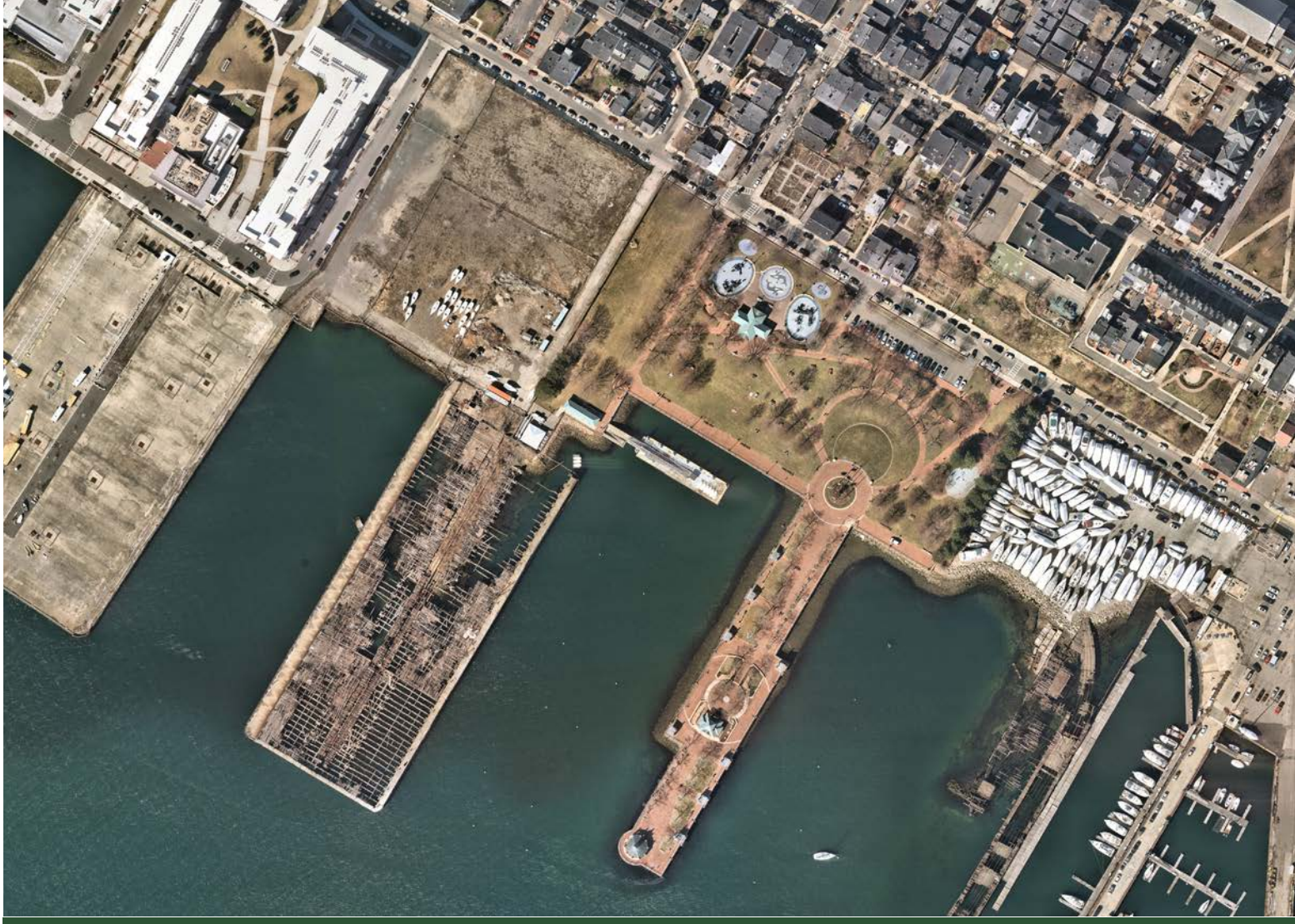

Piers Park III

East Boston, Massachusetts

Expanded Environmental Notification Form

February 28, 2023

submitted to
Executive Office of Energy and Environmental Affairs

submitted by **The Trustees of Reservations**

prepared by **Fort Point Associates, Inc., a Tetra Tech Company**

in association with
Massachusetts Port Authority
Michael Van Valkenbugh Associates, Inc.
Haley & Aldrich, Inc.
Childs Engineering
eDesign Dynamics
Nitsch Engineering, Inc.
RSE
Harbor Engineering
Lucas Environmental

Fort Point Associates, Inc.
Urban Planning Environmental Consulting Project Permitting
A TETRA TECH COMPANY

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ENF FORM

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: **Piers Park III**		
Street Address: **Marginal Street**		
Municipality: **East Boston**	Watershed: **Boston Harbor**	
Universal Transverse Mercator Coordinates: **19 T 332123.00 m E, 4692208.00 m N**	Latitude: **42° 21' 51"** Longitude: **71° 02' 19"**	
Estimated commencement date: December 2024	Estimated completion date: October 2025	
Project Type: **Waterfront Park**	Status of project design: **95 %**complete	
Proponent: **The Trustees of Reservations**		
Street Address: **200 High Street**		
Municipality: **Boston**	State: **MA**	Zip Code: **02110**
Name of Contact Person: **Jamie Fay**		
Firm/Agency: **Fort Point Associates, Inc.**	Street Address: **31 State Street, 3rd Floor**	
Municipality: **Boston**	State: **MA**	Zip Code: **02109**
Phone: **617-279-4384**	Fax:	E-mail: **jfay@fpa-inc.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)(1a): Alteration of a coastal bank.**
- **301 CMR 11.03(3)(b)(1e): New fill or structure or expansion of existing fill or structure in a velocity zone.**
- **301 CMR 11.03(3)(f): Alteration of one half or more acres of any other wetlands.**
- **301 CMR 11.03(3)(f)(6): Construction, reconstruction, or expansion of an existing solid fill structure of 1,000 or more sf base area.**

Which State Agency Permits will the project require?
- **Massachusetts Department of Environmental Protection - 401 Water Quality Certification, Notification of Construction/Demolition**
- **Massachusetts Office of Coastal Zone Management - Consistency Review**
- **Massachusetts Historical Commission – Determination of No Adverse Effect**
- **Board of Underwater Archeological Resources - Review of proposed work/Project Site to**

determine if Reconnaissance Excavation or Special Use Permit(s) are necessary

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:

The Proponent is receiving financial assistance from the Commonwealth of Massachusetts, Department of Conservation and Recreation, $2,000,000).

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	4.7		
New acres of land altered		1.01	
Acres of impervious area	0.99	-0.08	0.92
Square feet of new bordering vegetated wetlands alteration		0	
Square feet of new other wetland alteration		186,240	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	0	0	0
Number of housing units	0	0	0
Maximum height (feet)	0	0	0
TRANSPORTATION			
Vehicle trips per day	0	+69	69
Parking spaces	0	0	0
WASTEWATER			
Water Use (Gallons per day)	0	+100	100
Water withdrawal (GPD)	0	0	0
Wastewater generation/treatment (GPD)	0	0	0
Length of water mains (miles)	0	0	0
Length of sewer mains (miles)	0	0	0

Has this project been filed with MEPA before?
☐ Yes (EEA #_____) ☒No

Has any project on this site been filed with MEPA before?
☐ Yes (EEA #_____) ☒No

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

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

The Project Site consists of an approximately 650-ft by 255-ft wide dilapidated pier, comprised of timber deck and underdeck supported by timber piles and a 256-ft granite block seawall with a concrete cap. The northern half of the pier has an earth-filled core that extents approximately 250 ft offshore under the center of the pier and approximately 30 ft wide at pier level with side slopes protected with riprap. The granite block seawall with a concrete cap is located along the pier/land interface at the northern limit of the pier and follows the shoreline approximately 256-ft northwest to Piers Park Lane. The granite blocks are loose laid and the gaps through the stones allow water to pass through, causing exposure during fluctuating tidal cycles which has caused loss of fines from the backfill and sinkholes behind the wall. The Project Site extends approximately 40 feet inland from this seawall on filled land. Along the perimeter of the pier is a concrete apron also supported by timber piles. Currently, the Project Site is abandoned as the pier is in critical condition and is unsuitable for salvage. The majority of the pier is missing, displaced, or in some stage of decay, except for the concrete apron area on the western side, which was rebuilt in 1965. The center core and concrete pedestal are functional and are capable of providing a foundation for future redevelopment. See Chapter 1, Project Summary, Section 1.2, Existing Conditions.

Describe the proposed project and its programmatic and physical elements:

The Project will transform a dilapidated pier into a unique, climate resilient, waterfront park, providing space for users to enjoy a variety of outdoor activities on an urban waterfront. The Project will provide accessible paths/walkways, a kayak launch, a fishing pier, and accessible coastal edges. The Project will also create salt marshes, a tide pool, a coastal meadow, and a standalone enhanced habitat as part of its ecological design. A sloped stone revetment will replace the granite stone seawall and meet the 2-ft wide concrete cutoff wall/railing forming the western edge of the new Piers Park II Harborwalk and slopes down to meet the mudline. See Chapter 1, Project Summary, Section 1.3, Project Description.

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:

The Proponent considered three alternative scenarios for the redevelopment of the Project Site to assess relative environmental impacts of alternatives. The three alternative project scenarios in addition to the Proposed Project that were considered include: a No-Build Alternative, a Larger Program Alternative, and a Seawall Alternative. Alternative locations for the Project were not considered given the existing Piers Park I and the future development of Piers Park II that are both adjacent to the Project Site, and its suitability for redevelopment. Instead, the alternative projects involved various programming elements and sizes. See Chapter 2, Alternative Analysis.

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:

The Project will transform a dilapidated pier into a unique, climate-resilient, waterfront park, providing space for users to enjoy a wide variety of outdoor activities on an urban waterfront. The Project presents a unique opportunity to engage and enhance marine habitats, with a significant potential to increase biodiversity at the East Boston waterfront. The existing wetlands are in overwhelmingly poor condition and do not serve as meaningful habitats. The Project will create a salt marsh, a tide pool, a coastal meadow, and a standalone enhanced habitat as part of the ecological design and improve the habitat of this coastal site. The Project will present a diverse matrix of plant communities native to the New England coast. The Project will act as a catalyst for resiliency planning and design for the greater Boston landscape, especially at the harbors edge. The Project replaces a failing marine structure with a flood-tolerant, naturalized, riprap shoreline which mitigates wave energy and withstands significant flood events. The Project will utilize portions of the pier that are suitable for adaptive reuse and leverage those elements that are structurally sound to support the proposed program. The Project will provide a variety of visitor experiences, including direct access to the water for visitors that provides a unique prospective of the city skyline and harbor, multiple ways to accessibly explore and experience the park through paths for running and walking, a kayak launch, and a fishing pier, and a community destination for educational programing, community gatherings and events. See Chapter 10, Summary of Mitigation Measures.

If the project is proposed to be constructed in phases, please describe each phase:

N/A

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 **X** 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_____) ☒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:
Boston Harbor; Cause unknown (contamination in fish or shellfish), fecal coliform, dissolved oxygen, Enterococcus, PCBs in Fish Tissue.

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 proposes to manage all stormwater on-site and to discharge appropriately treated stormwater to Boston Harbor through park landscape features. The Project will install corrugated polyethylene piping, catch basins, manholes, area drains, filtration trenches, lined bioretention basins, a detention tank with submersible pump with PVC force main, and check valves. See Chapter 8, Infrastructure, Section 8.3, Stormwater System. For compliance with MassDEP's Stormwater Management Regulations, see Chapter 8, Section 8.3.1, Compliance with DEP Stormwater Standards.

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 **X** No ___ ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):

Several studies were performed by Massport between 1999 and 2003 at the Pier 3 site. A program of test borings with installation of groundwater monitoring wells, test pit excavations, and sediment sampling obtained representative samples across the parcel and evaluated soil, groundwater, and sediment. Testing of those samples indicated the presence of contaminant concentrations in soil above applicable reportable levels (arsenic, lead, petroleum hydrocarbons and semi-volatile organic compounds). Massport reported the site to MassDEP on July 3, 2000, and MassDEP assigned RTN 3-19710 to the site. Concentrations in groundwater and sediments did not trigger any reporting obligation or regulatory compliance. Further studies by Massport indicated none of the contamination required remediation and did not pose risk to public health or the environment. Massport filed a Class B-1 Response Action Outcome (now referred to as a Permanent Solution under current regulations) with MassDEP in July 2003. This filing constitutes a regulatory endpoint for the site and indicated i) further regulatory compliance activities are not required, ii) there are no requirements for remediation or further evaluation, and iii) there are no restrictions on future use of the parcel.

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 Proponent will take an active role in the reprocessing and recycling of construction waste. The contract for disposal will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse, and recycling of materials when possible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per DEP regulations 310 CMR 16.00.

(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:

The contract for construction will provide several measures to be used by contractors to reduce potential emissions and minimize impacts. Efforts will be made to minimize the impact of construction activities, including appropriate mufflers on all equipment such as air compressors and welding equipment, maintenance of intake and exhaust mufflers, and turning off idling equipment.

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 A, Childs Engineering Assessment**
    - **Attachment B, Lucas Environmental Ecological Assessment**
    - **Attachment C, EJ Screening Form**
    - **Attachment D, RMAT Tool Output Report**
    - **Attachment E, EPA EJ Screen**
    - **Attachment F, Distribution List**
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.
    - **See Figure 1-1, Locus Map**
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.
    - **See Figure 1-2, Aerial View and Existing Conditions Photographs Key**
    - **See Figures 1-3 through 1-6, Existing Conditions Photographs**
    - **See Figure 5-1, Wetland Resources**
    - **See Figure 8-1, Existing BWSC Infrastructure**
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.
    - **See Figure 5-1, Wetland Resources**
    - **See Figure 5-2, NHESP Estimated and Priority Habitats of Rare Species**
    - **See Figure 6-1, Chapter 91 Jurisdiction**
    - **See Figure 9-1, Historic Resources**
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).
    - **See Figures 1-8 and 1-9, Proposed Site Plan**
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with

301 CMR 11.16(2).

- **See Attachment F, Distribution List**

7. List of municipal and federal permits and reviews required by the project, as applicable.
    - **See Table 1-1, Anticipate Project Approvals**
8. Printout of output report from RMAT Climate Resilience Design Standards Tool, available here.
    - **See Attachment D, RMAT Tool Output Report**
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.
    - **See Figure 3-1, EJ Populations: 5-Mile Radius**
    - **See Figure 3-2, EJ Populations: 1-Mile Radius**

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	**0**	**0**	**0**
Internal roadways	**0**	**0**	**0**
Parking and other paved areas	**0.99**	**-0.08**	**0.92**
Other altered areas	**3.74**	**+0.08**	**3.82**
Undeveloped areas	**0**	**0**	**0**
Total: Project Site Acreage	**4.73**	**0**	**4.73**

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: **Imagine Boston 2030** Date **July 2017**

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

1) economic development

The City of Boston aims to reduce economic loss by adapting to climate change. With 9 inches of sea level rise, a severe flood with a 1 percent annual chance of occurring is estimated to inundate 2,000 buildings, representing $20 billion in total property value and the homes of 18,000 Bostonians. The Project will model best practices and create innovative natural solutions that demonstrate potential protection from flooding and inundation caused by sea level rise. The Project therefore will aim to model how to protect Boston's future from sea level rise.

2) adequacy of infrastructure

The City of Boston plans to adapt to climate change in order to reduce economic loss and number of people exposed to climate-related flooding and increase tree canopy coverage. The Project aims to model best practices and create innovative

natural solutions that demonstrate potential protection from flooding and inundation caused by sea level rise. The Project also aims to provide shaded space for the community by introducing canopy trees and create more greenspace.

3) open space impacts

The City of Boston plans to invest in open space and improve the quality of parks. The City's goal is to create a new generation of parks along Boston's waterfront by partnering with state and local organizations to provide signature connected open space that reduces climate disk, enhances culture, and connects existing and new jobs and housing along the waterfront. The Project not only is consistent with Boston's goals but highlights the importance. The Project will connect with the already developed Piers Park I and the developing Piers Park II. The Proponent has worked with the East Boston neighborhoods to address community needs and include open space that will enhance cultural event opportunities. The Project emphasizes climate resilience through green infrastructure and demonstrates potential protection from flooding and inundation caused by sea level rise.

4) compatibility with adjacent land uses

The Project is consistent with Imagine Boston 2030's goal to work with communities to develop neighborhood plans that guide uses, density, and public realm investments in neighborhoods. These planning process aim to align with land use regulations with the aspirations of the community and improve quality of life. The Project is adjacent to Piers Park I and Piers Park II, and with input from the community, Piers Park III will support additional open space. In total, the parks will include approximately 15 acres of open space on Boston's waterfront, which is one of the main initiatives in Imagine Boston 2030.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)

RPA: **Metropolitan Area Planning Council**

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

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

1) economic development

The Project is consistent with the MetroCommon 2050 goals for economic development by creating a new destination for the public. The creation of public green space will attract the public to East Boston and their businesses. The Project will create green infrastructure that demonstrates potential protection from flooding and inundation caused by sea level rise. The potential to protect both small and large businesses from flood damage will reduce the economic loss associated with natural disasters. The Project will also create jobs through the construction of the Project Site.

2) adequacy of infrastructure

MetroCommon 2050 aims to be a climate resilient region and in doing so, implement green infrastructure, which provides multiple co-benefits such as stormwater filtration, shade, cleaner air, carbon storage, and cooling. The Project is a climate-resilient catalyst which aims to utilize green infrastructure, such as lined bioretention systems and filtration trench systems to treat stormwater. The Project will also plant canopy trees and increase greenspace, which will provide the community additional shaded space during extreme heat.

3) open space impacts

MetroCommon 2050 aims to have a healthy environment, including robust protected open space. The Project provides 2.3 acres of protected open space to the East Boston Community.

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

5) 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:

Alteration of 1,026 lf of coastal bank, expansion of 77,200 sf of solid fill structure, expansion of 19,907 sf of fill in velocity zone, and alteration of 124,806 sf of land under ocean.

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 Wetlands Protection Act Order of Conditions

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 **X** No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

There will be permanent impacts to Land Under Ocean, Fish Runs, Coastal Banks, and LSCSF due to filling. New wetland resource areas, including the addition of Coastal Beach and Salt Marsh, will result in permanent impacts. See Chapter 3, Wetlands for additional information.

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:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean	**124,806 sf**	**Permanent**
Designated Port Areas	_____	_____
Coastal Beaches		
Coastal Dunes	_____	_____
Barrier Beaches	_____	_____
Coastal Banks	**1,026 lf**	**Permanent**
Rocky Intertidal Shores	_____	_____
Salt Marshes		
Land Under Salt Ponds	_____	_____
Land Containing Shellfish		
Fish Runs	**137,168 sf**	**Permanent**
Land Subject to Coastal Storm Flowage	**44,184 sf**	**Permanent**
Inland Wetlands		
Bank (lf)	_____	_____
Bordering Vegetated Wetlands	_____	_____
Isolated Vegetated Wetlands	_____	_____
Land under Water	_____	_____
Isolated Land Subject to Flooding	_____	_____

Bordering Land Subject to Flooding	_____	_____
Riverfront Area	_____	_____

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? **X** Yes__ No; if yes, describe the volume of dredged material and the proposed disposal site:
   The Project will generate approximately 2,200 cy of dredged material. The dredged material will be disposed of at a DEP Approved upland 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) **32,985 sf**

E. Will the project:
   1. be subject to a local wetlands ordinance or bylaw? ___ Yes **X** 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:

See Chapter 6, Tidelands; Table 6-2, Prior Authorization at the Project Site

B. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes **X** 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 ___ Change ___ Total ___ If yes, how many square feet of solid fill or pile-supported structures (in sf)?

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? **X** Yes __No; if yes, answer the following questions:
What type of dredging? Improvement **X** Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) **2,200**
What is the proposed dredge footprint **256** length (ft) **20** width (ft) **8** depth (ft);
Will dredging impact the following resource areas?
Intertidal Yes **X** No__; if yes, **2,908** sq ft
Outstanding Resource Waters Yes__ No **X**; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No **X**; if yes __ sq ft
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? **Yes, see Chapter 2, Alternatives Analysis**
If no to any of the above, what information or documentation was used to support this determination?
Site survey, observation, environmental survey (see Attachment B, Lucas Environmental Ecological Assessment)

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.
See Chapter 2, Alternatives Analysis in the Project Narrative. Physical and chemical data are scheduled for collection and analysis will be distributed to the appropriate agencies. The dredge material is expected to be disposed of at a DEP approved upland landfill.
Sediment Characterization
Existing gradation analysis results? __Yes **X** No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes **X** 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 **X**
Out-of-state landfill disposal **X**
(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:

Please See Chapter 6, Tidelands, Section 6.6, Compliance with Massachusetts CZM Coastal Policies.

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?

E. 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:

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

G. 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? ___ Yes **X** No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes ___ 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 ___ No; if yes, please describe:

D. If you answered "No" to <u>all parts of both</u> questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to <u>any part of either</u> 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:

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:

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).

100-YEAR; The Project will act as a model for resilient landscape solutions for waterfront development in the harbor. The Project will test performance and strategies for maintaining many of the typologies being suggested for the larger Boston Harbor landscape – riprap slope armoring, salt marshes, beaches, structural bulkheads, etc., using a scalable set of

landscapes to analyze over the course of several years. A tidal pool, salt marsh, scrub-shrub, and upland coastal planting will provide accessible means of engaging with the harbor, while also offering a testing ground for maintaining and/or adapting landscapes to respond to rising sea levels. The Project's tidal range will fluctuate between Mean Lower Low Water (MLLW) El. -5.51 NAVD88 and Mean Higher High Water (MHHW) El. 4.77 NAVD88. Over the next 50 years the MLLW and MHHW elevations are expected to increase according to the Massachusetts Coast Flood Risk Model (MCFRM), which has been chosen as the Project's standard. The updated calculations project a 2.5-ft, 4.3-ft, and a 7.7-ft rise in sea level as soon as 2050, 2070 and 2100 (DeConto and Kopp, 2017) in Boston, which combined with an increased intensity of storms, translates to even higher flood elevations.

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

MetroCommon 2050 states one of their goals is to become a climate-resilient region. The plan looks to implement green infrastructure, which provides multiple co-benefits such as stormwater filtration, shade, cleaner air, carbon storage, and cooling. The Project is a climate-resilient catalyst which aims to utilize green infrastructure, such as lined bioretention systems and filtration trench systems to treat stormwater. The Project will plant canopy trees and increase greenspace, which will provide the community additional shaded space during extreme heat. The Project will model best practices and create innovative natural solutions that demonstrate potential protection from flooding and inundation caused by sea level rise.

The Project also complies with the Massport Floodproofing Design Guidelines where applicable, specifically in regard to utility design at the Project Site. The Guidelines will be addressed in utility design once finalized, with all proposed critical infrastructure, including power, to be installed above El. 17 ft NAVD88 or designed to be submersible.

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

A. If no, explain why.

Alternative locations for the Project were not considered given the development of Piers Park I and Piers Park II adjacent to the Project Site and the Project Site's suitability for redevelopment.

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.

According to the FEMA FIRM for Suffolk County, Map Number 25025C0081J, dated March 16, 2016, and Letter of Map Revision (LOMR), dated September 8, 2017, the Study Area is designated as a Zone AE and Zone VE. The Base Flood Elevations (BFE) for Zone AE and VE, as identified on the FIRM, are El. 12 and 13 feet NAVD88, respectively. The Project will add fill to create a filled landform to support coastal features such as a salt marsh, a coastal meadow and coastal beach, and a tide pool. The fill is designed to improve the way the area responds to wave energy and enhances the ability to provide storm damage protection and flood control to landward areas. The Project has been designed to allow floodwaters to flow across and through the landform. This, in addition to increasing vegetation at the Project Site, resists and reduces storm energy and

provides protection from storm damage. The Project will protect adjacent properties by increasing the ability to reduce wave energy and storm damage through natural landforms.

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.

Within a 5-mile radius of the Project Site, there are 643 census block groups that trigger EJ criteria, which include: Minority; Income; English Isolation; Income and Minority; Minority and English Isolation; and Minority, Income, and English Isolation (see Figure 3-1, EJ Populations: 5-Mile Radius). Within a 1-mile radius, there are 33 census block group that trigger EJ criteria, which include Minority; English Isolation; Minority and English Isolation; Minority and Income Isolation; and Minority, Income, and English Isolation (see Figure 3-2, EJ Populations: 1-Mile Radius).

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.

Eleven languages were identified within the 5-mile radius of the Project Site, which include: African languages, Arabic, Chinese, French Creole, Korean, MonKhmer/Cambodian, Portuguese or Portuguese Creole, Russian, Spanish or Spanish Creole, Vietnamese, and other Indic languages. Three languages were identified within the 1-mile radius of the Project Site, which includes Arabic, Spanish or Spanish Creole and Chinese. The three languages identified in the 1-mile radius were used to translate the EJ Screening Form and additional community outreach processes.

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).

See Chapter 3, Section 3.5, Potential Effects on EJ Populations.

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) generate 150 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).

N/A

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.

See Attachment C, EJ Screening Form.

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.

The Proponent has been conducting community outreach since Fall of 2020 and hosting meetings with neighborhood associations and community groups since January 2021, which is ongoing. To better understand the needs and wants of East Boston communities, the Proponent has offered multiple ways for the community to engage with the project. Through their website, One Waterfront, community members can submit surveys, access events and meetings, and share comments on their bulletin board. NOTE: Add any requests for meeting in response to EJ Notification prior to filing ENF

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

N/A

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.

See Attachment C, EJ Screening Form and Attachment F, Distribution List

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.

See Chapter 3, Environmental Justice, Section 3.3 Public Involvement Activities

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) Boston Herald (Date) March 1, 2023

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

Signatures:

2.27.23	Vidya Tikku	2.27.23	Jamie Fay
Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)

Vidya Tikku	**Jamie Fay**
Name (print or type)	Name (print or type)
The Trustees of Reservations	**Fort Point Associates, Inc.**
Firm/Agency	Firm/Agency
200 High Street	**31 State Street, 3rd Floor**
Street	Street
Boston, MA. 02110	**Boston, MA 02109**
Municipality/State/Zip	Municipality/State/Zip
617-542-7696	**617-357-7044**
Phone	Phone

Chapter 1

PROJECT SUMMARY

CHAPTER 1: PROJECT SUMMARY

1.1 INTRODUCTION

The Trustees of Reservations (the "Trustees" or "Proponent"), in partnership with Massachusetts Port Authority ("Massport"), propose to create a public park on the site of an abandoned and degraded pier on the East Boston waterfront (the "Project"). The Trustees Boston Waterfront Initiative, *One Waterfront*, acknowledges it is more critical than ever to create, preserve, and protect what little opportunity remains for publicly accessible green spaces on Boston's harbor. The Trustees evaluated potential sites for a signature project that align with four criteria; the ability to create destinations, support community needs, bring value to Boston's climate resilience goals, and are financially feasible in both creation and long-term care. Based on these criteria, the Trustees selected Piers Park III as the location of the first of the organization's Boston Waterfront Initiatives. In July of 2020, following public bid process, Massport designated the Trustees to build a waterfront park on the underutilized site.

With this project, the Trustees will design, permit and build Piers Park III to complement the existing Piers Park I (aka "Piers Park"), a 6.5-acre park Massport opened in 1995 designed for passive recreation, and Piers Park II, currently under construction by Massport, which will be a 4.7-acre park designed for active recreation. When completed, the three adjacent parks will offer unique passive, active and immersive experiences. The Trustees and Massport are working in close partnership to ensure the design and programming of the three parks work in unison to offer a dynamic experience to the nearby East Boston community and other users.

The Project (aka "Piers Park III") is the Trustees' pilot project for One Waterfront and a public-private partnership with Massport to develop a truly unique open space experience that is designed by and tailored to the needs and interests of the East Boston community. This signature waterfront destination will be a welcoming and accessible public space offering a dynamic visitor experience and helps address climate resiliency goals in East Boston. The Project will secure public greenspace from development of gray spaces seen throughout the harbors edge. The Project will create an immersive natural experience featuring native plant landscapes, a salt marsh, a tide pool, and a coastal meadow, all designed to invite the public to engage with the ocean through accessible coastal edges, seating, walking/running paths, a fishing pier, and a kayak launch.

1.2 EXISTING CONDITIONS

Location

The Project is bounded to the east, south, and west by Boston Harbor and on the north side by Piers Park I, and the future site of Piers Park II (the "Project Site"). The Project Site is located in East Boston near the Jeffries Point Neighborhood, which is a short walk from the Massachusetts Bay Transportation Authority ("MBTA") Maverick station. The Project Site is a condemned former shipping pier that occupies approximately 4.1 acres of the East Boston waterfront and approximately 0.6 acres of the Piers Park II seawall and waterfront. The Project Site is adjacent to Piers Park Lane and approximately 250 feet ("ft") from Pier One to the west, which is home of The Tall Ship at Eastie Landing (see Figure 1-1, Locus Map; Figure 1-2, Aerial View of Project Site and Existing Conditions Photographs Key, and Figures 1-3 through 1-6, Existing Conditions Photographs). The Project Site is owned by Massport, and the Trustees have executed an agreement with Massport to develop the Project.

Site Description

The pier, approximately 650 ft long by 255 ft wide, is comprised of a decaying timber deck and underdeck supported by timber piles. The majority of the structure as it exists today was built in 1908-1909. Along the perimeter of the pier is a pile-supported concrete apron that varies in width up to 20 ft and consists of two different construction types of concrete deck; a newer section on the northwest and an older section on the outshore and southeast. The northern half of the pier has an earth-filled core that extents approximately 250 ft offshore under the center of the pier and approximately 30 ft wide at pier level with side slopes protected with riprap. A granite block seawall with a concrete cap is located along the pier/land interface at the northern limit of the pier. The Project Site extends approximately 40 ft inland from this seawall on filled land and continues west approximately 256 ft to Piers Park Lane. The mudline slopes down from the toe of the core riprap at the north and south sides of the pier. The mudline slope varies between 4:1 and 1:1, reaching water depths of approximately 30 ft within each cove based on project bathymetric data. Mean High Water ("MHW") is at El. 4.33 (NAVD88) and Mean Low Water ("MLW") is at El. -5.16 NAVD88) based on the National Oceanic and Atmospheric Administration ("NOAA") Boston Harbor Tide Station No. 8443970.

The existing seawall is granite blocks with a concrete cap. It is assumed the granite blocks are supported on a timber platform and piles. The granite blocks are loose laid and the gaps through the stones allow water to pass through during daily tide cycles. Exposure to fluctuating tide cycles has caused loss of fines and sinkholes behind the wall, which are periodically repaired. The concrete cap has several wide displacement cracks from historical movement of the wall.

According to the most recent Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") Map Number 25025C0081J, dated March 6, 2016, the Project Site is within Zone VE, at elevation ("El.") 13 and Zone AE at El. 12 NAVD88. The Project Site is therefore subject to both inundation by the 100-year flood and additional velocity wave action. See Figure 1-7, FEMA FIRM; 25025C0081J.

The Project Site is accessed through a gated access road leading from Marginal Street to the north, and a chain link fence separates the perimeter concrete apron from the timber structure. Additional fencing is located around the pier to prevent public use. The center core and concrete pedestal of the pier will provide the foundation for future redevelopment.

Site Investigations

An assessment completed by Childs Engineering in April 2019 found the overall structural condition of the pier is in in critical condition and is unsuitable for salvage. Most of the pier structure is missing, displaced, or in some stage of decay, except for the apron area on the western side which was rebuilt in 1965. See Attachment A, Childs Engineering Assessment, for additional information. A summary of the condition assessment is listed below:

- The concrete deck along the outshore and southeast side of the pier is generally in poor condition with widespread open corrosion spalling of underdeck, typically in 8 square foot ("sf") patches revealing the bottom reinforcing steel. This type of defect normally compromises the structural integrity of the deck and in some instances open corrosion spalls have completely deteriorated through the deck. The concrete deck apron on the northwest side of the pier is generally in satisfactory condition with no major defects and minor common cracking, which has not significantly reduced the structural integrity.

- A majority of the timber decking is missing, and any remnants of decking are in critical condition. There is a small region of timber decking inshore at the northern corner adjacent to the seawall in fair condition.

- The concrete pedestals, both large interior and those beneath the concrete apron, were observed to have moderate to advanced defects, including cracks, spalling, and disintegration of concrete. The large interior concrete pedestals are in fair condition overall, while the concrete pedestals beneath the concrete apron range from fair to poor condition.

- The timber substructure is in serious to critical condition with advanced deterioration observed.

- The interior timber piles are in critical condition and have severe section loss due to marine borer and fungal decay. The outshore timber piles of the earthen core and past the traverse concrete firewall are generally in satisfactory condition.

- The timber fender system, which consists of pile caps, chocks, and fender piles is in fair to poor condition.

Subsurface investigations were conducted by ConeTec, Inc. between December 1999 and January 2000, and by Geologic Earth Exploration, Inc. between June 2019 and July 2019 on the outskirts of the pier. Based on these explorations, the generalized subsurface profile is characterized (in order of increasing depth below the ground surface and/or mudline) as miscellaneous fill, organic deposits, marine deposits, glaciomarine deposits, glacial till, and bedrock. Additional geotechnical borings will be completed in Spring of 2023 to further assess subsurface conditions within the pier and center core.

In March 2019, Lucas Environmental, LLC, in partnership with Fathom Resources LLC, completed an intertidal/subtidal ecological assessment of the land and waters around the Project Site. This assessment was limited to the exterior piers and pilings as it was unsafe to access the dilapidated structure. According to this assessment, the subtidal zone is primarily devoid of vegetation and contained low-diversity and limited shellfish. The intertidal zone consists primarily of riprap. The exterior piers/piles were devoid of vegetation, consisting primarily of fouling organisms, tunicates, and sponges. In addition, no fish were observed swimming in the subtidal and intertidal zones during the assessment. See Attachment B, Lucas Environmental Ecological Assessment, for additional information.

1.3 PROJECT DESCRIPTION

The Project will transform the dilapidated pier described above into a unique, climate-resilient waterfront park, providing space for users to enjoy a wide variety of outdoor activities. The Project will support community needs with a network of accessible paths, an accessible-to-all kayak launch, a fishing pier, and accessible coastal edges. Meandering paths will be ideal for school field trips, and summer camps, as well as runners, walkers, and explorers. Native flora will attract birds and bird watchers. Open areas will provide gathering spaces for picnics and larger community events. Benches and tables will be strategically located throughout the park to offer amazing city views and shaded picnic spots.

A salt marsh and tide pool will provide unique and exceptional access to the harbor, making the Project a place where all are welcome to experience and benefit from outdoor recreation and education. The Project is has been specifically oriented to showcase native New England waterfront plant species within its urban setting, providing a range of experiences from tranquil oasis to an open-air classroom. See Figures 1-8 and 1-9, Proposed Site Plan.

The Project will create a salt marsh, tide pool, coastal meadow, and standalone enhanced habitat as part of the ecological design, improving the coastal habitat of this site. The standalone enhanced habitat will be created with the remnant pile-supported concrete deck on the southeast of the existing pier, and a sand-based soil berm with native plantings on top of this pier will be used to attract wildlife.

The kayak launch will be a floating wood deck and marine rail structure, supported on steel pipe piles. The kayak launch will be designed to flow with the tidal range and allow walk-in access for small craft, located to the south of the Piers Park Sailing Center and adjacent to the sailing dock. The fishing pier will reclaim and refinish the existing concrete apron and add marine rails to support pedestrian uses. The kayak launch aims to bring inclusive and accessible kayaking to an existing kayaking program through a partnership with the Piers Park Sailing Center. Kayaks will be able to be rented through the Piers Park Sailing Center.

The central pier and its existing railroad tracks will be salvaged and integrated into the design of the main central path into Piers Park III. As visitors enter the park along this path, a gravel landscape on each side will provide access to the harbor and a salt marsh to the north. The central rail line path will provide access to the approximately 5,000 sf coastal edge, where the sand-based soil berm will be located, capable of hosting 250 person events, such as movie nights on the harbor. Past this landform, visitors can access the tide pool and rocky intertidal area, or the "spit", which will be available for visitors to explore at low tide.

Native, salt tolerant, cold-hardy plants, such as *Spartina alternifolia*, will be used to construct approximately 6,500 sf of salt marsh and 1,700 sf of tide pool. New riprap along the shoreline will slope up to the coastal meadow and tide pool. A tidal channel will connect from the northwest corner and meander through the proposed salt marsh.

The Project presents a unique opportunity to restore marine habitats, with a significant potential to increase biodiversity along the East Boston waterfront. The Project will present a diverse matrix of plant communities native to the New England coast. The upland will consist of a mix of salt-tolerant ground covers, perennials, shrubs, and canopy trees. The coastal meadow will include multi-species plantings of contract grown grasses and wildflowers. The proposed flora will provide habitat for migratory birds and engineered submerged installations will serve as catalysts for establishing marine habitat. A subtidal habitat will be located at the mudline below the habitat structure and will include features such as reef balls and oyster gabions.

The Project will be constructed within the limits of the existing pier and bulkhead and extend along the seawall to Piers Park Lane. Adjacent to the fishing pier will be a steel sheet pile bulkhead, supported by 12-inch steel pipe batter piling braces and a 5-ft layer of riprap for scour protection. Below MLW, the earthen fill will extend laterally within the existing pier limits. A sloped stone revetment will meet the 2-ft wide concrete cutoff wall/railing forming the western edge of the new Piers Park II Harborwalk and slope down to meet the mudline at an approximate 1.5:1 slope. The sloped stone revetment will help dissipate wave energy and prevent undermining of the Harborwalk. The revetment will consist of 4-6 ton toe stones placed in a trench below the mudline and the slope will consist of 3-4 ton riprap armored stone placed on top of a crushed stone filter layer. The elevation of the park will range from El. -4.5 NAVD88 at low tide to 13.5 NAVD88 at the fishing pier. The fill at the Project Site

will reach extend down to an elevation of -15 NAVD88. See Figures 1-10 to 1-15, Proposed Site Sections.

Key components of the Project, in conjunction with other nearby existing and planned infrastructure, will help project against sea level rise and storm surge in this area of East Boston. Coastal wetland areas, such as salt marshes, act as natural buffers to storm surges and flooding. According to the Coastal and Estuarine Research Federation, Massachusetts has experienced a 41% loss of saltmarsh since 1777, with the Boston area alone losing 81%.[1] This project will serve as a demonstration for how salt marsh creation in urban parks, if done at scale, can increase community resilience to storms. The Project replaces a failing marine structure with a flood-tolerant, naturalized, riprap shoreline and replaces the existing seawall with a sloped stone revetment, which mitigates wave energy and withstands significant flood events. Through marine engineering and landscapes with the capacity for reducing wave energy, the Project is expected to withstand the significant daily tidal range, projected sea level rise, storm events, and tidal flooding.

The Project's tidal range will fluctuate between Mean Lower Low Water ("MLLW") El. -5.51 NAVD88 and Mean Higher High Water ("MHHW") El. 4.77 NAVD88. Over the next 50 years the MLLW and MHHW elevations are expected to increase according to the Massachusetts Coast Flood Risk Model ("MCFRM"). The Proponent has chosen to use MCFRM as its standard for assessing future sea level rise to maintain a consistent benchmark across the Proponent's coastal properties. These updated calculations project a 2.5-ft, 4.3-ft, and a 7.7-ft rise in sea level as soon as 2050, 2070 and 2100 (DeConto and Kopp, 2017) in Boston, which combined with an increased intensity of storms, translates to even higher flood elevations.

The stormwater management strategy will be in accordance with the Boston Water and Sewer Commission ("BWSC") and the Massachusetts Department of Environmental Protection ("MassDEP") standards but will also reach the Project's goals for resiliency and enhanced ecological design. The Project will utilize lined bioretention systems and filtration trench systems to treat stormwater from paved surfaces prior to discharging to the Boston Harbor. These measures will substantially improve the quality of runoff from the Project Site. See Chapter 8, Infrastructure, Section 8.3, Stormwater System, for additional information.

1.4 PUBLIC AND COMMUNITY BENEFITS

The Proponent's mission is to create, preserve, and protect what little opportunity remains for publicly accessible greenspace on Boston Harbor. The Project is anticipated to provide several environmental and community benefits and improve environmental conditions.

[1] Bromberg, Keryn D., and Mark D. Bertness. "Reconstructing New England Salt Marsh Losses Using Historical Maps." *Estuaries*, vol. 28, no. 6, 2005, pp. 823–32. *JSTOR*, http://www.jstor.org/stable/3526949. Accessed 19 Dec. 2022.

The Project will redevelop an abandoned, dilapidated pier into a public waterfront park which emphasizes resiliency and promotes access to outdoor recreation. The Project will increase green and shaded space, model best practices and create innovative natural solutions that demonstrate protection from flooding and inundation caused by sea level rise, and increase public access to the waterfront. The Project is being designed to be resilient to future threats of storm surges, sea level rise and cyclical tidal flooding and to recover quickly from submersion events. The Project will provide a variety of visitor experiences, including direct access to the water with a unique perspective of the city skyline and harbor, multiple ways to accessibly explore and experience the park, through paths for running and walking, a kayak launch, a fishing pier, and a community destination for educational programing, community gatherings and events.

1.5 ENVIRONMENTAL JUSTICE POPULATIONS

The Project is located near neighborhoods defined as Environmental Justice ("EJ") Populations based on the Massachusetts Executive Office of Energy and Environmental Affairs ("EEA") 2020 EJ Map Viewer, which is derived from 2020 Census Block Groups. Within a 5-mile radius of the Project Site, there are 643 census block groups that trigger six EJ criteria, which include: Minority; Income; English Isolation; Income and Minority; Minority and English Isolation; and Minority, Income, and English Isolation. Within a 1-mile radius, there are 33 census block group that trigger EJ criteria for Minority; English Isolation; Minority and English Isolation; Minority and Income Isolation; and Minority, Income, and English Isolation. See Chapter 3, Environmental Justice, for additional information.

1.6 COMMUNITY AND AGENCY OUTREACH

The Proponent has conducted community outreach since fall of 2020 and hosted meetings with neighborhood associations and community groups since January 2021. To better understand the needs and wants of the East Boston community, the Proponent has offered multiple ways for the community to engage with the Project. Through their website, One Waterfront, community members can submit surveys, access events and meetings, share comments on their bulletin board, and be informed of the most recent updates to the Project and design, and provide feedback. The Proponent has engaged over 4,500 community members through these efforts and have encountered positive survey feedback (76%) on their current design.

On December 15, 2022, 45 days in advance of the targeted Expanded Environmental Notification Form ("EENF") filing date, the Proponent sent an email to Community-Based Organizations ("CBO") describing its intent to promote awareness of and offer opportunities to engage with the Project. The email included the anticipated EENF filing date and invited recipients to reach out with questions, comments, and ideas or to schedule a meeting with the Proponent to discuss the Project. Attached to the email was a complete EJ Screening Form translated into three languages: Arabic, Spanish or Spanish Creole, and Chinese, (see

Attachment C, EJ Screening Form). Both the Massachusetts Environmental Policy Act ("MEPA") Office and EEA EJ Director were copied on this correspondence.

Other public involvement strategies implemented by the Proponent in advance of filing this EENF included providing hard copies of the EJ Screening Form at publicly accessible locations. Hard copies of the EJ Screening Form in all three languages were made available at the East Boston YMCA and the East Boston Branch of the Boston Public Library. The Proponent distributed a public notice to the CBO Distribution List via email for a MEPA EJ Informational Session on the Project on February 24th. This email invited the CBOs to join a hybrid meeting on March 7th to discuss the Project design and permitting process and/or provide feedback on the Project.

1.7 REQUEST FOR SINGLE ENVIRONMENTAL IMPACT REPORT

This Expanded ENF is being submitted to the EEA to initiate review of the Project under MEPA. The Trustees of Reservations is requesting that MEPA allow the submission of a Single Environmental Impact Report ("SEIR"), in lieu of a Draft Environmental Impact Report ("DEIR") and Final Environmental Impact Report ("FEIR"). The EENF includes an extensive alternatives analysis, a thoroughly documented description of anticipated wetland impacts and the Project's compliance with wetlands regulations. All feasible measures have been taken to reduce Project impacts. While the Project is not subject to licensing under Chapter 91, the EENF provides an entire chapter documenting consistency with Chapter 91 requirements. Furthermore, the Project is within a mile of identified EJ Populations, there has been an extensive effort to engage the EJ population and provide meaningful opportunities participate in the design of the Proposed Project. The EENF contains an expanded analysis of environmental impacts, including on public health impacts on EJ Populations. The Project is on a fast-track schedule to meet the Commonwealth's and the City of Boston's needs for more accessible, resilient open space in EJ Populations, so an SEIR is requested in order to accelerate the permitting process to allow Project construction to begin in early 2024.

1.8 SUMMARY OF REQUIRED PERMITS AND APPROVALS

The following table lists the anticipated approvals for the Project.

Table 1-1: Anticipated Project Approvals

Agency	Approval
Local	
Boston Conservation Commission	• Order of Conditions under Wetlands Protection Act
Boston Water and Sewer Commission	• Water Connection Permit
State	
Executive Office of Energy and Environmental Affairs	• Massachusetts Environmental Policy Act Compliance

Agency	Approval
Massachusetts Port Authority	• Ground Lease
Massachusetts Department of Environmental Protection	• Notification of Construction and Demolition • 401 Water Quality Certification
Massachusetts Office of Coastal Zone Management	• Federal Consistency Review
Massachusetts Historic Commission	• Determination of No Adverse Effect
Board of Underwater Archeological Resources	• Review of proposed work/Project Site to determine if Reconnaissance Excavation or Special Use Permit(s) are necessary
Office of Public Safety and Inspections	• Building Permit and Code Review
Federal	
U.S. Army Corps of Engineers	• Work in Navigable Waters (Section 10) Individual Permit • Clean Water Act (Section 404) Individual Permit
National Environmental Policy Act	• Environmental Assessment
Federal Aviation Administration	• Determination of No Hazard to Air Navigation
U.S. Environmental Protection Agency	• National Pollutant Discharge Elimination System Construction Stormwater General Permit

1.9 PROJECT TEAM

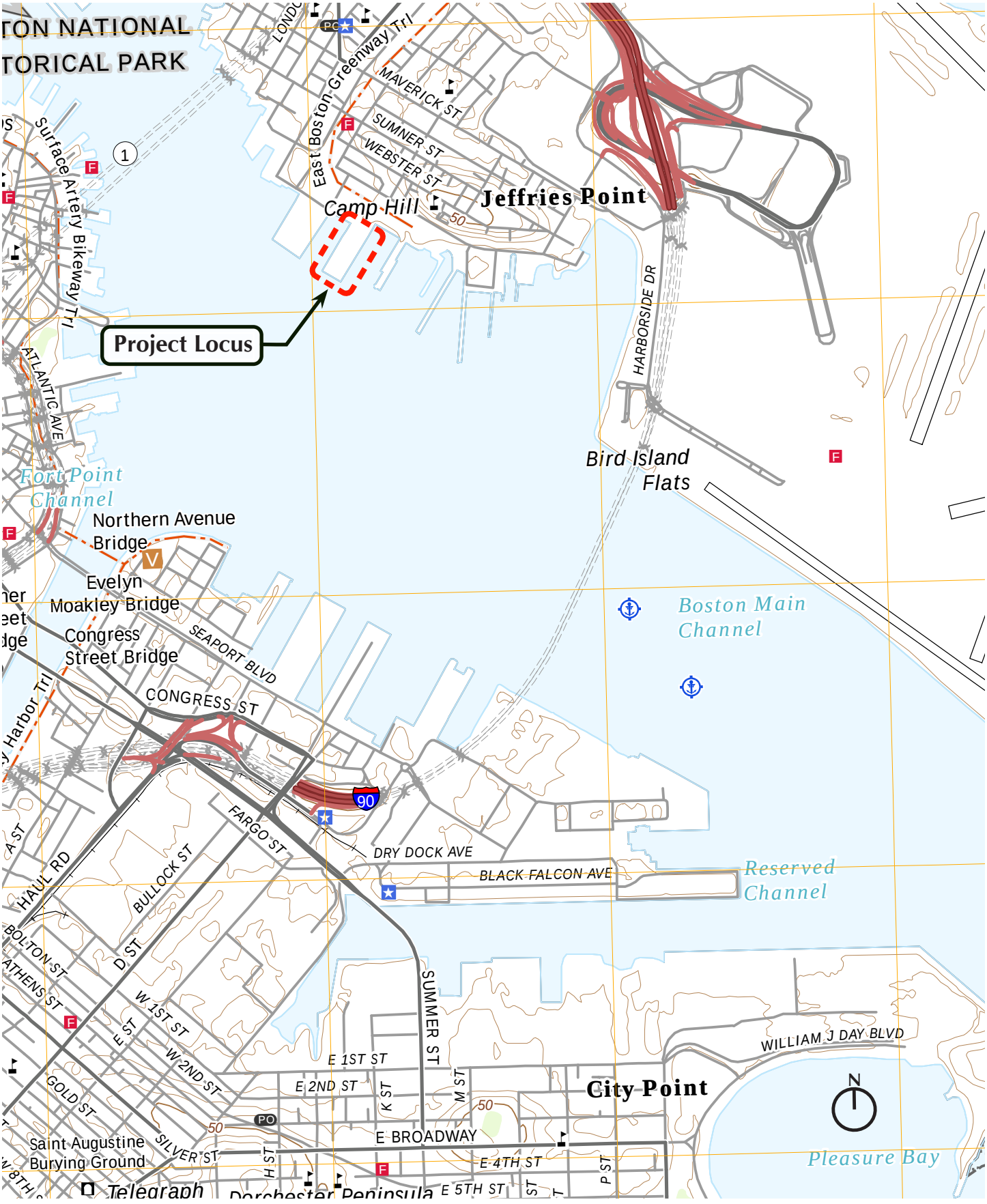
Table 1-2: Project Team

Team Member	Contact Information
Proponent	The Trustees of Reservations 200 High Street Boston, MA 02110 Contact: Nick Black Managing Director, Boston Waterfront Initiative nblack@thetrustees.org 617-542-7696

Team Member	Contact Information
Property Owner	Massachusetts Port Authority One Harborside Drive, Suite 200S East Boston, MA 02128 Contact: Meghan Davis Casey mcasey@massport.com 617-568-1092
Client Representative	Maass Works 145 Palisade Street, #328 Dobbs Ferry, NY 10522 Contact: Jon Maass Director jm@maass.works 917-578-0190
Planning/Permitting	Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 Contact: Jamie Fay, AICP, CEP President jfay@fpa-inc.com 617-279-4384
Landscape Architect	Michael Van Valkenburgh Associates, Inc. 231 Concord Avenue Cambridge, MA 02138 Contact: Chris Donohue Associate Principal cdonohue@mvvainc.com 617-864-2076

Team Member	Contact Information
Environmental and Geotechnical Engineer	Haley & Aldrich, Inc. 465 Medford Street Boston, MA 02129 Contact: Heather B. Scranton, P.E. Principal hscranton@haleyaldrich.com 617-886-7400 Foth Infrastructure and Environment, LLC 49 Bellevue Avenue Newport, RI 02840 Contact: Jimmy Hill Project Engineer – Ports and Harbors James.Hill@Foth.com 401-239-0473
Marine Engineer	Childs Engineering 34 William Way Bellingham, MA 02019 Contact: Charlie Roberts, P.E. President robertsc@childseng.com Foth Infrastructure and Environment, LLC 49 Bellevue Avenue Newport, RI 02840 Contact: Jimmy Hill Project Engineer – Ports and Harbors James.Hill@Foth.com 401-239-0473
Ecology	eDesign Dynamics 247 West 35th Street, 10th Floor North New York, NY 10001 Contact: Eric Rothstein Managing Partner, Engineering erothstein@edesigndynamics.com 646-688-3113

Team Member	Contact Information
Civil Engineer and Land Surveyor	Nitsch Engineering 2 Center Plaza, Suite 430 Boston, MA 02128 Contact: Nicole Holmes, P.E. Senior Project Manager nholmes@nitscheng.com 617-338-0063 Kleinfelder One Beacon Street, Suite 8100 Boston, MA 02108 Contact: Andre Martecchini, P.E. Senior Project Manager amartecchini@kleinfelder.com 617-498-4658
Structural Engineer	RSE Associates Inc. 63 Pleasant Street, Suite 300 Watertown, MA 02472 Contact: Richmond So, P.E. President richmond.so@rseassociates.com 617-926-9300
Hydrographic Surveyor	Harbor Engineering 26 Bosworth Street Barrington, RI 02806 Contact: Gus Kreuzkamp, P.E. 401-684-0053
Ecological Assessment	Lucas Environmental, LLC 500A Washington Street Quincy, MA 02169 Contact: info@lucasenviro.com 617-405-4465



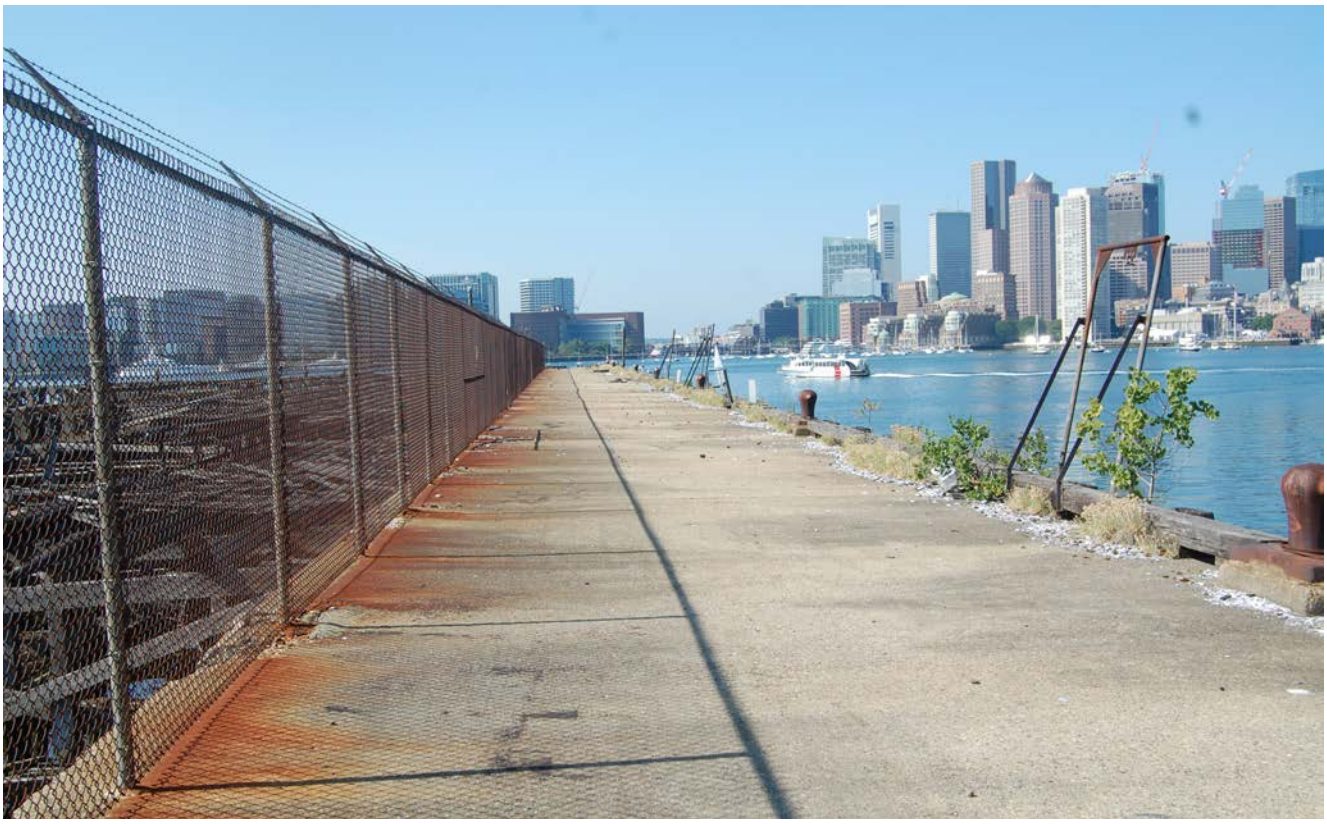
East Boston, Massachusetts

Figure 1-1
Locus Map
Source: United States Geological Survey, 2021

East Boston, Massachusetts

Figure 1-2
Aerial View of Project Site and Existing Conditions Photographs Key
Sources: Nearmap, 2022; Fort Point Associates, Inc., 2022

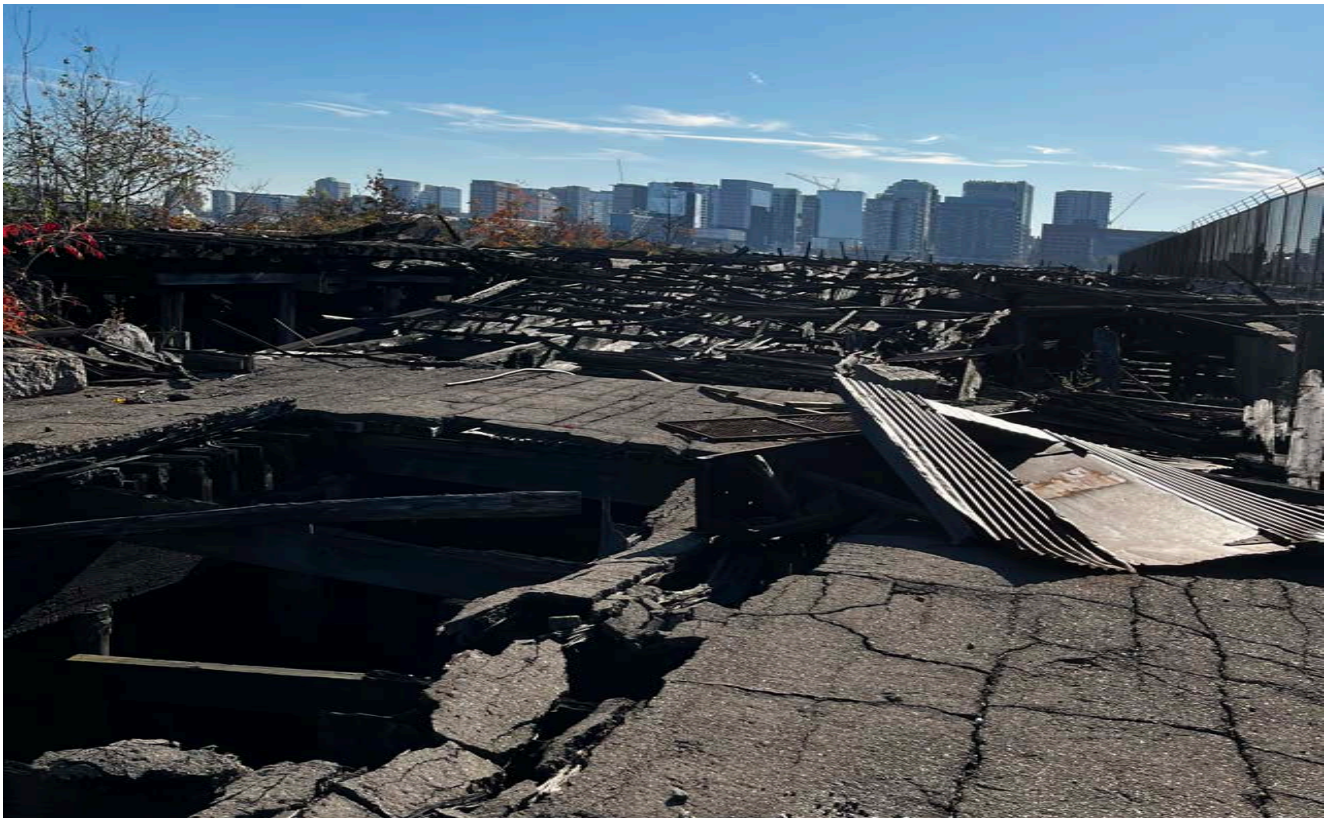
Photograph 1: Looking southwest from the Sailing Center's rental tent towards the Project Site.



Photograph 2: Looking southwest from Piers Park II towards the concrete apron.

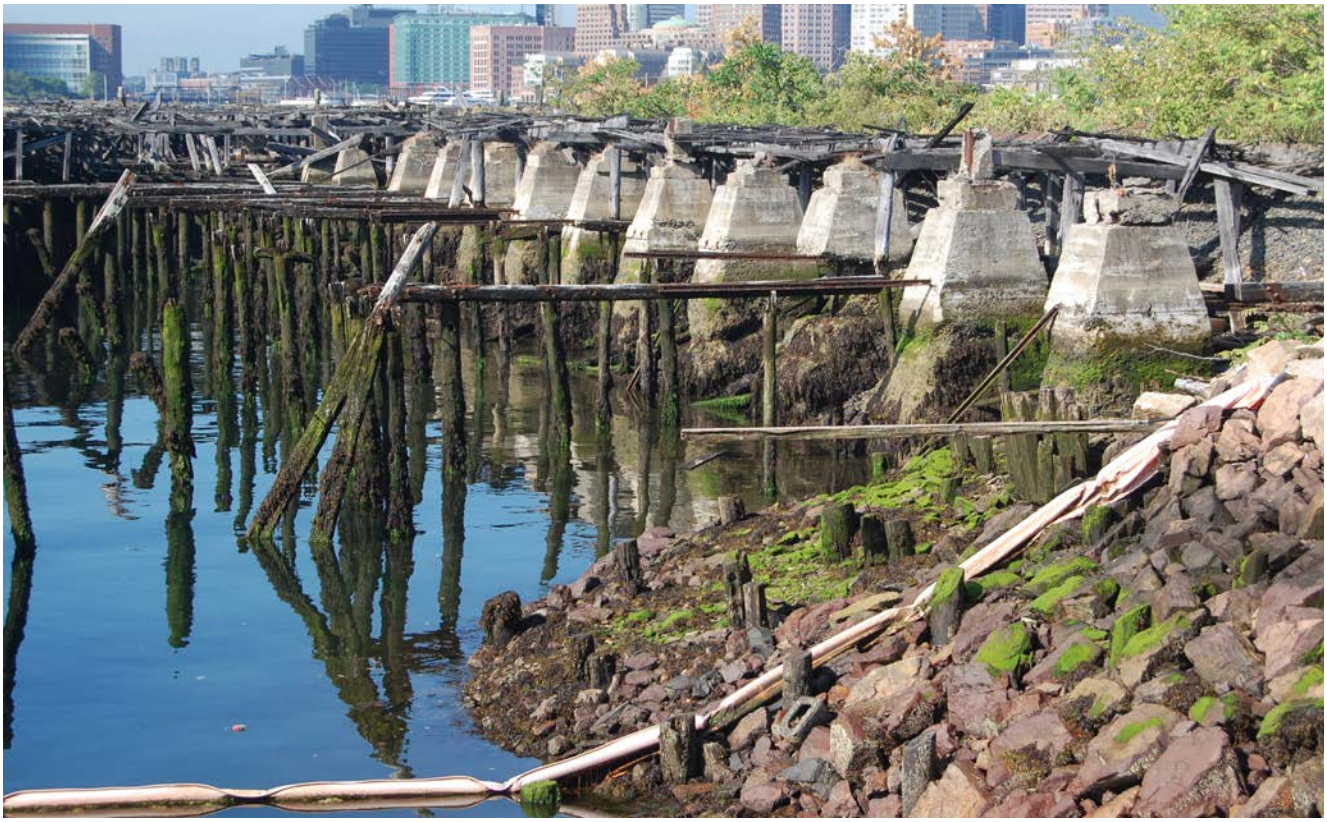
Photograph 3: Looking east from the center of the concrete apron towards the Project Site.

Photograph 4: Looking southwest from the end of the concrete apron towards downtown Boston.



Photograph 5: Looking south from the concrete deck.

Photograph 6: Looking southeast at Piers Park sailing docks from the Harborwalk adjacent to the Sailing Center.



Photograph 7: Looking southwest at concrete pedestals from the Harborwalk adjacent to the Sailing Center.

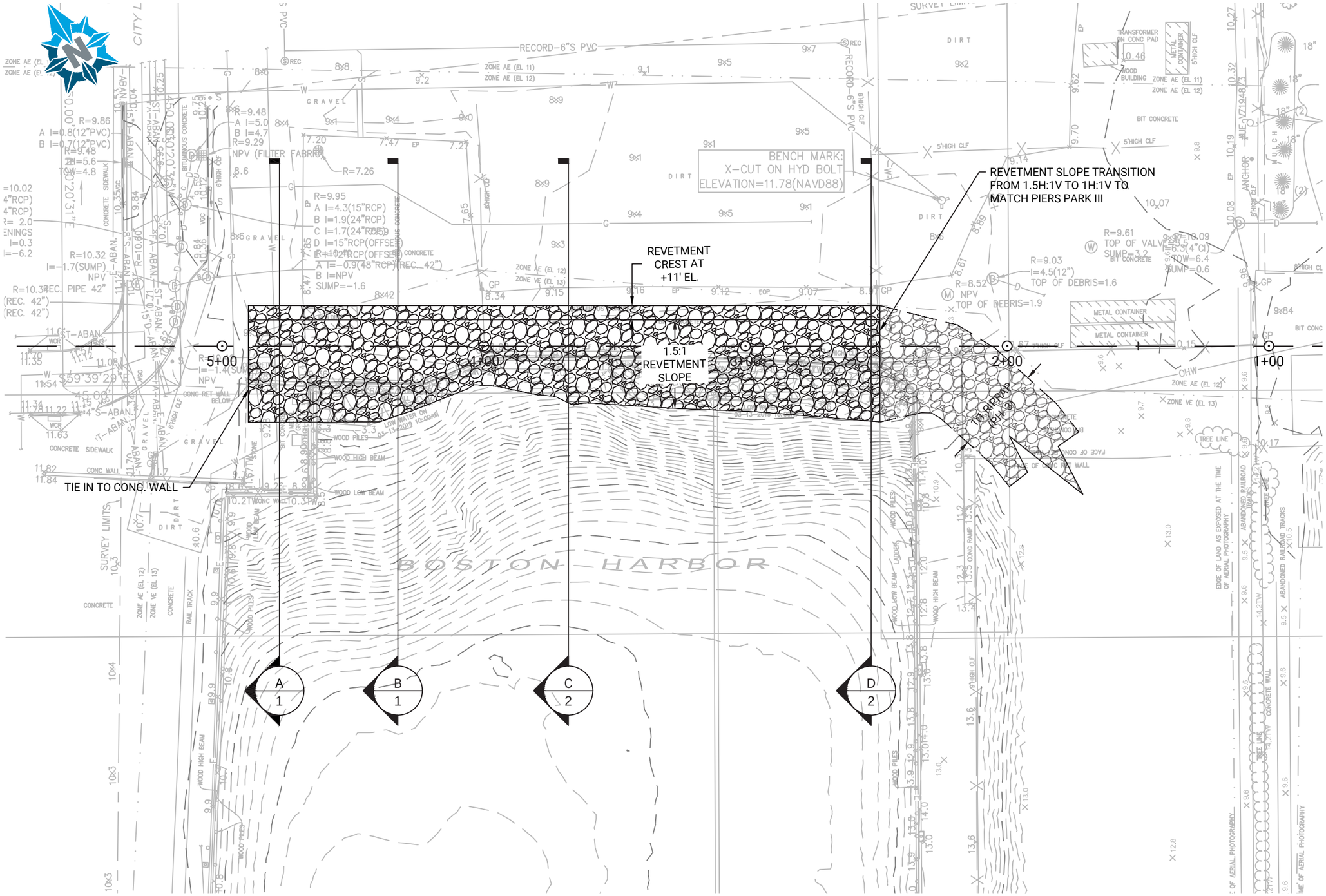
Photograph 8: Looking north at the Piers Park II seawall from the concrete apron.

East Boston, Massachusetts

Figure 1-7
FEMA FIRM; 25025C0081J
Source: FEMA, 2016

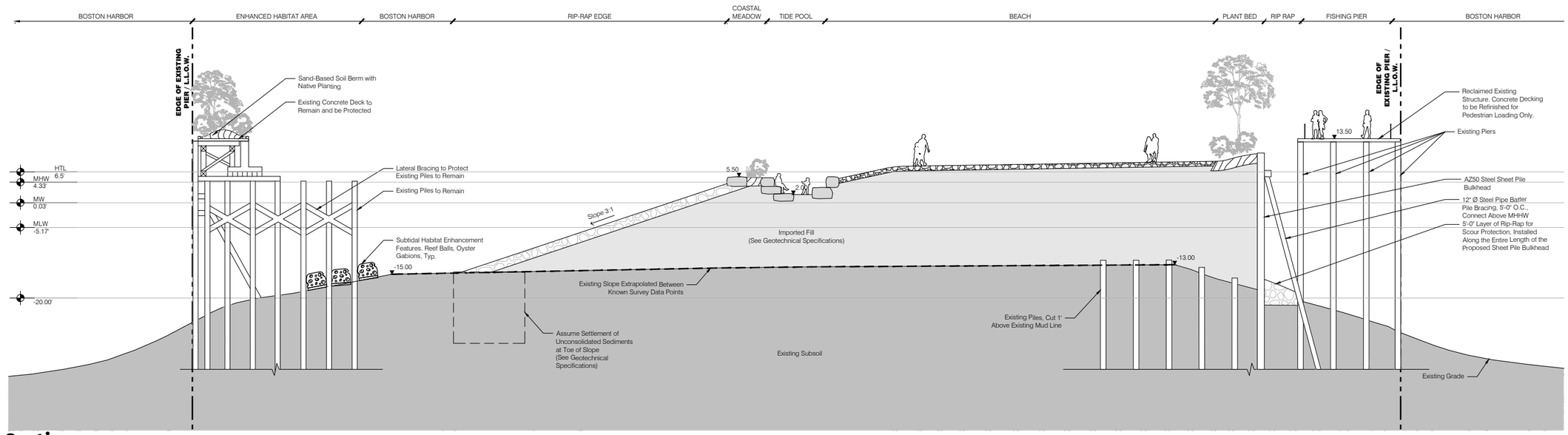
East Boston, Massachusetts

Figure 1-8
Proposed Site Plan
Source: MVVA, 2023

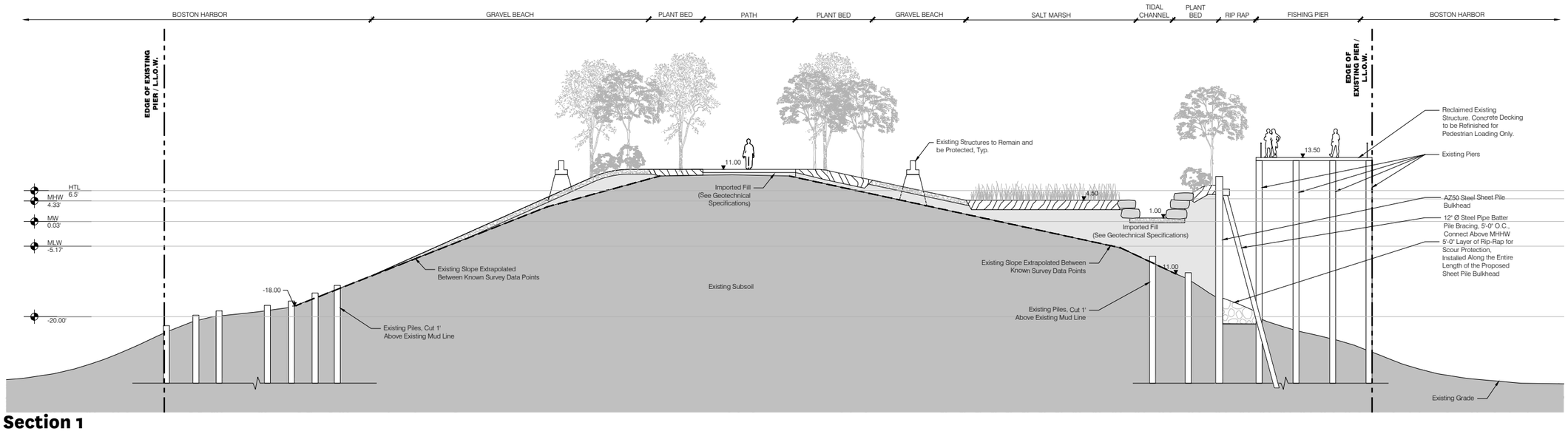


East Boston, Massachusetts

Figure 1-9
Proposed Site Plan
Source: Foth, 2023



Section 2



Section 1

Figure 1-10
Proposed Site Sections
Source: MVVA, 2022

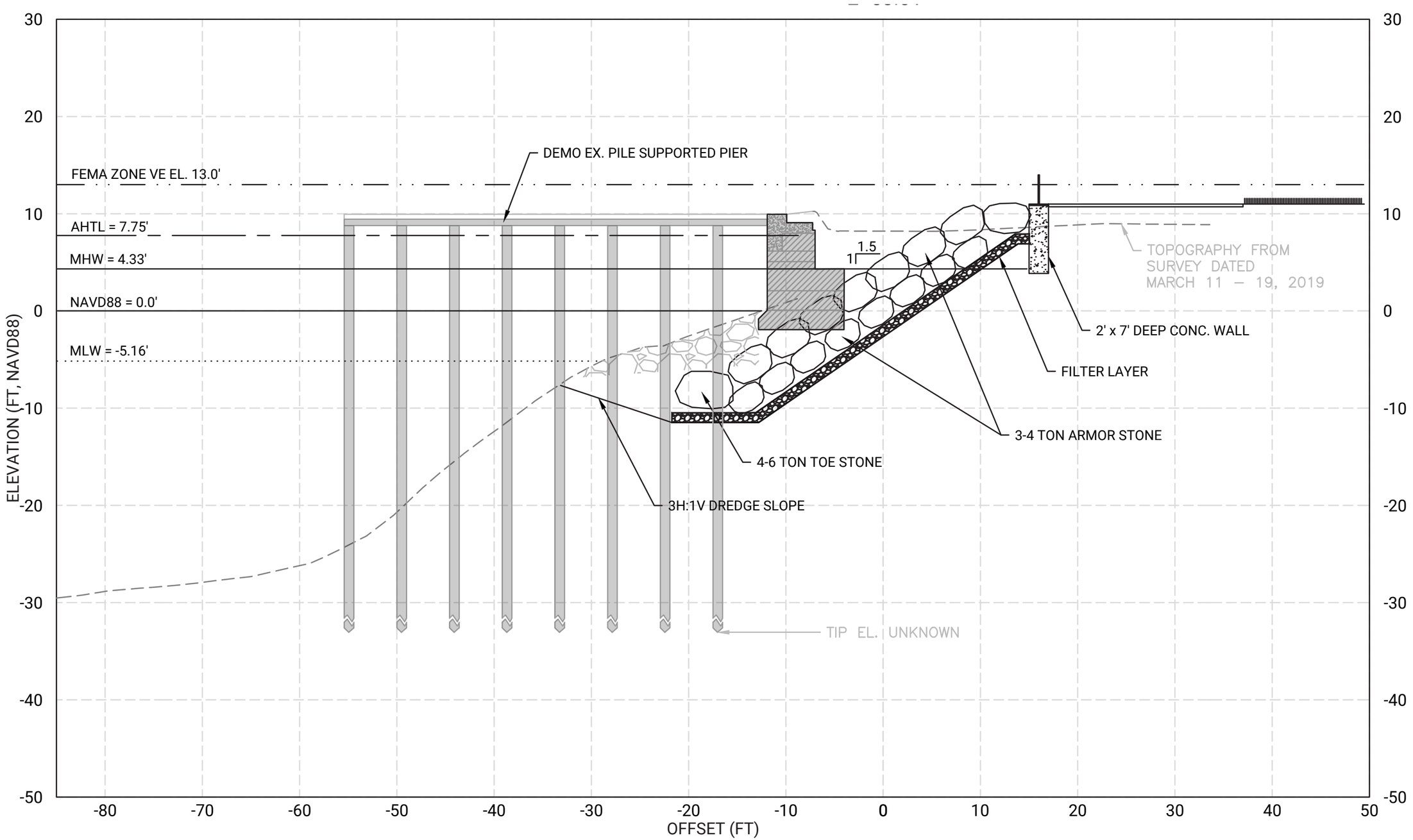


Figure 1-11
Proposed Site Sections
Source: Foth, 2023

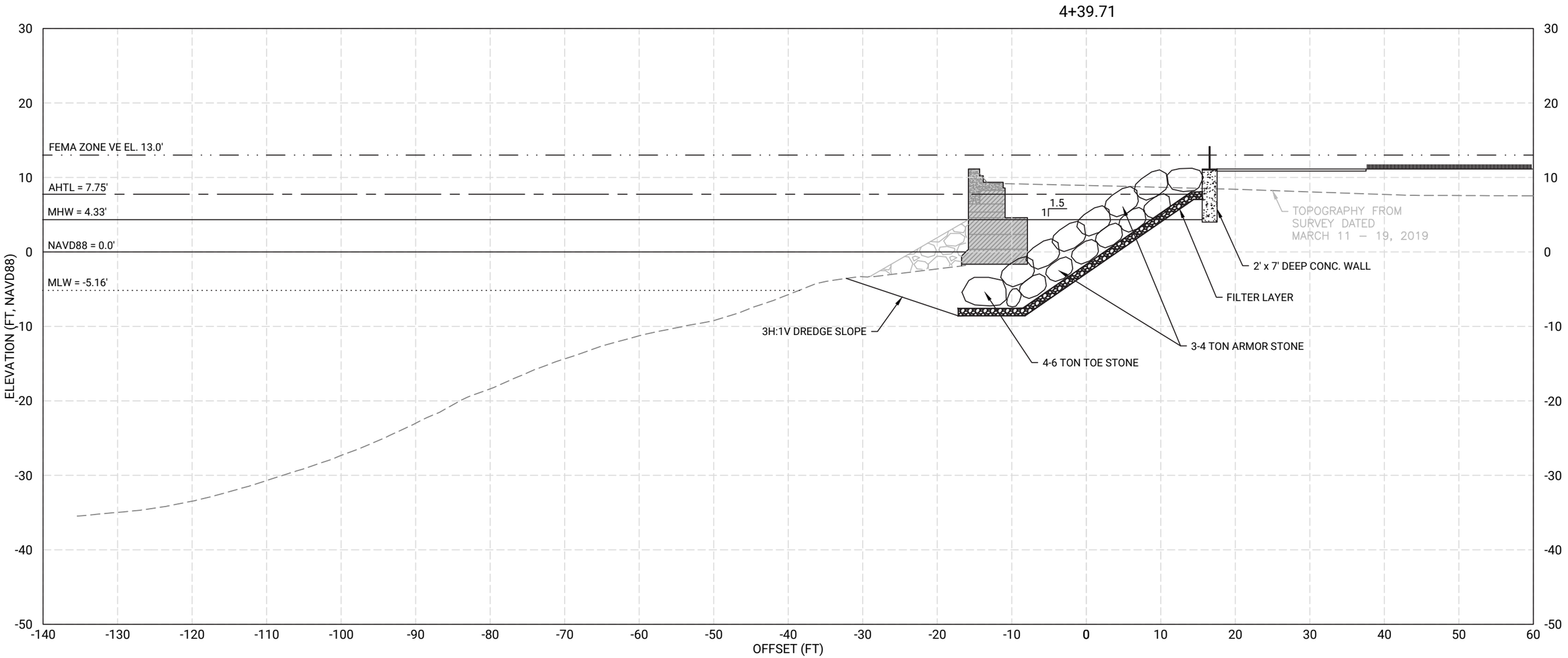
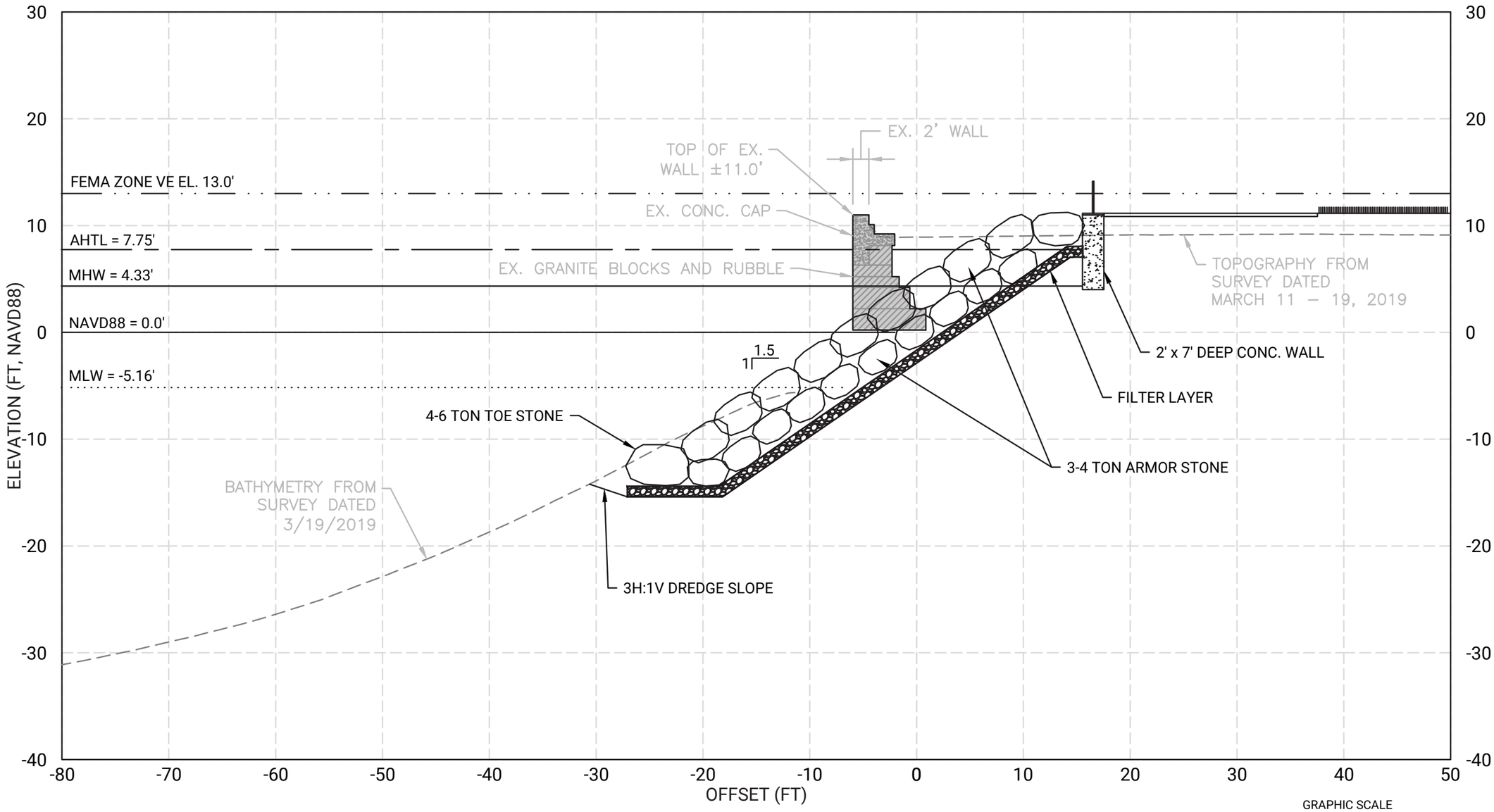


Figure 1-12
Proposed Site Sections
Source: Foth, 2023



TYPICAL SECTION C
PIERS PARK II REVETMENT
1.5H:1V SLOPE

GRAPHIC SCALE
0 5 10 20
(IN FEET)

Figure 1-13
Proposed Site Sections
Source: Foth, 2023

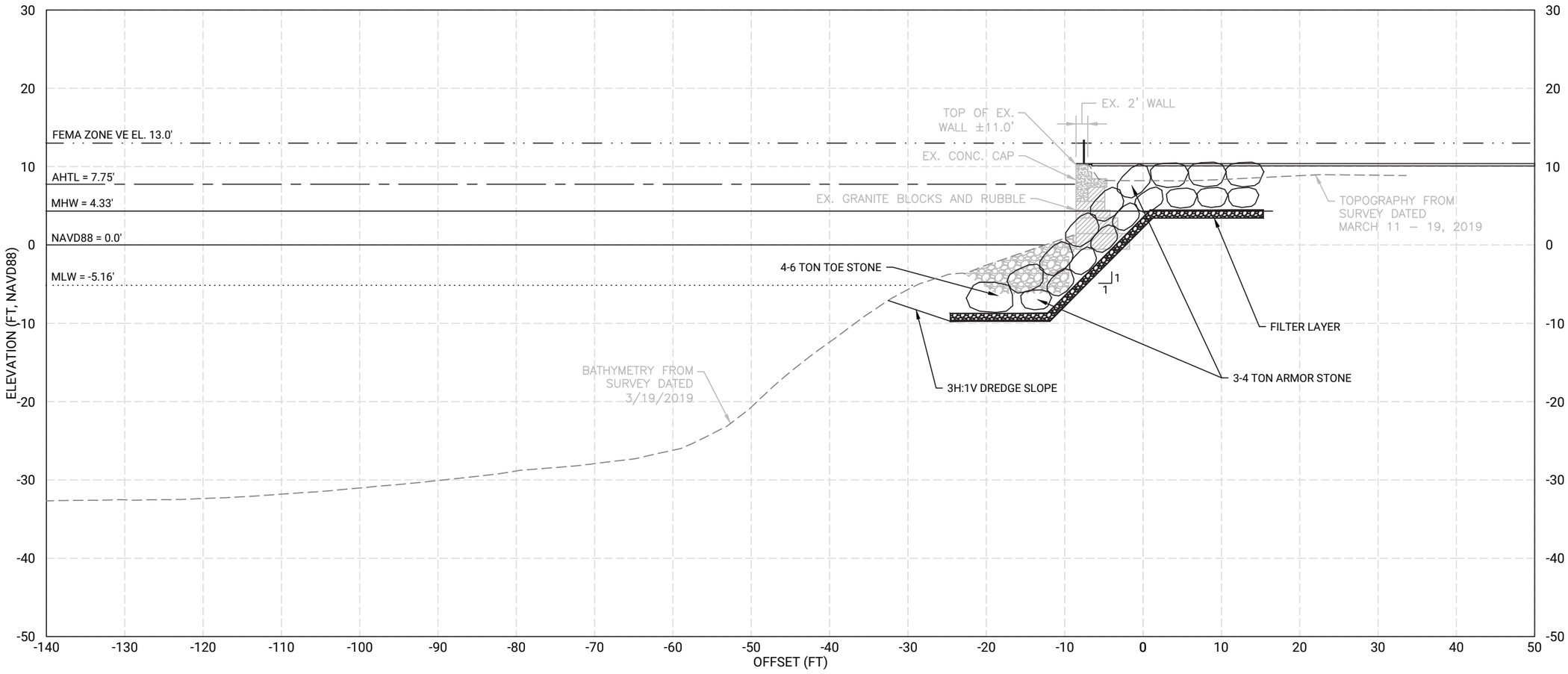
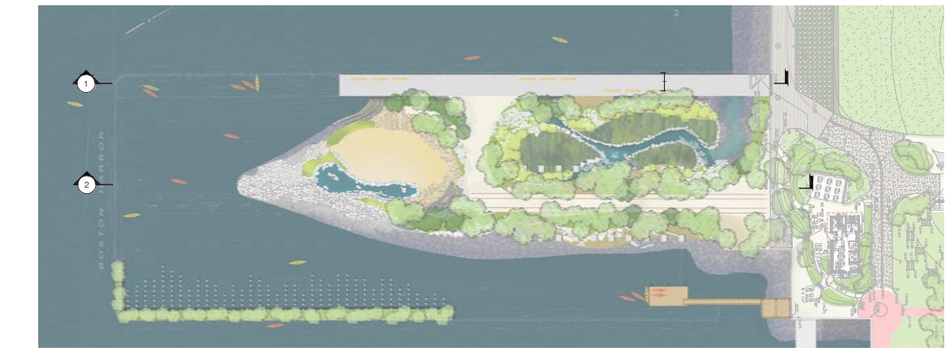
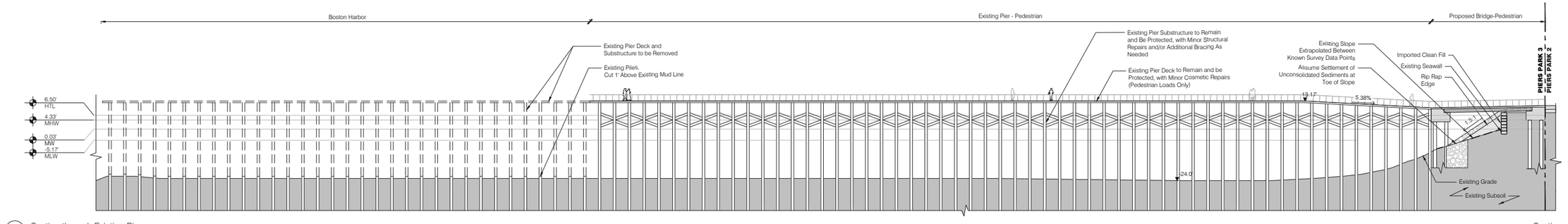


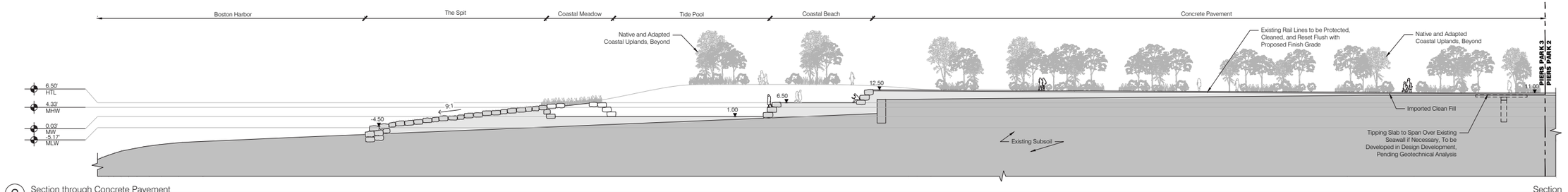
Figure 1-14
Proposed Site Sections
Source: Foth, 2023





1 Section through Existing Pier
Scale: 1/16"=1'-0"

Section



2 Section through Concrete Pavement
Scale: 1/16"=1'-0"

Section

Figure 1-15
Proposed Site Sections
Source: MVVA, 2023

Chapter 2

ALTERNATIVES ANALYSIS

CHAPTER 2: ALTERNATIVES ANALYSIS

2.1 INTRODUCTION

The Proponent considered three feasible scenarios for the redevelopment of the Project Site to assess relative environmental impacts of alternatives. The three alternative project scenarios in addition to the Project (the "Preferred Alternative") that were considered include: a No-Build Alternative, a Larger Program Alternative, and a Seawall Alternative. Alternative locations for the Project were not considered given the development of Piers Park and Piers Park II adjacent to the Project Site and the Project Site's suitability for redevelopment. Instead, the alternative projects involved various programming elements and sizes. The following sections contain a description and analysis of these alternatives.

2.2 PREFERRED ALTERNATIVE

The Proponent proposes an approximately 2.3-acre park consisting of a network of accessible paths, a kayak launch, a fishing pier, a waterfront area capable of hosting approximately 250 persons for performances and gatherings, and will incorporate green infrastructure techniques, such as the creation of salt marsh, a tidal pool, a coastal meadow, and a standalone enhanced habitat as part of the ecological design. As described in Chapter 1, the Preferred Alternative also includes a sloped stone revetment replacing approximately 250 ft of the existing granite block seawall. See Table 2-1, Preferred Alternative Summary below.

Table 2-1: Preferred Alternative Summary

Use	Size (sf)
Park Size	99,100
Fill	77,200
Dredge	3,700
Accessible Paths	23,600
Kayak Launch	1,700
Fishing Pier	9,700
Salt Marsh	6,500
Tidal Pool	1,700
Tidal Channel	5,300
Coastal Meadow	400
Accessible Coastal Edges	12,200
Enhanced Habitat	3,500

Under the Preferred Alternative, the Project would offer 23,600 sf of accessible paths, a 1,700 sf kayak launch, and a 9,700 sf fishing pier. Additionally, the Project would offer interactive experiences with naturally occurring coastal features, such as 6,500 sf of salt marsh, 1,700 sf of tidal pool, a 5,300 sf tidal channel, a 400 sf coastal meadow, and 12,200 sf of accessible coastal edges. See Figure 2-1, Preferred Alternative Site Plan.

The Preferred Alternative is expected to generate 69 daily vehicle trips. The total impervious surface area of the Preferred Alternative's Project Site is approximately 39,900 sf and the total pervious surface area is approximately 28,700 sf. The Preferred Alternative would use approximately 100 gpd of water and generate no wastewater.

The Preferred Alternative is consistent with the City of Boston's *Imagine Boston 2030* and *Climate Ready Boston* plans. The Preferred Alternative will demonstrate climate resilience through green infrastructure and demonstrate protection from flooding and inundation caused by sea level rise. The Preferred Alternative aligns with Massport's *Sustainability and Resiliency Design Standards and Guidelines 2018* by enhancing wetland resource areas and identifying and restoring areas prone to flooding. The Preferred Alternative will also mitigate impacts of stormwater runoff during flood events through natural landscape buffers and locally appropriate vegetation.

2.3 NO-BUILD ALTERNATIVE

The Project Site is currently occupied by a dilapidated pier and a granite block seawall with a concrete cap. Under the No-Build Alternative, the Project Site's pier would continue as is and remain in critical condition. The existing impervious surface areas would remain at approximately 43,300 sf and the existing pervious surface areas would remain at 12,100 sf. Continued deterioration of the piles and decking would likely lead to debris falling into Boston Harbor, polluting the harbor and creating potential hazards to vessel traffic from floating obstructions.

The No-Build Alternative would include minor maintenance to the granite block seawall. Maintenance would include cutting the fence and steel barrier posts flush with the concrete cap, repairs to the large cracks in the concrete caps, and cleaning of the concrete cap to remove rust staining. In addition, minor repairs would be performed on the granite stones to replace missing stones or to fill in large gaps. The back fill would be excavated and replaced, and a filter fabric would be installed along the wall's back face to minimize loss of fines in the future. All maintenance efforts as part of the No-Build Alternative would be led by the property owner, Massport.

The existing pile-supported platform at the west end of the wall would be removed and its timber piles would be cut flush with the mudline as it is in poor condition.

Under the No-Build Alternative, traffic numbers on local roads would have no change from existing conditions and no additional trips would be generated.

The No-Build Alternative would yield no improvement to open space on Boston's waterfront and occupy approximately 4.1 acres of unused space. The existing wetlands would remain in poor condition with relatively low numbers of species diversity and additional wetland resources would not be added.

The No-Build Alternative is inconsistent with the City of Boston's *Imagine Boston 2030* and *Climate Ready Boston* reports, which looks to invest in open space and improve the quality of parks. The No-Build Alternative will not demonstrate climate resilience through green infrastructure or demonstrate protection from flooding and inundation caused by sea level rise. The No-Build Alternative does not align with Massport's *Sustainability and Resiliency Design Standards and Guidelines 2018* as it does not enhance wetland resource areas, restore areas prone to flooding, or mitigate impacts to areas prone to flooding.

2.4 LARGER FILL ALTERNATIVE

The Proponent considered an alternative project with a larger footprint than the Preferred Alternative with similar uses, the inclusion of a park house, and no work to the Piers Park II seawall (the "Larger Fill Alternative"). The Proponent considered an approximately 3-acre park consisting of a network of accessible paths, bridges, a kayak launch, a fishing pier, a harbor view lawn, a sunset terrace, and a park house with a lawn and plaza. The harbor view lawn is a relaxed terrace setting that can be used for outdoor movie nights, concerts, and performances and is capable of hosting 300 people. The Sunset terrace would be used as an organized sitting area capable of hosting 215 people. They are both oriented toward deep harbor views and together can host a 400-500 person event. See Figure 2-2, Larger Fill Alternative Site Plan. The Larger Fill Alternative would also incorporate green infrastructure techniques on a larger scale, such as the creation of salt marsh, a tidal pool, a meadow, rocky slopes, and a subtidal habitat. See Table 2-2, Larger Fill Alternative Summary below.

Table 2-2: Larger Fill Alternative Summary

Use	Size (sf)
Park Size	134,700
Fill	266,200
Dredge	219,700
Accessible Paths	28,350
Bridges	1,400
Kayak Launch and Deck	1,900
Fishing Pier	1,600
Entertainment Lawns	11,000
Sunset Terrace	2,600

Use	Size (sf)
Park House	1,500
Park House Plaza	2,700
Park House Meadow	4,200
Salt Marsh	11,100
Tidal Pool	3,300
Enhanced Habitat	3,800

The Project would extend to the MLLW mark, within the limits of the existing pier and bulkhead. Below the MLLW mark, earthen fill would extend laterally beyond the existing pier limits in some areas. The Project Site grades would range from El. 9 ft NAVD88, where the landform meets the shore, to El. 19.5 ft NAVD88, at the Sunset Terrace.

The 1,500 sf Park House would be a one-story structure that would be capable of hosting up to 150 seated persons. The Park House would require connections for electrical services, water supply, and sanitary sewer services. There are existing stub connections available for water and sewer services within Piers Park II, but capacity of future services would need to be assessed with the Larger Fill Alternative. Electrical connections would need to be coordinated with private utility providers. The Project would include two bridges, one with the capability for vehicular access.

The Larger Fill Alternative is expected to generate 92 daily vehicle trips, based on the "Beach Park" classification under the ITE *Trip Generation* manual, 8th Edition. The total impervious surface area of the Larger Fill Alternative's Project Site is approximately 43,100 sf and the total pervious surface area is approximately 51,200 sf. The Larger Fill Alternative would offer two restrooms. The total water consumption would be 1,650-gpd and the total wastewater generation would be 1,500-gpd. The Project's sewage generation rate was estimated using the Massachusetts State Environmental Code (Title V) 310 CMR 15.203 and the Public Park (toilet waste only) establishment classification. The Larger Fill Alternative would accommodate up to 300 visitors on a typical day for peak event operations. Water consumption on the site would be expected to be a maximum of 1,650 gallons per day (gpd), based on the Larger Fill Alternative's estimated sewage generation. A factor of 1.1 (conservative) is applied to the average daily wastewater flows to estimate average daily water use.

The Larger Fill Alternative maintains the majority of the features as the Preferred Alternative with the exception of the Park House. The most notable change is the environmental impacts resulting from the dredge and fill that would be required for the more substantial landform for the Larger Fill Alternative. As the existing bathymetry drops off steeply at the sides and ends of the existing pier, a significant volume of fill is required to enlarge the surface area of the park.

2.5 SEAWALL ALTERNATIVE

The Project Team considered an alternative design solution that would construct a new sheet pile bulkhead seaward of the existing granite block seawall instead of the stone revetment proposed in the Preferred Alternative. (the "Seawall Alternative"). The sheet pile bulkhead would be capped with a reinforced concrete cap and require tie backs with a dead-men to provide the required lateral stability. Portions of the existing granite block seawall would be removed to construct the tiebacks through the wall to dead-men located landward of the existing seawall. The existing granite block seawall would remain in place and the area landward of the proposed sheet pile bulkhead would be backfilled and graded and incorporated into Piers Park II. The existing pile-supported platform would be demolished, and the existing timber piles would be cut flush with the mudline.

2.6 COMPARATIVE ANALYSIS

This section discusses the Preferred Alternative in relation to the three other alternatives. Table 2-3, Project Alternatives, shows the comparison of each alternatives program.

The No-Build Alternative would generate the least amount of environmental impact but would not achieve the Project's purpose of providing the community with open space on Boston Harbor, introducing new wetland habitats, or providing protection from flooding and inundation caused by sea level rise. The seawall would require long-term maintenance and the underlying timber platform and piles would continue to deteriorate and cause long-term settlement. The No-Build Alternative is inconsistent with the City of Boston's *Imagine Boston 2030* and *Climate Ready Boston* plans.

The Preferred Alternative and the Larger Fill Alternative each contain beneficial open space uses, with the Park House only incorporated within the Larger Fill Alternative. Because the Larger Fill Alternative contains significantly larger amenities and features, a significantly greater amount of fill is required and additionally this alternative would require significantly more dredging. The Park House would require additional utility connections and increase water use and wastewater generation. See Figure 2-3, Comparative Analysis.

The Seawall Alternative would result in significantly more long-term maintenance and the steel sheet pile is not as cost effective as the Preferred Alternative's sloped stone revetment. Additional excavation may be necessary to remove unidentified obstructions below the mudline in order to drive the sheet piling. The steel sheet pile bulkhead would be subject to long-term corrosion and the reinforce concrete cap will be subject to corrosion of steel reinforcing, eventually causing spalling of the concrete and long-term maintenance repairs. The sheer vertical face of the sheet piling would generate more reflected wave energy during storm conditions than a sloped revetment and provides significantly less marine habitat than the sloped revetment.

2.6.1 SUMMARY

Table 2-3: Project Alternatives

	Preferred Alternative (the Project)	Larger Fill Alternative
Park Size (sf)	99,100	134,700
Fill (sf)	77,200	266,200
Fill (cy)	38,200	198,000
Dredge (sf)	3,700	219,700
Dredge (cy)	2,200	56,500
Impervious Area (sf)	39,900	43,100
Pervious Area (sf)	28,700	51,200
Park House (sf)	0	1,500
Kayak Launch and Deck (sf)	1,700	1,900
Fishing Pier (sf)	9,700	1,600
Salt Marsh Creation (sf)	6,500	11,100
Tidal Pool Creation (sf)	1,700	3,300
Vehicle Trips/ Weekday	69	92
Water Usage (gpd)	100	1,650
Sewer Discharge (gpd)	0	1,500
Wetlands Impacts (sf - permanent)		
LSCSF (sf)	19,900	26,800
Land Under Ocean (sf)	37,700	180,452
Coastal Bank (ft)	1,000	770
Coastal Beach (sf)	5,000	5,000
Coastal Beach Buffer Zone (sf)	4,200	15,600

2.7 CONCLUSIONS

While each alternative has advantages and disadvantages, the Preferred Alternative is the most appropriate project and will provide the greatest amount of net benefits. The No-Build Alternative is considered infeasible because it is inconsistent with the City of Boston's *Imagine Boston 2030* and *Climate Ready Boston* reports and Massport's *Sustainability and Resiliency Design Standards and Guidelines*. The No-Build Alternative would result in no increase in public or community benefits. The Larger Fill Alternative is the next best option, but is less preferable because it results in an additional 216,000 sf (or 54,300 cy) of dredging, an additional 189,000 sf (or 159,800 cy) of fill. The Larger Fill Alternative requires 5.5 times the volume of fill as the Preferred Alternative while providing only 50% greater park area. The Seawall Alternative would require significantly more long-term maintenance and is not as cost effective as the Preferred Alternative's sloped stone revetment.

The Proponent has engaged the surrounding East Boston community from early stages of the Project design for feedback. The Preferred Alternative and the Larger Fill Alternative would increase construction related job opportunities, increase open space, and provide flood protection. Although the Larger Alternative would provide a greater amount of open space, it has more environmental impacts.

East Boston, Massachusetts

Figure 2-1
Preferred Alternative Site Plan
Source: MVVA, 2023

Figure 2-2
Larger Fill Alternative Site Plan
Source: MVVA, 2022

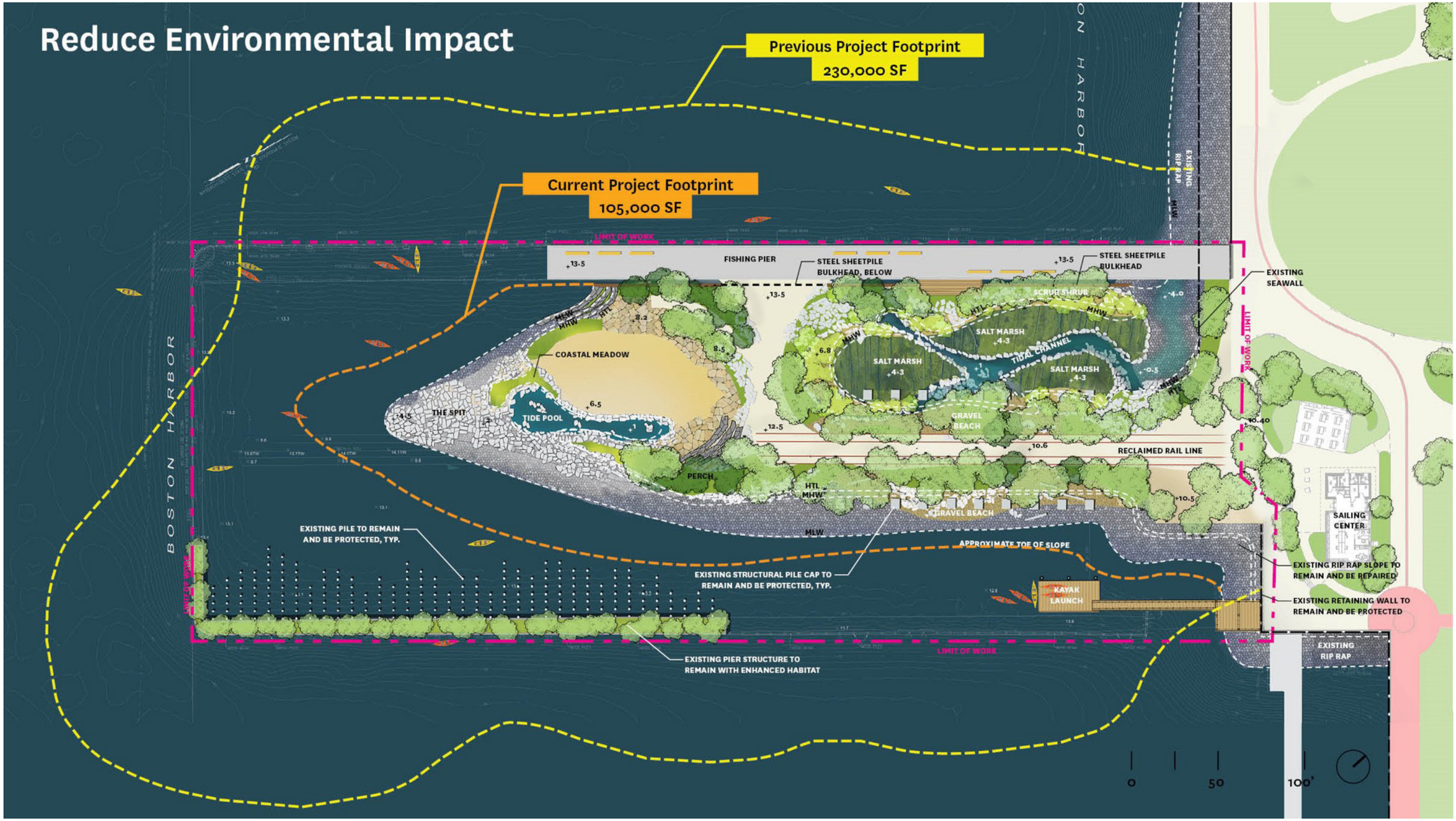


Figure 2-3
Comparative Analysis
Source: MVVA, 2022

Chapter 3

ENVIRONMENTAL JUSTICE

CHAPTER 3: ENVIRONMENTAL JUSTICE

3.1 INTRODUCTION

The Project Site is located on Boston Harbor in East Boston, home to a very diverse community of over 40,000 residents. The Project will transform a dilapidated pier into a unique, climate-resilient destination that provides space for users to enjoy a wide variety of outdoor activities on an urban waterfront. Additionally, the Project will model best practices and create innovative natural solutions that demonstrate protection from flooding and inundation caused by sea level rise through enhanced green infrastructure.

3.2 EXISTING CONDITIONS

The Project is located in proximity to a number of neighborhoods defined as EJ Populations based on the EEA 2020 EJ Map Viewer, which is derived from 2020 Census Block Groups. Within a 5-mile radius of the Project Site, there are 643 census block groups that trigger EJ criteria, which include: Minority; Income; English Isolation; Minority and Income; Minority and English Isolation; and Minority, Income, and English Isolation (see Figure 3-1, EJ Populations: 5-Mile Radius). Within a 1-mile radius, there are 33 census block group that trigger EJ criteria, which include Minority; English Isolation; Minority and English Isolation; Minority and Income; and Minority, Income, and English Isolation (see Figure 3-2, EJ Populations: 1-Mile Radius). These block groups include East Boston neighborhoods of Jeffries Point, Maverick Central, Gove Street and Eagle Hill, along with the Charlestown Waterfront, the North End, Downtown Boston, Chinatown and the South Boston Waterfront.

The Project does not exceed air quality review thresholds under 301 CMR 11.03(8)(a)-(b) or generate 150 or more new average daily trips of diesel vehicle traffic over a duration of one year or more. Therefore, only the EJ Populations within 1-mile of the Project Site will be included in the evaluation of potential project-related impacts.

3.2.1 CHARACTERISTICS OF EJ POPULATIONS

Each of the EJ criteria were evaluated within 1-mile of the Project Site using the EEA EJ Map Viewer. The EJ criteria are as follows:

- The annual median household income is not more than 65% of the statewide annual median household income,
- Minorities comprise 40% or more of the population,
- 25% or more of households lack English language proficiency, or

- Minorities comprise 25% or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150% of the statewide annual median household income.

EJ Populations within 1-mile of the Project Site meet the following EJ criteria: Minority; English Isolation; Minority and English Isolation; Minority and Income Isolation; and Minority, Income, and English Isolation. The EEA EJ Map Viewer also includes the statistics used to identify EJ Populations. See Table 3-1, Summary of EJ Characteristics.

Table 3-1: Summary of EJ Characteristics

Census Tract/ Block Group	**EJ Criteria[1]**	**Total Minority Population (%)**	**MHHI (%compared to statewide MHHI)[2]**	**Households with Language Isolation (%)**
Block Group 1, Census Tract 9813	Minority	31.6	$128,000, 149.1%	0.0
Block Group 1, Census Tract 606.04	Minority	24.8	$243,719, 288.8%	0.7
Block Group 2, Census Tract 501.01	Minority, income and English isolation	76.4	$22,910, 27.1%	37.5
Block Group 1, Census Tract 502	Minority	72.9	$67,564, 80.1%	13.2
Block Group 2, Census Tract 502	Minority	64.5	$76,635, 90.8%	24.0
Block Group 4, Census Tract 502	Minority and English isolation	78.6	$63,438, 75.2%	53.4
Block Group 3, Census Tract 503	Minority, income and English isolation	57.6	$12,013, 14.2%	24.6
Block Group 2, Census Tract 504	Minority	47.6	$80,268, 95.1%	20.0
Block Group 1, Census Tract 701.04	Minority	30.1	$129,792, 153.8%	5.4
Block Group 3, Census Tract 501.01	Minority	71.9	$71,053, 84.2%	22.6
Block Group 2, Census Tract 408.01	Minority and income	82.7	$31,151, 36.9%	8.3

Census Tract/ Block Group	EJ Criteria[1]	Total Minority Population (%)	MHHI (%compared to statewide MHHI)[2]	Households with Language Isolation (%)
Block Group 3, Census Tract 502	Minority, income and English isolation	71.3	$54,911, 65.1%	53.7
Block Group 1, Census Tract 503	Minority	55.2	$66,250, 78.5%	9.9
Block Group 2, Census Tract 503	Minority and income	79.0	$44,464, 52.7%	24.3
Block Group 1, Census Tract 504	Minority	73.0	$65,441, 77.6%	3.3
Block Group 2, Census Tract 701.04	Minority	31.5	$196,250, 228.6%	0.0
Block Group 1, Census Tract 505	Minority	57.1	$86,750, 102.8%	20.8
Block Group 1, Census Tract 506	Minority and English isolation	68.7	$73,750, 87.4%	38.6
Block Group 2, Census Tract 506	Minority	63.0	$106,071, 125.7%	19.1
Block Group 1, Census Tract 507	Minority and English isolation	72.5	$61,339, 72.7%	33.9
Block Group 2, Census Tract 507	Minority, income and English isolation	71.9	$52,491, 62.2%	58.5
Block Group 3, Census Tract 507	Minority and English isolation	71.3	$81,897, 97.1%	62.1
Block Group 2, Census Tract 509.01	Minority	68.2	$81,250, 96.3%	18.3
Block Group 2, Census Tract 606.04	Minority	24.7	$176,000, 208.6%	0.0
Block Group 1, Census Tract 203.04	Minority	27.1	$165,833, 196.5%	2.0
Block Group 1, Census Tract 303.02	Minority	29.5	$141,841, 168.1%	0.0
Block Group 2, Census Tract 203.04	Minority	46.4	$170,417, 202.0%	6.7
Block Group 3, Census Tract 304	English isolation	13.7	$72,335, 85.7%	28.9

Census Tract/ Block Group	EJ Criteria[1]	Total Minority Population (%)	MHHI (%compared to statewide MHHI)[2]	Households with Language Isolation (%)
Block Group 1, Census Tract 512	Minority and English isolation	37.5	$150,313, 178.1%	25.7
Block Group 2, Census Tract 512	Minority	50.0	$69,103, 81.9%	8.5
Block Group 3, Census Tract 512	Minority	29.8	$90,917, 107.7%	7.3
Block Group 1, Census Tract 203.05	Minority	37.4	$154,357, 179.8%	0.0
Block Group 1, Census Tract 509.01	Minority and English Isolation	82.6	$76,591 90.4%	36.4

3.2.2 LANGUAGES SPOKEN

The Proponent will be working with CBOs to ensure meaningful engagement with EJ Populations. The Proponent has also identified languages spoken by 5 percent or more of residents who identify as not speaking English "very well" to conduct public involvement activities. There are 11 languages spoken within the 5-mile radius of the Project Site, which include: African languages, Arabic, Chinese, French Creole, Korean, Mon Khmer/Cambodian, Portuguese or Portuguese Creole, Russian, Spanish or Spanish Creole, Vietnamese, and other Indic languages. There are three languages spoken within the 1-mile radius of the Project Site, which includes Arabic, Spanish or Spanish Creole, and Chinese. The Proponent is committed to conducting written and oral translation and interpretive services during community outreach efforts within the 1-mile radius.

3.3 PUBLIC INVOLVEMENT ACTIVITIES

In accordance with the MEPA Public Involvement Protocol for Environmental Justice Populations, the Proponent has been conducting extensive formal and informal community processes with permitting agencies, neighboring residents and businesses, and a variety of advocacy groups.

The addition, the Proponent has been conducting community outreach since fall of 2020. Collaboration between municipalities, local organizations, and community stakeholders is vital to address risks holistically. The Proponents' community engagement strategy was to conduct early outreach to develop high-level goals and strategies for the Project that

incorporated community feedback. This outreach is detailed in Table 3-2, Community Outreach Efforts below.

Table 3-2: Community Outreach Efforts

Organizations met with Regularly	
• Neighborhood of Affordable Housing ("NOAH") • Piers Park Sailing Center • YMCA of East Boston • GreenRoots • East Boston Main Streets • Maverick Landing Community Services ("MLCS") • Eastie Farm	• Veroncia Robles Cultural Center ("VROCC") • East Boston Social Center • East Boston Neighborhood Health Center ("EBNHC") • Neighbors United for a Better East Boston ("NUBE") • Mutual Aid East Boston
Neighborhood Association Group Presentations	
• Jeffries Point Neighborhood Association • Maverick Central Neighborhood • Gove Street Citizens Association • Eagle Hill Civic Association • Maverick Landing Community Services Youth Peace Circle • Friends of Belle Isle Marsh	• Harbor View Neighborhood Association • Orient Heights Neighborhood Council • Friends of the Mary Ellen Welch Greenway ("FoMEWG") • Union Capital Boston's Network Nights • East Boston Social Center Family Engagement Network
Tabled Events	
• Boston Harbor Islands Free Ferry Day • Community World Cup Watch Party • Councilor Mejia's 3W Event • CRIW Symposium • Eagle Hill Civic Association Meeting • East Boston High School STEM Day • Eastie Pride Day • EBNHC's Farmer's Market EBNHC's Let's get Movin' 5k run/walk • Excel Job Fair • Excel Chelsea Family Network Night • FoMEWG Halloween Event • Harborkeepers Maritime Festival	• Ice Sculpture Stroll • La Colaborativa Food Distribution • Maverick Square Tree Lighting • MLCS Food Distribution • MLCS Juneteenth Celebration • NOAH's Kayaking on the Creek • NUBE Civic Tabling at Central Square • Savor the Square • VROCC Holiday Bazaar • VROCC's Mexican Independence Celebration and Dia de los Muertos Event • YMCA's Healthy Kids Day

Hosted Informational Sessions	

• Sabores de Nuestra Cultura Family Festivals x4
• Waterfront on Wheels x3
• Harvest Festival
• Luminary on the Greenway
• In-Person Open House
  ○ November 10, 2022 (English/Spanish)
  ○ November 12, 2022 (English/Spanish)
	• Virtual Public Meetings
	  ○ January 12, 2021 (English)
	  ○ January 13, 2021(Spanish)
	  ○ March 29, 2021 (English)
	  ○ March 30, 2021 (Spanish)
	  ○ June 17, 2021 (English/Spanish)
	  ○ June 23, 2021 (English/Spanish)
	  ○ June 30, 2021 (English/Spanish)
	  ○ February 16, 2022 (English/Spanish)
	  ○ November 2, 2022 (English/Spanish)

3.3.1 ADVANCE NOTIFICATION

The Proponent used the EJ Reference List of CBOs and tribes for the designated geographical area around the Project Site, which was made available through the EEA EJ Director. In addition, the Proponent conducted its own research and consulted with additional CBOs throughout the community. The identified organizations are included in Table 3-3: CBO Distribution List.

Table 3-3: CBO Distribution List

Organization	**Location Represented**
Proximity	
Asian Community Development Corporation	Boston
Charles River Watershed Assoc.	Boston
Boston Farms Community Land Trust	Boston
Boston Harbor Now	Boston
Chinese Progressive Association	Boston
Mass Community Labor United	Boston
Save the Harbor/Save the Bay	Boston
Coalition for Social Justice	Boston
Charles River Conservancy	Boston
Mystic River Watershed Association	Boston
New England United for Justice	Boston
Chinatown Community Land Trust	Boston
GreenRoots, Inc.	East Boston
Air, Inc.	East Boston
Massachusetts Environmental Organizations	
Mass Rivers Alliance	Massachusetts
Neighbor to Neighbor	Massachusetts
Environment Massachusetts	Massachusetts
Unitarian Universalist Mass Action Network	Massachusetts
Clean Water Action	Massachusetts

Sierra Club MA	Massachusetts
Appalachian Mountain Club	Massachusetts
Mass Audubon	Massachusetts
The Trust for Public Land	Massachusetts
Browning the GreenSpace	Massachusetts
Environmental League of MA	Massachusetts
Ocean River Institute	Massachusetts
Mass Land Trust Coalition	Massachusetts
Conservation Law Foundation	Massachusetts
Community Action Works	Massachusetts
Indigenous Organizations	
Chappaquiddick Tribe of the Wampanoag Nation	Massachusetts
Nipmuc Nation (Hassanamisco Nipmucs)	Massachusetts
Massachusetts Commission on Indian Affairs (MCIA)	Massachusetts
Chaubunagungamaug Nipmuck Indian Council	Massachusetts
Herring Pond Wampanoag Tribe	Massachusetts
Chappaquiddick Tribe of the Wampanoag Nation, Whale Clan	Massachusetts
North American Indian Center of Boston	Massachusetts
Pocassett Wampanoag Tribe	Massachusetts
Massachusetts Tribe at Ponkapoag	Massachusetts
Federal Tribes	
Wampanoag Tribe of Gay Head (Aquinnah)	USA
Stockbridge-Munsee Tribe	USA
Mashpee Wampanoag Tribe	USA
Additional Outreach	
Jeffries Point Neighborhood Association	East Boston
Eagle Hill Civic Association	East Boston
Maverick Central Neighborhood Association	East Boston
Orient Heights Council	East Boston
Gove Street Citizens Association	East Boston
Harbor View Neighborhood Association	East Boston
Veronica Robles Cultural Center	East Boston
Neighborhood of Affordable Housing	East Boston
Zumix	East Boston
East Boston Neighborhood Health Center	East Boston
East Boston Social Center	East Boston
YMCA	East Boston
Piers Park Sailing Center	East Boston
Friends of Mary Ellen Welch Greenway	East Boston
East Boston High School	East Boston
Eastie Farm	East Boston
Harborkeepers	East Boston
Maverick Landing	East Boston
Mutal Aid East Boston	East Boston
Neighbors United for a Better East Boston	East Boston

La Colaborativa	East Boston
East Boston Main Streets	East Boston
East Boston Soup Kitchen	East Boston
Sea Walls	East Boston

On December 15, 2022, 45 days in advance of the targeted EENF filing date, the Project Team sent an email to each CBO describing its intent to promote awareness of and offer opportunities to engage with the Project. The email included the anticipated EENF filing date and invited recipients to reach out with questions, comments, and ideas and/or to schedule a meeting with the Proponent to discuss the Project. Attached to the email was a complete EJ Screening Form translated into three languages: Arabic, Spanish or Spanish Creole, and Chinese (see Attachment C, EJ Screening Form). Both the MEPA Office and EEA EJ Director were copied on this correspondence.

3.3.2 PRE-FILING MEETING

A hybrid meeting will be held on March 7, 2023, with members of the Project Team and representatives of CBOs. The hybrid meeting will be held in person at the Cathy Leonard-McLean Community Room, Logan Airport's Rental Car Center, 15 Transportation Way, East Boston, MA 02128, and through Zoom. The Project Team and CBOs will discuss the Project in the context of EJ outreach to date and community benefits. The group will meet in the future to continue to improve outreach strategies and identify community benefits of the Project.

3.3.3 ADDITIONAL OUTREACH

The Proponent has been conducting community outreach since fall of 2020 and hosting meetings with neighborhood associations and community groups since January 2021, which is ongoing. To better understand the needs of the East Boston community, the Proponent has offered multiple ways for the community to engage with the Project. Through their website, One Waterfront, community members can submit surveys, access events and meetings, share comments on their bulletin board and the Proponent can update the community of the most recent updates to the Project and design and ask for feedback.

Since the beginning of the Project's design process, the Proponent has held a variety of opportunities for the community to give feedback and present ideas on the Project. Specifically, four meetings have been held in English, four meetings have been held in Spanish, and five meetings, two in-person, have been bilingual (English and Spanish). Notably, the presenters at the bi-lingual meetings have been native Spanish speakers from the Trustee's staff and design team staff, rather than interpreters, to clearly describe the technical aspects of the Project design. The Proponent has

maintained the "CoUrbanize" website to provide updates and gather feedback in four languages: English, Spanish, Arabic and Chinese.

Additionally, the Proponent has engaged over 10,000 community members from East Boston and surrounding neighborhoods including Roxbury and Chelsea. The Proponent has hosted events, such as Sabores de Nuestra Cultura Family Festival, Waterfront on Wheels, and Harvest Festival, and worked closely with community partners East Boston Neighborhood Health Center, Veronica Robles Cultural Center, NUBE, and La Colaborativa. The Proponent has set up informational tables to engage with the community ("tabling") at the East Boston Neighborhood Health Center's Winter and Summer weekly Farmers Market, the YMCA's Health Kids Day, La Colaborativa and Maverick Landing Community Services' weekly food distribution, Eastie Pride Day, Viva Mexico Celebration, and a variety of other community events.

Other public involvement strategies implemented by the Proponent in advance of filing this EENF included providing hard copies of the EJ Screening Form at publicly accessible locations and providing a notice of the public hearing on the Project to the CBO Distribution List. Hard copies of the EJ Screening Form in four languages were made available at the East Boston YMCA and the East Boston Branch of the Boston Public Library.

3.3.4 FUTURE STRATEGIES

The Proponent is committed to further engaging the surrounding EJ Populations to seek feedback on issues of importance to these communities. Throughout the design and permitting phase of the Project, the Project Team anticipates meeting with additional CBOs and providing notice of any public meetings, site visits, or other updates to the CBO Distribution List.

The Proponent plans to coordinate a walking tour at the Project Site with various groups, such as the East Boston Neighborhood Health Center's Senior Program (PACE), NOAH's Climate Delegates, and NUBE's community networks. These tours will be in-person at different times of the week and will have translation services present. Other community outreach efforts include educational programming at the East Boston YMCA Health Kids Day, East Boston Neighborhood Health Center's Farmers Market throughout the season, and participating in East Boston's annual Eastie Pride Day at Piers Park.

3.4 ASSESSMENT OF EXISTING UNFAIR OR INEQUITABLE ENVIRONMENTAL BURDEN

The Proponent assessed existing unfair or inequitable environmental burdens and related public health consequences impacting the EJ Population.

3.4.1 VULNERABLE HEALTH EJ CRITERIA

The Proponent has utilized additional data layers through Massachusetts Department of Public Health (MassDPH) EJ Tool to determine other potential sources of pollution within the 1-mile radius of the Project Site. The MassDPH EJ Tool exhibits four vulnerable health criteria. The four vulnerable health criteria per municipality include Heart Attack per 10,000, Pediatric Asthma Emergency Department (ED) Visits Rate per 10,000, Elevated Blood Lead Prevalence per 1,000, and Low Birth Weight (LBW) per 1,000. Elevated Blood Lead Prevalence per 1,000 and LBW per 1,000 are based on 2010 census tract data. EJ communities that exist within these vulnerable health areas could potentially bear an unfair or inequitable environmental burden and related public health consequence. The EJ criterion is met if they are equal to or greater than 110% of the state prevalence.

3.4.1.1 HEART ATTACK (MUNICIPALITY)

According to the MassDPH, heart attack hospitalization is a criterion used to identify vulnerable health EJ Populations because exposure to air pollution can increase the risk for heart attack and other forms of heart disease, and it is indicative of a serious chronic illness that can lead to disability, decreased quality of life, and premature death. People living in EJ areas with higher than average heart attack hospitalization rates may be more vulnerable to adverse environmental exposure. The associated Massachusetts statewide rate was 26.4 per 10,000 from 2013-2017 and 110% of the statewide rate was 29.1 per 10,000. The City of Boston does not meet the vulnerable health criteria, at an age adjusted rate of 23.8 Heart Attacks per 10,000 with 719 case counts from 2013 – 2017.

3.4.1.2 CHILDHOOD ASTHMA (MUNICIPALITY)

According to MassDPH, childhood asthma is a criterion used to identify vulnerable health EJ Populations because people of color and low-income individuals are at greater risk for asthma exacerbations due to increased exposure to asthma triggers, and uncontrolled asthma can impact an individual's overall health and wellbeing. Asthma has been directly linked to air pollution, exposure to environmental contaminants, and poor housing conditions. The associated Massachusetts statewide rate was 83.1 Pediatric Asthma ED Visits per 10,000 from 2013 – 2017 and 110% of the statewide rate was 91.4 Pediatric Asthma ED Visits per 10,000. The City of Boston meets this vulnerable health criteria, with a crude rate of 172.8 Pediatric Asthma ED Visits per 10,000 with 1,059 case counts from 2013 – 2017.

3.4.1.3 CHILDHOOD BLOOD LEAD EXPOSURE (CENSUS TRACT)

According to MassDPH, childhood lead exposure is used to identify vulnerable health EJ Populations because lead exposure disproportionately impacts lower income communities and communities of color, and childhood exposure to relatively low levels can cause severe and irreversible health effects, including damage to a child's mental and physical development. Within 1-mile of the Project Site, seven census tracts are triggered for having Elevated Blood Lead Presence with a total of 21.8 cases from 2015-2019 (see Table 3-4, Elevated Blood Lead Prevalence per 1,000,2015-2019). The Massachusetts statewide rate was 16.1 per 1,000. Census Tracts with higher than average elevated blood lead prevalence rates are included in Table 3-4.

Table 3-4: Elevated Blood Lead Prevalence per 1,000, 2015 – 2019

2010 Census Tract	Community Case Count	Statewide Rate per 1,000	110% of the Statewide Rate	Community Rate per 1,000
25025051200	1.6	16.1	17.7	21.8
25025050600	2.2	16.1	17.7	31
25025050500	1.2	16.1	17.7	20.4
25025050400	1.4	16.1	17.7	25.7
25025050200	7.4	16.1	17.7	40.1
25025050101	3	16.1	17.7	18.9
25025050901	5	16.1	17.7	33
Total	21.8			

MassDPH – Bureau of Environmental Health, 2022

3.4.1.4 LOW BIRTH WEIGHT (CENSUS TRACT)

According to MassDPH, LBW is a criterion used to identify vulnerable health EJ Populations because exposure to environmental contaminants can increase the risk of delivering a LBW baby and LBW is a significant predictor of maternal and infant health. Women of color and women of low income have a higher risk of delivering a LBW baby. LBW can increase the risk of infant mortality and morbidity, health problems throughout childhood, developing cognitive disorders, developmental delay, and chronic diseases as an adult such as cardiovascular diseases and type 2 diabetes. Within 1-mile of the Project Site, ten census tracts were triggered for being LBW vulnerable with a total of 9.2 cases from 2011-2015. The Massachusetts statewide rate was 216.8 per 1,000. Census Tracts with LBW rates are included in Table 3-5, Low Birth Weight Rate Per 1,000, 2011 - 2015.

Table 3-5: Low Birth Weight Rate Per 1,000, 2011 – 2015

2010 Census Tract	Community Case Count	Statewide Rate per 1,000	110% of the Statewide Rate	Community Rate per 1,000
25025051200	1	216.8	238.5	250
25025030300	1.4	216.8	238.5	343.1
25025060600	1	216.8	238.5	277.8
25025050101	2	216.8	238.5	280.1
25025050901	2.6	216.8	238.5	380.1
25025020303	1.2	216.8	238.5	329.7
No Statistical Data				
25025030100				
25025030400				
25025050300				
25025050400				
Total	9.2			

MassDPH – Bureau of Environmental Health, 2022

3.4.2 OTHER POTENTIAL SOURCES OF POLLUTION

The Proponent has also consulted the MassDPH EJ Tool to survey other potential sources of pollution within the boundaries of the EJ Populations. Within approximately 1-mile of the Project Site, there are: one Large Quantity Toxic Users, 13 Large Quantity Generators, 13 M.G.L. c. 21E Sites, 39 Tier II Toxics Use Reporting Facilities, 30 MassDEP Sites with AULs, three NPDES Points (Draft), and 19 Underground Storage Tanks.

The Project Site is approximately 0.25 away from transportation provided by the MBTA. Within 1-mile of the Project Site, there are 71 MBTA bus stops and connections to the Blue and Silver lines.

3.4.3 RMAT CLIMATE RESILIENCE DESIGN STANDARDS

The Proponent consulted the Resilient MA Team Climate Resilience Design Tool (the "RMAT Tool") to understand the risks associated with climate change at the Project Site. The RMAT tool integrates best available statewide climate change projections into conceptual planning and design of the Project with physical assets to help inform and guide planning and design of infrastructure. The RMAT tool identified the Project as having a high risk of sea level rise/storm surge, extreme precipitation-urban flooding, and extreme heat. See Attachment D, RMAT Tool Output Report.

3.4.3.1 SEA LEVEL RISE

The Project Site is currently subject to flooding during both normal tidal levels and storm conditions. The Project Site has a history of coastal flooding and is currently exposed to the 1% annual coastal flood event per the FEMA FIRM. The Project Site is consequently at high risk of sea level rise and storm surge over the Project's expected life of approximately 50 years. The Project is located within the predicted MHW shoreline by 2030, with the expectation that portions of the Project Site will be exposed to some flooding at the high tide water elevation each day.

The EJ Populations surrounding the Project Site are at risk of climate-related flooding. In order to better protect these communities, the Project will demonstrate protection from flooding and inundation caused by sea level rise. The Project replaces a failing marine structure with a flood-tolerant, naturalized, riprap shoreline which mitigates wave energy and withstands significant flood events. Through marine engineering and landscapes with the capacity for reducing wave energy, the Project is expected to withstand the significant daily tidal range, projected sea level rise, storm events, and tidal flooding.

Using the latest in scientific modeling, the Project will be built to ensure that major access points are the highest and remain above MHHW through 2070 with purpose-built materials and finishes that will withstand less frequent but more severe inundation.

3.4.3.2 PRECIPITATION

Rainfall is expected to increase at the Project Site, as an accelerated trend has been measured in recent decades for the Northeastern United States. The Project is classified as being highly exposed to precipitation related to urban flooding over its expected useful life, with a maximum annual daily rainfall exceeding 10 inches. The risk may be greater depending on the record of historic flooding at the Project Site and the specifics of the local stormwater system.

The Project will decrease impervious surface at the Project Site from existing conditions, 43,300 sf, to approximately 39,900 sf. The increase of pervious surface and the inclusion of natural landscapes will reduce the impact of urban flooding around the Project Site. As the Project is surrounded by water, storm water runoff will discharge directly into the harbor and should not accumulate on the Project Site or adjacent land. The Project will utilize lined bioretention systems and filtration trench

systems to treat stormwater from paved surfaces prior to discharging to Boston Harbor. These measures will substantially improve the quality of runoff from the Project Site.

3.4.3.3 TEMPERATURE

The Project is classified as having a high exposure to extreme heat risk due to expected changes in climate conditions. It is expected that there will be a +30 day increase in the number of days with daytime temperatures over 90 degrees Fahrenheit within the Project's useful life.

The City of Boston is exposed to the Urban Heat Island Effect, which are urban areas that experience higher temperatures due to lack of water bodies and tree canopies and having an increased number of buildings and roads that absorb the sun's heat. Inherently, EJ Populations are at higher risk of exposure to the Urban Heat Island Effect. The Project will provide EJ Populations access to shaded space and shelter from extreme heat through introducing canopy trees and access to coastal edges, reducing the effects of Urban Heat Island.

3.4.4 ENVIRONMENTAL PROTECTION AGENCY EJ SCREEN

The Proponent has also consulted the U.S. Environmental Protection Agency ("EPA") EJ Screen tool, which provides percentile ranking by census block group, compared against statewide averages for 11 environmental indicators. The Proponent used the environmental indicators to assess the potential environmental exposures that further create unfair or inequitable environmental burdens on EJ Populations

The EJ Screen assessed a 1-mile radius around the Project Site and reported an approximate population of 42,643 (see Attachment E: EPA EJ Screen). Within this radius, there are six Hazardous Waste Treatment, Storage, and Disposal Facilities Sites reporting to EPA. The Project Site falls within the 87th percentile for Particular Matter (PM) 2.5 at 7.59 ug/m^3, the 36th percentile for Ozone at 39 ppb, the 98th percentile for Diesel PM at 0.825 ug/m^3, the 99th percentile for Air Toxics Cancer Risk at 30 lifetime risk per million, the 98th percentile for Air Toxics Respiratory HI at 0.48, the 96th percentile for Traffic Proximity with 12,000 daily vehicles/meter, the 57th percentile for Lead Paint with 0.61 percent pre-1960, the 25th percentile for Superfund Proximity with 0.069 sites/km, 85th percentile for RMP Proximity with 1.7 facilities/km, the 95th percentile for Hazardous Waste Proximity with a Treatment, Storage, and Disposal Facilities proximity of 27 facility/km, the 72nd percentile for Underground Storage Tanks with 4.2 count/km^2, and the 94th percentile for the Wastewater Discharge Indicator with 0.069 toxicity weighted concentration/meter.

3.5 POTENTIAL EFFECTS ON ENVIRONMENTAL JUSTICE POPULATIONS

The Project will result in a considerable long-term net benefit; however, some potential short-term construction impacts to EJ Populations may occur. Temporary construction-period air quality impacts are a potential source of negative health impacts for the local community. To avoid or minimize the effects of fugitive dust and exhaust emissions from construction vehicles, appropriate mitigation measures will be employed, such as the use of diesel retrofitted equipment and wetting down areas during construction. To avoid, mitigate, or minimize temporary construction-period noise pollution impacts, the Project will be consistent with the City of Boston Noise and Work Ordinance. Efforts will be made to minimize the noise impact of construction activities, including appropriate mufflers on all equipment such as air compressors and welding equipment, maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations and techniques with less noisy ones, and other appropriate noise reduction measures.

The Project is anticipated to provide several environmental benefits. The Project will redevelop an abandoned, dilapidated pier into a public waterfront park which emphasizes resiliency and promotes access to outdoor recreation. The Project will increase green space, reduce urban heat island effects, model best practices and create innovative natural solutions that demonstrate protection from flooding and inundation caused by sea level rise, and increase public access to the waterfront. The Project will provide a variety of visitor experiences, including a unique prospective of the city skyline and harbor, educational programs, paths for running and walking, a kayak launch, and a fishing pier. The Proponent has engaged the EJ communities through multiple public input sessions to ensure the park design is equitable, accessible, and aligns with the current needs and neighborhood concerns. These public benefits are designed to benefit the East Boston community and EJ Populations.

3.5.1 COMPARABLE IMPACTS ON ENVIRONMENTAL JUSTICE POPULATIONS VS. NON-ENVIRONMENTAL JUSTICE POPULATIONS

Within the 1-mile radius of the Project Site, there are both EJ and non-EJ populations. Non-EJ Populations within the 1-mile radius are located across Boston Harbor, including Downton Boston, the North End neighborhood, and the Charlestown Waterfront. The Project Site is within and directly surrounded by EJ Populations. Short-term construction related impacts as described above will have a disproportionate effect on the surrounding EJ Populations than it would the non-EJ Populations due to proximity to the construction site. Project benefits from the creation of additional open space and parkland will disproportionately benefit EJ Populations.

Boston meets the vulnerable heath criterion for childhood asthma, and therefore, EJ Populations are at greater risk for asthma exacerbations due to increased exposure to asthma triggers. Potential asthma triggers from the construction work environment include fugitive dust and diesel exhaust emissions. The Proponent is committed to avoiding or minimizing fugitive dust and diesel exhaust emissions to the greatest extent practicable to protect the surrounding communities. Mitigation includes wetting down areas during construction and the use of diesel retrofitted equipment. However, these will be short-term impacts, but they are greatly outweighed by the long-term benefits for the surrounding EJ Population. These long term public health benefits include providing greater opportunity for exercise and the enjoyment of outdoor activities at the water's edge in proximity to EJ residential neighborhoods, increased tree planting to reduce the heat island effect and protection from future sea level rise, which is a particular concern in the vulnerable East Boston neighborhoods. Additional mitigation measures are described in Chapter 10, Summary of Mitigation Measures.

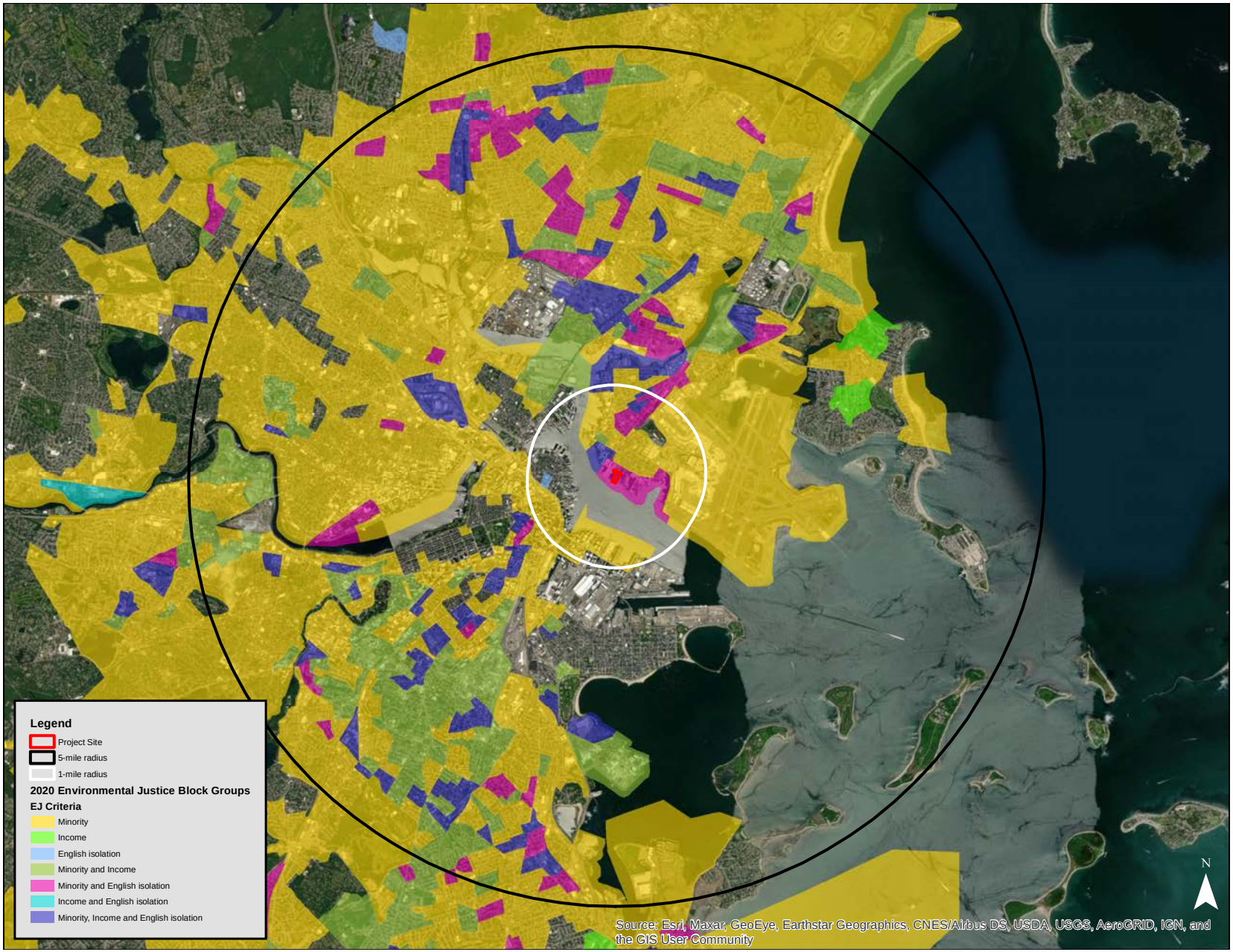


Figure 3-1
EJ Populations: 5-Mile Radius
Sources: MassEEA, 2022; Fort Point Associates, Inc., 2022

East Boston, Massachusetts

Figure 3-2
EJ Populations: 1-Mile Radius
Sources: MassEEA, 2022; Fort Point Associates, Inc., 2022

Chapter 4

SUSTAINABLE DESIGN AND CLIMATE RESILIENCY

CHAPTER 4: SUSTAINABLE DESIGN AND CLIMATE RESILIENCY

4.1 INTRODUCTION

The Project is intended to address resiliency planning and design for the East Boston waterfront, while providing a public waterfront park. The Proponent will replace a failing marine structure with a flood-tolerant stone riprap shoreline. Through marine engineering and living shoreline enhancements with the capacity to the Project Site is expected to reduce wave energy, especially in increasingly frequent storm events, withstand a significant daily tidal range, projected sea level rise, storm events, and tidal flooding and protect the surrounding area against significant flood events.

To implement this resiliency strategy, the Project will make use of locally sourced granite blocks on a 2:1 slope, durable paving materials, site furnishings, and salt-tolerant plant communities wrapping the edges and low-lying areas of the park. Inland areas of the shoreline will also be exposed to salt spray and significant winds. All materials throughout the park are designed to thrive in a harsh coastal environment. The Proponent is proposing a riprap edge in portions of the Project Site that are subject to prevailing wave action. The riprap edges will require minimal attention, allowing for funds typically associated with marine edge maintenance to be put toward educational programming, habitat creation, and vegetation maintenance. The Proponent is also proposing more structural coastal hardening elements in areas of the Project Site that are largely protected from prevailing wave action, which will limit anticipated maintenance that typically require annual maintenance and eventual replacement.

4.2 EXISTING FLOOD CONDITIONS

The Project Site is currently a dilapidated industrial pier, spanning approximately 4.1 acres alongside primarily tidal waters of the East Boston waterfront in Boston Harbor and approximately 0.6 acres of the Piers Park II seawall and waterfront. Most of the existing pier is comprised of a timber deck and underdeck supported by timber piles. A concrete apron initially constructed in 1910, varying in width up to 20 ft wide, runs along the perimeter on three sides of the existing pier. The concrete apron was extended and reconstructed in 1965 with new timber support piles but the remaining portions of the concrete apron are part of the original 1910 construction. Elevation along the perimeter apron is relatively flat, ranging between approximately El. 12.5 and 13.5 ft NAVD88, except where the apron slopes downward to the land at approximately El. 9.5 ft NAVD88.

An earthen filled core extends approximately 250 ft offshore under the center of the pier and is approximately 28 ft wide at the top with side slopes protected with riprap. On the North and South Cove sides of the pier, the mudline slopes down from the toe of the core riprap, which ends at about MLW. The mudline slope varies anywhere from between 4:1 (horizontal: vertical, H:V) to a 1:1 slope reaching water depths of approximately 30 ft below MLW (at low tide) within each cove based on project bathymetry data. A granite block seawall with concrete cap is located along the pier/land interface at the northern limit of the pier.

The tide for Boston Harbor has a diurnal range (difference in height between MHHW (El. 4.77 NAVD88) and MLLW (El. -5.51 NAVD88) of approximately 10.3 ft accordingly to the NOAA long-term tide gauge for Boston Harbor, Station 8443970. The FEMA FIRM for Suffolk County, Map Number 25025C0081J, included in Figure 1-7 FEMA FIRM; 25025C0081J, indicates the Project Site is located within FEMA's Special Flood Hazard Area ("SFHA"), defined as the area subject to the 1% annual storm event. This SFHA for the site is within an AE Zone, which is the base floodplain where base flood elevations are provided, and a VE Zone, which are coastal areas subject to additional hazards due to high storm wave velocities as well as the 1% storm event. The Base Flood Elevations ("BFE") for Zone AE and VE, as identified in Figure 1-7, are El. 12 and 13 ft NAVD88, respectively. FEMA flood zones are predicted based on historic events and do not consider future conditions.

As the Project is located along Boston Harbor, the Project Site receives wave impact beyond normal tide action due to wake from commercial shipping and commuter, recreational, and other watercraft.

4.3 SUSTAINABLE DESIGN ELEMENTS

The Project intends to implement numerous sustainable design elements into the site design to make the Project Site more resilient to climate change in a coastal environment. Following the perimeter of the Project Site, the existing stone rip rap shoreline will remain in place and be raised and extended as part of the Project. Rip rap will be added along the Project shoreline and replace an existing granite seawall along Piers Park II with a gradual slope to further armor the Project Site with protection against wave energy and sea level rise.

Inland from the shoreline, the Project will construct a coastal meadow, tide pools, salt marshes, and various salt-tolerant plantings to add natural, resilient landscapes to the Project Site. The coastal meadow will contain multi-species plantings of contract grown grasses and forbs within soil consisting of sandy loam and organic matter. The coastal meadow will be located along the southern end of the Project Site, above the HTL line. A tide pool will be located adjacent to the coastal meadow, below the MHW line, and a tidal channel will be installed at the northwest portion of the Project Site, flowing underneath the fishing pier and between salt marshes. Both areas will be lined with precast concrete structures, with chemically balanced concrete designed to harbor healthy ecosystems, and promote and generate marine biodiversity. These areas will allow park users to explore native ecologies

developing in a restored habitat. The Project seeks to create these areas to allow EJ communities in an urban area to use spaces for ecological education locally. The salt marshes will be installed adjacent to the tidal channel and gravel beach in the northwest portion of the Project Site. As a result, the salt marshes will not be exposed the seaward edge of the Project Site and will be protected from high velocity wave action. The salt marshes and other proposed vegetation below the MHW will contain salt-tolerant plantings on gradual slopes. The spit, gravel beaches, and stone revetment will act to create natural landscapes to protect the upland portion of the Project Site from flooding from storm surge, extreme tidal events, and high velocity wave action.

Other sustainable design elements of the Project include the overall grading approach and the reuse of construction debris and existing site materials. The Project Site will be graded to extend gradual slopes along the eastern edge of the limit of work, accommodate the function of living shoreline enhancements, and elevate the Project Site overall. The Proponent proposes to cut or snap all existing piles at the mudline within the footprint of the proposed landform. Additionally, the existing piles and pier structure at the southeast corner of the Project Site, the concrete pedestals, site soils, and stone are to remain on-site and be protected. The Proponent will look to reuse existing timber piles and interior pedestals where feasible, at a reduced structural capacity. The Project also complies with the Massport Floodproofing Design Guidelines where applicable, specifically in regard to utility design at the Project Site. The Guidelines will be addressed in utility design once finalized, with all proposed critical infrastructure, including power, to be installed above El. 17 ft NAVD88 or designed to be submersible.

4.3.1 RESILIENT MA ACTION TEAM CLIMATE RESILIENCE DESIGN STANDARDS TOOL OUTPUTS

In accordance with the MEPA Protocol, the Project was entered into the RMAT Tool. The RMAT Tool output will support the resiliency design of the Project long-term. The RMAT Tool provides:

- *a preliminary climate change exposure and risk rating;*
- *recommended climate resilience design standards for projects with physical assets; and*
- *guidelines with best practices to support implementation.*

Assets within the Project Site were entered into the RMAT Tool to generate climate resilience recommendations. The RMAT Tool output is summarized below and included in full in Attachment D, RMAT Tool Output Report.

Table 4-1: RMAT Climate Resilience Design Standards Tool Outputs

Target Planning Horizon –2070
Intermediate Planning Horizon –2050
Return Period – 100-year (1%)

Projected Tidal Datums -

Climate Horizon	Tidal Benchmarks (ft, NAVD88)				
	MHHW	MHW	MTL	MLW	MLLW
2030	6.5	6.1	1.3	-3.5	-3.8

Projected Wave Action Water Elevation –

Climate Horizon	Wave Action Elevation (ft, NAVD88)		
	Maximum	Minimum	Weighted Average
2030	13.5	9.7	10.4

Projected Wave Height –

Climate Horizon	Wave Height (ft)		
	Maximum	Minimum	Weighted Average
2030	5.5	0.0	1.7

Per the RMAT Tool outputs, the Project Site should also prepare for 7.1 inches of precipitation in the 25-year (4%) return period and high heat risk in 2030. The Proponent also modeled the Project against the elevation projections of Mean High Tide and the 1% and 10% Annual Exceedance Probability storm events ("AEP") currently (2022), and in 2030, 2050, and 2070 with the Project, as shown in Table 4-2. These elevations were assessed based on the proposed grading and elevations of the Project. Figures 4-1 to 4-4 show these elevation projections against the Project.

Table 4-2: Proposed Flood Projections during Mean High Tide, 1%, & 10% Annual Exceedance Probability Storms

Climate Horizon	Water Surface Elevation (ft, NAVD88)		
	Mean High Tide	10% AEP	1% AEP
2022	+4.33	+8.6	+9.8
2030	+6.1	+9.3	+10.6
2050	+7.4	+10.7	+12.2
2070	+9.3	+12.5	+14.0

4.4 GREENHOUSE GAS EMISSIONS

During construction, greenhouse gas ("GHG") emissions will be limited to the mobilization, hauling, excavation/fill, and other mechanical activities by the General Contractor's equipment. These mechanical activities will result in GHG emissions due to the burning of fossil fuels but will be mitigated through the construction work force using public transportation and other non-vehicular modes of transportation to the work site. The Project construction will also entail the use of sustainable materials such as stone and soil and will limit the use of steel and concrete which have high levels of embedded carbon.

Once the Project is constructed, GHG emissions will be minimal day-to-day as the Project Site will be home to passive recreational activities such as walking, fishing, biking, and kayaking. The Project Site will have GHG emissions stemming from the operations of events held around the space. Events needing vendors such as caterers or entertainment groups would need to use water and electricity for services. These day-to-day emissions will be mitigated by the extensive planting schedule proposed at the Project as well as environmentally conscious transportation methods, including pedestrian and bicycle transportation, for park visitors to the Project Site. These non-vehicular modes of transportation will reduce the number of personal vehicles needed to transport visitors and thus limit the burning of fossil fuels. The additional plantings and increase in net pervious area on-site will help capture and store carbon dioxide and other GHG and mitigate event emissions.

4.5 CLIMATE CHANGE RESILIENCY

4.5.1 VEGETATIVE ENHANCEMENTS

The Project includes installation of numerous areas of shrubs, trees, and salt-tolerant plantings in the location of the existing dilapidated pier. This will result in an overall increase in vegetated areas and canopies for the Project Site, which will provide shaded, cool areas for park visitors in an urban environment.

4.5.2 SEA LEVEL RISE

Sea level rise will be addressed within the Project design through the elevation of site topography compared to the existing Project Site. The overall elevation of the Project Site will help mitigate the effects of the gradual rise in water levels in Boston Harbor due to climate change. The Proponent also proposes a stone revetment and living shoreline enhancements, such as the installation of coastal meadows, tide pools, and salt marshes, to mitigate the adverse effects of sea level rise. These areas of the Project Site will act as a vegetated buffer to rising sea levels long-term. Additionally, the Project will use MCFRM as a model for the Project to address sea level rise. This

model estimates a 2.5-ft, 4.3-ft, and a 7.7-ft rise in sea levels projected for 2050, 2070, and 2100 respectively in the Boston area.

4.5.3 COASTAL STORM SURGE

The Proponent has considered the effects of coastal storm surge on the construction and longevity of the Project through multiple design elements. The design of the structural support for the fishing pier, steel sheet pile bulkhead, and seawall replacement will heavily consider the lateral loads and impacts of storm surge events. Additionally, the Project landscape will be programmed with measures to prevent the impact of storm surge such as the riprap shoreline and tidal pools. The existing riprap shoreline along the eastern and southern sides of the Project Site will remain and the existing granite seawall along the western portion of the Project Site will be replaced with a stone revetment. The proposed revetment will be gradually sloped to avoid any issues with wave reflection and will also help absorb and dissipate wave energy through the voids within the riprap, similar to function of the existing riprap shoreline. The revetment will improve storm surge protection along the Piers Park II shoreline and a major flood pathway (current 1% annual flood) into the Jeffries Point neighborhood of East Boston. The revetment will also create a low-maintenance long-term solution to a dilapidated existing granite seawall that is currently susceptible to wave impacts. The tidal pools will be implemented to allow for surging waters to collect, slow, and dissipate water at higher elevations as a buffer to upland assets.

4.5.4 STORMWATER MANAGEMENT

The Project will address resiliency in stormwater management through numerous measures. The Project will result in an increase in pervious area compared to the existing conditions, which will result in reduced stormwater runoff. Proposed stormwater infrastructure will consist of green infrastructure such as bioretention basins and filtration trench techniques for stormwater treatment. Green infrastructure will reduce the need for routine maintenance and will result in more cost-effective, resilient infrastructure for extreme storm events than traditional structural water quality devices. The stormwater system will be designed with check valves to prevent surcharge of coastal waters into the closed drainage system during extreme weather conditions. The Project Site will be graded to accommodate overland flow during storms and direct runoff towards Boston Harbor when extreme weather events inundate and submerge the stormwater system.

2022

MEAN HIGH TIDE BENCHMARK AND ANNUAL EXCEEDENCE PROBABILITY

MHW: +4.33'
(NAVD 88)

10% AEP: +8.6'
(NAVD 88)

1% AEP: +9.8'
(NAVD 88)

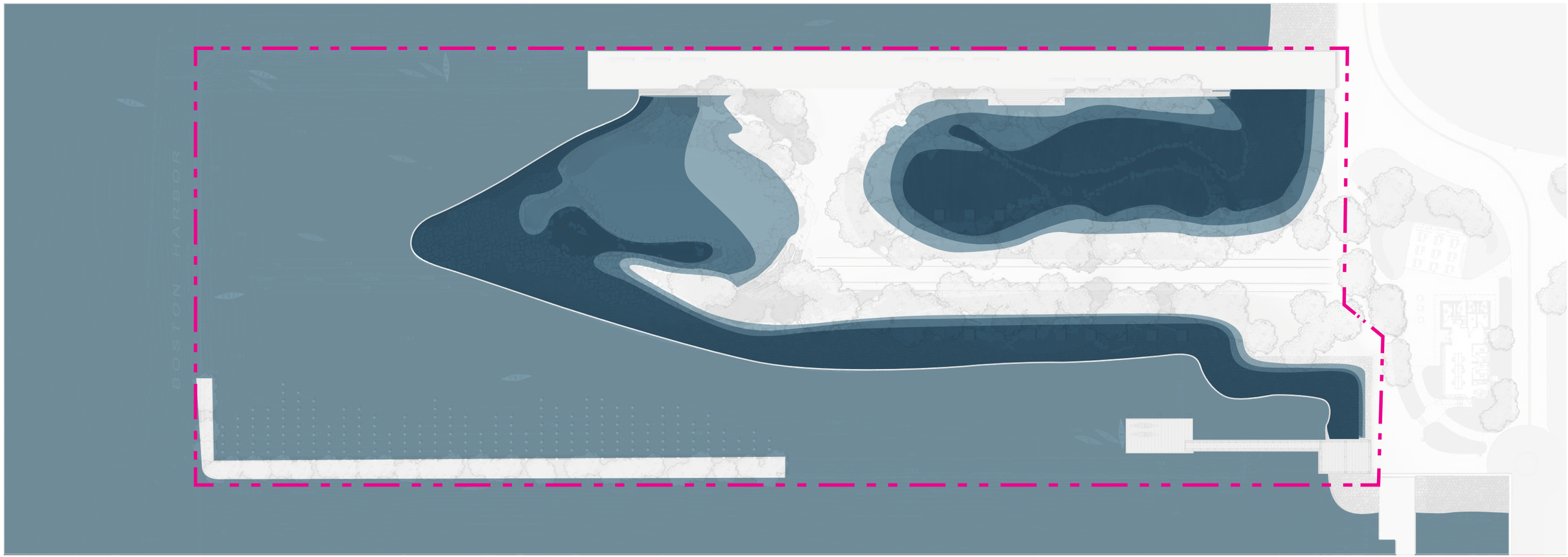


Figure 4-1
Proposed Flood Projections during Mean High Tide, 1%, & 10% Annual Exceedance Probability Storms in 2022
Source: MVVA, 2022

2030

MEAN HIGH TIDE BENCHMARK AND ANNUAL EXCEEDENCE PROBABILITY

MHW: +6.1'
(NAVD 88)

10% AEP: +9.3'
(NAVD 88)

1% AEP: +10.6'
(NAVD 88)

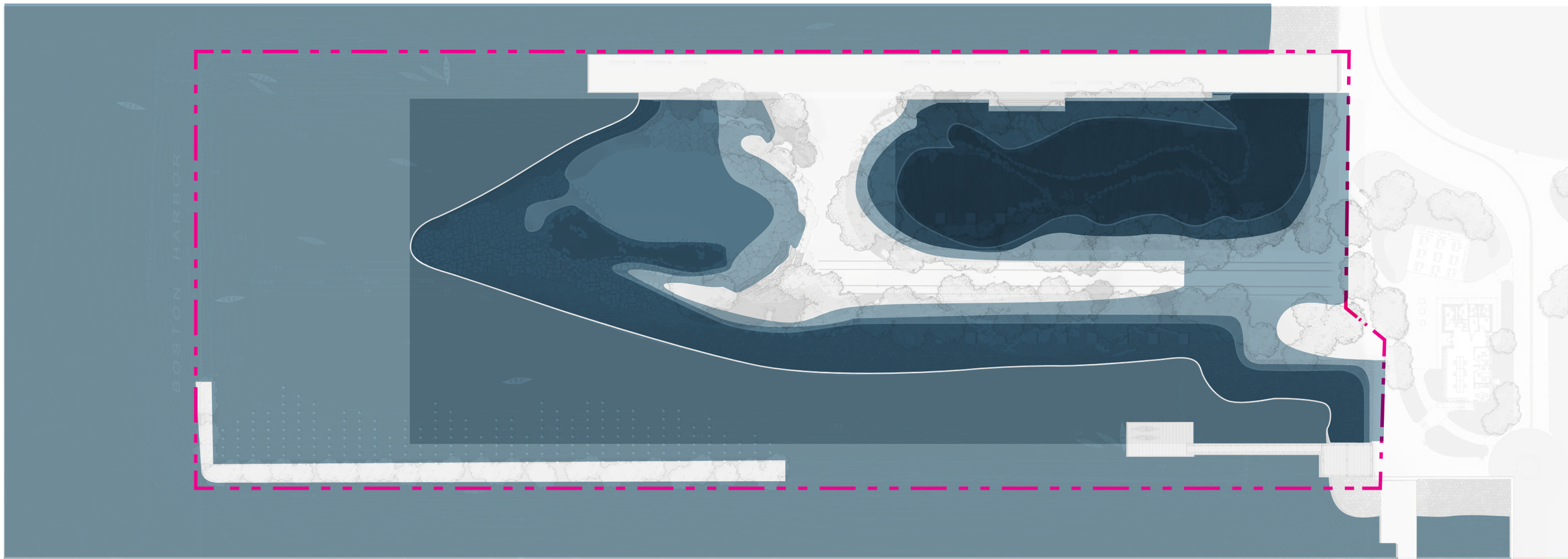


Figure 4-2
Proposed Flood Projections during Mean High Tide, 1%, & 10% Annual Exceedance Probability Storms in 2030
Source: MVVA, 2022

2050

MEAN HIGH TIDE BENCHMARK AND ANNUAL EXCEEDENCE PROBABILITY

MHW: +7.4'
(NAVD 88)

10% AEP: +10.7'
(NAVD 88)

1% AEP: +12.2'
(NAVD 88)

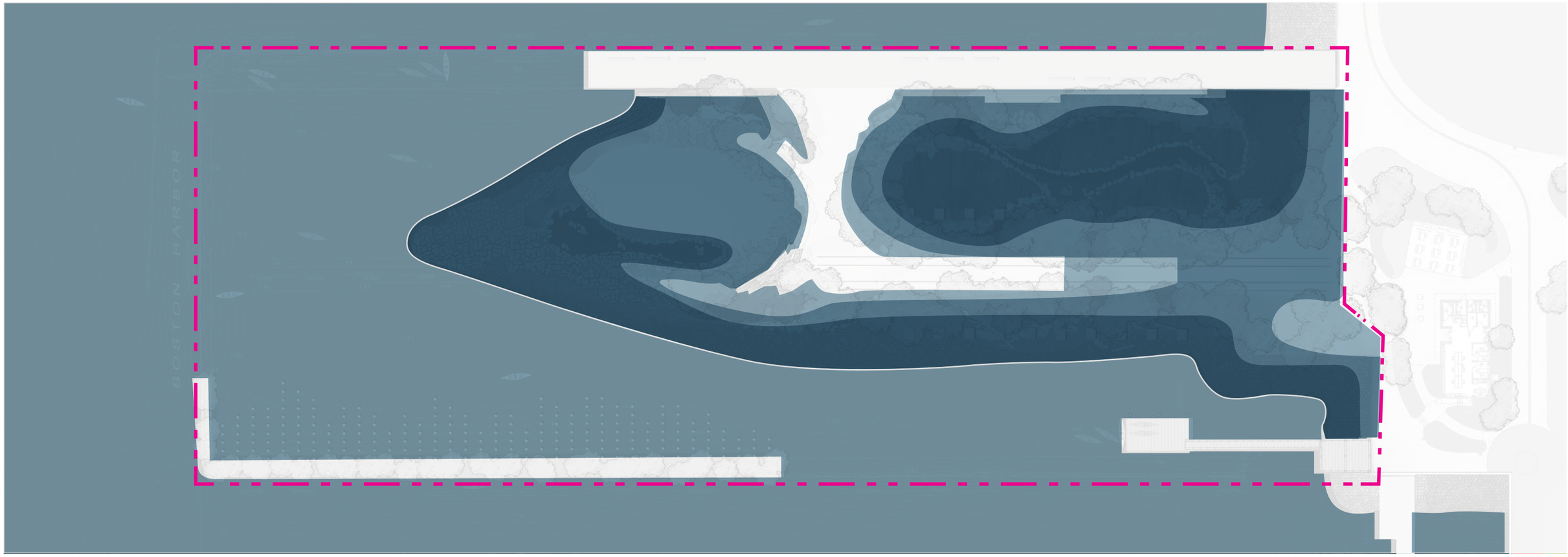


Figure 4-3
Proposed Flood Projections during Mean High Tide, 1%, & 10% Annual Exceedance Probability Storms in 2050
Source: MVVA, 2022

2070

MEAN HIGH TIDE BENCHMARK AND ANNUAL EXCEEDENCE PROBABILITY

MHW: +9.3'
(NAVD 88)

10% AEP: +12.5'
(NAVD 88)

1% AEP: +14.0'
(NAVD 88)

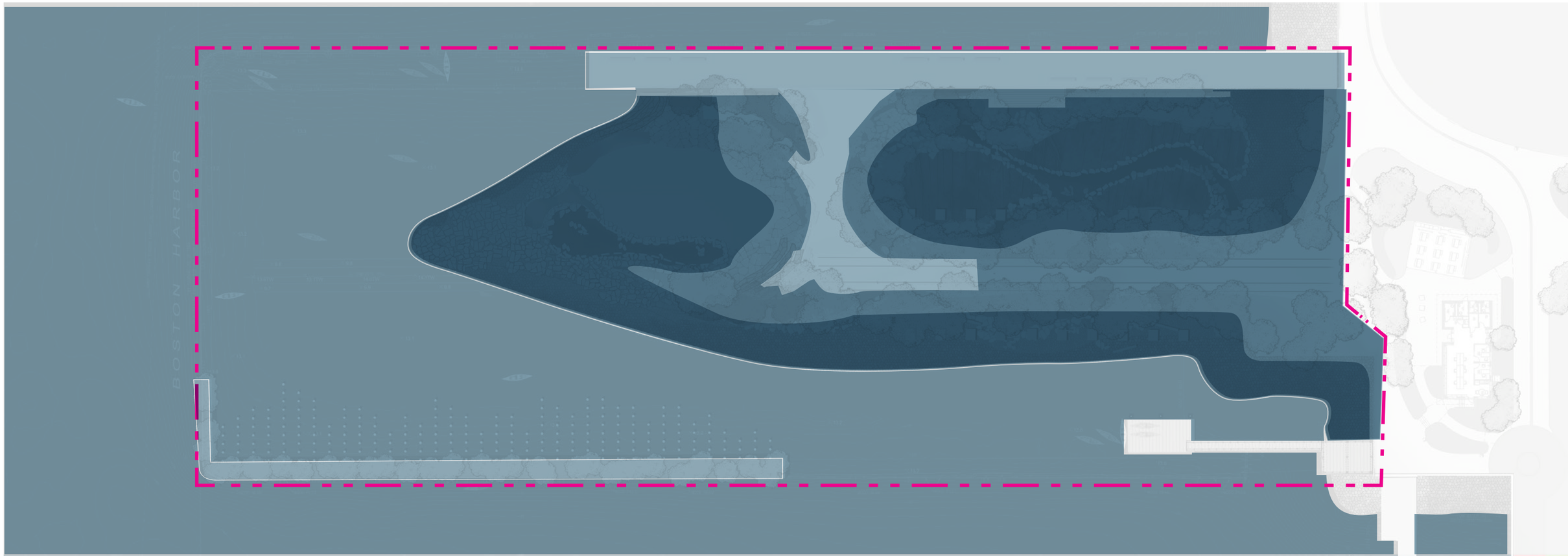


Figure 4-4
Proposed Flood Projections during Mean High Tide, 1%, & 10% Annual Exceedance Probability Storms in 2070
Source: MVVA, 2022

Chapter 5

WETLANDS

CHAPTER 5: WETLANDS

5.1 INTRODUCTION

The Project Site is located within and adjacent to Boston Harbor. There are four wetland resource areas and a buffer zone on the Project Site that are regulated under the Massachusetts Wetlands Protection Act ("WPA"), including: Land Subject to Coastal Storm Flowage ("LSCSF"); Land Under the Ocean ("LUO"); Coastal Bank; Banks of or Land under the Ocean, Ponds, Streams, Rivers, Lakes or Creeks that Underlie Anadromous/Catadromous Fish ("Fish Run"), and the 100-ft Coastal Bank Buffer Zone (the "Buffer Zone"). A new wetland resource, Coastal Beach, will be created within the Project Site to help mitigate project effects and accommodate sea level rise. The Project will be modifying the existing wetland resource areas along the shoreline and creating new wetland resource areas. It will revitalize a large, dilapidated pier into a climate resilient waterfront park, including a new coastal beach and pedestrian walkways. Salt tolerant, cold-hardy plants will be used to support the construction of a living shoreline, including a salt marsh and a tide pool, which will substantially improve the habitat of this coastal site. Additional improvements and impacts to wetland resource areas are discussed in the following sections.

5.2 EXISTING WETLAND RESOURCES

Four coastal wetland resource areas were identified within the Project Site and near-shore areas: LSCSF; LUO; Coastal Bank, and Fish Run (see Figure 5-1, Wetland Resources). Another potential wetland resource area, Land Containing Shellfish, was examined due to the observation and identification of individual shellfish at the Project Site but was not shown on Figure 5-1 due to it not qualifying as a resource area as described below. A description of each of these features as regulated under the WPA (310 CMR 10.00) is provided in the following section.

A professional wetland scientist from Lucas Environmental, LLC investigated the ecological resources within the Project Site and the surrounding area in March 2019. The investigation was performed in accordance with the WPA (M.G.L 131, Section 40) and implementing regulations (Regulations; 310 CMR 10.00 et seq.); the MassDEP publication "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook" (1995), the "Corps of Engineers' Wetlands Delineation Manual" (1987), and the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v 2.0" (2012). It identified several species of shellfish on the substrate within the Project Site. Additionally, a qualified wildlife biologist with a background in marine biology assessed the marine habitats within the Project Site to determine their value and species composition.

5.2.1 LAND SUBJECT TO COASTAL STORM FLOWAGE

Section 310 CMR 10.04 of the WPA defines LSCSF as "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater." According to the FEMA FIRM for Suffolk County, Map Number 25025C0081J, dated March 16, 2016, and Letter of Map Revision ("LOMR"), dated September 8, 2017, the Study Area is designated as a Zone AE and Zone VE. The areas on the Project Site within the AE and VE zones are 0.7 acres and 4.0 acres, respectively.

Zone AE is classified as an area subject to the 1% annual chance flood (100-year flood), where BFE have been determined. Zone VE is defined as the coastal flood zone with wave heights greater than three ft, where BFEs have been determined. BFEs for Zone AE and VE, as identified on the FIRM, are El. 12 and 13 ft NAVD88, respectively. Total area of LSCSF on the Project Site is 44,184 sf.

5.2.2 LAND UNDER OCEAN

Section 310 CMR 10.25 of the WPA defines LUO as the land extending from the MLW line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries. Furthermore, Section 310 CMR 10.25 of the WPA defines Nearshore Areas of LUO as the land extending from the MLW line to the seaward limit of a municipality's jurisdiction, but in no case beyond the point where the land is 80 ft below the level of the ocean at MLW.

The MLW line at the Project Site is at El. -5.2 ft NAVD88. The location of this line is a composite of multiple sources including hydrographic surveys conducted in 2002 and 2019, and recent observations at the Project Site. It runs along the base of the filled pier in the center of the Project Site and along the vertical seawalls in the northern portion in the east and west sides of the filled area. Total area of LUO on the Project Site is 162,509 sf.

5.2.3 COASTAL BEACH

Section 310 CMR 10.27 of the WPA defines a Coastal Beach resource area as "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 MLW line landward to the dune line, coastal bankline or the seaward edge of human-made structures, when these structures replace one of the above lines, whichever is closest to the ocean."

Within the Project Site, there are no Coastal Beaches. The Project, however, will construct a Coastal Beach at the southern end of the filled area, which will extend inland from the MLW line to the base of the proposed riprap.

5.2.4 COASTAL BANK

Section 310 CMR 10.30 of the WPA defines a Coastal Bank as the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.

The Coastal Bank extends landward along the entire shoreline from the MLW to the top of either the vertical block seawalls on the east and west sides of the site or to the top of the filled land area that is contained by stone riprap and runs through the center of the pier. The seawalls/riprap themselves are engineered structures along the seaward face of the Coastal Bank landforms. Although the Massachusetts Bureau of Geographic Information ("MassGIS") MassDEP Wetlands data layer shows the riprap areas to the west and east of the filled pier as Rocky Intertidal Shores, they are not naturally occurring. There is approximately 1,026 linear feet (lf) of Coastal Bank.

5.2.5 LAND CONTAINING SHELLFISH

Section 310 CMR 10.34 of the WPA defines Land Containing Shellfish ("LCS") as the land under the ocean, tidal flats, rocky intertidal shores, salt marshes and land under salt ponds when any such land contains shellfish. This section of the WPA defines shellfish as the following species: Bay scallop (*Argopecten irradians*); Blue mussel (*Mytilus edulis*); Ocean quahog (*Arctica islandica*); Oyster (*Crassostrea virginica*); Quahog (*Mercenaria merceneria*); Razor clam (*Ensis directus*); Sea clam (Spisula solidissima); Sea scallop (*Placopecten magellanicus*); and Soft shell clam (*Mya arenaria*).

The MassGIS Shellfish Suitability Area data layer indicates the Study Area has not been mapped by the Massachusetts Division of Marine Fisheries ("DMF") as shellfish habitat (MassGIS, 2011) for the above-listed species. The closest mapped Shellfish Suitably Area is approximately one-half mile to the east. Harvest of shellfish throughout Boston Inner Harbor, including this area, is prohibited. Although a shellfish survey was not conducted within the Study Area, small numbers of live blue mussel and oyster were observed within the subtidal zone on the piers/piling of Pier 3, and blue mussels were observed in the intertidal zone. Common periwinkle (*Littorina littorea*) was also observed in the intertidal zone (see Attachment B, Lucas Environmental Ecological Assessment). The finding of the study is that there are no significant numbers of shellfish. Based on the low density of shellfish, the size of the area, the lack of historical and current importance of the area to recreational or commercial shellfishing and the absence of DMF mapped shellfish habitat, the area is not considered significant to the protection of shellfish.

5.2.6 ANADROMOUS/CATADROMOUS FISH RUN

The Fish Run resource area is defined in the WPA regulations at 310 CMR 10.35 as areas within estuaries, ponds, streams, creeks, rivers, lakes or coastal waters, which is a spawning or feeding ground or passageway for anadromous or catadromous fish and which is identified by DMF or has been mapped on the Coastal Atlas of the Coastal Zone Management ("CZM") Program. Such fish runs shall include those areas which have historically served as fish runs and are either being restored or are planned to be restored at the time the Notice of Intent is filed. For the purposes of 310 CMR 10.21 through 10.37, such fish runs shall extend inland no further than the inland boundary of the coastal zone.

The Banks of and LUO that underlie an Anadromous/Catadromous Fish Run are significant to the protection of marine fisheries. Anadromous fish refer to fish that enter fresh water from the ocean to spawn, such as smelt, alewives, shad and salmon. Catadromous fish are fish that enter salt water from fresh water to spawn, such as eels. Anadromous and catadromous fish (the "fish") provide recreational, aesthetic and commercial benefits and are an important feature of freshwater, estuarine, and marine environments as well as a food source for other organisms. The spawning migrations of these fish also provide a direct link between the marine and freshwater systems. Anadromous fish use the harbor for passageway, including rainbow smelt (*Osmerus mordax*), blueback herring (*Alosa aestivalis*), and alewife (Alosa pseudoharengus).

The DMF has identified Boston Harbor as an area that provides refuge and migratory habitat for the fish species including rainbow smelt (*Osmerus mordax*), American shad (*Alosa sapidissima*), and American eel (*Anguilla rostrata*). Therefore, the Project will show it complies with the regulations at 310 CMR 10.35. The total Fish Run area over LUO and bank is 187,342 sf. The width of the harbor underlying the Fish Run at this location is approximately 3,000 ft.

5.2.7 SALT MARSH

Salt Marsh is defined as "a coastal wetland that extends landward up to the highest high tide line; that is, the highest spring tides of the year" (310 CMR 10.32). Salt Marsh is characterized by plants that are adapted to or prefer living in saline soils. A Salt Marsh may contain tidal creeks, ditches, and pools.

There are no Salt Marsh resource areas on or in the vicinity of the Project Site. The Project, however, will construct a Salt Marsh on the western side of the Project Site as part of the Project's living shoreline and resiliency improvements.

5.2.8 ROCKY INTERTIDAL SHORES

The WPA regulations at 310 CMR 10.31 define Rocky Intertidal Shores as naturally occurring rocky areas, such as bedrock or boulder-strewn areas between the MHW line and the MLW line. Based on observation and the lack of any MassGIS mapped areas of this wetland resource, there are no naturally occurring Rocky Intertidal Shores on the Project Site.

5.2.9 COASTAL BANK BUFFER ZONE

The Coastal Bank resource area has a Buffer Zone according to the WPA regulations at 310 CMR 10.04, which states "Buffer Zone means that area of land extending 100 feet horizontally outward from the boundary of any area specified in 310 CMR 10.02(1)(a)."

The Coastal Bank Buffer Zone extends 100-feet inland from the top of the Coastal Bank resource area on the Project Site and overlaps with the LSCSF resource area. Approximately 32,985 sf of the Project Site is within the Coastal Bank Buffer Zone.

5.3 WETLAND IMPACTS

5.3.1 IMPACTS

Project-related impacts to the wetland resources are associated with the demolition of the existing pier, improvements to the shoreline, and construction of the filled landform to support coastal features such as a salt marsh, a coastal meadow and beach, and a tide pool; pedestrian walkways; a fishing pier; and a kayak launch, and reconstruction of the existing granite block seawall to a sloped, stone riprap. The Project has been designed to avoid and minimize impacts to the wetland resource areas to the extent practicable.

Alterations within the Project Site will result in permanent changes to the wetland resource as described in Table 5-1, Resource Area Impacts. As shown on Figure 5-1, Wetland Resources, many of the wetlands overlap and are partially or wholly within the limits of LSCSF.

Table 5-1: Resource Area Impacts

Resource Area	Existing Size	Impact
LSCSF	44,184 sf	Change to Proposed 64,091 sf, an increase of 19,907 sf, which will be permanently altered.
LUO	162,509 sf	Change to Proposed 124,806 sf and decrease of 37,703 sf, which will be Permanent and altered due to dredging and filling at the sloped seawall along PPII and placement of fill within the pier area.
Coastal Beach	0	Approximately 5,000 sf of Coastal Beach will be permanently created due to filling LUO resource area.
Coastal Bank	1,026 lf	Change to Proposed 1,506 lf: an increase of 480 lf. The entire Coastal Bank will be permanently altered due to the placement of fill and structures to create wetland resources including salt marsh and a tide pool, a coastal meadow, public walkways, and a sloped riprap. The western seawall is approximately 256 lf and the remaining portion is within the pier area.
Fish Run	187,342 sf	Change to Proposed 137,168 sf and decrease of 50,174 sf.
Salt Marsh	0	Approximately 6,500 sf of Salt Marsh will be permanently created as part of the living shoreline due to filling LUO and Coastal Bank resource areas.
Coastal Bank Buffer Zone	32,985 sf	Change to Proposed 37,200 sf, an increase of 4,215 sf, will be permanently altered due to grading and placement of walkways, landscaping, sloped riprap, and stormwater drainage structures.

5.4 COMPLIANCE WITH WPA PERFORMANCE STANDARDS

This subsection describes the compliance of each of the Project activities in WPA jurisdiction with the applicable regulatory performance standards for the respective resource areas. Portions of the planned work occur within LSCSF, LUO, Coastal Bank, Fish Run, and the Buffer Zone and are described in more detail in this section.

No areas of the Project Site are identified as Priority Natural Habitat or Estimated Habitat of Rare Wildlife by the Natural Heritage and Endangered Species Program ("NHESP"), as

identified by procedures established under 310 CMR 10.37 (Natural Heritage Areas, 15th Edition, 2021). See Figure 5-2, NHESP Estimated Priority Habitats of Rare Species.

5.4.1 LAND SUBJECT TO COASTAL STORM FLOWAGE

There are no regulatory performance standards for LSCSF under 310 CMR 10.00. LSCSF occupies all of the land area above the MHW, which is approximately 44,184 sf of the Project Site. Within this area, the Project will construct a new sloped riprap and public walkways including the reclaimed rail line, landscaped area, and gravel beaches. The entire Project Site within the LSCSF will range from El. 4.3 to El. 13.3 ft NAVD88. Fill will be placed in most of this area to raise the grade and make it more resilient to flooding now and in the future. Although the Project will be adding fill to a regulated velocity zone, it will be constructed to accommodate and resist expected waves and erosion with the use of riprap within the LSCSF and with other features beyond this resource area including salt marsh, a coastal beach, and a tide pool. These features will help maintain the function and values of this resource area.

5.4.2 LAND UNDER OCEAN

Table 5-2: Compliance with Performance Standards for Land Under Ocean (310 CMR 10.25)

PERFORMANCE STANDARD (310 CMR 10.25)	COMPLIANCE WITH PERFORMANCE STANDARD
(5) Projects not included in 310 CMR 10.25(3) or (4) which affect nearshore areas of land under the ocean shall not cause adverse effects by altering the bottom topography so as to increase storm damage or erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes.	There are no coastal beaches, salt marshes, or coastal dunes at or near the Project Site that could be impacted by the Project. The Project will replace a vertical seawall with a sloped riprap, which will substantially reduce wave reflection and undermining of downgradient sediments and habitats. The new sloped riprap will reduce impacts to the coastal bank, bottom topography, and proposed coastal beach and salt marsh. Coastal Bank, which runs the entire length of the Project Site that would be expanded and stabilized, mainly along the southern and western portions of the Project Site, to accommodate new habitats and resource areas, expand public access to the waterfront, and

PERFORMANCE STANDARD (310 CMR 10.25)	COMPLIANCE WITH PERFORMANCE STANDARD
	stabilize the shoreline. The alteration of bottom topography will help to minimize storm damage and erosion of coastal banks by providing a more resilient shoreline.
(6) Projects not included in 310 CMR 10.25(3) which affect land under the ocean shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries habitat or wildlife habitat caused by: (a) alterations in water circulation; (b) destruction of eelgrass (*Zostera marina*) or widgeon grass (*Rupia maritina*) beds; (c) alterations in the distribution of sediment grain size; (d) changes in water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants; or (e) alterations of shallow submerged lands with high densities of polychaetes, mollusks, or macrophytic algae.	This water-dependent project has been designed to minimize adverse effects on marine fisheries habitat. It will substantially improve the existing degraded site conditions and add large areas of salt marsh, tide pool and other intertidal habitats. (a): Additional fill in the LUO resource area is not expected to significantly alter water circulation patterns given the depth of surrounding water and existence of nearby piers and wharves. This water-dependent use project has been designed to minimize adverse effects on fisheries habitat by stabilizing the shoreline and creating new fish habitat with a living shoreline in an area where biological values are currently largely absent. LUO resource areas will be reduced and replaced, in part by intertidal Coastal Beach and Coastal Bank resource areas. (b): There are no mapped or visible submerged aquatic vegetation areas on or in the vicinity of the Project Site. (c): No significant changes in water circulation are anticipated and thus grain size distribution is unlikely to change as well. (d): Water quality will be substantially improved with the addition of the living

PERFORMANCE STANDARD (310 CMR 10.25)	COMPLIANCE WITH PERFORMANCE STANDARD
	shoreline, which includes salt marsh and a tidepool. (e): The LUO resource area does not contain high densities of polychaetes, mollusks, or macrophytic algae (see Attachment B, Lucas Environmental Ecological Assessment).
(7) Notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.	There are no habitat sites of rare vertebrate or invertebrate species at or proximate to the Project Site.

5.4.3 COASTAL BEACH

There are no existing Coastal Beaches on or downgradient from the Project Site, and therefore the Project will not result in any impacts. The Project, however, will create an approximately 5,000 sf Coastal Beach resource area at the south end of the existing filled pier. The proposed Coastal Beach will be located above MHW, made of sand, and surrounded by sloping riprap.

5.4.4 COASTAL BANK

Under current conditions, the Coastal Bank is comprised of vertical granite block seawall, sloping riprap, and a deteriorating filled pier, none of which supply sediment to Coastal Beaches, Coastal Dunes, or Barrier Beaches.

Table 5-3: Compliance with Performance Standards for Coastal Bank (310 CMR 10.30)

PERFORMANCE STANDARD (310 CMR 10.30)	COMPLIANCE WITH PERFORMANCE STANDARD
(6): Any project on such a coastal bank or within 100 ft landward of the top of such coastal bank shall have no adverse effects on the stability of the coastal bank.	The Project will help stabilize the existing Coastal Bank by adding living shoreline as well as vertical sheet pile walls and sloped stone riprap to support habitat improvements as well

PERFORMANCE STANDARD (310 CMR 10.30)	COMPLIANCE WITH PERFORMANCE STANDARD
	as accommodate future sea level rise. The sloped stone riprap along the western portion of the Site will stabilize the shoreline of the Coastal Bank.
(7): Bulkheads, revetments, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank except when such bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes, and barrier beaches.	There are no coastal beaches, Coastal Dunes, or Barrier Beaches in the vicinity of the Project Site and the existing coastal banks on the Project Site are engineered structures.
(8): Notwithstanding the provisions of 310 CMR 10.30(3) through (7), no project may be permitted with which will have an adverse effect on specified habitat sites of rare vertebrate of invertebrate species, as identified by procedures established under 310 CMR 10.37.	There are no Priority or Estimated Natural Habitats on or nearby the Project Site according to the most recent edition of the Natural Heritage Atlas, August 1, 2021. See Figure 5-2, NHESP Estimated Priority Habitats of Rare Species.

5.4.5 FISH RUN

The main channel of Boston Harbor is a Fish Run for the following species: rainbow smelt, American shad, and American eel. The main channel at this point of the harbor is approximately 3,000 ft wide. At the Project Site, the Fish Run includes the banks of and all the land and waters that are in the LUO resource area, which runs seaward from MHW. Within this area, there are hundreds of old wood piles and remnants of concrete railway supports, and the underlying wetland resource areas include LUO and Coastal Bank. There are approximately 187,342 sf of Fish Run resource area within the Project Site. The proposed alterations in the resource area include conversions to other resource areas including a Salt Marsh and a Coastal Beach. Fish Runs will also be converted to upland areas that will be used for access and shoreline stabilization, including coastal meadows, landscaping, and pedestrian paths.

Table 5-4: Compliance with Performance Standards for Fish Runs (310 CMR 10.35)

PERFORMANCE STANDARD (310 CMR 10.35)	COMPLIANCE WITH PERFORMANCE STANDARD
(3) Any project on such land or bank shall not have an adverse effect on the	Improvements to this resource area will be through the reduction of impediments and obstructions to

PERFORMANCE STANDARD (310 CMR 10.35)	COMPLIANCE WITH PERFORMANCE STANDARD
anadromous or catadromous fish run by: (a) impeding or obstructing the migration of the fish, unless DMF has determined that such impeding or obstructing is acceptable, pursuant to its authority under M.G.L. c. 130, § 19; (b) changing the volume or rate of flow of water within the fish run; or (c) impairing the capacity of spawning or nursery habitats necessary to sustain the various life stages of the fish.	spawning or migrating fish. The Project will not have an adverse impact on marine fisheries. Temporary impacts to the Fish Run will be minimized through the use of siltation booms. (a) There will be fewer impedances and obstructions of the fish due to the net reduction of pilings within the banks of the LUO resource area. At this point in the harbor, the fish run is approximately 3,000 ft in width; (b) Although the volume of this resource area will be reduced, it will be mitigated by removing hundreds of old, dilapidated timber piles. (c) Although there will be a loss of habitat within the Fish Run, new coastal habitats, including a Salt Marsh with a tidal channel, reef balls, oyster gabions, and a tide pool will create a diversity of fish habitats.
(4) Unless otherwise allowed by DMF pursuant to M.G.L. c. 130, § 19, dredging, disposal of Dredged Material or filling in a fish run shall be prohibited between March 15th and June 15th in any year.	Filling in a fish run and sediment disturbing activities will occur outside of the time of year restriction period unless otherwise allowed by DMF.
(5) Notwithstanding the provisions of 310 CMR 10.35(3), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.	There are no Priority or Estimated Natural Habitats on or nearby the Project Site according to the most recent edition of the Natural Heritage Atlas, August 1, 2021.

5.4.6 SALT MARSH

There is no existing Salt Marsh on or in the vicinity of the Project Site, and therefore the Project will not result in any impacts. The Project, however, will create an approximately 6,500 sf Salt Marsh resource area on the west side of the Project Site between the pile-supported Fishing Pier and the filled land. See Figure 1-8, Proposed Site Plan. This Salt Marsh will substantially improve the habitat and water quality in the area as well as provide educational opportunities for visitors to this park. It will be constructed with native, salt-tolerant, cold-hard vegetation, such as *Spartina alternifolia*. The Salt Marsh will function as natural buffer to storm surges and flooding and make the Project Site more resilient to coastal flooding and sea level rise. The Salt Marsh will be installed within the center of the Project Site along the tidal channel, feeding from the interface with the proposed stone revetment. As a result, the Salt Marsh will not be exposed and will be protected from high velocity wave action.

5.4.7 BUFFER ZONE

Work within the Buffer Zone to the Coastal Bank (which at the Project Site overlaps with LSCSF) includes existing debris removal, site grading, landscaping, the Harborwalk, stormwater management, stone riprap improvements, and other appurtenant Project Site development features. While no performance standards are associated with the Buffer Zone, the WPA recognizes the role the Buffer Zone plays in protecting the interests of the WPA. The Project will utilize all necessary Best Management Practices ("BMPs") to ensure that activities in the Buffer Zone do not impact overlapping or adjacent resource areas during the construction period or long term. In addition, those portions of the Buffer Zone work that occur within areas of LSCSF are specifically designed to restore and substantially improve waterfront conditions in order to provide public recreational access and improved storm damage prevention.

5.5 MITIGATION

The Proponent is committed to mitigating the wetland impacts of the Project by creating new wetland resource areas, including a living shoreline with salt marsh, a coastal beach, vegetated shoreline, and a tide pool. The most notable improvements will occur along the existing Coastal Bank and LUO resource areas, portions of which will be converted to new Coastal Beach and Coastal Bank resource areas with sloped riprap, native plantings, and the living shoreline. To construct the shoreline, native vegetation will be planted above MHW at different slopes depending on the location within the Project Site. Approximately 6,500 sf of Salt Marsh will be created to support habitats for fish and benthic species and to mitigate impacts of sea level rise with sloped banks to the extent practicable. Another key component of the Project will be to remove the degraded timber pilings from most of the subtidal and

intertidal portions of the Project Site, and any associated debris that would impact the quality of these resource areas. The subtidal area would also be improved by adding structures such as oyster gabions and reef balls to create habitat for the benthic community (see Sections 1 and 2 in Figure 1-10, Proposed Site Sections).

Additional mitigation includes stormwater management features to improve water quality and reduce impacts to habitats proximate to the Project Site. In the proposed condition, the Project Site will consist of pedestrian and limited vehicular paved areas including some areas of permeable paving materials, recreational areas, and landscaped areas. Impervious area will be minimized and pervious materials will be employed to the extent practicable. For example, the main pedestrian pathways will most likely be constructed with stable pervious material to ensure they are American with Disabilities Act ("ADA") compliant and accessible. The Project will meet the MassDEP Stormwater Management Standards to the maximum extent practicable. Compliance with these Standards is described in Chapter 8, Infrastructure.

To mitigate any Project–related construction impacts to wetland resources, erosion and sedimentation control measures will be installed prior to commencement of construction activities. Construction materials, equipment, and fuel will be stored outside of resource areas to the extent possible. Mitigation and erosion control measures such as coir rolls, turbidity curtains, and silt fences will be used to reduce sedimentation and alleviate adverse impacts. Disposal of dredge material will be managed in accordance with state regulations. Time-of-Year restrictions will be observed in accordance with DMF recommendations. Disturbed areas will be revegetated or covered with erosion control mats, as needed.

Figure 5-1
Wetland Resources
Source: Fort Point Associates, Inc., 2022

East Boston, Massachusetts

Figure 5-2
NHESP Estimated Priority Habitats of Rare Species
Source: NHESP, 2021

Chapter 6

TIDELANDS

CHAPTER 6: TIDELANDS

6.1 INTRODUCTION

The Proponent is proposing to redevelop the Project Site to construct an approximately 2.3-acre waterfront park on land and water owned by Massport. Massport, as the Commonwealth's authority established to protect and promote the Port of Boston, has a special role under Chapter 91 in implementing the public trust. The Chapter 91 regulations provide that MassDEP and Massport may enter into a Memoranda of Understanding ("MOU") with regard to Massport properties, like the East Boston Piers and the East Boston Shipyard and Marina, which are being redeveloped for a mix of water-dependent, water-dependent industrial and nonwater-dependent uses. MassDEP and Massport executed such an MOU covering the East Boston Piers on February 15, 2002. This MOU provides in Section 2.2(g) that "construction, modification and activities within Piers Park I and II" do not require a Chapter 91 license. "Future Phase 2 Park", as described in the plan attached to the MOU includes the area which is now referred to as Piers Park II and Piers Park III. Although a license is not required, the Proponent has agreed to describe how this proposed water-dependent use project complies with the intent of the Chapter 91 regulations. The Project's compliance with the Chapter 91 standards are discussed in the following sections.

6.2 EXISTING CONDITIONS

The Project Site consists of an approximately 4.7-acre condemned industrial pier and seawall that overlies approximately 3.9 acres of flowed tidelands and 0.8 acres of filled tidelands along the East Boston waterfront. The pier is bounded to the east, south, and west by Boston Harbor, and to the north by land owned by Massport. The adjacent land is the site of Piers Park II, now under construction.

The approximately 650-ft long by 255-ft wide pier is comprised of a dilapidated timber deck and underdeck supported by timber piles (see Figure 1-3, Existing Conditions Photographs, Photograph 1). Along the perimeter of the pier is a concrete apron, also supported by timber piles. The northern middle portion of the pier is solid fill and connects to the adjacent Piers Park II property.

The existing vertical seawall is approximately 256-ft long and is comprised of granite blocks with a concrete cap. The seawall is bound by Piers Park II on the north, Piers Park III on the east, Boston Harbor on the south, and developed property on the west. It is most likely that the granite blocks are supported on a timber pile-supported platform, which would be typical construction for stone seawalls constructed in this area. Stone riprap runs long most of the base of the seawall near the MLW line. The MHW line runs along the vertical portion of the seawall.

The large pile-supported pier and filled area have gone through several iterations of rehabilitation and repurposing during its lifetime, and as of late is abandoned and condemned. The timber pier is currently in a critically unsafe condition and is unsuitable for reuse as most of the deck and many of the piles are missing, displaced, or in some stage of decay, except for the concrete apron on the western side, which was rebuilt in 1965. A granite block seawall with a concrete cap is located along the pier/land interface at the northern limit of the pier.

The closest part of the main pier is located approximately 600 ft from Boston's 40-ft deep Waterfront Reach of the Main Ship Channel, which is a Federal Navigation Project. The area east and west of the Pier has been dredged a depth of approximately 30 ft. Due to its exposure, the Project Site receives wake impacts from commercial ships, and commuter, recreational, and other watercraft utilizing the Main Ship Channel.

The tide in Boston Harbor has a daily range of 9.6 ft according to the NOAA tide gauge for Boston Harbor Station 8443970. MLW is at El. -5.16 ft and MHW is at El. 4.33 ft NAVD88.

6.3 PROJECT DESCRIPTION

The Project will transform a dilapidated former shipping pier into a unique, climate-resilient waterfront park, providing space for users to enjoy a wide variety of outdoor activities on an urban waterfront. The Project will support community needs with a network of accessible paths, an accessible-to-all kayak launch, a fishing pier, and accessible coastal edges. Accessible paths will invite birdwatchers, class field trips, and summer camps, while welcoming runners, walkers, and explorers. Open spaces will provide a gathering place for picnics and larger community events. Benches and tables will provide quiet and shaded seating areas, while a salt marsh and tide pool will provide unique and exceptional access to the harbor, making the Project a place where all are welcome to experience and benefit from outdoor recreation and education. See Figures 1-8 and 1-9, Proposed Site Plan and Figure 1-10 through 1-15: Proposed Site Sections.

The Project will create a salt marsh, tide pool, coastal meadow, and standalone enhanced habitat as part of the ecological design and improve the habitat of this coastal site. The standalone enhanced habitat will be created with the remnant pile-supported concrete deck on the southeast of the existing pier, and a sand-based soil berm with native plantings on top of this pier will be used to attract wildlife.

The Project Site will contain a spit that extends the length of the existing filled area, an approximately 6,500- sf coastal beach and an approximately 1,700 sf tide pool on the south side, an approximately 440-ft long by 22-ft wide, pile-supported fishing pier on the west side, an approximately 1,700 sf kayak launch with a ramp and pile-supported deck in the northeast portion of the Project Site. The existing filled area in the central and northern part of the pier will be expanded and stabilized with additional steel sheet pile on the west side and riprap

along portions of the other sides. An approximately 256-ft sloped riprap seawall will replace the existing vertical, stone seawall on the west side of the pier along Piers Park II.

Native, salt tolerant, cold-hardy plants, such as *Spartina alternifolia*, will be used to construct the salt marsh and tide pool. New riprap along the shoreline will slope up to the coastal meadow and tide pool. A tidal channel will connect from the northwest corner and meander through the proposed salt marsh.

Engineered submerged installations will serve as catalysts for establishing marine habitat. A subtidal habitat will be located on the mudline below the enhanced habitat structure and will include enhanced features such as reef balls and oyster gabions.

The Project will be constructed within the limits of the existing pier and bulkheads. Below MLW, the earthen fill will extend laterally within the existing pier limits. The elevation of the park will range from El. -4.5 NAVD88 at low tide to 13.5 NAVD88 at the top of the fishing pier. The fill at the Project Site will reach an elevation of -15 NAVD88.

The new sloped riprap along Piers Park II will require approximately 2,166 cubic yards of material within a 3,664 sf area to be dredged from below MHW (see Table 6-1, Dredge Areas and Volumes). Based on previous borings and sampling results, this material will be disposed of at an upland landfill. There is no dredging within the main pier.

Table 6-1: Dredge Areas and Volumes

Location	Dredge Volume (1) (cubic yards)	Dredge Area (1) (sf)
Seawall along Piers Park II	2,166	3,664
Pier	0	0
Total Site	2,166	3,664

1: Below MHW

6.4 CHAPTER 91 JURISDICTION

The entire Project Site is located within Chapter 91 jurisdiction (see Figure 6-1, Chapter 91 Jurisdiction). The Historic High Water Mark (HHWM) is approximately 600 ft north of the Project Site and is based on the 1852 Chesbrough plan (see Figure 6-2, 1852 Historic High Water Mark). The Project Site is considered to be located on Commonwealth tidelands because it is owned by Massport, a quasi-public authority. Approximately two-thirds of the southern portion of the pier is seaward of the historic low water mark, which is also based on the 1852 Chesbrough plan.

The existing Project Site is comprised of filled (formerly flowed) and flowed tidelands. Of the approximately 4.7-acre site, 3.9 acres are flowed tidelands located seaward of MHW, and the remaining 0.8 acres are filled tidelands located landward of MHW.

6.4.1 HISTORIC LICENSES

Authorizations for fill and structures within Chapter 91 jurisdiction were researched using MassDEP data bases, the Suffolk Registry of Deeds, and the Fort Point Associates library. These licenses permitted the property owner to dredge, fill, and construct and maintain filled and pile-supported wharfs. See Table 6-2, Prior Authorizations at the Project Site.

Table 6-2: Prior Authorizations at the Project Site

LIC #	DATE	LICENSEE	DESCRIPTION
399	1/12/1878	Boston & Albany RR Com.	Constr. pile structure w/ deck connecting P.1 & P.2
398	1/23/1878	Boston & Albany RR Com.	Widen P.5 w/ pile structure & dredge D.5 to -18 MLW
575	12/20/1880	Boston & Albany RR Com.	Extend D.3; Enclose w/ seawall & bulkheads; Construct platform on piles
586	12/10/1881	Boston & Albany RR Com.	Rebuild seawall & build pile platform
592	3/2/1881	Boston & Albany RR Com.	Widen P.1 w/ piles; Dredge D.1 to -26 MLW
1705	9/18/1894	Boston & Albany RR Com.	Repair P.4 by driving new piles
2435	12/18/1900	Boston & Albany, NY Central & Hudson River RR Com.	Reconstruct portion of P.1 by driving new piles; Extend new seawall; Remove existing seawall
2461	3/18/1901	Boston & Albany, NY Central & Hudson River RR Com.	Rebuild seawall at head of D.1
2469	8/23/1901	Boston & Albany, NY Central & Hudson River RR Com.	Enlarge P.1 & D.2; Build seawall and platform on piles
2538	12/13/1901	Boston & Albany, NY Central & Hudson River RR Com.	Remove P.3 & reconstruct P.4 and adjoining docks w/ new seawalls & pile structures
2871	8/3/1906	Boston & Albany, NY Central & Hudson River RR Com.	Reconstruct P.3 by driving new piles
3099	8/15/1906	Boston & Albany, NY Central & Hudson River RR Com.	Rebuild pier on south end of Clyde St. w/new bulkhead & piles; Remove present pier &

LIC #	DATE	LICENSEE	DESCRIPTION
			dredge adjacent docks to -35 MLW
3365	6/9/1909	Boston & Albany, NY Central & Hudson River RR Com.	Extend on piles 2 piers E. of Cunard Pier; Dredge adjacent berths to -35 MLW
3394	8/5/1909	Boston & Albany, NY Central & Hudson River RR Com.	Build pile and timber structure; Dredge D.4 & D.5; Fill behind sheeting
3439	2/23/1910	Boston & Albany, NY Central & Hudson River RR Com.	Build P.5 on piles and build pile structures in D.5
2558	11/9/1942	Boston & Albany, NY Central RR Com.	Maintain dolphins at P. 5
2768	5/29/1945	Boston & Albany, NY Central RR Com.	Place riprap in front of bulkheads at north end of D. 4

6.5 COMPLIANCE WITH CHAPTER 91 REGULATIONS

The Project will comply with the purpose and intent of the Chapter 91 Waterways regulations even though it is exempt from licensing. The Project is water-dependent pursuant to 310 CMR 9.12(2)(a)(4) of the Waterways regulations due to the Project's use as a park that promotes use and enjoyment of the water by the general public, which requires direct access to the water. The section below describes the Project's compliance with the existing, applicable Chapter 91 standards outlined in 310 CMR 9.00.

6.5.1 310 CMR 9.31: SUMMARY OF LICENSE REQUIREMENTS

The Project complies with the basic license requirements set forth in 310 CMR 9.31(1), as described in subsequent sections.

The Project complies with 310 CMR 9.31(2)(a) of the Waterways regulations, because it is a water dependent use and the Project is therefore presumed to meet the proper public purpose requirements of 310 CMR 9.31(2) and provide greater benefit than detriment to the rights of the public.

6.5.2 310 CMR 9.32: CATEGORICAL RESTRICTIONS ON FILL AND STRUCTURES

The Project complies with specific allowed uses listed in 310 CMR 9.32(1)(a):

1. By limiting fill or structures for any use on previously filled tidelands;

2. By limiting fill or structures for water-dependent use located below the high-water mark, provided that, in the case of proposed fill, the Proponent has taken reasonable measures to minimize the amount of fill; and

3. By restricting structures to accommodate public pedestrian access on flowed tidelands, provided that it is not reasonable to locate such structures above the high-water mark or within the footprint of existing pile-supported structures.

The Project complies with 310 CMR 9.32(1)(a)1 by adding fill and constructing structures on previously filled tidelands, including the reuse and expansion of the north central area of filled land to the greatest extent feasible and filling landward of the existing seawall on the west side of the site to create a sloped riprap. Most of the proposed sloped seawall and riprap will be located landward of the existing face of the vertical seawall and riprap.

A key component of the Project is to provide support above and below the water for multiple uses and benefits including public recreation (beach, tide pool, spit, and public viewing and walking areas) and habitat improvements (living shoreline with a salt marsh and sloped vegetated shoreline). In compliance with 310 CMR 9.32(1)(a)2, fill will be added to an existing filled area within the footprint of the existing pile-supported pier to support water-dependent uses including creation of a living shoreline, direct public waterfront access, and tide pools. Fill will also replace the existing vertical block seawall along Piers Park II with a sloped riprap revetment. The Proponent has minimized the amount of fill required for the Project by the use of sheet pile walls, rip rap slopes, incorporation of tidal areas within and next to the filled area, moving the sloped riprap revetment landward, and by rehabilitating and reusing pile-supported structures where structurally feasible.

The Project will utilize portions of the existing pile-supported structure to accommodate public pedestrian access over flowed tideland in compliance with the standard at 310 CMR 9.32(1)(a)3. To provide direct waterfront access with a kayak launch, a small, pile-supported deck will also be constructed on the east side of the Project Site.

Pursuant to the standards at 310 CMR 9.32(2), the Department may license fill for shoreline stabilization provided that reasonable measures are taken to avoid, minimize, and mitigate encroachment in a waterway. The Project will stabilize existing shoreline protection structures, create a living shoreline, install sheet pile in the deeper parts of the Project Site, and replace a failing vertical granite block seawall with sloped riprap revetment.

6.5.3 310 CMR 9.33: ENVIRONMENTAL PROTECTION STANDARDS

In accordance with 310 CMR 9.33, the Project will comply with all applicable environmental regulatory programs of the Commonwealth. Table 6-3, Anticipated Environmental Regulatory Approvals, lists local and state approvals necessary for the Project.

Table 6-3: Anticipated Environmental Regulatory Approvals

Agency	Approval
Local	
Boston Conservation Commission	• Order of Conditions under Wetlands Protection Act
State	
Executive Office of Energy and Environmental Affairs	• Massachusetts Environmental Policy Act (MEPA) Review
Massachusetts Port Authority	• Ground Lease
Massachusetts Department of Environmental Protection	• Notification of Construction and Demolition • Water Quality Certification (401)
Massachusetts Office of Coastal Zone Management	• Federal Consistency Review
Massachusetts Historical Commission	• Determination of No Adverse Effect
Board of Underwater Archeological Resources	• Review of proposed work/Project Site to determine if Reconnaissance Excavation or Special Use Permit(s) are necessary
Office of Public Safety and Inspections	• Building Permit and Code Review

In accordance with the MOU, MassDEP exempts the Proponent from submitting a Chapter 91 License application per the Waterways regulations.

6.5.4 310 CMR 9.34: CONFORMANCE WITH MUNICIPAL ZONING AND HARBOR PLANS

In accordance with 310 CMR 9.34(1), any project located on private tidelands or filled Commonwealth tidelands must be determined to comply with applicable zoning ordinances and by-laws of municipality(ies) in which tidelands are located. However, the Project is exempt from local ordinances and by-laws as it is located on state-owned land.

The Project is not located within an area covered by an Approved Municipal Harbor Plan and therefore does not need to conform to any municipal harbor plan provisions

pursuant to 310 CMR 9.34(2). As previously stated, the MOU between MassDEP and Massport exempts the construction within the Piers Park area from Chapter 91 licensing.

6.5.5 310 CMR 9.35: STANDARDS TO PRESERVE WATER-RELATED PUBLIC RIGHTS

In accordance with 310 CMR 9.35, the Project must preserve any rights held by the Commonwealth in trust for the public to use tidelands along with any public rights for access that are associated with such use. To comply with the applicable rights, the Project must preserve access to waterways and tidelands in accordance with the following standards.

The Project is redeveloping a new park within the footprint of an existing pier and along an existing seawall. Pursuant to 310 CMR 9.35(2)(a)(1), the Project will not interfere with public rights of navigation, as it does not extend seaward of the state harbor line, and there are no structures that impair any line of sight required for navigation, require alteration of an established course of vessels, or interfere with access to adjoining areas. The Project will not generate water-borne traffic that would substantially interfere with other existing or future water-borne traffic. The Project's use of fill will not extend beyond the length required to achieve safe berthing, alter tidal action or other currents that would interfere with the ability to handle vessels, or adversely affect the depth or width of the existing channel. The proposed enhanced habitat area, which retains a portion of the southeast corner of the existing pile-supported pier, will be appropriately marked for navigation purposes.

Pursuant to 310 CMR 9.35(2)(b), the Project will not significantly interfere with the public rights of free passage over and through the water. The Project will increase navigable water sheet by removing substantial portions of the pile-supported pier. It will also support kayak use with a new floating kayak launch.

Pursuant to 310 CMR 9.35(3)(a), the Project does not interfere with public rights to access the Project Site for the purposes of fishing, fowling, and navigation, and does not pose an obstacle to the public's ability to pursue such activities. The Project will allow the public to fully exercise rights of fishing from the pile-supported pier. The Project will install a pile-held floating kayak launch, which will encourage the public's right to navigation. New habitats including tide pools and salt marsh will increase the public's rights to fishing as well as improve existing habitats. The reconstructed sloped revetment will help support the waterfront Harborwalk that is part of the Piers Park II development.

Pursuant to 310 CMR 9.35(3)(b), the Project does not interfere with public rights to walk or otherwise pass freely on Commonwealth tidelands. The Project increases the public's rights to access and walk, stroll, and engage in other recreational activities or

natural derivatives thereof by creating new areas accessible to the public. The open space, tide pools, walkways, beach, sitting areas, and kayak launch will encourage public use of Commonwealth tidelands for water-dependent activities and provide access to the Project's shoreline.

In compliance with 310 CMR 9.35(5), the Project will be accessible to the public 24 hours per day, 7 days per week unless there are emergency or construction activities that warrant its temporary closure or restricted access. No gates, fences, or other structures will be placed that could limit access or impede the free flow of pedestrian movement. Appropriate wayfinding and interpretive signage will help the public navigate to the Project Site as well as provide educational opportunities that enliven and encourage its uses.

6.5.6 310 CMR 9.36: STANDARDS TO PROTECT WATER-DEPENDENT USES

In accordance with 310 CMR 9.36(1), the Project must preserve the availability and suitability of tidelands that are in use for water-dependent purposes, or which are reserved primarily as locations for maritime industry or other specific types of water-dependent uses. The Project will preserve the use of tidelands for water-dependent use as described in the standards below.

Pursuant to 310 CMR 9.36(2), the Project does not interfere with littoral or riparian property owner rights to approach their property from a waterway and approach the waterway from the property. The Project's footprint will be smaller than the existing pier's footprint. The pier work will be more than 25 ft from abutting property lines. Although the revetment work on the west side of the site is located next to the abutting property, which is also owned by Massport, the removal of the dilapidated pile-supported pier will make both properties more accessible and safer.

Pursuant to 310 CMR 9.36(3), the Project does not significantly disrupt any water-dependent use in operation at an off-site location within the proximate vicinity of the Project Site. There has not been any use of the pier for several decades. The adjacent Piers Park Sailing operation will continue to have excellent access to and from their boating facility located on the north and east side of the Project Site.

Pursuant to 310 CMR 9.36(4), the Project does not displace any water-dependent use that has occurred on the Project Site within five years. Recreational vessels will still be able to navigate the same waters and will not be displaced. The Project Site will reduce the size of the vacant pier, and therefore will expand public access to navigable waters. An approximately 1,700 sf kayak launch will provide kayakers with excellent access to the Boston Harbor waterfront.

Pursuant to 310 CMR 9.36(5), the Project does not include fill or structures for nonwater-dependent or water-dependent, non-industrial uses that prevent water-

dependent industrial use within a Designated Port Area (DPA). The structures and uses at the Project Site are water-dependent and the Project Site is not located within a DPA.

6.5.7 310 CMR 9.37: ENGINEERING AND CONSTRUCTION STANDARDS

In accordance with 310 CMR 9.37, all fill and structures must be constructed in a manner that is structurally sound, as certified by a Registered Professional Engineer; comply with applicable state requirements for construction in flood plains; and do not unreasonably restrict the ability to dredge any channels. Projects with engineered structures shall meet the appropriate requirements regarding their design, compatibility, and adverse effects on the Project Site and downcoast or downstream areas.

The Project will be designed by and approved by a Registered Professional Engineer and comply with applicable State Building Codes. The Project does not pose an unreasonable threat to navigation, public health or safety, or adjacent buildings or structures, if damaged or destroyed in a storm. It will not be built beyond the existing pier's footprint or restrict the ability to dredge any channel.

In compliance with 310 CMR 9.37(3)(a), the proposed fill below the MHW will stabilize the shoreline as well support the creation of subtidal and intertidal habitat. The proposed shoreline will align with the existing riprap on the east side and the existing vertical wall on the west side. Portions of the sloped riprap on the west side of the site will lie above and below MHW to permit proper placement, obtain a stable slope, and to be compatible with abutting seawalls. In fact, most of the proposed sloped riprap will be constructed landward of the existing seawall and riprap (see Figures 1-10 to 1-15, Proposed Site Sections).

In compliance with 310 CMR 9.37(3)(c), the Project designed a variety of nonstructural elements including extensive living shoreline with a salt marsh, tide pool, and coastal beach. These non-structural elements will create a more inviting, accessible, educational, and resilient place for this public waterfront park.

6.5.8 310 CMR 9.38: PUBLIC RECREATIONAL BOATING FACILITY

In accordance with 310 CMR 9.38(1), any project that includes a public Recreational Boating Facility, shall include measures to ensure patronage of such facility by the general public in accordance with specific provisions of this standard.

The Project includes an approximately 1,700 sf kayak launch on the southeast side of the Project Site, which will be accessed from the Harborwalk. The water depth at the dock is approximately 15 ft below MLW. The kayak launch will be designated as a

small boat dock for kayaks and similar vessels. It will not have any assigned berths or allow for overnight use.

In compliance with the standards, the dock will accommodate transient boaters, be open to the general public on a first come, first serve basis. There will be appropriate signage that designates the type of vessels allow to dock.

6.5.9 310 CMR 9.40: STANDARDS FOR DREDGING AND DREDGE MATERIAL

The Project will comply with the standards at 310 CMR 9.40. This section of the Chapter 91 Regulations requires dredging projects to meet specific requirements for resource protection, operational requirements for dredging and dredged materials disposal, and supervision of dredging and disposal activities.

Dredging activities will be timed to minimize impacts on any shellfish beds and tidal flats on the Project Site. The upper portions of existing seawall will be removed and fill landward of it will also be excavated to create a new sloped riprap revetment (Figures 1-10 to 1-15, Proposed Site Sections). There is no dredging within the main pier area.

The Project will comply with specific applicable provisions of Chapter 91 regulations, 310 CMR 9.40, as follows:

- All dredging will remove previously filled material, will be conducted above El. -13 (NAVD88), and will stabilize the shoreline;
- All dredged material will be either disposed of on an upland part of the site or pre-characterized and disposed of at an upland landfill in accordance with the regulations of the Massachusetts Contingency Plan;
- No dredging will occur during any period designated by the DMF for the protection of anadromous/catadromous fish runs, unless otherwise approved in writing by the DMF;
- No dredging will be greater than a depth of -20 ft MLW;
- The dredge area has been designed to reasonably accommodate the navigational requirements of the Project;
- The regulations require that the extent of the dredge footprint shall be a sufficient distance for the edge of the adjacent marshes to avoid slumping. There are no salt marshes proximate to the dredge area; and

- The dredged area will not be connected to or be any deeper than the adjacent main channel in Boston Harbor.

6.6 COMPLIANCE WITH MASSACHUSETTS CZM COASTAL POLICIES

While not required for water dependent use projects under the Chapter 91 regulations, this section demonstrates that the Project is consistent with the policies of the Massachusetts Office of CZM as it is in the coastal zone. The Project is consistent with relevant policies as described below.

COASTAL HAZARDS

COASTAL HAZARDS POLICY #1

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 entire site is surrounded by the waters of Boston Harbor and is within the FEMA 100-year flood zone. The Project will enhance the existing shoreline, which contains a dilapidated pier structure, remnant concrete structures, rock, and debris. The Project will help control flooding, stabilize the shoreline, and prevent storm damage with a new living shoreline and a new sloped revetment.

COASTAL HAZARDS POLICY #2

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.

The construction of the proposed waterfront park will not have any adverse impacts on flood control or water circulation. Most of the pile-supported pier will be removed to improve water circulation. Solid fill sections will not significantly alter existing water circulation patterns. Sediment transport is not prevalent on the Project Site today as most of the shoreline is already protected by engineered structures.

GROWTH MANAGEMENT

GROWTH MANAGEMENT PRINCIPLE #1

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

The Project's scale and use is consistent with the adjacent Piers Park I and Piers Park II (currently under construction). Its design will improve the existing conditions at the Project Site and provide direct waterfront access to the public. This Project will improve the pedestrian environment and provide education experiences for the community and visitors from outside the region. The Project is consistent with existing regional and local land use plans as demonstrated in Section 3 of the ENF form.

HABITAT

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.

BMPs will be implemented during construction of both the landside and waterside improvements to minimize any potential impacts to the marine resources of Boston Harbor. The existing shoreline will be stabilized with a new living shoreline that has native plantings and with a new sloped revetment. New wetland resource areas will be created that will expand and enhance the marine resources of Boston Harbor.

HABITAT POLICY #2

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

The Project will remove the dilapidated pier and utilize other portions to create a fishing pier and an enhanced habitat area. The shoreline will be reconstructed with a living shoreline and a salt marsh to support a habitat for diverse species. Native coastal plantings interspersed with gravel and stone riprap will be placed on a low sloped areas to accommodate sea level rise.

PORTS AND HARBORS

PORTS AND HARBORS POLICY #1

Ensure that dredging and disposal of dredged material minimize adverse effects on water quality, physical processes, marine productivity, and public health and take full advantage of opportunities for beneficial re-use.

Dredging activities along the existing vertical seawall will use BMPs to minimize impacts to the water quality and habitats in the vicinity of the Site. Dredging will occur from the land side using excavators to prevent impact from barges bottoming

out on the substrate below and to minimize any deposition of dredged material into the water. Turbidity curtains will be used to the extent practicable to minimize turbidity and impacts to nearby habitats. Other BMPs will also be considered as the design and construction methodology progresses.

PORTS AND HARBORS POLICY #4

For development on tidelands and other coastal waterways, preserve and enhance the immediate waterfront for vessel-related activities that require sufficient space and suitable facilities along the water's edge for operational purposes.

Direct water access for small vessels, such as kayaks, will be created with a new kayak launch dock that is attached to a ramp and deck on the shore. Visitors by land and sea will be able to utilize this kayak launch to either visit the park or travel around it and places beyond in Boston Harbor.

PORTS AND HARBORS POLICY #5

Encourage, through technical and financial assistance, expansion of water dependent uses in Designated Port Areas and developed harbors, re-development of urban waterfronts, and expansion of physical and visual access.

This Project supports redevelopment of this urbanized waterfront as well as expansion of physical and visual access as described below.

Expansion of Water-dependent Uses

Project activities that support expansion of water-dependent uses include:

- Creation of a public walkway that meanders around the Project Site and through diverse habitats including salt marsh, coastal beach, and landscape areas; and
- Installation of pedestrian amenities along the walkway including viewing areas and benches.

Re-development of Urban Waterfronts

The Project will redevelop an existing underutilized waterfront parcel into urban park with direct water access, living shoreline, educational opportunities. It will connect to an existing park system that, together, will provide opportunities for interaction with the water, passive and active recreation, and education.

Expansion of Visual Access

The new waterfront open space will provide panoramic view of the active harbor and the Boston city skyline. Viewing areas will be located at the sea level and from higher viewpoints on the Project Site.

PUBLIC ACCESS

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 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.

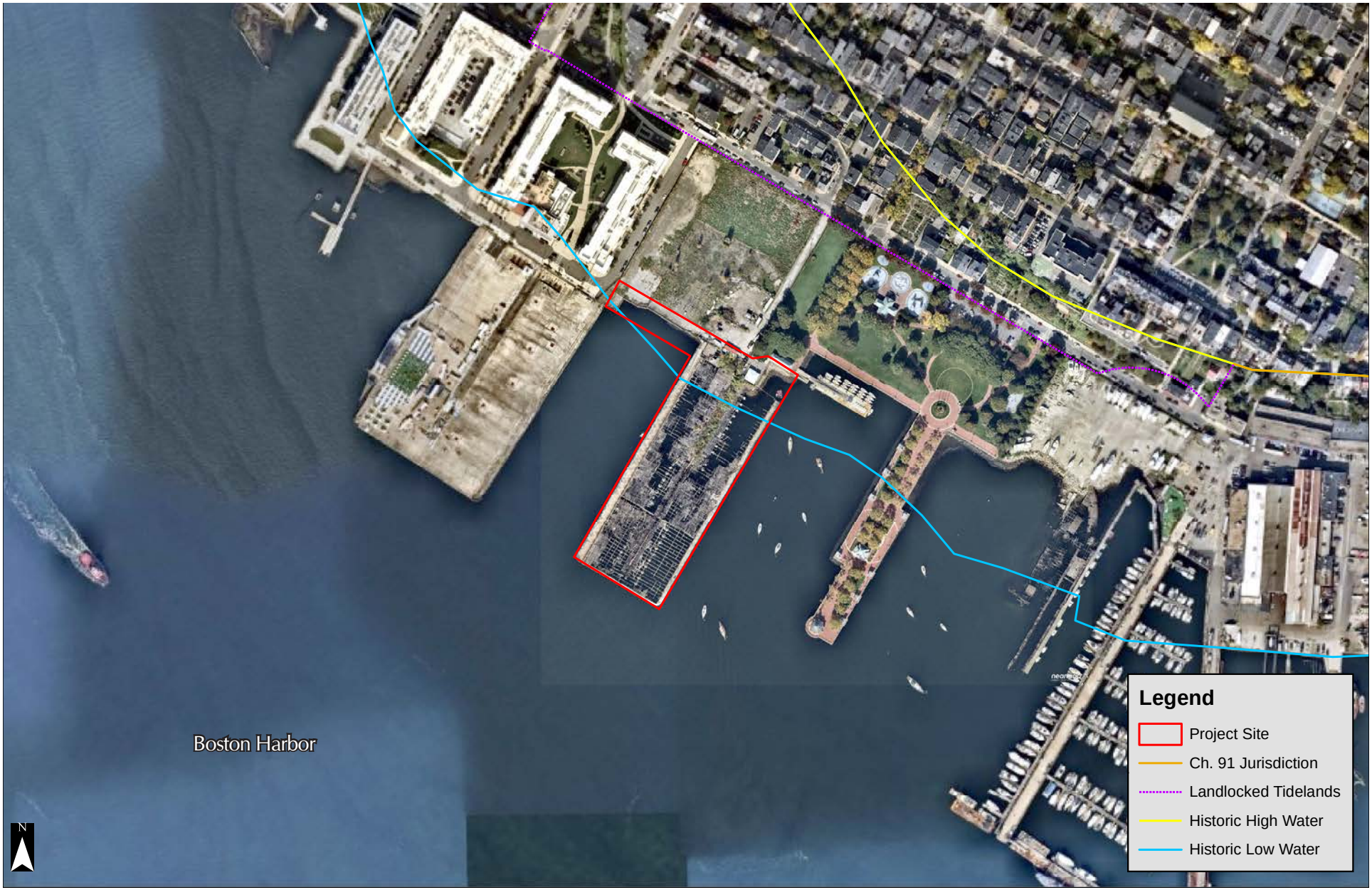
The Project will create a public access destination on a site that has never been open to public access. The Project provides direct pedestrian and visual access from many points within the Project Site. It will be landscaped with native and salt-tolerant trees, shrubs, and benches for people to sit and enjoy views of the Boston Harbor.

WATER QUALITY

WATER QUALITY POLICY #2

Ensure the implementation of nonpoint source pollution controls to promote the attainment of water quality standards and protect designated uses and other interests.

The Project has developed a stormwater strategy for the construction term and post construction activities. The Applicant and the contractor will file for an EPA National Pollutant Discharge Elimination System ("NPDES") Construction General Permit and implement the Stormwater Pollution Prevention Plan during construction to mitigate erosion and pollution. Construction BMPs such a coir logs, silt fences, and turbidity curtains will also be implemented to ensure that erosion, sedimentation, and turbidity are minimized and do not impact the wetland within and near the Project Site. All stormwater generated from future impervious surfaces in the park will be treated for the removal of suspended solids and potential contaminants in accordance with the MassDEP stormwater management policies.



East Boston, Massachusetts

Figure 6-1
Chapter 91 Jurisdiction
Sources: MassDEP, 2011; Fort Point Associates, Inc., 2022

East Boston, Massachusetts

Figure 6-2
1852 Historic High Water Mark
Source: Chesbrough, 1852

Chapter 7

TRANSPORTATION AND PARKING

CHAPTER 7: TRANSPORTATION AND PARKING

7.1 INTRODUCTION

The Project is located west of Piers Park I, south of Piers Park II, and accessed from Piers Park Lane and Marginal Street through Piers Park II. The Project Site is surrounded on three sides by Boston Harbor, connecting to Piers Park II at its northern edge. The Proponent has conducted an evaluation of the transportation impacts of the Project. This summary includes an evaluation of existing and proposed conditions for trip generation, vehicular use, parking, public transportation, pedestrian and bicycle accommodations, car and ride sharing, and water transportation.

7.2 EXISTING CONDITIONS

7.2.1 TRIP GENERATION

The existing Project Site is not accessible to the public, has no on-site activity, and is currently surrounded by security fencing. Existing trip generation is zero trips.

7.2.2 VEHICULAR USE

The Project Site is located near Marginal Street and Piers Park Lane in the Jeffries Point neighborhood of East Boston. The following describes existing roadways adjacent to the Project Site.

- *Marginal Street* is generally a two-way, two-lane roadway that runs in an east-west direction from the East Boston Greenway/Orleans Street to the entrance to the East Boston Shipyard. Marginal Street is classified as a minor street or road and is open to all vehicles. Parking is allowed on both sides of the street.

- *Piers Park Lane* is a one-way, one lane roadway that runs in a northerly direction from East Pier Drive to Marginal Street. Piers Park Lane is classified as a minor street or road under Massport jurisdiction and is open to all vehicles. Parking is allowed on the east side of the street.

- *Haynes Street* is a one-way, one lane roadway that runs in a westerly direction from Orleans Street to Marginal Street. Haynes Street is classified as a minor street or road and is open to all vehicles. Parking is allowed on one side.

- *Cottage Street* is a one-way, one lane roadway that runs in a southerly direction from Porter Street to Marginal Street. Cottage Street is classified as a minor street or road and is open to all vehicles. Parking is allowed on both sides.

7.2.3 PARKING

There is on-street parking in the vicinity of the Project Site along Marginal Street, Cottage Street, and Piers Park Lane. On-street parking is provided on both sides of Marginal and Cottage Streets for residents and with a two-hour limit Monday – Friday, 8 AM to 6 PM for non-residents. On-street parking is provided on one side of Piers Park Lane with a two-hour limit for all users every day, 8 AM to 6 PM, with no restrictions outside of these hours. Piers Park I currently provides 24 off-street public parking spaces for park visitors. Piers Park II will be providing 43 new off-street public parking spaces.

7.2.4 PUBLIC TRANSIT SERVICES

The Project Site is located approximately 0.3 miles or a 7-minute walk from the MBTA Maverick Square Blue Line Station and Bus Terminal, which offers direct and frequent access to Downtown Boston to the south and other Blue Line stations to the north. The Station also has a head house located at the end of Marginal Street on the Lewis Mall, which is slightly closer to the Project Site. Maverick Station connects to bus routes 114, 116, 117, 120 and 121. Route 120 runs through East Boston, also connecting residents to the Wood Island and Orient Heights Blue Line stations. This route briefly runs along Sumner Street and has a stop that is less than a 5-minute walk from the Project Site. The remaining bus routes connect the Blue Line at Maverick Station to the cities of Chelsea and Revere. See Figure 7-1, Existing MBTA & Water Taxi Accommodations. The following describes each public transportation route served by Maverick Station.

MBTA Blue Line – The Blue Line branch of the MBTA subway system stops at Maverick Station. The Blue Line provides access between Bowdoin Station in Downtown Boston to the southwest and Wonderland Station in Revere to the northeast and connects to the Orange Line and Green Line. The Blue Line operates with headways of approximately 5 to 8 minutes.

MBTA Bus Route 114 provides service between Maverick Station and Bellingham Square in Chelsea. Weekday service runs from approximately 9:00 AM to 4:30 PM, with headways ranging from approximately 50 minutes to 55 minutes. MBTA Bus Route 114 does not provide weekend bus service.

MBTA Bus Routes 116 and 117 provide service between Maverick Station and Wonderland Station in the Revere via Chelsea, largely running along the same route. Weekday service runs from approximately 4:28 AM to 1:39 AM, with headways

ranging from approximately 20 minutes to 30 minutes. Saturday and Sunday service from approximately 4:30 AM to 1:45 AM, with headways ranging from approximately 20 minutes to 30 minutes.

MBTA Bus Route 120 provides service between Maverick Station and Orient Heights Station in East Boston. Weekday service runs from approximately 5:25 AM to 1:27 AM, with headways ranging from approximately 30 minutes to 50 minutes. Saturday and Sunday service from approximately 5:25 AM to 1:26 AM, with headways ranging from approximately 40 minutes to 50 minutes.

MBTA Bus Route 121 provides service between Maverick Station and Eagle Hill in East Boston. Weekday service runs from approximately 6:00 AM to 6:46 PM, with headways of approximately 30 minutes. MBTA Bus Route 121 does not provide weekend bus service.

Additionally, the MBTA Silver Line 3 route services the East Boston neighborhood. The closest Silver Line Station is Airport Station located 0.8 miles away from the Project Site, an approximately 18-minute walk. The Silver Line 3 runs from South Station in Boston to the MBTA Chelsea Commuter Rail Station. The Massport Water Transportation Terminal is also located 1 mile away, or an approximately 20-minute walk, from the Project Site. This terminal is served by the MBTA Ferry, which has routes starting from Long Wharf in Boston and Hingham.

7.2.5 PEDESTRIAN ACCOMODATIONS

The Project Site is located within Jeffries Point, a pedestrian-friendly neighborhood of East Boston, and along the accessible East Boston waterfront Harborwalk. In general, sidewalks are provided on both sides of Marginal Street and Cottage Street, on the west side of Piers Park Lane adjacent to the Project Site and are in good condition. Crosswalks, pedestrian signage, and accessible curb ramps are also provided at the intersections adjacent to the Project Site, consisting of Piers Park Lane & Marginal Street, Mary Ellen Welch Greenway & Marginal Street, and Cottage Street & Marginal Street. Adjacent to the Project Site, the sidewalks are approximately 10 feet wide (minimum) along Piers Park Lane and 8 feet wide along Marginal Street. The Mary Ellen Welch Greenway is also located in close proximity and provides direct access from the Project Site to points north in East Boston. The Project Site is also adjacent to the Harborwalk. The Harborwalk provides pedestrian connections from the Project Site along the East Boston waterfront to a variety of public facilities and spans a contiguous stretch from ReelHouse East Boston to the west and Boston Shipyard and Marina, the Logan Office Center, and Hyatt Regency hotel to the east.

7.2.6 BICYCLE ACCOMODATIONS

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project Site is conveniently located near several bicycle facilities. The City of Boston's "Bike Routes of Boston" map indicates that the Mary Ellen Welch Greenway and Marginal Street are designated as beginner routes suitable for all types of bicyclists including newer cyclists, cyclists with limited on-road experience and/or children. Additionally, Sumner Street and Maverick Street are designated as intermediate routes, suitable for riders with some on-road experience. Marginal Street's bicycle facilities consist of road markings indicating shared bicycle and vehicle travel lanes. The bicycle sharing service, BlueBikes, has installed 17 stations in East Boston including one at the east side of Piers Park I. See Figure 7-2, Existing Pedestrian & Bicycle Accommodations.

7.2.7 CAR/RIDE SHARING

Car sharing enables easy access to short term vehicular transportation. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location. Zipcar is the only company that provides car sharing services within the Project area. There are three Zipcar locations located in close proximity of the Project Site, located within a 5-minute walk of the Project Site. Zipcars are available for rental at 144 Marginal Street (on-street), 50 Lewis Street (Portside at East Pier), and 63 Lewis Street (Clippership Wharf).

Additionally, taxis and ride sharing services are easily accessible adjacent to the Project Site. These services can be ordered via mobile applications or phone calls for pick up or drop off on Marginal Street, Piers Park Lane, or Cottage Street.

7.2.8 WATER TRANSPORTATION

The MBTA also serves the area adjacent to the Project Site via a seasonal ferry. The ferry runs from the Lewis Street Water Transportation Terminal in East Boston to Long Wharf in Downtown Boston, as part of a pilot project funded through spring 2023. The service is currently on-hold for the winter season but will resume March 1, 2023. Trips operate seven days a week and run every 30 minutes. On weekdays, the ferry runs from 7 AM to 7:45 PM, and on weekends the service runs from 9 AM to 8:45 PM.

Additionally, the Massachusetts Convention Center Authority operates a ferry service from Lewis Street Water Transportation Terminal to Fan Pier in the Seaport for weekday commuters. The service runs every 20 minutes in the mornings, from 5:55 AM to 10:05 AM, and evenings, from 3:15 PM to 7:05 PM. Although this service is

intended for commuters working in the Seaport, the ferry is available for use by the general public.

Water taxis, operated by Boston Water Taxi, also serve the Boston Harbor, including the East Boston waterfront. The Project Site is located near two water taxi stops at the Lewis Street Water Transportation Terminal and the Boston Shipyard and Marina.

Complimentary water transportation service is also provided during the summer through Boston Launch Company to transport riders between restaurants on Boston Harbor, including Pier 6 Charlestown, ReelHouse East Boston, and The Tall Ship. The Tall Ship stop is located at the Lewis Street Water Transportation Terminal. The Institute of Contemporary Art Boston ("ICA") provides a fee-based shuttle service between the water taxi stop at the ICA in the Seaport District to the water taxi stop at the Boston Shipyard and Marina.

7.3 PROPOSED CONDITIONS

The Project will create new public access to the East Boston waterfront and will introduce new public uses that will attract visitors to the waterfront. The Project is designed to provide greater accessibility to the waterfront (see Figure 7-3, Proposed Circulation Diagram) and minimize transportation impacts on the surrounding neighborhoods.

7.3.1 TRIP GENERATION

As the Project will create a new waterfront park, the Proponent evaluated the proposed trip generation using the "Beach Park" classification under the ITE *Trip Generation* manual, 9th Edition[1]. Based on this classification and the proposed site area, the Project is estimated to generate 69 average daily trips to the site. This calculation is based on the 2.3 acre Project Site and approximate rate of weekday daily traffic of 30 trips per acre.

7.3.2 VEHICULAR USE

The Project will utilize existing roadways and parking facilities adjacent to the Project Site. The Project will generate additional vehicular traffic to this area of East Boston upon completion, but it is anticipated that the majority of trips to the site will be through other modes of transportation.

[1] Newer ITE editions do not include this land use code, so this is the best data source for the proposed use.

7.3.3 PARKING

The Project will have no adverse effect on existing on-street parking on Marginal Street, Cottage Street, and Piers Park Lane, as well as the off-street parking spaces within Piers Park. Additionally, Piers Park II construction will contain a parking lot with 43 spaces. The Project itself is not proposing any additional parking.

7.3.4 PUBLIC TRANSIT SERVICES

Public transit service provided by the MBTA will be used by park visitors from the Boston area to access the Project Site. The Project is within a short walk to multiple public transit stops and will be the most convenient mode of transportation for many park users.

7.3.5 PEDESTRIAN ACCOMODATIONS

Pedestrian access to the Project is expected to be the primary mode of accessing the site, as the Project is in close proximity to persons living in the nearby East Boston neighborhoods and to public transportation. Pedestrian access is readily supported by connections to the nearby Mary Ellen Welch Greenway, sidewalks on local streets which are generally in good condition and the Harborwalk providing connections to the east and west along the harbor. Pedestrian access to the waterfront will be enhanced through the construction of a pedestrian walkway circulating through the landform and fishing pier to provide passive recreation, gathering spaces, educational programming, and views of Boston Harbor.

7.3.6 BICYCLE ACCOMODATIONS

The Project will result in a greater attraction to bicycle riders in the area and generate additional bicycle traffic to the Jeffries Point neighborhood. The Mary Ellen Welch Greenway and Marginal Street are identified as suitable bike routes in the City of Boston's "Bike Routes of Boston." Although the Project is not proposing additional bicycle racks, racks are available for public use at Piers Park I, and additional racks are being constructed at Piers Park II. BlueBike bike sharing stations are available at Piers Park I, at Maverick Station and elsewhere in the East Boston neighborhoods.

7.3.7 CAR/RIDE SHARING

Car/ride sharing is an alternative mode of transportation to single occupancy vehicles. Given the limited availability of on street and off street parking, ride sharing may be a preferable form of transportation to the site, but it is anticipated that the majority of users will arrive using various modes of public transit.

7.3.8 WATER TRANSPORTATION

The Project will provide for greater public access to the waterfront and the support existing the water transportation network. Park visitors with have easy access to ferry and water taxi water transportation services at the Lewis Street Water Transportation Terminal, only a short walk from the Project Site. These services include both regularly scheduled service to Long Wharf and Fan Pier, as well as water taxi service from throughout the harbor. As the Project will attract higher volumes of visitors to the Project Site and East Boston, there will be higher water transportation ridership.

7.4 SHORT-TERM CONSTRUCTION IMPACTS

The Project construction may affect existing street operations on a temporary basis. Barricades and security fencing will be used to isolate the Project Site construction areas from Piers Park II construction and surrounding streets. The General Contractor will coordinate with Massport, all pertinent regulatory agencies and representatives of the surrounding neighborhoods to ensure they are informed of any changes in construction activities and schedule. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a Construction Management Plan ("CMP") to be filed with Massport. The CMP will also address the need for pedestrian detours, lanes closures, and/or parking restrictions, if necessary, to accommodate a safe and secure work zone.

Construction access will be provided from Piers Park Lane through the staging area on waterside portion of Piers Park II on a temporary asphalt access route, as shown in Figure 7-4, Proposed Construction Access Exhibit. Construction of the Project will begin through mobilization and demolition of the existing pier and its disposal. This phase will include mobilization of a crane barge and two loading/unloading barges for materials. Following demolition of the existing pier, sheet pile and structural pile operations will begin from the waterside barge. The sheet piles and structural piles will either be delivered directly to the site by trailer trucks or by barges from the water

After pile-driving operations are initiated, the Project will begin filling in the landform and performing the remaining pile-driving and sitework activities from the landside. Based on preliminary earthwork and pile estimates, and the projected length of construction, the Project is expected to generate approximately 2,800 total truck trips over the 20-month construction period, or 7 average daily truck trips for construction vehicles hauling piles, backfill, and excavated material to/from the Project Site. The proposed construction vehicle route is shown in Figure 7-5, Proposed Truck Routes Exhibit.

Final truck routes will be coordinated with adjacent Piers Park II construction and will be presented in the CMP. Construction of the Project will have some days where there will be larger volumes of traffic entering and exiting the Project Site. During these peak times, a

police detail may be stationed to ensure public safety. Additionally, the Project is expected to generate approximately 12 barge trips for delivery of riprap materials. After construction, the construction staging zone will be completed in accordance with the Piers Park II project design plans.

Measures will be employed during construction to minimize the impact of construction workers on the transportation network. These measures will be incorporated into the CMP for the Project prior to commencement of construction activities. Mitigation measures include:

1. No personal vehicles will be allowed to park at the Project Site.
2. Jobsite personnel will be encouraged to utilize public transportation due to the proximity to numerous MBTA options.
3. Lock-up facilities for work tools will be provided to make public transportation more convenient and desirable for workers.
4. Terms and conditions related to workforce parking and public transportation use will be written into each subcontract.

The construction workforce will arrive prior to AM peak traffic period and depart prior to the PM peak period, so these trips are not expected to have an appreciable impact on the transportation system. The Project expects to have an average workforce of 20 individuals with an estimated peak workforce of 40 workers. Should some workers choose to drive to the site, there is limited available street parking on Marginal Street, Piers Park Lane, and Cottage Street. Contractors will need to identify and secure offsite parking for workers. Off-street parking spaces at Piers Park and in the future, Piers Park II, is restricted to park visitors. As a result of all these transportations measures and options, little automobile traffic is expected to be generated by this Project.

Figure 7-1
Existing MBTA & Water Taxi Accomodations
Source: Fort Point Associates, Inc., 2023

Figure 7-2
Existing Pedestrian & Bicycle Accomodations
Source: Fort Point Associates, Inc., 2023

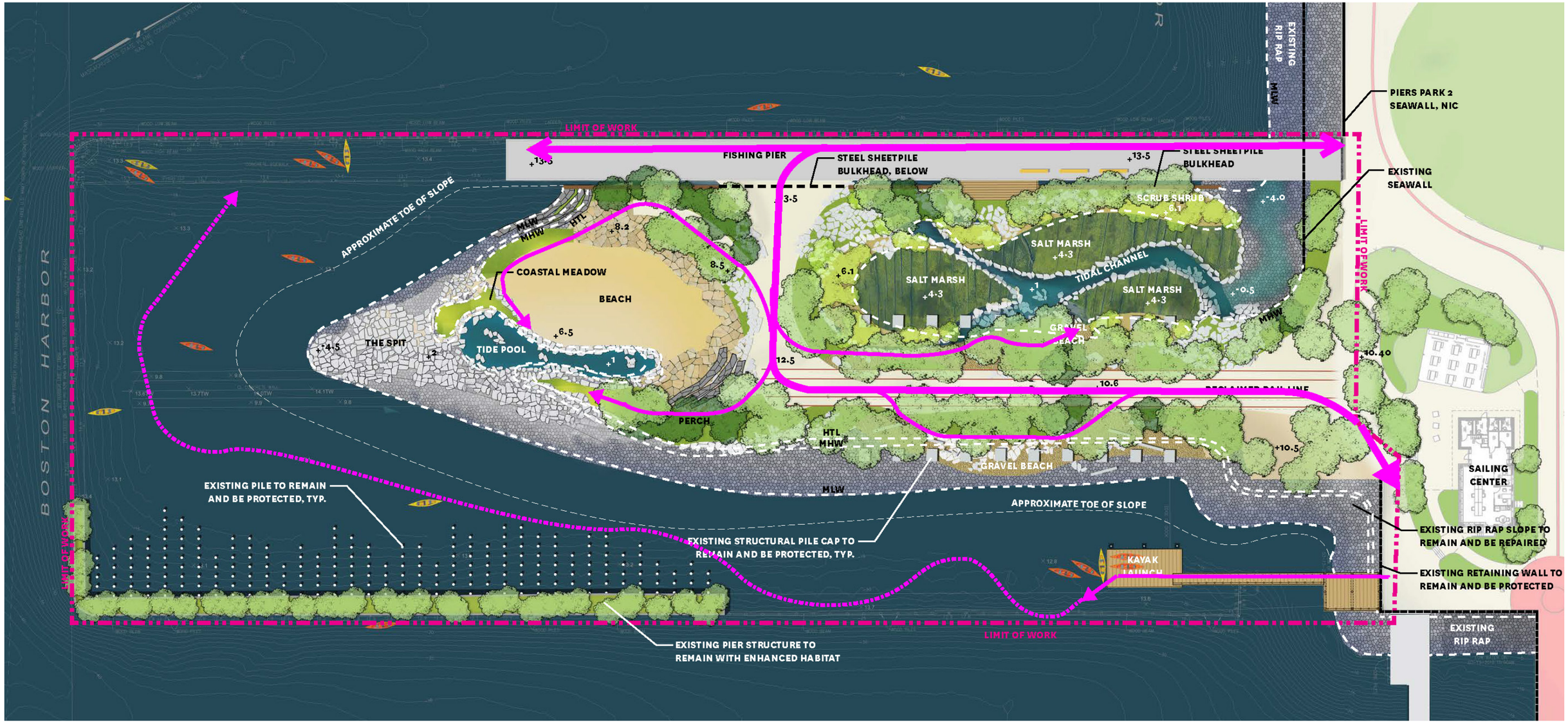


Figure 7-3
Proposed Circulation Diagram
Source: MVVA, 2022

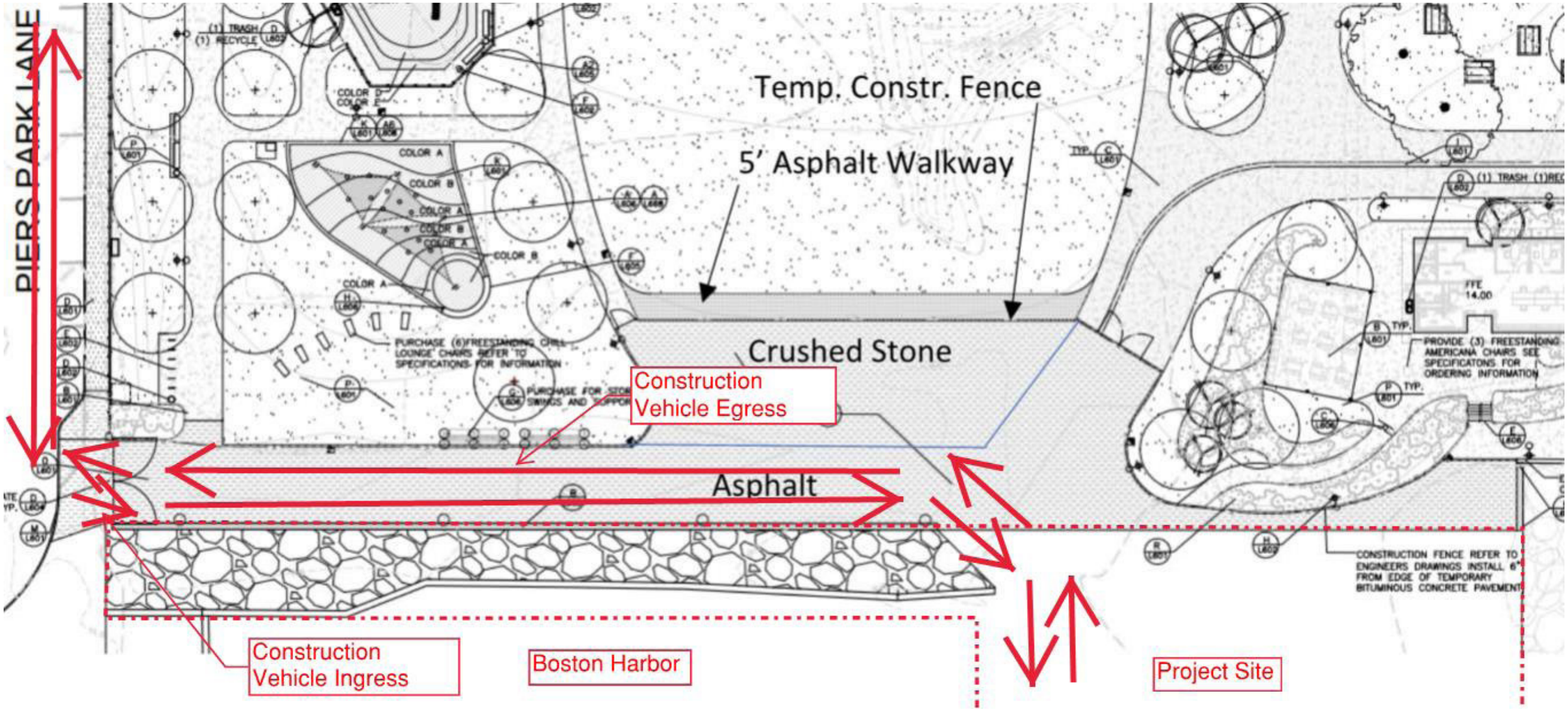
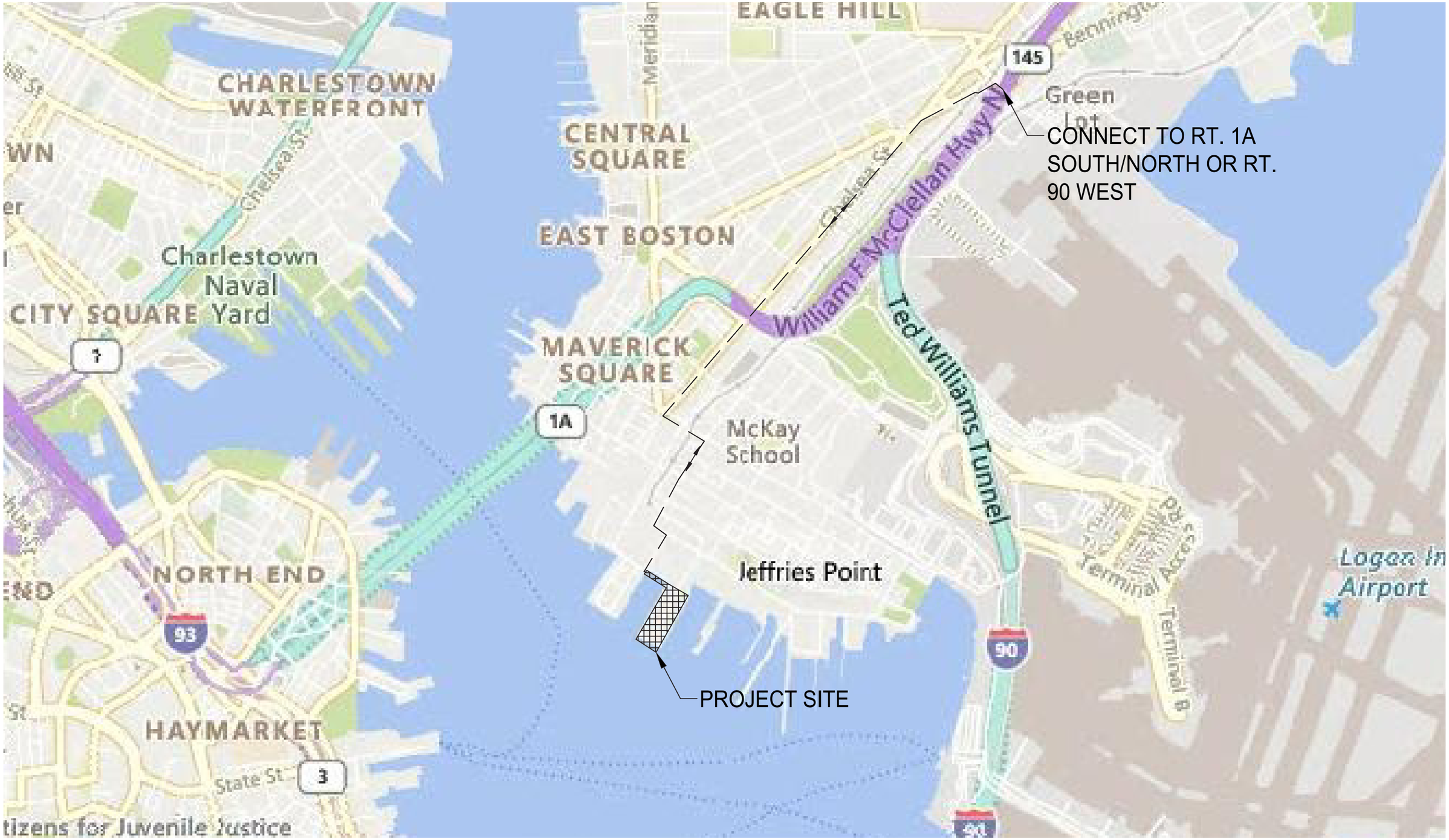


Figure 7-4
Proposed Construction Access Exhibit
Sources: Kleinfelder, 2022; Fort Point Associates, Inc., 2022



East Boston, Massachusetts

Figure 7-5
Proposed Truck Routes Exhibit
Source: Fort Point Associates, Inc., 2023

Chapter 8

INFRASTRUCTURE

CHAPTER 8: INFRASTRUCTURE

8.1 INTRODUCTION

The Project Site is not currently serviced by utilities and is proposed to only be serviced by water, drainage, and private electric utilities. This chapter addresses the existing and proposed water, stormwater, wastewater, electric, and natural gas usage and infrastructure as well as the Project's compliance with the MassDEP Stormwater Management Standards.

8.2 WATER SYSTEM

There is no existing water infrastructure within the Project Site but there are connections for water services which will be available through the Piers Park II redevelopment. There will be stubs provided for future service connections along the limit of work of Piers Park II for a 4″ domestic water line and 6″ fire protection water line for the Piers Park III development. See Figure 8-1, Existing BWSC Infrastructure Exhibit. The Proponent will connect to these water lines to service fire hydrants, yard hydrants, bottle-filling stations, and irrigation needed on-site using ductile iron piping and fittings with resilient wedge gate valves. The Proponent will use a temporary irrigation system to support the growth of salt-tolerant plantings until the full establishment after construction. The Project does not include any buildings or structures requiring a water supply and the occasional daily water use at the Project is estimated to be approximately 100 gpd. If additional water service is needed to service the Project Site, there are existing BWSC 12″ ductile iron cement-lined water mains in Piers Park Lane and Marginal Street.

8.3 STORMWATER SYSTEM

Within the Project Site, there is no existing infrastructure for stormwater management. There is existing stormwater infrastructure, owned by BWSC, within Piers Park Lane and Marginal Street, consisting of an existing 42″ storm drainage pipe and a 30″ storm drainage pipe, respectively. See Figure 8-1, Existing BWSC Infrastructure Exhibit. Piers Park II will not include any stormwater infrastructure to serve Piers Park III.

The Project proposes to manage all stormwater on-site and to discharge appropriately treated stormwater to Boston Harbor through park landscape features. The Project will install corrugated polyethylene piping, catch basins, manholes, area drains, filtration trenches, lined bioretention basins, a detention tank with submersible pump with PVC force main, and Tideflex check valves. Stormwater will be collected by area drains, catch basins, and filtration trenches on-site. The filtration trenches will collect, filter, and convey stormwater runoff with a surface trench excavated and filled with washed crushed stone, a perforated pipe and an impermeable liner, to prevent the recharge of runoff into filled soils. Lined bioretention

basins, or biofilters, will be proposed for the Project as depressions within the Project Site with well-draining soils, crushed stone, pea stone, coarse sand, perforated underdrainage, impermeable liner and plantings to contain and treat the water quality volume for runoff. A detention tank will be installed underground with a submersible pump and force main to convey treated stormwater to the tide pools to flush out accumulated sediments after rainfall events. Stormwater infrastructure will be linked via a network of corrugated polyethylene piping and drainage manholes. Tideflex check valves will be incorporated into the closed drainage system to prevent backflow from ocean water during extreme storm events.

8.3.1 COMPLIANCE WITH DEP STORMWATER STANDARDS

The following section describes Project compliance with MassDEP Stormwater Management Standards, as outlined in the Wetlands Regulations.

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

Compliance: The Project will fully comply with this Standard. With stormwater treatment measures, such as biofilters and filtration trenches in place, the Project will not discharge untreated stormwater into wetlands or waters of the Commonwealth. In this manner, the Project will not adversely affect adjacent parcels or wetlands or waters of the Commonwealth such as direct discharge of untreated stormwater.

Standard 2: Peak Rate Attenuation - Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Compliance: Although Standard 1 requires peak runoff rate mitigation such that the proposed peak does not exceed the existing peak, the Proponent understands that this standard does not apply, given that the Project discharges to LSCSF.

Standard 3: Recharge - Loss of annual recharge to groundwater shall be eliminated and at a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume in accordance with the DEP Stormwater Handbook.

Compliance: On the Project Site today, ground water recharge is limited to the small area of solid fill in the north central part of the site. As the Project is proposing to create additional land area over the existing water sheet, the Proponent requests that Standard 3 be waived considering that proposed site conditions will not allow for groundwater recharge. The high groundwater levels and poor soil conditions at the

Project Site will limit infiltration of runoff but the Project will meet recharge requirements to the maximum extent practicable. The Proponent also understands that the Project will be required to treat the volume of runoff equal to 1.25 inches of rainfall times the total impervious area on site ("Water Quality Volume").

Standard 4: Water Quality - Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). The standard is met with pollution prevention plans, stormwater BMPs sized to capture required water quality volume, and pretreatment measures.

Compliance: To meet Standard 4, the Proponent proposes the use of biofilters and filtration trench systems to treat stormwater from paved surfaces within adjacent landscaped areas prior to discharging into Boston Harbor. Biofilters shall be planted depressions underlain with well-drained planting soils and a stone underdrain system. The biofilters on the infill land should be lined using an impermeable liner. The surface depression is sized to contain the Water Quality Volume for the runoff directed to the basins. The filtration trenches are systems that collect, filter (treat), and convey stormwater runoff from impervious and pervious surfaces within the park. Impermeable surfaces are designed to slope towards boulder, stone, and planted areas within the park landscape. These areas will include area drains with sumps that will direct collected water to the filtration trench below. The filtration trench will consist of a trench of washed crushed stone with a perforated pipe and will be lined with an impermeable liner.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs) - Source control and pollution prevention shall be implemented in accordance with the Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable or provide specific structural BMPs determined by the Department to be suitable for such uses.

Compliance: The Project is not considered a LUHPPL. Standard 5 is not applicable to this project.

Standard 6: Critical Areas - Stormwater discharges to critical areas require the use of specific source control and pollution prevention measures and specific structural stormwater best management practices determined by DEP to be suitable for managing discharges to such areas.

Compliance: The Project is not located within the Zone II or Interim Wellhead Protection Area of a public water supply; is not within or near any other critical areas and will not discharge stormwater to an Outstanding Resource Water, Special Resource Water, or to a Zone I or Zone A of a public water supply.

Standard 7: A Redevelopment Project is Required to Meet Standards 1-6 only to the Maximum Extent Practicable - Remaining standards shall be met as well as the project shall improve the existing conditions.

Compliance: The Project Site is considered a Redevelopment Project and will meet Standards 1-6 to the maximum extent practicable.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan shall be Implemented.

Compliance: Erosion and sediment controls will be included in the permit plans, and the Contractor will be responsible for implementation and maintenance of all erosion control measures for the duration of construction.

Standard 9: A Long-Term Operation and Maintenance Plan Shall be Implemented.

Compliance: A Long Term Operation and Maintenance Plan will be implemented for the Project.

Standard 10: Prohibition of Illicit Discharges – Illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will not have any illicit discharges. An Illicit Discharge Compliance Certification will be prepared and included in the Notice of Intent filing to the Boston Conservation Commission.

8.4 WASTEWATER SYSTEM

There is no existing wastewater generation or sewer infrastructure within the Project Site. The Piers Park II project consists of improvements to the wastewater infrastructure servicing the Piers Park Sailing Center as well as a 6″ sewer line connection stub for the Project, if needed. The Project will not contain restrooms or wastewater facilities and therefore does not propose wastewater infrastructure at the Project Site. Public restrooms are available for visitors to use at the adjacent Piers Park visitor center and the Sailing Center. If additional services are needed to serve the Project Site beyond the 6″ sewer stub, there is existing BWSC wastewater infrastructure within Piers Park Lane and Marginal Street, consisting of a 12″ polyvinyl chloride sewer main and 15″ sewer main, respectively.

8.5 ELECTRICAL AND TELECOMMUNICATION SERVICES

The Project Site is not currently serviced with electrical and telecommunication services. The proposed underground electrical improvements include the installation of conduits to service new light poles, security cameras, and receptacles for event power on-site. The proposed electrical connections will be coordinated with each respective utility provider.

8.6 NATURAL GAS SYSTEM

The Project Site does not require natural gas service.

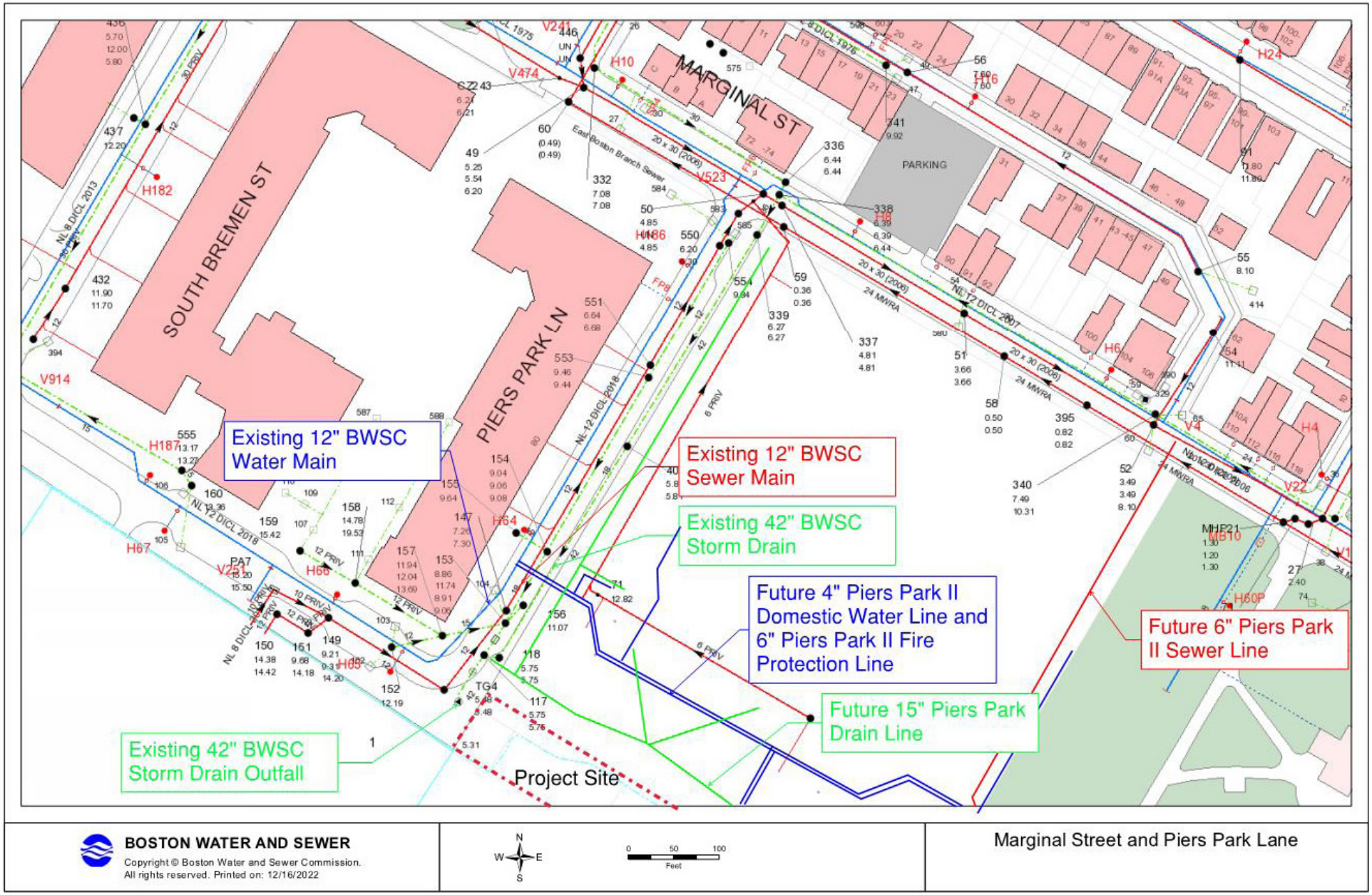


Figure 8-1
Existing BWSC Infrastructure Exhibit
Sources: BWSC, 2022; Fort Point Associates, Inc., 2022

Chapter 9

HISTORIC RESOURCES

CHAPTER 9: HISTORIC RESOURCES

9.1 INTRODUCTION

The Proponent proposes to propose to create a world-class public park on the site of an abandoned and degraded pier on the East Boston waterfront. An area of potential effect ("APE") of one-quarter mile has been analyzed for the purposes of identifying historic resources and assessing potential project-related impacts. A review of the Massachusetts Historical Commission ("MHC") inventory revealed one National Register of Historic Places property and 132 inventoried historic properties within the APE.

9.2 HISTORIC AND ARCHAEOLOGICAL RESOURCES IN THE VICINITY

The Project Site does not contain any known structure, site, or building listed or potentially eligible for listing on the National Register of Historic Places or the State Register of Historic Places. The Project Site is not within a National Register Historic District, nor is it within a historic district that has been identified as potentially eligible for the National Register.

An APE of one-quarter mile has been analyzed for the purposes of identifying historic resources and assessing potential project-related impacts. A review of the MHC inventory revealed five inventoried areas and 132 extant inventoried historic properties within the APE. None of these structures are listed on the National Register of Historic Places.

Historic inventory areas and resources within the APE are described in Table 9-1 and shown in Figure 9-1, Historic Resources.

Table 9-1: Historic Inventory Areas Listed on MACRIS

#	Name/Location	Description of Resource	Significance	Impact of Project on Resource
BOS.AA	Our Lady of the Assumption Catholic Church Complex	Our Lady of the Assumption Church, the rectory, and 402 and 404 Sumner Street	One of four extant churches in Boston	N/A
BOS.A	Belmont Square Area	Residential area developed between the 1840s and 1890s	One of the first lots sold by the East Boston Company in 1833	N/A
BOS.B	1-6 Brigham Street – Ida Street	Four brick bowfront at 1, 2, 4, and 6 Brigham Street that face Boston Harbor	Only survivals of an 1840s row of 10	N/A

#	Name/Location	Description of Resource	Significance	Impact of Project on Resource
BOS.AFD	Belmont District	19th century development of East Boston	Retains elements of the neighborhoods original 1833 plan	N/A
BOS.M	Maverick Square Area	Commercial blocks with residence above	Oldest commercial focus in East Boston	N/A

Table 9-2: Individual Historic Inventory Properties Listed on MACRIS

#	Name	Address	Significance	Impact of Project on Resource
BOS.18092		216R Marginal St	Architecture;	N/A
BOS.18152		131 Webster St	Architecture;	N/A
BOS.218	Allen, Samuel Row House	181 Webster St	Architecture;	N/A
BOS.18097		10 Noble Ct	Architecture;	N/A
BOS.18141		2 Webster Ave	Architecture;	N/A
BOS.18168		178 Webster St	Architecture;	N/A
BOS.18110	Livingstone, Celia Three Decker	363 Sumner St	Architecture;	N/A
BOS.18155	Miller, F. F. Double House	147 Webster St	Architecture;	N/A
BOS.18140		1 Webster Ave	Architecture;	N/A
BOS.18154	Otis, H. Three Decker	143 Webster St	Architecture;	N/A
BOS.18120		372 Sumner St	Architecture;	N/A
BOS.217	Sawyer, Asa Row House	179 Webster St	Architecture;	N/A
BOS.18119		370-372 Sumner St	Architecture;	N/A
BOS.18166		174 Webster St	Architecture;	N/A
BOS.18167		176 Webster St	Architecture;	N/A
BOS.18179		215 Webster St	Architecture;	N/A
BOS.18175	Arthur, Thomas House	201 Webster St	Architecture;	N/A
BOS.223		191 Webster St	Architecture;	N/A
BOS.18147		8 Webster Ave	Architecture;	N/A
BOS.18149		11 Webster Ave	Architecture;	N/A
BOS.210	Hennessey, Richard – Martin, Elbridge Double House	210-212 Webster St	Architecture;	N/A
BOS.184		3-5 Seaver St	Architecture;	N/A

#	Name	Address	Significance	Impact of Project on Resource
BOS.18128	Moore, E. A. House	389 Sumner St	Architecture;	N/A
BOS.18170		184 Webster St	Architecture;	N/A
BOS.18090	Jones, Maria House	3 Lamson St	Architecture;	N/A
BOS.18101		349 Sumner St	Architecture;	N/A
BOS.18162	Thacher, E. N. Double House	162 Webster St	Architecture;	N/A
BOS.18116		366-368 Sumner St	Architecture;	N/A
BOS.15		2 Brigham St	Architecture;	N/A
BOS.18111		364 Sumner St	Architecture;	N/A
BOS.18143		4 Webster Ave	Architecture;	N/A
BOS.18153	Otis, H. Three Decker	141 Webster St	Architecture;	N/A
BOS.18104		354 Sumner St	Architecture;	N/A
BOS.17		6 Brigham St	Architecture;	N/A
BOS.18159		156 Webster St	Architecture;	N/A
BOS.18118	Reppucci, N. and G. Apartments	369-373 Sumner St	Architecture;	N/A
BOS.18094		6 Noble Ct	Architecture;	N/A
BOS.14		1 Brigham St	Architecture;	N/A
BOS.18096	Breksson, J. House	9 Noble Ct	Architecture;	N/A
BOS.18163		166 Webster St	Architecture;	N/A
BOS.224		193 Webster St	Architecture;	N/A
BOS.213	Murphy, William M. House	103 Webster St	Architecture;	N/A
BOS.18132		412 Sumner St	Architecture;	N/A
BOS.18126		383-385 Sumner St	Architecture;	N/A
BOS.18157		154 Webster St	Architecture;	N/A
BOS.18178		211-213 Webster St	Architecture;	N/A
BOS.37	Fitzpatrick, Andrew Three Decker	5 Lamson St	Architecture;	N/A
BOS.18091		210 Marginal St	Architecture;	N/A
BOS.18130		408 Sumner St	Architecture;	N/A
BOS.18087		10 Cheever Ct	Architecture;	N/A
BOS.18099		7 Sumner Pl	Architecture;	N/A
BOS.18112	Finn, L. Three Decker	365 Sumner St	Architecture;	N/A

#	Name	Address	Significance	Impact of Project on Resource
BOS.189	East Boston Engine #40 Fire House	260 Sumner St	Architecture; Community Planning; Politics Government;	N/A
BOS.18165		172 Webster St	Architecture;	N/A
BOS.18173		195-197R Webster St	Architecture;	N/A
BOS.185	Our Lady of the Assumption Catholic Church Parochial School	11-15 Seaver St	Architecture; Community Planning; Education; Religion;	N/A
BOS.18127	Moore, E. A. House	387 Sumner St	Architecture;	N/A
BOS.18106	Gottlieb, Louis Apartments	357 Sumner St	Architecture;	N/A
BOS.18093		4 Noble Ct	Architecture;	N/A
BOS.18142		3 Webster Ave	Architecture;	N/A
BOS.18084		5 Cheever Ct	Architecture;	N/A
BOS.18117	Nickerson, E. Three Decker	367 Sumner St	Architecture;	N/A
BOS.18131		410 Sumner St	Architecture;	N/A
BOS.18172		188 Webster St	Architecture;	N/A
BOS.18181		221 Webster St	Architecture;	N/A
BOS.18129		406 Sumner St	Architecture;	N/A
BOS.9836	Lightship No. 112 Nantucket	256 Marginal St	Education; Politics Government; Transportation;	N/A
BOS.18115	O'Brien, J. J. House	365R Sumner St	Architecture;	N/A
BOS.18122		378 Sumner St	Architecture;	N/A
BOS.18082		3 Brigham St	Architecture;	N/A
BOS.18184	Johnson, B. House	227 Webster St	Architecture;	N/A
BOS.903	Golden Stairs	Ruth St	Social History;	N/A
BOS.18176		205 Webster St	Architecture;	N/A
BOS.216		177 Webster St	Architecture;	N/A
BOS.69	Cooper, James W. House	132 Marginal St	Architecture;	N/A
BOS.18169		182 Webster St	Architecture;	N/A
BOS.191	Our Lady of the Assumption Roman Catholic Church	394 Sumner St	Architecture; Religion;	N/A
BOS.219	Abbott, E. A. Row House	183 Webster St	Architecture;	N/A

#	Name	Address	Significance	Impact of Project on Resource
BOS.18085		8 Cheever Ct	Architecture;	N/A
BOS.18182		223 Webster St	Architecture;	N/A
BOS.18161	Thacher, E. N. Double House	160 Webster St	Architecture;	N/A
BOS.18148		10 Webster Ave	Architecture;	N/A
BOS.18145		6 Webster Ave	Architecture;	N/A
BOS.68	Immigrants Home Corporation Building	72-74 Marginal St	Architecture; Community Planning; Ethnic Heritage; Social History;	N/A
BOS.18089		12 Cheever Ct	Architecture;	N/A
BOS.18177		207 Webster St	Architecture;	N/A
BOS.18150		12 Webster Ave	Architecture;	N/A
BOS.18113	Emerson, S. E. House	365R Sumner St	Architecture;	N/A
BOS.18095	Anderson, A. and H. House	7 Noble Ct	Architecture;	N/A
BOS.18108	Livingstone, Celia Three Decker	361 Sumner St	Architecture;	N/A
BOS.220	Bowker, Albert Row House	185 Webster St	Architecture;	N/A
BOS.18158		155 Webster St	Architecture;	N/A
BOS.18183	Smith, William House	225 Webster St	Architecture;	N/A
BOS.18121		376 Sumner St	Architecture;	N/A
BOS.18123		380 Sumner St	Architecture;	N/A
BOS.211	Cassady, Thomas – Brigham, Edward Double House	216-218 Webster St	Architecture;	N/A
BOS.18109		362 Sumner St	Architecture;	N/A
BOS.18102		351 Sumner St	Architecture;	N/A
BOS.190	Soldani Building	326-328 Sumner St	Architecture; Commerce;	N/A
BOS.18083		5 Brigham St	Architecture;	N/A
BOS.18086		9 Cheever Ct	Architecture;	N/A
BOS.18114	Murphy, W. and M. House	365R Sumner St	Architecture;	N/A
BOS.18164		168 Webster St	Architecture;	N/A
BOS.222	Bartlett, Ezra Row House	189 Webster St	Architecture;	N/A

#	Name	Address	Significance	Impact of Project on Resource
BOS.215	Adams, Samuel Public Elementary School	165 Webster St	Architecture; Community Planning; Education; Ethnic Heritage; Politics Government;	N/A
BOS.18171		186 Webster St	Architecture;	N/A
BOS.18081		1 Alna Pl	Architecture;	N/A
BOS.18088		11 Cheever Ct	Architecture;	N/A
BOS.18133	Falvey, Mary A. Three Decker	414 Sumner St	Architecture;	N/A
BOS.18144		5 Webster Ave	Architecture;	N/A
BOS.15267	Our Lady of the Assumption Roman Catholic Church Rectory	404 Sumner St	Architecture; Religion;	N/A
BOS.16		4 Brigham St	Architecture;	N/A
BOS.18100		347 Sumner St	Architecture;	N/A
BOS.18151		15 Webster Ave	Architecture;	N/A
BOS.18124		381 Sumner St	Architecture;	N/A
BOS.18156	Miller, F. F. Double House	149 Webster St	Architecture;	N/A
BOS.35	Simmons, Charles Double House	1-2 Lamson St	Architecture;	N/A
BOS.18098		5 Sumner Pl	Architecture;	N/A
BOS.18125		382 Sumner St	Architecture;	N/A
BOS.18160		158 Webster St	Architecture;	N/A
BOS.906	Sumner Street Bridge over Conrail	Sumner St	Engineering; Transportation;	N/A
BOS.18134	Kelley, J. House	418 Sumner St	Architecture;	N/A
BOS.18146		7 Webster Ave	Architecture;	N/A
BOS.18103		353 Sumner St	Architecture;	N/A
BOS.18105		356 Sumner St	Architecture;	N/A
BOS.214	Foss, Abraham S. – Thompson, John Double House	135-137 Webster St	Architecture;	N/A
BOS.18107		358 Sumner St	Architecture;	N/A
BOS.18180		217 Webster St	Architecture;	N/A
BOS.36	Gillespie, Catherine R. Three Decker	4 Lamson St	Architecture;	N/A
BOS.221	Lothrop, Loring Row House	187 Webster St	Architecture;	N/A

#	Name	Address	Significance	Impact of Project on Resource
BOS.18174	Hall, Samuel House	199 Webster St	Architecture;	N/A
BOS.192	Woodbury Building	191-201 Sumner St	Architecture;	N/A

9.3 HISTORIC RESOURCES ASSESSMENT

The Project Site is located in proximity to one National Register of Historic Places and several inventoried historic properties. The Lightship No. 112 Nantucket (the "Nantucket") (BOS.9836) is located at 256 Marginal Street in the Boston Harbor Shipyard and Marina and is listed on the National Register. The Nantucket, built in 1936, is one of a small number of preserved American lightships. The inventoried property closest to the Project Site is the James W. Cooper House (BOS.69) at 132 Marginal Street. This multiple family dwelling house was built in 1870 and is considered by the MHC to be architecturally significant. The Project will not impact these structures. The Project similarly is not anticipated to affect any other historic properties within the APE of the Project Site, which are generally located to the north of Marginal Street. The historic inventory areas within the APE are the Belmont Square Area, 1-6 Brigham Street – Ida Street, Our Lady of the Assumption Catholic Church Complex, the Belmont District, and Maverick Square Area.

While the pier area and its former use as a shipping terminal is of historic interest, the existing structures are completely dilapidated and beyond any semblance of historic rehabilitation or repair. The Project will retain a portion of the northwesterly pier apron and a portion of the southeasterly corner of the pier (for ecological purposes) to provide a sense of the historic pier dimensions.

Figure 9-1
Historic Resources
Sources: MHC, 2022; Fort Point Associates, Inc., 2023

Chapter 10

SUMMARY OF MITIGATION MEASURES

CHAPTER 10: SUMMARY OF MITIGATION MEASURES

10.1 INTRODUCTION

The Project, as described in previous chapters, has incorporated numerous mitigation measures that respond to potential impacts related to EJ populations, climate change, wetlands and waterways, transportation, and construction. Mitigation areas include EJ population protection, climate change adaptation, wetland mitigation, and community benefits and services. Proposed mitigation measures are described in more detail below.

10.2 PUBLIC BENEFITS

As described in Chapter 1, significant and substantial public benefits will be realized with the construction and operation of the Project. These public benefits will help mitigate any adverse impacts resulting from the Project. These benefits include, but are not limited to:

- **Passive and Active Recreation**: The Project will provide direct access to the water with a unique perspective of the Downtown Boston skyline and Boston Harbor, multiple accessible running and walking paths to explore and experience the park, a kayak launch and deck, a fishing pier, and a community destination for gatherings and events.

- **Immersive Recreation:** The Project will create salt marshes, a tide pool, a coastal meadow, and a standalone enhanced marine habitat as part of the ecological design. Visitors can explore these native coastal ecologies on their own or through educational programming.

- **Climate Resilience**: The existing conditions of the Project Site include a dilapidated and unused pier. As described in Chapter 4, the Project will bring green infrastructure to Boston Harbor, modeling best practices and creating innovative natural solutions that demonstrate protection from flooding and inundation caused by sea level rise and other climate change impacts.

- **Water Quality Improvements**: The Project will utilize lined bioretention systems and filtration trench systems to treat stormwater from paved surfaces prior to discharging to Boston Harbor. As described in Chapter 8, these measures will substantially improve the quality of runoff from the Project Site.

10.3 ENVIRONMENTAL JUSTICE

As described in Chapter 3, the Project will mitigate potential impacts to EJ populations and will not cause any adverse effects to EJ populations compared to non-EJ populations. Mitigation efforts stated previously will reduce potential impacts on EJ populations, and the Project will bring similar benefits to both EJ and non-EJ populations. Mitigation efforts include:

- Reducing air quality impacts during the construction-period, including using diesel retrofitted equipment, wetting down areas during construction, appropriate mufflers on all equipment to reduce noise, turning off idling equipment, replacing specific operations and techniques with less noisy ones, implementing a CMP, and following all local, state, and federal regulations concerning construction.

- Prioritizing the project benefits to ensure they are realized for EJ communities by involving East Boston residents throughout the design phase.

- Implementing climate resiliency measures to protect nearby EJ communities from future climate change impacts including coastal storm surge flooding to the maximum extent practicable.

- Providing public health benefits to EJ communities by expanding opportunities to engage in exercise and outdoor activities and providing connections to existing Harborwalk and Greenway pathways.

- Continuing to engage with residents, CBO's, tribal organizations, government agencies, and other relevant stakeholders throughout the Project's design, construction, and operation phases to ensure that concerns and priorities from both EJ and non-EJ communities are heard and incorporated into the Project.

10.4 CLIMATE CHANGE AND RESILIENCY

As described in Chapters 1 and 4, the Project Site will be designed in a way to mitigate future climate change to the maximum extent possible. The Project Site is located on filled and flowed tidelands and adjacent to properties subject to coastal flooding. However, the Project Site is designed to withstand coastal flooding and adapt to climate change impacts. The site design will mitigate future climate change by:

- Replacing a failing marine structure with a flood-tolerant stone riprap shoreline.

- Increasing vegetation at the Project Site, which resists and reduces storm energy and provides protection from storm damage. This will protect adjacent properties by reducing wave energy and storm damage through natural landforms.

- Building landscapes that allow the Project to withstand the significant daily tidal range, projected sea level rise, storm events, and tidal flooding.

- Incorporating state recommended RMAT design criteria and MCFRM data in the design of flood resilience measures to account for future sea level rise.

10.5 WETLANDS MITIGATION

As described in Chapters 4 and 5, measures will be incorporated into the Project to contribute to improved water quality through stormwater infrastructure and mitigation controls in order to reduce impacts of the Project on wetland resource areas. These efforts include:

- Creating new wetland resource areas including a living shoreline with salt marsh, a coastal beach, vegetated shoreline, and a tide pool.

- Removing degraded timber pilings from most of the subtidal and intertidal portions of the Project Site, and any associated debris that would impact the quality of these resource areas.

- Implementing control measures during construction such as turbidity curtains, following time-of-year restrictions, wetting down areas to control dust, straw bales, and siltation fences to protect wetland resource areas.

- Upgrading the existing stormwater system which will comply with MassDEP stormwater standards and improve water quality discharging into Boston Harbor.

- Implementing stormwater treatment devices such as green stormwater infrastructure, lined bioretention basins, and a detention tank.

10.6 CONSTRUCTION MITIGATION

As described in Chapter 7, traffic impacts of the Project are minimal. However, efforts will be made to reduce the traffic and transportation impacts of the Project on the surrounding community. The Project Team has identified specific mitigation measures below:

- The Proponent will coordinate with Massport during the construction period of the Project and will implement a CMP.

- Scheduling of construction periods and deliveries of materials to coincide with off-peak travel periods of nearby roadways.

- Restricting jobsite personnel from parking personal vehicles at the Project Site. Jobsite personnel will be encouraged to utilize public transportation due to the proximity to numerous MBTA options.

Attachment A

CHILDS ENGINEERING ASSESSMENT

5.4 - Ecological Assessment

Piers Park III

Boston, MA

Dive/Site Inspection Report

April 2019

Submitted to:

The Trustees

200 High Street

Boston, MA 02110

Submitted by:

Childs Engineering Corporation

34 William Way

Bellingham, MA 02019

TABLE OF CONTENTS

Piers Park III

Boston, MA

Dive/Site Inspection Report

Submitted by:

Childs Engineering Corporation

34 William Way

Bellingham, MA 02019

508-966-9092

www.childseng.com

CEC Project: 2862-19.00

Date of Inspection: April 2, 2019

1.0 Introduction

Childs Engineering Corporation conducted an underwater investigation of the remaining Piers Park III pier in Boston Harbor in Boston, MA on April 2, 2019. The investigation was conducted by a 4 person team of our engineers, and included an overall underdeck, and underwater inspection of existing pier structure. The inspection was intended to assess the general condition of the concrete deck apron, the timber deck, the concrete pedestals, the timber sub structure, the timber piles, the timber fender system, the earth core, and the seawall.

2.0 Site Description

Piers Park III, also know as Massport Pier 3, is located in East Boston, along the Boston Main Channel and extends southwesterly into Boston Harbor. The pier structure is roughly 650 feet long by 255 feet wide and is primarily supported by timber piles with timber and concrete structural components. Along the perimeter of the pier is a concrete apron, also supported by timber piles. The northwest length of apron consists of a concrete deck with integral edge beams and pile caps. The southeast and outshore length of apron consist of a concrete deck with intermediate concrete pedestals supporting the deck and mooring bollards. The pier is also subdivided by vertical concrete partition/firewalls, typically quartered at 215 feet by 125 feet areas.

The inshore portion of the structure has a granite block seawall, with a concrete cap, that runs perpendicular to the pier; and has an earth filled core along the centerline of the pier extending outshore roughly half its overall length. This core region of the pier was historically retained by a granite block wall along the outshore portion of the core, and a timber bulkhead along the northwest length of the core. The southeast length of the core is presumably retained by the existing rip rap slope. Along the length of the interior core are large concrete pedestals within the rip rap slope.

Historically the structure, and the property itself, have gone through several iterations of rehabilitation and repurpose during its lifetime, and as of late is essentially abandoned. A continuing effort to reuse the pier, in some capacity, is desired.

3.0 Terminology

3.1 Terminology

The following list are commonly used terms in this report:

Sub Structure – Structural components beneath the deck of the pier. Excluding piles in the context of this report. Examples being pile caps, bracing, posts, beams, blocking, and cribbing members.

Pedestals – Structural components that, in the context of this report, act as a foundation supported by piles themselves.

Open Corrosion Spall – Concrete spalling caused by the reinforcing steel forming corrosion by-product around its surface within the concrete section, resulting in the concrete cover debonding and exposing the reinforcing steel.

Disintegration – A condition where the concrete cement/paste breaks down and erodes, exposing the aggregate within the concrete.

Marine Borer – Damaged caused by crustacean/mollusks that eat away timber components that are submerged, resulting in advanced deterioration.

Satisfactory Condition – Minor to moderate defects and deterioration observed, but no overstressing observed.

Fair Condition – Minor to moderate defects and deterioration observed. Localized areas of moderate to advanced deterioration may be present but do not significantly reduce the capacity of the structural.

Poor Condition – Advanced deterioration or overstressing observed on widespread portions of the structure.

Serious Condition – Advanced deterioration, overstressing observed, or breakage may have significantly affected the capacity of primary structural components. Local failures are possible.

Critical Condition – Very advanced deterioration, overstressing observed, or breakage has resulted in localized failures of the primary structural components. More widespread failures are likely to occur.

4.0 Inspection Findings

4.1 Summary of Findings

The inspection found the pier overall is in critical condition. The apron structure, around the perimeter of the pier, varies from poor to satisfactory condition. Most of the pier deck structure is missing due to widespread failure. The interior and apron concrete pedestals are in fair to poor condition respectfully. The timber sub structure and timber piles vary from critical to satisfactory condition, based on specific regions located throughout the pier. The timber fender system, around the perimeter of the pier, is in fair to poor condition. The inshore seawall is in fair to satisfactory condition. In general, concrete components were noted to have cracks, spalling, and disintegration; while timber components were noted to have marine borer, fungal decay, displacement, and missing members.

The mudline below water, beneath the pier, was observed to be typically soft and silty with sporadic debris. However, in specific areas near the earth core and concrete partition/firewalls, there was notable more debris. The mudline around the earth core is rip rap, which consists of various sloped and sized dumped stone/earth material.

4.2 Concrete Deck Apron

The apron around the perimeter of the pier consists of two different construction types of a concrete deck; a newer section on the northwest length of the pier, and an older section on the outshore and southeast lengths of the pier.

The concrete deck apron along the outshore and southeast side of the pier is generally in poor condition with widespread open corrosion spalling of the underdeck, typically in 8 square foot patches revealing the bottom reinforcing steel. This type of defect normally compromises the structural integrity of the deck. In some instances, the open corrosion spalls have completed deteriorated through the deck, see Photo 1.

The concrete deck apron along the northwest side of the pier is generally in satisfactory condition with no major defects noted. Minor cracking of the concrete was observed but is common with aged concrete and does not significantly reduce the structural integrity. See Photo 2.

4.3 Timber Deck

Most of the timber decking for the pier is missing, and any remnants of decking is generally in critical condition, see Photo 3. There is small region of timber decking inshore at the north corner of the pier, adjacent to the seawall, that is in fair condition.

4.4 Concrete Pedestals

There are two typical types of concrete pedestals; the large interior pedestals and the pedestals beneath the concrete apron supported by timber cribbing. The concrete pedestals were observed to have moderate to advance deterioration. Defects include cracks, spalling, and disintegration of concrete.

The large interior concrete pedestals are in fair condition overall. They were observed to have 1/4 inch softness with exposed aggregate, and cement with a pasty consistency in places in the tidal zone, see Photo 4. The concrete above the tidal zone generally appears to be sound. The 3rd interior concrete pedestal inshore on the southeast side of the pier has an approximate 60 square foot area of disintegration, 2 feet deep, located in the tidal zone.

The concrete pedestals beneath the concrete apron are in fair to poor condition overall. They were observed to have areas of corrosion spalling, cracking, and general disintegration of concrete exposing the aggregate. See Photo 5.

4.5 Timber Sub Structure

The timber sub structure overall is in serious to critical condition with advanced deterioration observed, and missing members noted. Some timber post, framing, and cribbing members were noted to be in fair condition beneath the apron, however the adjoining timber pile cap and bracing members typically showed moderate to advance deterioration. The pile caps were observed to generally have widespread fungal decay with significant section loss. See Photos 6 through 10.

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4.6 Timber Piles

The interior timber piles, inside the pier apron for the inshore 2/3rds portion of the pier, are in critical condition and typically have severe section loss due to marine borer and fungal decay. However, the first 5 timber piles from the berth beneath the southeast apron generally are in satisfactory condition with 1/8th inch softness and minor marine borer in the tidal zone. While the first 8 timber piles from the berth beneath the northwest apron generally are in satisfactory condition. These apron piles appear to be creosote treated. It was noted that typically the apparent condition of the above water, usually resembled the condition below water. See Photos 11 through 15.

The timber piles outshore of the earth core begin to improve condition wise with the first 8 timber piles from the southeast berth, and the first 13 timber piles from the northwest berth, generally being in satisfactory condition.

The timber piles outshore, past the transverse concrete partition/firewall, are generally in satisfactory condition with approximately 5 to 10 percent of the piles being missing or displaced, see Photo 16. It was noted that 50 percent of these outer timber piles typically have minor ice damage, 3 to 5 feet in the tidal zone.

The timber batter piles along the southeast apron were observed to typically have a 1 to 2 inch gap between the top of the pile and the timber chock above it, making them essentially non-bearing. The timber batter piles along the northwest berth were observed to not have the upper timber chock above it; this modification may have occurred when this section of pier was reconstructed. See Photos 17.

4.7 Timber Fender System

The timber fender system consists of pile caps, chocks, and fender piles and is in fair to poor condition. Missing sections of the fender piles were noted along the southeast berth. It was observed that the tops of the timber fender piles were typically split between the connection hardware. The timber fender piles also have abrasion, and marine borer damage, generally in the tidal zone. This condition appeared to be more prevalent for the outshore half of the pier and the northwest berth. See Photos 18 and 19.

4.8 Earth Core

The earth core was inspected with limited access from the water. There is a granite block wall along the outshore end of the earth core. It was observed to have some displaced and missing blocks. The perimeter of the interior earth core is surrounded by rip rap, which consists of various sized dumped stone/earth material. See Photo 20.

A geotechnical investigation would better conclude an engineering assessment.

4.9 Seawall

The inshore seawall is in fair to satisfactory condition with typically 2 to 6 inch voids observed between blocks. There are 5 to 6 courses of granite blocks that vary in size and gradually become buried the closer it is to the earth core, see Photo 21. At the bottom of the seawall, there is a timber formed poured concrete toe. The granite blocks were noted to have approximately 50 percent of its chinking stone missing.

It was also noted that there is an approximate 30 long replacement section concrete seawall with a timber fascia adjacent to the north corner of the pier, see Photo 22.

5.0 Recommendations

5.1 Summary of Recommendations

The pier structure will require varying levels of rehabilitation in order to recuse it in any manner. In addition, a continuing maintenance effort is recommended, once restored/repurposed, to ensure the future structural integrity is not compromised. While the pier no longer can support its original design loads, there may be potential to reuse portions of the structure with a reduced designed capacity. The following summarizes our recommendations, with the presumption that the intent is to salvage the existing components.

It is recommended that the concrete deck apron along the outshore and southeast side of the pier be replaced entirely due to the extent of its overall condition. The concrete deck apron on the northwest side of the pier is better condition compared to the other concrete components of the pier and would require minimal concrete repair work.

The timber piles, generally beneath the concrete apron and the outshore portion of the pier, may be salvaged. The timber components above the piles, (the pile caps, bracing, posts, beams, blocking, and cribbing), are essentially unsalvageable in the grand scope. Some selective sections of timber framing beneath the older section of the concrete apron may be repurposed depending on the use; but overall, we recommend replacing them. Typically, the interior older timber piles, with advanced deterioration, are not economically feasible to repair.

The interior concrete pedestals may be salvaged with repairs to deteriorated areas using appropriate concrete restoration methods. The concrete pedestals beneath the concrete apron may be salvaged in the same previous manner. However, since these components are integral with the concrete deck; it may be more economical to remove them with the deck that they are associated with.

If the concept of reusing the fender system to berth vessels again is anticipated, it is recommended that the deteriorated timber fender piles, timber pile caps, and timber chocks be replaced in kind. We would also recommend that the southeast berth of the pier should have bearing reestablished, in some manner, between the batter piles and the associated vertical pile.

It is recommended that the prevailing seawall, beneath the pier, be repointed. This would help mitigate fill material, from behind the seawall, from washing out over time.

For all the recommended repairs mention, a marine contractor who is familiar with waterfront, specifically work in the tidal conditions, will have the ability to perform such work. Due to the cost of conducting repairs, we recommend that areas be prioritized based on necessity for conceptual design.

6.0 Summary

Based on our findings, Piers Park III is in critical condition overall. Generally, minor to very advanced defects and deterioration were observed throughout the structure, resulting in significant section loss to the affecting structural components. It is apparent that the pier has been neglected for many years and would require an extension effort if it were to be restored to its original capacity. However, there is potential to reuse the pier in some reduced conceptual manner, with the appropriate rehabilitation. If no action is taken, the pier will continue its course of deterioration to failure.

All recommended repairs and maintenance are dependent on the future use/intention of the structure. The existing timber piles and interior pedestals may be reused as foundations, but with limitations constrained by the structural capacity that is to be designed. The option of modernizing the pier completely, as a new structure, exists but the cost would obviously be far greater.

Childs Engineering Corporation appreciates the opportunity to present our findings and recommendations from our recent investigation. If you have any questions or comments on this report, please don't hesitate to contact the undersigned.

Respectfully submitted,

APPENDIX A
Photographs

Photo 1 – Open corrosion spalling under concrete apron deck on the southeast side of the pier.

Photo 2 – Typical condition of the concrete apron deck on the northwest side of the pier.

Photo 3 – Overall of missing decking to the outshore portion of the pier.

Photo 4 – Typical large interior concrete pedestal near the inshore portion of the pier.

Photo 5 – Typical concrete pedestal under deck apron on the southeast side of the pier.

Photo 6 – Timber sub structure framing under deck apron on the southeast side of the pier.

Photo 7 – Typical condition of timber cribbing beneath concrete pedestal with fungal decay.

Photo 8 – Deteriorated sections of timber pile cap and adjoining timber bracing under deck apron, on the southeast side of the pier.

Photo 9 – Typical condition of interior timber pile cap with fungal decay.

Photo 10 – Overall condition of interior timber pile cap and timber beams.

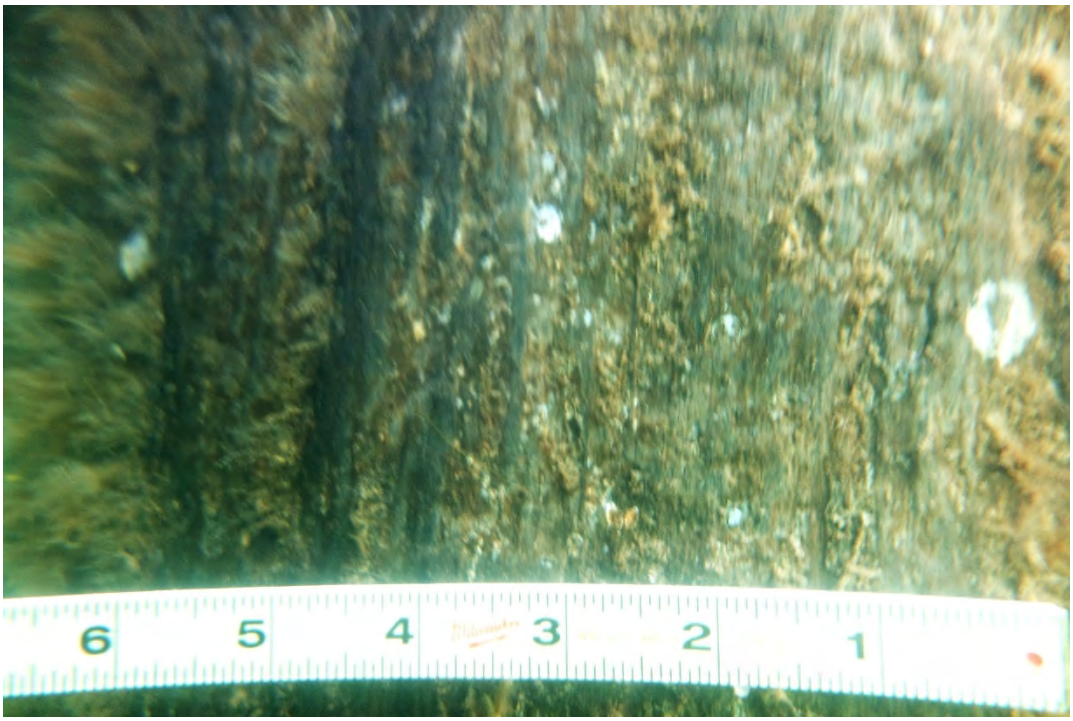


Photo 11 – Typical condition of timber pile below water.

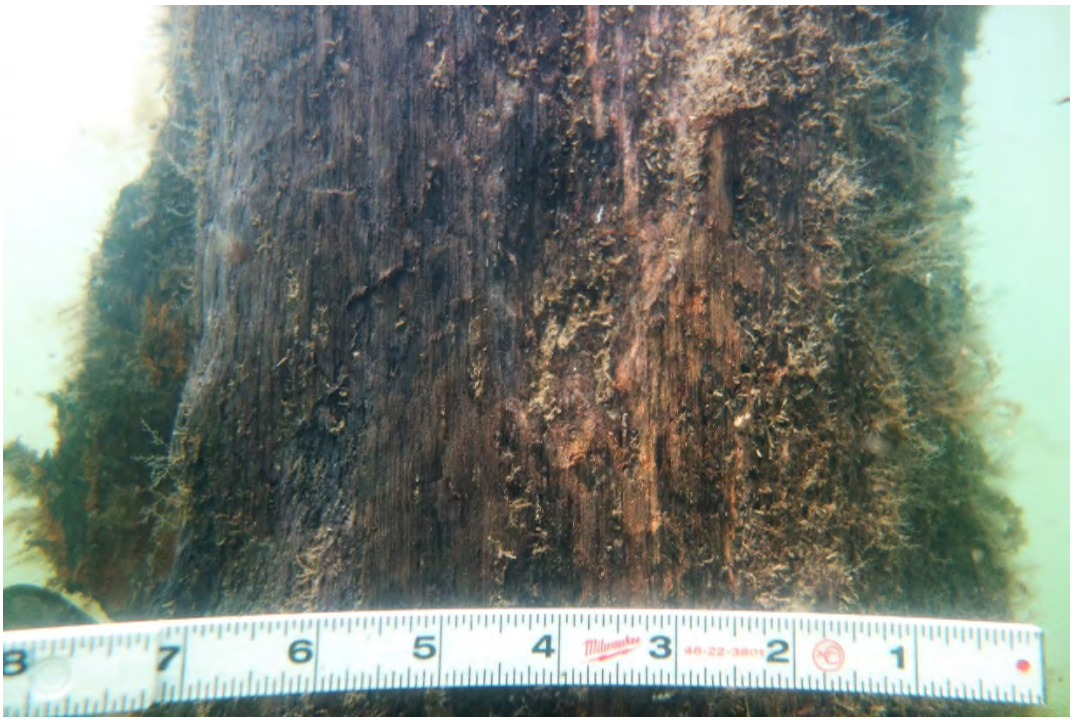


Photo 12 – Typical condition of interior pile below water with marine borer damage.

Photo 13 – Typical timber piles beneath the concrete apron of the southeast side of the pier.

Photo 14 – Typical timber piles beneath the concrete apron of the northwest side of the pier, looking South.

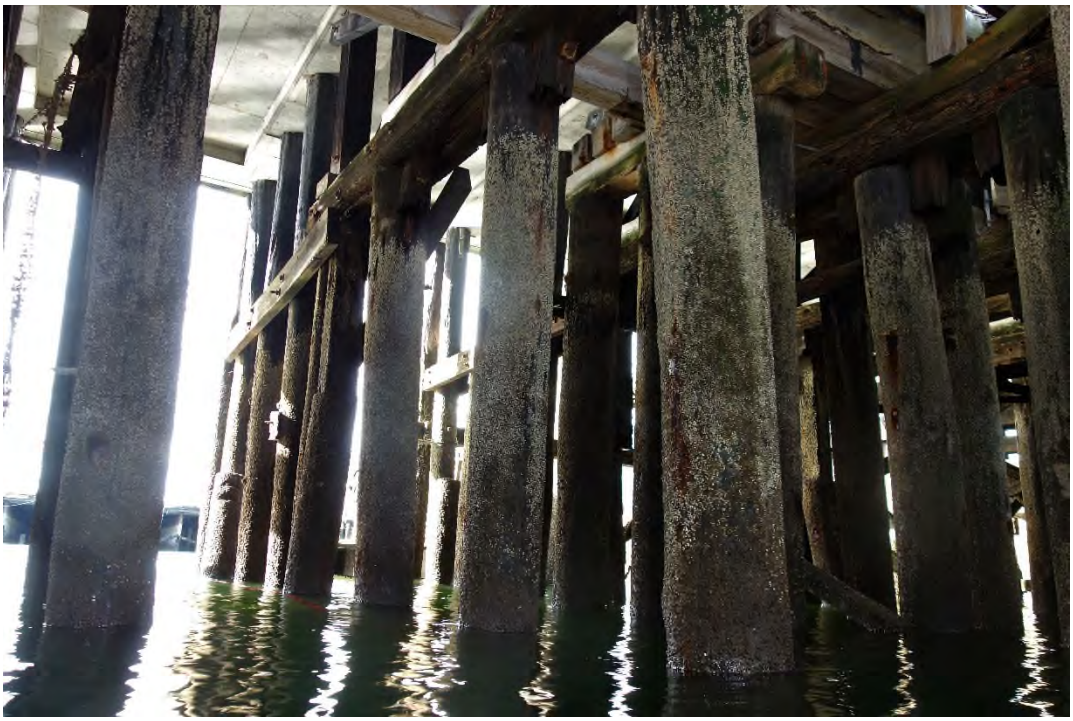


Photo 15 – Typical timber piles beneath the concrete apron of the northwest side of the pier, looking North.

Photo 16 – Overall condition of timber piles along a typical bent outshore of the pier.

Photo 17 – Timber batter pile along southeast side of the pier.

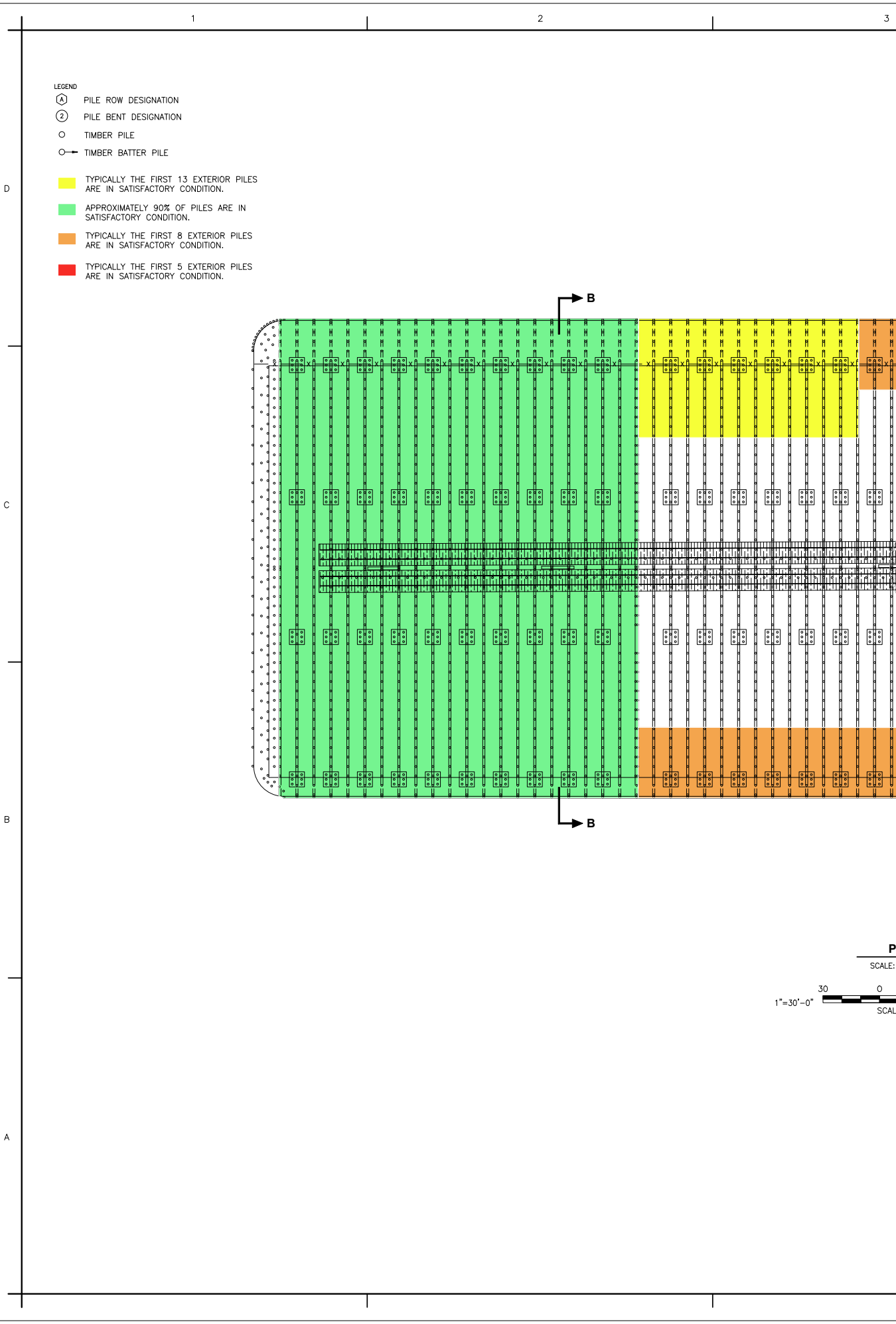
Photo 18 – Typical condition of timber fender system along the southeast berth of the pier.

Photo 19 – Timber fender pile along the northwest berth of the pier.

Photo 20 – Earth core on the northwest side of the pier, with debris and structural remnants.

Photo 21 – Granite block seawall beneath pier near the north corner.

Photo 22 – Seawall with rip rap near the north corner of the pier.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2 PILE BENT DESIGNATION
TIMBER PILE
TIMBER BATTER PILE
TYPICALLY THE FIRST 13 EXTERIOR PILES ARE IN SATISFACTORY CONDITION.
APPROXIMATELY 90% OF PILES ARE IN SATISFACTORY CONDITION.
TYPICALLY THE FIRST 8 EXTERIOR PILES ARE IN SATISFACTORY CONDITION.
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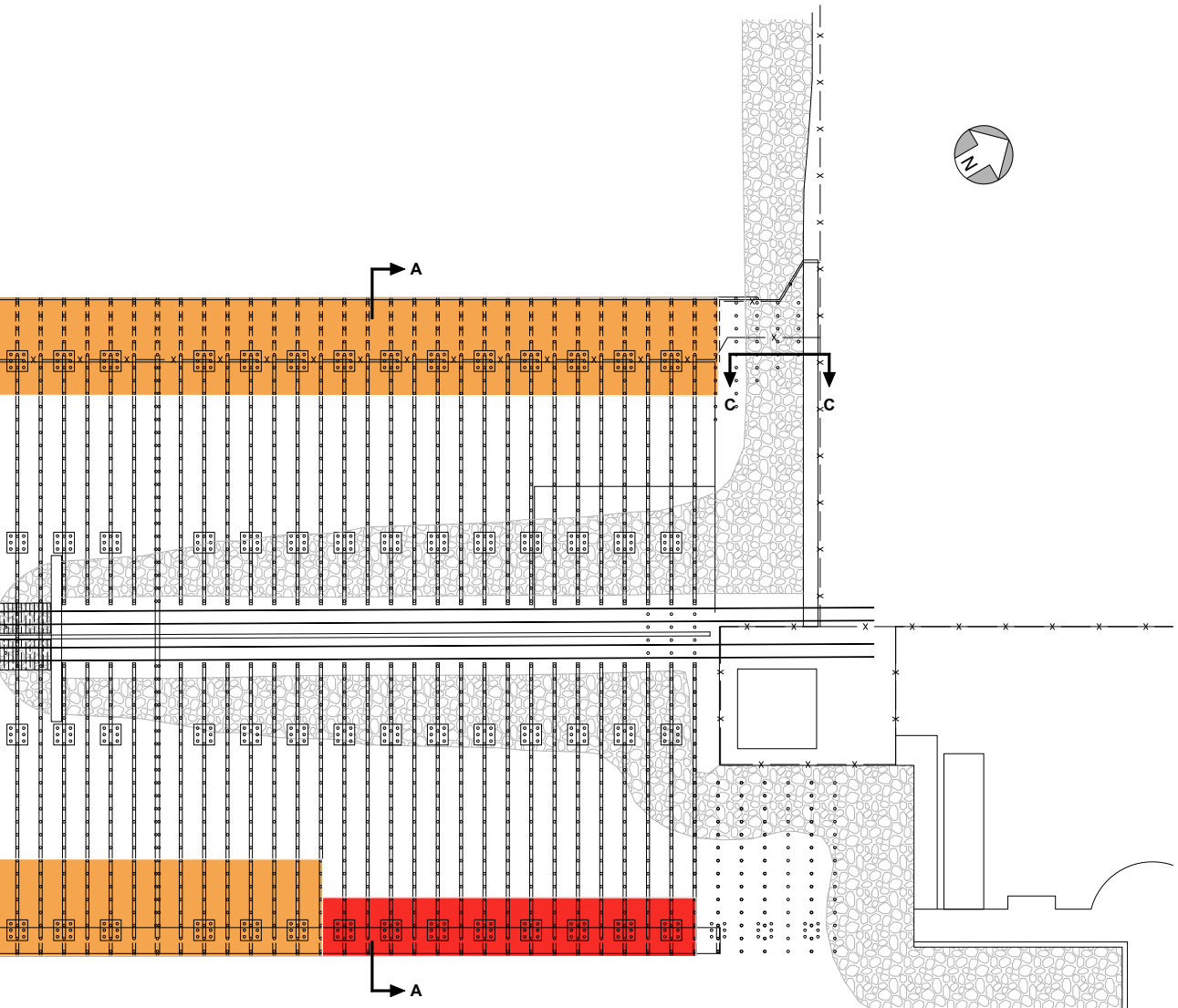

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GENERAL NOTES:

1. MOST OF THE PIER SUPER STRUCTURE IS MISSING AND ANY REMNANTS OF TIMBER DECKING IS GENERALLY IN CRITICAL CONDITION.

CHILDS ENGINEERING CORPORATION
34 WILLIAM WAY, BELLINGHAM, MA 02019 U.S.A.
Phone: (508) 966-9092 Fax: (508) 966-9096
E-mail: mail@childseng.com

Mark	Description	Date	Appr.

Designed by:	CJC	Date:	04/17/19
Dwn by:	TEQ	Chd by:	CJC
Design file no.	286219 X-101		
Reviewed by:	CMR	Scale:	1"=30'-0"

PIERS PARK III
THE TRUSTEES
BOSTON, MA

EXISTING PLAN

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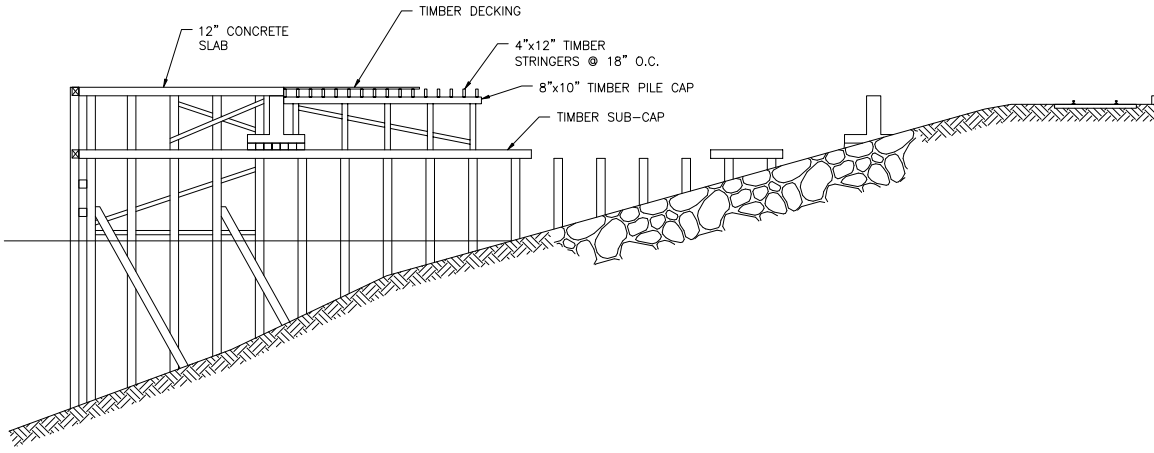
X-101
Sheet 1 of 2



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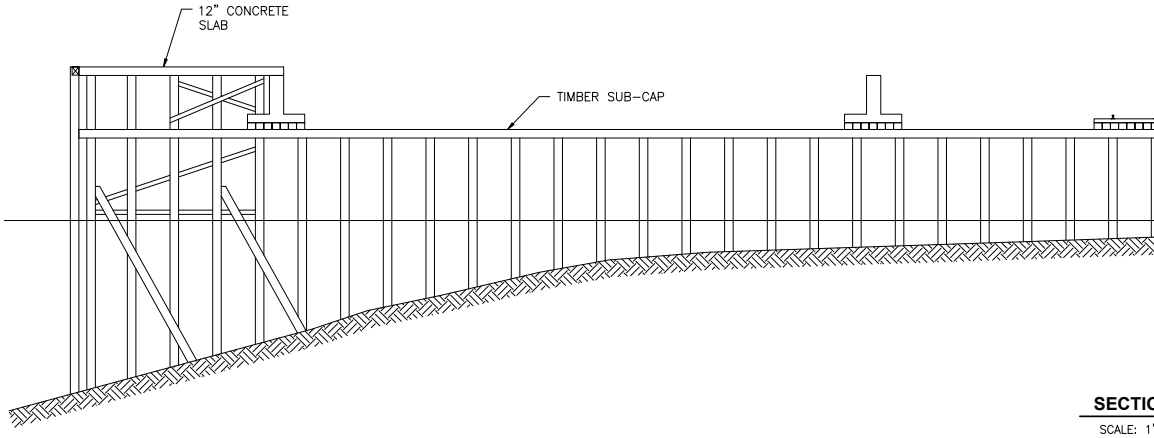

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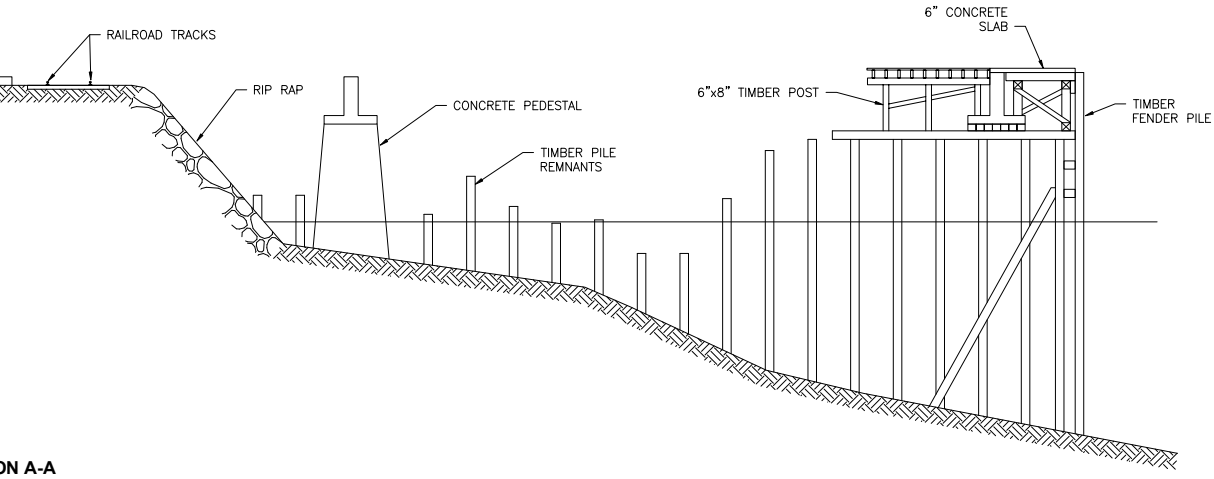

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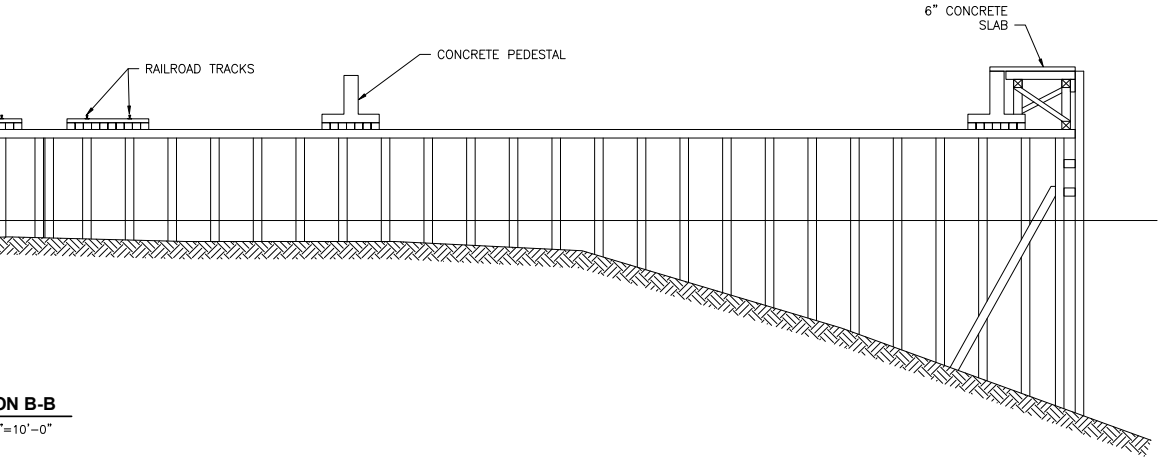

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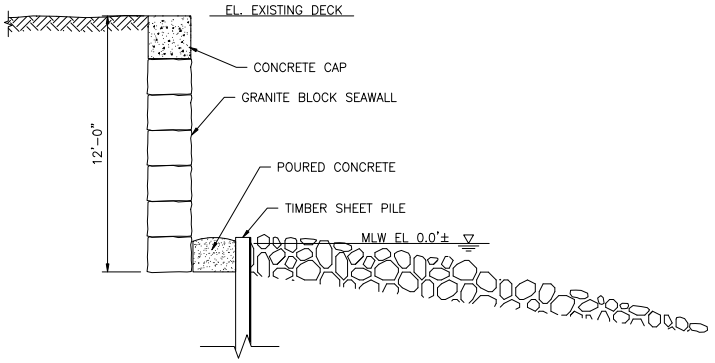

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CHILDS ENGINEERING CORPORATION
34 WILLIAM WAY, BELLINGHAM, MA 02019 U.S.A.
Phone: (508) 966-9092 Fax: (508) 966-9096
E-mail: mail@childseng.com

Mark	Description	Date	Appr.

Designed by:	CJC	Date:	04/17/19
Dwn by:	TEQ	Chk by:	CJC
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PIERS PARK III
THE TRUSTEES
BOSTON, MA

EXISTING SECTIONS

Sheet reference number:
X-102
Sheet 2 of 2

Attachment B

LUCAS ENVIRONMENTAL ECOLOGICAL ASSESSMENT

ECOLOGICAL ASSESSMENT

Piers Park Phase III
Marginal Street
Boston, Massachusetts

SUBMITTED TO:
Fort Point Associates, Inc.
31 State Street, 3rd Floor
Boston, Massachusetts 02109

PREPARED FOR:
Trustees of Reservations
200 High Street
Boston, Massachusetts 02110

PREPARED BY:
Lucas Environmental, LLC
500A Washington Street
Quincy, Massachusetts 02169

REPORT DATE: April 30, 2019

LUCAS ENVIRONMENTAL, LLC

LUCAS ENVIRONMENTAL, LLC

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LUCAS ENVIRONMENTAL, LLC

TABLE OF CONTENTS

LUCAS
ENVIRONMENTAL, LLC

SECTION I – ECOLOGICAL ASSESSMENT

1.0 INTRODUCTION

A Professional Wetland Scientist (PWS) from Lucas Environmental, LLC (LE) conducted a site investigation on the land and water located off Marginal Street in East Boston, Massachusetts. The site is associated with the Piers Park Phase III redevelopment and is identified as part of Assessor's Parcel ID 0104446000 (the "Study Area"). See Figure 1 – USGS Map showing the approximate survey area.

The purpose of the site investigation was to identify potential ecological resources, including regulated wetlands and "special" resources that may exist on and immediately adjacent to the Study Area to inform the design and permitting of future work. This investigation included both a field and office-based component. Please note that this due diligence effort is specific to environmental resources; it does not evaluate constraints related to local planning or zoning requirements.

The following data sources were examined prior to the site investigation:

-
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps;
- United States Geological Survey Topographic Quadrangle;
- MassGIS MassDEP Wetland and Hydrography Datalayers;
- MassGIS Natural Heritage Atlas Datalayers; and
- MassGIS Coastal Datalayers.

Additionally, a qualified wildlife biologist with a background in marine biology conducted an assessment of the intertidal and subtidal zones within the proposed Study Area to determine the habitat values and species composition. As part of the investigation, an ecological assessment was conducted which includes a list of flora and fauna species present within the study area, and visual observation of the bottom composition. The following describes the methodology and results in more detail. Figure 1 (USGS Map) and Figure 2 (Aerial Map) show the limit of the Study Area.

2.0 EXISTING CONDITIONS

The property under investigation consists of an approximate 26-acre parcel although the Study Area was limited to the existing Pier 3 and near-shore areas. The Piers Park Sailing Center, Piers Park Phase I project, and backlands associated with the Piers Park Phase II project were not investigated under this assessment.

The site is bound by the Piers Park Phase II backlands to the north, Piers Park Sailing Center and Piers Park Phase I to the east, residential buildings and Pier 1 to the west, and the harbor to the south. The Study Area extends approximately 150 feet seaward from the edge of Pier 3 to the west and east, and approximately 40 feet seaward to the south. See Figures 1 – USGS Map and Figure 2 – Aerial Map for approximate location and limit of the Study Area.

A review of the current MassGIS data layer for the Massachusetts Natural Heritage Atlas (effective August 1, 2017) under the Natural Heritage and Endangered Species Program (NHESP) indicates that no portion of the site is located within Estimated Habitat of Rare Wildlife or Priority Habitat of Rare Species. (See Figure 3 – NHESP Map).

The site is not located within an Area of Critical Environmental Concern (ACEC), Outstanding Resource Water (ORW), Watershed Protection Area, or MassDEP Approved Zone I or II Wellhead Protection Area. The following sections describe the history of the development of the area, and the condition of Pier 3.

2.1 History

According to the East Boston Piers Phase II Park Preliminary Design Report ("Report"), dated March 24, 2000, no design drawings of Pier 3 were located; however, the following information has been obtained:

> *A building and wharf structure existed on the Pier 3 site as early as 1873 as part of the grand Junction Wharf. In approximately 1881, the wharf structure on the west side of the pier was widened by 10-feet. In 1900-1901, a major reconstruction and widening was performed on the west side. Also in 1901, a new granite bulkhead platform* [was] *constructed at the head of the dock on the west side of Pier 3. Concurrently, a large wharf structure was being constructed along part of the east side of Pier 3 and between Piers 3 and 4. The majority of the Pier 3 structure that currently exists was built in 1908-1909. There appeared to be a timber pile supported concrete decked platform at the head of the dock between Piers 3 and 1. It was probably built between 1948-1951 since it is not shown in a 1948 appraisal report, but is indicated on a 1950 drawing. The 1950 drawing indicates an "existing concrete and masonry bulkhead" behind the platform. It is believed that the portion of the wall that presently exists was constructed in 1901. It is not known when the upper concrete portion of the wall was constructed. It is possible that the concrete portion of the wall that presently exists is the same that is referred to in the 1950 drawing. A 1963 drawing indicates general rehabilitation and repairs to the pier as well as an upgrade to the west side of the pier which included new timber piles and a concrete deck. Part of the building structure covering Pier 3 was removed in the early 1960's and the remainder of the shed was removed between 1970 and 1972.*

2.2 Existing Conditions

The Study Area surrounds an existing dilapidated pier, approximately 650 feet long and 253 wide. According to the Report, the pier is primarily a timber structure consisting of timber piles, stringers, pile caps, and decking. Large concrete piers, spaced at 20-foot intervals, center to center, on either side of the pier are present beneath the decking. The piers are tapered and measure approximately six feet by six feet at the bottom and four feet by four feet at the top. The piers supported the building columns constructed on the pier. Smaller tapered concrete piers are also located beneath the pier, measuring four feet by four feet at the bottom and two feet by two feet at the top. The piles consist of untreated oak and creosote treated pine and fir, except along the western apron, where the piles consist solely of creosote treated pine or fir.

A 32,400 square foot filled earthen core extends approximately 250 feet offshore through the center of the pier. This earthen area is approximately 28 feet wide with riprap side slopes. According to the Report, miscellaneous solid waste (i.e., plastic, Styrofoam, paper) and construction debris (i.e., bricks, concrete, wood) were located on the earthen core. A railway track is located through this portion of the pier, with small trees and shrubs observed. There are two sets of tracks, approximately four feet below the deck elevation with concrete knee walls along each side and a knee wall along the center separating the tracks. The end of this feature consists of an old granite block wall.

The pier is dilapidated and in an advanced state of decay, except for the apron area on the western side which was rebuilt in 1965 and was used by lobster boats. The concrete apron along the east and south side of the pier is in very poor condition, with portions collapsed. The major deterioration of Pier 3 has been attributed to marine borer attack on the timber piles and wood rot on the interior grade wooden decking, which has been exposed to the weather and element since 1970, when the large building that covered it was removed.

A granite block and concrete seawall extends from the western side of the Pier 3 earthen core to the Pier 1 concrete abutment. The wall contains an approximately five-foot deep concrete cap on top of stone block, with a mixture of dumped stone riprap toe protection and timber sheet piling with concrete infill toe protection, according to the East Boston Piers Phase II Park Preliminary Design Report.

3.0 METHODOLOGY

3.1 Coastal Resource Area Investigation

On March 20, 2019, a Professional Wetland Scientist from LE completed a site investigation. The purpose of the site investigation was to identify ecological resources within and immediately surrounding the Study Area.

The investigation was performed in accordance with the Massachusetts Wetlands Protection Act (WPA; M.G.L 131, Section 40) and implementing regulations (Regulations; 310 CMR 10.00 et seq.); the Massachusetts Department of Environmental Protection (MassDEP) publication "Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act: A Handbook" (1995), the "Corps of Engineers' Wetlands Delineation Manual" (1987), and the "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, v 2.0" (2012).

3.2 Ecological Assessment

A marine/wildlife biologist from LE conducted the intertidal/subtidal ecological assessment on March 20, 2019 with support from Fathom Resources, LLC. Fathom Resources provided the dive support to assess the Study Area for existing flora and fauna. The dive/research vessel, MV RowWay, supported staff and associated project equipment. Dive operations occurred while at anchor and utilizing surface supplied air. The diver was equipped with a Kirby Morgan-57 Dive Helmet, a Trelleborg/Viking vulcanized rubber dry-suit, Amron two-way hardwire communications box and a DeepSea Power and Light closed-circuit TV system for topside monitoring with LE staff.

The study was conducted primarily within the limits of the subtidal zone to depths of approximately -23.5 NAVD88; -30 Boston City Base (BCB). The submerged piers and pilings along Pier 3 were also examined without accessing the pier, in addition to the Sailing Center dock. Additionally, the area above the MLW line was inspected visually to identify any additional species and/or fish present along the intertidal areas along the seawalls. Submerged aquatic vegetation occurring within the subtidal was also noted where feasible. Visibility was approximately two to three feet to the west of Pier 3, and four to five feet east of Pier 3 during the assessment.

4.0 ENVIRONMENTAL RESOURCE AREAS

Several coastal wetland resource areas were identified within the Study Area. Land Subject to Coastal Storm Flowage (LSCSF); Land Under the Ocean (LUO); Coastal Bank; Land Containing Shellfish (LCS); and Banks of or Land under the Ocean, Ponds, Streams, Rivers, Lakes or Creeks that Underlie Anadromous/Catadromous (Fish Run) are present within the Study Area. A description of each of these features as regulated under the WPA (310 CMR 10.00) follows. Representative site photographs are included in Appendix A.

4.1 Land Subject to Coastal Storm Flowage – 310 CMR 10.04 WPA

Section 310 CMR 10.04 of the WPA defines LSCSF as *land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater*. According to the March 16, 2016 FEMA Flood Insurance Rate Map for Suffolk County, Map Number 25025C0081J, and Letter of Map Revision (LOMR), dated September 8, 2017, the Study Area is designated as a Zone AE and Zone VE.

Zone AE is classified as an area subject to the 1% annual chance flood (100-year flood), where base flood elevations have been determined. Zone VE is defined as the coastal flood zone with velocity hazard (wave action), where base flood elevations have been determined.

Base flood elevations for Zone AE and VE, as identified on the FIRM, are Elevation 10 and 13 NAVD88, respectively. Therefore, portions of the Study Area above the Mean High Water (MHW) are located within the 100-year floodplain or LSCSF. There are currently no performance standards associated with this resource area.

4.2 Land Under the Ocean – 310 CMR 10.25 WPA

Section 310 CMR 10.25 of the WPA defines LUO as the *land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries.* The Mean Low Water (MLW) line is Elevation -5.2 NAVD88 (Elevation 1.3 BCB) as identified on the plan entitled "Hydrographic Survey, 1-Foot Contours." Furthermore, Section 310 CMR 10.25 of the WPA defines Nearshore Areas of LUO as the *land extending from the mean low water line to the seaward limit of a municipality's jurisdiction, but in no case beyond the point where the land is 80 feet below the level of the ocean at mean low water.*

4.3 Coastal Bank – 310 CMR 10.30 WPA

Section 310 CMR 10.25 of the WPA defines Coastal Bank as *the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.* The land behind the existing seawalls and the stone riprap is Coastal Bank. Additionally, the earthen berm within Pier 3 is also likely Coastal Bank. The seawalls/riprap themselves are engineered structures along the seaward face of the Coastal Bank landforms. The MassGIS MassDEP Wetlands datalayer has identified the riprap areas to the west and east of Pier 3 along the seawalls as Rocky Intertidal Shores; however, they are not naturally occurring.

4.4 Land Containing Shellfish – 310 CMR 10.34 WPA

Section 310 CMR 10.25 of the WPA defines LCS as *the land under the ocean, tidal flats, rocky intertidal shores, salt marshes and land under salt ponds when any such land contains shellfish*. Section 310 CMR 10.25 of the WPA defines shellfish as the following species: *Bay scallop (Argopecten irradians); Blue mussel (Mytilus edulis); Ocean quahog (Arctica islandica); Oyster (Crassostrea virginica); Quahog (Mercenaria merceneria); Razor clam (Ensis directus); Sea clam (Spisula solidissima); Sea scallop (Placopecten magellanicus); Soft shell clam (Mya arenaria)*.

A review of the MassGIS Shellfish Suitability Area datalayer indicates the Study Area has not been mapped by the Massachusetts Division of Marine Fisheries (MA DMF) as shellfish habitat (MassGIS, 2011) for the above-listed species. Harvest of shellfish in this area is prohibited. Although a shellfish survey was not conducted within the Study Area, live blue mussel and oyster (in much lower numbers) were observed within the subtidal zone along the piers/piling of Pier 3, and blue mussel was observed in the intertidal zone. Common periwinkle (*Littorina littorea*) was also observed in the intertidal zone.

4.5 Fish Run– 310 CMR 10.35 WPA

Section 310 CMR 10.35 of the WPA defines Banks of or Land under the Ocean, Ponds, Streams, Rivers, Lakes or Creeks that Underlie Anadromous/Catadromous "Fish Run" as *areas within estuaries, ponds, streams, creeks, rivers, lakes or coastal waters, which is a spawning or feeding ground or passageway for anadromous or catadromous fish and which is identified by DMF or has been mapped on the Coastal Atlas of the Coastal Zone Management Program. Such fish runs shall include those areas which have historically served as fish runs and are either being restored or are planned to be restored at the time the Notice of Intent is filed. For the purposes of 310 CMR 10.21 through 10.37, such fish runs shall extend inland no further than the inland boundary of the coastal zone.*

The Banks of and LUO that underlie an Anadromous/Catadromous Fish Run are significant to the protection of marine fisheries. Anadromous fish refer to fish that enter fresh water from the ocean to spawn, such as smelt, alewives, shad and salmon. Catadromous fish are fish that enter salt water from fresh water to spawn, such as eels. Anadromous and catadromous fish ("the fish") provide recreational, aesthetic and commercial benefits and are an important feature of freshwater, estuarine, and marine environments as well as a food source for other organisms. The spawning migrations of these fish also provide a direct link between the marine and freshwater systems. Anadromous fish use the harbor for passageway, including rainbow smelt (*Osmerus mordax*), blueback herring (*Alosa aestivalis*), and alewife (*Alosa pseudoharengus*).

5.0 ECOLOGICAL HABITAT OF STUDY AREA

This section describes the general ecological habitat of the Study Area based upon a review of available data and information. A general description of the submerged aquatic vegetation (SAV), benthic sediment, shellfish, shoreline structure, water quality, salinity, temperature, bathymetry, and essential fish habitat are provided, with the results of the site-specific Ecological Assessment detailed in Section 6.0.

5.1 Submerged Aquatic Vegetation

The Study Area is generally devoid of SAV, except along the intertidal zone. Marine SAV beds in New England are generally composed of a variety of macro-algae and/or two types of sea grasses; eelgrass (*Zostera marina*) or widgeon grass (*Ruppia maritime*), although neither are present at this site. Section 6.0 provides detail on site-specific algae observed within the Study Area.

5.2 Benthic Sediment

Generally, the survey area is relatively consistent throughout with respect to substrate. Based upon the East Boston Piers Phase II Park Preliminary Design Report, an organic silt layer is present, consisting of an olive gray, uniform fine sand and slightly plastic organic silt and clay. The layer included shell fragments with layers of black and gray clayey organic silt with fine sand seams and traces of fibrous peat and shells. The density of the sand layers ranged from very loose to medium dense while the consistency of the organic silt and clay ranged from soft to medium stiff. This appears consistent with the observations during the assessment.

5.3 Shellfish

Shellfish are described in Section 4.6.

5.4 Shoreline Structure

The shoreline of the Study Area is relatively steep, consisting of riprap, seawalls, and the dilapidated Pier 3 earthen berm.

5.5 Water Quality

The Study Area is listed by MassDEP on the 2014 Integrated List of Waters. Boston Inner Harbor is identified as Category 5 “Waters requiring a TMDL” for one or more uses and requires a total maximum daily load (TMDL). The impairment cause for this area is due to *Enterococcus*, fecal coliform, dissolved oxygen, and PCB in fish tissue (Massachusetts Division of Watershed Management Watershed Planning Program, 2015).

The water quality classification for the Boston Inner Harbor has been designated “SB” (314 CMR 4.05). Class SB saline surface waters are designated as a habitat for fish, other aquatic life and wildlife, including for their reproduction, migration, growth and other critical function, and for primary and secondary contact recreation.

The Massachusetts Water Resources Authority (MWRA) has monitored water quality in Boston Harbor since the early to mid-1990's in support of the wastewater engineering projects, that have included among others, the Boston Harbor Project, the CSO Control Plan, TRAC pretreatment program, and programs to decrease infiltration into the sewer system. The MWRA prepared the Boston Harbor Water Quality Report (1994-2017) which documents water quality in Boston Harbor during 2017, and compares it with water quality during the preceding 22 years (1994-2016). The aspects of water quality that were selected for examination are relevant to public use of the harbor (microbial pathogen counts, water column transparency) and to the health of the harbor ecosystem (nutrients concentrations, amounts of algae, particulate organic matter in the water, transparency dissolved oxygen concentrations). Since 2011 the harbor has shown increases in phytoplankton biomass, total suspended solids and particulate organic carbon concentrations, and a decrease in transparency.

5.6 Salinity

Salinity range has been studied in the Boston Inner Harbor by the MWRA. Per the MWRA, salinity measurements range from a low of 0.87 PSU to a maximum of 33.64 PSU, based upon samples taken between June and October over the last five years. Average salinity values obtained from the available data is 30.67 PSU (MWRA, 2019).

5.7 Temperature

Temperature range has been studied in the Boston Inner Harbor by the MWRA. Per the MWRA, temperature measurements range from a low of 49.5°F (9.7°C) to a maximum of 79.6°F (26.4°C) based upon samples taken between June and October over the last five years. Average temperature obtained from the available data is 62.7°F (17.1°C) (MWRA, 2019).

5.8 Bathymetry

In general, the bathymetry in the Study Area is fairly homogenous and deep. Relatively deeper water depths are found further from the seawalls and Pier 3, with shallower water depths found near the shorelines along the seawalls/riprap within the intertidal zone. Water depths range from 4.3' NAVD88 (10.8' BCB) at MHW to -28.5' NAVD88 (-35' BCB). Tidal elevations reach a maximum 4.8' NAVD88 (11.3' BCB) at Mean Higher High Water.

Nearly the entirety of the Study Area is completely submerged at low tide, except for the intertidal zone. The deep nature of the Study Area provides suitable Essential Fish Habitat for juvenile and adult life stages for many fish species, further detailed in the following section.

5.9 Essential Fish Habitat Review

The Magnuson-Stevens Fishery Conservation and Management Act defines Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C.1802 § 3). The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) designates EFH for many species, which covers all marine habitats along the United States coastline.

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act and the 1996 Sustainable Fisheries Act, a limited[1] EFH review was completed for this project.

Regional mapping of Essential Fish Habitat by the NMFS provided online via the Essential Fish Habitat Mapper identifies EFH at the scale of 10' x 10' USGS map quadrants. Distribution maps for each species and life stages are posted at the EFH website along with EFH summary documents produced for each of the EFH species. The Mapper web site and supplemental biological information documents provide the primary source of information on each species. This project requires the investigation of 23 federally managed species.

Although this quadrant is designated as EFH for the 23 species, not all of the estuarine and subtidal marine habitats found within the quadrant provide the life-stage specific habitat requirements, such as water depth and salinity, needed by one or more of the EFH species. Because the scale of the EFH mapping cannot precisely indicate stages, the EFH species identified below should be considered to have the potential to occur at the project site only if and when habitat conditions are suitable for each life stage of the species. Thus, despite falling within the quadrant for the Boston Harbor mapped as EFH by NMFS, the project site may not provide the habitats that can support one or more of the life stages. A summary of specific life stage EFH designations for these species is provided in Table 5-1 on the following page.

[1] A summary of the life stages for each species within the EFH in addition for the potential occurrence within the Study Area has been provided. Detailed descriptions of each species commonly included in an EFH Assessment are not provided herein.

TABLE 5-1: SUMMARY OF SPECIFIC LIFE STAGE EFH DESIGNATIONS FOR SPECIES IN THE NOAA FISHERIES DESIGNATED 10 X 10 MINUTE QUADRANTS

Species with Designated EFH in Boston Harbor	Life Stages within EFH*				Potential Occurrence within Study Area *Shaded cell indicates possible EFH life stage within Study Area.*
	Eggs	Larvae	Juveniles	Adults	
Atlantic Mackerel *(Scomber scombrus)*	X	X	X	X	Larvae are generally found over minimum bottom depths of 21 meters (69 feet) and juveniles over minimum bottom depths of 10 meters (33 feet). NOAA's EFH Source Document by Studholme et al (1999) reports that Atlantic mackerel eggs were collected at depths ranging from 10 to 325 meters and adults were collected from 10 to 340 meters.
Bluefish *(Pomatomus saltatrix)*			X	X	These life stages have the potential to occur at or near the site.
Atlantic Butterfish *(Peprilus triacanthus)*	X	X			These life stages have the potential to occur at or near the site.
Atlantic Surfclam (*Spisula solidissima*)			X	X	These life stages have the potential to occur at or near the site.
Scup (*Stenotomus chrysops*)			X		This life stage has the potential to occur at or near the site.
Summer Flounder (*Paralichthys dentatus*)				X	This life stage has the potential to occur at or near the site.
Black Sea Bass (*Centropristis striata*)				X	This life stage has the potential to occur at or near the site.
Bluefin Tuna (*Thunnus thynnus*)				X	This life stage has the potential to occur at or near the site.
Atlantic Wolffish (*Anarhichas lupus*)	X	X	X	X	Eggs, larvae, and adults are typically found in sub-tidal benthic habitats at depths less than 184 meters. Juvenile wolffish have EFH designated at depths from 70 to 184 meters. Adults are found in sand and gravel substrates but are not caught in muddy substrate.
Winter Flounder *(Pseudopleuronectes americanus)*	X	X	X	X	These life stages have the potential to occur at or near the site; however, MA DMF has determined that spawning adults are found in higher densities in water less than 5 meters and as shallow as 1 meter, in which those depths are typically lacking within the Study Area. Nursery habitat supporting juvenile winter flounder is typically found near spawning areas.

TABLE 5-1: SUMMARY OF SPECIFIC LIFE STAGE EFH DESIGNATIONS FOR SPECIES IN THE NOAA FISHERIES DESIGNATED 10 X 10 MINUTE QUADRANTS

Species with Designated EFH in Boston Harbor	Life Stages within EFH*				Potential Occurrence within Study Area *Shaded cell indicates possible EFH life stage within Study Area.*
	Eggs	Larvae	Juveniles	Adults	
Little Skate (*Leucoraja erinacea*)			X	X	These life stages have the potential to occur at or near the site.
Ocean Pout *(Macrozoarces americanus)*			X	X	Water depth and sediment type present for juveniles but not for adult life stage.
Atlantic Sea Herring *(Clupea harengus)*		X	X	X	These life stages have the potential to occur at or near the site.
Atlantic Cod *(Gadus morhua)*	X	X	X	X	These life stages have the potential to occur at or near the site.
Pollock *(Pollachius virens)*	X	X	X		These life stages have the potential to occur at or near the site.
Red Hake *(Urophycis chuss)*	X	X	X	X	These life stages have the potential to occur at or near the site. Water depths too shallow for adult life stages.
Whiting/Silver Hake *(Merluccius bilinearis)*	X	X	X	X	Water depths too shallow to support any of these life stages.
Yellowtail Flounder *(Limanda ferruginea)*	X	X	X	X	Water depths too shallow to support any of these life stages.
White Hake *(Urophycis tenuis)*	X	X	X	X	Water depths present for juveniles and adult life stage, but not egg or larval stage.
Windowpane Flounder *(Scophthalmus aquosus)*	X	X	X	X	These life stages have the potential to occur at or near the site.
Winter Skate (*Leucoraja ocellata*)			X	X	These life stages have the potential to occur at or near the site.
American Plaice *(Hippoglossoides platessoides)*	X	X	X	X	Although no EFH minimum depth is currently documented, EFH is not likely present in the Study Area because these life stages are typically found in deep water according to NOAA's Guide to EFH Descriptions.
Thorny Skate *(Amblyraja radiata)*			X		Water depths too shallow to support this life stage.

6.0 ECOLOGICAL ASSESMENT RESULTS & DISCUSSION

Generally, the survey area is relatively consistent throughout with respect to substrate and species composition, distribution, and abundance. The Study Area can generally be classified into the distinct zones: 1) Subtidal Zone, 2) Intertidal Zone, and 3) Pier 3. The subtidal zone generally consists of an accumulation of fine sediments and organics below the MLW line, with little to no activity or algae present. The intertidal zone contained the most diversity of flora and fauna, although density was limited. The piles/piers of Pier 3 contained low diversity and denser populations. The Study Area is somewhat sheltered as it is located within Boston Inner Harbor, and the species present support this assumption as they are commonly found in areas with some wave exposure.

The MWRA has conducted benthic monitoring in Boston Harbor on an ongoing basis since 1991. The report entitled "Boston Harbor Benthic Monitoring Report: 2016 Results," provides a summary of the results of the benthic surveys that were conducted in 2016, which includes sediment conditions, benthic infauna, and sediment profile imagery. A benthic survey was not completed as part of this Ecological Assessment.

The following describes the flora and fauna observed in the survey area. Refer to Table 6-1 for a list of species found within the three zones. Representative photographs are included in Appendix A.

6.1 Subtidal Zone

The subtidal zone is primarily devoid of vegetation. Trace amounts of sugar kelp (*Saccharina latissima*) and brushy red weed (*Cystoclonium purpureum*) were observed. Worm castings were observed throughout the area, although no worms were actually identified during the study. Evidence of mollusks and crustacean species in the area exist in the form of shells that were observed. Live blue mussels (*Mytilus edulis*) and common oysters (*Crassostrea virginica*) were observed near Pier 3, although in low numbers. The common slipper shell (*Crepidula fornicata*), was also found in the subtidal zone, also in very low numbers. Overall, the subtidal zone within the Study Area contains very low diversity and primarily supports limited shellfish; however, a shellfish survey has not been completed.

6.2 Intertidal Zone

The intertidal zone contains the most diversity, although the area consists primarily of riprap and is not naturally occurring. Marine SAV beds in New England are generally composed of a variety of macro-algae and/or two types of sea grasses; eelgrass or widgeon grass, although neither are present within the Study Area.

The northern rock barnacle (*Balanus balanoides*), common periwinkle, blue mussel, long-clawed hermit crab (*Pagarus longicarpus*), green crab (*Carcinus maenus*), and common sea star (*Asterias forbesi*) were observed in low numbers within this area. Evidence of other mollusks and crustacean species along the riprap exist in the form of shells that were observed. Other species present are listed in Table 6-1.

The upper intertidal area consists primarily of rockweed (*Fucus vesiculosus*) and knotted wrack weed (*Ascophyllum nodosum*) secured to the riprap. The lower intertidal and subtidal along the riprap contained more algal diversity with sea lettuce (*Ulva lactuca*), sea cellophane (*Monostroma* sp.), filamentous green algae (*Spongomorpha* spp. and *Cladophora* spp.), rockweed (*Fucus evanescens*), rough tangle weed (*Stilophora rhizodes*), sugar kelp (*Saccharina latissimi*), hairy shoelace (*Halosiphon tomentosum*), filamentous tubed weeds (*Polysiphonia* spp.), and Irish moss (*Chondrus crispus*). The bushy bryozoan (*Bugula turrita*) was also observed in this area.

6.3 Pier 3

The assessment of Pier 3 was limited to the exterior piers and pilings as interior access was not feasible for safety concerns due to the dilapidated and condemned areas within the structure. The exterior piers/piles were devoid of vegetation. Evidence of mollusks and crustacean species in the area exist in the form of shells that were observed along the substrate. Live blue mussels were observed along Pier 3, in moderate numbers, primarily along the base of the piers and piles. The common slipper shell and common oyster was also found, although in very low numbers. The northern rock barnacle was observed along the piers and piles near the surface generally between MLW and MHW, in large numbers. The common sea star was also observed on the pier.

The primary species observed along the Pier 3 structures consist of fouling organisms which have entirely covered the piers and piles below the MLW. The species include the bushy bryozoan and several sponges and tunicates, as noted in Table 6-1.

Overall, the exterior portions of Pier 3 within the Study Area contains a higher diversity than the subtidal zone, but consists primarily of fouling organisms, tunicates, and sponges.

6.4 Fish

No fish were observed swimming in the subtidal or intertidal zones during the study; however, as noted above, visibility was limited to two to five feet throughout the Study Area.

TABLE 6-1: SPECIES LIST

Phylum	Class/Description	Common Name	Latin Name	Zones*		
				Sub Tidal	Inter Tidal	Pier 3
Mollusca	Bivalvia	Blue Mussel	*Mytilus edulis*	X	X	X
		Common Oyster	*Crassostrea virginica*	X		
	Gastropoda	Common Periwinkle	*Littorina littorea*		X	
		Common Slipper Shell	*Crepidula fornicata*	X		X
Arthropoda	Crustacea	Northern Rock Barnacle	*Balanus balanoides*		X	X
		Long-Clawed Hermit Crab	*Pagarus longicarpus*		X	
		Green Crab	*Carcinus maenus*		X	
Echindodermata	Stelleroidea	Common Sea Star	*Asterias forbesi*		X	X
Porifera	Sponges	Boring Sponges	*Cliona* sp.			X
		White Crust	*Didemnum* sp.			X
		Purple Sponges	*Haliclona permollis*			X
Chordata	Ascidiacea	Sea Vase	*Ciona intestinalis*			X
		Orange Sheath Tunicate	*Botrylloides sp.*			X
Bryozoa	Bryozoans	Bushy Bryozoan	*Bugula turrita*		X	X

TABLE 6-1: SPECIES LIST

Phylum	Class/Description	Common Name	Latin Name	Zones*		
				Sub Tidal	Inter Tidal	Pier 3
Chlorophyta	Green Seaweeds	Sea Lettuce	*Ulva lactuca*		X	
		Sea Cellophane	*Monostroma sp.*		X	
		Filamentous Green Algae	*Spongomorpha* spp.		X	
		Filamentous Green Algae	*Cladophora* spp.		X	
Phaeophyta	Brown Seaweeds	Rockweed	*Fucus vesiculosus*		X	
		Rockweed	*Fucus evanescens*		X	
		Rough Tangle Weed	*Stilophora rhizodes*		X	
		Knotted Wrack Weed	*Ascophyllum nodosum*		X	
		Sugar Kelp	*Saccharina latissima*	X	X	
		Hairy Shoelace	*Halosiphon tomentosum*		X	
Rhodophyta	Red Seaweeds	Tubed Weeds (Filamentous)	*Polysiphonia* spp.		X	
		Irish Moss	*Chondrus crispus*		X	
		Brushy Red Weed	*Cystoclonium purpureum*	X		
N/A	Worm Castings	N/A	*N/A*	X		

**Zones = 1) Subtidal Zone, 2) Intertidal Zone, and 3) Pier 3.*

7.0 DISCUSSION

The site is located within Boston Inner Harbor, which provides the Study Area some shelter and protects it from exposure to heavy wave action. The Ecological Assessment was conducted primarily within the limits of the subtidal and intertidal zones. The water was not very clear during the site visit, with visibility approximately two to three feet to the west of Pier 3 and approximately four to five feet to the east of the pier. The fine sediments obscured the bottom once disturbed.

The intertidal zone is usually suitable habitat for macroalgae and marine invertebrates and provides protection to and food for, larger marine organisms such as crabs, lobsters, and various fish species including winter flounder, as well as a number of birds. Based upon the assessment of the intertidal zone on this site, the large mats of rockweed and knotted wrack weed are secured to the riprap, which is not naturally occurring throughout the area. Although these species provide good protection for various crustaceans and marine invertebrates, few crustaceans were found during the site visit. Various shells were found in the area and may indicate other species present, or possibly washed up from other areas or were dropped by birds.

The area in the subtidal zone consists of finer sediments and variable debris, with more debris observed west of Pier 3 than to the east. The live shellfish identified within the intertidal and below the mean low tide were blue mussel and common oyster. Evidence of other mollusks and crustacean species in the area exist in the form of shells that were observed in the survey area, although evidence of shells does not mean a live population is present within the Study Area. Based upon this assessment and review of available information, the area may support shellfish but not in significant numbers, and is otherwise monotonous with little to no algae present.

The area along Pier 3 contains more diversity than the subtidal zone; however, primarily consists of sessile species attached to the piers and piles, and other debris surrounding the structure. The primary species observed along the Pier 3 structures consist of fouling organisms which have entirely covered the piers and piles below the MLW. The species include the bushy bryozoan and several sponges and tunicates, which are common throughout Boston Inner Harbor. Shellfish primarily consisting of blue mussels were observed near and along the remnants of the wooden piers and piles.

The area may also support a winter flounder population and other fish species as noted in this assessment, based upon the crustaceans, mollusks, and algae observed, in addition to the depths of the subtidal zone surrounding Pier 3. Due to the depths within the Study Area, it does not likely support high densities of spawning winter flounder adults, as MA DMF has determined that spawning adults are found in higher densities in water less than five meters and as shallow as one meter. Further, nursery habitat supporting juvenile winter flounder is typically found near spawning areas.

The sheltered location of the site within Boston Inner Harbor is also a factor. No fish species were observed during the study; however, as visibility was limited. The diversity of the crustaceans, mollusks, and algae identified varied depending on the location within the Study Area.

8.0 REFERENCES

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SECTION II – FIGURES

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Topographic Quadrangle Images

N

0 750 1,500 3,000 Feet

USGS Map

Ecological Assessment
Piers Park III
East Boston, MA

FIGURE 1

LUCAS ENVIRONMENTAL, LLC

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 30cm (2013/2014)

N

0 75 150 300 Feet

Aerial Map

Ecological Assessment
Piers Park III
East Boston, MA

FIGURE 2

LUCAS ENVIRONMENTAL, LLC

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs; USGS Color Ortho Imagery - 30cm (2013/2014)

N

0 500 1,000 2,000 Feet

NHESP Map

Ecological Assessment
Piers Park III
East Boston, MA

FIGURE 3

LUCAS ENVIRONMENTAL, LLC

SECTION III – APPENDICES

APPENDIX A

PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPHIC DOCUMENTATION

DATE: March 20, 2019

Photograph 1: View of the eastern side of Pier 3, facing south from Sailing Center.

Photograph 2: View of the center of Pier 3, facing south from the backlands.

Photograph 3: View of the western side of Pier 3, facing south from the backlands.

Photograph 4: View of the center of Pier 3, facing east from the western apron.

Photograph 5: View of the western apron along Pier 3, facing south.

Photograph 6: View of the western apron along Pier 3, facing north.

Photograph 7: Typical view of wooden and concrete piles/piers of Pier 3.

Photograph 8: Typical view of wooden and concrete piles/piers of Pier 3.

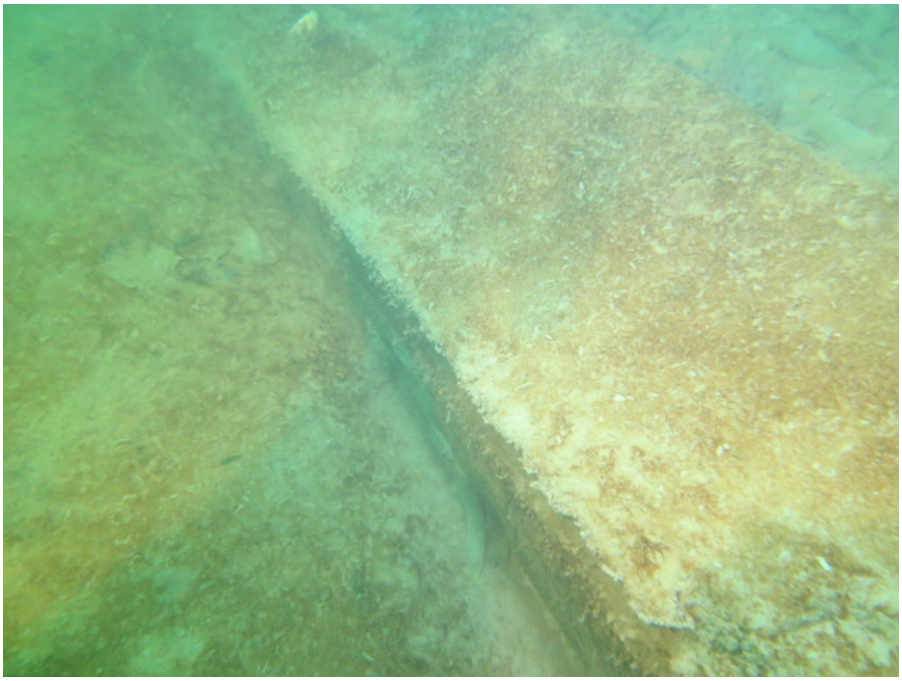
Photograph 9: View of stone riprap along the intertidal zone, south of Sailing Center, facing west.

Photograph 10: View of stone riprap along the intertidal zone and seawalls, along western limit of Study Area, facing north.

Photograph 11: Typical view of subtidal piles/piers along Pier 3, and substrate bottom.

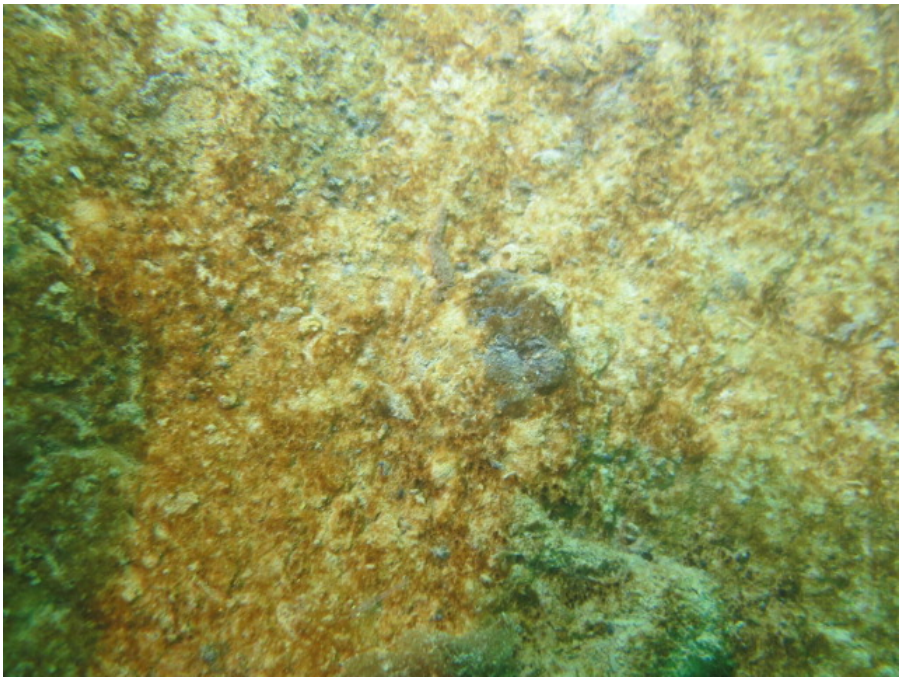
Photograph 12: Typical view of shellfish (blue mussels) at base of piers/piles along Pier 3.

Photograph 13: View of lobster pot and debris near Pier 3.



Photograph 14: View of subtidal debris and substrate near Pier 3.

Photograph 15: Typical view of subtidal substrate bottom throughout Study Area.



Photograph 16: Typical view of subtidal substrate bottom throughout Study Area.

Photograph 17: Typical view of sponges and tunicates on piers/piles along Pier 3.

Attachment C

EJ SCREENING FORM

Amy Eynatian

From: Amy Eynatian
Sent: Thursday, December 15, 2022 5:33 PM
Cc: Nick Black; Fay, Jamie; mcasey@massport.com; Welch, Erika; Jon Maass; mepa-ej@mass.gov; Gabriela Ramirez
Subject: Environmental Justice notification: Piers Park III Project
Attachments: EJ Screening Form 12-15-2022.pdf

Good afternoon,

I am reaching out on behalf of The Trustees of Reservations (the "Proponents"), in partnership with the Massachusetts Port Authority, regarding the proposed Piers Park III Project. The Proponents propose to transform a dilapidated pier into a unique, climate-resilient waterfront park, adjacent to Piers Park I and Piers Park II on the East Boston waterfront. The Project will support community needs, with a network of accessible paths, kayak launch, fishing pier, and accessible coastal edges. The Project will also create salt marshes, a tidal pool, a coastal meadow, and a standalone enhanced habitat as part of the ecological design.

The Proponents plan to file an Expanded Environmental Notification Form (EENF) with the Massachusetts Environmental Policy Act (MEPA) office in February 2023. The attached EJ Screening Form provides contact information for the project team, further details about the project, anticipated permits and potential benefits and impacts of the project. The form has also been translated into Arabic, Chinese, and Spanish.

Community-based organizations and tribal organizations are receiving this notification in accordance with the MEPA Public Involvement Protocol for Environmental Justice Populations, which took effect on January 1, 2022. More information is available on the MEPA website: https://www.mass.gov/orgs/massachusetts-environmental-policy-act-office.

Our project team is conducting outreach to community-based organizations near the project site to promote awareness of and offer opportunities to engage with the project. In particular, our team aims to provide the neighboring Environmental Justice populations with opportunities to engage with the project. I am reaching out to you with the hope that you or your organization may be able to help the project team spread awareness of the project within the local community.

Please do not hesitate to contact our project team with any questions, comments, or other feedback concerning this project.

I can be reached at aeynatian@thetrustees.org or by phone at 978-338-1127.

Sincerely,
Amy Eynatian

Amy G. Eynatian (she/her)
Project Manager, Boston Waterfront Initiative

Trustees | Boston
200 High Street | Boston, MA 02110
978-338-1127
aeynatian@thetrustees.org

Learn about our vision for a vibrant Boston waterfront
One Waterfront: Resilient . Strong . Open
News, updates, and events:
onewaterfront.thetrustees.org

For updates on our COVID 19 response
www.thetrustees.org/COVID19

Environmental Justice Screening Form

Project Name	Piers Park III
Anticipated Date of MEPA Filing	Expanded Environmental Notification Form (EENF) anticipated February 2023
Proponent Name	The Trustees of Reservations
Contact Information (e.g., consultant)	**Proponent:** The Trustees of Reservations 200 High Street Boston, MA 02110 Contact: Nick Black nblack@thetrustees.org 617-542-7696 **Property Owner:** Massachusetts Port Authority One Harborside Drive, Suite 200S East Boston, MA 02128 Contact: Meghan Davis Casey MCasey@massport.com 617-568-1092 **Translation Contact:** Amy G. Eynatian aeynatian@thetrustees.org 978-338-1127 **Planning and Permitting Consultant:** Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 Contact: Jamie Fay jfay@fpa-inc.com 617-279-4384
Public website for project or other physical location where project materials can be obtained (if available)	Websites: **Trustees**: https://onewaterfront.thetrustees.org/pp3 **coUrbanize:** https://courbanize.com/projects/pierspark3/information Physical project materials can be obtained at: East Boston YMCA 215 Bremen Street, Boston, MA 02128

	or East Boston Branch of Boston Public Library 365 S. Bremen Street, Boston, MA 02128
Municipality and Zip Code for Project (if known)	Municipality: Boston Zip Code: 02128
Project Type* (list all that apply)	Beach/Coastal Nourishment, Recreation, Resiliency
Is the project site within a mapped 100-year FEMA flood plain? Y/N/ unknown	Yes
Estimated GHG emissions of conditioned spaces (click **here** for GHG Estimation tool)	0 tons per year

Project Description

1. Provide a brief project description, including overall size of the project site and square footage of proposed buildings and structures if known.

   The Trustees of Reservations is proposing to construct a public park known as Piers Park III, adjacent to Piers Park and Piers Park II on Marginal Street in East Boston. The Piers Park III site currently consists of an approximately 3.6 acre dilapidated wood, steel, and asphalt structure extending into Boston Harbor that has been unused and closed to access for more than 30 years. Piers Park III will provide climate resilience, ecosystem restoration, and increase public access to the East Boston waterfront.

   The Project proposes the creation of salt marsh, a coastal meadow, a tidal pool, and an enhanced habitat area as part of the ecological design. The proposed use of green infrastructure mimics the natural coastline, attracts native species, and provides natural flood protection. The Project will provide a variety of visitor experiences, including a unique perspective of the city skyline and harbor, educational programs, paths for running and walking, accessible coastal edges, a kayak launch, and a fishing pier. The finished park will be approximately 2 acres in size.

2. List anticipated MEPA review thresholds (301 CMR 11.03) (if known)

   - 301 CMR 11.03(3)(b)(1a): Alteration of a coastal bank.
   - 301 CMR 11.03(3)(b)(1e): New fill or structure or expansion of existing fill or structure in a velocity zone.
   - 301 CMR 11.03(3)(f): Alteration of one half or more acres of any other wetlands.
   - 301 CMR 11.03(3)(f)(6): Construction, reconstruction, or expansion of an existing solid fill structure of 1,000 or more sf base area.

3. List all anticipated state, local and federal permits needed for the project (if known)

Agency	Approval
Local	
Boston Conservation Commission	• Order of Conditions under WPA
Boston Water and Sewer Commission	• Sewer and Water Connection Permit
State	
Executive Office of Energy and Environmental Affairs (EOEEA)	• Massachusetts Environmental Policy Act (MEPA) Review
Massachusetts Port Authority	• Ground Lease
Massachusetts Department of Environmental Protection	• Notification of Construction and Demolition • Water Quality Certification (401)
Massachusetts Office of Coastal Zone Management (CZM)	• Federal Consistency Review
Massachusetts Historic Commission	• Determination of No Adverse Effect
Board of Underwater Archeological Resources (BUAR)	• Review of proposed work/Project Site to determine if Reconnaissance Excavation or Special Use Permit(s) are necessary
Federal	
U.S. Army Corps of Engineers	• Work in Navigable Waters (Section 10) Permit • Clean Water Act (Section 404) Permit
National Environmental Policy Act (NEPA)	• Environmental Assessment
Federal Aviation Administration	• Determination of No Hazard to Air Navigation
U.S. Environmental Protection Agency	• NPDES Construction General Permit

4. Identify Environmental Justice ("EJ") populations and characteristics (Minority, Income, English Isolation) within 5 miles of project site (can attach map identifying 5-mile radius from EJ Maps Viewer in lieu of narrative)

The Project Site is located within an EJ community and a majority of communities within the 5-mile radius of the Project Site are identified as EJ communities. Please see attached map.

5. Identify any municipality or census tract meeting the definition of "vulnerable health EJ criteria" in the DPH EJ Tool located in whole or in part within a 1 mile radius of the project site

Childhood Asthma:

Municipality: Boston

Childhood Blood Lead:

Census Tracts:

- 25025051200
- 25025050600
- 25025050500
- 25025050400
- 25025050200
- 25025050101
- 25025050901

Low Birth Weight:

Census Tracts:

- 25025051200
- 25025030300
- 25025060600
- 25025050101
- 25025050901
- 25025020303
- 25025030100
- 25025030400
- 25025050300
- 25025050400

6. Identify potential short-term and long-term environmental and public health impacts that may affect EJ Populations and any anticipated mitigation

The Project is not expected to result in potential long-term or permanent adverse environmental or public health impacts that may affect EJ populations.

Temporary construction-period air quality impacts are a potential source of negative health impacts for the local community. To avoid or minimize the effects of fugitive dust and exhaust emissions from construction vehicles, appropriate mitigation measures will be employed, such as the use of diesel retrofitted equipment and wetting down areas during construction. To avoid, mitigate, or minimize temporary construction-period noise pollution impacts, the Project will comply with the City of Boston Noise and Work Ordinance. Efforts will be made to minimize the noise impact of construction activities, including appropriate mufflers on all equipment such as air compressors and welding equipment, maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations and techniques with less noisy ones, and other appropriate noise reduction measures.

7. Identify project benefits, including "Environmental Benefits" as defined in 301 CMR 11.02, that may improve environmental conditions or public health of the EJ population

The Project will significantly improve local environmental conditions. The Project will redevelop an abandoned, dilapidated pier into a world-class public waterfront park which emphasizes resiliency and promotes access to outdoor recreation. The park will increase green space, reduce urban heat island effects, model best practices and create innovative natural solutions that demonstrate potential protection from flooding and inundation caused by sea level rise, and increase public access to the waterfront. The Proponent has engaged thousands of community members through multiple public input sessions and other engagement opportunities to ensure the park design is equitable, accessible, and aligns with the current needs and neighborhood concerns.

8. Describe how the community can request a meeting to discuss the project, and how the community can request oral language interpretation services at the meeting. Specify how to request other accommodations, including meetings after business hours and at locations near public transportation.

Members of the community can request a meeting or obtain information, including translated materials, by contacting Amy G. Eynatian at aeynatian@thetrustees.org or 978-338-1127. Requests for accommodations, including meetings after business hours and at locations near public transportation, can also be sent to Amy G. Eynatian.

Project information in English, Spanish, Arabic, and Chinese will be maintained on the websites below:
Trustees: https://onewaterfront.thetrustees.org/pp3
coUrbanize: Piers Park III, East Boston Official Site | Boston, MA - coUrbanize

SPANISH

Formulario de evaluación de justicia ambiental

Nombre del proyecto	Piers Park III
Fecha prevista de presentación en la MEPA	Formulario ampliado de notificación ambiental (EENF) previsto para febrero de 2023
Nombre del proponente	The Trustees of Reservations
Datos de contacto (p. ej.: consultor)	**Proponente:** The Trustees of Reservations 200 High Street Boston, MA 02110 Contacto: Nick Black nblack@thetrustees.org 617-542-7696 **Dueño de la propiedad:** Massachusetts Port Authority One Harborside Drive, Suite 200S East Boston, MA 02128 Contacto: Meghan Davis Casey MCasey@massport.com 617-568-1092 **Contacto para la traducción:** Amy G. Eynatian aeynatian@thetrustees.org 978-338-1127 **Consultor de planificación y permisos:** Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 Contacto: Jamie Fay jfay@fpa-inc.com 617-279-4384
Sitio web público para el proyecto u otro sitio físico donde pueden obtenerse los materiales del proyecto (si están disponibles).	Sitios web: **Trustees**: https://onewaterfront.thetrustees.org/pp3 **coUrbanize:** https://courbanize.com/projects/pierspark3/information Los materiales físicos del proyecto pueden obtenerse en: East Boston YMCA 215 High Street Boston, MA 02128 **o**

	Sucursal de East Boston de la Biblioteca Pública de Boston 365 S. Bremen Street, Boston, MA 02128
Municipio y código postal para el proyecto (si se sabe)	Municipio: Boston Código Postal: 02128
Tipo de proyecto* (elija todas las opciones que corresponda)	Regeneración costera/de la playa, recreación, resiliencia
¿Está el lugar del proyecto dentro de una zona de inundación aluvial con periodo de retorno de 100 años cartografiada por la FEMA? Sí/No/No sé	Sí
Cálculo de emisiones de gases de efecto invernadero (GEI) de espacios acondicionados (haga clic **aquí** para la herramienta de cálculo de emisiones de GEI)	0 toneladas por año

Descripción del proyecto

1. Describir brevemente el proyecto e incluir el tamaño general del lugar y los pies cuadrados de los edificios y las estructuras propuestos, si se saben.

   The Trustees of Reservations propone construir un parque público llamado Piers Park III, al lado de Piers Park I y Piers Park II, en Marginal Street en East Boston. El predio de Piers Park III actualmente consta de una estructura deteriorada de asfalto, acero y madera de aproximadamente 3.6 acres que se extiende hasta Boston Harbor y que ha estado en desuso y cerrada al acceso durante más de 30 años. Piers Park III ofrecerá resiliencia climática y restauración ecológica, y aumentará el acceso del público a la zona costera de East Boston.

   Con el proyecto, se propone la creación de una marisma de agua salobre, una pradera litoral, una poza de marea y un hábitat mejorado como parte del diseño ecológico. El uso propuesto de infraestructura ecológica imita la costa natural, atrae especies autóctonas y ofrece protección natural contra las inundaciones. Se ofrecerán diversas experiencias para los visitantes, por ejemplo, una perspectiva única del perfil arquitectónico de la ciudad y del puerto, programas educativos, sendas para correr y caminar, franjas costeras accesibles, una lanzadera de kayaks y un muelle para pescar. El parque terminado tendrá un tamaño de aproximadamente 2 acres.

2. Listar los límites de revisión de la MEPA previstos (301 CMR 11.03) (si se conocen)

   - 301 CMR 11.03(3)(b)(1a): Modificación de un banco costero.
   - 301 CMR 11.03(3)(b)(1e): Nuevo relleno o estructura o ampliación del relleno o la estructura existente en una zona de velocidad.
   - 301 CMR 11.03(3)(f): Modificación de la mitad de acres o más de otros humedales.
   - 301 CMR 11.03(3)(f)(6): Construcción, reconstrucción o ampliación de una estructura actual de relleno sólido de 1000 pies cuadrados o más de superficie de base.

3. Listar todos los permisos estales, locales y federales que se prevé que son necesarios para el proyecto (si se conocen).

Organismo	Aprobación
Local	
Comisión para la Conservación de la Ciudad de Boston	• Orden de condiciones según la WPA
Comisión de Agua y Alcantarillado de Boston	• Permiso de conexión de agua y alcantarillado
Estatal	
Oficina Ejecutiva de Asuntos de Energía y Medio Ambiente (EOEEA)	• Evaluación de la Ley de Política Ambiental de Massachusetts (MEPA)
Autoridad Portuaria de Massachusetts	• Arrendamiento de terreno
Departamento de Protección Ambiental de Massachusetts	• Aviso de construcción y demolición • Certificación de la calidad del agua (401)
Oficina de Administración de la Zona Costera de Massachusetts (CZM)	• Evaluación de cumplimiento con las normas federales
Comisión Histórica de Massachusetts	• Determinación de ningún efecto adverso
Junta de Recursos Arqueológicos Submarinos (BUAR)	• Evaluación de una obra o lugar de un proyecto para determinar si es necesaria una excavación de reconocimiento o un permiso de uso especial
Federal	
Cuerpo de Ingenieros del Ejército de Estados Unidos	• Permiso para trabajar en aguas navegables (artículo 10) • Permiso de la Ley de Agua Limpia (artículo 404)
Ley de Política Ambiental Nacional (NEPA)	• Evaluación ambiental
Administración Federal de Aviación	• Determinación de ningún peligro para la navegación aérea
Agencia de Protección Ambiental de los Estados Unidos	• Permiso general de construcción del NPDES

4. Identificar las poblaciones de justicia ambiental y sus características (minorías, ingresos, aislamiento por el idioma inglés) dentro de las 5 millas del lugar del proyecto (se puede adjuntar un mapa que indique el radio de 5 millas de EJ Maps Viewer en lugar de una narrativa)

El lugar del proyecto está ubicado dentro de una comunidad de justicia ambiental y la mayoría de las comunidades dentro del radio de 5 millas del lugar del proyecto están identificadas como comunidades de justicia ambiental. Véase el mapa adjunto.

5. Identificar cualquier municipio o región censal que cumpla con la definición de "criterios de justicia ambiental por salud vulnerable" en la herramienta de justicia ambiental del Departamento de Salud Pública ubicada totalmente o parcialmente dentro del radio de una milla del lugar del proyecto.

Asma infantil:
Municipio: Boston

Plomo en sangre en los niños:

Regiones censales:

- 25025051200
- 25025050600
- 25025050500
- 25025050400
- 25025050200
- 25025050101
- 25025050901

Bajo peso al nacer:

Regiones censales:

- 25025051200
- 25025030300
- 25025060600
- 25025050101
- 25025050901
- 25025020303
- 25025030100
- 25025030400
- 25025050300
- 25025050400

6. Identificar los posibles efectos de salud pública y ambientales a corto y a largo plazo que pueden afectar a las poblaciones de justicia ambiental y la mitigación prevista.

Se calcula que el proyecto no tendrá como resultado posibles efectos adversos de salud pública o ambientales a largo plazo o permanentes que pudieran afectar a las poblaciones de justicia ambiental.

Los efectos temporarios del periodo de construcción en la calidad del aire son una posible fuente de efectos negativos en la salud para la comunidad local. Para evitar o minimizar los efectos del polvo fugitivo y las emisiones de escape de los vehículos de la construcción, se utilizarán las medidas de mitigación correspondientes, como el uso de maquinarias diésel retroadaptadas, y se mojará el lugar de construcción. Para evitar, mitigar o minimizar los efectos temporarios de la contaminación acústica durante el periodo de construcción, el proyecto cumplirá con la ordenanza sobre el ruido y el trabajo del municipio de Boston. Se hará todo lo posible para minimizar el efecto del ruido de las actividades de construcción, se colocarán los silenciadores correspondientes en todas las maquinarias, como en los compresores de aire y en los equipos de soldadura, se hará mantenimiento de los silenciadores de admisión y escape, se apagarán las máquinas que no estén funcionando, se reemplazarán actividades y técnicas específicas por otras menos ruidosas, y se tomarán otras medidas adecuadas de reducción de ruidos.

7. Indicar los beneficios del proyecto, por ejemplo, los “beneficios ambientales”, según la definición de 301 CMR 11.02, que puedan mejorar las condiciones ambientales o la salud pública de la población de justicia ambiental.

Con el proyecto, se mejorarán considerablemente las condiciones ambientales locales. Por ejemplo, se remodelará un muelle abandonado y deteriorado para convertirlo en un parque costero público de primera categoría que hace hincapié en la resiliencia y promueve el acceso a la recreación al aire libre. El parque aumentará el espacio verde, reducirá los efectos de la isla de calor, copiará las mejores prácticas y creará soluciones innovadoras que demuestren una posible protección contra las inundaciones

causadas por la subida del nivel del mar, y aumentará el acceso público a la zona costera. El proponente ha hecho participar a miles de miembros de la comunidad mediante varias sesiones de contribución pública y otras oportunidades de participación para garantizar que el parque sea equitativo, accesible y coincida con las necesidades y las inquietudes actuales de los barrios.

8. Describir cómo la comunidad puede solicitar una reunión para hablar del proyecto y cómo puede pedir servicios de interpretación de idiomas en la reunión. Especificar cómo solicitar otras adaptaciones, incluidas las reuniones después del horario laboral y en sitios cercanos al transporte público.

Los miembros de la comunidad pueden solicitar una reunión u obtener información, incluso materiales traducidos, contactando a Amy G. Eynatian a aeynatian@thetrustees.org o llamando al 978-338-1127. Las solicitudes de adaptaciones, incluidas las reuniones después del horario laboral y en sitios cercanos al transporte público, también pueden enviarse a Amy G. Eynatian.

En los siguientes sitios web habrá información del proyecto en inglés, español, árabe y chino:
Trustees: https://onewaterfront.thetrustees.org/pp3
coUrbanize: Piers Park III, East Boston Official Site | Boston, MA - coUrbanize

ARABIC

نموذج التحقق الخاص بالعدالة البيئية

اسم المشروع	بيرس بارك ثلاثة (Piers Park III)
التاريخ المتوقع لتقديم المراجعة الخاصة بقانون السياسة البيئة لولاية ماساتشوستس	من المتوقع تقديم إشعار بتغيير المشروع في شباط/ فبراير 2023.
اسم الجهة:	The Trustees of Reservations
معلومات الاتصال: (مثل، المستشار)	**الجهة:** The Trustees of Reservations 200 High Street Boston, MA 02110 الشخص المعني: Nick Black nblack@thetrustees.org 617-542-7696 **صاحب الممتلكات:** Massachusetts Port Authority One Harborside Drive, Suite 200S East Boston, MA 02128 الشخص المعني: Meghan Davis Casey MCasey@massport.com 617-568-1092 **جهة الاتصال المعنية بالترجمة:** Amy G. Eynatian aeynatian@thetrustees.org 978-338-1127 **الجهة الاستشارية المعنية بالتخطيط والترخيص:** Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 الشخص المعني: Jamie Fay jfay@fpa-inc.com 617-279-4384
الموقع الإلكتروني العام للمشروع أو عنوان المكان الذي يمكن من خلاله الإطلاع على المواد المعلقة بالمشروع (إن وجدت)	الموقع الإلكتروني: **Trustees**: https://onewaterfront.thetrustees.org/pp3 **coUrbanize:** https://courbanize.com/projects/pierspark3/information عنوان المكان الذي يمكن من خلاله الاطلاع على المواد المعلقة بالمشروع: East Boston YMCA 215 Bremen Street, Boston, MA 02128

	أو East Boston Branch of Boston Public Library 365 S. Bremen Street, Boston, MA 02128
البلدية والرمز البريدي (الزبكود) للمشروع (إذا كان معروفا)	البلدية: بوسطن الرمز البريدي (الزبكود): 02128
نوعية المشروع* (يُرجى إدراج كل ما ينطبق)	تحسين الشاطئ/ الساحل. مشروع ترفيهي ومُقاوم
هل موقع المشروع ضمن سهل مُعرض للفيضان أدرجته الوكالة الفيدرالية لإدارة الطوارئ للـ 100 سنة المقبلة؟ تكون الإجابة بـ "نعم"، أو "كلا"، أو "غير معروف"	نعم
تقديرات انبعاثات غازات الدفيئة في الأماكن المُكيفة (يُرجى النقر هنا للحصول على الأداة الخاصة بانبعاثات غازات الدفيئة)	0 طن بالسنة

وصف المشروع

1. يُرجى تقديم وصف للمشروع، بما في ذلك الحجم الكلي لموقع المشروع والمساحة المربعة للمباني والهياكل المقترحة إذا كانت معروفة.

يقترح (Trustees of Reservations) بناء حديقة عامة تُعرف باسم (Piers Park III)، بجوار(Piers Park I) و (Piers Park II) في شارع (Marginal) في شرق بوسطن. ويتكون موقع (Piers Park III) الحالي من حوالي 3.6 هكتار من الخشب المتهالك والصلب والهيكل الإسفلتي الممتد إلى ميناء بوسطن الذي لم يتم استخدامه ولا يمكن الوصول إليه منذ أكثر من 30 عاما. سيوفر (Piers Park III) المرونة في مواجهة تغير المناخ، واستعادة النظام البيئي، وزيادة وصول الجمهور إلى الواجهة البحرية في شرق بوسطن.

يقترح المشروع إنشاء مستنقعات ملحية ومرج ساحلي وبركة ماء تعمل بالمد والجزر وبيئة مُحسّنة لعيش الحيوانات كجزء من التصميم البيئي. ويحاكي الاستخدام المقترح للبنية التحتية الخضراء الخط الساحلي الطبيعي، ويجذب أصناف الحيوانات المحلية، ويوفر الحماية الطبيعية للفيضانات. وسيوفر المشروع أنواع مختلفة من المتعة للزائرين، بما في ذلك منظر فريد لأفق المدينة والميناء، والبرامج التعليمية، ومسارات الجري والمشي، وحواف ساحلية يمكن الوصول إليها، وأماكن مُخصصة لانطلاق القوارب الشخصية الصغيرة (الكاياك)، ورصيف لصيد الأسماك. وستبلغ مساحة المتنزه النهائية 2 هكتار تقريبا.

2. يُرجى إدراج العتبات المتوقعة والخاصة بمراجعة قانون السياسة البيئية لولاية ماساتشوستس (301 CMR 11.03) (إذا كانت معروفة)

- [301 CMR 11.03(3)(b)(1a)]: تغيير الضفة الساحلية.
- [301 CMR 11.03(3)(b)(1e)]: تعبئة جديدة أو هيكل جديد أو توسيع لحشو أو هيكل موجود في منطقة السرعة.
- [301 CMR 11.03(3)(f)]: تعديل نصف هكتار أو أكثر من أي أراضي رطبة أخرى.
- [301 CMR 11.03(3)(f)(6)]: إنشاء أو إعادة بناء أو توسعة هيكل حشو صلب قائم بمساحة 1000 قدم مربع أو أكثر من المنطقة الأساسية.

3. يُرجى إدراج جميع التراخيص الخاصة بالولاية والتراخيص المحلية والفيدرالية التي من المتوقع أن يتم الحصول عليها لتنفيذ المشروع (إذا كانت معروفة)

الوكالة	الموافقة
محلي	
لجنة المحافظة على مدينة بوسطن	• ترتيب شروط قانون حماية الأراضي الرطبة
هيئة بوسطن للمياه والصرف الصحي	• مراجعة مخطط الموقع
خاص بالولاية	
المكتب التنفيذي للطاقة والشؤون البيئية	• مراجعة قانون ولاية ماساتشوستس للسياسات البيئية
سلطة النقل في ولاية ماساتشوستس	• استئجار الأرض
قسم الحماية البيئية في ولاية ماساتشوستس	• إشعار بالبناء والهدم • شهادة جودة المياة (401)
مكتب إدارة المنطقة الساحلية في ولاية ماساتشوستس	• مراجعة الاتساق الفيدرالية
هيئة ولاية ماساتشوستس المعنية بالجوانب التاريخية	• تحديد عدم وجود تأثير سلبي على الجوانب التاريخية
مجلس الموارد الأثرية المغمورة بالمياه	• مراجعة موقع العمل/ المشروع المقترح لتحديد ما إذا كان التنقيب الاستكشافي أو تصريح (تصاريح) الاستخدام الخاص ضروريا
الموافقات الفيدرالية	
فيلق المهندسين التابع للجيش الأمريكي	• رخصة العمل في المياه التي يمكن الإبحار فيها (القسم 10) • رخصة حسب قانون المياه النظيفة (القسم 404)
القانون الوطني للسياسات البيئية	• التقييم البيئي
الإدارة الفيدرالية للطيران	• تحديد عدم وجود خطورة على الملاحة الجوية
الوكالة الأمريكية لحماية البيئة	• رخصة عامة للبناء من النظام الوطني للتخلص من المواد الملوثة

4. يُرجى تحديد الفئات السكانية والخصائص المتعلقة بالعدالة البيئية (الأقليات، والدخل، والعزل الإنجليزي) ضمن مسافة 5 أميال من موقع المشروع (يمكن إرفاق خارطة تحدد المحيط بمسافة 5 أميال من (EJ Maps Viewer) عوضا عن السرد)

يقع موقع المشروع داخل مجتمع يتعلق بالعدالة البيئية ويتم تحديد غالبية المجتمعات داخل دائرة نصف قطرها 5 أميال من موقع المشروع على أنها من المجتمعات المتأثرة بالعدالة البيئية. يُرجى الاطلاع على الخريطة المرفقة.

5. يُرجى تحديد أي بلدية أو منطقة تعداد سكاني تفي بتعريف "معايير الصحة الضعيفة الخاصة بالعدالة البيئية" في أداة العدالة البيئية التابعة لقسم الصحة العامة الموجودة كليا أو جزئيا في دائرة نصف قطرها ميل واحد من موقع المشروع.

الربو عند الأطفال:
البلدية: بوسطن

مناطق التعداد السكاني (مادة الرصاص في دم الأطفال):
- 25025051200
- 25025050600
- 25025050500
- 25025050400

- 25025050200
- 25025050101
- 25025050901

مناطق التعداد السكاني (نقص الوزن عند الولادة):

- 25025051200
- 25025030300
- 25025060600
- 25025050101
- 25025050901
- 25025020303
- 25025030100
- 25025030400
- 25025050300
- 25025050400

6. يُرجى تحديد التأثيرات البيئية والصحية العامة المحتملة على المدى القصير والطويل والتي قد تؤثر على سكان موضوع العدالة البيئية وأي تخفيف متوقع.

من غير المتوقع أن ينتج عن المشروع تأثيرات بيئية أو صحية عامة محتملة طويلة الأمد أو دائمة قد تؤثر على سكان موضوع العدالة البيئية.

تعتبر تأثيرات جودة الهواء في فترة البناء المؤقتة مصدرا محتملا للتأثيرات الصحية السلبية على المجتمع المحلي. ولتجنب أو تقليل آثار الغبار المنتشر وانبعاثات العادم من مركبات البناء، سيتم استخدام تدابير التخفيف المناسبة، مثل استخدام معدات الديزل المعدلة ومناطق ترطيب أثناء البناء. ولتجنب أو تخفيف أو تقليل آثار التلوث الضوضائي لفترة البناء المؤقتة، سيمتثل المشروع لقانون مدينة بوسطن للضوضاء والعمل. وسيتم بذل الجهود لتقليل تأثير الضوضاء الناتجة عن أنشطة البناء، بما في ذلك كاتمات الصوت المناسبة على جميع المعدات مثل ضواغط الهواء ومعدات اللحام، وصيانة كاتمات السحب والعادم، وإيقاف تشغيل معدات التباطؤ، واستبدال العمليات والتقنيات المحددة بأخرى أقل ضوضاء، وتدابير أخرى مناسبة للحد من الضوضاء.

7. يُرجى تحديد فوائد المشروع، بما في ذلك "الفوائد البيئية" على النحو المحدد في (301 CMR 11.02)، التي قد تحسن الظروف البيئية أو الصحة العامة لسكان موضوع العدالة البيئية.

سيعمل المشروع على تحسين الظروف البيئية المحلية بشكل كبير. وسيعيد المشروع تطوير رصيف مهجور متهدم وتحويله إلى حديقة عامة تطل على الماء وبمعايير عالمية تؤكد على المرونة وتعزز الوصول إلى الاستجمام في الهواء الطلق. وستعمل الحديقة على زيادة المساحات الخضراء، وتقليل التأثيرات الحرارية للجُزر الحضرية، وتكون نموذجا لأفضل الممارسات وتولّد حلولاً طبيعية مُبتَكَرة تُظهر حماية مُحتملة من الفيضانات وغمر اليابسة اللذان يحصلان بسبب ارتفاع مستوى البحر، وزيادة وصول الناس إلى الواجهة البحرية. وقام صاحب المشروع بإشراك الآلاف من اعضاء المجتمع المحلي من خلال عدة جلسات لتلقي الملاحظات وتوفير فرص أخرى للمشاركة لضمان أن يكون تصميم الحديقة مقبولا ويمكن الوصول إليه ويتوافق مع الاحتياجات الحالية ومخاوف السكان.

8. يُرجى وصف كيف يمكن للمجتمع أن يطلب عقد اجتماع لمناقشة المشروع، وكيف يمكن للمجتمع أن يطلب خدمات الترجمة الشفوية في الاجتماع. كما يُرجى تحديد كيفية طلب وسائل الراحة الأخرى، بما في ذلك الاجتماعات بعد ساعات العمل وفي المواقع القريبة من وسائل النقل العام.

يمكن لأعضاء المجتمع المحلي طلب اجتماع أو الحصول على معلومات، بما في ذلك المواد المترجمة، من خلال الاتصال بالسيدة/ إيمي جي. إيناتيان (Amy G. Eynatian) على الإيميل: aeynatian@thetrustees.org، أو على الهاتف: 978-338-1127. ويمكن أيضا إرسال طلبات وسائل الراحة، بما في ذلك عقد الاجتماعات بعد ساعات العمل وفي المواقع القريبة من وسائل النقل العام إلى السيدة/ إيمي جي. إيناتيان (Amy G. Eynatian).

ستتوفر معلومات حول المشروع باللغة الإنجليزية والاسبانية والعربية على المواقع الالكترونية أدناه:

Trustees: https://onewaterfront.thetrustees.org/pp3
coUrbanize: Piers Park III, East Boston Official Site | Boston, MA - coUrbanize

CHINESE

环境公平筛查表

项目名称	码头公园 III
MEPA备案预计日期	“扩展环境告知表（EENF）”预计2023年2月
动议方	保护地受托人
联系信息（如顾问）	**动议方** 保护地受托人 200 High Street Boston, MA 02110 联系人： 尼克 • 布莱克（Nick Black） nblack@thetrustees.org 617-542-7696 **产权拥有方：** 马萨诸塞州港务局 One Harborside Drive, Suite 200S East Boston, MA 02128 联系人： 梅根-戴维斯-凯西（Meghan Davis Casey） Mcasey@massport.com 617-568-1092 **翻译联系人：** 艾米 • 埃纳蒂安（Amy G. Eynatian） aeynatian@thetrustees.org 978-338-1127 **规划和许可顾问：** Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 联系人： 杰米 • 费伊（Jamie Fay） jfay@fpa-inc.com 617-279-4384
项目公开网站，或可以获取项目材料的其他实体地点（如有）	网站： **受托人：** https://onewaterfront.thetrustees.org/pp3 **协调信息平台（coUrbanize）：** https://courbanize.com/projects/pierspark3/information 项目材料可以在以下地点获取： East Boston YMCA 215 Bremen Street, Boston, MA 02128 **或**

	波士顿公共图书馆东波士顿分馆 365 S. Bremen Street, Boston, MA 02128
项目所在市镇及项目的邮政编码（如果知道）	所在市镇：波士顿 邮政编码： 02128
项目类型*（列出所有适用类型）	海滩养护、娱乐、防灾
项目地点是否位于百年一遇级别FEMA洪泛平原之内？是/否/未知	是
室内空调温室气体排放量估算（点击 **这里**获取温室气体估算工具）	每年 0 吨

项目描述

1.请简要描述项目，包括项目场地的总体规模和拟议建筑物的面积和结构（如已知）。 保护地受托人动议建造一座公共公园，位于东波士顿马奇街，名为“码头公园III”，毗邻码头公园I和码头公园II。码头公园III场地现有一个约3.6英亩的破旧木制、钢制和沥青结构体，延伸到波士顿港，30多年来一直没有使用，也不允许进入。码头公园III将具有气候防灾和生态恢复功能，同时增加公众进入东波士顿海滨的通道。 作为生态设计的一部分，该项目拟建造盐沼、沿海草场、潮汐池以及增强生境区各一。拟建的绿色基础设施模仿自然海岸线，能够吸引本地物种，并具有自然防洪功能。该项目将提供各种游客活动设施，包括城市天际线和港口独特景观视角、教育项目、跑步和步行小道、亲水海滨道、皮划艇下水口和一个钓鱼点。建成后的公园面积约为 2.英亩。
2.列出预期的 MEPA 审查阈值 (301 CMR 11.03)（如已知） • 301 CMR 11.03(3)(b)(1a): 沿海堤岸改造。 • 301 CMR 11.03(3)(b)(1e): 在地壳低速带新建填充物、结构物，或扩大现有填充物或结构物。 • 301 CMR 11.03(3)(f): 改造其他湿地达到半英亩或更多。 • 301 CMR 11.03(3)(f)(6): 建造、重建或扩大现有基础面积为1,000平方英尺或以上的固体填充结构物。

3.列出项目预期所需的所有州政府、地方政府和联邦政府许可证（如已知）

机构	审批
本地	
波士顿保护委员会	• WPA维护状况令
波士顿水务及下水道委员会	• 下水道和供水连接许可证
州政府	
能源和环境事务 (EOEEA) 执行办公室	• 《马萨诸塞州环境政策法》（气象和环保署）审查
马萨诸塞州港务局	• 土地租赁局
马萨诸塞州环境保护部	• 拆建告知书 • 水质认证 (401)
马萨诸塞州海岸带管理办公室 (CZM)	• 联邦一致性审查
马萨诸塞州历史委员会	• 无不利影响裁定
水下考古资源委员会 (BUAR)	• 审查拟议的施工/项目现场，从而确定是否需要勘察挖掘或特殊使用许可证
联邦政府	
美国陆军工程兵团	• 通航水域施工（第 10 条）许可证 • 清洁水法（第 404 节）许可证
国家环境政策法(NEPA)	• 环境评估
联邦航空管理局	• 不危害空航测定
国家环境保护局	• NPDES建造普通许可证

4.说明项目场地 5 英里范围内的“环境公平”（以下称“EJ”）人口情况及相应特征（少数民族、收入、英语障碍）（可使用“环境公平”地图查看器，附地图显示5英里半径代替文字描述）

项目场地位于“环境公平”社区之内，并且项目场地 5 英里半径内的大多数社区被确定为“环境公平”社区。请查看所附地图。

5.使用DPH EJ 工具 说明全部位于或部分位于项目场地 1 英里半径范围内，且符合“弱势健康环境公平标准”定义的城市或人口普查区

儿童哮喘：

所在市：波士顿

儿童血铅：

人口普查区：

- 25025051200
- 25025050600
- 25025050500
- 25025050400
- 25025050200
- 25025050101
- 25025050901

低出生体重：

人口普查区：

- 25025051200
- 25025030300
- 25025060600
- 25025050101
- 25025050901
- 25025020303
- 25025030100
- 25025030400
- 25025050300
- 25025050400

6.说明可能影响环境公平人口的潜在的短期和长期环境及公共卫生因素，以及相应的预期缓解措施

预计该项目不会导致可能影响EJ人群的潜在长期或永久性不利环境或公共卫生因素。

施工期临时的空气质量影响是当地社区不利健康影响的潜在来源。为避免或尽量减少施工车辆扬尘和废气排放的影响，项目将采取适当的缓解措施，例如在施工期间采用柴油改装设备、设置空气加湿区域。为避免、减轻或尽量减少临时施工期噪音污染影响，项目将执行《波士顿市噪音和施工条例》。项目将努力尽量减少施工活动的噪音影响，包括在所有设备上安装适当的消声器，如空气压缩机和焊接设备，养护进排气消声器，关闭空转设备，采用噪音较小的施工方式和技术设备，以及其他适当的降噪措施。

7.明确项目效益，包括《麻州通法301 CMR 11.02》定义的“环境效益”，改善环境公平人口的环境条件或公共卫生

该项目将显着改善当地的环境状况。该项目将把一个废弃、破旧的码头开发成一个世界级的公共滨水公园，放大防灾功能并促进户外休闲活动。该公园将增加绿地，减少城市热岛效应，采用最佳实践措施并创新自然环境方案，为未来海平面上升引起的洪灾水患做好潜在保护，并增加公众进入海滨的通道。动议方通过公众意见征询会以及其他活动调动社区参与达数千人次，确保公园的设计公平公开、无语言障碍，符合当前需求以及邻里关注的问题。

8.描述社区要求召开会议讨论项目的程序，以及社区要求会议提供口语翻译服务的程序。说明公众如何申请其他特殊安置措施，包括下班时间之后的公众会议，以及邻近公交地点的公众会议。

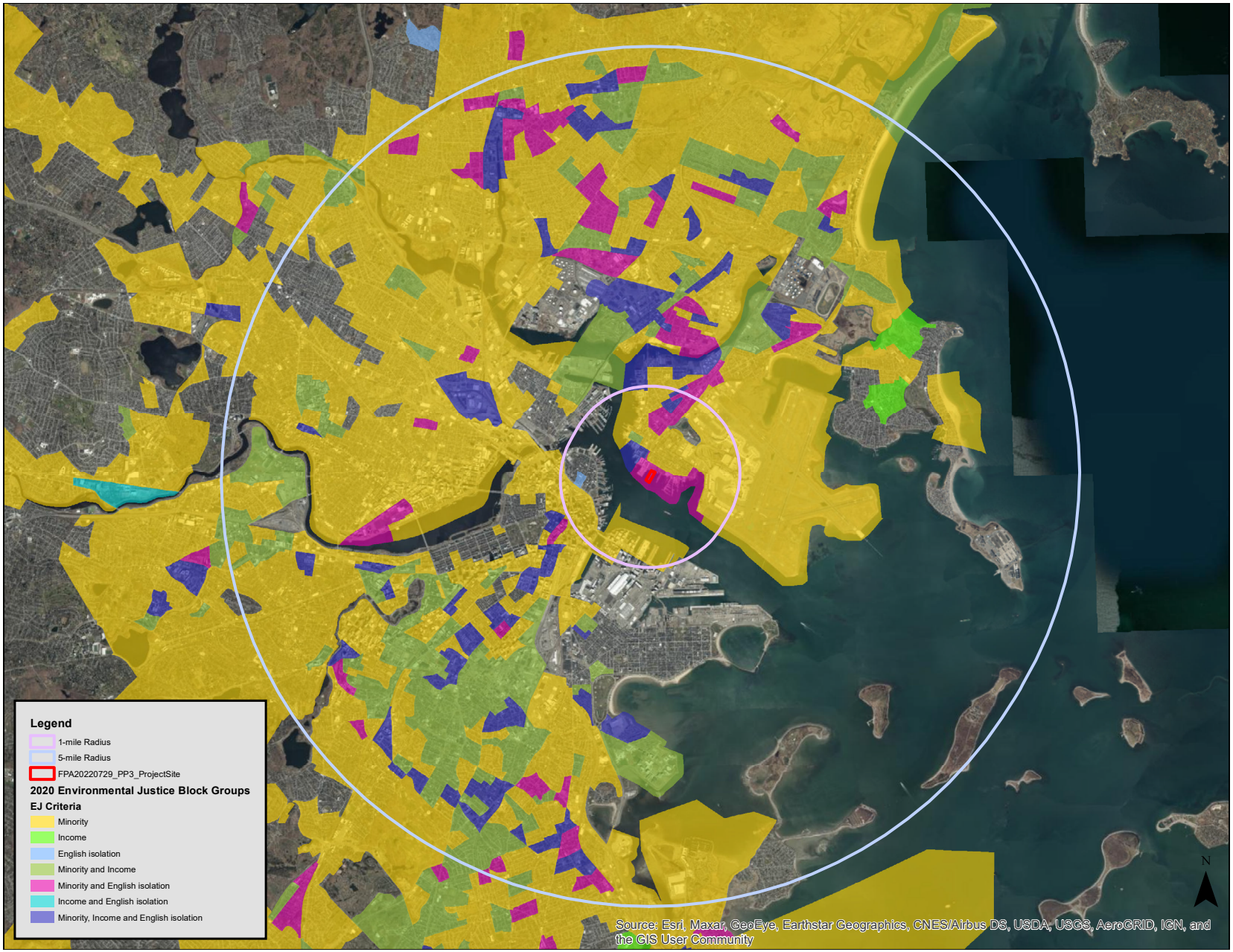
社区成员可以联系艾米 • 埃纳蒂安（Amy G. Eynatian）要求召开会议或获取相关信息，包括翻译材料，电邮：aeynatian@thetrustees.org，电话：978-338-1127。特殊安置要求，包括下班时间之后及公交附近地点的会议请求，也可以发送给艾米 • 埃纳蒂安（Amy G. Eynatian）。

项目信息的英文、西班牙文、阿拉伯文和中文版本可以通过以下网站获取：

受托人：https://onewaterfront.thetrustees.org/pp3

协调（coUrbanize）：东波士顿码头公园III官方网站 | 马萨诸塞州波士顿 - coUrbanize

EJ COMMUNITIES WITHIN 5-MILES OF THE PROJECT SITE



East Boston, MA

EJ Communities within 5-miles of the Project Site
Source: MassEEA, 2022; Fort Point Associates, Inc, 2022

Attachment D

RMAT TOOL OUTPUT REPORT

Climate Resilience Design Standards Tool Project Report

Piers Park III
Date Created: 12/14/2022 2:51:50 PM
Date Report Generated: 2/22/2023 3:26:37 PM
Project Contact Information: Nick Black (nblack@thetrustees.org)
Created By: bcullinan
Tool Version: Version 1.2

Project Summary

Link to Project

Estimated Capital Cost: $30000000.00
End of Useful Life Year: 2074
Project within mapped Environmental Justice neighborhood: Yes

Ecosystem Service Benefits	Scores
Project Score	High
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: 5

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Salt Marsh	—— Natural Resource project assets do not receive a preliminary climate risk rating. ——			
Piers Park	—— Natural Resource project assets do not receive a preliminary climate risk rating. ——			
Fishing Pier	High Risk	High Risk	Low Risk	High Risk
Kayak Launch	High Risk	High Risk	Low Risk	High Risk
Stone Revetment	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					
Salt Marsh	2030				
Piers Park	2030				
Fishing Pier	2070	2050		50-yr (2%)	
Kayak Launch	2070	2050		50-yr (2%)	
Stone Revetment	2070	2050		100-yr (1%)	
Extreme Precipitation					

Salt Marsh	2030			Tier 1
Piers Park	2030			Tier 1
Fishing Pier	2070		10-yr (10%)	Tier 2
Kayak Launch	2070		10-yr (10%)	Tier 2
Stone Revetment	2070		50-yr (2%)	Tier 3
Extreme Heat				
Salt Marsh	2030	50th		Tier 1
Piers Park	2030	50th		Tier 1
Fishing Pier	2070	50th		Tier 2
Kayak Launch	2070	50th		Tier 2
Stone Revetment	2070	50th		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
- Existing impervious area of the project site is greater than 50%
- No historic flooding at project site
- No increase to impervious area

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
- Existing impervious area of the project site is greater than 50%
- 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 - Salt Marsh
Primary asset criticality factors influencing risk ratings for this asset:

No score available

Asset - Piers Park
Primary asset criticality factors influencing risk ratings for this asset:

No score available

Asset - Fishing Pier
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
- The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
- Some alternative programs and/or services are available to support the community
- Cost to replace is less than $10 million
- There are no hazardous materials in the asset

Asset - Kayak Launch
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
- Less than 1,000 people would be directly affected by the loss/inoperability of the asset
- The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
- Few alternative programs and/or services are available to support the community
- 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 - Stone Revetment
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable during natural hazard event, but must be accessible/operable within one day after natural hazard event
- Loss/inoperability of the asset would have impacts limited to local area and/or municipality
- The infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
- 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

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: Salt Marsh — Natural Resources

Sea Level Rise/Storm Surge

Target Planning Horizon: 2030
Intermediate Planning Horizon: Not Applicable

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: APPLICABLE

Planning Horizon	MHHW	MHW	MTL	MLW	MLLW
	(ft-NAVD88)				
2030	6.5	6.1	1.3	-3.5	-3.8

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Salt Marsh	2030	5% (20-Year)	9.7	9.7	9.7

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Salt Marsh	2030	5% (20-Year)	13.5	9.7	10.4

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Salt Marsh	2030	5% (20-Year)	5.5	0.0	1.7

Return Period Recommendations for natural resource assets and subsequent projected values are provided as a consideration for users, not a formal standard. Users should follow industry best practices for designing natural resource assets in coordination with the appropriate regulatory agencies.

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: APPLICABLE
Methodology to Estimate Projected Values

Extreme Precipitation

Target Planning Horizon: 2030

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 1

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
Salt Marsh	2030	25-Year (4%)	7.1	Downloadable Methodology PDF

Return Period Recommendations for natural resource assets and subsequent projected values are provided as a consideration for users, not a formal standard. Users should follow industry best practices for designing natural resource assets in coordination with the appropriate regulatory agencies.

ATTENTION: This is a Tier 1 project. It is advised to compare the extreme precipitation output values to the NOAA+ methodology to calculate total precipitation depth for 24-hr design storms.

This methodology can be found in the following PDF. (Link).

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat

Target Planning Horizon: 2030
Percentile: 50th Percentile

Applicable Design Criteria

Projected Annual/Summer/Winter Average Temperatures: NOT APPLICABLE

Projected Heat Index: NOT APPLICABLE

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: NOT APPLICABLE

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: NOT APPLICABLE

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Piers Park — Natural Resources

Sea Level Rise/Storm Surge

Target Planning Horizon: 2030
Intermediate Planning Horizon: Not Applicable

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)				
2030	6.5	6.1	1.3	-3.5	-3.8

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Piers Park	2030	5% (20-Year)	9.7	9.7	9.7

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Piers Park	2030	5% (20-Year)	13.5	9.7	10.4

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Piers Park	2030	5% (20-Year)	5.5	0.0	1.7

Return Period Recommendations for natural resource assets and subsequent projected values are provided as a consideration for users, not a formal standard. Users should follow industry best practices for designing natural resource assets in coordination with the appropriate regulatory agencies.

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation

Target Planning Horizon: 2030

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 1

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
Piers Park	2030	25-Year (4%)	7.1	Downloadable Methodology PDF

Return Period Recommendations for natural resource assets and subsequent projected values are provided as a consideration for users, not a formal standard. Users should follow industry best practices for designing natural resource assets in coordination with the appropriate regulatory agencies.

ATTENTION: This is a Tier 1 project. It is advised to compare the extreme precipitation output values to the NOAA+ methodology to calculate total precipitation depth for 24-hr design storms.

This methodology can be found in the following PDF. (Link).

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

Extreme Heat

Target Planning Horizon: 2030
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 1

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 1

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 1

Projected Growing Degree Days: APPLICABLE
Methodology to Estimate Projected Values : Tier 1

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: NOT APPLICABLE

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 1

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Fishing Pier — Building/Facility

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 50-yr (2%)

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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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: APPLICABLE

Planning Horizon	MHHW	MHW	MTL	MLW	MLLW
	(ft-NAVD88)				
2050	7.8	7.4	2.5	-2.4	-2.7
2070	9.7	9.3	4.3	-0.7	-1.0

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Fishing Pier	2050	2% (50-Year)	11.7	11.7	11.7
	2070		13.6	13.5	13.5

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Fishing Pier	2050	2% (50-Year)	16.6	11.7	13.1
	2070		18.4	13.5	14.9

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Fishing Pier	2050	2% (50-Year)	7.0	0.0	2.7
	2070		7.0	0.0	2.7

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation High Risk

Target Planning Horizon: 2070
Return Period: 10-yr (10%)

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
Fishing Pier	2070	10-Year (10%)	6.9	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): APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Asset: Kayak Launch — Building/Facility

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 50-yr (2%)

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	9.7	9.3	4.3	-0.7	-1.0

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Kayak Launch	2050	2% (50-Year)	11.7	11.7	11.7
	2070		13.6	13.5	13.5

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Kayak Launch	2050	2% (50-Year)	16.6	11.7	13.1
	2070		18.4	13.5	14.9

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Kayak Launch	2050	2% (50-Year)	7.0	0.0	2.7
	2070		7.0	0.0	2.7

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation High Risk

Target Planning Horizon: 2070
Return Period: 10-yr (10%)

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
Kayak Launch	2070	10-Year (10%)	6.9	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): APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Asset: Stone Revetment — 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	9.7	9.3	4.3	-0.7	-1.0

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Stone Revetment	2050	1% (100-Year)	12.2	12.2	12.2
	2070		14.0	13.9	14.0

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Stone Revetment	2050	1% (100-Year)	17.8	12.2	13.7
	2070		19.6	14.0	15.6

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average (Feet)
Stone Revetment	2050	1% (100-Year)	8.0	0.0	3.0
	2070		8.0	0.0	3.1

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
Stone Revetment	2070	50-Year (2%)	9.6	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: 50th 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

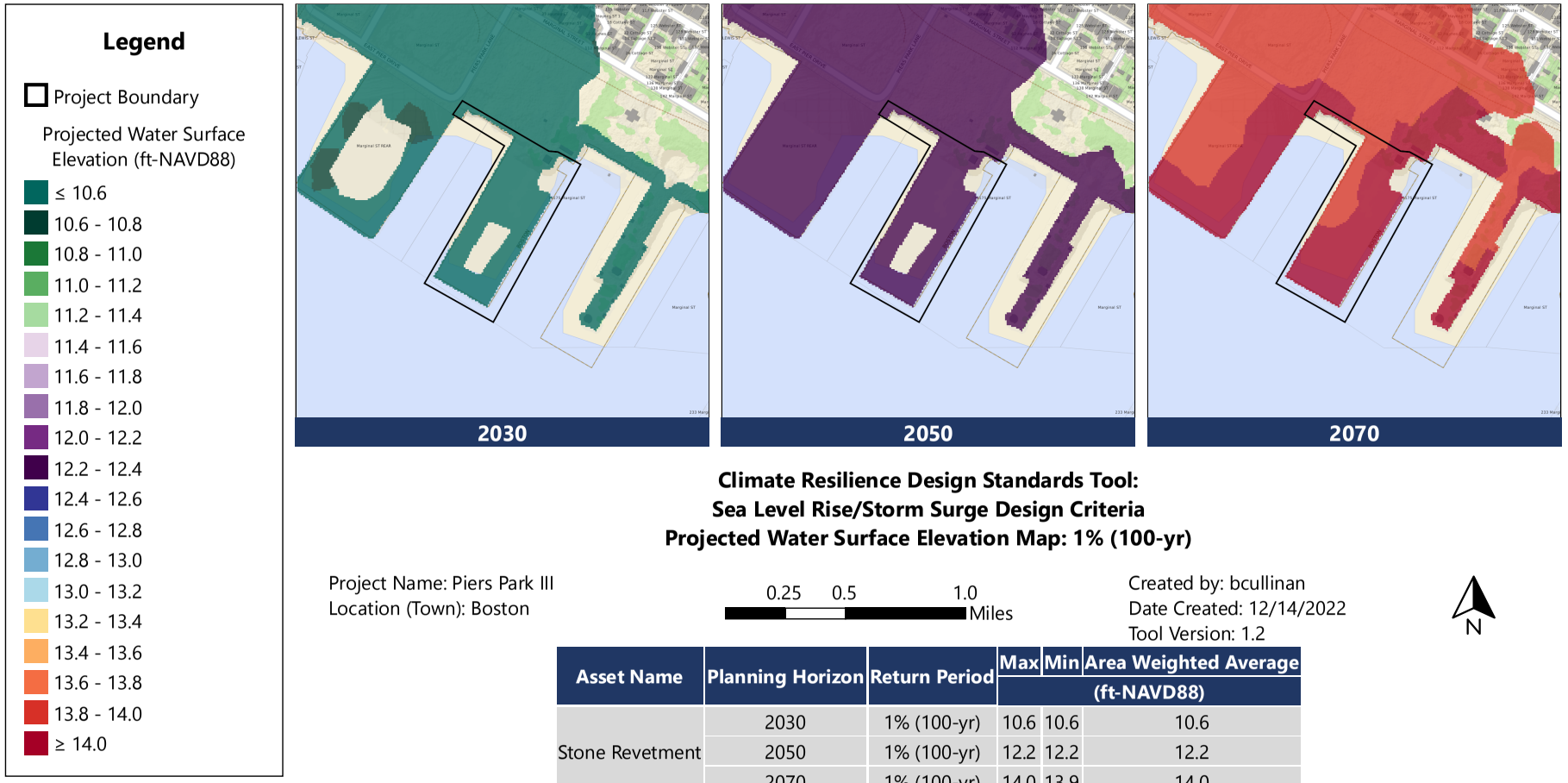
Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

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.



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 1% (100-yr)

Project Name: Piers Park III
Location (Town): Boston

0.25 0.5 1.0 Miles

Created by: bcullinan
Date Created: 12/14/2022
Tool Version: 1.2

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Stone Revetment	2030	1% (100-yr)	10.6	10.6	10.6
	2050	1% (100-yr)	12.2	12.2	12.2
	2070	1% (100-yr)	14.0	13.9	14.0

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surve Design Criteria
Projected Water Surface Elevation Map: 2030, 1% (100-yr)

Project Name: Piers Park III
Location (Town): Boston

0.05 0.1 0.25 Miles

Created by: bcullinan
Date Created: 12/14/2022
Tool Version: 1.2

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Stone Revetment	2030	1% (100-yr)	10.6	10.6	10.6

Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surve Design Criteria
Projected Water Surface Elevation Map: 2050, 1% (100-yr)

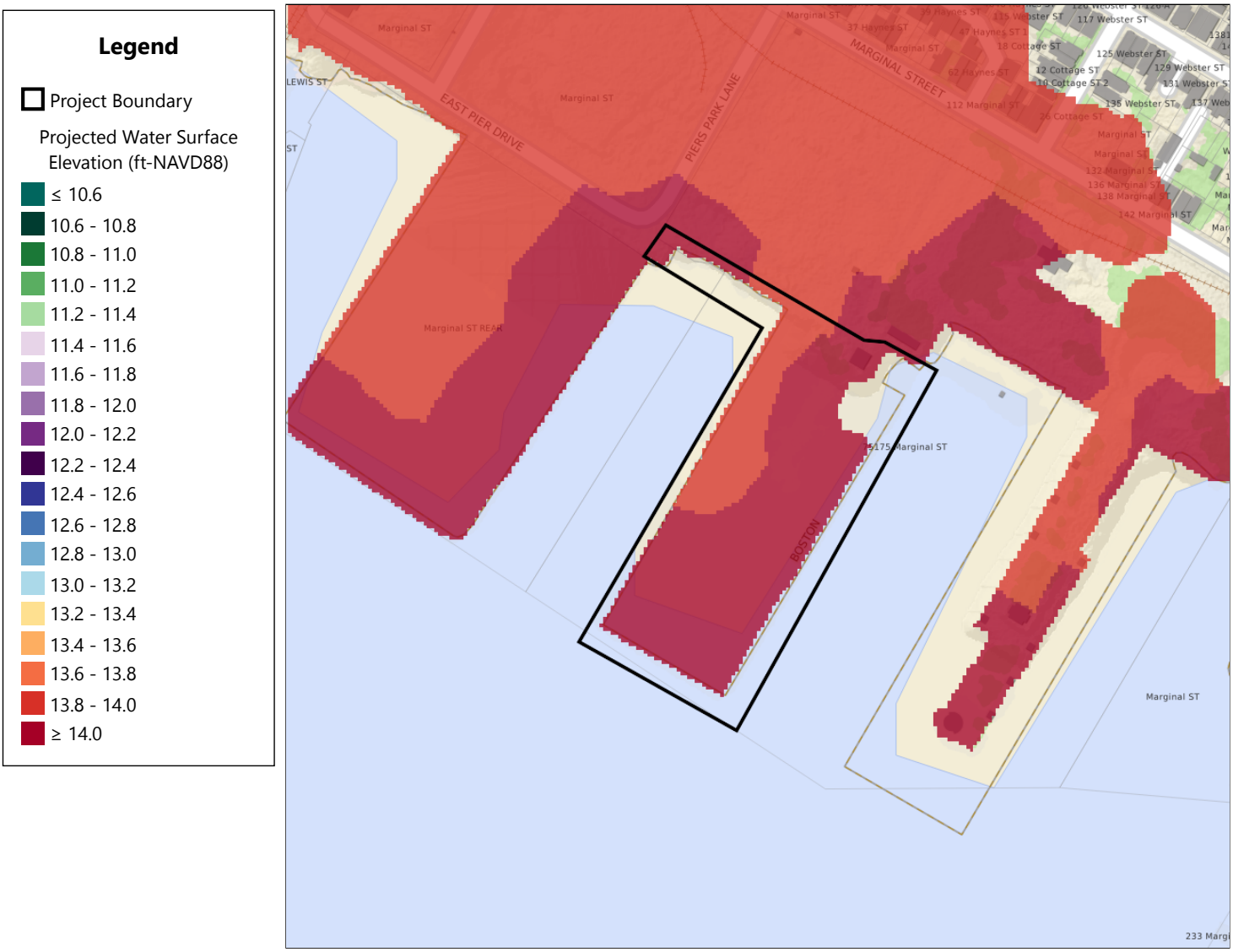
Project Name: Piers Park III
Location (Town): Boston

0.05 0.1 0.25 Miles

Created by: bcullinan
Date Created: 12/14/2022
Tool Version: 1.2

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Stone Revetment	2050	1% (100-yr)	12.2	12.2	12.2



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surve Design Criteria
Projected Water Surface Elevation Map: 2070, 1% (100-yr)

Project Name: Piers Park III
Location (Town): Boston

0.05 0.1 0.25 Miles

Created by: bcullinan
Date Created: 12/14/2022
Tool Version: 1.2

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Stone Revetment	2070	1% (100-yr)	14.0	13.9	14.0

Project Inputs

Core Project Information

Name:	Piers Park III
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)?	2074
Location of Project:	Boston
Estimated Capital Cost:	$30,000,000
Who is the Submitting Entity?	Private Other Trustees of Reservation Nick Black (nblack@thetrustees.org)
Is this project being submitted as part of a state grant application?	No
Which grant program?	
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 (aka "Piers Park III") will be a signature waterfront destination, creating welcoming public open space and a natural buffer to storm surge and sea level rise. Designed in partnership with the East Boston community, the Project will create a naturally landscaped park with native plantings, seating, walking/running paths, flexible lawn space, tidal pools, salt marsh, and a kayak launch. The project will require and Order of Conditions, Sewer and Water Connection Permit, MEPA EENF, Water Quality Certificate, etc.
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ This is an ecological restoration project
- ✓ Project provides flood protection through nature-based solutions
- ✓ Project reduces storm damage
- ✓ Project promotes decarbonization
- ✓ Project filters stormwater using green infrastructure
- ✓ Project improves water quality
- ✓ Project enables carbon sequestration
- ✓ Project protects fisheries, wildlife, and plant habitat
- ✓ Project protects land containing shellfish
- ✓ Project provides recreation
- ✓ Project provides oxygen production
- ✓ Project improves air quality

Factors to Improve Output

- ✓ Protect public water supply by reducing the risk of contamination, pollution, and/or runoff of surface and groundwater sources used for human consumption
- ✓ Incorporate green infrastructure or nature-based solutions that recharge groundwater

Is the primary purpose of this project ecological restoration?

Yes

Project Benefits

Provides flood protection through nature-based solutions	Yes
Reduces storm damage	Yes
Recharges groundwater	Maybe
Protects public water supply	Maybe
Filters stormwater using green infrastructure	Yes
Improves water quality	Yes
Promotes decarbonization	Yes
Enables carbon sequestration	Yes
Provides oxygen production	Yes
Improves air quality	Yes
Prevents pollution	Yes
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	Yes
Protects land containing shellfish	Yes
Provides pollinator habitat	No

Provides recreation	Yes
Provides cultural resources/education	Yes

Project Climate Exposure

Is the primary purpose of this project ecological restoration?	Yes
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)?	Unsure
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: Salt Marsh
Asset Type: Coastal Resource Area
Asset Sub-Type: Salt marsh
Construction Type: New Construction
Construction Year: 2024
Monitoring Frequency: 1
Asset: Piers Park
Asset Type: Open Space
Asset Sub-Type: Open recreation space
Construction Type: New Construction
Construction Year: 2024
Monitoring Frequency: 1
Asset: Fishing Pier
Asset Type: Typically Unoccupied
Asset Sub-Type: Recreational facility
Construction Type: Major Repair/Retrofit
Construction Year: 2024
Useful Life: 50
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Building may be inaccessible/inoperable for more than a day, but less than a week after natural hazards events without consequences
Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.
Less than 100 people
Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
If the building/facility 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 building/facility would not be expected to result in injuries
If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?
There are no hazardous materials in the building/facility
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Minor – Inoperability will not likely affect other facilities, assets, or buildings
If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Is this a recreational facility which can be vacated during a natural hazard event?
Yes
If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?
Some alternative programs and/or services are available to support the community
If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
No impact on surrounding natural resources is expected
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?
Loss of building is not expected to reduce the ability to maintain government services.
If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?
No Impact
Asset: Kayak Launch
Asset Type: Typically Unoccupied
Asset Sub-Type: Recreational facility
Construction Type: New Construction
Construction Year: 2024

Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.

Building 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 building/facility.

Impacts limited to site only

Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.

Less than 1,000 people

Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

If the building/facility 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 building/facility would not be expected to result in injuries

If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?

There are no hazardous materials in the building/facility

If the building/facility 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 is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?

Less than $10 million

Is this a recreational facility which can be vacated during a natural hazard event?

Yes

If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?

Few alternative programs and/or services are available to support the community

If the building/facility 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 building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?

Loss of building is not expected to reduce the ability to maintain government services.

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?

No Impact

Asset: Stone Revetment

Asset Type: Dams and Flood Control Structures

Asset Sub-Type: Other Flood Barrier

Construction Type: Major Repair/Retrofit

Construction Year: 2024

Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.

Infrastructure may be inaccessible/inoperable during natural hazard event, but must be accessible/operable within one day after 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 provides 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 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)?
No Impact

Report Comments

N/A

Attachment E

EPA EJ SCREEN

EJScreen Report (Version 2.1)

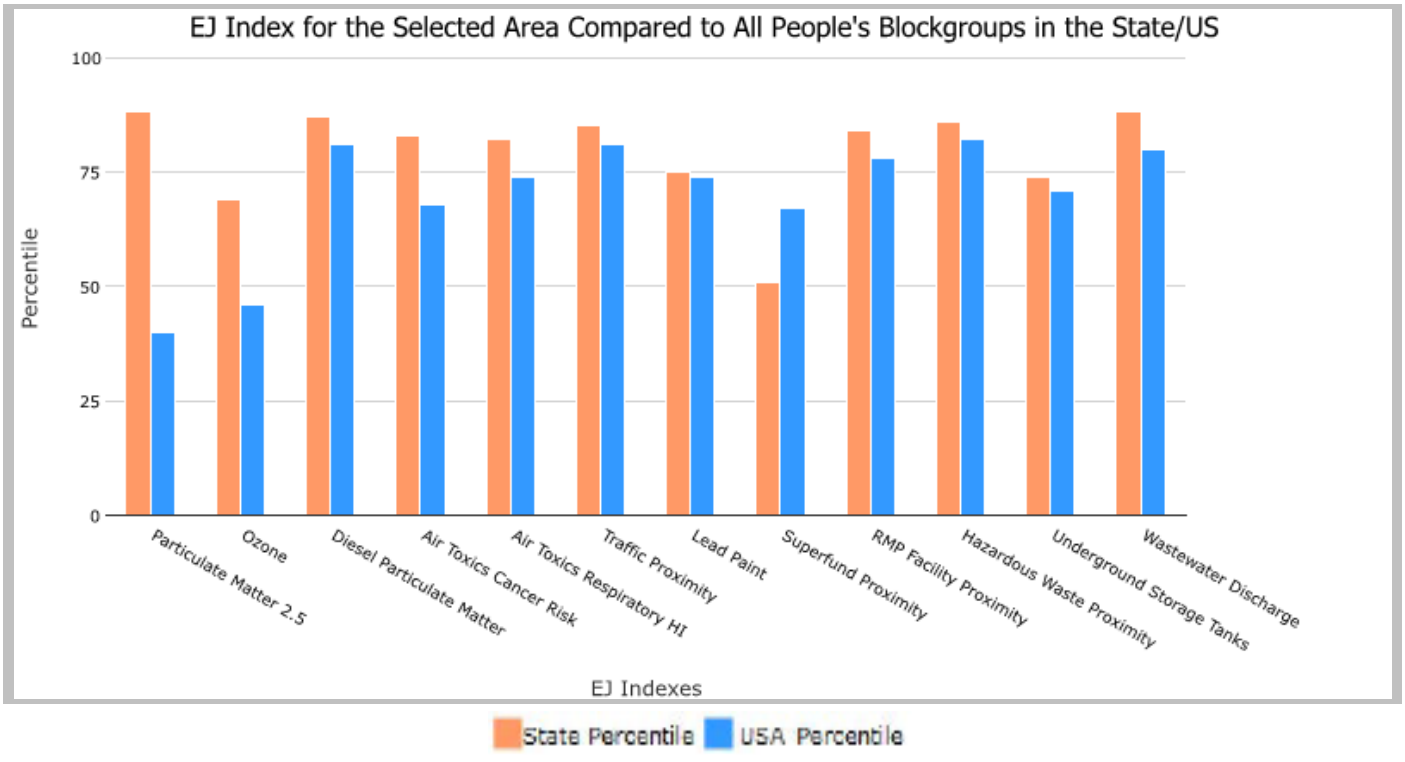
1 mile Ring around the Area, MASSACHUSETTS, EPA Region 1

Approximate Population: 42,643

Input Area (sq. miles): 3.57

(The study area contains 2 blockgroup(s) with zero population.)

Selected Variables	State Percentile	USA Percentile
Environmental Justice Indexes		
EJ Index for Particulate Matter 2.5	88	40
EJ Index for Ozone	69	46
EJ Index for Diesel Particulate Matter*	87	81
EJ Index for Air Toxics Cancer Risk*	83	68
EJ Index for Air Toxics Respiratory HI*	82	74
EJ Index for Traffic Proximity	85	81
EJ Index for Lead Paint	75	74
EJ Index for Superfund Proximity	51	67
EJ Index for RMP Facility Proximity	84	78
EJ Index for Hazardous Waste Proximity	86	82
EJ Index for Underground Storage Tanks	74	71
EJ Index for Wastewater Discharge	88	80



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJScreen Report (Version 2.1)

1 mile Ring around the Area, MASSACHUSETTS, EPA Region 1

Approximate Population: 42,643

Input Area (sq. miles): 3.57

(The study area contains 2 blockgroup(s) with zero population.)

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	6

EJScreen Report (Version 2.1)

1 mile Ring around the Area, MASSACHUSETTS, EPA Region 1

Approximate Population: 42,643

Input Area (sq. miles): 3.57

(The study area contains 2 blockgroup(s) with zero population.)

Selected Variables	Value	State Avg.	%ile in State	USA Avg.	%ile in USA
Pollution and Sources					
Particulate Matter 2.5 (µg/m^3)	7.59	6.79	87	8.67	24
Ozone (ppb)	39	39.5	36	42.5	26
Diesel Particulate Matter* (µg/m^3)	0.825	0.307	98	0.294	95-100th
Air Toxics Cancer Risk* (lifetime risk per million)	30	24	99	28	80-90th
Air Toxics Respiratory HI*	0.48	0.3	98	0.36	90-95th
Traffic Proximity (daily traffic count/distance to road)	12000	2400	96	760	99
Lead Paint (% Pre-1960 Housing)	0.61	0.49	57	0.27	80
Superfund Proximity (site count/km distance)	0.069	0.18	25	0.13	55
RMP Facility Proximity (facility count/km distance)	1.7	0.74	85	0.77	87
Hazardous Waste Proximity (facility count/km distance)	27	5.6	95	2.2	99
Underground Storage Tanks (count/km^2)	4.2	3.4	72	3.9	74
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.069	0.21	94	12	82
Socioeconomic Indicators					
Demographic Index	37%	26%	76	35%	61
People of Color	47%	29%	77	40%	64
Low Income	28%	22%	70	30%	51
Unemployment Rate	5%	5%	60	5%	57
Limited English Speaking Households	15%	6%	86	5%	90
Less Than High School Education	15%	9%	79	12%	72
Under Age 5	5%	5%	53	6%	46
Over Age 64	10%	17%	26	16%	28

*Diesel particular matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

For additional information, see: www.epa.gov/environmentaljustice

Attachment F

DISTRIBUTION LIST

ATTACHMENT F: DISTRIBUTION LIST

Agency	Contact	
	Email Address	**Address**
Massachusetts Environmental Policy Act (MEPA) Office	MEPA@mass.gov	MEPA Office 100 Cambridge Street, Suite 900 Boston, MA 02114
Massachusetts Executive Office of Energy and Environmental Affairs	MEPA-EJ@mass.gov	MEPA Office Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02114
MA Department of Environmental Protection	helena.boccadoro@mass.gov DEP.Waterways@mass.gov Daniel.Padien@mass.gov	MassDEP Commissioner's Office 100 Cambridge Street, 9th Floor Boston, MA 02114 DEP Waterways Program Attn: Daniel J. Padien 100 Cambridge Street, 9th Floor Boston, MA 02114
MA Department of Environmental Protection Northeast Regional Office	john.d.viola@mass.gov	MassDEP Northeast Regional Office Attn: MEPA Coordinator 150 Presidential Way Woburn, MA 01801
Massachusetts Department of Transportation	MassDOTPPDU@dot.state.ma.us	MassDOT Public/Private Development Unit 10 Park Plaza Boston, MA 02116
Massachusetts Department of Transportation – District 6 Office	Michael.garrity@dot.state.ma.us	MassDOT District 6 Office Attn: MEPA Coordinator 185 Kneeland Street Boston, MA 02111
Massachusetts Historical Commission	Mail a hard copy of the filing	Massachusetts Historical Commission MA Archives Building 220 Morrissey Boulevard Boston, MA 02125
Massachusetts Office of Coastal Zone Management	joanna.m.yelen@state.ma.us robert.boeri@mass.gov	Coastal Zone Management Attn: Project Review Coordinator 251 Causeway Street, Suite 800 Boston, MA 02114

Agency	Contact	
	Email Address	**Address**
	patrice.bordonaro@mass.gov	
Massachusetts Division of Marine Fisheries	DMF.EnvReview-North@mass.gov Kate.frew@mass.gov	DMF – North Shore Attn: Environmental Reviewer 30 Emerson Avenue Gloucester, MA 01930
Massachusetts Water Resources Authority	katherine.ronan@mwra.com	Massachusetts Water Resources Authority Attn: MEPA Coordinator 100 First Avenue Charlestown Navy Yard Boston, MA 02129
Massachusetts Port Authority	bwashburn@massport.com	Massachusetts Port Authority Attn: Brad Washburn 1 Harborside Drive Boston, MA 02128
Metropolitan Area Planning Council	afelix@mapc.org mpillsbury@mapc.org	Metropolitan Area Planning Council 60 Temple Place, 6th Floor Boston, MA 02111
Boston City Council	city.council@boston.gov	Boston City Council 1 City Hall Square, Room 550 Boston, MA 02201
Boston Planning and Development Agency	BPDAmarketing@boston.gov	Boston Planning and Development Agency 1 City Hall Square, 9th Floor Boston, MA 02201
Boston Conservation Commission	CC@boston.gov	Boston Conservation Commission 1 City Hall Square, Room 709 Boston, MA 02201
Boston Board of Health	BOARDOFHEALTH@bphc.org	1010 Massachusetts Avenue Boston, MA 02118
Boston Public Library East Boston Branch	eastboston@bpl.org	Boston Public Library East Boston Branch 365 Bremen Street Boston, MA 02128
Boston Water and Sewer Commission	engcust@bwsc.org	Boston Water and Sewer Commission 980 Harrison Avenue Boston, MA 02119
United States Army Corps of Engineers	paul.j.sneeringer@nae02.usace.army.mil	United States Army Corps of Engineers New England District Attn: Paul Sneeringer 696 Virginia Road Concord, MA 01742

Agency	Contact	
	Email Address	**Address**
United States National Marine Fisheries Service	Kaitlyn.shaw@noaa.gov	NOAA GARFO Attn: Kaitlyn Shaw 55 Great Republic Drive Gloucester, MA 01930
United States Environmental Protection Agency	Croy.Rachel@epa.gov reiner.ed@epa.gov	EPA New England Attn: Rachel Croy and Ed Reiner 5 Post Office Square, Suite 100 Boston, MA 02109
Federal Aviation Administration	kenneth.patterson@faa.gov	Email only