SINGLE ENVIRONMENTAL IMPACT REPORT

MWRA Section 22 and Section 21 Water Pipeline Rehabilitation

Boston, Milton, and Quincy, Massachusetts
EEA #16633

SUBMITTED TO

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Project Description and Permitting

The Massachusetts Water Resources Authority (MWRA) proposes to rehabilitate portions of the Section 22 and Section 21 water pipelines to restore them to full function and ensure continued reliability. This Single Environmental Impact Report (SEIR) addresses the scope of analysis and response outlined in the Secretary's Certificate on the Expanded Environmental Notification Form (EENF) issued on January 13, 2023, which is required to complete the MEPA review process.

This Chapter presents information in response to comments on the Secretary's Certificate on the EENF relating to the project description as well as the requirements and status of federal, state, and local permitting and review:

- The Single EIR should include a list of any c.91 license and/or authorizations that are applicable to the project site and a response to Chapter 91 comments.
- The Single EIR should identify any changes to the project since the filing of the EENF.
- The Single EIR should identify and describe State, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions.
- The Single EIR should provide an update on coordination with MHC to assess potential archaeological sensitivity within the project site and potential impacts to contributing features located within historic districts within Section 22 Segments 1 and 4, and Section 21.

1.1 Project Description

MWRA's existing Section 22 and Section 21 are critical water pipelines that deliver drinking water to, and are located in, Boston, Milton, and Quincy, Massachusetts. The MWRA's water system is comprised of over 300 miles of pipeline, some of which is over 100 years old. Over the years,

Section 22 has required numerous repairs and Section 21 is in need of maintenance. As described in the EENF, the proposed work will entail a number of methods to ensure the long-term viability and reliability of the pipes. Some segments will be removed and replaced, while others will be cleaned and lined, or just sliplined. One segment will be redirected and installed with new piping.

1.1.1 Section 21

Section 21 is composed of an approximately 3,600-foot-long, 24-inch-diameter cast iron pipe that was originally constructed in the early 1900s. As shown in Figures 1-1 and 1-2, Section 21 begins at the intersection of Granite Avenue and Adams Street in Milton and follows Adams Street to Beale Street. The pipeline turns north onto Beale Street and continues northeast to end at the intersection with Summit Avenue. This pipeline was found to be structurally sound but heavily corroded on the interior of the pipe. To minimize construction impacts and maximize hydraulic performance, this pipe will be cleaned and lined.

1.1.2 Section 22

Section 22 was originally constructed in the 1950s and is approximately 16,000 feet long and composed primarily of 48-inch-diameter unlined steel pipe with dresser coupling joints. A 650-foot-long portion of Section 22 that runs under the Neponset River is constructed of 52-inch-diameter concrete-lined steel pipe with welded joints.

As shown in Figures 1-1 and 1-2, the segments of Section 22 proposed for rehabilitation begin in Dorchester Lower Mills in Boston, continue across the Neponset River Reservation into Milton, then travel southeast toward Hope Avenue. From there, Section 22 continues primarily in public roadways, crossing in and out of Quincy and Milton, somewhat following the municipal boundary, and ends near the intersection of Furnace Brook Parkway and Adams Street in Quincy.

For ease of discussion, the existing alignment of Section 22 was divided into four segments:

- Segment 1: *Dorchester Lower Mills to MBTA Tracks*. This segment begins at the intersection of Washington Street and Adams Street in Dorchester, Boston. It travels east along Adams Street, then turns southeast onto Butler Street. From Butler, this segment leaves the public roadway just northwest of the entrance to the Cedar Grove Cemetery, continues east across the entry driveway of the cemetery, and ends just west of the Neponset Trail and the rail for the Massachusetts Bay Transportation Authority's Mattapan Trolley. Due to its extensive leak history and associated operational concerns, this segment will be removed and replaced.
- Segment 2: *ACEC Marsh to MassDOT Yard*. This segment continues east across the trail and rail, and into the Neponset River Reservation. It crosses through salt marshes and under the Neponset River, and near the ramp for I-93 southbound it turns southeast along the ramp for approximately 400 feet then crosses under the ramp and I-93 itself to a point just west of a MassDOT maintenance facility. With the exception of the crossing under the Neponset River, this segment will be sliplined with a new 40-inch steel pipe. The approximately 600-linear-foot subsegment under the Neponset River was determined to be in good condition and no work is proposed.
- Segment 3: *MassDOT Yard to Hope Avenue*. From the corner of the MassDOT yard, Segment 3 travels southeast between I-93 and the edge of the yard and adjacent parking lot, past the American Legion Heritage Hall, and through a salt marsh to reach the intersection of Granite

Avenue and Hope Avenue. To minimize wetland impacts during construction and future maintenance, the Project proposes to install a new 48-inch-diameter pipe along a new alignment within the northern portion of the existing MassDOT maintenance facility and the roadway layout of Granite Avenue, which already includes other utilities and is predisturbed. The existing pipe that runs through wetlands behind the MassDOT maintenance facility and the salt marsh between Granite Avenue and I-93 will be capped, filled with grout, and left in place, avoiding all potential wetland impacts for this segment. The new alignment in Granite Avenue will allow for better maintenance access and avoids wetland impacts for rehabilitation and any future work.

- Segment 4: *Hope Avenue to Furnace Brook Parkway*. From the intersection of Granite Avenue and Hope Avenue, this segment of Section 22 turns east onto Hope Avenue, crosses a corner of an undeveloped parcel near Squantum Street, then continues across Squantum Street onto Amsterdam Avenue. At the end of Amsterdam Avenue, Segment 4 turns southeast across undeveloped land east of Alvin Avenue. This segment then turns south onto Elliot Avenue, southeast onto Alvin Avenue, and then crosses between residential properties onto Elmwood Avenue. Segment 4 follows Elmwood Avenue to the intersection with Milton Street, where it turns southeast onto Milton, crosses Beale Street, and continues onto Forbes Hill Road. It follows Forbes Hill Road to Stoney Brae Road, turns southeast onto Stoney Brae, then continues east onto Myopia Road. From Myopia Road, this segment turns southeast across the edge of the Furnace Brook Golf Club, turns southwest across undeveloped land behind some residential properties, and ends at the intersection of Furnace Brook Parkway and Adams Street. This segment is located primarily within existing roadways and is proposed to be cleaned and lined. Upon further internal inspection by the contractor after the pipe has been cleaned, if significant corrosion is found, short subsegments may be removed and replaced in lieu of cement mortar lining.

1.2 MEPA Review

1.2.1 MEPA Thresholds

Along with permits and approvals from Massachusetts Department of Environmental Protection (MassDEP), the Massachusetts Department of Transportation (MassDOT), the Massachusetts Department of Conservation and Recreation (DCR), the Massachusetts Historical Commission (MHC), and the Massachusetts Bay Transportation Authority (MBTA), as discussed in Section 1.4 below, the Project exceeds the following thresholds, which brings it under the jurisdiction of the Massachusetts Environmental Policy Act (MEPA):

- 301 CMR 11.03(11)(b). Any Project within a designated ACEC, unless the Project consists solely of one single family dwelling
- 301 CMR 11.03(3)(a)1.a. Alteration of one or more acres of salt marsh or bordering vegetating wetlands

In addition, the Project is located within a Designated Geographic Area around an Environmental Justice Population, and therefore an EIR is required per 301 CMR 11.06(7)(b).

1.2.2 Expanded ENF Filing

An Expanded Environmental Notification Form (EENF) for the Project was filed with the MEPA Office on December 1, 2022, and was subsequently noticed in the *Environmental Monitor* on December 7, 2022. Comment letters on the EENF were provided by the Boston Water and Sewer Commission (BWSC), DCR, MassDEP Waterways Program, MassDEP Northeast Regional Office, Office of Coastal Zone Management (CZM), and Division of Marine Fisheries (DMF). Refer to ***Chapter 5 – Response to Comments*** for a delineated list of individual comments received on the Project and responses from the Project Team. A certificate on the EENF was issued on January 13, 2023, outlining the scope of review for this SEIR. Refer to Appendix B for a delineated copy of the Certificate on the EENF and comment letters received.

1.3 Changes Since Filing the EENF

There have been no changes to the Project since filing the EENF. This SEIR provides additional analyses of potential impacts to the environment, EJ communities, and commitments to take all feasible means to avoid damage to the environment and surrounding communities or to minimize and mitigate damage to the environment to the maximum extent practicable as outlined in the scope of the Certificate on the EENF.

1.4 Required Permits and Approvals

The Project will trigger federal, state, and local environmental permits that will need to be obtained prior to construction. Approximately 3,580 square feet of temporary impacts from pipe access pits within salt marsh will require a Pre-Construction Notification to the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), and all activities within salt marsh, including temporary construction matting, will require an Individual Water Quality Certification from MassDEP under Section 401 of the CWA. At the federal level the Project will also require coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction Activities (also known as the Construction General Permit, or CGP) for greater than one acre of land disturbance. These federal permits, along with the project's location within the Massachusetts Coastal Zone, also trigger Federal Consistency Review under the Coastal Zone Management Act by CZM.

Approval by MassDEP under Chapter 91, the Massachusetts Public Waterfront Act, is required for pipe access pits and construction matting within filled tidelands and flowed tidelands below Mean High Tide. Since the proposed work within Segment 2 of Section 22 is for maintenance and repair to an existing public service project, it is considered an exempt activity. Installation of a new pipe within Granite Avenue for Segment 3A will require a Chapter 91 license. Abandonment of the existing Segment 3 of Section 22 will also require Chapter 91 review and approval. This will all be confirmed during further consultation with MassDEP during final design. Additional state approvals include a DCR Construction Access Permit, a Highway Access Permit and Land Disposition/Easement License Agreement from MassDOT, and a Right of Entry Access Agreement with the MBTA.

State approvals, along with the Project's location near known historic and archaeological resources, also trigger review by MHC in accordance with G.L. c. 9, § 27C.

The Project will involve work within areas jurisdictional to the Massachusetts Wetlands Protection Act (WPA), including Salt Marsh, Riverfront Area, Land Subject to Coastal Storm Flowage and Bordering Land Subject to Flooding. The Project largely involves repair and replacement of an existing and lawfully located facility used in the service of the public and used to provide water services, and therefore would not require filing a Notice of Intent with the Boston and Quincy Conservation Commissions (310 CMR 10.02(2)(a)2). However, the MWRA intends to file Notices of Intent in all three municipalities for the activities along the pipeline alignment. The work will utilize best practical measures to avoid and minimize impacts to wetland resource areas outside the footprint of said facility. Although the MWRA is not subject to local bylaws/ordinances, per the MWRA's Enabling Act, the Authority is committed to avoiding and minimizing impacts to wetland resource areas and intends to work with local Conservation Commissions to ensure that the project is designed and constructed in a manner that minimizes wetland impacts to the maximum extent feasible.

1.4.1 List of Approvals, Permits, and Licenses

Table 1-1 provides a summary of the required permits and approvals needed for the Project to proceed with construction.

Table 1-1 Required Permits and Approvals for the Project

Regulatory Agency	Program/Permit	Jurisdictional Trigger
Federal		
U.S. Army Corps of Engineers	Section 404, Clean Water Act: Pre-Construction Notification	Discharge of 3,580 square feet of temporarily dredged material (not counting construction mats) within salt marsh
Massachusetts Office of Coastal Zone Management	Federal Consistency Review, Coastal Zone Management Act	Project located within Massachusetts Coastal Zone and subject to federal permits
U.S. Environmental Protection Agency	National Pollutant Discharge Elimination System General Permit for Storm Water Discharges from Construction Activities	Greater than one acre of land disturbance
State		
Massachusetts Environmental Policy Act (MEPA) Office	MEPA Review	Project located within a designated ACEC; alteration of one or more acres of salt marsh or bordering vegetating wetlands; project located within a Designated Geographic Area around an Environmental Justice Population, requiring EIR-level review
Massachusetts Department of Environmental Protection (MassDEP)	Section 401, Clean Water Act: Water Quality Certification, 314 CMR 9.00	Discharge of 43,910 square feet of temporary fill material (including construction mats) within salt marsh; temporary removal of material from below mean high tide line

Regulatory Agency	Program/Permit	Jurisdictional Trigger
MassDEP	Chapter 91, Massachusetts Public Waterfront Act (310 CMR 9.00)	Work within flowed tidelands below Mean High Tide; new crossing within filled tidelands in Granite Avenue; abandonment of existing crossing of flowed tidelands adjacent to Granite Avenue
Massachusetts Historical Commission	Determination of effect on historic and archaeological properties, G.L. c. 9, § 27C	Project located near known historic and archaeological cultural resources and subject to state permits
Massachusetts Department of Conservation and Recreation (DCR)	Construction Access Permit	Project activity conducted directly on DCR lands or requires access through DCR lands or across DCR greenways and parkways.
Massachusetts Department of Transportation (MassDOT)	Highway Access Permit Land Disposition/Easement	Pipeline crossing of I-93 and MassDOT Maintenance Facility; New pipeline in Granite Avenue.
Massachusetts Bay Transportation Authority	Right of Entry License Agreement	Pipeline crossing of MBTA Red Line (Mattapan Trolley)
Local		
Conservation Commissions (Boston, Milton, Quincy)	Massachusetts Wetlands Protection Act (310 CMR 10.00)	Alteration of jurisdictional wetland resource areas along Section 22 pipeline alignment

1.4.2 Coordination with Agencies and Stakeholders since Filing the EENF

Since filing the EENF, the Project Team held or attended the following meetings with State and Local agencies:

- December 19, 2022, MEPA Site Consultation for the EENF;
- December 20, 2022, MEPA Virtual Public Hearing for the EENF;
- May 10, 2023, Meeting with MassDEP, DCR, and USACE to discuss project details and proposed mitigation; and
- May 11, 2023, Meeting with MassDEP Waterways to discuss the extent of work within Chapter 91 jurisdiction.

The Massachusetts Historic Commission did not submit any comments on the EENF and has not had any subsequent communication with the Project Team.

1.5 Consistency with Statutory and Regulatory Standards

The Project will be subject to several federal, state, and local permits and approvals.

As identified in Table 1-1, the Project will require review and approval by the U.S. Army Corps of Engineers (USACE) under the Massachusetts General Permits for Section 404 of the CWA and by the U.S. Environmental Protection Agency (USEPA) under the NPDES CGP. The Project has been designed to comply with all federal regulations, and the Authority will initiate consultation with

USACE as final engineering is further advanced. Federal Consistency Review by CZM will be completed as part of the Section 404 permit process.

The Project will also require permits or approvals at the state level from DCR for any activities conducted on or across DCR properties, and from MassDEP under CWA Section 401 and Chapter 91. The Project is also subject to approval from MHC for review of potential effects to historic and archaeological properties The MHC did not submit any comments on the EENF and has not had any subsequent communication with the Project Team. The MHC is on the distribution list for this SEIR, which allows another opportunity for comment and engagement with the Project Team. At the local level, the MWRA will file Notices of Intent under the Massachusetts Wetlands Protection Act with each Conservation Commission in Boston, Milton, and Quincy.

The sections below describe the Project's compliance with state regulatory standards associated with Massachusetts Coastal Program policies, Section 401 WQC, property subject to Chapter 91 jurisdiction, MHC review and the WPA.

1.5.1 Massachusetts Coastal Program Policies

The Massachusetts Coastal Program Policies provide the legal frame of reference for all project review activities undertaken by CZM. There are nine categories: Coastal Hazards, Energy, Growth Management, Habitat, Ocean Resources, Ports and Harbors, Protected Areas, Public Access, and Water Quality. Project compliance with these policies is discussed below and will be confirmed during final design in the context of the Federal Coastal Zone Management Act Consistency Review.

1.5.1.1 Coastal Hazards

Coastal Hazards Policy #1

The Project will result in temporary impacts to the coastal zone, and will not have any effect on the functions of storm damage prevention and flood control provided by natural coastal landforms. As described in the sections below, the Project will comply with all applicable regulations under the Massachusetts Wetlands Protection Act and Chapter 91 Waterways Program.

Coastal Hazards Policy #2

Construction of the Project will not result in any interference with water circulation or sediment transport. All proposed impacts will be temporary and disturbed areas will be restored and monitored to confirm no long-term impacts have occurred.

Coastal Hazards Policy #3

The Project will not exacerbate existing hazards or damage natural buffers or other natural resources. The temporary impacts will not cause any flooding or erosion-related damage, nor will they promote economic growth or development in hazard-prone or buffer areas. The Project is not located in a Coastal Barrier Resource Unit.

Coastal Hazards Policy #4

This policy does not apply. The Project does not involve acquisition of hazardous coastal areas or relocation of structures in high-hazard areas.

1.5.1.2 Energy

These policies do not apply. The Project does not involve development of an energy facility or affect energy conservation or use.

1.5.1.3 Growth Management

The Project will comply with these policies where appropriate. The Project does not involve development, revitalization or enhancement of existing development centers, or transportation improvements or sewage treatment/collection facilities. The Project is a water infrastructure maintenance project to ensure existing developed areas in Boston, Milton, and Quincy continue to have access to safe, reliable, high quality drinking water.

1.5.1.4 Habitat

Habitat Policy #1

The Project is not anticipated to result in any permanent impacts to critical wildlife habitat or other important functions and services such as nutrient and sediment attenuation, wave and storm damage protection, or landform movement and processes. Areas where temporary impacts will occur will be restored and monitored to confirm that no long-term impacts to these functions and services occur.

Habitat Policy #2

The Project does not involve the restoration of degraded or former habitats in coastal or marine areas. However, the proposed relocation of Segment 3 of Section 22 out of the salt marsh will avoid future disturbance of the salt marsh in the pipe's current location.

1.5.1.5 Ocean Resources

These policies do not apply. The Project is not located in the ocean.

1.5.1.6 Ports and Harbors

These policies do not apply. The Project does not involve dredging or disposal related to ports or harbors. The temporary removal of material for pipeline rehabilitation will not change existing conditions with regard to volume or velocity of water, flood storage capacity, circulation patterns, or water quality.

1.5.1.7 Protected Areas

Protected Areas Policy #1

The Project is located in the Neponset River Estuary Area of Critical Environmental Concern (ACEC). No permanent impacts are proposed, and areas of temporary impact will be restored and

monitored to confirm that there are no impacts to the values identified in the ACEC regulations at 301 CMR 12.00. Please refer to Section 3.2 on page 3-9 in ***Chapter 3 – Wetlands and Waterways*** for more details regarding the proposed restoration and monitoring.

Protected Areas Policy #2

This policy does not apply. The Project site does not include state designated scenic rivers.

Protected Areas Policy #3

This policy does not apply. The Project does not involve proposed developments in or near shore-based designated or registered historic places or those related to the Commonwealth's maritime heritage. Furthermore, as noted below, no comments have been received from MHC and the Project is not anticipated to result in adverse effects to any historic or archaeological resources.

1.5.1.8 Public Access

These policies do not apply. The Project does not involve development or recreational facilities, and there will be no increases in traffic or parking. There will be no changes to existing public uses or access.

1.5.1.9 Water Quality

These policies do not apply. The Project does not involve point-source discharges or withdrawals, nor non-point-source pollution sources such as recreational boating, agriculture, or forestry. There will be no subsurface waste discharges.

1.5.2 401 Water Quality Certification (314 CMR 9.00)

The Project will require excavation and removal of material from below the mean high tide line for coastal waters (defined as dredged material) and will result in discharge of 43,910 square feet of temporary fill material (including construction mats) within salt marsh. This work requires an Individual Water Quality Certification under Section 401 of the Clean Water Act and the implementing regulations at 314 CMR 9.00, which will be applied for during final design.

1.5.2.1 Criteria for the Evaluation of Applications for Discharge of Dredged or Fill Material

The Criteria for discharge of material are outlined at 314 CMR 9.06. These criteria require evaluation of practicable alternatives, demonstration of avoidance and minimization of impacts, and compliance with the Massachusetts Stormwater Standards.

As described above and in the original Expanded ENF, Sections 21 and 22 are in need of repair or replacement. The MWRA considered several alternative locations and construction alternatives for each section of pipe, and determined that the least disruptive and most cost-effective options for each segment are as follows:

› Section 21: Sliplining would not meet the required hydraulic capacity, and relocating or replacing the entire pipeline would result in more extensive disturbance than necessary. Cleaning and lining the pipe is the least disruptive and most cost-effective option. Note: None of the work on Section 21 pipeline would occur in any areas subject to CWA jurisdiction.

› Section 22:

- Segment 1: Full replacement is required due to the extensive leak history and associated operational concerns. Cleaning and lining the pipe would not sufficiently correct the issue, and sliplining would not provide the required hydraulic capacity. Replacing the pipe in its current location minimizes disruption time and cost by avoiding the need for new design and survey to identify existing utilities and relocate or construct around them. The existing segment is located almost entirely within existing roadways and will not result in any natural resource impacts.
- Segment 2: The existing pipe is not structurally sound and cannot be cleaned and lined. However, sliplining is hydraulically adequate and will minimize impacts to the salt marsh. No work is proposed in the segment under the Neponset River. An alternative alignment along the Neponset River Greenway would not fully avoid salt marsh impacts and would require a new crossing of the Neponset River and associated additional permitting, and use of Horizontal Directional Drilling (HDD) would still result in salt marsh impacts and would not provide adequate hydraulic capacity.
- Segment 3: This segment cannot be cleaned and lined due to a history of major leaks. Removal and replacement would result in approximately 915 linear feet of salt marsh impacts. Sliplining would still incur salt marsh impacts and would reduce the service life of the pipeline. The Project therefore proposes to relocate this segment into Granite Avenue and abandon the existing segment in the salt marsh in place, avoiding approximately 5,100 square feet of salt marsh impacts during construction and future maintenance.
- Segment 4: This segment is in reasonable condition but requires maintenance. Full removal and replacement is not warranted and would result in more extensive impacts. Sliplining would not sufficiently address pipe deficiencies. Cleaning and lining this segment is the least disruptive and most cost effective alternative.

The Project has been designed to completely avoid any permanent impacts to natural or social resources. There are no new stormwater conveyances, stormwater management systems, or any changes to existing conditions proposed. An erosion and sedimentation control plan will be developed and implemented during construction to minimize impacts to resource areas. An Invasive Species Management Plan will be developed during final design and implemented during construction. Pre-construction and post-construction monitoring of the salt marsh will be completed to demonstrate that areas affected by construction have been restored to the maximum extent practicable. Refer to Section 3.2 on page 3-9 in ***Chapter 3 – Wetlands and Waterways*** for details regarding the salt marsh restoration and monitoring plan.

1.5.2.2 Criteria for the Evaluation of Applications for Dredging and Dredged Material Management

The Criteria for dredging and dredged material management are outlined at 314 CMR 9.07. Similar to the criteria at 314 CMR 9.06, these criteria require evaluation of practicable alternatives and demonstration of avoidance and minimization of impacts. These criteria also require minimization of short-term, long-term, and cumulative impacts on the aquatic ecosystem; and a 25-foot minimum unaltered edge (where feasible) between the edge of the salt marsh and the waterward edge of the top of slope of the dredged area.

As discussed above, the project will not result in any permanent impacts to these natural resources, and short-term temporary impacts have been avoided and minimized to the extent practicable. The disturbed areas in the salt marsh will allowed time to rebound and will be restored with plantings of smooth cordgrass (*Spartina alterniflora*), salt marsh hay (*Spartina patens*), and spike grass (*Distichlis spicata*). Surficial soils and subsoils will be set aside in layers for restoration upon completion of work, and will not be stored within the salt marsh or other wetlands for the duration of the project. The area will be monitored for five growing seasons, or as otherwise specified in project permits, to confirm that the salt marsh has successfully been restored. Refer to Section 3.2 on page 3-9 in ***Chapter 3 – Wetlands and Waterways*** for details regarding the salt marsh restoration and monitoring plan.

1.5.3 Chapter 91 (310 CMR 9.00)

The Project includes work within jurisdictional flowed tidelands below Mean High Tide, as well as a new crossing of filled tidelands under Granite Avenue.

The construction of a new pipe alignment within Granite Avenue for Segment 3A of Section 22 constitutes construction of a structure not previously authorized, and will require a license application pursuant to 310 CMR 9.05(1)(a). Abandonment of the existing pipeline within flowed tidelands in Segment 3 is also subject to approval by MassDEP under Chapter 91.

The rehabilitation of the existing pipeline in Segment 2 is exempt from licensing as it consists of repair of fill or structures for the continuing use of an existing, unauthorized public service project with no unauthorized structural alteration or changes in use subsequent to January 1, 1984. Section 22 was constructed in the 1950s and has not undergone any unauthorized changes since then.

As described in the EENF, many alternative alignment and construction options were considered for each segment of the Project. While the proposed Project was found to be the best available solution that minimizes impacts to wetlands and waterways, no options were found that would meet the Project need while entirely avoiding work within Chapter 91 jurisdiction. MWRA therefore requests that, in accordance with 310 CMR 9.12(2)(d), the Secretary find that this infrastructure crossing facility is water-dependent as it cannot reasonably be located away from tidal waters.

The Project will not result in any significant restrictions to navigation or other public use or access of these waterways and tidelands. Refer to Section 3.4.3 on page 3-16 of ***Chapter 3 – Wetlands and Waterways*** for a detailed discussion of Project compliance with Chapter 91.

Applications for Chapter 91 approvals will be applied for during final design.

1.5.4 Historic and Archaeological Assets (G.L. c. 9, § 27C)

The Project is located near known historic and archaeological cultural resources and is subject to a determination of effect from the Massachusetts Historical Commission (MHC). Since the filing of the EENF, no comments or subsequent communications have been received from MHC. For this reason, it is anticipated that the Project is not likely to result in adverse effects to historic or archaeological resources. Should concerns arise, the MWRA will coordinate with MHC to address any avoidance or mitigation measures that may be needed.

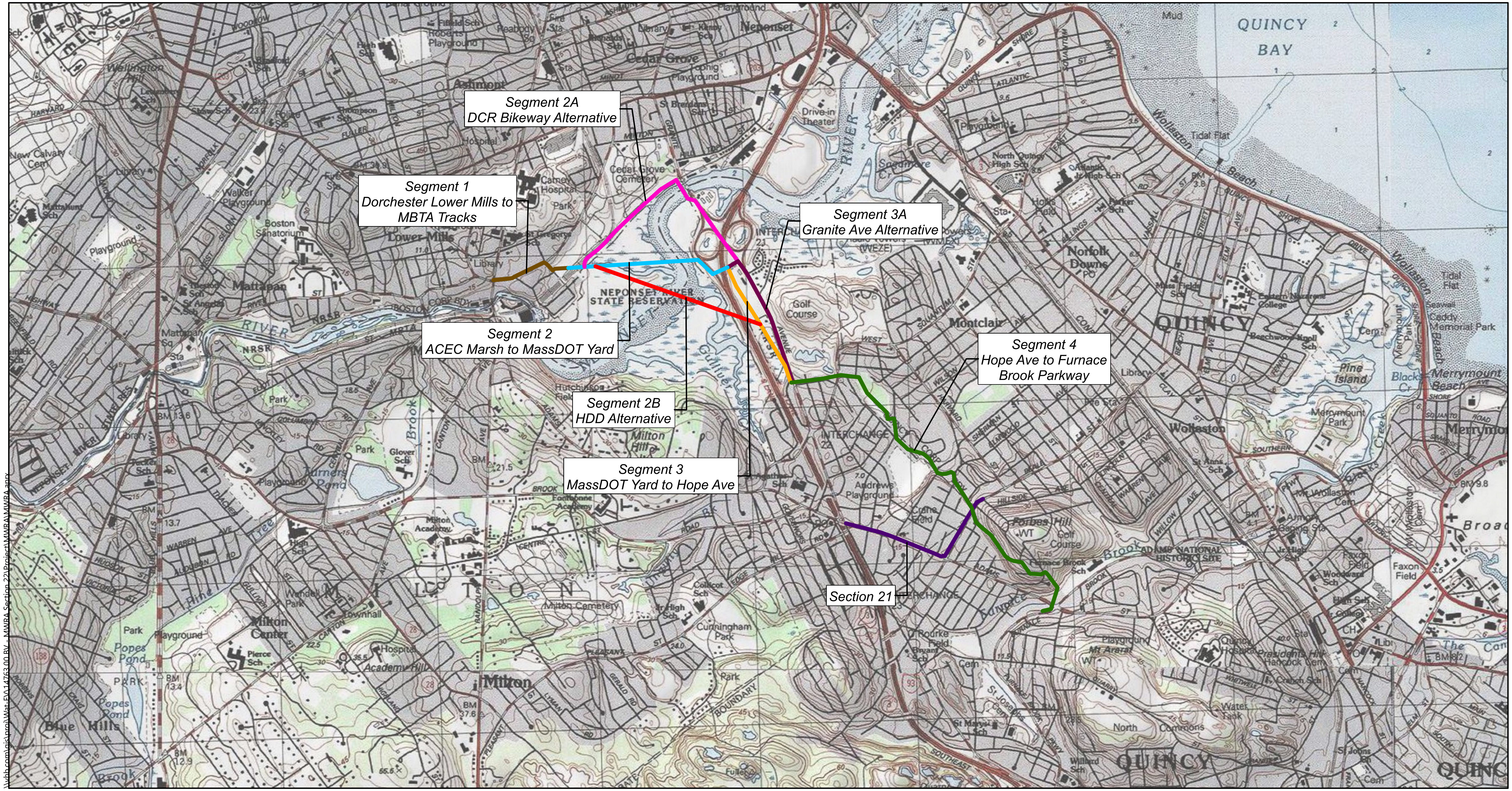
1.5.5 Massachusetts Wetlands Protection Act (310 CMR 10.00)

The Project will result in 43,910 square feet of temporary salt marsh and creek impacts along Section 22. In Boston and Quincy, the Project consists of repair and replacement of an existing and lawfully located facility used in the service of the public and used to provide water services, and therefore would not require filing a Notice of Intent with those Conservation Commissions (310 CMR 10.02(2)(a)2). However, the MWRA intends to file Notices of Intent in all three municipalities for the activities along the pipeline alignment. The rehabilitation of Section 21 does not include work in any areas subject to jurisdiction under the Wetlands Protection Act (WPA) and Section 22 will be completed in compliance with all applicable WPA performance standards.

The Project qualifies as a limited project under 310 CMR 10.24(7)(b) as reconstruction and maintenance of a water line and complies with the provisions therein. As discussed in ***Chapter 3 – Wetlands and Waterways***, adverse effects during construction will be minimized using best management practices, and the surface vegetation and contours of disturbed areas will be substantially restored. All spoils will be removed from the salt marsh for upland storage upon excavation, and the trench will be restored using the original materials to the extent feasible. The surface vegetation will be restored substantially to its original condition by planting plugs of smooth cordgrass (*Spartina alterniflora*), salt marsh hay (*Spartina patens*), and spike grass (*Distichlis spicata*) upon completion of construction. The restored area will be monitored for five years, or as otherwise required by project permits, and planting replacements or other remedial actions will be taken as needed to establish a successful restoration. Swamp mats will be used to protect the salt marsh from tire marks, trenches, or ruts from vehicle and equipment access. The proposed work will not result in any thermal influence on the salt marsh; proposed work involves repair of the existing pipe and will not change existing conditions.

The Project will comply with the applicable performance standards for work within salt marshes at 310 CMR 10.32(3) through (6). The proposed work will result in temporary impacts and will not permanently destroy or have an adverse effect on the productivity of the salt marsh. As described above and in Section 3.2 on page 3-9 in ***Chapter 3 – Wetlands and Waterways***, the salt marsh will be restored and monitored to confirm that no permanent impacts occur from the Project.

June 15, 2023 **FIGURE 1-1**



0 1000 2000 4000 Feet

Project Segment

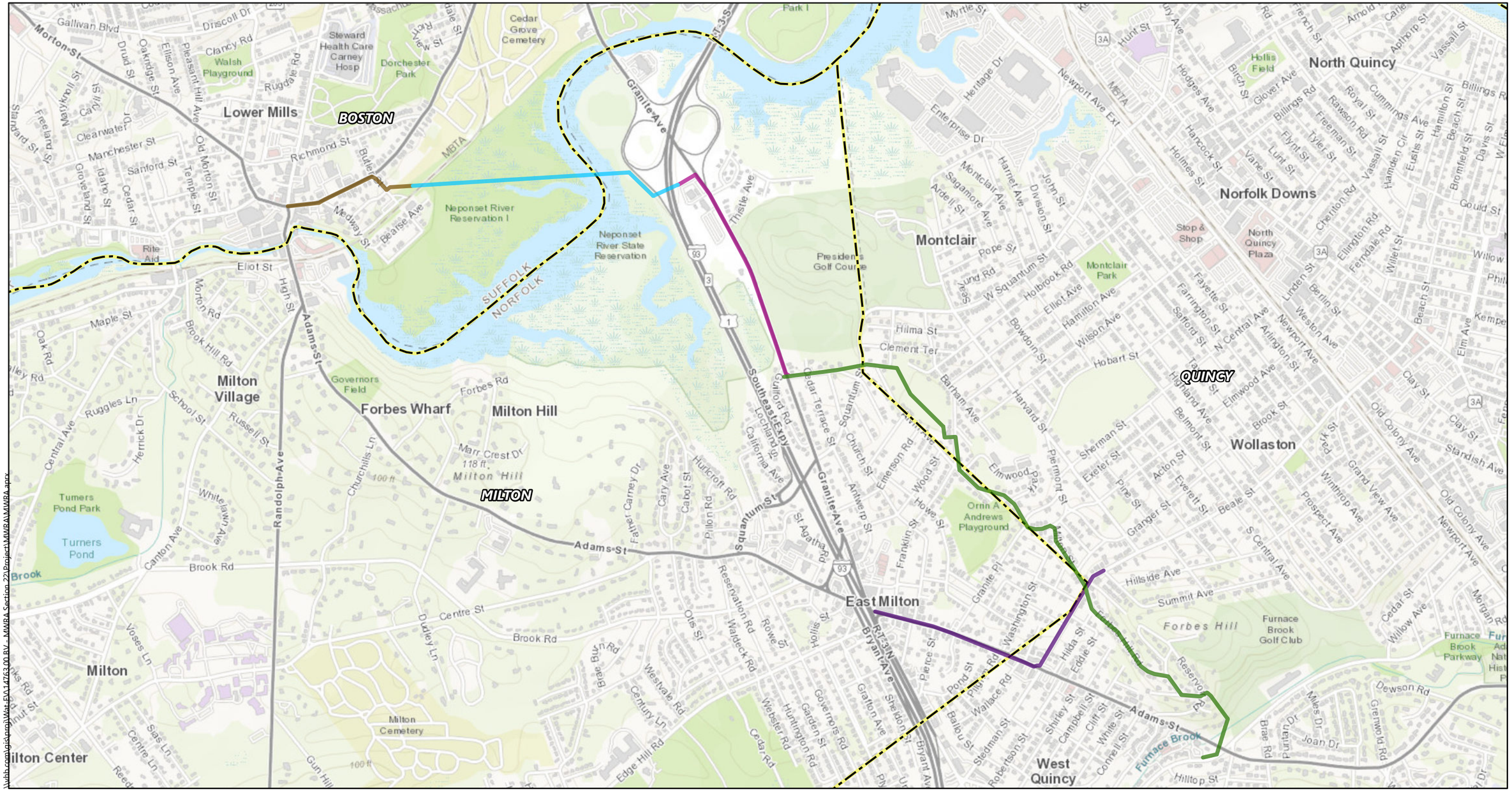
- Section 22 Segment 1
- Section 22 Segment 2
- Section 22 Alt Segment 2A
- Section 22 Alt Segment 2B
- Section 22 Segment 3
- Section 22 Alt Segment 3A
- Section 22 Segment 4
- Section 21 Pipeline

MWRA Contract 7155, Section 22 Rehabilitation Alternatives Analysis and Environmental Permitting

Boston to Quincy, Massachusetts

USGS Project Location Map

Source: VHB, MassGIS, Black & Veatch



0 600 1200 2400 Feet

- Section 22 Segment 1 (Remove and Replace)
- Section 22 Segment 2 (Slipline)
- Section 22 Segment 3A (New Alignment)
- Section 22 Segment 4 (Clean and Line)
- Section 21 Pipeline (Clean and Line)
- Page Index

MWRA Contract 7155, Section 22 Rehabilitation Environmental Permitting

Boston to Quincy, Massachusetts

Proposed Conditions

Source: VHB, MassGIS, Black & Veatch, MWRA

2

Environmental Justice and Outreach

The following Chapter presents information in response to comments on the Secretary's Certificate on the EENF relating to Environmental Justice communities, including:

- The Single EIR should provide a comprehensive discussion of construction period staging and activities, and whether such activities will impact EJ populations.
- The Single EIR should discuss the nature and extent of construction period traffic anticipated, and whether such traffic is likely to extend through EJ populations.
- The Single EIR should discuss what disruptions are anticipated for vehicular, pedestrian, transit, and bicycle travel, and how the Proponent will communicate with the public about potential disruptions to local neighborhoods.
- The Single EIR should describe a public involvement plan that the project intends to follow for EJ populations within the DGA for the remainder of the MEPA review process.
- The Single EIR should provide an update on outreach efforts and describe how the project is implementing the outreach plan. The Single EIR or summary thereof should be distributed to the EJ Reference List and an updated list should be obtained from the MEPA Office to ensure that contacts are up to date.

2.1 Environmental Justice Assessment

The following section reiterates methodology used to identify Environmental Justice (EJ) communities, as presented in the Expanded Environmental Notification Form (EENF).

2.1.1 Regulatory Framework

As was described in the EENF, the EJ impacts were considered in accordance with 301 CMR 11.00. This analysis follows guidance released in the Executive Office of Energy and Environmental Affairs' (EEA's) 2021 *Environmental Justice Policy*[1] and the two Massachusetts Environmental Policy Act

1 Constitution of the Commonwealth of Massachusetts, "Environmental Justice Policy of the Executive Office of Energy and Environmental Affairs", June 24, 2021, https://www.mass.gov/doc/environmental-justice-policy6242021-update/download

(MEPA) EJ Protocols, *MEPA Public Involvement Protocol for Environmental Justice Populations*[2] and *MEPA Interim Protocol for Analysis of Program Impacts on Environmental Justice Populations*,[3] which were effective as of January 1, 2022, for all new filings.

2.1.2 Methodology

The EENF identified EJ communities within the designated geographical area (DGA) of a one-mile radius around the Project Site in accordance with 301 CMR 11.03(8).[4] The DGA is illustrated in Figure 2-1. EJ populations were identified based off of block group data from the American Community Survey (ACS) 2020 U.S. census. Limited English Proficiency (LEP) was determined on a census tract level from 2015 ACS data, identifying languages spoken by 5 percent or more of residents who identify as not speaking English "very well." Both census block group and LEP data layers were retrieved from the EEA's Environmental Justice Maps Viewer (the "EJ Maps Viewer).[5] Block groups assigned EJ criteria meet one or more of the following demographic characterizations:

- **Income:** The annual median household income is not more than 65 percent of the statewide annual median household income
- **Minority:** Minorities (i.e., individuals who identify themselves as Latino/Hispanic, Black/African American, Asian, Indigenous people, and people who otherwise identify as non-white) comprise 40 percent or more of the population
- **English Language Isolation**: 25 percent or more of households lack English language proficiency
- **Minority + Income:** Minorities comprise 25 percent or more of the population and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 percent of the statewide annual median household income

In addition, vulnerable health criteria were identified within the DGA using the Massachusetts Department of Public Health (DPH) EJ Tool.[6] These criteria include four environmentally related health indicators to determine populations that may have higher than average rates of environmentally related health outcomes, which are:

- **Heart Attack:** This is evaluated as the 5-year average age-adjusted rates of hospitalizations for heart attack that is equal to or greater than 110 percent of the state rate. Heart attack data is only gathered from people greater than or equal to 35 years of age, and is based on their residential locations, not where the health incident occurred. This is a criterion because air pollution exposure, including particulate matter, can increase the risk for heart attack and other

2 Massachusetts Executive Office of Energy and Environmental Affairs, "MEPA Public Involvement Protocol for environmental Justice Populations", January 1, 2022, https://www.mass.gov/doc/final-mepa-public-involvement-protocol-for-environmental-justice-populations-effective-date-of-january-1-2022/download

3 Massachusetts Executive Office of Energy and Environmental Affairs, "MEPA Interim Protocol for Analysis of Project Impacts on Environmental Justice Populations", January 1, 2022, https://www.mass.gov/doc/final-mepa-interim-protocol-for-analysis-of-project-impacts-on-environmental-justice-populations-effective-date-of-january-1-2022/download

4 Code of Massachusetts Regulations, "301 CMR 11.00: MEPA Regulations", January 21, 2023, https://www.mass.gov/regulations/301-CMR-1100-mepa-regulations

5 Massachusetts Geographic Information System, "Environmental Justice Populations", November 12, 2022, https://mass-eoeea.maps.arcgis.com/apps/MapSeries/index.html?appid=535e4419dc0545be980545a0eeaf9b53

6 Massachusetts Department of Public Health, "Environmental Justice Tool; Vulnerable Health EJ Criteria", https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html

forms of heart disease. This vulnerable health criterion is shown at the community level in the DPH EJ Tool.

- **Childhood Blood Lead Level:** This is evaluated as the 5-year average prevalence of elevated childhood blood lead levels that is equal to or greater than 110 percent of the state rate. This is a criterion because lead exposure from sources, including soil and drinking water contamination, housing, and household items and toys, disproportionately impacts EJ communities. Additionally, low levels of lead exposure to children can cause severe and irreversible health effects. This vulnerable health criterion is shown at the census tract and community level in the DPH EJ Tool.
- **Low Birth Weight:** This is evaluated as the 5-year average low birth weight rate among full-term births that is equal to or greater than 110 percent of the state rate. A baby is considered low birth weight if they were less than 5.5 pounds, and data only considers singleton births. This is a criterion because there is an increased risk of delivering a low-birth-weight baby or a baby having other birth defects when exposed to air and environmental contaminants. Additionally, women of color and women of low income have a higher risk. This vulnerable health criterion is shown at the census tract and community level in the DPH EJ Tool.
- **Childhood Asthma:** This is defined as the 5-year average rate of emergency department visits for childhood asthma that is equal to or greater than 110 percent of the state rate. This is a criterion because EJ populations experience a greater risk of asthma due to an increased exposure to asthma triggers, including air pollution, which impacts one's overall health and wellbeing. EJ communities also have more limited access to health care services, which is considered a contributing factor. This vulnerable health criterion is shown at the community level in the DPH EJ Tool.

2.1.3 Existing Conditions

The EENF described block groups meeting EJ criteria and LEP by more than five percent of a census tract within the DGA of the Project. Table 2-1 provides EJ criteria and LEP information of EJ block groups within the DGA. Figure 2-1 demonstrates the location of block groups meeting EJ criteria and census tracts where a language is spoken by more than 5 percent of the population. Appendix C provides tables with a detailed breakdown of EJ Block groups and LEP by census tract within the DGA. The EEA updated the EJ Maps Viewer in November 2022 with "Updated 2020 Environmental Justice Block Groups" to be used in any MEPA filings submitted after January 4, 2023, however the EENF for this project was filed with MEPA on November 16, 2022 and subsequently uses the previous version of the EJ Maps Viewer. In accordance with guidance for the adoption of the "Updated 2020 Environmental Justice Block Groups" within the EJ Map Viewer, this SEIR continues to use the former version of EJ Map Viewer to maintain consistency with the EJ block groups discussed within the EENF which was reviewed by the Secretary to develop the Certificate and Scope for this SEIR.[7]

7 Massachusetts Executive Office of Energy and Environmental Affairs, "Updates to EEA EJ Maps Viewer", November 17, 2022, https://www.mass.gov/guides/environmental-justice-protocols-and-resources#-updates-to-eea-ej-maps-viewer-

Table 2-1 EJ Block Groups and Languages Spoken within DGA

Municipality	EJ Block Groups		Limited English Proficiency[1]
	Criteria	Number of Block Groups	Language
Boston	M	21	Spanish or Spanish Creole
	I	1	French Creole
	MI	5	Vietnamese
	ME	1	
	MIE	1	
Quincy	M	24	Chinese
	I	1	
	MI	3	
	ME	3	
	MIE	1	
Milton	MI	1	*None greater than 5%*
Total	M	45	Spanish or Spanish Creole
	I	2	French Creole
	MI	9	Vietnamese
	ME	4	Chinese
	MIE	2	
	Total	**62**	

M Minority
I Income
MI Minority and Income
ME Minority and English Isolation
MIE Minority, Income, and English Isolation
1 Limited English proficiency defined by EEA as 5% or more of a Census Tract who do not identify speaking English "very well" and speak a different language at home

The Project site passes through eight census tract block groups meeting EJ minority criteria and one block group meeting Income EJ criteria. The Project Site is within 1 mile of 53 other EJ populations characterized by Minority; Income; Minority and Income; Minority and English Isolation; and Minority, Income and English Isolation. The Secretary's Certificate stated that "the project site is located within 8 Environmental Justice (EJ) populations characterized by minority and within one mile of 54 EJ populations characterized by Minority; Income; Minority and Income; Minority and English Isolation; and Minority, Income and English Isolation." For the preparation of this SEIR, the Project site and its relationship to census tract block groups that meet EJ criteria was further examined. Multiple segments of the Project are located within roadways, which are often used as boundaries for census tracts and block groups. One block group meeting income criteria in Quincy was re-evaluated to be within the Project Site as Section 21 is located on Adams Street, which has a block group meeting EJ criteria on either side of the roadway.

The DPH EJ Tool was consulted to identify whether any municipality or census tract within the DGA exhibits one or more of four specific vulnerable health criteria, which are environmentally related health indicators that are measured to be 110% above statewide averages. These vulnerable health criteria are summarized for all municipalities and census tracts within the DGA in Table 2-2. A full breakdown of DPH EJ Tool outputs for the DGA are contained in Appendix C.

Table 2-2 DPH EJ Vulnerable Health Criteria within the DGA

Municipality	Heart Attack Hospitalization Rate greater than 110% statewide average[1]	Childhood Asthma greater than 110% statewide average[1]	Childhood Blood Lead greater than 110% statewide average	Low Birth Rate greater than 110% statewide average
Boston	No	Yes	Yes -for 6 census tracts which all contain BG's meeting EJ Criteria	Yes -for 6 census tracts which all contain BG's meeting EJ Criteria
Milton	No	No	Yes -for 1 census tract which contains BG's meeting EJ Criteria	No
Quincy	No	No	Yes -for 2 census tracts where 1 contains BG's meeting EJ Criteria	Yes -for 6 census tracts which all contain BG's meeting EJ Criteria

2.1.4 Assessment of Existing Unfair or Inequitable Environmental Burden

As stated in the EENF, the EJ populations in Boston could be viewed as potentially bearing an "unfair or inequitable" environmental burden and related public health consequences. Additional layers within the DPH EJ Tool were consulted to survey other potential sources of pollution within the boundaries of the EJ population. Other sources of pollution reported in the EENF are located within Appendix C.

The RMAT Climate Resilience Design Standards Tool was also consulted (see Appendix C), and it identified the Project Area in its's final condition as having High Exposure to sea level rise/storm surge, extreme precipitation (urban and riverine flooding), and extreme heat. A "High" ranking for these parameters could be an indicator of elevated climate risks for EJ populations within the Project site.

Based on the analysis provided above and in the EENF, these factors appear to indicate that the identified EJ populations currently bear an existing "unfair or inequitable" environmental burden and related public health consequences as compared to the general population.

The following Sections address the Secretary's Certificate Comments on construction period impacts to EL population populations as well as the MWRA's Outreach plan for the Project in order to prevent increasing the unfair or inequitable environmental burden on EJ communities.

2.2 Impact of Construction Staging and EJ Populations

Impacts to EJ populations will be limited to the construction phase of the Project and will be similar in nature to the impacts experienced by non–EJ communities along the pipeline route. The Project is specifically intended to ensure continued access to safe drinking water and will improve the public health of the communities served by these pipelines, many of which are EJ populations. This section discusses potential construction-period impacts for EJ populations within the DGA of the Project.

2.2.1 Wetlands and Waterways

As described in Section 3.2 of the EENF and further discussed in ***Chapter 3 – Wetlands and Waterways*** of this SEIR, the Project will have limited temporary impacts to salt marshes and tidal creeks restricted to the access pit areas and associated construction matting. These impacts are located within the Neponset River Reservation where slip lining is proposed, which is located in an EJ block group meeting the minority criterion (see Figure 3-2). There would be no adverse impacts to EJ or non-EJ populations from wetlands or waterways impacts from the construction of the Project as the impacted wetlands are located away from residential neighborhoods and would not impact the community use of the wetland. After construction, the impacted wetlands would be restored by the Authority. No disproportionate adverse impacts to EJ populations from wetlands and waterways impacts would occur.

2.2.2 Areas of Critical Environmental Concern, Open Space, and Recreational Resources

As described in Section 3.3 of the EENF, portions of Section 22 are located within the Neponset River Estuary Area of Critical Environmental Concern (ACEC). There would be no adverse impacts to EJ or non-EJ populations from ACEC impacts from the construction of the Project. After construction, the impacted wetlands would be restored by the Authority. No disproportionate adverse impacts to EJ populations from ACEC impacts would occur.

Additionally, Section 3.3 of the EENF identified four Open Space and Recreational Resources along Section 22, listed below:

- Boston and Milton (Segments 2 and 3): Neponset River Reservation
- Milton (Segment 3): Presidents Golf Course
- Milton (Segment 4): Andrews Park
- Quincy (Segment 4): Furnace Brook Golf Club

Neponset River Reservation, Presidents Golf Course, and Furnace Brook Golf Club are all located within block groups that meet the minority EJ criterion and are described below.

Construction to complete slip lining of Segment 2 of Section 22 will occur within the Neponset River Reservation; however, construction period impacts will not impact any of the recreational amenities of the reservation. Pedestrian and bicycle passage on the Neponset Trail will be maintained during construction.

Construction of a new alignment in Segment 3 will occur within Granite Avenue which runs adjacent to the western edge of Presidents Golf Course. Cleaning and lining of Segment 4 will be done from pipe access pits, one of which will be on the Presidents Golf Course near the corner of Hope and Squantum Street. The access pit is located outside of the limits of play and will be restored upon completion of work. Construction period impacts will not impact any of the recreational amenities of the President's Golf Course.

Cleaning and lining of Segment 4 will be done from pipe access pits, one of which will be on the Furnace Brook Gold Club near the corner of Furnace Brook Parkway and Adams Street. The access pit is located outside of the limits of play and will be restored upon completion of work. Construction period impacts will not impact any of the recreational amenities of the Furnace Brook Golf Club.

Recreational amenities offered within open space and recreational properties along Section 22 and Section 21 will not be impacted by Project construction. There would be no adverse impacts to EJ or non-EJ populations from open space and recreational impacts from the construction of the Project. No disproportionate adverse impacts to EJ populations from open space and recreational impacts would occur.

2.2.3 Air Quality and Noise

Project air quality and noise impacts will be temporary in nature and related to active construction. As these impacts will be intermittent and will not be in front of any single location for an extended period of time, they will not result in severe environmental or public health impacts, nor will they exacerbate any existing health or environmental burdens for the identified EJ populations that were discussed in Section 2.1.4.

Construction generating air quality and GHG impacts will occur along all Segments of Section 22 and Section 21, will equally impact EJ and non-EJ populations, and will be mitigated to the extent feasible, as outlined in Table 4-1 on page 4-4 in ***Chapter 4 – Mitigation and Draft Section 61 Findings***. As described in Section 3.7 of the EENF, construction contractors will comply with anti-idling regulations and all diesel-powered non-road construction equipment will have EPA-verified (or equivalent) emission control devices to limit construction-phase air quality impacts. In addition, dust will be controlled at construction sites using appropriate best management practices. Specific measures include:

- Tire cleaning areas at construction vehicle entrances and exits;
- If required, water sprays during excavation, stockpiling, and loading of demolition and soil materials for removal;
- Site watering as required to mitigate wind erosion;
- Street sweeping of adjacent local roadways to address potential sediment accumulation;
- Secure covering of piles of excavated materials;

- Properly secured covers on truck cargos during materials transport; and
- Minimization of the free drop height of excavated or aggregate material during earthwork operations.

Construction generating noise impacts will occur along all Segments of Section 22 and Section 21, will equally impact EJ and non-EJ populations, and will be mitigated to the extent feasible, as outlined in Table 4-1 on page 4-4 in ***Chapter 4 – Mitigation and Draft Section 61 Findings***. Noise-related construction impacts would consist of localized, short-term increases in ambient noise levels in the near vicinity of work sites. Construction-related noise would result from the operation of equipment and vehicles mainly during the excavation of pipe trenches and access pits. Typical work hours will be between 7 a.m. and 5 p.m., Monday through Friday. Construction contracts will ensure that equipment is functioning properly and equipped with mufflers or other noise-reducing features. Specific noise-reduction mitigation measures include:

- CMP specifications that will require construction equipment to have appropriate noise muffler systems installed and properly operating;
- CMP specifications that will require construction vehicles and equipment to maintain their original engine noise control equipment;
- Appropriate traffic management techniques will be implemented during the construction period to mitigate roadway traffic noise impacts;
- Proper operation and maintenance, and prohibition of excessive idling of construction equipment engines, will be implemented as required by MassDEP regulation 310 CMR 7.11;
- Work hours and relevant noise generating activities will be reviewed further with the City of Boston, City of Quincy, and Town of Milton to outline those construction activities which may occur prior to 7:00 AM and after 5:00 PM, Monday through Friday, as well as those activities which may occur during overnight hours (if necessary, though not anticipated); and
- Appropriate operational specifications and performance standards will be incorporated into the construction contract documents.

The Authority will develop construction contract documents which will require the construction contractor to follow federal, state, and local air quality and noise regulations.

No disproportionate adverse effects to EJ populations from air quality and noise impacts would occur.

2.2.4 Sensitive Receptors

Section 3.6 of the EENF identified sensitive receptors along Section 21 and Section 22. The following sensitive receptors were identified within block groups that meet EJ criteria:

- Standish Village Assisted Living and Compass Memory Support Community, Elder Care Facility, 1190 Adams St., Boston, MA 02124 (Section 22)
- Kids First Daycare and Learning, Daycare, 1190 Adams St., Boston, MA 02124
- Cedar Grove Cemetery, Cemetery, 920 Adams St., Dorchester, MA 02124
- Neponset River Reservation – Greenway Multi-Use Path, Recreational Facility, 76 Hill Top St., Boston, MA 02124

- Presidents Golf Club, Recreational Facility, 357 W Squantum, Quincy, MA 02171
- Furnace Brook Golf Club, Recreational Facility, 20 Reservoir Rd., Quincy, MA 02170

All sensitive receptors, including those listed in Section 3.6 of the EENF that are not in EJ block groups, will be protected from traffic, noise, and air quality impacts through construction best management practices that have been briefly described in prior sections, Chapter 4, and will be further elaborated on in the CMP. There would be no adverse impacts to EJ or non-EJ populations identified near sensitive receptors from Project construction. No disproportionate adverse impacts to EJ populations would occur.

2.2.5 Solid and Hazardous Waste

As discussed in Section 3.5 of the EENF, solid and hazardous waste generated from the Project would be properly managed during construction. Protocols governing proper handling of material that might be contaminated would be developed during final design and followed by contractors. Suitable locations for recycling or disposal of solid and hazardous waste would be identified so that EJ populations would not bear an unequal burden of disposal. Mitigation measures as outlined in the CMP will be in place during construction to protect the surrounding community from any contaminated groundwater or soil that may be discovered during construction. There would be no anticipated adverse impacts to EJ or non-EJ populations from solid and hazardous waste during construction of the Project. No disproportionate adverse impacts to EJ populations from solid and hazardous waste would occur.

2.2.6 Traffic

Traffic related impacts vary in scale across the Project, depending on the work being performed, leading to different sets of impacts.

2.2.6.1 Trenching

Trenching will occur at Section 22 Segment 1 and Segment 3A. Trenching for the construction of the new Granite Avenue alignment will occur within a MassDOT Maintenance Facility and the existing roadway right-of-way (ROW), causing traffic impacts along those portions of the ROW. All of the trenching for Section 22 Segment 1 is within EJ block groups, however the longest Segment of Trenching occurs in Section 22 Segment 3A which is not located in an EJ block group.

Section 22 Segment 1 and 3A will consist of open cut construction for the replacement pipeline. The construction operation will consist of an excavator, two to three dump trucks, and a front-end loader. One dump truck will be used for excavated soils and will leave site once full. This would occur on average once per hour. A second dump truck will be used to provide bedding stone as each segment of new pipe is placed and a third dump track will be used to provide backfill. Total truck trips could average 3 per hour during construction activity.

Truck trips associated with alignment construction of Section 22 Segment 1 and Segment 3A would not cause adverse impacts to EJ populations as truck trips used for construction would be minimal, would not cause a significant increase in local traffic, and would progress along the alignment causing impacts to be short in duration.

2.2.6.2 Access Pits

For construction of Section 22 Segment 2 and Segment 4 and Section 21, access pits will be excavated within the ROW and within other properties. These Segments will experience reduced traffic impacts as ROW impacts will be smaller, interspersed. Both Section 22 Segment 2 and Segment 4 and Section 21 are located within EJ block groups.

Section 22 Segment 2 will be slip lined. Construction at access pits will occur at several access pits at a time and progress along the alignment. The slip lining construction operation will generally consist of the following sequential steps:

1. Construction of access pits.
2. Cleaning of the host pipe.
3. Insertion of the slip line pipe and welding of seams and joints.
4. Grouting of annular space.
5. Cement mortar lining application.
6. Restoration of access pits.

Construction equipment will consist of an excavator, dump trucks, a front-end loader, pipe delivery trucks and a truck for mixing and pumping grout. Several truck trips per hour will occur at each access pit location for the duration of construction.

Section 22 Segment 4 and Section 21 would be cleaned and lined with cement mortar. Construction at access pits will occur at one or two pits at a time and progress along the alignment. The cleaning and cement mortar lining construction operation will generally consist of the following sequential steps:

1. Construction of access pits.
2. Cleaning of the host pipe.
3. Internal wall repair with steel plates and welding of pipe joints.
4. Cement mortar lining application.
5. Restoration of access pits.

Construction equipment will consist of an excavator, dump trucks, a front-end loader, and a grout mixing truck. Several truck trips per hour will occur at each access pit location for the duration of construction.

Truck trips associated with alignment construction of Section 22 Segment 2 and Segment 4 and Section 21 would not cause adverse impacts to EJ populations as truck trips used for construction would be minimal, would not cause a significant increase in local traffic, and would be short in duration as construction would progress from pit to pit.

2.2.6.3 Traffic Management Plan

The construction of the pipeline will progress in stages along the alignments with each segment taking two to three months to complete causing temporary impacts for each access pit or trenching section to be short in duration with minimal traffic impacts. After the pipeline is constructed, additional short term construction will occur for paving, appurtenances, testing, and activation

Traffic-related impacts occurring both in EJ and non-EJ communities may include:

- Lane closures
- Altering traffic flow patterns
- Road closures and detours

Traffic occurring in roadways will be carefully coordinated to minimize impacts to the surrounding neighborhood and those who utilize the roadway. A Traffic Management Plan (TMP) will be developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible. The TMP will further elaborate on the following topics:

- Ongoing coordination with police and fire departments;
- Provisions for emergency vehicle access;
- Timing and delivery of equipment and materials;
- Lane location and width within the work zone to minimize impacts to vehicular traffic, public transit, bicycles, and pedestrian movement and promote safe passage;
- Work schedule and duration of any proposed lane closures, alternating traffic flow patterns, road closures, and/or detours where necessary;
- Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic control drums, flashers, detour signs, and other protective devices as approved by the various towns;
- Locations where temporary provisions may be made to maintain access to homes and businesses;
- Routing and safeguarding of pedestrian and bicycle traffic;
- Routing of public transit;
- Continuity plans along school bus and private motor coach routes;
- Method of communication with adjacent businesses to avoid interruptions to critical product deliveries;
- Roadway level of service effects due to short-term lane closure(s); and
- Development of a system to notify municipal officials, local businesses, and the public of the timing and duration of travel restrictions.

Residents and business abutting impacted roadways will be notified ahead of and updated throughout road closures and detours. Construction period traffic impacts from both trenching and access pits will create impacts to both EJ and non-EJ communities. No disproportionate adverse impacts to EJ populations from traffic impacts would occur.

2.3 Update on Outreach Plan and Implementation

As noted in the EENF, MWRA created a Project webpage (located at: https://www.mwra.com/projects/water/sec21-22/sec21-22-update.html) where Project information including the EJ Screening Form, and translated versions, can be found. MWRA has and will continue to maintain and update the project webpage throughout the Project, including as design progresses and during the construction phase. Key project documents will be translated and posted on the webpage. MWRA notified community-based organizations (CBOs) and any

additional contacts identified in the EJ Reference List upon filing the EENF with MEPA, and provided links to these documents on the Project webpage. The same process will be employed for this SEIR. With this filing, the MWRA officially responds to any comments received at public meetings, in written response to project documents, or otherwise received throughout the MEPA review process. These responses are contained within ***Chapter 5 – Responses to Comments***.

The Authority will tailor outreach to EJ communities identified within the DGA to facilitate their involvement in the environmental review process. The Authority used and will continue to use a combination of methods to enable full participation in the environmental review process for EJ communities that were previously identified in the EENF, which include:

6. Distribution of this SEIR to EJ CBOs and tribes included in the EJ Reference List provided by the EEA EJ Director (see *Appendix A – Distribution List*) and have received electronic notification of this filing.
7. Translation of outreach materials to Chinese (Mandarin), Haitian-Creole, Spanish, and Vietnamese.
8. Publishing notices in the Boston Globe, Patriot Ledger, El Mundo, and Sampan.
9. Using various social media platforms and media outlets to reach the intended populations.
10. The Authority will hold public information sessions or workshops, as requested. Interpretation services at any public meetings will be provided for Haitian-Creole and Chinese (census tracts in the DGA contain communities that speak these languages where at least 10 percent or more of residents identify as not speaking English "very well,") and the Authority will provide other interpretation services, as requested.

The Climate Roadmap Act requires that, "[i]f a proposed project affects an environmental justice population," the Secretary of EEA shall require additional measures to improve public participation by the EJ population. For the EENF, in accordance with 301 CMR 11.05(4), the Authority provided advance notification of the project no later than 45 days, and no earlier than 90 days, prior to filing the document with the MEPA Office. In addition, the Authority has committed to the following public involvement strategies to include:

- Holding community meetings upon request by anyone contacted through advance notification, or upon further dissemination of a written project summary
- Hosting a project website and maintaining publicly-available project information through other similar electronic means on local town/city websites
- Ensuring outreach to the public is communicated in clear, understandable language and in a user-friendly format
- Use of non-English and/or community-specific media outlets to publicize the project, including local newspapers

Table 2-3 below documents a summary of the outreach conducted to date, as well as proposed outreach after the filing of the SEIR through construction of the Project. Refer to Appendix C for the Draft EJ Outreach Plan.

Table 2-3 EJ Outreach Plan

Timing	Outreach Type	Completion	Outreach Details
Permitting/ Design Phase	Advertisement	Environmental Justice Screening Form was put out September 30, 2022 The Public Notice of Environmental Review was published November 30, 2022, in listed local newspapers.	Distribute MEPA Advanced Notification Environmental Screening Form to designated community-based organizations (CBOs). Public notices regarding MEPA proceedings translated into 4 languages (Spanish, Haitian Creole, Vietnamese, and Mandarin Chinese) and published in El Mundo, Sampan, Boston Globe, and Patriot Ledger at least 1 week prior to scheduled meetings. Translated materials posted to Project Webpage. (https://www.mwra.com/projects/water/sec21-22/sec21-22-update.html) Send Conservation Commission hearing notices via certified mail to all abutters within 100' of Project Area in Quincy and Milton and all abutters within 300' of the Project Area in Boston. The City of Boston provides translated abutters notices and translation services are available upon request in Quincy and Milton. Most abutters to this project are located within census designated Environmental Justice Zones. Public notices regarding Conservation Commission hearings translated and published to above listed newspapers at least 1 week prior to scheduled meetings.
Permitting/ Design Phase	Public Meetings	Site visit held December 19, 2022, at 10AM Remote MEPA Consultation was held December 20, 2022, at 7PM	Site visits scheduled with MEPA will include on-site interpreters available for Spanish, Haitian Creole, Vietnamese, and/or Chinese (Mandarin)-speaking attendees. MEPA remote consultation held in the evening on a different day than the site visit to allow for maximum participation. Interpreters will be available during the call. Boston, Milton, and Quincy Conservation Commission hearings are open to the public and interpretation services are available upon request. Advertise upcoming meetings through www.MWRA.com, organizational social media, and via MWRA's automated notification system (Everbridge). Establish point of contact at MWRA (Katherine Ronan, katherine.ronan@mwra.com) within Project communities who residents can contact with questions or concerns throughout the course of the Project.

Table 2-3 EJ Outreach Plan

Timing	Outreach Type	Completion	Outreach Details
Pre-Construction Phase	Advertisement	To be completed	Distribute public meeting notice to local newspapers in project communities for posting at least 2 weeks prior to virtual pre-construction meeting. Issue additional public notice at least 2 weeks prior to commencement of construction. Mail flyers with project timeline, MWRA and municipal contact information, and pre-construction meeting information to residents of project communities, with a focus on abutters within 100' of the project area. Translated notices will be provided based on languages spoken by at least 5% of a census tract population within the DGA. Pre-construction notices will be sent via email to MEPA-designated CBOs and any additional organizations that wish to be added to the Project email list. Coordinate with Boston, Milton, and Quincy regarding work hours, traffic impacts, and other project logistics. Establish point of contact at MWRA for any project-related questions or concerns.
Pre-Construction Phase	Public Meetings	To be completed	One recorded virtual pre-construction meeting will be held for members of all Project communities. Finalized details regarding the Project design, construction, and proposed construction timeline and work hours will be presented to meeting attendees. A Q&A period will be held at the end of the presentation so that any project-related questions or concerns may be addressed. Take meeting minutes as a record of community feedback; share completed minutes with municipal contacts in project communities so that they may be posted online. Interpreters will be available for translation services during the meeting and translated materials will be provided upon request. Circulate recording of the public meeting to public access stations within project communities so that it may be periodically aired prior to Project commencement.

Table 2-3 EJ Outreach Plan

Timing	Outreach Type	Completion	Outreach Details
Construction Phase	Ongoing Updates of Project Status	To be completed	Project updates will be provided on a regular basis to Project communities and relevant CBOs through www.MWRA.com, organizational social media, Everbridge notifications, and on municipal websites in Project communities. Translations of Project updates will be provided based on languages spoken by at least 5% of census tract populations. Email addresses and phone numbers of Project contacts at MWRA and municipalities will be made available so that residents can reach out with concerns. Virtual Project update meetings will be held as or requested for all Project communities as major Project milestones arise. Meetings will be recorded; recordings will be shared and circulated to public access stations within Project communities so that they may be periodically aired throughout the duration of the project until a new meeting is recorded.

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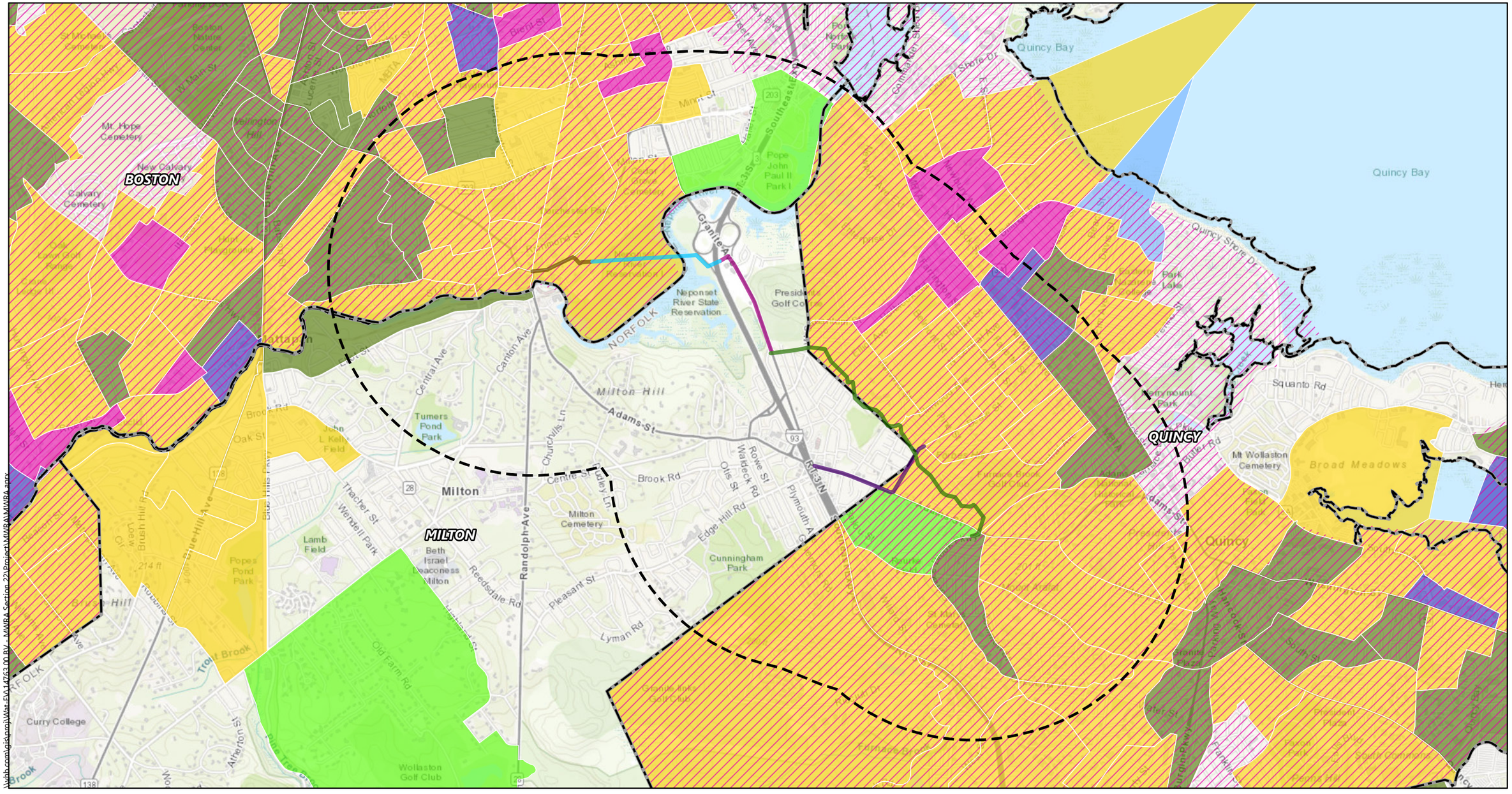

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- Section 22 Segment 1 (Remove and Replace)
- Section 22 Segment 2 (Slipline)
- Section 22 Segment 3A (New Alignment)
- Section 22 Segment 4 (Clean and Line)
- Section 21 Pipeline
- 1-Mile Environmental Justice Buffer
- Town Boundary

Environmental Justice 2020 Populations

- Minority
- Income
- English isolation
- Minority and Income
- Minority and English isolation
- Minority, Income and English isolation

Languages spoken by at least 5% of the census tract who do not speak English Very Well

MWRA, Section 22 Rehabilitation

Boston, Milton, Quincy, Massachusetts

Environmental Justice Populations

Source: VHB, MassGIS (10/2022), Black & Veatch, ArcGIS Online

3

Wetlands and Waterways

This Chapter describes the Project's potential construction impacts on wetland resource areas and offers further detail on Chapter 91 jurisdiction. Information is provided in response to the following comments in the Secretary's Certificate on the EENF relating to Wetlands and Waterways:

- The Single EIR should provide additional details related to Salt Marsh restoration and monitoring as discussed in comments and as outlined in the Scope.
- The Single EIR should include a list of any c.91 licenses and/or authorizations that are applicable to the project site and a response to Chapter 91 comments.
- The Single EIR should respond to comments from MassDEP, CZM, and DMF (incorporated in their entirety herein) including those related to temporary impacts to Salt Marsh. The Single EIR should provide additional information on how long temporary construction mats will remain in place, how the mats will be anchored, and the time of year in which construction will occur (comments from DMF and CZM recommend work in Salt Marsh occur outside the growing season).
- The Single EIR should provide information on where subsoil from digging access pits will be stockpiled. Comments from CZM state that the subsoil should be stored outside of the Salt Marsh to the maximum extent practicable to avoid compaction of the Salt Marsh platform beneath the staging area.
- Comments from MassDEP, CZM, and DMF request that the Single EIR outline proposed pre- and post-construction monitoring plans to determine whether any Salt Marsh impacts may occur. Preconstruction characterization of the Salt Marsh vegetation on the site should be included.
- The monitoring plan should specify the schedule for Salt Marsh reestablishment including the anticipated season for restoration planting. The EENF proposes a two-year monitoring program, but comments from MassDEP indicate that a longer period is usually specified in USACOE permits. The proposed monitoring period should be discussed fully in the Single EIR so that it can be consistently mandated by the OOCs issued under the Wetlands Protect Act, the MassDEP 401 WQC, and the USACE 404.

- The monitoring plan should include adaptive management actions in the case that post-construction the marsh does not recover to an acceptable level compared to the pre-construction conditions.
- Comments from CZM request more detail on the leak detection program to determine if leaks pose a risk to the Salt Marsh.
- The Single EIR should include the additional information as requested in the comment letter from MassDEP Waterways (incorporated in its entirety herein). In addition to the site plans requested above, the Single EIR should include a table that identifies the footprint of any proposed work within each filled and flowed tidelands, including any dredging and temporary fill/structures.
- As outlined in comments, the Single EIR should identify any work determined to require a c.91 permit or license, including work within any ACEC, and should address compliance with applicable c.91 regulations.
- The Single EIR should address comments from MassDEP Waterways as they relate to the proposed dredging in Salt Marsh including the request to document prior c.91 authorization for dredging with the proposed footprint and to the proposed dredge depth. The Single EIR should include a list of all c.91 licenses and/or authorizations that are applicable to the project site.

3.1 Work Proposed in Wetland Resource Areas

3.1.1 Impact Avoidance and Minimization

As discussed in the alternatives analysis in the EENF (see Section 2.3.2 on pages 7 through 9 of the EENF), different alignments and construction methods were considered for rehabilitation of each segment of the Section 22 pipeline. For Segment 2, the portion of the pipeline where the existing alignment is within the Neponset River Reservation and associated salt marsh, the proposed rehabilitation will involve sliplining the existing 48-inch pipe with a 40-inch pipe. This method avoids and minimizes the environmental impacts, particularly on the salt marsh, because rather than requiring excavation along the entire pipeline alignment (as would be required for remove and replace), excavation is only required at a limited number of "pipe access pits." Further, the use of the Granite Avenue alignment for Segment 3A avoids impacts to the salt marsh on the existing alignment in the ACEC between I-93 and the roadway. Refer to Figure 3-2 to see the locations of proposed pipe access pits and the proposed realignment.

The rehabilitation work within a given section of pipeline will be accomplished in both directions from each pit. Pit locations are not flexible but are determined by where bends (vertical or horizontal) and appurtenances (such as valves) occur along the pipeline alignment. The Project proposes only the minimum number of pipe access pits necessary to complete the rehabilitation. By selecting the rehabilitation method with the least impact, and utilizing the fewest number of access pits, the Project seeks to avoid and minimize damage to the environment to the maximum extent practicable.

The Project will result in temporary wetland and waterway impacts along Segment 2, as shown in Table 3-1.

Table 3-1 Temporary Wetland and Waterway Impacts

Project Section	Resource ID	Temporary Impact Area (sf)	Proposed Activity
Segment 2	Wetland B1	2,010	Pipe Access Pits
	(salt marsh)	34,070	Construction Mats
	Wetland M1	1,060	Pipe Access Pits
	(salt marsh)	6,260	Construction Mats
	Unnamed Creek 1	510	Pipe Access Pit
Total		***43,910***	

3.1.2 Construction Timing and Staging

The MWRA anticipates that the rehabilitation of the Section 21 and Section 22 pipelines will be accomplished by issuing two separate construction contracts for public bidding. The first construction contract is planned to be issued for public construction bid in 2027 and will address the segments of the pipeline found during the 2020 condition assessment to be in most need of repair (Section 22, Segments 1, 2 and 3). These segments extend from the western terminus near Medway Street in Boston to Hope Avenue in Milton. This contract will include all of the work within the salt marsh portion of the Neponset River Reservation Area of Critical Environmental Concern (the ACEC). A second construction contract is planned to follow soon after the first construction contract which will address all of Section 21 and Section 22 from Hope Avenue to the eastern terminus in Quincy (Section 22, Segment 4). Prior to issuance of the contracts for construction, the MWRA expects to issue a Request for Proposals and select a consultant for final design and permitting of the Section 21 and Section 22 rehabilitation.

For the work within the salt marsh, the construction contract documents will require the work from where the pipeline enters the ACEC at the MBTA Ashmont trolley right-of way to the western bank of the Neponset River to be completed within the first 12 months. The contract documents will also require that the section of pipeline in the ACEC from in the eastern bank of the Neponset River to I-93 be completed within the following 12 months. This will serve to expedite the work in the salt marsh areas and minimize the overall duration of construction within the ACEC.

The Massachusetts Office of Coastal Zone Management (CZM) has requested that work within the salt marsh be avoided during the summer months to further minimize impacts. However, this is not feasible due to the nature of the work and estimated durations of the activities. As detailed further below, certain work activities are unable to be completed during the winter because they require temperatures above freezing and the use of water. As shown in Table 3-2, below, avoiding work in the salt marsh during the summer would not provide sufficient time to fully complete the rehabilitation process before the onset of winter and freezing temperatures.

Construction Steps

The slip lining process includes several different types of work which must proceed in sequence, each typically carried out by a different specialty contractor. Work will likely begin to

the west of the Neponset River in early April 2028. A brief description of the sequence of pipeline rehabilitation activities and rough timeframe for work in the salt marsh sections are shown in Table 3-2. Note that for segments both west and east of the Neponset River, salt marsh restoration, planting, and demobilization would occur in the spring immediately following the pipeline rehabilitation work.

Table 3-2 Slip Lining Activities and Durations Comparing Spring and Fall Start Times

Activity	Approximate Duration	Month (Spring Start)	Month (Fall Start)
1. Mobilize to Site – Install timber construction mats	2 Weeks	Mid-April	September
2. Install excavation support & excavate access pits.	1 Month	Mid-May	Mid-September
3. Clean Pipe Interior and Install Steel Slip Lining	2 Months	July	Mid-October
4. Install Grout in Annular Space	2 Weeks	Mid-July	Mid-December
5. Pressure Test Pipeline	2 Weeks	Mid-August	January
6. Cement Mortar Line Inside of New Pipe	2 Weeks	September	Mid-January
7. Install Appurtenances, backfill soils & remove mats	2 Months	End of October	February
Total Duration of Pipeline Rehabilitation	*7 Months*	*April – October*	*September - February*
8. Salt Marsh Restoration, Planting & De-mobilization	1 Month	April – May, following year	April – May

Note: Activities shown in bold require ambient temperatures to be above freezing

During Step 1, timber construction mats (typically measuring 4′ x 16′ x 8″) would be placed on the existing access road within the salt marsh and surrounding each access pit. A similar procedure was used for the condition assessment test pit completed within the marsh in 2020, as shown in Photo 3-1 on the following page. Construction contract documents will require implementation of USACE recommended Construction Mat Best Management Practices, which include ensuring mats brought to the site are free from invasive species, not dragging mats in place, ensuring smooth transitions from the upland approach to the mats, providing erosion controls along the edges of mats, not allowing mat placements that restrict flows, and inspecting and maintaining mats during construction to eliminate gaps and remove accumulated material.[8]

[8] https://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/MA/ConstructionMatBMPs.pdf

Photo 3-1 Timber Mats Being Placed for 2020 Test Pit

Consultation with a manufacturer of timber construction mats indicates that mats are thick and heavy enough that they would not typically float and require anchoring unless the height of the tide (i.e., depth of the water) is greater than 8 inches to 1 foot above the marsh surface. This would not typically occur in the project area. However, in the event that floating or shifting of mats becomes a problem or storm tides are predicted, contract documents will require that helical auger type earth anchors with steel cables be used to hold the mats in place. These anchors can be installed and removed with minimal impact to the vegetation and soil surface by screwing them in and out using an appropriate drilling tool. A typical auger earth anchor is shown in Photo 3-2.

Photo 3-2 Typical Auger Earth Anchor

During Step 2, support of excavation, such as trench boxes, will be installed, as shown in Photo 3-3. The vegetation layer at the surface will be removed and set aside, and subsoil removed from the access pit will be set aside with layers in separate piles. Soil excavated from the access pits will be removed from the marsh and stored on plastic sheeting at one of the staging areas. The material would also be covered by plastic sheeting to minimize generation of any dust and surrounded by erosion controls to prevent sedimentation. The staging areas

will be located outside of any wetland resources and no material will be stored within the salt marsh or in any areas below the high tide line. Potential staging areas have been identified in the EENF at the MWRA Shaft 7D site adjacent to the marsh to the west of the Neponset River and within the MassDOT I-93 interchange loop to the east of the Neponset River. Both of these areas are outside of wetland resources. Refer to Figure 3-2, pages 2 and 5.

Photo 3-3 Trench Box Support of Excavation Being Placed During 2020 Test Pit

Access pits will be dewatered by pumping from the excavation to a sediment filter bag placed on geotextile fabric and stone, surrounded by erosion controls, as shown in Photo 3-4, or if necessary, into a sedimentation tank which will then discharge to the filter bag depending on conditions in the field. The sedimentation tank and filter bags will be located on the access road to minimize impact to the marsh.

Photo 3-4 Dewatering Filter Basin During 2020 Test Pit

Step 3 involves equipment such as scrapers and brushes that are inserted into the pipe and winched from access pit to access pit to remove tuberculation and corrosion buildup. Segments of new steel pipe are then inserted (or sliplined) into the existing pipe and welded together. The sliplining process involves a temporary reduction in the new steel pipe's outside diameter (OD) to facilitate insertion into the host pipe and maximize the finished pipe's inner diameter. To do this, the bell and spigot pipe is cut longitudinally and steel straps are used to reduce the pipe OD. Spacer blocks are inserted outside of the compressed pipe sections to provide annular space between the host pipe and slip liner. Once installed, the steel straps are cut from inside the pipe and the pipe expands to its final diameter as set by the spacer blocks. The longitudinal seams and lap joints between pipe sections are then welded in place.

Step 4 entails filling the annular space between the host pipe and the new inner pipe liner with grout. The grout must be mixed and cured at temperatures above freezing. As shown in Table 3-2, voiding work during the summer would result in this activity occurring during December, which would not be feasible.

During Step 5, the slip liner is pressure tested, to confirm that there are no leaks.

During Step 6, cement mortar lining is centrifugally applied to the interior of the slip lined pipe to provide corrosion protection. This process also requires temperatures above freezing for mixing and curing of the cement mortar. Avoiding work during the summer would result in this activity occurring during January, which would not be feasible.

In Step 7, the appurtenances, such as line valves, air release valves, and blowoff valves are installed and the pipe access pits are backfilled to reestablish the pre-construction grades. Backfilling will be accomplished in two stages, with excavated sub-soils being placed first and

then covered with plantable topsoil to reach the finished marsh elevation. After backfilling the access pits, the soil surface will be stabilized for the winter with erosion control matting as appropriate. The timber mats would then be removed from the marsh. If any areas of rutting occur, these areas will be restored by hand-raking to pre-construction conditions.

Based on the above timeline, with an April 2028 start, the timber construction mats would be in place for 7 months (April to October 2028).

Step 8 includes confirmation of the finished grades and restoration of the salt marsh by installation of plugs of plant materials obtained from a commercial grower to reestablish the pre-construction vegetation composition, as determined during final design based on results from the pre-construction monitoring of the area, as discussed in Section 3.2 below. Locally grown "bare root" plugs will be installed, depending on the finished grade for the area. Low marsh areas will be planted with smooth cordgrass (*Spartina alteriflora*), while salt marsh hay (*Spartina patens*) and spike grass (*Distichlis spicata*) will be used in the high marsh. Vegetation beneath the construction mats is expected to grow back naturally; however, if post-construction monitoring finds that additional restoration is needed, plugs of the appropriate species will be planted to restore vegetative cover.

3.1.3 Schedule for Restoration

As shown above in Table 3-2, the total duration of pipeline rehabilitation activities in each portion the salt marsh would be approximately 7 months, from April to October. The restoration plantings would be installed in the spring of the growing season immediately following completion of the sliplining process, likely starting the following spring. It is not recommended to complete the salt marsh restoration immediately following completion of the pipeline rehabilitation, which will be in October at or near the end of the growing season, because the root systems of the new plantings will not have sufficient time to grow and adequately anchor the plants against potential ice scour during the winter. An added advantage of a lag period between the removal of the timber mats and installation of the planting is that it provides an opportunity for rebound of the marsh surface prior to confirmation of final grades and plantings in case there has been any subsidence during construction. It is anticipated that the restoration both west and east of the Neponset River would be completed within approximately 1 month.

3.1.4 Soil and Subsoil Management

As described above for Step 2 of the sliplining process, at each pipeline access pit the vegetation and soil layer at the surface will be removed and managed separately from the subsoils. Based on the excavation for the 2020 test pit, the depth of the excavation for the surficial layer would be approximately one foot. Subsoil removed from the marsh to completely expose the access pit will be set aside with layers in piles separate from the surficial soil layer. All vegetation and soil excavated from the access pits will be removed from the marsh and stored on plastic sheeting within an upland area at one of the designated staging areas. The material would also be covered by plastic sheeting to minimize generation of any dust and surrounded by erosion controls to prevent sedimentation. The staging areas will be located outside of any wetland resources and no material will be stored within the salt marsh or in any areas below the high tide line.

3.2 Pre- and Post-Construction Monitoring Plan

3.2.1 Introduction

The MWRA will require that the following Salt Marsh Restoration and Monitoring Plan (the "Plan") be implemented within the Neponset River Reservation salt marsh in association with the rehabilitation of the Section 22 pipeline. The Plan includes both pre-construction documentation of existing conditions and post-construction evaluation of the success of salt marsh restoration. The Plan also includes potential adaptive management actions that would be implemented if monitoring suggests that the salt marsh is not on a trajectory to recover to pre-construction conditions. The Plan has been developed based on the monitoring protocols included in the April 2020 Request for Advisory Opinion (Appendix D), USACE Compensatory Mitigation Standard Operating Procedures[9], and the methodology previously used in the Post-Construction Monitoring Plan that demonstrated successful restoration of the salt marsh in the area of Test Pit #1, which was completed in August 2020. It is anticipated that the restoration activities will commence in April of the first spring following completion of the sliplining, backfilling, testing and disinfection of the segments in the salt marsh. (Refer to Section 3.1.2 for additional details on construction phasing.)

3.2.2 Monitoring Plan Goals

This Salt Marsh Restoration Monitoring Plan has been developed to evaluate and document the extent to which the Neponset River Reservation salt marsh has been restored to pre-construction conditions after the completion of construction activities for rehabilitation of the Section 22 pipeline.

The specific goals of the Plan include the following:

- Characterize pre-construction conditions to inform where species such as *Spartina alterniflora, Spartina patens* and other restoration plantings are to be planted,
- Demonstrate that salt marsh vegetation has been reestablished to pre-construction conditions to the maximum extent practicable,
- Determine whether any permanent salt marsh impacts occurred due to the project to confirm that the proposed impacts were temporary, and
- Confirm that the salt marsh is functioning at an acceptable level as compared to pre-construction conditions.

3.2.3 Monitoring Methods

In order to document conditions prior to construction and establish a baseline against which restoration success can be assessed, pre-construction monitoring surveys will be completed prior to the start of construction in the salt marsh.

[9] https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/Compensatory-Mitigation-SOP-2020.pdf?ver=EWhCrK70ZfmPr--8x0K5Jg%3d%3d

The same areas will be resurveyed post-construction on an annual basis in the late summer/fall for five growing seasons (or as otherwise specified in permits issued for the project). The first year of post-construction monitoring will be the first year that the restored marsh has been through a full growing period after completion of the plantings. Results will be compared to baseline conditions and the identified success criteria. If results suggest that the success criteria are not being met, adaptive management measures will be implemented as appropriate in coordination with regulatory agencies.

Monitoring will include the establishment of seven transects across the marsh with at least one transect at each access pit. Each transect will be 60 feet in length and will be marked at its beginning and end by stakes driven into the ground. The beginning of each work area transect will be at the limit of work on the southern side of the access road. Each work area transect will extend across the location of the access pit and end north of the limit of work outside of the access pit area. One "control" transect will be located across the access road and salt marsh, but outside of any work areas. Refer to Figure 3-1 to see the conceptual layout for monitoring plan transects.

Elevation Surveys

The location of the stakes and the elevation of the existing marsh surface along each transect will be determined using standard survey equipment. Transects will be resurveyed every year in the late summer/fall for five growing seasons.

Vegetation Surveys

During pre-construction and post-construction monitoring, the existing vegetation along each transect will be quantitatively characterized by a qualified biologist making an ocular estimate of the percent cover of vegetation within 10 quadrats, three square feet in size located every six feet along a tape measure spanning the transect. All vascular plants within each quadrat will be identified by species. The first plot on each transect will be located on the west side of the transect at the stake marking the beginning.

Photographic Documentation

During each monitoring event, photographs will be taken of each transect location from the starting stake looking north and from the ending stake looking south.

Other Considerations

During each monitoring event, observations will be made of any areas of subsidence or erosion of the marsh surface. In addition, use of the areas by fauna (e.g., mammals, fish, crabs, snails, etc.) will be noted.

If invasive species are detected in the restoration areas, it will be noted in the monitoring report. Note that invasive species are known to presently occur in the salt marsh. Prevalence of invasives will be documented as part of the baseline conditions pre-construction assessment. Additionally, an Invasive Species Management Plan will be developed during final design and implemented during construction.

3.2.4 Reporting

Subsequent to each monitoring event, a Monitoring Report will be prepared discussing the results of the elevation and vegetation surveys along each transect and including the photographs taken each year. The estimated average percent cover for all 10 plots along each of the seven transects will be calculated for each monitoring event. Additionally, the total number of species present along each transect will be calculated. These data will be tabulated in each report for comparison to pre-construction baseline conditions and to prior post-construction surveys. The reports will be submitted annually to the DCR, MassDEP, USACE, and local Conservation Commissions.

3.2.5 Success Criteria

The Report will include an assessment of the progress towards meeting each of the following success criteria:

1. Is the elevation of the area appropriate to support the plant species intended to revegetate the area?
2. Is the site stable and not showing signs of erosion?
3. Is the hydrology / tidal flushing of the area similar to pre-construction conditions based on observations of inundation during different tide cycles?
4. Have at least 75% of the plantings survived after the first growing season?
5. Are the plantings colonizing adjacent areas (i.e., spreading via vegetative reproduction)?
6. After three growing seasons, have the areas achieved 75 percent of the pre-construction coverage of indigenous wetland plant species?
7. After five growing seasons, have the areas achieved percent cover of indigenous wetland species equal to pre-construction coverage?
8. Is the percent cover of invasive species equal to or less than pre-construction conditions?
9. Is recruitment of volunteer native plant species occurring?
10. Is the prevalence of fauna similar to pre-construction conditions based on visible signs of wildlife use or presence?

The report will also discuss any proposed or completed adaptive management measures or recommendations.

3.2.6 Adaptive Management Plan

If monitoring results suggest that the marsh is not adequately recovering to pre-construction conditions, adaptive management measures will be implemented in coordination with the DCR, MassDEP, USACE and local Conservation Commissions. Potential adaptive management measures may include, but are not limited to:

- Replanting of failed or weak plugs.
- Supplementation of surficial soil and replanting in areas of persistent subsidence or erosion.
- Regrading and replanting in areas of excessive rebound or accretion.

- Installation of additional erosion control measures such as coir logs, straw wattles and/or straw erosion control matting. (Note: All erosion controls used will be biodegradable and wildlife-friendly.)
- Management of invasive species above levels documented pre-construction. (Note: Invasive species management other than by hand-pulling will be approved in advance by DCR and other appropriate parties.)
- Management of excessive herbivory by wildlife.

3.3 Leak Detection Program

MWRA has a robust leak detection program that minimizes the risk to the salt marsh. The Authority employs field technicians on two shifts to continuously monitor the MWRA's water distribution pipelines for leakage. Technicians utilize best industry practice considering the pipe material, pipe size, ground conditions, and worker safety. Leak noise amplification systems are used to listen at all contact points along the main including all valves, air valves, and blow off valves. When the ground surface is paved, technicians listen for leakage with a ground microphone over the main at 10- to 15-foot intervals. When specific areas of leakage are suspected in unpaved areas, a listening rod is inserted into the ground to listen for potential leakage. Leak noise correlators are utilized to check for leaks at waterway crossings, in addition to pinpointing areas of leakage when possible. The MWRA maintenance goal is to complete a leak detection survey on 210 miles of the 330 plus miles of pipe on an annual basis. Leak detection on Section 22 was last completed on December 8, 2021, and no leaks were found. The portion of the Section 22 pipeline within the salt marsh is supported on a timber pile trestle and encased in concrete, which the 2020 condition assessment found to be in good condition. These elements add additional structural integrity to the pipeline, which reduces the likelihood that a catastrophic line break would occur in the salt marsh segment.

3.4 Chapter 91

MWRA proposes to restore Section 21 and Section 22 pipelines to full function with various methods as described in ***Chapter 1 – Project Description and Permitting***. This Section focuses on the discussion of proposed activities in areas of Section 22 that are subject to jurisdiction under Chapter 91 (310 CMR 9.00 Waterways Regulations), applicable Chapter 91 authorizations, and regulatory compliance. Section 21 is located entirely within existing roadways amongst residential and commercial land uses, and is outside of any Chapter 91 jurisdictional areas.

3.4.1 Chapter 91 Jurisdiction

The Project includes work within jurisdictional Flowed Tidelands and Filled Tidelands, and non-jurisdictional Landlocked Tidelands.

Flowed Tidelands are defined as submerged lands and tidal flats which are subject to tidal action; all flowed tidelands and submerged lands lying below the high water mark (as determined by hydrographic survey data) are subject to Chapter 91 jurisdiction. NOAA tidal epoch data indicates that mean high water near Segment 2 is at 9.84 feet. Based on record

drawings from construction and field visits to date, it appears that the mean high tide line is approximately coincident with the Marsh Boundary-Seaward line shown in MassGIS data; for the purposes of this document, this line has been used as a proxy for Chapter 91 jurisdiction. The mean high tide line will be confirmed once detailed survey has been obtained during final design, prior to further coordination with MassDEP for submission of a license application.

Filled Tidelands are defined as former submerged lands and tidal flats which are no longer subject to tidal action due to the presence of fill. This includes the crossing of Unnamed Creek 2 in Granite Avenue.

Landlocked Tidelands are defined as filled tidelands which on January 1, 1984, were entirely separated by a public way from any flowed tidelands except those within Designated Port Areas and those within 250 feet of the high water mark. A small portion of Segment 2 intersects the edge of a finger-shaped landlocked tideland where the pipeline crosses I-93; however, the pipe will be sliplined in this location and no surface disturbance is proposed.

Table 3-3 summarizes the activities proposed within the various geographic areas subject to jurisdiction, and these areas are shown in Figure 3-2. None of the work for Section 21 is located within Chapter 91 jurisdiction.

Table 3-3 Activities Proposed in Geographic Areas Subject to Chapter 91 Jurisdiction

Section 22 Segments	Proposed Activity	Chapter 91 Jurisdictional Area
Segment 1 (Boston)	Pipe Removal and Replacement	None
Segment 2 (Boston & Milton)	Pipe Rehabilitation – Slipline	Flowed Tidelands below the mean high tide line at Unnamed Creek 1 and the Neponset River Landlocked Tidelands separated from flowed tidelands by a ramp for I-93
Segment 3 (Milton)	Pipe Capping and Abandonment	Flowed Tidelands below the mean high tide line at Unnamed Creek 2
Segment 3A (Milton)	Pipe Installation – New Alignment	Filled Tidelands below Historic High Water and Inferred Historic and Contemporary High Water (associated with Unnamed Creek 2 under Granite Avenue)
Segment 4 (Milton & Quincy)	Pipe Rehabilitation – Clean and Line	None

3.4.1.1 Jurisdictional Activities

The construction of a new pipe within Granite Avenue for Segment 3A of Section 22 constitutes construction of a structure not previously authorized, and will require a license application pursuant to 310 CMR 9.05(1)(a).

Abandonment of the existing pipe in Segment 3 below the mean high tide line at Unnamed Creek 2 constitutes a change in use that will result in nullification of Chapter 91 approval of

that existing crossing. 310 CMR 9.27 requires that such structures be removed unless MassDEP determines that continued existence of said structures will promote the public interests served by M.G.L. c. 91. The MWRA proposes to cap and grout the existing pipe rather than removing it, to avoid extensive disturbance in the salt marsh. This will protect the public's interest in tidelands and foster the right of the people to the natural, scenic, and esthetic qualities of their environment, in accordance with the interests of the Act.

The rehabilitation of the existing pipeline in Segment 2 of Section 22 constitutes repair and maintenance of an existing structure that is exempt from licensing. Specifically, the Project includes continuation of an existing, unauthorized public service project where no unauthorized structural alteration or change in use has occurred subsequent to January 1, 1984, as described in 310 CMR 9.05(3)(c). Pursuant to 310 CMR 9.22(3)(a), the Project proposes temporary dredging in this Segment confined to the existing footprint to access the existing pipeline for sliplining, with no significant deviations from the original specifications of the pipeline. Section 22 was constructed in the 1950s and has not undergone any unauthorized changes since then. Refer to Appendix E for a copy of the record plan for this segment dated January 1957.

3.4.1.2 Water Dependency

The Project meets the definition of an Infrastructure Crossing Facility per 310 CMR 9.02. As described in the alternatives analysis presented in Chapter 2 of the EENF, many alternative alignment and construction options were considered for each segment, and the proposed Project was determined to be the best solution that minimizes impacts in wetlands and waterways. Installing a new alignment within Granite Avenue for Segment 3A avoids disturbance within the salt marsh for this project as well as for future maintenance of the pipe. In Segment 2, sliplining minimizes impacts by excavating at periodic access pits. No options were found that would meet the Project need while entirely avoiding work within wetlands and waterways; the Project cannot reasonably be located away from tidal waters. In accordance with 310 CMR 9.12(2)(d), the MWRA respectfully requests that the Secretary determine that this infrastructure crossing facility is water-dependent as it cannot reasonably be located or operated away from tidal or inland waters.

3.4.2 Proposed Work and Impacts

As previously noted, the work areas for the Section 21 pipeline do not include any areas subject to jurisdiction under Chapter 91. Construction activities associated with work on Section 22, including excavation of pipe access pits and installation of construction mats, will result in temporary impacts to areas within Chapter 91 jurisdiction. No permanent waterways impacts are anticipated.

A portion of Segment 2 is located within jurisdictional flowed tidelands associated with two waterways previously identified in the EENF: the Neponset River and Unnamed Creek 1 (located west of the Neponset River). The work in flowed tidelands includes excavation of temporary pipe access pits to slipline the existing pipe with short steel pipe segments. During the Segment 2 construction period, timber construction mats will be installed around the pipe access pits for the sliplining work. Excavated pits will be backfilled with the original subsoil.

Topsoil will be added and vegetation will be planted to reestablish pre-construction grades as described above in Section 3.1.

A small portion of Segment 2 intersects the edge of a finger-shaped landlocked tideland between station 60+00 and 61+00 (Figure 3-2, page 4). No excavation is proposed in this location; the pipe will be sliplined under the existing southbound lanes of I-93.

The existing Segment 3 pipeline that will be capped and abandoned crosses Unnamed Creek 2 (located east of the Neponset River). However, capping work will only be performed at the two end points of the pipe, which are outside of Chapter 91 jurisdiction. The new alignment (Segment 3A) within Granite Avenue will cross filled tidelands. The new pipe will be installed beneath the existing culvert that conveys flow between Unnamed Creek 2 and a wetland at Presidents Golf Course in Quincy.

Segment 4 crosses Furnace Brook in Quincy, between Adams Street and the Furnace Brook Parkway. However, Furnace Brook is completely culverted in this location and non-navigable; therefore, there is no jurisdictional area involved. The pipe in Segment 4 will be cleaned and lined with cement mortar via access pits located in upland areas. (See Figure 3-2, page 12.)

Table 3-4 lists all construction excavation and dredging volumes needed for the pipe rehabilitation work at Segments 2 and 3A. It is anticipated that the Project will include approximately 510 cubic yards of excavation/dredging. As described in Section 3.1, the Project has been designed to avoid and minimize impacts where practicable, and areas of temporary disturbance will be restored and monitored.

Table 3-4 Impacts Within Chapter 91 Jurisdiction

Segment	Station/ Resource	Activity Type	Temporary Impact Area (square feet)	Excavated/ Dredged Materials Volume (cubic yards)
Segment 2 (flowed tidelands)	Station 37+00 Below mean high tide line associated with Unnamed Creek 1	Pipe Access Pit	580	330
		Construction Mats	900	-- (Not applicable)
	Station 48+50 Below mean high tide line associated with Neponset River (west side)	Construction Mats	150	-- (Not applicable)
	Station 53+00 Below mean high tide line associated with Neponset River (east side)	Pipe Access Pit	20	10
		Construction Mats	720	-- (Not applicable)
Segment 3A (filled tidelands)	(parallel to existing) Station 81+00 Unnamed Creek 2	Open-Cut Trench	380	170
		Total Impacts	**2,750**	**510**

Two pipe access pits will impact flowed tidelands, as shown on Figure 3-2, pages 3 and 4. Temporary construction mats near Stations 37+00, 48+50, and 53+00 will also be installed in flowed tidelands as shown on Figure 3-2, pages 3 and 4. These activities are within the existing

pipe alignment or within an existing pipeline access road that runs parallel to the southern side of the pipeline alignment.

Along Segment 3A, new pipe will be installed through pipe jacking pits or open-cut trench within Granite Avenue. An open-cut trench would be approximately 12 feet deep and would result in approximately 170 cubic yards of excavation within filled tidelands. Jacking pits, if needed, would be located outside of Chapter 91 jurisdiction; however, the jacked pipe will have approximately the same footprint as the open-cut trench through filled tidelands. The final construction method will be determined during final design phase. In either case the road will be restored once the new pipe installation work is completed.

Excavated/dredged materials will be stored properly in upland areas. Pipe access pits will be backfilled and restored to the original elevation once the pipe sliplining work is completed. A Salt Marsh Restoration Monitoring Plan has been developed for restoration of impacted wetlands resource areas as described in Section 3.1. Refer to ***Chapter 4 – Mitigation and Draft Section 61 Findings*** for detailed mitigation measures for the Project.

3.4.3 Regulatory Compliance

As discussed in Section 3.4.1.2 above, the Project cannot reasonably be located away from tidal waters; as such, the MWRA requests that the Secretary find that the Project is water-dependent.

Table 3-5 lists the relevant regulatory standards and provides a summary of the Project's compliance with the applicable provisions of the Waterways Regulations as a water-dependent use project.

Table 3-5 Chapter 91 Regulatory Compliance

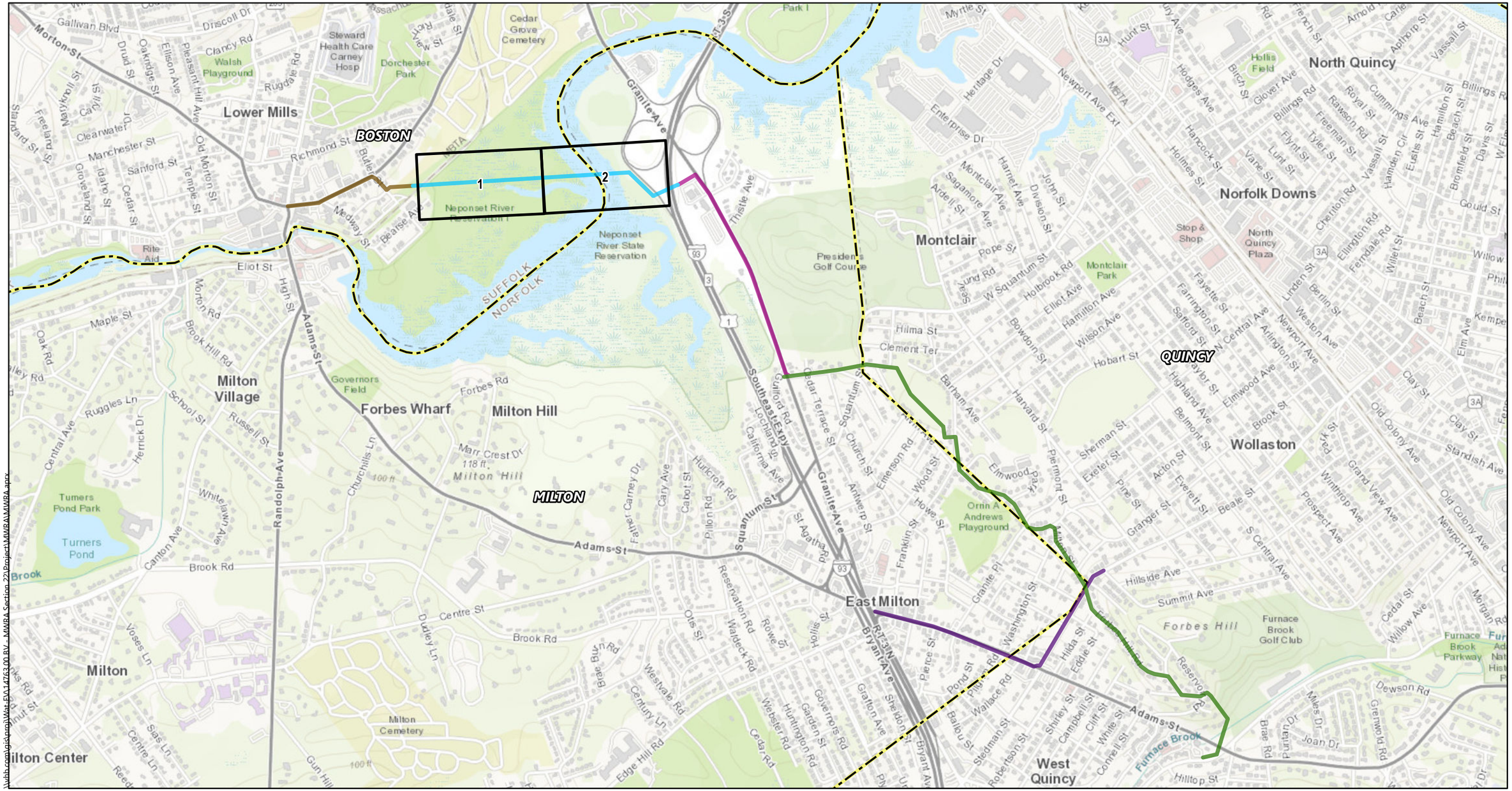
Regulation 310 CMR	Requirement Description	Applicable?	Standard	Project Compliance
9.27	Removal of Previously Licensed Structures	Yes	Upon nullification, structures below high water mark shall be removed unless continued existence will promote public interests	Segment 3 of the existing pipeline will be capped and abandoned in place to avoid extensive impacts within the salt marsh.
9.31(1)	Basic Requirements	Yes	This regulation includes basic requirements for licensing.	The Project will fully comply with this requirement and other applicable regulations of 310 CMR 9.00.
9.31(2)	Proper Public Purpose Requirement	Yes	All projects on tidelands or great ponds should serve a proper public purpose which provides greater benefit than detriment to the rights of the public in said lands	The Project fully complies with this standard as a public service project.

Regulation 310 CMR	Requirement Description	Applicable?	Standard	Project Compliance
9.31(3) & (4)	(3) Rebuttal of Presumptions; (4) Requirements for Projects with Special Legislative Authorization	No	Presumptions or Special Legislative Authorization that may supersede 310 CMR 9.31 (1) through (2).	These standards are not applicable.
9.32(1)	Categorical restrictions on fill and structures	Yes	A project shall be eligible for a license when it is restricted to fill and structures that accommodate the uses listed in 310 CMR 9.32(1)(a) through(e).	The Project fully complies with this standard. Placing a new pipe structure within the filled tidelands is categorically allowed and meets the use listed at 310 CMR 9.32 (1)(e)1: fill or structures for any use on previously filled tidelands within ACECs.
9.33	Environmental protection standards	Yes	Projects must comply with all applicable state environmental protection and permitting requirements.	The Project fully complies with this standard. It has been designed to comply with all applicable state environmental standards. Refer to the table of state regulatory programs review in ***Chapter 1 – Project Description***.
9.34(1)	Conformance with municipal zoning	Yes	Projects located on filled tidelands must comply with applicable local zoning.	The Project is exempted from such requirements by law as a public service project.
9.34(2)	Conformance with municipal harbor plan	No	Projects must comply with applicable Municipal Harbor Plans	This standard is not applicable. The new pipe alignment (Segment 3A) is not located within an area covered by a Municipal Harbor Plan.

Regulation 310 CMR	Requirement Description	Applicable?	Standard	Project Compliance
9.35(2)	Standards to preserve water-related public rights	Yes	This standard prohibits projects from significantly interfering with: Navigation; Free passage over and through the water; and Access to town landings.	The Project fully complies with this standard. Proposed new pipe will be fully located within the Granite Avenue, and placed below an existing culvert which is non-navigable. Segment 2 work that is located within and near flowed tidelands will have temporary impacts to waterways during the construction period. Note that work for Segment 2 is exempted from licensing (See Section 3.4.1.1). The Project will not result in any significant restrictions to navigation, free passage over and through the water, or access to local common landings.
9.35(3)	Public Rights Applicable to Tidelands and Great Ponds	Yes	Projects shall not significantly interfere with public rights of fishing and fowling or on-foot passage.	The Project complies with this standard. As mentioned above, the new pipe will be installed beneath Granite Avenue, and pipe rehabilitation work in flowed tidelands will be performed within the existing footprint beneath the ground surface. Resource areas will be restored once the pipe work is completed. The Project will not significantly interfere with public rights of fishing, fowling, or on-foot passage.
9.35(4)	Compensation for Interference with Public Rights in Commonwealth Tidelands and Great Ponds	No	Any water dependent use projects which include fill or structures for private use of Commonwealth Tidelands shall provide compensation to the public for interfering with its broad rights to use such lands for any lawful purpose.	The Project involves the MWRA's rehabilitation work for a public service, not private use. Regardless, there will be no interference with public rights to use these lands.

Regulation 310 CMR	Requirement Description	Applicable?	Standard	Project Compliance
9.35(5)	Management of Areas Accessible to the Public	Yes	Projects must provide for the long-term management of tidelands that are accessible to the public related to hours, activities, signage and physical restrictions.	The Project complies with this standard. The Project proposes to backfill excavated pipe access pits and restore the disturbed resource areas. It will not impact public use areas or limit hours of availability or scope of allowed activities within jurisdictional areas.
9.36(2)	Private Access to Littoral or Riparian Property	Yes	The project shall not significantly interfere with littoral or riparian property 'owners' right to approach their property from a waterway, and to approach the waterway from said property	The Project complies with this standard. The new pipe will be placed within Granite Avenue and other pipe rehabilitation work will be performed within the existing footprint. This Project will not significantly interfere with littoral or riparian property 'owners' private access right.
9.36(3)	Disruption of Water-Dependent Use in Operation	Yes	The Project shall not significantly disrupt any water-dependent use in operation within the proximate vicinity of the Project Site.	The Project complies with this standard. The Project will not significantly disrupt any water-dependent use in operation within the proximate vicinity of the Project Site.
9.36(4)	Displacement of Previous Water-Dependent Use	No	The Project shall not displace any water-dependent use that has occurred on the Project Site within five years prior to the date of license application.	The Project does not involve displacement of any previous water-dependent use.
9.36(5)	Fill and/or Structures within a DPA	No	The Project shall not include fill or structures for non-water-dependent or water-dependent, non-industrial uses which preempt water-dependent-industrial use within a DPA	The Project is not located within a DPA.
9.37	Engineering and construction standards	Yes	Projects shall comply with all applicable engineering and construction standards.	The Project fully complies with this standard. All structures will be certified by a Registered Professional Engineer and will not restrict potential channel dredging. It complies with applicable state requirements for construction in floodplains. The pipelines will not present a hazard to navigation and will be adequately protected from scouring.

Regulation 310 CMR	Requirement Description	Applicable?	Standard	Project Compliance
9.38	Use standards for recreational boating facilities;	No	This regulation establishes standards for the construction and operation of recreational boating facilities.	This standard is not applicable. The Project does not include any existing or proposed recreational boating facility.
9.39	Use standards for marinas, boats yards and boat ramps	No	This regulation establishes standards for the construction and operation of marinas, boatyards and boat ramps.	This standard is not applicable.
9.40	Standards for Dredging and Dredged Material Disposal	Yes	This regulation establishes standards for projects including dredging or dredged materials disposal.	The Project proposes excavation (dredging) of pipe access pits in flowed tidelands for pipeline repair. The Project is located within an ACEC but does not include any improvement dredging or dredged material disposal. There are no impacts to anadromous or catadromous fish runs due to the Project. Impacts to flowed tidelands will be temporary and these areas will be restored once the pipe work is completed. Temporary storage of excavated materials will be properly managed before being backfilled to their original location.
9.56	Standards for Facilities of Limited Accommodation	No		This standard is not applicable. The Project does not propose a Facilities of Limited Accommodation.



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Salt Marsh Restoration Monitoring Plan - Conceptual Transect Layout Key Plan

Source: VHB, MassGIS, Black & Veatch, MWRA

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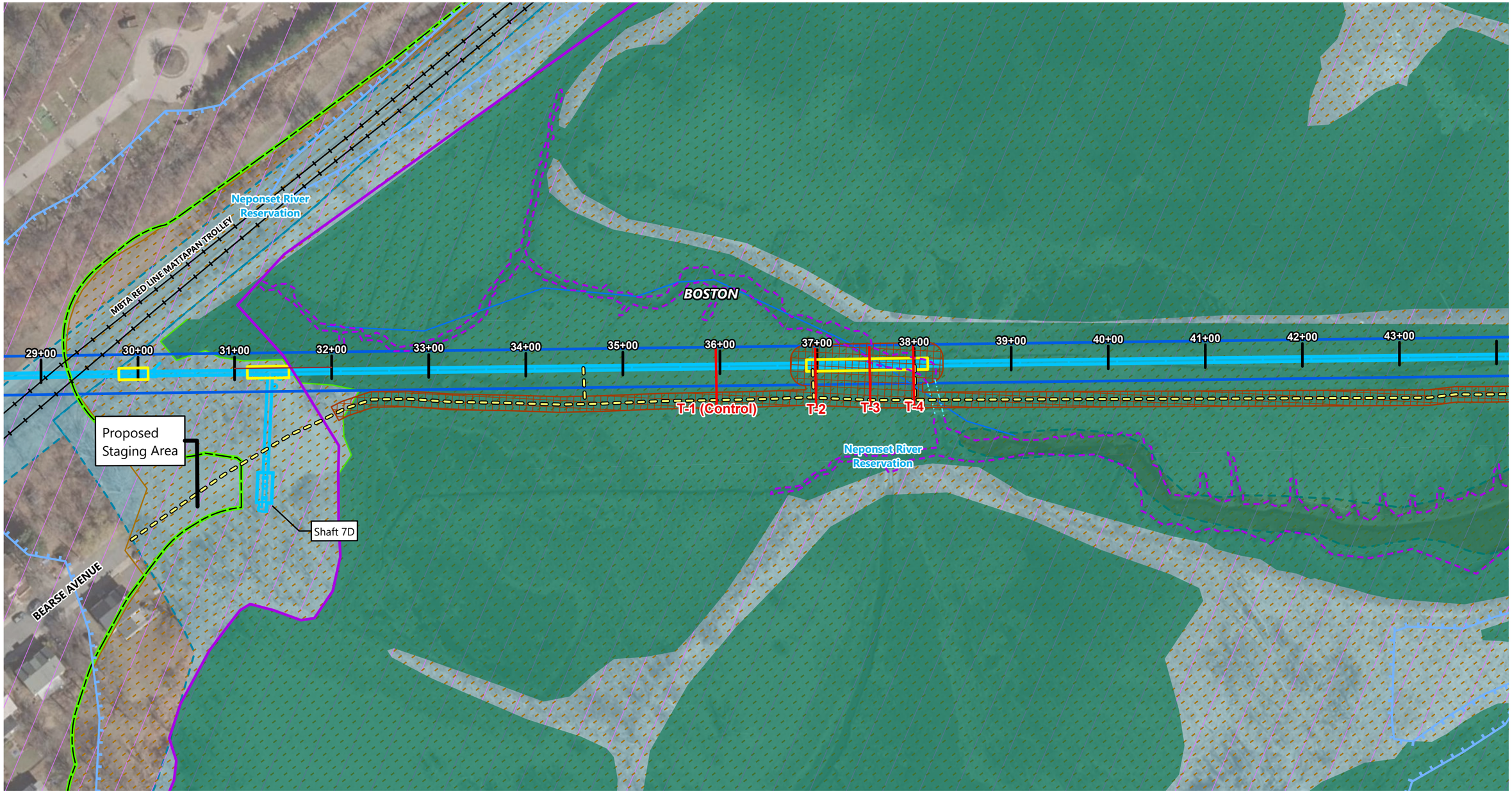

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Salt Marsh Restoration Monitoring Plan - Conceptual Transect Layout

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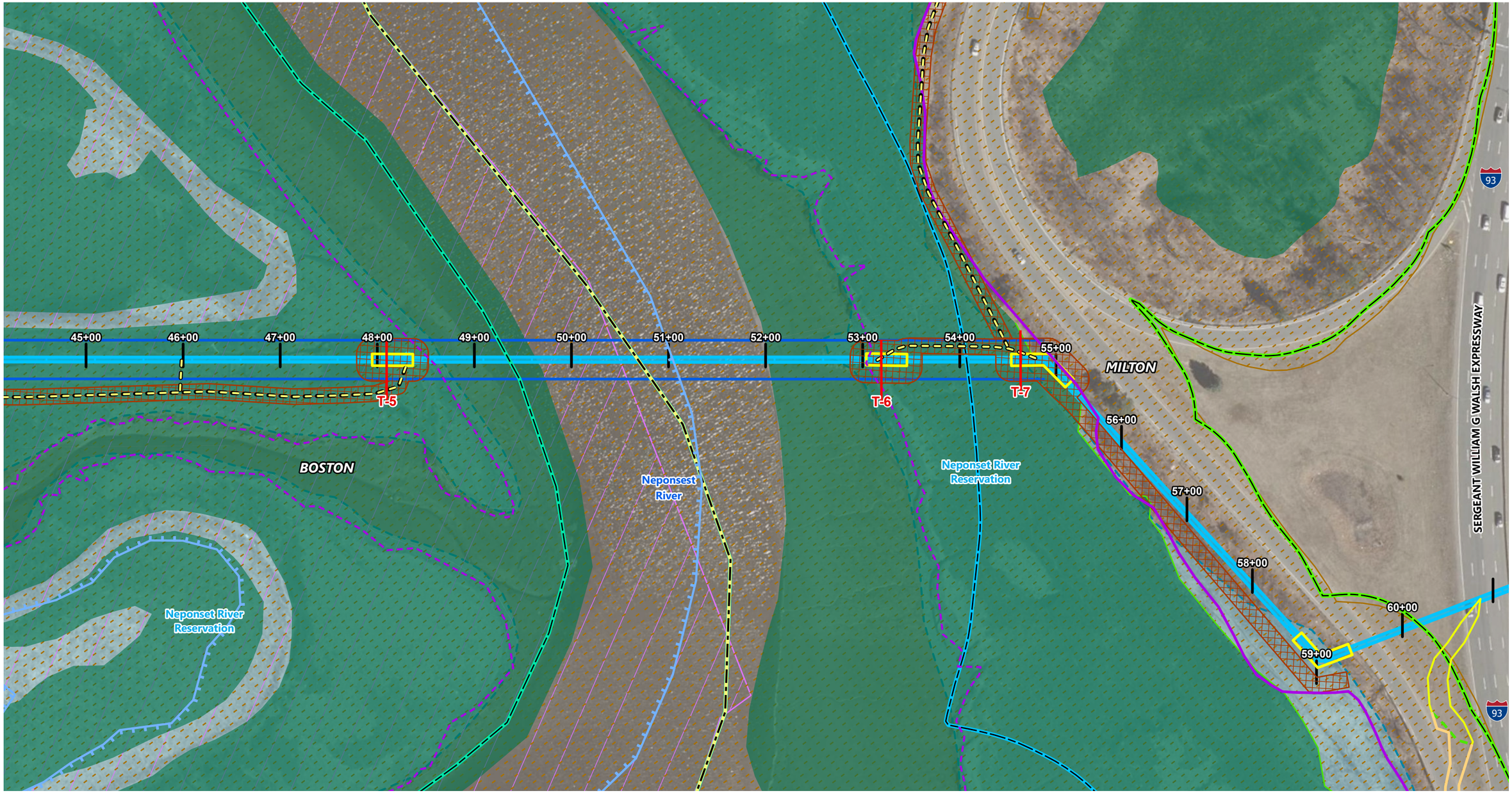
Source: VHB, MassGIS, Black & Veatch, MWRA



0 50 100 200 Feet

- Section 22 Easement
- Section 22 Segment 2 (Slipline)
- 10-ft Trench
- Pipe Access Pit
- Jacking Pits
- Temporary Construction Matting
- Construction Access Route
- T-# Monitoring Transect
- Delineated Wetland Edge / Mean High Water
- Delineated Wetlands
- 100' Wetland Buffer
- 200' Riverfront Area
- 25' Riverfront Area (Boston Only)
- 100-Year Floodplain
- Areas of Critical Environmental Concern
- Environmental Justice
- Protected and Recreational Open Space
- Jurisdiction
- Landlocked Tidelands
- Marsh Boundary - landward
- Historic High Water
- Marsh Boundary - seaward
- Railroad
- River/Stream (MassDEP)
- Town Boundary

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Salt Marsh Restoration Monitoring Plan - Conceptual Transect Layout

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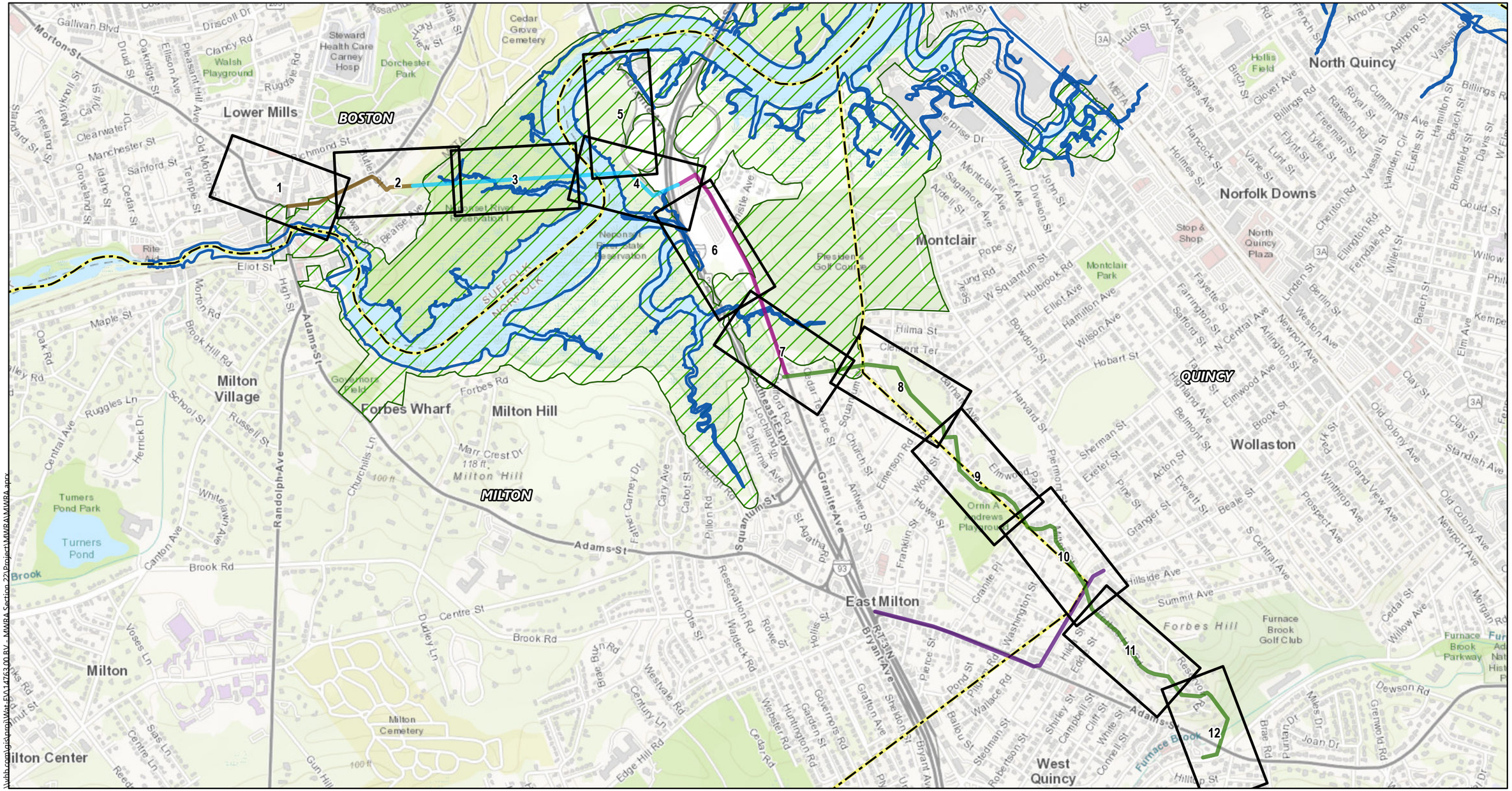
Source: VHB, MassGIS, Black & Veatch, MWRA



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Project Segment
- Section 22 Segment 1 (Remove and Replace)
- Section 22 Segment 2 (Slipline)
- Section 22 Segment 3A (New Alignment)
- Section 22 Segment 4 (Clean and Line)
- Section 21 Pipeline (Clean and Line)
- Chapter 91 Jurisdiction
- Areas of Critical Environmental Concern
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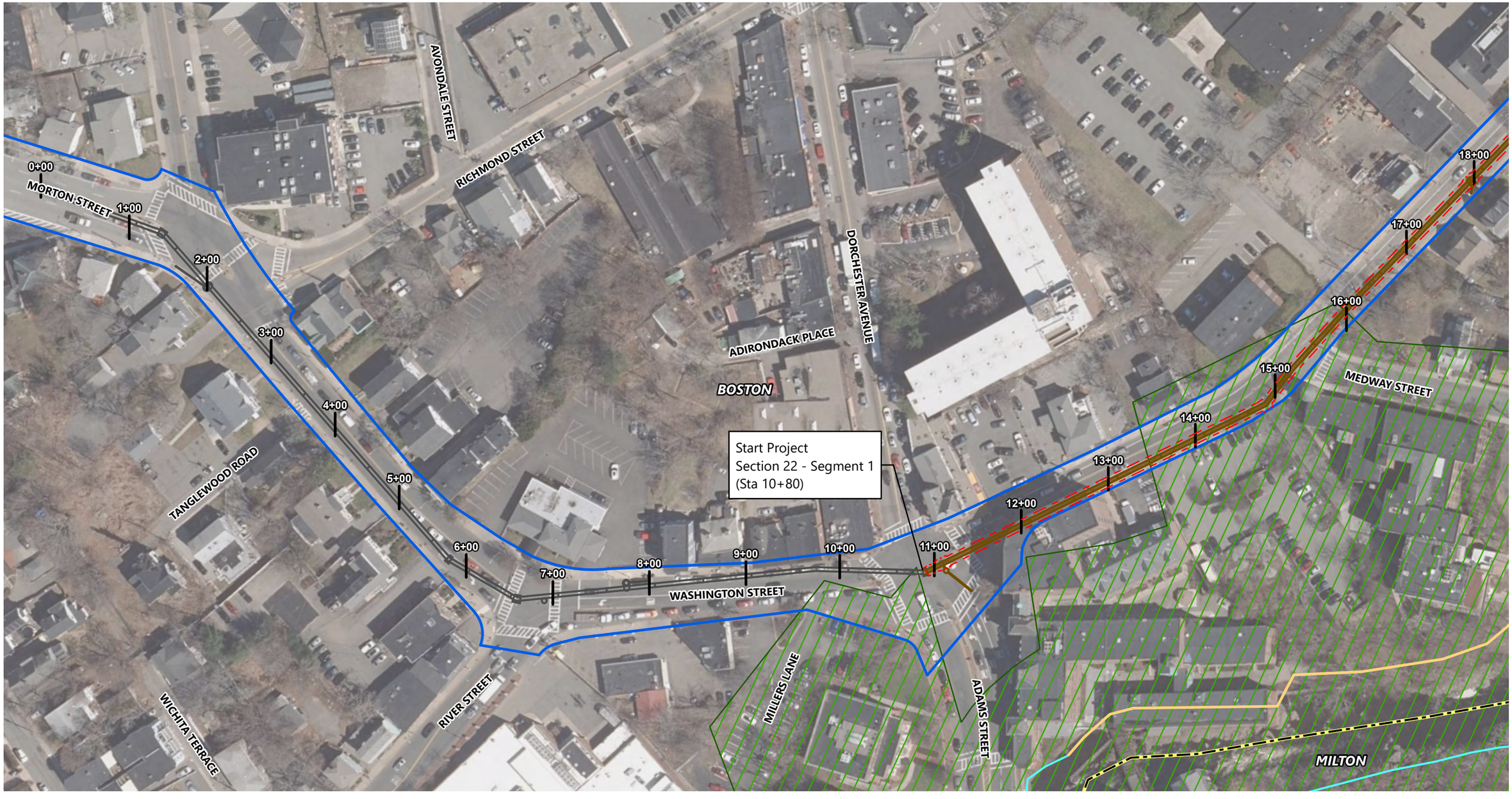
Key Plan
Source: VHB, MassGIS, Black & Veatch, MWRA



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- Delineated Wetland Edge
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- Inferrred Contemporary High Water
- Inferred Historic High Water

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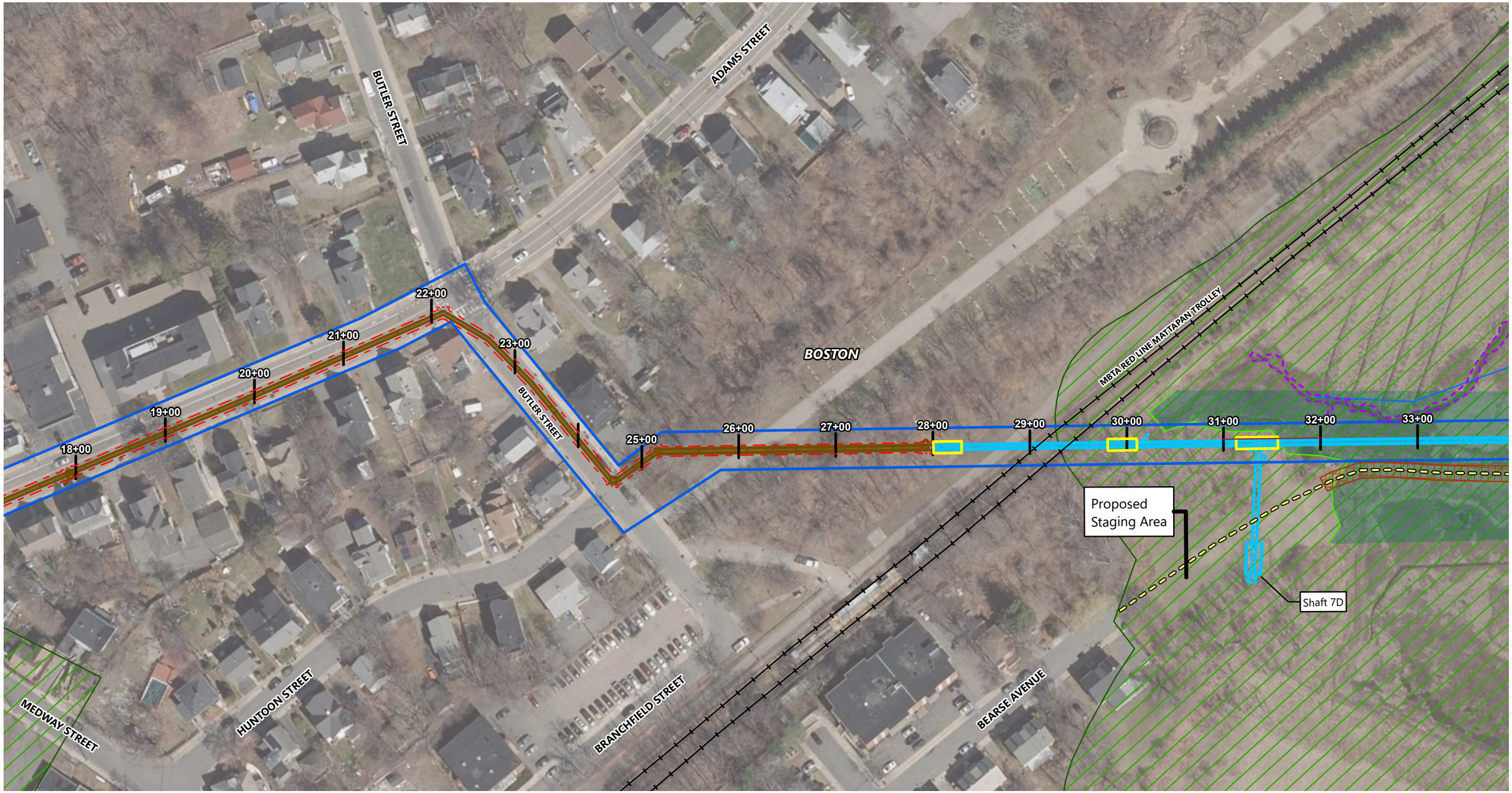

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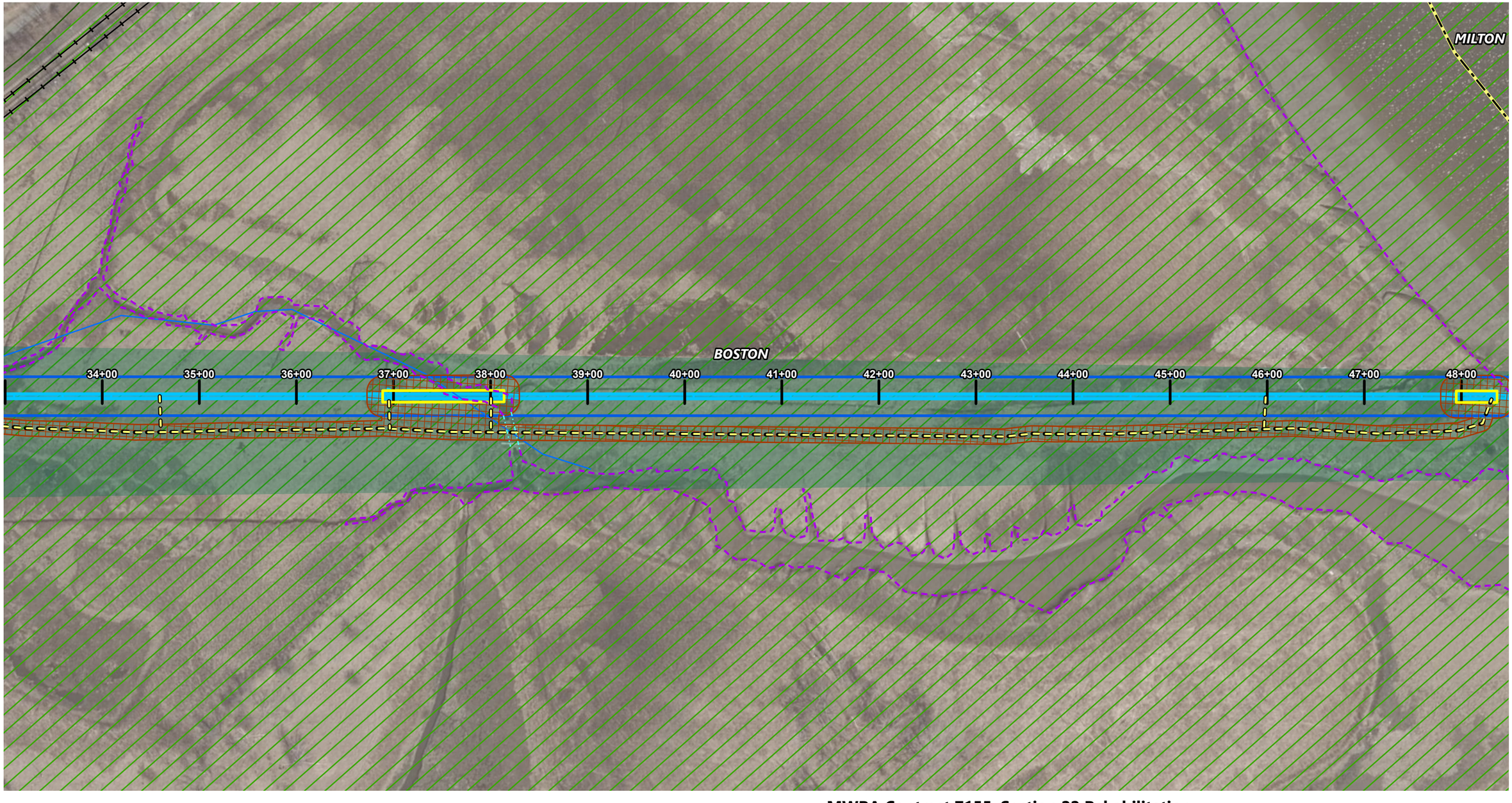

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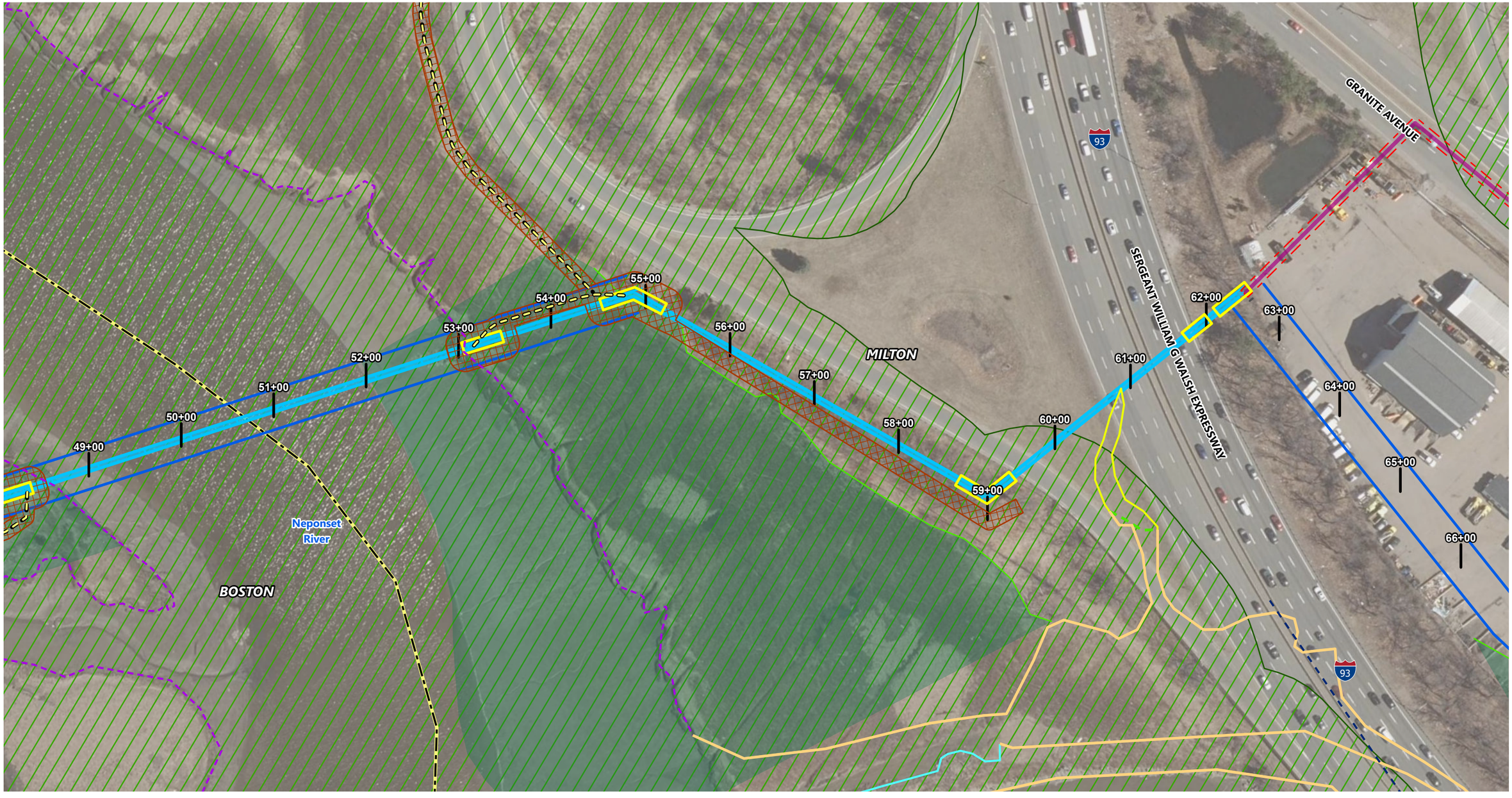

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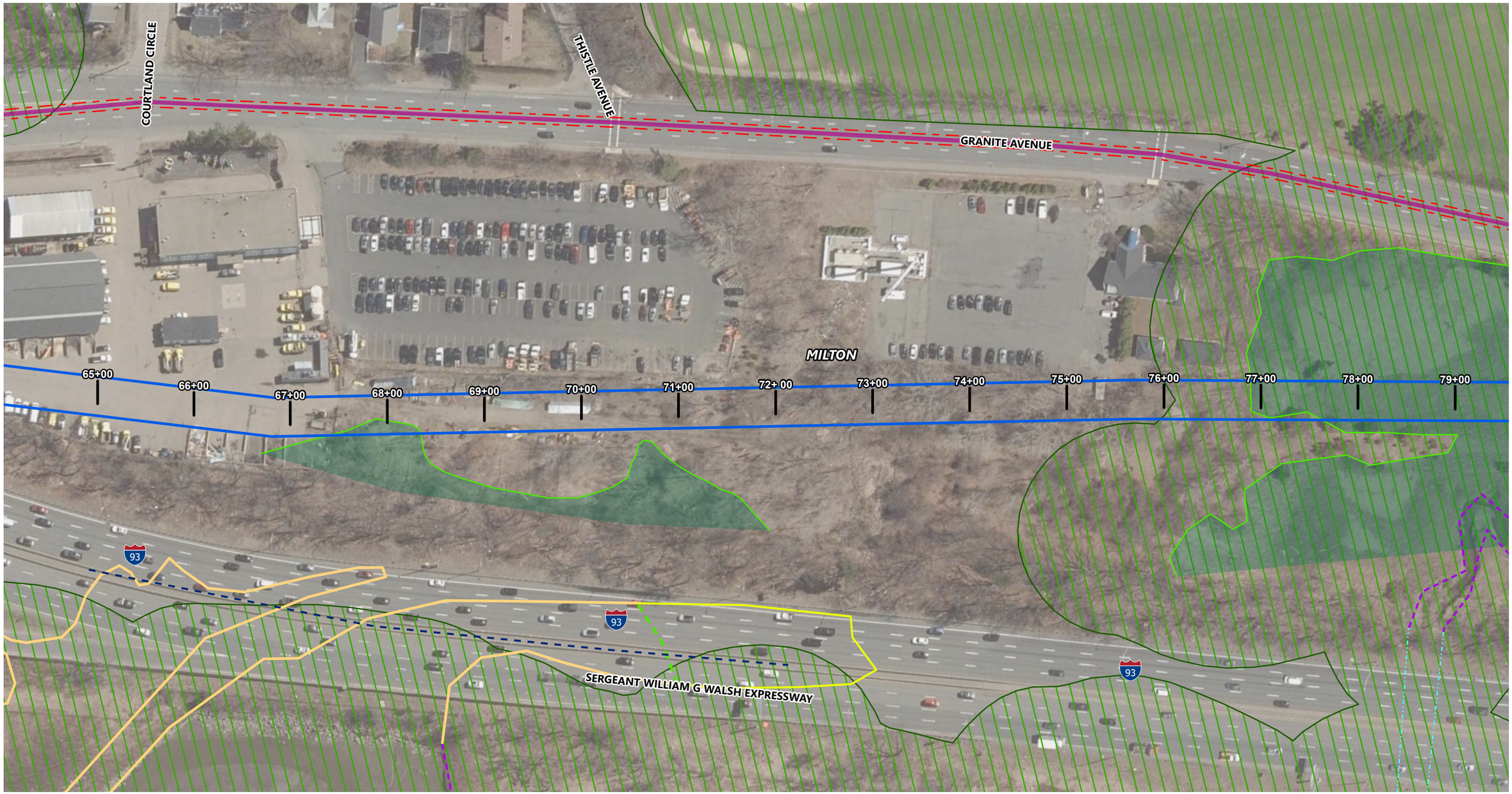

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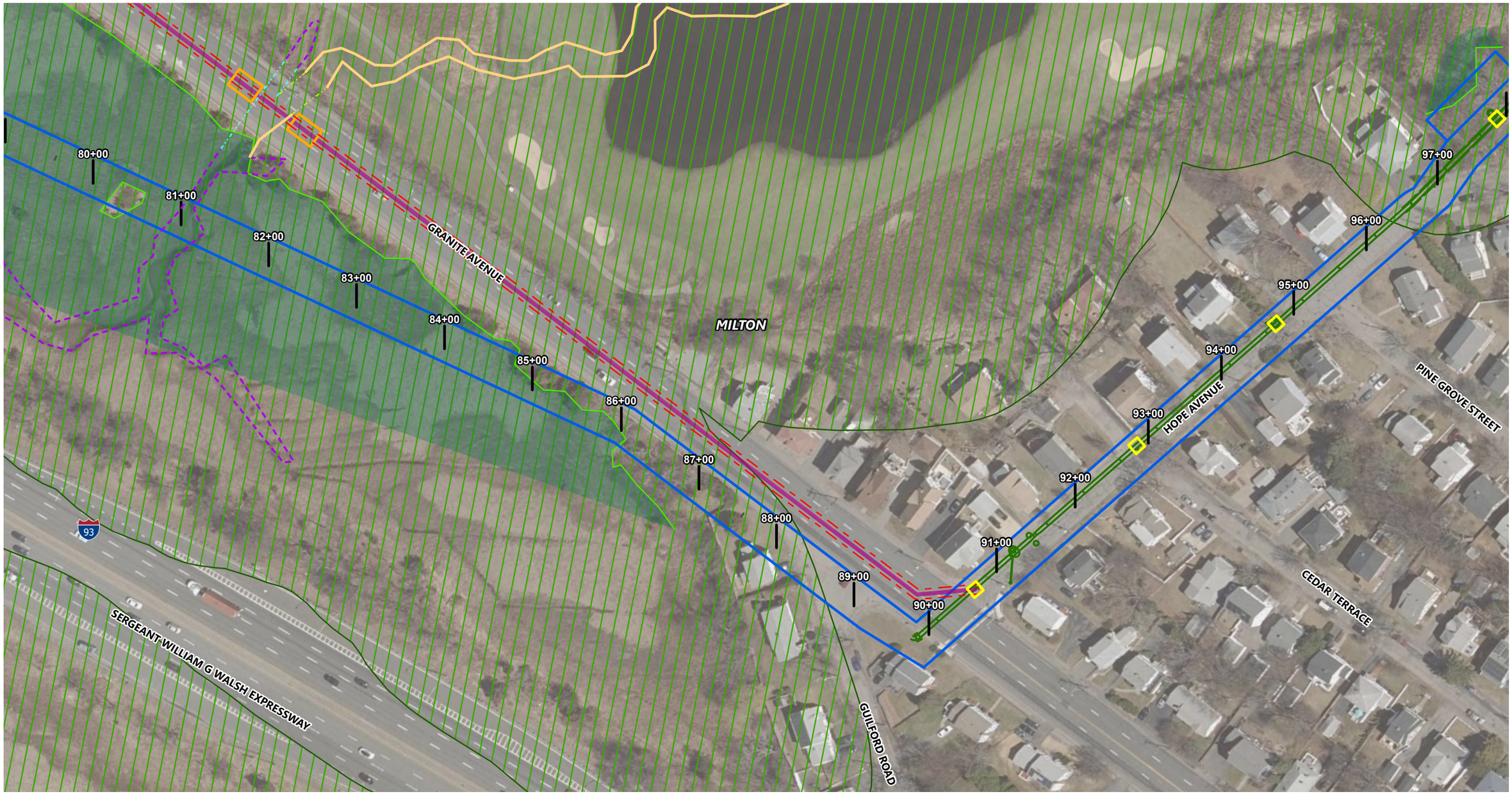

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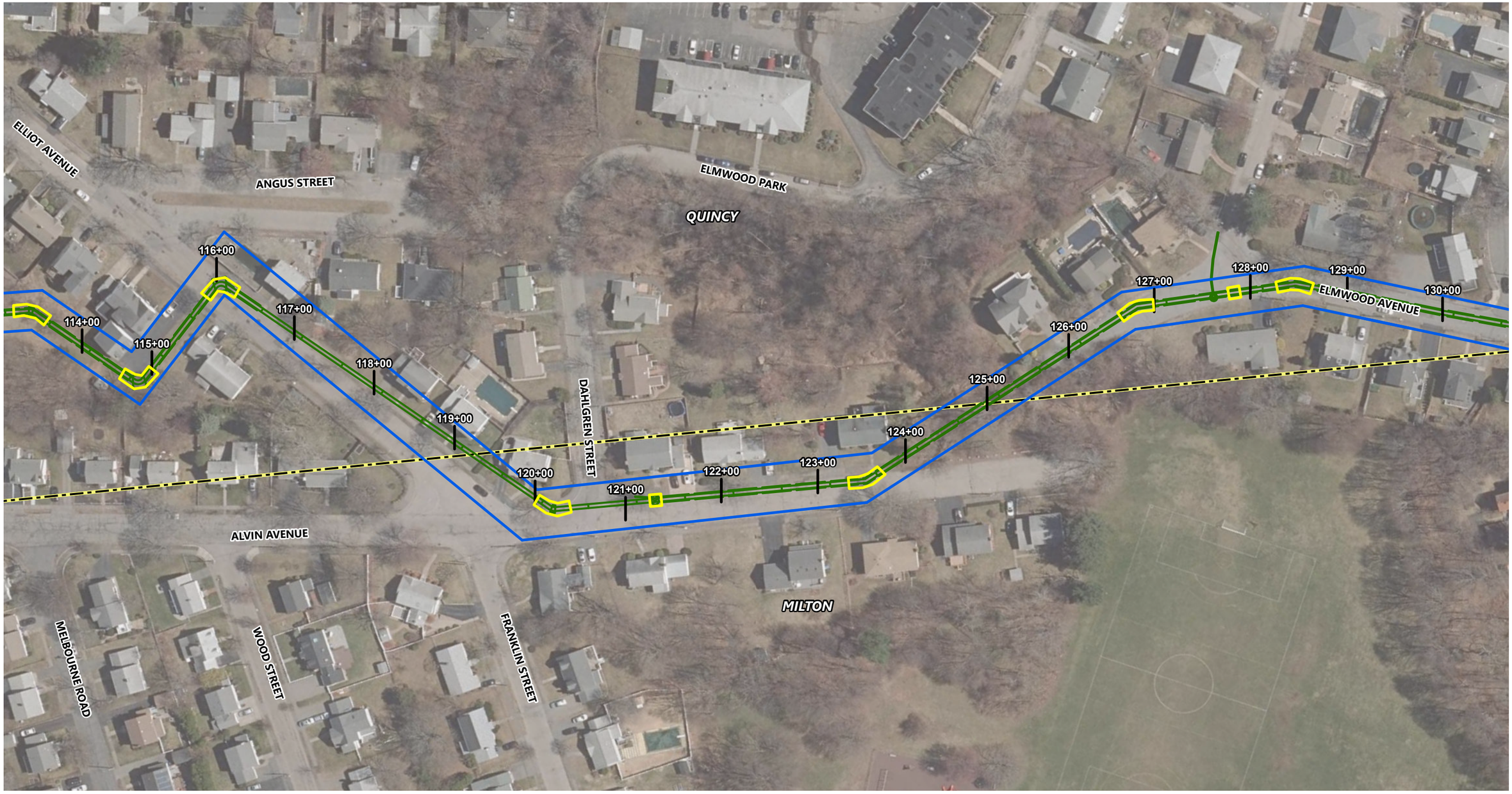

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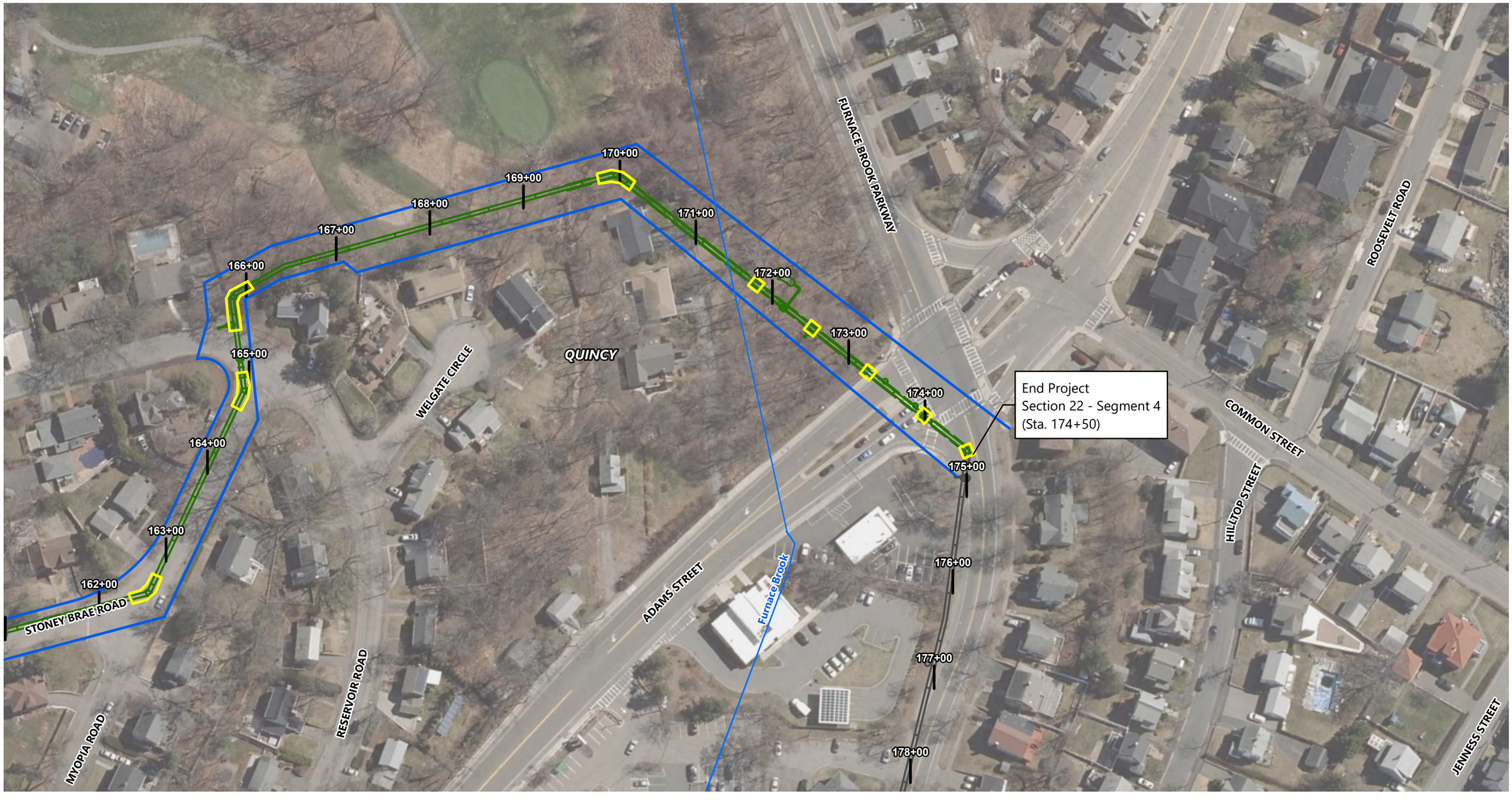

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- Construction Access Route
- Railroad
- River/Stream (MassDEP)
- Delineated Wetlands
- Delineated Wetland Edge
- Areas of Critical Environmental Concern
- Town Boundary

Tidelands Jurisdiction Chapter 91

- Public Way
- Jurisdiction
- Landlocked Tidelands
- Historic High Water
- Marsh Boundary - seaward
- Contemporary High Water
- Inferrred Contemporary High Water
- Inferred Historic High Water

MWRA Contract 7155, Section 22 Rehabilitation
Environmental Permitting

Boston to Quincy, Massachusetts

Chapter 91 Jurisdiction
Proposed Project
Section 22 Segments 1-4
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Source: VHB, MassGIS, Black & Veatch, MWRA

4

Mitigation and Draft Section 61 Findings

As requested in the EEA Secretary's Certificate on the EENF, this Chapter provides the following:

- A summary of proposed mitigation measures with identified implementation commitments, including cost estimates, parties responsible for implementation, and a schedule for implementation. (Section 4.1)
- Draft Section 61 Findings for each Permit or Land Transfer to be issued or granted by State Agencies. (Section 4.2)

4.1 Mitigation Measures

As demonstrated in Table 4-1 below, mitigation will be provided for the proposed Project as described in Section 1.4 of ***Chapter 1 – Project Description and Permitting***, subject to the receipt of all necessary permits and approvals, revisions required by applicable regulatory entities, and consistent with the advancement of Project phases. Relevant state Agency Actions are provided in parentheses for each of the following mitigation subject matters:

- Environmental Justice
- Wetlands and Natural Resource Areas
- Temporary Construction Impacts

4.1.1 Summary of Proposed Mitigation Measures

Table 4-1 Summary of Proposed Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Estimated Costs
Environmental Justice (pursuant to MEPA review)			
Proponent has and will continue to maintain and update the project webpage throughout the Project, including as design progresses and during the construction phase.	Proponent	Design/ Construction	Not Applicable, Project webpage operational
Key project documents will be translated to Chinese (Mandarin), Haitian-Creole, Spanish, and Vietnamese and posted on the project webpage.	Proponent	Design/ Construction	TBD, depending on number and length of documents
Proponent will use various social media platforms and media outlets to reach the intended populations.	Proponent	Design/ Construction	Not Applicable
Proponent will advertise upcoming meetings through www.MWRA.com, organizational social media, and via MWRA's automated notification system (Everbridge).	Proponent	Design/ Construction	Not Applicable
Pre-construction notices will be sent via email to MEPA-designated CBOs and any additional organizations that wish to be added to the Project email list.	Proponent	Design/ Construction	Not Applicable
Proponent will mail flyers with project timeline, MWRA and municipal contact information, and pre-construction meeting information to residents of project communities, with a focus on abutters within 100' of the project area.	Proponent	Design/ Construction	Approx. $5,000
Proponent will provide interpretation services at any public meetings for Haitian-Creole and Chinese (census tracts in the DGA contain communities that speak these languages where at least 10 percent or more of residents identify as not speaking English "very well,") and other interpretation services as requested. Site visits scheduled with MEPA will include on-site interpreters available for Spanish, Haitian Creole, Vietnamese, and/or Chinese (Mandarin)-speaking attendees.	Proponent	Design/ Construction	$400 per Meeting
MEPA remote consultation held in the evening on a different day than the site visit to allow for maximum participation. Interpreters will be available during the call.	Proponent	Design	Not Applicable
Proponent will hold additional public information sessions or workshops, as requested.	Proponent	Design/ Construction	TBD

Table 4-1 Summary of Proposed Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Estimated Costs
Proponent will establish a point of contact at MWRA and within Project communities that residents can contact with any questions or concerns throughout the Project.	Proponent	Design/ Construction	Not Applicable
Wetlands and Waterways (pursuant to Chapter 91, Section 401, and the MA Wetlands Protection Act)			
Relocation of pipeline alignment for Section 22, Segment 3 into Granite Avenue (Segment 3A) to avoid impacts to wetlands and waterways.	Proponent	Design	Approx. $2.5 M
Wetland Restoration Monitoring plan including pre-construction surveys and 5-years of post-construction monitoring to document restoration of disturbed areas.	Construction Contractors	Design/ Construction	Approx. $150 K
Invasive Species Control Plan to avoid and minimize introduction or spread of invasive species due to construction.	Construction Contractors	Design/ Construction	Approx. $125 K
Stormwater Pollution Prevention Plan including implementation of construction-period best management practices (BMP's) such as erosion controls and appropriate dewatering methods to avoid and minimize erosion and sedimentation.	Construction Contractors	Construction	TBD, will be included in construction bid price
Groundwater in the trench excavation or access pits will be pumped into a dewatering filter bag laid upon filter fabric and stone and surrounded by straw wattles, or if necessary, into a sedimentation tank which will then discharge to the filter bag depending on conditions in the field.	Construction Contractors	Construction	TBD, will be included in construction bid price
Regular inspection and monitoring of discharges in accordance with the NPDES Construction General Permit to avoid permanent and indirect effects due to construction.	Construction Contractors	Construction	TBD, will be included in construction bid price
Restoration of and revegetation of areas disturbed by construction.	Construction Contractors	Construction	TBD, will be included in construction bid price
Use of timber construction mats for work in wetlands in accordance with USACE Construction Mat BMP's.	Construction Contractors	Construction	TBD, will be included in construction bid price
Construction staging and material storage areas located outside of wetlands and waterways.	Construction Contractors	Construction	Not Applicable

Table 4-1 Summary of Proposed Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Estimated Costs
Temporary Construction Impacts (various state Agency Actions as noted below)			
Construction Traffic (pursuant to MassDOT Highway Access Permit, MassDOT Land Disposition/Easement, MBTA Right of Way Access License, and MEPA review) › A Traffic Management Plan (TMP) will be developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible, including to vehicular traffic, public transit, bicyclists, and pedestrians. › Notify residents and business abutting impacted roadways ahead of road closures and detours.	Proponent/ Construction Contractors	Design/ Construction	TBD, will be included in Project's final design
Construction Air Quality (pursuant to MassDOT Highway Access Permit, MassDOT Land Disposition/Easement, MBTA Right of Way Access License, and MEPA review) › Tire cleaning areas at construction vehicle entrances and exits; › If required, water sprays during excavation, stockpiling, and loading of demolition and soil materials for removal; › Site watering as required to mitigate wind erosion; › Street sweeping of adjacent local roadways to address potential sediment accumulation; › Secure covering of piles of excavated materials; › Properly secured covers on truck cargos during materials transport; and › Minimization of the free drop height of excavated or aggregate material during earthwork operations. › Construction vehicles will idle only when necessary. The contractors will comply with the Massachusetts anti-idling regulations (M.G.L. c. 90, § 16A; M.G.L. c. 111, §§ 142A-142M, and 310 C.M.R. 7.11) with regard to the amount of time the vehicles will idle. › All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will have US EPA verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.	Construction Contractors	Construction	TBD, will be included in bid specifications

Table 4-1 Summary of Proposed Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Estimated Costs
Construction Noise (pursuant to MEPA review) › The CMP specifications will require that construction equipment will be required to have installed and properly operating appropriate noise muffler systems › The CMP specifications will require that construction vehicles and equipment will be required to maintain their original engine noise control equipment › All construction activities will typically be limited to normal working hours and off-hour work would be minimized, to the extent practicable › Appropriate traffic management techniques implemented during the construction period will mitigate roadway traffic noise impacts › Proper operation and maintenance, and prohibition of excessive idling of construction equipment engines, will be implemented as required by MassDEP regulation 310 CMR 7.11 › Work hours and relevant noise generating activities will be reviewed further with the City of Boston, City of Quincy, and Town of Milton to outline those construction activities which may occur prior to 7:00 AM and after 5:00 PM, Monday through Friday, as well as those activities which may occur during overnight hours (if necessary) › Additional noise control options will be evaluated for effectiveness and feasibility while developing the CMP › Appropriate operational specifications and performance standards will be incorporated into the construction contract documents	Construction Contractors	Construction	TBD
Construction Waste (pursuant to MEPA review) › All pipe removal waste will be segregated and legally disposed of in regional landfills. Any material which cannot be separated and recycled will be sorted and disposed of in accordance with applicable regulations. › Any wood, metals, gypsum, cardboard and plastic will be segregated and sent to recycling facilities to the extent practicable. › All construction debris will be sent to a solid waste sorting facility for separation of any recyclable materials.	Construction Contractors	Construction	TBD, cost will be developed during final design and included in construction bid documents

Table 4-1 Summary of Proposed Mitigation Measures

Mitigation Measure	Responsible Party	Timing	Estimated Costs
Historic Resources (pursuant to MHC review) › Disturbance to the existing granite curbing in the Dorchester-Milton Lower Mills Industrial District (BOS.IL/BOS.TD) will be avoided to the maximum extent possible. If necessary, curbing will be temporarily removed and re-installed in kind post-construction.	Construction Contractors	Construction	TBD

4.2 Draft Section 61 Findings

This Section provides draft Section 61 determination language for state agencies issuing Section 61 Findings documenting mitigation commitments for the project.

4.2.1 Massachusetts Department of Environmental Protection

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

Project Name: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project

Project Location: Boston, Milton, Quincy

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16633

Date Noticed in Monitor: June 23, 2023

Applicable State Action/Permit

› Section 401 Water Quality Certificate

› Chapter 91 License

This Section 61 Finding for the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (EEA 16633) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the project are characterized and quantified in the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project Expanded Environmental Notification Form

(EENF) and Single Environmental Impact Report (SEIR), which are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the Authority has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the project. Where impacts are not avoidable, the Authority has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the project to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Environmental Protection (MassDEP) finds that there are no significant unmitigated impacts.

The Authority recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (the Project), is central to its responsibilities under MEPA. Accordingly, the Authority has prepared a Summary of Proposed Mitigation Measures table (**SEIR Table 4-1**) that specifies the mitigation that the Authority would provide. In the Summary of Proposed Mitigation Measures table, the Authority provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon project phasing.

Specifically, the following mitigation measures are applicable to the Section 401 Water Quality Certificate and Chapter 91 License:

- Relocation of pipeline alignment for Section 22, Segment 3 into Granite Avenue (Segment 3A) to avoid impacts to wetlands and waterways.
- Wetland Restoration Monitoring plan including pre-construction surveys and 5-years of post-construction monitoring to document restoration of disturbed areas.
- Invasive Species Control Plan to avoid and minimize introduction or spread of invasive species due to construction.
- Stormwater Pollution Prevention Plan including implementation of construction-period best management practices (BMP's) such as erosion controls and appropriate dewatering methods to avoid and minimize erosion and sedimentation.
- Groundwater in the trench excavation or access pits will be pumped into a dewatering filter bag laid upon filter fabric and stone and surrounded by straw wattles, or if necessary, into a sedimentation tank which will then discharge to the filter bag depending on conditions in the field.
- Regular inspection and monitoring of discharges in accordance with the NPDES Construction General Permit to avoid permanent and indirect effects due to construction.
- Restoration of and revegetation of areas disturbed by construction.
- Use of timber construction mats for work in wetlands in accordance with USACE Construction Mat BMP's.
- Construction staging and material storage areas located outside of wetlands and waterways.

MassDEP has reviewed the MEPA filings for the Project and finds that the environmental impacts resulting from construction of the Project are those impacts as described in the EENF and SEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, MassDEP finds that with the implementation of mitigation measures as identified in the Summary of Proposed Mitigation Measures table, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project. In making this finding, MassDEP has considered reasonably foreseeable climate change impacts and environmental justice impacts.

4.2.2 Massachusetts Department of Transportation

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

Project Name: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project

Project Location: Boston, Milton, Quincy

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16633

Date Noticed in Monitor: June 23, 2023

Applicable State Action/Permits

- Land disposition/easement
- Highway Access/Construction Access Permits

This Section 61 Finding for the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (EEA 16633) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the project are characterized and quantified in the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project Expanded Environmental Notification Form (EENF) and Single Environmental Impact Report (SEIR), which are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the Authority has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the project. Where impacts are not avoidable, the Authority has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the project to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Transportation (MassDOT) finds that there are no significant unmitigated impacts.

The Authority recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (the Project), is central to its responsibilities under MEPA. Accordingly, the Authority has prepared a Summary of Proposed Mitigation Measures table (**SEIR Table 4-1**) that specifies the mitigation that the Authority would provide. In the Summary of Proposed Mitigation Measures table, the Authority provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon project phasing.

Specifically, the following mitigation measures are applicable to the Land Disposition/Easement, Highway Access, and Construction Access permits:

Construction Traffic

- A Traffic Management Plan (TMP) developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible, including to vehicular traffic, public transit, bicyclists, and pedestrians.
- Notify residents and business abutting impacted roadways ahead of road closures and detours.

Construction Air Quality

- Tire cleaning areas at construction vehicle entrances and exits;
- If required, water sprays during excavation, stockpiling, and loading of demolition and soil materials for removal;
- Site watering as required to mitigate wind erosion;
- Street sweeping of adjacent local roadways to address potential sediment accumulation;
- Secure covering of piles of excavated materials;
- Properly secured covers on truck cargos during materials transport; and
- Minimization of the free drop height of excavated or aggregate material during earthwork operations.
- Construction vehicles will idle only when necessary. The contractors will comply with the Massachusetts anti-idling regulations (M.G.L. c. 90, § 16A; M.G.L. c. 111, §§ 142A-142M, and 310 C.M.R. 7.11) with regard to the amount of time the vehicles will idle.
- All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will have US EPA verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

MassDOT has reviewed the MEPA filings for the Project and finds that the environmental impacts resulting from construction of the Project are those impacts as described in the EENF and SEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, MassDOT finds that with the implementation of mitigation measures as identified in the Summary of Proposed Mitigation Measures table, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project. In making this finding, MassDOT has considered reasonably foreseeable climate change impacts and environmental justice impacts.

4.2.3 Massachusetts Department of Conservation and Recreation (DCR)

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

Project Name: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project

Project Location: Boston, Milton, Quincy

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16633

Date Noticed in Monitor: June 23, 2023

Applicable State Action/Permits

- Construction access permit

This Section 61 Finding for the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (EEA 16633) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the project are characterized and quantified in the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project Expanded Environmental Notification Form (EENF) and Single Environmental Impact Report (SEIR), which are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the Authority has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the project. Where impacts are not avoidable, the Authority has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the project to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Department of Conservation and Recreation (DCR) finds that there are no significant unmitigated impacts.

The Authority recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (the Project), is central to its responsibilities under MEPA. Accordingly, the Authority has prepared a Summary of Proposed Mitigation Measures table (**SEIR Table 4-1**) that specifies, the mitigation that the Authority would provide. In the Summary of Proposed Mitigation Measures table, the Authority provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon project phasing.

Specifically, the following mitigation measures are applicable to the Construction Access permit:

Construction Traffic

- A Traffic Management Plan (TMP) developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible, including to vehicular traffic, public transit, bicyclists, and pedestrians.
- Notify residents and business abutting impacted roadways ahead of road closures and detours.

Construction Air Quality

- Tire cleaning areas at construction vehicle entrances and exits;
- If required, water sprays during excavation, stockpiling, and loading of demolition and soil materials for removal;
- Site watering as required to mitigate wind erosion;
- Street sweeping of adjacent local roadways to address potential sediment accumulation;
- Secure covering of piles of excavated materials;
- Properly secured covers on truck cargos during materials transport; and
- Minimization of the free drop height of excavated or aggregate material during earthwork operations.
- Construction vehicles will idle only when necessary. The contractors will comply with the Massachusetts anti-idling regulations (M.G.L. c. 90, § 16A; M.G.L. c. 111, §§ 142A-142M, and 310 C.M.R. 7.11) with regard to the amount of time the vehicles will idle.
- All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will have US EPA verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

DCR has reviewed the MEPA filings for the Project and finds that the environmental impacts resulting from construction of the Project are those impacts as described in the EENF and SEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, DCR finds that with the implementation of mitigation measures as identified in the Summary of Proposed Mitigation Measures table, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project. In making this finding, DCR has considered reasonably foreseeable climate change impacts and environmental justice impacts.

4.2.4 Massachusetts Bay Transportation Authority (MBTA)

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

Project Name: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project

Project Location: Boston, Milton, Quincy

Project Proponent: Massachusetts Water Resources Authority

EEA Number: 16633

Date Noticed in Monitor: June 23, 2023

Applicable State Action:

› MBTA Right of Way Access License Agreement

This Section 61 Finding for the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (EEA 16633) has been prepared in accordance with the provisions of M.G.L. Chapter 30, Section 61 and 301 CMR 11.07(6)(k).

The potential environmental impacts of the project are characterized and quantified in the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project Expanded Environmental Notification Form (EENF) and Single Environmental Impact Report (SEIR), which are incorporated by reference into this Section 61 Finding. To the greatest extent practicable, the Authority has taken all feasible measures to avoid and/or minimize adverse environmental impacts of the proposed project. Where impacts are not avoidable, the Authority has worked throughout the planning and environmental review process to develop measures to mitigate impacts of the project to the extent practicable. With the implementation of the proposed mitigation, and cooperation with state agencies, the Massachusetts Bay Transportation Authority (MBTA) finds that there are no significant unmitigated impacts.

The Authority recognizes that the identification of effective mitigation, and implementation of that mitigation throughout the life of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project (the Project), is central to its responsibilities under MEPA. Accordingly, the Authority has prepared a Summary of Proposed Mitigation Measures table (**SEIR Table 4-1**) that specifies, for each potential state permit, the mitigation that the Authority would provide. In the Summary of Proposed Mitigation Measures table, the Authority provides clear commitments to implement the mitigation measures; identifies the parties responsible for implementation of measures; and provides a schedule for their implementation based upon project phasing.

Specifically, the following mitigation measures are applicable to the Right of Way Access License agreement:

Construction Traffic

- A Traffic Management Plan (TMP) developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible, including to vehicular traffic, public transit, bicyclists, and pedestrians.
- Notify residents and business abutting impacted roadways ahead of road closures and detours.

Construction Air Quality

- Tire cleaning areas at construction vehicle entrances and exits;
- If required, water sprays during excavation, stockpiling, and loading of demolition and soil materials for removal;
- Site watering as required to mitigate wind erosion;
- Street sweeping of adjacent local roadways to address potential sediment accumulation;
- Secure covering of piles of excavated materials;
- Properly secured covers on truck cargos during materials transport; and
- Minimization of the free drop height of excavated or aggregate material during earthwork operations.
- Construction vehicles will idle only when necessary. The contractors will comply with the Massachusetts anti-idling regulations (M.G.L. c. 90, § 16A; M.G.L. c. 111, §§ 142A-142M, and 310 C.M.R. 7.11) with regard to the amount of time the vehicles will idle.
- All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will have US EPA verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

The MBTA has reviewed the MEPA filings for the Project, and finds that the environmental impacts resulting from construction of the Project are those impacts as described in the EENF and SEIR, which would be updated as needed in permit applications submitted for compliance with federal and state environmental laws. Pursuant to M.G.L. Chapter 30, Section 61, the MBTA finds that with the implementation of mitigation measures as identified in Summary of Proposed Mitigation Measures table, all practicable and feasible means and measures would have been taken to avoid or minimize potential damage to the environment due to the construction and operation of the MWRA Section 22 and 21 Water Pipeline Rehabilitation Project. In making this finding, the MBTA has considered reasonably foreseeable climate change impacts and environmental justice impacts.

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5

Responses to Comments

5.1 Introduction

This Chapter includes responses to the Expanded Environmental Notification Form (EENF) Certificate issued on January 13, 2023. Table 5-1 lists the EENF Certificate and comment letters received. The EENF Certificate is assigned a letter and all other comment letters are assigned a number. Each individual comment is assigned a comment code that corresponds to the comment delineations in the EENF Certificate and comment letter for reference. Table 5-1 and Table 5-2 list the identified comments and applicable responses. A copy of the Certificate and comment letters, delineated to illustrate identified comments, are included in Appendix B.

Table 5-1 List of EENF Comment Letters

Letter/No	Commenter	Affiliation	Date Received
C	Secretary Rebecca L. Tepper	Executive Office of Energy and Environmental Affairs/MEPA Office	1/13/2023
1	Daniel J. McKiernan	Massachusetts Division of Marine Fisheries	12/30/2022
2	Douglas J. Rice	Massachusetts Department of Conservation and Recreation	1/4/2023
3	Daniel Padien	Massachusetts Department of Environmental Protection-Waterways Regulation Program	1/4/2023
4	John D. Viola	Massachusetts Department of Environmental Protection-Northeast Regional Office	1/6/2023
5	Lisa Berry Engler	Massachusetts Office of Coastal Zone Management	1/6/2023
6	John P. Sullivan	Boston Water and Sewer Commission	1/4/2023

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5.2 Responses to EENF Certificate

Table 5-2 Responses to EENF Certificate Comments

Comment ID	Comment	Response
C-1	The Single EIR should describe a public involvement plan that the project intends to follow for EJ populations within the DGA for the remainder of the MEPA review process.	The MWRA has prepared an EJ Outreach Plan that details efforts to communicate with EJ populations within the DGA through the remainder of the MEPA review process and into construction. Refer to Section 2.3 on page 2-11 and Table 2-3 on page 2-13 of ***Chapter 2 – Environmental Justice and Outreach***, for additional details and Appendix D for a copy of the full EJ Outreach Plan.
C-2	The Single EIR should supplement analysis of EJ impacts in accordance with the Scope.	Section 2.1 on page 2-1 of ***Chapter 2 – Environmental Justice and Outreach***, provides a detailed assessment the existing EJ population within the DGA and existing unfair or inequitable environmental Burden. Section 2.2 on page 2-6 includes a detailed discussion of the impacts of construction staging as related to EJ populations.
C-3	The Single EIR should provide additional details related to Salt Marsh restoration and monitoring as discussed in comments and as outlined in the Scope.	Refer to Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, for additional details related to Salt Marsh Restoration Plan and subsequent monitoring activities.
C-4	The Single EIR should include a list of any c.91 license and/or authorizations that are applicable to the project site and a response to Chapter 91 comments.	Section 1.5 on page 1-6 of ***Chapter 1 – Project Description and Permitting***, discusses the Project's consistency with statutory and regulatory standards, including Chapter 91 and Section 3.4 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, provides a detailed discussion of Project compliance with Chapter 91. The Project will not result in any significant restrictions to navigation or other public use or access of these waterways and tidelands. Applications for Chapter 91 approvals will be applied for during final design.

Comment ID	Comment	Response
C-5	I note that the recommended planning horizon for assets that are unlikely to be relocated (such as water distribution systems) is 60-80 years. This would yield corresponding return period recommendations of the 500-year (0.2% chance) storm event for sea level rise/storm surge and the 100-year (1% chance) storm event for extreme precipitation.	The MWRA used a 50-year planning horizon for the RMAT input in accordance with the MWRA's life cycle cost estimating guidelines for buried infrastructure. The existing water distribution pipelines of this project are buried below the groundwater table at many locations. The proposed pipelines of the preferred alternative will be designed to be within groundwater and the pipelines and all associated appurtenances will be designed to not be vulnerable to extreme flooding or sea level rise. Consequently, the return period recommendations for the longer planning period would be met by the project as proposed.
C-6	I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment.	As noted in Section 2.2.3 on page 2-7 of ***Chapter 2 – Environmental Justice and Outreach***, and Table 4-1 on page 4-4 of ***Chapter 4 – Mitigation and Draft Section 61 Findings***, the Proponent will contractually require the construction contractors to adhere to all applicable regulations regarding control of construction vehicle emissions. Most heavy equipment on site will be less than three years old and comply with the Tier 4 requirements. Construction specifications will require that all diesel equipment used on-site, including machinery more than three years old, will be fitted with after-engine emission controls, such as diesel oxidation catalysts or diesel particulate filters.
C-7	I encourage the Proponent to reuse or recycle C&D debris to the maximum extent.	The MWRA agrees to this mitigation measure, as outlined in construction waste mitigation measures in Table 4-1 on page 4-5 in ***Chapter 4 – Mitigation and Draft Section 61 Findings***.
C-8	The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent practicable.	This SEIR was prepared in accordance with Section 11.07 of the MEPA regulations and provides information and analyses as required in the Scope of the Certificate on the EENF. The introduction to each chapter highlights the specific items in the Scope that are addressed and ***Chapter 4 – Mitigation and Draft Section 61 Findings***, outlines the Proponent's efforts to avoid, minimize, and mitigate Damage to the Environment to the maximum extent practicable.

Comment ID	Comment	Response
C-9	The Single EIR should identify any changes to the project since the filing of the EENF.	The Project Team did not feel that the Project warranted any changes since filing the EENF. This SEIR provides additional analyses of potential impacts to the environment, EJ communities, and commitments to take all feasible means to avoid damage to the environment and surrounding communities or to minimize and mitigate damage to the environment to the maximum extent practicable as outlined in the scope of the Certificate on the EENF.
C-10	It should identify and describe State, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions.	An updated list of anticipated permits, approvals, and reviews including the proposed application schedule is provided in Section 1.4 on page 1-4 of ***Chapter 1 – Project Description and Permitting***. The MWRA has not applied for any of these required permits while the Project is under MEPA Review.
C-11	The Single EIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards.	Section 1.5 on page 1-6 of ***Chapter 1 – Project Description and Permitting***, discusses the Project's consistency with statutory and regulatory standards associated with Massachusetts Coastal Program policies, Section 401 Water Quality Certification, property subject to Chapter 91 jurisdiction, the Massachusetts Historical Commission, and the Massachusetts Wetlands Protection Act.
C-12	The Single EIR should identify methods that will be undertaken to avoid, minimize and mitigate Damage to the Environment.	Table 4-1, beginning on page 4-2 of ***Chapter 4 – Mitigation and Draft Section 61 Findings***, outlines mitigation measures that will be taken to avoid, minimize, and mitigate Damage to the Environment. In addition, Section 3.1 on page 3-2 of ***Chapter 3 – Wetlands and Waterways***, provides detailed information on proposed work in wetland areas and a proposed salt marsh restoration and monitoring plan. Section 3.4 on page 3-12 discusses the proposed work within Chapter 91 jurisdiction.
C-13	As requested in comments from MassDEP Waterways, the Single EIR should include plans depicting the full scope of work, including any temporary activities, fill, and/or structures, existing and proposed conditions surveys that include delineated mean high water and the historic high-water mark for all waterways within the project site. Layers and boundaries not relevant for c.91 should not be included on the requested plans.	Section 3.4 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, provides a detailed description of the full scope of work for all waterways within the Project Site. Refer to Figure 3-2 for a view of Chapter 91 jurisdictional boundaries within the Project Site.

Comment ID	Comment	Response
C-14	The Single EIR should provide an update on outreach efforts and describe how the project is implementing the outreach plan. The Single EIR or summary thereof should be distributed to the EJ Reference List and an updated list should be obtained from the MEPA Office to ensure that contacts are up to date.	The MWRA has prepared an EJ Outreach Plan that details efforts to communicate with EJ populations within the DGA through the remainder of the MEPA review process and into construction. Refer to Section 2.3 on page 2-11 and Table 2-3 on page 2-13 of ***Chapter 2 – Environmental Justice and Outreach***, for additional details and Appendix D for a copy of the full EJ Outreach Plan. A copy of this SEIR was distributed to the current EJ Reference List.
C-15	The Single EIR should provide a comprehensive discussion of construction period staging and activities, and whether such activities will impact EJ populations.	Section 2.2 on page 2-6 of ***Chapter 2 – Environmental Justice and Outreach***, provides a detailed discussion of construction period staging activities and their potential to impact EJ populations.
C-16	The Single EIR should discuss the nature and extent of construction period traffic anticipated, and whether such traffic is likely to extend through EJ populations.	Traffic related impacts vary in scale across the Project, depending on the work being performed, leading to different sets of impacts. A Traffic Management Plan (TMP) will be developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible. Refer to Section 2.2.6 on page 2-9 of ***Chapter 2 – Environmental Justice and Outreach***, for additional detail on construction traffic impacts.

Comment ID	Comment	Response
C-17	The Single EIR should discuss what disruptions are anticipated for vehicular, pedestrian, transit, and bicycle travel, and how the Proponent will communicate with the public about potential disruptions to local neighborhoods.	Traffic occurring in roadways will be carefully coordinated to minimize impacts to the surrounding neighborhood and those who utilize the roadway. Traffic-related impacts occurring both in EJ and non-EJ communities may include lane closures, altering traffic flow patterns, and road closures and detours. A Traffic Management Plan (TMP) will be developed in close coordination with the municipalities to minimize construction-related traffic impacts to the greatest extent possible. The TMP will include information on: › Lane location and width within the work zone to promote safe movement and passage; › Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic control drums, flashers, detour signs, and other protective devices as approved by the various towns; › Locations where temporary provisions may be made to maintain access to homes and businesses; › Routing and safeguarding of pedestrian and bicycle traffic; › Routing of public transit; and › Development of a system to notify municipal officials, local businesses, and the public of the timing and duration of travel restrictions Refer to Section 2.2.6 on page 2-9 of ***Chapter 2 – Environmental Justice and Outreach***, for a discussion of anticipated traffic impacts and disruptions.

Comment ID	Comment	Response
C-18	The Single EIR should discuss whether a construction management plan will be developed, and if so, submit a copy of the plan or describe its components.	The Construction Management Plan is included in the overall project system that includes preparation of design documents, Engineering Services During Construction (ESDC), and Resident Engineer oversight of activities performed by the construction contractor. ESDC services will consist of submittal review, response to Requests for Information (RFIs), site visits to confirm construction is proceeding in accordance with the construction documents, attendance at construction progress meetings, review of proposed changes and change orders, and record documentation. The Authority will also retain a full time Resident Engineer and Inspector who will be on-site to oversee and approve the Contractor's work. The Resident Engineer is required to perform all inspection activities in accordance with MWRA's Resident Engineer Manual. Construction management will ensure proper implementation of construction related items, including environmental mitigation, such as control of noise, dust, traffic management, siltation/sedimentation, air quality, water pipeline related construction, worker safety, and contractor work hours. Per the Environmental Justice Outreach Plan detailed in Section 2.3 of the SEIR, construction updates will be provided to surrounding communities on a regular basis through www.MWRA.com, organizational social media, Everbridge notifications, and on municipal websites in project communities. Translations of project updates will be provided based on languages spoken by at least 5% of census tract populations. In-person and virtual meetings with translation will be held during the construction phase of the project as requested.

Comment ID	Comment	Response
C-19	The Single EIR should respond to comments from MassDEP, CZM, and DMF (incorporated in their entirety herein) including those related to temporary impacts to Salt Marsh. The Single EIR should provide additional information on how long temporary construction mats will remain in place, how the mats will be anchored, and the time of year in which construction will occur (comments from DMF and CZM recommend work in Salt Marsh occur outside the growing season).	For Section 22, Segment 2, the portion of the pipeline where the existing alignment is within the Neponset River Reservation and associated salt marsh, the proposed rehabilitation will involve sliplining the existing 48-inch pipe with a 40-inch pipe. This method avoids and minimizes the environmental impacts, particularly on the salt marsh, because rather than requiring excavation along the entire pipeline alignment (as would be required for remove and replace), excavation is only required at a limited number of "pipe access pits." The use of the Granite Avenue alignment for Segment 3A avoids impacts to the salt marsh on the existing alignment in the ACEC between I-93 and the roadway. Refer to Figure 3-2 to see the locations of proposed pipe access pits and the proposed realignment. Refer to Section 3.1 starting on page 3-2 of ***Chapter 3 – Wetlands and Waterways***, for a detailed description of temporary construction impacts to the salt marsh.
C-20	The Single EIR should provide information on where subsoil from digging access pits will be stockpiled. Comments from CZM state that the subsoil should be stored outside of the Salt Marsh to the maximum extent practicable to avoid compaction of the Salt Marsh platform beneath the staging area.	During the sliplining process, at each pipeline access pit the vegetation and soil layer at the surface will be removed and managed separately from the subsoils. Based on the excavation for the 2020 test pit, the depth of the excavation for the surficial layer would be approximately one foot. Subsoil removed from the marsh to completely expose the access pit will be set aside with layers in piles separate from the surficial soil layer. All vegetation and soil excavated from the access pits will be removed from the marsh and stored on plastic sheeting within an upland area at one of the designated staging areas. The material would also be covered by plastic sheeting to minimize generation of any dust and surrounded by erosion controls to prevent sedimentation. The staging areas will be located outside of any wetland resources and no material will be stored within the salt marsh or in any areas below the high tide line. Refer to Section 3.1.2 on page 3-3 of ***Chapter 3 – Wetlands and Waterways***, for a detailed description of construction timing and staging.

Comment ID	Comment	Response
C-21	Comments from MassDEP, CZM, and DMF request that the Single EIR outline proposed pre- and post-construction monitoring plans to determine whether any Salt Marsh impacts occur. Preconstruction characterization of the Salt Marsh vegetation on the site should be included.	Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, details the proposed Salt Marsh Restoration and Monitoring Plan. The Plan includes both pre-construction documentation of existing conditions and post-construction evaluation of the success of salt marsh restoration. The Plan also includes potential adaptive management actions that would be implemented if monitoring suggests that the salt marsh is not on a trajectory to recover to pre-construction conditions.
C-22	The monitoring plan should specify the schedule for Salt Marsh reestablishment including the anticipated season for restoration planting. The EENF proposes a two-year monitoring program, but comments from MassDEP indicate that a longer period is usually specified in USACOE permits. The proposed monitoring period should be discussed fully in the Single EIR so that it can be consistently mandated by the OOCs issued under the Wetlands Protect Act, the MassDEP 401 WQC, and the USACE 404.	The total duration of pipeline rehabilitation activities in each portion the salt marsh would be approximately 7 months, from April to October. The restoration plantings would be installed in the spring of the growing season immediately following completion of the sliplining process, likely starting in April. It is not recommended to complete the salt marsh restoration immediately following completion of the pipeline rehabilitation, which will be in October at or near the end of the growing season, because the root systems of the new plantings will not have sufficient time to grow and adequately anchor the plants against potential ice scour during the winter. It is anticipated that the restoration both west and east of the Neponset River would be completed within approximately 1 month. Based on comments received on the EENF, the proposed monitoring program is anticipated to continue for five years instead of two. Refer to Section 3.1.3 on page 3-8 of ***Chapter 3 – Wetlands and Waterways***, for a discussion of the schedule for restoration and Section 3.2.3 on page 3-9 for information on proposed monitoring methods.
C-23	The monitoring plan should include adaptive management actions in the case that post-construction marsh does not recover to an acceptable level compared to the pre-construction conditions.	If monitoring results suggest that the marsh is not adequately recovering to pre-construction conditions, adaptive management measures will be implemented in coordination with the DCR, MassDEP, USACE and the appropriate Conservation Commission. Refer to Section 3.2.6 on page 3-11 of ***Chapter 3 – Wetlands and Waterways***, for a list of potential adaptive management measures.

Comment ID	Comment	Response
C-24	Comments from CZM request more detail on the leak detection program to determine if leaks pose a risk to the Salt Marsh.	MWRA has a robust leak detection program that minimizes the risk to the salt marsh. The Authority employs field technicians on two shifts to continuously monitor the MWRA's water distribution pipelines for leakage. The MWRA maintenance goal is to complete a leak detection survey on 210 miles of the 330 plus miles of pipe on an annual basis. Leak detection on Section 22 was last completed on December 8, 2021, and no leaks were found. Refer to Section 3.3 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, for additional information on the leak detection program and conditions along the portions of Section 22 located within the salt marsh.
C-25	Comments from CZM also request that the Single EIR include a copy of the Request for Advisory Opinion (RAO) submitted in March 2020 for pipeline Section 22 including responses to questions raised by MEPA and CZM in April 2020.	Refer to Appendix D for a copy of the Request for Advisory Opinion and MWRA's response to comments.
C-26	As noted in CZM comments, the monitoring protocols described in the RAO are recommended to be used as a guide for post-construction monitoring.	The Salt Marsh Restoration and Monitoring Plan was developed based on the monitoring protocols included in the April 2020 Request for Advisory Opinion (included in Appendix D) and the methodology previously used in the Post-Construction Monitoring Plan that demonstrated successful restoration of the salt marsh in the area of Test Pit #1, which was completed in August 2020. Refer to Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, for details on the proposed Plan.
C-27	The Single EIR should include the additional information as requested in the comment letter from MassDEP Waterways (incorporated in its entirety herein). In addition to the site plans requested above, the Single EIR should include a table that identifies the footprint of any proposed work within each filled and flowed tidelands, including any dredging and temporary fill/structures	The requested information is provided in Section 3.4.2 on page 3-14 of ***Chapter 3 – Wetlands and Waterways*** and in Table 3-4 on page 3-15.
C-28	As outlined in comments, the Single EIR should identify any work determined to require a c.91 permit or license, including work within any ACEC, and should address compliance with applicable c.91 regulations.	The Project Team has met with staff from MassDEP Waterways to identify work within Chapter 91 jurisdiction and discuss compliance with applicable Chapter 91 regulations. Additional details on Chapter 91 jurisdiction are provided in Section 3.4.1 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, and information regulatory compliance is provided in Section 3.4.3 on page 3-16.

Comment ID	Comment	Response
C-29	The Single EIR should address comments from MassDEP Waterways as they relate to the proposed dredging in Salt Marsh including the request to document prior c.91 authorization for dredging with the proposed footprint and to the proposed dredge depth. The Single EIR should include a list of all c.91 licenses and/or authorizations that are applicable to the project site.	While there is temporary dredging proposed within Segment 2 to access the existing pipeline for sliplining, this work is part of the activity to repair and maintain the existing structure which is exempt from licensing as a continuation of an existing unauthorized public service project where no unauthorized changes have occurred subsequent to January 1, 1984. The work will be confined to the existing footprint, with no significant deviations from the original specifications of the pipeline. The pipeline was constructed in the 1950s and has not undergone any unauthorized changes since then.
C-30	The Single EIR should provide an update on coordination with MHC to assess potential archaeological sensitivity within the project site and potential impacts to contributing features located within historic districts within Section 22 Segments 1 and 4, and Section 21.	The Project is located near known historic and archaeological cultural resources and is subject to a determination of effect from the Massachusetts Historical Commission (MHC). As noted in Table 4-1 on page 4-6 of ***Chapter 4 – Mitigation and Draft Section 61 Findings***, disturbance to the existing granite curbing in the Dorchester-Milton Lower Mills Industrial District (BOS.IL/BOS.TD) will be avoided to the maximum extent possible. If necessary, curbing will be temporarily removed and re-installed in kind post-construction. Since the filing of the EENF, no comments or subsequent communications have been received from MHC. For this reason, it is anticipated that the Project is not likely to result in adverse effects to historic or archaeological resources. Should concerns arise, the MWRA will coordinate with MHC to address any avoidance or mitigation measures that may be needed.

Comment ID	Comment	Response
C-31	The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase.	Refer to Table 4-1 on page 4-2 of ***Chapter 4 – Mitigation and Draft Section 61 Findings***, for a summary of all proposed mitigation measures and commitments made by the MWRA to avoid, minimize, and mitigate the environmental and related public health impacts of the Project.
C-32	The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. To ensure that the issues raised by commenters are addressed, the Single EIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate.	Refer to Appendix B for a copy of the Certificate on the EENF and all comment letters received, which are delineated to highlight the questions that are addressed in this chapter.

Comment ID	Comment	Response
C-33	In accordance with 301 CMR 11.16, the Proponent should circulate the Single EIR to each Person or Agency who commented on the EENF, each Agency from which the project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the Single EIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. However, the Proponent should make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. A copy of the Single EIR should be made available for review in the Milton and Quincy Libraries and the nearest Boston Public Library Branch.	Refer to Appendix A for a distribution list for the SEIR. Hard copies of the SEIR are available upon request and are also available for the public to view at the Milton Public Library, the main branch of the Thomas Crane Public Library of Quincy, and the Adams Street and Lower Mills branches of the Boston Public Library.

5.3 Responses to EENF Comment Letters

Table 5-3 Responses to EENF Comment Letters

Comment ID	Author	Comment	Response
1-1	Massachusetts Division of Marine Fisheries	The EIR developed for this project should estimate how long the temporary mats would be in place for. Experimental results demonstrated that marsh vegetation covered by wrack (plant debris) completely died off after five (*Spartina patens*) to seven (*S. alterniflora)* weeks. A similar degree of loss would be anticipated if mat cover occurred during the growing season for a similar amount of time. Work on the marsh platform outside of the growing season would help to minimize potential impacts to this important habitat.	As described in Section 3.1.2 on page 3-3 of ***Chapter 3 – Wetlands and Waterways***, the temporary mats are projected to be in place for approximately seven months. As illustrated in Table 3-2 on page 3-4, work on the marsh platform outside of the growing season is not feasible because there would not be sufficient time to complete the rehabilitation process before the onset of winter and freezing temperatures, which precludes the required grouting and cement mortar lining processes.
1-2	Massachusetts Division of Marine Fisheries	The EIR should outline proposed pre-and post-construction monitoring plans to determine whether any marsh impacts occur.	Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, details the proposed Salt Marsh Restoration and Monitoring Plan. The Plan includes both pre-construction documentation of existing conditions and post-construction evaluation of the success of salt marsh restoration.
1-3	Massachusetts Division of Marine Fisheries	Adaptive management actions should be outlined in the case that post-construction marsh does not recover to an acceptable level compared to the pre-construction conditions.	Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, details the proposed Salt Marsh Restoration and Monitoring Plan, which includes potential adaptive management actions that would be implemented if monitoring suggests that the salt marsh is not on a trajectory to recover to pre-construction conditions.
2-1	Massachusetts Department of Conservation and Recreation	For sites where the pipeline rehabilitation work activity necessitates access through DCR lands or across DCR Greenways/Parkways, and where work activities are conducted directly on DCR lands, a DCR Construction and Access Permit ("CAP") will be required. DCR notes that all environmental permits required for work on DCR property must be reviewed by DCR prior to submission to regulatory agencies.	The Proponent intends to comply with all required state and local regulatory procedures. The DCR Construction and Access Permit is included in Table 1-1, Required Permits and Approvals for the Project, on page 1-6 of ***Chapter 1 – Project Description and Permitting***.

Comment ID	Author	Comment	Response
3-1	Massachusetts Department of Environmental Protection; Waterways Regulation Program	The Environmental Impact Report should include a plan depicting the full scope of work, including any temporary activities, fill, and/or structures, existing and proposed conditions surveys that include delineated mean high water and the historic high water mark for all waterways within the project site. Layers and boundaries not relevant for c.91 should not be included on the requested plans.	Section 3.4 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, provides a detailed description of the full scope of work for all waterways within the Project Site. Refer to Section 3.4.1 for a discussion of Chapter 91 jurisdictional areas.
3-2	Massachusetts Department of Environmental Protection; Waterways Regulation Program	The EIR should also include a table that identifies the footprint of any proposed work within each filled and flowed tidelands, including any dredging and temporary fill/structures. Any work determined to require a Chapter 91 permit or license is subject to the standards at 310 CMR 9.00, including but not limited to those at 310 CMR 9.32 and 310 CMR 9.40 as they relate to work within any Area of Critical Environmental Concern. It is recommended that any such work be identified, and compliance with the referenced regulations be addressed in the EIR.	Table 3-4 on page 3-15 of ***Chapter 3 – Wetlands and Waterways***, lists all construction excavation and dredging volumes needed for the pipe rehabilitation work at Segments 2 and 3A. It is anticipated that the Project will include approximately 510 cubic yards of excavation/dredging within Chapter 91 jurisdiction. As described in Section 3.1 on page 3-2, the Project has been designed to avoid and minimize impacts where practicable, and areas of temporary disturbance will be restored and monitored. Refer to Section 3.4.1 on page 3-12 for a description of jurisdictional activities and authorizations applicable to the project.
3-3	Massachusetts Department of Environmental Protection; Waterways Regulation Program	Dredging within flowed tidelands requires a c.91 permit pursuant to 310 CMR 9.05(3), and in order to meet the definition of "maintenance" dredging as defined at 310 CMR 9.02, documentation of a prior c.91 authorization for dredging within the proposed footprint and to the proposed dredge depth is required. If the proposed dredge area was not previously issued a c.91 authorization, the dredging is "improvement" dredging and required to meet the standard at 310 CMR 9.40(1)(b)1 if located within an Area of Critical Environmental Concern.	While there is temporary dredging proposed within Segment 2 to access the existing pipeline for sliplining, this work is part of the activity to repair and maintain the existing structure which is exempt from licensing as a continuation of an existing unauthorized public service project where no unauthorized changes have occurred subsequent to January 1, 1984. The work will be confined to the existing footprint, with no significant deviations from the original specifications of the pipeline. The pipeline was constructed in the 1950s and has not undergone any unauthorized changes since then.
3-4	Massachusetts Department of Environmental Protection; Waterways Regulation Program	The Proponent should also include a list of any c.91 licenses and/or authorizations that are applicable to the project site in the EIR.	Refer to Section 3.4.1 on page 3-12 of ***Chapter 3 – Wetlands and Waterways***, for a description of Chapter 91 jurisdictional activities and authorizations applicable to the project.

Comment ID	Author	Comment	Response
4-1	Massachusetts Department of Environmental Protection; Northeast Regional Office	Generally, the best time of year to reestablish salt marsh is during the spring planting season to avoid possible impacts from frost or ice during the fall planting season. The EIR should specify the schedule for saltmarsh reestablishment.	The restoration plantings would be installed in the spring of the growing season immediately following completion of the sliplining process, likely starting in April. It is not recommended to complete the salt marsh restoration immediately following completion of the pipeline rehabilitation, which will be in October at or near the end of the growing season, because the root systems of the new plantings will not have sufficient time to grow and adequately anchor the plants against potential ice scour during the winter.
4-2	Massachusetts Department of Environmental Protection; Northeast Regional Office	The proposed monitoring period should be discussed fully in the EIR though consultation with USACE so that it can be consistently mandated by the Orders of Conditions issued under the Wetlands Protect Act, the MassDEP 401 WQC and the USACE 404.	Based on comments received on the EENF, the proposed monitoring program is anticipated to continue for at least five years instead of two. Consultation with USACE indicated that required duration of monitoring is dependent on a number of factors which will be evaluated and determined during permitting. Refer to Section 3.1.3 on page 3-8 of ***Chapter 3 – Wetlands and Waterways***, for a discussion of the schedule for restoration.
5-1	Massachusetts Office of Coastal Zone Management	MWRA should demonstrate in the Environmental Impact Report (EIR) how this project has been designed to ensure the salt marsh returns to pre-construction conditions.	Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, details the proposed Salt Marsh Restoration and Monitoring Plan. The Plan includes both pre-construction documentation of existing conditions and post-construction evaluation of the success of salt marsh restoration. If monitoring results suggest that the marsh is not adequately recovering to pre-construction conditions, adaptive management measures will be implemented in coordination with the DCR, MassDEP, USACE and the appropriate Conservation Commission. Refer to Section 3.2.6 on page 3-11 of ***Chapter 3 – Wetlands and Waterways***, for a list of potential adaptive management measures.

Comment ID	Author	Comment	Response
5-2	Massachusetts Office of Coastal Zone Management	Information on how MWRA intends to handle leftover subsoil from digging the access pits. The designated staging area for the subsoil removed from the access pits should be outside of the salt marsh to the maximum extent practicable to avoid compaction of the salt marsh platform beneath the staging area.	During the sliplining process, at each pipeline access pit the vegetation and soil layer at the surface will be removed and managed separately from the subsoils. Based on the excavation for the 2020 test pit, the depth of the excavation for the surficial layer would be approximately one foot. Subsoil removed from the marsh to completely expose the access pit will be set aside with layers in piles separate from the surficial soil layer. All vegetation and soil excavated from the access pits will be removed from the marsh and stored on plastic sheeting within an upland area at one of the designated staging areas. The material would also be covered by plastic sheeting to minimize generation of any dust and surrounded by erosion controls to prevent sedimentation. The staging areas will be located outside of any wetland resources and no material will be stored within the salt marsh or in any areas below the high tide line. Refer to Section 3.1.2 on page 3-3 of ***Chapter 3 – Wetlands and Waterways***, for a detailed description of construction timing and staging.

Comment ID	Author	Comment	Response
5-3	Massachusetts Office of Coastal Zone Management	Monitoring and/or adaptive management actions that are planned if the post-construction salt marsh does not recover to pre-construction conditions. Provide clarification on post-construction monitoring and adaptive management components of the project to confirm that the proposed impacts are temporary, and that the salt marsh is functioning at an acceptable level compared to pre-construction conditions. The monitoring protocols described in the RAO are recommended to be used as a guide for post-construction monitoring.	The Salt Marsh Restoration and Monitoring Plan was developed based on the monitoring protocols included in the April 2020 Request for Advisory Opinion (included in Appendix D) and the methodology previously used in the Post-Construction Monitoring Plan that demonstrated successful restoration of the salt marsh in the area of Test Pit #1, which was completed in August 2020. If monitoring results suggest that the marsh is not adequately recovering to pre-construction conditions, adaptive management measures will be implemented in coordination with the DCR, MassDEP, USACE and the appropriate Conservation Commission. Potential adaptive management measures may include, but are not limited to: › Replanting of failed or weak plugs. › Supplementation of surficial soil and replanting in areas of persistent subsidence or erosion. › Regrading and replanting in areas of excessive rebound or accretion. › Installation of additional erosion control measures such as coir logs, straw wattles and/or straw erosion control matting. (Note: All erosion controls used will be bio-degradable wildlife friendly.) › Management of invasive species above levels documented pre-construction. (Note: Invasive species management other than by hand-pulling will be approved in advance by DCR and other appropriate parties.) › Management of excessive herbivory by wildlife.

Comment ID	Author	Comment	Response
5-4	Massachusetts Office of Coastal Zone Management	Pre-construction characterization of the salt marsh vegetation on the site should be included. This will inform where species such as *Spartina alterniflora* and *Spartina patens* are planted to match pre-construction conditions to the maximum extent practicable.	This Salt Marsh Restoration Monitoring Plan has been developed to evaluate and document the extent to which the Neponset Reservation salt marsh has been restored to pre-construction conditions after the completion of construction activities for rehabilitation of the Section 22 pipeline. One of the specific goals of the Plan is to characterize pre-construction conditions to inform where species such as *Spartina alterniflora, Spartina patens* and other restoration plantings are to be planted. In order to document conditions prior to construction and establish a baseline against which restoration success can be assessed, pre-construction monitoring surveys will be completed prior to the start of construction in the salt marsh. The same areas will be resurveyed post-construction on an annual basis in the late summer/fall for 5 years growing seasons (or as otherwise specified in permits issued for the project). Refer to Section 3.2 on page 3-9 of ***Chapter 3 – Wetlands and Waterways***, for details of the proposed Salt Marsh Restoration and Monitoring Plan.
5-5	Massachusetts Office of Coastal Zone Management	Description of what actions would be taken if the dredged material does not adequately restore the salt marsh to the pre-construction elevation due to compaction from construction equipment and activities.	Section 3.2.6 on page 3-11 of ***Chapter 3 – Wetlands and Waterways***, includes a list of potential adaptive management measures that would be implemented if salt marsh restoration goals are not being met. This list includes supplementation of surficial soil and replanting in areas of persistent subsidence, including where this is due to compaction.
5-6	Massachusetts Office of Coastal Zone Management	More detail on the leak detection program is recommended in determining if the leaks potentially pose a risk to the salt marsh.	MWRA has a robust leak detection program that minimizes the risk to the salt marsh. The Authority employs field technicians on two shifts to continuously monitor the MWRA's water distribution pipelines for leakage. The MWRA maintenance goal is to complete a leak detection survey on 210 miles of the 330 plus miles of pipe on an annual basis. Leak detection on Section 22 was last completed on December 8, 2021, and no leaks were found. Refer to Section 3.3 on page 3-12 for additional information on the leak detection program and conditions along the portions of Section 22 located within the salt marsh.

Comment ID	Author	Comment	Response
5-7	Massachusetts Office of Coastal Zone Management	Clarify the project timeline and ensure that work in the salt marsh is avoided during the summer months to create fewer impacts during the growing season.	The Massachusetts Office of Coastal Zone Management (CZM) has requested that work within the salt marsh be avoided during the summer months to further minimize impacts. However, this is not feasible due to the nature of the work and estimated durations of the activities. As detailed in Section 3.1.2 on page 3-3 of ***Chapter 3 – Wetlands and Waterways***, certain work activities are unable to be completed during the winter because they require temperatures above freezing and the use of water. As shown in Table 3-2 on page 3-4, avoiding work in the salt marsh during the summer would not provide sufficient time to fully complete the rehabilitation process before the onset of winter and freezing temperatures.
5-8	Massachusetts Office of Coastal Zone Management	Additional specifics on the anchoring of the construction mats in the salt marsh.	If floating or shifting of mats becomes a problem or storm tides are predicted, contract documents will require that helical auger type earth anchors with steel cables be used to hold the mats in place. These anchors can be installed and removed within minimal impact to the vegetation and soil surface by screwing them in and out using an appropriate drilling tool. A typical auger earth anchor is shown in Photo 3-2 on page 3-5 of ***Chapter 3 – Wetlands and Waterways***.
5-9	Massachusetts Office of Coastal Zone Management	MWRA should include a copy of the RAO and any RAO responses between MWRA and the State, and/or Federal Agencies in the EIR.	Refer to Appendix D for a copy of the Request for Advisory Opinion and MWRA's response to comments.
5-10	Massachusetts Office of Coastal Zone Management	The proposed project may be subject to CZM federal consistency review, and if so, must be found to be consistent with CZM's enforceable program policies.	The Massachusetts Coastal Program Policies provide the legal frame of reference for all project review activities undertaken by CZM. There are nine categories: Coastal Hazards, Energy, Growth Management, Habitat, Ocean Resources, Ports and Harbors, Protected Areas, Public Access, and Water Quality. Project compliance with these policies is discussed in Section 1.5.1 on page 1-7 of ***Chapter 1 – Project Description and Permitting***, and will be confirmed during final design in the context of the Federal Coastal Zone Management Act Consistency Review.

Comment ID	Author	Comment	Response
6-1	Boston Water and Sewer Commission	The Commission request that the MWRA coordinate with the Commission and its Operation's department with construction schedules that could result in water service disruptions to the Commission.	The Authority will coordinate with local agencies in Boston, Milton, and Quincy regarding work hours, traffic impacts, and other project logistics and will establish a point of contact at the MWRA for any project-related questions or concerns.

Appendix A: SEIR Distribution List

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A

Distribution List

State Agencies

Massachusetts Environmental Policy Act (MEPA) Office
100 Cambridge Street, Suite 900
Boston, MA 02144
MEPA@mass.gov

Department of Environmental Protection, Boston Office
Commissioner's Office
One Winter Street
Boston, MA 02108
helena.boccadoro@mass.gov

Department of Environmental Protection, Northeast Regional Office
Attn: MEPA Coordinator
205B Lowell Street
Wilmington, MA 01887
john.d.viola@mass.gov

Massachusetts Department of Transportation – Boston
Public/Private Development Unit
10 Park Plaza, Suite #4150
Boston, MA 02116
MassDOTPPDU@dot.state.ma.us

Massachusetts Department of Transportation – District #6
Attn: MEPA Coordinator
185 Kneeland Street
Boston, MA 02111
michael.garrity@dot.state.ma.us

Massachusetts Historical Commission
The MA Archives Building
220 Morrissey Boulevard
Boston, MA 02125

Boston Region Metropolitan Planning Organization
State Transportation Building
10 Park Plaza, Suite 2150
Boston, MA 02116
ctps@ctps.org

Coastal Zone Management
Attn: Project Review Coordinator
251 Causeway Street, Suite 800
Boston, MA 02114
robert.boeri@mass.gov
patrice.bordonaro@mass.gov

DMF – North Shore
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
DMF.EnvReview-North@mass.gov

DCR
Attn: MEPA Coordinator
251 Causeway St. Suite 600
Boston MA 02114
andy.backman@mass.gov

Massachusetts Water Resource Authority
Attn: MEPA Coordinator
100 First Avenue
Charlestown Navy Yard
Boston, MA 02129
katherine.ronan@mwra.com

Massachusetts Bay Transit Authority
Attn: MEPA Coordinator
10 Park Plaza, 6th Fl.
Boston, MA 02116-3966
MEPAcoordinator@mbta.com

Municipal Agencies

Boston

Boston City Council
city.council@boston.gov
1 City Hall Square
Room 550
Boston, MA 02201-2043

Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Boston Conservation Commission
cc@boston.gov
1 City Hall Square, Room 709
Boston, MA 02201

Boston Public Health Commission
info@bphc.org
1010 Massachusetts Ave, 6th Floor
Boston, MA 02118

Milton

Milton Select Board
Town Office Building
525 Canton Avenue
Milton, MA 02186

Milton Planning Board
Town Office Building
525 Canton Avenue
Milton, MA 02186

Milton Conservation Commission
629 Randolph Avenue
Milton, MA 02186

Milton Board of Health
525 Canton Avenue
First floor
Milton, MA 02186

Quincy

Quincy City Council
1305 Hancock St.
Quincy, MA 02169

Quincy Planning Board
1305 Hancock St.
Quincy, MA 02169

Quincy Conservation Commission
1305 Hancock St.
Quincy, MA 02169

Quincy Health Department
440 East Squantum Street
Quincy, MA 02171

Appendix B: Delineated Secretary's Certificate and Comment Letters on the EENF

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The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Maura T. Healey
GOVERNOR

Kimberly Driscoll
LIEUTENANT GOVERNOR

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SECRETARY

Tel: (617) 626-1000
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http://www.mass.gov/eea

January 13, 2023

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

PROJECT NAME	: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project
PROJECT MUNICIPALITY	: Boston, Quincy, Milton
PROJECT WATERSHED	: Boston Harbor
EEA NUMBER	: 16633
PROJECT PROPONENT	: Massachusetts Water Resources Authority (MWRA)
DATE NOTICED IN MONITOR	: December 7, 2023

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62L) and Section 11.06 of the MEPA Regulations (301 CMR 11.00), I have reviewed the Expanded Environmental Notification Form (EENF) and hereby determine that this project requires the submission of an Environmental Impact Report (EIR). In accordance with Section 11.06(8) of the MEPA regulations, the Proponent requested that I allow a Single EIR to be submitted in lieu of the usual two-stage Draft and Final EIR process. I hereby grant the request to file a Single EIR, which the Proponent should submit in accordance with the Scope included in this Certificate.

Project Description

As described in the EENF, the MWRA proposes to rehabilitate portions of drinking water pipe (Sections 22 and 21) in Boston, Quincy, and Milton to restore them to full function. Three methods of construction are proposed:

- Remove and replace: This method will excavate a 10-foot-wide trench and remove the existing pipeline, then install a new pipe of the same diameter in the same alignment. At appurtenances

such as valves and manholes, the excavation will widen to approximately 12 feet by 12 feet. Once the new pipe is installed, all excavations will be backfilled and restored to existing grades.

- Clean and line: This method will require approximately 12-foot-by-12-foot access pits at bends in the existing pipeline or at appurtenances. A scraper will be pulled through the existing pipe to clean it, then another machine will travel through the pipe from access pit to access pit to line the pipe with a thin layer of cement mortar. Once lining is complete, the excavation will be backfilled and restored to existing grades.
- Slipline: This method will require approximately 12-foot-by-30-foot access pits at bends in the existing pipeline or at appurtenances. A scraper will be pulled through the existing pipe. Then short segments of new steel pipe will be inserted into the existing pipe and joined by welding the pipe joints internally. The annular space between the new pipe and the host pipe will be filled with a grout mixture to secure the new pipe in place and provide corrosion protection and the interior of the pipe will also be cement mortar lined to provide corrosion protection. Once grouting and cement mortar lining is complete, the excavation will be backfilled and restored to existing grades.

As described in the EENF, Section 21 of the pipeline was found to be structurally sound but heavily corroded on the interior of the pipe. To minimize impacts and cost and maximize hydraulic performance, this pipe will be cleaned and lined. The EENF divides Section 22 of the pipeline into four segments and states that depending on the condition of the existing pipe and potential for environmental impacts in each segment, one of the three construction methods described above will be used.

- Segment 1: This segment is located within existing roadways. Due to its extensive leak history, this segment will be removed and replaced.
- Segment 2: This segment is located within salt marsh and the ACEC. With the exception of the crossing under the Neponset River, this segment will be sliplined with a 40-inch steel pipe. The approximately 600-linear-foot subsegment under the Neponset River was determined to be in good condition and no work is proposed.
- Segment 3: This segment is located partially within salt marsh. To minimize wetland impacts during construction and future maintenance, the MWRA proposes to install a new 48-inch-diameter pipe along a new alignment within the existing roadway layout of Granite Avenue which includes other utilities. Impacts within the limits of construction from this installation will be the same as the "remove and replace" method. The existing pipe that runs through wetlands behind the MassDOT storage yard and the salt marsh between Granite Avenue and Interstate-93 (I-93) will be capped, filled with grout, and left in place, avoiding potential wetland impacts for this segment.
- Segment 4: This segment is located primarily within existing roadways and is proposed to be cleaned and lined. Upon further internal inspection by the contractor after the pipe has been cleaned, if significant corrosion is found, short subsegments may be removed and replaced in lieu of cement mortar lining.

Project Site

As described in the EENF, Section 22 is a critical water pipeline that delivers drinking water to, and is located in, Boston, Milton, and Quincy. Section 22 was originally constructed in 1950 and is approximately 16,000 feet long and composed primarily of 48-inch-diameter unlined steel pipe with coupling joints. A 650-foot-long portion of Section 22 that runs under the Neponset River is constructed

of 52-inch diameter concrete-lined steel pipe with welded joints. Section 21 is composed of an approximately 3,600-foot-long, 24-inch-diameter cast iron pipe in Milton and Quincy that was originally constructed in the early 1900s.

Section 21 of the pipeline is located entirely within existing roadways amongst residential and commercial land uses. It is not located in an Area of Critical Environmental Concern (ACEC) and there are no waterways, wetland resource areas, or open space or recreational resources adjacent to the pipeline. According to Massachusetts Natural Heritage and Endangered Species Program (NHESP) Atlas (August 1, 2017, 14th Edition), the site is not located within an area of Estimated Habitats of Rare Wildlife or an area of Priority Habitats of Rare Species.

The EENF describes the four segments of Section 22 individually.

- Segment 1: *Dorchester Lower Mills to MBTA Tracks.* Along Adams Street, this segment passes through residential, commercial, and mixed-use properties. On Butler Street and eastward, this segment crosses the Cedar Grove Cemetery and is located within developed open space and some forested land in Boston.
- Segment 2: *ACEC Marsh to MassDOT Yard.* This segment crosses the Neponset Trail and the right-of-way for the Massachusetts Bay Transportation Authority's (MBTA's) Mattapan Trolley and enters the Neponset River Reservation (part of the Neponset River Estuary ACEC). It crosses through salt marsh and under the Neponset River, then travels along the ramp for I-93 southbound. It crosses the ramp and I-93 and ends near a MassDOT storage yard in Milton.
- Segment 3: *MassDOT Yard to Hope Avenue*. This segment travels along the edge of the MassDOT yard and adjacent parking lot, and past the American Legion Heritage Hall in Milton. This segment passes through salt marsh and forested areas and behind industrial land uses.
- Segment 4: *Hope Avenue to Furnace Brook Parkway*. This segment of Section 22 travels across the edge of the Furnace Brook Golf Club in Quincy, and is located primarily within residential areas, with a few locations in forested areas or developed open space.

Section 22 crosses four waterways including two unnamed tidal creeks, the Neponset River, and Furnace Brook. The project area contains wetland resource areas including Salt Marsh, Bordering Vegetated Wetlands (BVW), Isolated Vegetated Wetlands (IVW), Inland Bank, Land Under Water (LUW), Bordering Land Subject to Flooding (BLSF), Lands Subject to Coastal Storm Flowage (LSCSF), Riverfront Area (RFA), and associated buffer zones. The project corridor includes mapped areas that are inundated during a 100-year storm as mapped on the Federal Emergency Management Act (FEMA) Flood Insurance Rate Maps (FIRMs). Portions of Section 22 are located with the Neponset River Estuary ACEC. The EENF lists four open space and recreational resources along Section 22 including the Neponset River Reservation (Boston and Milton), Presidents Golf Course (Milton), Andrews Park (Milton), and the Furnace Brook Golf Course (Milton). Based on the Massachusetts Historical Commission's (MHC) Massachusetts Cultural Resources Information System (MACRIS) the project corridor contains several historic and archaeological sites previously recorded in the Inventory of Historic and Archaeological Assets of the Commonwealth.

The project site is located within 8 Environmental Justice (EJ) populations characterized by Minority and within one mile of 54 EJ populations characterized by Minority; Income; Minority and Income; Minority and English Isolation; and Minority, Income and English Isolation. The site is located

within five miles of EJ populations designated as Minority; Income; English Isolation; Minority and Income; and Minority, Income and English Isolation. As described below, the EENF identified the "Designated Geographic Area" (DGA) for the project as 1 mile around EJ populations, included a review of potential impacts and benefits to the EJ populations within this DGA, and described public involvement efforts undertaken to date.

Environmental Impacts and Mitigation

According to the EENF, potential environmental impacts associated with the project include temporary alteration of 43,910 sf (1.01 acres) of Salt Marsh, 9,950 sf of LSCSF, 8,070 sf of BLSF, and 510 sf of RFA. There will be temporary wetland impacts within the Neponset River Estuary ACEC. Approximately 6,400 linear feet of Segment 2, Section 22, passes through the estuary ACEC which is considered an Outstanding Resource Water (ORW). Within a 500-ft radius of the project segments, 35 hazardous waste/disposal sites were identified using the Massachusetts Department of Environmental Protection (MassDEP) Bureau of Waste Site Cleanup (BWSC) online database. The presence of a state-listed disposal site indicates that a release of hazardous materials has been reported to the MassDEP. Of the 35 sites, 29 are listed in the EENF that have the potential for impacts to environmental conditions along the pipeline. Of the known historic and archaeological resources within the project corridor, two resources contain historic features within or along the pipeline that have the potential to be impacted. Potential construction period impacts include traffic, an increase in ambient noise levels, fugitive dust, and emissions from construction vehicles.

The project will minimize and mitigate environmental impacts by relocating a portion of Section 22 out of Salt Marsh. Impacts to other wetland resource areas will be temporary and will be restored upon completion of work using the vegetation layer and subsoil excavated during construction. Restoration areas will be planted with native vegetation and monitored in accordance with permit conditions. Soil erosion and sedimentation controls will be installed between work areas and wetland resource areas and temporary construction matting will be used within wetland areas to prevent rutting and provide stable pads for equipment operation. Sediment controls including filter bags set on top of stone and surrounded by erosion controls will be used during dewatering. Any soil encountered during construction with oil and/or hazardous material above the Massachusetts Contingency Plan (MCP) Reportable Concentrations will be managed appropriately in accordance with the applicable state and federal regulations. As necessary, a Licensed Site Professional (LSP) will be onsite. To mitigate traffic impacts during construction a Traffic Management Plan (TMP) will be developed.

Jurisdiction and Permitting

The project is subject to the preparation of a Mandatory EIR pursuant to 301 CMR 11.03(3)(a)1.a. because it requires Agency Actions and involves the alteration of one or more acres of salt marsh or bordering vegetated wetlands. Additionally, the project exceeds the Environmental Notification Form (ENF) threshold at 301 CMR 11.03(11)(b) for any project of ½ or more acres within a designated ACEC, unless the project consists solely of one single family dwelling. The project is also located within a DGA around an EJ Population, and therefore an EIR is required pursuant to 301 CMR 11.06(7)(b). Additionally, the project exceeds the Environmental Notification Form (ENF) threshold at 301 CMR 11.03(11)(b) for any project of ½ or more acres within a designated ACEC, unless the project consists solely of one single family dwelling. The project requires a Highway Access Permit from the Massachusetts Department of Transportation (MassDOT), a Construction and Access Permit from the Department of Conservation and Recreation (DCR), a License to Enter from the MBTA, and a Section

401 Water Quality Certificate from MassDEP. Comments from the MassDEP Waterways Program indicate that the filing does not include sufficient information to determine if the work may be authorized as a Minor Project Modification and indicates that one portion of the project may require a new Chapter 91 (c.91) License.

The project will require Orders of Conditions (OOCs) from the Boston and Quincy Conservation Commissions and potentially the Milton Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions (SOC) from MassDEP). The project requires a Pre-Construction Notification (PCN) to the U.S. Army Corps of Engineers (USACOE) under Section 404 of the Clean Water Act (CWA), National Pollutant Discharge Elimination System (NPDES) from the Environmental Protection Agency (EPA) and Federal Consistency Review by the Office of Coastal Zone Management (CZM).

Because the project is being undertaken by the Massachusetts Water Resource Authority (MWRA), an Agency as defined in MEPA regulations, MEPA jurisdiction is broad in scope and extends to all aspects of the project that may cause Damage to the Environment.

Request for Single EIR

The MEPA regulations at 301 CMR 11.06(8) indicate that a Single EIR may be allowed provided I find that the EENF:

a) describes and analyzes all aspects of the project and all feasible alternatives, regardless of any jurisdictional or other limitation that may apply to the Scope;
b) provides a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed; and,
c) demonstrates that the planning and design of the project use all feasible means to avoid potential environmental impacts.

For any Project for which an EIR is required in accordance with 301 CMR 11.06(7)(b), I must also find that the EENF:

d) describes and analyzes all aspects of the Project that may affect Environmental Justice Populations located in whole or in part within the Designated Geographic Area around the Project; describes measures taken to provide meaningful opportunities for public involvement by Environmental Justice Populations prior to filing the expanded ENF, including any changes made to the Project to address concerns raised by or on behalf of Environmental Justice Populations; and provides a detailed baseline in relation to any existing unfair or inequitable Environmental Burden and related public health consequences impacting Environmental Justice Populations in accordance with 301 CMR 11.07(6)(n)1.

Consistent with this request, the EENF was subject to an extended comment period under 301 CMR 11.05(8).

Review of the EENF

The EENF included a project description, an alternatives analysis, existing and proposed conditions plans, and estimates of project-related impacts. It identifies measures to avoid, minimize and

mitigate environmental and public health impacts. It also included a description of measures taken to enhance public involvement by EJ populations and a baseline assessment of any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ Populations in accordance with 301 CMR 11.07(6)(n)1. Comments on the EENF request additional information regarding post construction monitoring of salt marsh restoration and adaptive management actions that may be necessary if the salt marsh does not recover to pre-construction conditions.

Alternatives Analysis

The DEIR describes alternative locations and alternative construction methods for both Section 21 and Section 22 of the project. Conceptual plans are provided for each alternative. As described above the alternative construction methods include remove and replace, clean and line, and slipline. The MWRA asserts that the remove and replace alternative creates the most disturbance as it requires excavation of the entire length of pipe and was therefore avoided where possible.

The Section 21 pipe is structurally sound with no substantial pipe corrosion and the DEIR indicates that the least disruptive and cost effective alternative is to clean and line the existing pipe. The MWRA indicates that sliplining would result in a reduced pipe size and the resulting hydraulic capacity would not be adequate to support current requirements. As indicated above, relocating or replacing the entire pipeline would result in new disturbance along a new corridor and/or excavation along the entire length of the current alignment and was also dismissed.

Alternatives to the Section 22 pipeline were discussed by segment. As described in the EENF, Segment 1 has an extensive leak history and cleaning and lining would not provide sufficient service life for this segment. Sliplining Segment 1 was also considered but hydraulic capacity would not meet the MWRA's requirements and therefore, full replacement is proposed. The EENF indicates that it is not possible to remove and replace the portion of pipe under the MBTA tracks and this portion will be sliplined.

The EENF states that cleaning and lining Segment 2 was also dismissed because the pipe is not structurally sound. Sliplining was found to be hydraulically adequate and would minimize impacts to the Salt Marsh because excavation would only be required at periodic access pits. MWRA also considered alternative locations for Segment two including relocation along the Neponset River Greenway and installation of a new pipe via horizontal directional drilling (HDD). Relocation to the Neponset River Greenway was dismissed because the new alignment would result in significantly more ground disturbance withing 100-ft of Salt Marsh and would not entirely avoid impacts with the marsh. The relocation would also require jacking and boring a new crossing under the Neponset River which would be costly to construct and would require a new c.91 License. In addition, the Neponset River Reservation is protected under Article 97 and the new pipeline could be considered a change in use that would require review by the Executive Office of Energy and Environmental Affairs (EOEEA) and an act of the legislature. As stated in the EENF, the HDD Alternative was dismissed because it does not provide adequate hydraulic capacity. In addition, it would be costly to construct and, as shown in conceptual plans, would require an extensive pipe layout area across multiple sections of Salt Marsh, which would increase impacts within the ACEC.

The MWRA considered cleaning and line Segment 3; however, there was historically a major leak on I-93 and that subsegment would need to be sliplined instead. Sliplining the entire pipe was also considered but this would reduce the service life of the pipeline in comparison to replacing the pipe and

would still incur salt marsh impacts. The EENF states that by capping and abandoning Segment 3 of the existing pipeline that runs through Salt Marsh and installing new pipe beginning at the northwest corner of the MassDOT Yard and continuing within Granite Avenue, the project will avoid approximately 5,100 sf of wetland impacts and will provide better access for future pipe operation and maintenance.

The EENF states Segment 4 of the pipeline has reached the end of its useful life but was found to be in reasonable condition. The MWRA determined that the cost and impacts of full removal and replacement (or realignment) were not warranted and that sliplining was also not cost effective and would decrease hydraulic performance. Therefore, the Preferred Alternative for this section is to clean and line to restore the pipe to full function.

Comments from MassDEP state that the Alternatives Analysis presented in the EENF is at a level consistent for permitting and does a thorough job of explaining why the different constructions methods for each pipeline section should be implemented. MassDEP indicates in comments that it supports the MWRA's conclusion that impacts to wetlands will be minimized by the chosen alternatives including the methodologies for stream crossings.

Environmental Justice

As noted above, the project site is located within 8 Environmental Justice (EJ) populations characterized by minority and within one mile of 54 EJ populations characterized by Minority; Income; Minority and Income; Minority and English Isolation; and Minority, Income and English Isolation. The site is located within five miles of EJ populations designated as Minority; Income; English Isolation; Minority and Income; and Minority, Income and English Isolation. Within the census tracts containing the above EJ populations within 1 mile of the project site, the following languages are identified as those spoken by 5% or more of residents who also identify as not speaking English very well: Chinese, French Creole, Spanish or Spanish Creole, and Vietnamese. The corresponding languages identified for a 5 mile radius around the project site are as follows: African languages, Chinese, French Creole, Portuguese or Portuguese Creole, Russian, Spanish or Spanish Creole, and Vietnamese.

Effective January 1, 2022, all new projects in "Designated Geographic Areas" ("DGA," as defined in 301 CMR 11.02, as amended) around EJ populations are subject to new requirements imposed by the Chapter 8 of the Acts of 2021: *An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy* (the "Climate Roadmap Map") and amended MEPA regulations at 301 CMR 11.00.[1] Two related MEPA protocols—the MEPA Public Involvement Protocol for Environmental Justice Populations (the "MEPA EJ Public Involvement Protocol") and MEPA Interim Protocol for Analysis of project Impacts on Environmental Justice Populations (the "MEPA Interim Protocol for Analysis of EJ Impacts")—are also in effect for new projects filed on or after January 1, 2022.[2] Under the new regulations and protocols, all projects located in a DGA around one or more EJ populations must take steps to enhance public involvement opportunities for EJ populations, and must submit analysis of impacts to such EJ populations in the form of an EIR.

[1] MEPA regulations have been amended to implement Sections 55-60 of the Climate Roadmap Act, and took effect on December 24, 2021. More information is available at https://www.mass.gov/service-details/information-about-upcoming-regulatory-updates.
[2] Available at https://www.mass.gov/service-details/eea-policies-and-guidance.

The EENF indicates that the DGA for the project is 1 mile, and states that EJ populations within this DGA are not likely to be negatively impacted by the project because the majority of project impacts are limited to the construction phase and would be temporary. The EENF also indicates a variety of public benefits that the project is asserted to offer for EJ populations, including providing a reliable source of clean drinking water. The EENF described public involvement activities conducted prior to filing, including advance notification of the project (the "EJ Screening Form") circulated to a list of community-based organizations (CBOs) and tribes/indigenous organizations (the "EJ Reference List") provided by the MEPA Office. The form was translated into the following languages: Chinese, French Creole, Spanish, and Vietnamese and attached to the notification email. Notice of the MEPA remote consultation session held at 7:00 PM on December 7, 2022 and in-person site visit held on December 19, 2022 at 10:00 AM, was translated and distributed to the EJ Reference List. Oral interpretation services were offered for the MEPA remote consultation session and site visit in all languages; no requests for translation were received prior to the meetings, but interpreters were available at both meetings. The MWRA also created a project web page (https://www.mwra.com/projects/water/sec21-22/sec21-22-update.html) with project information including the EJ Screening Form and translated versions which will be updated as the project design progresses and during the construction phase. The Single EIR should describe a public involvement plan that the project intends to follow for EJ populations within the DGA for the remainder of the MEPA review process. C-1

The EENF contained a baseline assessment of any existing unfair or inequitable Environmental Burden and related public health consequences impacting EJ Populations in accordance with 301 CMR 11.07(6)(n)1. and the MEPA Interim Protocol for Analysis of EJ Impacts. According to the EENF, the data surveyed show some indication of an existing "unfair or inequitable" burden impacting the identified EJ populations. Specifically, the EENF notes that the DPH EJ Tool identifies census tracts with and municipalities in which the EJ populations as exhibiting "vulnerable health EJ criteria"; this term is defined in the DPH EJ Tool to include any one of four environmentally related health indicators that are measured to be 110% above statewide rates based on a five-year rolling average.[3] Specifically, the City of Boston is identified as exhibiting "vulnerable health EJ criteria" for Childhood Asthma and census tracts within Boston and Quincy are identified as exhibiting "vulnerable health EJ criteria" for Elevated Blood Lead Prevalence and Low Birth Weight. In addition, the EENF indicates that the following sources of potential pollution exist within the identified EJ populations, based on the mapping layers available in the DPH EJ Tool:

- Major air and waste facilities: 7 (Boston 3, Quincy 4)
- M.G.L. c. 21E sites: 14 (Boston 6, Quincy 8)
- "Tier II" Toxics Release Inventory Site: 17 (Boston 4, Quincy 13)
- MassDEP Sites with AULs: 43 (Boston 18, Quincy 25)
- MassDEP Public Water Suppliers: 3
- Underground Storage Tanks: 29 (Boston 8, Quincy 21)
- Road Infrastructure: 2
- MBTA Bus and Rapid Transit: Boston - 1 Rapid Transit, 1 Commuter Rail, 7 Buses
Quincy – 1 Rapid Transit, 1 Commuter Rail, 5 Buses
- Energy Generation and Supply: 1 (Quincy Biomass Plant)

[3] See https://matracking.ehs.state.ma.us/Environmental-Data/ej-vulnerable-health/environmental-justice.html. Four vulnerable health EJ criteria are tracked in the DPH EJ Viewer, of which two (heart attack hospitalization and childhood asthma) are tracked on a municipal level, and two (childhood blood lead, and low birth weight) are tracked on a census tract level.

As indicated in the EENF, the project impacts are anticipated to be temporary in nature and related to construction activities. The EENF notes that these impacts will be intermittent and will not be in front of any single location for an extended period of time. As described further below, construction contractors will comply with anti-idling regulations and all diesel-powered non-road construction equipment will have EPA-verified (or equivalent) emission control devices to limit construction-phase air quality impacts. Construction noise will be minimized by ensuring that equipment is functioning properly and equipped with noise-reducing features. Typical work hours will be between 7 a.m. and 5 p.m. Monday through Friday. The Single EIR should supplement analysis of EJ impacts in accordance with the Scope. C-2

Wetland Resources

Wetland resource areas were delineated within the project site in December of 2019 and include areas of Salt Marsh, BVW, IVW, Bank, BLSF, LSCSF, RFA and associated buffer zones of resource areas. The EENF indicates that the Section 22 crosses eight wetlands, four waterways (including the Neponset River, Furnace Brook and two unnamed tidal creeks), five locations jurisdictional under c.91. No wetland resource areas are present in Section 21 or Segment 1 of Section 22. The EENF notes, and comments from MassDEP concur, that the project is a replacement of an existing and lawfully located facility used in the service of the public and used to provide water services, and therefore does not strictly require the filing a Notice of Intent (NOI) in accordance with the exemption at 310 CMR10.02(2)(a)2.; however, the MWRA intends to file NOIs with the Boston, Milton, and Quincy Conservation Commissions to ensure that the project is designed and constructed in a manner that minimized wetland impacts to the maximum extent feasible.

As indicated above, wetland impacts include 43,910 sf of Salt Marsh (40,330 sf of temporary construction mat impacts and 3,580 sf for temporary pipe access pits); 9,950 sf of LSCSF (3,490 sf from pipe access pits and 6,310 sf from trenching); 8,070 sf of BLSF (1,690 sf from pipe access pits and 6,380 from trenching) and 510 sf of RFA. The EENF states that all impacts are located within the existing pipe alignment or within an existing pipeline access road. In addition to the 12-ft-by-30-ft pipe access pits, 16-ft-wide crane mats will be placed at each edge of a pit located within a wetland resource area and along an existing access path through the Salt Marsh in Segment 2. The EENF states that at access pit locations within Salt Marsh, the vegetation layer and subsoil will be set aside with layers in separate piles, and upon completion of work the subsoils will be put back with layers intact and the vegetation layer reestablished by plantings. At completion of the project, temporary impact areas will be restored and permanently stabilized at the earliest practicable date. Appropriate plantings will be provided in the salt marsh and other areas disturbed by construction as necessary to restore native vegetation. The work areas within salt marsh will be monitored for a minimum of two growing seasons and/or as required by project permits to confirm that all areas have been fully restored.

Comments from MassDEP, CZM, and the Division of Marine Fisheries (DMF) indicate the need for additional information related to post-construction monitoring and adaptive management, should the post-construction Salt Marsh not recover to an acceptable level compared to pre-construction conditions. Comments from DMF and CZM also indicate that work on the Salt Marsh outside of the growing season would help to minimize potential impacts. Comments from MassDEP indicate that reestablishment of Salt Marsh vegetation is best done during the spring planting season to avoid possible impacts from frost or ice during the fall planting season. The Single EIR should provide additional details related to Salt Marsh restoration and monitoring as discussed in comments and as outlined in the Scope. C-3

Area of Critical Environmental Concern/Article 97

Approximately 6,400 lf of Segment 2 in Section 22, passes through the Neponset River Estuary ACEC which was designated on March 27, 1995. The portion of the pipe located within the ACEC was installed in the 1950's. As noted above, there will be temporary impacts associated with access pits and construction mats which will be limited to the existing alignment of the pipeline and will be restored upon completion of work. Comments from MassDEP indicate that the work in wetlands in the ACEC, which is an ORW, will be able to be permitted under the 401 Water Quality Regulation pursuant to 314 CMR 9.06 (3)(a) which allow for public water supplier to maintain, operate, and improve the waterworks system provided that such projects are implemented in in accordance with applicable federal and state laws, regulations, and requirements.

The EENF also describes project work required on land used for open space and recreation. Portions of Segments 2 and 3 of Section 22 within the Neponset River Reservation and the pipeline also cross the Neponset River Greenway Trail. Comments from DCR indicate that where the pipeline rehabilitation work activity necessitates access through DCR lands or across DCR Greenways/Parkways, a Construction and Access Permit (CAP) will be required. In addition, the pipeline crosses Presidents Golf Course and Andrews Park in Milton (Segments 3 and 4) and Furnace Brook Golf Club in Quincy (Segment 4). The Furnace Brook Golf Club is owned and operated by the City of Quincy and is considered a recreational resource. This recreational facility is accessible to the public, including residents and non-residents of the City and is therefore considered Article 97 land. Andrews Park is protected in perpetuity and is also Article 97 land. Andrews Park is a 9-acre recreational park owned by the Town of Milton. The park is located to the north of the existing pipeline, and no work is planned within the park boundaries. There will be no disposition of Article 97 Land.

As described in the EENF, the project passes Andrews Park but there are existing buffers of vegetation and residential homes between the pipeline and the Park and there will be no impact to Article 97 Land. There will be one access pit located in the southernmost corner of the Furnace Brook Golf Club property (outside of the limits of play) within the existing pipe alignment. Temporary disturbance from the access pit will be restored to existing conditions. The entrance to the golf course is off the north end of Reservoir Road and no direct traffic impacts are anticipated. Mitigation for temporary construction impacts will be provided as discussed further below.

Chapter 91

The EENF describes work with c.91 jurisdiction including work in two wetlands labeled as B1 and M1 and two unnamed tidal creeks and states that since the proposed work is for repair and alterations to an existing public service project, it may be approved as a Minor Modification. It also states that installation of a new pipe within Granite Avenue may require a license which will be determined upon consultation with the MassDEP Waterways Program. Comments from MassDEP Waterways indicate that the filing does not accurately describe or depict c.91 jurisdictional boundaries and does not include sufficient information to determine which components of the project require c.91 authorization, or the necessary type of authorization.

The EENF indicates that 3,100 sf of trenching will occur in Salt Marsh with a dredge volume of approximately 1,400 cubic yards (cy). Comments from MassDEP Waterways note that dredging requires a c.91 permit pursuant to 310 CMR 9.05(3) and adds that in order to meet the definition of

"maintenance" dredging as defined at 310 CMR 9.02, documentation of a prior c.91 authorization for dredging within the proposed footprint and to the proposed dredge depth is required. If the proposed dredge area was not previously issued a c.91 authorization, the dredging is "improvement" dredging and required to meet the standard at 310 CMR 9.40(1)(b)1. if located within an ACEC. The Single EIR should include a list of any c.91 license and/or authorizations that are applicable to the project site and a response to Chapter 91 comments. C-4

Historical and Archaeological Assets

The EENF indicates that properties listed in the National and State Registers of Historic Places, as well as properties listed in the Inventory of Historic and Archaeological Assets of the Commonwealth overlap or are directly adjacent to three pipeline segments (Section 22 Segments 1 and 4, and Section 21). The majority of historic and archaeological resources identified are not anticipated to be impacted by the project; however, two resources contain historic features within or along the pipeline alignments that have the potential to be impacted by the project. Section 21 includes historic stone wall and granite posts along sections of roadway with the Railway Village Historic District. The EENF states that these features are located on the interior of the sidewalk boundary and at the entrances of property driveways. The MWRA indicates that MHC may require additional information demonstrating that these features are outside the limits of work (including construction laydown and access areas), and/or reconstruction plans if limited areas of physical impacts to these resources are possible during construction. Section 22 includes the Furnace Brook Parkway, an approximately four-mile stretch of parkway that was established in the early twentieth century as part of the greater Boston Metropolitan Park System; the entire parkway network was listed in the National Register in 2004. Contributing features include tree canopy and both vertical granite and Belgian block curbing. Segment 4 ends withing the boundaries of this historic district. The EENF states that since roadway features may be impacted during construction within or near a road, additional information may be required to demonstrate the project will not result in changes to tree cover or roadway alignment and that disturbance to the existing curing will be avoided if possible. If not possible, the mitigation would include removing and re-installing curbing post-construction in coordination with MHC.

Hazardous Waste

The EENF describes the potential presence of hazardous materials in relation to the proposed project including contaminated soils and groundwater, MassDEP identified disposal sites, and one EPA Superfund site. The EENF provides the results of limited soil and groundwater investigations which were conducted in July 2020. Based on the soil analytical results, elevated concentrations of poly aromatic hydrocarbons (PAHs) and lead were detected in excess of MassDEP reportable concentration (RCS-1) in soil samples collected from Section 22, Segment 3 (the existing alignment in the salt marsh between Granite Avenue and I-93). Elevated concentrations of PAHs, lead, arsenic, and petroleum constituents were also detected in excess of the RCS-1 standards within the northern and southern portions of Section 22, Segment 4. Three groundwater samples were collected from Section 22 Segment 3 and Segment 4, and no concentrations of oil and hazardous materials (OHMs) were detected above the applicable reportable concentrations within these segments. The EENF states that mitigation measures during construction will include special handling, dust control, and management of contaminated soil and groundwater in order to provide adequate protection to workers and any nearby sensitive receptors (including hospitals, elder care facilities, schools, recreational facilities, and religious facilities). In the event that the project generates hazardous waste and/or waste oil, a permanent identification number would be obtained in accordance with MassDEP regulations (310 CMR 30.000).

As stated in the EENF, a review of the MassDEP Bureau of Waste Site Cleanup (BWSC) online database of hazardous waste sites, 35 hazardous waste sites[4] were identified within a 500-foot radius of the project segments. A summary of the MassDEP hazardous waste sites with the potential for impact relative to the project is provided in the summary table below.

Project Section	Disposal Site(s) with Potential to Impact	Disposal Site(s) Unlikely to Impact	Total Disposal Sites
Section 21	**10**	**0**	**10**
Section 22			
Segment 1	6	3	9
Segment 2	3	1	4
Segment 3A	5	2	7
Segment 4	5	0	5
Subtotal	*19*	*6*	*25*
Total	**29**	**6**	**35**

Of the disposal sites with the potential for impacts to project conditions (10 in Section 21, and 19 in Section 22), the EENF includes additional information regarding RTN 3-27149 in Section 21 in Milton and RTN 3-27149 on the Neponset River Trail in Section 22. The following information was provided:

- Section 21: RTN 3-0027149 is located at the intersection of Adam and Franklin Street in Milton. The release achieved regulatory closure through the submittal of a Class A-2 Response Action Outcome (RAO) Statement in October 2007 indicating a Condition of No Significant Risk was achieved; however, residual concentrations of petroleum constituents and PAHs remain in soil.
- Section 22: RTN 3-0018465 is located within the Neponset Trail. The release achieved regulatory closure through the submittal of a Class A-2 RAO Statement in June 2000 indicating a Condition of No Significant Risk was achieved; however, residual concentrations of arsenic remain in soil. Although not required for public rights-of-way (ROWs), an Activity and Use Limitation (AUL) was recorded for the Neponset River Trail.

The EENF indicates that within the Section 22 AUL, any construction activities would be conducted under a Utility Related Abatement Measure (URAM) Plan pursuant to 310 CMR 40.0460. Following construction activities, the protective barrier layer would be restored to restrict access to the underlying arsenic- and PAH-impacted soils. Work in other impacted areas will require notification to MassDEP and will be conducted under a URAM. As state previously, a LSP will be onsite for work related to hazardous soils.

The EENF also describes hazardous materials which are addressed at the federal level and managed by the Environmental Protection Agency (EPA) under the Superfund program including a site in the vicinity of Section 22 associated with the Lower Neponset River. Based on preliminary studies, 3.7 miles of the Lower Neponset River contain sediment, surface water, and fish that are contaminated with elevated levels of polychlorinated biphenyls (PCBs). Although the Superfund site is located approximately 400 feet south of Section 22, Segment 1, assessment activities are ongoing. Portions of

[4] The presence of a state-listed disposal site indicates that a release of hazardous materials has been reported to the MassDEP.

Section 22, Segment 2 are located within Salt Marsh directly north and downstream of the Superfund site. The latest Superfund reports will be reviewed prior to construction for updates regarding the extents of the PCB impacts.

Climate Change

Adaptation and Resiliency

Effective October 1, 2021, all MEPA projects are required to submit an output report from the MA Resilience Design Tool to assess the climate risks of the project. Based on the output report attached to the ENF, the project has a high exposure rating based on the project's location for the following climate parameters: sea level rise/storm surge, extreme precipitation (urban and riverine flooding), and extreme heat. Based on the 55-year useful life and the self-assessed criticality of the Section 21 and 22 pipe segments, the MA Resilience Design Tool recommends a planning horizon of 2070 and a return period associated with a 200-year (0.5% annual chance) storm event for sea level rise/storm surge, and a 50-year (2% annual chance) storm event for extreme precipitation when designing the Section 21 and 22 pipelines (a "utility" asset). I note that the recommended planning horizon for assets that are unlikely to be relocated (such as water distribution systems) is 60-80 years.[5] This would yield corresponding return period recommendations of the 500-year (0.2% chance) storm event for sea level rise/storm surge and the 100-year (1% chance) storm event for extreme precipitation.[6] C-5

The EENF states that although the MA Resilience Design Tool identified the project elements as having high exposure due to their locations near the coast, and as high risk due to their criticality as water supply infrastructure, projected climate change impacts are not anticipated to affect this infrastructure due to its location below ground. The project will not result in any changes to site topography or floodwater flow paths or velocities that could impact adjacent properties or the functioning of the floodplain.

Transportation

According to the EENF, construction of the project will involve trenching along the segments to be removed and replaced and at construction access pit locations. Measures will be implemented to minimize impacts to adjacent residences, businesses, and EJ populations and others relying on transportation corridors. A TMP will be developed in coordination with municipalities to minimize impacts on the public. Items identified in the EENF to be included in the TMP are listed below.

- Ongoing coordination with police and fire departments;
- Provisions for emergency vehicle access;
- Timing and delivery of equipment and materials;
- Lane location and width within the work zone to minimize impacts to vehicular traffic movement and promote safe passage;
- Work schedule and duration of any proposed lane closures, alternating traffic flow patterns, road closures, and/or detours where necessary;
- Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic control drums, flashers, detour signs, and other protective devices as approved by the various towns;

[5] https://eea-nescaum-dataservices-assets-prd.s3.amazonaws.com/cms/GUIDELINES/V1.2_SECTION_2.pdf, p. 12.
[6] https://eea-nescaum-dataservices-assets-prd.s3.amazonaws.com/cms/GUIDELINES/V1.2_SECTION_4.pdf, pp. 12, 23.

- Locations where temporary provisions may be made to maintain access to homes and businesses;
- Routing and safeguarding of pedestrian and bicycle traffic;
- Continuity plans along school bus and private motor coach routes;
- Method of communication with adjacent businesses to avoid interruptions to critical product deliveries;
- Roadway level of service effects due to short-term lane closure(s); and
- Development of a system to notify municipal officials, local businesses, and the public of the timing and duration of travel restrictions.

Construction Period

The MWRA indicates that the project will be constructed in multiple phases between 2025 and 2027; however, the specific phasing and construction sequence has not been identified at this time. Comments from the Boston Water and Sewer Commission (BWSC) request that the MWRA coordinate with the BWSC's Operations department on construction schedules that could result in water service disruptions. The EENF states that temporary impacts associated with construction may include noise, dust and emissions and that best management practices will be implemented to minimize and mitigate these impacts.

All construction and demolition (C&D) activities should be managed in accordance with applicable MassDEP regulations regarding Air Pollution Control (310 CMR 7.01, 7.09-7.10), and Solid Waste Facilities (310 CMR 16.00 and 310 CMR 19.00, including the waste ban provision at 310 CMR 19.017). The project should include measures to reduce construction period impacts (e.g., noise, dust, odor, solid waste management, etc.) and emissions of air pollutants from equipment, including anti-idling measures in accordance with the Air Quality regulations (310 CMR 7.11). I encourage the Proponent to require that its contractors use construction equipment with engines manufactured to Tier 4 federal emission standards, or select project contractors that have installed retrofit emissions control devices or vehicles that use alternative fuels to reduce emissions of volatile organic compounds (VOCs), carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment. Off-road vehicles are required to use ultra-low sulfur diesel fuel (ULSD). If oil and/or hazardous materials are found during construction, the Proponent should notify MassDEP in accordance with the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000). All construction activities should be undertaken in compliance with the conditions of all State and local permits. I encourage the Proponent to reuse or recycle C&D debris to the maximum extent. C-6 C-7

SCOPE

General

The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content and provide the information and analyses required in this Scope. It should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent practicable C-8

Project Description and Permitting

The Single EIR should identify any changes to the project since the filing of the EENF. It should identify and describe State, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. The Single EIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. The Single EIR should identify methods that will be undertaken to avoid, minimize and mitigate Damage to the Environment. C-9 C-10 C-11 C-12

As requested in comments from MassDEP Waterways, the Single EIR should include plans depicting the full scope of work, including any temporary activities, fill, and/or structures, existing and proposed conditions surveys that include delineated mean high water and the historic high water mark for all waterways within the project site. Layers and boundaries not relevant for c.91 should not be included on the requested plans. C-13

Environmental Justice

The Single EIR should provide an update on outreach efforts and describe how the project is implementing the outreach plan. The Single EIR or summary thereof should be distributed to the EJ Reference List and an updated list should be obtained from the MEPA Office to ensure that contacts are up to date. C-14

The Single EIR should provide a comprehensive discussion of construction period staging and activities, and whether such activities will impact EJ populations. The Single EIR should discuss the nature and extent of construction period traffic anticipated, and whether such traffic is likely to extend through EJ populations. The Single EIR should discuss what disruptions are anticipated for vehicular, pedestrian, transit, and bicycle travel, and how the Proponent will communicate with the public about potential disruptions to local neighborhoods. The Single EIR should discuss whether a construction management plan will be developed, and if so, submit a copy of the plan or describe its components. C-15 C-16 C-17 C-18

Wetland Resource Areas

The Single EIR should respond to comments from MassDEP, CZM, and DMF (incorporated in their entirety herein) including those related to temporary impacts to Salt Marsh. The Single EIR should provide additional information on how long temporary construction mats will remain in place, how the mats will be anchored, and the time of year in which construction will occur (comments from DMF and CZM recommend work in Salt Marsh occur outside the growing season). The Single EIR should provide information on where subsoil from digging access pits will be stockpiled. Comments from CZM state that the subsoil should be stored outside of the Salt Marsh to the maximum extent practicable to avoid compaction of the Salt Marsh platform beneath the staging area. C-19 C-20

Comments from MassDEP, CZM, and DMF request that the Single EIR outline proposed pre- and post-construction monitoring plans to determine whether any Salt Marsh impacts occur. Pre-construction characterization of the Salt Marsh vegetation on the site should be included. The monitoring plan should specify the schedule for Salt Marsh reestablishment including the anticipated season for restoration planting. The EENF proposes a two-year monitoring program, but comments from MassDEP indicate that a longer period is usually specified in USACOE permits. The proposed monitoring period should be discussed fully in the Single EIR so that it can be consistently mandated by C-21 C-22

the OOCs issued under the Wetlands Protect Act, the MassDEP 401 WQC, and the USACE 404. The monitoring plan should include adaptive management actions in the case that post-construction marsh does not recover to an acceptable level compared to the pre-construction conditions. Comments from CZM request more detail on the leak detection program to determine if leaks pose a risk to the Salt Marsh. C-22 C-23 C-24

Comments from CZM also request that the Single EIR include a copy of the Request for Advisory Opinion (RAO) submitted in March 2020 for pipeline Section 22 including responses to questions raised by MEPA and CZM in April 2020. As noted in CZM comments, the monitoring protocols described in the RAO are recommended to be used as a guide for post-construction monitoring. C-25 C-26

Chapter 91

The Single EIR should include the additional information as requested in the comment letter from MassDEP Waterways (incorporated in its entirety herein). In addition to the site plans requested above, the Single EIR should include a table that identifies the footprint of any proposed work within each filled and flowed tidelands, including any dredging and temporary fill/structures. As outlined in comments, the Single EIR should identify any work determined to require a c.91 permit or license, including work within any ACEC, and should address compliance with applicable c.91 regulations. C-27 C-28

The Single EIR should address comments from MassDEP Waterways as they relate to the proposed dredging in Salt Marsh including the request to document prior c.91 authorization for dredging with the proposed footprint and to the proposed dredge depth. The Single EIR should include a list of all c.91 licenses and/or authorizations that are applicable to the project site. C-29

Historic and Archaeological Resources

The Single EIR should provide an update on coordination with MHC to assess potential archaeological sensitivity within the project site and potential impacts to contributing features located within historic districts within Section 22 Segments 1 and 4, and Section 21. C-30

Mitigation and Draft Section 61 Findings

The Single EIR should include a separate chapter summarizing all proposed mitigation measures including construction-period measures. This chapter should also include a comprehensive list of all commitments made by the Proponent to avoid, minimize and mitigate the environmental and related public health impacts of the project, and should include a separate section outlining mitigation commitments relative to EJ populations. The filing should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. The list of commitments should be provided in a tabular format organized by subject matter (traffic, water/wastewater, GHG, environmental justice, etc.) and identify the Agency Action or Permit associated with each category of impact. Draft Section 61 Findings should be separately included for each Agency Action to be taken on the project. The filing should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing to ensure that adequate measures are in place to mitigate impacts associated with each development phase. C-31

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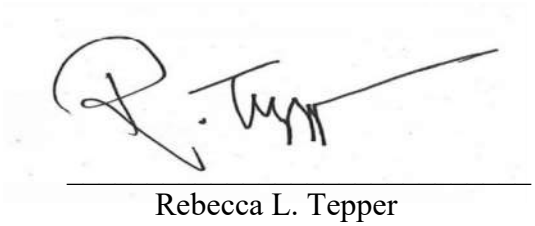
Responses to Comments

The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. To ensure that the issues raised by commenters are addressed, the Single EIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate. C-32

Circulation

In accordance with 301 CMR 11.16, the Proponent should circulate the Single EIR to each Person or Agency who commented on the EENF, each Agency from which the project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Pursuant to 301 CMR 11.16(5), the Proponent may circulate copies of the Single EIR to commenters in a digital format (e.g., CD-ROM, USB drive) or post to an online website. However, the Proponent should make available a reasonable number of hard copies to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. A copy of the Single EIR should be made available for review in the Milton and Quincy Libraries and the nearest Boston Public Library Branch. C-33



January 13, 2023
Date

Rebecca L. Tepper

Comments received:

12/30/2022 Division of Marine Fisheries (DMF)
01/04/2023 Boston Water and Sewer Commission (BWSC)
01/04/2023 Department of Conservation and Recreation (DCR)
01/04/2023 Massachusetts Department of Environmental Protection (MassDEP) Waterways Program
01/06/2023 MassDEP Northeast Regional Office (NERO)
01/06/2023 Coastal Zone Management (CZM)

RLT/JAH/jah

Letter 1

The Commonwealth of Massachusetts
Division of Marine Fisheries

251 Causeway Street, Suite 400, Boston, MA 02114
p: (617) 626-1520 | f: (617) 626-1509
www.mass.gov/marinefisheries

MAURA HEALY, Governor
KIMBERLY DRISCOLL, Lt. Governor
REBECCA TEPPER, Secretary
RONALD S. AMIDON, Commissioner
DANIEL J. MCKIERNAN, Director

December 30, 2022

Secretary Rebecca Tepper
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Jennifer Hughes, EEA No. 16633
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Tepper:

The Division of Marine Fisheries (MA DMF) has reviewed the Expanded Environmental Notification Form (EENF) for the proposed MWRA Section 22 and 21 Water Pipeline Rehabilitation Project in the City of Boston, Town of Milton, and City of Quincy. The project involves the repair of pipelines that deliver drinking water to Boston, Milton, and Quincy. The project site of Section 22 spans from Dorchester Lower Mills in Boston to the intersection of Furnace Brook Parkway and Adams Street in Milton. This 48" diameter pipeline was constructed in 1950 and is approximately 16,000' long. Section 21 begins at the intersection of Granite Avenue and Adams Street in Milton and ends at the intersection of Beale Street and Summit Avenue in Milton. This 24" diameter pipeline was constructed in the early 1900s and is 3,600' long. Both sections of pipe are deteriorating and in immediate need of repair. Existing marine fisheries resources and habitat and potential project impacts to those resources are outlined below.

Segment 2 of Section 22 passes through salt marsh and the Neponset River Area of Critical Environmental Concern (ACEC). Salt marsh provides a variety of ecosystem services, including habitat and energy sources for many fish and invertebrate species [1–3]. This segment will be sliplined with a 40-inch steel pipe. This method requires 12'x30' access pits at bends in the existing pipelines. To access the pits, temporary construction mats are required for construction vehicle access and support. After sections are replaced, the excavation will be backfilled and resorted to existing grades. Section 21 is located within existing roadways amongst residential and commercial land uses and does not occur within any mapped resource areas including waterways and wetlands.

MA DMF offers the following comments for your consideration:

- The EENF includes an estimated 43,910 square feet of temporary impacts to salt marsh associated with pipe access pits and installation of temporary construction mats. The EIR developed for this project should estimate how long the temporary mats would be in place for. Experimental results demonstrated that marsh vegetation covered by wrack (plant debris) completely died off after five (*Spartina patens*) to seven (*S. alterniflora*) weeks [4]. A similar degree of loss would be anticipated if mat cover occurred during the growing season for a

1-1

similar amount of time. Work on the marsh platform outside of the growing season would help to minimize potential impacts to this important habitat. 1-1 *cont.*

- The EIR should outline proposed pre-and post-construction monitoring plans to determine whether any marsh impacts occur. Adaptive management actions should be outlined in the case that post-construction marsh does not recover to an acceptable level compared to the pre-construction conditions. 1-2 1-3

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

Sincerely,

Daniel J. McKiernan

Director

cc: Joanna Yelen, CZM
Kaitlyn Shaw, NMFS
Rachel Crow, Ed Reiner, EPA
Kate Oetheimer, Boston Conservation Commission
Steve Ivas, Milton Conservation Commission
William Keener, Quincy Conservation Commission

References

1. Boesch DF, Turner RE. Dependence of fishery species on salt marshes: the role of food and refuge. Estuaries. 1984;7: 460–468.
2. Deegan LA, Garritt RH. Evidence for spatial variability in estuarine food webs. Mar Ecol Prog Ser. 1997;147: 31–47.
3. Deegan LA, Hughes JE, Rountree RA. Salt marsh ecosystem support of marine transient species. In: Weinstein MP, Kreeger DA, editors. Concepts and Controversies in Tidal Marsh Ecology. Kluwer Academic Publisher, The Netherlands; 2000. pp. 333–365.
4. Bertness MD, Ellison AM. Determinants of pattern in a New England salt marsh plant community. Ecol Monogr. 1987;57: 129–147.

DM/KF/sd

Letter 2

dcr
Massachusetts

January 4, 2023

Secretary Bethany A. Card
Executive Office of Energy and Environmental Affairs
MEPA Office, Attn: Jennifer Hughes
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EEA#16633 – MWRA Section 21 and 22 Water Pipeline Rehabilitation Project EENF

Dear Secretary Card:

The Department of Conservation and Recreation ("DCR" or the "Department") has reviewed the Expanded Environmental Notification Form ("EENF") submitted by the Massachusetts Water Resources Authority (the "Proponent" or the "MWRA") for the MWRA Section 21 and 22 Water Pipeline Rehabilitation Project (the "Project").

As described in the EENF, the MWRA proposes to rehabilitate critical water pipelines in portions of Section 22 and Section 21 in Boston, Milton and Quincy to restore them to full function. The EENF indicates that work to be conducted in Segments 2 and 3 of Section 22 in Boston and Milton is within the Neponset River Reservation. The pipeline also crosses the Neponset River Greenway Trail in Section 22. DCR appreciates the pre-filing coordination with MWRA related to permitting for test pits within the state reservation.

For sites where the pipeline rehabilitation work activity necessitates access through DCR lands or across DCR Greenways/Parkways, and where work activities are conducted directly on DCR lands, a DCR Construction and Access Permit ("CAP") will be required. DCR notes that all environmental permits required for work on DCR property must be reviewed by DCR prior to submission to regulatory agencies. 2-1

DCR appreciates the opportunity to comment on this project. Please contact Sean Casey, Director of Construction and Access Permits at sean.casey@mass.gov to request a CAP.

Sincerely,

Douglas Rice

Douglas J. Rice
Commissioner

cc: Priscilla Geigis, Patrice Kish, Tom LaRosa, Sean Casey

Letter 3

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street 9th Floor Boston, MA 02114 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

Memorandum

To: Jennifer Hughes, MEPA Unit

From: Waterways Regulation Program, MassDEP/Boston

cc: Daniel Padien, Program Chief, MassDEP/Boston

Re: MWRA Section 22 and 21 Water Pipeline Rehabilitation Project, EENF / EEA #16633
Chapter 91 Waterways Regulation Program Comments

Date: January 4, 2023

The Department of Environmental Protection Waterways Regulation Program (the "Department") has reviewed the above referenced EENF (EEA #16633) submitted by the Massachusetts Water Resources Authority (the "Proponent") for the rehabilitation of water pipelines located in Boston, Milton, and Quincy within filled and flowed tidelands of the Neponset River.

The EENF asserts that certain work may be authorized as a Minor Project Modification and one portion of the project may require a Chapter 91 (c.91) license. However, the filing does not accurately describe or depict c.91 jurisdictional boundaries and does not include sufficient information for the Department to determine which components of the project or scopes of work require c.91 authorization, or the necessary type of authorization. The Environmental Impact Report should include a plan depicting the full scope of work, including any temporary activities, fill, and/or structures, existing and proposed conditions surveys that include delineated mean high water and the historic high water mark for all waterways within the project site. Layers and boundaries not relevant for c.91 should not be included on the requested plans. The EIR should also include a table that identifies the footprint of any proposed work within each filled and flowed tidelands, including any dredging and temporary fill/structures. Any work determined to require a Chapter 91 permit or license is subject to the standards at 310 CMR 9.00, including but not limited to those at 310 CMR 9.32 and 310 CMR 9.40 as they relate to work within any Area of Critical Environmental Concern. It is recommended that any such work be identified, and compliance with the referenced regulations be addressed in the EIR.

3-1

3-2

The EENF notes that dredging is proposed. Dredging within flowed tidelands requires a c.91 permit pursuant to 310 CMR 9.05(3), and in order to meet the definition of "maintenance" dredging as defined at 310 CMR 9.02, documentation of a prior c.91 authorization for dredging within the proposed footprint and to the proposed dredge depth is required. If the proposed dredge area was not previously issued a c.91 authorization, the dredging is "improvement" dredging and required to meet the standard at 310 CMR 9.40(1)(b)1 if located within an Area of Critical Environmental Concern. 3-3

The Proponent should also include a list of any c.91 licenses and/or authorizations that are applicable to the project site in the EIR. 3-4

The Department looks forward to receipt of the information that includes the necessary information relative to Chapter 91 so that substantive comments and licensing guidance may be provided. The Proponent is encouraged to contact the Department at DEP.Waterways@mass.gov with any questions on these comments prior to submittal of any subsequent MEPA filing.

Letter 4

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Northeast Regional Office • 150 Presidential Way Woburn, MA 01801 • 978-694-3200

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Gary Moran
Acting Commissioner

January 06, 2023

Rebecca L. Tepper, Secretary
Executive Office of
Energy & Environmental Affairs
100 Cambridge Street
Boston MA, 02114

RE: Boston, Quincy, Milton
MWRA Section 21 and 22 Rehabilitation
EEA # 16633

Attn: MEPA Unit

Dear Secretary Tepper:

The Massachusetts Department of Environmental Protection Northeast Regional Office (MassDEP-NERO) has reviewed the Expanded Environmental Notification Form (EENF) for the proposed MWRA Section 21 and 22 Rehabilitation in Boston, Quincy, Milton. MassDEP provides the following comments.

MWRA has filed an Expanded Environmental Notification Form (EENF) for the proposed rehabilitation of the Section 22 and 21 water pipelines that deliver drinking water. Section 21 is 16,000 feet long and composed of 48-inch steel pipe and located in Boston, Milton, and Quincy. Section 21 is 24-inch cast iron pipe 3600 feet long running through Milton and Quincy. An ENF is required because the project trips 301 CMR 11.03(3)(a)1.a. (alteration of one or more acres of salt marsh or Bordering Vegetated Wetlands (BVW)) and 301 CMR 11.03(11)(b) (any project within a designated ACEC).

Wetlands

A Pre-Construction Notification (PCN) to the U.S. Army Corps of Engineers (USACE) is required under Section 404 of the Clean Water Act (CWA). A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges from Construction

activities, or CGP, for more than one acre of land disturbance is also required. These federal permits, combined with the project's location within the Massachusetts Coastal Zone, also trigger Federal Consistency Review by Massachusetts CZM under the Coastal Zone Management Act. Approval by MassDEP under Chapter 91 is required for pipe access pits and construction matting within flowed tidelands below the salt marsh boundary and below the High-Water mark. All activities in salt marsh and BVW, including temporary construction matting within salt marsh, will require a Major Water Quality Certification (WQC) from the MassDEP under Section 401 of the CWA. A dredging WQC will also be required for activities classified as dredging in salt marsh, so the filing of a combined application, called a BRP WW 26, for a Major Fill project (over 5,000 square feet) and a Minor Dredge Project (less than 5000 cubic yards) is advised.

The Project will involve work within areas jurisdictional to the Massachusetts Wetlands Protection Act, including Salt Marsh, Riverfront Area, Land Subject to Coastal Storm Flowage (LSCSF) and Bordering Land Subject to Flooding (BLSF). For the majority of the project, the replacement of an existing and lawfully located facility used in the service of the public and used to provide water services is proposed, and therefore does not strictly require the filing a Notice of Intent in accordance with the exemption at 310 CMR10.02(2)(a)2). However, the MWRA intends to file Notices of Intent in all three municipalities for the activities along the pipeline alignment.

While environmental impacts associated with the project can be categorized as relatively limited and temporary due to the pipelines' location in an existing maintained right-of-way corridor, they are significant.

Approximately an acre of temporary salt marsh alteration is proposed to reline antiquated water pipelines. Impacts are from access pits and swamp mats. Within salt marsh, the pipe will be relined so there will be no relatively large impacts from excavation of linear sections of salt marsh, as there would be if there were sections of pipe replacement. There are two stream crossings of unnamed tidal creeks as well as Furnace Brook and the Neponset. One of the tidal creek crossings at Granite Ave avoids work in a wetland that would result from an alternative alignment.

There will be 3100 square feet of dredging in salt marsh with a dredge volume of approximately 1410 cubic yards. Temporary pipe access pits within salt marsh will result in approximately 3580 square feet of temporary impacts. Construction mat impacts to salt marsh will result in approximately 40,330 square feet of temporary impacts.

Impacts to LSCSF include 3490 square feet from pipe access pits and 6310 square feet from trenching, while impacts to BLSF include 1690 square feet from pits and 6380 from trenching. No impacts from construction mats are proposed with BLSF or LSCSF. No increase in grades will occur in BLSF or LSCSF.

At access pit locations within salt marsh, the vegetation layer and subsoil will be set aside with layers in separate piles, and upon completion of work the subsoils will be replaced with

layers intact and the vegetation layer reestablished by plantings. Generally, the best time of year to reestablish salt marsh is during the spring planting season to avoid possible impacts from frost or ice during the fall planting season. The EIR should specify the schedule for saltmarsh reestablishment. Environmental monitors will regularly review construction areas to confirm that the work is being completed in accordance with applicable permit conditions. A two-year monitoring program for the reestablishment of salt marsh is proposed in the EENF, but a longer period is usually specified in USACE permits. The proposed monitoring period should be discussed fully in the EIR though consultation with USACE so that it can be consistently mandated by the Orders of Conditions issued under the Wetlands Protect Act, the MassDEP 401 WQC and the USACE 404. 4-1 4-2

There will be temporary wetland impacts within the Neponset River Estuary ACEC. Approximately 6400 linear feet of segment 2, section 22, passes through the estuary ACEC. Impacts in the ACEC will be limited to the existing alignment of the pipeline and will be restored upon completion of work. The work in wetlands in the ACEC, which is an ORW, will be able to be permitted under the provisions of the 401 Regulation at 314 CMR 9.06 (3)(a): "Projects conducted or approved by public or private water suppliers in the performance of their responsibilities and duties to protect the quality of the water in the watersheds, or to maintain, operate and improve the waterworks system, provided that such projects are implemented in accordance with applicable federal and state laws, regulations, and requirements"; and (c) "Maintenance, repair, replacement or reconstruction but not substantial enlargement of existing and lawfully located structures or facilities including buildings, roads, railways, utilities, dams, and coastal engineering structures."

The alternatives analysis presented in the EENF is at a level consistent for permitting and does a thorough job of explaining why the different treatments for pipeline segments, including replacement, cleaning or relining should be implemented. The analysis supports the proponent's conclusion that impacts to wetlands will be minimized by the chosen alternatives. It also explains the rationale justifying the locations and methodologies for stream crossings.

The MassDEP appreciates the opportunity to comment on this proposed project. Please contact Rachel.Freed@mass.gov at (978) 604-1985 for further information on wetlands issues. If you have any general questions regarding these comments, please contact me at John.D.Viola@mass.gov or at (857) 276-3161.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

John D. Viola
Deputy Regional Director

cc: Brona Simon, Massachusetts Historical Commission
Eric Worrall, Rachel Freed, MassDEP-NERO

Letter 5

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114

MEMORANDUM

TO:	Rebecca L. Tepper, Secretary, EEA
ATTN:	Alexander Strysky, MEPA Office
FROM:	Lisa Berry Engler, Director, CZM
DATE:	January 6, 2023
RE:	EEA-16633, MWRA Section 22 and 21 Water Pipeline Rehabilitation Project

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the *Environmental Monitor* dated December 7, 2022, and offers the following comments.

Project Description

The Massachusetts Water Resources Authority's (MWRA) Section 22 is a critical water pipeline that delivers drinking water to and within, Boston, Milton, and Quincy, Massachusetts. Section 22 is approximately 16,000 feet long and composed primarily of a 48-inch-diameter unlined steel pipe with dresser coupling joints. A 650-foot-long portion of Section 22 that runs under the Neponset River is constructed of 52-inch diameter concrete-lined steel pipe with welded joints. Section 21 is also a critical water pipeline composed of an approximately 3,600-foot-long, 24-inch-diameter cast iron pipe in Milton and Quincy. Over the years, Section 22 has required several repairs, and the interior of Section 21 is heavily corroded. MWRA proposes to rehabilitate portions of Section 22 and Section 21 to restore them to full function and ensure continued reliability. MWRA is proposing 43,910 square feet (sf) of temporary impacts to salt marsh and 6,460 sf of temporary impacts to Land Subject to Coastal Storm Flowage. Before issuing this ENF, MWRA issued a Request for Advisory Opinion (RAO) for pipeline Section 22 evaluation work proposed in the Neponset River Estuary Area of Critical Environmental Concern. MWRA responded to questions raised by MEPA and CZM in April 2020.

Project Comments

Resource Areas – Salt Marsh

MWRA should demonstrate in the Environmental Impact Report (EIR) how this project has been designed to ensure the salt marsh returns to pre-construction conditions. The EIR should include: 5-1

- Information on how MWRA intends to handle leftover subsoil from digging the access pits. 5-2
    - The designated staging area for the subsoil removed from the access pits should be outside of the salt marsh to the maximum extent practicable to avoid compaction of the salt marsh platform beneath the staging area.
- Monitoring and/or adaptive management actions that are planned if the post-construction salt marsh does not recover to pre-construction conditions. 5-3
    - Provide clarification on post-construction monitoring and adaptive management components of the project to confirm that the proposed impacts are temporary, and that the salt marsh is functioning at an acceptable level compared to pre-construction conditions. The monitoring protocols described in the RAO are recommended to be used as a guide for post-construction monitoring.

- Pre-construction characterization of the salt marsh vegetation on the site should be included. 5-4
    - This will inform where species such as *Spartina alterniflora* and *Spartina patens* are planted to match pre-construction conditions to the maximum extent practicable.
- Description of what actions would be taken if the dredged material does not adequately restore the salt marsh to the pre-construction elevation due to compaction from construction equipment and activities. 5-5
- More detail on the leak detection program is recommended in determining if the leaks potentially pose a risk to the salt marsh. 5-6
- Clarify the project timeline and ensure that work in the salt marsh is avoided during the summer months to create fewer impacts during the growing season. 5-7
- Additional specifics on the anchoring of the construction mats in the salt marsh. 5-8

MWRA should include a copy of the RAO and any RAO responses between MWRA and the State, and/or Federal Agencies in the EIR. 5-9

Federal Consistency Review

The proposed project may be subject to CZM federal consistency review, and if so, must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at robert.boeri@mass.gov, or visit the CZM website at www.mass.gov/federal-consistency-review-program. 5-10

LE/jy

cc: Joanna Yelen, Adrienne Pappal, Sean Duffey, CZM
Katelyn Frew, DMF
Phil DiPietro, DEP

Letter 6

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

January 4, 2023

Secretary Bethany A. Card
Executive Office of Environmental Affairs
Attn: MEPA Office
Jennifer Hughes, No. 16633
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: MWRA Section 22 and 21 Water Pipe Rehabilitation Project
Expanded Environmental Notification Form

Dear Ms. Card:

The Boston Water and Sewer Commission (Commission) has reviewed the Expanded Project Notification Form (EPNF) for the MWRA's Water Pipe Rehabilitation of Section 22 and 21. This letter provides the Commission's comments on the EENF.

The proposed project is located in Boston, Milton and Quincy. The project will rehabilitate portions of Section 22 and 21 of a water main that is composed of 48-inch-diameter unlined steel pipe and 52-inch-diameter concrete-lined steel pipe. The project will restore the pipe to full function.

The rehabilitation methods include remove and replace, clean and line and slip lining of the main depending on its location and condition.

The Commission request that the MWRA coordinate with the Commission and its Operation's department with construction schedules that could result in water service disruptions to the Commission. 6-1

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/cj

Appendix C: Environmental Justice

- MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within DGA and Project Site DPH EJ Tool Outputs
- MEPA EJ Mapper: Limited English Percentage by Census Tract within DGA
- EJ Criteria Populations within 5 Miles of Project Site Figure
- MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site
- MEPA EJ Mapper: Limited English Percentage by Census Tract within 5 miles
- DPH EJ Screen Output Report for DGA
- Other Source of Pollution listed by DPH Reported in the EENF
- RMAT Climate Resilience Design Standards Tool Output
- Updated List of Community-Based Organizations

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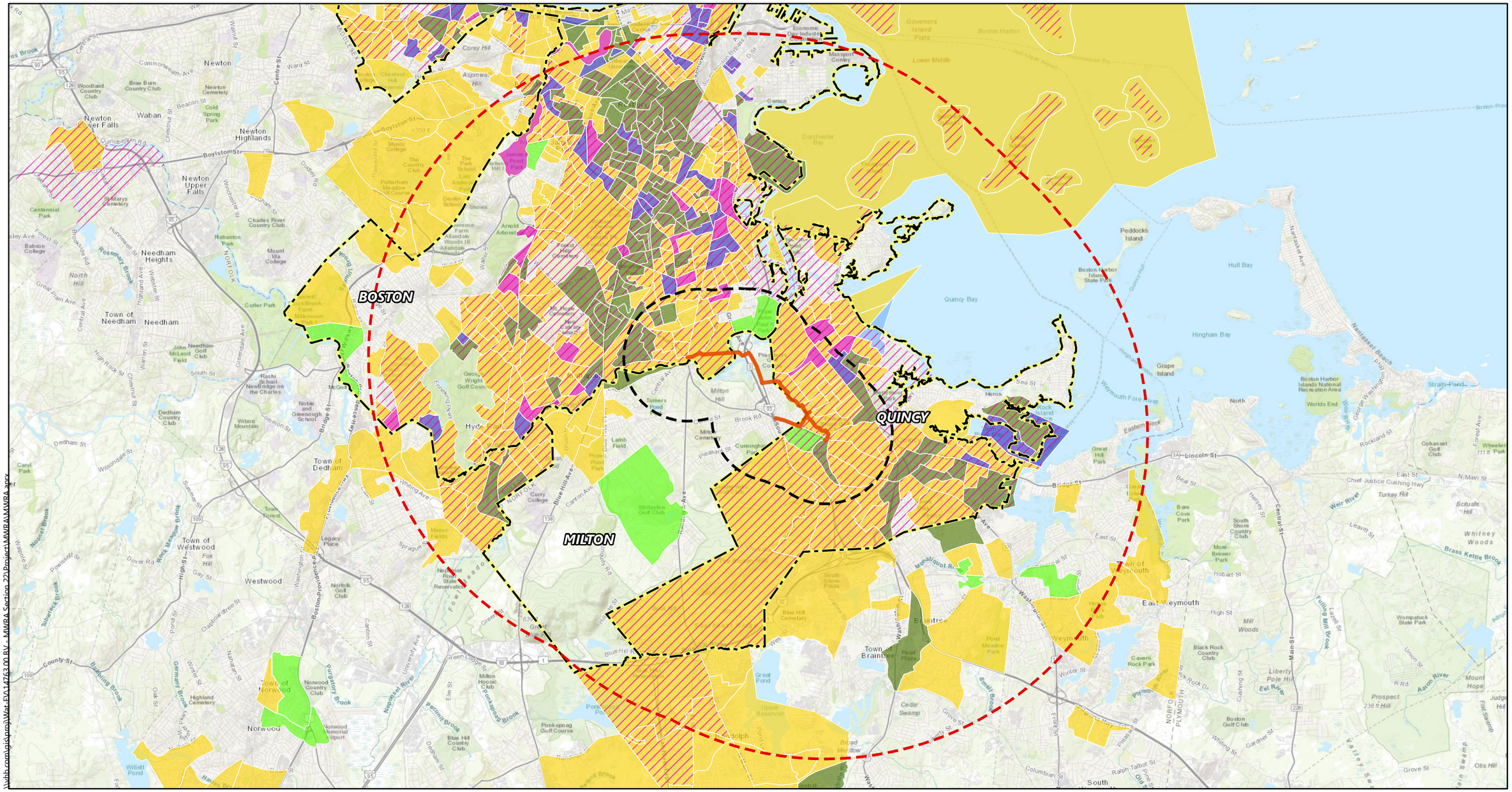
MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within DGA and Project Site								
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population	Within Project Site?
1003	1	Boston	Minority	93.5	7.0	78.7	1610	No
1003	2	Boston	Minority and income	100.0	3.5	61.1	709	No
1003	3	Boston	Minority	100.0	4.9	90.3	1147	No
1003	4	Boston	Minority and income	97.0	9.4	34.9	928	No
1004	1	Boston	Minority	89.2	13.7	0.0	2072	No
1004	2	Boston	Minority	81.4	3.8	0.0	1423	No
1004	3	Boston	Minority	90.0	5.9	106.9	941	No
1004	4	Boston	Minority and income	97.5	7.3	52.6	1604	No
1005	1	Boston	Minority	86.9	15.8	0.0	938	No
1005	2	Boston	Minority	53.0	4.6	123.2	952	No
1005	4	Boston	Minority	89.8	11.6	74.2	1081	No
1005	5	Boston	Minority, income and English isolation	99.1	27.7	53.9	1960	No
1006	4	Boston	Minority	60.4	14.9	108.6	2431	No
1007	2	Boston	Income	18.5	1.5	36.5	1126	No
1007	4	Boston	Minority	25.2	14.9	113.0	679	No
1008	1	Boston	Minority	53.2	6.4	177.3	611	No
1008	4	Boston	Minority	55.1	7.2	78.4	1496	Yes
1008	5	Boston	Minority	36.7	4.0	82.5	1139	Yes
1008	6	Boston	Minority	43.4	6.3	128.9	719	No
1008	2	Boston	Minority and English isolation	38.3	28.2	96.7	1198	No
1008	3	Boston	Minority	38.4	0.0	121.2	1067	No
1009	1	Boston	Minority	77.2	0.0	86.2	889	No

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within DGA and Project Site								
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population	Within Project Site?
1009	3	Boston	Minority	75.7	2.7	101.8	1414	Yes
1009	4	Boston	Minority	100.0	16.9	116.9	669	No
1009	5	Boston	Minority	73.0	7.2	132.4	1067	No
1009	2	Boston	Minority	72.2	16.0	83.1	645	Yes
1010	1	Boston	Minority and income	92.5	8.7	22.7	1197	No
1010	2	Boston	Minority and income	96.7	15.7	52.6	2667	No
1010	3	Boston	Minority	97.0	9.2	67.4	2798	No
4163	5	Milton	Minority and income	50.2	2.4	27.1	753	No
4171	3	Quincy	Minority	48.0	0.0	0.0	1004	Yes
4171	1	Quincy	Minority	52.1	11.8	218.6	1098	No
4171	4	Quincy	Minority	32.2	3.7	146.5	739	Yes
4171	5	Quincy	Minority	40.6	6.1	132.7	974	Yes
4171	2	Quincy	Minority	58.3	19.6	107.0	1146	No
4172	4	Quincy	Minority	32.1	12.1	65.7	602	No
4172	7	Quincy	Minority	79.7	18.3	0.0	271	No
4172	1	Quincy	Minority	58.2	17.7	98.3	2936	No
4172	3	Quincy	Minority	71.0	16.3	123.1	1017	No
4172	5	Quincy	Minority	56.7	8.9	95.6	1102	No
4172	2	Quincy	Minority and English isolation	26.8	28.9	66.8	1011	No
4172	6	Quincy	Minority	48.5	17.2	72.1	1293	Yes
4175	4	Quincy	Minority and English isolation	69.0	25.1	122.3	975	No
4175	2	Quincy	Minority and English isolation	68.8	29.0	118.2	1363	No
4175	3	Quincy	Minority	66.8	23.5	82.2	686	No
4175	1	Quincy	Minority	51.3	23.9	85.8	790	No

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within DGA and Project Site								
Census Tract	**Block Group**	**Municipality**	**EJ Criteria**	**Minority (%)**	**Limited English (%)**	**Annual Median Household Income as Percent of Statewide**	**Total Population**	**Within Project Site?**
4176	4	Quincy	Minority, income and English isolation	69.2	35.6	64.9	1294	No
4176	3	Quincy	Minority and income	55.0	22.3	51.6	1388	No
4176	2	Quincy	Minority	54.0	13.6	106.3	1612	No
4176	3	Quincy	Minority and income	60.3	22.0	36.6	1820	No
4177	3	Quincy	Minority	55.5	12.8	113.4	1826	No
4180	1	Quincy	Minority	40.3	7.3	106.1	2730	No
4180	3	Quincy	Minority	46.5	16.0	66.9	2343	No
4181	3	Quincy	Minority	28.6	0.0	95.0	732	No
4181	2	Quincy	Minority	38.4	12.9	83.4	2415	No
4181	1	Quincy	Minority	43.8	9.4	126.1	1507	No
4181	2	Quincy	Minority	36.7	6.5	75.1	2232	No
4181	1	Quincy	Minority and income	30.6	8.4	59.2	827	No
4182	4	Quincy	Minority	43.4	11.0	115.8	2245	No
4182	1	Quincy	Income	22.8	1.2	64.0	1788	Yes
4182	2	Quincy	Minority	39.3	6.1	94.3	1745	No
4182	3	Quincy	Minority	31.1	13.4	110.8	989	No

MEPA EJ Mapper: Limited English Percentage by Census Tract within DGA		
Census Tract	**Municipality**	**Languages Spoken**
1003	Boston	French Creole (5.2%)
1005	Boston	Spanish or Spanish Creole (7.6%), French Creole (5.7%), Vietnamese (5.3%)
1006.01	Boston	Vietnamese (13.8%)
1006.03	Boston	Vietnamese (5.5%)
1008	Boston	Vietnamese (6.6%)
1009	Boston	Vietnamese (6.1%)
1010.02	Boston	Spanish or Spanish Creole (9.0%),French Creole (10.1%)
1011.02	Boston	Spanish or Spanish Creole (5.4%),French Creole (11.7%)
4171	Quincy	Chinese (15.0%)
4172	Quincy	Chinese (19.6%)
4173	Quincy	Chinese (6.5%)
4175.01	Quincy	Chinese (23.4%)
4175.02	Quincy	Chinese (36.5 %)
4176.01	Quincy	Chinese (19.1%)
4176.02	Quincy	Chinese (21.8%)
4177.01	Quincy	Chinese (11.6%)
4180.03	Quincy	Chinese (6.2%)
4180.04	Quincy	Chinese (12.6%)
4181.01	Quincy	Chinese (11.2%)
4181.02	Quincy	Chinese (5.9%)
4182	Quincy	Chinese (6.2%)



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0 4000 8000 16000 Feet

- Project Alignment
- 1-Mile Environmental Justice Buffer
- 5-Mile Environmental Justice Buffer
- Town Boundary

Environmental Justice 2020 Populations

- Minority
- Income
- English isolation
- Minority and Income
- Minority and English isolation
- Income and English isolation
- Minority, Income and English isolation
- Languages spoken by at least 5% of the census tract who do not speak English Very Well

MWRA, Section 22 Rehabilitation
Advance Notification Environmental Justice Screening | Boston, Milton, Quincy, Massachusetts

Environmental Justice Populations

Source: VHB, MassGIS, Black & Veatch, ArcGIS Online

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MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
102.03	2	Boston	Minority and income	51.1	16.8	43.9	2265
102.03	3	Boston	Minority	49.9	15.4	80.1	1786
103	1	Boston	Minority, income and English isolation	29.4	28.3	18.9	1359
103	2	Boston	Minority	30.2	0.0	87.6	3992
104.03	1	Boston	Minority and income	67.3	19.1	26.8	1216
104.03	3	Boston	Minority	27.3	1.0	134.7	689
104.03	2	Boston	Minority and income	41.4	9.5	30.7	848
104.04	1	Boston	Minority and income	51.1	11.8	26.6	1928
104.04	2	Boston	Minority and income	42.1	21.6	44.4	1668
104.04	3	Boston	Minority, income and English isolation	44.0	28.0	38.1	1539
104.05	2	Boston	Minority and income	42.7	17.1	30.5	2376
104.05	1	Boston	Minority	37.3	0.0	0.0	2990
104.05	3	Boston	Minority, income and English isolation	67.0	57.6	18.1	642
104.08	1	Boston	Minority	43.8	5.2	77.3	1497
105	3	Boston	Minority	48.5	20.4	73.0	1137
105	2	Boston	Minority and English isolation	40.2	25.7	0.0	1107
105	1	Boston	Minority and income	43.2	4.9	62.4	1169
106	1	Boston	Minority	41.4	13.5	97.9	2107
605.01	5	Boston	Minority	29.0	0.0	178.1	675
607	2	Boston	Minority, income and English isolation	90.1	46.3	14.8	1433
607	1	Boston	Minority, income and English isolation	87.7	26.0	32.8	1124
608	2	Boston	Minority	34.4	14.2	167.4	1201

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
610	2	Boston	Minority, income and English isolation	89.0	26.3	28.2	1221
610	3	Boston	Minority and income	57.7	17.7	24.8	679
611.01	2	Boston	Minority, income and English isolation	86.2	32.6	14.0	1593
611.01	1	Boston	Minority and income	61.8	22.7	31.5	712
612	2	Boston	Minority	28.5	0.0	112.0	547
701.01	1	Boston	Minority	37.3	6.3	179.6	1279
702	1	Boston	Minority, income and English isolation	Of 86.6	53.8	42.7	1102
702	2	Boston	Minority, income and English isolation	100.0	54.7	23.8	976
702	3	Boston	Minority, income and English isolation	45.6	46.3	44.6	3295
703	1	Boston	Minority	36.3	17.9	0.0	1160
703	4	Boston	Minority	32.0	0.0	221.1	1545
704.02	1	Boston	Minority, income and English isolation	66.6	25.1	42.3	2701
705	4	Boston	Minority	75.6	12.0	0.0	1564
705	3	Boston	Minority	50.9	10.2	124.1	1814
705	2	Boston	Minority, income and English isolation	92.5	60.2	17.8	589
707	1	Boston	Minority	52.2	8.1	85.4	1119
707	2	Boston	Minority	34.8	1.1	186.9	1557
708	1	Boston	Minority	44.2	2.2	0.0	1705
708	2	Boston	Minority	30.3	8.8	117.2	1009
709	2	Boston	Minority and income	63.6	21.6	38.9	913
709	1	Boston	Minority	42.2	10.6	0.0	2219
711.01	2	Boston	Minority	37.5	0.0	129.9	1249
711.01	3	Boston	Minority and income	67.6	17.3	26.0	1042
711.01	1	Boston	Minority	47.2	19.5	87.1	1689

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
712.01	2	Boston	Minority, income and English isolation	92.8	34.7	16.7	1630
712.01	1	Boston	Minority	33.3	11.2	150.6	2071
801	1	Boston	Minority and income	81.5	21.9	39.1	1986
801	2	Boston	Minority and income	95.3	8.3	34.2	763
803	1	Boston	Minority and income	93.4	6.4	49.6	2205
804.01	2	Boston	Minority and income	97.1	18.7	17.4	1600
804.01	1	Boston	Minority and income	85.2	8.0	31.8	1440
805	1	Boston	Minority and income	82.5	15.4	39.8	1078
805	2	Boston	Minority and income	97.9	22.1	27.8	2522
806.01	1	Boston	Minority and income	53.7	18.5	31.7	3050
806.01	3	Boston	Minority and income	87.3	21.3	10.7	411
806.01	2	Boston	Minority and income	100.0	23.1	16.6	561
808.01	1	Boston	Minority and income	57.2	22.6	13.4	2838
808.01	2	Boston	Minority and income	95.5	17.6	36.0	1841
809	3	Boston	Minority	27.7	0.0	101.7	657
809	1	Boston	Minority	63.2	9.0	67.7	1469
809	2	Boston	Minority	27.7	0.0	76.2	1460
810.01	1	Boston	Minority	80.5	24.1	0.0	549
810.01	3	Boston	Minority	58.6	0.0	84.6	764
810.01	2	Boston	Minority, income and English isolation	78.7	36.9	27.1	2434
810.01	4	Boston	Minority and income	50.1	8.0	48.5	1258
811	3	Boston	Minority	34.9	7.8	90.5	1113
811	1	Boston	Minority and income	50.3	16.0	48.5	1171
811	2	Boston	Minority, income and English isolation	50.2	26.7	40.7	1832

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
812	2	Boston	Minority	54.9	17.5	77.6	1433
812	1	Boston	Minority and income	97.6	21.4	21.0	2279
813	3	Boston	Minority, income and English isolation	97.6	40.6	16.1	1602
813	1	Boston	Minority, income and English isolation	79.6	36.4	20.3	1473
813	2	Boston	Minority and English isolation	89.0	26.0	0.0	1810
814	1	Boston	Minority and income	75.8	14.6	52.7	826
814	2	Boston	Minority and income	43.3	0.0	58.0	601
814	3	Boston	Minority	64.6	0.0	83.4	1497
815	1	Boston	Minority and income	80.5	6.2	55.7	1072
815	2	Boston	Minority and income	91.6	17.2	37.6	1735
817	1	Boston	Minority and income	97.1	18.8	24.7	445
817	2	Boston	Minority, income and English isolation	94.6	25.0	41.8	1007
817	4	Boston	Minority, income and English isolation	97.0	25.6	41.7	820
817	5	Boston	Minority and income	94.3	9.8	50.4	978
817	3	Boston	Minority and income	100.0	0.0	32.3	740
818	1	Boston	Minority and income	92.9	22.0	25.6	1260
818	2	Boston	Minority and income	93.8	15.9	51.6	977
818	3	Boston	Minority and income	94.5	10.1	28.3	1063
819	2	Boston	Minority and income	96.6	17.5	19.1	874
819	3	Boston	Minority	84.9	0.0	0.0	470
819	4	Boston	Minority, income and English isolation	100.0	33.0	31.7	1179
819	1	Boston	Minority and income	97.0	10.4	42.0	1181
820	1	Boston	Minority	91.2	8.4	76.1	1654
820	2	Boston	Minority and income	100.0	13.2	56.7	680

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
820	3	Boston	Minority and income	98.7	13.4	43.7	1087
821	2	Boston	Minority	96.7	10.2	0.0	2720
821	1	Boston	Minority	83.2	21.5	0.0	855
821	3	Boston	Minority and income	92.5	23.4	27.2	2423
901	4	Boston	Minority and income	100.0	14.1	54.5	1081
901	1	Boston	Minority, income and English isolation	97.2	27.3	25.8	1241
901	2	Boston	Minority and income	96.4	16.8	38.8	814
901	3	Boston	Minority and income	98.9	8.6	55.8	821
901	5	Boston	Minority and income	91.1	8.1	62.6	1069
902	1	Boston	Minority and income	97.5	21.3	33.3	513
902	2	Boston	Minority, income and English isolation	95.8	35.0	19.1	743
902	3	Boston	Minority, income and English isolation	100.0	25.0	37.9	1092
903	2	Boston	Minority and income	95.7	23.1	32.4	1411
903	1	Boston	Minority and income	91.4	23.0	37.0	765
903	3	Boston	Minority and income	98.4	0.0	36.9	919
904	2	Boston	Minority	100.0	23.9	0.0	1799
904	1	Boston	Minority and income	98.0	0.0	57.0	843
904	3	Boston	Minority and income	97.1	19.8	33.8	947
904	4	Boston	Minority	97.4	2.8	93.6	807
906	1	Boston	Minority and income	91.4	16.7	58.5	1153
906	2	Boston	Minority and income	97.4	24.2	57.4	1587
907	1	Boston	Minority	32.5	7.6	95.1	1028
907	3	Boston	Minority	39.2	21.8	0.0	1013
907	2	Boston	Minority	27.9	23.8	86.1	1181

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
909.01	1	Boston	Minority and income	83.3	17.3	33.3	1737
909.01	2	Boston	Minority and income	67.1	13.9	26.1	1916
910.01	2	Boston	Minority and English isolation	39.6	28.0	0.0	666
910.01	4	Boston	Minority	35.3	0.0	99.9	666
910.01	1	Boston	Minority and English isolation	83.1	38.2	0.0	965
911	4	Boston	Minority	64.7	9.9	97.4	859
911	5	Boston	Minority	56.5	22.3	112.0	598
911	2	Boston	Minority	31.6	10.6	96.6	953
911	3	Boston	Minority and income	47.4	21.5	53.9	616
911	1	Boston	Minority	45.5	11.0	114.1	1792
912	1	Boston	Minority	66.9	18.0	91.1	1494
912	2	Boston	Minority	60.7	11.9	70.7	1329
912	3	Boston	Minority	47.3	13.2	136.0	552
913	1	Boston	Minority and income	85.8	19.8	55.6	1365
913	2	Boston	Minority and income	99.7	18.6	36.9	1311
914	2	Boston	Minority	93.2	6.2	73.8	1183
914	1	Boston	Minority, income and English isolation	91.9	25.0	42.6	2061
915	1	Boston	Minority, income and English isolation	76.8	25.7	62.2	2180
915	2	Boston	Minority	95.9	20.6	69.8	2043
915	3	Boston	Minority and income	91.6	23.4	36.4	969
916	1	Boston	Minority	78.9	16.9	73.0	1643
916	2	Boston	Minority	92.0	21.5	0.0	1014
916	3	Boston	Minority, income and English isolation	66.7	34.6	21.6	432
917	3	Boston	Minority and income	100.0	21.0	41.9	741

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
917	2	Boston	Minority, income and English isolation	99.4	26.3	51.8	1076
917	1	Boston	Minority and income	91.2	16.4	59.7	1450
918	1	Boston	Minority	94.9	14.8	0.0	1344
918	2	Boston	Minority and English isolation	98.8	26.4	0.0	1276
918	3	Boston	Minority and income	91.7	16.2	30.6	959
919	1	Boston	Minority and income	88.6	9.8	31.1	1019
919	3	Boston	Minority and income	99.5	7.2	63.7	1702
919	4	Boston	Minority	97.4	21.7	84.5	690
919	2	Boston	Minority	93.3	11.3	69.1	1117
920	1	Boston	Minority, income and English isolation	89.7	28.4	58.0	1463
920	2	Boston	Minority	89.9	7.6	76.7	2046
920	3	Boston	Minority and English isolation	93.9	28.1	88.9	831
920	4	Boston	Minority and income	97.9	8.6	56.8	1250
921.01	4	Boston	Minority, income and English isolation	80.8	34.3	48.2	1427
921.01	1	Boston	Minority	63.6	17.1	73.5	985
921.01	5	Boston	Minority, income and English isolation	75.1	27.3	63.4	2676
921.01	2	Boston	Minority and English isolation	83.1	42.5	0.0	1347
921.01	3	Boston	Minority	44.0	0.0	120.4	886
922	1	Boston	Minority	67.5	12.0	137.9	856
922	3	Boston	Minority	85.1	9.4	73.3	1109
922	2	Boston	Minority	76.2	6.6	121.1	864
922	4	Boston	Minority and income	67.5	0.0	44.9	453
923	2	Boston	Minority and income	94.8	16.3	47.2	752
923	3	Boston	Minority	92.4	7.2	99.2	1285

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
923	1	Boston	Minority	99.3	11.7	78.4	866
923	4	Boston	Minority and income	100.0	14.1	61.3	540
924	3	Boston	Minority and income	100.0	6.1	54.7	2423
924	4	Boston	Minority and income	100.0	22.0	23.4	1421
924	1	Boston	Minority and income	100.0	20.9	65.4	955
924	2	Boston	Minority and income	94.6	4.7	32.6	875
924	5	Boston	Minority and English isolation	100.0	43.2	0.0	739
1001	2	Boston	Minority and income	100.0	11.4	49.0	1144
1001	1	Boston	Minority	90.1	0.0	0.0	625
1001	4	Boston	Minority and income	92.4	21.2	64.0	923
1001	7	Boston	Minority	100.0	17.1	0.0	1041
1001	6	Boston	Minority and income	99.4	10.8	17.8	1235
1001	3	Boston	Minority and income	100.0	18.9	38.4	1356
1001	5	Boston	Minority	98.5	0.0	0.0	689
1002	1	Boston	Minority	96.8	3.2	70.2	1254
1002	2	Boston	Minority and income	97.7	0.0	45.5	664
1002	3	Boston	Minority and income	99.6	3.4	49.2	1410
1003	1	Boston	Minority	93.5	7.0	78.7	1610
1003	2	Boston	Minority and income	100.0	3.5	61.1	709
1003	3	Boston	Minority	100.0	4.9	90.3	1147
1003	4	Boston	Minority and income	97.0	9.4	34.9	928
1004	1	Boston	Minority	89.2	13.7	0.0	2072
1004	2	Boston	Minority	81.4	3.8	0.0	1423
1004	3	Boston	Minority	90.0	5.9	106.9	941

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1004	4	Boston	Minority and income	97.5	7.3	52.6	1604
1005	1	Boston	Minority	86.9	15.8	0.0	938
1005	2	Boston	Minority	53.0	4.6	123.2	952
1005	3	Boston	Minority and English isolation	75.5	29.1	0.0	1692
1005	4	Boston	Minority	89.8	11.6	74.2	1081
1005	5	Boston	Minority, income and English isolation	99.1	27.7	53.9	1960
1006	4	Boston	Minority	60.4	14.9	108.6	2431
1006.01	4	Boston	Minority	60.4	14.9	108.6	2431
1006.01	2	Boston	Minority	65.8	0.0	74.5	1147
1006.01	1	Boston	Minority	41.6	11.5	110.5	1057
1006.01	3	Boston	Minority	81.1	3.8	76.7	1686
1007	2	Boston	Income	18.5	1.5	36.5	1126
1007	4	Boston	Minority	25.2	14.9	113.0	679
1008	1	Boston	Minority	53.2	6.4	177.3	611
1008	4	Boston	Minority	55.1	7.2	78.4	1496
1008	5	Boston	Minority	36.7	4.0	82.5	1139
1008	6	Boston	Minority	43.4	6.3	128.9	719
1008	2	Boston	Minority and English isolation	38.3	28.2	96.7	1198
1008	3	Boston	Minority	38.4	0.0	121.2	1067
1009	1	Boston	Minority	77.2	0.0	86.2	889
1009	3	Boston	Minority	75.7	2.7	101.8	1414
1009	4	Boston	Minority	100.0	16.9	116.9	669
1009	5	Boston	Minority	73.0	7.2	132.4	1067
1009	2	Boston	Minority	72.2	16.0	83.1	645

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1010	1	Boston	Minority and income	92.5	8.7	22.7	1197
1010	2	Boston	Minority and income	96.7	15.7	52.6	2667
1010	3	Boston	Minority	97.0	9.2	67.4	2798
1010.01	4	Boston	Minority and income	100.0	0.0	39.1	1460
1010.01	3	Boston	Minority, income and English isolation	100.0	24.9	52.2	1045
1010.01	6	Boston	Minority	95.3	23.4	88.6	1675
1010.01	2	Boston	Minority and English isolation	100.0	47.0	0.0	189
1010.01	1	Boston	Minority	98.2	14.9	0.0	777
1010.01	5	Boston	Minority	98.3	16.5	88.9	868
1010.02	1	Boston	Minority and income	92.5	8.7	22.7	1197
1010.02	2	Boston	Minority and income	96.7	15.7	52.6	2667
1010.02	3	Boston	Minority	97.0	9.2	67.4	2798
1011.01	1	Boston	Minority and income	97.0	0.0	41.2	877
1011.01	2	Boston	Minority and income	99.2	4.1	64.8	1458
1011.01	3	Boston	Minority and income	100.0	11.8	52.3	1257
1011.02	1	Boston	Minority and income	100.0	18.8	62.5	787
1011.02	2	Boston	Minority and income	99.3	18.1	57.5	1812
1011.02	3	Boston	Minority and income	98.3	11.9	60.0	1077
1011.02	4	Boston	Minority and income	96.0	16.4	31.8	1589
1101.03	4	Boston	Minority and income	84.3	17.5	61.2	700
1101.03	2	Boston	Minority and income	76.0	12.8	52.9	659
1101.03	5	Boston	Minority	34.9	2.0	155.7	1655
1101.03	7	Boston	Minority	86.0	16.7	68.5	1573
1101.03	3	Boston	Minority and English isolation	54.6	42.3	0.0	463

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1101.03	1	Boston	Minority	26.7	3.8	116.4	989
1102.01	1	Boston	Minority and income	86.6	19.6	52.7	2534
1103.01	1	Boston	Minority	84.5	5.2	71.9	1332
1103.01	2	Boston	Minority	38.4	4.2	118.2	1324
1104.01	2	Boston	Minority	42.7	1.4	86.5	1830
1104.01	1	Boston	Minority and English isolation	85.0	31.8	68.8	1977
1104.03	1	Boston	Minority and income	80.1	23.6	55.3	1075
1104.03	4	Boston	Minority	34.7	7.5	148.8	1059
1104.03	5	Boston	Minority	47.6	2.7	120.9	1066
1104.03	2	Boston	Minority	41.7	0.0	133.3	1107
1104.03	3	Boston	Minority	46.3	0.0	137.6	574
1105.01	2	Boston	Minority	27.7	4.7	109.9	1345
1105.02	1	Boston	Minority	53.1	13.2	140.8	1988
1105.02	2	Boston	Minority	51.9	15.8	89.9	2030
1105.02	3	Boston	Minority	49.0	11.3	0.0	722
1106.01	2	Boston	Minority	24.6	14.6	161.2	1134
1106.07	1	Boston	Minority	43.0	0.0	157.7	1051
1201.04	2	Boston	Minority	60.6	14.0	96.3	777
1202.01	1	Boston	Minority	49.8	10.2	102.9	1432
1202.01	3	Boston	Minority	44.7	2.8	98.0	608
1202.01	2	Boston	Minority	55.5	20.8	77.0	1951
1203.01	3	Boston	Minority	52.1	12.6	103.8	1467
1203.01	2	Boston	Minority	73.0	9.4	73.2	811
1203.01	4	Boston	Minority	50.1	1.7	114.1	1509

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1203.01	1	Boston	Minority	59.1	23.7	150.3	1539
1204	3	Boston	Minority	29.4	0.0	146.9	1166
1204	2	Boston	Minority	42.5	5.5	107.7	635
1204	5	Boston	Income	22.1	15.4	40.2	1409
1205	2	Boston	Minority	50.7	9.1	117.9	918
1205	1	Boston	Minority	49.4	15.8	119.6	1017
1205	3	Boston	Minority	74.9	13.6	84.2	915
1206	1	Boston	Minority	42.7	0.0	140.0	1027
1206	2	Boston	Minority	29.8	0.0	117.7	668
1206	3	Boston	Minority	28.3	0.0	138.8	812
1207	2	Boston	Minority	31.7	5.3	107.4	1382
1207	1	Boston	Minority	54.7	8.8	115.0	861
1301	1	Boston	Minority	26.1	0.0	129.2	943
1301	2	Boston	Minority	45.7	6.9	120.1	1886
1301	6	Boston	Minority	39.6	0.0	137.3	278
1303	4	Boston	Minority	25.4	0.0	102.0	1193
1304.02	5	Boston	Minority	51.1	0.0	148.1	961
1304.02	2	Boston	Income	22.4	3.9	46.7	790
1304.04	1	Boston	Minority	50.8	5.5	66.9	2304
1304.04	3	Boston	Minority	33.6	7.7	100.6	348
1304.06	2	Boston	Minority	55.9	17.5	71.2	2579
1304.06	3	Boston	Minority and English isolation	45.7	28.5	79.4	510
1304.06	1	Boston	Minority, income and English isolation	92.1	31.6	45.4	2995
1401.02	2	Boston	Minority	56.5	3.7	83.0	1651

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1401.02	3	Boston	Minority	47.7	4.4	151.0	960
1401.02	4	Boston	Minority	74.5	4.4	119.8	1400
1401.02	1	Boston	Minority	90.6	9.1	142.2	1768
1401.05	2	Boston	Minority	89.2	0.0	124.4	1386
1401.05	1	Boston	Minority	60.4	4.1	100.7	2713
1401.06	2	Boston	Minority, income and English isolation	95.4	26.6	31.5	798
1401.06	1	Boston	Minority and income	76.2	14.6	49.8	1501
1401.07	2	Boston	Minority	72.4	7.0	92.0	934
1401.07	1	Boston	Minority	66.2	12.8	103.2	1978
1402.01	1	Boston	Minority and income	67.6	12.7	57.3	994
1402.01	2	Boston	Minority	54.6	0.8	107.6	1460
1402.02	1	Boston	Minority	82.2	11.1	100.6	1139
1402.02	5	Boston	Minority	37.3	5.3	133.8	873
1402.02	4	Boston	Minority	68.1	13.3	84.3	1679
1402.02	2	Boston	Minority and income	89.9	9.9	61.8	1720
1402.02	3	Boston	Minority	55.0	14.0	75.7	1463
1403	3	Boston	Minority	86.5	14.4	0.0	2155
1403	6	Boston	Minority	86.7	19.1	77.7	984
1403	5	Boston	Minority and English isolation	84.3	35.4	0.0	1624
1403	1	Boston	Minority, income and English isolation	93.0	38.8	35.8	803
1403	2	Boston	Minority	81.4	11.4	76.9	1290
1403	4	Boston	Minority	82.0	0.0	175.7	894
1404	1	Boston	Minority and English isolation	96.9	29.8	0.0	639
1404	2	Boston	Minority	97.4	0.0	80.6	919

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
1404	3	Boston	Minority	100.0	0.0	112.7	1237
1404	4	Boston	Minority and income	100.0	0.0	39.5	550
1404	5	Boston	Minority	87.7	0.0	97.2	1714
1404	6	Boston	Minority	95.4	15.7	67.2	2788
1404	7	Boston	Minority	82.7	7.5	67.2	1209
9801.01	1	Boston	Minority	61.7	0.0	0.0	457
9803	1	Boston	Minority	52.4	0.0	0.0	380
9811	4	Boston	Minority and income	79.0	0.0	51.7	438
9818	1	Boston	Minority and English isolation	31.3	28.6	0.0	32
9901.01	0	Boston	Minority	100.0	0.0	0.0	67
4191	1	Braintree	Minority	33.8	3.0	118.9	2169
4191	4	Braintree	Minority	38.3	5.4	96.0	820
4192	3	Braintree	Minority	33.2	0.0	137.1	582
4193	4	Braintree	Minority	27.3	0.0	163.9	1101
4193	1	Braintree	Minority and income	44.1	19.0	59.7	1627
4193	3	Braintree	Income	14.6	3.1	51.6	760
4194	3	Braintree	Minority	29.8	6.5	111.7	1427
4195	2	Braintree	Minority	28.8	2.8	142.9	2316
4197	1	Braintree	Minority	42.5	6.4	130.8	1736
4198	2	Braintree	Minority and income	30.5	4.2	54.3	1330
4006	2	Brookline	Minority	37.2	3.5	188.0	3285
4006	3	Brookline	Minority	29.0	4.1	291.2	839
4007	1	Brookline	Minority	30.1	10.3	142.0	1058
4008	1	Brookline	Minority	39.2	19.8	148.7	1003

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
4009	1	Brookline	Minority	38.2	16.5	101.0	1590
4009	2	Brookline	Minority and income	39.7	13.2	19.0	476
4009	3	Brookline	Minority	25.8	4.0	137.5	2023
4010	3	Brookline	Minority	50.3	8.5	81.5	1804
4010	1	Brookline	Minority	28.1	2.1	175.6	825
4011	1	Brookline	Minority	33.8	4.6	140.7	1481
4012	1	Brookline	Minority	30.1	15.5	139.3	1986
4012	2	Brookline	Minority	36.9	3.4	226.6	1140
4012	3	Brookline	Minority	41.1	15.2	134.2	1897
4012	4	Brookline	Minority	42.5	1.8	221.9	2072
4021.02	3	Dedham	Minority	48.2	0.0	70.2	939
4021.02	2	Dedham	Minority	31.7	0.0	121.6	1162
4021.02	4	Dedham	Minority	33.9	3.6	122.8	1331
4022	2	Dedham	Minority	25.9	2.6	144.2	1488
4024	1	Dedham	Minority	37.6	0.0	67.6	929
4024	2	Dedham	Minority	28.9	0.0	193.7	755
4161.01	4	Milton	Income	15.7	0.0	52.3	1203
4162	1	Milton	Minority	68.1	0.0	147.0	1367
4162	5	Milton	Minority	69.5	6.8	138.0	822
4162	6	Milton	Minority	55.1	3.3	161.5	1331
4162	7	Milton	Minority	85.0	5.8	124.4	1478
4163	2	Milton	Minority	51.1	1.8	138.7	981
4163	5	Milton	Minority and income	50.2	2.4	27.1	753
4171	3	Quincy	Minority	48.0	0.0	0.0	1004

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
4171	1	Quincy	Minority	52.1	11.8	218.6	1098
4171	4	Quincy	Minority	32.2	3.7	146.5	739
4171	5	Quincy	Minority	40.6	6.1	132.7	974
4171	2	Quincy	Minority	58.3	19.6	107.0	1146
4172	4	Quincy	Minority	32.1	12.1	65.7	602
4172	7	Quincy	Minority	79.7	18.3	0.0	271
4172	1	Quincy	Minority	58.2	17.7	98.3	2936
4172	3	Quincy	Minority	71.0	16.3	123.1	1017
4172	5	Quincy	Minority	56.7	8.9	95.6	1102
4172	2	Quincy	Minority and English isolation	26.8	28.9	66.8	1011
4172	6	Quincy	Minority	48.5	17.2	72.1	1293
4173	2	Quincy	Minority	29.2	7.7	150.8	1317
4175	4	Quincy	Minority and English isolation	69.0	25.1	122.3	975
4175	2	Quincy	Minority and English isolation	68.8	29.0	118.2	1363
4175	3	Quincy	Minority	66.8	23.5	82.2	686
4175	1	Quincy	Minority	51.3	23.9	85.8	790
4175.01	2	Quincy	Minority	53.9	17.6	106.9	1648
4175.01	4	Quincy	Minority and English isolation	69.0	25.1	122.3	975
4175.01	3	Quincy	Minority	41.0	5.5	77.7	1598
4175.02	2	Quincy	Minority and English isolation	68.8	29.0	118.2	1363
4175.02	4	Quincy	Minority	54.8	14.4	93.1	1647
4175.02	3	Quincy	Minority	66.8	23.5	82.2	686
4175.02	1	Quincy	Minority	51.3	23.9	85.8	790
4176	4	Quincy	Minority, income and English isolation	69.2	35.6	64.9	1294

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
4176	3	Quincy	Minority and income	55.0	22.3	51.6	1388
4176	2	Quincy	Minority	54.0	13.6	106.3	1612
4176.01	1	Quincy	English isolation	16.3	25.0	83.3	473
4176.01	2	Quincy	Minority	36.2	2.1	119.4	1657
4176.01	4	Quincy	Minority, income and English isolation	69.2	35.6	64.9	1294
4176.01	3	Quincy	Minority and income	55.0	22.3	51.6	1388
4176.02	2	Quincy	Minority	54.0	13.6	106.3	1612
4176.02	3	Quincy	Minority and income	60.3	22.0	36.6	1820
4177	3	Quincy	Minority	55.5	12.8	113.4	1826
4177.01	4	Quincy	Minority and income	37.7	13.8	52.9	1537
4177.01	3	Quincy	Minority	55.5	12.8	113.4	1826
4177.01	2	Quincy	Minority and income	29.4	18.6	35.1	877
4177.02	2	Quincy	Minority	41.2	13.1	80.1	1148
4178.02	1	Quincy	Minority and income	35.6	17.8	57.3	1743
4178.02	2	Quincy	Minority, income and English isolation	68.3	27.9	23.0	1535
4179.01	2	Quincy	Minority and income	42.4	14.7	43.2	2114
4179.01	1	Quincy	Minority	37.0	15.9	76.1	2182
4179.01	3	Quincy	Minority	30.2	15.2	68.7	1280
4179.01	4	Quincy	Minority, income and English isolation	54.3	30.8	40.1	641
4179.01	5	Quincy	Minority	52.6	7.5	72.2	722
4179.02	1	Quincy	Minority	44.7	14.2	111.4	1388
4179.02	3	Quincy	Minority and income	42.8	10.7	63.7	1058
4179.02	2	Quincy	Minority and income	32.9	4.6	62.6	1277
4180	1	Quincy	Minority	40.3	7.3	106.1	2730

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
4180	3	Quincy	Minority	46.5	16.0	66.9	2343
4180.02	5	Quincy	Minority	77.8	19.0	91.3	2066
4180.02	4	Quincy	Minority	49.2	6.8	106.9	1527
4180.02	1	Quincy	Minority	38.4	4.2	84.6	1418
4180.03	1	Quincy	Minority	40.3	7.3	106.1	2730
4180.04	2	Quincy	Minority	49.8	4.8	96.6	826
4180.04	1	Quincy	Minority and income	50.2	14.8	63.3	1506
4180.04	3	Quincy	Minority	46.5	16.0	66.9	2343
4181	3	Quincy	Minority	28.6	0.0	95.0	732
4181	2	Quincy	Minority	38.4	12.9	83.4	2415
4181	1	Quincy	Minority	43.8	9.4	126.1	1507
4181.01	3	Quincy	Minority	28.6	0.0	95.0	732
4181.01	2	Quincy	Minority	38.4	12.9	83.4	2415
4181.01	1	Quincy	Minority	43.8	9.4	126.1	1507
4181.02	2	Quincy	Minority	36.7	6.5	75.1	2232
4181.02	1	Quincy	Minority and income	30.6	8.4	59.2	827
4182	4	Quincy	Minority	43.4	11.0	115.8	2245
4182	1	Quincy	Income	22.8	1.2	64.0	1788
4182	2	Quincy	Minority	39.3	6.1	94.3	1745
4182	3	Quincy	Minority	31.1	13.4	110.8	989
4201	1	Randolph	Minority	74.5	20.8	109.7	693
4201	2	Randolph	Minority	51.2	5.8	88.1	740
4201	4	Randolph	Minority	75.9	11.9	96.5	3417
4201	5	Randolph	Minority	76.6	8.7	125.3	3327

MEPA EJ Mapper: EJ Criteria Census Tract Block Groups within 5 Miles of Project Site							
Census Tract	Block Group	Municipality	EJ Criteria	Minority (%)	Limited English (%)	Annual Median Household Income as Percent of Statewide	Total Population
4202.02	1	Randolph	Minority	65.8	11.2	92.2	1281
4202.02	2	Randolph	Minority	63.1	16.7	99.6	1513
4201	3	Randolph	Minority	65.4	0.0	169.6	1071
4202.01	2	Randolph	Minority	73.3	8.0	79.7	2575
4202.01	1	Randolph	Minority	78.8	8.6	161.1	784
4202.02	3	Randolph	Minority	69.7	1.5	90.1	3663
4224	1	Weymouth	Income	18.4	0.0	34.9	835
4224	5	Weymouth	Minority	29.3	6.3	95.0	3118
4225.02	1	Weymouth	Minority	28.1	11.5	74.7	914
4225.02	3	Weymouth	Minority	38.8	0.0	86.9	2200
4226	2	Weymouth	Minority	26.3	2.8	108.1	1321
4227	3	Weymouth	Minority	26.6	0.0	109.2	700

MEPA EJ Mapper: Limited English Percentage by Census Tract within 5 miles							
Census Tract	Municipality	Spanish or Spanish Creole (%)	French Creole (%)	Portuguese or Portuguese Creole (%)	Chinese (%)	Vietnamese (%)	African Languages (%)
610	Boston	11.2	1.4	0.0	5.7	0.7	0.8
910.01	Boston	1.0	0.1	4.9	1.9	17.4	0.0
912	Boston	4.6	1.9	2.5	0.0	0.4	0.0
920	Boston	13.0	5.5	4.5	0.0	6.8	1.6
1001	Boston	9.8	5.4	0.7	0.0	0.0	0.6
1003	Boston	2.6	5.2	0.0	0.3	1.5	0.2
1010.01	Boston	3.1	15.5	0.0	0.0	0.0	0.0
1104.01	Boston	9.8	5.1	0.0	0.7	0.0	1.4
1105.02	Boston	6.6	1.0	0.6	0.0	0.0	0.0
9803	Boston	18.3	1.7	0.0	0.0	0.0	0.0
819	Boston	11.9	1.1	2.1	0.0	0.0	0.5
903	Boston	11.8	3.8	0.7	0.0	0.0	0.4
702	Boston	0.4	0.0	0.0	46.7	0.0	0.0
703	Boston	0.0	0.0	1.1	8.0	0.0	0.0
708	Boston	1.5	0.0	0.0	1.3	0.0	2.9
711.01	Boston	6.9	0.4	0.0	3.3	0.0	0.0
803	Boston	14.7	0.7	0.0	0.0	0.0	1.6
811	Boston	8.2	0.5	0.1	4.6	0.0	0.0
818	Boston	12.2	2.9	0.0	0.0	0.0	3.5
901	Boston	11.2	6.3	0.9	0.0	0.0	0.0
907	Boston	7.3	1.3	1.7	2.0	7.8	0.0
909.01	Boston	5.1	0.0	0.0	14.4	0.8	0.7
911	Boston	1.8	4.3	0.5	0.7	17.8	0.0
918	Boston	5.5	7.6	5.5	0.1	0.0	1.0
919	Boston	10.4	6.5	1.1	0.1	0.6	1.2
1402.02	Boston	7.2	2.4	0.0	0.0	0.0	0.0

MEPA EJ Mapper: Limited English Percentage by Census Tract within 5 miles							
Census Tract	Municipality	Spanish or Spanish Creole (%)	French Creole (%)	Portuguese or Portuguese Creole (%)	Chinese (%)	Vietnamese (%)	African Languages (%)
1205	Boston	16.0	1.6	0.5	0.0	0.0	0.1
1207	Boston	10.1	0.0	0.0	3.5	0.3	0.0
1401.02	Boston	4.3	7.2	0.0	0.9	0.0	0.7
1401.05	Boston	8.1	5.7	0.0	0.0	0.4	0.0
9801.01	Boston	6.4	1.8	0.0	0.0	0.0	0.0
9811	Boston	9.8	0.0	0.0	0.0	0.0	0.9
924	Boston	8.4	5.6	0.0	0.0	0.0	0.0
1005	Boston	7.6	5.7	0.0	0.0	5.3	0.0
1006.03	Boston	1.4	0.0	0.0	0.0	5.5	0.0
1008	Boston	0.0	2.8	0.5	0.2	6.6	0.0
1011.02	Boston	5.4	11.7	0.7	0.0	0.3	0.3
1101.03	Boston	12.4	1.4	0.0	3.9	0.1	0.0
921.01	Boston	4.1	1.7	0.6	0.0	27.2	0.0
923	Boston	5.2	7.5	0.2	0.0	0.0	0.0
915	Boston	8.7	14.5	5.0	0.9	2.7	0.8
1006.01	Boston	2.5	1.0	4.1	0.0	13.8	0.0
1203.01	Boston	17.6	0.0	0.4	0.1	0.0	0.0
1304.06	Boston	11.2	6.4	0.0	2.4	0.5	0.3
1104.03	Boston	9.1	7.2	0.0	0.8	0.0	1.1
806.01	Boston	4.8	1.0	1.2	2.9	0.1	1.1
1010.02	Boston	9.0	10.1	0.6	0.2	0.0	0.0
1402.01	Boston	3.6	7.7	0.8	0.0	0.4	0.0
1403	Boston	8.5	10.0	0.5	0.0	0.0	1.0
709	Boston	6.5	0.0	0.0	3.7	0.0	2.6
815	Boston	10.8	1.5	1.2	1.0	0.4	1.0
917	Boston	14.5	5.1	5.8	0.0	4.0	0.0

MEPA EJ Mapper: Limited English Percentage by Census Tract within 5 miles							
Census Tract	Municipality	Spanish or Spanish Creole (%)	French Creole (%)	Portuguese or Portuguese Creole (%)	Chinese (%)	Vietnamese (%)	African Languages (%)
805	Boston	22.9	0.0	0.0	1.4	0.6	0.8
820	Boston	7.8	1.5	0.5	0.0	0.0	0.0
914	Boston	13.1	6.0	7.1	0.0	0.0	0.4
902	Boston	25.0	3.1	1.1	0.0	1.2	7.9
705	Boston	4.5	0.0	1.0	7.9	0.0	0.0
701.01	Boston	0.4	0.5	0.0	9.8	0.0	0.0
1404	Boston	4.0	7.0	0.0	0.0	0.0	0.2
706	Boston	0.0	0.0	0.0	6.2	0.0	0.0
4171	Quincy	0.4	0.0	0.0	15.0	0.2	0.0
4175.02	Quincy	0.0	0.0	0.0	36.5	1.0	0.0
4179.01	Quincy	1.0	0.8	0.2	6.2	4.6	0.0
4176.01	Quincy	0.7	0.0	0.0	19.1	0.2	0.0
4177.01	Quincy	0.3	0.8	0.0	11.6	1.1	0.0
4180.04	Quincy	0.9	0.0	1.9	12.6	4.5	0.0
4181.02	Quincy	2.0	0.0	1.0	5.9	1.8	0.0
4182	Quincy	1.5	2.4	1.1	6.2	0.7	0.0
4173	Quincy	0.8	0.0	0.0	6.5	0.4	0.0
4175.01	Quincy	0.7	0.0	0.0	23.4	3.1	0.0
4202.02	Randolph	0.2	6.8	1.8	0.4	4.0	0.0

DPH EJ Screen Output Report for DGA					
Municipality	**Census Tract**	**DPH Health Criteria**	**Statistical Significance**	**Rate per 1,000**	**Statewide Rate per 1,0000**
Boston	1003	Low Birth Weight	Not statistically significantly different	426.5	216.800
Boston	1003	Elevated Blood Lead Prevalence	Not statistically different	19.4	14.985
Boston	1004	Low Birth Weight	Not statistically significantly different	391.5	216.800
Boston	1004	Elevated Blood Lead Prevalence	Not statistically different	18	14.985
Boston	1005	Low Birth Weight	Not statistically significantly different	343	216.800
Boston	1005	Elevated Blood Lead Prevalence	Not statistically different	16.6	14.985
Boston	1006	Low Birth Weight	Not statistically significantly different	408.8	216.800
Boston	1006	Elevated Blood Lead Prevalence	Not statistically different	24.8	14.985
Boston	1008	Low Birth Weight	Not statistically significantly different	264	216.800
Boston	1008	Elevated Blood Lead Prevalence	Statistically significantly higher	35.2	14.985
Boston	1009	Elevated Blood Lead Prevalence	Not statistically different	22.9	14.985
Boston	1010	Low Birth Weight	Not statistically significantly different	402.3	216.800
Boston	-	Heart Attack	Statistically Significant Lower	23.8	26.420
Boston	-	Childhood Asthma	Statistically Significantly Higher	172.8	83.100
Milton	4163	Elevated Blood Lead Prevalence	Not statistically different	22.5	14.985
Milton	-	Heart Attack	Statistically Significant Lower	21.5	26.420

DPH EJ Screen Output Report for DGA					
Municipality	**Census Tract**	**DPH Health Criteria**	**Statistical Significance**	**Rate per 1,000**	**Statewide Rate per 1,0000**
Milton	-	Childhood Asthma	Statistically Significant Lower	61.8	83.100
Quincy	4171	Low Birth Weight	Not statistically significantly different	266.2	216.800
Quincy	4175	Low Birth Weight	Not statistically significantly different	289.4	216.800
Quincy	4177	Low Birth Weight	Not statistically significantly different	242.4	216.800
Quincy	4177	Elevated Blood Lead Prevalence	Not statistically different	16.6	14.985
Quincy	4180	Low Birth Weight	Not statistically significantly different	365.9	216.800
Quincy	4181	Low Birth Weight	Not statistically significantly different	247.5	216.800
Quincy	4181	Elevated Blood Lead Prevalence	Not statistically different	25.7	14.985
Quincy	4182	Low Birth Weight	Not statistically significantly different	356.1	216.800
Quincy	-	Heart Attack	Statistically Significant Lower	23.6	26.420
Quincy	-	Childhood Asthma	Statistically Significant Lower	60.3	83.100

Other Source of Pollution listed by DPH Reported in the EENF		
Municipality	**Estimated Number**	**Enforcement History**
Large Quantity Generators (Major Air & Waste Facilities)		
Boston	3	None
Milton	0	N/A
Quincy	4	None
MGL c. 21E Sites		
Boston	6	One site has received a Notice of Non-Compliance
Milton	0	N/A
Quincy	8	Five sites have received Administrative Consent Orders, Notices of Non-Compliance, Penalty Assessment Notices, and Reporting Penalty Assessments
"Tier II" toxics use reporting facilities		
Boston	4	One site has received an Administrative Consent Order and Notices of Non-Compliance
Milton	0	N/A
Quincy	13	Two sites have received Notices of Non-Compliance
MassDEP sites with AULs		
Boston	18	Three sites have received Administrative Consent Orders, Notices of Non-Compliance, Penalty Assessment Notices, and Reporting Penalty Assessments
Milton	0	N/A
Quincy	25	Three sites have received Administrative Consent Orders and Notices of Non-Compliance
MassDEP groundwater discharge permits		
Boston	None	N/A
Milton	None	N/A
Quincy	None	N/A
Wastewater treatment plants		
Boston	None	N/A
Milton	None	N/A
Quincy	None	N/A
MassDEP public water suppliers		
Boston	MWRA	N/A
Milton	Milton Water Dept. (MWRA)	N/A
Quincy	Quincy Water Dept. (MWRA)	N/A

Other Source of Pollution listed by DPH Reported in the EENF		
Municipality	**Estimated Number**	**Enforcement History**
Underground storage tanks		
Boston	8	Seven sites have received Administrative Consent Orders, Notices of Non-Compliance, Penalty Assessment Notices, and Reporting Penalty Assessments
Milton	None	N/A
Quincy	21	Sixteen sites have received Administrative Consent Orders, Notices of Non-Compliance, Penalty Assessment Notices, and Reporting Penalty Assessments
EPA facilities		
Boston	None	N/A
Milton	None	N/A
Quincy	None	N/A
Road infrastructure		
Boston	1 - State Routes	N/A
Milton	None	N/A
Quincy	1 - State Routes	N/A
MBTA bus and rapid transit		
Boston	1 Rapid Transit, 1 Commuter Rail, 7 Buses	N/A
Milton	None	N/A
Quincy	1 Rapid Transit, 1 Commuter Rail, 5 Buses	N/A
Other transportation infrastructure		
Boston	Railroad	N/A
Milton	None	N/A
Quincy	Railroad	N/A
Regional transit agencies		
Boston	MBTA, Brockton Area RTA	N/A
Milton	None	N/A
Quincy	None	N/A
Energy generation and supply		
Boston	None	N/A
Milton	None	N/A
Quincy	1 Biomass Plant	N/A

RMAT Climate Resilience Design Standards Tool Project Report

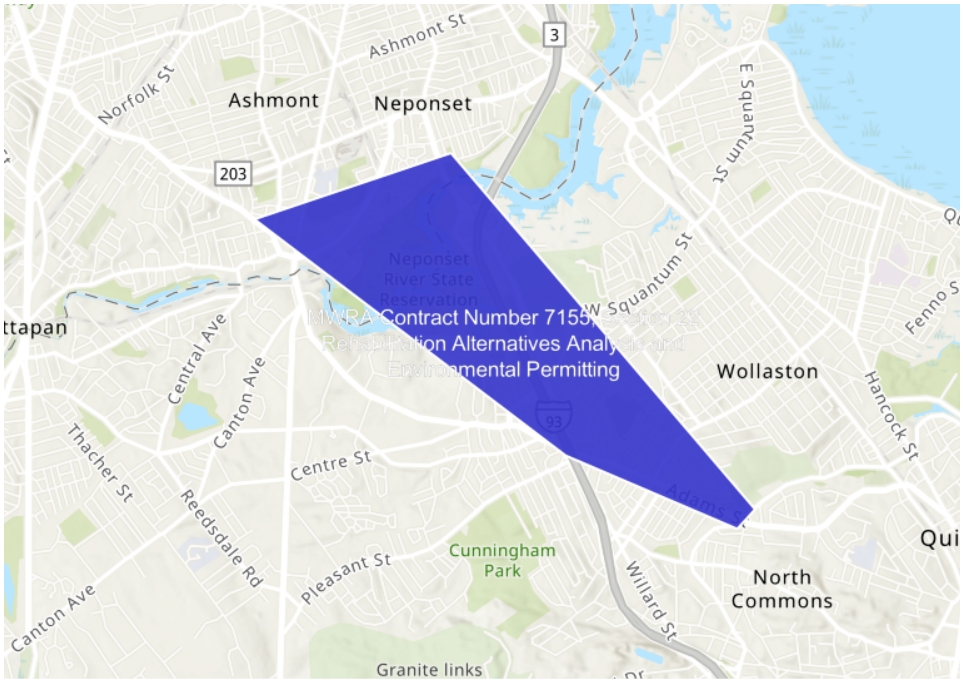
MWRA Contract Number 7155, Section 22 Rehabilitation Alternatives Analysis and Environmental Permitting
Date Created: 11/10/2021 8:40:47 AM Created By: lballou

Project Summary

Link to Project

Estimated Construction Cost: $26000000.00
Useful Life: 2070 - 2079

Ecosystem Benefits	Scores
Project Score	Low
Exposure	**Scores**
Sea Level Rise/Storm Surge	High Exposure
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	High Exposure
Extreme Heat	High Exposure



Asset Summary

Number of Assets: 2

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Section 22, Segments 1-4	High Risk	High Risk	High Risk	High Risk
Section 21, Segment 1	High Risk	High Risk	High Risk	High Risk

Project Outputs

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Section 22, Segments 1-4	2070	2050		200-yr (0.5%)	Tier 3
Section 21, Segment 1	2070	2050		200-yr (0.5%)	Tier 3
Extreme Precipitation					
Section 22, Segments 1-4	2070			50-yr (2%)	Tier 3
Section 21, Segment 1	2070			50-yr (2%)	Tier 3
Extreme Heat					
Section 22, Segments 1-4	2070		50th		Tier 3
Section 21, Segment 1	2070		50th		Tier 3

Scoring Rationale - Exposure

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:

- Historic flooding at the project site
- Projected increase in rainfall within project's useful life
- No increase to impervious area

Extreme Precipitation - Riverine Flooding

This project received a "High Exposure" because of the following:

- Historic riverine flooding at project site
- Exposed to riverine flooding within the project's useful life

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
- Located within 100 ft of existing water body
- No increase to impervious area

Scoring Rationale - Asset Risk Scoring

Asset - Section 22, Segments 1-4
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Greater than 100,000 people would be directly affected by the loss/inoperability of the asset
- The infrastructure is located in an environmental justice community, and/or does provide services to vulnerable populations
- Inoperability of the asset would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
- Cost to replace is between $30 million and $100 million
- There are no hazardous materials in the asset

Asset - Section 21, Segment 1
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Loss/inoperability of the asset would have regional impacts
- The infrastructure is located in an environmental justice community, and/or does provide services to vulnerable populations
- Inoperability of the asset would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
- Cost to replace is between $30 million and $100 million
- There are no hazardous materials in the asset

Project Design Standards Output

Asset: Section 22, Segments 1-4 — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Tidal Benchmarks: Yes
Stillwater Elevation: Yes
Design Flood Elevation (DFE): Yes
Wave Heights: No
Duration of Flooding: Yes
Design Flood Velocity: Yes
Wave Forces: No
Scour or Erosion: Yes

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Total Precipitation Depth for 24-hour Design Storms: Yes
Peak Intensity for 24-hour Design Storms: Yes
Riverine Peak Discharge: Yes
Riverine Peak Flood Elevation: Yes
Duration of Flooding for Design Storm: Yes
Flood Pathways: Yes

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Annual/Summer/Winter Average Temperature: Yes
Heat Index: Yes
Days Per Year With Max Temperature > 95°F: Yes
Days Per Year With Max Temperature > 90°F: Yes
Days Per Year With Max Temperature < 32°F: Yes
Number of Heat Waves Per Year: Yes
Average Heat Wave Duration (Days): Yes
Cooling Degree Days (Base = 65°F): No
Heating Degree Days (Base = 65°F): No
Growing Degree Days: No

Asset: Section 21, Segment 1 — Infrastructure

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Tidal Benchmarks: Yes
Stillwater Elevation: Yes
Design Flood Elevation (DFE): Yes
Wave Heights: No
Duration of Flooding: Yes
Design Flood Velocity: Yes
Wave Forces: No
Scour or Erosion: Yes

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Total Precipitation Depth for 24-hour Design Storms: Yes
Peak Intensity for 24-hour Design Storms: Yes
Riverine Peak Discharge: Yes
Riverine Peak Flood Elevation: Yes
Duration of Flooding for Design Storm: Yes
Flood Pathways: Yes

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3 (Link)

Annual/Summer/Winter Average Temperature: Yes
Heat Index: Yes
Days Per Year With Max Temperature > 95°F: Yes
Days Per Year With Max Temperature > 90°F: Yes
Days Per Year With Max Temperature < 32°F: Yes
Number of Heat Waves Per Year: Yes
Average Heat Wave Duration (Days): Yes
Cooling Degree Days (Base = 65°F): No
Heating Degree Days (Base = 65°F): No
Growing Degree Days: No

Project Inputs

Core Project Information	
Name:	MWRA Contract Number 7155, Section 22 Rehabilitation Alternatives Analysis and Environmental Permitting
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)?	2070 - 2079
Location of Project:	Boston
Estimated Capital Cost:	$26,000,000
Entity Submitting Project:	Executive Office of Energy and Environmental Affairs
Is this project being submitted as part of a state grant application?	No
Which grant program?	
Is climate resiliency a core objective of this project?	No
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?	Yes
Brief Project Description:	The Massachusetts Water Resources Authority (MWRA) is submitting an Expanded Environmental Notification Form (ENF) to the Massachusetts Environmental Policy Act Office (MEPA) to initiate the review process for the Section 22 Rehabilitation Project. Section 22 is a critical water pipeline that delivers drinking water to, and is located in, Boston, Milton, and Quincy Massachusetts. This pipeline is composed primarily of 48-inch unlined steel pipe; the 650-foot-long portion under the Neponset River is constructed of 52-inch concrete-lined steel pipe. Section 21 is composed of an approximately 3,600-foot-long, 24-inch cast iron pipe within existing roadways in Milton and Quincy. Over the years Section 22 has required numerous repairs, and Section 21 is heavily corroded. The Project proposes to rehabilitate and replace portions of Section 21 and Section 22 to restore them to full function.
Project Ecosystem Benefits	
Provides flood protection through green infrastructure or nature-based solutions	No
Provides storm damage mitigation	No
Provides groundwater recharge	No
Protects public water supply	Yes
Filters stormwater	No
Improves water quality	No
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollination	No
Provides recreation	No
Provides cultural resources/education	No
Project Climate Exposure	
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)?	Yes
Does the project site have a history of riverine flooding?	Yes
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: Section 22, Segments 1-4
Asset Type: Utility Infrastructure
Asset Sub-Type: Water
Construction Type: Maintenance (critical repair)
Construction Year: 2025
Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure must be accessible/operable at all times, even during natural hazard event.

Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be regional (more than one municipality and/or surrounding region)

Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Greater than 100,000 people

Identify if the infrastructure is located within an environmental justice community or provides services to vulnerable populations.
The infrastructure is located in an environmental justice community, and/or provides some services to vulnerable populations (services are not available elsewhere to same population)

Will the infrastructure reduce the risk of flooding?
No

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 be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses

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?
Between $30 million and $100 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?
No impact on surrounding natural resources is expected

If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist

What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Loss of confidence in government agency

Asset: Section 21, Segment 1
Asset Type: Utility Infrastructure
Asset Sub-Type: Water
Construction Type: Maintenance (critical repair)
Construction Year: 2025
Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure must be accessible/operable at all times, even during natural hazard event.

Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be regional (more than one municipality and/or surrounding region)

Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 100,000 people

Identify if the infrastructure is located within an environmental justice community or provides services to vulnerable populations.
The infrastructure is located in an environmental justice community, and/or provides some services to vulnerable populations (services are not available elsewhere to same population)

Will the infrastructure reduce the risk of flooding?
No

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 be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses

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

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No

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If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?

Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist

What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?

Loss of confidence in government agency

Statewide Environmental Justice Community Based Organizations					
First Name	**Last Name**	**Title**	**Phone**	**Email**	**Affiliation**
Claire	B.W. Muller	Movement Building Director	508 308-9261	claire@uumassaction.org	Unitarian Universalist Mass Action Network
Julia	Blatt	Executive Director	(617) 714-4272	juliablatt@massriversalliance.org	Mass Rivers Alliance
Kelly	Boling	MA & RI State Director	(617) 367-6200	kelly.boling@tpl.org	The Trust for Public Land
Kerry	Bowie	Board President	Not Provided	kerry@msaadapartners.com	Browning the GreenSpace
Sylvia	Broude	Executive Director	617 292-4821	sylvia@communityactionworks.org	Community Action Works
Heather	Clish	Director of Conservation & Recreation Policy	(617) 523-0655	hclish@outdoors.org	Appalachian Mountain Club
Johannes	Epke	Staff Attorney	617 850-1761	jepke@clf.org	Conservation Law Foundation
Nancy	Goodman	Vice President for Policy	Not Provided	ngoodman@environmentalleague.org	Environmental League of MA
Ben	Hellerstein	MA State Director	617-747-4368	ben@environmentmassachusetts.org	Environment Massachusetts
Robb	Johnson	Executive Director	(978) 443-2233	robb@massland.org	Mass Land Trust Coalition
Cindy	Luppi	New England Director	617-338-8131 x208	cluppi@cleanwater.org	Clean Water Action
Elvis	Mendez	Associate Director	508-505-6748	elvis@n2nma.org	Neighbor to Neighbor
Rob	Moir	Executive Director	Not Provided	rob@oceanriver.org	Ocean River Institute
Deb	Pasternak	Director, MA Chapter	617-423-5775	deb.pasternak@sierraclub.org	Sierra Club MA
Heidi	Ricci	Director of Policy	Not Provided	hricci@massaudubon.org	Mass Audubon

Indigenous Organizations					
First Name	**Last Name**	**Title**	**Phone**	**Email**	**Affiliation**
Alma	Gordon	President	Not Provided	tribalcouncil@chappaquiddickwampanoag.org	Chappaquiddick Tribe of the Wampanoag Nation
Cheryll	Toney Holley	Chair	774-317-9138	crwritings@aol.com	Nipmuc Nation (Hassanamisco Nipmucs)
John	Peters, Jr.	Executive Director	617-573-1292	john.peters@mass.gov	Massachusetts Commission on Indian Affairs (MCIA)
Kenneth	White	Council Chairman	508-347-7829	acw1213@verizon.net	Chaubunagungamaug Nipmuck Indian Council
Melissa	Ferretti	Chair	(508) 304-5023	melissa@herringpondtribe.org	Herring Pond Wampanoag Tribe
Patricia	D. Rocker	Council Chair	Not Provided	rockerpatriciad@verizon.net	Chappaquiddick Tribe of the Wampanoag Nation, Whale Clan
Raquel	Halsey	Executive Director	(617) 232-0343	rhalsey@naicob.org	North American Indian Center of Boston
Cora	Pierce	Not Provided	Not Provided	Coradot@yahoo.com	Pocassett Wampanoag Tribe
Elizabth	Soloman	Not Provided	Not Provided	Solomon.Elizabeth@gmail.com	Massachusetts Tribe at Ponkapoag

Federally Recognized Tribes						
First	**Last**	**Title**	**Phone**	**Email**	**Affiliation**	**Notes**
Bettina	Washington	Tribal Historic Preservation Officer	508-560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)	
Stockbridge-Munsee Tribe		Historic Preservation Manager	413-884-6048	THPO@Mohican-nsn.gov	Stockbridge-Munsee Tribe	**Only for projects in: Berkshire County, Agawam, Amherst, Athol, Charlemont,Chicopee, Easthampton, Gardner, Greenfield, Hadley, Heath, Hubbardston, Ludlow, Monroe, Northampton, Orange, Palmer, Rowe, Royalston, Southwick, Springfield, Sunderland, Ware, Wendell, West Springfield, Westfield**
Brian	Weeden	Chair	774-413-0520	Brian.Weeden@mwtribe-nsn.gov	Mashpee Wampanoag Tribe	

Organizations by Proximity

First Name	Last Name	Title	Service Area	Phone Number	Email	Affiliation
Joy	Gary	Executive Director	Boston	617-825-3846	joy@bostonfarms.org	Boston Farms Community Land Trust
Alice	Brown	Chief of Planning and Policy	Boston	Not provided	abrown@bostonharbornow.org	Boston Harbor Now
Kelly	Sherman	Manager of Waterfront Design	Boston	Not provided	KSherman@BostonHarborNow.Org	Boston Harbor Now
Karen	Chen	Executive Director	Boston	617-357-4499	karen@cpaboston.org	Chinese Progressive Association
Lee	Matsueda	Executive Director	Boston	617-723-2639	lee@massclu.org	Mass Community Labor United
Bruce	Berman	Not Provided	Boston	(617) 293-6243	Bruce@bostonharbor.com	Save the Harbor/Save the Bay
Lydia	Lowe	Executive Director	Boston	617-259-1503	lydia@chinatownclt.org	Chinatown Community Land Trust
Noemi	Mimi Ramos	Executive Director	Boston	Not provided	mimi.neunited4justice@gmail.com	New England United for Justice
Deb	Fastino	Executive Director	Boston	617-316-0456	dfastino@aol.com	Coalition for Social Justice
May	Lui	Community Outreach Coordinator	Boston	617-482-2380	may.lui@asiancdc.org	Asian Community Development Corporation
Laura	Jasinski	Executive Director	Boston	Not provided	ljasinski@thecharles.org vnason@thecharles.org	Charles River Conservancy
Heather	Miller	Not Provided	Boston	781-788-007	hmiller@crwa.org	Charles River Watershed Assoc.
Gail	Latimore	Executive Director	Boston (Dorchester Only)	Not provided	gail@csndc.com	Codman Square Neighborhood Development Corporation
Orlando	Perilla	Chairman	Boston (Dorchester Only)	(617) 288-9766	Not provided	Harbor Point Community Task Force
Valeska	Daley	Not Provided	Boston (Dorchester Only)	Not provided	director@uphamscorner.org	Upham's Corner Main Street
Lisette	Le	Not Provided	Boston (Dorchester Only)	Not provided	lisette@vietaid.org	Vietnamese American Initiative for Development (VietAID)
Saba	Ijadi	Climate Justice Coordinator	Boston (Dorchester Only)	617-533-9564	fairmountclimate@dbedc.org	Fairmount/Indigo Line Community Development Corporation (CDC) Collaborative
Andres	Ripley	Natural Resource Specialist	Boston (Dorchester Only)	Not provided	ripley@neponset.org	Neponset River Watershed Association
Patricia	Alvarez	Not Provided	Boston (Dorchester Only)	Not provided	palvarez@swbcdc.org	Southwest Boston Community Development Corporation
Rene	Mardones	Director of Community Organizing	Boston (Dorchester Only)	Not provided	rmardones@dsni.org	Dudley Street Neighborhood Initiative
Lauren	Rexford	Program Director, Energy Programs	Quincy Milton	617-657-5317	lrexford@qcap.org	Quincy Community Action Program

Other Interested Parties			
First	**Last**	**Organization**	**Email**
Seth	Daniel	Dorchester Reporter	sethgdaniel@gmail.com

Appendix D: Request for Advisory Opinion

- MWRA Letter to MEPA, March 26, 2020
- MWRA Response to Questions on the RAO, April 17, 2020

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MWRA Letter to MEPA, March 26, 2020

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MASSACHUSETTS WATER RESOURCES AUTHORITY
Charlestown Navy Yard
100 First Avenue, Building 39
Boston, MA 02129

Frederick A. Laskey
Executive Director

Telephone: (617) 242-6000
Fax: (617) 788-4899
TTY: (617) 788-4971

March 26, 2020

Kathleen Theoharides
Secretary of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Subject: Request for Advisory Opinion
Massachusetts Water Resource Authority (MWRA)
Contract No. 7155
Section 22 Condition Assessment

Dear Secretary Theoharides:

The Massachusetts Water Resources Authority (MWRA) is submitting this Request for Advisory Opinion to the Massachusetts Environmental Policy Act (MEPA) office for pipeline Section 22 evaluation work to be conducted in the Neponset River Estuary Area of Critical Environmental Concern (ACEC). We are seeking confirmation that this work to evaluate a planned project is not subject to MEPA review.

Project Overview

Originally constructed in 1950, Section 22 is a critical water pipeline located in Dorchester, Milton, and Quincy that serves approximately 70,000 people. The pipeline has had several leaks which have required numerous repairs over the years; as a result, the MWRA must perform a condition assessment of the existing 48-inch-diameter steel pipeline to determine whether to rehabilitate sections, rehabilitate in its entirety, replace sections, or replace entirely. The existing Section 22 48-inch-diameter water main is encased in concrete and supported on wood piles at many locations in this area (refer to Appendix A for Plan, Profile and Details of the pipeline and support). In addition to inspecting the exterior condition of the pipe, MWRA must also inspect the integrity of the existing piles. At this time, Phase 1 of the field work of the proposed condition assessment within the ACEC will be limited to the installation of one test pit and six soil/geotechnical borings. MEPA thresholds do not apply to the work as described in the evaluation approach below and therefore no ENF would be required. MWRA also notes that no other state environmental permits are required for this evaluation work.

Proposed Evaluation Approach

The existing access path in the ACEC is generally a hard surface, and construction mats are anticipated to only be necessary as the excavator or drill rig travels perpendicular from the roadway to the test pit or boring location, as shown on the Condition Assessment figure in Appendix A. If any areas of rutting occur, these areas will be restored by hand-raking to pre-existing conditions. In locations where proposed borings are outside of but near the edge of the wetland (such as at B22-3), erosion control barriers, such as all-natural straw wattles, will be installed between the boring and the wetland to prevent discharge into the resource area.

Through the implementation of appropriate Best Management Practices (BMPs), no permanent or significant impacts to the ACEC are anticipated, and the site will be substantially restored to its condition prior to the activity. The test pit will be approximately 10 feet wide, 20 feet long, and 12 feet deep, resulting in the temporary removal of 90 cubic yards of material. The evaluation of the pipe and piles, including mobilization and site preparation, is anticipated to take approximately two weeks to complete. The pit will be open for multiple tide cycles, and inspection will pause during high tide. Excavation will be supported using wood sheathing and timber or steel bracing.

The vegetation layer at the surface will be removed and set aside, and subsoil removed from the test pit will stored with layers in separate piles. Soil will be laid on geotextile fabric or a polyethylene barrier outside of wetland resources, erosion controls such as straw bales or silt fence will be placed around the perimeter of the soil piles and will be covered with weighted plastic to prevent erosion. Upon completion of the work, the subsoil will be put back with layers intact and the vegetation layer placed on top. A short segment of existing concrete encasement that encircles the pipe will be removed to evaluate the condition of the steel pipe. The concrete encasement will be replaced upon completion of the condition assessment (Refer to Appendix A for figures showing the proposed work).

Each of the six borings will be a few inches in diameter. Four borings will be approximately 15 to 20 feet deep. Two borings will be deeper: BD22-4 will be 50 feet deep, and BD22-5 will be 75 feet deep, to evaluate potential for replacing the pipeline using horizontal directional drilling. The work will be completed using a track-mounted drill rig, and it is anticipated that one boring will be completed per day with a total impact of 228 square feet.

Groundwater in the test pit will be pumped into a dewatering filter bag laid upon filter fabric and stone and surrounded by straw bales, or if necessary, into a frac tank which will then discharge to the filter bag depending on conditions in the field. The discharge will be directed into the existing creek. (Refer to Appendix A for figures and details.) Once work is complete, all dewatering materials (filter bag, fabric, stone, bales, etc.) will be removed.

Spill containment kits will be located at the site and be available for immediate use. Operators of equipment or contractors with a possible hazardous materials source will be made aware of the spill kits' location and proper use. In the unlikely event a spill occurs, all applicable local and state reporting requirements will be strictly adhered to.

The proposed work will result in no permanent loss of wetland resources. Once activities are complete, all temporary impact areas will be restored to their current condition. If any compacted or rutted areas occur, they will be re-graded by hand raking.

Table 1 below provides a summary of the work proposed during Phase 1 activities.

Table 1 - Summary of Work within Neponset River Estuary ACEC

Activity	Station	Wetland	Temporary Wetland Impact (SF)	Temporary Wetland Impact (CY)
Test pit TP22-1	34+50	B1	200	90
Borings				
› B22-3	31+00	None	-	-
› BD22-4	38+00	B1	7	-
› BD22-5	46+00	B1	7	-
› B22-6	54+50	M2	7	-
› B22-9	78+00	M3	7	-
› B22-9A	86+00	None	-	-
		TOTAL	***228***	***90***

Source: MWRA.

Alternatives

There is no practical alternative to evaluate the structural condition of the piles supporting the pipeline other than to expose the structures and perform physical and mechanical testing of their condition. Internal pipe inspection technologies exist but they would not provide the information desired for this inspection. The pipe must be exposed to assess the condition of its protective concrete envelope, and the pile structure that supports the pipe in the marsh must be exposed to assess its structural integrity. For these reasons, a test pit is proposed as the only effective approach available to assess the pipe and pile support condition.

MEPA Thresholds

The regulations describing MEPA thresholds under 301 CMR 11.03 state that "The review thresholds identify categories of Projects or aspects thereof of a nature, size or location that are likely, directly or indirectly, to cause Damage to the Environment." Under the "Defined Terms" section in 11.02(2) both "Commencement of a Project" and "Commencement of Construction" state that "Research, design, or other work or activity necessary to evaluate a Project for purposes of MEPA and 301 CMR 11.00 and other environmental statutes or regulations shall not be considered Commencement of a Project." MWRA understands that the proposed condition assessment is considered research necessary to evaluate a project for purposes of MEPA. Specifically, the activity of digging a test pit to determine to evaluate what action, if any, will be needed to address the Section 22 water pipeline is consistent with the

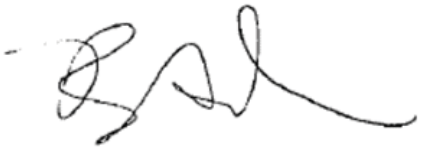
consideration in 11.02(2). At this time MWRA does not know its plan for further project work in this area. MWRA believes this proposed approach is consistent with other accepted practices, such as geotechnical boring activities, necessary for evaluating existing subsurface conditions to research and design the Project.

Future Work

Upon completion of the condition assessment, MWRA will move forward with designing a preferred construction approach that could range from limited repairs either in or out of the ACEC to partial rehabilitation of the existing pipe to replacement of the existing pipe in the current location, or construction of a new pipe in the general vicinity of the existing pipe. The potential alternatives and scope of work for such a project cannot be identified until the present research and design evaluation is completed. If the preferred alternative will result in environmental impacts, we will look forward to meeting with MEPA staff to further discuss proposed construction activities and to proceed with making appropriate MEPA filings.

We hope that this information is sufficient to allow you to confirm that the condition assessment is not subject to MEPA review. Please do not hesitate to contact me at (617) 788-4958 should you have any questions.

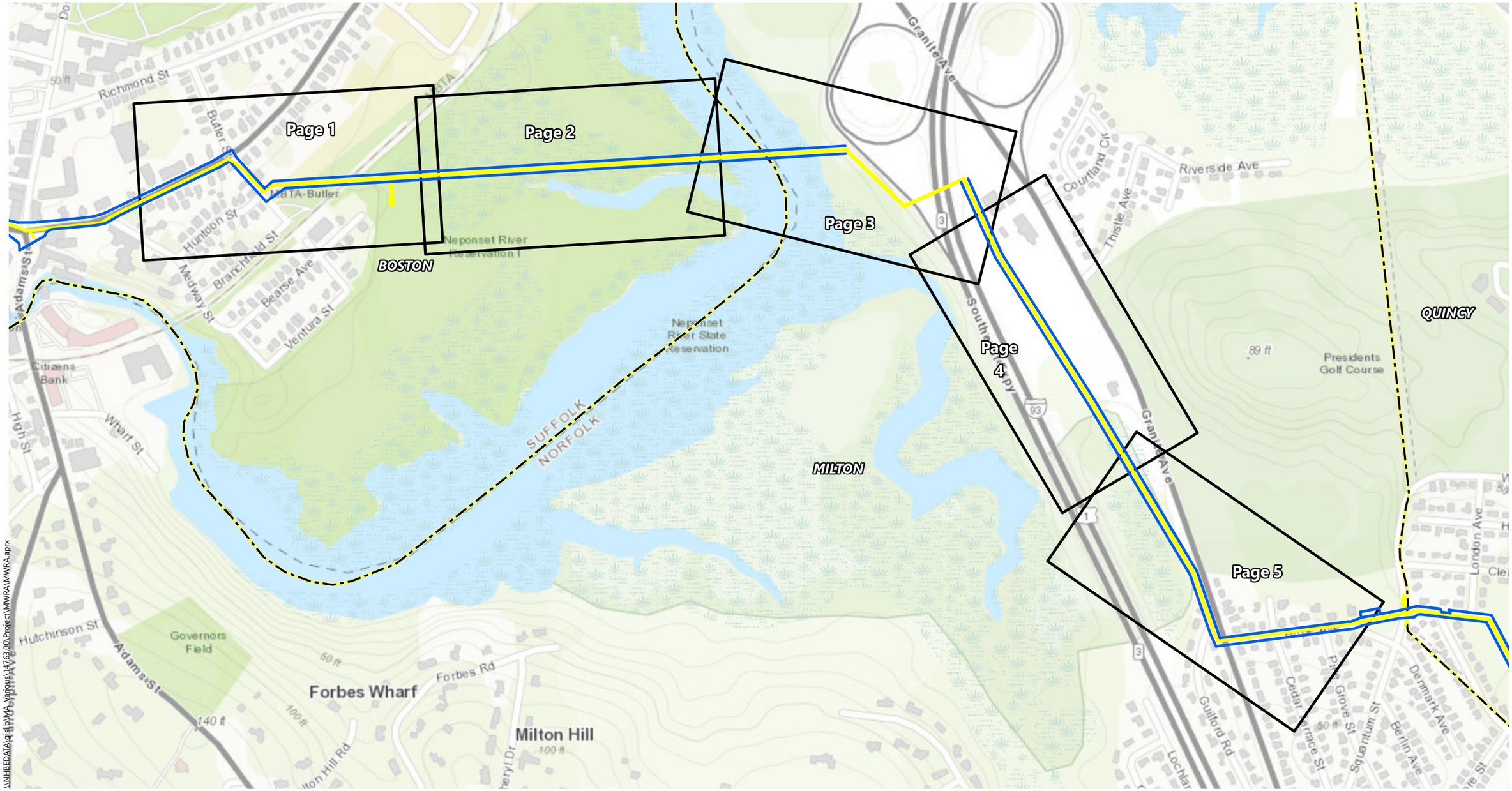
Sincerely,



Beth Card
Director, Environmental & Regulatory Affairs

cc: John Colbert, PE, Chief Engineer, MWRA
Tori Kim, Assistant Secretary, Massachusetts Environmental Policy Act Office

Appendix A: Figures



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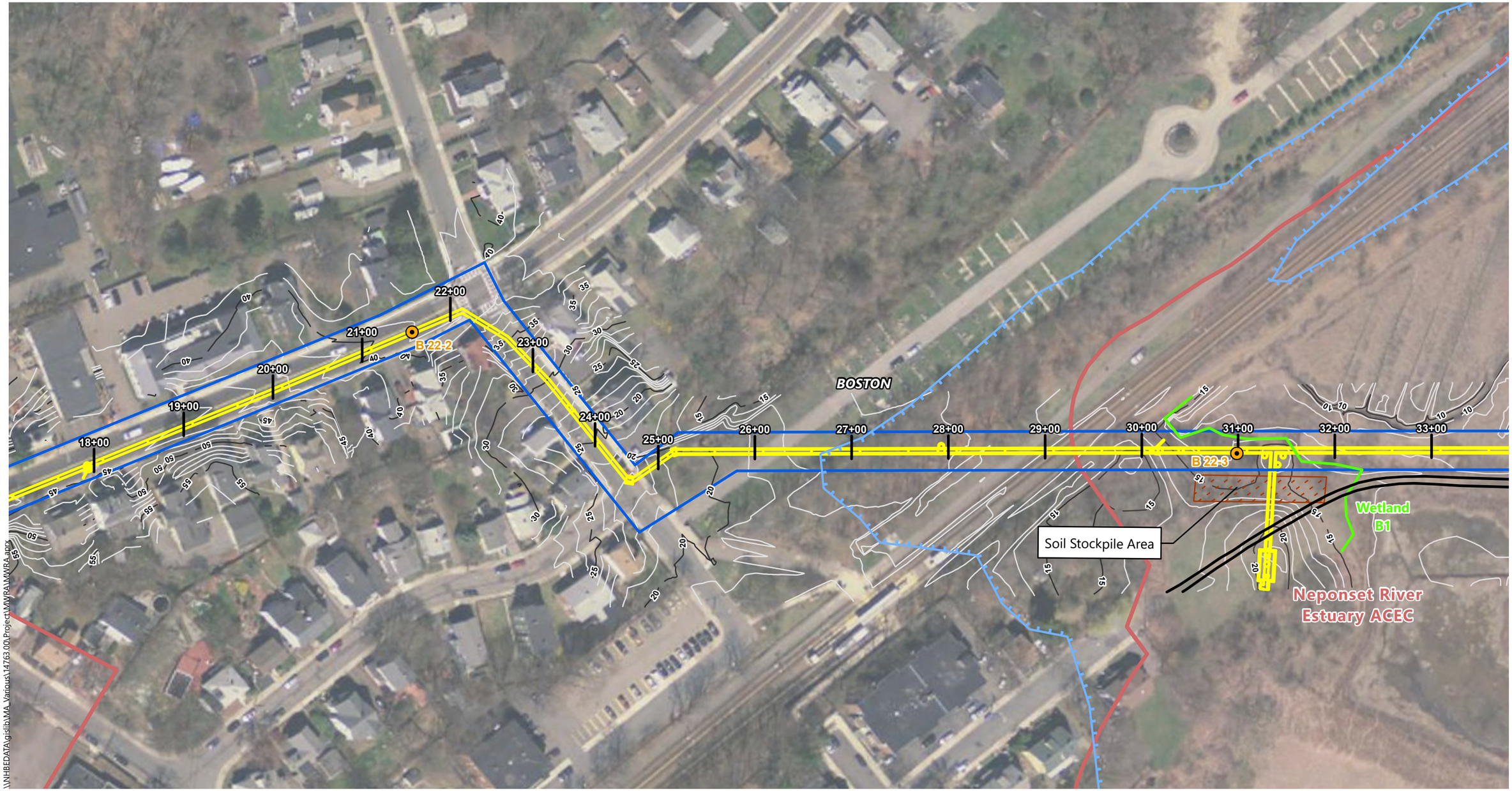
MWRA Section 22 | Boston to Quincy, Massachusetts

Key Sheet

Source: VHB, MassGIS, Black & Veatch, MWRA



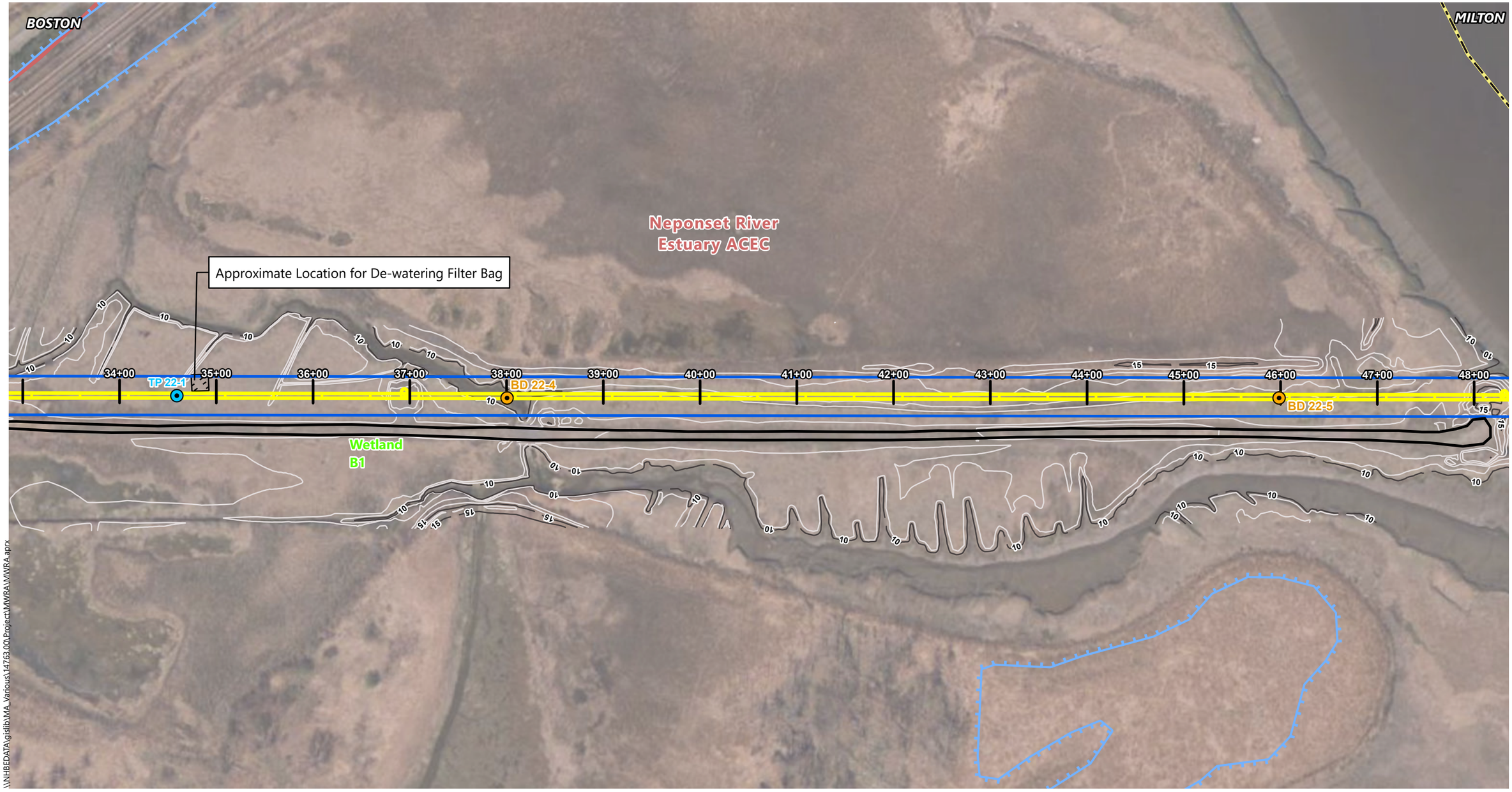
0 50 100 200 Feet

- Section 22 Pipeline
- MWRA Easement
- Test Pit
- Boring
- Delineated Wetland Edge
- 100-Year Floodplain
- 500-Year Floodplain
- Floodplain - Area not Included
- Areas of Critical Environmental Concern
- Index Contour
- Intermediate Contour
- Existing Access Path
- Soil Stockpile Area
- Town Boundary

MWRA Section 22 | Boston to Quincy, Massachusetts

Condition Assessment
Page 1 of 5

Source: VHB, MassGIS, Black & Veatch, MWRA



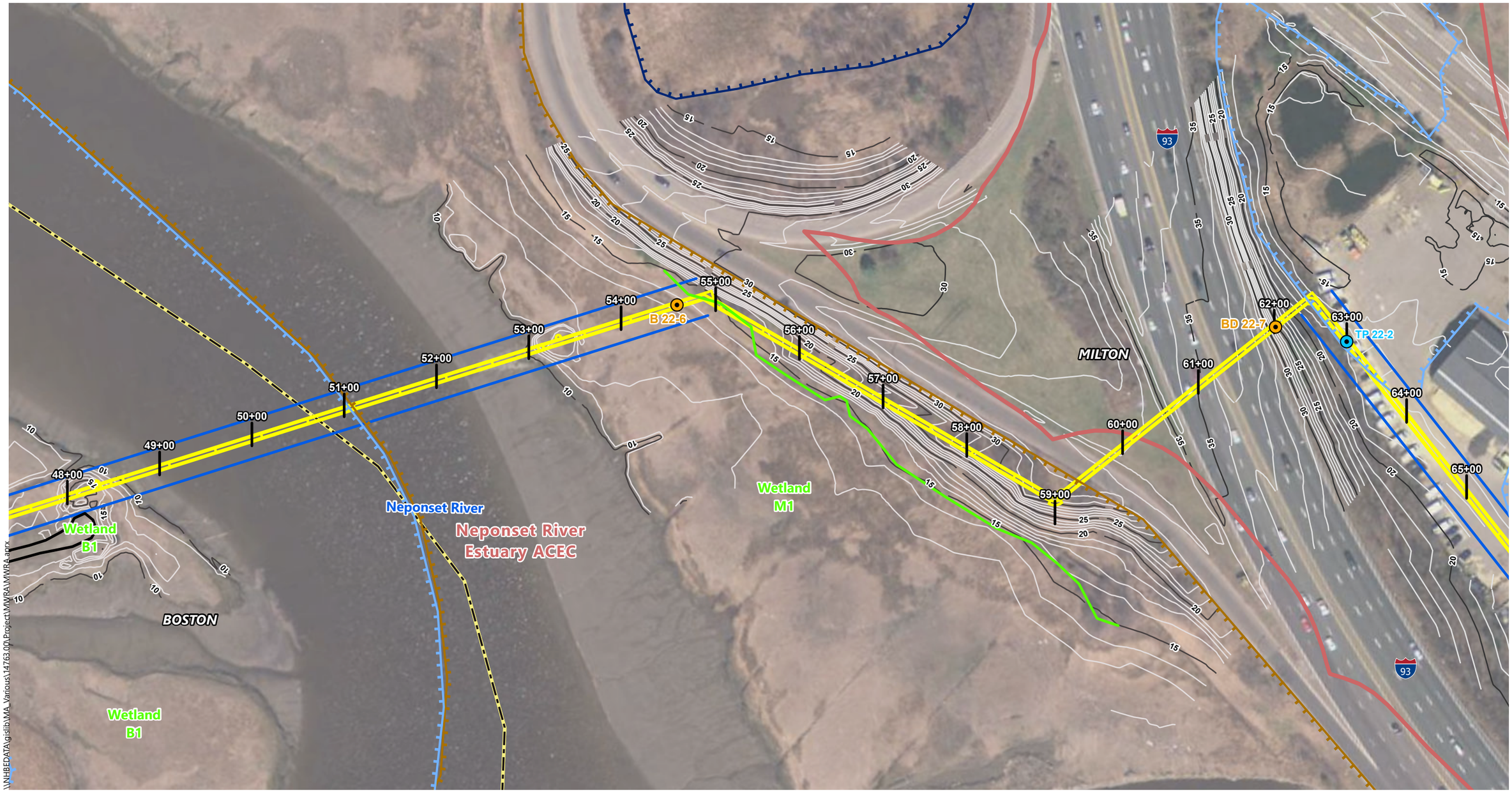
0 50 100 200 Feet

- Section 22 Pipeline
- MWRA Easement
- Test Pit
- Boring
- Delineated Wetland Edge
- 100-Year Floodplain
- 500-Year Floodplain
- Floodplain - Area not Included
- Areas of Critical Environmental Concern
- Index Contour
- Intermediate Contour
- Existing Access Path
- Approximate Location for De-watering Filter Bag
- Town Boundary

MWRA Section 22 | Boston to Quincy, Massachusetts

Condition Assessment
Page 2 of 5

Source: VHB, MassGIS, Black & Veatch, MWRA



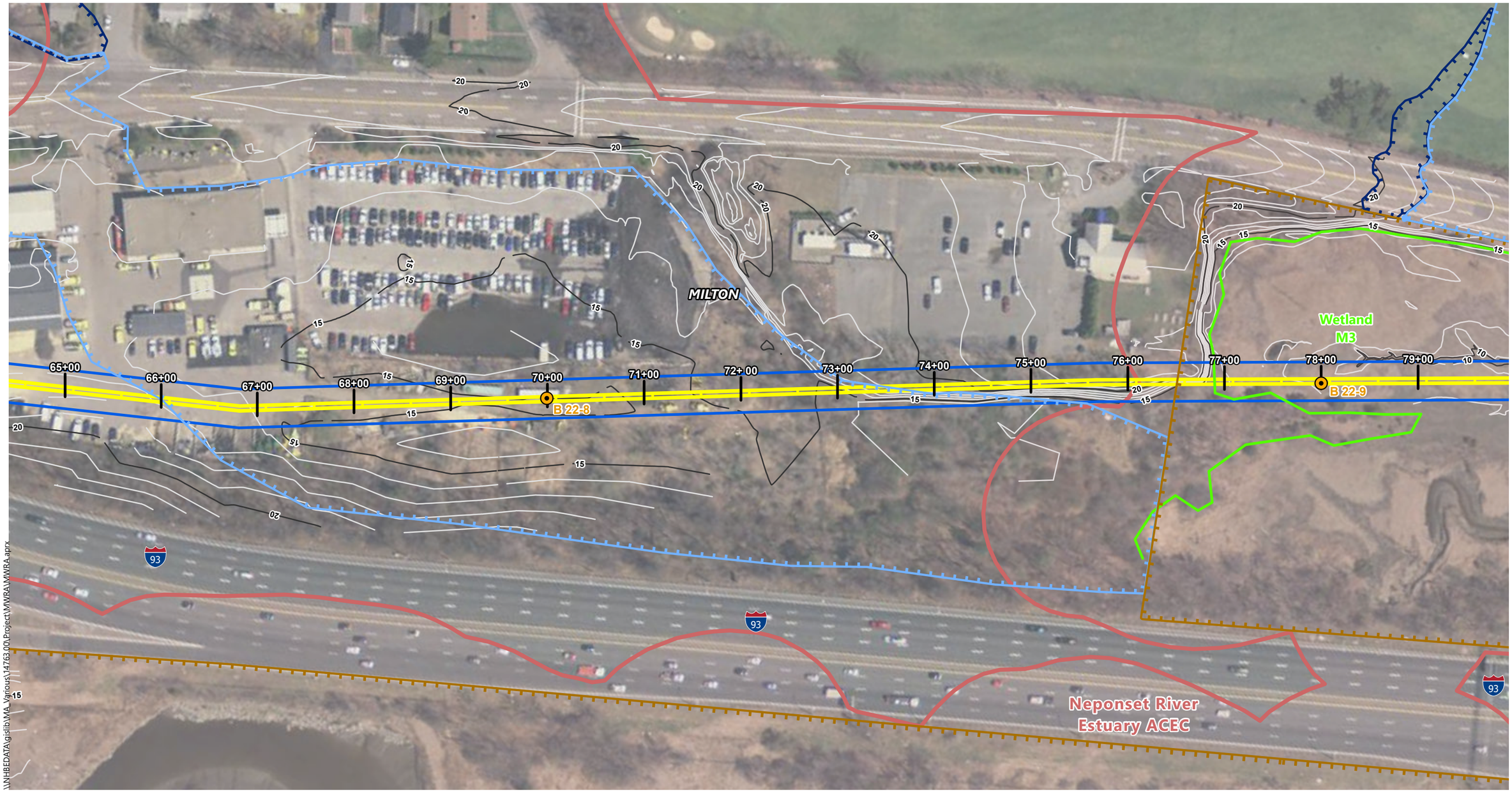
0 50 100 200 Feet

- Section 22 Pipeline
- MWRA Easement
- Test Pit
- Boring
- Delineated Wetland Edge
- 100-Year Floodplain
- 500-Year Floodplain
- Floodplain - Area not Included
- Areas of Critical Environmental Concern
- Index Contour
- Intermediate Contour
- Existing Access Path
- Town Boundary

MWRA Section 22 | Boston to Quincy, Massachusetts

Condition Assessment
Page 3 of 5

Source: VHB, MassGIS, Black & Veatch, MWRA



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MWRA Section 22 | Boston to Quincy, Massachusetts

Condition Assessment
Page 4 of 5

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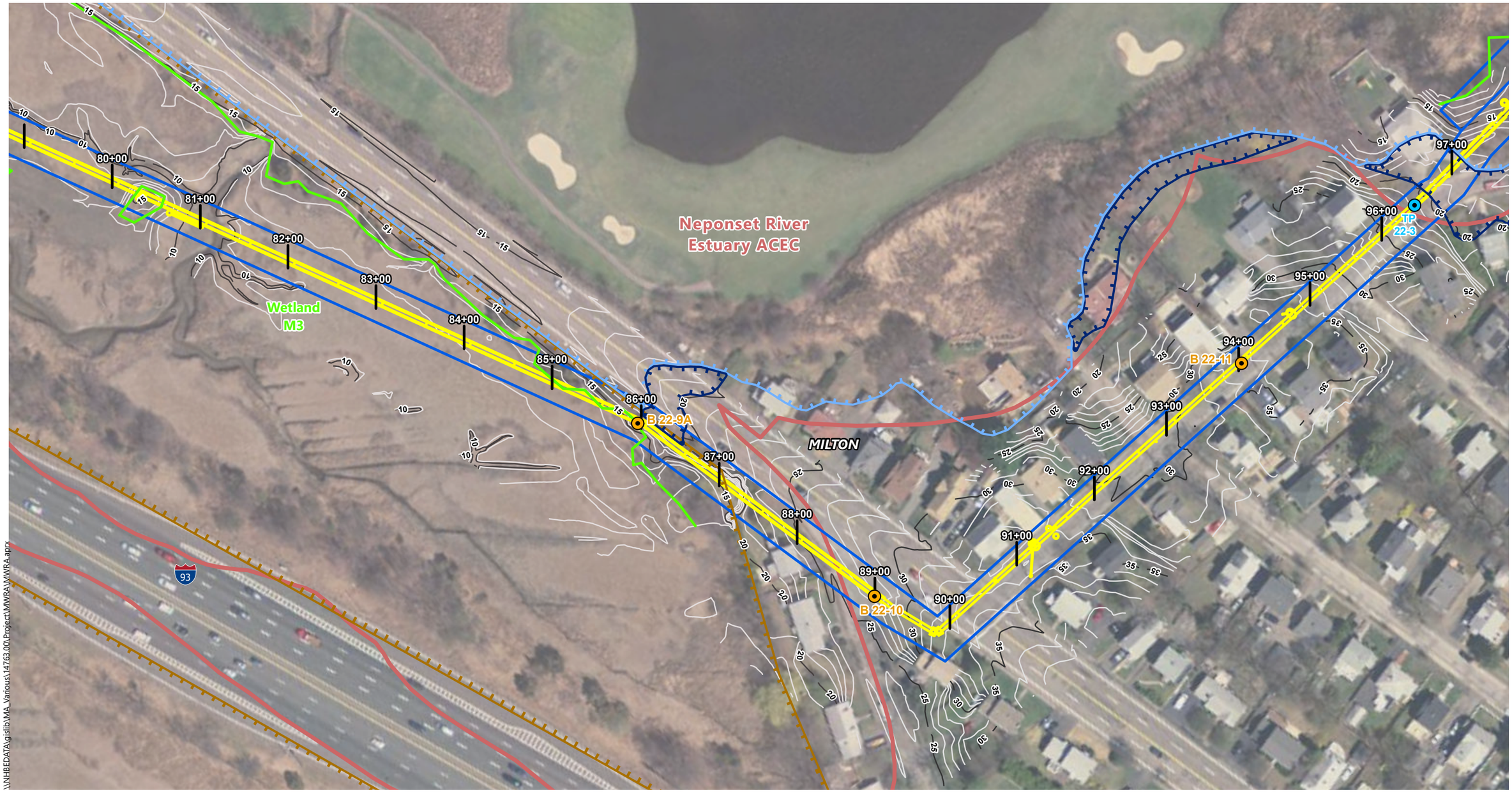

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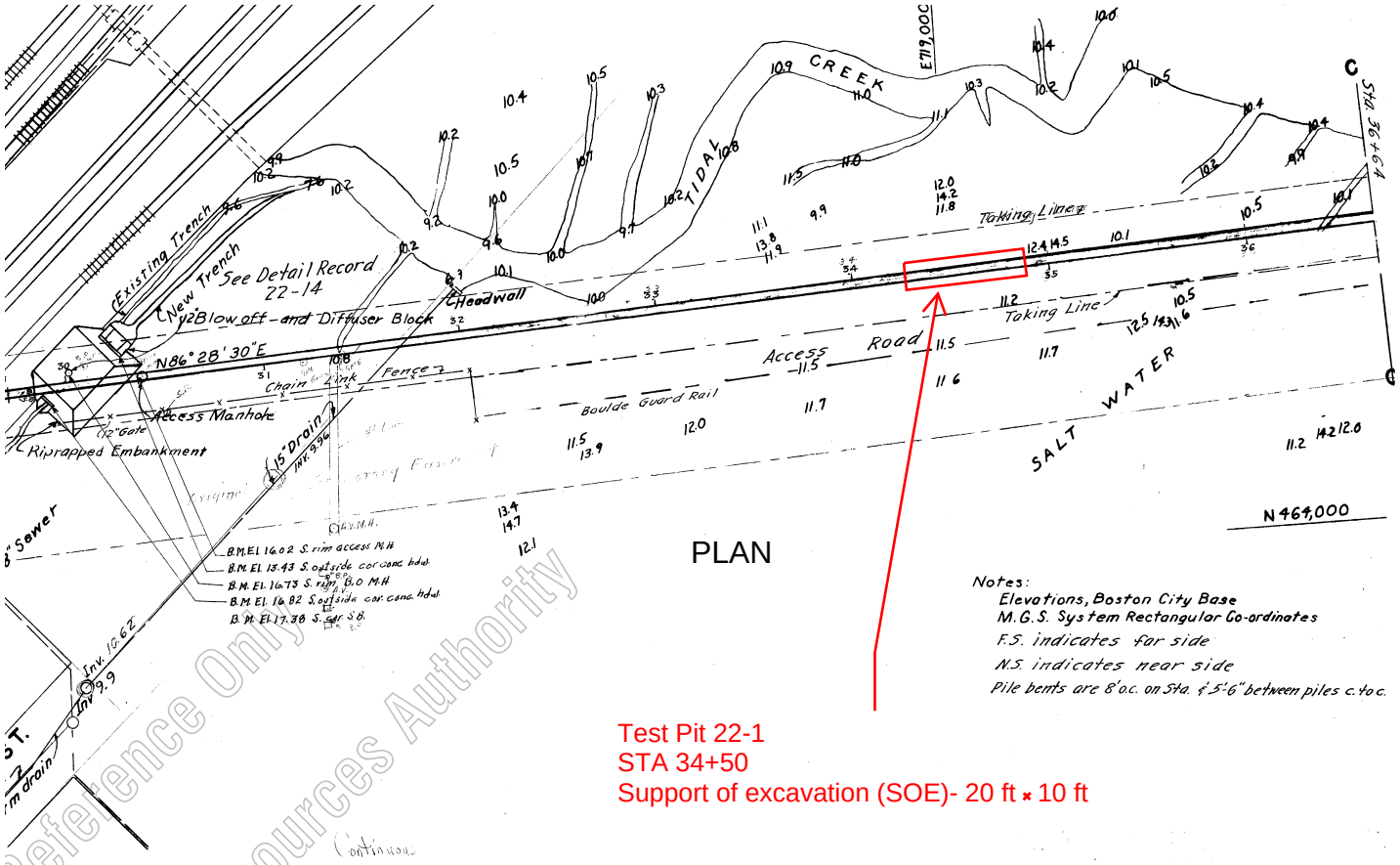
MWRA Section 22 | Boston to Quincy, Massachusetts

Condition Assessment
Page 5 of 5

Source: VHB, MassGIS, Black & Veatch, MWRA

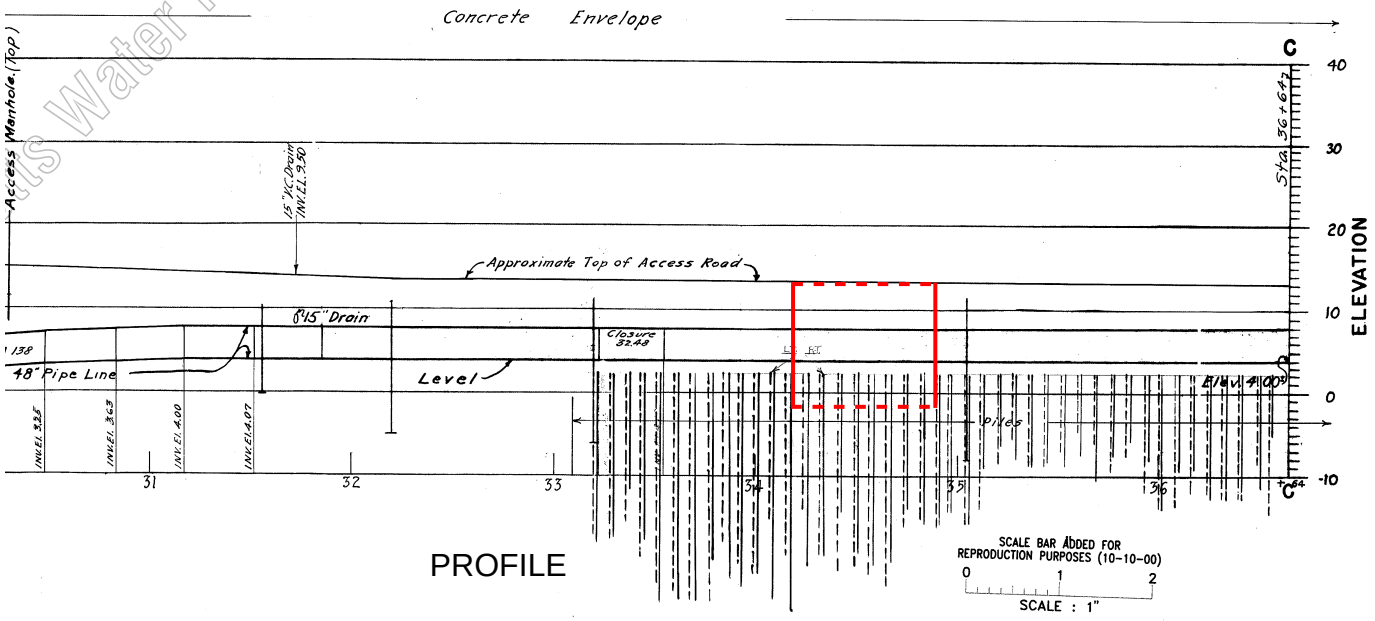
PLAN AND PROFILE VIEW OF PIPELINE AND PILE SUPPORT



PLAN

Notes:
Elevations, Boston City Base
M.G.S. System Rectangular Co-ordinates
F.S. indicates far side
N.S. indicates near side
Pile bents are 8'o.c. on Sta. & 5'-6" between piles c. to c.

Test Pit 22-1
STA 34+50
Support of excavation (SOE)- 20 ft x 10 ft



PROFILE

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
WATER DIVISION

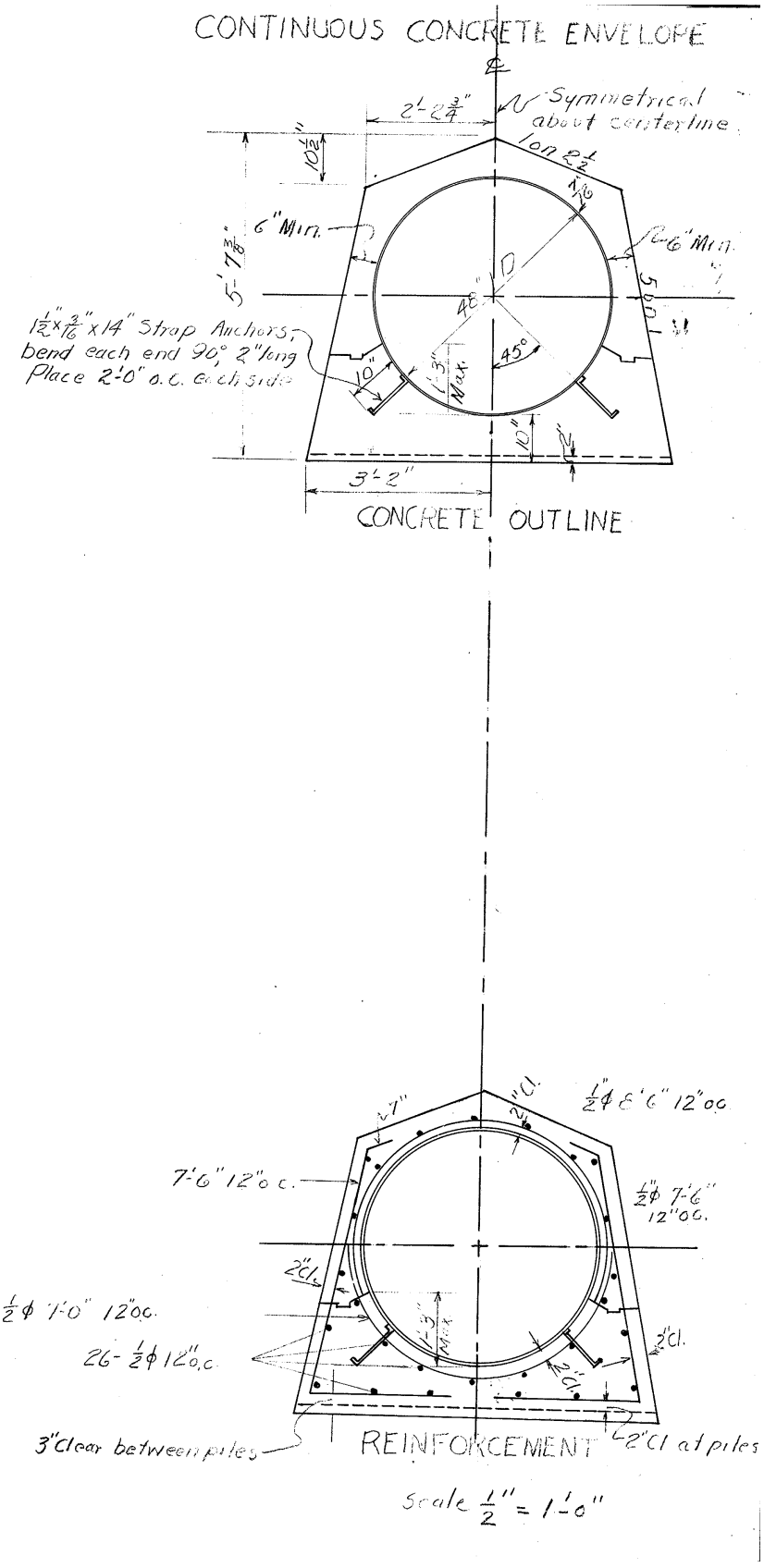
SOUTHERN HIGH SERVICE PIPE LINES

NEPONSET RIVER RESERVATION DORCHESTER

JANUARY 1957

SHEET No. 3

DETAIL OF CONCRETE ENCASEMENT AROUND PIPELINE



DIRTBAG
PUMPED SEDIMENT REMOVAL SYSTEM

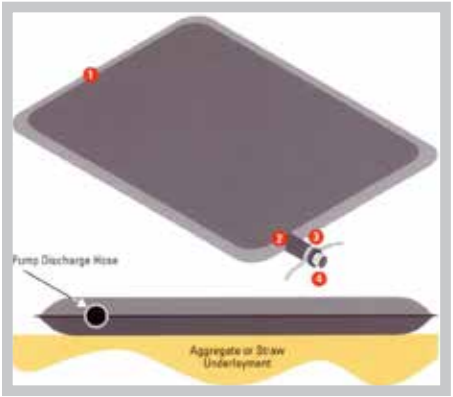
SEDIMENT & PERIMETER CONTROL

Retains the silt, sand and fines while allowing the filtered water to drain out into the drainage system.

Protect the environment effectively and economically with the ACF Dirtbag®!

The ACF Dirtbag® collects sand, silt and fines, while regulating that enters streams, surrounding property and storm sewers. ACF can make custom Dirtbags® to suit your needs. ACF Environmental manufactures the Dirtbag® using a variety of woven and nonwoven geotextile fabrics. We can produce any size, dimension, or fabric weight requested.

Each standard Dirtbag® has a fill spout large enough to accommodate a 4" discharge hose. Straps are attached to secure the hose and prevent pumped water from escaping without being filtered. To increase the efficiency of filtration, place the bag on an aggregate or haybale bed to maximize water flow through the surface area of the bag. Dirtbag® is full when it no longer can efficiently filter sediment or pass water at a reasonable rate. Flow and removal rates will vary depending on the size of Dirtbag®, the type and amount of sediment discharged into Dirtbag®, the type of surface, rock or other substance under the bag. Under most circumstances Dirtbag® will accommodate flow rates of 500 gallons per minute. Use of excessive flow rates or overfilling Dirtbag® with sediment will cause ruptures of the bags or failure of the hose attachment straps.



Dirtbag® must be monitored during use.
Dirtbag® and Dirtbag® HD have been tested under ASTM D-7880 and ASTM D-7701, which are Standard Test Methods for Determining Flow Rate of Water and Suspended Solids Retention from a Closed Geosynthetic Bag. Testing summary available upon request.

DirtBag®

Standard Dirtbag® Features
- Higher flow rate
- Higher removal rate
- Smaller openings

Dirtbag®HD

NEW

Dirtbag®HD Features
- Higher strength
- More cost effective
- Less susceptible to ruptures

For more information about Sediment Perimeter Control, contact Inside Sales at 800.448.3636 or email at info@acfenv.com

ACF ENVIRONMENTAL
LET'S GET IT DONE

DIRTBAG® SPECIFICATIONS

LET'S GET IT DONE

STANDARD DIRTBAG®

Standard Sizes:
4′ x 6′
5′ x 5′
8′ x 10′
10′ x 10′
15 x 15′
Custom Sizes available upon request.

Geotextile Properties - 8oz: Nonwoven

Property	Test Method	Units	Test Results
Weight	ASTM D-3776	oz/yd	8
Grab Tensile	ASTM D-4632	lbs.	205
CBR Puncture	ASTM D-6241	lbs.	525
Flow Rate	ASTM D-4491	gal/min/ft^2	90
Permittivity	ASTM D-4491	sec.$^{-1}$	1.4
UV Resistant	ASTM D-4355	%	70
AOS %	ASTM D-4751	US Sieve	80

DIRTBAG®HD

Standard Sizes:
3′ x 5′
4′ x 10′
6′ x 20′
12′ x 12.5′
12′ x 18.75′
Custom Sizes available upon request.

Geotextile Properties - Woven

Property	Test Method	Units	Test Results
Weight	ASTM D-3776	oz/yd	6.13
Grab Tensile	ASTM D-4632	lbs.	168x300
CBR Puncture	ASTM D-6241	lbs.	901
Flow Rate	ASTM D-4491	gal/min/ft^2	66.2
Permittivity	ASTM D-4491	sec.$^{-1}$	0.862
UV Resistant	ASTM D-4355	%	96
AOS %	ASTM D-4751	US Sieve	30

Dirtbag® Test Results

Property	Test Method	Units	Standard Dirtbag Results	Results
Average Removal Efficiency	ASTM D-7701	%	99.6	95.3
Residual Low-Head	ASTM D-7701	gpm	<0.001	0.004
CBR Puncture	ASTM D-6241	lbs.	97.98	93.29

Dirtbag® Seam Test Results (under ASTM D4884)

NonWoven Dirtbag	Woven Dirtbag
Maximum Load 786 lbs	Maximum Load 934 lbs
Maximum Strength 1178 lb/ft	Maximum Strength 1402 lb/ft
NOTE: Each test result was derived from a material failure rather than a stitch failure.	

All properties are Minimum Average Roll Value (MARV) except the weight of the fabric, which is given for information purposes only. Depending on soil conditions and filtration requirements, additional geotextile options are available. All test methods are ASTM or industry standard, and have been verified by a third party testing facility. Test data is available upon request.

Dirtbag^{HD} and Dirtbag^{SD} Tube are also available from ACF.

ACF ENVIRONMENTAL
LET'S GET IT DONE
800.448.3636
acfenvironmental.com

5 2016

April 17, 2020

MWRA Responses to Questions Raised by MEPA and CZM via Email on April 13, 2020

1. How will the concrete encasements be removed? How will this material be handled to avoid, minimize, and/or mitigate risk of contamination of the marsh by debris/dust? Will the pipes be re-encased as a part of this project?

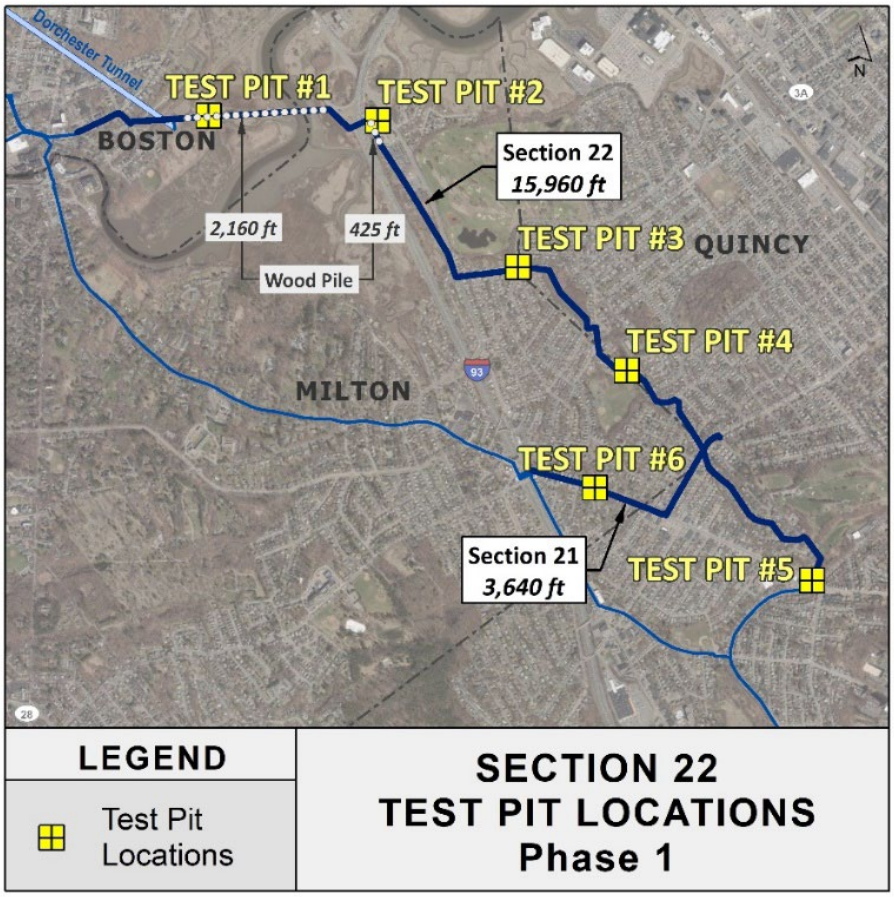
   Approximately two (2) cubic feet of existing concrete encasement will be removed by saw and cut to expose a window approximately two (2) or three (3) feet wide from 12:00 o'clock to approximately 5:00 o'clock on the encasement (Refer to the following photograph of a similar concrete removal performed on Section 22 at a MassDOT location on Granite Avenue, Milton). Hand held pneumatic chipping tools will be used to remove the concrete and expose the steel pipe for inspection. The concrete will be wetted to minimize dust during cutting. Any concrete debris will be contained by the test pit support of excavation and removed upon completion of the inspection.

   The two (2) cubic feet of removed concrete will be broken into small pieces and likely be removed from the test pit excavation by placing debris by hand into an excavator bucket. Debris will be properly disposed of off-site. Plywood formwork will be applied to the existing concrete encasement and approximately two (2) cubic feet of grout will be hand mixed on-site and used to re-establish the concrete encasement.

2. Why was this section of pipe and pile support selected for assessment? What are the alternative locations, if any, for this assessment and would that change any of the assessment methods and impacts?

   The Section 22 condition assessment evaluates localized environmental conditions and the integrity of the entire length of the section, which spans approximately four (4) miles through

Boston, Milton, and Quincy. The only portion of Section 22 with wood pile supports is within the ACEC near the Neponset River and near the MassDOT facility on Granite Avenue (See the figure below). The MWRA selected two (2) locations (test pit #1 and #2) with wood pile supports in order to conduct a prudent and thorough structural evaluation of the pipe and its supports. These two test pits, shown as Test Pit #1 and Test Pit #2, are approximately 2,900 feet apart and may have differing environmental conditions which impact the feasibility for future pipeline replacement approaches.



3. What was the nature, extent, and time of the other repairs and maintenance referenced in the RAO? How were these leaks detected? Is there any reason to believe the pilings, pipe, or encasement are failing or in need of repair?

   Approximately 15 leaks have been repaired over the years between Lower Mills in Dorchester and Hope Avenue in Milton. Leaks are generally identified by surface water or during MWRA's leak detection program. A significant leak on this section of pipe occurred in 2006 and was noticed by water surfacing that was tested for chlorine to confirm it was from MWRA's water transmission main. Since Section 22 is a steel pipeline, emergency repairs typically require welding of steel plates over the compromised area.

   The purpose of the condition assessment is to determine the general condition of the pipeline. MWRA performs routine maintenance and inspection of all our facilities. This pipeline is approximately 70 years old and has experienced leaks in the past, however only the condition assessment can confirm whether some type of rehabilitation/maintenance activity will be recommended.

4. The dewatering bag schematic provided indicates that the bag will allow for water to permeate the bag's skin/fabric, so drainage will not be focused on one area, as the proponent indicated in their USACE permit application (the marsh creek), unless a swale is created, which is not preferable.

   The filter bags spread the water over a large area to avoid scouring and erosion.

5. The AFC Dirtbag spec sheet states that bag sizes go up to 15'x15', though custom sizes are available. It's difficult to discern based upon map 2 of 5 in Appendix A, but will a larger size be necessary? Is there an alternative location for the dewatering filter bag to avoid the likely impact of smothered plants and potential soil compaction, e.g., the access road (could be piped to the tidal creek)?

   The proposed filter bags will be relocated to the existing compacted access road to avoid impacts to the work site, undisturbed soils, and undisturbed vegetated areas.

6. There's a high probability of soil compaction and standing water post-project. Has the proponent considered adding suitable material, preferably at a deeper layer after estimating compaction and material loss, to restore elevation?

   The test pit and pipe inspection activity are anticipated to be completed within one work week. The area surrounding the water main up to the top of the pipe will be backfilled with additional suitable soil or crushed stone. Therefore, there will be an adequate quantity of native material to backfill to existing grade and thus avoid a depression.

7. Post-construction monitoring should include capturing photos at permanent photo stations throughout year 1 and year 2 growing seasons, vegetation percent cover estimates in multiple and permanent one-meter plots in year 1 and year 2 growing seasons along with pre-construction characterization of marsh vegetation.

   The MWRA will implement the post construction monitoring protocols including the establishment of permanent plots as expected in the USACE Section 404 Permit.

8. What is the reported psi of the track-mounted drill rig? Is it low ground pressure equipment? Any activity involving construction mats should employ the BMPs identified by the USACE-NED.

   The soil boring rig will be track mounted and have a ground pressure of 3.8 PSI. MWRA expects the USACE to issue conditions pursuant to construction mat use. MWRA will follow the BMPs in the USACE document.

9. The proponent should consult with MassDEP-NERO to determine if the notifications submitted to the Boston and Milton Conservation Commissions satisfy the requirements of 310 CMR 10.00. It appears the project may qualify as a limited project for coastal resource areas [310 CMR 10.24(7)], which requires a filing with the relevant conservation commission(s).

   In a letter sent to MassDEP NERO dated 11/20/19, MWRA notified the regional wetlands program that letters had been sent to the Conservation Commissions and MWRA would be moving forward with filing a Pre-Construction Notification form for Section 404 to the USACE. In the letters, the MWRA notified the Conservation Commissions that the condition assessment is not subject to review under the Massachusetts Wetlands Protection Act (MGL Ch. 131 S. 40) and Regulations (310 CMR 10.02 (2)(a)(2)) as "an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, sewer, water." As such, the limited project provisions are not applicable and a filing with the relevant conservation commissions is not required. MassDEP and the Conservation Commissions did not object to the approach and MWRA moved forward with the planning and geotechnical phase of the project.

10. With regards to other local, state, federal permits – MWRA notes the following:

Wetlands Protection Act

The proposed work is not subject to the Massachusetts Wetlands Protection Act (G.L. c. 131 § 40). The Act states that "No person shall remove, fill, dredge, or alter any [resource areas]… other than in the course of maintaining, repairing or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, sewer, water, telephone, telegraph and other telecommunication services…" (emphasis added).

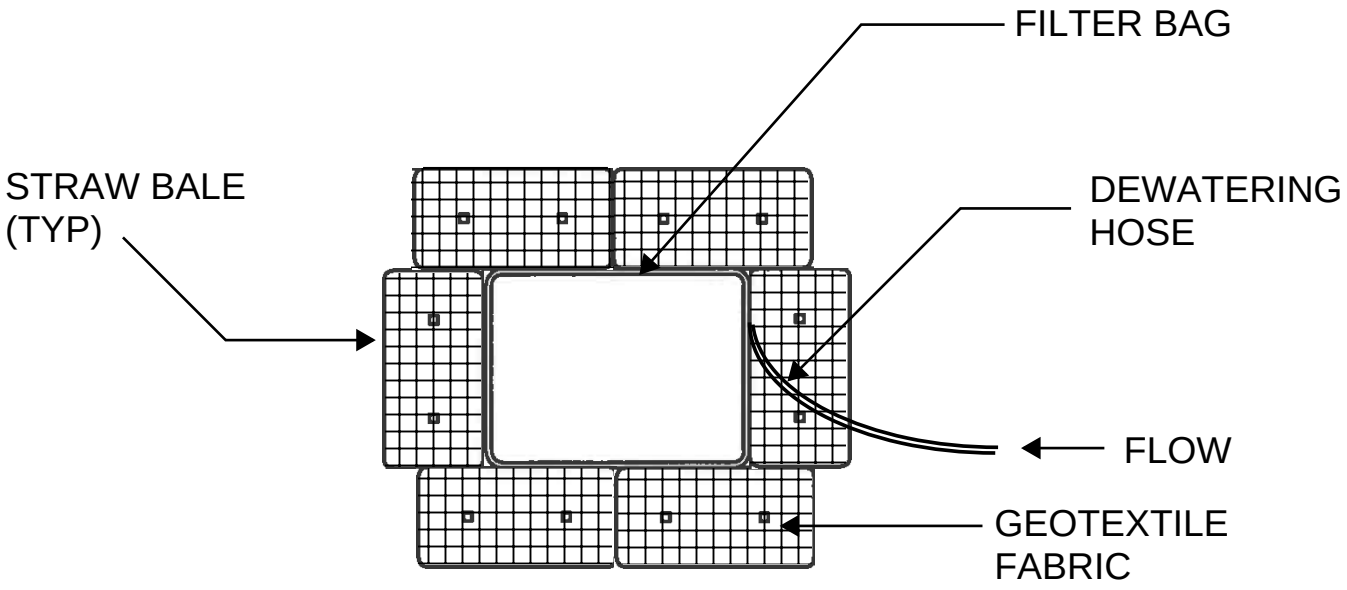
This exemption is included in the implementing regulations in 310 CMR 10.00, in which "activities conducted to maintain, repair or replace, but not substantially change or enlarge an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, water, sewer, telephone, telegraph and other communication services" does not require filing of a Notice of Intent per 310 CMR 10.02(2)(a)2.

Sections 401 and 404 of the Clean Water Act

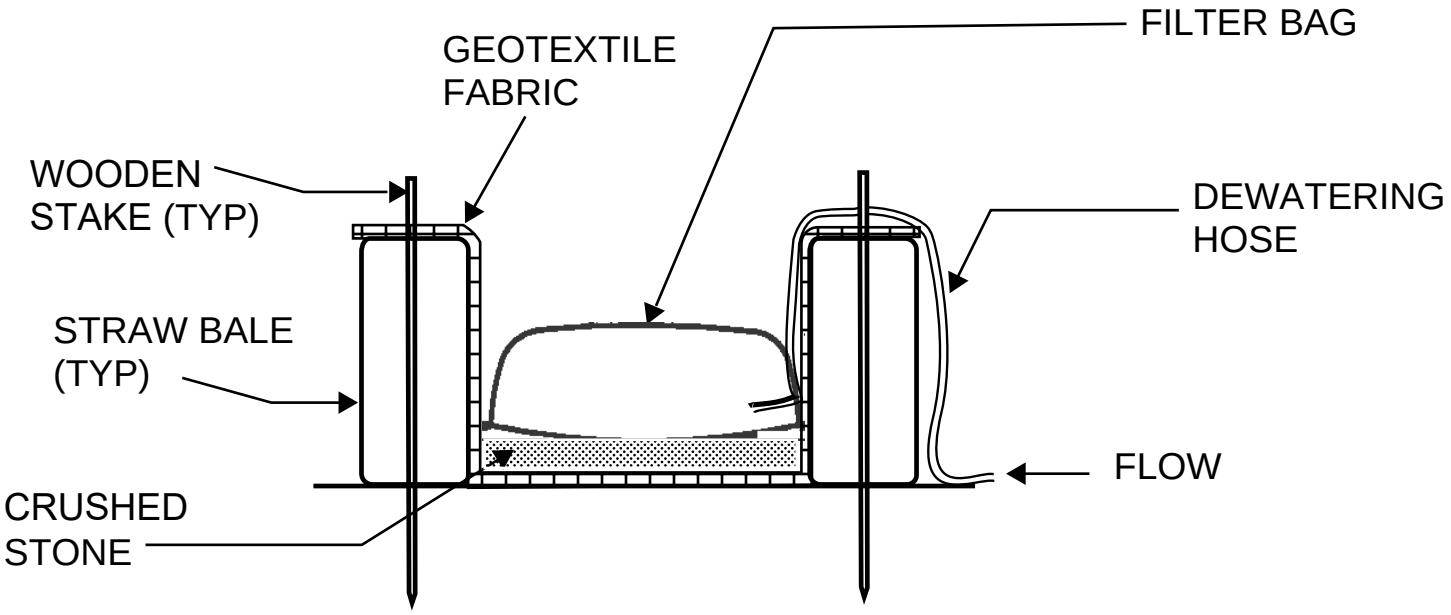
The Massachusetts Department of Environmental Protection has determined that a Water Quality Certification is not required under Section 401 of the Clean Water Act, as the proposed work consists of Planning and Design Activities under 314 CMR 9.03(6) that "are temporary in nature, have negligible impacts, and are necessary for planning and design purposes such as the installation of monitoring wells, exploratory borings, sediment sampling, and surveying." Additionally, under 314 CMR 9.03(3), the work will result in the temporary removal of less than 100 cubic yards of material.

MWRA has filed a Pre-Construction Notification to the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. USACE staff have indicated that there are no concerns as the impacts are temporary in nature and they intend to issue the permit.

DEWATERING CONTAINMENT AREA DETAIL
(NOT TO SCALE)



PLAN



SECTION

MWRA Response to Questions on the Request for Advisory Opinion, April 17, 2020

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April 17, 2020

MWRA Responses to Questions Raised by MEPA and CZM via Email on April 13, 2020

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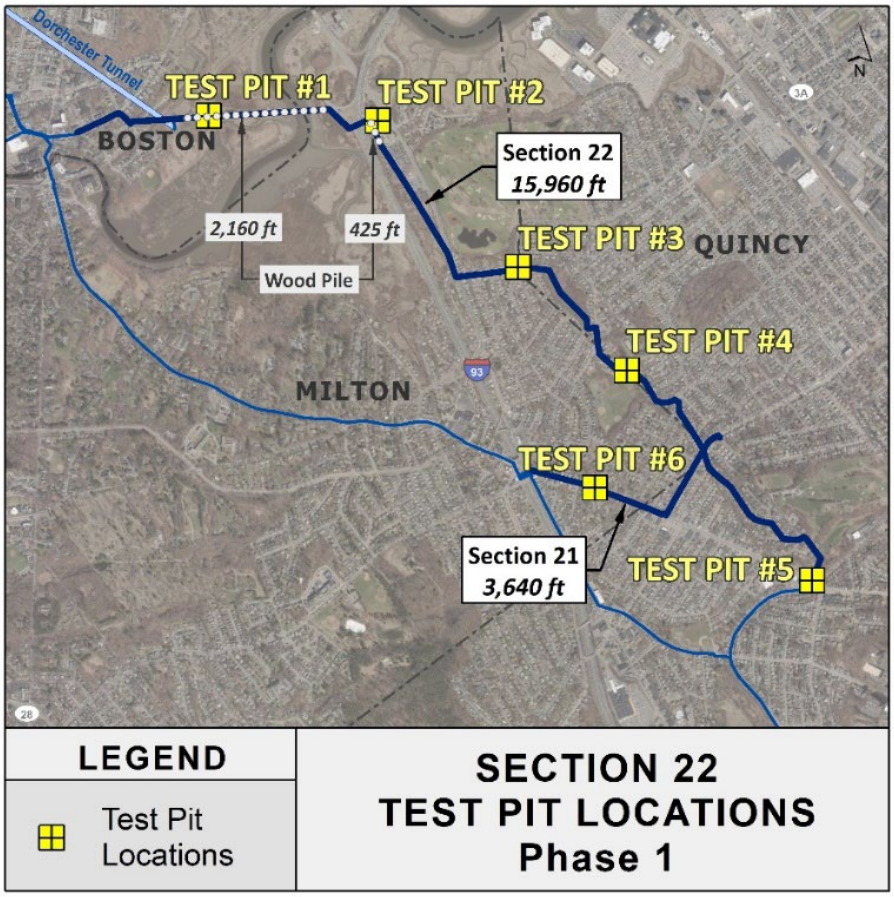

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The Massachusetts Department of Environmental Protection has determined that a Water Quality Certification is not required under Section 401 of the Clean Water Act, as the proposed work consists of Planning and Design Activities under 314 CMR 9.03(6) that "are temporary in nature, have negligible impacts, and are necessary for planning and design purposes such as the installation of monitoring wells, exploratory borings, sediment sampling, and surveying." Additionally, under 314 CMR 9.03(3), the work will result in the temporary removal of less than 100 cubic yards of material.

MWRA has filed a Pre-Construction Notification to the US Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. USACE staff have indicated that there are no concerns as the impacts are temporary in nature and they intend to issue the permit.

Appendix E: Record Plan for Section 22, Segment 2, dated January 1957 (redacted)

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This record drawing is only meant to show date of pipeline installation for compliance with Chapter 91 regulations. Detail is redacted for security reasons.

SCALE BAR ADDED FOR REPRODUCTION PURPOSES (10-10-00)
0 1 2
SCALE : 1"

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
WATER DIVISION

SOUTHERN HIGH SERVICE PIPE LINES
NEPONSET RIVER RESERVATION DORCHESTER – MILTON

JANUARY 1957

CASE DRAWER 19-15
ACCESSION NO B 6131

Note: Pipe laid under Construction Division Contract No. 186, Demo Bros. General Contractors Inc. and others Date: 1950-1954

Taking (Construction Division) Nos.
Land Plan Nos. BH-2, BH-14
Survey Note Book No. 1499
Levels Note Book No. 1567
Detail Records 22-15, 16, 17, 18, 19 & 20

Hor Scale 100 feet to an inch
Ver Scale 10 feet to an inch