US Army Corps of Engineers®

PUBLIC NOTICE

Applicant:
Emily Granoff
City of Chelsea

Published: July 11, 2025
Expires: August 11, 2025

New England District
Permit Application No. NAE-2021-00778

TO WHOM IT MAY CONCERN: The New England District of the U.S. Army Corps of Engineers (Corps) has received an application for a Department of the Army permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403). The purpose of this public notice is to solicit comments from the public regarding the work described below:

APPLICANT: Emily Granoff
City of Chelsea
500 Roadway, Room 101
Chelsea, Massachusetts 02150

AGENT: Katie Moniz
Fort Point Associates, Inc., a Tetra Tech Company
31 State Street, 3rd Floor
Boston, Massachusetts 02109

Waterway and Location: The project would affect waters of the United States and navigable waters of the United States associated with the Island End River, a tributary to the Mystic River. The project area is located adjacent to 145 Market Street at Latitude 42.394460 and Longitude -71.049746; in Chelsea, Massachusetts.

EXISTING CONDITIONS: The tidally influenced Island End River (IER) is a tributary of the Mystic River and is abutted by Everett on its western bank and Chelsea on its eastern bank. The project site includes subtidal and intertidal areas of the IER entirely within the City of Chelsea. It is bounded by Market Street to the west, Beacham Street to the North, Justin Drive to the East, and the IER to the South. The project site includes the upstream/northerly end of the IER before it enters a culvert. This 15’6” wide by 9’5” high arch culvert continues northerly under the Market Street right-of-way (the “Market Street Culvert”) and eventually reaches a tidally influenced daylit channel north of the New England Produce Center. Parallel and directly adjacent to the culvert discharge point, is an 8’6” wide by 6’1” high outlet of a district drainage system Beacham Street (the “Beacham Street Drain”). This system continues upstream to the northwest, and services the roadway and adjacent private properties. An existing stormwater detention pond with a closed valve system at the former Exxon Mobile property has an emergency overflow system into the Beacham Street Drain.

PROJECT PURPOSE: The applicant's stated project purpose is to address growing coastal flooding risks in the Island End River floodplain. Project components will alleviate inland flooding during coastal storm events caused by tidal backflows, stabilize Island End River side slopes to prevent erosion and scour, expand waterfront public access, improve district drainage systems, and enhance degraded wetlands. The City of Chelsea is undertaking the project in collaboration with the neighboring City of Everett to implement a comprehensive regional solution to these growing flood risks while also providing the ecological and public access co-benefits noted above. Through undertaking this project, the Cities are acting in accordance with their fundamental mission of protecting and promoting the health, safety and welfare of their residents and other stakeholders.

BASIC: The Corps has determined that the basic project purpose is flood resiliency.

OVERALL: The Corps has determined that the overall project purpose is to improve flood resiliency along the Island End River.

PROPOSED WORK: The applicant requests authorization to complete work in navigable wasters of the U.S. and discharge fill material into waters of the U.S. to install a floodgate in the Island End River. The associated work will involve discharging 381 cubic yards of fill and dredging of 1,485 cubic yards of sediment within 7,720 square feet of area. Discharge of dredged and fill material is proposed to facilitate construction of the Storm Surge Control Facility (SSCF) and associated outfall structure (i.e., headwall, wingwalls, river bottom scour pad, replacement culvert, shoreline nature-based approaches, and wetlands enhancements). Temporary cofferdams will be constructed to enable construction of the Storm Surge Control Facility/outfall structure in the dry.

AVOIDANCE AND MINIMIZATION: The applicant has provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment: The volume and footprint of dredging, filling, and structures has been minimized to the greatest extent practicable while meeting the project's purpose and need. Applicant has proposed to incorporate the following best management practices:

General:

- Prepare and implement a stormwater pollution prevention plan to minimize the migration of sediment and pollutants to receiving waters;
- Install sediment controls, including but not limited to straw wattles, silt fencing, and/or compost filter socks around the work area perimeter to protect receiving waters during construction;
- Routinely inspect and maintain sediment controls in working condition until project activities are completed;
- Install and maintain catch basin inserts to prevent sediments from entering drainage systems discharging to proximate waterways;

- As needed, install a bottom-anchored turbidity curtain around the overall project site where adjacent to/within the IER to minimize the migration of suspended solids from the immediate work area during construction;
- Follow good housekeeping practices at the project site to maintain it in a clean and orderly manner during construction;
- Prepare a spill management plan prior to work and keep it available on-site so that procedures are easily followed in the event of a spill; and
- Upon completion of the proposed work, remove sediment control measures and clean structures of silt and debris.

Dredging and excavation:

- Follow applicable state and federal regulatory requirements regarding dredging, excavation, and handling and disposal of material, including those outlined in the Massachusetts Contingency Plan (MCP);
- Conduct all dredging and excavation under the supervision of a licensed site professional ("LSP");
- Install a temporary cofferdam to isolate the SSCF and outfall installation area and enable project dredging to be conducted in-the-dry;
- Conduct required material removal activities outside of the cofferdam relative to tidal cycles such that the work is undertaken in-the-dry;
- Treat dewatered fluids using a fractionation tank, granular activated carbon units, and a bag filter prior to discharge in accordance with the project's remediation general permit;
- Conduct dredging using a landside excavator equipped with a mechanical clamshell dredge with an environmental bucket;
- Dewater dredged sediments in a landside intermediate facility using temporary dewatering cells and/or treatment through an additive;
- Deploy environmental controls (straw wattles, silt fencing, bermed cells) around the intermediate facility to prevent migration of sediments beyond the work zone; and
- Transport and dispose of dredged sediments off-site at an authorized out-of-state management facility.

Discharge of fill material and installation of structures:

- Install a temporary cofferdam to isolate the SSCF and outfall installation area and enable installation of fill and structures in-the-dry;
- Conduct other required filling activities outside of the cofferdam relative to tidal cycles such that the work is undertaken in-the-dry;
- For discharge unconsolidated fill material, use only clean material from off-site, or on-site material suitable for reuse in accordance with the requirements of the MCP; and
- Cover stockpiled fill material with tarpaulins when not being actively used to prevent material from migrating beyond work zones.

COMPENSATORY MITIGATION: The applicant offered the following compensatory mitigation plan to offset unavoidable functional loss to the aquatic environment: Mitigation totaling approximately 49,000 square feet is proposed to offset unavoidable project impacts through salt marsh enhancement.

CULTURAL RESOURCES: The Corps is evaluating the undertaking for effects to historic properties as required under Section 106 of the National Historic Preservation Act. This public notice serves to inform the public of the proposed undertaking and invites comments including those from local, State, and Federal government Agencies with respect to historic resources. Our final determination relative to historic resource impacts may be subject to additional coordination with the State Historic Preservation Officer, federally recognized tribes and other interested parties.

ENDANGERED SPECIES: The Corps has performed an initial review of the application, the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC), National Marine Fisheries Service (NMFS) Section 7 Mapper, and the NMFS Critical Habitat Mapper to determine if any threatened, endangered, proposed, or candidate species, as well as the proposed and final designated critical habitat may occur within the boundary of the proposed project. Based on this initial review, the Corps has made a preliminary determination that the proposed project may affect the species listed below. No other ESA-listed species or critical habitat will be affected by the proposed action.

Table 1:

Species Common Name and/or Critical Habitat Name	**Scientific Name**	**Federal Status**
Roseate Tern	*Sterna dougallii dougalli*	Endangered
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered
Monarch Butterfly	*Butterfly Danaus plexippus*	Proposed Threatened

Table 2:

Species Common Name and/or Critical Habitat Name	**Scientific Name**	**Federal Status**
Atlantic sturgeon	*Acipenser oxyrhynchus oxyrhynchus*	Endangered
Shortnose sturgeon	*Acipenser brevirostrum*	Endangered

Pursuant to Section 7 ESA, any required consultation with the Service(s) will be conducted in accordance with 50 CFR part 402.

This notice serves as request to the U.S. Fish and Wildlife Service and National Marine Fisheries Service for any additional information on whether any listed or proposed to be listed endangered or threatened species or critical habitat may be present in the area which would be affected by the proposed activity.

ESSENTIAL FISH HABITAT: Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act 1996, the Corps reviewed the project area, examined information provided by the applicant, and consulted available species information.

The Corps intends to initiate Essential Fish Habitat (EFH) consultation separately from this public notice. A separate EFH consultation package will be sent to the National Marine Fisheries Service (NMFS). The Corps will not make a permit decision until the consultation process is complete.

NAVIGATION: The proposed structure or activity is not located in the vicinity of a federal navigation channel.

SECTION 408: The applicant will not require permission under Section 14 of the Rivers and Harbors Act (33 USC 408) because the activity, in whole or in part, would not alter, occupy, or use a Corps Civil Works project.

WATER QUALITY CERTIFICATION: Water Quality Certification will be required from the Massachusetts Department of Environmental Protection.

NOTE: This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulation governing the regulatory program. The geographic extent of aquatic resources within the proposed project area that either are, or are presumed to be, within the Corps jurisdiction has not been verified by Corps personnel.

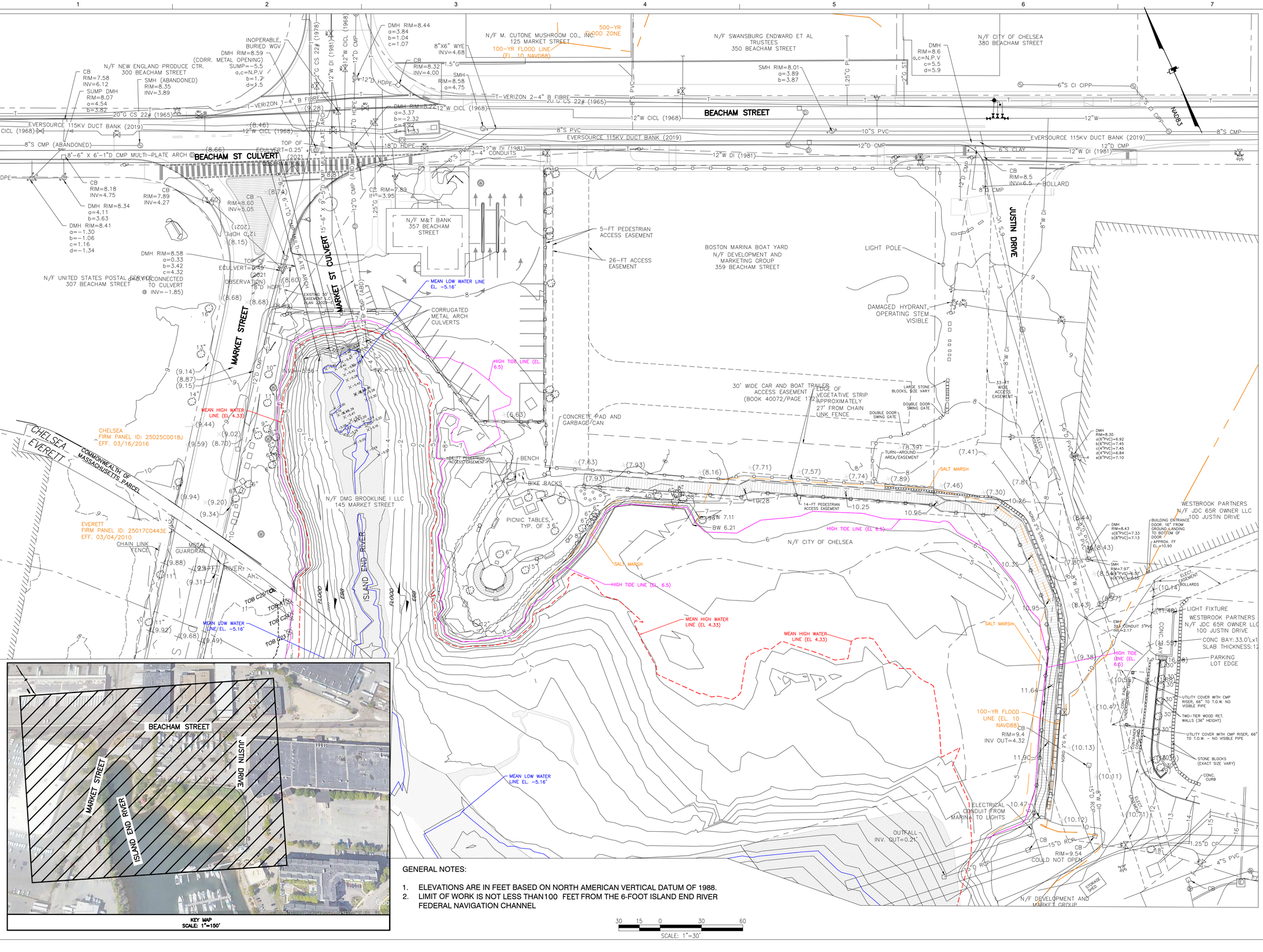
EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among these are conservation, economics, esthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food, and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, EPA, under authority of Section 404(b) of the Clean Water Act or the criteria established under authority of Section 102(a) of the Marine Protection

Research and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest.

COMMENTS: The Corps is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other Interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition, or deny a permit for this proposal. To make this determination, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New England District will receive written comments on the proposed work, as outlined above, until August 11, 2025. Comments should be submitted electronically to cenae-r-pn-ma@usace.army.mil. Alternatively, you may submit comments in writing to the Commander, U.S. Army Corps of Engineers, New England District, Attention: Regulatory Division, 696 Virginia Road, Concord, MA 01742. Please refer to permit application number NAE-2021-00778 in your comments.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing will be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.



GENERAL NOTES:

1. ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
2. LIMIT OF WORK IS NOT LESS THAN100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATION CHANNEL

30 15 0 30 60
SCALE: 1"=30'

Bar Measures 1 inch

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

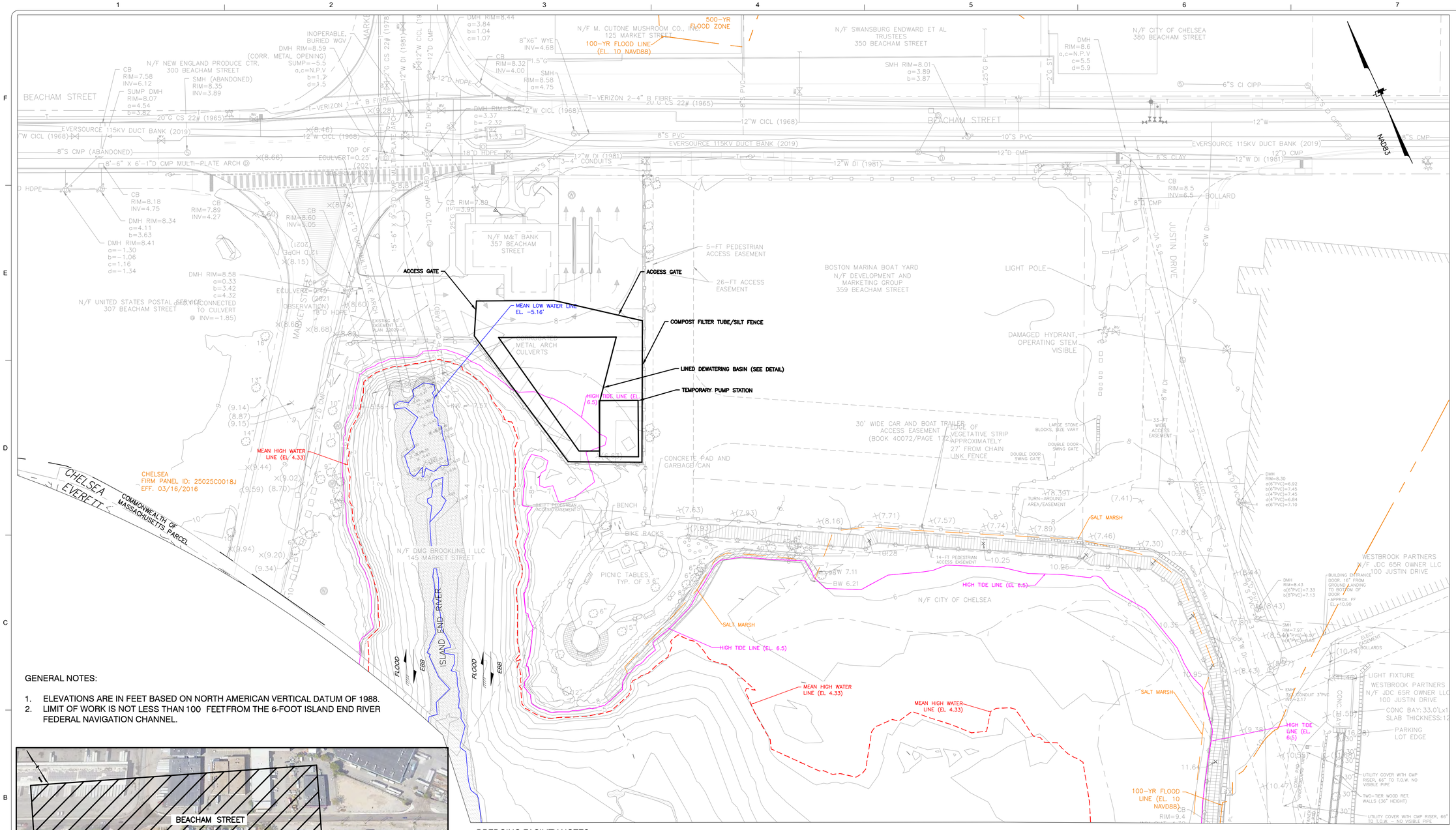
Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

EXISTING CONDITIONS PLAN

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

RPE-G-101



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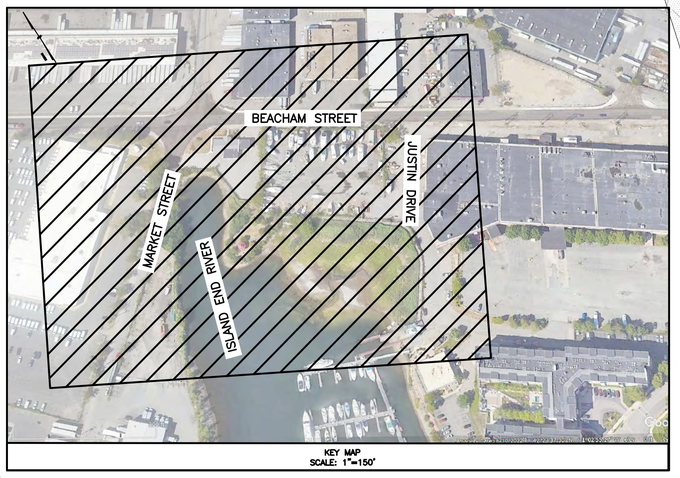
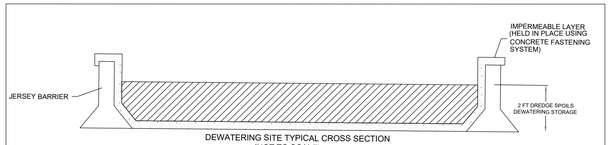


KEY MAP
SCALE: 1"=150'

DREDGING FACILITY NOTES:

1. CONTRACTOR SHALL PROVIDE ALL EROSION EROSION PREVENTION AND SEDIMENT CONTROL MEASURES AND DEWATERING MEASURES TO COMPLY WITH SPECIFICATIONS. THE EROSION CONTROL MEASURES SHOWN ON THIS DRAWING DO NOT SHOW ALL EROSION CONTROL MEASURES TO BE IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE A COMPREHENSIVE EROSION CONTROL PLAN THAT ADDRESSES RUN OFF FROM RAIN EVENTS AS WELL AS DEWATERING MEASURES IN ORDER TO PERFORM WORK UNDER THIS CONTRACT.
2. THE WORK CONSISTS OF EXCAVATION AND TEMPORARY STORAGE OF CONTAMINATED MATERIAL. APPROXIMATE LIMITS OF CONTAMINATED MATERIAL FROM EXCAVATION AND DREDGING ARE SHOWN ON SHEET RPE-C-104.
3. STOCKPILING OF CONTAMINATED MATERIAL SHALL INCLUDE ASPECTS OF GRADING, PREPARATION, HANDLING, PLACEMENT, MAINTENANCE, REMOVAL, TREATMENT, AND OTHER DISPOSAL OF STOCKPILE COVER MATERIALS AND LINER MATERIALS AND ALL OTHER ITEMS INCIDENTAL TO CONSTRUCTION OF STOCKPILES. STOCKPILES SHALL BE CONSTRUCTED TO ISOLATE STORED CONTAMINATED MATERIAL FROM THE ENVIRONMENT. THE MAX. STOCKPILE VOLUME SHALL BE 500 CY. MULTIPLE STOCKPILES OF 500 CY IS PERMITTED PROVIDED SPACE AND FACILITIES ARE AVAILABLE.
4. LIQUID COLLECTED FROM EXCAVATIONS AND STOCKPILES SHALL BE TEMPORARILY STORED IN 55 GALLON BARRELS. LIQUID STORAGE CONTAINERS SHALL BE WATER-TIGHT AND SHALL BE LOCATED IN CONTAMINATED STORAGE AREA.
5. THE CONTRACTOR SHALL PROVIDE APPROPRIATE SPILL RESPONSE MATERIALS INCLUDING, BUT NOT LIMITED TO THE FOLLOWING: CONTAINERS, ABSORBENTS, SHOVELS, AND PERSONAL PROTECTIVE EQUIPMENT. SPILL RESPONSE MATERIALS SHALL BE AVAILABLE AT ALL TIMES WHEN CONTAMINATED MATERIALS/WASTERS ARE BEING HANDLED OR TRANSPORTED. SPILL RESPONSE MATERIALS SHALL BE COMPATIBLE WITH THE TYPE OF MATERIALS AND CONTAMINANTS BEING HANDLED.
6. DEWATERING SHALL BE PERFORMED TO ADDRESS GROUNDWATER & SURFACE WATER AND DREDGE SPOILS. THE CONTRACTOR SHALL SUBMIT SEPARATE PLANS.
7. OFFSITE DISPOSAL OF CONTAMINATED MATERIAL SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.



DEWATERING SITE TYPICAL CROSS SECTION
(NOT TO SCALE)

NOTES:

1. LINED ROLL-OFF CONTAINERS MAY BE USED IN LIEU OF DEWATERING BASIN

30 15 0 30 60
SCALE: 1"=30'

Bar Measures 1 inch

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

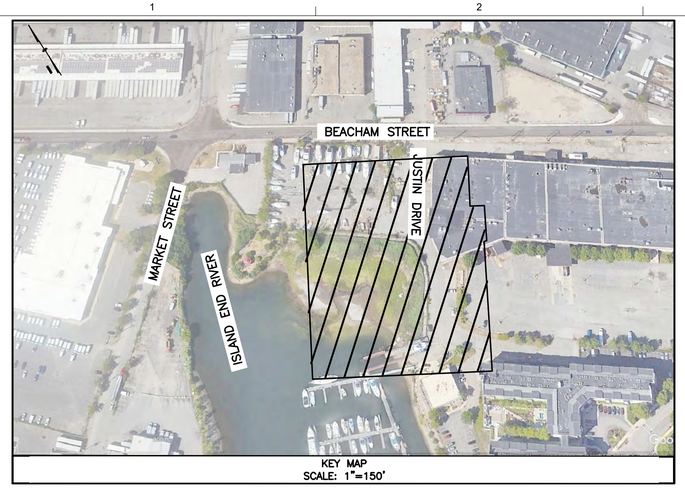
Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

INTERMEDIATE DREDGING FACILITY PLAN

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

RPE-C-102A



KEY MAP
SCALE: 1"=150'

NOTE:

1. ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
2. LIMIT OF WORK IS NOT LESS THAN 100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATIONAL CHANNEL.

LEGEND

- PROPERTY LINE
- MATCH LINE
- CEMENT CONCRETE PAVEMENT
- PLANTING AREA, SEE PLANTING PLAN
- SHEET PILE WALL WITH FORM FINISHED CAP WITH ARCHITECTURAL FINISH CONCRETE CAP
- CIP CONCRETE RETAINING WALL
- CORTEN STEEL RETAINING WALL
- EXPANSION JOINT (EJ)
- SCORE JOINT (EJ)
- STEEL GUARDRAIL
- WOOD GUARDRAIL
- BLACK VINYL CHAIN LINK FENCE
- PEDESTRIAN LIGHT
- RESET EXISTING PEDESTRIAN LIGHT
- BIKE RACKS ON CONCRETE PAD
- BENCH
- PROPOSED CONTOUR
- EXISTING CONTOUR

20 10 0 20 40
SCALE: 1"=20'

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION

BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

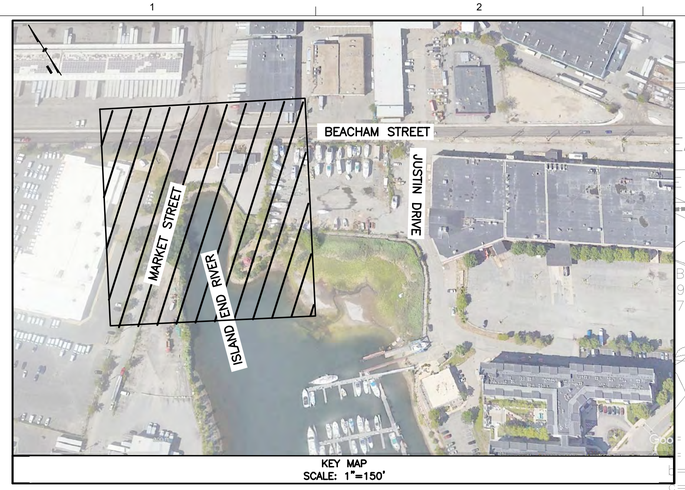
ISLAND END RIVER FLOOD RESILIENCE PROJECT

LAYOUT AND MATERIALS PLAN - 1 (STA. 91+11 - 94+50)

Project No.:	ENG23-3095
Designed By:	RBB
Drawn By:	FD
Checked By:	MS

RPE-C-103

Bar Measures 1 inch



KEY MAP
SCALE: 1"=150'

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- PROPERTY LINE
- MATCH LINE
- CEMENT CONCRETE PAVEMENT
- PLANTING AREA, SEE PLANTING PLAN
- SHEET PILE WALL WITH FORM FINISHED CAP WITH ARCHITECTURAL FINISH CONCRETE CAP
- CIP CONCRETE RETAINING WALL
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- PEDESTRIAN LIGHT
- RESET EXISTING PEDESTRIAN LIGHT
- BIKE RACKS ON CONCRETE PAD
- BENCH
- PROPOSED CONTOUR
- EXISTING CONTOUR

20 10 0 20 40
SCALE: 1"=20'

IMPACTS BELOW MLW FOR CULVERT REPLACEMENT: FOOTPRINT: 1,198 SF DREDGE VOLUME: 237 CY FILL VOLUME: 35 CY

PLANTING AREA, SEE PLANTING PLAN

SEE STORM SURGE CONTROL FACILITY SHEETS SSCF-C-101 TO SSCF-C-103

SEE SHEETS SSCF-C-201 AND SSCF-C-301 FOR SSCF SECTIONS

IMPACTS BELOW LUO FOR NBA FOOTPRINT: 28 SF FILL VOLUME: 12 CY

MEAN LOW WATER LINE EL. -5.16'

IMPACTS BETWEEN MHW AND HTL FOR SSCF FOOTPRINT: 177 SF EXCAVATION VOLUME: 187 CY FILL VOLUME: 6 CY

IMPACTS BETWEEN MHW AND HTL FOR STORM SURGE BARRIER FOOTPRINT: 332 SF EXCAVATION VOLUME: 62 CY FILL VOLUME: 0 CY

IMPACTS BETWEEN MHW AND HTL FOR NBA FOOTPRINT: 840 SF EXCAVATION VOLUME: 4 CY FILL VOLUME: 25 CY

IMPACTS BETWEEN MLW AND MHW FOR NBA FOOTPRINT: 1057 SF DREDGE VOLUME: 248 CY FILL VOLUME: 23 CY

HIGH TIDE LINE (EL. 6.5)

IMPACTS BETWEEN MLW AND MHW FOR SSCF HEADWALL/WINGWALLS FOOTPRINT: 2533 SF DREDGE VOLUME: 519 CY FILL VOLUME: 135 CY

MEAN HIGH WATER LINE (EL 4.33)

LIMIT OF WETLANDS COMPENSATORY MITIGATION AREA

IMPACTS BELOW MLW FOR SSCF OUTLET SCOUR PAD FOOTPRINT: 550 SF DREDGE VOLUME: 121 CY FILL VOLUME: 37 CY

SEE SHEETS NBS-L-101 AND 102 FOR NATURE-BASED APPROACHES PLANTING PLANS

IMPACTS TO SALT MARSH ABOVE MHW FOR WETLANDS COMPENSATORY MITIGATION FOOTPRINT: 343 SF EXCAVATION VOLUME: 19 CY FILL VOLUME: 19 CY

SEE RPW-C-101 FOR RESILIENCE PROVISIONS WEST LAYOUT & MATERIAL PLAN

IMPACTS BETWEEN MHW AND HTL FOR WETLANDS REPLACEMENT FOOTPRINT: 270 SF EXCAVATION VOLUME: 15 CY FILL VOLUME: 15 CY

SALT MARSH

HIGH TIDE LINE (EL. 6.5)

MEAN LOW WATER LINE EL. -5.16'

MEAN HIGH WATER LINE (EL 4.33)

LIMIT OF WORK SEE SHEETS NBS-L-101 AND 102 FOR NATURE-BASED APPROACHES PLANTING PLANS

MATCH LINE SEE SHEET RPE-C-103

Bar Measures 1 inch

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

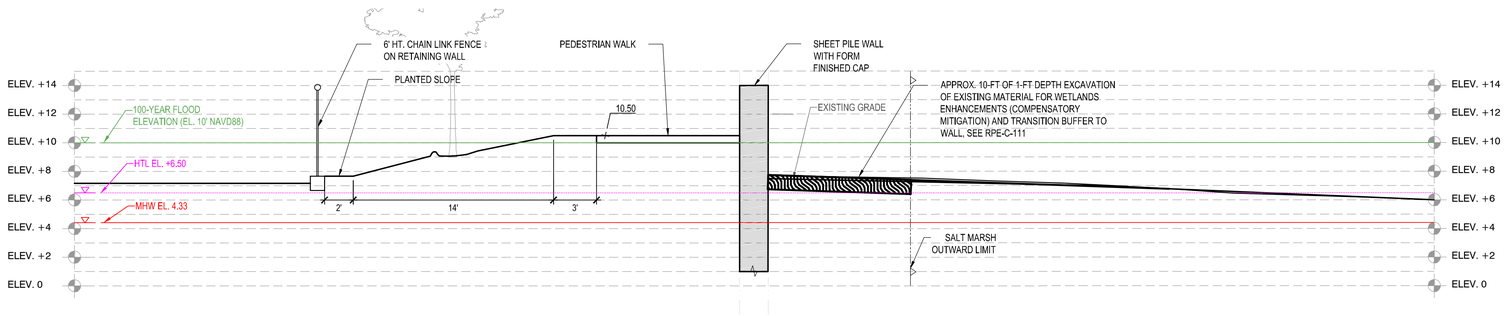
LAYOUT AND MATERIALS PLAN - 2 (STA. 94+50 - 100+00)

Project No.:	ENG23-3095
Designed By:	RBB
Drawn By:	MS
Checked By:	BK

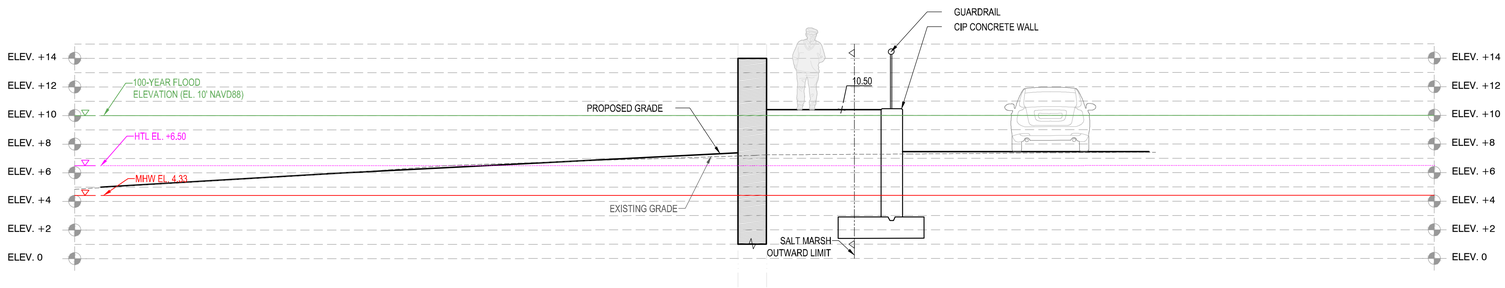
RPE-C-104

11/12/2024 8:56:34 AM - \\WSE03.LOCAL\WSEIPROJECTS\MAE\EVERETT\ISLAND END RIVER AREA\CAD\60% DESIGN\PLOT\06 - LAYOUT AND MATERIALS W RESOURCE SECTION VIEWS-WGC.DWG - WALSH, CONNOR

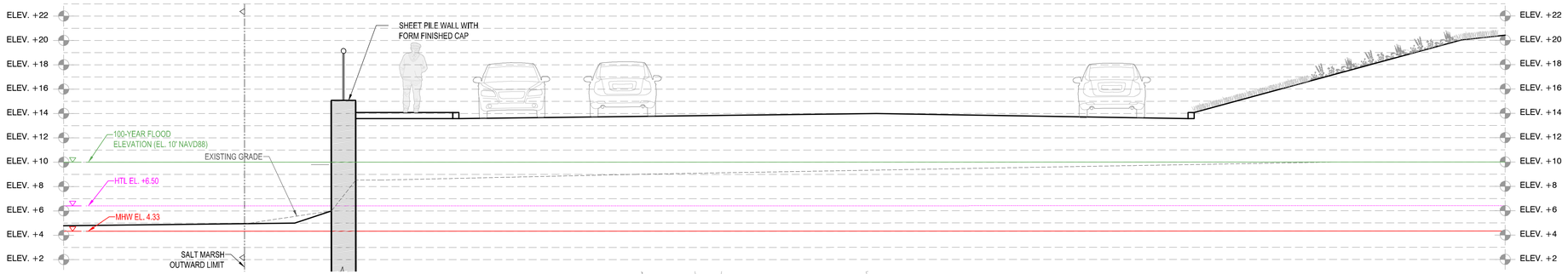
SECTION E



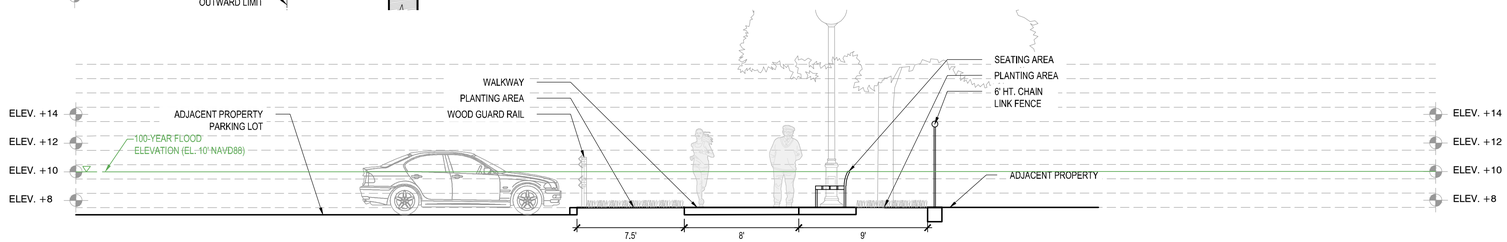
SECTION F



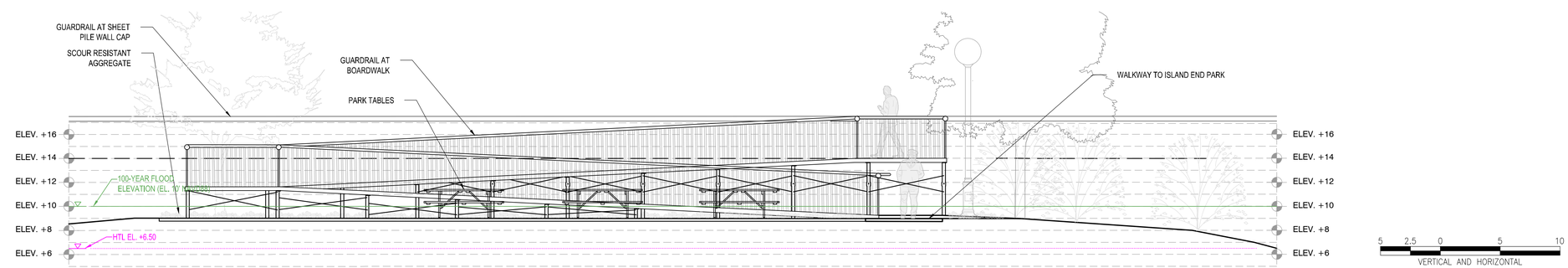
SECTION G



SECTION H



ELEVATION A



NOTE:

1. **SEE LAYOUT AND MATERIALS PLANS C-103 AND C-104 FOR SITE SECTIONS.**
2. **NOT SHOWN ON PROFILES: MEAN LOW WATER EL. = -5.16**
3. **ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.**
4. **LIMIT OF WORK IS NOT LESS THAN 100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATIONAL CHANNEL.**

VERTICAL AND HORIZONTAL
SCALE: 1"=5'

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

RESOURCE AREA IMPACT SECTION 2

Project No.:	ENG23-3095
Designed By:	LC, FD
Drawn By:	BK
Checked By:	TPC

RPE-C-302

Bar Measures 1 inch

PERMANENT IMPACTS			
Impact Zone	Volume		Footprint (sf)
	Dredge/ Excavation (cy)	Fill (cy)	
Below MLW	358	84	1776
MLW to MHW	766	158	3590
MHW to HTL	267	47	1619
Salt Marsh	92	92	737

TEMPORARY IMPACTS		
Project Component	**Impact Zone**	**Impact Footprint (sf)**
Cofferdam, Phase 1	Below MLW	0
	MLW to MHW	2121
	MHW to HTL	400
	Salt Marsh	0
Cofferdam, Phase 2	Below MLW	686
	MLW to MHW	2080
	MHW to HTL	213
	Salt Marsh	0
Totals	**Below MLW**	**686**
	MLW to MHW	**4201**
	MHW to HTL	**613**
	Salt Marsh	**0**

CUMULATIVE PERMANENT AND TEMPORARY IMPACTS	
Impact Zone	**Footprint (sf)**
Below MLW	686
MLW to MHW	4201
MHW to HTL	1619
Salt Marsh	737

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

BY | DESCRIPTION | DATE | MARK

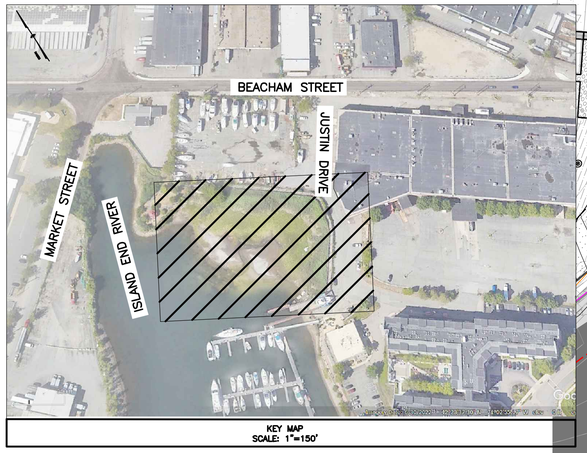
Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA
ISLAND END RIVER FLOOD RESILIENCE PROJECT

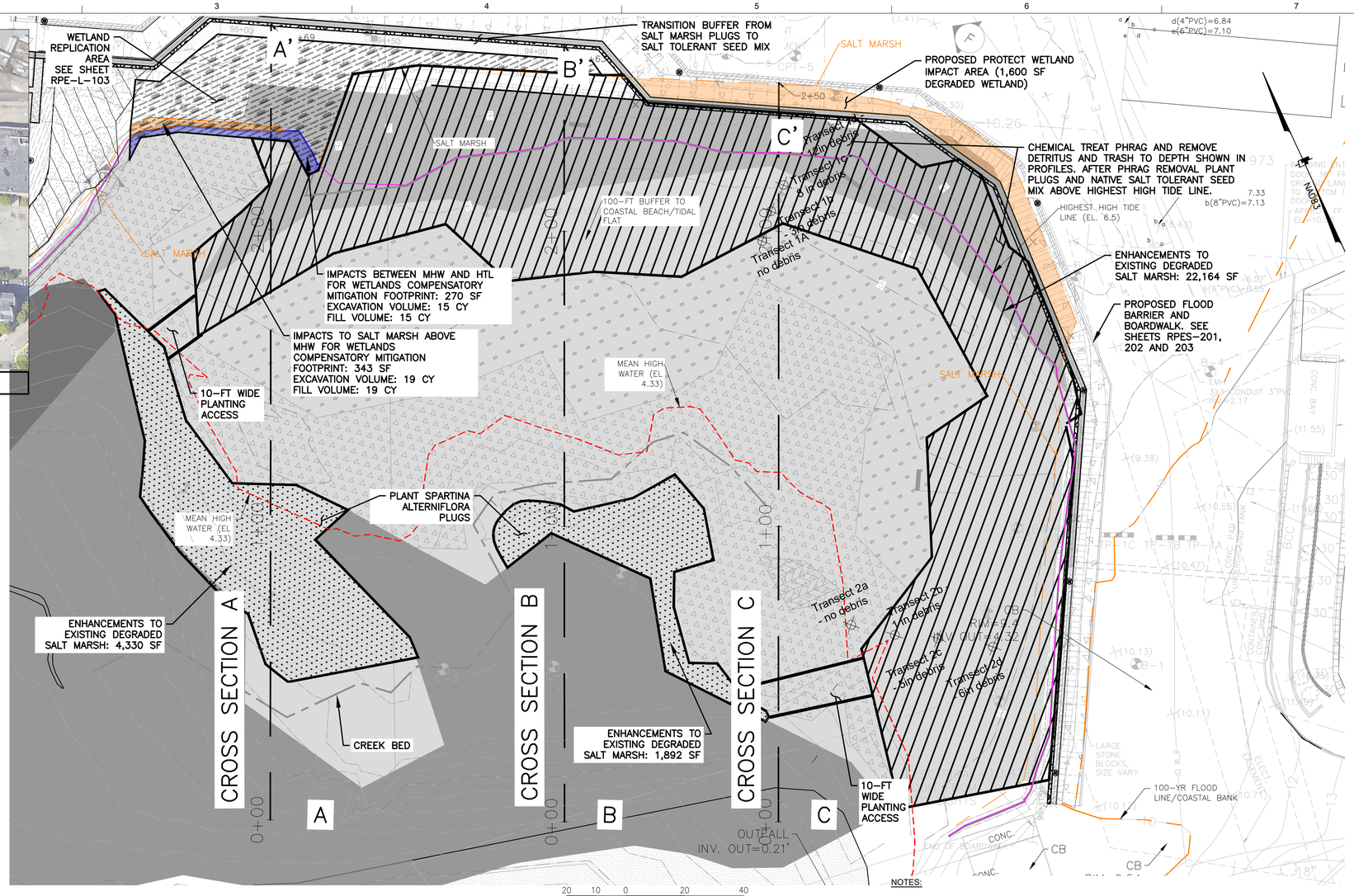
PROJECT IMPACTS TABLES

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

RPE-C-105

Bar Measures 1 inch





20 10 0 20 40
SCALE: 1"=20'

NOTES:

1. IMPROVEMENT WORK WILL OCCUR "IN THE DRY" DURING LOW TIDE CONDITIONS

LEGEND

VEGETATION/SOIL PROPOSED

PLUG PLANTINGS WITH A MIX OF SALTGRASS (DISTICHLIS SPICATA) AND SALT MARSH HAY (SPARTINA PATENS). SEED WITH NATIVE SALT TOLDERANT SEED MIX ONLY IF ABOVE HIGHEST HIGH TIDE LINE

SPARTINA ALTERNIFLORA PLUGS

DISTICHLIS SPICATA, SPARTINA PATENS, SPARTINA ALTERNIFLORA

VEGETATION/SOIL EXISTING

DISTICHLIS SPICATA

DISTICHLIS SPICATA/ SPARTINA ALTERNIFLORA

SPARTINA ALTERNIFLORA

CREEK CENTER

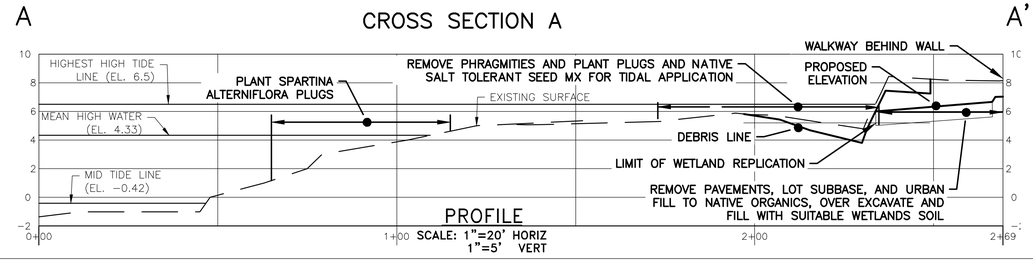
GRAVEL OVER MUCK

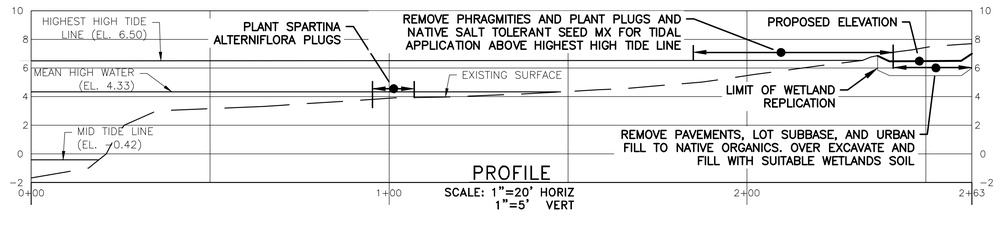
MUCK

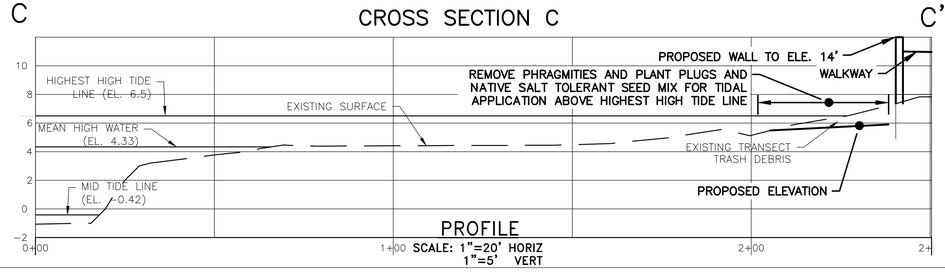
LOAM AND ORGANIC MATTER

FIBRIC ORGANIC MATTER

Debris Depths			
Point ID	Existing Surface Elevation (ft)	Depth (in) of Trash Removal	Proposed Elevation (ft)
1a	5.47	0	5.47
1b	5.61	3	5.36
1c	6.04	8	5.37
1d	6.67	12	5.67
2a	4.5	0	4.5
2b	4.54	1	4.46
2c	4.7	5	4.28
2d	4.86	6	4.36







Bar Measures 1 inch

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

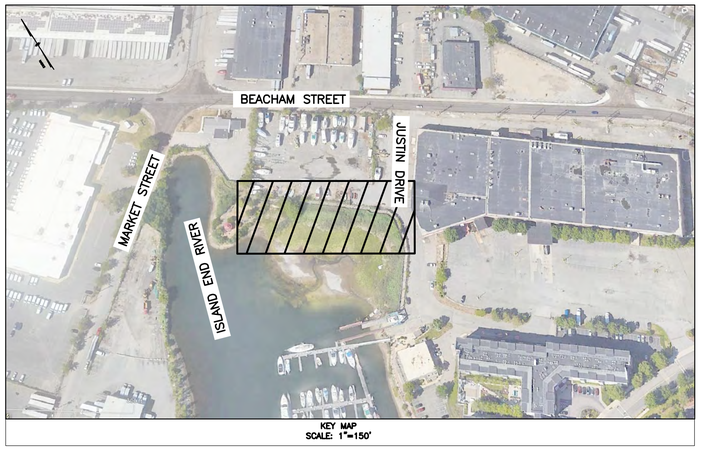
ISLAND END RIVER FLOOD RESILIENCE PROJECT

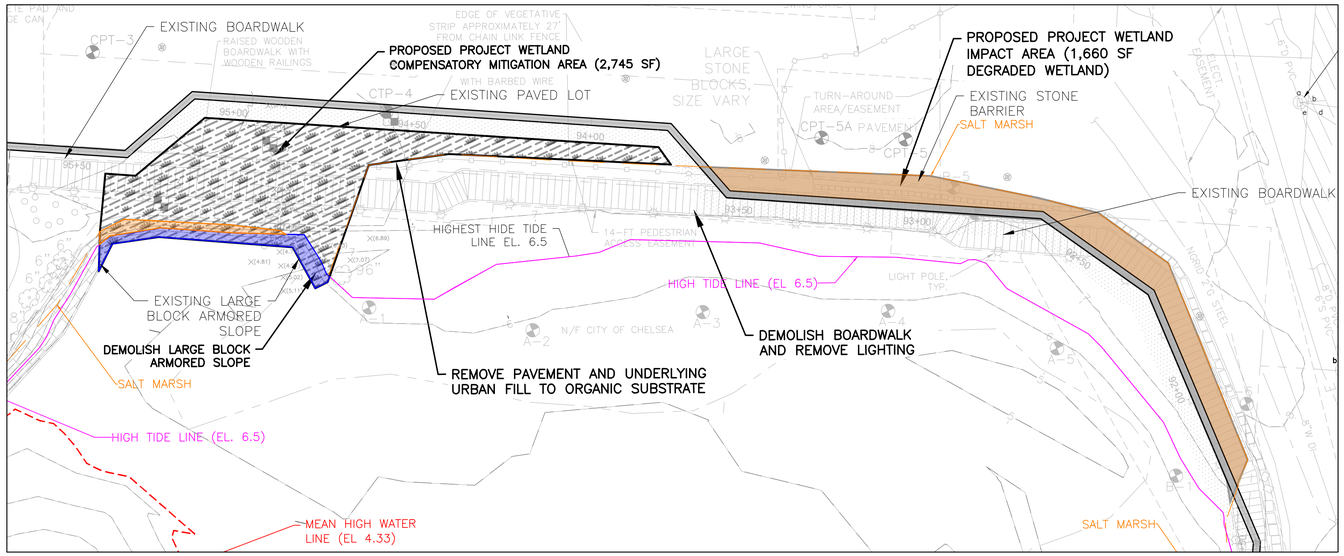
PLANTING PLAN - 2 (COMPENSATORY MITIGATION)

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	DKH
Checked By:	TPC

RPE-C-110

11/12/2024 9:30:38 AM - \\WSE03.LOCAL\WSEIPROJECTS\MA\EVERETT\ISLAND END RIVER AREA\CAD\60% DESIGN\PLOT\110 - WETLAND EXISTING CONDITIONS AND PLANTING PLAN 2 - WQC.DWG - WALSH, CONNOR





EXISTING CONDITIONS AND DEMOLITION PLAN

LEGEND:

= PROPOSED SALT MARSH COMPENSATORY MITIGATION

= PROPOSED SALT MARSH IMPACT AREA

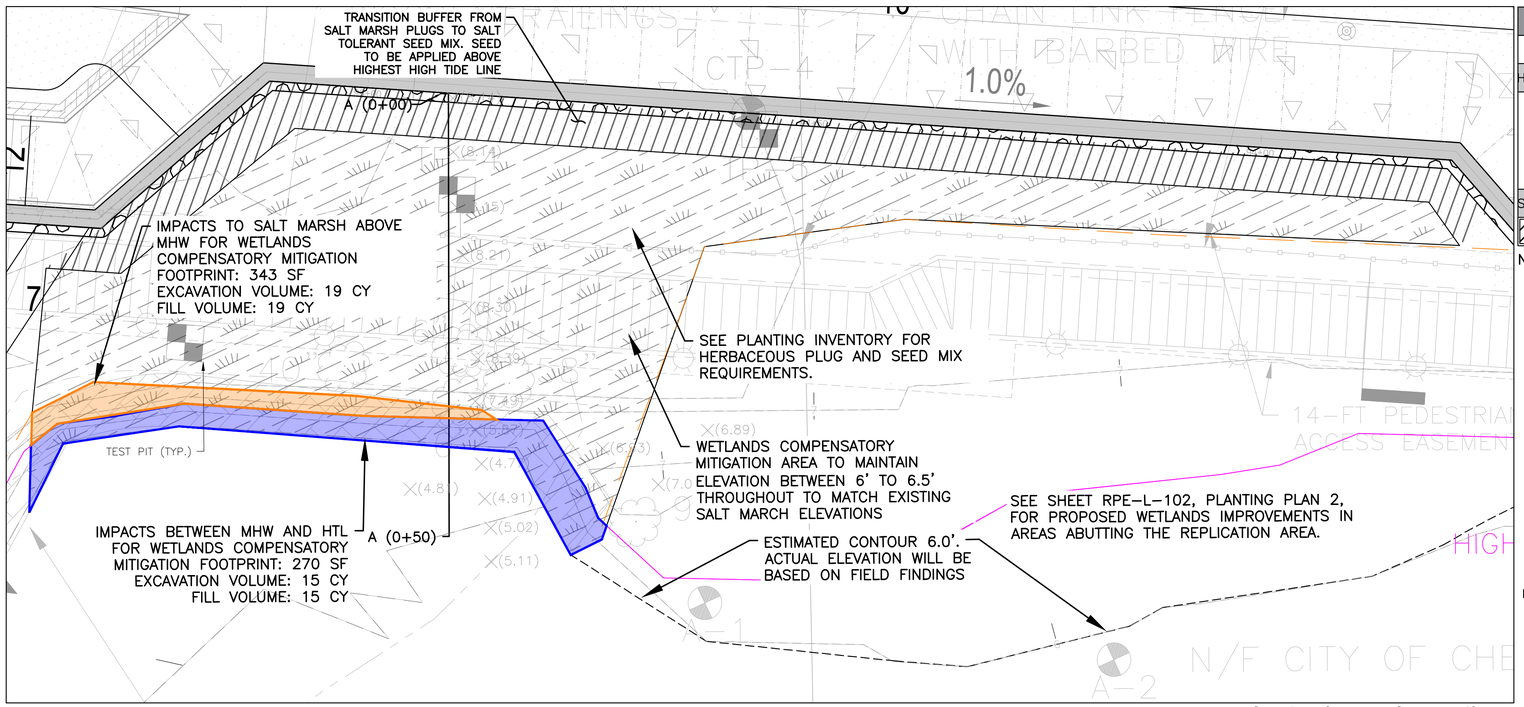
= PROPOSED SALT TOLERANT SEED MIX

SEE SHEET RPE–R–101 RESOURCE AREA IMPACT PLAN FOR RESOURCE BOUNDARIES AND WETLANDS FLAGS

SEE SHEET RPE–L–102, PLANTING PLAN–2, FOR EXISTING CONDITIONS IN AREAS ABUTTING THE REPLICATION AREA.

ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.

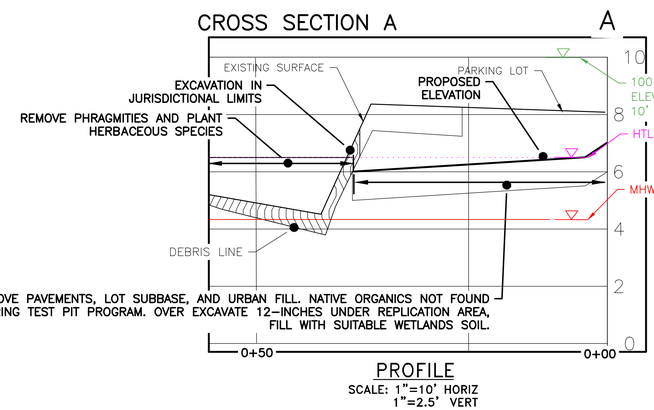
LIMIT OF WORK IS NOT LESS THAN 100 FEET FROM THE 6–FOOT ISLAND END RIVER FEDERAL NAVIGATION CHANNEL.



WETLAND COMPENSATORY MITIGATION PLAN

Planting Inventory						
Symbol	Type	Latin Name	Common Name	Quantity	Size	Spacing
HERBACEOUS						
	DS	Distichlis Spicata	Saltgrass	230	Plug	2'–0" O.C.
	SP	Spartina Patens	Saltmarsh Hay	230	Plug	2'–0" O.C.
	SA	Spartina Alterniflora	Smooth Cordgrass	230	Plug	2'–0" O.C.
SEED						
	New England Coastal Salt Tolerant Grass Mix for Tidal Application – New England Wetland Plants, Inc.				1 lb./1250 sq. ft.	

NOTE: SPECIES SHOULD BE PLANTED IN AN ALTERNATING PATTERN ACROSS THE PROPOSED PLANTING AREA.



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WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

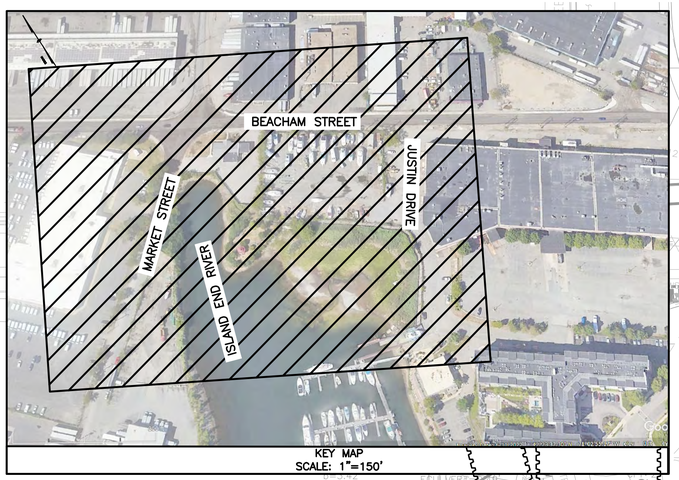
PLANTING PLAN - 3
(COMPENSATORY MITIGATION)

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

RPE-C-111

Bar Measures 1 inch

11/11/2024 1:50:10 PM - \\WSE03.LOCAL\WSE\PROJECTS\MA\EVERETT\ISLAND END RIVER AREA\CAD\60% DESIGN\PLOT\11 - PLANTING PLAN 3 WQC.DWG - WALSH, CONNOR



KEY MAP
SCALE: 1"=150'

COMPOST FILTER TUBE SECTION TO BE ADJUSTED BASED ON PHASE OF WORK

COFFERDAM PHASE II (APPROX. 2979 SF BELOW HTL, SEE SHEET RPE-C-105)

COMPOST FILTER TUBE

COFFERDAM PHASE I (APPROX. 2521 SF BELOW HTL, SEE SHEET RPE-C-105)

CATCH BASIN PROTECTION (TYP.)

TURBIDITY CURTAIN

SEE RPW-C-101 FOR RESILIENCE PROVISIONS WEST LAYOUT & MATERIAL PLAN

MEAN LOW WATER LINE EL. -5.16'

MEAN HIGH WATER LINE (EL 4.33)

HIGH TIDE LINE (EL. 6.5)

100-YR FLOOD LINE (EL. 10 NAVD88)

500-YR FLOOD ZONE

CHELSEA FIRM PANEL ID: 25025C0018J EFF. 03/16/2016

EVERETT FIRM PANEL ID: 25017C0443E EFF. 03/04/2010

COMMONWEALTH OF MASSACHUSETTS PARCEL

ISLAND END RIVER

FLOOD

EBB

SALT MARSH

BEACHAM STREET

JUSTIN DRIVE

BOSTON MARINA BOAT YARD N/F DEVELOPMENT AND MARKETING GROUP 359 BEACHAM STREET

N/F CITY OF CHELSEA 380 BEACHAM STREET

N/F SWANSBURG EDWARD ET AL TRUSTEES 350 BEACHAM STREET

N/F M. CUTONE MUSHROOM CO., INC. 125 MARKET STREET

N/F M&T BANK 357 BEACHAM STREET

N/F UNITED STATES POSTAL SERVICE 307 BEACHAM STREET

N/F DMG BROOKLINE I, LLC 145 MARKET STREET

WESTBROOK PARTNER N/F JDC 65R OWNER I 100 JUSTIN DRIVE

EVERSOURCE 115KV DUCT BANK (2019)

12"W CICL (1968)

12"W DI (1981)

3-4" CONDUITS

8"S PVC

8"S CMP

6"S CI CIPP

6"S CLAY

8"W DI

12"D CMP

12"D HDPE

18"D HDPE

5-FT PEDESTRIAN ACCESS EASEMENT

26-FT ACCESS EASEMENT

30' WIDE CAR AND BOAT TRAILER ACCESS EASEMENT (BOOK 40072/PAGE 172)

EDGE OF VEGETATIVE STRIP APPROXIMATELY 27' FROM CHAIN LINK FENCE

33-FT WIDE ACCESS EASEMENT

ELECTRIC EASEMENT

LIGHT POLE

DAMAGED HYDRANT, OPERATING STEM VISIBLE

CONCRETE PAD AND GARBAGE CAN

BENCH

BIKE RACKS

PICNIC TABLES, TYP. OF 3

DOUBLE DOOR SWING GATE

LARGE STONE BLOCKS, SIZE VARY

TURN-AROUND AREA/EASEMENT

BUILDING ENTRANCE DOOR 11" FROM GROUND LANDING TO BOTTOM OF DOOR

BOLLARD

LIGHT FIXTURE

UTILITY COVER WITH CMP RISER, 66" TO T.O.W. NO VISIBLE PIPE

TWO-TIER WOOD RET. WALLS (36" HEIGHT)

STONE BLOCKS (EXACT SIZE VARY)

CONC. CURB

OUTFALL INV. OUT=0.21'

COULD NOT OPEN

N/F DEVELOPMENT AND MARKETING GROUP

COMPOST FILTER TUBE UNDER BOAT LAUNCH

NOTE:
1) SEE SHEET RPE-C-001 FOR EROSION AND SEDIMENT CONTROL NOTES.
2) SEE SHEET RPE-C-501 FOR EROSION AND SEDIMENT CONTROL DETAILS.
3) COMPOST FILTER TUBES SHALL BE CONDIGURES AROUND ACTIVE WORK ZONES AND REMOVED AFTER CONCLUSION OF ACTIVITY AND STABILIZATION OF SURFACES. INSTALL EROSION AND SEDIMENT CONTROL IMMEDIATELY AFTER THE SITE IS CLEARED AND BEFORE EXCAVATION BEGINS.
4) ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
5) LIMITS OF WORK IS NOT LESS THAN 100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATION CHANNEL.

30 15 0 30 60
SCALE: 1"=30'

Bar Measures 1 inch

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

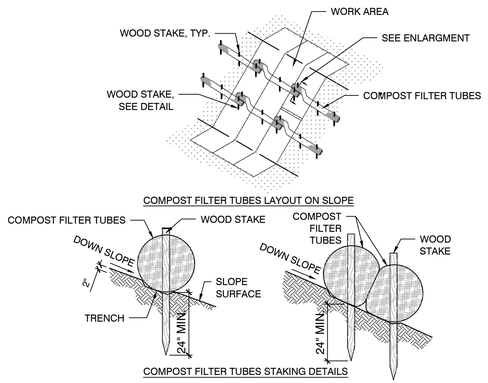
ISLAND END RIVER FLOOD RESILIENCE PROJECT

EROSION AND SEDIMENT CONTROL PLAN (STA. 90+11 - 100+00)

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

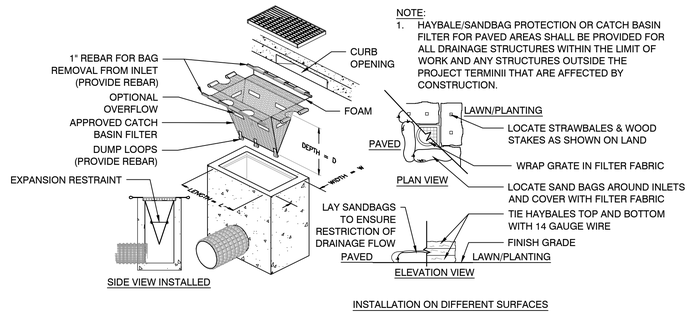
RPE-C-112

11/11/2024 1:42:18 PM - \\WSE03.LOCAL\WSE\PROJECTS\MA\EVERETT\ISLAND END RIVER AREA\CAD\60% DESIGN\PLOT\12 - EROSION AND SEDIMENT CONTROL WOC.DWG - WALSH, CONNOR



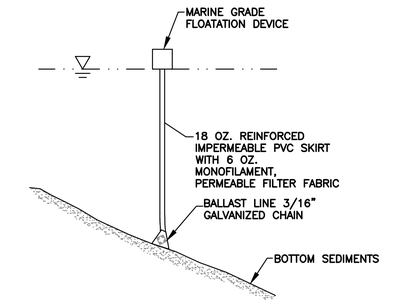
1 SEDIMENT CONTROLS - COMPOST FILTER TUBES

SCALE: N.T.S.



2 INLET SEDIMENT CONTROL- CB PROTECTION

SCALE: N.T.S.

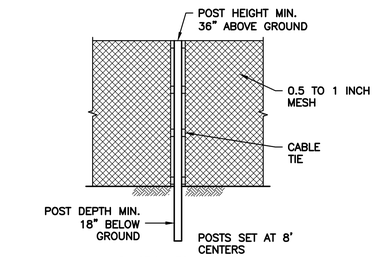


NOTES:

1. INSTALL THE TURBIDITY CURTAIN PRIOR TO STARTING WORK.
2. SECURELY FASTEN THE RIGHT AND LEFT ENDS OF THE TURBIDITY CURTAIN ALONG THE SHORE LINE. PROVIDE INTERMEDIATE ANCHORING DEVICES IF NECESSARY TO KEEP THE TURBIDITY CURTAIN IN POSITION.
3. IF NECESSARY, JOIN ADJACENT ENDS OF TURBIDITY CURTAIN BY CONNECTING REINFORCING GROMMETS AND SHACKLING BALLAST LINES.

3 SEDIMENT CONTROLS - TURBIDITY CURTAIN

SCALE: N.T.S.

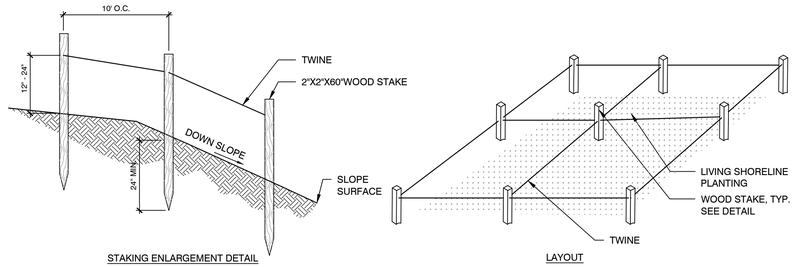


NOTES:

1. THE PLASTIC MESH FENCE SHALL BE PLACED ON THE UPLAND SIDE OF ALL RESTORATION AREAS AND ON THE WATER SIDE.
2. PROVIDE ACCESS GATES.

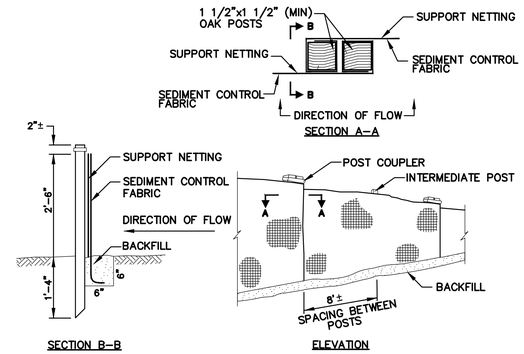
4 HERBIVORE DETERRENT FENCING

SCALE: N.T.S.



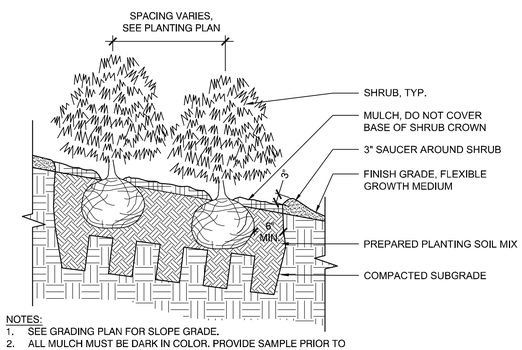
5 HERBIVORE DETERRENT STAKE AND TWINE

SCALE: N.T.S.



6 SEDIMENT CONTROLS - SILT FENCE

SCALE: N.T.S.

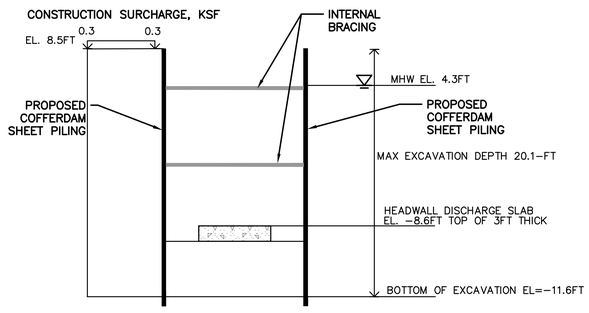


NOTES:

1. SEE GRADING PLAN FOR SLOPE GRADE.
2. ALL MULCH MUST BE DARK IN COLOR. PROVIDE SAMPLE PRIOR TO INSTALLATION TO BE APPROVED BY OWNER'S REPRESENTATIVE.

7 SHRUB PLANTING AT SLOPE

SCALE: N.T.S.



8 COFFERDAM TYPICAL DETAIL

SCALE: N.T.S.

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

EROSION AND SEDIMENT CONTROL DETAILS

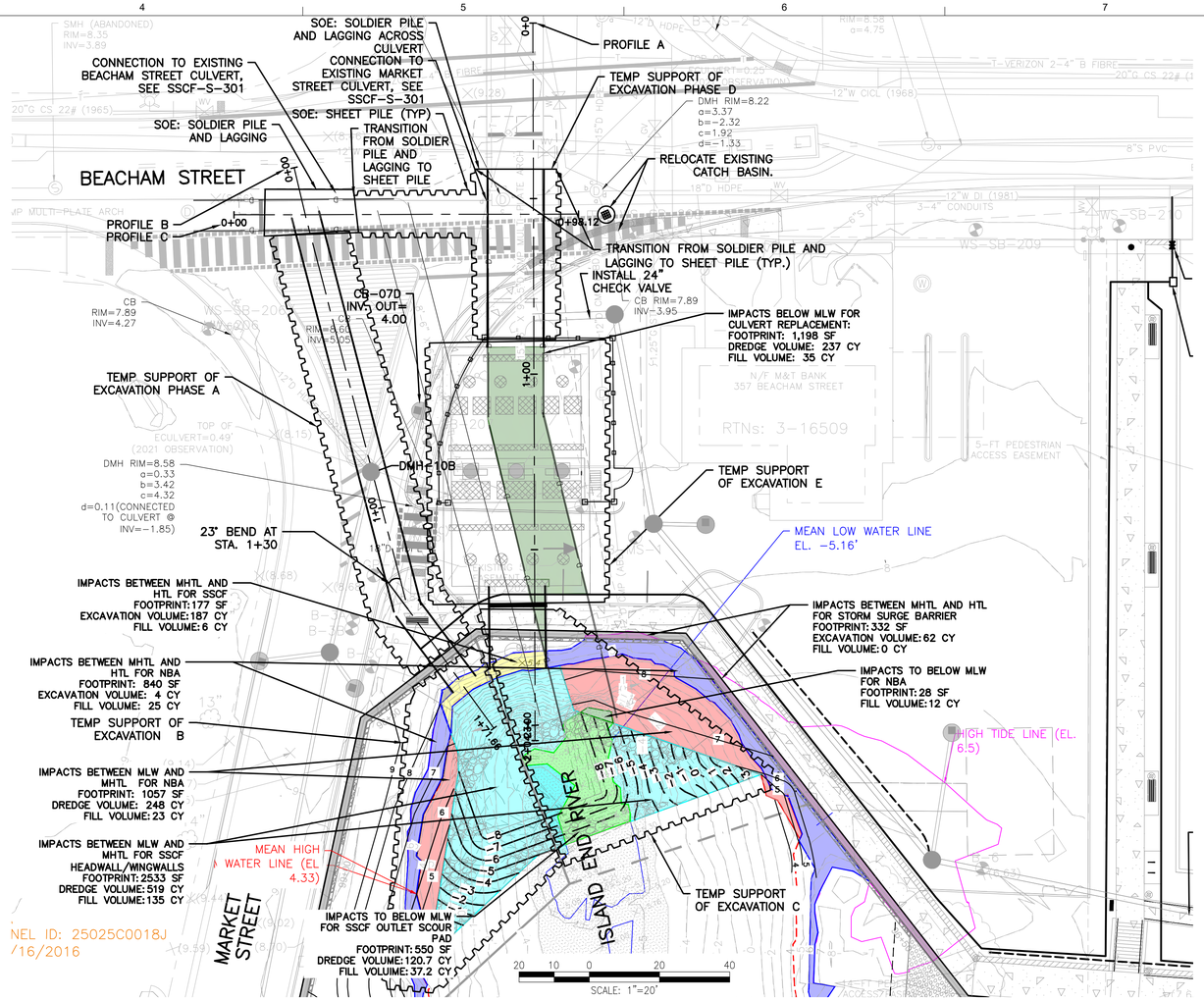
Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

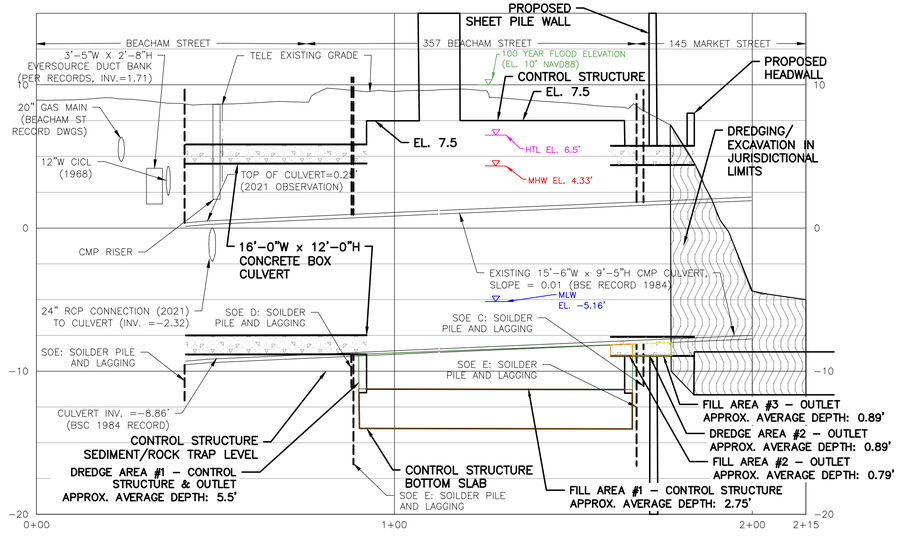
RPE-C-501

Bar Measures 1 inch

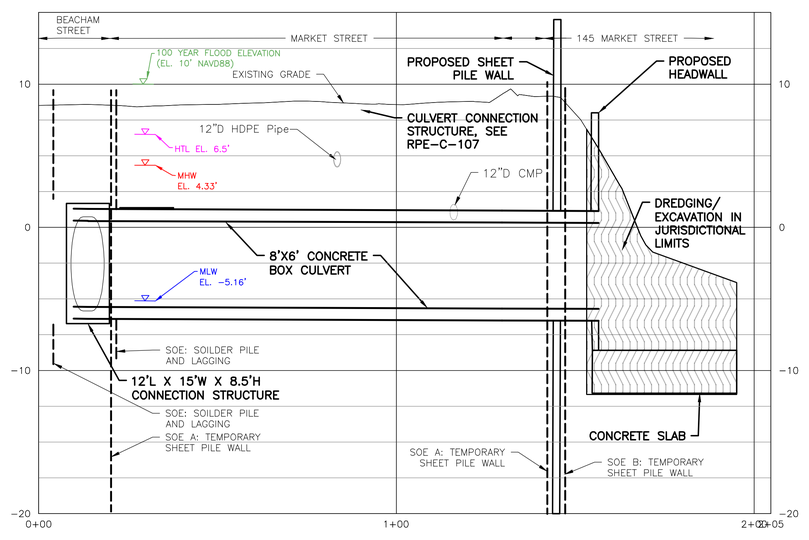
NOTES:

1. THE LIMITS OF THE EXCAVATION SUPPORT SYSTEMS AND COFFERDAMS ARE CONCEPTUAL. THE CONTRACTOR IS RESPONSIBLE FOR FINAL DESIGN OF THE EXCAVATION SUPPORT SYSTEM TO BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF MASSACHUSETTS IN ACCORDANCE WITH SPECIFICATION SECTION 31 50 00.
2. MINIMUM DESIGN LOADS FOR THE SUPPORT OF EXCAVATION SYSTEMS ARE SHOWN ON SHEET SSCF-C-505.
3. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF EXISTING UTILITIES, FOUNDATIONS, GUY WIRES, AND CULVERT STRUCTURES RELATIVE TO THE PROPOSED EXCAVATION SUPPORT SYSTEM LOCATION.
4. ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
5. LIMITS OF WORK IS NOT LESS THAN 100-FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATION CHANNEL.

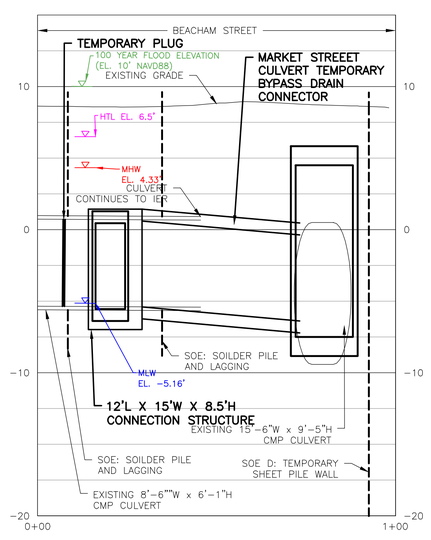




PROFILE A: MARKET STREET PROFILE



PROFILE B: BEACHAM STREET PROFILE



PROFILE C: TEMPORARY MARKET STREET BYPASS PROFILE

PROFILE
SCALE: 1"=20' HORIZ
1"=5' VERT

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

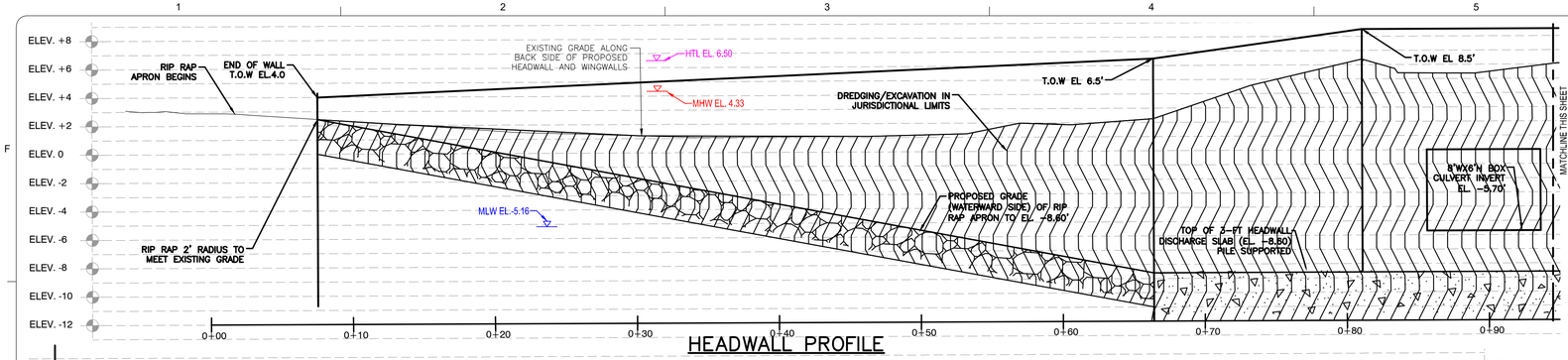
ISLAND END RIVER FLOOD RESILIENCE PROJECT

CULVERT PLAN AND PROFILES

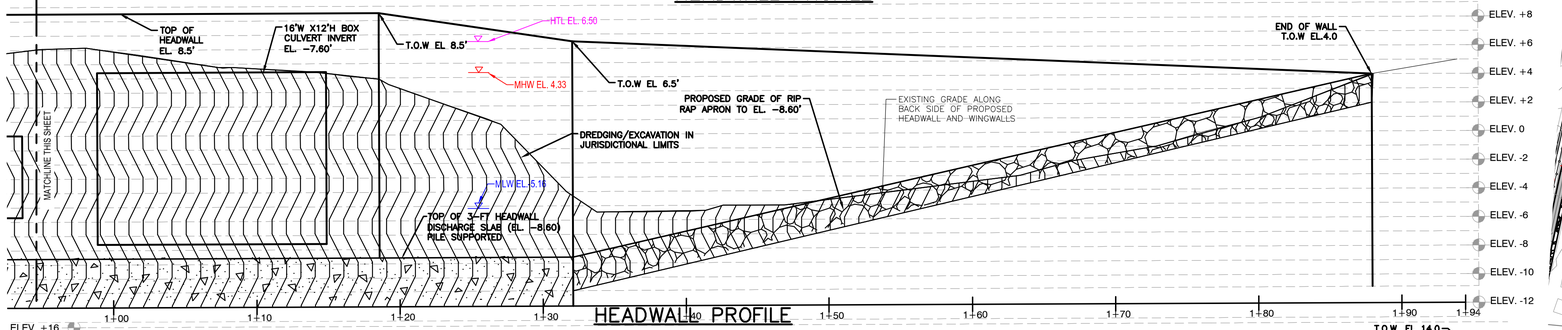
Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

SSCF-C-201

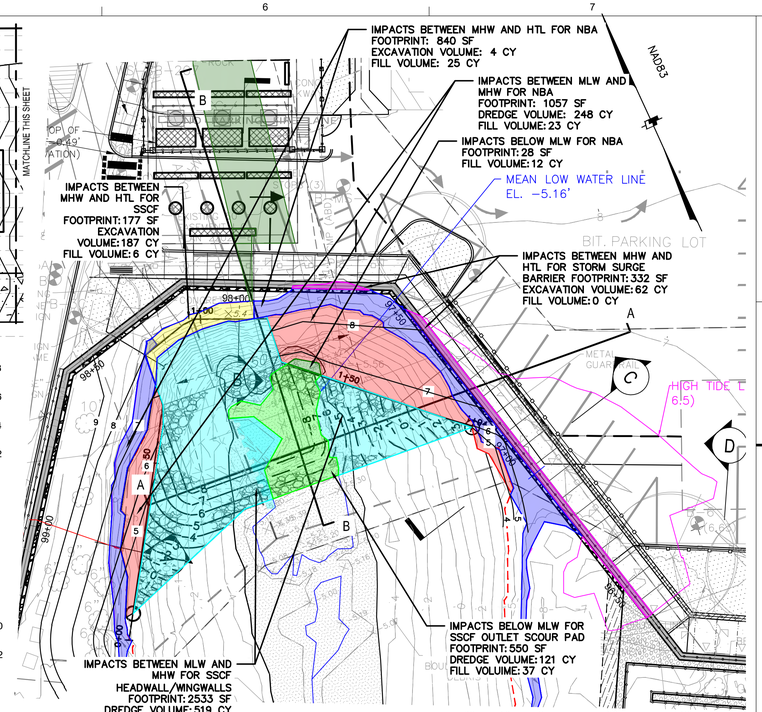
Bar Measures 1 inch



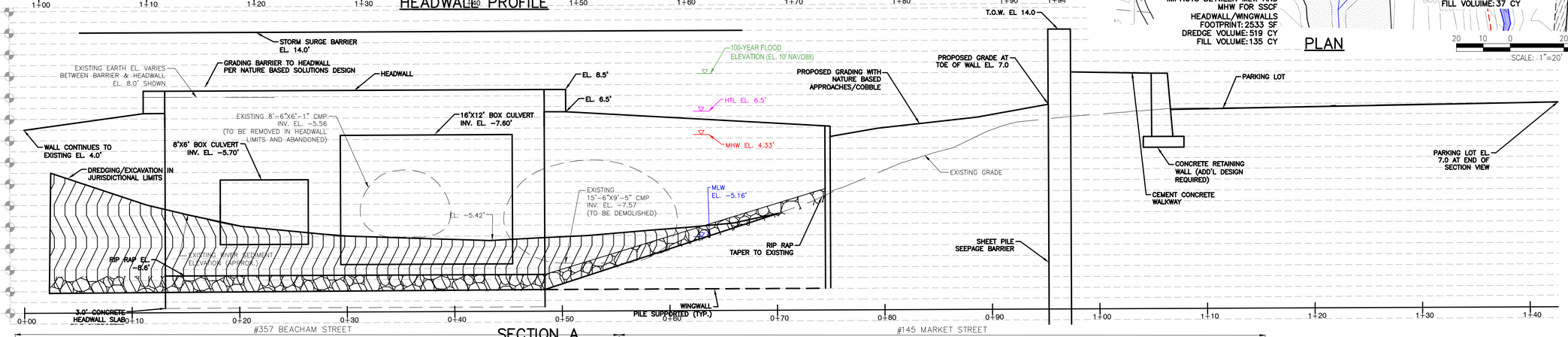
HEADWALL PROFILE



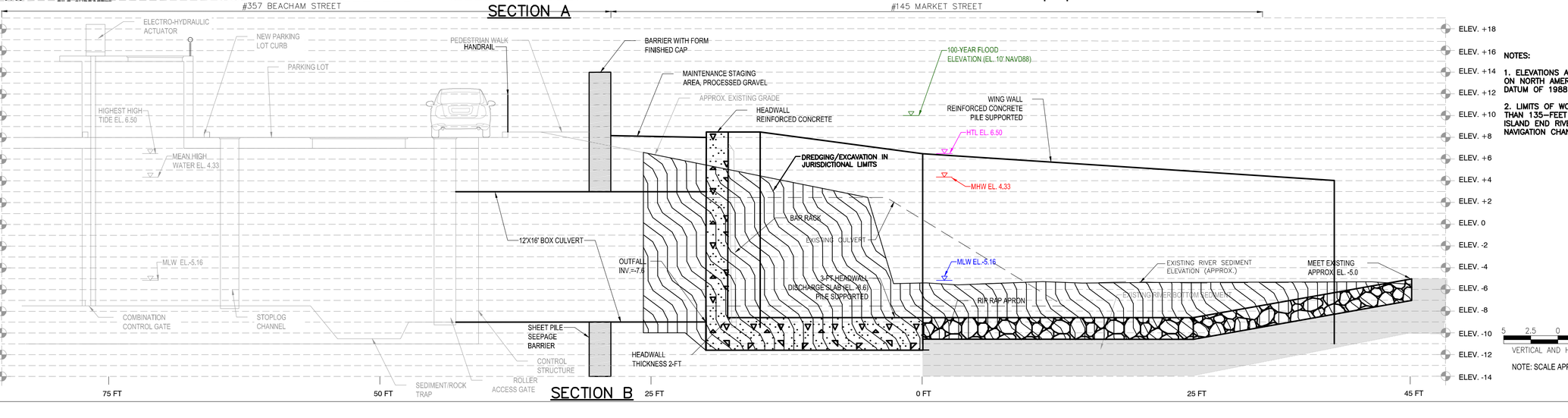
HEADWALL PROFILE



PLAN



SECTION A



SECTION B

NOTES:

1. ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.
2. LIMITS OF WORK IS NOT LESS THAN 135-FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATION CHANNEL.

5 2.5 0 5 10
VERTICAL AND HORIZONTAL SCALE: 1"=5'

NOTE: SCALE APPLIES TO ALL SECTION AND PROFILES

Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

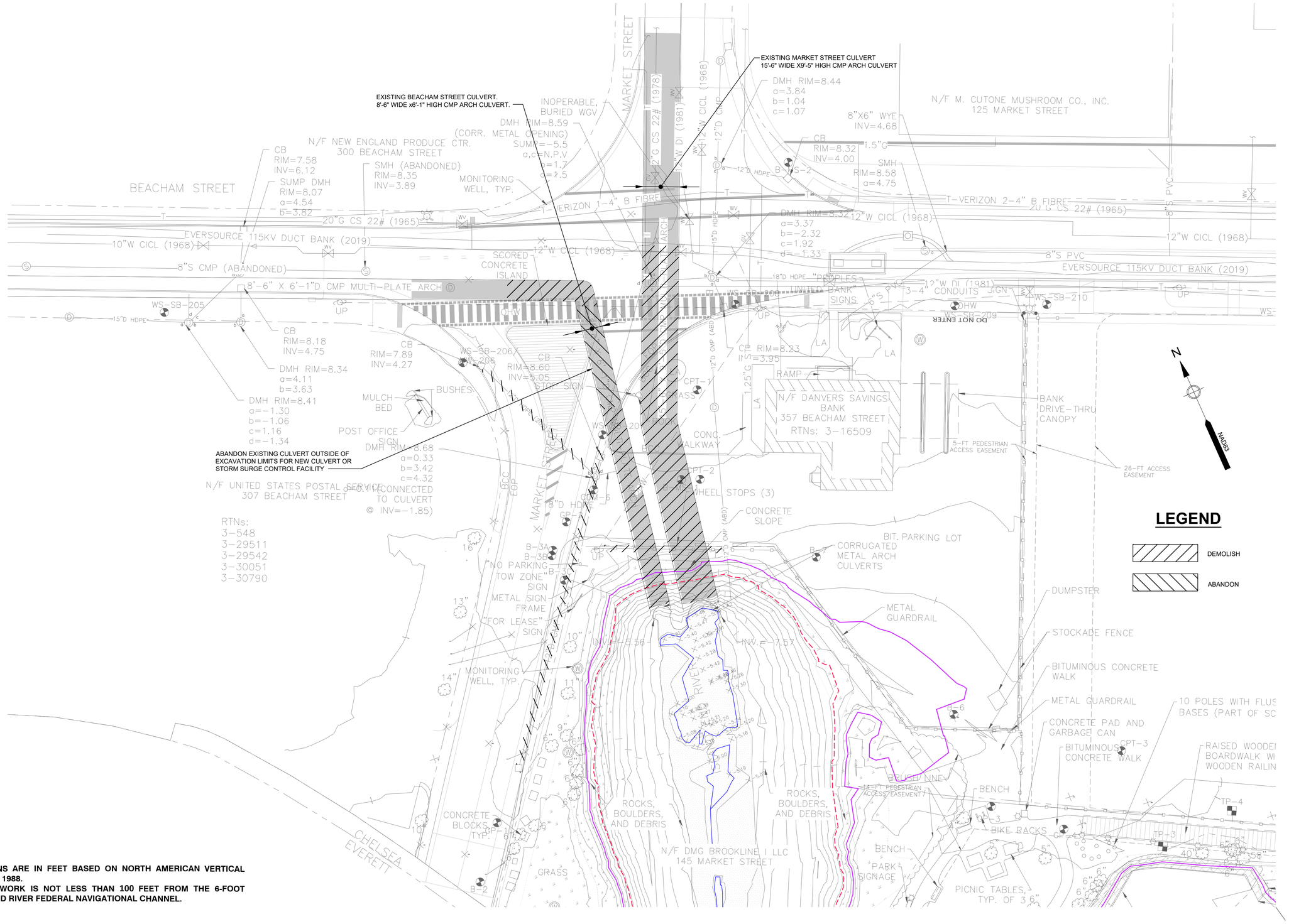
ISLAND END RIVER FLOOD RESILIENCE PROJECT

HEADWALL SECTIONS - 1

Project No.:	ENG23-3095
Designed By:	CFW
Drawn By:	CFW
Checked By:	TPC

SSCF-C-301

Bar Measures 1 inch



LEGEND

- DEMOLISH
- ABANDON

NOTE:

1. **ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.**
2. **LIMIT OF WORK IS NOT LESS THAN 100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATIONAL CHANNEL.**

PLAN

SCALE: 1"=20'

1" = 20' SCALE 0 20 40 60 FEET

Bar Measures 1 inch

AECOM
SUBCONSULTANT TO
Weston & Sampson
WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

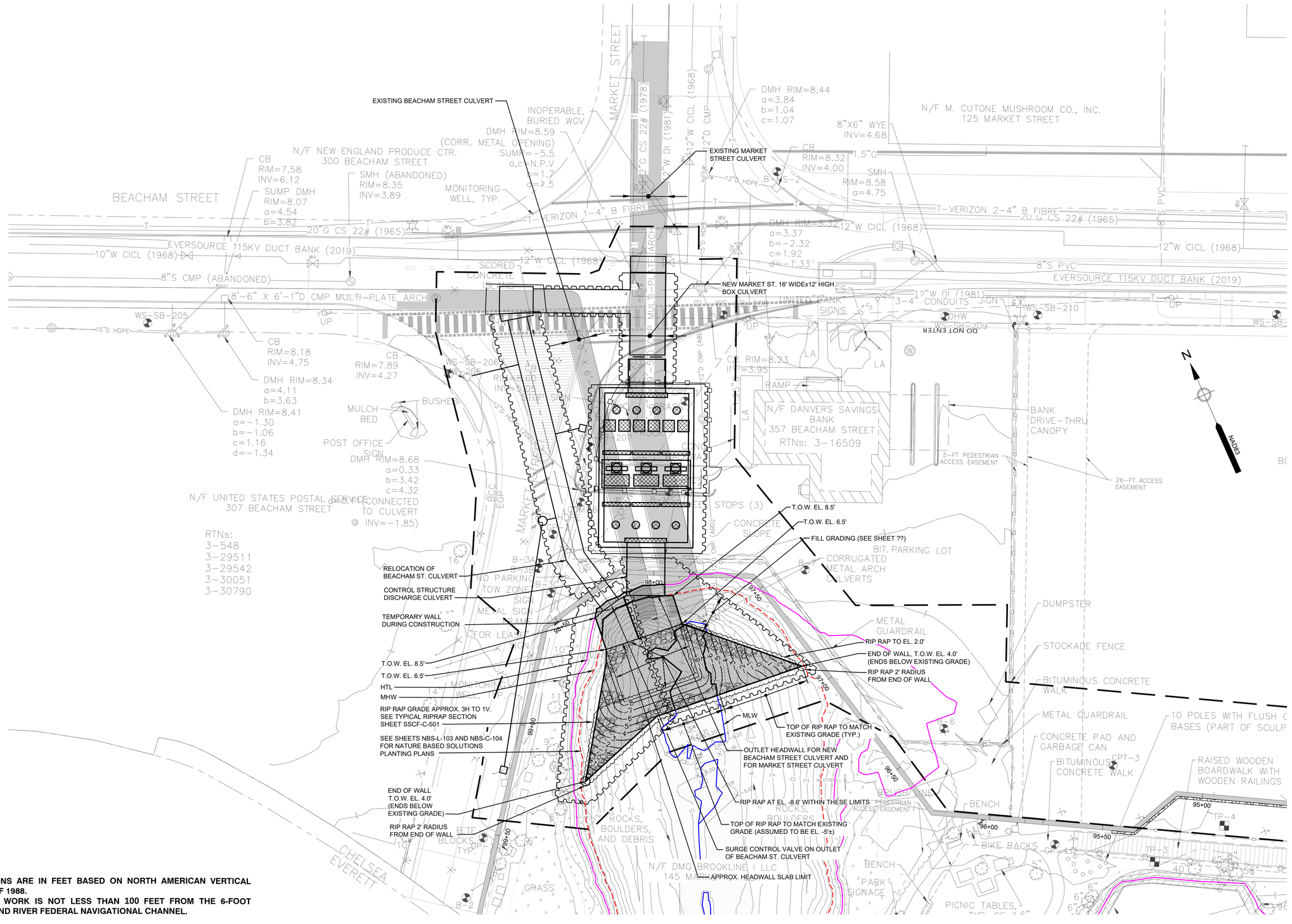
Client: Cities of Chelsea & Everett
Proj.,Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

DEMOLITION PLAN

Project No.:	ENG23-3095
Designed By:	MM
Drawn By:	SN
Checked By:	CB

SSCF-C-101



NOTE:

1. **ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.**
2. **LIMIT OF WORK IS NOT LESS THAN 100 FEET FROM THE 6-FOOT ISLAND END RIVER FEDERAL NAVIGATIONAL CHANNEL.**

PLAN

SCALE: 1"=20'

1" = 20' SCALE 0 20 40 60 FEET

Bar Measures 1 inch

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SUBCONSULTANT TO
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WESTON & SAMPSON ENGINEERS, INC.
55 WALKERS BROOK DRIVE, READING, MA 01867
PHONE: 978-532-1900

MARK	DATE	DESCRIPTION	BY

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

CONSTRUCTION PLAN

Project No.:	ENG23-3095
Designed By:	MM
Drawn By:	SN
Checked By:	CB

SSCF-C-102

10/2/2024 11:40:40 AM - \\WSE03.LOCAL\WSE\PROJECTS\MA\EVERETT\ISLAND END RIVER AREA\CAD\60% DESIGN\PLOT\18 - HEADWALL SECTIONS_WQC.DWG - WALSH, CONNOR

LEGEND:

- = MEAN LOW WATER
- = SALT MARSH
- = MEAN HIGH WATER
- = HIGH TIDE LINE

- = NATIVE SALT TOLERANT SEED MIX
- = SPARTINA PLUGS

SEE SHEET SSCF-C-201 AND SSCF-C-301 FOR SSCF SECTIONS AND SEE SHEET NBS-R-201 FOR NBA SECTIONS

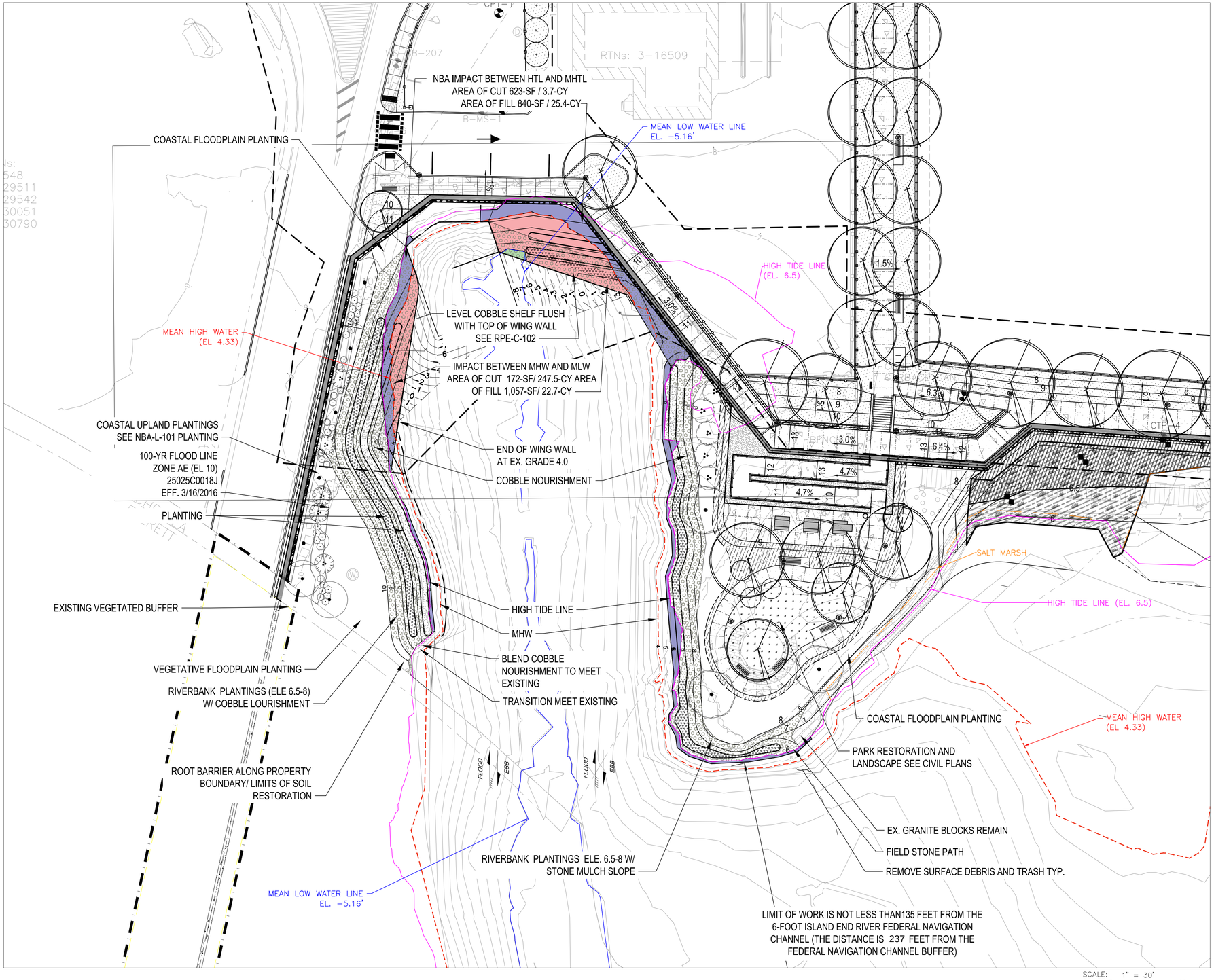
- = NBA IMPACT HTL TO MHTL
  AREA OF CUT 623-SF / 3.7-CY
  AREA OF FILL 840-SF / 25.4-CY
- = NBA IMPACT MHTL TO MLW
  AREA OF CUT 172-SF/ 247.5-CY
  AREA OF FILL 1,057-SF/ 22.7-CY
- = NBA IMPACT BELOW MLW
  AREA OF FILL
  28SF/ 12.2 CY

ALL ELEVATIONS ARE IN FEET BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.

ENTIRE SITE SHOWN IS WITHIN FLOOD ZONE AE 100-YEAR FLOOD ELEVATION (EI. 10'NAVD88)

SOURCE
FEMA_NFHL_POLY
July 2, 2023
Latest Study Effective Date = 6/21/2023
Latest LOMR Effective Date = 11/28/2022

25017C
1.1.1.0
25017C_2531
NP
zone AE



NBA SURFACE MATERIALS LEGEND

- COASTAL RIVERBANK PLANTED WITH COBBLE MULCH
- COSTAL BEACH (LOW, HI) PLANTING
- COSTAL FLOODPLAIN PLANTING SALT FLOOD TOLERANT UPLAND PLANTINGS

CORRESPONDS TO SHEET NBA-R-205 IN DO SET

BSC GROUP
BUILD | SUPPORT | CONNECT
803 Summer Street
Boston, Massachusetts 02127
PHONE: 617-896-4300

MARK	DATE	DESCRIPTION	BY
			DM
			CB

Client: Cities of Chelsea & Everett
Proj. Loc.: Chelsea & Everett, Massachusetts

ISLAND END RIVER FLOOD RESILIENCE PROJECT

NATURE-BASED APPROACH

PLANTING PLAN

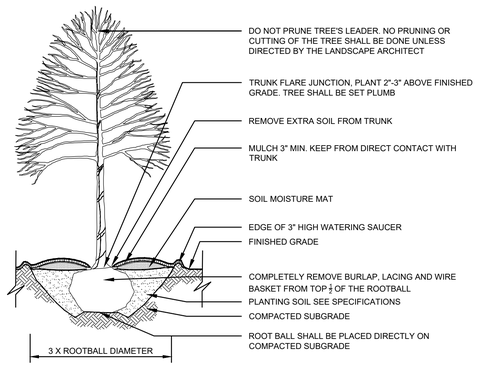
Project No.:	89561.05
Designed By:	BSC
Drawn By:	DM
Checked By:	CB

NBS L-101

Bar Measures 1 inch

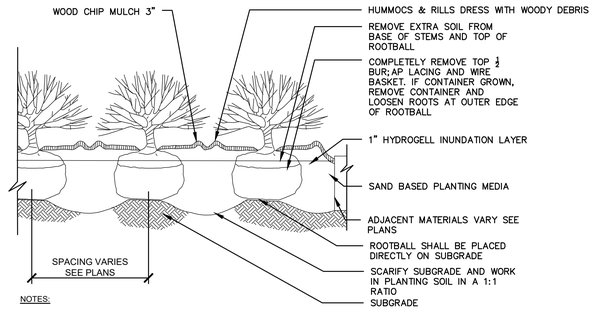
NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB CONDITION USING BELOW GRADE ANCHORS, SEE DETAIL BELOW
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. PROVIDE SOIL MOISTURE MAT FOR ALL NEW TREES



DECIDUOUS TREE PLANTING DETAIL

SCALE: NONE

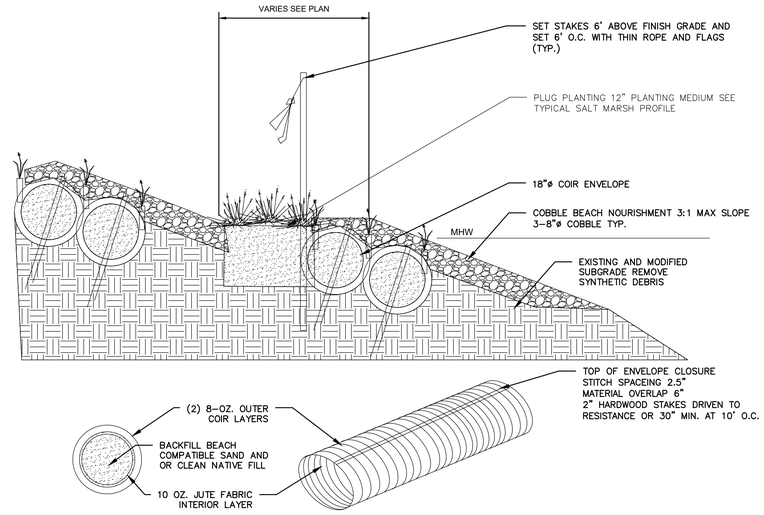


NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE LANDSCAPE ARCHITECT.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. REMOVE ALL CONTAINERS OR SYNTHETIC WRAPPINGS

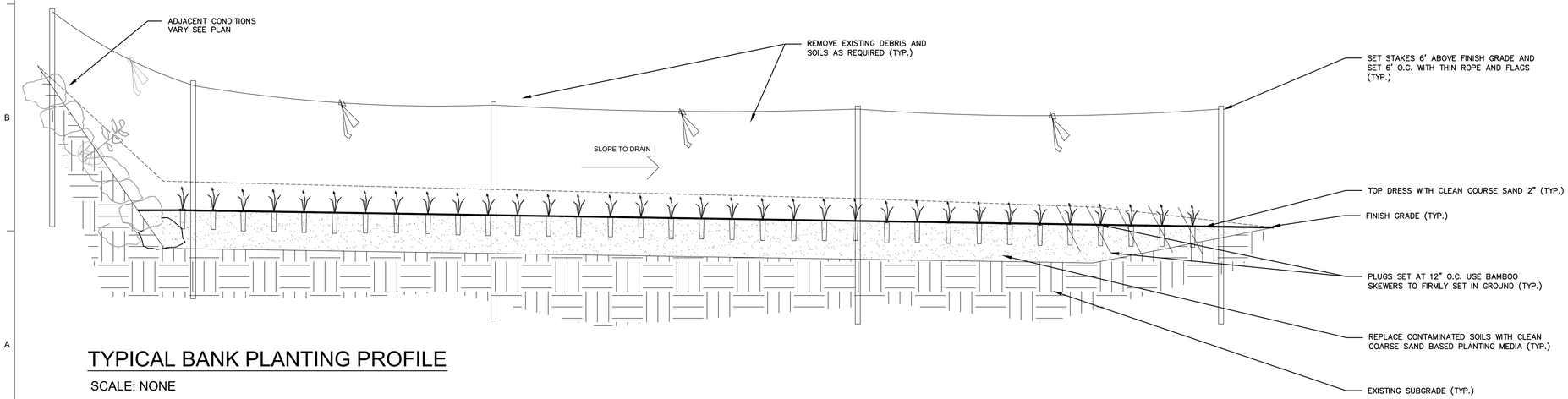
SHRUB/ TREE COASTAL REPLICATION PLANTING DETAIL

SCALE: NONE



COIR ENVELOPE AND COBBLE BEACH

SCALE: NONE



TYPICAL BANK PLANTING PROFILE

SCALE: NONE

BSC GROUP
BUILD | SUPPORT | CONNECT
803 Summer Street
Boston, Massachusetts 02127
PHONE: 617-896-4300

MARK	DATE	DESCRIPTION	BY
			DM
			CB

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co. and Everett, Middlesex Co., MA

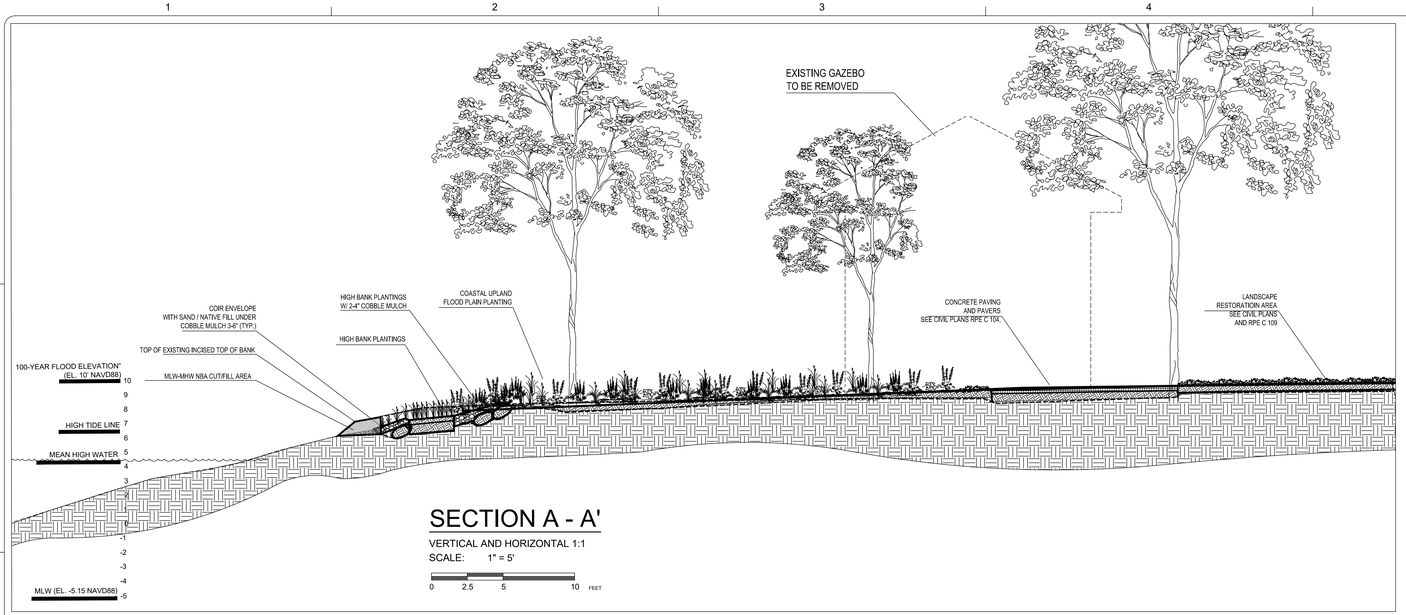
ISLAND END RIVER FLOOD RESILIENCE PROJECT

PLANTING DETAILS

Project No.:	89561.05
Designed By:	BSC
Drawn By:	DM
Checked By:	CB

NBS L-102

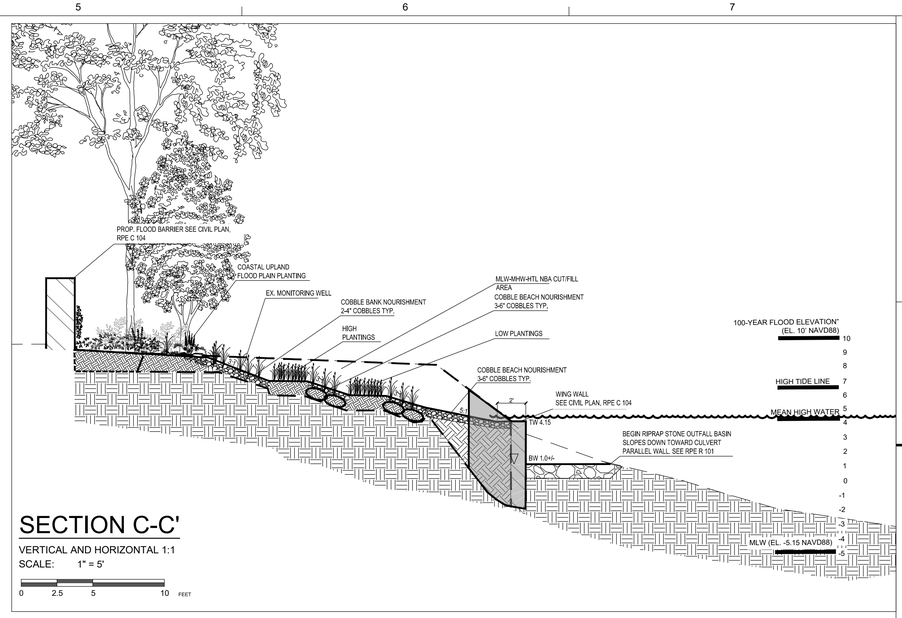
Bar Measures 1 inch



SECTION A - A'

VERTICAL AND HORIZONTAL 1:1
SCALE: 1" = 5'

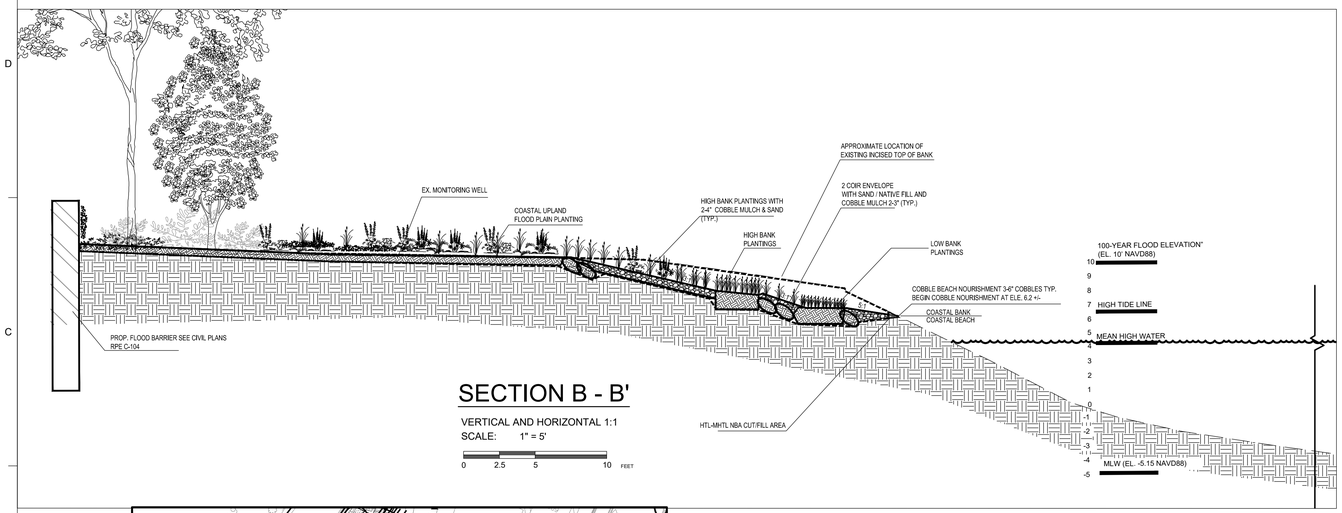
0 2.5 5 10 FEET



SECTION C-C'

VERTICAL AND HORIZONTAL 1:1
SCALE: 1" = 5'

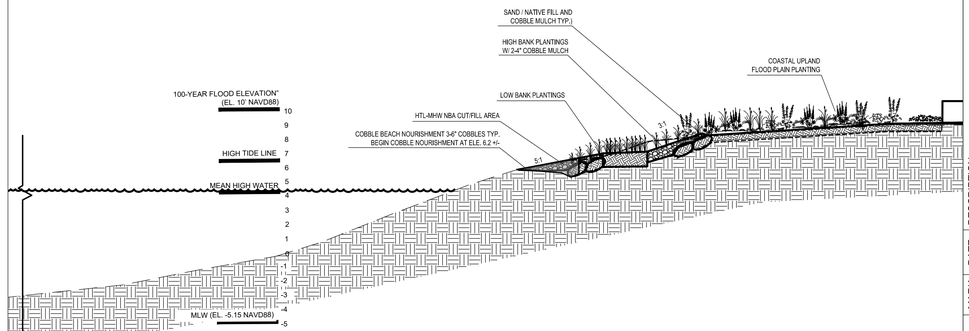
0 2.5 5 10 FEET

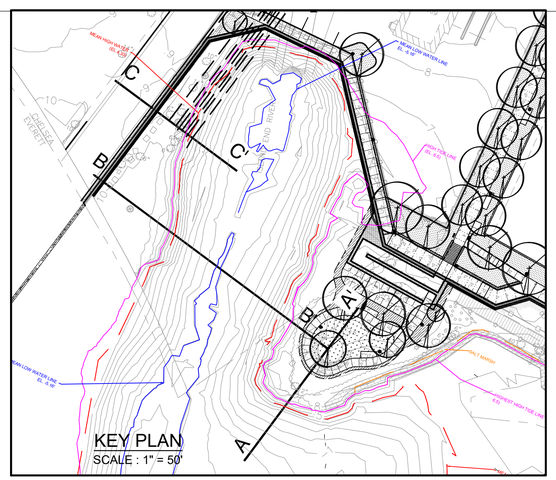


SECTION B - B'

VERTICAL AND HORIZONTAL 1:1
SCALE: 1" = 5'

0 2.5 5 10 FEET





ALL ELEVATIONS ARE IN FEET
BASED ON NORTH AMERICAN
VERTICAL DATUM OF 1988.

LIMIT OF WORK IS NOT LESS THAN 100
FEET FROM THE 6-FOOT ISLAND END
RIVER FEDERAL NAVIGATION CHANNEL.
(THE DISTANCE IS 236.8 FEET FROM THE
FEDERAL NAVIGATION CHANNEL BUFFER)

BSC GROUP
BUILD | SUPPORT | CONNECT
803 Summer Street
Boston, Massachusetts 02127
PHONE: 617-896-4300

MARK	DATE	DESCRIPTION	BY
			DM
			CB

Client: Cities of Chelsea & Everett
Proj. Loc.: Island End River, Chelsea, Suffolk Co, and Everett, Middlesex Co., MA

ISLAND END RIVER FLOOD RESILIENCE PROJECT

RESOURCE AREA IMPACT SECTIONS

Project No.:	89561.05
Designed By:	BSC
Drawn By:	DM
Checked By:	CB

NBA R 201

Bar Measures 1 inch