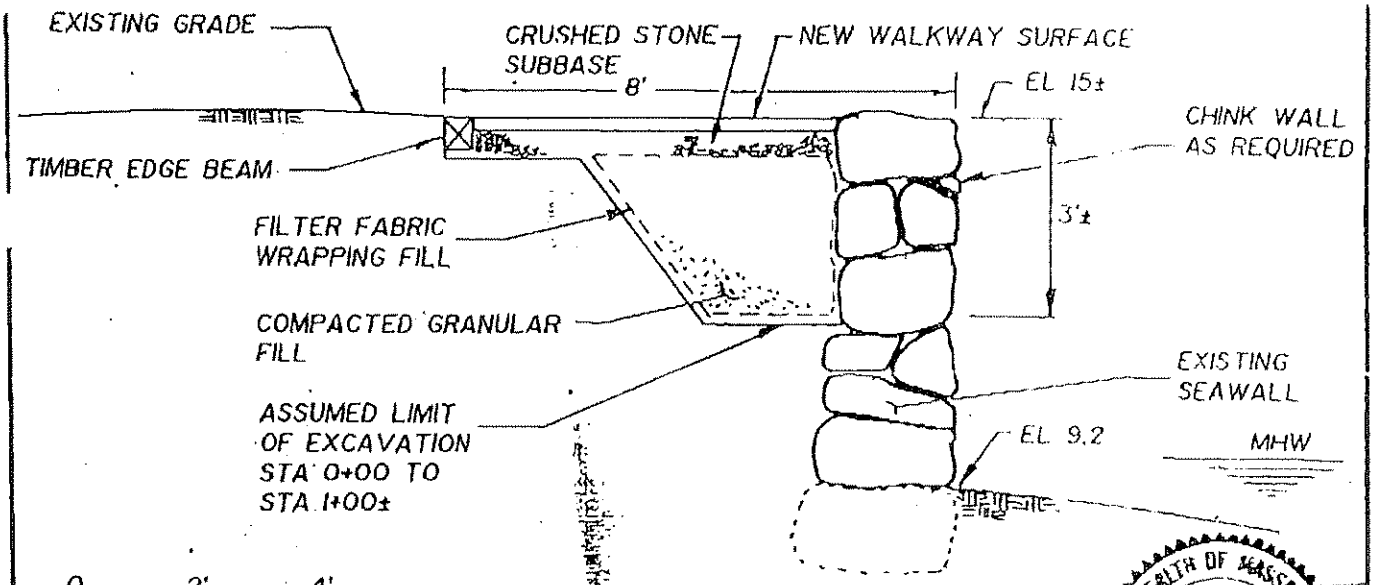
LICENSE PLAN NO. 2227

Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER

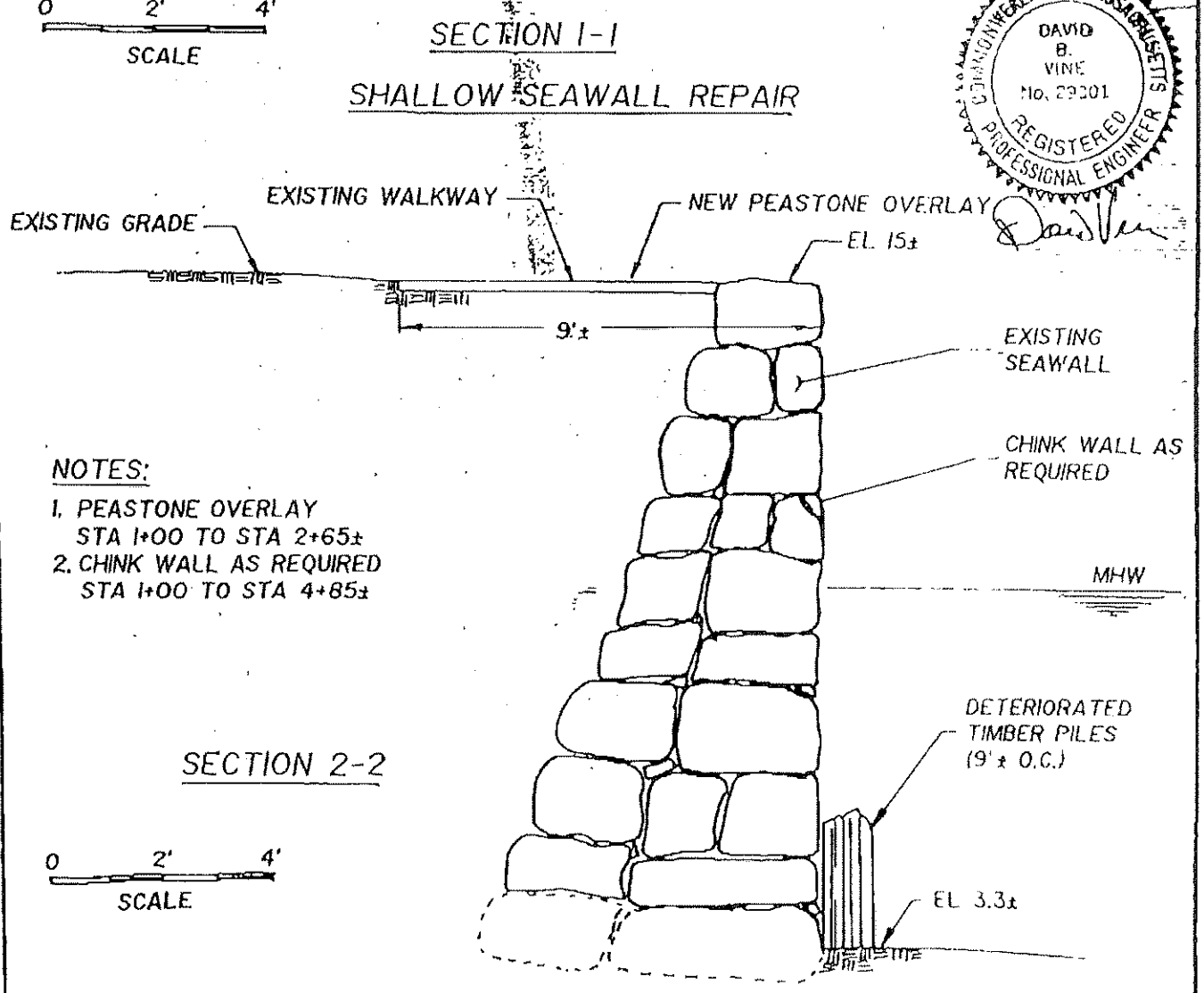
DIVISION DIRECTOR

SECTION CHIEF



SECTION 1-1

SHALLOW SEAWALL REPAIR



COMMONWEALTH OF MASSACHUSETTS
DAVID B. VINE
No. 29301
REGISTERED PROFESSIONAL ENGINEER

NOTES:

1. PEASTONE OVERLAY STA 1+00 TO STA 2+65±
2. CHINK WALL AS REQUIRED STA 1+00 TO STA 4+85±

SECTION 2-2

SHEET 2 OF 2

PLANS ACCOMPANYING THE PETITION OF
TOWN OF HINGHAM
TO REPAIR AND MAINTAIN EXISTING
SEAWALL AND WALKWAY & SOLID FILL
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA
OCTOBER 23, 1989
MUCCI VINE ASSOCIATES, INC

LICENSE PLAN NO. 2227

Approved by Department of Environmental Protection

Date: JAN - 5 1990

89-297

Form WD 54

The Commonwealth of Massachusetts

No. 1709

Whereas, the Town of Hingham

of Hingham, in the County of Plymouth and Commonwealth aforesaid, has applied to the Department of Environmental Quality Engineering for license to

construct and maintain a timber pier; place and maintain a ramp and pile held floats; and install piles

and has submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon~~, has been given, as required by law, to the Board of Selectmen of the Town of Hingham;

Now said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, ~~subject to the approval of the Governor~~, authorizes and licenses the said

The Town of Hingham, subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to

construct and maintain a timber pier; place and maintain a ramp and pile held floats; and install piles in and over the waters of Hingham Harbor in the Town of Hingham and in accordance with the locations shown and details indicated on the accompanying DEQE License Plan No. 1709. (2 sheets).

The licensee shall construct and maintain a timber pier; install piles; and place and maintain ramp, float and finger float and described as follows.

A pile-supported pier having a finished deck width of 10 feet and finished deck elevation of 15.0 feet above the mean low water datum shall originate at the northeast corner of the existing solid fill wharf shown on Harbor and Land Commissioner's License No. 2756 and extend 40 feet in a seaward and northeasterly direction.

A ramp shall lead from the seaward end of said pier to a 16-foot by 48-foot pile-held float. Said float shall be placed and maintained a maximum of 104 feet seaward of licensee's mean high water shoreline.

An 8-foot by 35-foot pile-held finger float shall be placed and maintained on the west side of the aforesaid float.

The structures authorized hereby shall be limited to the following uses:

non-commercial docking and boating access to navigable waters.

Please see page 3 for additional conditions to this license.

Duplicate of said plan, numbered 1709 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

~~The amount of tide water displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said~~

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s. 40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEQE Division of Water Pollution Control.

License No 1709

~~by paying into the treasury of the Commonwealth~~

for each cubic yard so displaced, being the amount hereby assessed by ~~said Department~~.

Nothing in this License shall be so construed as to impair the legal rights of any person

This License shall be void unless the same and the accompanying plan are recorded within 60 days from the date hereof, in the Registry of Deeds for the District of the County of Plymouth

In Witness Whereof, said Department of Environmental Quality Engineering have hereunto set their hands this Twenty-first day of October in the year nineteen hundred and eighty-seven

Commissioner

Division Director Gary Clayton

Section Chief Charles J. Natale

Department of Environmental Quality Engineering

THE COMMONWEALTH OF MASSACHUSETTS

~~This license is approved in~~ consideration of the ~~payment into the treasury of the Commonwealth~~ by the said

~~of the further sum of~~

~~the amount determined~~ by the Governor as a just and equitable charge for rights and privileges ~~hereby granted in land of the Commonwealth.~~

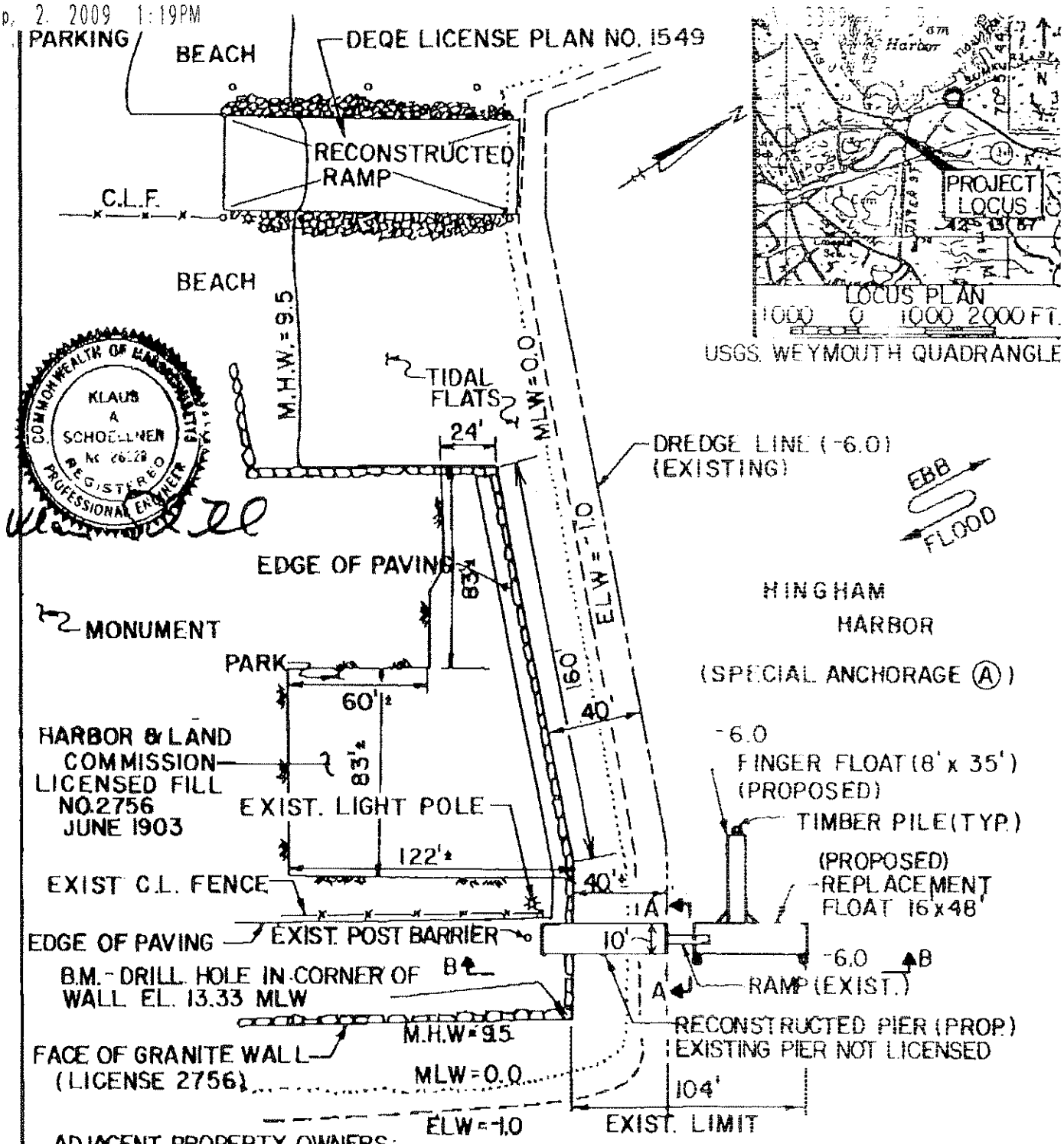
~~BOSTON.~~

~~Approved by the Governor.~~

~~Governor~~

A TRUE COPY — ATTEST
OCT 21 1987
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
Commonwealth of Massachusetts

Sep. 2. 2009 1:19PM



ADJACENT PROPERTY OWNERS:
1. THOMAS F. KEHOE III - 3 OTIS ST.
2. TRUSTEES OF HINGHAM BATHING BEACH 0 OTIS ST.
3. TOM O'BRIEN CHRYSLER PLYMOUTH INC. 2 SUMMER ST.

NOTE: PIER LOCATION TO BE MOVED LESS THAN 5' TO THE SOUTH TO AVOID EXIST. PILE LOCATIONS

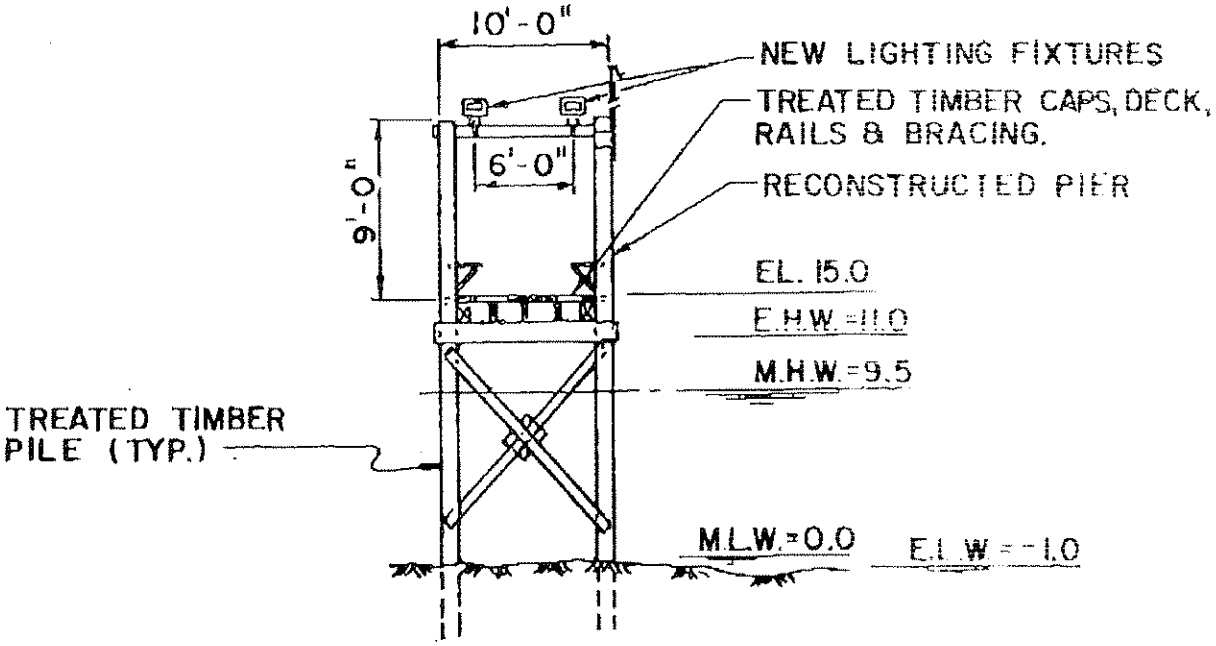
87W-103

DATUM: MLW=0.0

PLAN ACCOMPANYING PETITION OF:
TOWN OF HINGHAM
TO REPLACE & MAINTAIN A TOWN PIER AND TWO FLOATS
IN THE TIDEWATERS OF HINGHAM HARBOR
TOWN OF HINGHAM
COUNTY OF PLYMOUTH
STATE OF MASSACHUSETTS

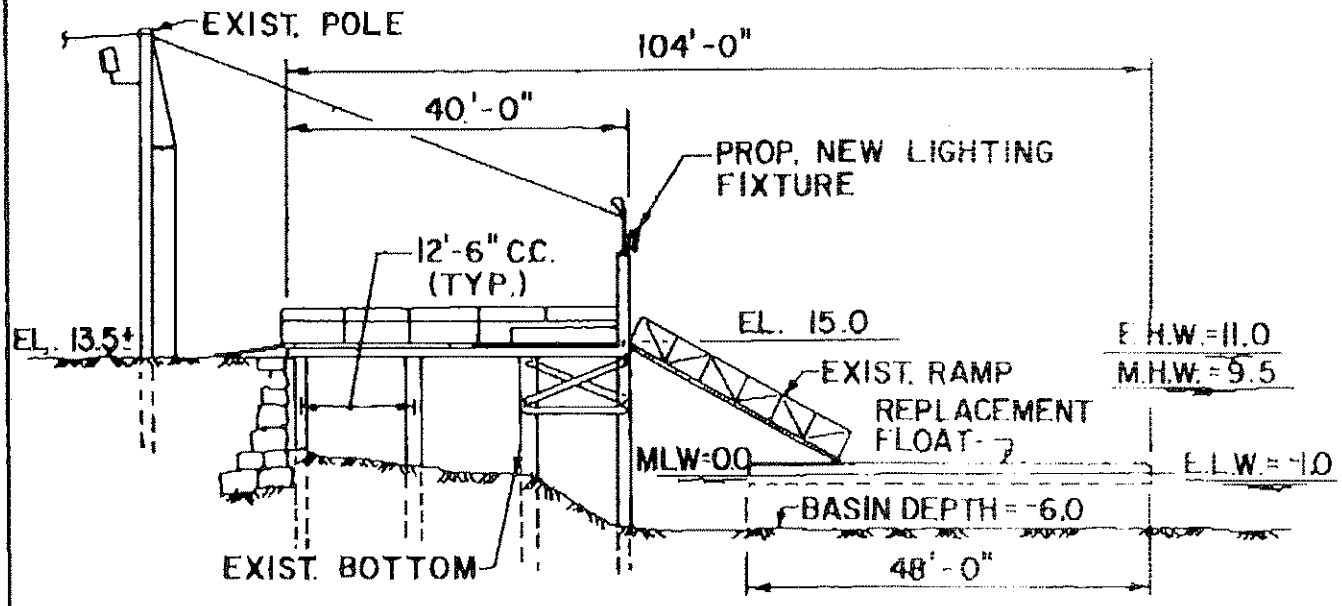
LICENSE PLAN NO. 1709
Approved by Department of Environmental Quality Engineering of Massachusetts

COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF



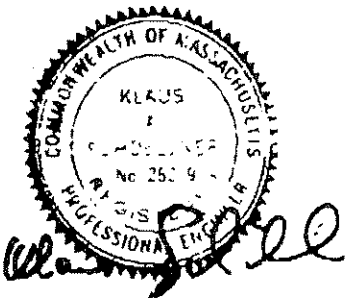
ELEVATION A-A

0 5 10 FT.



ELEVATION B-B

8 0 8 16 FT.



87W-103

LICENSE PLAN NO. 1709
Approved by Department of Environmental Quality Engineering
Date: OCT 21 1987

The Commonwealth of Massachusetts

No. 3140

Whereas,

Town of Hingham

of -- Hingham, -- in the County of -- Plymouth -- and Commonwealth aforesaid, has applied to the Department of Environmental Protection for license to -- maintain a solid filled pier as a waterfront park and to construct and maintain a ramp and float ----------

and has submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon~~, has been given, as required by law, to the Board of Selectmen -- of the -- Town -- of -- Hingham. ----------

NOW, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said ----------

Town of Hingham -- subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to -- maintain a solid filled pier as a waterfront park and to construct and maintain a ramp and float ----------

in and over the waters of -- Hingham Harbor -- in the -- Town -- of -- Hingham -- and in accordance with the locations shown and details indicated on the accompanying DEP License Plan No. 3140, (2 sheets). ----------

License No. 3140

The structures hereby authorized shall be limited to the following uses: to provide public access to waterfront open space for passive recreation purposes and to provide public access to navigable waters. ----------

Existing structures previously authorized under Port of Boston License No. 159 shall be maintained in accordance with the conditions of said license and plans. ----------

Please see page three for additional conditions to this license. ---------

Duplicate of said plan, number 3140 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s.40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEP, Division of Water Pollution Control.

9. In accordance with the public easement that exists by law on private tidelands, the licensee shall allow the public to use and to pass freely upon the area of the subject property lying between the high and low water marks, for the purposes of fishing, fowling, navigation, and the natural derivatives thereof. No restriction on the exercise of such public rights within the intertidal area shall be imposed unless otherwise expressly provided in this license.

10. Unless otherwise expressly provided by this license, the licensee shall not limit the hours of availability of any areas of the subject property designated for public passage, nor place any gates, fences, or other structures on such areas in a manner that would impede or discourage the free flow of pedestrian movement thereon.

License No. 3140

The amount of tide-water displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Town of Hingham -- by paying into the treasury of the Commonwealth -- zero dollars and zero cents ($0.00) -- for each cubic yard so displaced, being the amount hereby assessed by the said Department.

Nothing in this License shall be construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plans are recorded within 60 days from the date hereof, in the Registry of Deeds for the County of -- Plymouth.

IN WITNESS WHEREAS, said Department of Environmental Protection have hereunto set their hands this twenty-first day of October in the year nineteen hundred and ninety-two.

Commissioner

Director

Section Chief

Department of Environmental Protection

THE COMMONWEALTH OF MASSACHUSETTS

This License is approved in consideration of the payment into the treasury of the Commonwealth by the said -- Town of Hingham ----------

of the further sum of -- zero dollars and zero cents ($0.00) ---------

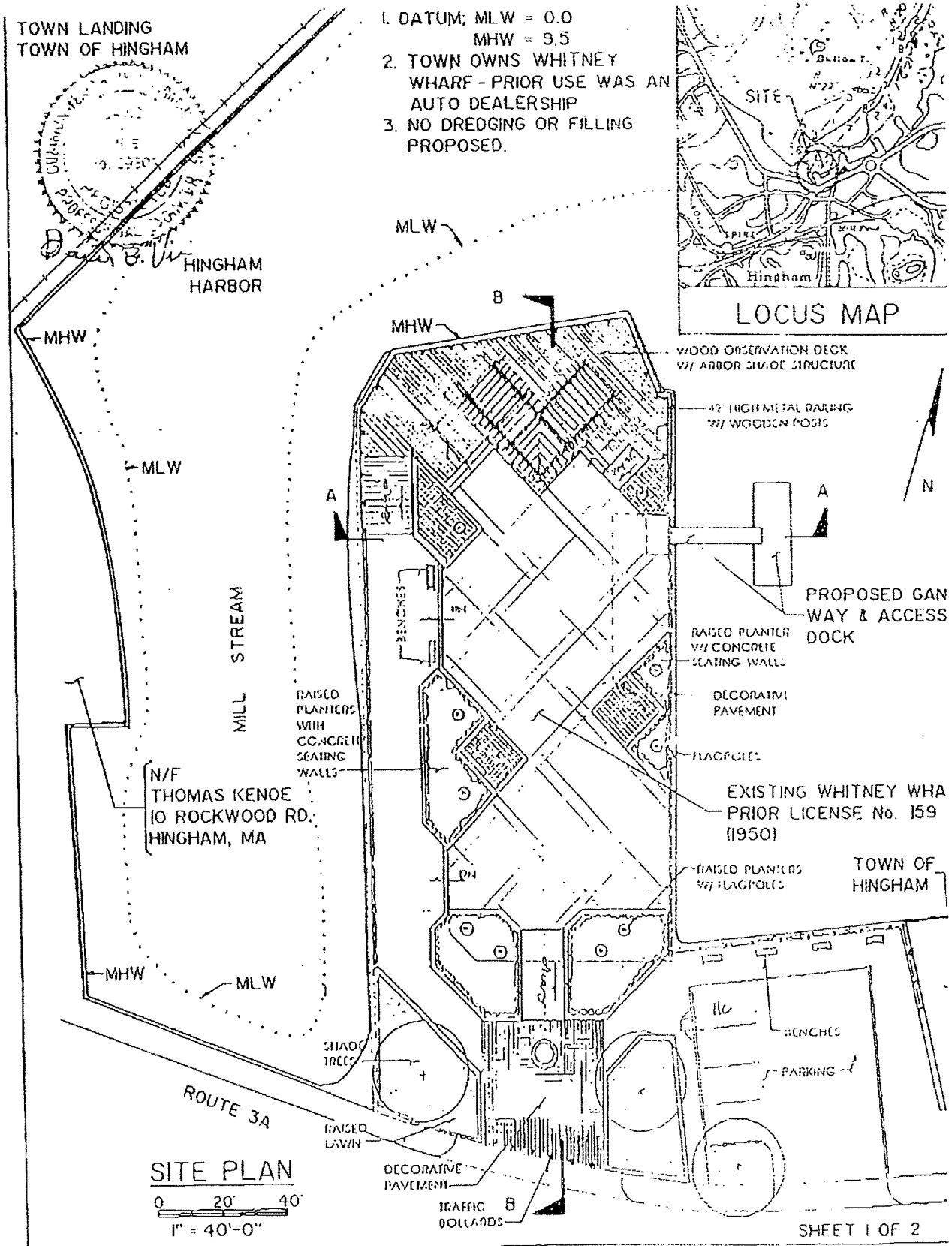
the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.

BOSTON

Approved by the Governor

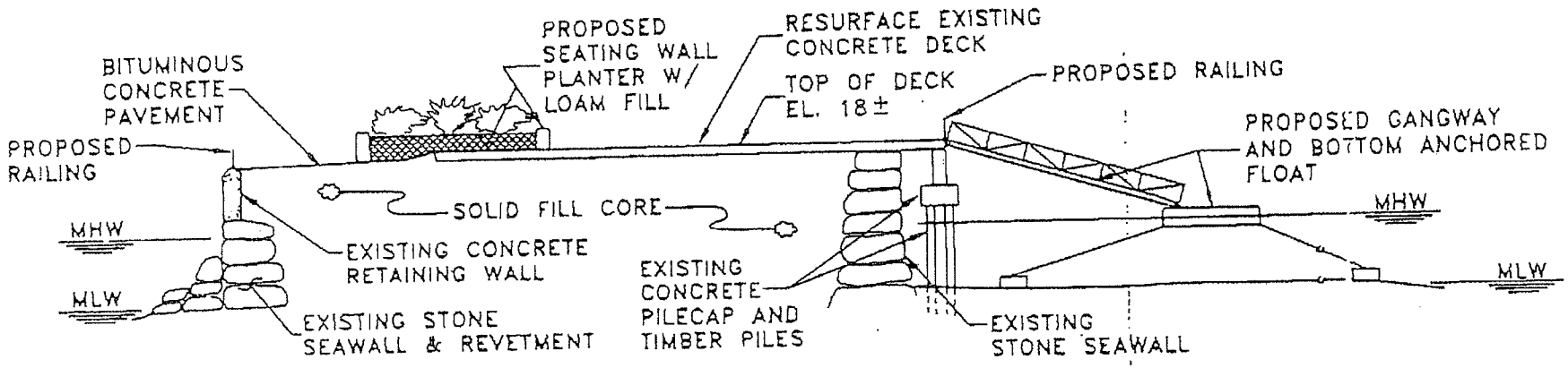
William F. Weld

Governor



PLAN ACCOMPANYING THE PETITION OF TOWN OF HINGHAM
TO MAINTAIN SOLID FILL PIER FOR WATER-FRONT PARK AND ACCESS DOCK
HINGHAM HARBOR
COUNTY OF PLYMOUTH, MA

LICENSE PLAN NO. 3140
Approved by Department of Environmental Protection of Massachusetts
COMMISSIONER
DIVISION DIRECTOR
SECTION CHIEF



SECTION A–A

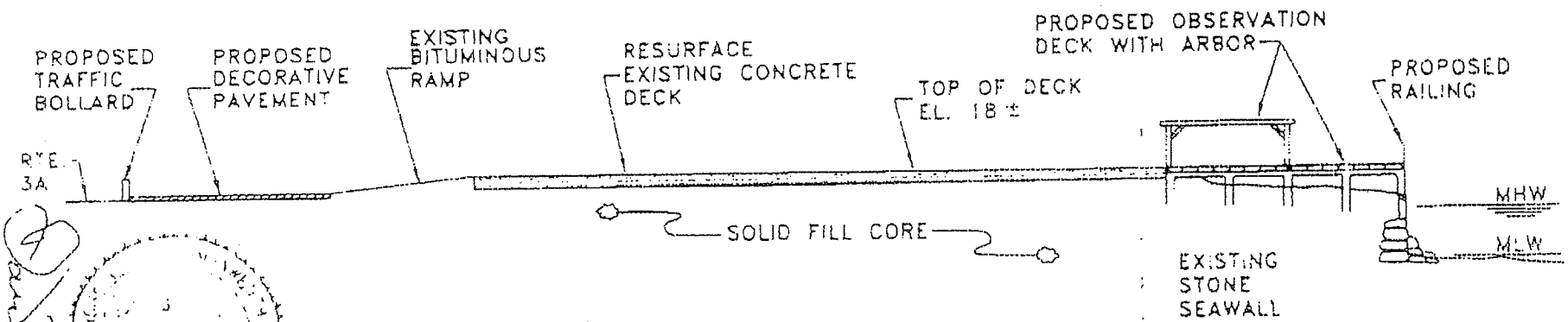
0 10' 20'

1" = 20'–0"

LICENSE PLAN NO. 3140

Approved by Department of Environmental Protection

Date: OCT 21 1992



SECTION B–B

0 15' 30'

1" = 30'–0"

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Metropolitan Boston – Northeast Regional Office

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

LAUREN A. LISS
Commissioner

RECEIVED
MAY 27 2003
TOWN OF HINGHAM
CONSERVATION COMMISSION

MAY 21 2003

Hingham Cove LLC
C/o Roderick Gaskell
12 Welby Road
New Bedford, MA 02745

RE: Waterways License Application No. W02-0472, License No. 9550
Hingham Harbor, Hingham, Plymouth County

Dear Applicant:

The Department of Environmental Protection has approved the enclosed referenced license authorizing you to perform certain activities pursuant to M.G.L. Chapter 91 and regulations 310 CMR 9.00. Any unauthorized substantial change in use or substantial structural alteration of any structure or fill authorized by this license shall render it void.

Pursuant to 310 CMR 9.17(1)(a) and 9.17(2), the Licensee may appeal this decision within twenty-one(21) days of the date of license issuance, by submitting a written request, by certified mail, for an adjudicatory hearing. Any notice of claim for an adjudicatory hearing must include the following information: the DEP Waterways Application File Number; the complete name, address and telephone number of the party filing the request; if represented by counsel, the name, address and telephone number of the attorney; a clear statement that a formal adjudicatory hearing is being requested; and a clear and concise statement of the specific objections to the Department's license decision, and the relief sought through the adjudicatory hearing, including, specifically, the changes desired in the final Waterways License.

Docket Clerk
Office of Administrative Appeals
Department of Environmental Protection
One Winter Street, 3rd Floor
Boston, MA 02108.

A copy of the Notice of Claim must be sent at the same time by certified mail or hand delivery to the applicant, the municipal official of the city or town where the project is located, and the issuing office of the DEP at:

James A. Sprague, Section Chief
Wetlands and Waterways Program
Department of Environmental Protection
205A Lowell Street
Wilmington, MA 01887

A) Contents of Hearing Request

Under 310 CMR 1.01(6)(b), the Notice of Claim must state clearly and concisely the facts that are the grounds for the request and the relief sought. Additionally, the request must state why the decision is not consistent with applicable laws and regulations.

Pursuant to 310 CMR 9.17(3), any Notice of Claim for an adjudicatory hearing must include the following information:

(a) the DEP Waterways Application File Number;
(b) the complete name, address, fax number and telephone number of the applicant;
(c) the address of the project;
(d) the complete name, address, fax number, and telephone number of the party filing the request and, if represented by counsel, the name, address, fax number, and phone number of the attorney;
(e) if claiming to be a person aggrieved, the specific facts that demonstrate that the party satisfies the definition of "person aggrieved" found in 310 CMR 9.02; a clear statement that a formal adjudicatory hearing requested;
(f) a clear statement of the facts which are the grounds for the proceedings, the specific objections to the DEP's written decision, and the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written decision; and
(g) a statement that a copy of the request has been sent to: the applicant and the municipal official of the city or town where the project is located.

B) Filing Fee and Address

A copy of the Notice of Claim along with a DEP Fee Transmittal Form and a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
P.O. Box 4062
Boston, Massachusetts 02211

The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or is granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Furthermore, this license must be recorded at the referenced County Registry of Deeds with 60 days from the date of license issuance or your license will be revoked. The Registry for your project is:

Plymouth County Registry of Deeds
(508) 830-9260

The work or change in use authorized by this license shall not commence until said license and plans are recorded, the Department has received written notification of the date, book and page number of record, or if the Department receives the enclosed Notification Form to this office.

Sincerely,

James A. Sprague
Section Chief
Wetlands and Waterways Program

cc: DEP/Waterways Regulation Program, Boston, w/enc.
Hingham Conservation Commission, w/enc.
Hingham Harbormaster, w/enc.

James A. Sprague, Section Chief
Division of Wetlands and Waterways
Department of Environmental Protection
205a Lowell Street
Wilmington, MA 01887

RE: Waterways Application No. W02-0472/License No. 9550

Dear Mr. Sprague:

This is to notify you that the referenced license was recorded on _____, book number_____, page number(s)_____.

Sincerely,

LICENSE VOID
IF NOT RECORDED
WITHIN 60 DAYS
OF ISSUANCE

The Commonwealth of Massachusetts

No. 9550

Whereas, Hingham Cove, LLC

of -- Hingham --, in the County of -- Plymouth -- and Commonwealth aforesaid, has applied to the Department of Environmental Protection for license to -- place and maintain eight (8) piles and maintain existing floats --

and has submitted plans of the same; and whereas due notice of said application has been given, as required by law, to the - Board of Selectmen -- of the -- Town of Hingham; ----------

NOW, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said

-- Hingham Cove, LLC --, subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to - place and maintain eight (8) piles and maintain existing floats --

in and over the waters of -- Hingham Harbor -- in the -- Town -- of -- Hingham -- and in accordance with the locations shown and details indicated on the accompanying DEP License Plan No. 9550, (4 sheets).

The structures hereby authorized shall be limited to the following uses: to provide a public recreational boating facility.

SPECIAL CONDITIONS

In accordance with any license condition, easement, or other public right of lateral passage that exists in the area of the subject property lying below the high water mark, the Licensee shall allow the public in the exercise of such rights to pass freely around all structures within such area.

Accordingly, the Licensee shall place and maintain, in good repair, a public access sign at each property line adjacent to the mean high water shoreline. Said signs, provided by the Department, and shall be posted immediately upon receipt. Nothing in this condition shall be construed as preventing the Licensee from excluding the public from portions of said structure(s) or property not intended for lateral passage.

In partial compensation for the private use of structures on tidelands, which interferes with the rights of the public to use such lands, the Licensee shall allow the public to pass on foot, for any purpose and from dawn to dusk, along the landward side of the existing wood ice breaker, within the crushed stone area as shown on the plans. This condition shall not be construed to prevent the Licensee from taking reasonable measures to discourage unlawful activity by users of the area intended for public passage, including but not limited to trespassing on adjacent private areas and deposit of refuse of any kind or nature in the water or on the shore. Further, the exercise by the public of free on-foot passage in accordance with this condition shall be considered a permitted use to which the limited liability provisions of M.G.L. c.21, s17c shall apply.

Existing structures previously authorized under H&L License No. 1186, PBA License No. 125 and DEP License No. 3080 shall be maintained in accordance with the conditions of the said licenses and plans.

Any berth authorized hereby shall be assigned in a fair and equitable manner, via waiting list or other appropriate, unbiased means.

Any berth authorized hereby shall be made available for transient use during periods of vacancy in excess of 24 hours.

The licensee may assign any berth authorized herein based upon vessel characteristics.

This license shall expire thirty (30) years from the date of issuance.

By written request of the licensee for an amendment, the Department may grant a renewal for a term not to exceed that authorized in the original license.

Please see page 4 for additional conditions to this license. --------->

Duplicate of said plan, number 9550 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform to all terms and conditions stated herein.

2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s.40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEP, Division of Water Pollution Control.

9. This License authorizes structure(s) and/or fill on:

X Private Tidelands. In accordance with the public easement that exists by law on private tidelands, the licensee shall allow the public to use and to pass freely upon the area of the subject property lying between the high and low water marks, for the purposes of fishing, fowling, navigation, and the natural derivatives thereof.

X Commonwealth Tidelands. The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, upon lands lying seaward of the low water mark. Said lands are held in trust by the Commonwealth for the benefit of the public.

___ a Great Pond of the Commonwealth. The Licensee shall not restrict the public's right to use and to pass freely upon lands lying seaward of the high water mark for any lawful purpose.

No restriction on the exercise of these public rights shall be imposed unless otherwise expressly provided in this license.

10. Unless otherwise expressly provided by this license, the licensee shall not limit the hours of availability of any areas of the subject property designated for public passage, nor place any gates, fences, or other structures on such areas in a manner that would impede or discourage the free flow of pedestrian movement thereon.

The amount of tidewater displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Hingham Cove, LLC -- by paying into the treasury of the Commonwealth -- two dollars and zero cents ($2.00)-- for each cubic yard so displaced, being the amount hereby assessed by said Department. (2.22 cu. yds. = $4.44)

Nothing in this License shall be so construed as to impair the legal rights of any person. This License shall be void unless the same and the accompanying plan are recorded within 60 days from the date hereof, in the Registry of Deeds for the County of -- Plymouth -------

IN WITNESS WHEREAS, said Department of Environmental Protection have hereunto set their hands this 21st day of May in the year two thousand and 2003

Commissioner Edward P. Kunce

Section Chief James A. Sullivan

Department of Environmental Protection

THE COMMONWEALTH OF MASSACHUSETTS

This license is approved in consideration of the payment into the treasury of the Commonwealth by the said -- Hingham Cove, LLC ---

-- the further sum of -- fourteen thousand three hundred and seventy dollars and zero cents ($14,370.00) ----------

the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.

BOSTON,

Approved by the Governor.

Mitt Romney

Governor

ABUTTERS LIST

MAP 51 LOT 3

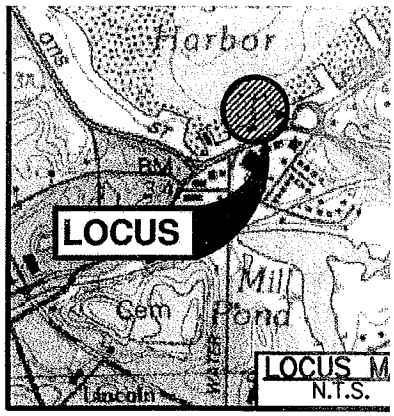
MOBILE OIL CORP.
c/o MOBIL SERVICE CO.
PROPERTY TAX DIVISION
P.O. BOX 290
DALLAS, TX 75221

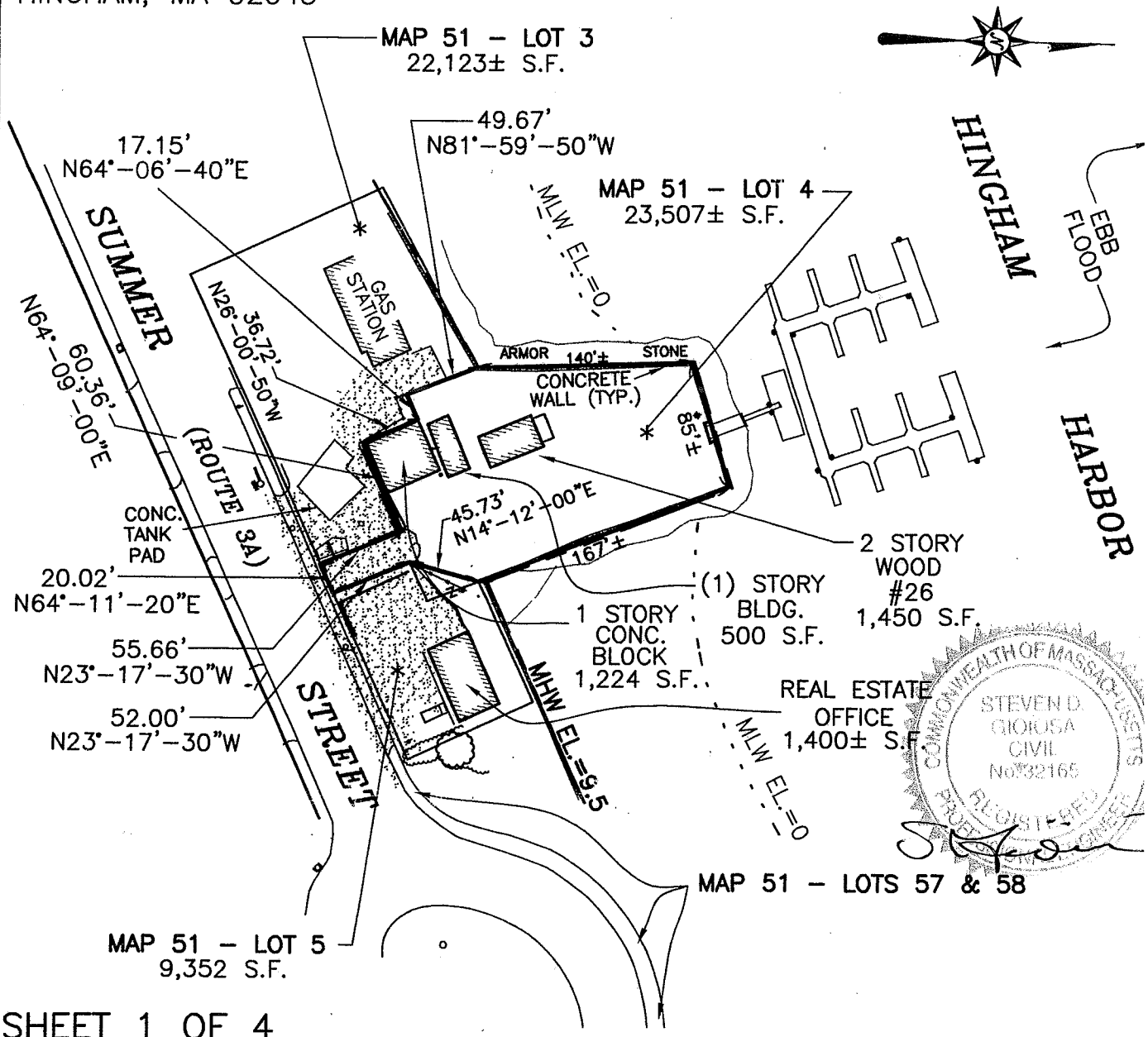
MAP 51 LOT 5

HELM REALTY TR.
c/o LUCAS & J. HELMBERGER
30 SUMMER STREET
HINGHAM, MA 02043

MAP 51 LOTS 57 & 58

TOWN OF HINGHAM RECREATION
210 CENTRAL STREET
HINGHAM, MA 02043





COMMONWEALTH OF MASSACHUSETTS
STEVEN D. GIORSA
CIVIL
No. 32165
REGISTERED PROFESSIONAL ENGINEER

SHEET 1 OF 4

TITLE SHEET

FEBRUARY 11, 2002

PLAN TO ACCOMPANY PETITION OF HINGHAM COVE, LLC TO MAKE IMPROVEMENTS TO EXISTING FLOAT SYSTEM IN HINGHAM HARBOR, TOWN OF HINGHAM, PLYMOUTH COUNTY, MASSACHUSETTS.

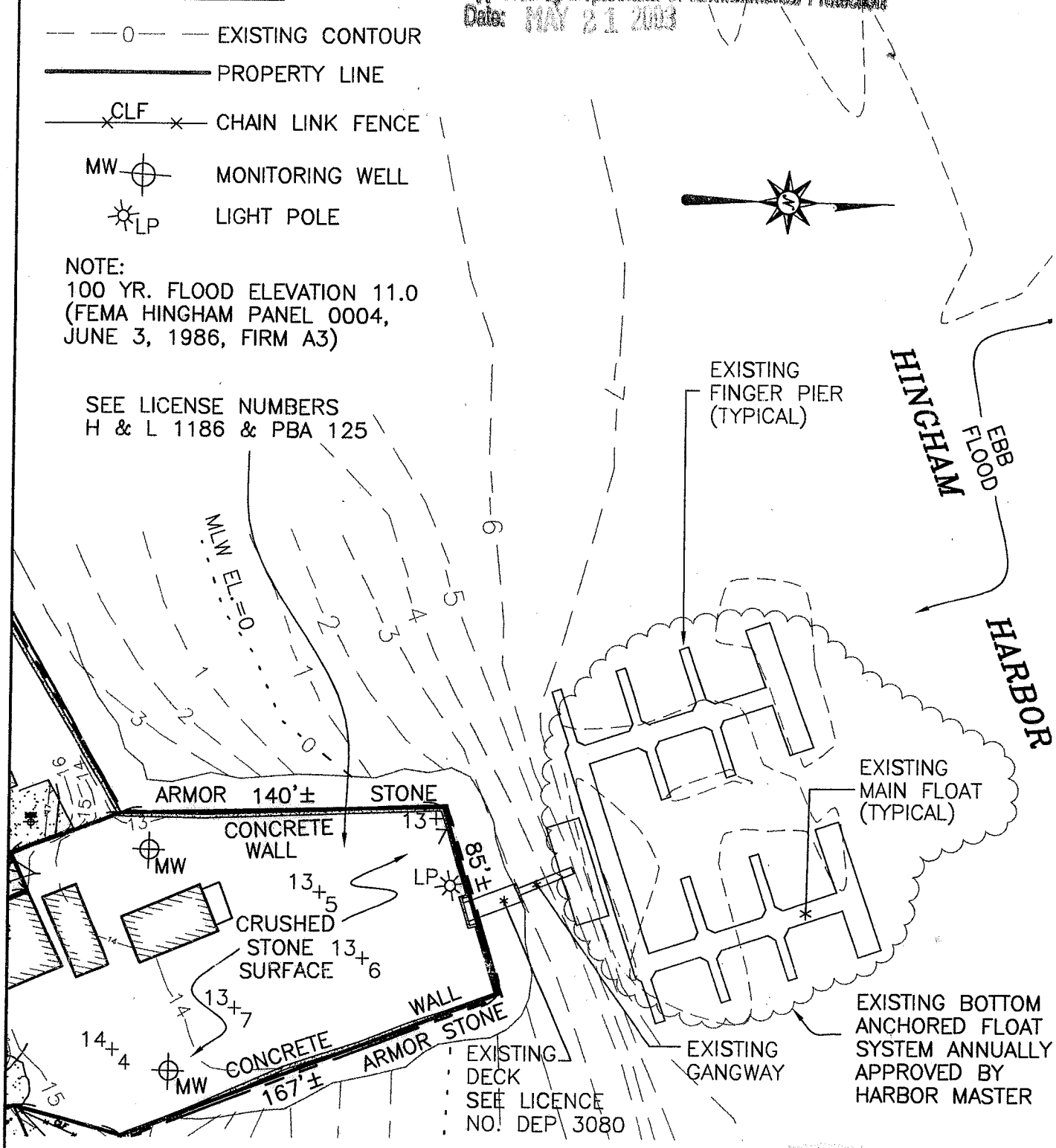
LICENSE PLAN NO. 9550
Approved by Department of Environmental Protection of Massachusetts
Edward P. Kunce
James C. Smyer
MAY 21 2002

LICENSE PLAN NO. 9550
Approved by Department of Environmental Protection
Date: MAY 21 2003

LEGEND

- EXISTING CONTOUR
- PROPERTY LINE
- CLF CHAIN LINK FENCE
- MW MONITORING WELL
- LP LIGHT POLE

NOTE:
100 YR. FLOOD ELEVATION 11.0
(FEMA HINGHAM PANEL 0004,
JUNE 3, 1986, FIRM A3)



SHEET 2 OF 4

EXISTING CONDITIONS

FEBRUARY 11, 2002

PLAN TO ACCOMPANY PETITION OF
HINGHAM COVE, LLC
TO MAKE IMPROVEMENTS TO EXISTING
FLOAT SYSTEM IN HINGHAM HARBOR,
TOWN OF HINGHAM, PLYMOUTH
COUNTY, MASSACHUSETTS.

COMMONWEALTH OF MASSACHUSETTS
STEVEN D. GIOIOSA
CIVIL
No. 32165
REGISTERED PROFESSIONAL ENGINEER

0' 60' 120' 180'

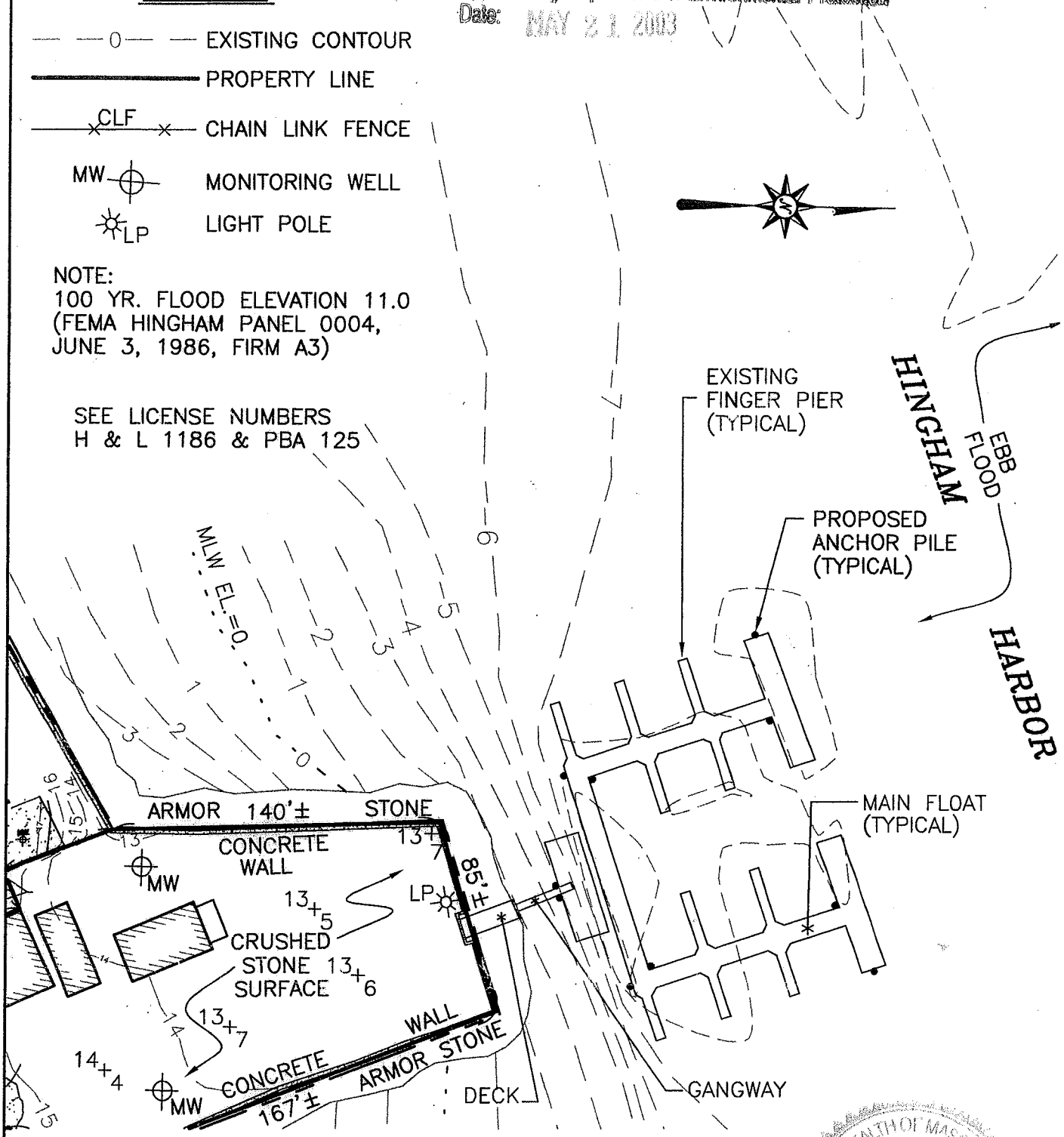
LICENSE PLAN NO. 9550
Approved by Department of Environmental Protection
Date: MAY 21 2003

LEGEND

- EXISTING CONTOUR
- PROPERTY LINE
- CHAIN LINK FENCE
- MONITORING WELL
- LIGHT POLE

NOTE:
100 YR. FLOOD ELEVATION 11.0
(FEMA HINGHAM PANEL 0004,
JUNE 3, 1986, FIRM A3)

SEE LICENSE NUMBERS
H & L 1186 & PBA 125



SHEET 3 OF 4

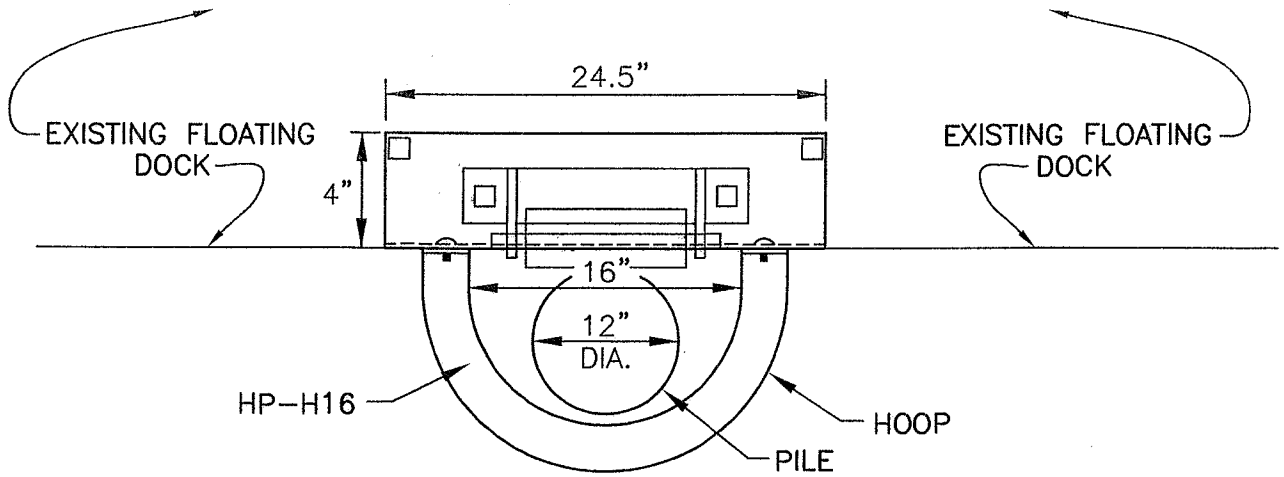
PROPOSED CONDITIONS

FEBRUARY 11, 2002

PLAN TO ACCOMPANY PETITION OF
HINGHAM COVE, LLC
TO MAKE IMPROVEMENTS TO EXISTING
FLOAT SYSTEM IN HINGHAM HARBOR,
TOWN OF HINGHAM, PLYMOUTH
COUNTY, MASSACHUSETTS.

COMMONWEALTH OF MASSACHUSETTS
STEVEN D GIOIOSA
CIVIL
No 32165
REGISTERED PROFESSIONAL ENGINEER

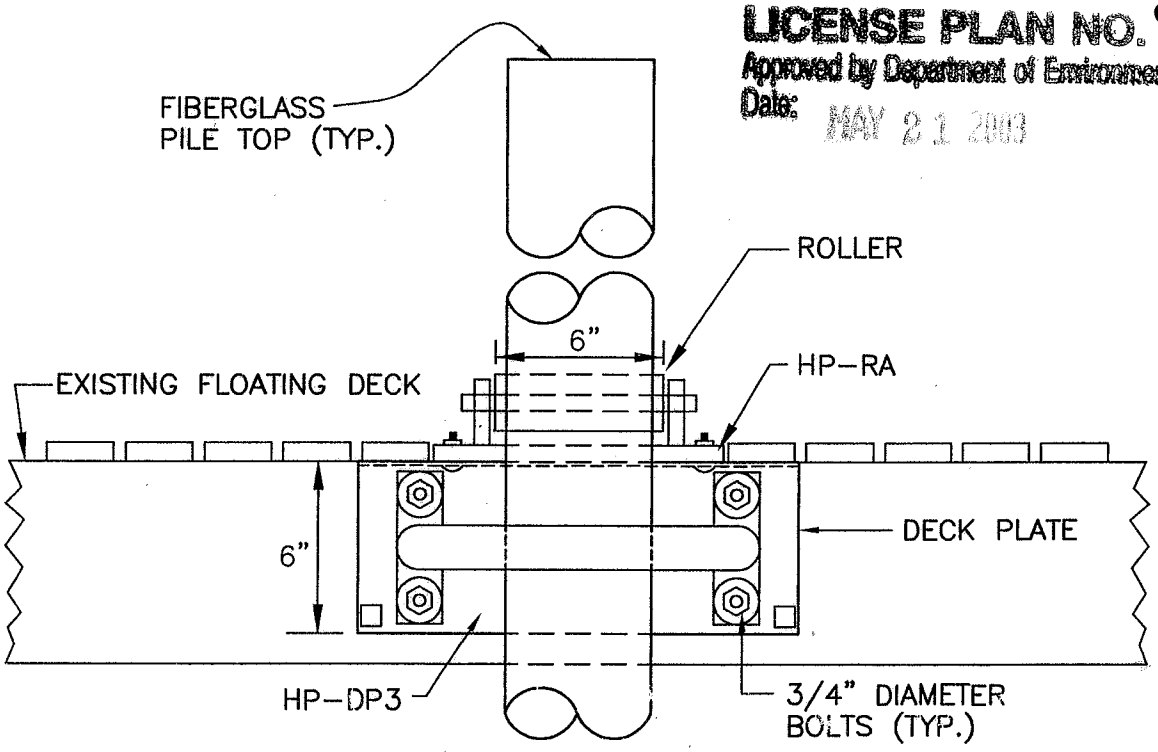
0' 60' 120' 180



PLAN VIEW – PILE HOOP

NOT TO SCALE

LICENSE PLAN NO. 9550
Approved by Department of Environmental Protection
Date: MAY 21 2003



ELEVATION – PILE HOOP

NOT TO SCALE

NOTES:
1. ALL WOOD TO BE (CCA) PRESERVATIVE TREATED.
2. 12" DIAMETER WOOD PILES TO BE DRIVEN A MINIMUM OF 15' BELOW GRADE OR TO REFUSAL.

SHEET 4 OF 4
DETAIL SHEET
FEBRUARY 11, 2002
PLAN TO ACCOMPANY PETITION OF
HINGHAM COVE, LLC

COMMONWEALTH OF MASSACHUSETTS
STEVEN D. BIGIOSA
(CIVIL)
No. 32165
REGISTERED PROFESSIONAL ENGINEER

The Commonwealth of Massachusetts

No. 3080

Whereas,

Roger Merrill

of -- Hingham, -- in the County of -- Plymouth -- and Commonwealth aforesaid, has applied to the Department of Environmental Protection for license to -- maintain a pier and ramp ----------

and has submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon,~~ has been given, as required by law, to the -- Board of Selectmen -- of the -- Town -- of -- Hingham. ----------

NOW, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said ----------

Roger Merrill -- subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to -- maintain a pier and ramp -----

in and over the waters of -- Hingham Harbor -- in the -- Town -- of -- Hingham -- and in accordance with the locations shown and details indicated on the accompanying DEP License Plan No. 3080, (1 sheet). ----------

The structures hereby authorized shall be limited to the following use: to provide a public recreational boating facility. ----------

The ramp authorized hereby leads to a bottom-anchored float system. The licensee shall apply for and obtain an annual Chapter 91, Section 10A permit from the local harbormaster or other appropriate local official to maintain said float system. ----------

Existing structures previously authorized under H&L License No. 1186 and PBA License No. 125 shall be maintained in accordance with the conditions of the said licenses and plans. ----------

This license will expire ninety-nine(99) years from the date of the license issuance. ----------

Please see page three for additional conditions to this license. -------

Duplicate of said plan, number 3080 is on file in the office of said Department, and original of said plan accompanies this License, and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This license is granted upon the expressed condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this Waterways License void.

4. This Waterways License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This license may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this Waterways License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof.

7. This Waterways License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, G.L. Chapter 131, s.40.

8. This Waterways License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the DEP Division of Water Pollution Control.

Recorded on Oct. 28, 1992
Book No. 11371 Page 84

The amount of tide-water displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Roger Merrill -- by paying into the treasury of the Commonwealth -- two dollars and zero cents ($2.00) -- for each cubic yard so displaced, being the amount hereby assessed by the said Department. -- (0.0 cu. yds. = $0.00) ----------

Nothing in this License shall be construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying plans are recorded within 60 days from the date hereof, in the Registry of Deeds for the County of Plymouth. ----------

IN WITNESS WHEREAS, said Department of Environmental Protection have hereunto set their hands this third day of September in the year nineteen hundred and ninety-two.

Commissioner _____

Director _____

Section Chief _____

Department of Environmental Protection

THE COMMONWEALTH OF MASSACHUSETTS

This License is approved in consideration of the payment into the treasury of the Commonwealth by the said -- Roger Merrill ----------

of the further sum of -- three hundred, four dollars and zero cents ($304.00) ----------

the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.

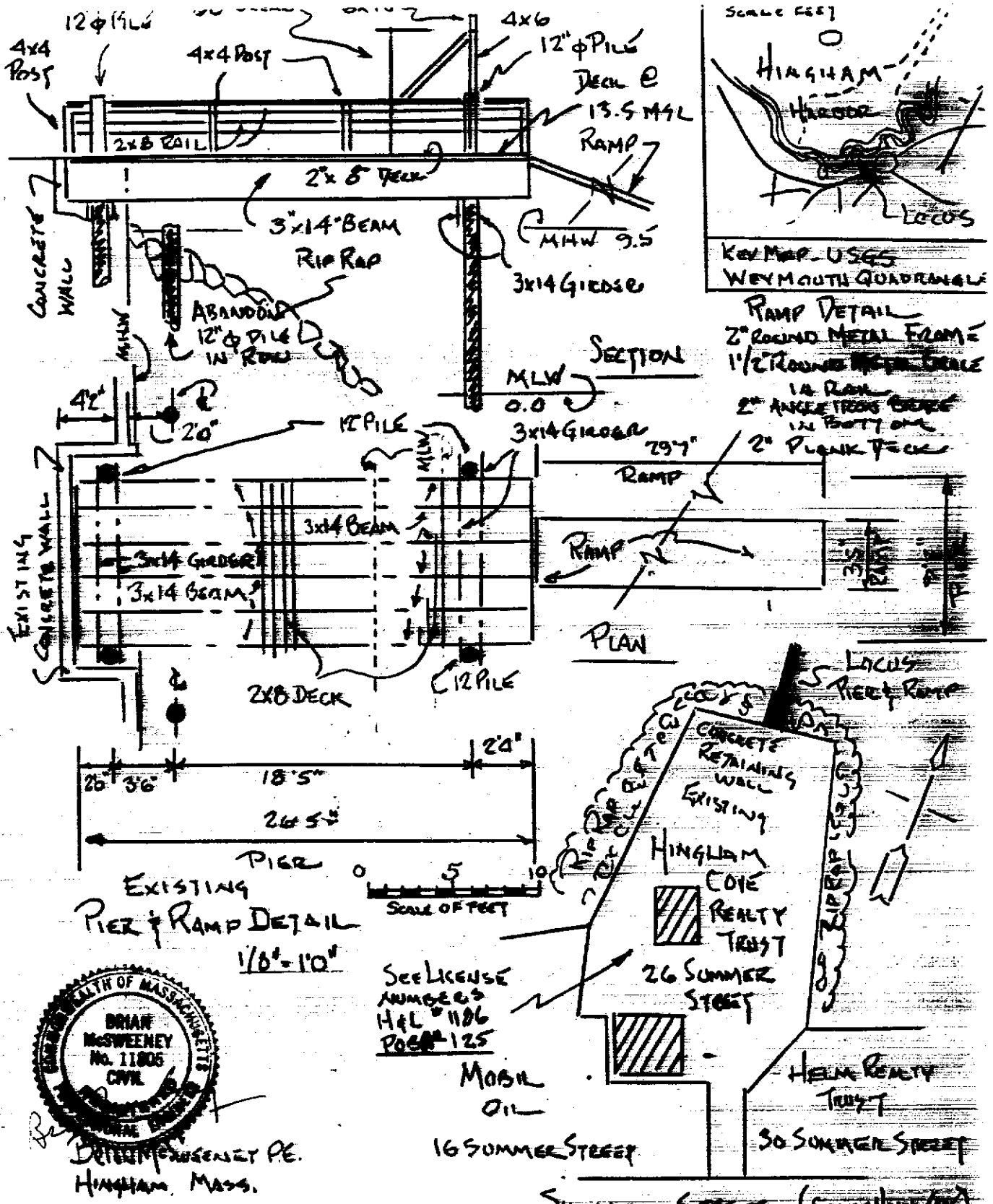
BOSTON

Approved by the Governor

Governor

A TRUE COPY — ATTEST
Kathleen Whelan
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Commonwealth of Massachusetts

Recorded on Oct. 28, 1992
Book No. 11371 Page 84



Plan Accompanying Petition of First Quality Marine: Roger Merrill To Maintain Existing Ramp & Pier Hingham Harbor Hingham, Mass.

Street Address - 26 Summer Street

Sheet 1 of 1

LICENSE PLAN NO. [redacted]

Approved by Department of Environmental Protection of Massachusetts

COMMISSIONER

DIRECTOR

SECTION CHIEF

SEP 03 1992

DATE

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

February 15th 2022

Massachusetts Department of Fish and Game and the Town of Hingham
c/o Michael E. Count, Foth Infrastructure and Environment, LLC
15 Creek Road
Marion, MA, 02738

RE: ISSUANCE OF CHAPTER 91 WATERWAYS LICENSE No. 15470
0 Otis Street, Filled and Flowed Tidelands of Hingham Harbor, Hingham, Plymouth County

Dear Mr. Count:

The Department of Environmental Protection hereby issues the above-referenced Waterways license, enclosed, authorizing the Licensee to perform certain activities pursuant to M.G.L. c. 91, the Public Waterfront Act and its regulations 310 CMR 9.00. Any change in use or alteration of any structure or fill not authorized by this license shall render this license void.

No work shall be undertaken until the License and accompanying Mylar plans have been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property.

RECORDING OF THE LICENSE

This License must be recorded at the Plymouth Registry of Deeds or, if registered land, with the Land Registration Office within sixty (60) days from the date of license issuance. In the case of recorded land, the License shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the project is located. In the case of the registered land, the License shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the project is located. **Failure to record this license within sixty (60) days of the date of issuance will render this license void pursuant to 310 CMR 9.18.**

A Notification of Waterways License Recordation Form has been enclosed for your use. Failure to notify the Department of the recording of this license is a violation of 310 CMR 9.00 and is subject to enforcement action by the Department.

Waterways License No. 15470
0 Otis Street, Flowed Tidelands of Hingham Harbor, Hingham, Plymouth

CERTIFICATE OF COMPLIANCE
Pursuant to 310 CMR 9.19, once the licensed project is complete, the Licensee must file a Request for a Certificate of Compliance form, BRP WW05, within sixty (60) days of completion but in no event later than five (5) years from the License issuance date, or any extension thereof, in accordance with 310 CMR 9.19(1). The license for any project for which such a request is not filed and certificate issued may be revoked pursuant to 310 CMR 9.26.

Please contact Jerome Grafe of the Waterways Regulation Program, at Jerome.Grafe@mass.gov if you have any questions.

Sincerely,

Daniel J. Padien
Program Chief
Waterways Regulation Program

cc: Doug Cameron, Massachusetts Department of Fish and Game
Town Administrator, Town of Hingham
Town of Hingham Board of Selectmen
Town of Hingham Planning Board
Town of Hingham Conservation Commission
Town of Hingham Harbormaster

Enclosures: Waterways License #15470
Notification of Waterways License Recordation Form
Signage Sample

Program Coordinator
Department of Environmental Protection
Waterways Regulation Program
1 Winter Street, 5th Floor
Boston, MA 02108
dep.waterways@mass.gov

RE: NOTIFICATION OF RECORDING CHAPTER 91 WATERWAYS LICENSE №: 15470
0 Otis Street, Hingham, Plymouth County

This is to notify you that the above referenced Waterways License and accompanying Mylar License Plans were duly recorded with the appropriate Registry of Deeds/Land Court for this project location and to provide your Office with the following recordation information.

Date Recorded: _____

County Registry of Deeds/ Land Court: _____

Book Number _____, **Page Number(s)** _____ **and**

Plan Book Number _____ ____, **Page Number(s)** _____

Sincerely,

_____
Chapter 91 Waterways Licensee or Designee
(print and sign name)

LICENSE VOID IF NOT RECORDED WITHIN 60 DAYS OF ISSUANCE

SIGNAGE SPECIFICATIONS
OF THE MASSDEP WATERWAYS REGULATION PROGRAM

Unless otherwise expressly provided in a license or other written authorization of the Department, all required signage shall conform to the following specifications, as applicable:

- Signs shall utilize durable materials and methods of construction and maintained in good condition.
- Signs shall be a minimum of 5" x 10" (50 square inches) in size. Letter height shall be a minimum of ½".
- The MassDEP Chapter 91 Waterways License number shall be displayed on all signs (as applicable).
- Each sign shall indicate that public passage is allowed for on-foot lateral access along the shoreline for the purpose of fishing, fowling, navigation and strolling.
- Signs shall be posted on both sides of the pile-supported structure, at the mean high water shoreline (see Special Conditions).

An example of an acceptable sign is provided below.

Note to Licensee: *these specifications do not need to be recorded with the License at the Registry of Deeds.*

The Commonwealth of Massachusetts

No. 15470

Whereas, The Massachusetts Department of Fish and Game and the Town of Hingham

in the County of -- Plymouth -- and Commonwealth aforesaid, have applied to the Department of Environmental Protection for license to – dredge, and construct and maintain a boat ramp and docking structures as further described below ----------

and have submitted plans of the same; and whereas due notice of said application, ~~and of the time and place fixed for a hearing thereon,~~ has been given, as required by law, to the -- Municipal Official -- of the -- Town of Hingham; ----------

Now, said Department, having heard all parties desiring to be heard, and having fully considered said application, hereby, subject to the approval of the Governor, authorizes and licenses the said

Massachusetts Department of Fish and Game and Town of Hingham -- subject to the provisions of the ninety-first chapter of the General Laws, and of all laws which are or may be in force applicable thereto, to -- improve and maintain the existing boat ramp involving improvement and maintenance dredging of 5,194 square feet to a depth of -9.0 feet Mean Low Water (MLW) and 2,028 square feet to a depth of -6.0 feet MLW, respectively, with a maximum 1.0' overdredge (1,015 cubic yards), and construction of a 30 foot wide by 124 foot long concrete boat ramp with a 30-long by 15-foot wide concrete propellor wash pad, both with a crushed stone base, 10-foot wide by 180-foot long riprap armoring along both sides of the ramp and scour pad, a pile-supported 8-foot wide by 10-foot long deck, 8-foot wide by 130-foot long pier (approximately 87.7 feet seaward of MHW), 4-foot wide by 50-foot long gangway, and a 640 square foot seasonal pile-held float system ----------

in and on filled and flowed tidelands of -- Hingham Harbor -- at 0 Otis Street -- in the Town of Hingham -- and in accordance with the locations shown and details indicated on the accompanying Draft License Plan No. 15470 dated September 30, 2021 and signed and sealed by Carlos G. Pena, P.E. 36206 on October 14, 2021 (7 Sheets).

Specific Licenses and/or Legislative Authorizations issued previously at the project site include: Department of Environmental Quality Engineering License No. 1549 issued October 22, 1986, which is hereby superseded by the subject License, and DEP Permit No. 12523 issued on July 30, 2009. The authorized structures and/or fill shall be maintained in accordance with the terms and conditions of said Licenses and plans, or as modified herein.

The fill and structures authorized hereby shall be limited to the following uses: public docking and access to navigable waters.

This License is valid for an unlimited term pursuant to 310 CMR 9.15(1)(c).

The dredge permit incorporated within this License is valid for a term of five (5) years from the date of issuance. Maintenance dredging is not authorized.

This License/Permit is subject to the following Special Conditions and Standard Conditions

SPECIAL WATERWAYS LICENSE CONDITIONS

1. Any structural alteration or change in use, or any other modification from that explicitly authorized herein and contained on the License Plans, shall require prior review of the Department to determine whether additional licensing is required pursuant to M.G.L. Chapter 91 and the Waterways Regulations at 310 CMR 9.00.

2. Unless specifically authorized by the Massachusetts Division of Marine Fisheries, dredging and/or silt-producing activities, including but not limited to the demolition and construction of the boat ramp, are prohibited between February 15 and June 30, except within the area fully confined by the coffer dam. Installation and dewatering of said coffer dam shall be completed prior to February 15 and removal of the coffer dam shall be completed during low tide, and after all construction has been completed and turbidity levels within the coffer dam have returned to ambient levels outside the structure.

3. The Licensee shall allow the public to pass on foot, free of charge, from dawn to dusk, for any lawful purpose within the area of the subject property lying seaward of the present mean high water mark. These conditions shall not be construed to prevent the Licensee from taking reasonable measures to discourage unlawful activity by users of the area intended for public passage, including but not limited to trespassing on adjacent private upland areas, depositing refuse of any kind or nature in the water and shore, and from excluding the public from portions of said structure(s) or property not intended for pedestrian passage. Further, the exercise by the public of free on-foot passage in accordance with this condition shall be considered a permitted use to which the limited liability provisions of M.G.L. Chapter 21 § 17C shall apply. The intent

of this condition is to provide access in and across the intertidal zone located on-site for activities such as strolling and viewing of the waterway in addition to the public rights of fishing, fowling, and navigation which already exist in private tidelands. Said allowance of passage shall commence upon issuance of the license.

4. The Licensee shall place and maintain, in good repair, two (2) public access signs which meet the minimum Department sign specifications at the north and south ends of the docking facility at the Mean High Water Line, which inform that public access is permitted in the intertidal zone. The signs shall be installed, and photo documentation shall be submitted to the Department within sixty (60) days of completion of construction and prior to the use of the docking structures.

5. The use of unencapsulated polystyrene as part of any permanent or temporary component of the structures and/or fill authorized herein is prohibited.

6. All seasonal structures removed from the water shall be stored landward of the Mean High Water Line and in conformance with any applicable local, state or federal requirements.

7. All structures authorized under this License shall meet the Engineering and Construction Standards pursuant to 310 CMR 9.37.

8. The Licensee shall maintain all structures in accordance with the terms and conditions specified herein or this License may expire, pursuant to 310 CMR 9.25(1)(c).

9. The Licensee shall allow agents of the Department to enter the project site to verify compliance with the conditions of this License.

10. All work authorized herein shall be completed within five (5) years of the date of license issuance. Said construction period may be extended by the Department for one (1) or more one (1) year periods without public notice, provided that the Licensee submits to the Department thirty (30) days prior to the end of the construction period, a written request to extend the period and provides adequate justification for said extension.

11. The Licensee shall request in writing that the Department issue a Certificate of Compliance within sixty (60) days completion of the licensed project, but in no event later than five (5) years from the date of License issuance, or any extension thereof, in accordance with 310 CMR 9.19(1). The request shall be accompanied by a certification by a registered professional engineer licensed to do business in the Commonwealth that the project was completed in accordance with the plans, specifications, and conditions of this License.

SPECIAL WATERWAYS DREDGE PERMIT CONDITIONS:

1. Unless specifically authorized by the Massachusetts Division of Marine Fisheries, dredging and/or silt-producing activities, including but not limited to the demolition and construction of the boat ramp, are prohibited between February 15 and June 30, except within the area fully confined by the coffer dam. Installation and dewatering of said coffer dam shall be completed prior to February 15 and removal of the coffer dam shall be completed during low tide, and after all construction has been completed and turbidity levels within the coffer dam have returned to ambient levels outside the structure.

2. The Permittee shall inform the Department in writing a minimum of three (3) days before commencing any dredging activities.

3. After completion of the dredging authorized herein, maintenance dredging is not authorized.

See pages 5 and 6 for additional conditions to this License

Duplicate of said plan, License No. 15470 is on file in the office of the Department, and original of said plan accompanies this License and is to be referred to as a part hereof.

STANDARD WATERWAYS LICENSE CONDITIONS

1. Acceptance of this Waterways License shall constitute an agreement by the Licensee to conform with all terms and conditions stated herein.

2. This License is granted upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Licensee prior to the commencement of any activity or use authorized pursuant to this License.

3. Any change in use or any substantial structural alteration of any structure or fill authorized herein shall require the issuance by the Department of a new Waterways License in accordance with the provisions and procedures established in Chapter 91 of the Massachusetts General Laws. Any unauthorized substantial change in use or unauthorized substantial structural alteration of any structure or fill authorized herein shall render this License void.

4. This License shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This License may be revoked after the Department has given written notice of the alleged noncompliance to the Licensee and those persons who have filed a written request for such notice with the Department and afforded them a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways License void and the Commonwealth may proceed to remove or cause removal of any structure or fill authorized herein at the expense of the Licensee, its successors and assigns as an unauthorized and unlawful structure and/or fill.

5. The structures and/or fill authorized herein shall be maintained in good repair and in accordance with the terms and conditions stated herein and the details indicated on the accompanying license plans.

6. Nothing in this License shall be construed as authorizing encroachment in, on or over property not owned or controlled by the Licensee, except with the written consent of the owner or owners thereof. The Licensee stated that the Town of Hingham was the owner at the time of application.

7. This License is granted subject to all applicable Federal, State, County, and Municipal laws, ordinances and regulations including but not limited to a valid final Order of Conditions issued pursuant to the Wetlands Protection Act, M.G.L. Chapter 131, §40.

8. This License is granted upon the express condition that the use of the structures and/or fill authorized hereby shall be in strict conformance with all applicable requirements and authorizations of the MassDEP.

9. This License authorizes structure(s) and/or fill on:

_____Private Tidelands - In accordance with the public easement that exists by law on Private Tidelands, the Licensee shall allow the public to use and to pass freely upon the area of the subject property lying between the high and low water marks, for the purposes of fishing, fowling, navigation, and the natural derivatives thereof.

X Commonwealth Tidelands - The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, upon lands lying seaward of the low water mark. Said lands are held in trust by the Commonwealth for the benefit of the public.

_____Great Pond of the Commonwealth - The Licensee shall not restrict the public's right to use and to pass freely upon lands lying seaward of the high water mark for any lawful purpose.

_____Navigable River or Stream - The Licensee shall not restrict the public's right to use and to pass freely, for any lawful purpose, in the waterway.

No restriction on the exercise of these public rights shall be imposed unless otherwise expressly provided in this License.

10. Unless otherwise expressly provided by this License, the Licensee shall not limit the hours of availability of any areas of the subject property designated for public passage, nor place any gates, fences, or other structures on such areas in a manner that would impede or discourage the free flow of pedestrian movement thereon.

STANDARD WATERWAYS DREDGE PERMIT CONDITIONS

1. Acceptance of this Waterways Permit shall constitute an agreement by the Permittee to conform to all terms and conditions stated herein.

2. Any modification from that explicitly authorized herein and contained on the Waterways Permit Plans shall require prior review of the Department to determine whether additional authorization is required pursuant to M.G.L. Chapter 91, the Public Waterfront Act, and the Waterways Regulations at 310 CMR 9.00.

3. The Permittee shall inform the Department in writing at least three (3) days before commencing any authorized dredging or dredge material disposal.

4. This Waterways Permit is issued upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Permittee prior to the commencement of any activity hereby authorized.

5. This Waterways Permit shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This Permit may be revoked after the Department has given written notice of the alleged noncompliance to the Permittee, or his agent, and those persons who have filed a written request, with the Department, for such notice and have afforded the Permittee a reasonable opportunity to correct said noncompliance. Failure to correct noncompliance after the issuance of a written notice by the Department shall render this Permit void.

6. This Waterways Permit is issued subject to all applicable federal, state, county, and municipal laws, ordinances, by-laws, and regulations, including but not limited to, a valid Order of Conditions issued pursuant to the Wetlands Protection Act, M.G.L. Chapter 131, §40 and a valid Water Quality Certification issued pursuant 314 CMR 9.00.

7. This Waterways Permit is issued upon the express condition that dredging, transportation, and disposal of dredge material shall be in strict conformance with all applicable requirements and authorizations of the Department. Any subsequent maintenance dredging and transportation and disposal of dredge material during the term of this Waterways Permit shall be in strict conformance with all applicable requirements and authorizations of the Department.

8. Unless otherwise authorized in accordance with a Special Condition of this Waterways Permit, no maintenance dredging beyond the time authorized herein is permitted.

9. The dredging under this Permit shall be conducted as to cause no unnecessary obstruction of the free passage of vessels.

10. In conducting the dredging authorized, care shall be taken to cause no shoaling. If, however, any shoaling is caused, the Permittee shall, at his expense, remove the shoal areas. The Permittee shall pay all costs of supervision, and if at any time the Department deems necessary a survey or surveys of the area dredged, the Permittee shall pay all costs associated with such work.

11. Nothing in this Permit shall be construed as to impair the legal rights of any persons or authorize dredging on land not owned by the Permittee without consent of the owner(s) of such property.

12. The Permittee shall assume and pay all claims and demands arising in any manner from the work authorized herein and shall save harmless and indemnify the Commonwealth of Massachusetts, its officers, employees, and agents from all claims, audits, damages, costs and expenses incurred by reason thereof.

13. Whosoever violates any provisions of this Permit shall be subject to a fine of twenty-five thousand dollars and zero cents ($25,000.00) per day for each day such violation occurs or continues, or by imprisonment for not more than one year, or both such fine and imprisonment; or shall be subject to civil penalty not to exceed twenty-five thousand dollars and zero cents ($25,000.00) for each day such violation occurs or continues.

14. In the event of any conflict between the Special Conditions and the Standard Conditions, the Special Conditions shall prevail.

The amount of tidewater displaced by the work hereby authorized has been ascertained by said Department, and compensation thereof has been made by the said -- Massachusetts Department of Fish and Game and Town of Hingham -- by paying into the treasury of the Commonwealth -- two dollars ($2.00) -- for each cubic yard so displaced, being the amount hereby assessed by said Department -- *exempt pursuant to 310 CMR 9.16(4)(a)*.

Nothing in this License shall be so construed as to impair the legal rights of any person.

This License shall be void unless the same and the accompanying Mylar plan are recorded within sixty (60) days from the date hereof, in the Registry of Deeds for -- the County of -- Plymouth ---

In witness whereas, said Department of Environmental Protection have hereunto set their hands this 15th day of February in the year 2022.

Commissioner _____

Program Chief _____

Department of Environmental Protection

THE COMMONWEALTH OF MASSACHUSETTS

This License is approved in consideration of the payment into the treasury of the Commonwealth by the said -- Massachusetts Department of Fish and Game and Town of Hingham -- the further sum of -- *exempt pursuant to 310 CMR 9.16(4)(a)* -- the amount determined by the Governor as a just and equitable charge for rights and privileges hereby granted in the land of the Commonwealth.

BOSTON,

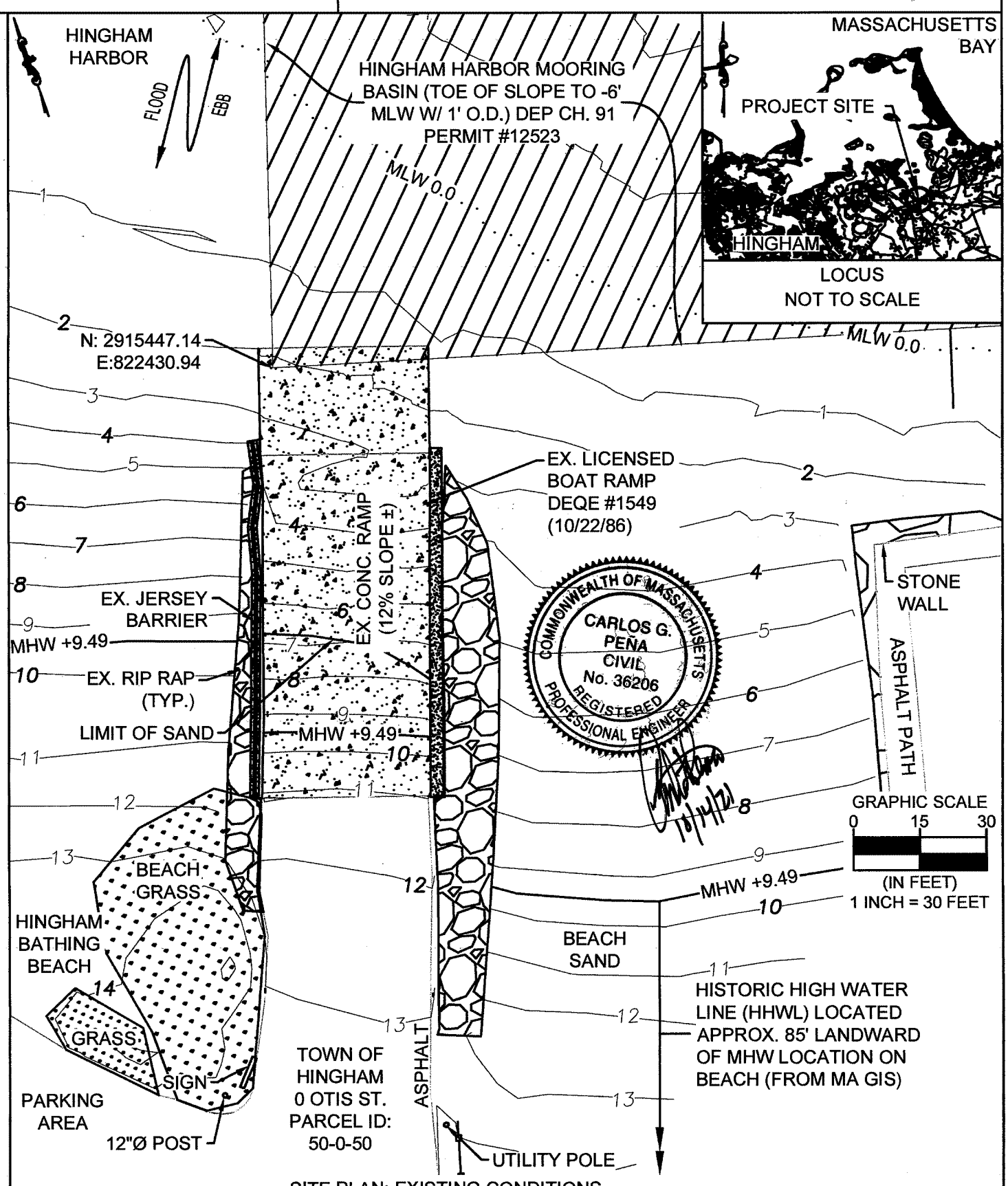
Approved by the Governor.

Charles D Baker

Governor

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



SITE PLAN: EXISTING CONDITIONS
SCALE 1" = 30'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

SHEET 1 OF 7

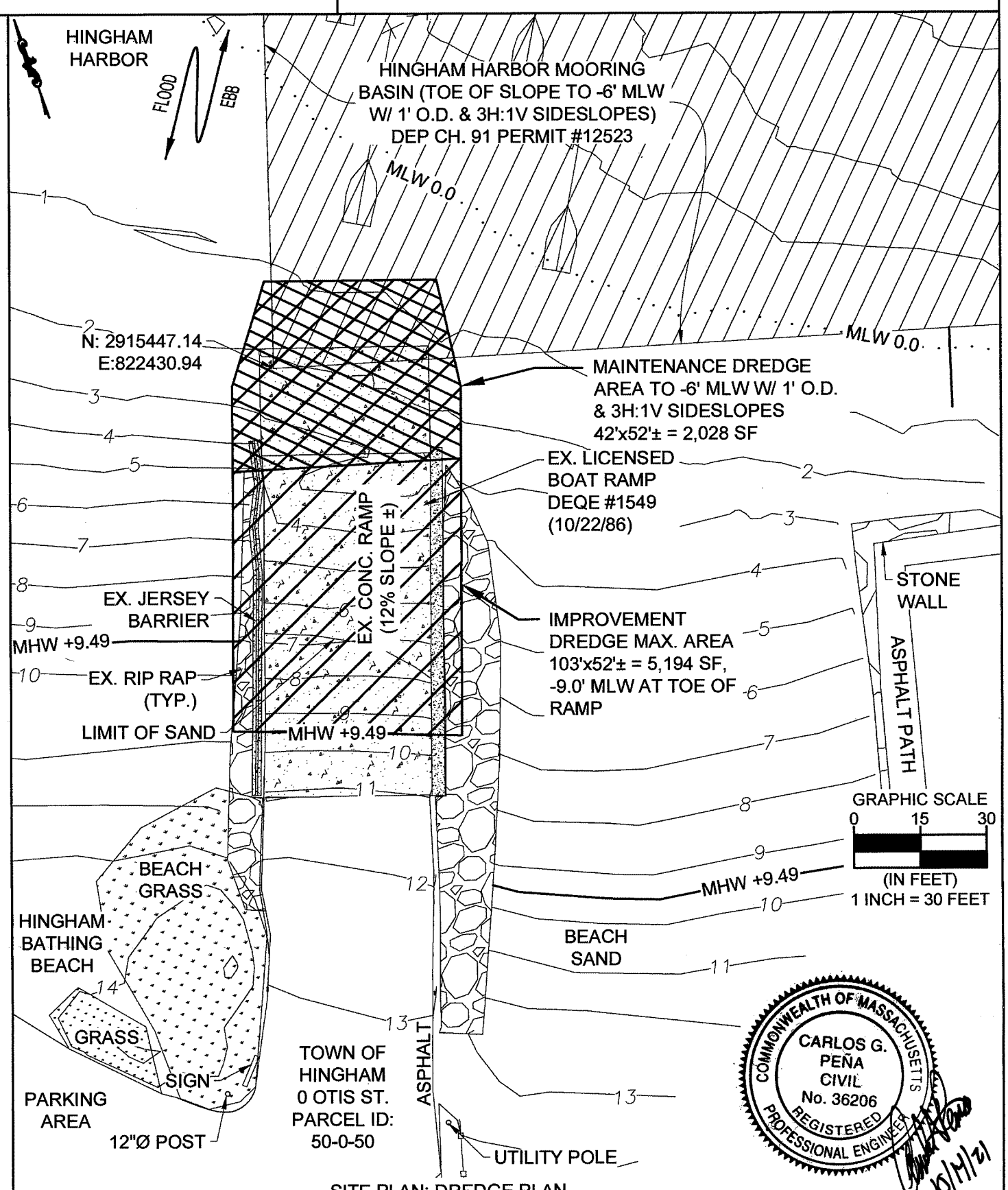
DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470

Approved by Department of Environmental Protection of Massachusetts 2/15/2022

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



SITE PLAN: DREDGE PLAN
SCALE 1" = 30'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

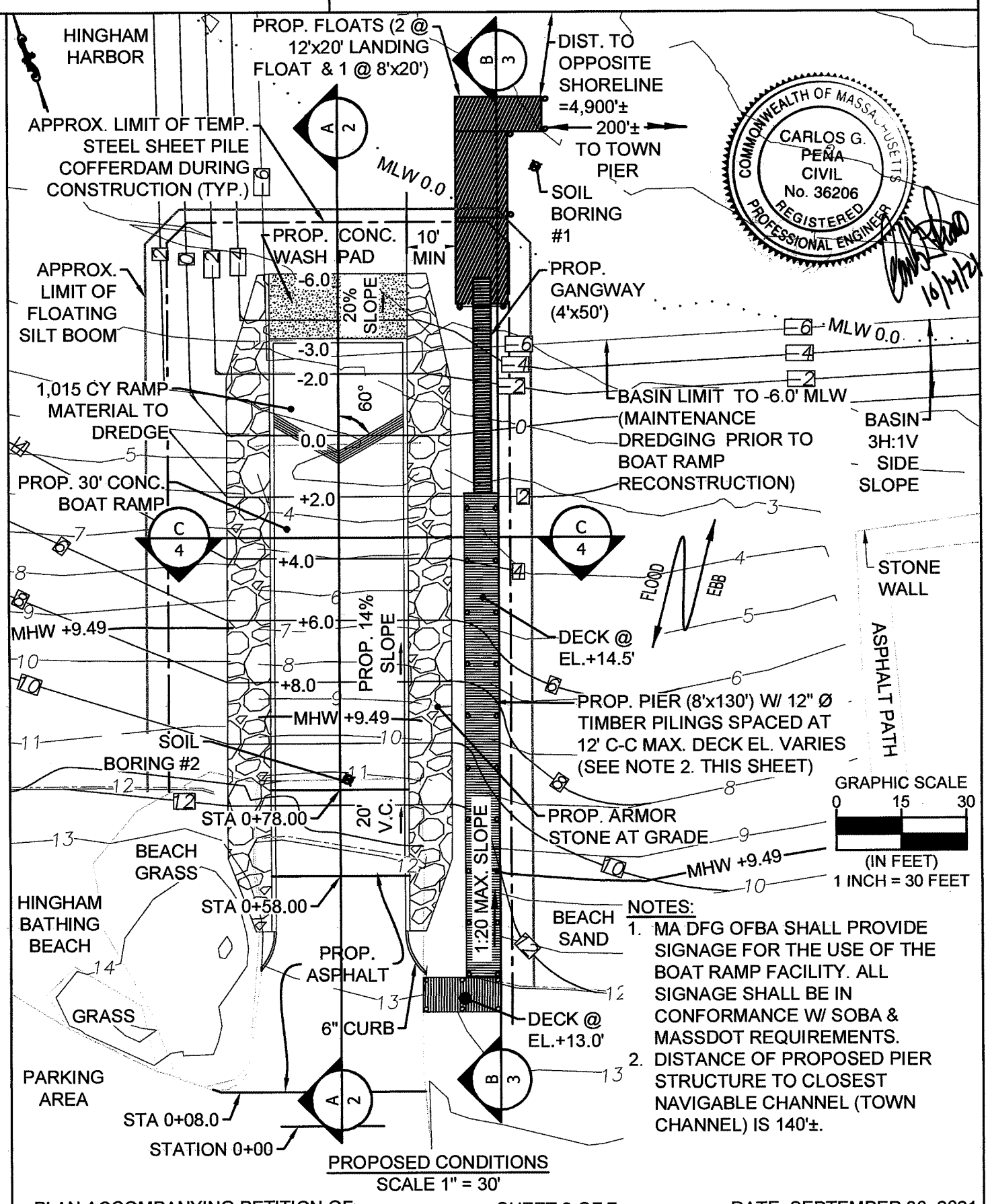
SHEET 2 OF 7

DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 19470
Approved by Department of Environmental Protection
Date;
2/15/2022

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



NOTES:

1. MA DFG OFBA SHALL PROVIDE SIGNAGE FOR THE USE OF THE BOAT RAMP FACILITY. ALL SIGNAGE SHALL BE IN CONFORMANCE W/ SOBA & MASSDOT REQUIREMENTS.
2. DISTANCE OF PROPOSED PIER STRUCTURE TO CLOSEST NAVIGABLE CHANNEL (TOWN CHANNEL) IS 140'±.

PROPOSED CONDITIONS
SCALE 1" = 30'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

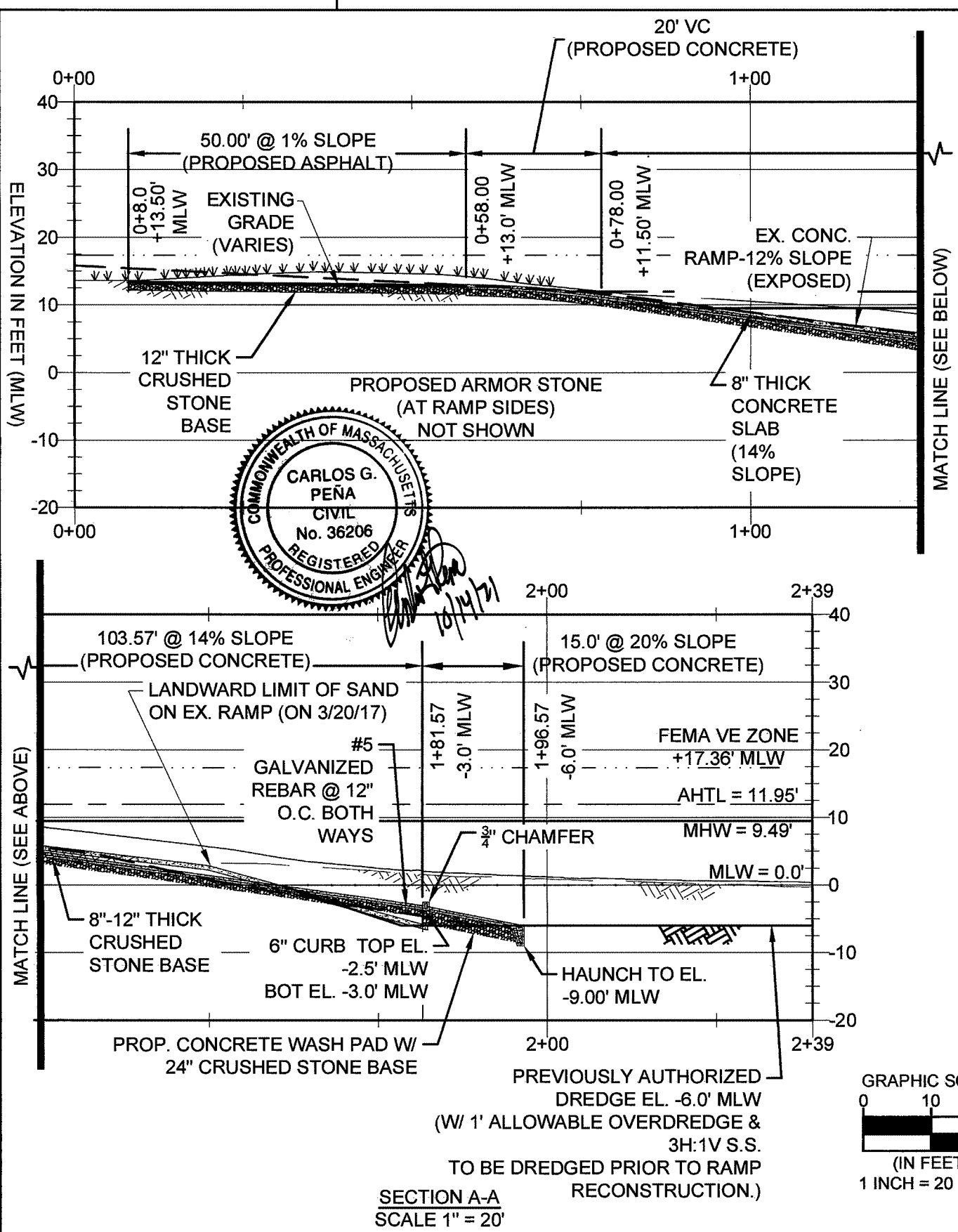
SHEET 3 OF 7

DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470
Approved by Department of Environmental Protection
Date;
2/15/2022

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



SECTION A-A
SCALE 1" = 20'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

SHEET 4 OF 7

DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470
Approved by Department of Environmental Protection
Date;
2/15/2022

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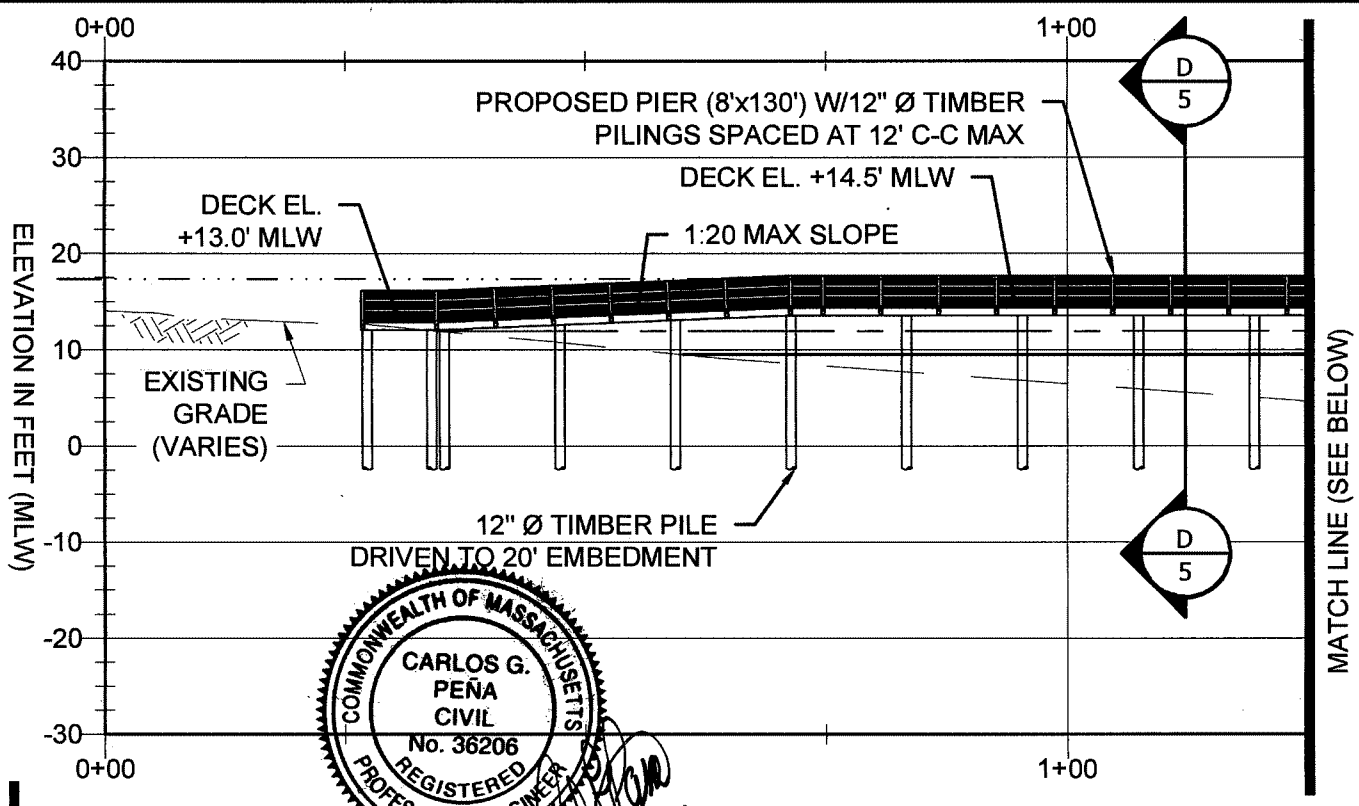
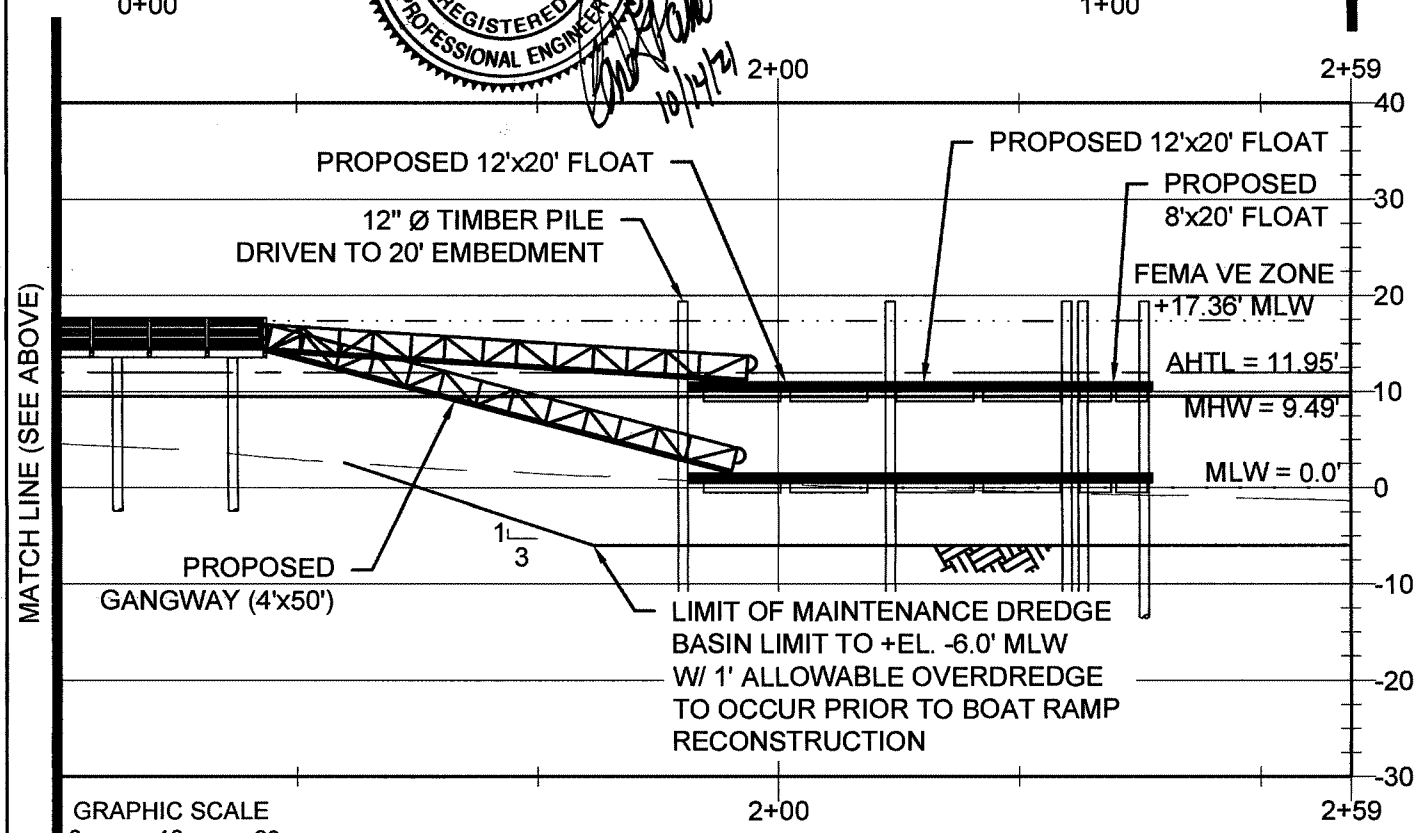


COMMONWEALTH OF MASSACHUSETTS
CARLOS G. PEÑA
CIVIL
No. 36206
REGISTERED PROFESSIONAL ENGINEER
10/14/21



GRAPHIC SCALE
0 10 20
(IN FEET)
1 INCH = 20 FEET

SECTION B-B
SCALE 1" = 20'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

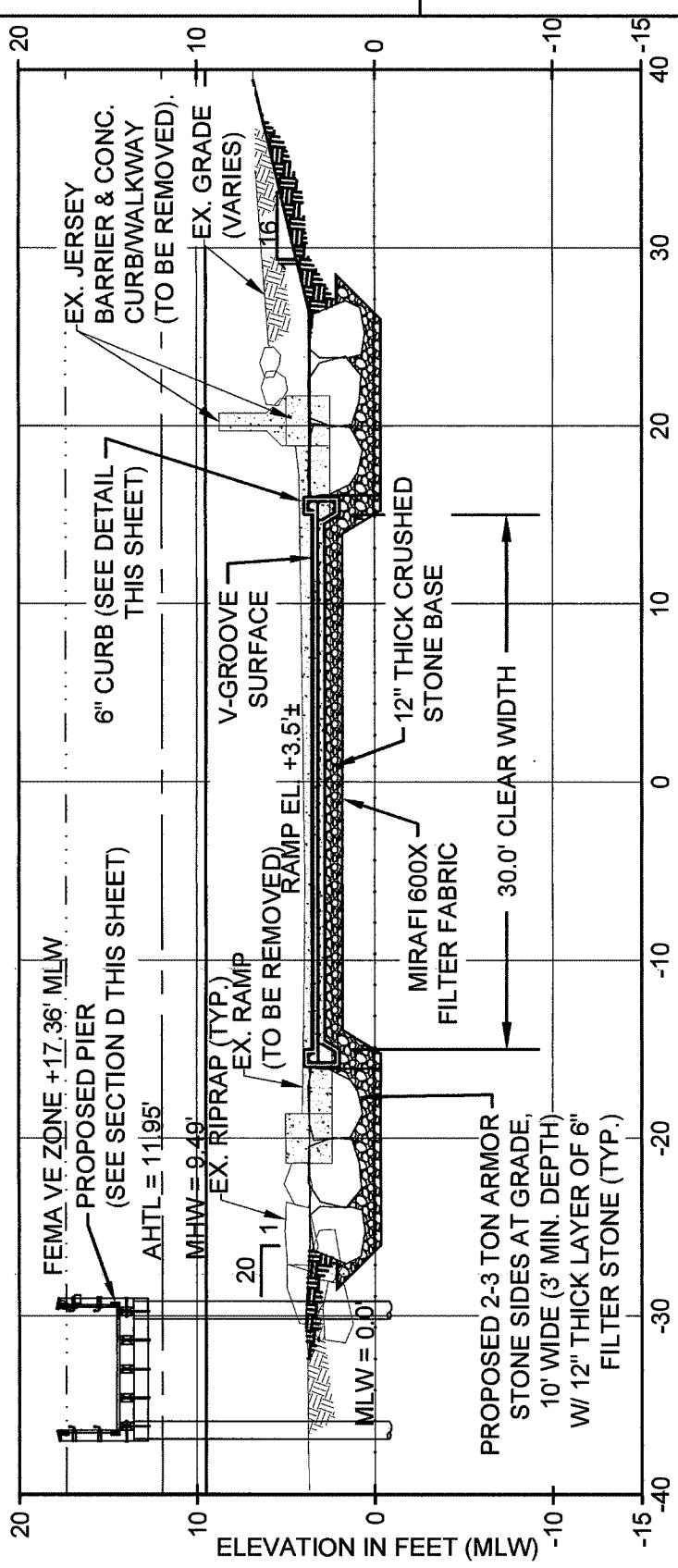
SHEET 5 OF 7

DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470
Approved by Department of Environmental Protection
Date;
2/15/2022

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

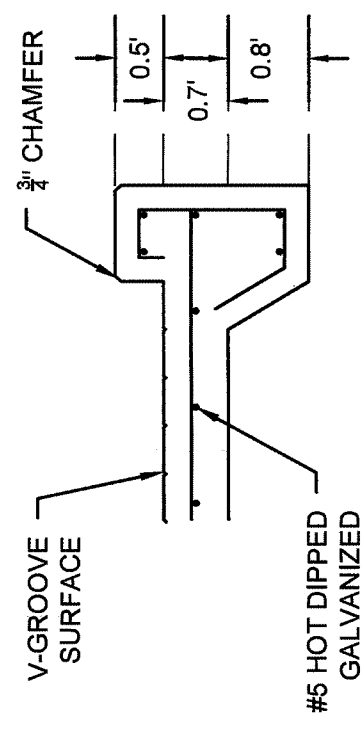


SECTION C-C
SCALE 1" = 10'

GRAPHIC SCALE
0 5 10
(IN FEET)
1 INCH = 10 FEET

COMMONWEALTH OF MASSACHUSETTS
CARLOS G. PEÑA
CIVIL
No. 36206
REGISTERED PROFESSIONAL ENGINEER
10/14/21

GRAPHIC SCALE
0 1 2
(IN FEET)
1 INCH = 2 FEET



CONCRETE BOAT RAMP DETAIL (END & SIDES)
SCALE 1" = 2'

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

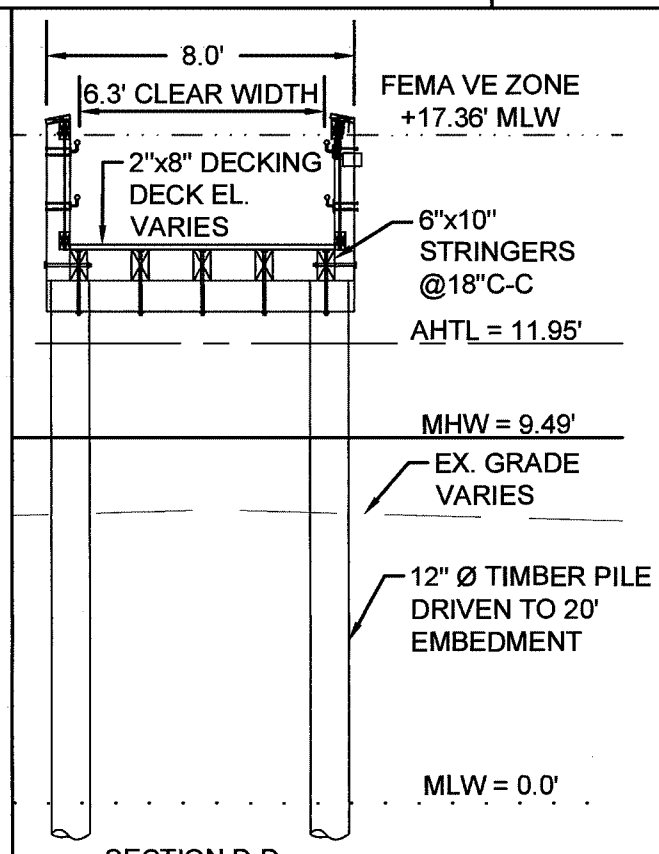
SHEET 6 OF 7

DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470
Approved by Department of Environmental Protection
Date;
2/15/2022

GENERAL LAW 36 SECTION 13-A

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.



SECTION D-D
SCALE 1" = 5'

GRAPHIC SCALE
0 2.5 5
(IN FEET)
1 INCH = 5 FEET

COMMONWEALTH OF MASSACHUSETTS
CARLOS G. PEÑA
CIVIL
No. 36206
REGISTERED PROFESSIONAL ENGINEER
10/14/21

DATUM OFFSETS

NAVD88	MLW	
12.00	17.36	FEMA
6.59	11.95	AHTL
4.13	9.49	MHW
0.00	5.36	NAVD88
-5.36	0.00	MLW
-5.71	-0.35	MLLW

OFFSETS TAKEN FROM BOSTON STATION #8443970 EPOCH 1983-2001
NAVD88 OFFSET TAKEN FROM VDATUM VERSION 3.4 FOR THE PROJECT SITE

SURVEY NOTES:

1. PROJECT NAME:	HYDROGRAPHIC SURVEY
2. PROJECT NUMBER:	17004.100
3. PLOT SCALE:	1"=20'
4. SURVEY DATE:	MARCH 20, 2017
5. SURVEYOR:	M. COUNT, J. BARANELLO
6. VESSEL:	"OLAF"
7. TRANS./FATH.:	ODOM CVM
8. WEATHER COND:	SUNNY, 40 DEGREES, WIND N 5-10 KTS
9. PROJECT DATUM:	MLW
10. COOR. SYSTEM:	NAD-83, MA-2001 MASS MAINLAND
11. DATA REDUCTION:	BAT DATA 1' RADIUS SORT
12. BENCHMARK:	DISK J 42 EL. +9.82' NAVD88 (+15.18' MLW)

NOTES:

1. RESULTS OF HYDROGRAPHIC SURVEY BY FOTH INFRASTRUCTURE AND ENVIRONMENT, LLC. (FOTH) ON 3-20-17. RESULTS OF TOPOGRAPHIC SURVEY BY FOTH ON 3-20-17.
2. HYDROGRAPHIC SURVEY ELEVATIONS AND SOUNDINGS ARE IN FEET AND TENTHS, AND REFER TO THE MLW DATUM. DATUM SHIFT(+5.36) FROM VDATUM VERSION 3.4 FOR THE PROJECT SITE.
3. COORDINATES ARE BASED ON NAD83 MASSACHUSETTS MAINLAND STATE PLANE GRID SYSTEM.
9. RTK CORRECTIONS: RTK CORRECTIONS FOR THIS SURVEY PROVIDED BY MASS DOT CORS.
10. BENCHMARK / RTK TIDES: TIDES ARE RECORDED USING RTK TIDES IN HYPACK. ELEVATIONS FROM ELLIPSOID TO ORTHOMETRIC NAVD88 USE GEOID 12A
11. SITE IS LOCATED IN FEMA VE ZONE EL. +12' NAVD88 (+17.36' MLW) AS SHOWN ON FEMA MAP #25023C0082J, REVISED TO REFLECT LOMR EFFECTIVE AUGUST 14, 2015.
12. PROJECT BENCHMARK IS DISK J 42 PUBLISHED EL. +9.82' NAVD88 (+15.18' MLW) LOCATED IN THE SEAWALL NORTH OF THE 3A ROTARY IN HINGHAM.
13. SITE BENCHMARK IS EXISTING DRILLHOLE LOCATED IN NORTHEAST CORNER OF EXISTING STONE SEAWALL NEXT TO THE TOWN PIER, EL.+12.79' MLW.
14. POSSESSION AND USE OF THE MATERIAL CONTAINED ON THESE DRAWINGS IS GRANTED ONLY IN CONNECTION WITH ITS USE AS IT RELATES TO THE TITLED PROJECT, ANY OTHER USE, REPRODUCTION OR DISCLOSURE OF THE INFORMATION CONTAINED HEREON IS EXPRESSLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF FOTH.

PLAN ACCOMPANYING PETITION OF:
COMMONWEALTH OF MA
OFFICE OF FISHING AND BOATING ACCESS
1 RABBIT HILL ROAD
WESTBOROUGH, MA 01581
AND TOWN OF HINGHAM, MA
TO RECONSTRUCT AND MAINTAIN AN EXISTING BOAT RAMP AND TO LICENSE, CONSTRUCT, AND MAINTAIN A PROPOSED PIER AND FLOAT SYSTEM IN HINGHAM HARBOR, HINGHAM, MA
PLYMOUTH COUNTY

SHEET 7 OF 7 DATE: SEPTEMBER 30, 2021

LICENSE PLAN NO. 15470
Approved by Department of Environmental Protection
Date;
2/15/2022

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

JUL 30 2009

Town of Hingham
C/o CLE Engineering
15 Creek Road
Marion, MA 02738

Attention: Ceasar Duarte, Jr.

RE: ISSUANCE OF CHAPTER 91 WATERWAYS PERMIT
Waterways Permit Application No. W08-2544 Permit No. 12523
Town of Hingham, Plymouth County

Dear Mr. Duarte,

The Department of Environmental Protection hereby issues the above-referenced Waterways Permit, enclosed, authorizing you to perform certain activities pursuant to M.G.L. c. 91, the Public Waterfront Act and its regulations 310 CMR 9.00. Any change in use or alteration of any structure or fill not authorized by this permit shall render this license void.

This Permit is not final until all administrative appeal periods from this License have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed. The appeal period is for twenty-one (21) days.

APPEAL RIGHTS AND TIME LIMITS

The following persons shall have the right to an adjudicatory hearing concerning the Department's decision to grant or deny a license or permit: (a) an applicant who has demonstrated property rights in the lands in question, or which is a public agency; (b) any person aggrieved by the decision of the Department to grant a license or permit who has submitted written comments within the public comment period; (c) ten (10) residents of the Commonwealth, pursuant to M.G.L. c.30A, §10A, who have submitted written comments within the public comment period; (d) the municipal official in the affected municipality who has submitted written comments within the public comment period; (e) CZM, for any project in the coastal zone, if it has filed a notice of participation within the public comment period; and (f) CZM, for any project in an Ocean Sanctuary, if it has filed a notice of participation within the public comment period.

To request an adjudicatory hearing, a Notice of Claim must be made in writing and sent by certified mail or hand delivery to the Department with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form, within twenty-one (21) days of the date of issuance of this decision and addressed to:

RE: ISSUANCE OF CHAPTER 91 WATERWAYS LICENSE
Waterways License Application No. W08-2544 Permit No. 12523
Town of Hingham, Hingham Harbor

Case Administrator
Department of Environmental Protection
One Winter Street, 2d Floor
Boston, MA 02108

A copy of the Notice of Claim must be sent at the same time by certified mail or hand delivery to the applicant, the municipal official of the city or town where the project is located, and the issuing office of the DEP at:

Department of Environmental Protection
Waterways Regulation Program
One Winter Street, 5th Floor
Boston, MA 02108.

CONTENTS OF APPEAL REQUEST

Under 310 CMR 1.01(6)(b), the Notice of Claim must state clearly and concisely the facts that are the grounds for the request and the relief sought. Additionally, the request must state why the decision is not consistent with applicable laws and regulations.

Pursuant to 310 CMR 9.17(3), any Notice of Claim for an adjudicatory hearing must include the following information:

(a) the DEP Waterways Application File Number;
(b) the complete name, address, fax number and telephone number of the applicant;
(c) the address of the project;
(d) the complete name, address, fax number, and telephone number of the party filing the request and, if represented by counsel, the name, address, fax number, and phone number of the attorney;
(e) if claiming to be a person aggrieved, the specific facts that demonstrate that the party satisfies the definition of "person aggrieved" found in 310 CMR 9.02;
(f) a clear statement that a formal adjudicatory hearing is being requested;
(g) a clear statement of the facts which are the grounds for the proceedings, the specific objections to the DEP's written decision, and the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written decision; and
(h) a statement that a copy of the request has been sent to: the applicant and the municipal official of the city or town where the project is located.

APPEAL FILING FEE AND ADDRESS

A copy of the Notice of Claim along with a DEP Fee Transmittal Form and a valid check payable to the Commonwealth of Massachusetts - DEP in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lock Box
P.O. Box 4062
Boston, Massachusetts 02211

The DEP Fee Transmittal Form is available at the following website: http://www.mass.gov/dep/service/adr/adjherfm.doc. The request will be dismissed if the filing fee is not paid, unless the appellant is exempt or is granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory

RE: ISSUANCE OF CHAPTER 91 WATERWAYS LICENSE
Waterways License Application No. W08-2544 Permit No. 12523
Town of Hingham, Hingham Harbor

hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Please feel free to contact David Hill of the Waterways Regulation Program, (508) 946-2730, if you have any questions pertaining to your Waterways permit.

Sincerely,

for Elizabeth Kouloheras, Program Chief
Waterways Regulation Program

cc: Ben Lynch, Section Chief, Boston MCZM
Betty Foley, Town of Hingham
Hingham Harbormaster

Enclosure(s) Waterways Permit No. **12523**

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

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

PERMIT NO. 12523

Name and Address of Permittee:

Town of Hingham
Attn: Betty Foley
210 Central Street
Hingham, MA 02043

ISSUED: July 30, 2009
EXPIRES: July 30, 2019

Permission is hereby given by the Department of Environmental Protection to: maintenance dredge approximately 95,250 cubic yards of sediment from Hingham Harbor adjacent to the Town, Kimball's, Barnes and Old Steamboat Wharfs. Dredge material will be disposed at the Massachusetts Bay Disposal Site.

All work authorized herein shall be in the location shown and to the dimensions indicated in the permit plan titled: "Proposed Dredging Plan In Hingham Harbor, MA, At: Otis & Summer Streets, County Of: Plymouth, Town of Hingham, dated December 2, 2008, revised June 5, 2009 (4 Sheets).

STANDARD WATERWAYS PERMIT CONDITIONS

1. Acceptance of this Waterways Permit shall constitute an agreement by the Permittee to conform to all terms and conditions stated herein.

2. This Waterways Permit is issued upon the express condition that any and all other applicable authorizations necessitated due to the provisions hereof shall be secured by the Permittee prior to the commencement of any activity authorized pursuant to this Permit.

3. This Waterways Permit shall be revocable by the Department for noncompliance with the terms and conditions set forth herein. This Permit may be revoked after the Department has given written notice of the alleged noncompliance to the Permittee, or his/her agent, and those persons who have filed a written request, with the Department, for such notice and has afforded the Permittee a reasonable opportunity to correct said noncompliance. Failure to correct said noncompliance after the issuance of a written notice by the Department shall render this Waterways Permit void.

4. This Waterways Permit is issued subject to all applicable federal, state, county, and municipal laws, ordinances, by-laws, and regulations, including but not limited to, a valid Order of Conditions issued pursuant to the Wetlands Protection Act, M.G.L. Chapter 131, s.40. In particular, this issuance is subject to the provisions of Sections 52 to 56, inclusive of Chapter 91 of the General Law and its Regulations 310 CMR 9.40(5), which provides, in part, that the transportation and dumping of dredge material shall be done under the supervision of the Department, and, when required, the Permittee shall provide at his/her expense a dredge inspector approved by the Department.

5. This Waterways Permit is issued upon the express condition that dredging and transportation and disposal of dredge material shall be in strict conformance with the Water Quality Certification issued by the Department of Environmental Protection.

6. All subsequent maintenance dredging and transportation and disposal of this dredge material, during the term of this Permit, shall conform to all standards and conditions applied to the original dredging operation performed under this Permit.

7. After completion of the work authorized, the Permittee shall furnish to the Department a suitable plan showing the depths at mean low water over the area dredged. Dredging under this Permit shall be conducted so as to cause no unnecessary obstruction of the free passage of vessels, and care shall be taken to cause no shoaling. If, however, any shoaling is caused, the Permittee shall, at his/her expense, remove the shoal areas. The Permittee shall pay all costs of supervision, and if at any time the Department deems necessary a survey or surveys of the area dredged, the Permittee shall pay all costs associated with such work. Nothing in this Permit shall be construed to impair the legal rights of any persons, or to authorize dredging on land not owned by the Permittee without consent of the owner(s) of such property.

8. The Permittee shall assume and pay all claims and demands arising in any manner from the work authorized herein, and shall save harmless and indemnify the Commonwealth of Massachusetts, its officers, employees, and agents from all claims, audits, damages, costs and expenses incurred by reason thereof.

9. The Permittee shall, at least three days prior to the commencement of any dredging in tide water, give written notice to the Department of the time, location and amount of the proposed work.

10. Whosoever violates any provisions of this Permit shall be subject to a fine of $25,000 per day for each day such violation occurs or continues, or by imprisonment for not more than one year, or both such fine and imprisonment; or shall be subject to civil penalty not to exceed $25,000 per day for each day such violation occurs or continues.

SPECIAL WATERWAYS PERMIT CONDITIONS

1. Dredging shall be performed by mechanical methods.

2. Dredging shall be to a maximum depth of 6.0 feet below the mean low water (MLW) datum with an allowable one (1) foot over dredge.

3. No dredging shall occur between February 1st to September 30th of any year.

4. Dredged material shall be disposed at the Massachusetts Bay Disposal Site.

5. Maintenance dredging may be performed for a period of ten (10) years subsequent to the date of issuance of this permit.

6. After completion of the work authorized, the Permittee shall furnish to the Department a suitable plan showing the depths at mean low water over the area dredged within 90 days of completion of dredging.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

for Program Chief, Wetlands and Waterways

TOWN OF HINGHAM

CONSERVATION COMMISSION

ORDER OF CONDITIONS: DEP #034-1347

TO: Douglas Cameron
FROM: Loni Fournier, Conservation Officer SHS
DATE: September 25, 2019
TITLE: Order of Conditions for 0 Otis Street, Hingham, MA 02043

The Hingham Conservation Commission has issued an Order of Conditions pursuant to the Massachusetts Wetlands Protection Act and the Town of Hingham Wetlands Bylaw for the above-referenced project. The Order of Conditions is attached to this letter and is the permit to proceed with the approved project. The Order of Conditions is valid for three years from the date of issuance and will expire on September 26, 2022.

In order to begin work, you are responsible for the following actions:

1. Record the **original** Order of Conditions at the Plymouth Registry of Deeds after the appeal period ends on October 9, 2019.
2. Submit **proof** that the Order of Conditions was recorded to the Conservation Office at 210 Central Street, Hingham, MA.
3. Contact the Conservation Office for a pre-construction meeting prior to beginning work. Be prepared to provide contact information for the contractor who will manage the project on site.

To complete your project, you will need to take the following actions:

1. If you need an extension to complete the project within the approval period, submit a request to extend the Order of Conditions, in writing, to our office at least 30 days prior to the expiration date.
2. When the project is fully constructed and the terms of the Order of Conditions have been met, submit a Request for Certificate of Compliance to the Conservation Office. Please use the most recent DEP form to submit the request.

For your convenience, a guide to permitting is available at the Town of Hingham's Conservation Commission webpage at http://www.hingham-ma.gov/DocumentCenter/Home/View/3157. If you have questions about the Order of Conditions or any of the required actions, please call the Conservation Office.

C: SERO, Harbormaster Ken Corson

210 Central Street, Hingham, MA 02043-2758 • Telephone (781) 741-1445 • Fax (781) 740-0239

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

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

Provided by MassDEP:
034-1347
MassDEP File #

eDEP Transaction #

Hingham
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

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

1. From: Hingham
Conservation Commission

2. This issuance is for (check one): a. ☒ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

Douglas
a. First Name

Cameron
b. Last Name

Dept Fish & Game + Town of Hingham
c. Organization

1 Rabbit Hill Road
d. Mailing Address

Westborough
e. City/Town

MA
f. State

01581
g. Zip Code

4. Property Owner (if different from applicant):

a. First Name

b. Last Name

Town of Hingham
c. Organization

210 Central Street
d. Mailing Address

Hingham
e. City/Town

MA
f. State

02043
g. Zip Code

5. Project Location:

0 Otis Street
a. Street Address

Hingham
b. City/Town

50
c. Assessors Map/Plat Number

50
d. Parcel/Lot Number

Latitude and Longitude, if known: 42d14m46.34s
d. Latitude

70d53m9.49s
e. Longitude

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Plymouth	
a. County	b. Certificate Number (if registered land)
1493	266
c. Book	d. Page

7. Dates: 8/26/2019 (a. Date Notice of Intent Filed) 9/9/2019 (b. Date Public Hearing Closed) 9/25/2019 (c. Date of Issuance)

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Hingham Harbor Public Access Facility Improvements, Sheets C1 and C2
a. Plan Title

Foth CLE Engineering	Carlos Peña
b. Prepared By	c. Signed and Stamped by
8/5/2019	varies
d. Final Revision Date	e. Scale

f. Additional Plan or Document Title g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☐ Public Water Supply b. ☒ Land Containing Shellfish c. ☒ Prevention of Pollution

d. ☐ Private Water Supply e. ☒ Fisheries f. ☒ Protection of Wildlife Habitat

g. ☐ Groundwater Supply h. ☒ Storm Damage Prevention i. ☐ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☒ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) — 0 a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☐ Land Under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☒ Land Under the Ocean	3.14 a. square feet	3.14 b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☒ Coastal Beaches	5180sf perm 7752sf temp	5180sf perm 7752sf temp	cu yd c. nourishment	cu yd d. nourishment
14. ☐ Coastal Dunes	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☒ Land Containing Shellfish	10370 temp a. square feet	10370 temp b. square feet	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. ☒ Land Subject to Coastal Storm Flowage	7378 a. square feet	7378 b. square feet		
22. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

B. Findings (cont.)

* #23. 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.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. ☐ Restoration/Enhancement *:

a. square feet of BVW _____ b. square feet of salt marsh _____

24. ☐ Stream Crossing(s):

a. number of new stream crossings _____ b. number of replacement stream crossings _____

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on _____ unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

    "Massachusetts Department of Environmental Protection" [or, "MassDEP"]

    "File Number 034-1347 "

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19. The work associated with this Order (the "Project")
    (1) ☐ is subject to the Massachusetts Stormwater Standards
    (2) ☒ is NOT subject to the Massachusetts Stormwater Standards

    If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

    a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

    b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
    i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
    ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
    iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) 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.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):
See attached findings and special conditions numbered 21-40 on pages 9A & 9B

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

FINDINGS:

On 9/9/2019 the Conservation Commission made the following findings relative to this project:

a. The project meets the submittal requirements for issuance of an Order of Conditions under the Wetlands Protection Act (M.G.L. c. 131, § 40) and the Town of Hingham Wetland Regulations.
b. The work described is within an area subject to protection under the Wetlands Protection Act (M.G.L. c. 131, § 40) and the Town of Hingham Wetland Regulations, and will not alter or adversely affect the area subject to protection under the Act or the Regulations.

CONDITIONS – All conditions are in support of the Commission's evaluations of this project under both the Wetlands Protection Act and the Town of Hingham Wetlands Protection Bylaw unless specifically designated as Bylaw only. **See pages 5 through 9 for General Conditions 1-20.**

PRIOR TO CONSTRUCTION:

21. The applicant shall notify the Hingham Conservation Commission in writing of the name, address, and telephone number(s) of the project supervisor or contractor who shall be responsible for ensuring compliance with this Order and shall notify the Commission, by telephone or writing, at least 48 hours prior to commencement of work on the site.

22. This document shall be included in all construction contracts and subcontracts dealing with the work and shall supersede all other contract requirements.

23. The project supervisor or contractor in charge of the work shall have a copy of this Order available on the site at all times.

24. Prior to the start of any excavation or construction, there shall be a pre-construction conference on the site between the project supervisor or contractor responsible for the work and an agent of the Commission to ensure that the requirements of this Order are understood.

25. Prior to the start of any excavation or construction, erosion and sediment controls shall be installed, as shown on the final approved plan, and inspected by an agent of the Commission; straw wattles and/or hay bales will not be used as a form of erosion or sediment control.

26. Prior to the start of any excavation or construction, any comments received from the Division of Marine Fisheries shall be addressed.

27. Prior to the start of any excavation or construction, copies of all applicable federal, state, and local permits, certifications, and approval shall be submitted to the Commission.

28. Erosion and sediment controls shall remain in place until all disturbed or exposed areas have been stabilized with a final vegetative cover or the Commission has authorized their removal. The cofferdam and siltation boom shall remain in place until all ramp work has been completed.

DURING CONSTRUCTION:

29. During all phases of construction, all disturbed or exposed areas shall be brought to a finished grade and either a) loamed and seeded for permanent stabilization, or b) stabilized in another way approved by the Commission.

30. Any debris, which falls into any resource area, shall be removed immediately by hand.

31. Any on site dumpsters shall not be located within 50 feet of Tidal Flats.

32. There shall be no stockpiling of soil or other materials within 50 feet of Tidal Flats.

33. Issuance of these conditions does not in any way imply or certify that the site or downstream areas will not be subject to flooding, storm damage, or any other form of damage due to wetness.

34. Dewatering activities shall make use of diffusers at the discharge point and water shall only be discharged within the siltation boom.

35. No vehicle or other machinery, refueling, lubrication or maintenance, including concrete washout, shall take place within 50 feet of Tidal Flats.

36. The applicant is responsible for the containment and proper disposal of all unearthed soils, clays, and other organic debris, including dredged and/or excavated material, as well as the construction waste associated with this project.

37. Only non-chromated copper arsenate (CCA) material may be used in the construction of the pier. Lead caps are not permitted. No creosote treated materials may be used. Wood preservative, if used, must be dry before the treated wood is used in construction.

38. Before executing any change from the plan of record, the applicant must have the Commission's written approval. Any errors found in the plans or information submitted by the applicant shall be considered as changes. Approval from other Town Agents or Inspectors does not relieve the applicant from obtaining approval from the Commission.

POST CONSTRUCTION:

39. The applicant shall apply for a Certificate of Compliance as soon as work has been completed and prior to the expiration of this Order. If work cannot be completed prior to the expiration of this Order, the applicant shall contact the Commission in writing to apply for an extension at least thirty days prior to the expiration date.

40. The applicant shall submit an "as built" plan to the Commission upon completion of this project. The plan shall be signed by the professional engineer of record, who shall certify that the work has been done in accordance with the approved plans and this Order. This plan must be submitted prior to the issuance of a Certificate of Compliance by the Commission.

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☒ Yes ☐ No

2. The Hingham Conservation Commission hereby finds (check one that applies):

   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

   1. Municipal Ordinance or Bylaw _____ 2. Citation _____

   Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☒ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

   1. Municipal Ordinance or Bylaw: Hingham Wetlands Protection Bylaw
   2. Citation: Article 22

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

   See attached findings and special conditions numbered 21-40 on pages 9A & 9B

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
034-1347
MassDEP File #

eDEP Transaction #

Hingham
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

9/25/19
1. Date of Issuance

5
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signatures:

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on 9/25/19

Date

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Hingham
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Hingham
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

0 Otis Street
Project Location

034-1347
MassDEP File Number

Has been recorded at the Registry of Deeds of:

Plymouth
County

Book

Page

for: Town of Hingham
Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

9/25/2019
Date

If recorded land, the instrument number identifying this transaction is:

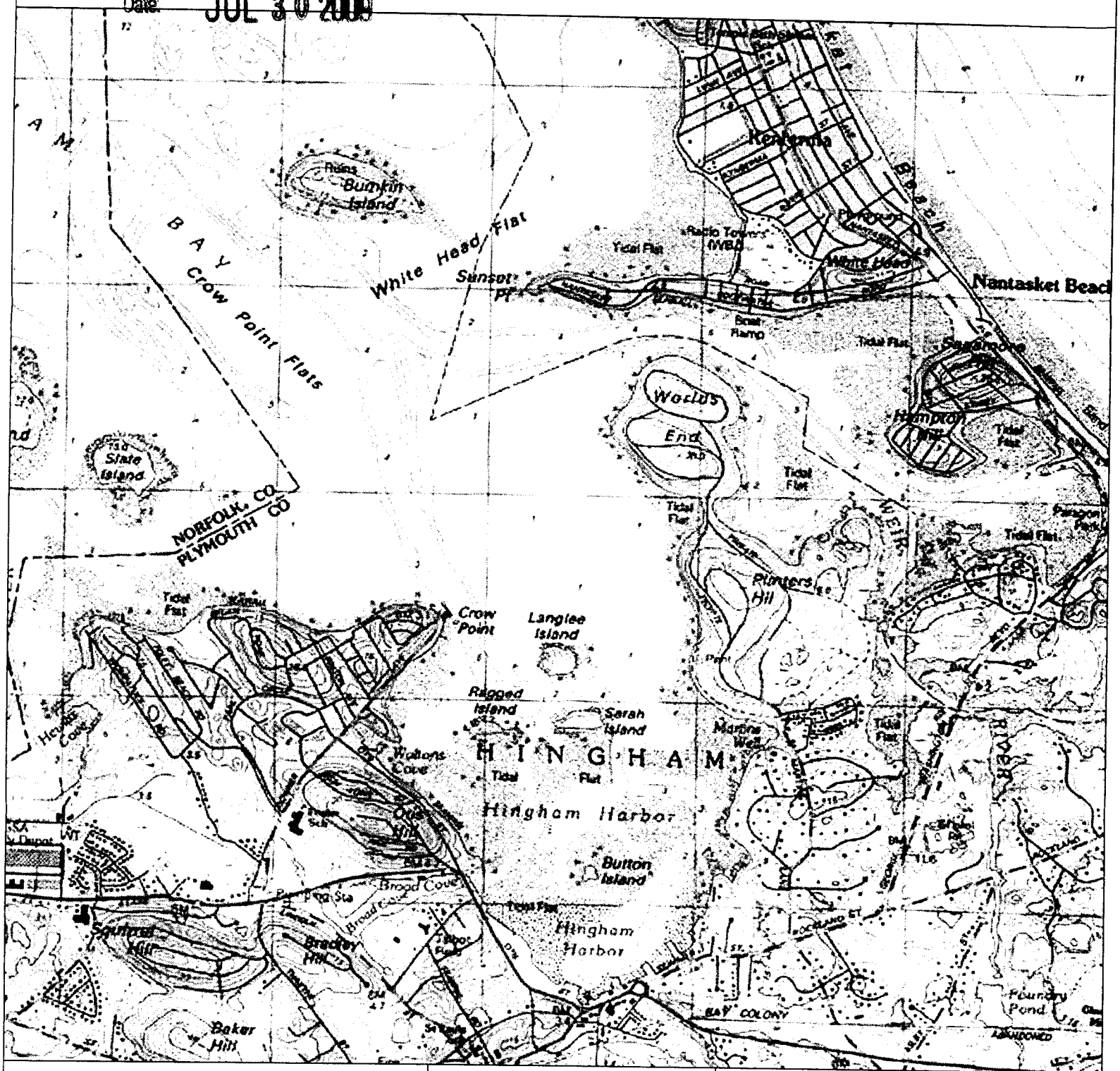
Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

PERMIT NO. 12523
Approved by Department of Environmental Protection
Date: JUL 30 2009

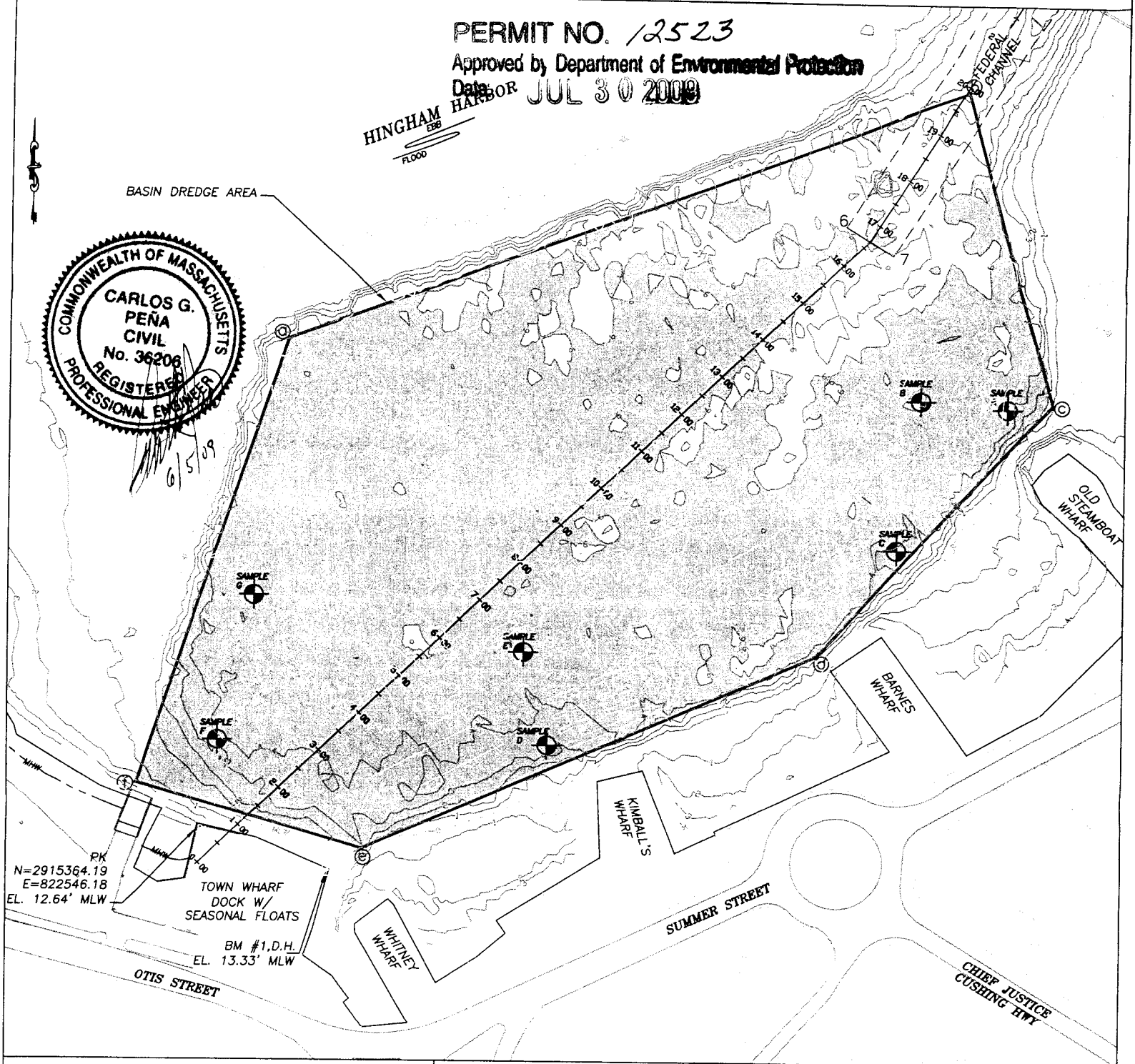


PURPOSE: PROPOSED MAINTENANCE DREDGING WILL IMPROVE ACCESS TO NAVIGABLE WATERS
DATUM: MLW = 0.0
MHW = 9.5
HTL = 10.5
CLE ENGINEERING, INC.
15 CREEK RD. MARION, MA 02738

VICINITY MAP
USGS HINGHAM
QUAD SHEET
SCALE: 1"=2083'

PROPOSED DREDGING PLAN
IN HINGHAM HARBOR, MA
AT: OTIS & SUMMER STREETS
COUNTY OF: PLYMOUTH
TOWN OF HINGHAM
DATE: 12/02/08
REV. DATE 06/05/09

PERMIT NO. 12523
Approved by Department of Environmental Protection
Date JUL 30 2009

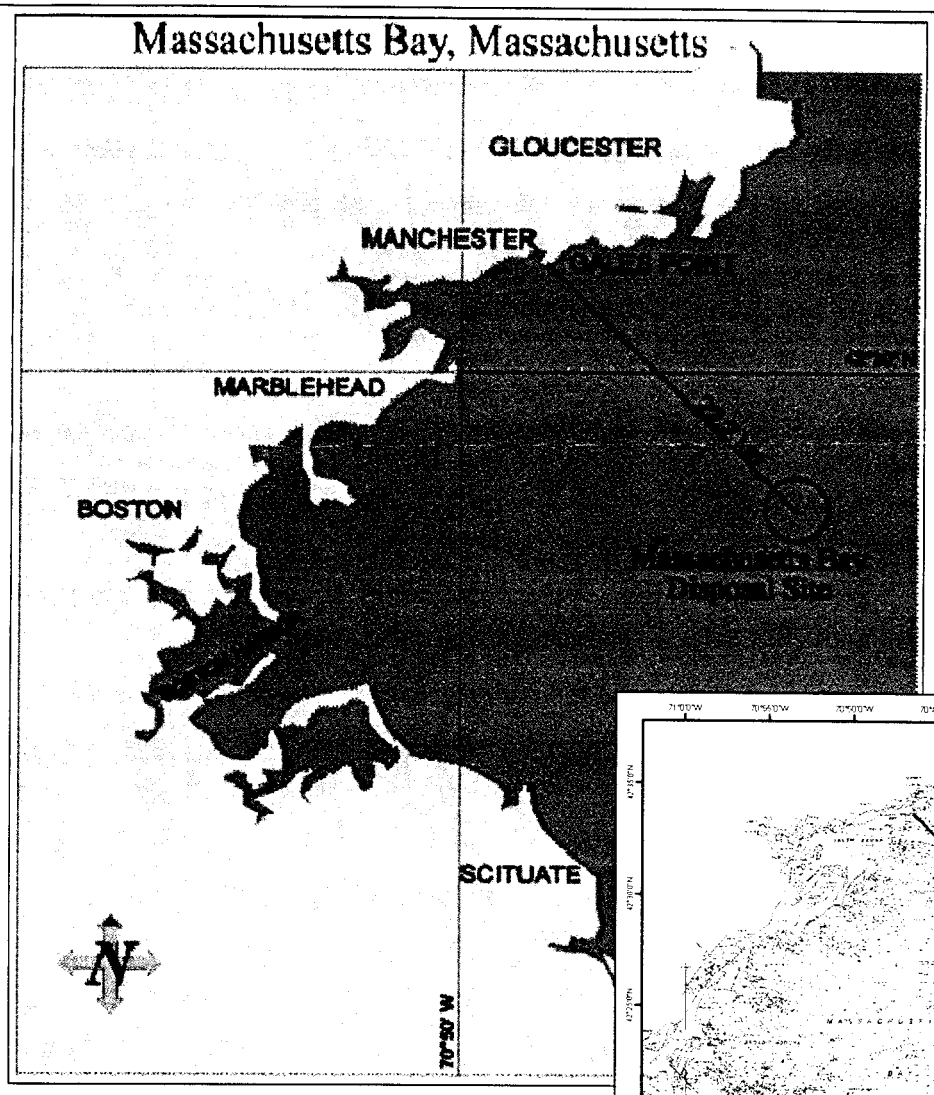


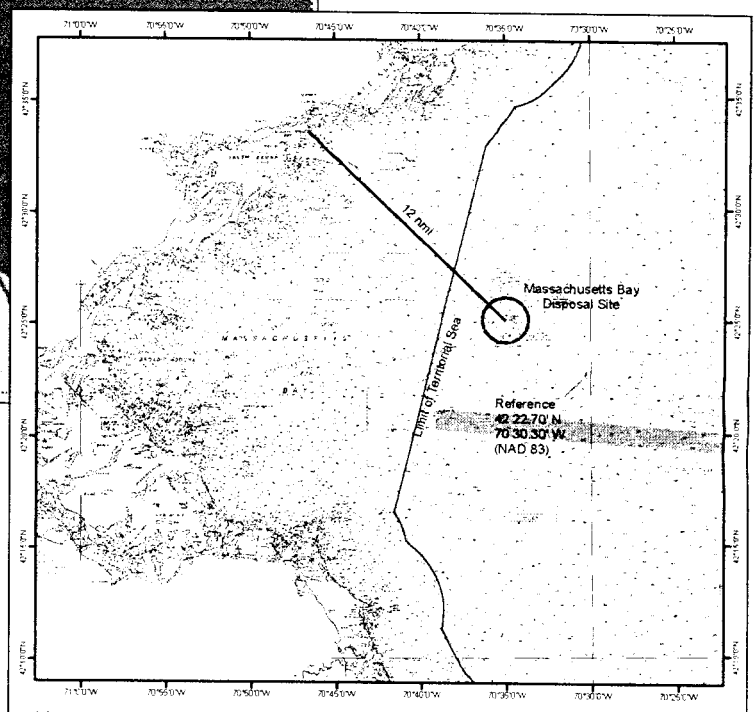
PURPOSE: PROPOSED MAINTENANCE DREDGING WILL IMPROVE ACCESS TO NAVIGABLE WATERS
DATUM: MLW = 0.0
MHW = 9.5
HTL = 10.5
CLE ENGINEERING, INC.
15 CREEK RD. MARION, MA 02738

SITE PLAN
HARBOR BASIN

0 125 250
SCALE: 1"=250'

PROPOSED DREDGING PLAN
IN HINGHAM HARBOR, MA
AT: OTIS & SUMMER STREETS
COUNTY OF: PLYMOUTH
TOWN OF HINGHAM
DATE: 12/02/08
REV. DATE 06/05/09
SHEET 2 OF 4





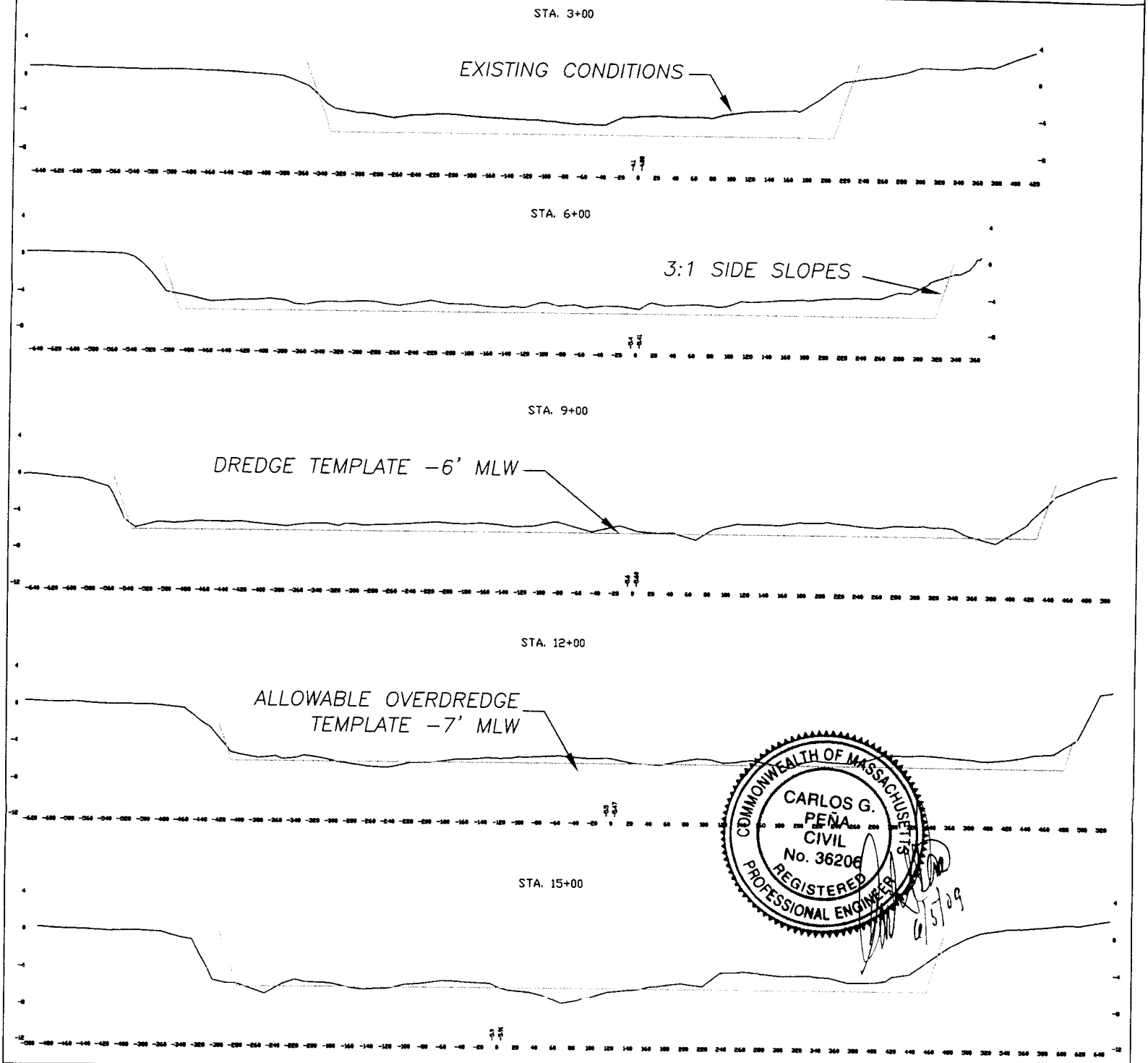
MASSACHUSETTS BAY DISPOSAL SITE

Description: The Massachusetts Bay Disposal Site (MBDS), a 2.0 nmi (3.7 km) diameter circular area centered at 42° 25.106' N, 70° 34.969' W (NAD 83), is located 12 nmi (22 km) southeast of Gales Point, MA. Water depths range from 269 to 302 ft (82 to 92 m). The authorized disposal point (within the overall disposal area) is specified for each dredging project in other project documents.

PERMIT NO. /2523
Approved by Department of Environmental Protection
Date. JUL 30 2009

PURPOSE: PROPOSED MAINTENANCE DREDGING WILL IMPROVE ACCESS TO NAVIGABLE WATERS DATUM: MLW = 0.0 MHW = 9.5 HTL = 10.5 CLE ENGINEERING, INC. 15 CREEK RD. MARION, MA 02738	DISPOSAL SITE	PROPOSED DREDGING PLAN IN HINGHAM HARBOR, MA AT: OTIS & SUMMER STREETS COUNTY OF: PLYMOUTH TOWN OF HINGHAM DATE: 12/02/08 REV. DATE 06/05/09 SHEET 4 OF 4

PERMIT NO. 12523
Approved by Department of Environmental Protection
Date: JUL 30 2009



COMMONWEALTH OF MASSACHUSETTS
CARLOS G. PEÑA
CIVIL
No. 36206
REGISTERED PROFESSIONAL ENGINEER
6/5/09

PURPOSE: PROPOSED MAINTENANCE DREDGING WILL IMPROVE ACCESS TO NAVIGABLE WATERS
DATUM: MLW = 0.0
MHW = 9.5
HTL = 10.5
CLE ENGINEERING, INC.
15 CREEK RD. MARION, MA 02738

SECTIONS
0 75 150
SCALE:
1"=150'H; 1"=15'V

PROPOSED DREDGING PLAN
IN HINGHAM HARBOR, MA
AT: OTIS & SUMMER STREETS
COUNTY OF: PLYMOUTH
TOWN OF HINGHAM
DATE: 12/02/08
REV. DATE 06/05/09
SHEET 3 OF 4

TOWN OF HINGHAM

CONSERVATION COMMISSION

ORDER OF CONDITIONS: DEP #034-1390

TO: Tom Mayo, Town of Hingham
FROM: Loni Fournier, Conservation Officer LMF
DATE: January 26, 2021
TITLE: Order of Conditions for 0 Summer Street (Barnes Wharf), Hingham, MA 02043

The Hingham Conservation Commission has issued an Order of Conditions pursuant to the Massachusetts Wetlands Protection Act and the Town of Hingham Wetlands Bylaw for the above-referenced project. The Order of Conditions is attached to this letter and is the permit to proceed with the approved project. The Order of Conditions is valid for three years from the date of issuance and will expire on January 26, 2024.

In order to begin work, you are responsible for the following actions:

1. Record the **original** Order of Conditions at the Plymouth Registry of Deeds after the appeal period ends on February 9, 2021.
2. Submit **proof** that the Order of Conditions was recorded to the Conservation Office at 210 Central Street, Hingham, MA.
3. Contact the Conservation Office for a pre-construction meeting prior to beginning work. Be prepared to provide contact information for the contractor who will manage the project on site.

To complete your project, you will need to take the following actions:

1. If you need an extension to complete the project within the approval period, submit a request to extend the Order of Conditions, in writing, to our office at least 30 days prior to the expiration date.
2. When the project is fully constructed and the terms of the Order of Conditions have been met, submit a Request for Certificate of Compliance to the Conservation Office. Please use the most recent DEP form to submit the request.

For your convenience, a guide to permitting is available at the Town of Hingham's Conservation Commission webpage at http://www.hingham-ma.gov/DocumentCenter/Home/View/3157. If you have questions about the Order of Conditions or any of the required actions, please call the Conservation Office.

C: SERO (via email only to SERO_NOI@mass.gov)
Tom Mayo

210 Central Street, Hingham, MA 02043-2758 • Telephone (781) 741-1445 • Fax (781) 740-0239

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

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

Provided by MassDEP:
034-1390
MassDEP File #

eDEP Transaction #

Hingham
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

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

1. From: Hingham
Conservation Commission

2. This issuance is for (check one): a. ☒ Order of Conditions b. ☐ Amended Order of Conditions

3. To: Applicant:

Tom — a. First Name
Mayo — b. Last Name
Town of Hingham — c. Organization
210 Central Street — d. Mailing Address
Hingham — e. City/Town
MA — f. State
02043 — g. Zip Code

4. Property Owner (if different from applicant):

a. First Name
b. Last Name
c. Organization
d. Mailing Address
e. City/Town
f. State
g. Zip Code

5. Project Location:

0 Summer Street (Barnes Wharf) — a. Street Address
Hingham — b. City/Town
51 — c. Assessors Map/Plat Number
58 — d. Parcel/Lot Number

Latitude and Longitude, if known: 42d14m49s — d. Latitude; 70d52m51s — e. Longitude

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A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Plymouth
a. County

b. Certificate Number (if registered land)

3311
c. Book

496
d. Page

7. Dates: 11/20/2020 a. Date Notice of Intent Filed; 1/11/2021 b. Date Public Hearing Closed; 1/26/2021 c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

Barnes Wharf Dock Improvement Project - Sheets C1.0 and C2.0
a. Plan Title

Beals and Thomas, Inc.
b. Prepared By

Daniel M. Gagne, PE
c. Signed and Stamped by

January 5, 2021
d. Final Revision Date

as shown
e. Scale

f. Additional Plan or Document Title

g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☐ Public Water Supply
b. ☒ Land Containing Shellfish
c. ☒ Prevention of Pollution
d. ☐ Private Water Supply
e. ☒ Fisheries
f. ☒ Protection of Wildlife Habitat
g. ☐ Groundwater Supply
h. ☒ Storm Damage Prevention
i. ☐ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

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B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☒ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) — 0 a. linear feet

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☐ Bank	a. linear feet	b. linear feet	c. linear feet	d. linear feet
5. ☐ Bordering Vegetated Wetland	a. square feet	b. square feet	c. square feet	d. square feet
6. ☐ Land Under Waterbodies and Waterways	a. square feet	b. square feet	c. square feet	d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☒ Land Under the Ocean	±70sf remv ±120sf add 0 c. c/y dredged	±70sf remv ±120sf add d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
14. ☐ Coastal Dunes	a. square feet	b. square feet	cu yd c. nourishment	cu yd d. nourishment
15. ☒ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet c. c/y dredged	b. square feet d. c/y dredged		
19. ☒ Land Containing Shellfish	±70sf remv ±120sf add	±70sf remv ±120sf add	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
21. ☒ Land Subject to Coastal Storm Flowage	a. c/y dredged ±360demo ±370 new	b. c/y dredged ±360demo ±370 new		
22. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

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B. Findings (cont.)

* #23. 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.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. ☐ Restoration/Enhancement *:

a. square feet of BVW _____ b. square feet of salt marsh _____

24. ☐ Stream Crossing(s):

a. number of new stream crossings _____ b. number of replacement stream crossings _____

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on _____ unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

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C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

    "Massachusetts Department of Environmental Protection" [or, "MassDEP"]

    "File Number 034-1390 "

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19. The work associated with this Order (the "Project")
    (1) ☐ is subject to the Massachusetts Stormwater Standards
    (2) ☒ is NOT subject to the Massachusetts Stormwater Standards

    If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

    a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

    b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
    i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
    ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
    iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 18(f) through 18(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 18(f) through 18(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

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C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) 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.
i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.
k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See attached findings and special conditions numbered 21-42 on pages 9A & 9B

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

FINDINGS:

On 1/11/2021 the Conservation Commission made the following findings relative to this project:

a. The project meets the submittal requirements for issuance of an Order of Conditions under the Wetlands Protection Act (M.G.L. c. 131, § 40) and the Town of Hingham Wetland Regulations.
b. The work described is within an area subject to protection under the Wetlands Protection Act (M.G.L. c. 131, § 40) and the Town of Hingham Wetland Regulations, and will not alter or adversely affect the area subject to protection under the Act or the Regulations.
c. For the purpose of this filing, the Commission makes no finding as to the exact boundaries of wetland resource areas.

CONDITIONS – All conditions are in support of the Commission's evaluations of this project under both the Wetlands Protection Act and the Town of Hingham Wetlands Protection Bylaw unless specifically designated as Bylaw only. **See pages 5 through 9 for General Conditions 1-20.**

PRIOR TO CONSTRUCTION:

21. The applicant shall notify the Hingham Conservation Commission in writing of the name, address, and telephone number(s) of the project supervisor or contractor who shall be responsible for ensuring compliance with this Order and shall notify the Commission, by telephone or writing, at least 48 hours prior to commencement of work on the site.

22. This document shall be included in all construction contracts and subcontracts dealing with the work and shall supersede all other contract requirements.

23. The project supervisor or contractor in charge of the work shall have a copy of this Order available on the site at all times.

24. Prior to the start of any excavation or construction, there shall be a pre-construction conference on the site between the project supervisor or contractor responsible for the work and an agent of the Commission to ensure that the requirements of this Order are understood.

25. Prior to the start of any excavation or construction, a floating debris containment boom shall be installed, as shown on the final approved plan, and inspected by an agent of the Commission.

26. The containment boom shall remain in place until construction is complete.

27. Prior to the start of any excavation or construction, and in consultation with the Town's Harbormaster, who also functions as the Town's Shellfish Constable, the applicant shall contribute a sum of money to the shellfish mitigation fund in accordance with the formula for contribution established by the Harbormaster.

28. Prior to the start of any excavation or construction, any comments received from the Division of Marine Fisheries shall be addressed.

29. Prior to the start of any excavation or construction, copies of all federal, state, and local permits, certifications, and approvals, as applicable, shall be submitted to the Commission for review.

DURING CONSTRUCTION:

30. During all phases of construction, all disturbed or exposed areas shall be brought to a finished grade and either a) loamed and seeded for permanent stabilization, or b) stabilized in another way approved by the Commission.

31. Any debris, which falls into any resource area, shall be removed immediately by hand and properly disposed of at an off-site location.

32. All excavated material shall be properly disposed of at an off-site location.

33. Any on site dumpsters shall not be located within 25 feet of any resource area.

34. There shall be no stockpiling of soil or other materials within 25 feet of any resource area. All stockpiles that are not used for more than five days shall be covered and surrounded by erosion and sediment controls; straw wattles and/or hay bales shall not be used as a form of erosion and sediment control.

35. Issuance of these conditions does not in any way imply or certify that the site or downstream areas will not be subject to flooding, storm damage, or any other form of damage due to wetness.

36. Any dewatering activities on the project in which water will be released into any resource area or storm drain shall make use of a stilling pond or similar device to remove sediment before the water is released. Prior to construction, plans for the stilling pond or similar device shall be submitted to the Commission for review and approval.

37. No vehicle or other machinery, refueling, lubrication or maintenance, including concrete washout, shall take place within 25 feet of any resource area.

38. Before executing any change from the plan of record, the applicant must have the Commission's written approval. Any errors found in the plans or information submitted by the applicant shall be considered as changes. Approval from other Town Agents or inspectors does not relieve the applicant from obtaining approval from the Commission.

39. Only non-chromated copper arsenate (CCA) material may be used in the construction of the ramp and floats. Lead caps are not permitted. No creosote treated materials shall be used. Wood preservative, if used, must be dry before the treated wood is used in construction.

POST CONSTRUCTION:

40. Storage of floats, other seasonal dock material, and boats must be in an area outside of any wetland resource area and transported thereto without causing damage to any wetland resource area. This condition shall apply in **perpetuity** and shall not expire with the issuance of a Certificate of Compliance.

41. The applicant shall apply for a Certificate of Compliance as soon as work has been completed and prior to the expiration of this Order. If work cannot be completed prior to the expiration of this Order, the applicant shall contact the Commission in writing to apply for an extension at least thirty days prior to the expiration date.

42. The applicant shall submit an "as built" plan to the Commission upon completion of this project. The plan shall be signed by the professional engineer of record, who shall certify that the work has been done in accordance with the approved plans and this Order. This plan must be submitted prior to the issuance of a Certificate of Compliance by the Commission.

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D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☒ Yes ☐ No
2. The Hingham (Conservation Commission) hereby finds (check one that applies):
   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

      1. Municipal Ordinance or Bylaw _____ 2. Citation _____

      Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☒ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

      1. Municipal Ordinance or Bylaw: Hingham Wetlands Protection Bylaw
      2. Citation: Article 22
3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.
   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

   See attached findings and special conditions numbered 21-42 on pages 9A & 9B

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E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

1/26/2021
1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

5
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Signature	Printed Name
	Lavrie Freeman
John C. Mooney	JOHN C. MOONEY
	Robert P Mosher
Henry R. Hidell III	HENRY R. HIDELL III
	Thomas S. Toby

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on 1/26/2021

Date

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F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

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G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Hingham
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Hingham
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

0 Summer Street
Project Location

034-1390
MassDEP File Number

Has been recorded at the Registry of Deeds of:

Plymouth
County

Book

Page

for: Town of Hingham
Property Owner

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Attachment 6

Circulation List

MEPA Distribution List

Agency	Email Address	Address
Massachusetts Environmental Policy Act (MEPA) Office	MEPA@mass.gov	**MEPA Office** 100 Cambridge Street, Suite 900 Boston, MA 02114
Department of Environmental Protection, Boston Office	helena.boccadoro@mass.gov	**Commissioner's Office** One Winter Street Boston, MA 02108
Department of Environmental Protection, Appropriate Regional Office and to each program from which a permit will be sought	Catherine.Skiba@mass.gov Sean.Gonsalves@mass.gov	**DEP/Western Regional Office** Attn: MEPA Coordinator State House West - 4th floor 436 Dwight Street Springfield, MA 01103
	george.zoto@mass.gov jonathan.hobill@mass.gov	**DEP/Southeastern Regional Office** Attn: MEPA Coordinator 20 Riverside Drive Lakeville, MA 02347
	andrea.briggs@mass.gov	**DEP/Central Regional Office** Attn: MEPA Coordinator 8 New Bond Street Worcester, MA 01606
	john.d.viola@mass.gov	**DEP/Northeast Regional Office** Attn: MEPA Coordinator 150 Presidential Way Woburn, MA 01801
Massachusetts Department of Transportation - Boston	MassDOTPPDU@dot.state.ma.us	**Public/Private Development Unit** 10 Park Plaza, Suite #4150 Boston, MA 02116
Massachusetts Department of Transportation – District Office	patrick.tierney@dot.state.ma.us	**District #1** Attn: MEPA Coordinator 270 Main Street Lenox, MA 01240
	bao.lang@dot.state.ma.us garrett.postema@dot.state.ma.us	**District #2** Attn: MEPA Coordinator 811 North King Street Northampton, MA 01060
	Kevin.R.Robenhymer@dot.state.ma.us Eric.Nascimento@dot.state.ma.us	**District #3** Attn: MEPA Coordinator 499 Plantation Parkway Worcester, MA 01605
	timothy.paris@dot.state.ma.us	**District #4** Attn: MEPA Coordinator 519 Appleton Street Arlington, MA 02476

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	Cindy.McConarty@dot.state.ma.us	**District #5** Attn: MEPA Coordinator 1000 County Street Taunton, MA 02780
	michael.garrity@dot.state.ma.us	**District #6** Attn: MEPA Coordinator 185 Kneeland Street Boston, MA 02111
Massachusetts Historical Commission	Mail a hard copy of the filing to MHC.	**The MA Archives Building** 220 Morrissey Boulevard Boston, MA 02125
Applicable Regional Planning Agency	Refer to Regional Planning Agency list.	View list of Regional Planning Agency contacts appended to this document.
In each municipality affected by the Project	Coordinate with each municipality.	**City Council or Board of Selectmen**
		Planning Board/Department
		Conservation Commission
		Department/Board of Health
If the Project is located within five miles of an Environmental Justice Population	EEA Environmental Justice Director MEPA-EJ@mass.gov	**MEPA Office** Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02144
If the project is in a Coastal Zone Community	sean.duffey@mass.gov patrice.bordonaro@mass.gov	**Coastal Zone Management** Attn: Project Review Coordinator 100 Cambridge Street, Suite 900 Boston, MA 02144
	DMF.EnvReview-North@mass.gov	**From Hull to New Hampshire Border** DMF – North Shore Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930

	DMF.EnvReview-South@mass.gov	**From Cohasset to Rhode Island Border** DMF – South Shore Attn: Environmental Reviewer 836 South Rodney French Blvd New Bedford, MA, 02744
If the project site has been in agricultural use within the last fifteen years	barbara.hopson@mass.gov	**Department of Agricultural Resources** Attn: MEPA Coordinator 138 Memorial Avenue, Suite 42 West Springfield, MA 01089
If the Project site is within or contains designated significant or estimated habitat, or priority sites of endangered or threatened species or species of special concern in accordance with the Massachusetts Endangered Species Act	melany.cheeseman@mass.gov emily.holt@mass.gov	**Natural Heritage and Endangered Species Program** Division of Fisheries & Wildlife 1 Rabbit Hill Road Westborough, MA 01581
If the Project affects DCR roadways, watersheds or other properties or an ACEC	andy.backman@mass.gov	**DCR** Attn: MEPA Coordinator 251 Causeway St. Suite 600 Boston MA 02114
If the Project implicates public health impacts	dphtoxicology@massmail.state.ma.us	**Department of Public Health** Director of Environmental Health 250 Washington Street Boston, MA 02115
If the Project is subject to Greenhouse Gas Emissions Policy or to review by Energy Facilities Siting Board	andrew.greene@mass.gov geneen.bartley@mass.gov	**Energy Facilities Siting Board** Attn: MEPA Coordinator One South Station Boston, MA 02110
	paul.ormond@mass.gov	**Department of Energy Resources** Attn: MEPA Coordinator 100 Cambridge Street, 10th floor Boston, MA 02114
If the Project is in a municipality served by the Massachusetts Water Resources Authority (MWRA)	Hillary.Monahan@mwra.com	**Massachusetts Water Resource Authority** Attn: MEPA Coordinator 100 First Avenue Charlestown Navy Yard Boston, MA 02129
If the Project affects Massachusetts Bay Transportation Authority (MBTA) facilities or properties	MEPAcoordinator@mbta.com	**Massachusetts Bay Transit Authority** Attn: MEPA Coordinator 10 Park Plaza, 6th Fl. Boston, MA 02116-3966

Regional Planning Agency Distribution List

Find your Regional Planning Agency (RPA) here by clicking on the statewide map at the bottom of the webpage.

Regional Planning Agency	Email and/or Mailing Address
Berkshire Regional Planning Commission (BRPC)	tmatuszko@berkshireplanning.org mprovencher@berkshireplanning.org OfficeAssistant@berkshireplanning.org
Cape Cod Commission (CCC)	ksenatori@capecodcommission.org regulatory@capecodcommission.org
Central Massachusetts Regional Planning Commission (CMRPC)	mepafiling@cmrpc.org
Franklin Regional Council of Governments (FRCoG) 12 Olive Street Greenfield, MA 01301	KMacPhee@frcog.org PSloan@frcog.org and 2 hard copies (Attn Kimberly MacPhee and Peggy Sloan; see address to the left)
Martha's Vineyard Commission (MVC)	turner@mvcommission.org morrison@mvcommission.org
Merrimack Valley Planning Commission (MVPC)	info@mvpc.org
Metropolitan Area Planning Council (MAPC)	mpillsbury@mapc.org afelix@mapc.org
Montachusett Regional Planning Commission (MRPC)	mrpc@mrpc.org
Nantucket Planning and Economic Development Commission (NPEDC)	avorce@nantucket-ma.gov
Northern Middlesex Council of Governments (NMCoG) 40 Church Street Lowell, MA 01852-2686	jraitt@nmcog.org lshahbazian@nmcog.org and 1 hard copy (Attn Jennifer Raitt; see address to the left)
Pioneer Valley Planning Commission (PVPC) 60 Congress Street, 1st Floor Springfield, MA 01104-3419	gmroux@pvpc.org and 1 hard copy (Attn Gary Roux; see address to the left)
Old Colony Planning Council (OCPC)	mwaldron@ocpcrpa.org kmowatt@ocpcrpa.org ckilmer@ocpcrpa.org
Southeastern Regional Planning and Economic Development District (SRPEDD)	jwalker@srpedd.org gking@srpedd.org dbelknap@srpedd.org ldeoliveira@srpedd.org lestrela@srpedd.org

Revised 03/08/2024

Attachment 7

Anticipated Local and Federal Permits and Approvals

Attachment 7 – Anticipated Local and Federal Permits and Approvals

Agency	Permit/License/Approval
Local	
Town of Hingham Conservation Commission	Order of Conditions
Federal	
US Army Corps of Engineers	Pre-Construction Notification

Attachment 8

RMAT Report

Climate Resilience Design Standards Tool Project Report

Hingham Harbor Resilience Project

Date Created: 6/21/2024 4:56:54 PM
Created By: jramsey@coastalengineer.us
Date Report Generated: 6/21/2024 5:40:35 PM
Tool Version: Version 1.2
Project Contact Information: JR Frey (Frey, JR <freyj@hingham-ma.gov>)

Project Summary

Link to Project

Estimated Capital Cost: $20000000.00
End of Useful Life Year: 2077
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Moderate
Exposure	**Scores**
Sea Level Rise/Storm Surge	High Exposure
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	Not Exposed
Extreme Heat	High Exposure

Asset Preliminary Climate Risk Rating Summary

Number of Assets: 4

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Barnes Wharf	High Risk	High Risk	Low Risk	High Risk
Town Wharf	High Risk	High Risk	Low Risk	High Risk
Dune and Parking	High Risk	High Risk	Low Risk	High Risk
Home Meadows Culvert	High Risk	High Risk	Low Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Barnes Wharf	2070	2050			
Town Wharf	2070	2050			
Dune and Parking	2070	2050			
Home Meadows Culvert	2070	2050		100-yr (1%)	
Extreme Precipitation					
Barnes Wharf	2070				Tier 2
Town Wharf	2070				Tier 2
Dune and Parking	2070				Tier 2

Home Meadows Culvert	2070		50-yr (2%)	Tier 3
Extreme Heat				
Barnes Wharf	2070	50th		Tier 2
Town Wharf	2070	50th		Tier 2
Dune and Parking	2070	50th		Tier 2
Home Meadows Culvert	2070	90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "High Exposure" because of the following:

- Located within the predicted mean high water shoreline by 2030
- Exposed to the 1% annual coastal flood event as early as 2030
- Historic coastal flooding at project site

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- No historic flooding at project site
- No increase to impervious area
- Existing impervious area of the project site is between 10% and 50%

Extreme Precipitation - Riverine Flooding

This project received a "Not Exposed" because of the following:

- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is more than 500ft from a waterbody
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Less than 10% of the existing project site has canopy cover
- Located within 100 ft of existing water body
- No increase to the impervious area of the project site
- No tree removal

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Barnes Wharf
Primary asset criticality factors influencing risk ratings for this asset:

- Asset can be inaccessible/inoperable more than a week after natural hazard event without consequences
- Loss/inoperability of the asset would have impacts limited to local area and/or municipality
- Inoperability of the asset would not be expected to result in injuries

- Inoperability is likely to significantly impact other facilities, assets, or buildings and will likely affect their ability to operate
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Asset - Town Wharf
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Loss/inoperability of the asset would have impacts limited to local area and/or municipality
- Inoperability of the asset would not be expected to result in injuries
- Inoperability may moderately impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Asset - Dune and Parking
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Loss/inoperability of the asset would have impacts limited to local area and/or municipality
- Inoperability of the asset would not be expected to result in injuries
- Inoperability may moderately impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Asset - Home Meadows Culvert
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Loss/inoperability of the asset would have impacts limited to local area and/or municipality
- Inoperability of the asset would be expected to cause a loss of confidence in government agency
- Inoperability is likely to significantly impact other facilities, assets, or buildings and will likely affect their ability to operate
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Barnes Wharf — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: Not exposed to coastal flooding by 2070

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

The projected values, Standards, and Guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence.

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: No Return Period

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these

events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

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Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Barnes Wharf	2070	No Return Period	N/A	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat High Risk

Target Planning Horizon: 2070
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Town Wharf Infrastructure

Sea Level Rise/Storm Surge High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: Not exposed to coastal flooding by 2070

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

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Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation High Risk

Target Planning Horizon: 2070
Return Period: No Return Period

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

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Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Town Wharf	2070	No Return Period	N/A	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat High Risk

Target Planning Horizon: 2070
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Dune and Parking — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: Not exposed to coastal flooding by 2070

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

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Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: No Return Period

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

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Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Dune and Parking	2070	No Return Period	N/A	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat High Risk

Target Planning Horizon: 2070
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Home Meadows Culvert Infrastructure

Sea Level Rise/Storm Surge High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 100-yr (1%)

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

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Applicable Design Criteria

Projected Tidal Datums: APPLICABLE

Planning Horizon	MHHW	MHW	MTL	MLW	MLLW
	(ft-NAVD88)				
2050	7.8	7.4	2.5	-2.4	-2.7
2070	9.6	9.2	4.3	-0.7	-0.9

This project is located in an area with uncertainty for future tidal datums. These uncertain zones are either dynamic in terms of geomorphology or are restricted by manmade features (i.e., culverts, tide gates, etc.) that should be evaluated in more detail at the site-scale.

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Home Meadows Culvert	2050	1% (100-Year)	12.8	12.4	12.7
	2070		14.5	14.2	14.4

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Home Meadows Culvert	2050	1% (100-Year)	18.3	12.8	14.7
	2070		20.4	15.2	16.9

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Home Meadows Culvert	2050	1% (100-Year)	7.5	0.0	4.1
	2070		8.5	1.0	4.7

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Home Meadows Culvert	2070	50-Year (2%)	9.8	Downloadable Methodology PDF

ATTENTION: This is a Tier 3, Dams & Flood Control Structures project. Due to the criticality and useful life of this project, it is recommended that NCHRP15-61 methodology be used to calculate total precipitation depth for 24-hour design storms, and those results be compared to the provided total storm depth output: Tier 3 methodology PDF.

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

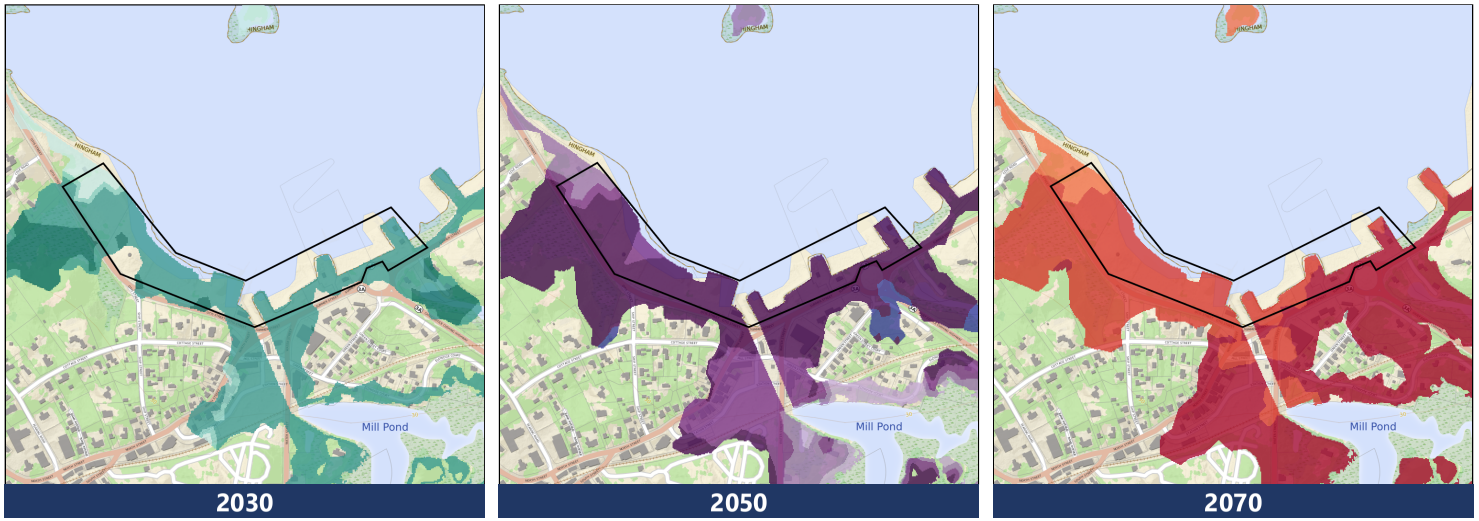
Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Sea Level Rise/Storm Surge Project Maps

The following three maps illustrate the Projected Water Surface Elevation for the 2030, 2050, and 2070 planning horizons corresponding to the lowest return period (largest design storm) recommended across the assets identified for this project in the Tool. For projects that only have Natural Resource assets, the maps will show the Projected Water Surface Elevations corresponding to the 5% (20-year) return period. Refer to the Climate Resilience Design Standards Output - Sea Level Rise/Storm Surge Section for additional values associated with other assets. The maps include the project area as drawn by the user with a 0.1 mile minimum buffer, but do not reflect the location of specific assets on the site.

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values and maps provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

The projected values, maps, Standards, and Guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence.



Legend

- Project Boundary
- Projected Water Surface Elevation (ft-NAVD88)
  - ≤ 10.5
  - 10.5 - 10.7
  - 10.7 - 10.9
  - 10.9 - 11.1
  - 11.1 - 11.3
  - 11.3 - 11.5
  - 11.5 - 11.7
  - 11.7 - 11.9
  - 11.9 - 12.1
  - 12.1 - 12.3
  - 12.3 - 12.5
  - 12.5 - 12.7
  - 12.7 - 12.9
  - 12.9 - 13.1
  - 13.1 - 13.3
  - 13.3 - 13.5
  - 13.5 - 13.7
  - 13.7 - 13.9
  - 13.9 - 14.1
  - 14.1 - 14.3
  - 14.3 - 14.5
  - ≥ 14.5

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 1% (100-yr)

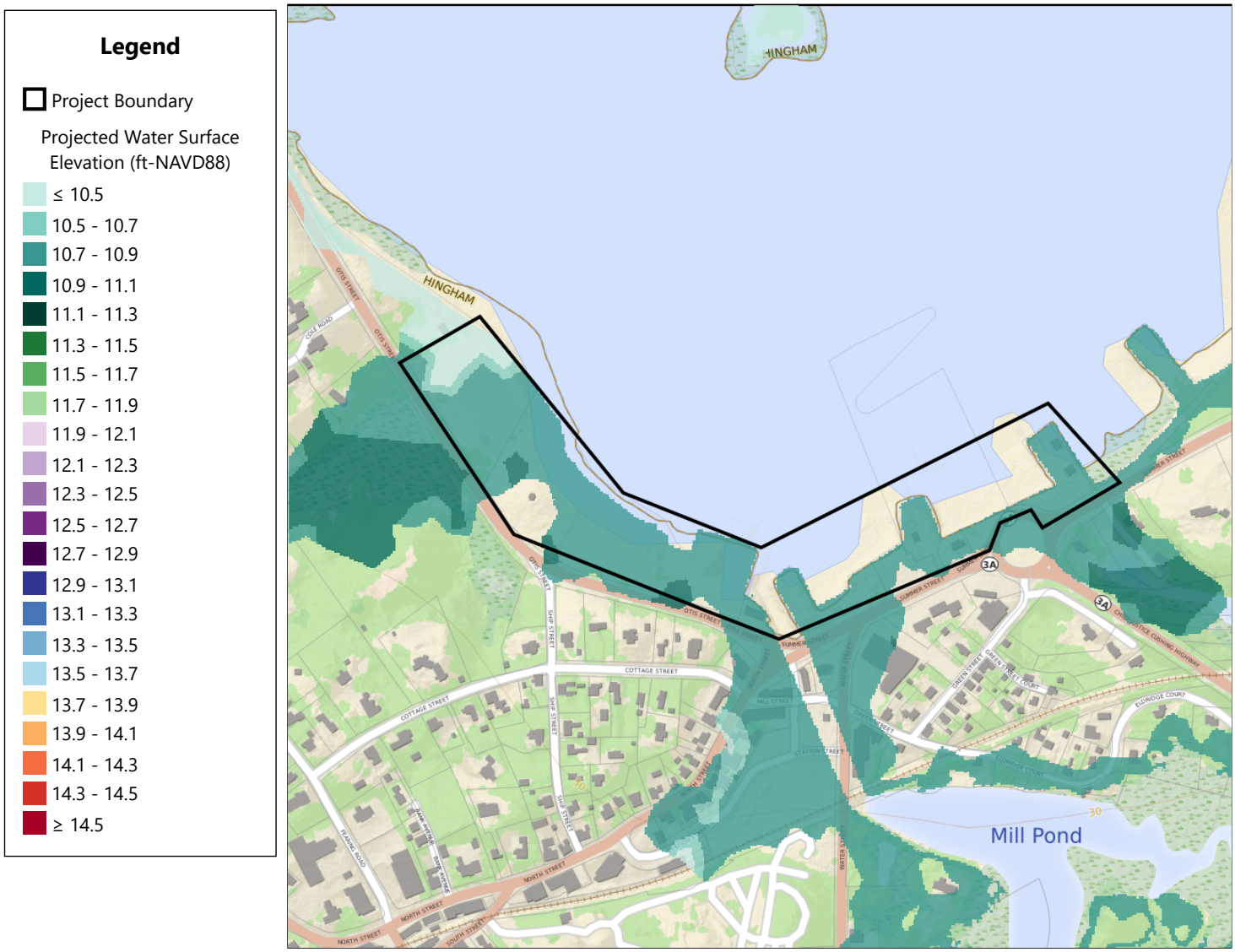
Project Name: Hingham Harbor Resilience Project
Location (Town): Hingham

0.25 0.5 1.0 Miles

Created by: jramsey@coastalengineer.us
Date Created: 6/21/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Home Meadows Culvert	2030	1% (100-yr)	11.0	10.5	10.8
	2050	1% (100-yr)	12.8	12.4	12.7
	2070	1% (100-yr)	14.5	14.2	14.4



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2030, 1% (100-yr)

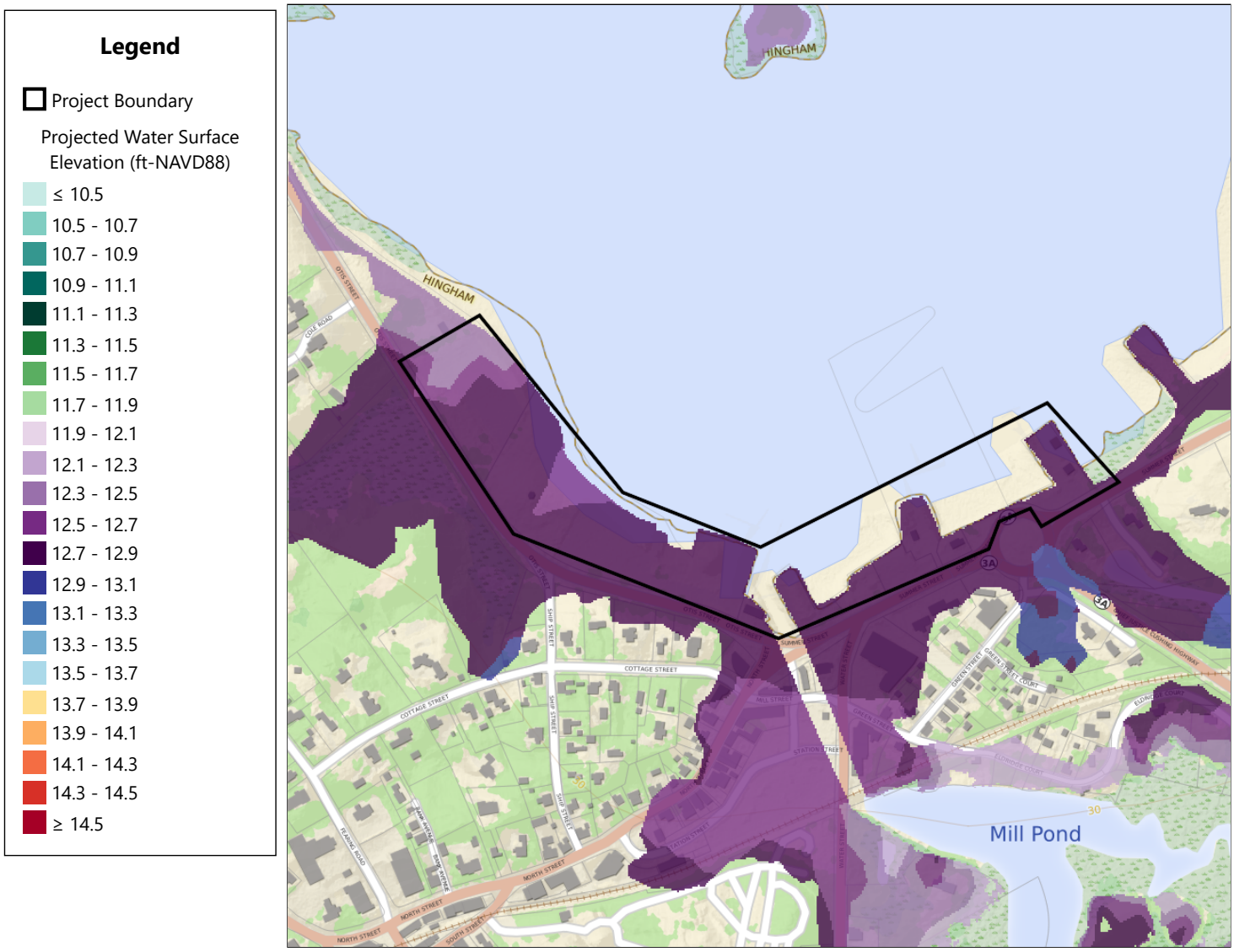
Project Name: Hingham Harbor Resilience Project
Location (Town): Hingham

0.05 0.1 0.25 Miles

Created by: jramsey@coastalengineer.us
Date Created: 6/21/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Home Meadows Culvert	2030	1% (100-yr)	11.0	10.5	10.8



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2050, 1% (100-yr)

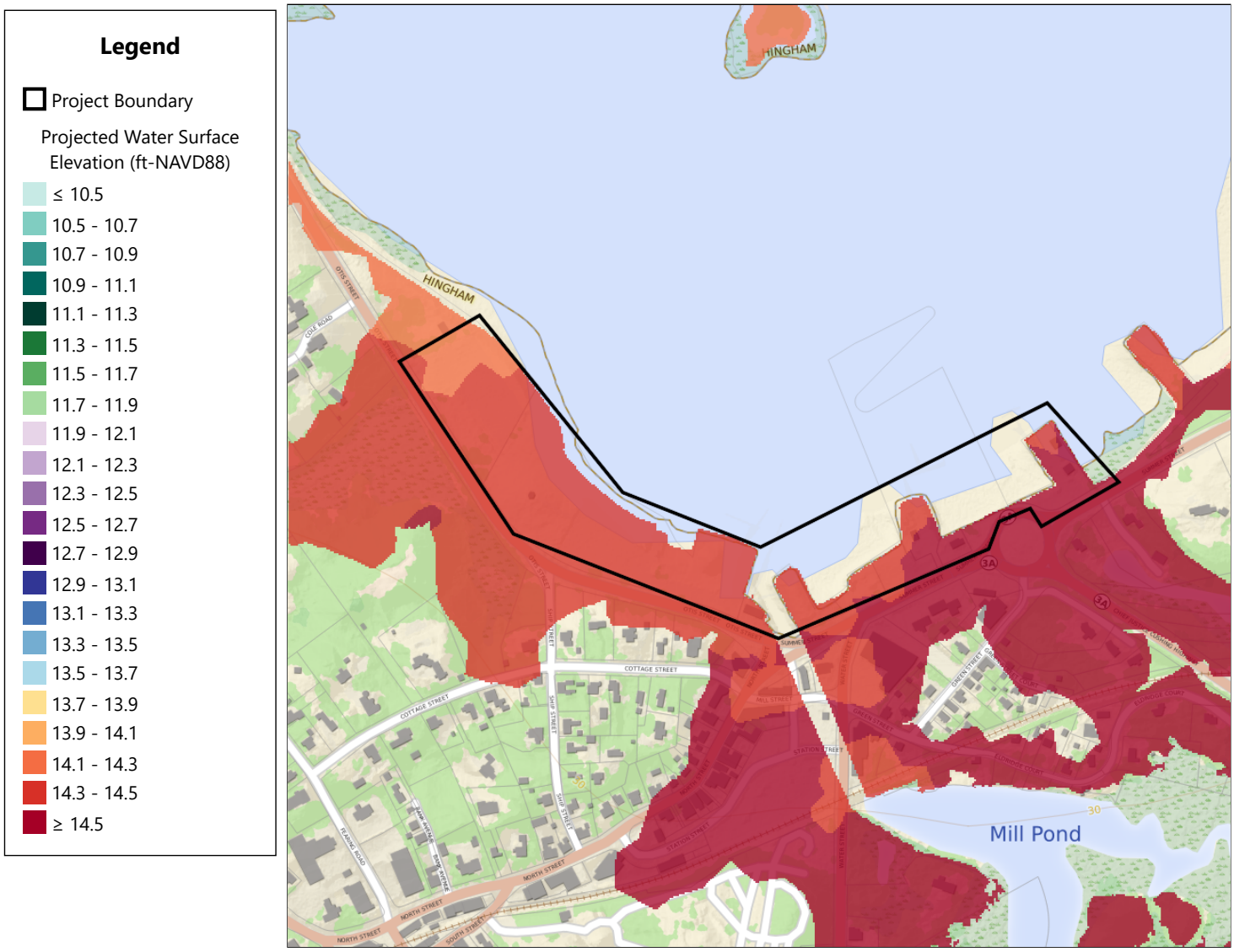
Project Name: Hingham Harbor Resilience Project
Location (Town): Hingham

0.05 0.1 0.25 Miles

Created by: jramsey@coastalengineer.us
Date Created: 6/21/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Home Meadows Culvert	2050	1% (100-yr)	12.8	12.4	12.7



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2070, 1% (100-yr)

Project Name: Hingham Harbor Resilience Project
Location (Town): Hingham

0.05 0.1 0.25 Miles

Created by: jramsey@coastalengineer.us
Date Created: 6/21/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Home Meadows Culvert	2070	1% (100-yr)	14.5	14.2	14.4

Project Inputs

Core Project Information

Name:	Hingham Harbor Resilience Project
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2077
Location of Project:	Hingham
Estimated Capital Cost:	$20,000,000
Who is the Submitting Entity?	City/Town Hingham JR Frey (Frey, JR <freyj@hingham-ma.gov>)
Is this project identified as a priority project in the Municipal Vulnerability Preparedness (MVP) plan or the local or regional Hazard Mitigation Plan (HMP)?	Yes
Is this project being submitted as part of a state grant application?	Yes
What stage are you in your project lifecycle?	Planning
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	The project is designed to provide 100-year storm protection to the Hingham Harbor shoreline until 2070
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project provides flood protection through nature-based solutions
- ✓ Project reduces storm damage
- ✓ Project protects public water supply
- ✓ Project improves water quality
- ✓ Project protects fisheries, wildlife, and plant habitat
- ✓ Project protects land containing shellfish
- ✓ Project remediates existing sources of pollution
- ✓ Project provides recreation
- ✓ Project prevents pollution

Factors to Improve Output

- ✓ Incorporate strategies that reduce carbon emissions
- ✓ Incorporate green infrastructure or nature-based solutions that recharge groundwater
- ✓ Incorporate green infrastructure to filter stormwater
- ✓ Incorporate nature-based solutions that sequester carbon carbon
- ✓ Incorporate vegetation that provides pollinator habitat
- ✓ Increase plants, trees, and/or other vegetation to provide oxygen production
- ✓ Mitigate atmospheric greenhouse gas concentrations and other toxic air pollutants through nature-based solutions
- ✓ Incorporate education and/or protect cultural resources as part of your project

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	Yes
Reduces storm damage	Yes
Recharges groundwater	No
Protects public water supply	Yes
Filters stormwater using green infrastructure	No
Improves water quality	Yes
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	Yes
Remediates existing sources of pollution	Yes
Protects fisheries, wildlife, and plant habitat	Yes
Protects land containing shellfish	Yes
Provides pollinator habitat	No
Provides recreation	Yes
Provides cultural resources/education	No

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	Yes

Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	No
Does the project site have a history of riverine flooding?	No
Does the project result in a net increase in impervious area of the site?	No
Are existing trees being removed as part of the proposed project?	No

Project Assets

Asset: Barnes Wharf
Asset Type: Other
Asset Sub-Type: Other
Construction Type: Major Repair/Retrofit
Construction Year: 2027
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable more than a week after natural hazard event without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 5,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
Yes
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would not be expected to result in injuries
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Significant – Inoperability is likely to impact other facilities, assets, or buildings and result in cascading impacts that will likely affect their ability to operate
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure is not expected to reduce the ability to maintain government services
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Reduced morale and public support
Asset: Town Wharf
Asset Type: Other
Asset Sub-Type: Other
Construction Type: Major Repair/Retrofit
Construction Year: 2025
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 5,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
Yes
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?

Inoperability of the infrastructure would not be expected to result in injuries
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect the ability of other facilities, assets, or buildings to operate
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Reduced morale and public support
Asset: Dune and Parking
Asset Type: Other
Asset Sub-Type: Other
Construction Type: New Construction
Construction Year: 2025
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 5,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
Yes
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would not be expected to result in injuries
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but cascading impacts do not affect the ability of other facilities, assets, or buildings to operate
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Reduced morale and public support
Asset: Home Meadows Culvert
Asset Type: Dams and Flood Control Structures
Asset Sub-Type: Other Flood Barrier
Construction Type: New Construction
Construction Year: 2026
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.

Infrastructure must be accessible/operable at all times, even during natural hazard event.

Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.

Impacts would be limited to local area and/or municipality

Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.

Less than 5,000 people

Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

Will the infrastructure reduce the risk of flooding?

Yes

If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?

Inoperability of the infrastructure would not be expected to result in injuries

If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?

There are no hazardous materials in the infrastructure

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?

Significant – Inoperability is likely to impact other facilities, assets, or buildings and result in cascading impacts that will likely affect their ability to operate

If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?

Less than $10 million

Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.

No

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?

Impact on natural resources can be mitigated naturally

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?

Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist

What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?

Loss of confidence in government agency

Report Comments

N/A

Attachment 9

Waterfront Design Water Levels and Wave Conditions

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.

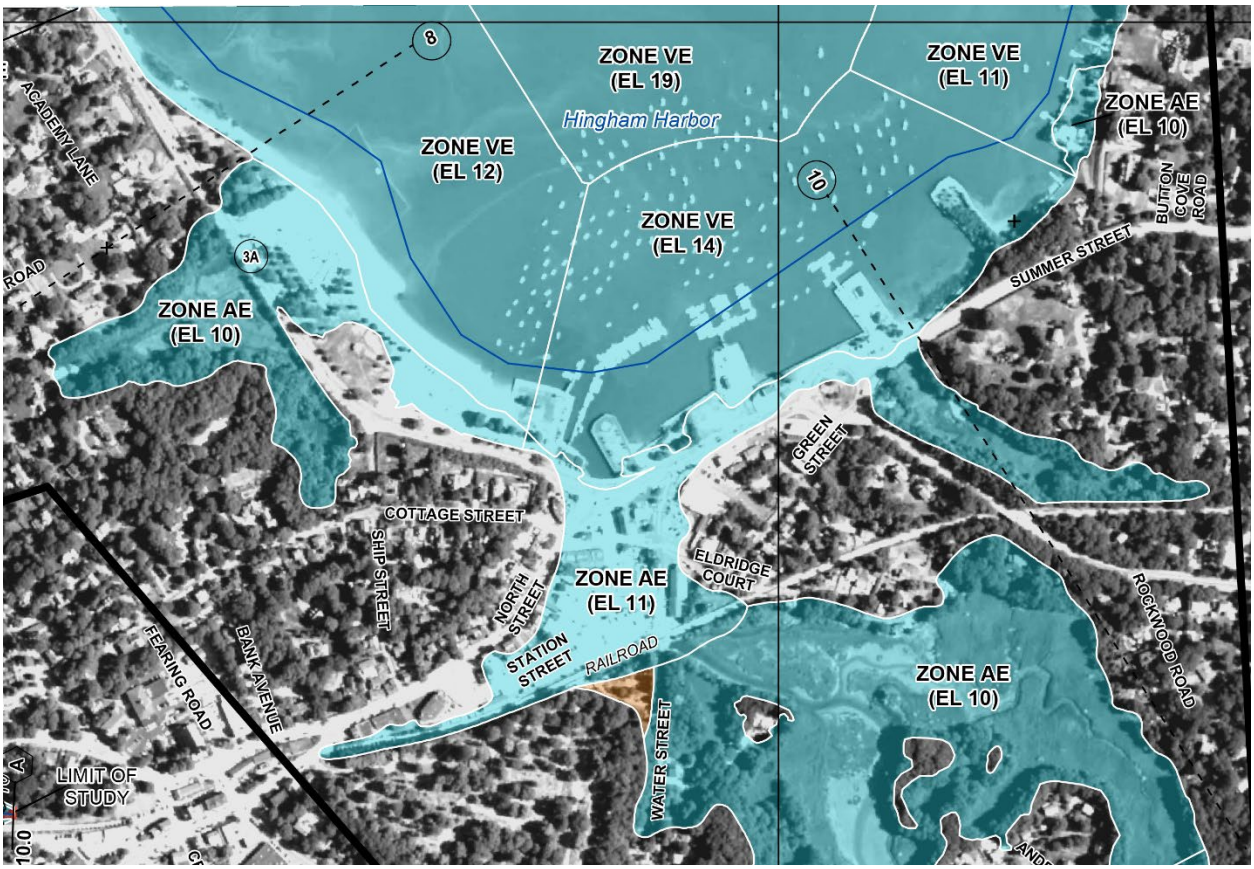


Figure 1. Portion of updated FEMA Flood Insurance Rate Map (FIRM) for Hingham, last updated on August 14, 2015

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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).

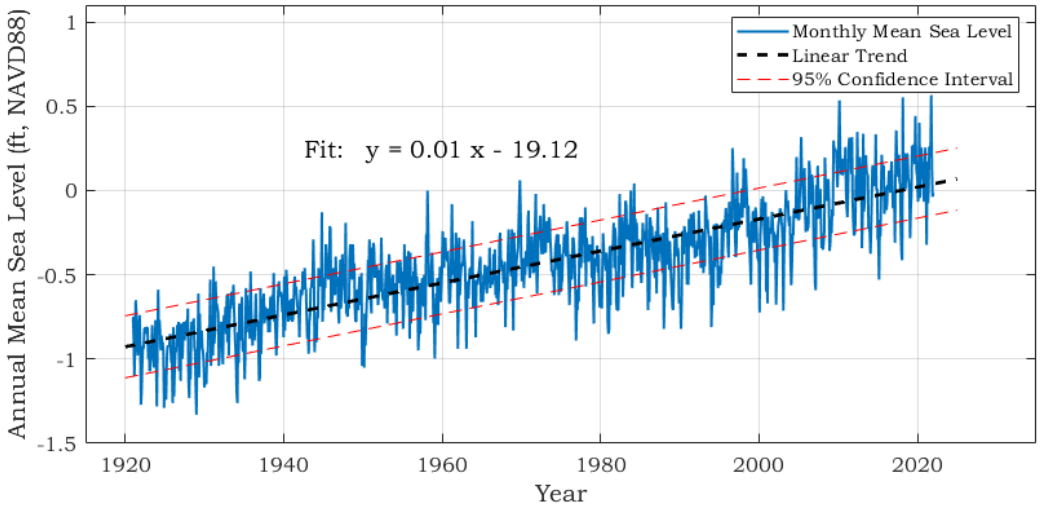

Figure 2. Monthly mean water levels recorded in Boston Harbor between 1921 and 2021 indicate a linear trend in sea level rise over the past 100 years of approximately 0.01 feet per year (*Source: NOAA*)

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.

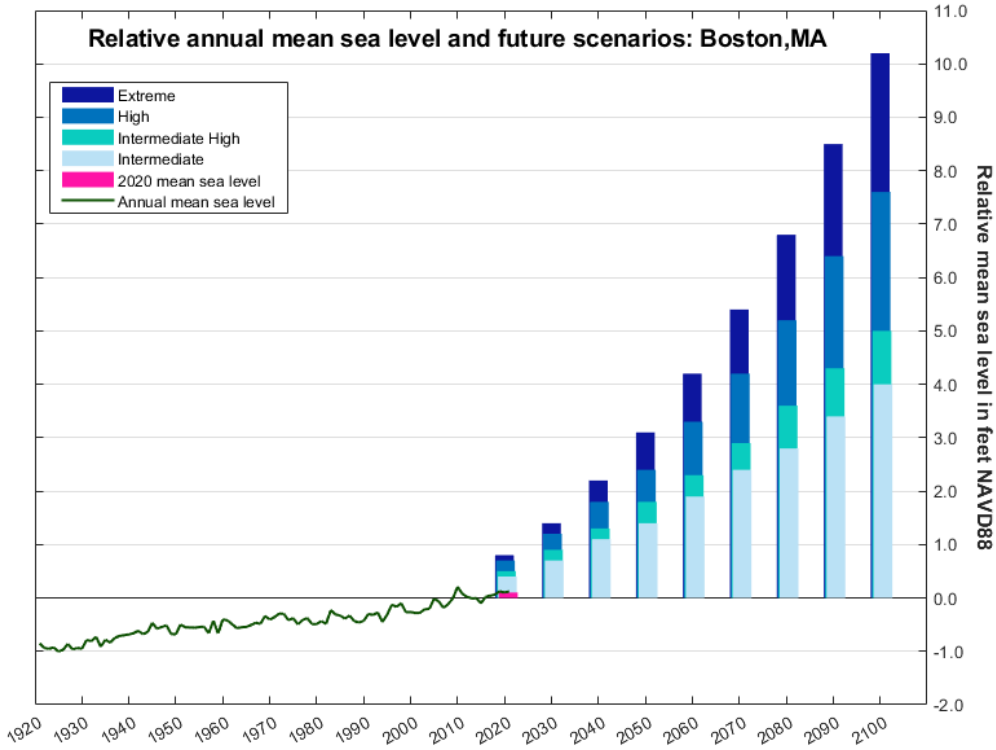

Figure 3. Relative mean sea level projections for the Boston, MA tide station based on four National Climate Assessment global scenarios with associated probabilistic model outputs from the Northeast Climate Science Center. The probabilistic projections are listed in Table 1. The pink bar denotes the 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.

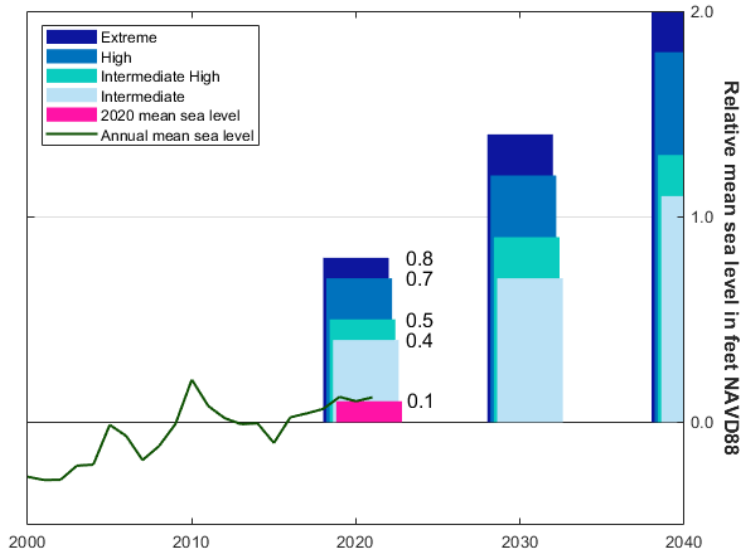

Figure 4. Comparison of probabilistic sea level rise projections from Resilient MA (DeConto and Kopp, 2017) and measured annual mean sea level for Boston Harbor, Massachusetts.

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.

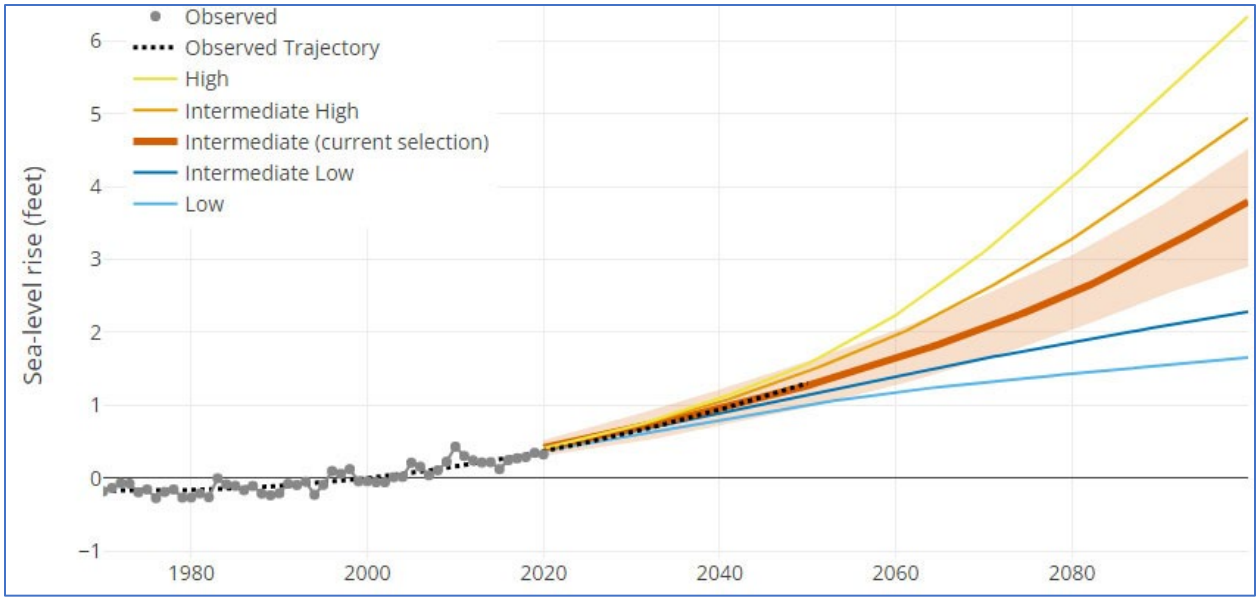

Figure 5. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). Results for a full range of scenarios can be found at: https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding?

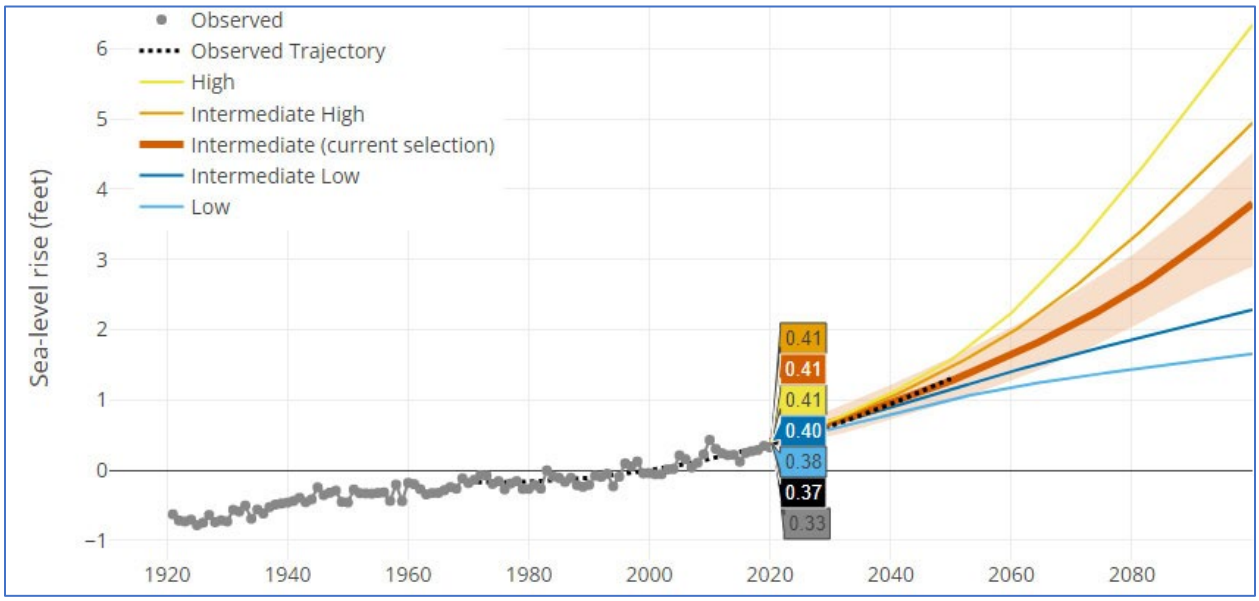

Figure 6. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). The colored numbers represent the modeling results for the various scenarios for 2020, as well as the observed mean sea level. Results for a full range of scenarios 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).*

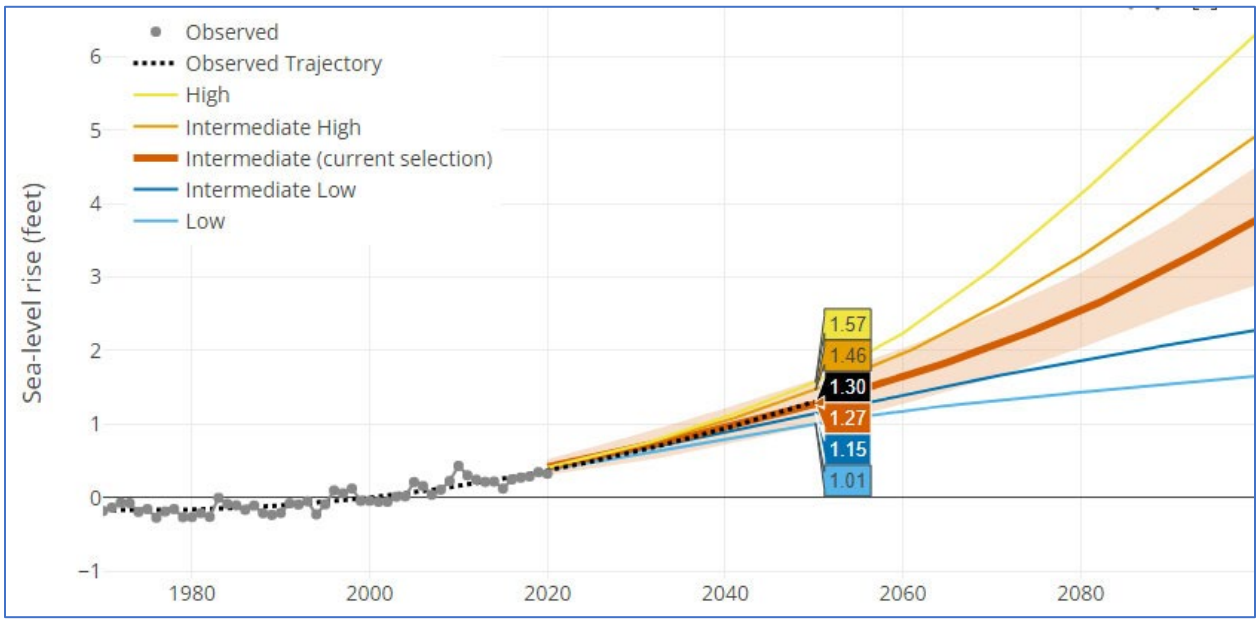

Figure 7. Projected sea level rise for Boston Harbor, Massachusetts based upon modeling analyses performed by NOAA (Sweet, et. al., 2022). The colored numbers represent the modeling results for the various scenarios for 2050. Results for a full range of scenarios can be found at: https://sealevel.nasa.gov/flooding-analysis-tool/projected-flooding?

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

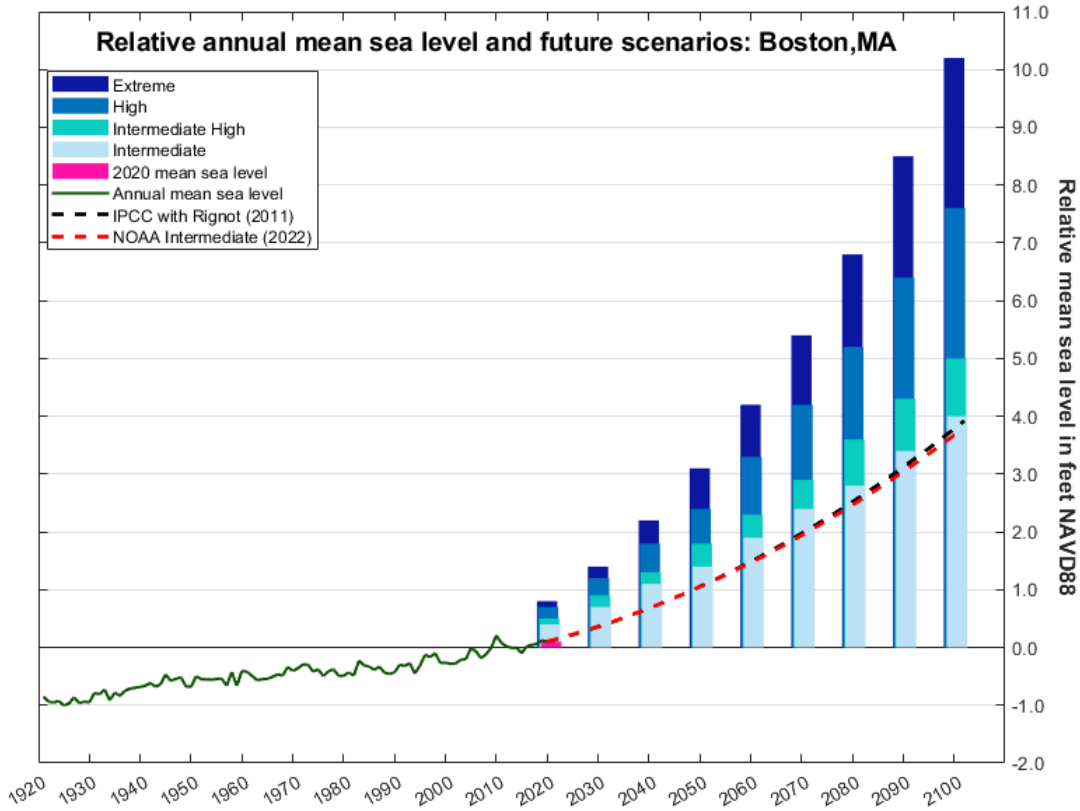

Figure 8. Sea level rise projections with the latest NOAA projections (adjusted to account for current mean sea level; dashed red line) and a curve representing flood projections from the IPCC augmented by sheet ice contributions determined by Rignot et al. (2011; dashed black line). The bar plot represents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

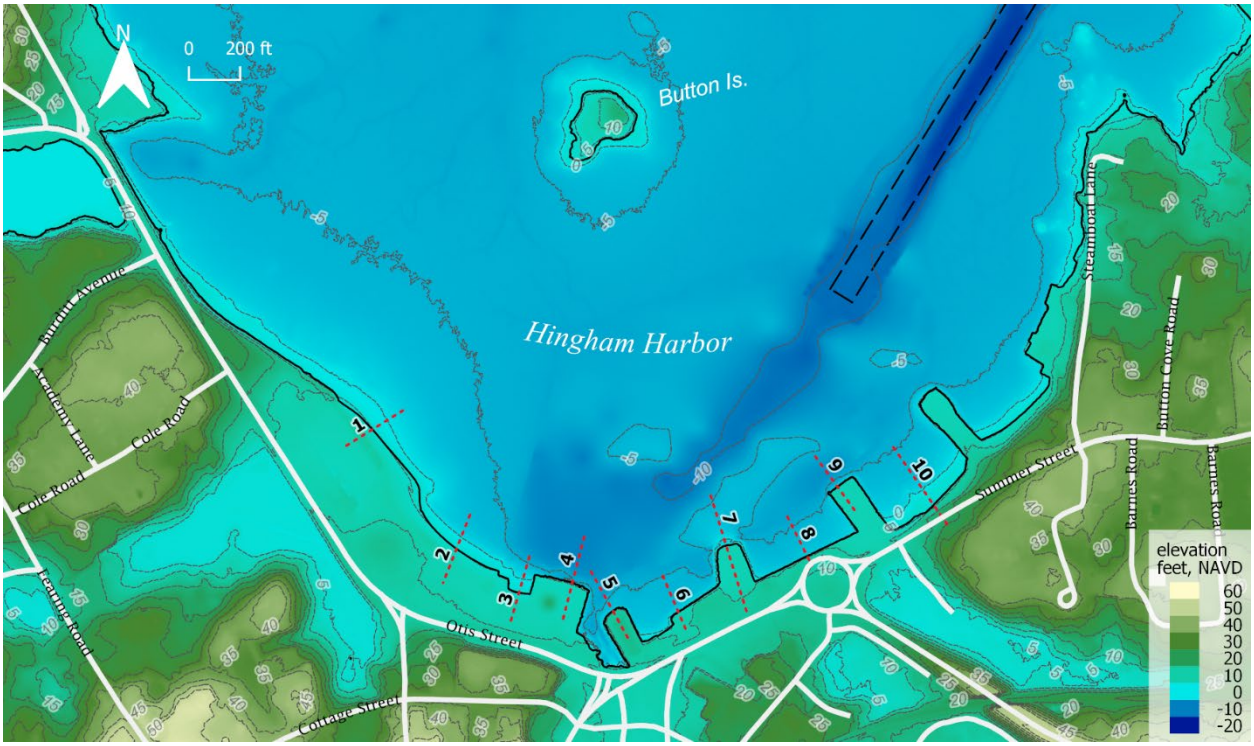

Figure 9. Map of Hingham Harbor waterfront with the location of the ten coastal analysis transects along the study area shoreline. The US Army Corps of Engineers' navigation channel limits are indicated by the black-dashed line.

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.

<u>Wave Data</u>. The USACE Wave Information Study (WIS) hindcast provides wave data time series at dozens of stations along the US coastline. Wave parameters (including Hs 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 Hs 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 Hs 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) where 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.

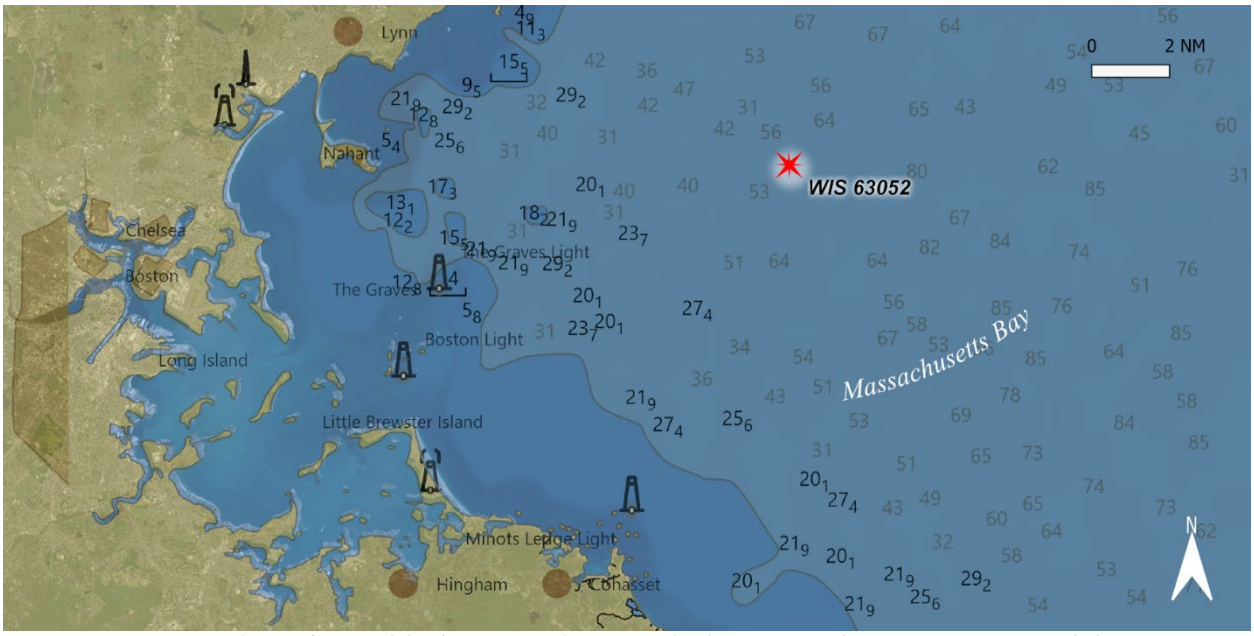

Figure 11. Location of WIS hindcast station 63052 in Massachusetts Bay, overlain on NOAA ENC chart of Massachusetts Bay (depths in meters and tenths).

<u>Wind Data</u>. 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

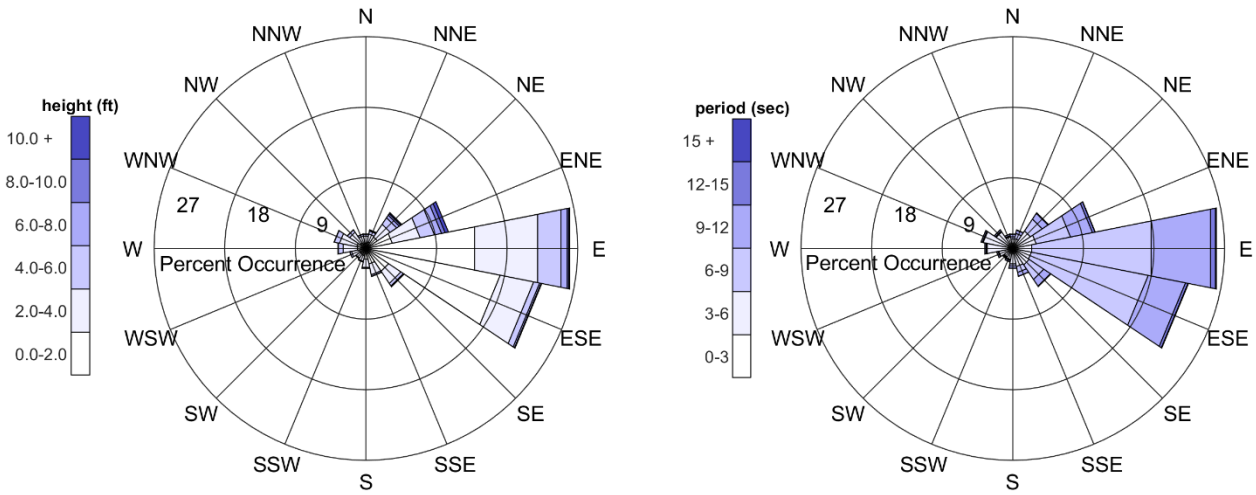

Figure 12. Rose plots of significant wave height (Hs, left) and peak wave period (Tp, right), for the WIS hindcast record at station 63052. Grey-tone segments indicate the percentage of time wave weights and periods in the record are within the indicated ranges for each compass sector.

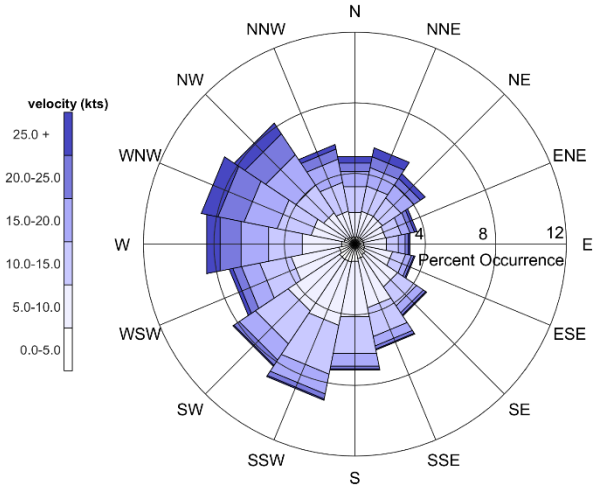

Figure 13. Rose plots of wind speed (knots) for the WIS hindcast record at station 63052. Grey-tone segments indicate the percentage of time winds in the record blow within the indicated speed range from the indicated compass sector.

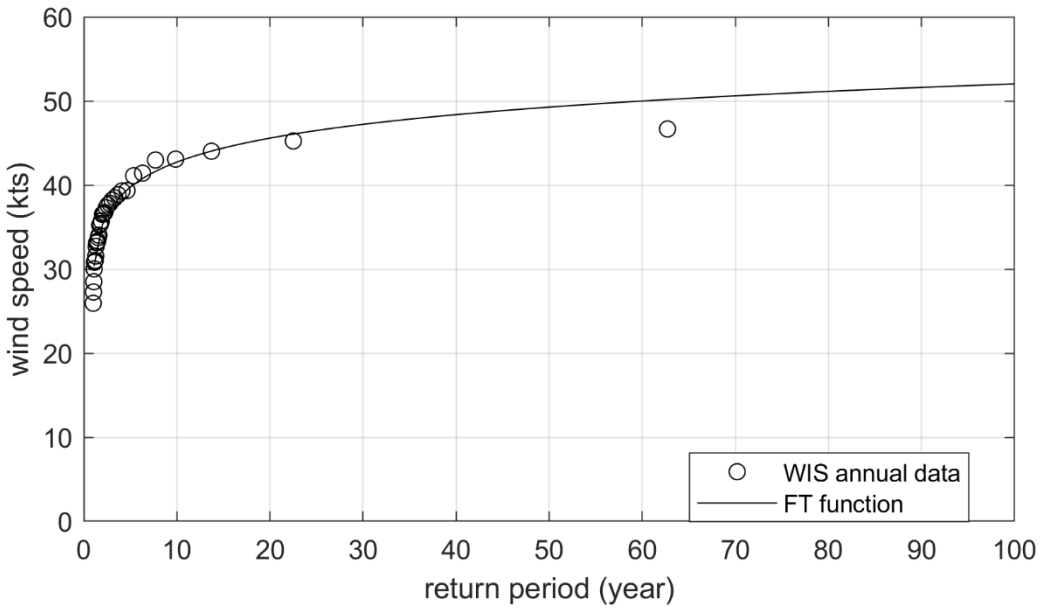

Figure 14. Plot of return period wind speeds for the north compass sector, using the WIS hindcast record (1980 through 2020) at station 63052. Sorted annual maximum windspeeds are indicated by the circle markers, and the Fischer-Tippet (FT) fit of the data is shown as the solid line. R^2 correlation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

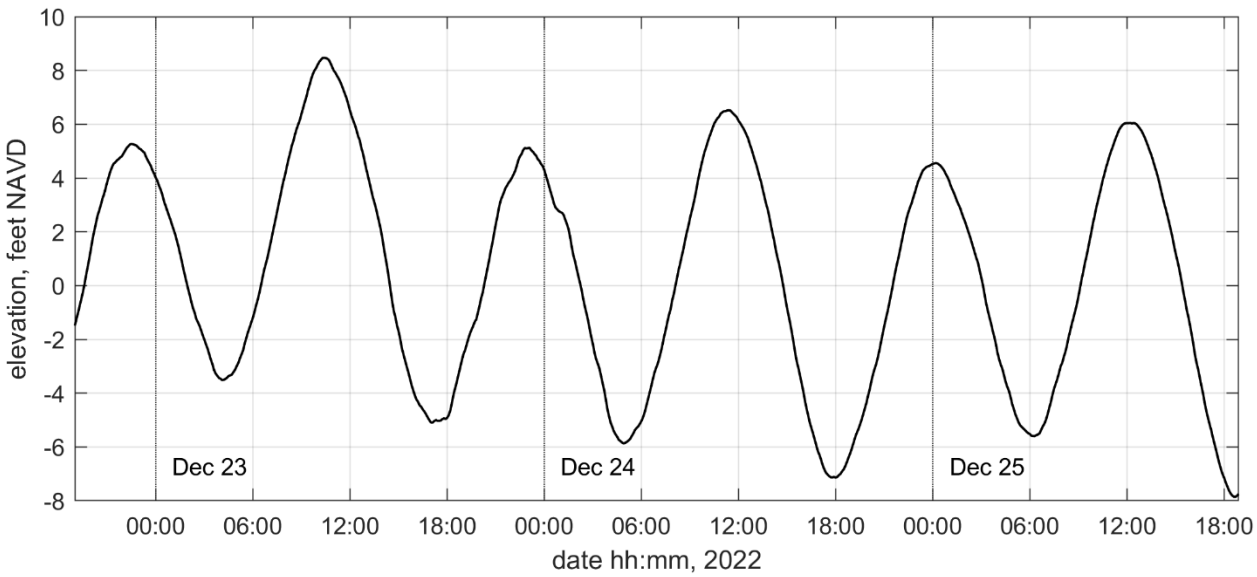

Figure 15. NOAA measured tides in Boston Harbor during the Dec 2022 northeast storm, when peak water levels reached 8.4 feet NAVD.

<u>Sediment Data</u>. 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.

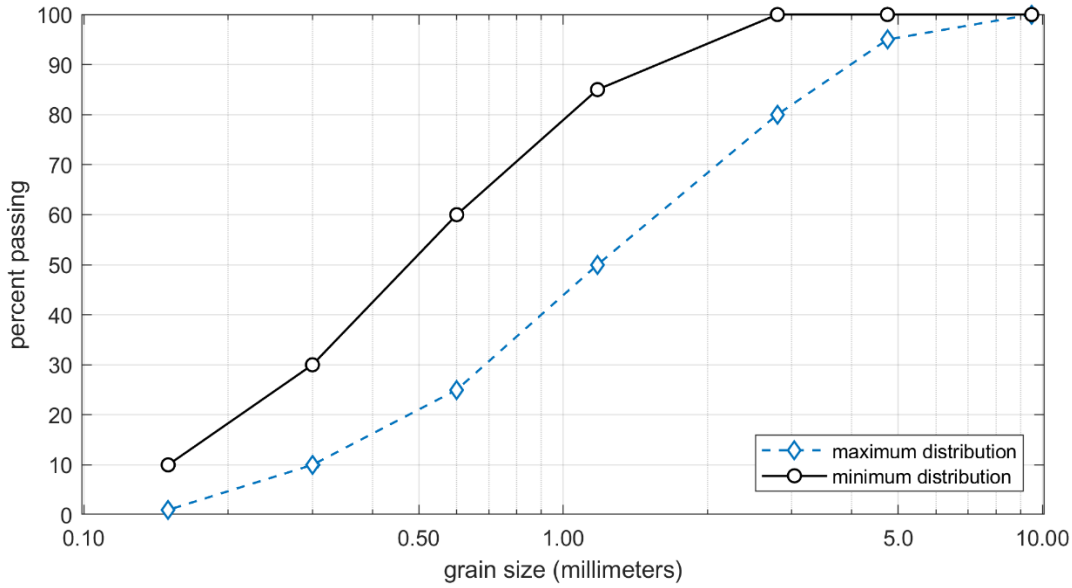

Figure 16. Bathing Beach specified grain size distribution curves that designate the minimum (solid black line) and maximum (dashed blue line) allowable percent passing for indicated sand grain sizes. The D50 grain size resulting from these two distributions is 0.50 and 1.18 mm for the minimum and maximum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

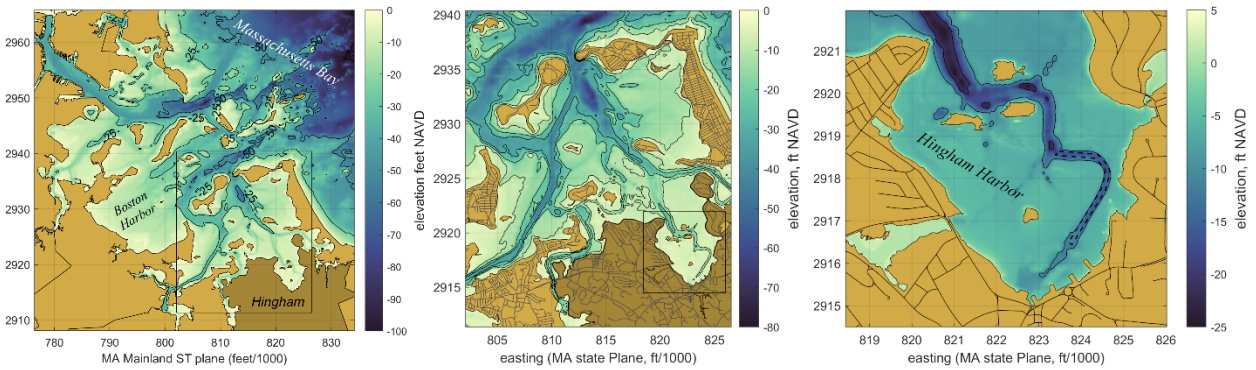

Figure 17. Contour plots of bathymetry used in the wave model coarse 40-meter grid of Boston Harbor, the intermediate 15-meter grid of Hingham Bay, and the fine nested 2-meter grid of Hingham Harbor, including the shoreline of the project area.

Winds blowing from the north compass sector generate the largest waves in Hingham Harbor. For this wave case, significant Hs 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.

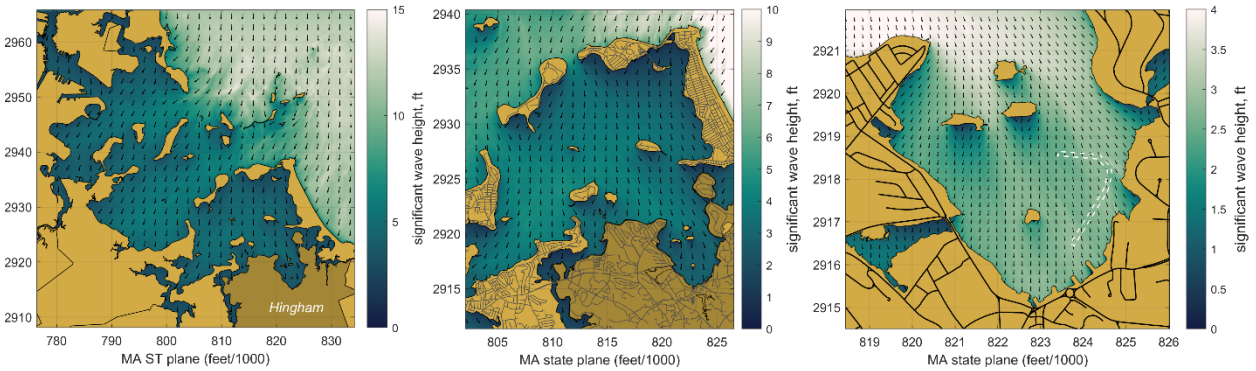

Figure 18. Contour plots of wave height (Hs) and direction (arrows) for the modeled 100-year storm conditions with winds blowing from the north, for the Boston Harbor grid (left), Hingham Bay grid (center), and the Hingham Habor fine grid (right).

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 runup elevations and overtopping volumes for walls with the same crest elevation.

Overtopping Analysis Results. Wall crest elevation determined using the EurOtop methodology are resented 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.

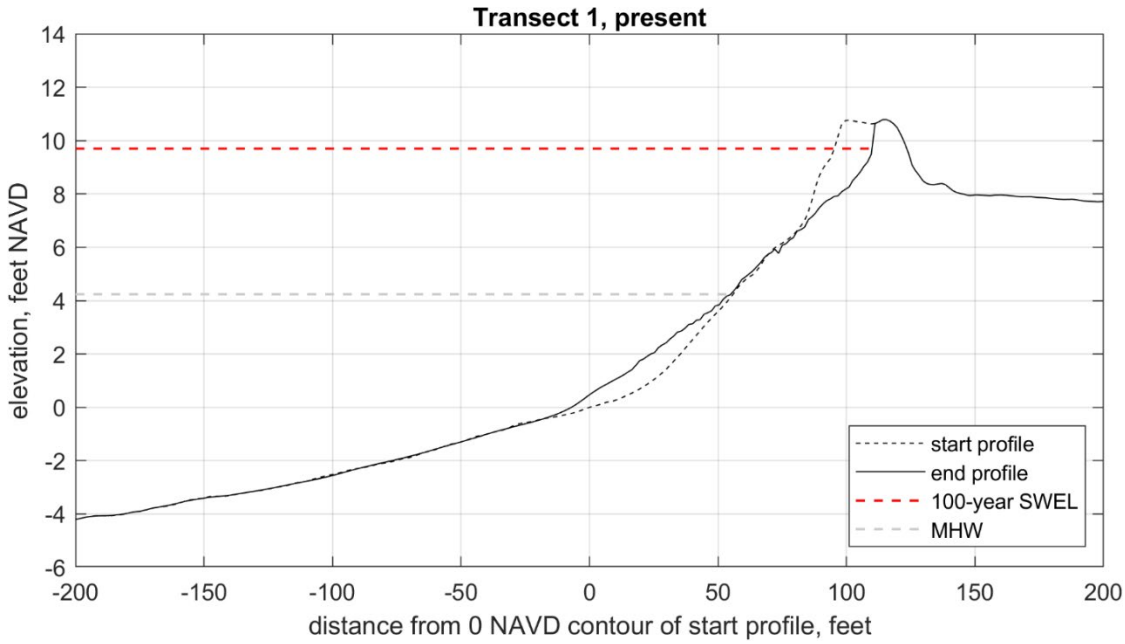

Figure 19. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for present MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. Present MHW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

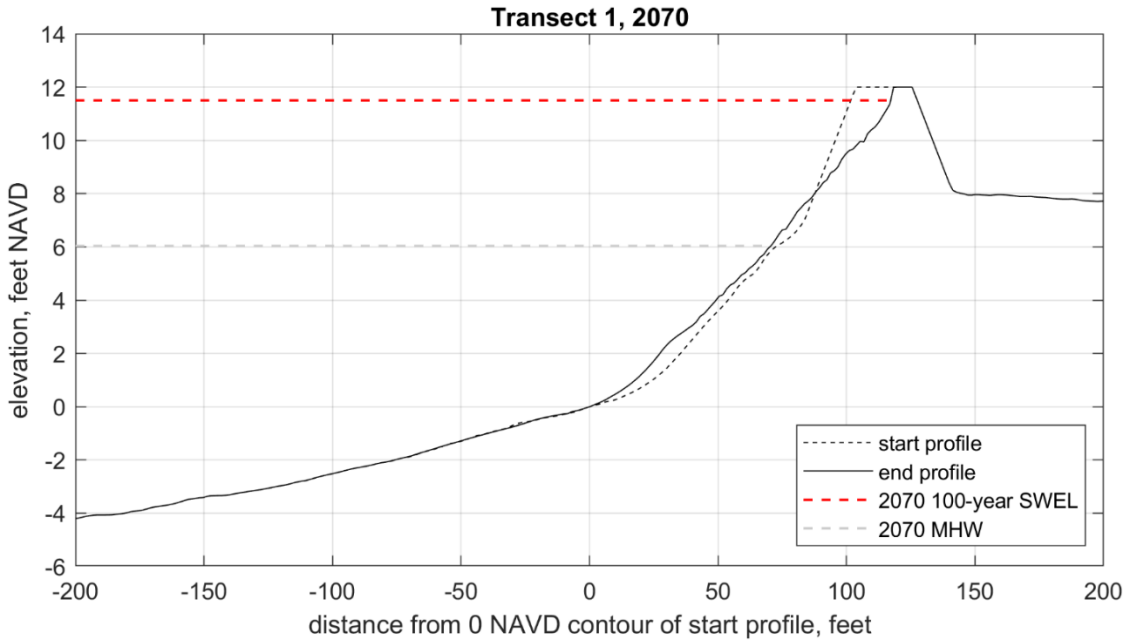

Figure 20. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070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

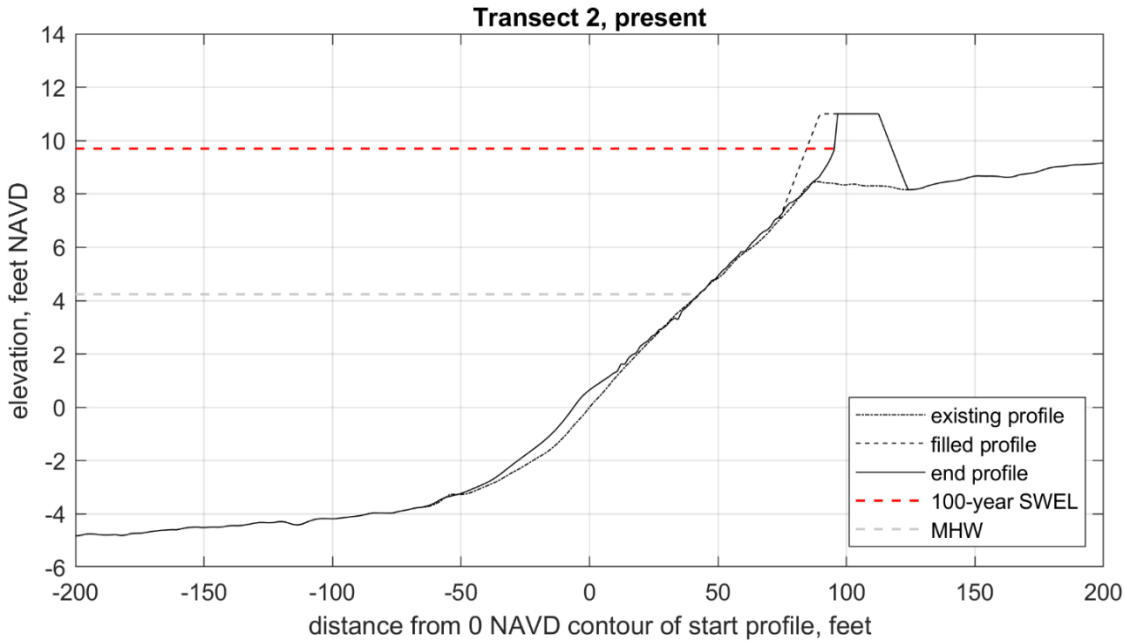

Figure 21. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for present MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. Present MHW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

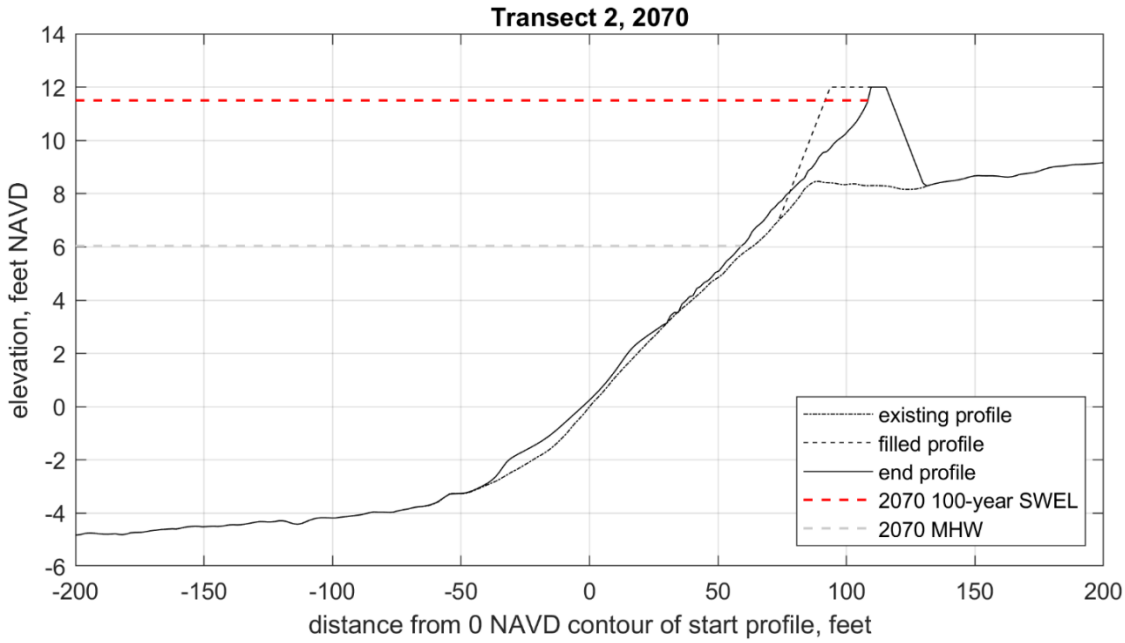

Figure 22. Xbeach model output for the modeled 1-percent (100-year) storm for Transect 1 at Bathing Beach, with existing topography, for projected 2070 MSL. The start profile is indicated by the dashed black line, and the shoreline at the end of the simulation is indicated by the solid black line. 2070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

C. REFERENCES

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Attachment 10

Home Meadows Watershed and Upland Flooding Analysis

A. Watershed analysis and extremal rainfall

An extremal rainfall analysis was performed for Home Meadows, in order to determine how tides in the marsh should be managed in order to provide adequate reserve storage capacity for extreme rain events. This analysis is based on the 1% (100-year), 24-hour return period rainfall event for the region, and was developed using extreme precipitation data available from the Northeast Regional Climate Center (NRCC) via a website hosted by Cornell University (http://precip.eas.cornell.edu). The available data include total extreme rainfall amounts for a variety of events with different return periods and durations. Also available are distribution curves of rainfall rates as a function of time for selected return periods (e.g., 10-, 25-, 50- and 100-year return periods). The data available from this NRCC project is meant as an update to the regional rainfall climatology that had not been changed since published by the United States Department of Agriculture Soil Conservation Service (USDA SCS) in Technical Paper 40 (TP-40) in 1961 (Hershfield, 1961). Generally, the new NRCC data increase the intensity of rainfall for all return periods, compared to the older TP-40 climatology. The plot of rainfall intensity as a function of time developed using the data from the NRCC website for the Home Meadows region is presented in Figure A1. The total rainfall amount for this event is 8.61 inches.

In watershed analysis of Home Meadows, the upland area that discharges to the marsh was delineated, separate from the area of the marsh plain itself. Hydrology tools available in the GIS program QGIS were utilized to delineate the watershed. Inputs to the analysis include NOAA Continuously Updated Digital Elevation Model (CUDEM) elevation data (Figure A2), which provides broad-coverage data on a regular 3-meter (9.8-foot) grid. The resulting watershed delineation for Home Meadows in presented in Figure A3.

Runoff discharges from the upland watershed were determined using the Natural Resources Conservation Service (NRCS) dimensionless unit hydrograph procedure (NRCS, 1972). The dimensionless hydrograph (Figure A4) provided by NRCS is used to determine the time-depended distribution of runoff from a watershed. The time-to-peak (t_p) and peak discharge rate (q_p) determined for the upland watershed are needed to create the dimensional hydrograph.

The peak discharge rate (q_p) is calculated using the relationship

$$q_p = \frac{484AQ}{\frac{D}{2} + T_{lag}}$$

where A is the watershed area, Q is the total rainfall for the event (8.61 inches, from NRCC), D is the unit duration and T_{lag} is the lag time. The unit duration D is in turn determined as

$$D = 0.133T_c$$

where T_c is the time of concentration defined as

$$T_c = T_{lag}/0.6$$

and T_{lag} calculated using

$$T_{lag} = \frac{L^{0.8}(S+1)^{0.7}}{1900(\%Slope)^{0.5}}$$

where L is the length of the longest drainage path in the watershed, S is the potential maximum retention after runoff begins and %Slope is the average watershed slope. From the GIS anlaysis of elevation data from the NOAA CUDEM, the average slope in the upland watershed is 12.5%. The value of L used for both upland watersheds is 0.34 miles. S is calculated as

$$S = \left(\frac{1000}{CN}\right) - 10$$

where CN is the curve number for the watershed. A value of 75 was used for CN, which is appropriate for developed residential areas with sandy loam soils. The time-to-peak (t_p) needed to fix the time base of the unit hydrograph is determined using the equation

$$t_p = \frac{D}{2} + T_{lag}$$

with D and T_{lag} as described above. The final determined values of t_p and q_p for the watershed were 0.18 hours (11 minutes) and 4,843 cubic feet per second. The cumulative volume of rain from the watershed that is discharged to Home Meadows is 97.0 acre-feet.

The total volume of rainfall during the 100-year event is the sum of the discharge from the watershed and the direct rainfall to the marsh. The direct rainfall component is calculated to be 64.6 acre-feet, which results in a total rainfall volume of 161.6 acre-feet, which is discharged to the marsh over the span of about an hour.

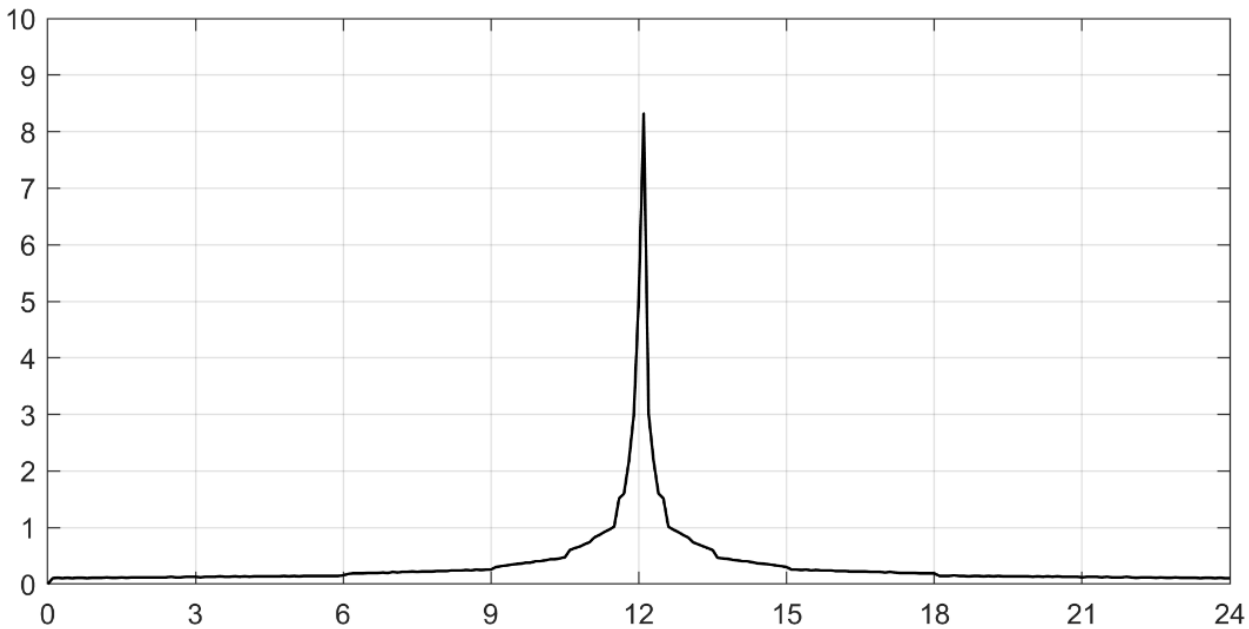


Figure A1. Rainfall intensity distribution from NRCC for the 100-year event for Home Meadows. Peak rate is 7.7 inches per hour. The cumulative rainfall amount for the 24-hour period is 8.6 inches.

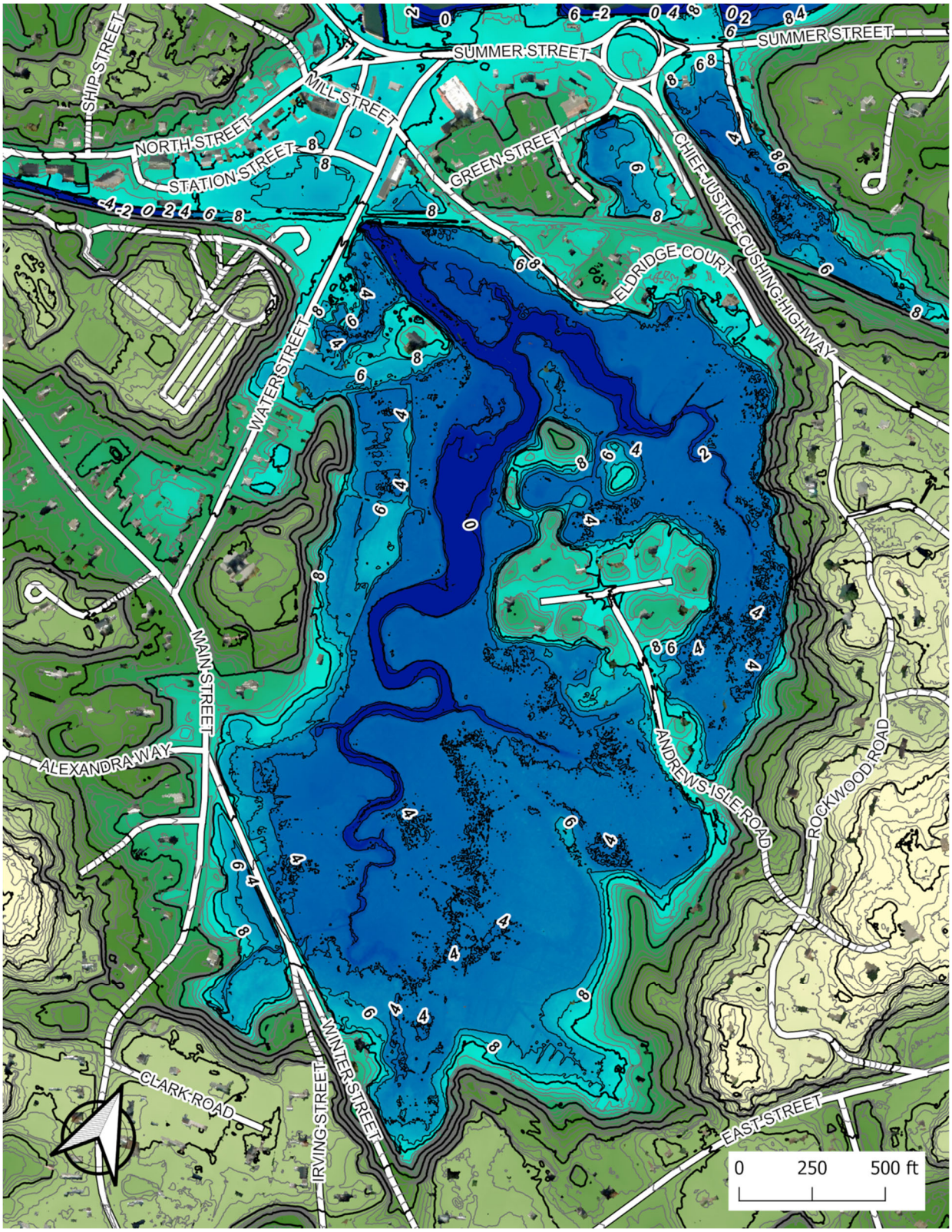


Figure A2. Contour map of Home Meadows vicinity. 2-foot contours lines are mapped with color shading of elevations (Feet NAVD). Contours at 10-foot intervals are shown as thick black lines.

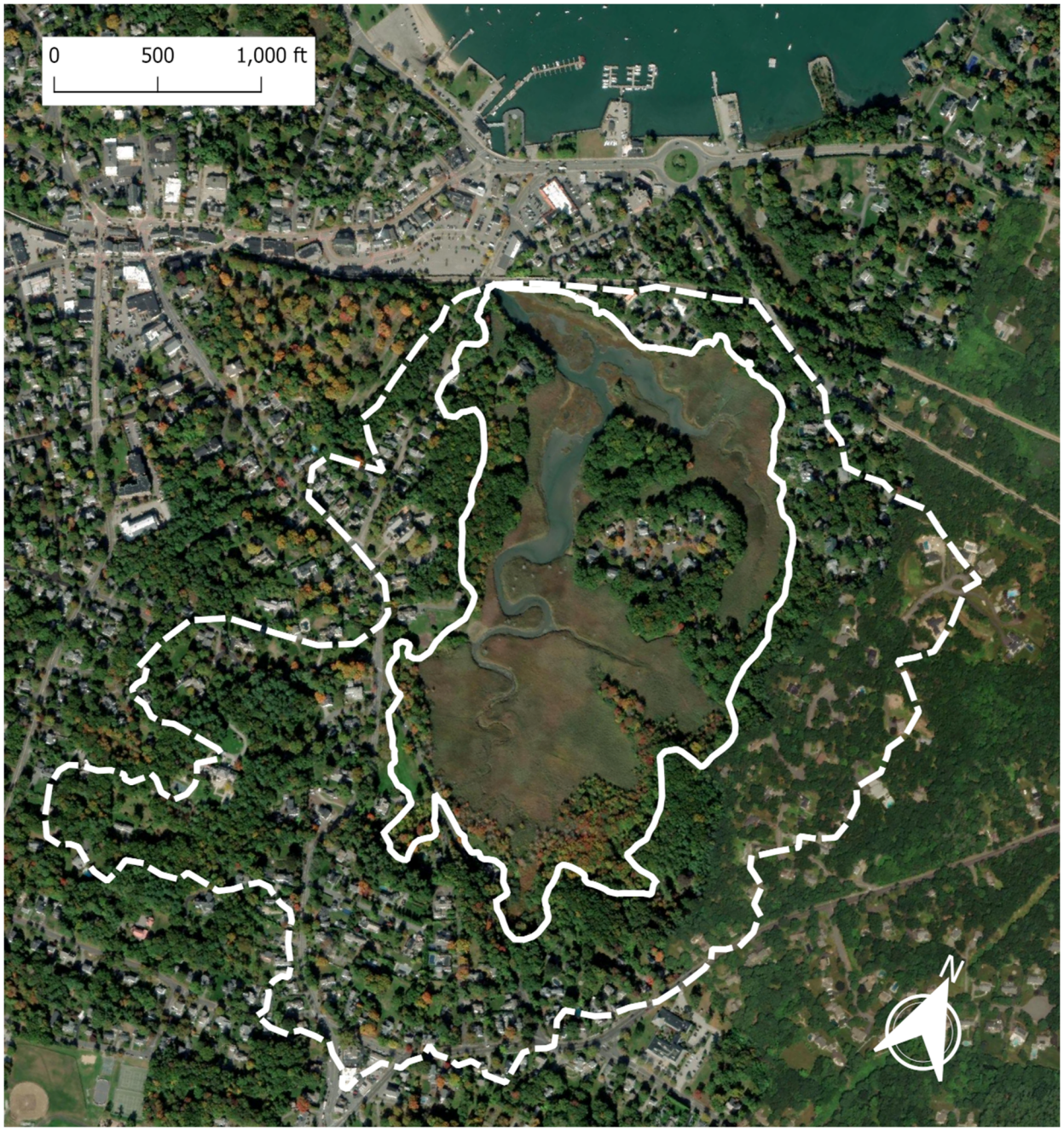


Figure A3. Home Meadows watershed. Area of direct rainfall to marsh surface is within the solid white line, while the upland limits of the entire estuary is indicated by the dashed white line.

B. Management of marsh water levels to prevent flooding

The results of the Home Meadows watershed analysis provide an estimate of the expected increase in water level in the marsh that would be expected from a 100-year, 24-hour extreme rainfall event. 161.6 acre-feet of rain water would be discharged to the marsh over the time span of about an hour, resulting in an increase in water level of about 1.8 feet. In order to ensure that there is adequate storage capacity within the marsh basin to deal with this volume of water, it would be necessary to limit ocean tide and surge elevations in the marsh so that the combination

of tide, surge and rainfall would not exceed an elevation of 8 feet NAVD 88. Above this elevation, low lying properties situated around the marsh would begin to be impacted by flooding waters.

To keep maximum water levels resulting from the 1%, 24-hour rainfall event from exceeding the elevation 8 feet, NAVD88, it would be required to limit the water level in the marsh prior to the addition of rainfall to 1.8 feet below this elevation, or 6.2 feet, NAVD. This elevation coincides, coincidentally, with annual astronomical high tide (AHT) elevation in Boston Harbor. The AHT is the highest tide level that occurs due to the astronomical component of the tide alone (not including storm surges).

An analysis of measured tides in Boston Harbor (6-minute water levels from the NOAA tide station) shows that water levels at that station were greater than 6.2 feet NAVD88 for a total of 70 hours over the course of the entire span of the year 2023. This indicates that if a tide gate was used to limit tides in the marsh to 6.2 feet NAVD88, the tide gate would be closed to tide flow from the Harbor for a maximum of 0.8 percent of any given year.

Further analysis of historical extreme rainfall and maximum daily tide levels in Boston Harbor indicates that the largest 24-hour rain totals do not coincide with maximum water levels in the Harbor. For this determination, the hourly rainfall record from Boston Logan International Airport (BOS) was accessed using NOAA's Climate Data Online (CDO) web-based weather data archive. The data record from July 1979 to May 2024 were used for this analysis. This is the same time period available from NOAA's record of daily measured high and low tide elevations at their tide station on the Boston waterfront. 24-hour rainfall totals (for days that exceed 1.0 inch of rain) are plotted with the maximum recorded tide level in Boston Harbor for that same day in Figure B1. From this plot it is seen that the highest water levels (in excess of 8 feet NAVD 88) have associated rainfall totals that are 5 inches or less. The day with the greatest rainfall total (12.8 inches, on July 28, 2007) had a maximum water level of 4.9 feet NAVD88, which is lower than the typical spring tide in the Harbor. The rainfall amount for that day corresponds to the 500-year rainfall amount for the region, from the NRCC website.

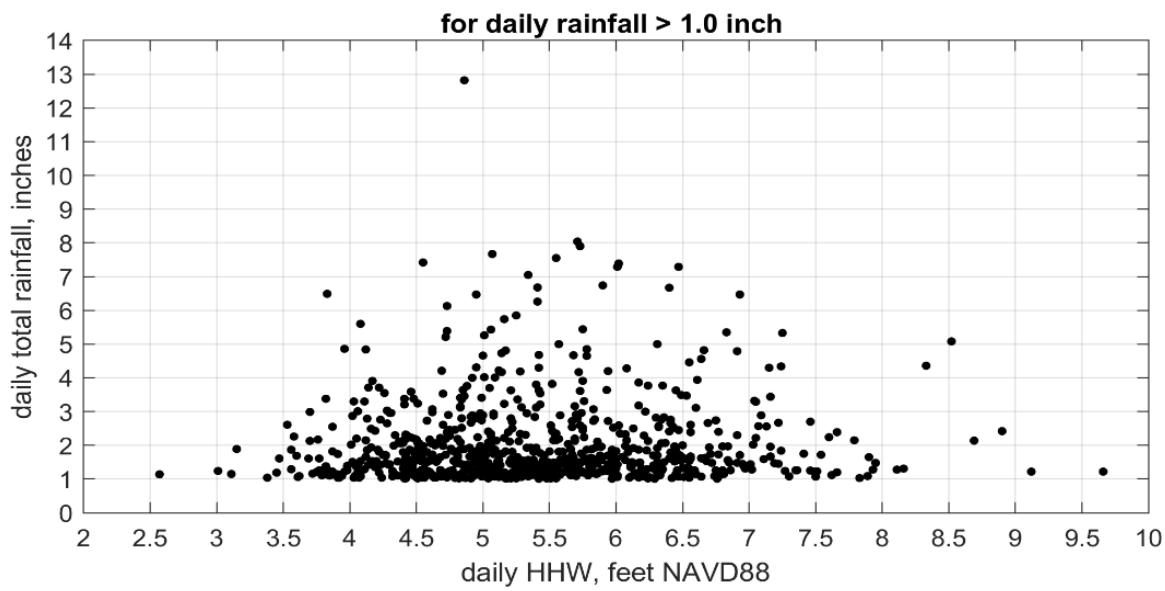


Figure B1. Daily higher high water (HHW) vs. daily total rainfall for Boston (July 1979 through May 2024), for days with rainfall greater than 1.0 inches.

A histogram plot of daily maximum water levels for days with 24-hour rain total of 1.0 inches or more is shown in Figure B2. This plot shows that high rainfall totals occur rarely when water levels in the Harbor are at their highest, which indicates that extreme rainfall events do not typically occur during conditions that cause elevated water levels in the Harbor (typically northeast storms).

The top ten 24-hour rainfall totals for BOS are listed in Table A, along with the corresponding maximum water level in Boston Harbor for that day. For each one of these events, the increase in water level in Home Meadows (from watershed runoff from the listed amount of rain) above the corresponding maximum water level does not exceed an elevation of 8.0 feet NAVD88. If the starting water level in the marsh is set at the 6.2 feet NAVD88 proposed maximum water level regulated by a tide gate in the culvert, the maximum water level in the marsh with the addition of rainfall discharge is still lower than 8.0 feet NAVD88 for all events except the top ranked event, which again corresponds to a 500-year 24-hour rainfall total. This shows that setting the tide gate to close when tides reach 6.2 feet NAVD88 would permit the gate to effectively manage extreme rainfall and storm surges in the marsh.

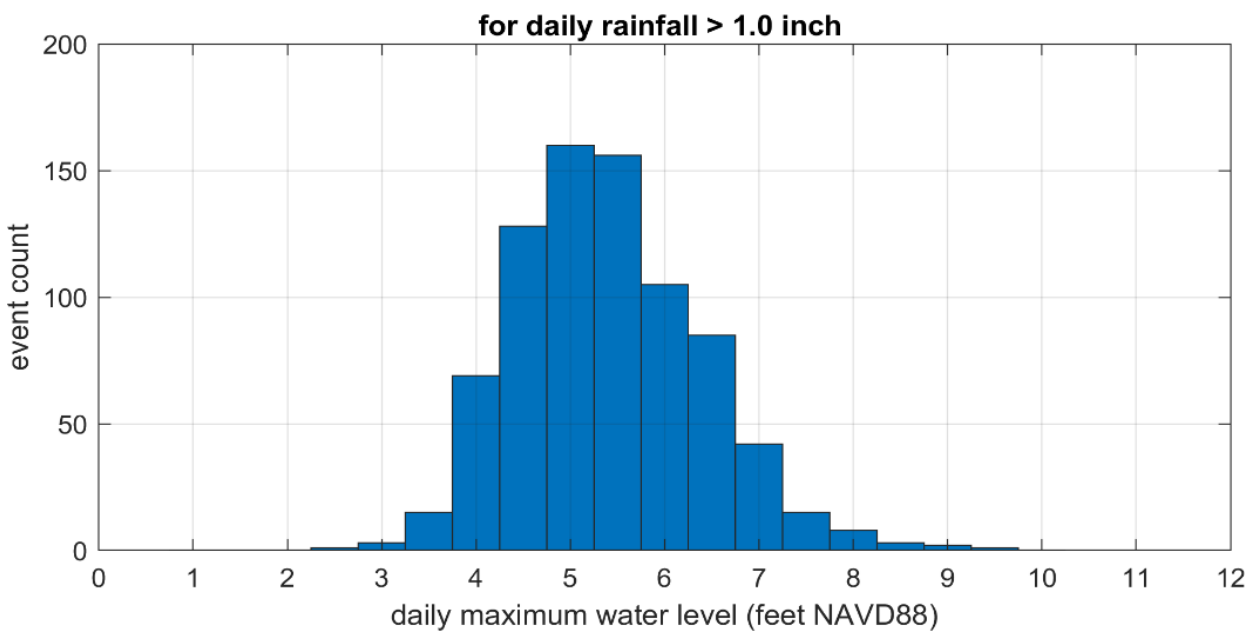


Figure B2. Histogram plot of daily maximum water level in Boston Harbor, for days with total rainfall was greater than 1.0 inches, from the data record that spans from July 1979 through May 2024.

Table A. List of top ten 24-hour rainfall events for Boston since July 1979, with corresponding maximum water level in Boston Harbor of that same day.

Event rank	Date	24-hr rainfall (inches)	Day high water (ft, NAVD)
1	28-Jul-2007	12.82	4.86
2	14-May-2006	8.04	5.71
3	18-Sep-2004	7.90	5.73
4	18-Jul-2012	7.67	5.07
5	13-May-2006	7.55	5.55
6	29-Jun-2019	7.42	4.55
7	10-Aug-2011	7.39	6.02
8	15-Oct-2005	7.29	6.47
9	12-Sep-2009	7.05	5.34
10	23-Aug-2020	6.74	5.90

Attachment 11

Plans entitled “Hingham Waterfront Resiliency Project”, dated July 2024 (13 sheets)

(DRAFT)

HINGHAM WATERFRONT RESILIENCY PROJECT

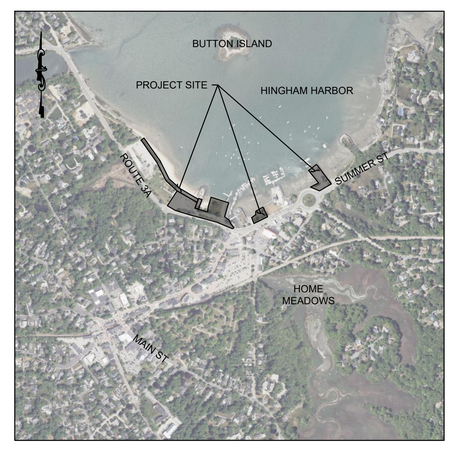
HINGHAM, MA
JULY 2024

Prepared for:
Town of Hingham, MA

Prepared by:
Sustainable Coastal Solutions, Inc.
&
Foth Infrastructure & Environment, LLC

DRAWING INDEX

VICINITY MAP
NTS



LOCATION MAP
NTS

SHEET TITLE
COVER SHEET

SHEET NUMBER
G-101

GENERAL NOTES

1. TOPOGRAPHIC DATA OBTAINED FROM SURVEY DATED 2004, 03/02/2010, 12/30/2010 & 05/02/2011 BY CLE ENGINEERING, INC., AND 07/05/2022, 08/04/2023, AND 09/07/2023 BY FOTH INFRASTRUCTURE AND ENVIRONMENT, LLC. AND 6/11/2024 BY SUSTAINABLE COASTAL SOLUTIONS.
2. HYDROGRAPHIC SOUNDING DATA OBTAINED FROM FOTH POST DREDGE SURVEY DATED 11/11/2019.
3. ELEVATIONS ARE IN FEET AND TENTHS, AND REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
4. SITE IS LOCATED WITHIN FEMA FLOOD ZONES VE AND AE AS SHOWN. FLOOD ELEVATIONS SHOWN ON FIRM MAP 25023C0082J EFFECTIVE DATE 7/12/2012 .
5. BENCHMARK IS NGS DISK MY2164 / "J 42" SET IN SEAWALL, ELEVATION +9.82' NAVD88 (GEOID12B).
6. COORDINATES ARE BASED ON THE NORTH AMERICAN DATUM OF1983 (NAD83) MASSACHUSETTS STATE PLANE.
7. SITE FEATURES SHOWN FROM GREENBUSH LINE TOWN WIDE PROJECT PLANS PROVIDED BY TOWN OF HINGHAM DEPARTMENT OF PUBLIC WORKS (DPW) ON 4/13/11.
8. UTILITIES SHOWN ARE BASED ON RECORD INFORMATION PROVIDED BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT).
9. PROPERTY LINES ARE APPROXIMATE AND BASED UPON THE MOST RECENT INFORMATION AVAILABLE FROM THE TOWN OF HINGHAM ASSESSORS OFFICE.
10. SHELLFISH SUITABILITY AREA , SALT MARSH (SHOWN ON SHEET C-104), AND TIDAL FLAT LIMITS SHOWN ARE BASED UPON THE MOST RECENT AVAILABLE MAGIS INFORMATION.
11. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE AND COLLECTED ON THE DATES SHOWN, AND CAN ONLY BE CONSIDERED AS INDICATING THE SITE CONDITIONS AT THAT TIME. INTERPOLATED INFORMATION FROM BETWEEN SOUNDING RUNS IS NOT GUARANTEED. SHOALS, OBSTRUCTIONS OR OTHER DIFFERING CONDITIONS MAY EXIST BETWEEN THESE RUNS. NO SURVEYS WERE CONDUCTED TO LOCATE PROPERTY LINES, CHANNEL LIMITS, EASEMENTS, UTILITIES, STRUCTURES, HABITATS OR ANY OTHER PHYSICAL FEATURES RELATING TO THE PROJECT SITE, NOR DOES FOTH WARRANT THE EXISTENCE OR LOCATION OF SAID PHYSICAL FEATURES.

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 INCH = 40 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

EXISTING CONDITIONS SITE PLAN 1 OF 3

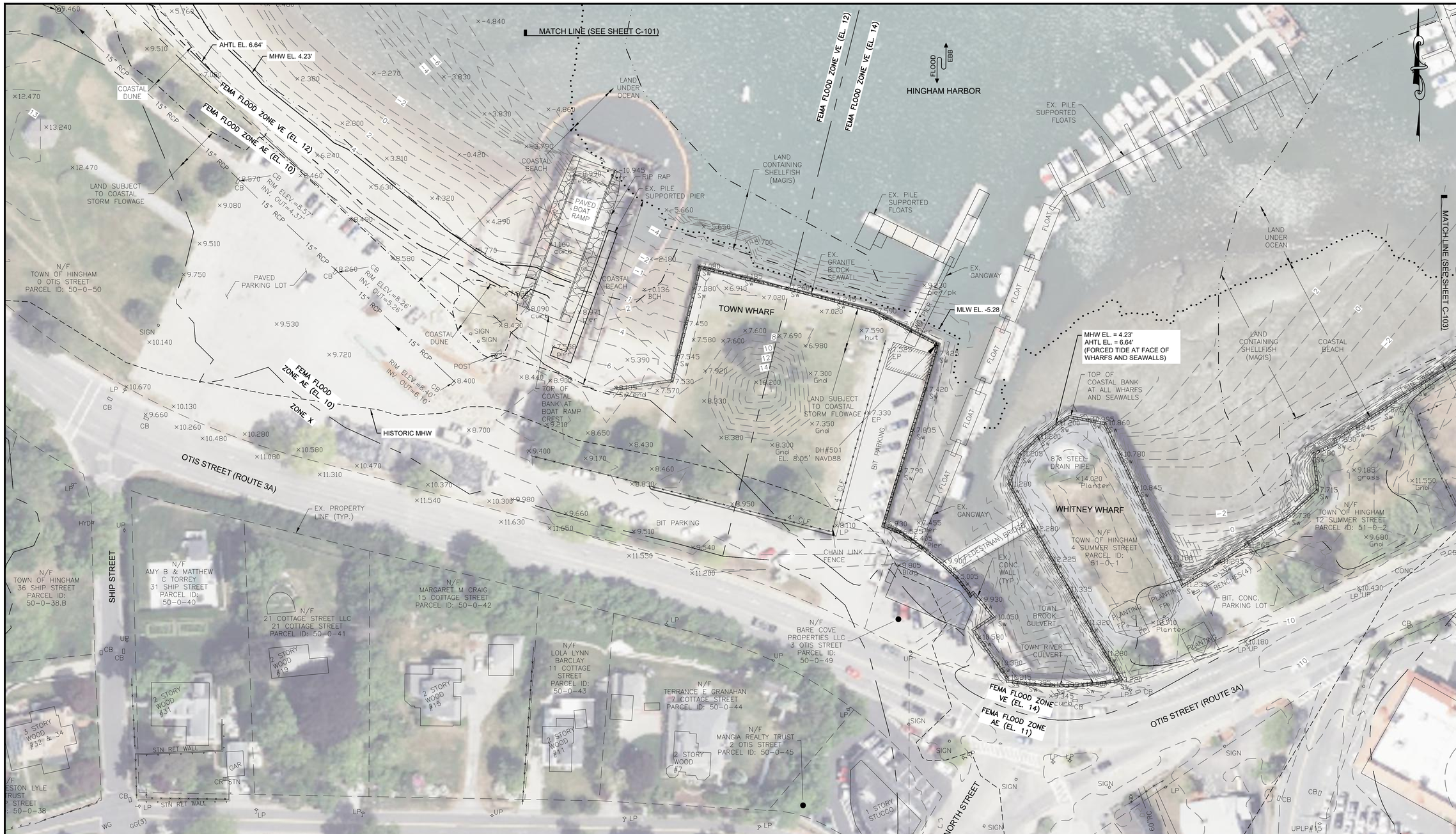
ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

C-101



DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 INCH = 40 FEET

Foth

SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS			
NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

EXISTING CONDITIONS SITE PLAN 2 OF 3

ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

C-102

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 INCH = 40 FEET

SCS Foth

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

EXISTING CONDITIONS SITE PLAN 3 OF 3

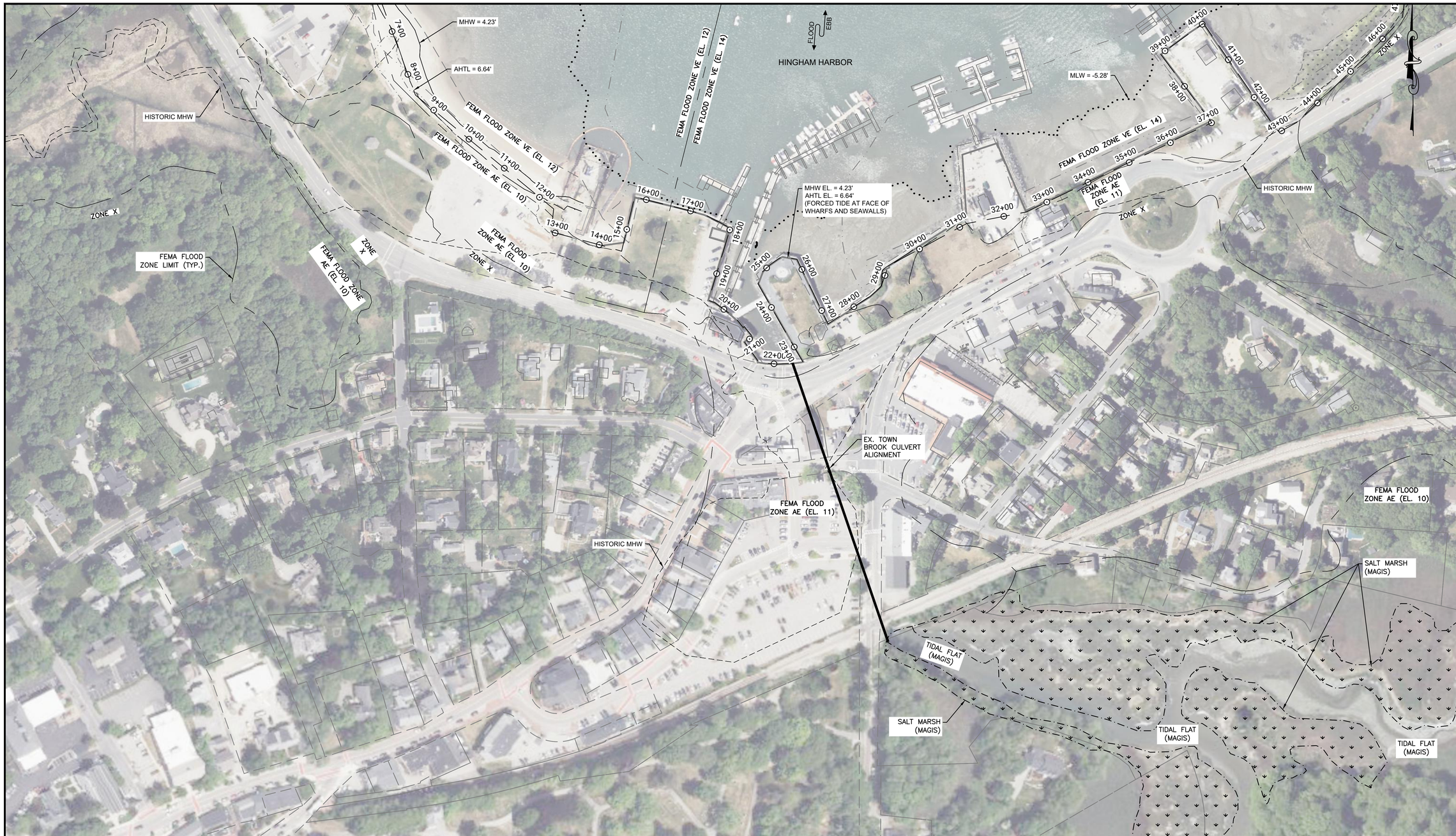
ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

C-103



DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE
0 50 100 200
(IN FEET)
1 INCH = 100FEET

SCS Foth

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

TOWN BROOK CULVERT SITE PLAN

ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

C-104

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 INCH = 40 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS			
NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

PROPOSED CONDITIONS SITE PLAN 1 OF 3

ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

S-101

MATCH LINE (SEE SHEET S-101)

MATCH LINE (SEE SHEET S-103)

AHTL EL. 6.64'

MHW EL. 4.23'

PROP. 4H:1V SEAWARD SLOPE (TYP.)

COASTAL DUNE

PROP. SAND DUNE WALKWAY (TYP.)

C-C S-301

REPOSITIONED WALKWAY

LAND SUBJECT TO COASTAL STORM FLOWAGE

PROP. 4H:1V LANDWARD SLOPE

PROP. SAND DUNE CREST EL. = 12' CREST WIDTH = 25'

PROP. GRAVEL EXTENSION

N/F TOWN OF HINGHAM 0 OTIS STREET PARCEL ID: 50-0-50

PAVED PARKING LOT

D-D S-302

COASTAL DUNE

POST

E-E S-302

PROP. GRASS BERM CREST EL. = 12' CREST WIDTH = 25'

RELOCATED HARBORMASTER BUILDING

HISTORIC MHW

OTIS STREET (ROUTE 3A)

PARKING LOT TO BE RAISED TO EL. 11.5'

PROP. PRELIMINARY DESIGN LOCATION, CEM. CONC. DRIVEWAY (BY OTHERS MASSDOT PROJECT NO. 605168)

PROP. PRELIMINARY DESIGN LOCATION, EOP (BY OTHERS MASSDOT PROJECT NO. 605168)

EX. PROPERTY LINE (TYP.)

PROP. CEM. STONE RETAINING WALL (TYP.)

F-F S-302

BIT PARKING

G-G S-303

PROP. PRELIMINARY DESIGN LOCATION, CEM. CONC. DRIVEWAY (BY OTHERS MASSDOT PROJECT NO. 605168)

PROP. PRELIMINARY DESIGN LOCATION, SHARED USE PATH (BY OTHERS, MASSDOT PROJECT NO. 605168)

SHIP STREET

N/F TOWN OF HINGHAM 36 SHIP STREET PARCEL ID: 50-0-38.B

N/F AMY B & MATTHEW C TORREY 31 SHIP STREET PARCEL ID: 50-0-40

N/F 21 COTTAGE STREET LLC 21 COTTAGE STREET PARCEL ID: 50-0-41

N/F MARGARET M CRAIG 15 COTTAGE STREET PARCEL ID: 50-0-42

N/F LOLA LYNN BARCLAY 11 COTTAGE STREET PARCEL ID: 50-0-43

N/F TERRANCE E GRANAHAN 7 COTTAGE STREET PARCEL ID: 50-0-44

N/F MANGIA REALTY TRUST 2 OTIS STREET PARCEL ID: 50-0-45

N/F BARE COVE PROPERTIES LLC 3 OTIS STREET PARCEL ID: 50-0-49

PROP. PRELIMINARY DESIGN LOCATION, CEM. CONC. DRIVEWAY (BY OTHERS MASSDOT PROJECT NO. 605168)

FEMA FLOOD ZONE VE (EL. 12)

FEMA FLOOD ZONE AE (EL. 10)

FEMA FLOOD ZONE X

PROP. 4' WIDE WALKING PATH FOR BEACH ACCESS (TYP.)

BOAT RAMP PROFILE RAISED TO EL. 11.5'

PAVED BOAT RAMP

COASTAL BEACH

LAND UNDER OCEAN

RIP RAP

EX. PILE SUPPORTED PIER

PROP. CONC. / GRANITE BLOCK SEAWALL CAP EL. = 12'

EX. GRANITE BLOCK SEAWALL

FEMA FLOOD ZONE VE (EL. 12)

FEMA FLOOD ZONE VE (EL. 14)

FLOOD

EBB

HINGHAM HARBOR

TOWN WHARF RAISED TO EL. 12'

LAND CONTAINING SHELLFISH (MAGIS)

EX. PILE SUPPORTED FLOATS

PROP. TEMP. COFFERDAM 4' SEAWARD OF WALL TOE

EX. GANGWAY

MLW EL. -5.28

TOWN WHARF

PROP. LIMIT OF GRADING

LAND SUBJECT TO COASTAL STORM FLOWAGE

PROP. 6H:1V SLOPE SEAWARD AND LANDWARD

GRADE TO MATCH PROP. PARKING LOT EL.

BIT PARKING

CHAIN LINK FENCE

PROP. GANGWAY ELEVATED PEDESTRIAN TIMBER DECK

PEDESTRIAN BRIDGE

EX. CONC. WALL (TYP.)

TOWN BROOK CULVERT

TOWN RIVER CULVERT

FEMA FLOOD ZONE VE (EL. 14)

FEMA FLOOD ZONE AE (EL. 11)

NORTH STREET

H-H S-303

WHITNEY WHARF

MHW EL. = 4.23'
AHTL EL. = 6.64'
(FORCED TIDE AT FACE OF WHARFS AND SEAWALLS)

TOP OF COASTAL BANK AT ALL WHARFS AND SEAWALLS

8" STEEL DRAIN PIPE

PROP. CONST. BL (TYP.)

REMOVE EX. GRANITE STONE BLOCKS AS NECESSARY.

PROP. GRANITE BLOCK CONC. "AMPHITHEATER" CAP EL. = 14'

PROP. STONE REVETMENT CREST EL. = 10'

PROP. 2H:1V SLOPE

PROP. GRASS AREA RAISED TO EL. 11'

I-I S-303

J-J S-304

OTIS STREET (ROUTE 3A)

PROP. PRELIMINARY DESIGN LOCATION, CEM. CONC. DRIVEWAY (BY OTHERS MASSDOT PROJECT NO. 605168)

PROP. PRELIMINARY DESIGN LOCATION, SHARED USE PATH (BY OTHERS, MASSDOT PROJECT NO. 605168)

PROP. STORM GATE

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE

0 20 40 80

(IN FEET)
1 INCH = 40 FEET

SCS Foth

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

PROPOSED CONDITIONS SITE PLAN 2 OF 3

ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

S-102

DATUM OFFSETS

MLW	NAVD88	
11.92	6.64	AAHTL
9.96	4.68	MHHW
9.51	4.23	MHW
5.28	0.00	NAVD 88
4.92	-0.36	NGVD1929
0.00	-5.28	MLW
-0.34	-5.62	MLLW

OFFSETS TAKEN FROM VDATUM ONLINE 8/12/2021

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 INCH = 40 FEET

SCS Foth

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

PROPOSED CONDITIONS SITE PLAN 3 OF 3

ISSUANCE:

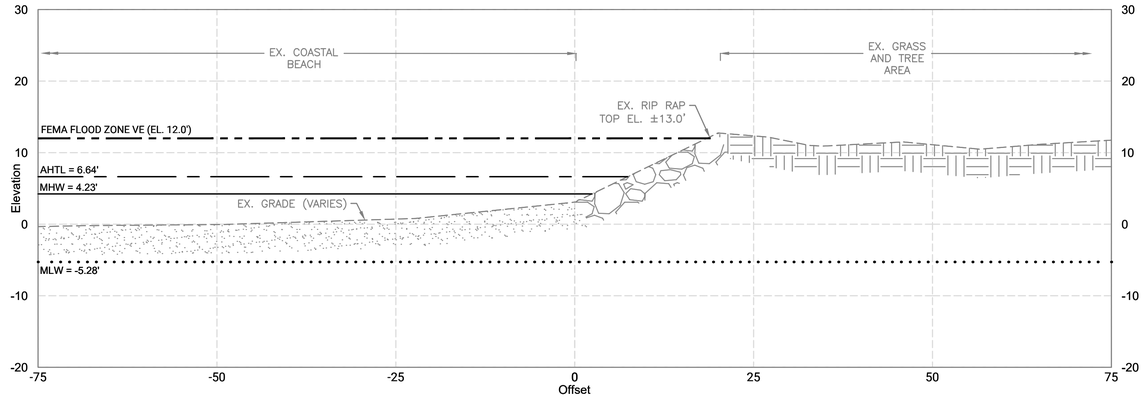
DRAFT 07/03/2024

PROJECT NO: 0023H011.00

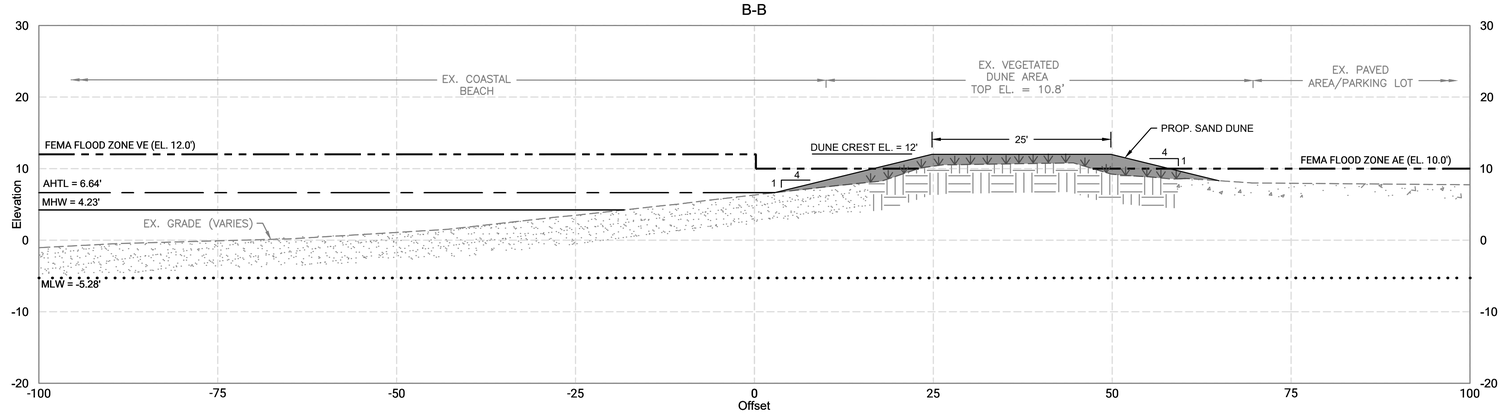
SHEET NUMBER

S-103

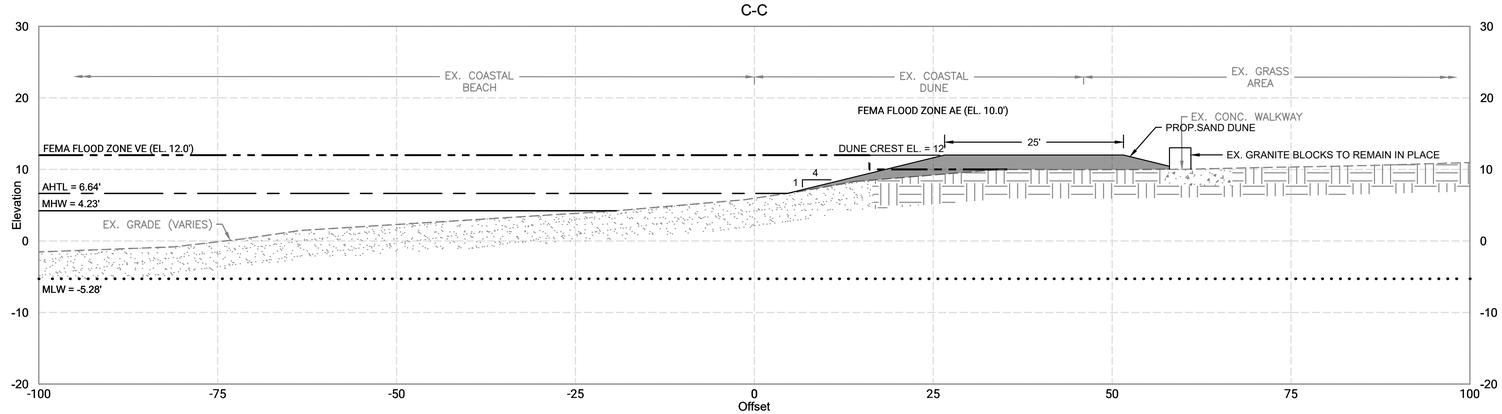
A-A



B-B



C-C



GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 INCH = 10 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

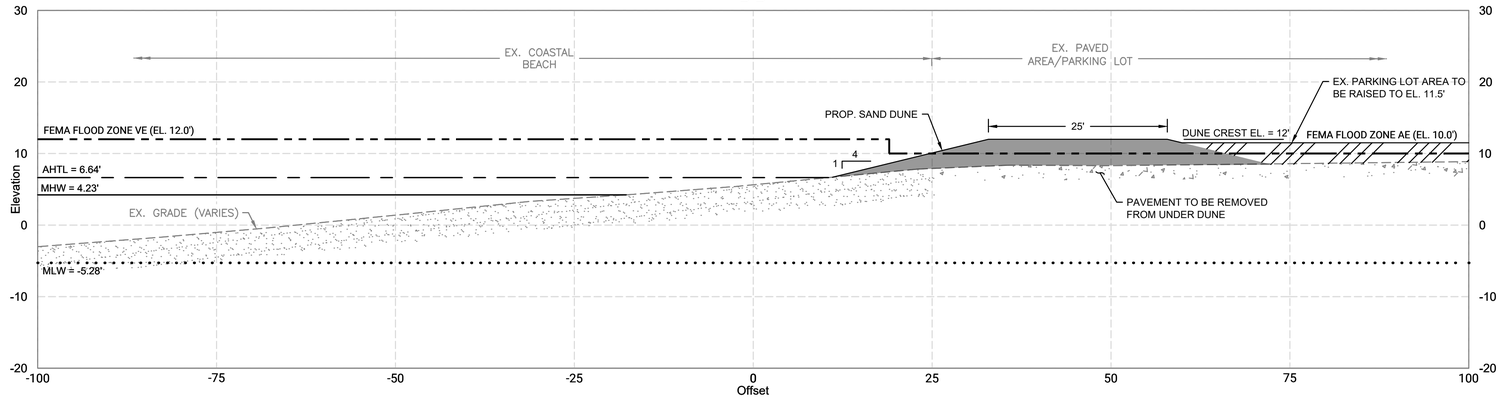
SECTIONS
SHEET 1 OF 5

ISSUANCE:
DRAFT 07/03/2024

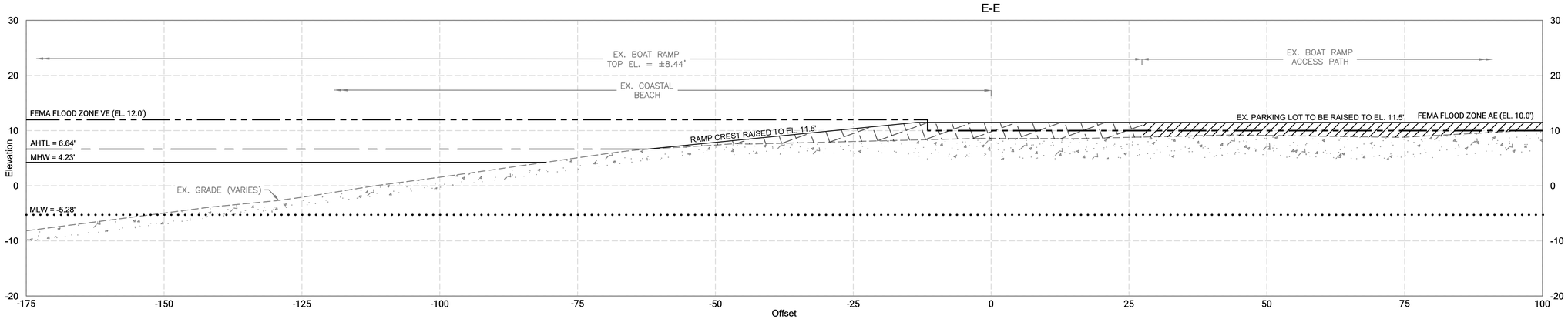
PROJECT NO: 0023H011.00

SHEET NUMBER
S-301

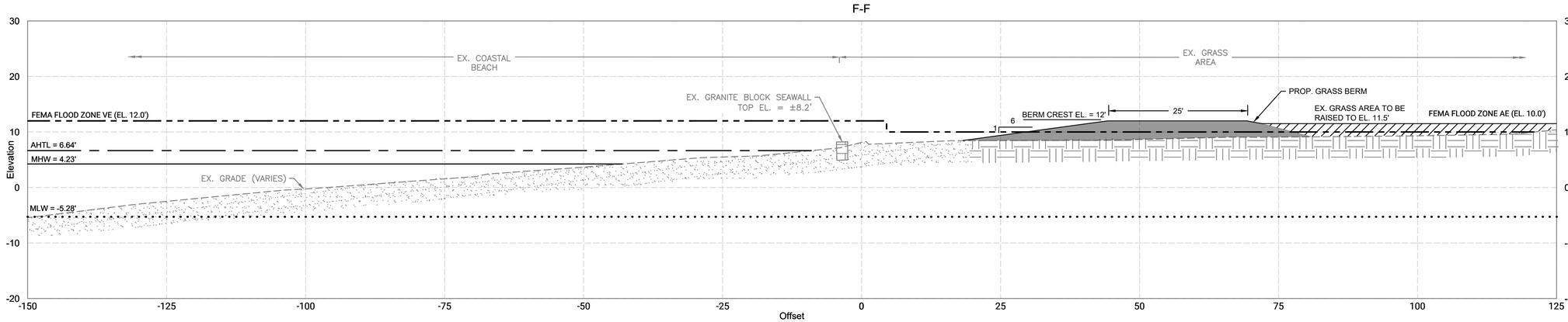
D-D



E-E



F-F



GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 INCH = 10 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

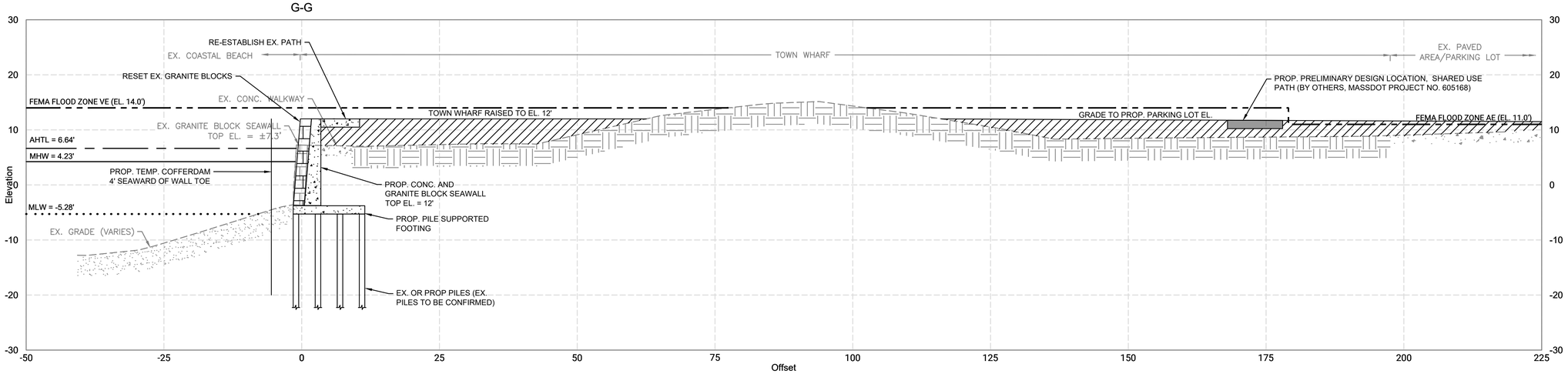
SECTIONS
SHEET 2 OF 5

ISSUANCE:
DRAFT 07/03/2024

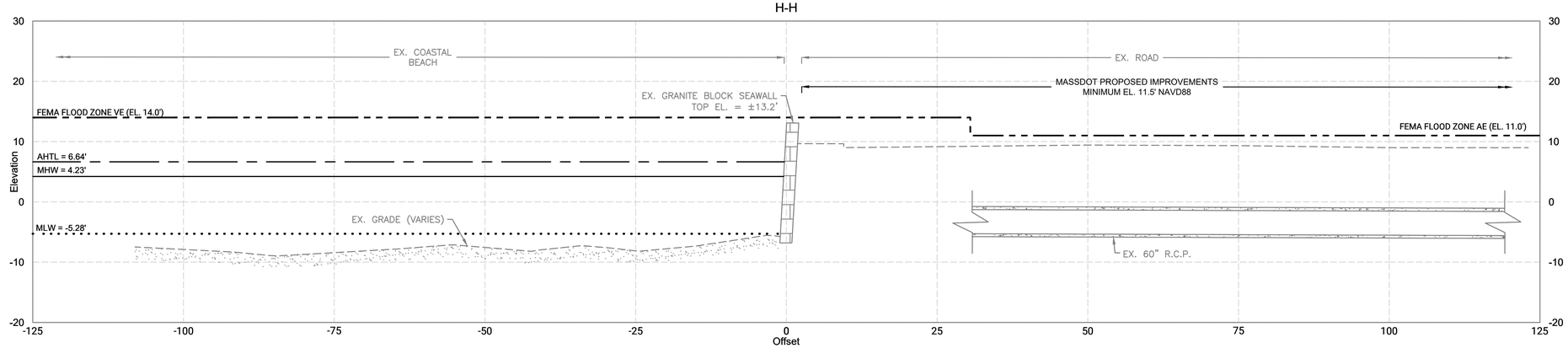
PROJECT NO: 0023H011.00

SHEET NUMBER
S-302

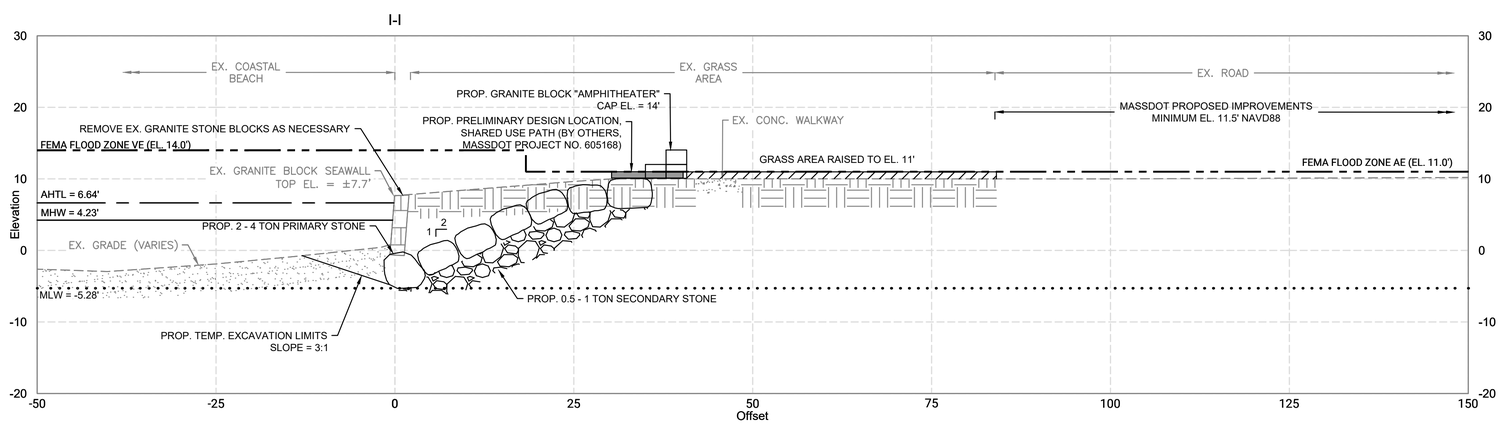
G-G



H-H



I-I



GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 INCH = 10 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS			
NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

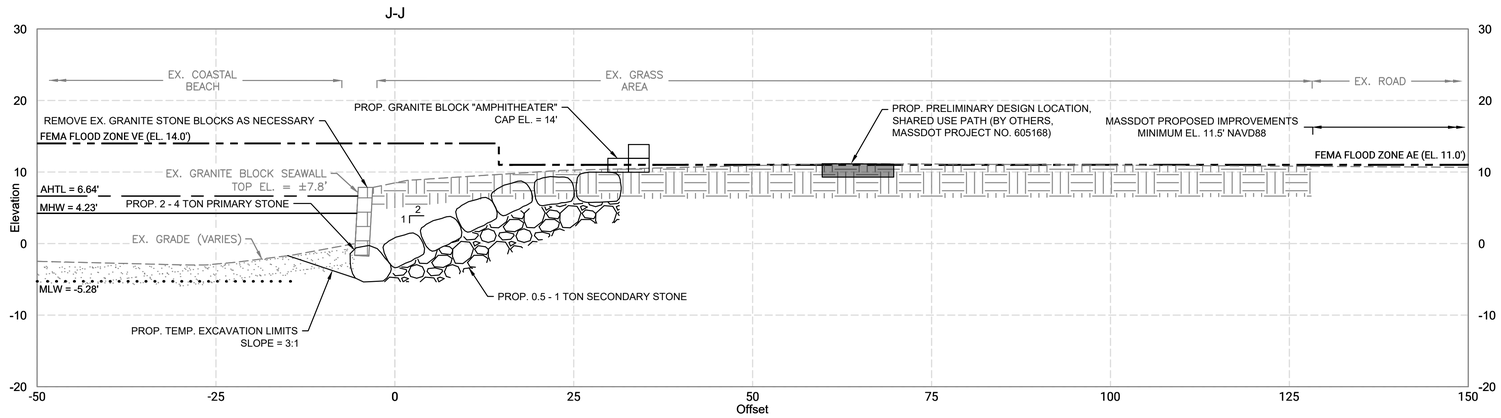
SHEET TITLE:

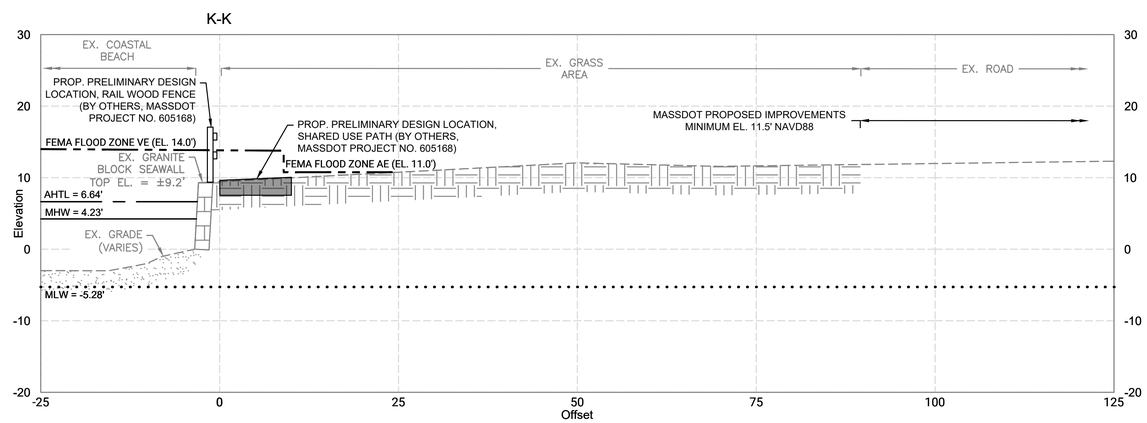
SECTIONS
SHEET 3 OF 5

ISSUANCE:
DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER
S-303





GRAPHIC SCALE
0 5 10 20
(IN FEET)
1 INCH = 10 FEET

Foth
SCS

TOWN OF HINGHAM, MA
95 OTIS STREET - 0 SUMMER STREET
HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO.	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

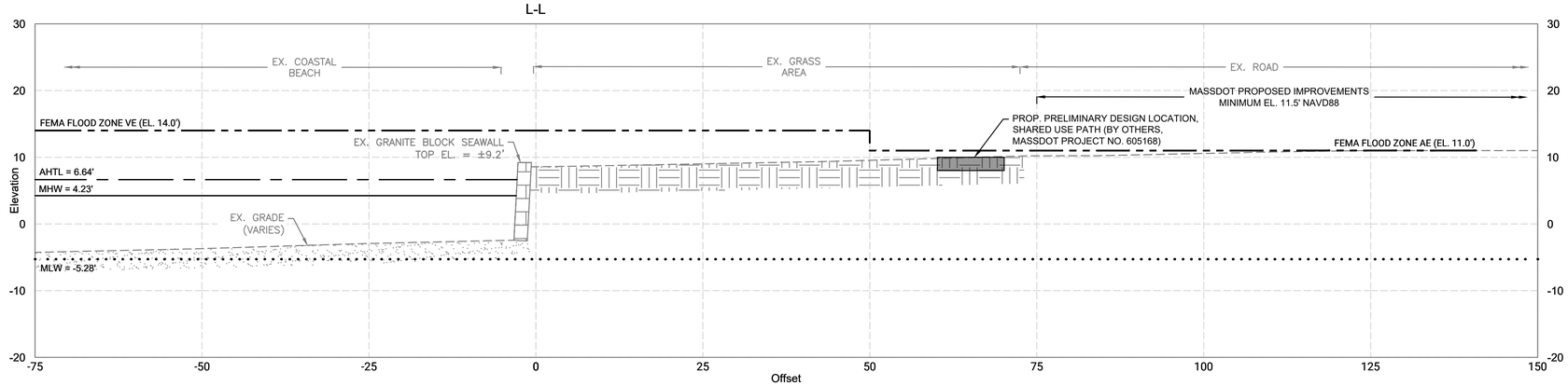
SECTIONS
SHEET 4 OF 5

ISSUANCE:
DRAFT 07/03/2024

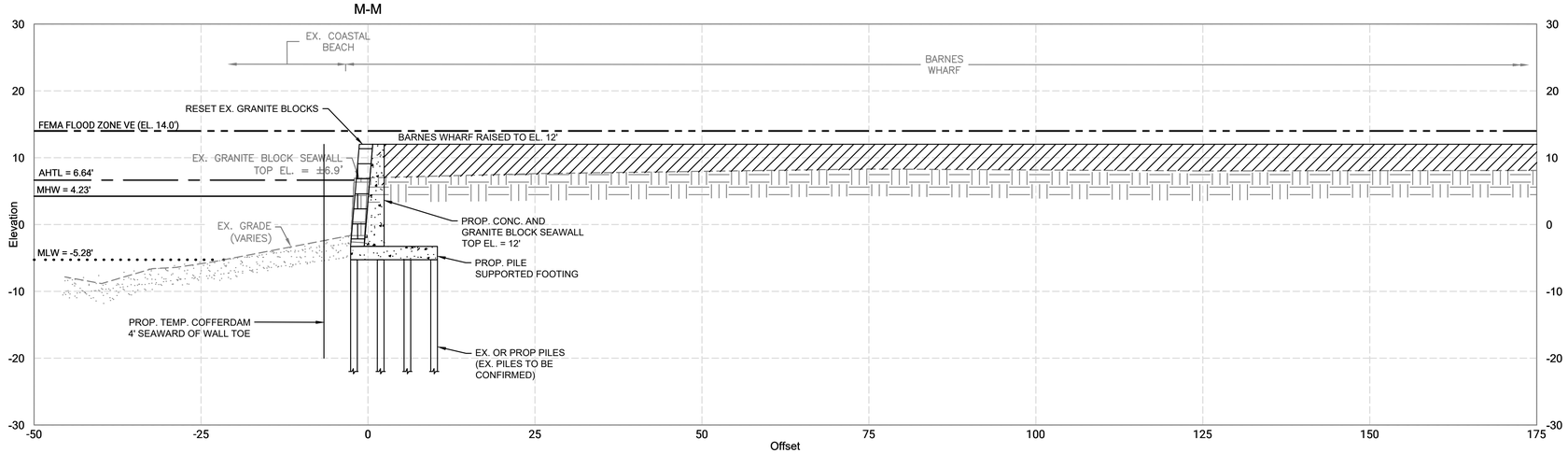
PROJECT NO: 0023H011.00

SHEET NUMBER
S-304

L-L



M-M



GRAPHIC SCALE

0 5 10 20

(IN FEET)
1 INCH = 10 FEET

Foth

SCS

TOWN OF HINGHAM, MA

95 OTIS STREET - 0 SUMMER STREET

HINGHAM WATERFRONT RESILIENCY PROJECT

REVISIONS

NO	BY	DATE	DESCRIPTION

DATE OF PREPARATION

	BY	DATE
SURVEYED	FOTH	AS NOTED
DRAWN	MDW	4/15/2024
DESIGNED		
CHECKED		

SHEET TITLE:

SECTIONS
SHEET 5 OF 5

ISSUANCE:

DRAFT 07/03/2024

PROJECT NO: 0023H011.00

SHEET NUMBER

S-305