US Army Corps of Engineers
New England District

U.S. ARMY

PUBLIC NOTICE

Comment Period Begins: April 23, 2024
Comment Period Ends: May 23, 2024
File Number: NAE-2023-00894
In Reply Refer to: Dan Vasconcelos, Regulatory Division
Phone: (978) 318-8653
Email: daniel.b.vasconcelos@usace.army.mil

The District Engineer, U.S. Army Corps of Engineers, New England District (USACE), has received a permit application, file number NAE-2023-00894, to conduct work in waters of the United States from the Massachusetts Department of Transportation (MassDOT) – Highway Division, 10 Park Plaza, Boston, Massachusetts 02116. This work is proposed in the Weweantic River at the bridges conveying Route 6 (Marion and Wareham Roads) over the Weweantic River between Marion and Wareham, Massachusetts. The site coordinates are: Latitude 41.738053°N Longitude 70.746775°W.

The work involves the permanent discharge of fill material within 20,433 square feet (0.47 acres) of waters of the U.S., including 17,756 square feet within open water areas below the High Tide Line (HTL) of the Weweantic River, 1,764 square feet within salt marsh, and 913 square feet within non-tidal wetlands, associated with the reconstruction of approximately 3,000 linear feet of Route 6 (Marion and Wareham Roads) in Marion and Wareham, Massachusetts. The project includes roadway widening to accommodate four 11-foot travel lanes, 4-foot shoulders and two 10-foot shared use paths (SUPs), as well as the replacement of the two existing bridges conveying the road over the Weweantic River. The westernmost, two-span bridge in Marion will be replaced with a new two-span bridge. The easternmost, three-span bridge in Wareham will be replaced with a new three-span bridge. For both bridges, the new abutments will be constructed behind (landward of) the existing abutments, and the existing abutments retained to provide scour protection. The new in-river piers will be slightly relocated to increase the horizontal opening below the bridges, and the existing piers removed to below the mudline and overtopped with stockpiled natural river bottom material. Retaining walls and rip-rap will be installed along the widened approaches and the causeway between the bridges to provide scour protection. The project will also have temporary impacts within 7,016 square feet (0.16 acres) of waters of the U.S., including 6,088 square feet within open water areas below HTL, 709 square feet within salt marsh, and 219 square feet within non-tidal wetlands, due to the installation and dewatering of cofferdams to allow work to proceed in the dry.

The applicant's stated project purpose is to replace the two functionally obsolete, structurally deficient bridges to improve public safety, maintain through-travel, and improve vehicle, bicycle, and pedestrian infrastructure on Route 6. The work is shown on the enclosed plans titled "MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION PLAN AND PROFILE OF U.S. ROUTE 6 (WAREHAM ROAD & MARION ROAD) (BRIDGE NO. M-05-001=W-06-013 & W-06-016) IN THE CITY/TOWN OF MARION & WAREHAM PLYMOUTH COUNTY," on 51 sheets, and dated "10/20/2023."

The project has been designed to avoid and minimize impacts to waters of the United States through the use of various best management practices, including the installation of erosion and sedimentation controls at the project limits, conducting work behind dewatered cofferdams to minimize turbidity, using retaining walls to limit encroachment into Waters of the U.S., and retaining the existing abutments to reduce in-water work. The applicant proposes to construct a 5,930 square-foot salt marsh replication area to meet state mitigation requirements. Federal mitigation requirements are expected to be met through the Massachusetts In-lieu fee (ILF) program.

AUTHORITY
Permits are required pursuant to:
__X__ Section 10 of the Rivers and Harbors Act of 1899
__X__ Section 404 of the Clean Water Act
____ Section 103 of the Marine Protection, Research and Sanctuaries Act.

The decision whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which may reasonably 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 the cumulative effects thereof; among those are: conservation, economics, aesthetics, general environmental concerns, wetlands, cultural value, fish and wildlife values, flood hazards, flood plain value, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

The USACE 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. The USACE will consider all comments received to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on 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 and/or an environmental impact statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Where the activity involves the discharge of dredged or fill material into waters of the United States or the transportation of dredged material for the purpose of disposing it in

ocean waters, the evaluation of the impact of the activity in the public interest will also include application of the guidelines promulgated by the Administrator, U.S Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act, and/or Section 103 of the Marine Protection Research and Sanctuaries Act of 1972, as amended.

ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Essential Fish Habitat describes waters and substrate necessary for fish for spawning, breeding, feeding or growth to maturity.

The Federal Highway Administration (FHWA) is the lead federal agency responsible for EFH coordination. This project will impact 0.63 acres of EFH. This habitat consists of areas of unconsolidated bottom below HTL, salt marsh, and non-tidal emergent wetlands. Loss of this habitat may adversely affect species that use these waters and substrate. Although FHWA is the lead federal agency, the District Engineer has reviewed their EFH coordination documents and made a preliminary determination that the site-specific adverse effect will not be substantial. Further consultation with the National Marine Fisheries Service regarding EFH conservation recommendations is being conducted and will be concluded prior to the final decision.

NATIONAL HISTORIC PRESERVATION ACT

FHWA is the lead federal agency responsible for coordination pursuant to Section 106 of the National Historic Preservation Act. Based on our initial review of the proposed project, and FHWA's coordination with the State Historic Preservation Officer, Massachusetts Board of Underwater Archaeological Resources (BUAR), and Tribal Historic Preservation Officers, no historic properties were identified within the permit area or the area of potential effects. Additional review and consultation to fulfill requirements under Section 106 of the National Historic Preservation Act of 1966, as amended, will be ongoing as part of the permit review process.

ENDANGERED SPECIES CONSULTATION

FHWA is the lead federal agency responsible for coordination pursuant to Section 7 of the Endangered Species Act. Although FHWA is the lead federal agency, the USACE has reviewed the application for the potential impact on federally-listed threatened or

endangered species and their designated critical habitat pursuant to section 7 of the Endangered Species Act (ESA) as amended. It is our preliminary determination that the proposed activity for which authorization is being sought is designed, situated or will be operated/used in such a manner that it is not likely to adversely affect a listed species or their critical habitat. We are coordinating with the National Marine Fisheries Service and/or U.S. Fish and Wildlife Service on listed species under their jurisdiction and the ESA consultation will be concluded prior to the final decision.

OTHER GOVERNMENT AUTHORIZATIONS

The states of Connecticut, Maine, Massachusetts, New Hampshire and Rhode Island have approved Coastal Zone Management Programs. Where applicable, the applicant states that any proposed activity will comply with and will be conducted in a manner that is consistent with the approved Coastal Zone Management Program. By this public notice, we are requesting the state concurrence or objection to the applicant's consistency statement.

The following authorizations have been applied for, or have been, or will be obtained:

(X) Permit, license or assent from State.
( ) Permit from local wetland agency or conservation commission.
(X) Water Quality Certification in accordance with Section 401 of the Clean Water Act.

COMMENTS

The Corps of Engineers 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 of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on 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 and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. People submitting comments are advised that all comments received will be available for public review in their entirety and will be considered a matter of public record.

Comments should be submitted in writing by the above date. If you have any questions, please contact Dan Vasconcelos, Regulatory Division, at daniel.b.vasconcelos@usace.army.mil, (978) 318-8653, (800) 343-4789 or (800) 362-4367.

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 a public hearing shall specifically state the reasons for holding a public hearing. The USACE holds public hearings for the purpose of obtaining public comments when that is the best means for understanding a wide variety of concerns from a diverse segment of the public.

The initial determinations made herein will be reviewed in light of facts submitted in response to this notice. Copies of letters of objection will be forwarded to the applicant who will normally be requested to contact objectors directly in an effort to reach an understanding.

THIS NOTICE IS NOT AN AUTHORIZATION TO DO ANY WORK.

Daniel B. Breen
Chief, Transportation and Utility Section
Regulatory Division

Please contact Ms. Tina Chaisson at bettina.m.chaisson@usace.army.mil or (978) 318-8058 if you would like to be removed from our public notice mailing list.

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

U.S. ROUTE 6 (WAREHAM ROAD & MARION ROAD)

(BRIDGE NO. M-05-001=W-06-013 & W-06-016)

IN THE CITY/TOWN OF

MARION & WAREHAM

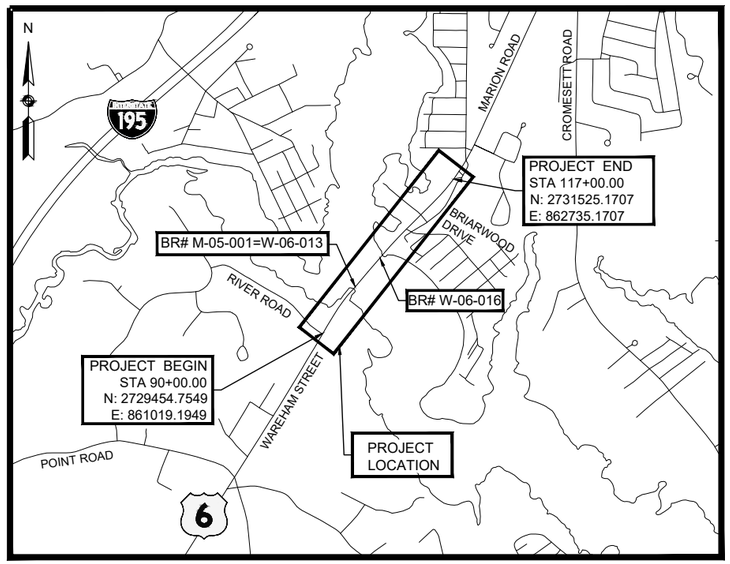
PLYMOUTH COUNTY

FEDERAL AID PROJECT NO.

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



0 1000 2000 3000 4000

SCALE: 1" = 1000'

LENGTH OF PROJECT = 2,975.00 FEET = 0.563 MILES

DESIGN DESIGNATION - (U.S. ROUTE 6)

DESIGN SPEED	55 MPH
ADT (2024)	9,800
ADT (2044)	11,964
K	9%
D	51%
T (PEAK HOUR)	2.45%
T (AVERAGE DAY)	2.3%
DHV	930
DDHV	450
FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR/MINOR ARTERIAL

10/20/2023	401/404 PERMIT PLANS	-
DATE	DESCRIPTION	REV #

massDOT Massachusetts Department of Transportation Highway Division

PLANS PREPARED BY
PARSONS
100 HIGH STREET, BOSTON, MA 02110

APPROVED

CHIEF ENGINEER DATE

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL/TURBIDITY BARRIER
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		PEDESTRIAN HANDRAIL
		CHAIN LINK FENCE
		COMPOST FILTER TUBE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		SHEET PILE WALL
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BORDER OF WETLAND
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE (6" WIDTH, 10-30-10 SPACING)
	BYL	BROKEN YELLOW LINE (6" WIDTH, 10-30-10 SPACING)
	DWL	DOTTED WHITE LINE (6" WIDTH, 2-4-2 SPACING)
	DYL	DOTTED YELLOW LINE (6" WIDTH, 2-4-2 SPACING)
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ENVIRONMENTAL PLAN SYMBOLS

LINETYPES	DESCRIPTION
TPF	TURTLE PROTECTION FENCE
CPF	COMBINATION PROTECTION FENCE
	LIMIT OF WORK
	COMPOST FILTER TUBE
	TURBIDITY BARRIER
	WETLAND DELINEATION
	MEAN HIGH WATER LINE
	MEAN LOW WATER LINE
	HIGH TIDE LINE
	BASE FLOOD ELEVATION

HATCHING

	EXISTING VEGETATED WETLANDS
	TEMPORARY VEGETATED WETLAND IMPACTS
	PERMANENT VEGETATED WETLAND IMPACTS
	EXISTING SALT MARSH
	TEMPORARY SALT MARSH IMPACTS
	PERMANENT SALT MARSH IMPACTS
	TEMPORARY LAND BELOW HTL IMPACTS
	PERMANENT LAND BELOW HTL PROPOSED RIPRAP/RETWALL IMPACTS
	PERMANENT LAND BELOW HTL BRIDGE PIER IMPACTS

GENERAL ABBREVIATIONS

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BCC	BITUMINOUS CONCRETE CURB
BD.	BOUND
BFE	BASE FLOOD ELEVATION
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CPF	COMBINATION PROTECTION FENCE
CR GR	CROWN GRADE
DBH	DIAMETER BREAST HEIGHT
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOG	EDGE OF GRAVEL
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HTL	HIGH TIDE LINE
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LOW	LIMIT OF WORK
LP	LIGHT POLE
LT	LEFT
LUW	LAND UNDER WATER
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE

ABBREVIATIONS (cont.)

GENERAL

MHB	MASSACHUSETTS HIGHWAY BOUND
MHHW	MEAN HIGHER HIGH WATER
MHW	MEAN HIGH WATER
MIN	MINIMUM
MLW	MEAN LOW WATER
NIC	NOT IN CONTRACT
NO.	NUMBER
OHW	OVERHEAD WIRE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PERM	PERMANENT
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TET	TANGENT END TREATMENT
TC	TOP OF CURB
TOS	TOP OF SLOPE
TPF	TURTLE PROTECTION FENCE
TPW	TURTLE PROTECTION WALL
TYP	TYPICAL
UGT	UNDERGROUND TELEPHONE
UP	UTILITY POLE
VAR	VARIES
VC	VERTICAL CURVE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

PARSONS
100 HIGH STREET
BOSTON, MA 02110

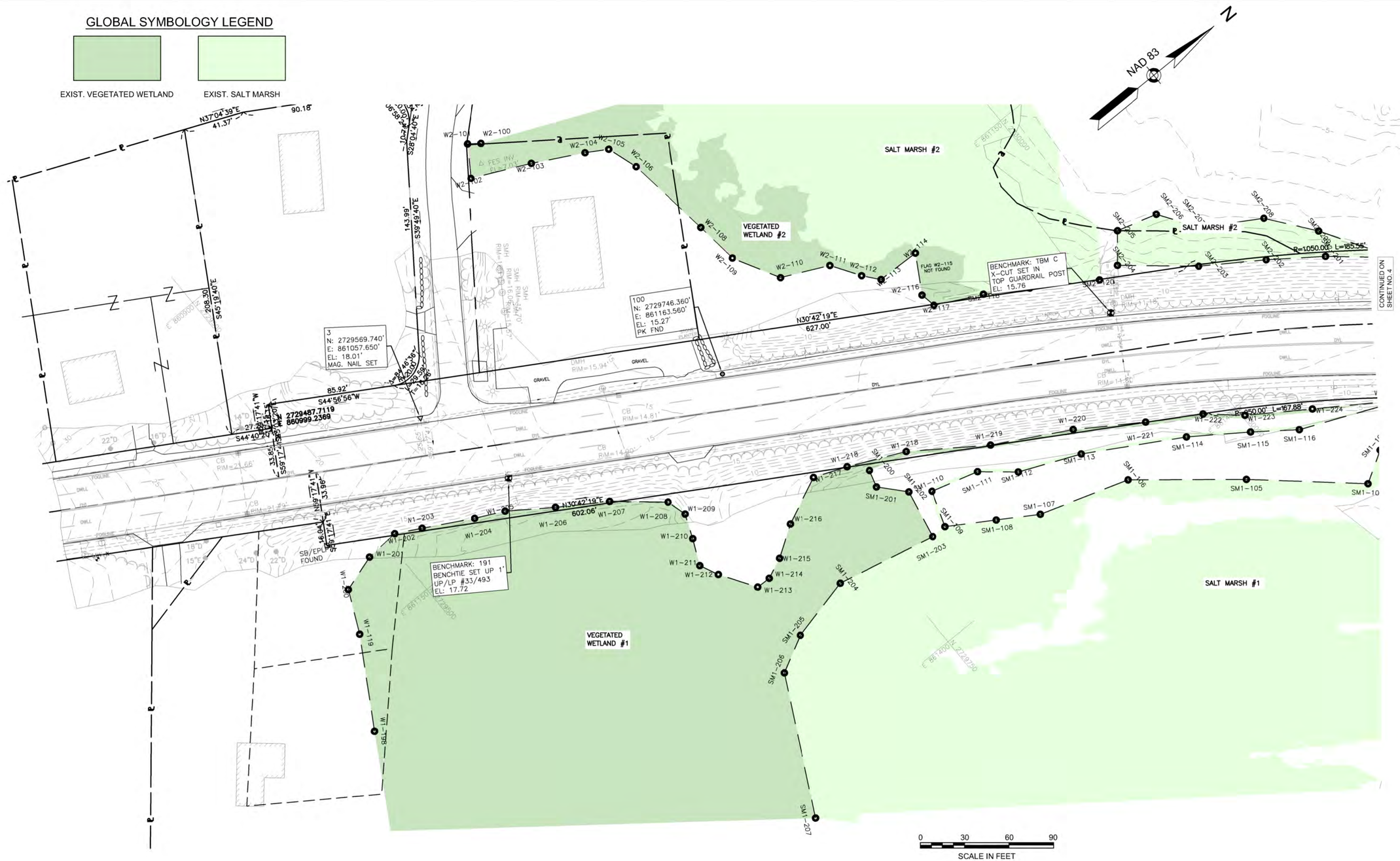
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
LEGEND AND ABBREVIATIONS

GLOBAL SYMBOLOGY LEGEND

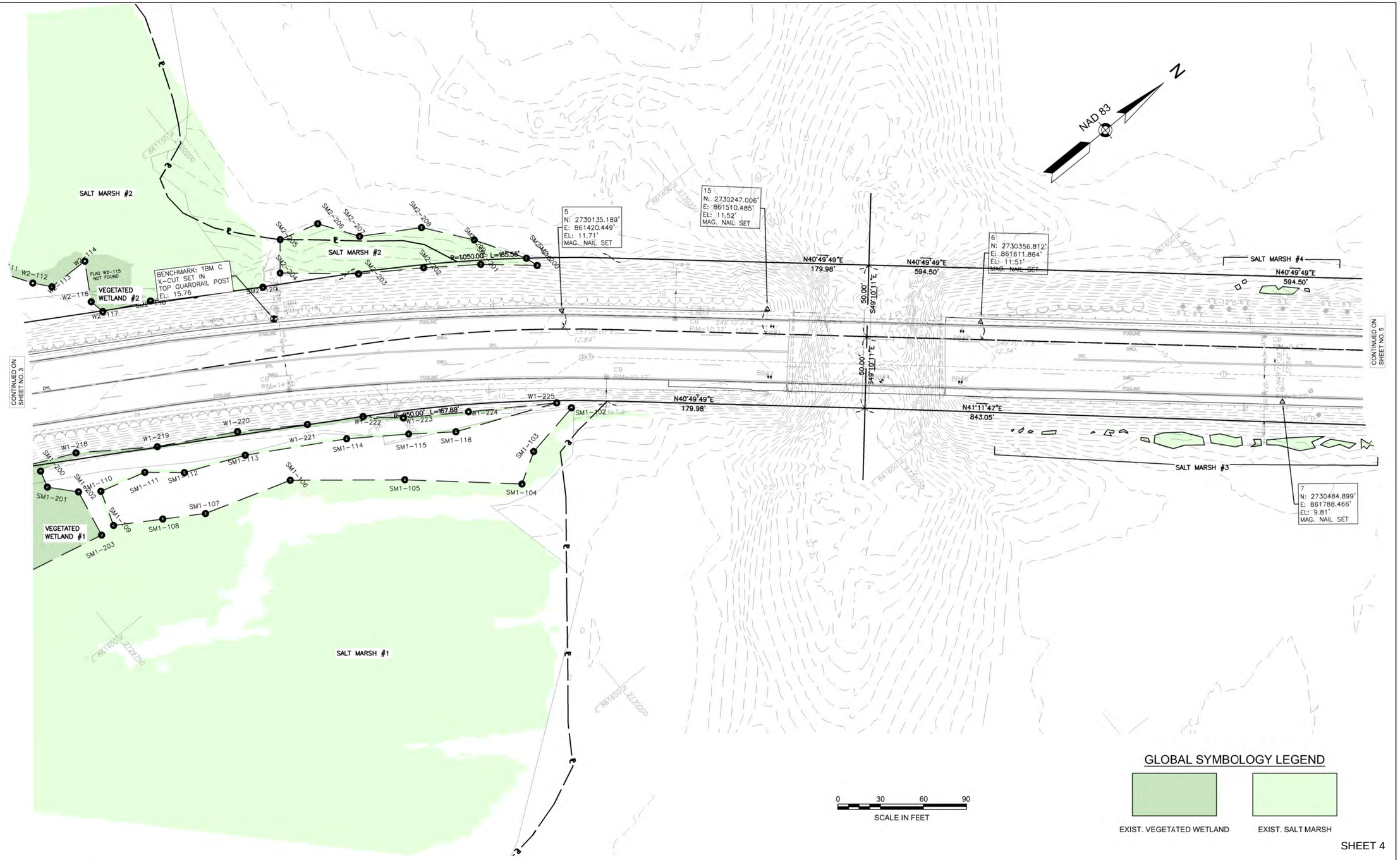
EXIST. VEGETATED WETLAND

EXIST. SALT MARSH



SHEET 3

PARSONS 100 HIGH STREET BOSTON, MA 02110	MARION - WAREHAM WAREHAM STREET (US 6) OVER WEWEANTIC RIVER	HIGHWAY EXISTING CONDITIONS SHEET 1 OF 5

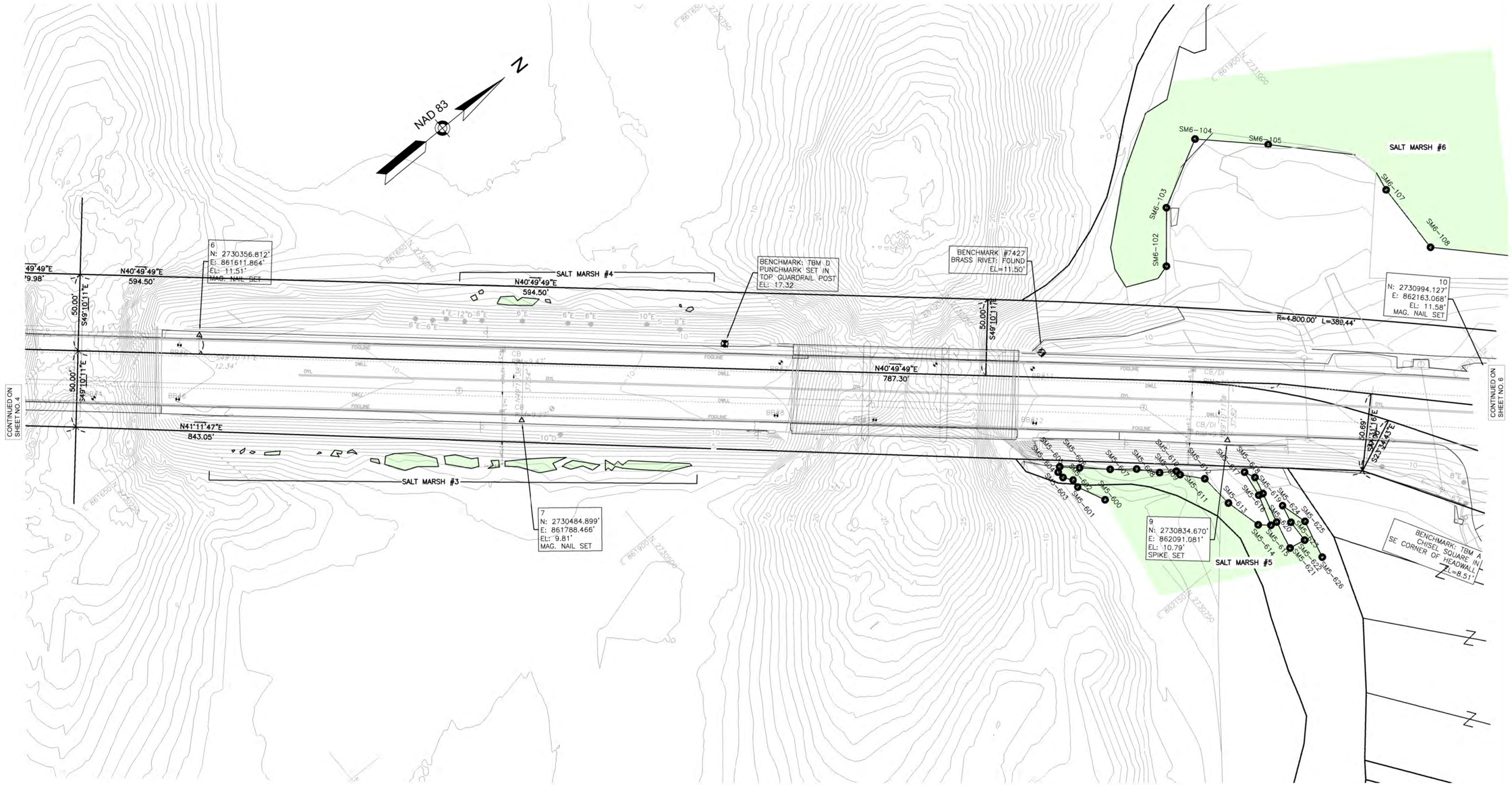


SHEET 4

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
EXISTING CONDITIONS SHEET 2 OF 5



GLOBAL SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND

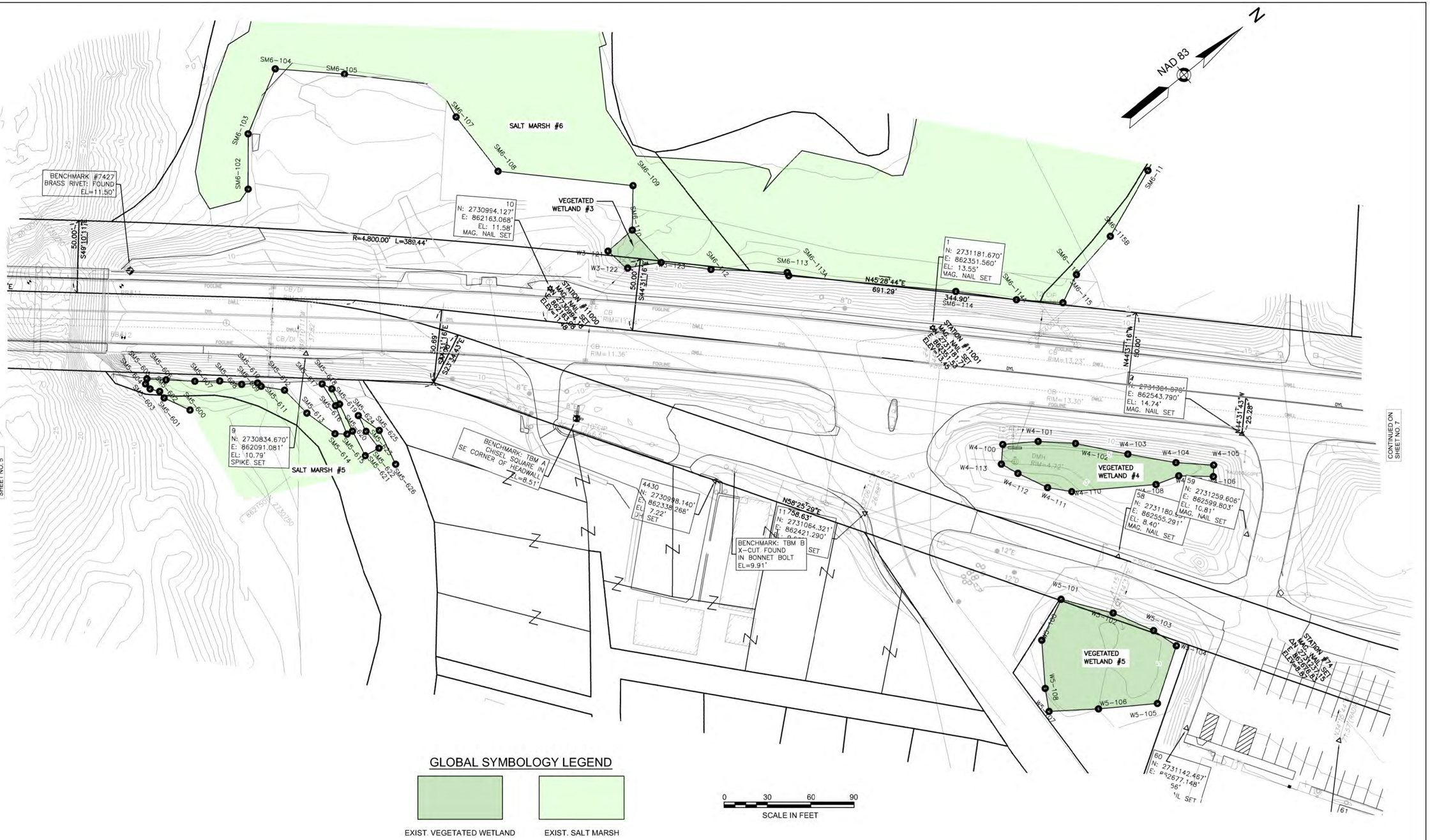
EXIST. SALT MARSH

SHEET 5

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
EXISTING CONDITIONS SHEET 3 OF 5



SHEET 6

PARSONS 100 HIGH STREET BOSTON, MA 02110	MARION - WAREHAM WAREHAM STREET (US 6) OVER WEWEANTIC RIVER	HIGHWAY EXISTING CONDITIONS SHEET 4 OF 5

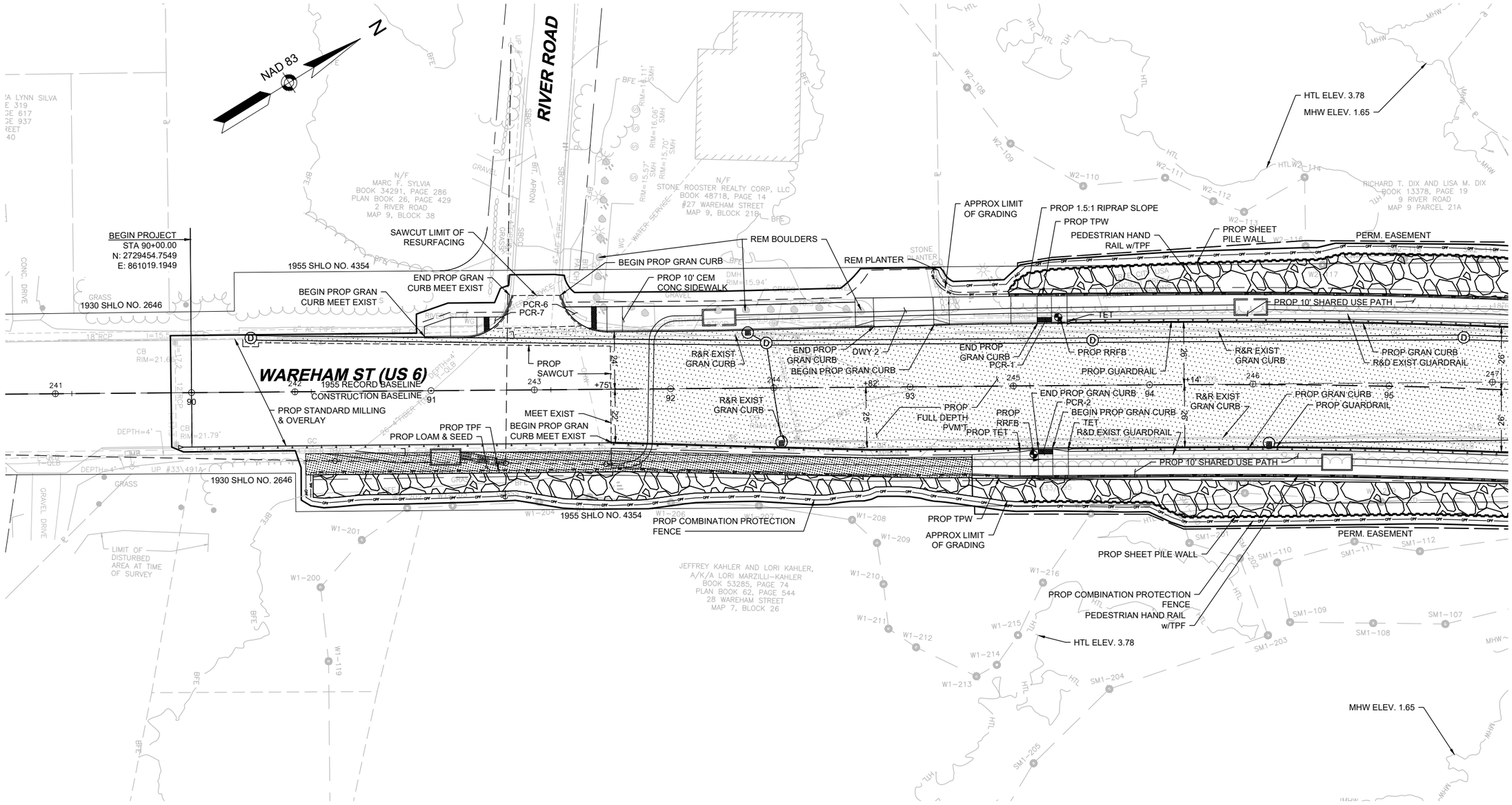
SHEET 7

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
EXISTING CONDITIONS SHEET 5 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



CONTINUED ON SHEET NO. 9

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

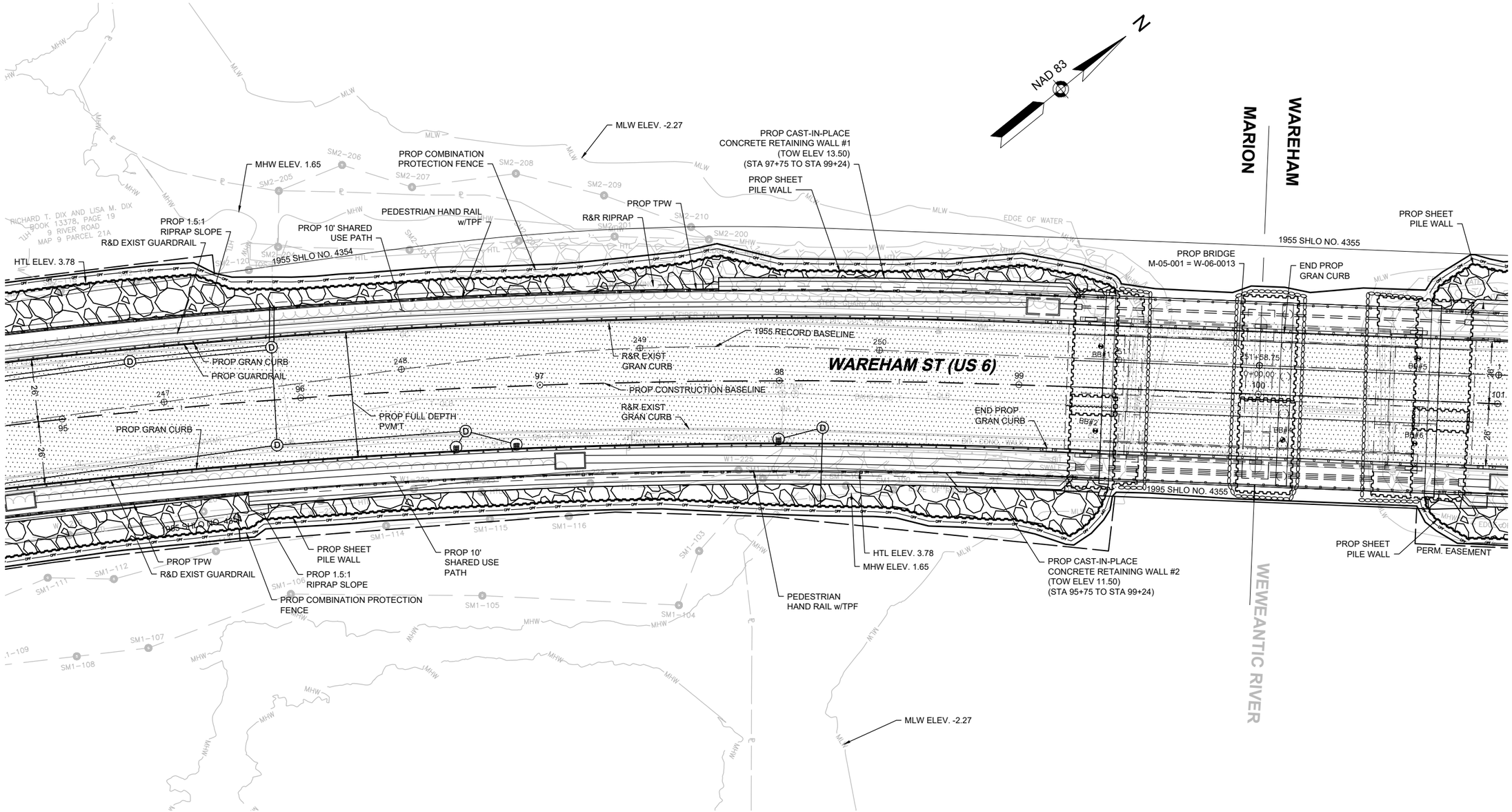
SHEET 8

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 1 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

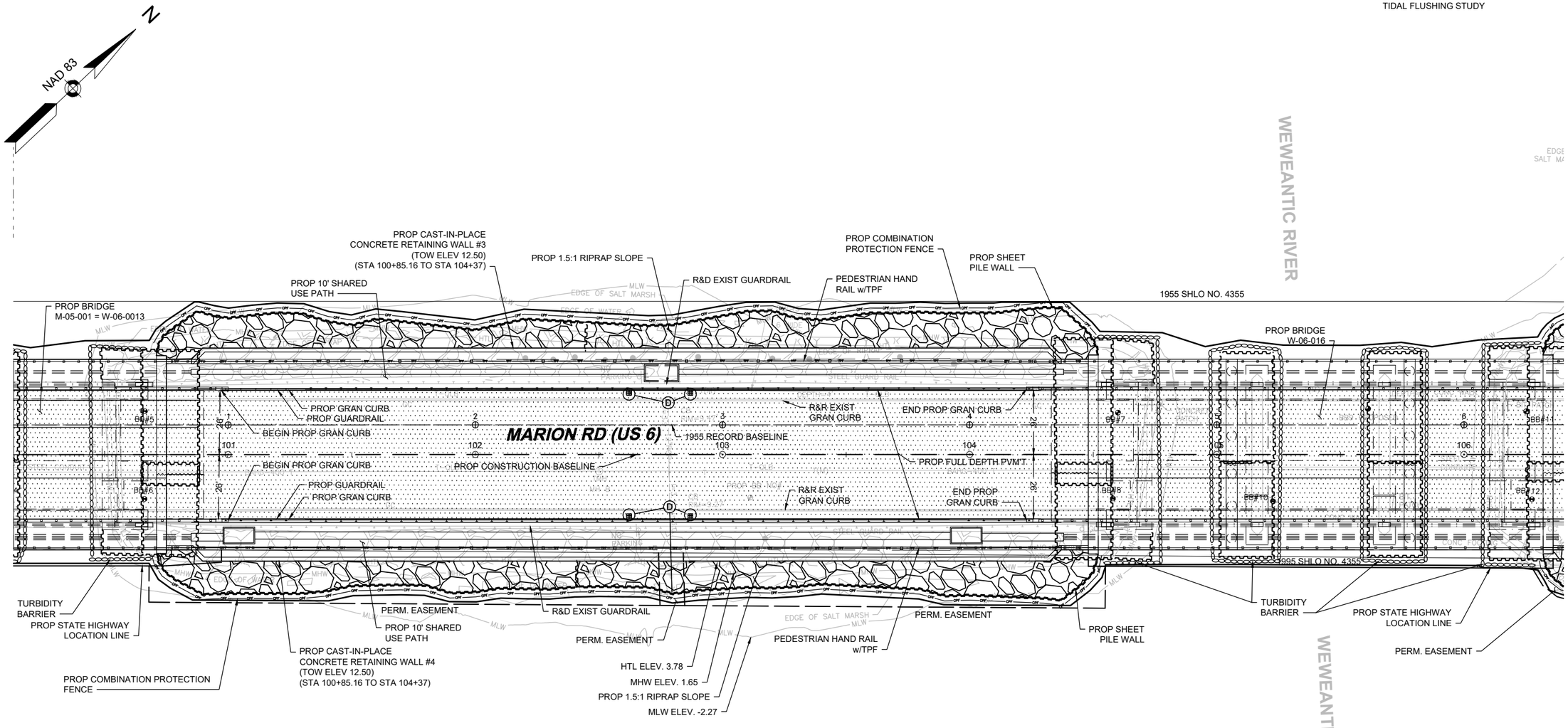
SHEET 9

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 2 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

SHEET 10

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 3 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

N
NAD 83

MHW ELEV. 1.65
HTL ELEV. 3.78
PROP SALT MARSH REPLICATION AREA
NINETY SIX REALTY LLC A/K/A
NINETY SIX REALTY, LLC A/K/A
NINETY SIX, LLC A/K/A 96, LLC
BOOK 40960, PAGE 290
0 MARION ROAD
MAP 53, LOT 1000
(DEED PARCEL 4)
TEMPORARY EASEMENT
EDGE OF SALT MARSH
MLW ELEV. -2.27
PROP CAST-IN-PLACE CONCRETE RETAINING WALL #5 (TOW ELEV 13.00) (STA 106+46.16 TO STA 107+30)
PROP COMBINATION PROTECTION FENCE
PEDESTRIAN HAND RAIL w/TPF
5,930 SF SALT MARSH MITIGATION AREA
APPROX LIMIT OF GRADING
PROP LOAM & SEED
PROP TPF 1955 SHLO NO. 4355
PROP 1.5:1 RIPRAP SLOPE
PROP TPW
PROP BRIDGE W-06-016
PROP 5' CEM CONC SIDEWALK
TOWN OF WAREHAM
BOOK 4742, PAGE 214
391 MARION ROAD
MAP 58, LOT 1008
PROP RRFB
R&R EXIST GRAN CURB
PROP 10' SHARED USE PATH
DWY 5
END PROP GRAN CURB
TET
BEGIN PROP GRAN CURB
R&D EXIST GUARDRAIL
R&R EXIST GRAN CURB
PROP FULL DEPTH PVMT
1955 RECORD BASELINE
MARION RD (US 6)
PROP CONSTRUCTION BASELINE
PROP SAWCUT
PROP MILLING & OVERLAY
PROP GUARDRAIL
PCR-4
DWY 3
RECONSTRUCT ISLAND
PROP TPF
PERM. EASEMENT
PROP RRFB
PROP 10' SHARED USE PATH
PEDESTRIAN HAND RAIL w/TPF
APPROX LIMIT OF GRADING
1930 RECORD BASELINE
PCR-5
RET
END PROP GRAN CURB
PROP SAWCUT
PCR-8
BEGIN PROP GRAN CURB
PROP SAWCUT
END PROP GRAN CURB MEET EXIST
TURBIDITY BARRIER
PROP STATE HIGHWAY LOCATION LINE
PROP 1.5:1 RIPRAP SLOPE
PROP CAST-IN-PLACE CONCRETE RETAINING WALL #6 (TOW ELEV 12.00) (STA 106+46.16 TO STA 108+10)
PROP COMBINATION PROTECTION FENCE
SAWCUT LIMIT OF RESURFACING
1930 SHLO NO. 2728
WEWEANTIC RIVER
EDGE OF SALT MARSH
MLW ELEV. -2.27
HTL ELEV. 3.78
MHW ELEV. 1.65
BRIARWOOD BEACH CLUB MOTEL LLC BOOK 58308 PAGE 36 #388 MARION ROAD MAP 53, LOT 1 PLAN BOOK 3 PAGE 866
BRIARWOOD BEACH CLUB MOTEL LLC BOOK 58308 PAGE 36 #388 MARION ROAD MAP 53, LOT 2 PLAN BOOK 3 PAGE 866

CONTINUED ON SHEET NO. 10
CONTINUED ON SHEET NO. 12

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

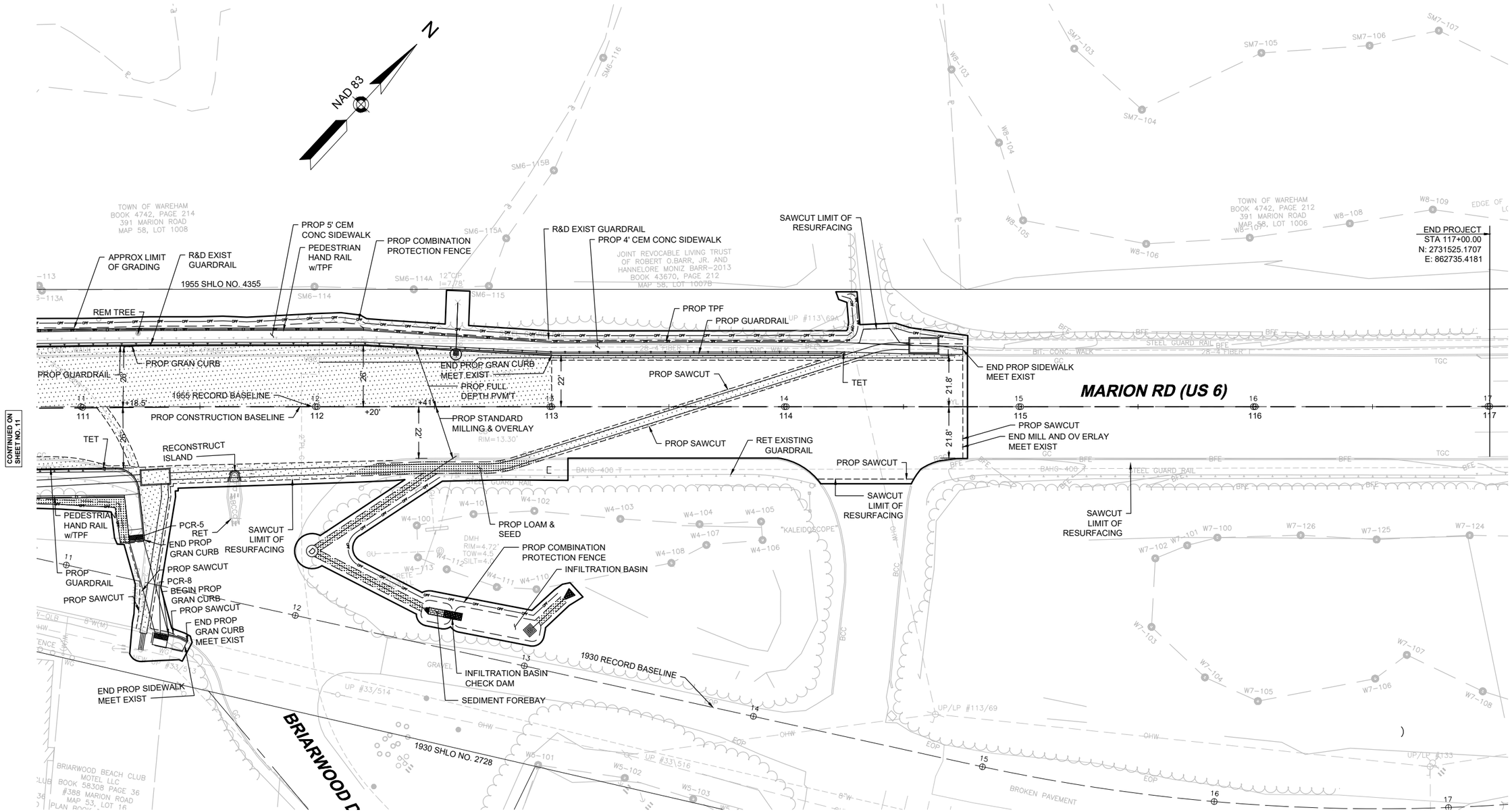
SHEET 11

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 4 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

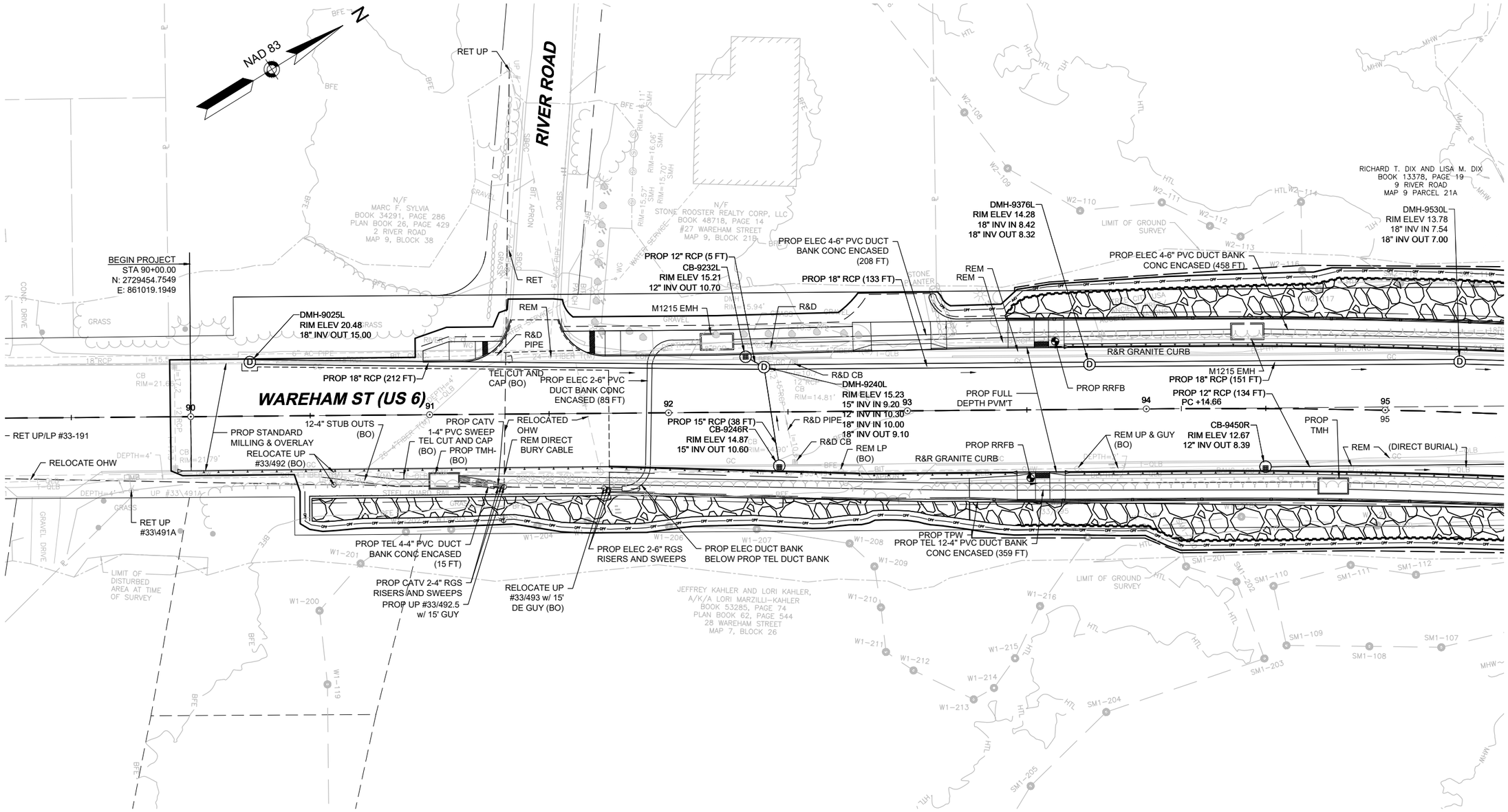
SHEET 12

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION PLAN SHEET 5 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

SHEET 13

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 1 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

N

NAD 83

WAREHAM

MARION

WAREHAM ST (US 6)

WEWEANTIC RIVER

RICHARD T. DIX AND LISA M. DIX
BOOK 13378, PAGE 19
9 RIVER ROAD
MAP 9 PARCEL 21A

DMH-9530L
RIM ELEV 13.78
18" INV IN 7.54
18" INV OUT 7.00

CONNECT TO EXIST 18" RCP
INV 1.70

RET

R&D DMH

R&D PIPE

PROP 18" RCP (16 FT)

PROP 18" RCP (56 FT)

PROP 18" RCP (134 FT)

R&D PIPE

DMH-9585L
RIM ELEV 13.27
18" INV IN 6.50
12" INV IN 6.30
18" INV OUT 1.97

PROP 12-4" PVC DUCT BANK (222 FT)

R&R GRANITE CURB

PROP ELEC 4-6" PVC DUCT BANK CONC ENCASED (458 FT)

PROP FULL DEPTH PVM'T

PROP 12" RCP (37 FT)

PROP 12" RCP (18 FT)

PROP 12" RCP (75 FT)

PROP 12" RCP (4 FT)

(DIRECT BURIAL)

REM

PROP 12" RCP (16 FT)

PROP TMH

DMH-9589R
RIM ELEV 11.62
12" INV IN 6.95
12" INV IN 6.95
12" INV OUT 6.85

CB-9664R
RIM ELEV 10.90
12" INV OUT 7.70

DMH-9668R
RIM ELEV 10.98
12" INV IN 7.70
12" INV IN 7.70
12" INV OUT 7.60

CB-9689R
RIM ELEV 10.87
12" INV OUT 7.70

PROP TEL 12-4" PVC DUCT BANK CONC ENCASED (217 FT)

CB-9800R
RIM ELEV 11.48
12" INV OUT 6.39

PROP 12" DIP (32 LF)
S=0.077 FT/FT
OUTLET WITH SPLASH PAD (E 208.1.0)
INV OUT 1.20

PROP TEL 12-4" PVC DUCT BANK CONC ENCASED (205 FT)

PROP ELEC 4-6" PVC DUCT BANK CONC ENCASED (9 FT)

M1215 EMH

REM PIPE

R&D CB

R&D TMH

DMH-9818R
RIM ELEV 11.89
12" INV IN 6.20
12" INV OUT 3.75

PT 15.11

REM STEEL CONDUIT

PROP ELEC 4-6" FIBERGLASS CONDUITS
STA 99+25 TO STA 100+85
(160 FT)

PROP TEL 12-4" FIBERGLASS CONDUITS
STA 99+25 TO STA 100+85
(160 FT)

CONTINUED ON SHEET NO. 13

CONTINUED ON SHEET NO. 15

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

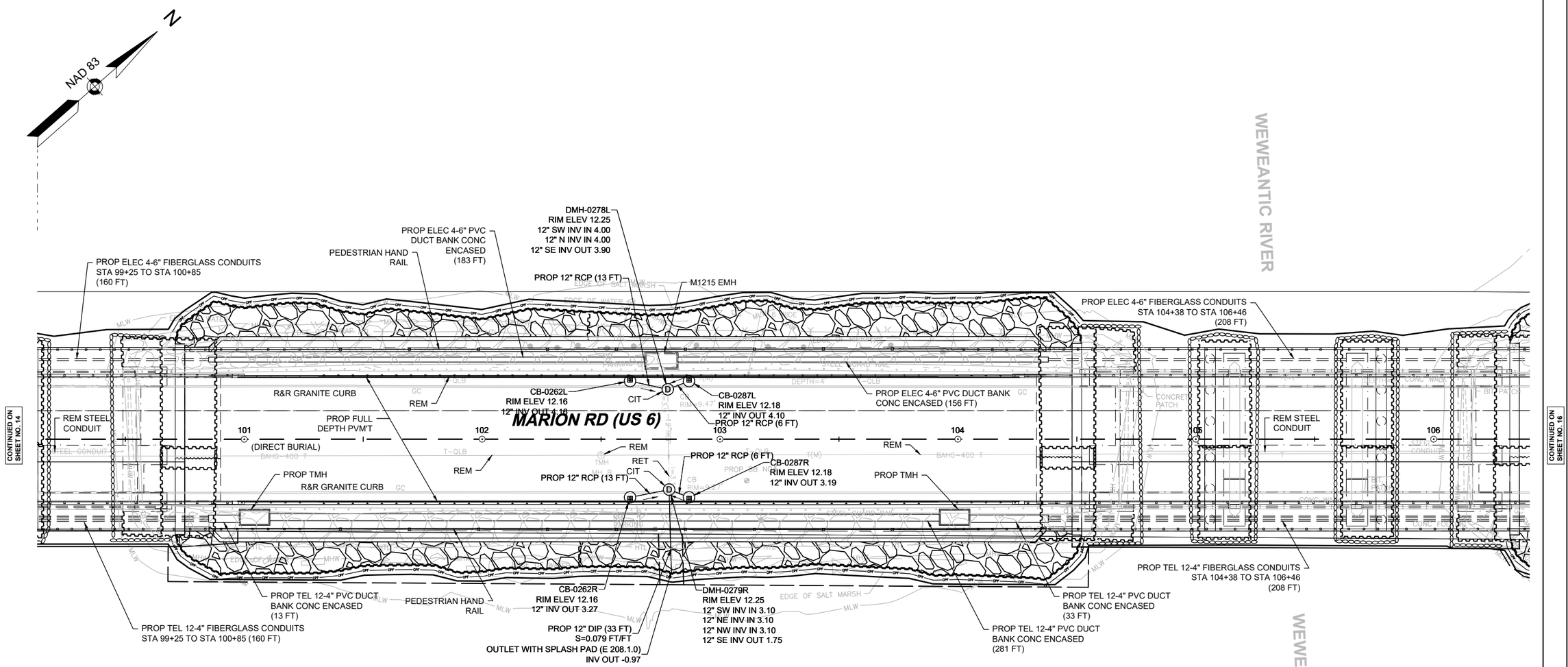
SHEET 14

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 2 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

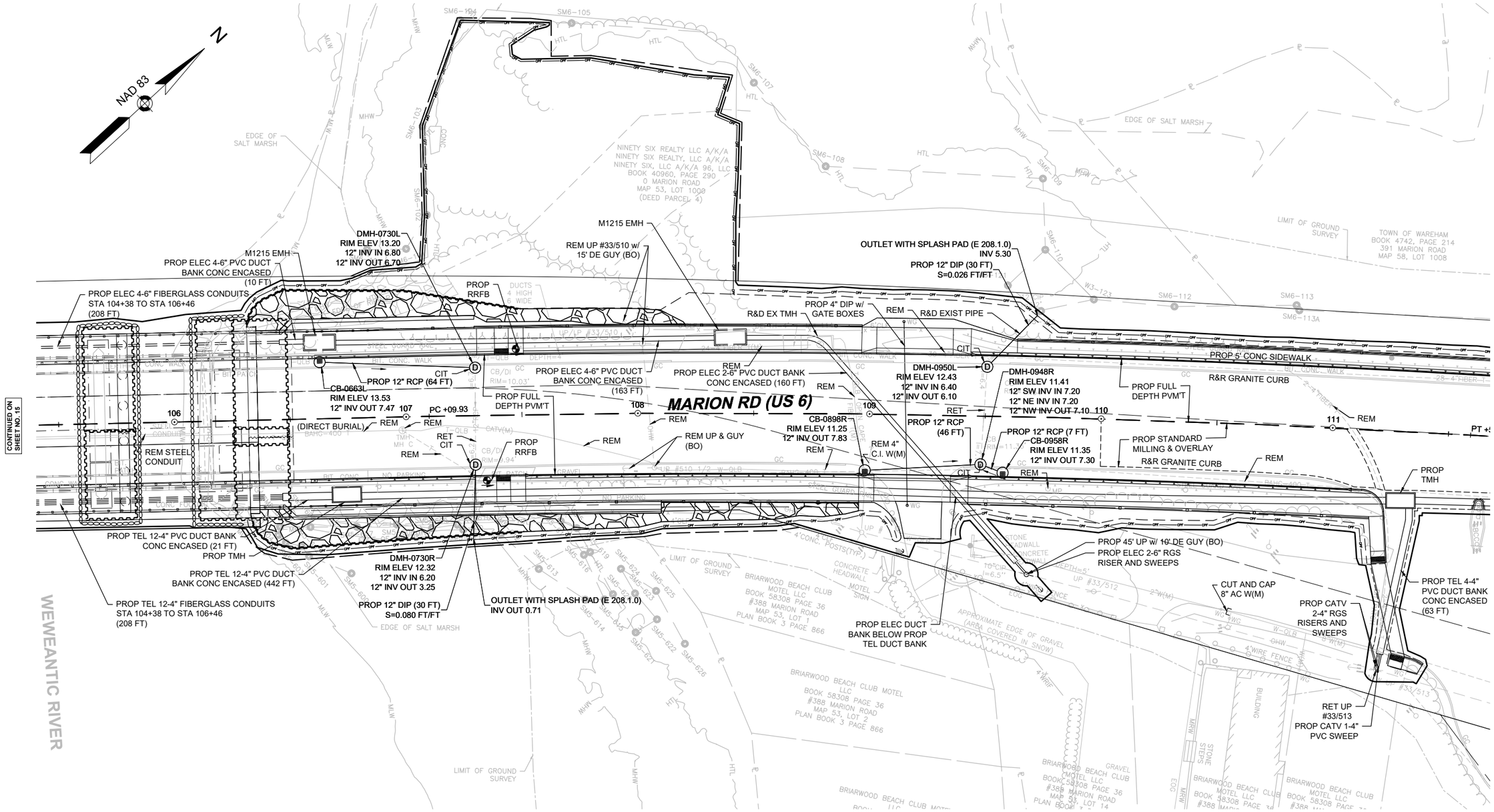
SHEET 15

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 3 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

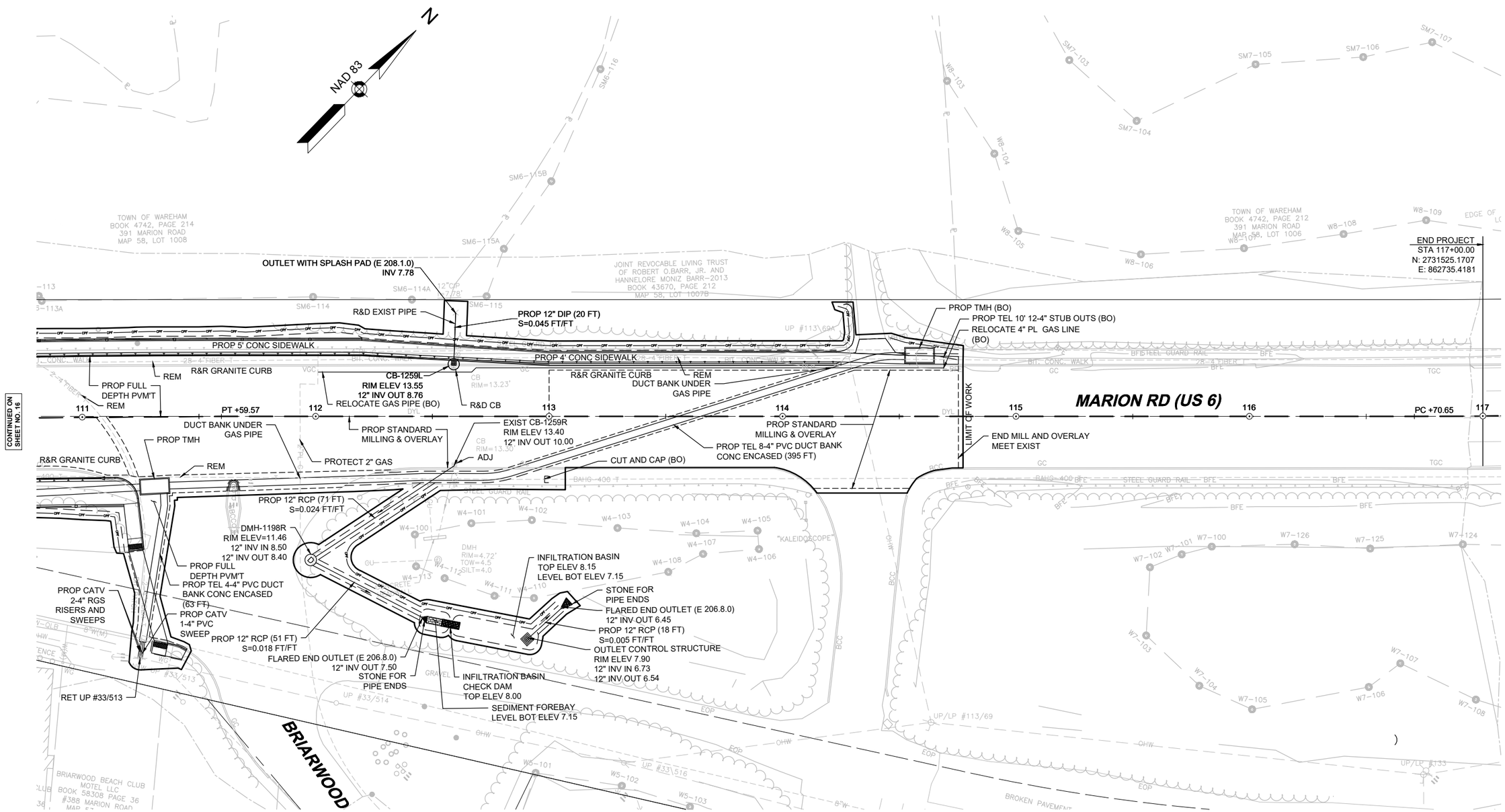
SHEET 16

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 4 OF 5

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

0 20 50 100
SCALE IN FEET

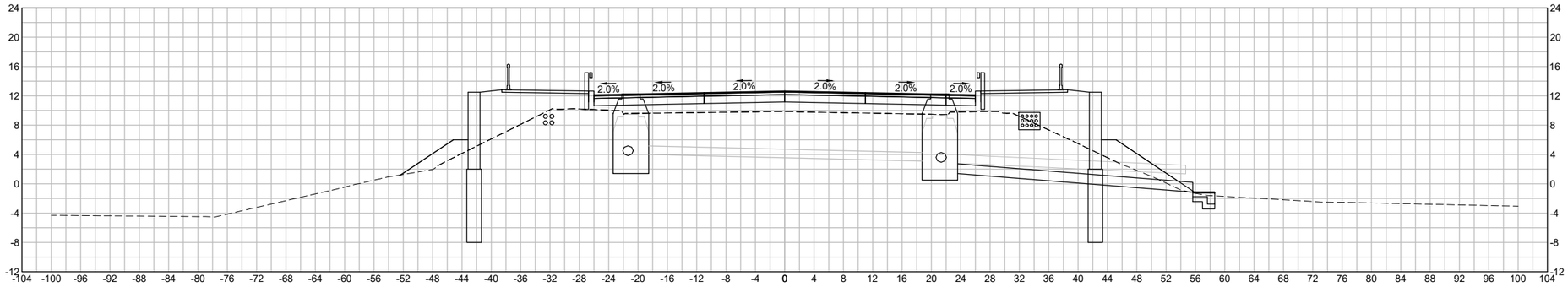
SHEET 17

PARSONS
100 HIGH STREET
BOSTON, MA 02110

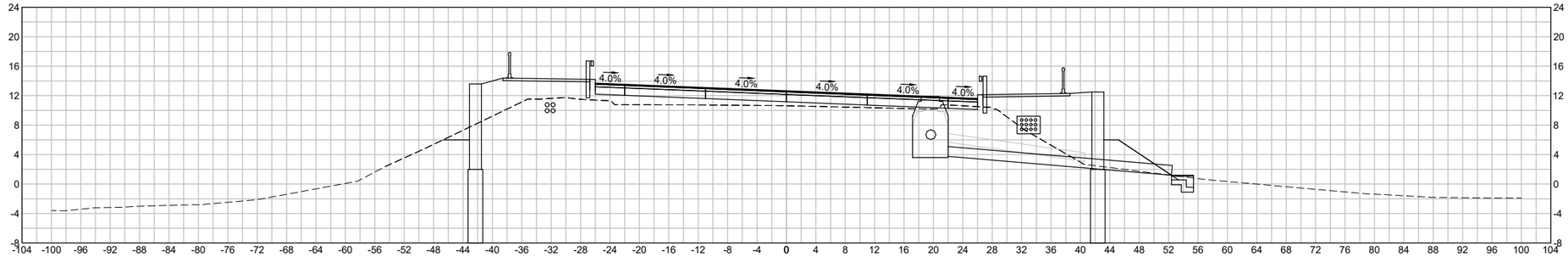
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE AND UTILITY PLAN SHEET 5 OF 5

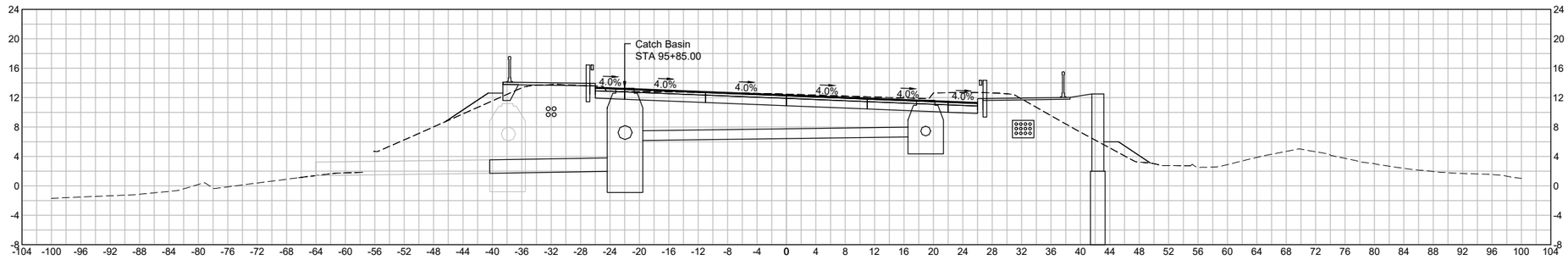
102+79.06



98+17.94



95+89.21



HOR. SCALE IN FEET
8 0 8 16
8 0 8 16
VER. SCALE IN FEET

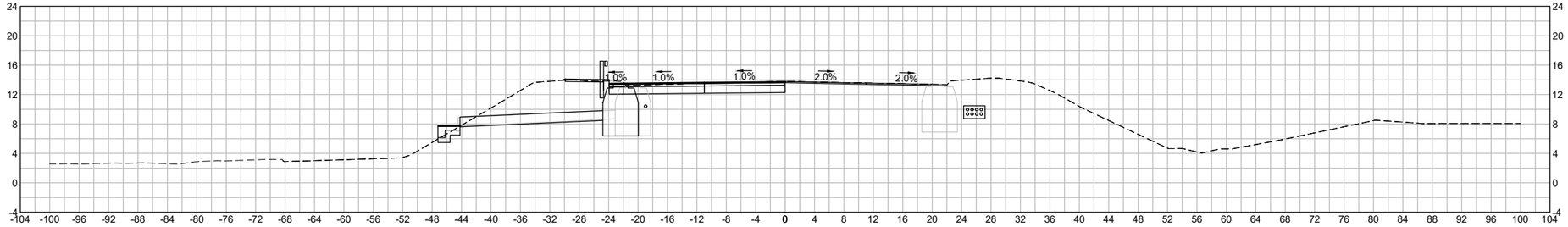
SHEET 18

PARSONS
100 HIGH STREET
BOSTON, MA 02110

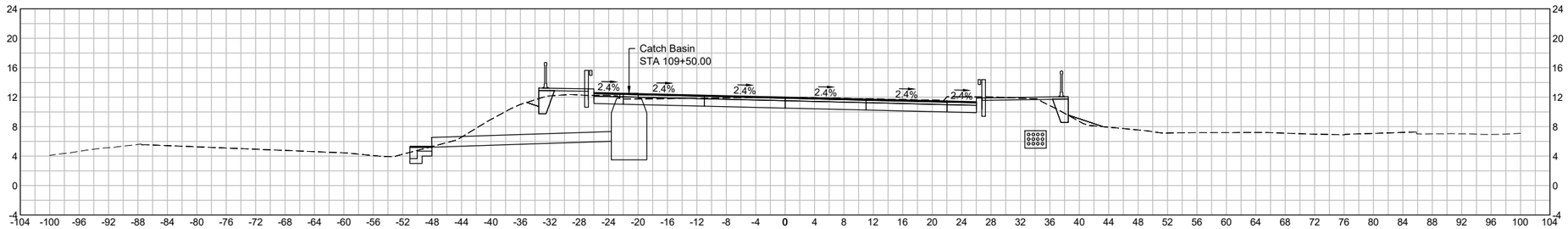
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE OUTLET CROSS SECTIONS 1 OF 2

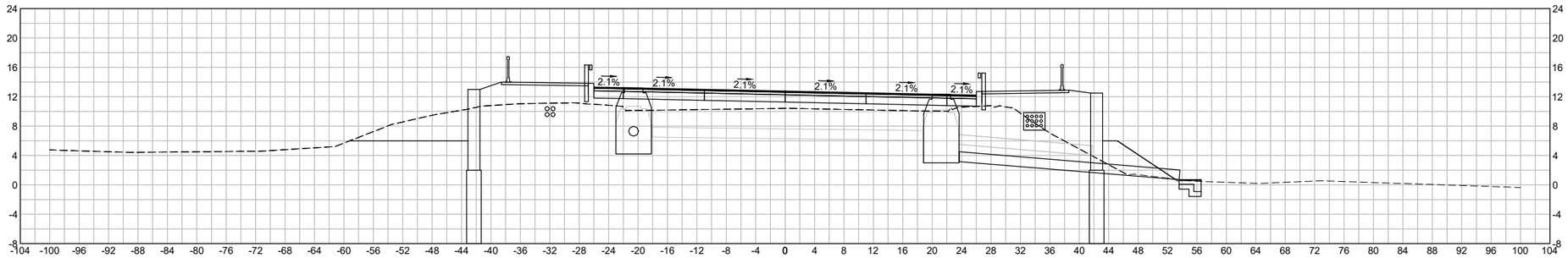
112+59.58



109+72.19



107+29.82



HOR. SCALE IN FEET
8 0 8 16
8 0 8 16
VER. SCALE IN FEET

SHEET 19

PARSONS
100 HIGH STREET
BOSTON, MA 02110

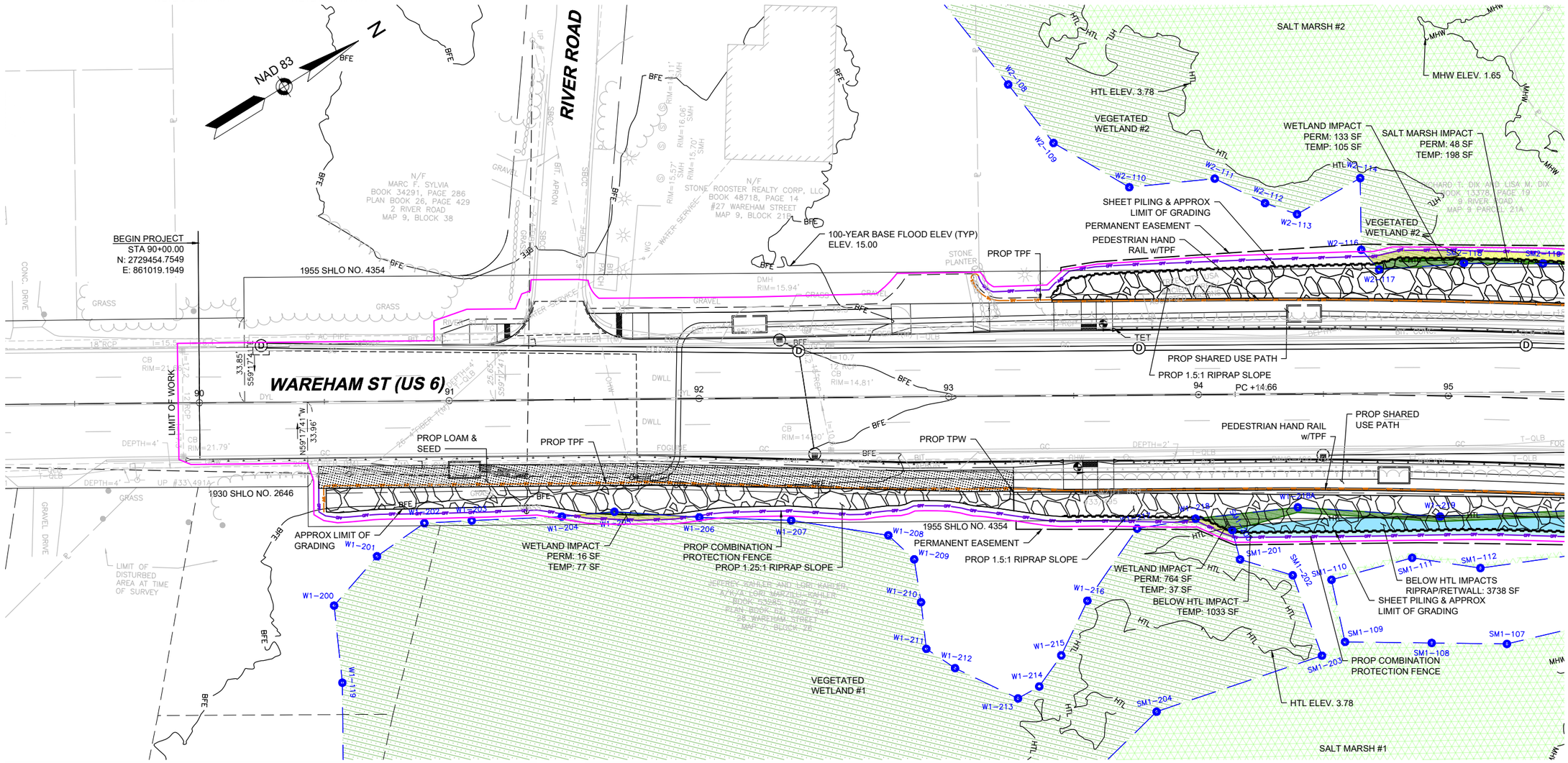
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
DRAINAGE OUTLET CROSS SECTIONS 2 OF 2

IMPACT SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND | TEMP. VEGETATED WETLAND IMPACT | PERM. VEGETATED WETLAND IMPACT | EXIST. SALT MARSH | TEMP. SALT MARSH IMPACT | PERM. SALT MARSH IMPACT | TEMP. BELOW HTL IMPACT | PERM. BELOW HTL RIPRAP/RETWALL IMPACT | PERM. BELOW HTL BRIDGE PIER IMPACT

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



CONTINUED ON SHEET NO. 21

TOTAL PROJECT IMPACT CALCULATIONS (SF.)

	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)

	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

SHEET 20

PARSONS
100 HIGH STREET
BOSTON, MA 02110

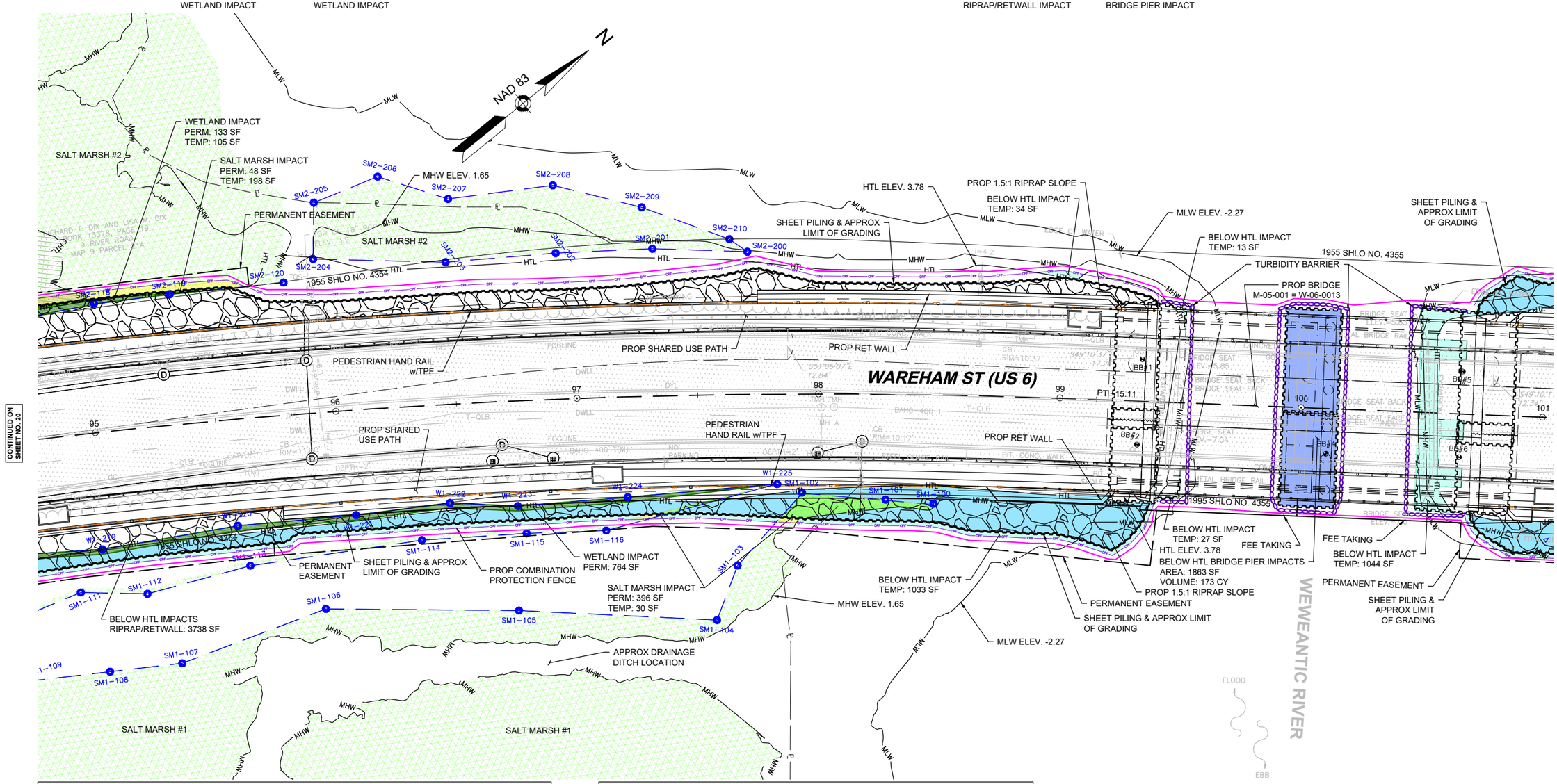
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
ENVIRONMENTAL IMPACT PLAN SHEET 1 OF 5

IMPACT SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND | TEMP. VEGETATED WETLAND IMPACT | PERM. VEGETATED WETLAND IMPACT | EXIST. SALT MARSH | TEMP. SALT MARSH IMPACT | PERM. SALT MARSH IMPACT | TEMP. BELOW HTL IMPACT | PERM. BELOW HTL RIPRAP/RETWALL IMPACT | PERM. BELOW HTL BRIDGE PIER IMPACT

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



0 20 50 100
SCALE IN FEET

TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.
- SEE SHEET 37 FOR M-05-001=W-06-013 EXIST BRIDGE ABUTMENT REMOVAL ELEVATIONS.

SHEET 21

PARSONS
100 HIGH STREET
BOSTON, MA 02110

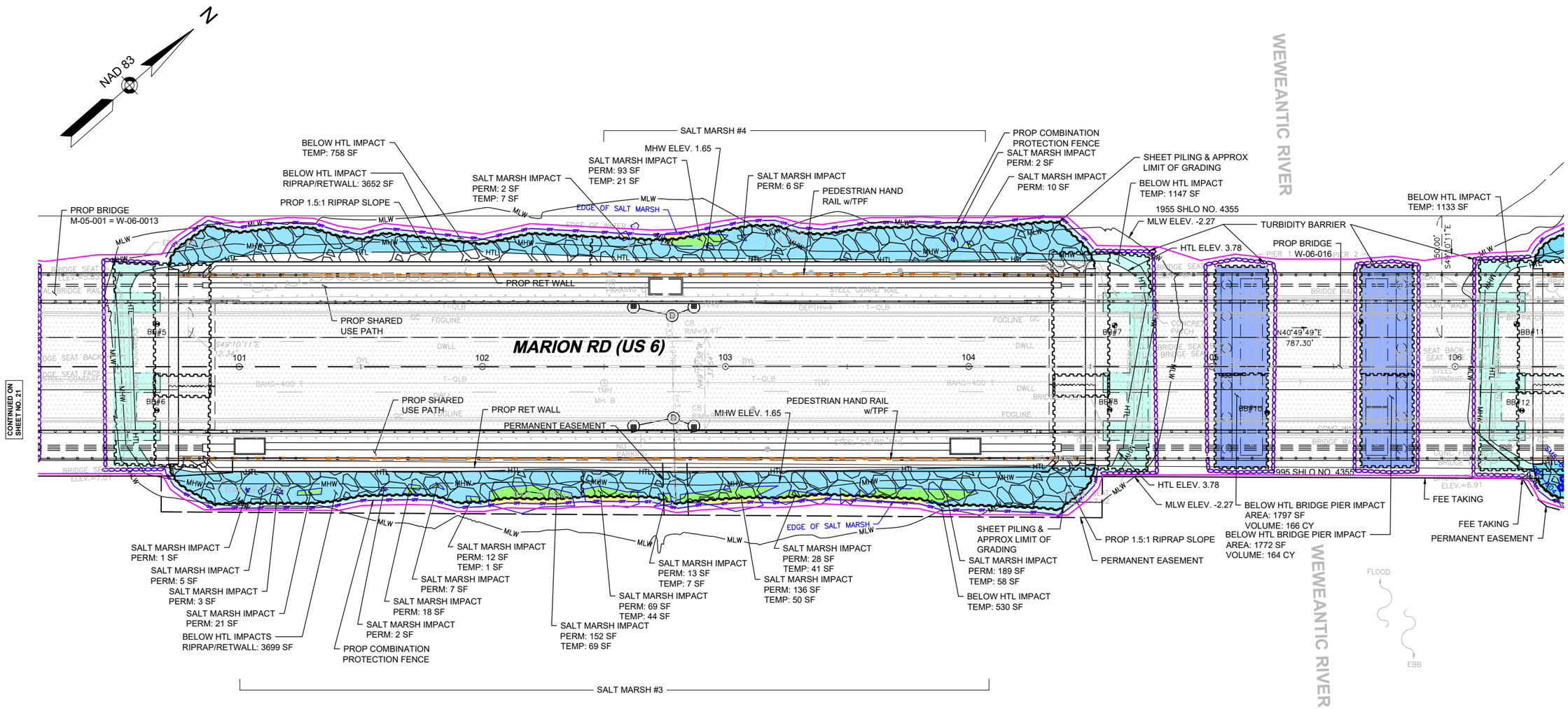
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
ENVIRONMENTAL IMPACT PLAN SHEET 2 OF 5

IMPACT SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND | TEMP. VEGETATED WETLAND IMPACT | PERM. VEGETATED WETLAND IMPACT | EXIST. SALT MARSH | TEMP. SALT MARSH IMPACT | PERM. SALT MARSH IMPACT | TEMP. BELOW HTL IMPACT | PERM. BELOW HTL RIPRAP/RETWALL IMPACT | PERM. BELOW HTL BRIDGE PIER IMPACT

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890

0 20 50 100
SCALE IN FEET

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.
- SEE SHEET 43 FOR W-06-016 EXIST BRIDGE ABUTMENT REMOVAL ELEVATIONS.

SHEET 22

PARSONS
100 HIGH STREET
BOSTON, MA 02110

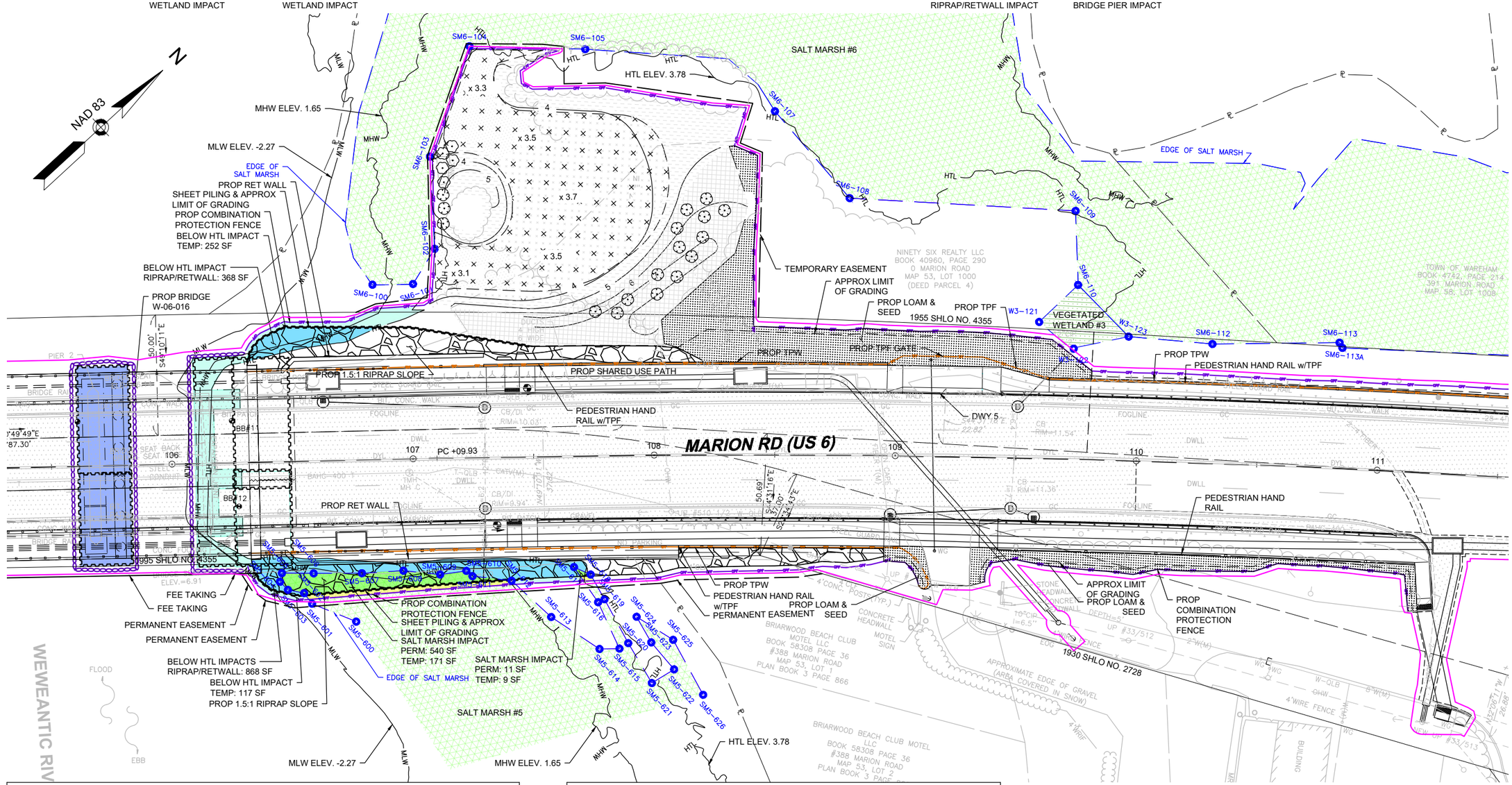
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
ENVIRONMENTAL IMPACT PLAN SHEET 3 OF 5

IMPACT SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND | TEMP. VEGETATED WETLAND IMPACT | PERM. VEGETATED WETLAND IMPACT | EXIST. SALT MARSH | TEMP. SALT MARSH IMPACT | PERM. SALT MARSH IMPACT | TEMP. BELOW HTL IMPACT | PERM. BELOW HTL RIPRAP/RETWALL IMPACT | PERM. BELOW HTL BRIDGE PIER IMPACT

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIP RAP, CRUSHED STONE, LIGHTWEIGHT FILL
DREDGING	173	330	3260
FILL	173	330	3890

0 20 50 100
SCALE IN FEET

NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

SHEET 23

PARSONS
100 HIGH STREET
BOSTON, MA 02110

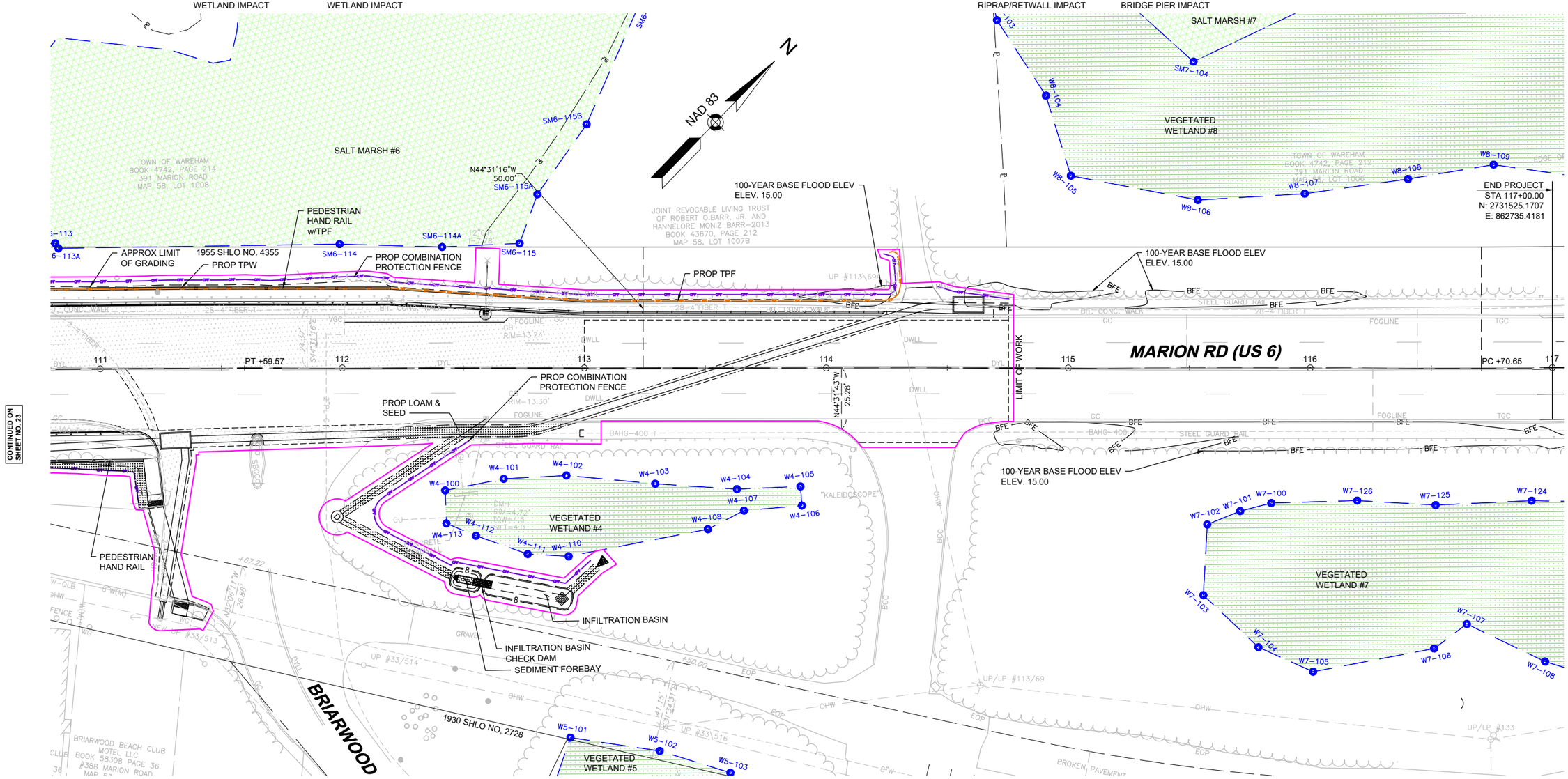
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
ENVIRONMENTAL IMPACT PLAN SHEET 4 OF 5

IMPACT SYMBOLOGY LEGEND

EXIST. VEGETATED WETLAND | TEMP. VEGETATED WETLAND IMPACT | PERM. VEGETATED WETLAND IMPACT | EXIST. SALT MARSH | TEMP. SALT MARSH IMPACT | PERM. SALT MARSH IMPACT | TEMP. BELOW HTL IMPACT | PERM. BELOW HTL RIPRAP/RETWALL IMPACT | PERM. BELOW HTL BRIDGE PIER IMPACT

EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY



TOTAL PROJECT IMPACT CALCULATIONS (SF.)			
	TEMPORARY	PERMANENT	
		BRIDGE PIER	RIPRAP/RETWALL
VEGETATED WETLAND IMPACTS	219	0	913
SALT MARSH IMPACTS	709	0	1764
BELOW HIGH TIDE LINE IMPACTS	6088	5432	12324

BELOW HIGH TIDE LINE VOLUMETRIC IMPACT CALCULATIONS (CY.)			
	M-05-001=W-06-013	W-06-016	RIPRAP/RETWALL
DREDGING	173	330	3260
FILL	173	330	3890

0 20 50 100
SCALE IN FEET

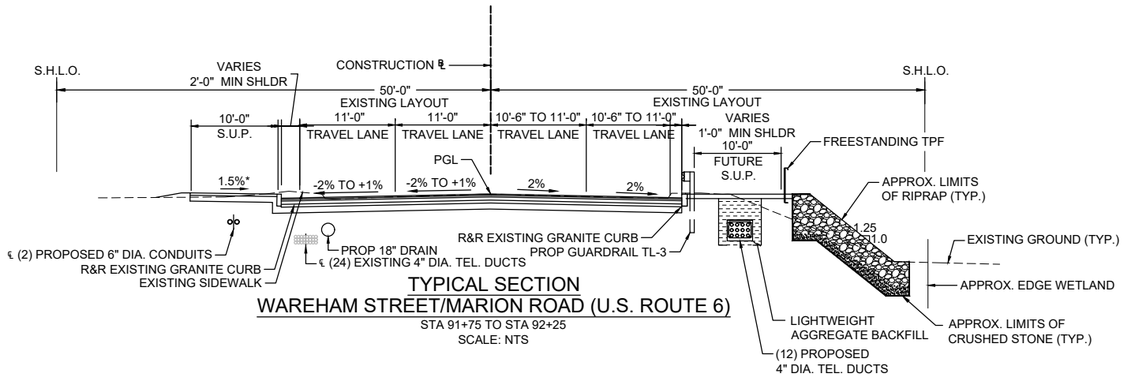
NOTE:
- BASE FLOOD ELEV. (15.00') REFERENCED FROM FEMA FIRM MAP NO. 25023C0576K.
- HIGH TIDE LINE ELEV. (3.78'), MEAN HIGH WATER ELEV. (1.65'), MEAN LOW WATER (-2.27') OBTAINED FROM TIDAL FLUSHING STUDY.

SHEET 24

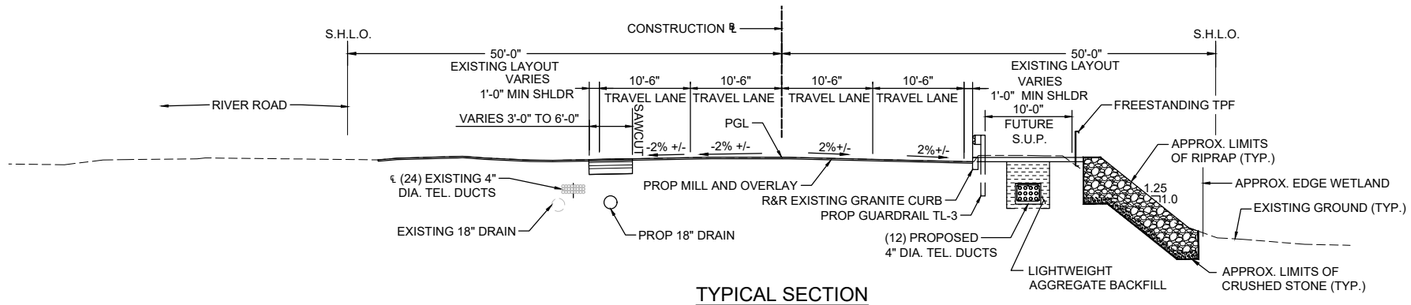
PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

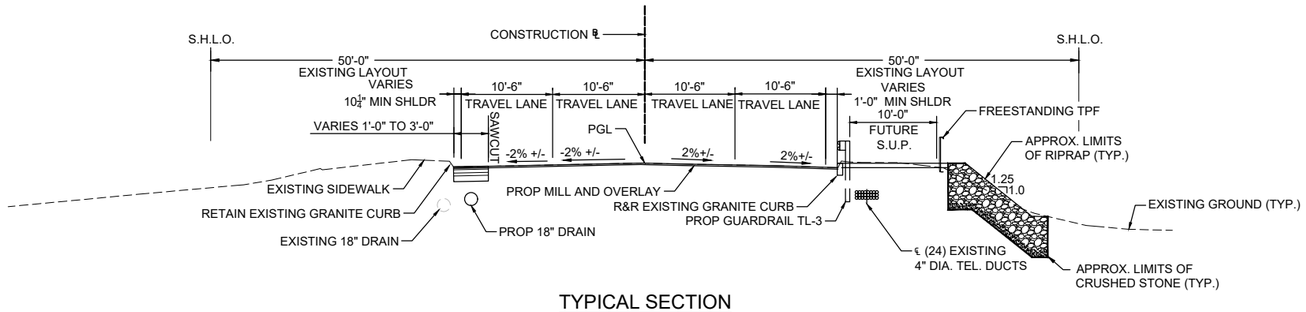
HIGHWAY
ENVIRONMENTAL IMPACT PLAN SHEET 5 OF 5



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 91+75 TO STA 92+25
SCALE: NTS



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 91+35 TO STA 91+75
SCALE: NTS

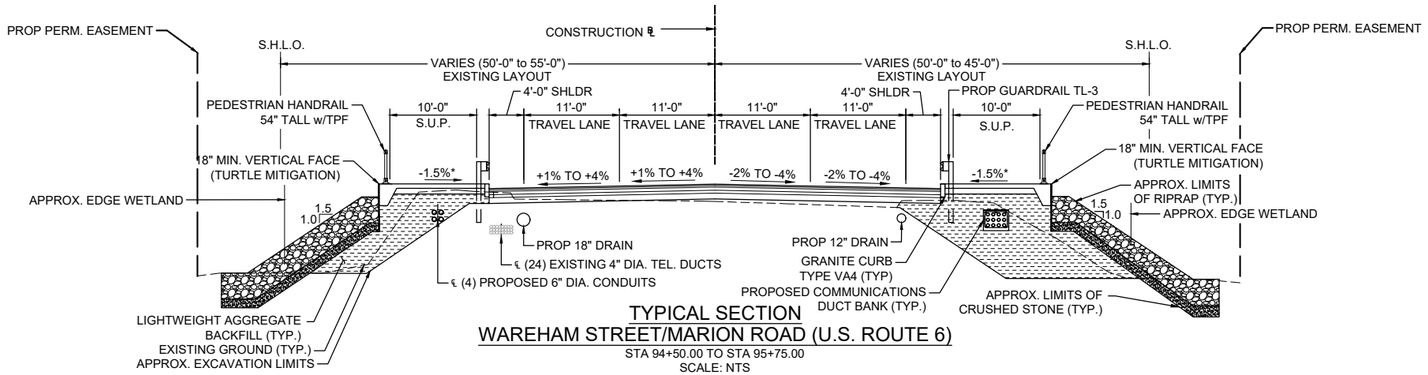


TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 90+00 TO STA 91+35
SCALE: NTS

PARSONS
100 HIGH STREET
BOSTON, MA 02110

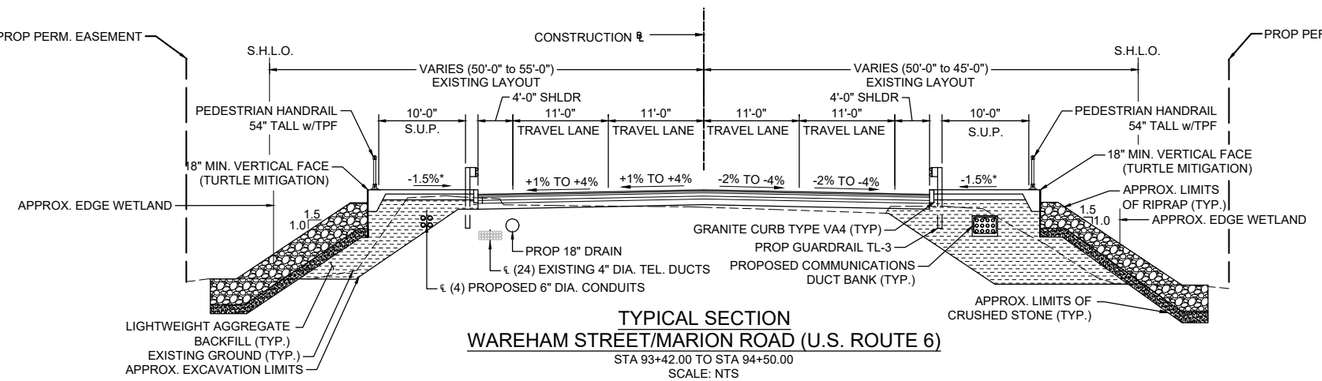
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
TYPICAL SECTIONS SHEET 1 OF 5



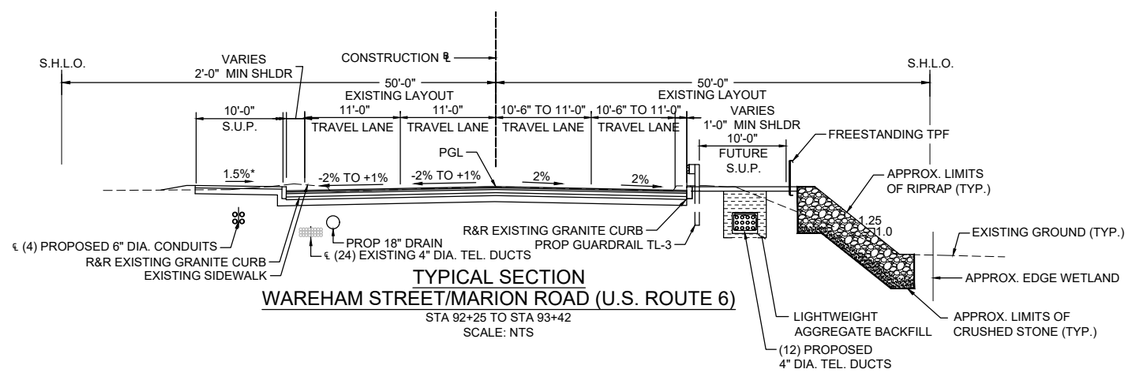
TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)

STA 94+50.00 TO STA 95+75.00
SCALE: NTS



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)

STA 93+42.00 TO STA 94+50.00
SCALE: NTS



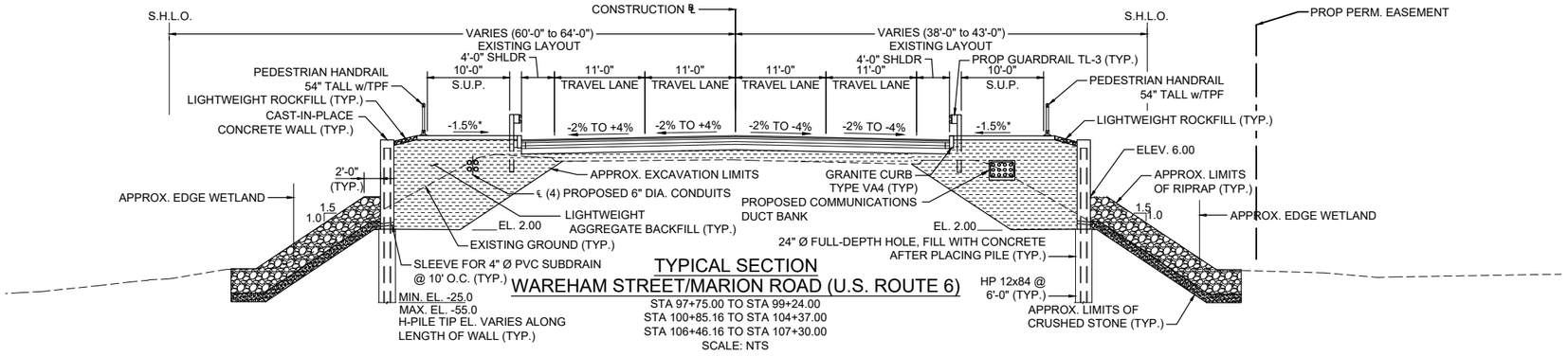
TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)

STA 92+25 TO STA 93+42
SCALE: NTS

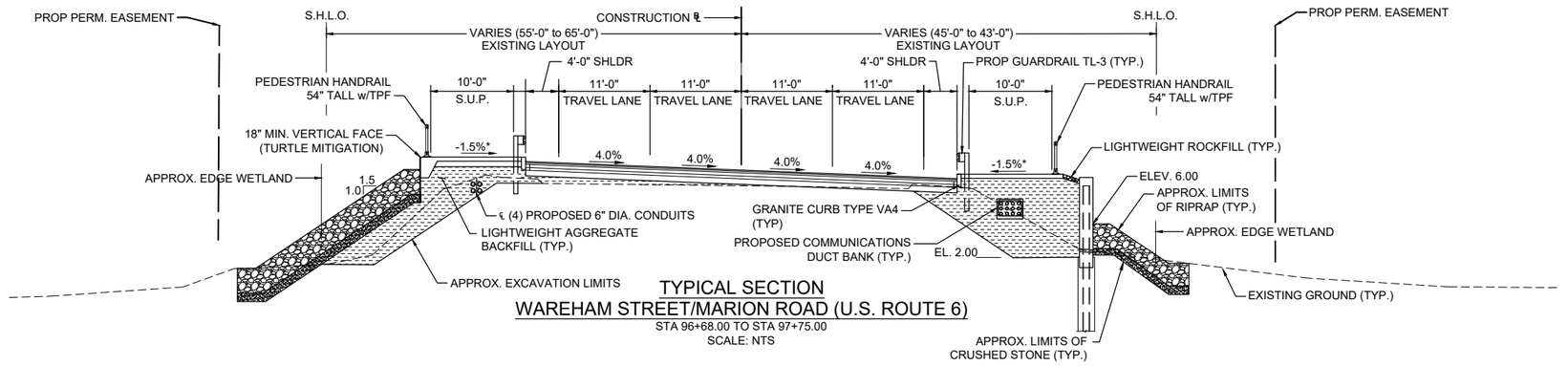
PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

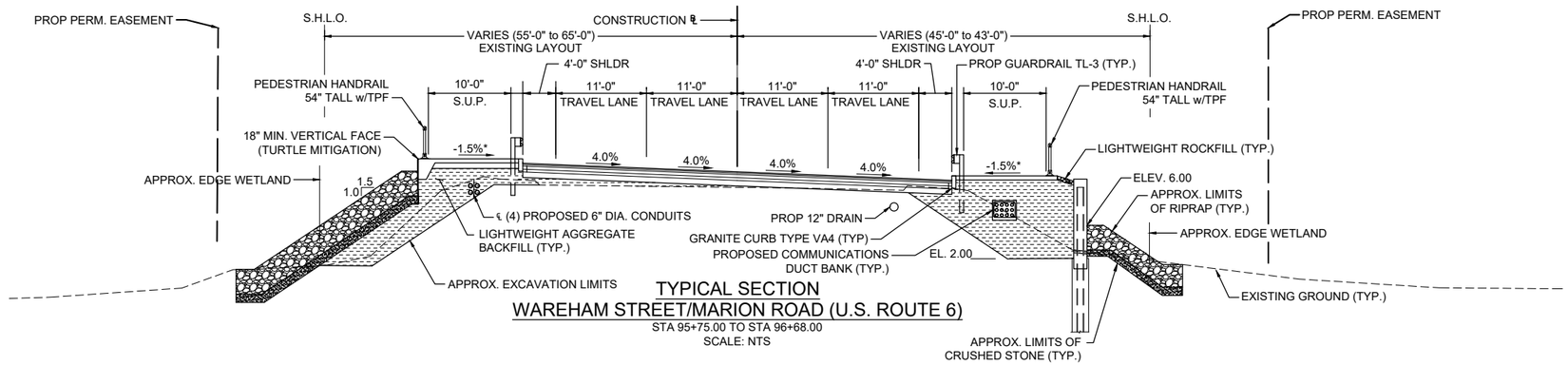
HIGHWAY
TYPICAL SECTIONS SHEET 2 OF 5



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 97+75.00 TO STA 99+24.00
STA 100+85.16 TO STA 104+37.00
STA 106+46.16 TO STA 107+30.00
SCALE: NTS



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 96+68.00 TO STA 97+75.00
SCALE: NTS



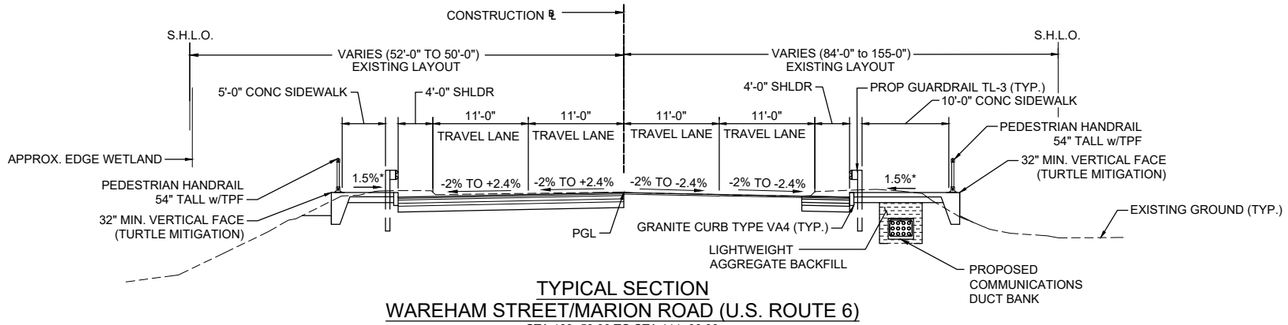
TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 95+75.00 TO STA 96+68.00
SCALE: NTS

SHEET 27

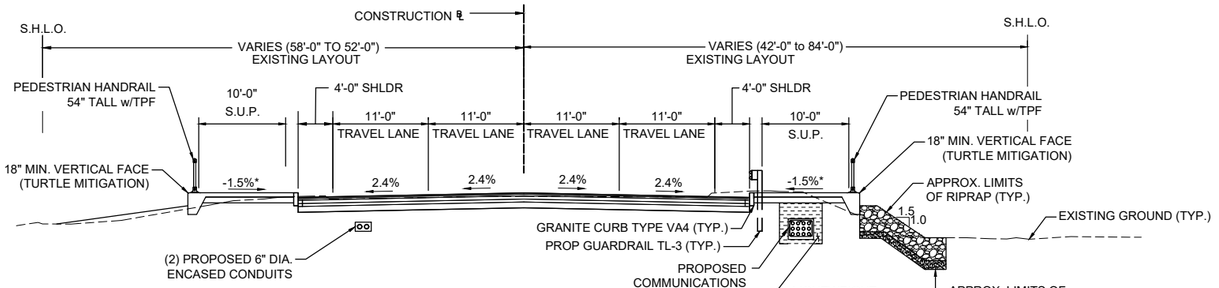
PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

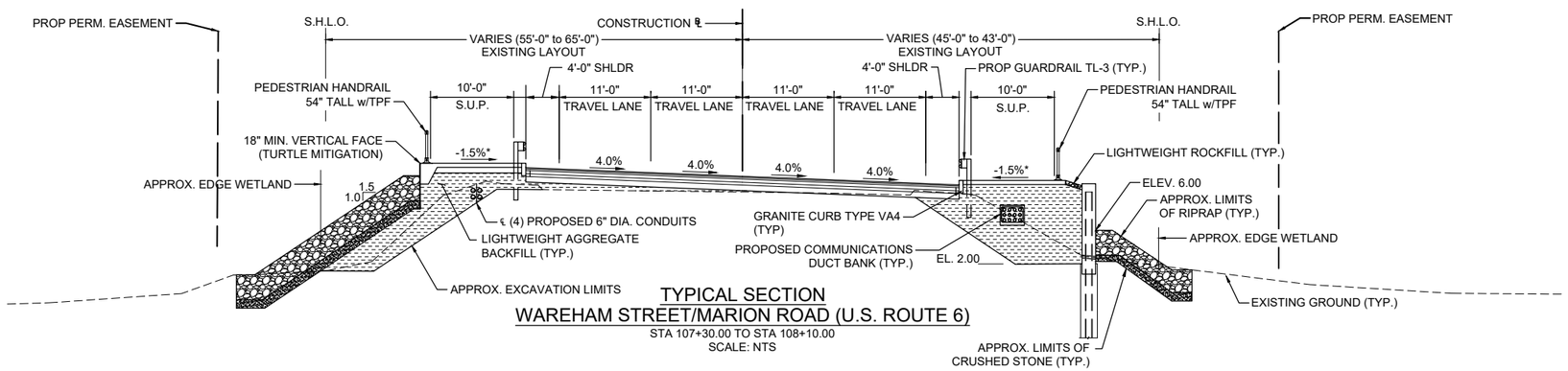
HIGHWAY
TYPICAL SECTIONS SHEET 3 OF 5



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 109+50.00 TO STA 111+00.00
SCALE: NTS



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 108+10.00 TO STA 109+00.00
SCALE: NTS



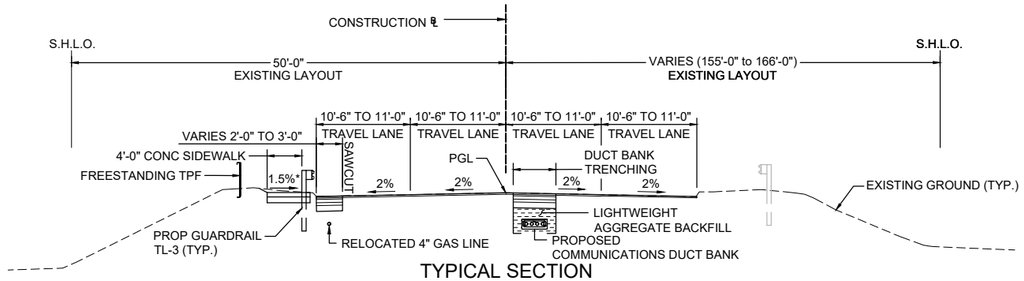
TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 107+30.00 TO STA 108+10.00
SCALE: NTS

SHEET 28

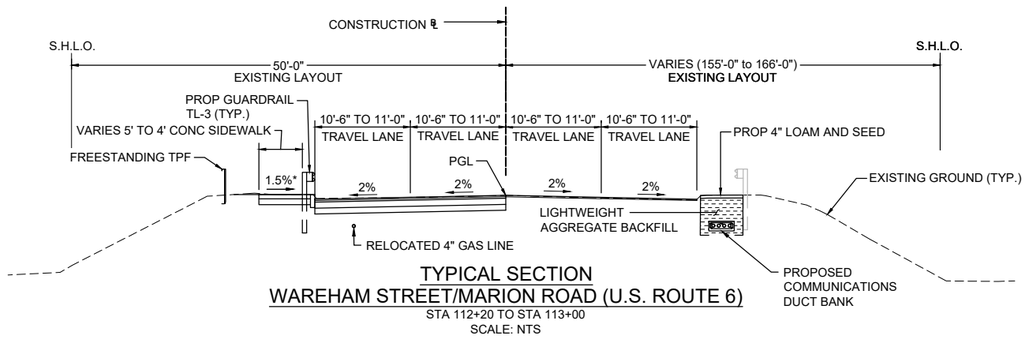
PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
TYPICAL SECTIONS SHEET 4 OF 5

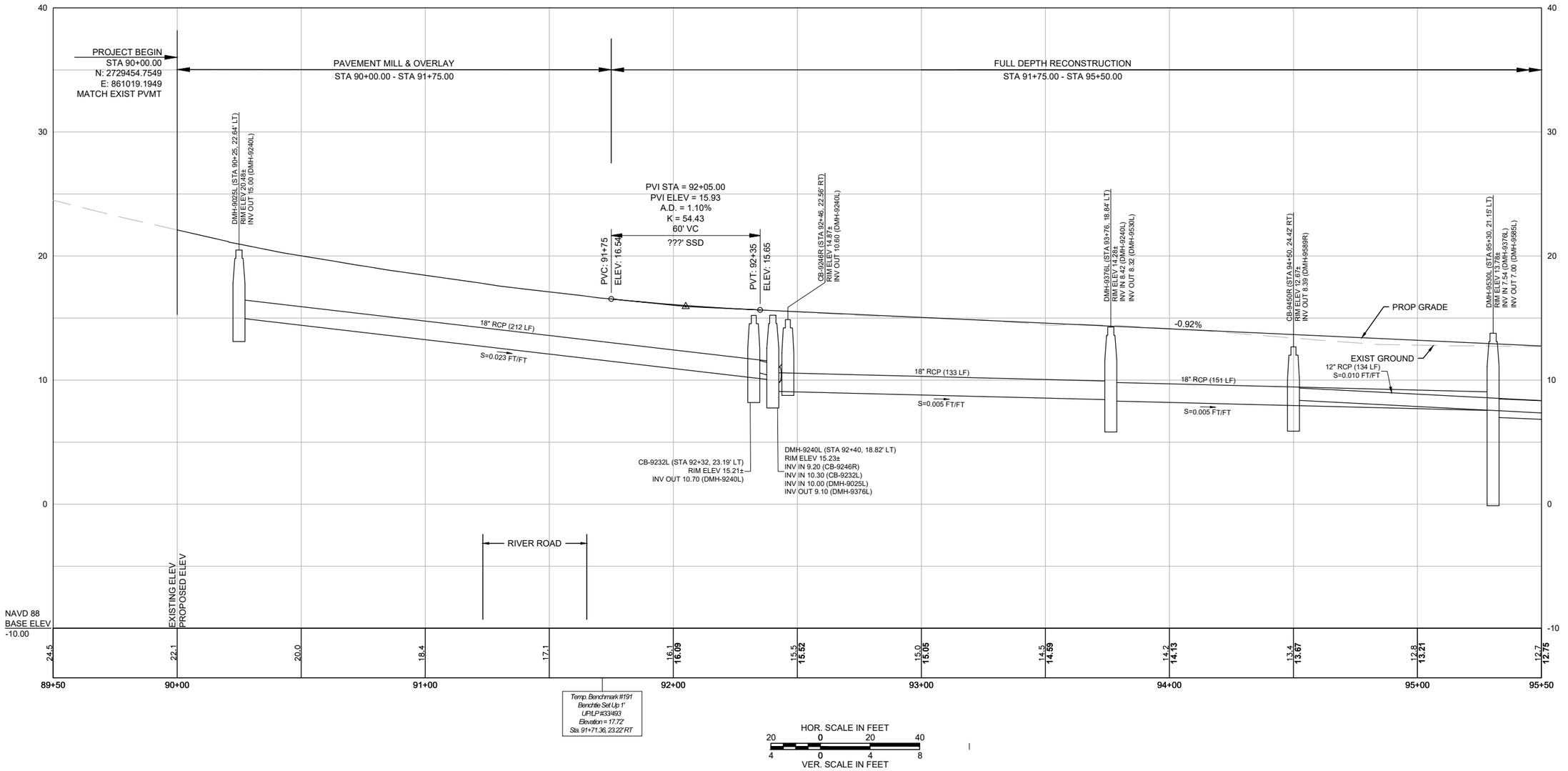


TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 113+00 TO STA 114+65
SCALE: NTS



TYPICAL SECTION
WAREHAM STREET/MARION ROAD (U.S. ROUTE 6)
STA 112+20 TO STA 113+00
SCALE: NTS

SHEET 29



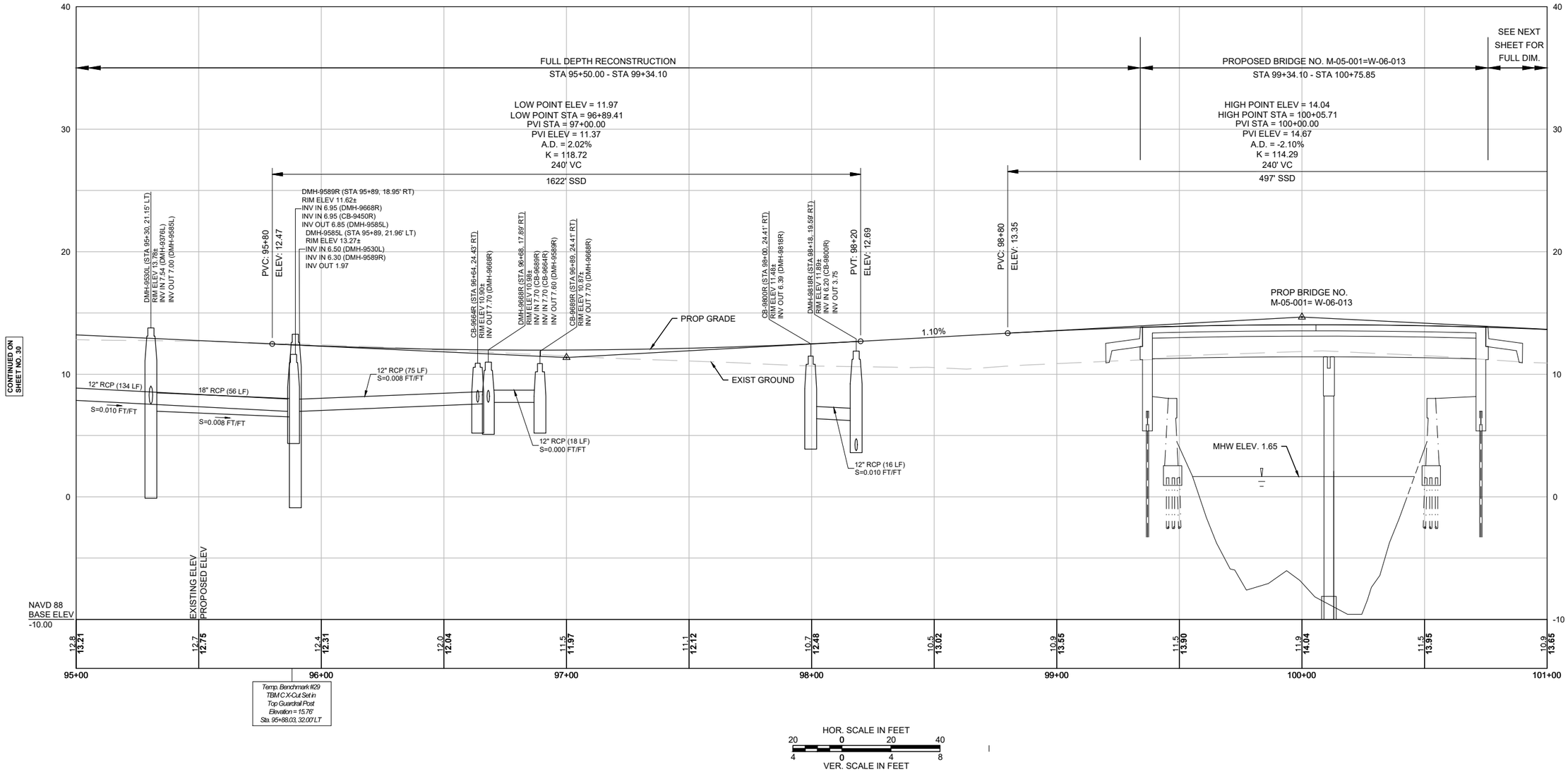
CONTINUED ON SHEET NO. 31

SHEET 30

PARSONS
100 HIGH STREET
BOSTON, MA 02110

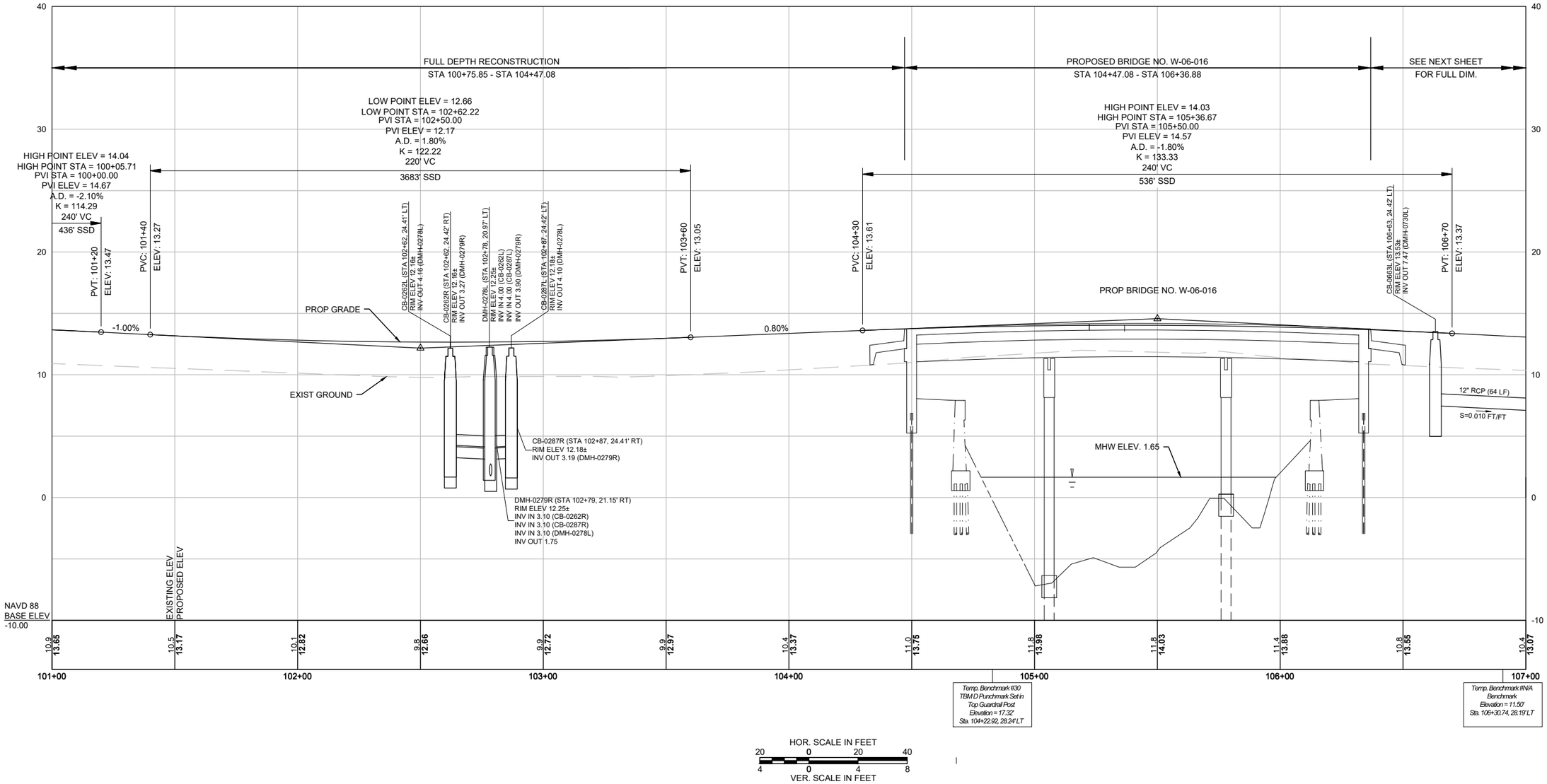
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
PROFILE SHEET 1 OF 5



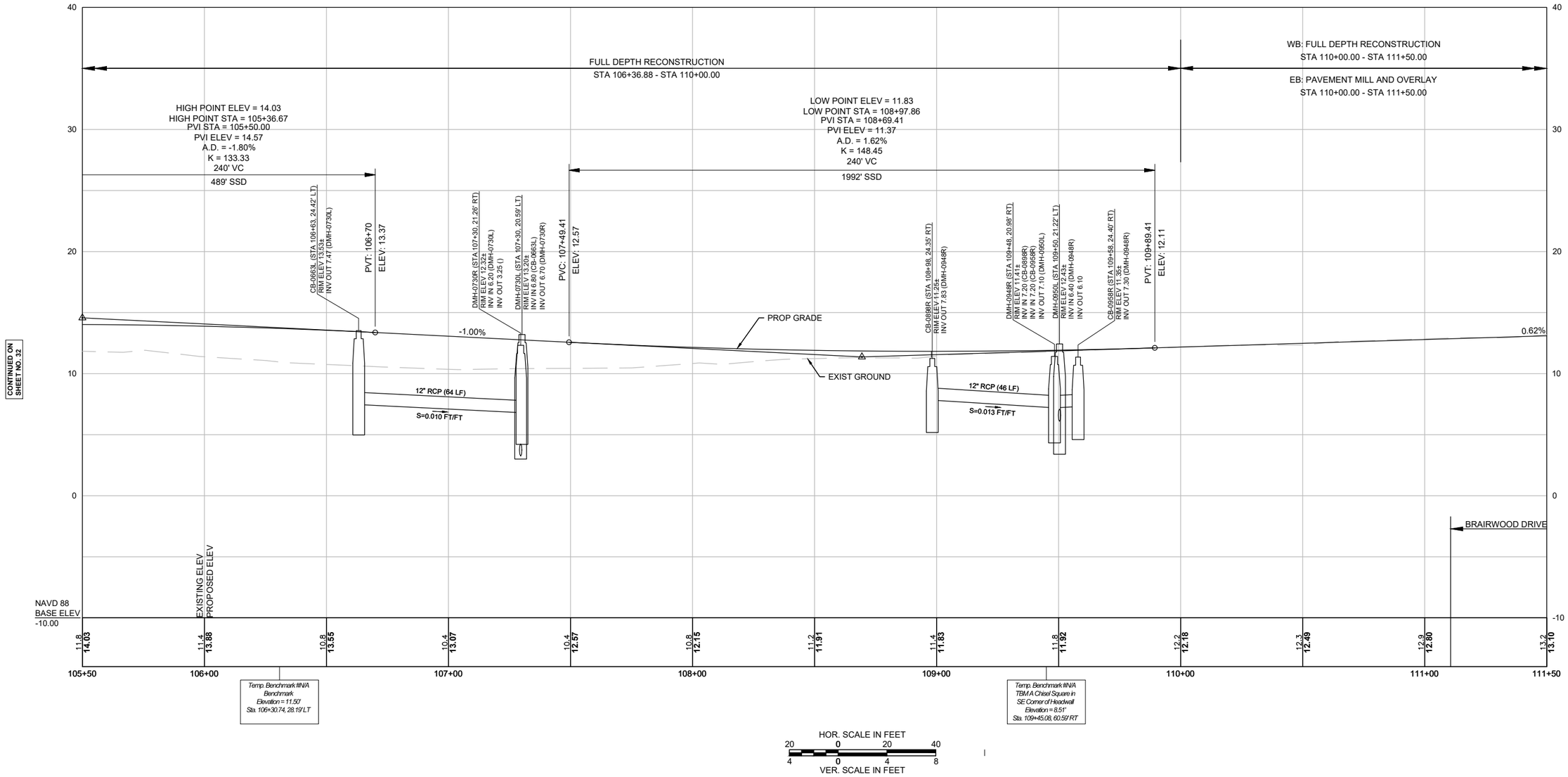
SHEET 31

PARSONS 100 HIGH STREET BOSTON, MA 02110	MARION - WAREHAM WAREHAM STREET (US 6) OVER WEWEANTIC RIVER	HIGHWAY PROFILE SHEET 2 OF 5



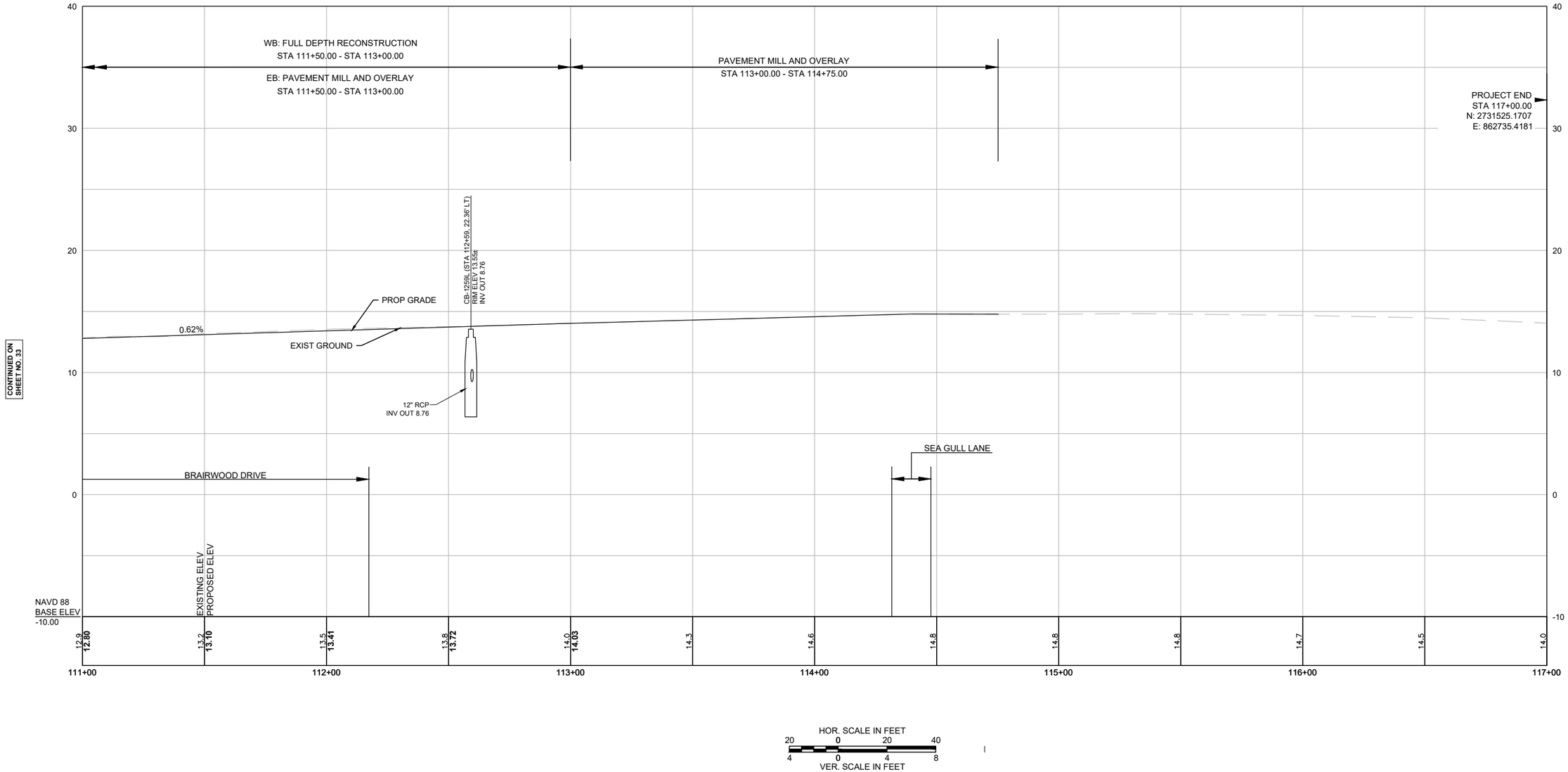
SHEET 32

PARSONS 100 HIGH STREET BOSTON, MA 02110	MARION - WAREHAM WAREHAM STREET (US 6) OVER WEWEANTIC RIVER	HIGHWAY PROFILE SHEET 3 OF 5



SHEET 33

PARSONS 100 HIGH STREET BOSTON, MA 02110	MARION - WAREHAM WAREHAM STREET (US 6) OVER WEWEANTIC RIVER	HIGHWAY PROFILE SHEET 4 OF 5



CONTINUED ON SHEET NO. 33

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

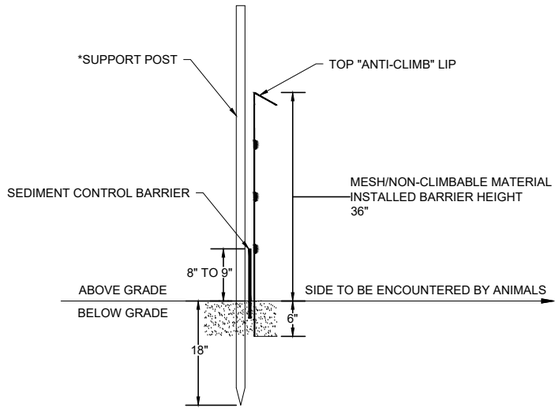
SHEET 34

PARSONS
100 HIGH STREET
BOSTON, MA 02110

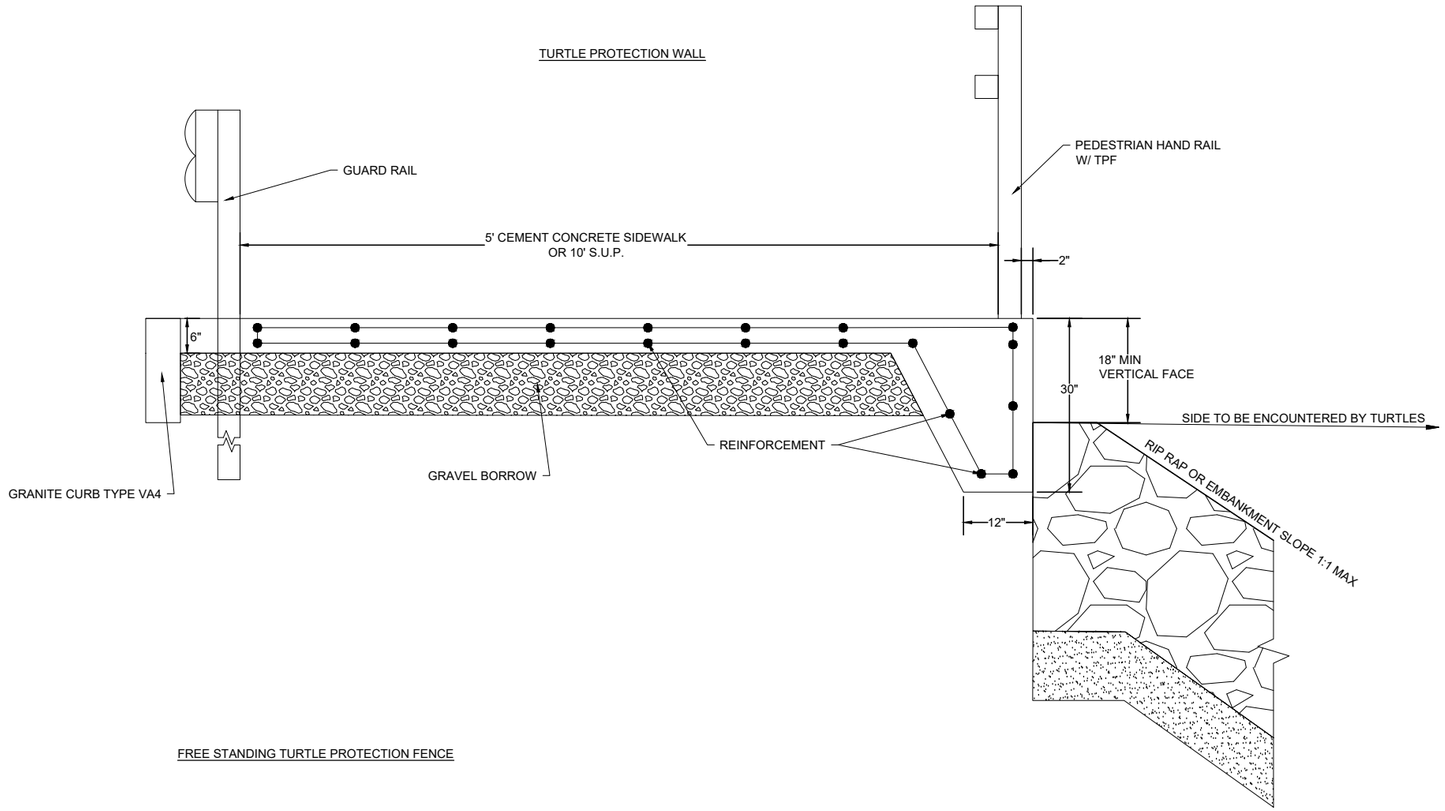
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
PROFILE SHEET 5 OF 5

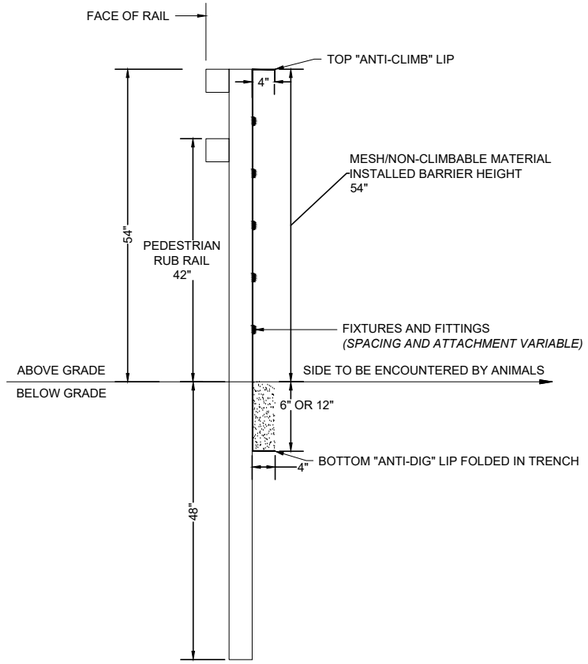
COMBINATION PROTECTION FENCE



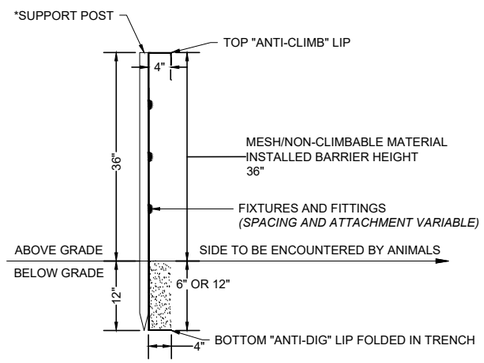
TURTLE PROTECTION WALL



TURTLE PROTECTION FENCE
ATTACHED PEDESTRIAN HAND RAIL



FREE STANDING TURTLE PROTECTION FENCE



TURTLE PROTECTION NOTES:

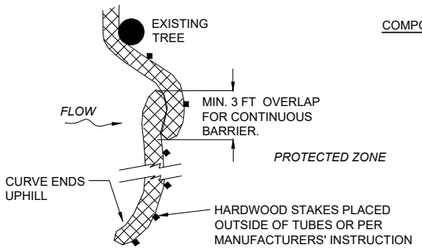
1. THESE SPECIFICATIONS SHOULD BE USED TO AID INSTALLATION. MEASUREMENTS ARE ACCURATE BUT MAY NEED TO BE ADJUSTED DEPENDENT ON LOCATION, CONDITIONS, AND LOCAL AUTHORITY RECOMMENDATIONS.
2. ONE-WAY TURTLE GATES TO BE INSTALLED ON TURTLE PROTECTION FENCE AND SPACED APPROXIMATELY EVERY 150 FEET. THE FINAL DESIGN AND LOCATION OF THE ONE-WAY TURTLE GATES IS TO BE COORDINATED BETWEEN THE CONTRACTOR AND MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT, AND BASED UPON APPROVAL BY THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE.
3. CONTRACTOR TO ENSURE NO GAPS ARE PRESENT BETWEEN THE TRANSITION BETWEEN TURTLE PROTECTION FENCE AND TURTLE PROTECTION WALL. MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT TO REVIEW AND APPROVE FINAL DESIGN OF TURTLE PROTECTION FENCE END TREATMENTS.
4. FINAL DESIGN OF TURTLE PROTECTION GATE TO BE APPROVED BY MASSDOT ENVIRONMENTAL SERVICES - WILDLIFE UNIT AND THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION DETAIL SHEET 1 OF 2

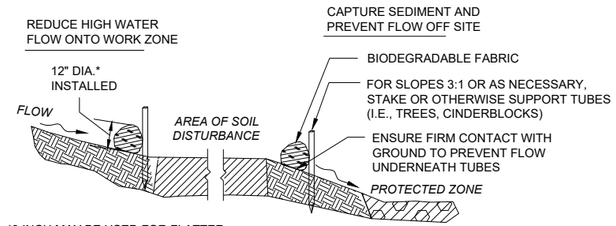
COMPOST FILTER TUBE



PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW - JOIN DETAIL



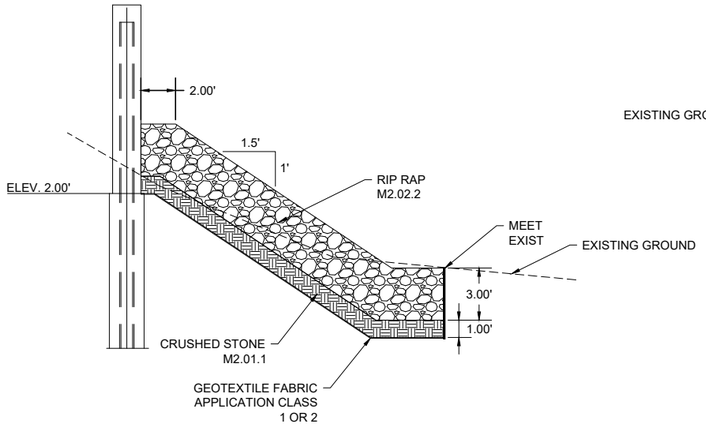
*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

SECTION

NOTE:

1. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUNOFF.
2. TUBES MAY BE PLACED ON THE UPHILL SIDE OF WELL-ANCHORED,STATIONARY FEATURES, SUCH AS EXISTING TREES OR HEADWALLS, IN LIEU OF STAKING.
3. SLOPES LONGER THAN 50 FT. MAY REQUIRE TUBE DIAMETER GREATER THAN 12 IN. REFER TO MANUFACTURER RECOMMENDATIONS FOR SLOPES LONGER THAN 50 FT.
4. TUBE LOCATIONS MAY BE SHIFTED TO ADJUST TO EXISTING LANDSCAPE FEATURES, AND SHALL PROTECT UNDISTURBED AREA TO THE MAXIMUM EXTENT PRACTICABLE.
5. DO NOT INSTALL IN PERENNIAL, EPHEMERAL, OR INTERMITTENT STREAMS.
6. ADDITIONAL TUBES OR STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER OR ENVIRONMENTAL MONITOR.
7. TYPE AND LOCATION OF EROSION CONTROL TO BE CONFIRMED WITH RESPECTIVE CONSERVATION COMMISSION PRIOR TO PROCUREMENT OR INSTALLATION.
8. INSTALLATION PROCEDURE TO BE SIMILAR FOR ALL TYPES.

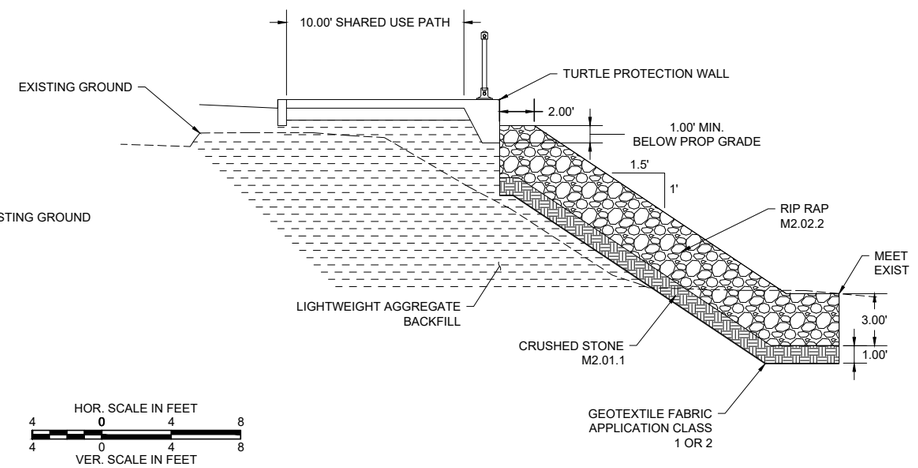
RIP RAP ATTACHED TO RETAINING WALL
NOT TO SCALE



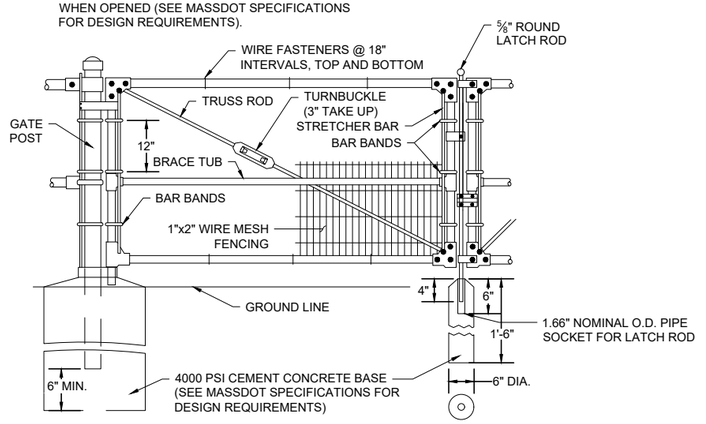
RIP RAP ATTACHED TO TURTLE PROTECTION WALL
NOT TO SCALE

NOTE:

1. RIP RAP SLOPE MAY BE 1 : 1 OR GREATER.



TURTLE PROTECTION FENCE GATE
NOT TO SCALE



PARSONS
100 HIGH STREET
BOSTON, MA 02110

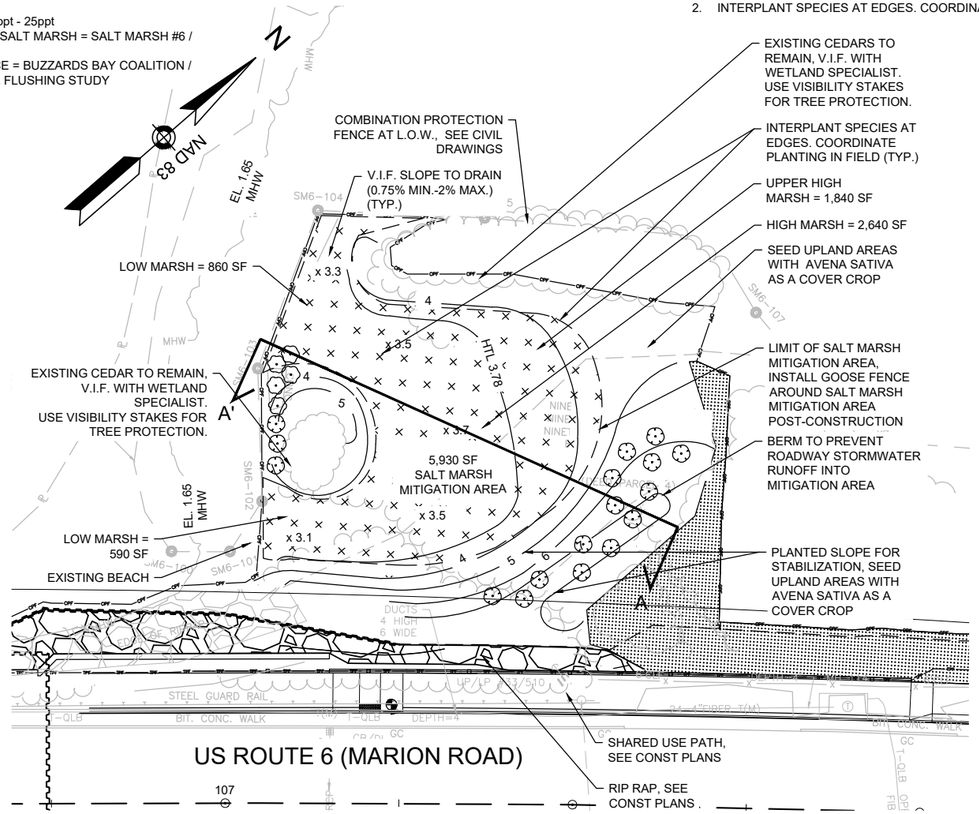
MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

HIGHWAY
CONSTRUCTION DETAIL SHEET 2 OF 2

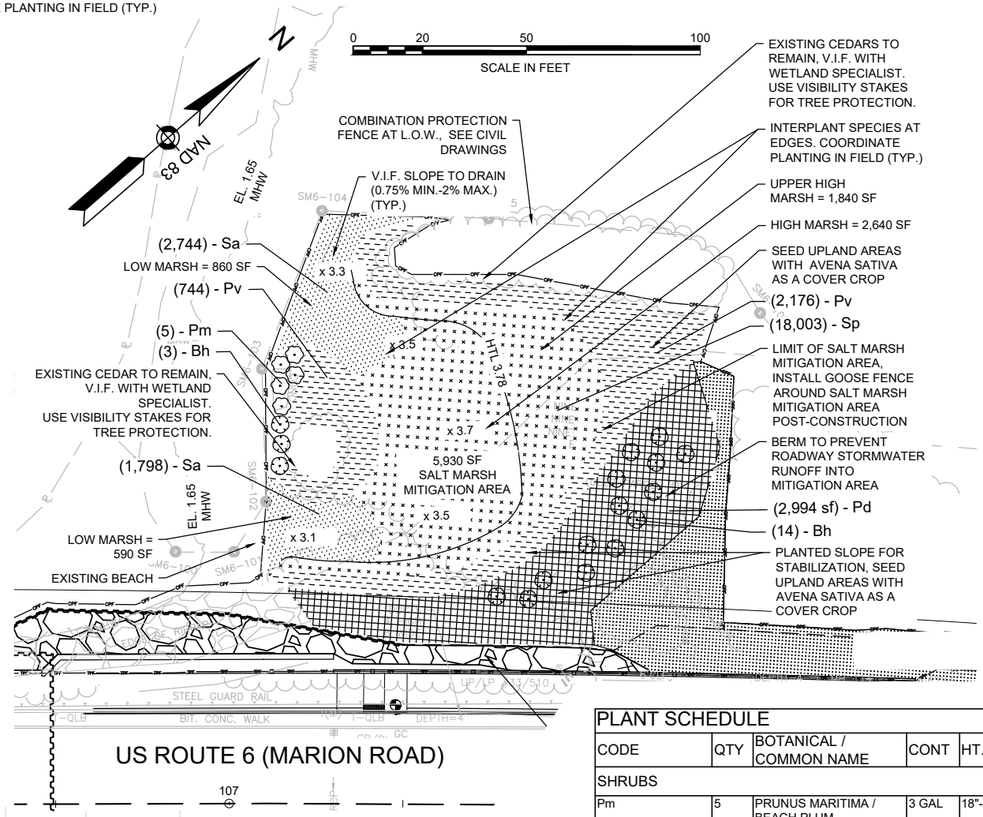
EXISTING SITE NOTES:
1. HTL = 3.78'
2. MHHW = 2.09'
3. MHW = 1.65'
4. LMSL = -0.41'
5. SALINITY = 5ppt - 25ppt
6. REFERENCE SALT MARSH = SALT MARSH #6 / ADJACENT
7. DATA SOURCE = BUZZARDS BAY COALITION / NOAA / TIDAL FLUSHING STUDY

MITIGATION SITE PLAN

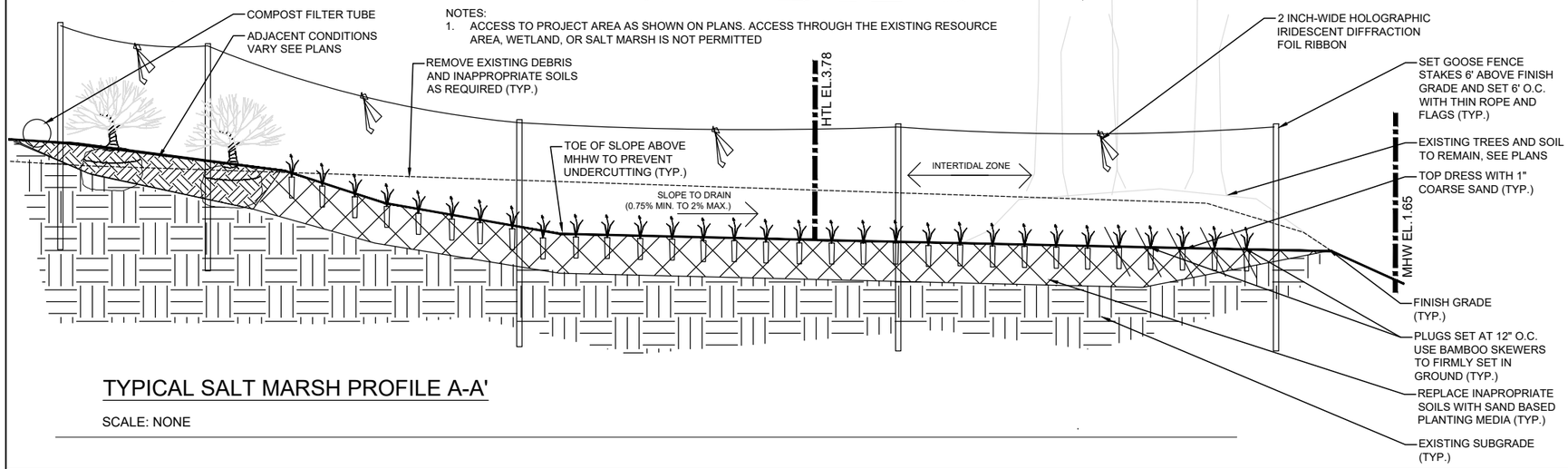
GENERAL NOTE:
1. MITIGATION AND PLANTING AREA SHOWN ON PLAN IS CONSIDERED SCHEMATIC IN NATURE, AND SHALL BE COORDINATED AND VERIFIED IN THE FIELD BY THE WETLAND SPECIALIST. AREAS AND NUMBERS OF PLANTS MAY CHANGE PER THE PERMIT REQUIREMENTS.
2. INTERPLANT SPECIES AT EDGES. COORDINATE PLANTING IN FIELD (TYP.)



MITIGATION PLANTING PLAN



PLANT SCHEDULE						
CODE	QTY	BOTANICAL / COMMON NAME	CONT	HT.		REMARKS
SHRUBS						
Pm	5	PRUNUS MARITIMA / BEACH PLUM	3 GAL	18"-24"		
Bh	17	BACCHARIS HALIMIFOLIA / GROUNDSEL BUSH	3 GAL	18"-24"		
SYMBOL	QTY	BOTANICAL / COMMON NAME	CONT		SPACING	REMARKS
GROUND COVERS						
	3,000 SF	PANICUM AMARUM / BITTER PANICGRASS	SEED			
	2,900	PANICUM VIRGATUM / SWITCH GRASS	PLUG		12" O.C.	
	4,550	SPARTINA ALTERNIFLORA / SALT MARSH GRASS	PLUG		6" O.C.	
	18,000	SPARTINA PATENS / SALTMEADOW CORDGRASS	PLUG		8" O.C.	



NOTES:
1. ACCESS TO PROJECT AREA AS SHOWN ON PLANS. ACCESS THROUGH THE EXISTING RESOURCE AREA, WETLAND, OR SALT MARSH IS NOT PERMITTED

TYPICAL SALT MARSH PROFILE A-A'

SCALE: NONE

SHEET 37

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

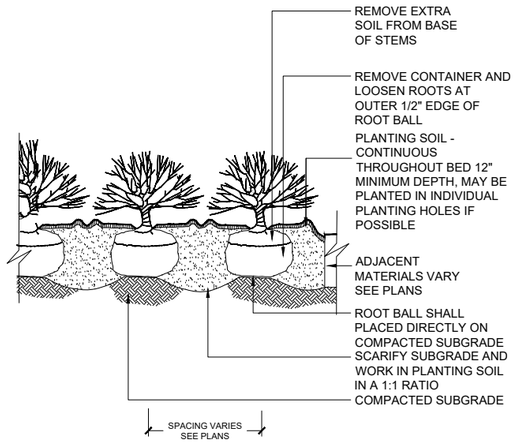
HIGHWAY
MITIGATION PLAN SHEET 1 OF 2

PLANTING NOTES:

1. VERIFY EXISTING UTILITY LINES PRIOR TO PLANTING AND REPORT CONFLICTS TO THE RESIDENT ENGINEER.
2. CONTRACTOR SHALL COORDINATE PLANTING INSTALLATION WITH WORK BEING DONE BY OTHERS.
3. TREES TO BE SAVED SHALL BE PROTECTED. USE TREE AND PLANT PROTECTION - VISIBILITY STAKES. WORK SHALL NOT OCCUR BEYOND AREA DELINEATED BY STAKES.
4. NO PLANTING SHALL OCCUR PRIOR TO ACCEPTANCE OF FINAL GRADING.
5. PLANT MATERIAL SHALL CONFORM TO THE MINIMUM GUIDELINES ESTABLISHED BY THE AMERICAN STANDARD FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. SEE SPECIFICATION FOR DETAILED REQUIREMENTS. PROPOSED SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITH MATERIAL EQUIVALENT TO THE DESIRED MATERIAL IN OVERALL FORM, HEIGHT, BRANCHING HABIT, FLOWER, LEAF, COLOR, FRUIT AND CULTURE.
6. PLANT QUANTITIES NOTED IN THE PLANT SCHEDULE ARE APPROXIMATE AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF PLANT MATERIALS NOTED ON THE PLANTING PLAN.
7. PLANTED AREAS SHALL BE PITCHED A MINIMUM OF 0.75% TO 2% MAXIMUM FOR SALT MARSH AREA, AND 3:1 MAX OUTSIDE THE MITIGATION AREA.
8. INSTALL PLANTS WITH ROOT FLARES FLUSH WITH GRADE. IMMEDIATELY REPLANT PLANTS WHICH SETTLE OUT OF PLUMB OR BELOW FINISH GRADE. CAUTION SHALL BE USED NOT TO EXTEND MULCH LAYER ABOVE SOIL LEVEL AT TRUNKS/STEMS OF INSTALLED PLANT MATERIAL.
9. THE CONTRACTOR IS RESPONSIBLE FOR FULLY MAINTAINING PLANTING (INCLUDING BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, ETC.) OF THE PLANTING AREAS UNTIL THE WORK IS ACCEPTED IN TOTAL BY THE RESIDENT ENGINEER. PROVIDE A MINIMUM EQUIVALENT OF 1" OF RAIN PER WEEK DURING THE ESTABLISHMENT PERIOD. WATERING SHALL ONLY OCCUR UPLAND, MARSH WATERING IS NOT REQUIRED.
10. PLANT MATERIAL WHICH DIES, TURNS BROWN, OR DEFOLIATES (PRIOR TO FINAL ACCEPTANCE OF THE WORK) SHALL BE PROMPTLY REMOVED FROM THE SITE AND REPLACED WITH MATERIAL OF THE SAME SPECIES, QUANTITY, AND SIZE AND MEET PLANT LIST SPECIFICATIONS.
11. THE CONTRACTOR SHALL COMPLETELY GUARANTEE PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR BEGINNING ON THE DATE OF FINAL ACCEPTANCE. THE CONTRACTOR SHALL PROMPTLY MAKE REPLACEMENTS BEFORE OR AT THE END OF THE GUARANTEE PERIOD, AS DIRECTED BY THE RESIDENT ENGINEER WITHIN THE SPECIFIED PLANTING WINDOW.

NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE WETLAND SPECIALIST.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE TOP OF THE ROOTS IS 1"-2" ABOVE FINISHED GRADE OR CONTAINER SURFACE IS AT GRADE.



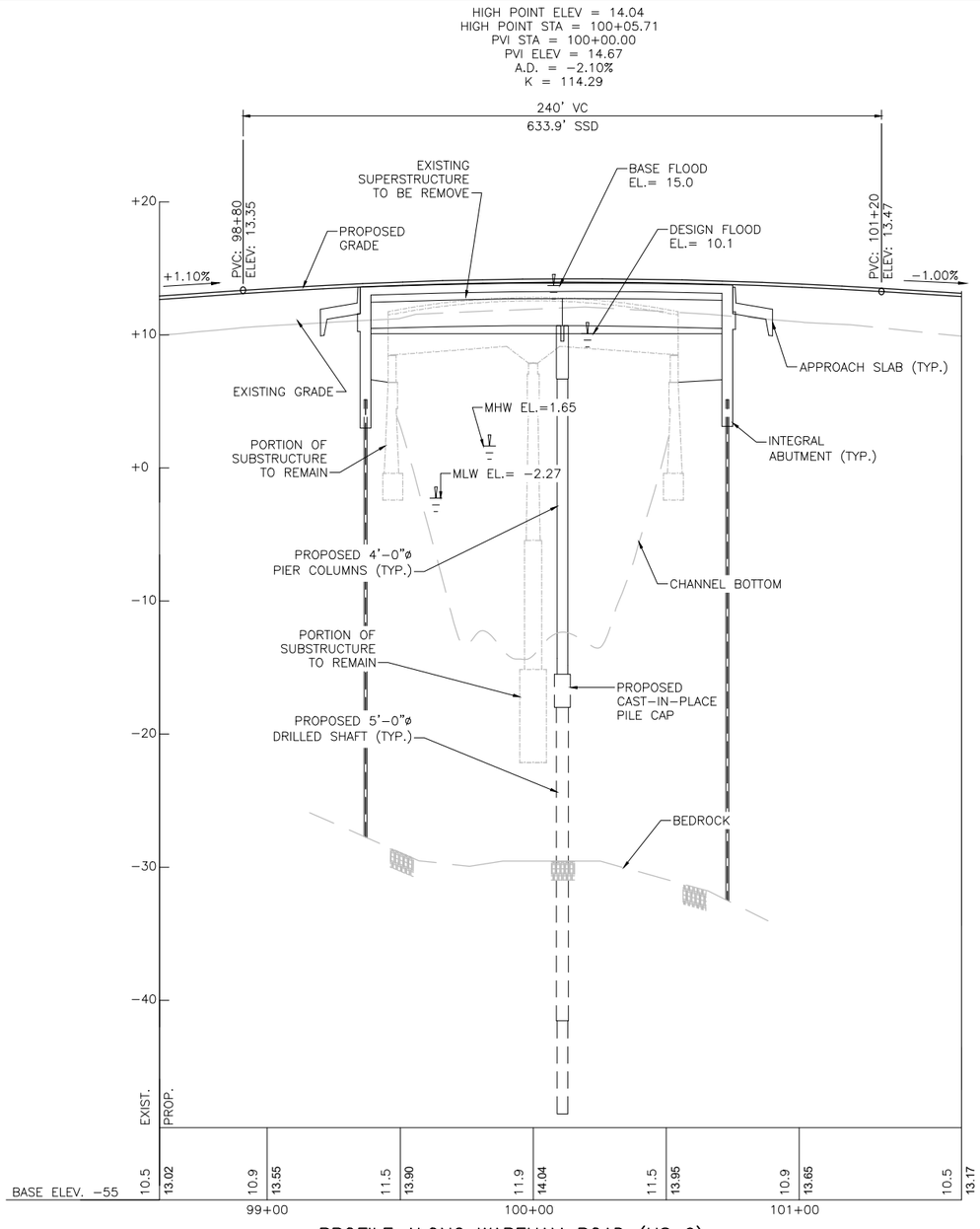
SHRUB PLANTING BED

SCALE: NONE

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM STREET (US 6) OVER WEWEANTIC RIVER

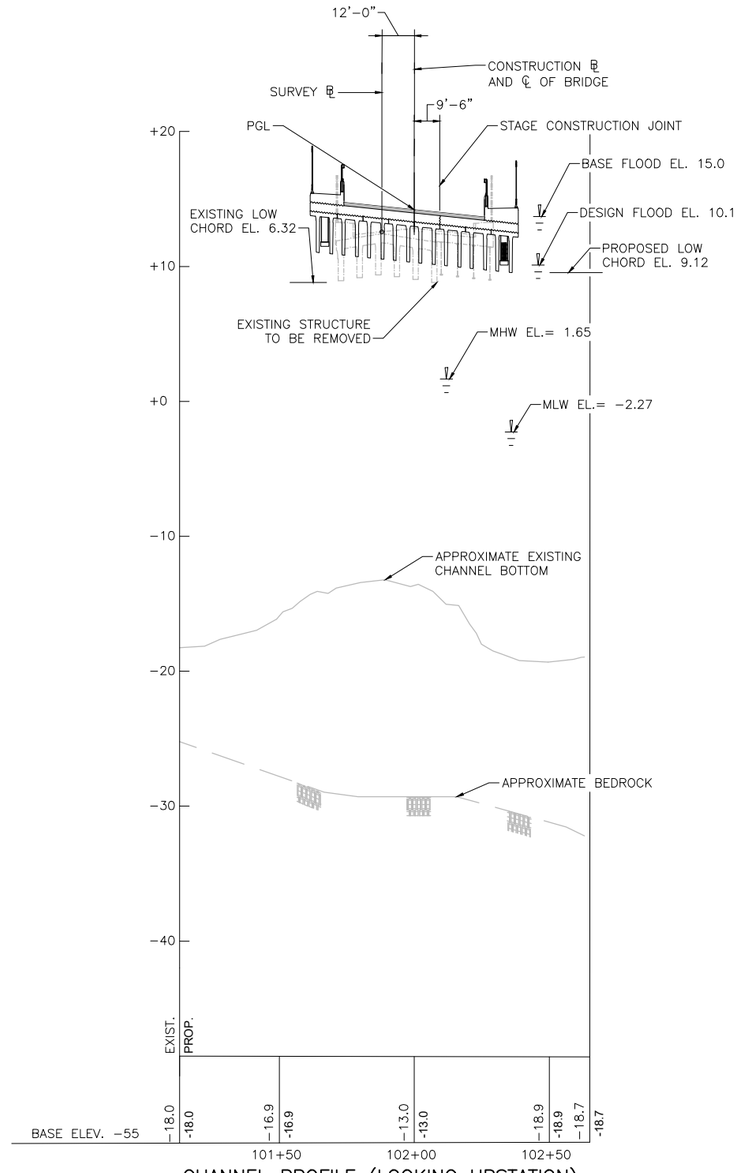
HIGHWAY
MITIGATION PLAN SHEET 2 OF 2



PROFILE ALONG WAREHAM ROAD (US 6)

HORIZONTAL 0 40 80 SCALE IN FEET

VERTICAL 0 8 16 SCALE IN FEET



CHANNEL PROFILE (LOOKING UPSTATION)

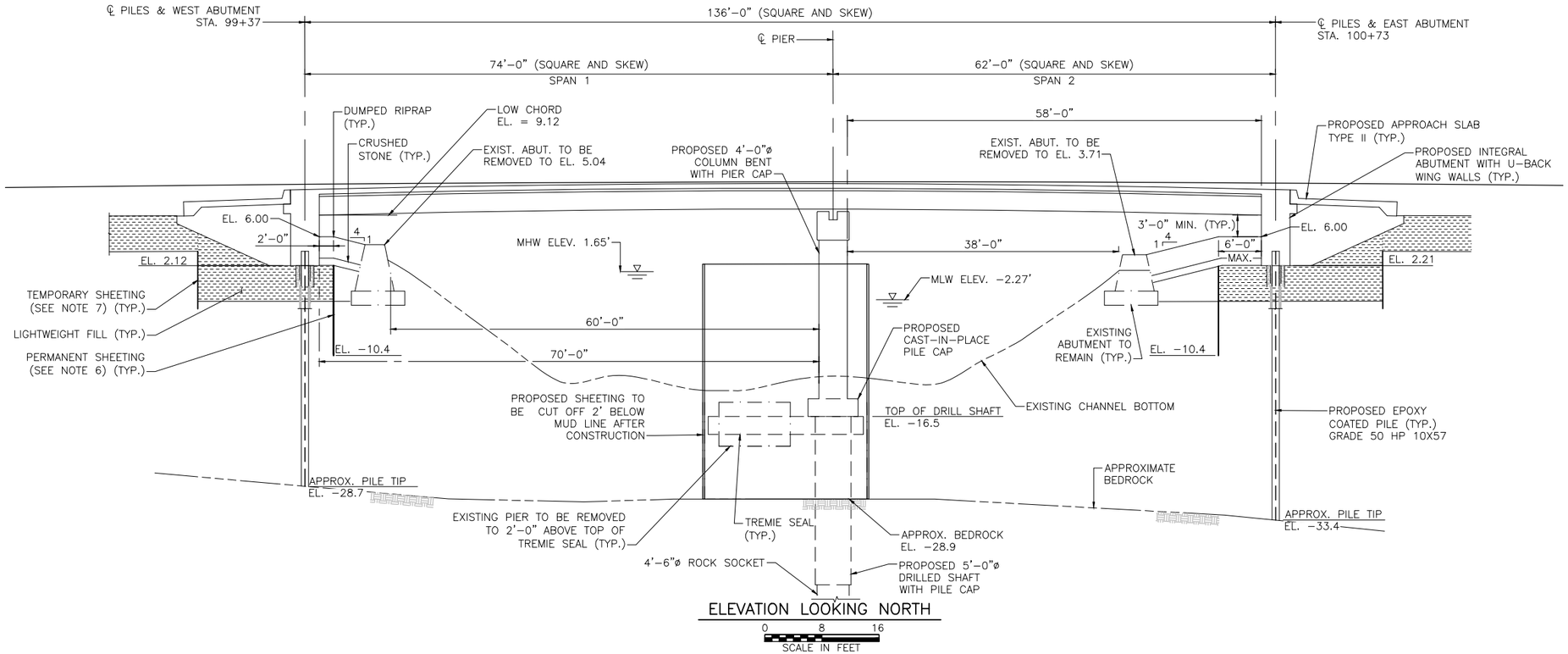
HORIZONTAL 0 40 80 SCALE IN FEET

VERTICAL 0 8 16 SCALE IN FEET

PARSONS
100 HIGH STREET
BOSTON, MA 02110

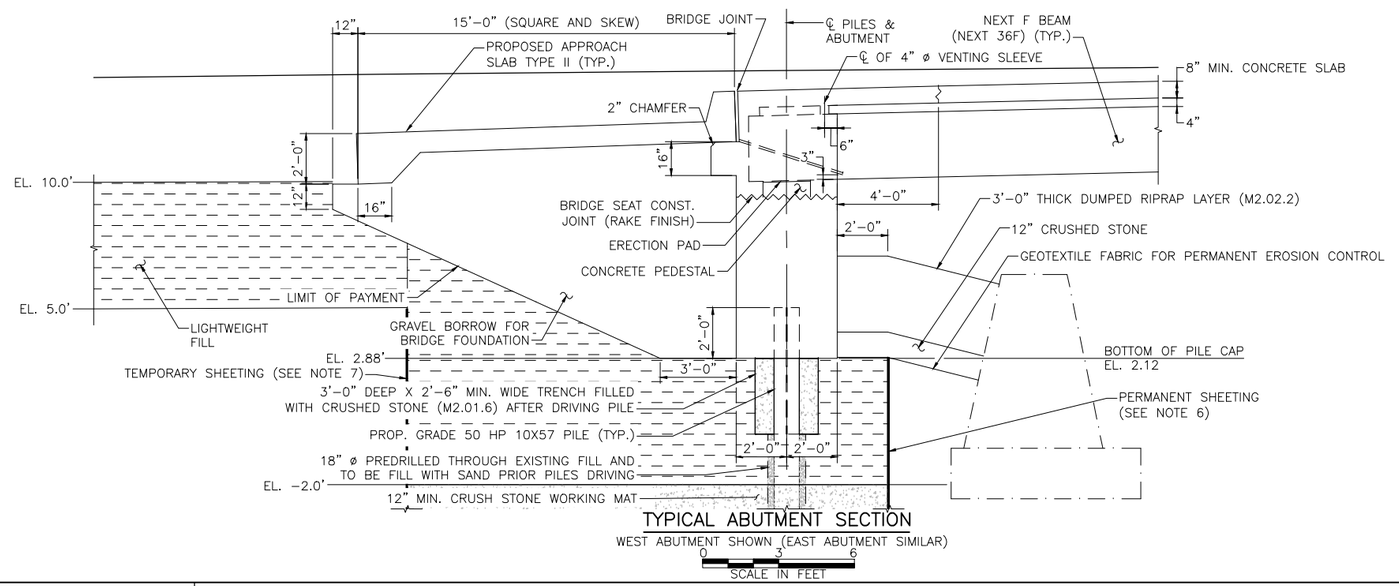
MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE M-05-001=W-06-013
BRIDGE PROFILES



ELEVATION LOOKING NORTH

0 8 16
SCALE IN FEET



TYPICAL ABUTMENT SECTION

WEST ABUTMENT SHOWN (EAST ABUTMENT SIMILAR)
0 3 6
SCALE IN FEET

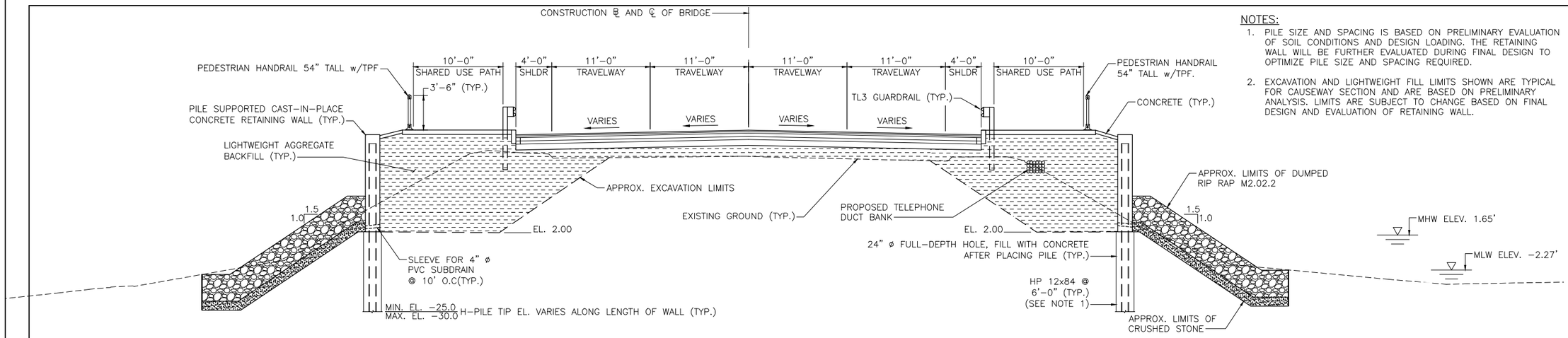
NOTES:

1. MINIMUM VERTICAL CLEARANCE AT MWH OCCURS AT THE SOUTHERN EXTERIOR GIRDER AT THE WEST END OF THE STRUCTURE. EXISTING VERTICAL CLEARANCE FROM MWH TO THE BOTTOM GIRDER FLANGE IS 4.92', PROPOSED MINIMUM VERTICAL CLEARANCE IS 7.42'.
2. THE FACTORED AXIAL DESIGN LOAD PER PILE IS 290 KIPS FOR WEST ABUTMENT AND 260 KIPS FOR EAST ABUTMENT PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 417.5 KIPS.
3. THE FACTORED DRILLED SHAFT LOAD IS 1,067 KIPS. THE FACTORED DRILLED SHAFT RESISTANCE IS 5,535 KIPS.
4. THE DESIGN (25 YEAR) FLOOD ELEVATION IS 10.1'. THE BASE (100–YEAR) FLOOD ELEVATION IS 15.0'.
5. THE PRESSURE DESIGN SCOUR DEPTH IS 3.3', PRESSURE CHECK SCOUR DEPTH IS 7.1', PIER DESIGN SCOUR DEPTH IS 10.0', PIER CHECK SCOUR DEPTH IS 12.0'.
6. PERMANENT SHEETING FOR SCOUR PROTECTION, WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SHEETING TO BE DESIGNED TO MEET DESIGN SCOUR EVENT FOR PROTECTION OF PROPOSED ABUTMENTS. SEE SHEET 22 FOR PLAN LAYOUT.
7. TEMPORARY SHEETING FOR WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SEE SHEET 22 FOR PLAN LAYOUT.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE M-05-001=W-06-013
ELEVATION AND TYPICAL ABUTMENT SECTION

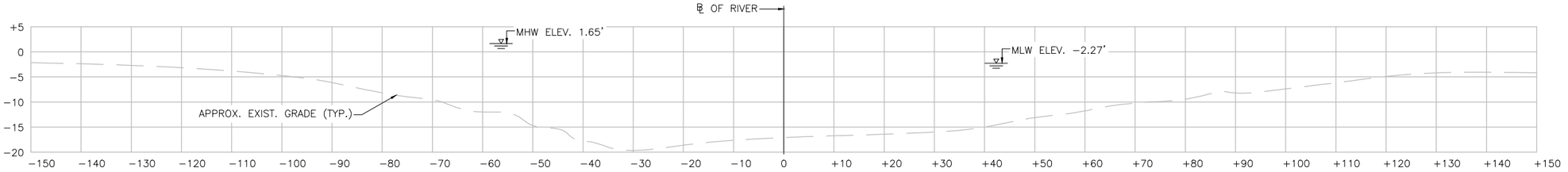


NOTES:

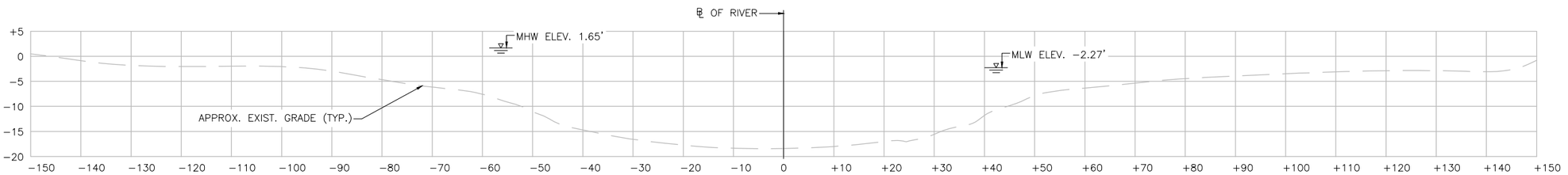
1. PILE SIZE AND SPACING IS BASED ON PRELIMINARY EVALUATION OF SOIL CONDITIONS AND DESIGN LOADING. THE RETAINING WALL WILL BE FURTHER EVALUATED DURING FINAL DESIGN TO OPTIMIZE PILE SIZE AND SPACING REQUIRED.
2. EXCAVATION AND LIGHTWEIGHT FILL LIMITS SHOWN ARE TYPICAL FOR CAUSEWAY SECTION AND ARE BASED ON PRELIMINARY ANALYSIS. LIMITS ARE SUBJECT TO CHANGE BASED ON FINAL DESIGN AND EVALUATION OF RETAINING WALL.

TYPICAL APPROACH SECTION

0 6 12
SCALE IN FEET



SECTION ACROSS RIVER ℄ AT STA. 101+28



SECTION ACROSS RIVER ℄ AT STA. 102+62

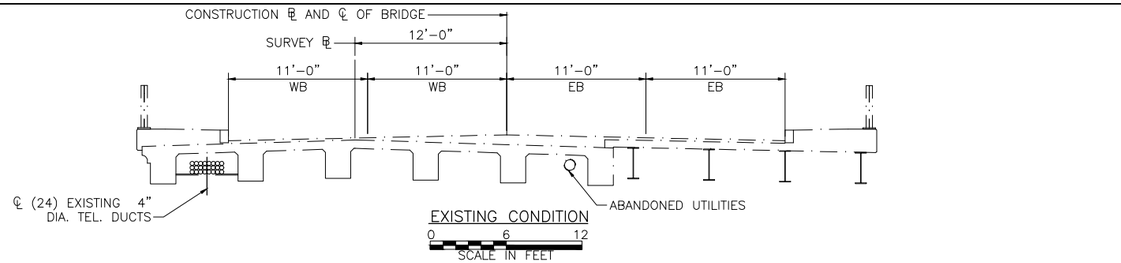
CHANNEL APPROACH SECTIONS (LOOKING NORTHWEST)

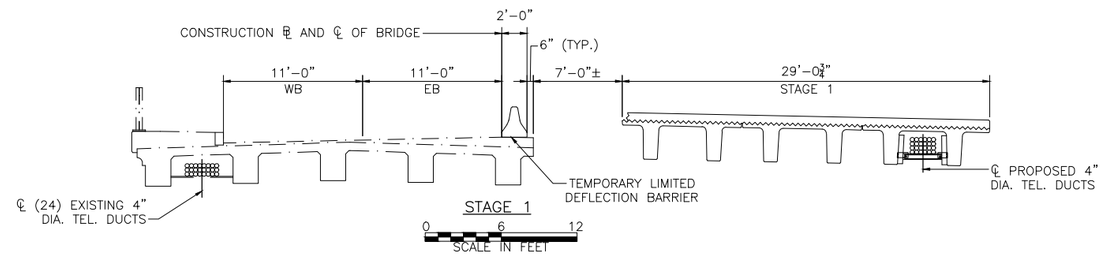
0 32 64
SCALE IN FEET

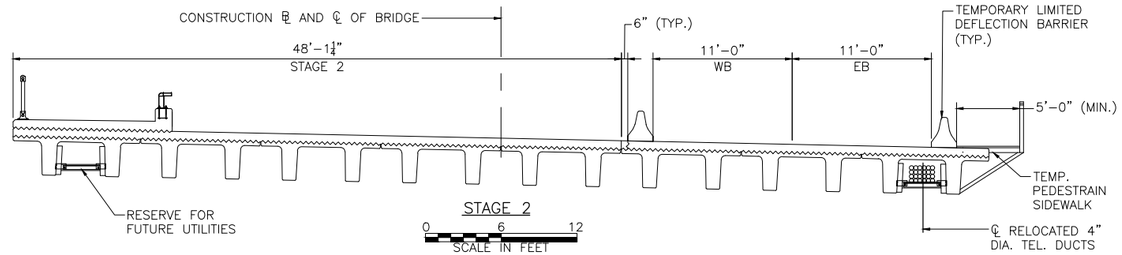
PARSONS
100 HIGH STREET
BOSTON, MA 02110

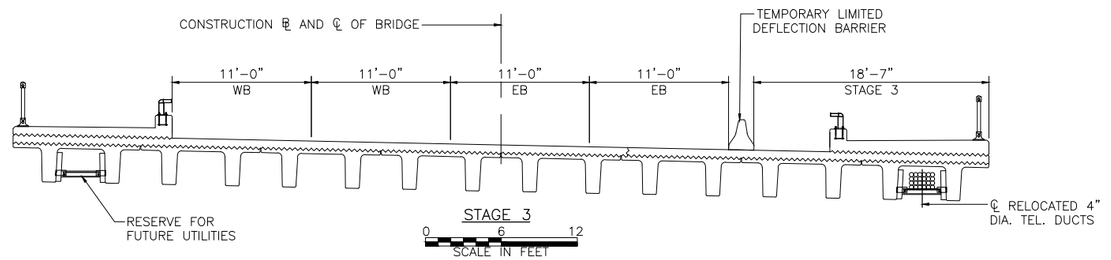
MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

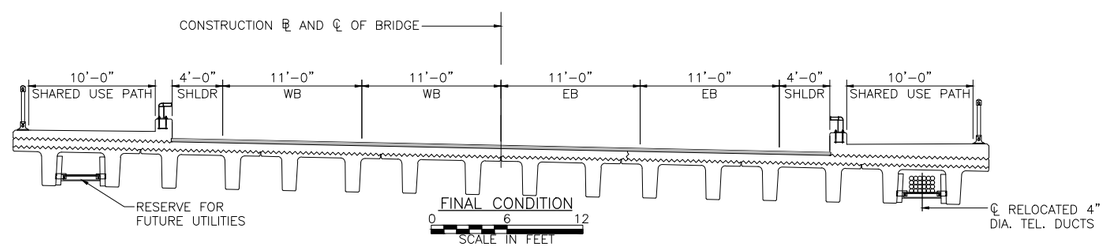
BRIDGE M-05-001=W-06-013
CHANNEL APPROACH SECTIONS











STAGE 1:

1.1 SHIFT TRAFFIC TO THE NORTH MAINTAINING ONE LANE IN EACH DIRECTION.

1.2 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.

1.3 CONSTRUCT PORTION OF NEW STRUCTURE AS SHOWN.

1.4 INSTALL 4" DIAMETER TELECOM DUCTS.

STAGE 2:

2.1 SHIFT TRAFFIC TO SOUTHERLY PORTION OF NEW STRUCTURE MAINTAINING ONE LANE IN EACH DIRECTION.

2.2 CONSTRUCT REMAINDER OF NEW STRUCTURE AS SHOWN.

2.3 CONSTRUCT NORTHERLY SHARED USE PATH AND BRIDGE RAIL.

2.4 RELOCATE FIBER CABLES IN 4" DIAMETER TELECOM DUCTS

STAGE 3:

3.1 SHIFT TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.

3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL

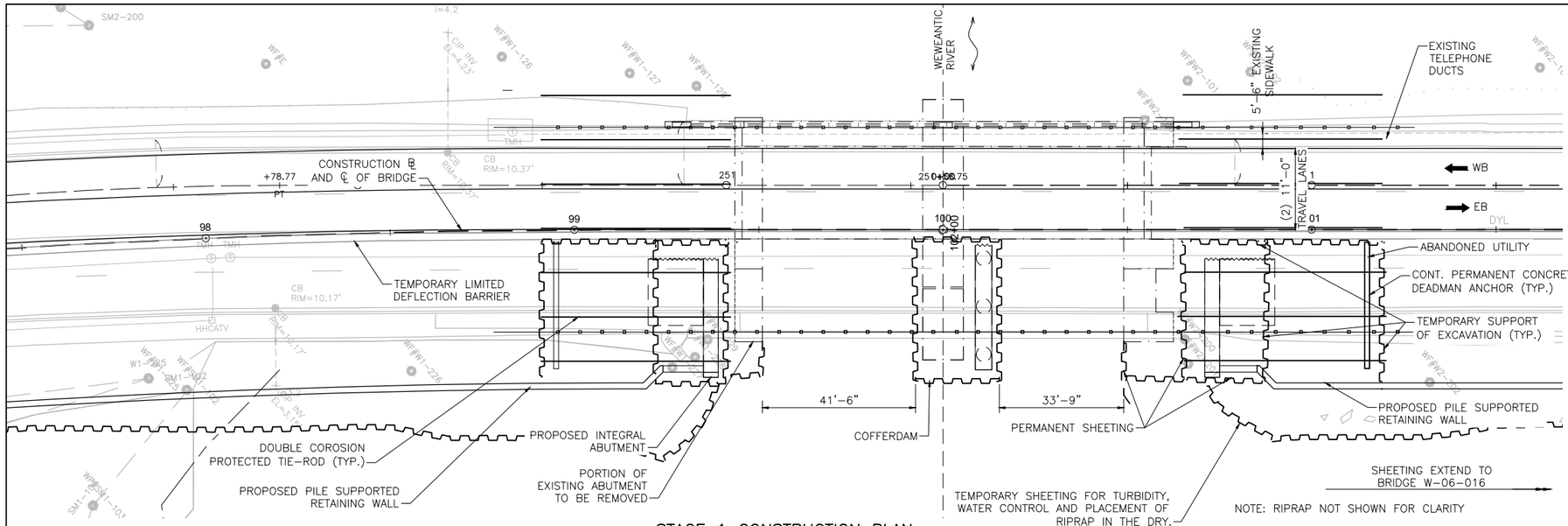
FINAL STAGE:

REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE M-05-001=W-06-013
CONSTRUCTION STAGING



STAGE 1 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

SUGGESTED SEQUENCE OF WATER CONTROL

STAGE 1:

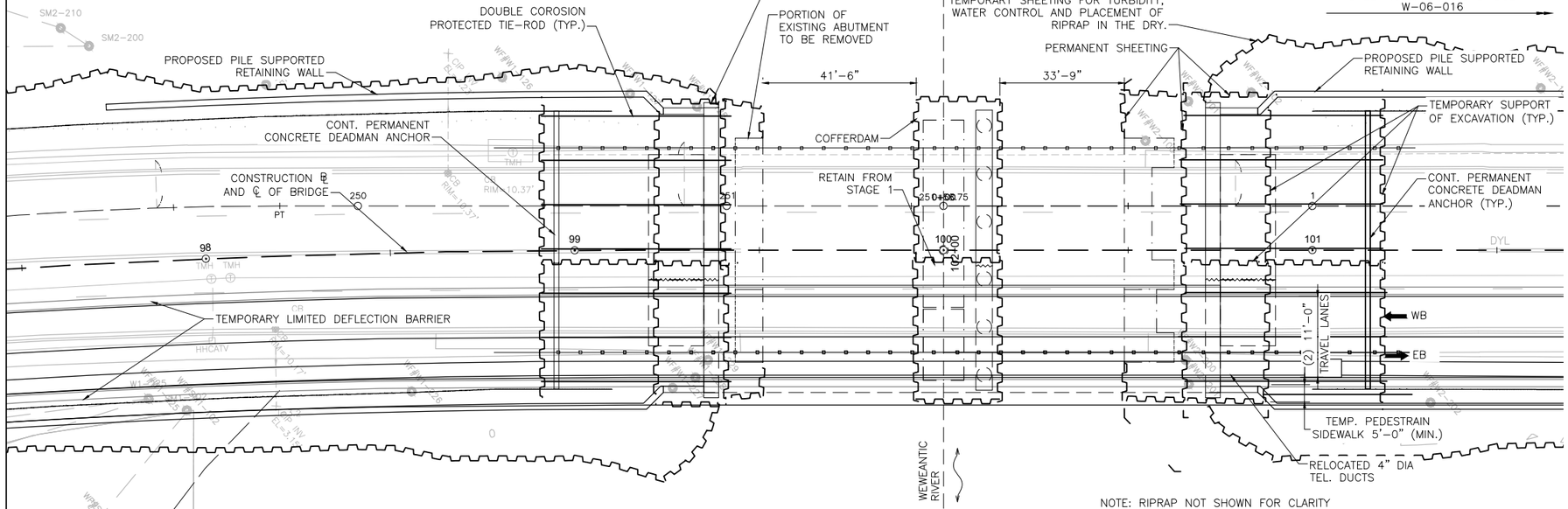
1.1 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.

1.2 INSTALL STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.

1.3 REMOVE SOUTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.

1.4 CONSTRUCT NEW SOUTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.

1.5 REMOVE STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.



STAGE 2 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

STAGE 2:

2.1 DEMOLISH NORTHERLY PORTION OF EXISTING SUPERSTRUCTURE.

2.2 INSTALL STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.

2.3 REMOVE NORTHERLY PORTIONS OF THE EXISTING PIER AND ABUTMENTS TO SPECIFIED LIMITS.

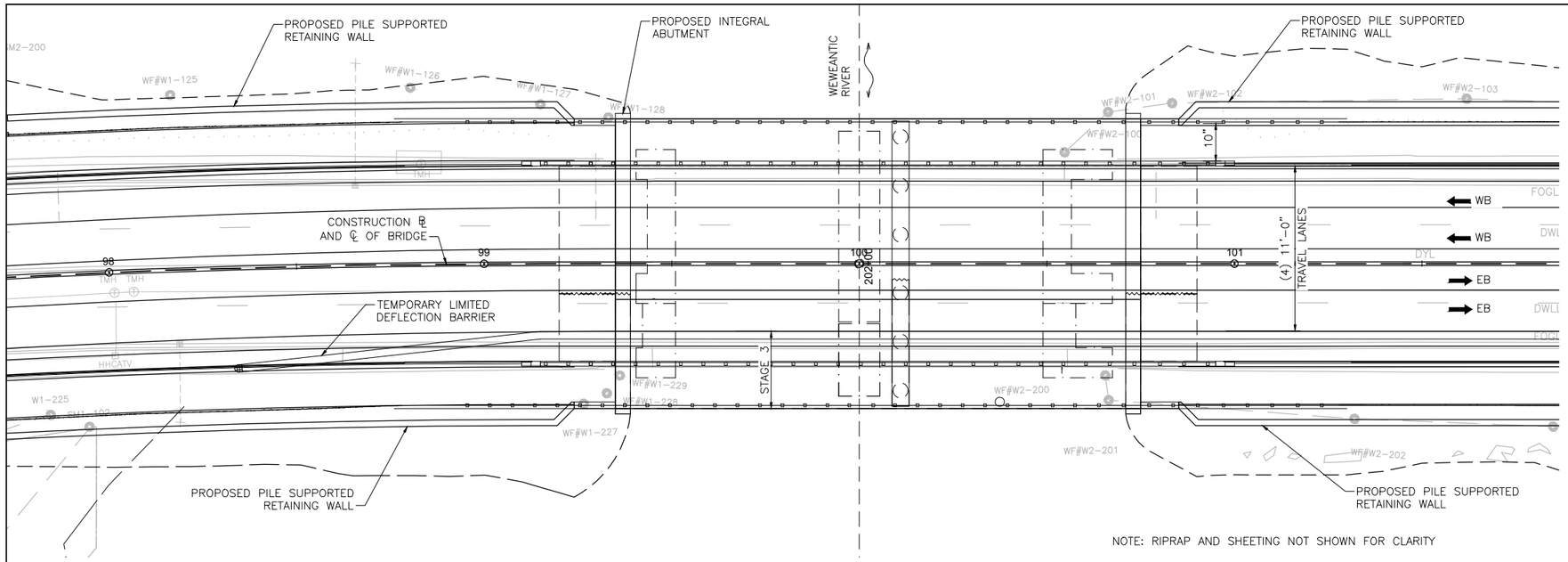
2.4 CONSTRUCT NEW NORTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.

2.5 REMOVE STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE M-05-001=W-06-013
WATER CONTROL - CONSTRUCTION STAGING PLANS
(SHEET 1 OF 2)



NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY

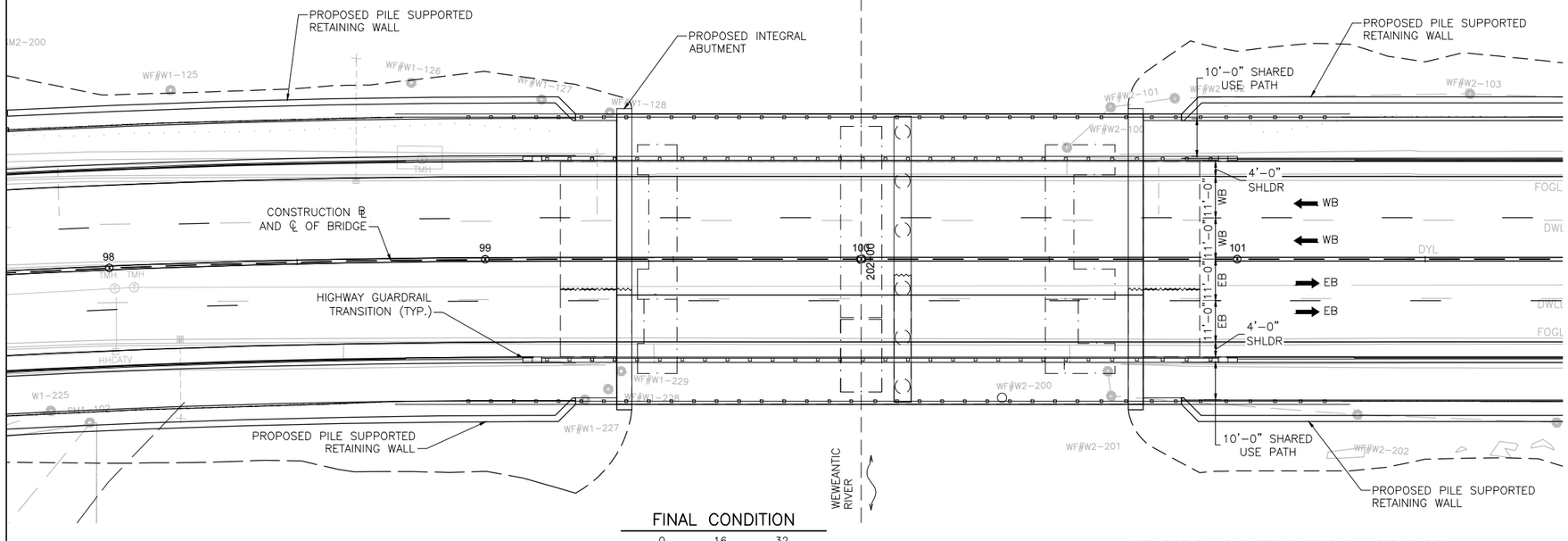
STAGE 3 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

STAGE 3:

3.1 SHIFT TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.

3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.



NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY

FINAL CONDITION

0 16 32
SCALE IN FEET

FINAL STAGE:

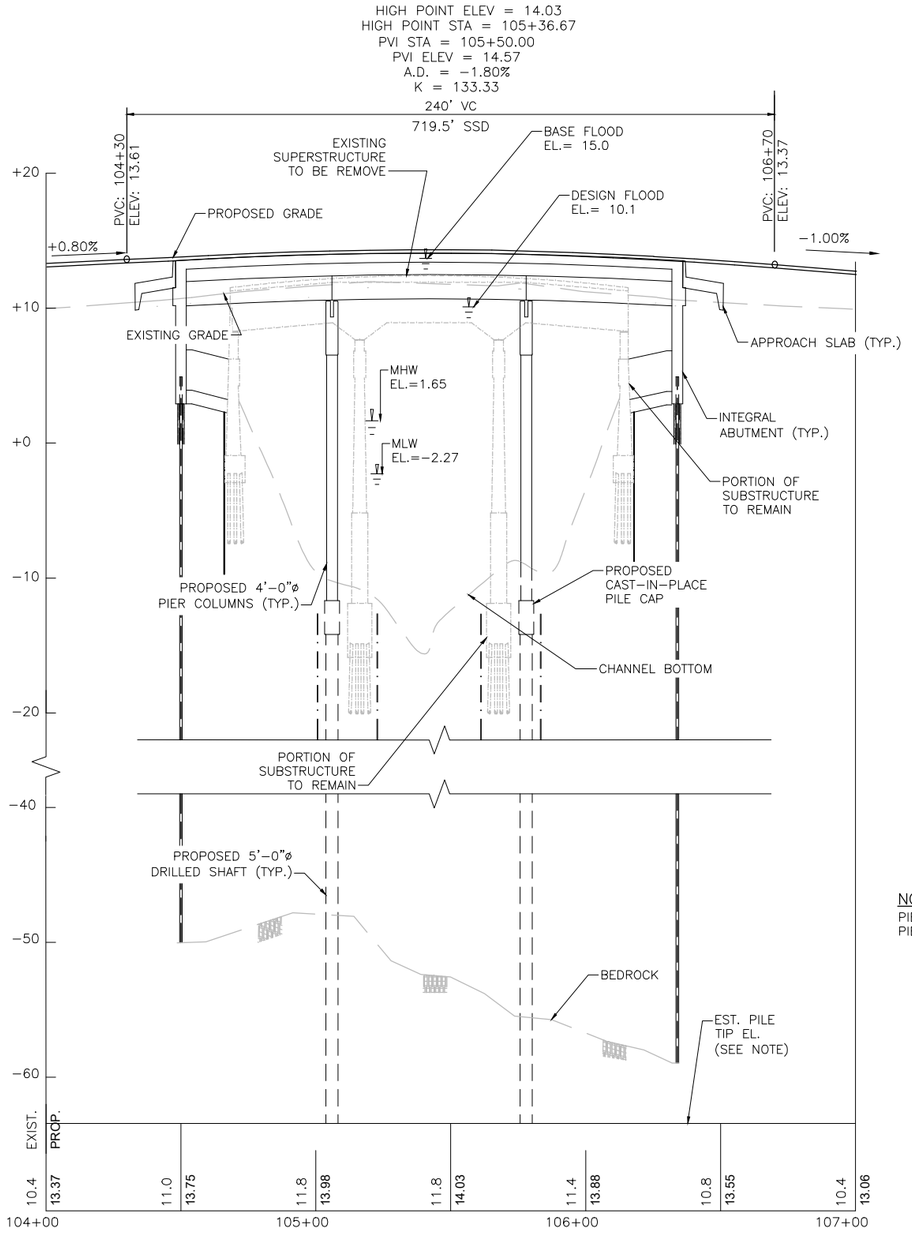
REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

SHEET 44

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

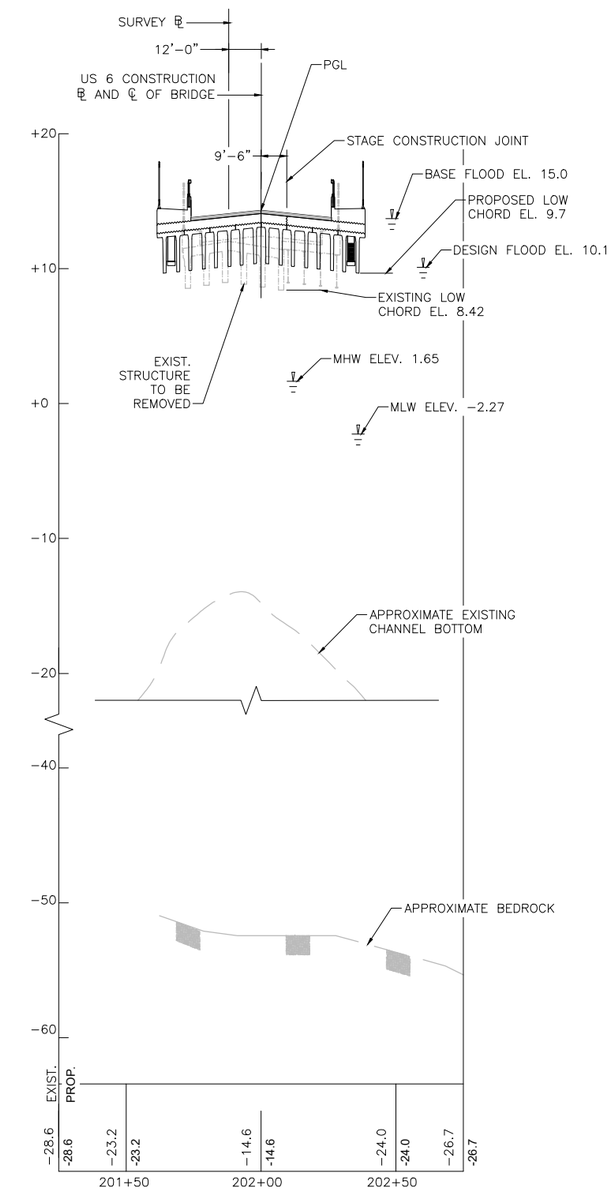
BRIDGE M-05-001=W-06-013
WATER CONTROL - CONSTRUCTION STAGING PLANS
(SHEET 2 OF 2)



NOTE:
PIER 1 EST. TIP EL. −70.70
PIER 2 EST. TIP EL. −78.30

PROFILE ALONG MARION ROAD (US 6)

HORIZONTAL 0 40 80 SCALE IN FEET
VERTICAL 0 8 16 SCALE IN FEET



CHANNEL PROFILE (LOOKING UPSTATION)

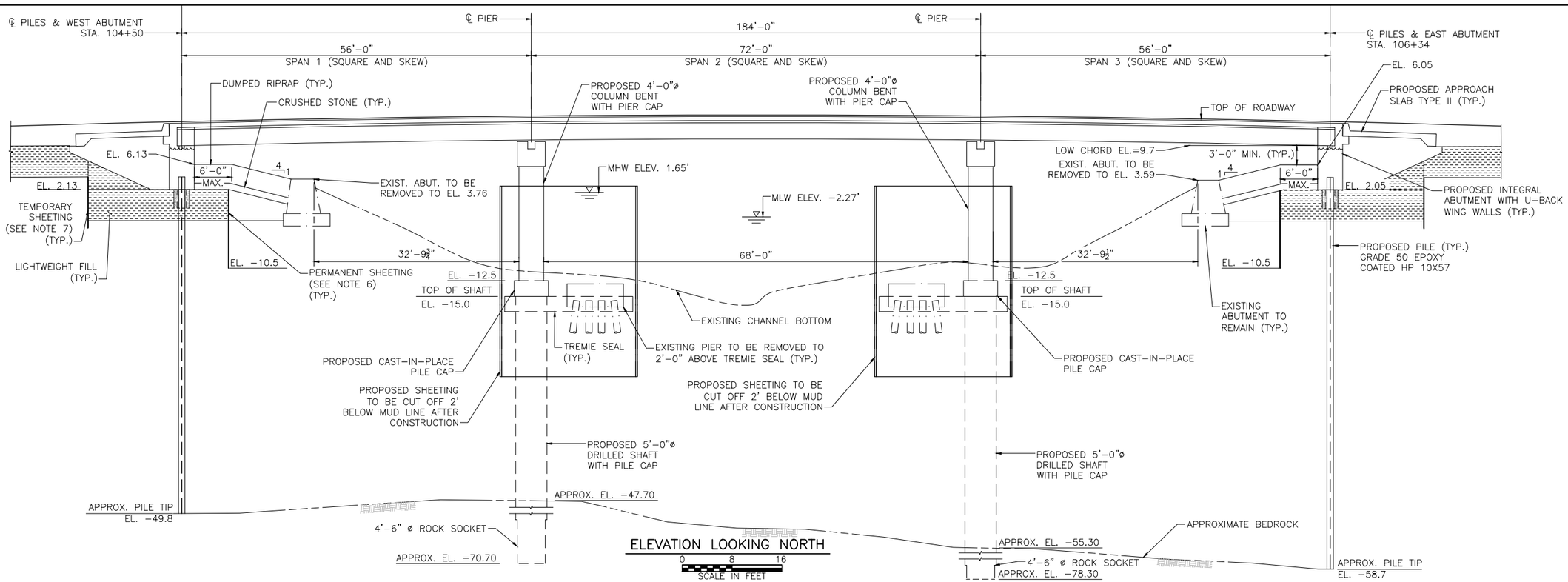
HORIZONTAL 0 40 80 SCALE IN FEET
VERTICAL 0 8 16 SCALE IN FEET

SHEET 45

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE W-06-016
BRIDGE PROFILES



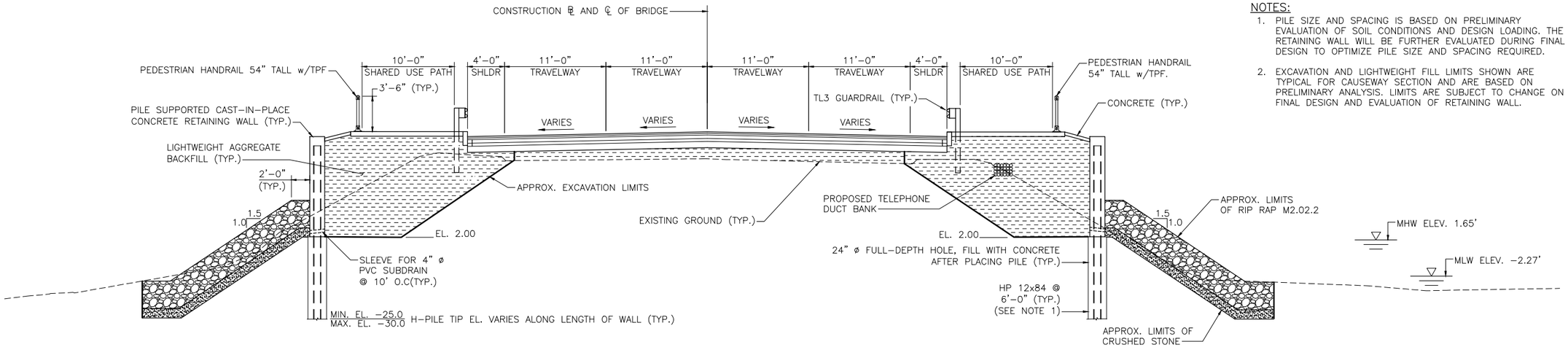
NOTES:

1. MINIMUM VERTICAL CLEARANCE AT MHW OCCURS AT THE SOUTHERN EXTERIOR GIRDER AT THE EAST END OF THE STRUCTURE. EXISTING VERTICAL CLEARANCE FROM MHW TO THE BOTTOM GIRDER FLANGE IS 5.90', PROPOSED MINIMUM VERTICAL CLEARANCE IS 6.05'.
2. THE FACTORED AXIAL DESIGN LOAD PER PILE IS 337.1 KIPS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
   THE FACTORED STRUCTURAL RESISTANCE PER PILE IS 417.5 KIPS.
3. THE FACTORED DRILLED SHAFT LOAD IS 1,047 KIPS.
   THE FACTORED DRILLED SHAFT RESISTANCE IS 5,535 KIPS.
4. THE DESIGN (25 YEAR) FLOOD ELEVATION IS 10.1'.
   THE BASE (100–YEAR) FLOOD ELEVATION IS 15.0'.
5. THE PRESSURE DESIGN SCOUR DEPTH IS 2.0', PRESSURE CHECK SCOUR DEPTH IS 5.5', PIER DESIGN SCOUR DEPTH IS 10.0', PIER CHECK SCOUR DEPTH IS 12.0'.
6. PERMANENT SHEETING FOR SCOUR PROTECTION, WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SHEETING TO BE DESIGNED TO MEET DESIGN SCOUR EVENT FOR PROTECTION OF PROPOSED ABUTMENTS. SEE SHEET 27 FOR PLAN LAYOUT.
7. TEMPORARY SHEETING FOR WATER CONTROL AND PLACEMENT OF LIGHTWEIGHT FILL. SEE SHEET 27 FOR PLAN LAYOUT.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE W-06-016
ELEVATION AND TYPICAL ABUTMENT SECTION

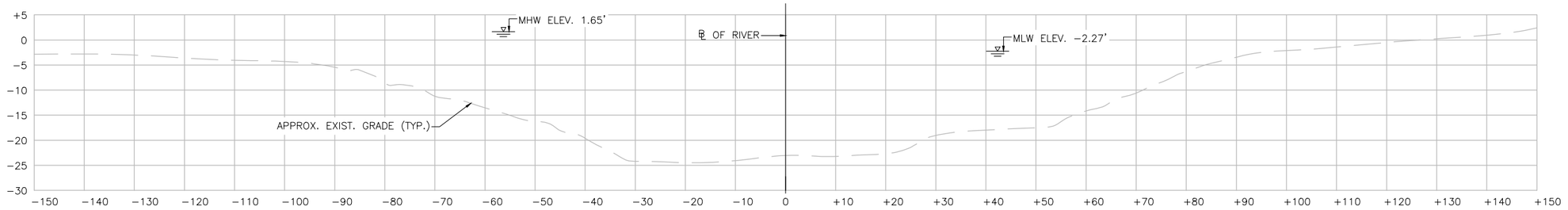


NOTES:

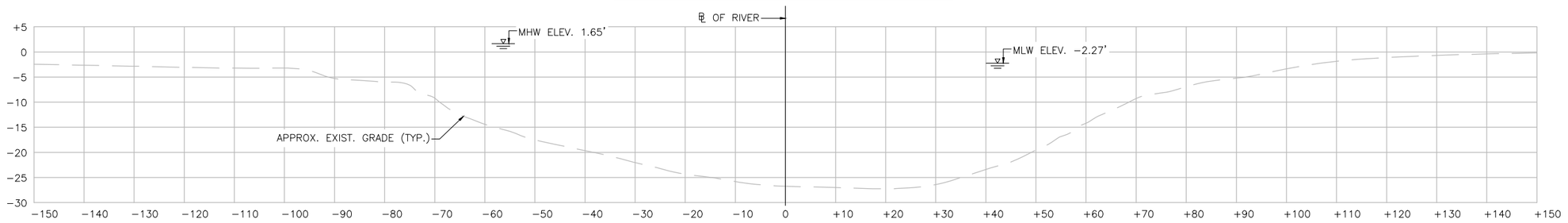
1. PILE SIZE AND SPACING IS BASED ON PRELIMINARY EVALUATION OF SOIL CONDITIONS AND DESIGN LOADING. THE RETAINING WALL WILL BE FURTHER EVALUATED DURING FINAL DESIGN TO OPTIMIZE PILE SIZE AND SPACING REQUIRED.
2. EXCAVATION AND LIGHTWEIGHT FILL LIMITS SHOWN ARE TYPICAL FOR CAUSEWAY SECTION AND ARE BASED ON PRELIMINARY ANALYSIS. LIMITS ARE SUBJECT TO CHANGE ON FINAL DESIGN AND EVALUATION OF RETAINING WALL.

TYPICAL APPROACH SECTION

0 6 12
SCALE IN FEET



SECTION ACROSS RIVER ℄ AT STA. 201+38



SECTION ACROSS RIVER ℄ AT STA. 202+62

CHANNEL APPROACH SECTIONS (LOOKING NORTHWEST)

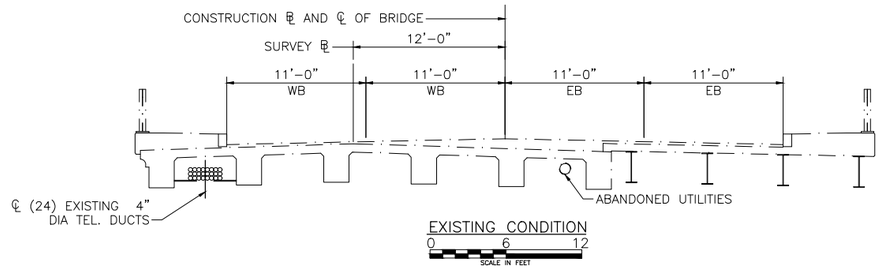
0 32 64
SCALE IN FEET

SHEET 47

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

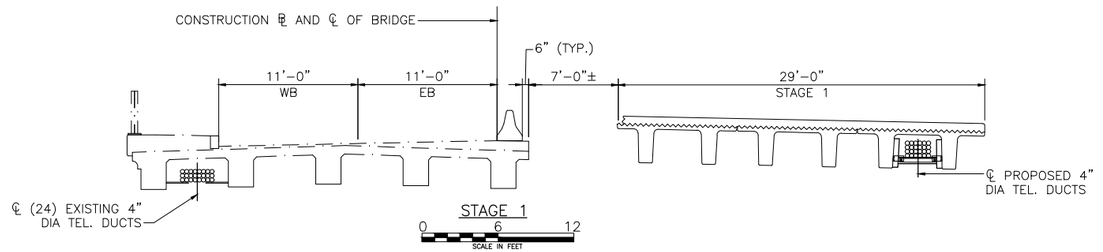
BRIDGE W-06-016
CHANNEL APPROACH SECTIONS



EXISTING CONDITION

0 6 12

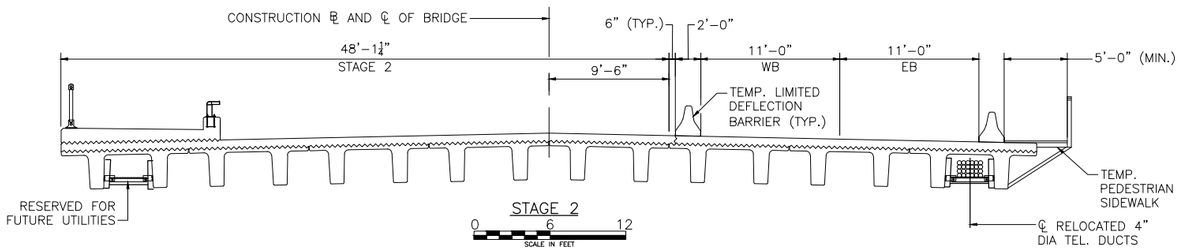
SCALE IN FEET



STAGE 1

0 6 12

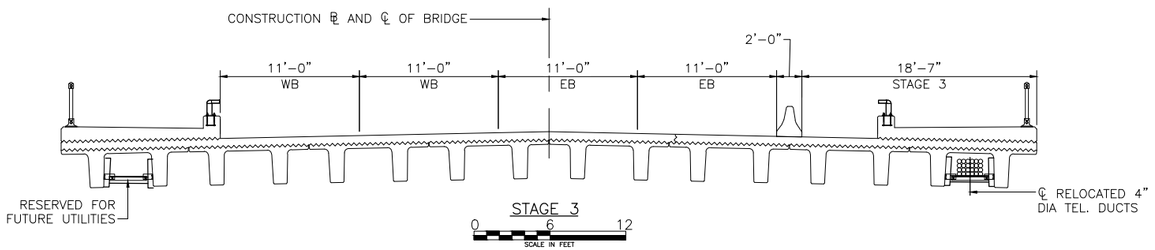
SCALE IN FEET



STAGE 2

0 6 12

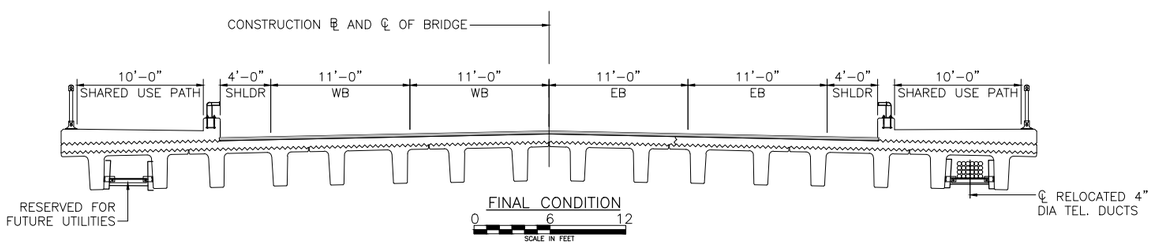
SCALE IN FEET



STAGE 3

0 6 12

SCALE IN FEET



FINAL CONDITION

0 6 12

SCALE IN FEET

STAGE 1:

1.1 SHIFT TRAFFIC TO THE NORTH MAINTAINING ONE LANE IN EACH DIRECTION.

1.2 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.

1.3 CONSTRUCT PORTION OF NEW STRUCTURE AS SHOWN.

1.4 INSTALL 4" DIAMETER TELECOM DUCTS.

STAGE 2:

2.1 SHIFT TRAFFIC TO SOUTHERLY PORTION OF NEW STRUCTURE MAINTAINING ONE LANE IN EACH DIRECTION.

2.2 DEMOLISH NORTHERLY PORTION OF EXISTING STRUCTURE.

2.3 CONSTRUCT REMAINDER OF NEW STRUCTURE AS SHOWN.

2.4 RELOCATE FIBER CABLES IN 4" DIAMETER TELECOM DUCTS

STAGE 3:

3.1 SHIFT TRAFFIC TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.

3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.

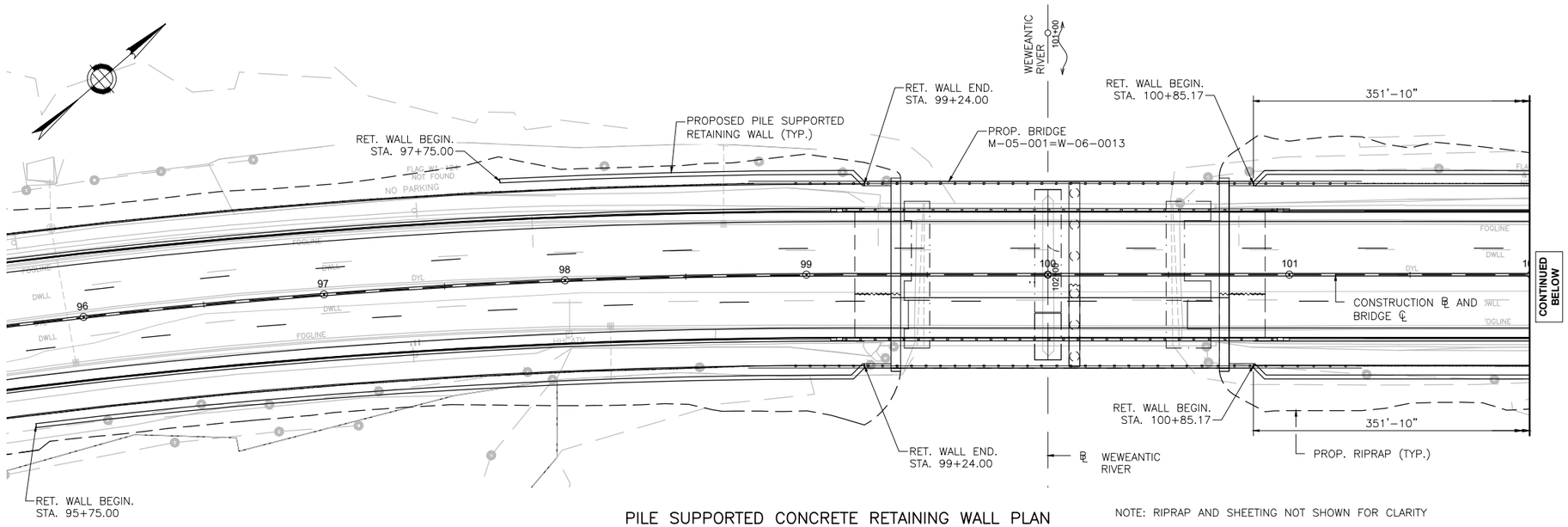
FINAL STAGE:

REMOVE TEMPORARY BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

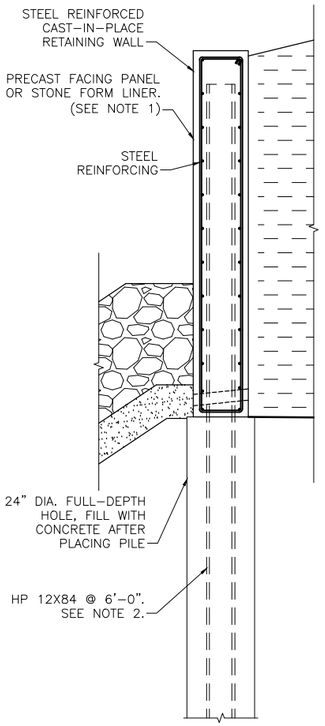
BRIDGE W-06-016
CONSTRUCTION STAGING



PILE SUPPORTED CONCRETE RETAINING WALL PLAN

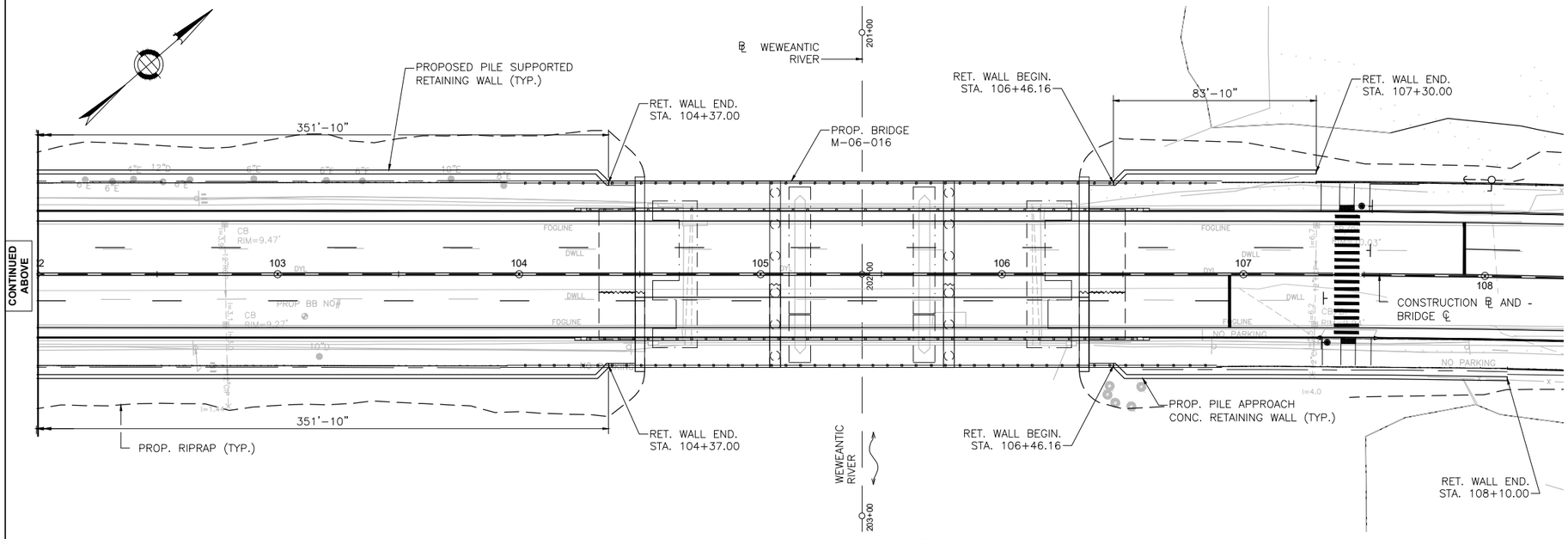
NOT TO SCALE

NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY



PILE SUPPORTED CONCRETE RETAINING WALL DETAIL

0 2 4
SCALE IN FEET



PILE SUPPORTED CONCRETE RETAINING WALL PLAN

NOT TO SCALE

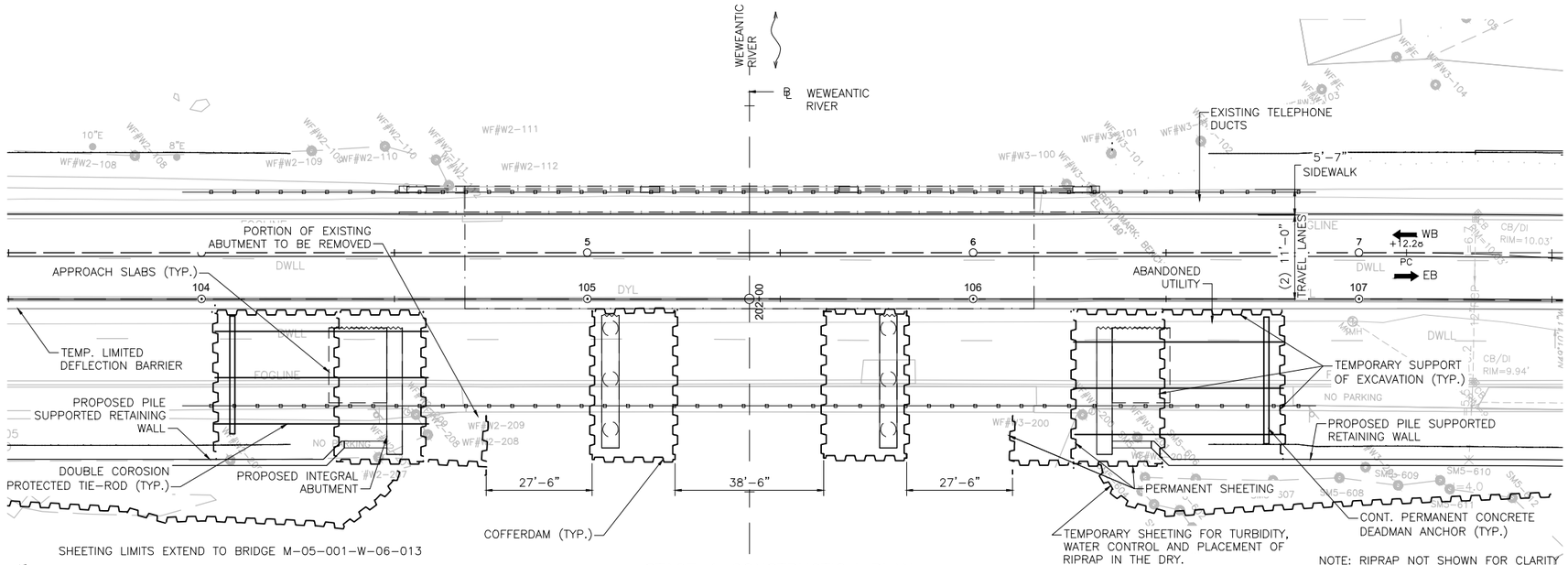
NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY

1. PRECAST CONCRETE FACING OR STONE TYPE FORM LINER TO PROVIDE AESTHETIC RETAINING WALL FINISH WILL BE EVALUATED FURTHER DURING FINAL DESIGN.
2. PILE SIZE AND SPACING IS BASED ON PRELIMINARY EVALUATION OF SOIL CONDITIONS AND DESIGN LOADING. THE RETAINING WALL WILL BE FURTHER EVALUATED DURING FINAL DESIGN TO OPTIMIZE PILE AND SPACING REQUIRED.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE W-06-016
PILE SUPPORTED CONCRETE RETAINING WALL PLAN



STAGE 1 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

SUGGESTED SEQUENCE OF WATER CONTROL

STAGE 1:

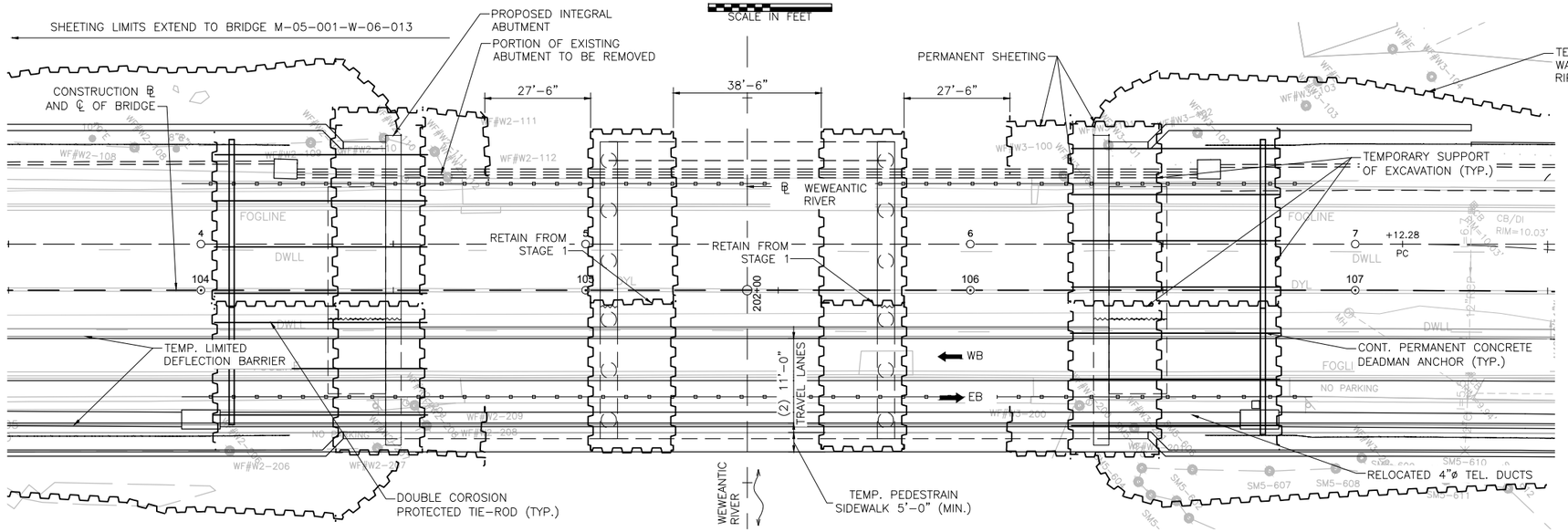
1.1 DEMOLISH SOUTHERLY PORTION OF EXISTING STRUCTURE.

1.2 INSTALL STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.

1.3 REMOVE SOUTHERLY PORTION OF PIER AND ABUTMENTS.

1.4 CONSTRUCT NEW SOUTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.

1.5 REMOVE STAGE 1 PIER COFFERDAM AND TEMPORARY SHEETING.



STAGE 2 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

STAGE 2:

2.1 DEMOLISH NORTHERLY PORTION OF EXISTING SUPERSTRUCTURE.

2.2 INSTALL STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.

2.3 REMOVE NORTHERLY PORTIONS OF THE EXISTING PIER AND ABUTMENTS TO SPECIFIED LIMITS.

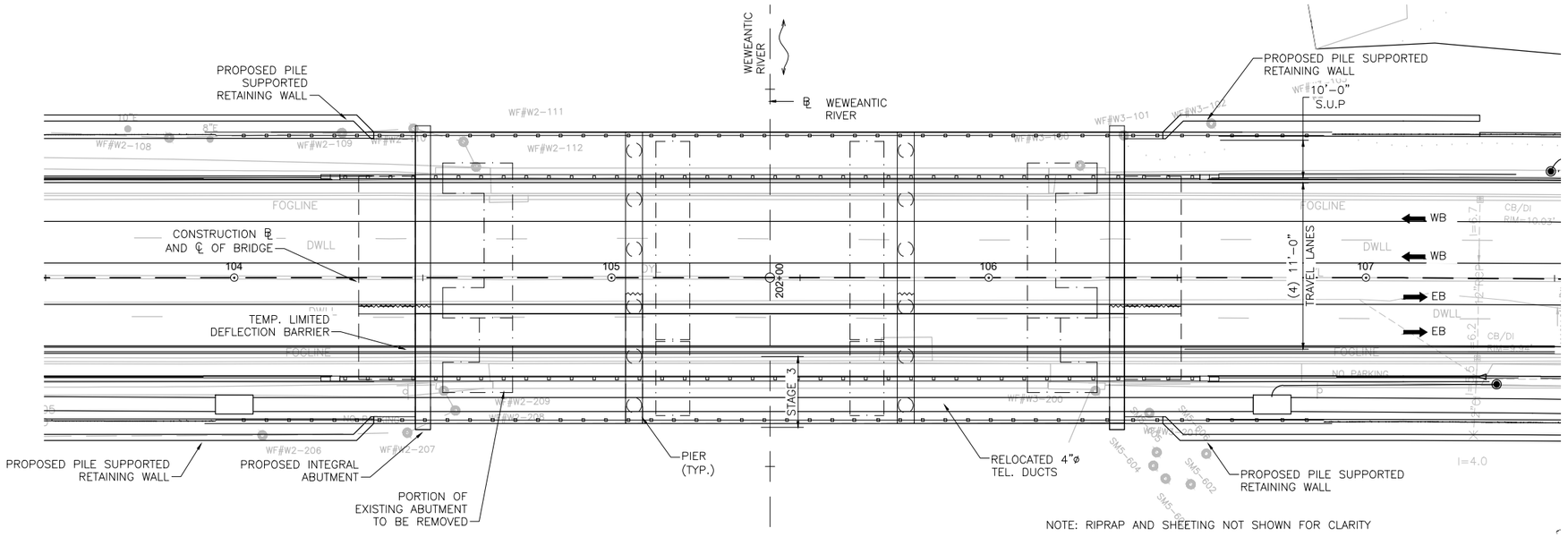
2.4 CONSTRUCT NEW NORTHERLY PORTION OF PIER AND INTEGRAL ABUTMENTS.

2.5 REMOVE STAGE 2 PIER COFFERDAM AND TEMPORARY SHEETING.

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE W-06-016
WATER CONTROL - CONSTRUCTION STAGING PLANS
(SHEET 1 OF 2)



NOTE: RIPRAP AND SHEETING NOT SHOWN FOR CLARITY

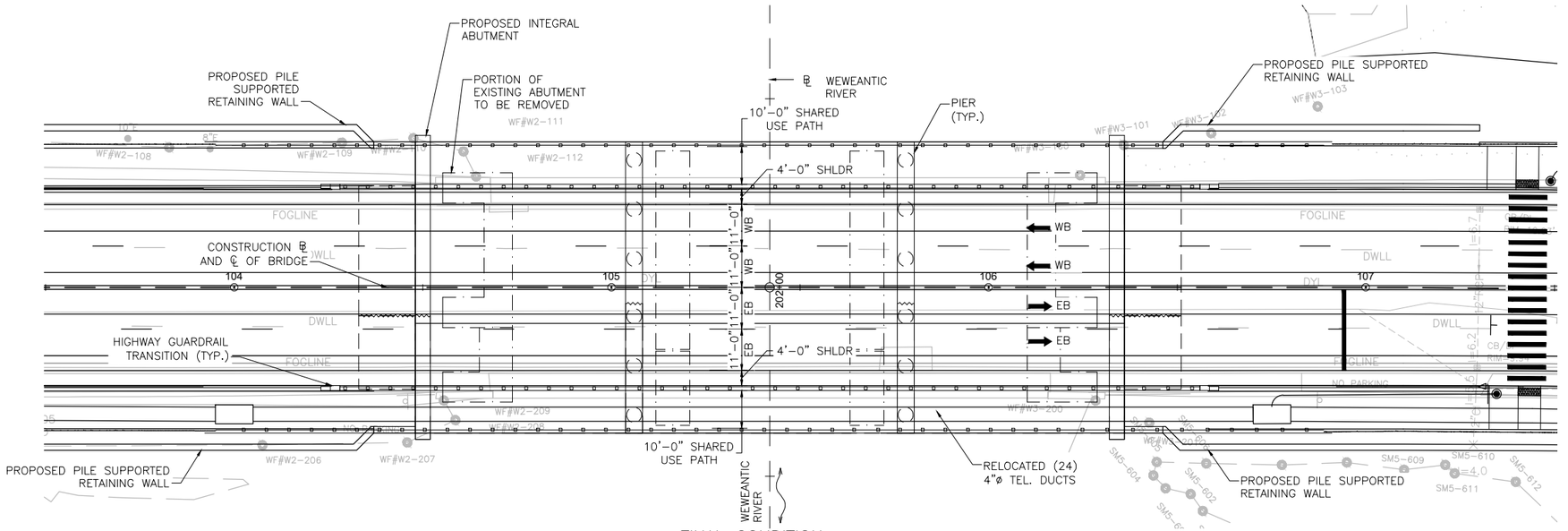
STAGING 3 CONSTRUCTION PLAN

0 16 32
SCALE IN FEET

STAGE 3:

3.1 SHIFT TRAFFIC TRAFFIC NORTHERLY MAINTAINING FOUR LANES OF TRAFFIC, TWO IN EACH DIRECTION.

3.2 CONSTRUCT SOUTHERLY SHARED USE PATH AND BRIDGE RAIL.



FINAL CONDITION

0 16 32
SCALE IN FEET

FINAL STAGE:

REMOVE BARRIER AND INSTALL SPRAY APPLIED WATER PROOFING MEMBRANE AND HMA WEARING SURFACE.

SHEET 51

PARSONS
100 HIGH STREET
BOSTON, MA 02110

MARION - WAREHAM
WAREHAM ROAD (US 6) OVER WEWEANTIC RIVER

BRIDGE W-06-016
WATER CONTROL - CONSTRUCTION STAGING PLANS
(SHEET 2 OF 2)