May 20, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **May 28, 2024 Council Hearing Meeting**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). The Project is scheduled to be heard at the May 28th full council hearing. The following person(s) will be representing the Project and will be available to answer questions and provide a presentation overview of the Project if the Council so desires:

- Lori Fisette / Loren Doyle (RIDOT) – Project Introduction
- Andres Aveledo, PE (Aetna Bridge Company) – Fishing Access
- Mark Costa, PE (VHB) – Hydraulic Analysis

Thank you, and please feel free to contact me at (401) 457-2053 or aprezioso@vhb.com, if you have any questions or require additional information.

Sincerely,
VHB

Andrew Prezioso, PE
Project Manager, VHB

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
Scott S. Hobson, PWS, VHB
Andres Aveledo, PE, Project Manager, Aetna Bridge

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May 16, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **Hydraulic Analysis of Barrington River adjacent to Atlantic Marine – Technical Memorandum**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). More recently, under a cover letter dated May 3, 2024, initial results of a hydraulic and hydrologic study (Study) of the Barrington River adjacent to Atlantic Marine (Marina), were presented. The accompanying technical memorandum with supplemental reference appendices further describes the modeling approach and expands on the results of the Study.

As previously stated in the May 3 cover letter, RIDOT is committed to mitigate issues identified as it relates to the Marina, however, at this time, the data presented in the technical memorandum does not show that mitigation is warranted. The same cover letter dated May 3 also summarized discussions had with the Barrington Harbormaster regarding the improved safety of the river now with the removal of the many pile bents that supported the former trestle-style bridge. Attached to this cover letter is a letter from the Barrington Harbormaster to RIDOT stating his professional opinion regarding the improved safety of the river and showing his support of the project.

Thank you, and please feel free to contact either Ms. Alisa Diaz Richardson of RIDOT at (401) 479-1327 or Alisa.Richardson@dot.ri.gov, or me at (401) 457-2053 or aprezioso@vhb.com, if you have any questions or require additional information.

Sincerely,
VHB

Andrew Prezioso, PE
Project Manager, VHB

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
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TOWN OF BARRINGTON
Rhode Island

Brian S. Hunt
HARBORMASTER

04/29/2023

David Walsh
State of RI DOT

Dear David,

I have carefully reviewed the current plan for the new bike path bridge and have come away with confidence that you have addressed all issues. The location of the Fishing pier on the north side of the bike path puts it out of the way of the mooring area, The overhead electric wires and the boat traffic which is a win win situation. The fact that the fishing pier is being designed to be ADA compliant brings it to a whole new level as something that has been needed in our area. The fishing pier will be accessible from the police cove parking lot which seems to have a lot of space and several handicap parking spots.

The design of the bridge with the additional rip rap being added to the east and west side will do a lot to address the whirlpool action of the water especially in the Atlantic marine area. The location of the navigable channel is located in a good location as well and will be much wider and higher which will make safe passage easier for boaters. The center set of pilings being surrounded by a rip rap will create a cradle type surround which will also reduce some of the effects of the current and whirlpool action.

I would like to summarize by congratulating all of those involved with the working redesign to try to accommodate everyone involved. I believe we have all done our due diligence in keeping everyone in the loop. I have spent many years on the water and specifically transiting from my home in Hundred Acre cove out to the bay and I honestly believe we have created a much safer easier passage way for boaters. I also believe that having a separate fishing pier will greatly enhance the safety of the bicycles using the bike path.

Sincerely,
Brian S Hunt
Brian S. Hunt
Harbormaster

PUBLIC SAFETY BUILDING • 100 FEDERAL ROAD • BARRINGTON, RI 02806 • TEL. (401) 437-3930

Memorandum

To: Rhode Island Coastal Resources Management Council (CRMC)

Date: 05/15/2024

Project #: 73305.01

From: Mark Costa
Shams Al-Amin

Re: East Bay Bike path – Hydrologic and Hydraulic Evaluation

Introduction

The Rhode Island Department of Transportation (RIDOT) has contracted with the Aetna Bridge Company and VHB (via a joint venture) to complete a design build to remove and replace the East Bay Bike Path bridges over the Barrington River and Palmer River (the Project). Aetna Bridge recently completed Phase 1 of the Project in the summer of 2023 which demolished the existing bridges over the Barrington and Palmer Rivers. Phase 2 of the project is a proposed two-span bridge crossing (single pier) with abutments and a new independent fishing pier at each bridge location.

RIDOT has requested that Aetna Bridge and VHB complete a Hydrologic and Hydraulic (H&H) study to evaluate potential impacts on the abutting Atlantic Marine marina in Barrington due to replacing the former bridge crossing. The H&H study includes tasks for data collection and documentation review, bathymetric survey, hydrologic and hydraulic analysis, and development of a summary memorandum. This memorandum:

- Details the data collection including stream bathymetry and record flood studies;
- Provides details on the H&H analysis methodology;
- Presents results from the H&H analysis; and
- Provides summary conclusions.

All elevations noted in this memorandum are within the North American Vertical Datum of 1988 (NAVD 88).

Background Information

VHB reviewed relevant background information provided by RIDOT and publicly available. This included the following:

- Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM). The currently effective FEMA FIRM is number 44001C0007H dated 7/7/2014, which shows the study area in coastal Zone AE with a Base Flood Elevation (BFE) of 12-feet (NAVD 88). (Appendix E)
- Report titled *Hydraulic and Scour Analysis – Barrington Bridge* – Prepared by WSP USA Inc., dated February 4, 2024. The goal of this report was to complete a scour analysis of the downstream State Route 114 Bridge. (Appendix F)
- Report titled *East Bay Bike Path Bridge Replacement Design Study Report* – Bridge No. 083801 — Prepared by AECOM, dated October 2014. (Appendix G)
- Plans titled *Barrington Bridge No. 123* Prepared by Siegmund and Associates, Inc., dated June 2003. (Appendix C-2)

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- Plans titled *East Bay Bike Path Bridge Replacement Bridge Nos. 083751 & 083851* Volume 2 Prepared by VHB, dated 2022. (Appendix C-1)

The existing reports, plans, and modeling of the existing system were reviewed and incorporated into the analysis as described within.

Hydrologic and Hydraulic Analysis Methodology

The following sections describe methodology for the hydrologic and hydraulic analyses.

1.1. Hydrology – Riverine and Tidal Conditions

VHB completed a hydrologic analysis to estimate river flow for the Barrington River and Palmer River based on Rhode Island regional regression equations using the United States Geological Survey (USGS) StreamStats program. The USGS Streamstats Programs uses the technical guidance from the *USGS Scientific Investigation Report 2014-5010 Equations for estimating selected streamflow statistics in Rhode Island*, and the 50 Percent duration, or median, flows were used for each upstream boundary condition estimates to represent a normal riverine flow within the Barrington and Palmer River (Appendix A). This flow was inputted as a steady state flow of 41 cfs for the Barrington River, and 10.3 cfs for the Palmer River into the hydraulic model noted below.

VHB also evaluated the tide data for Providence Rhode Island based on National Oceanic and Atmospheric Administration (NOAA) Tidal Station ID 845400. This tidal gage is approximately 7.3 miles (as the crow flies) away from the Project site. This tidal gage was established in June of 1938, this location has two high-tides and two low-tides a day, and Table 1 provides the tidal datums based on a tidal epoch is from 1983-2001.

Table 1 NOAA Tidal Station 8454000 - Providence, RI

	Elevation (NAVD 88)
Mean High Water (MHW)	2.12
Mean Sea Level (MSL)	-0.22
Mean Low Water (MLW)	-2.29
Highest Astronomical Tide (HAT)	3.78

Stage hydrograph boundary conditions were developed to evaluate several tide scenarios over the tidal prism during approximately three (3) tide cycles. These stage boundary conditions were created using measured data from the NOAA Providence Tidal gage and include:

- Normal tide – Represents an average tidal cycle in which the high and low tide elevations closely match the MHW and MLW tidal datums.
- Highest Astronomical Tide (HAT) – Represents tidal conditions during a "Spring" or "King" tide in which the high tide elevations closely match the HAT tidal datum elevation
- 10-Year Storm Event - A synthetic stage hydrograph was developed for the storm surge condition, based on the 10 percent annual chance Stillwater elevation from the FEMA FIS, transect 10 that is in the vicinity of the

Memorandum

project site. This was developed using a normal tide stage hydrograph and extrapolating one-tide to reach the 10-year stillwater FIS elevation.

Figure 1 shows the stage hydrographs used for different tidal boundary conditions in the model.

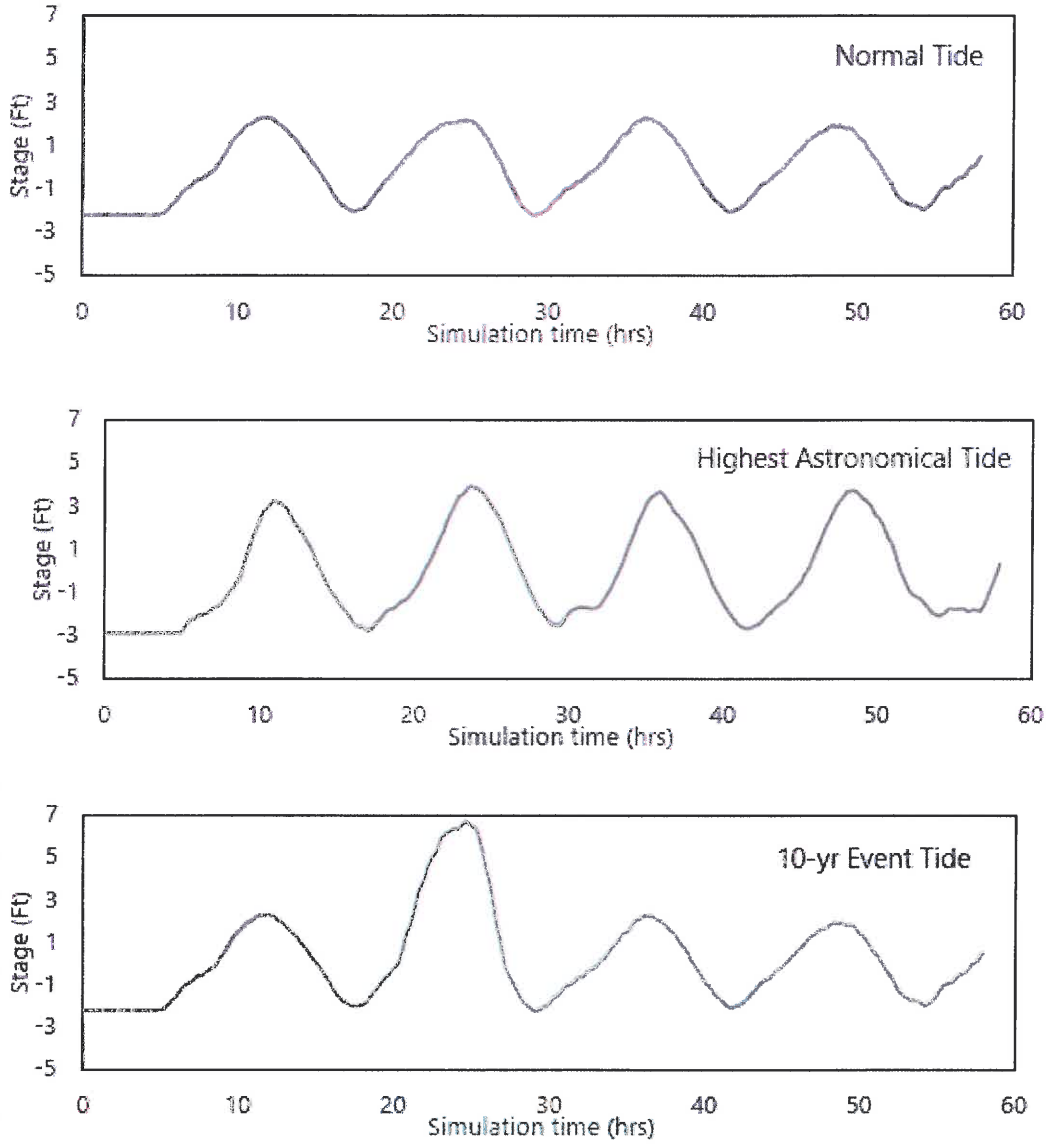

Figure 1: Stage Hydrographs for Different Boundary Conditions

1.2. Hydraulic Analysis

RIDOT provided VHB the previously developed United States Army Corps of Engineers (USACE) Hydrologic Engineering Center River Analysis System (HEC-RAS) model for East Bay Bike Path prepared by WSP to support their Barrington Bridge hydraulic and scour analysis. VHB reviewed this model, and used it as a base for the H&H analysis, and refined it to support this effort.

The updates and refinements of the previously completed modeling by WSP included:

- Expansion of the model domain area upstream (to the north) of the project site to incorporate the Hundred Acre Cove and the surrounding low-lying area, to fully capture the tidal prism.
- Location of the boundary conditions based on the updated model domain (locations shown in Figure 2). Boundary conditions were also updated to reflect flow input, normal, and Highest Astronomical Tide (HAT) conditions.
- Two-dimensional (2D) mesh, cell sizes, and cell locations throughout the modeling domain, with additional refinement and smaller cell sizes within the location of East Bay Bike path crossing, Route 103 crossing, and Atlantic Marine Marina to evaluate in greater detail the hydraulics of these areas.
- The East Bay Bike Path and downstream Berrington Bridge No. 123 were revised for the latest plans noted above and were modeled as SA-2D connection which allows flow to be modeled through the bridge structure and to be connected to the abutting 2D flow areas.
- Shallow Water Equations, Eulerian-Lagrangian Method (SWE-ELM) solver for 2D flow were used for model runs. Shallow water equations are recommended in HEC-RAS for tidally influenced conditions similar to the Project site.

VHB developed model geometries to represent the pre-development (condition as of early 2023), post-demolition (current condition in Spring 2024), and the post-development conditions with proposed East Bay Bike Path. VHB modeled a combination of geometries, riverine flows, and tide conditions for a total of up to nine (9) scenarios to allow comparison over a broad range of tidal events. Table provides a summary of the model scenarios for the H&H study.

Table 2: East Bay Bike Path Model Scenarios

Scenario #	East Bay Bike Path Bridge Condition	Barrington River Flow	Tidal Condition
1	Pre-Development	50-percent duration flow	Normal tide
2	Post-Demolition	50-percent duration flow	Normal tide
3	Post-Development	50-percent duration flow	Normal tide
4	Pre-Development	50-percent duration flow	Highest Astronomical Tide
5	Post-Demolition	50-percent duration flow	Highest Astronomical Tide
6	Post-Development	50-percent duration flow	Highest Astronomical Tide
7	Pre-Development	50-percent duration flow	10-percent annual chance tide
8	Post-Demolition	50-percent duration flow	10-percent annual chance tide
9	Post-Development	50-percent duration flow	10-percent annual chance tide

1.2.1. Topo/Bathymetry

VHB subcontracted CR Environmental, Inc (CR) to complete a bathymetric survey of the Barrington River which was completed on March 12 and 13, 2024. The survey consisted of single beam echo sounding with precision navigation within the designated reach which spanned approximately 1,000 feet north of the East Bay Bike Path Bridge and 1,000 feet south of the Route 114/103 bridge and included detailed bathymetry of the Atlantic Marine Marina (Appendix B). A digital terrain model (DTM) was developed within HEC-RAS Mapper by combining the WSP terrain model and single beam bathymetric survey data 2024. The combined DTM has the horizonal datum of North American Datum of 1983 (NAD83) State Plane Coordinates Rhode Island (FIPS 3800) and vertical datum of North American Vertical Datum of 1988 (NAVD88). Units of both horizontal and vertical coordinate systems are in US survey feet. This bathymetry was compared to a previously collected bathymetry for the area and it was found to be generally consistent between the pre-development and post-demolition condition, therefore it was used in all model geometries.

1.2.2. Bridges and Crossings

The East Bay Bike Path bridge geometry for the pre-development scenarios (Scenarios #1, 4, and 7 listed above) and the location of piers and abutments were obtained from the bridge plans titled *East Bay Bike Path Bridge Replacements Bridge NOS. 083751 & 083851 Reconstruction Plans Volume 2* (Appendix C-1). The bridge geometry for the post development model conditions (Scenarios #3, 6, and 9) were obtained from the plans *East Bay Bike Path Bridge Replacement Bridge Nos. 083751 & 083851* Volume 2 prepared by VHB.

Bridge geometry for the downstream Bridge No. 123 were obtained from bridge plans titled *State Highway Replacement of Berrington Bridge No. 123* (Appendix C-2). Elevations in bridge plans are indicated in US feet measured in reference to the National Geodetic Vertical Datum of 1929 (NGVD29), which were converted into NAVD88 (NAVD88 = NGVD29 - 0.843 feet).

Pier locations were inputted directly into the terrain and with detailed 2D mesh modifications, and the bridge decks, low chords, and abutments were represented as a SA-2D connection in HEC-RAS which allows flow to be modeled through the bridge structure and to be connected to the abutting 2D flow areas.

1.2.3. Roughness

The following Manning's n values were assigned to landcover polygons imported to HEC-RAS using National Landcover dataset (USGS 2016). The National Landcover data set was further refined using aerial imagery in regions of open water, and marinas. A uniform *n* value of 0.025 was assigned throughout the Barrington River. Riprap around the pier in water and abutments of the proposed East Bay Bike Path Bridge was represented in the proposed conditions model as "riprap" landcover type with a Manning's *n* value of 0.036. Table 3 provides a summary of the Manning's n values used in HEC-RAS.

Table 3: Manning's n Values

Landcover Type	n Value
Open water	0.025
Developed, low intensity	0.040
Developed, high intensity	0.050
Developed, open space	0.025
Deciduous forest	0.100
Woody wetlands	0.100
Mixed forest	0.080
Pasture / hay	0.050
Evergreen forest	0.080
Cultivated crops	0.040
Grassland / herbaceous	0.045
Barren land / rock, sand, and clay	0.040
Emergent herbaceous wetlands	0.100
Scrub / shrub	0.070
Riprap	0.036

Memorandum

1.2.4. Model Domain and Computation Settings

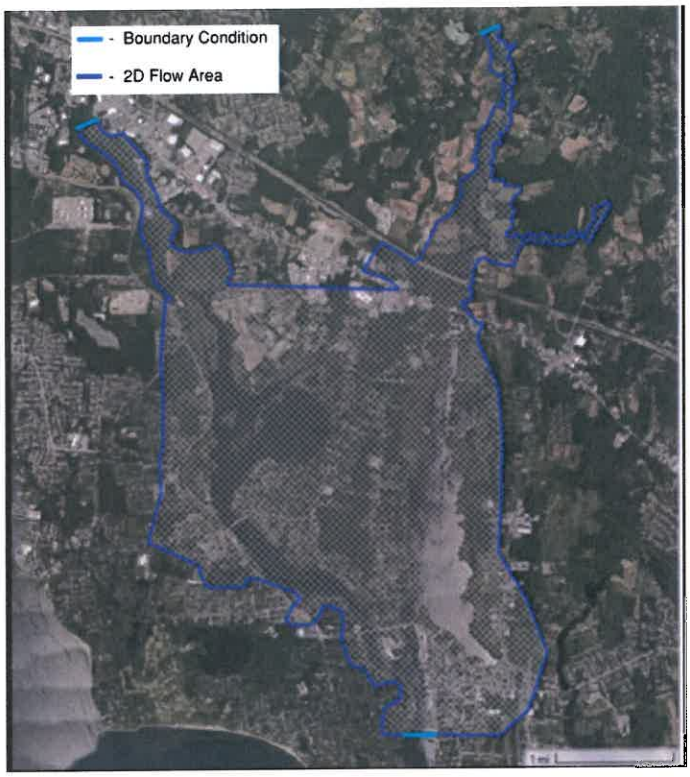

Figure 2 - Model Domain and Boundary Conditions

Figure 2 highlights the model domain of the study area with computational mesh and boundary conditions. A 50-ft by 50-ft cell size was used as a starting point for the two-dimensional (2D) flow area mesh. This was further refined around the East Bay Bike Path and Atlantic Marine marina area using breaklines and refinement regions to reduce the computational mesh cell size. Breaklines were established to preserve abrupt terrain changes at ridges, abutments, and piers aligning cell faces with high terrain elevations. Generally, a 15 ft x 15 ft cell size was used around the two bridges and the marina area, with further refinements up to 2 ft x 2 ft near the bridge piers. HEC-RAS version 6.4.1 was used to run the events. Shallow Water Equations, Eulerian-Lagrangian Method (SWE-ELM) solver for 2D flow options and PARDISO matrix solver were used. The model was run for unsteady flow computation.

Memorandum

H&H Modeling Results

VHB compared the flow velocities from the pre-development, post-demolition, and post-development condition between East Bay Bikepath crossing and the Route 113 crossing.

Normal Tide Conditions (Scenario 1 and 2)

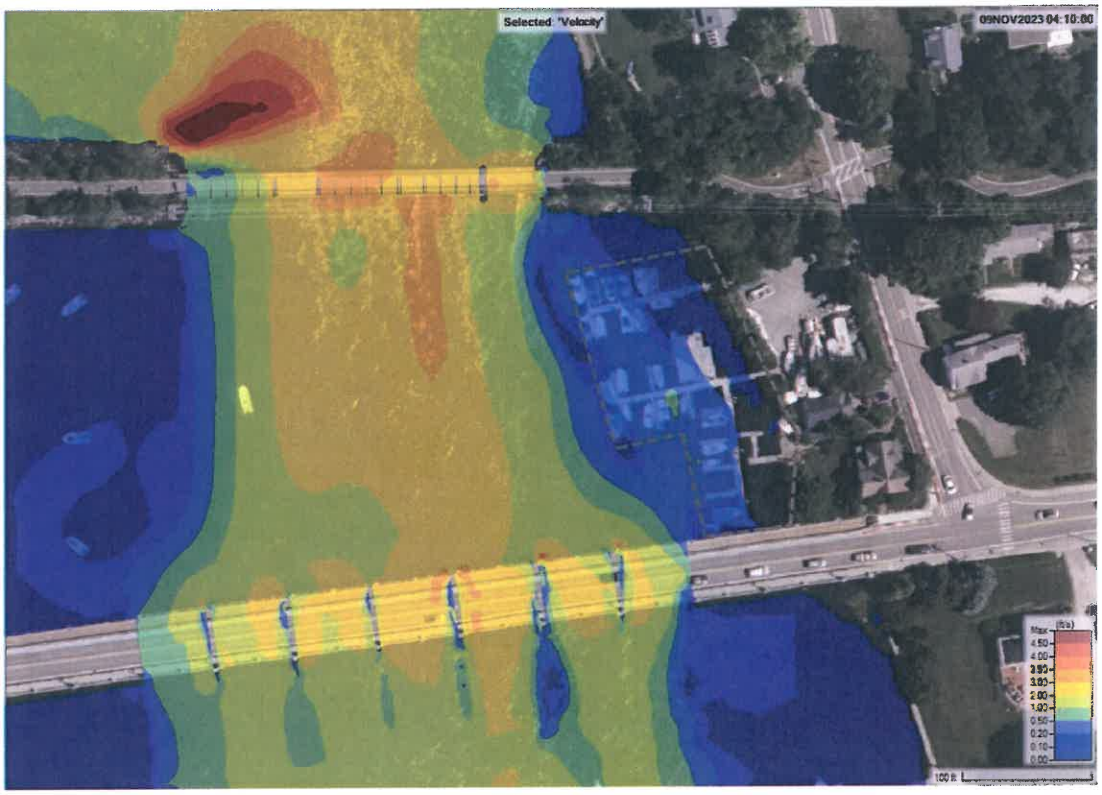

Figure 3 - Pre-development Condition - Velocity - Peak of Outgoing Tide during a Normal Tide Cycle

Memorandum

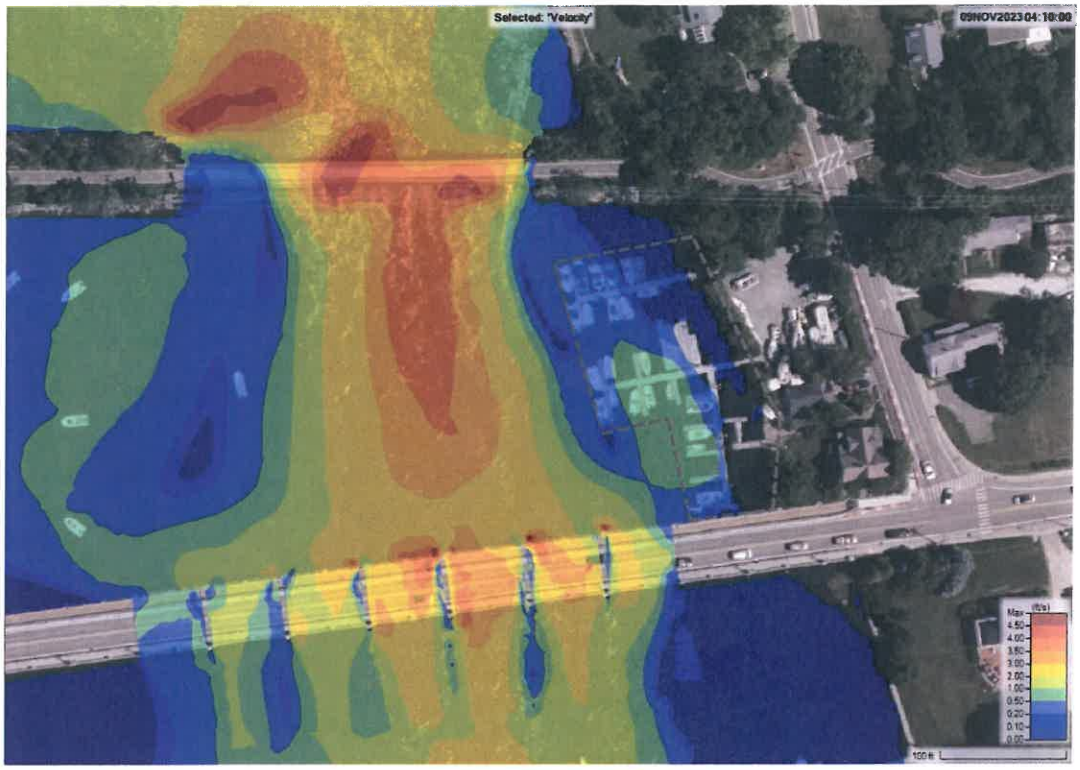

Figure 4 - Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Normal Tide Cycle

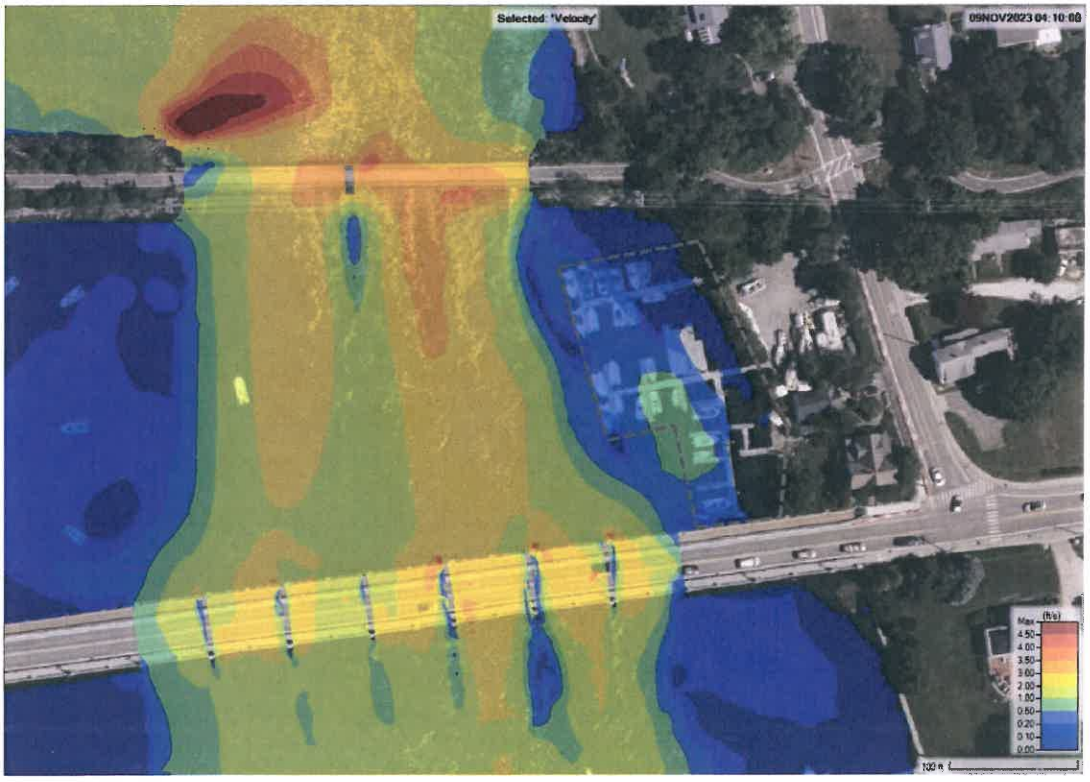

Figure 5 - Post Development - Velocity – Peak of Outgoing Tide during a Normal Tide Cycle

Memorandum

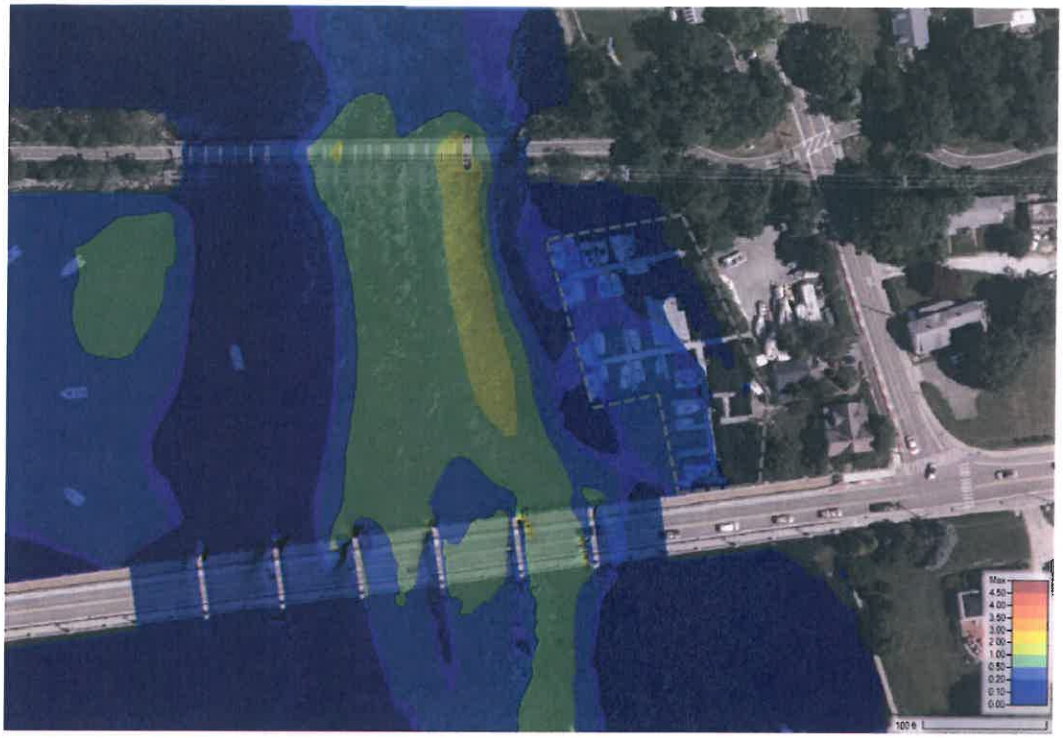

Figure 6 - Change in Velocity (Post Demolition - Pre-development) – Peak of Outgoing tide during a normal tide cycle

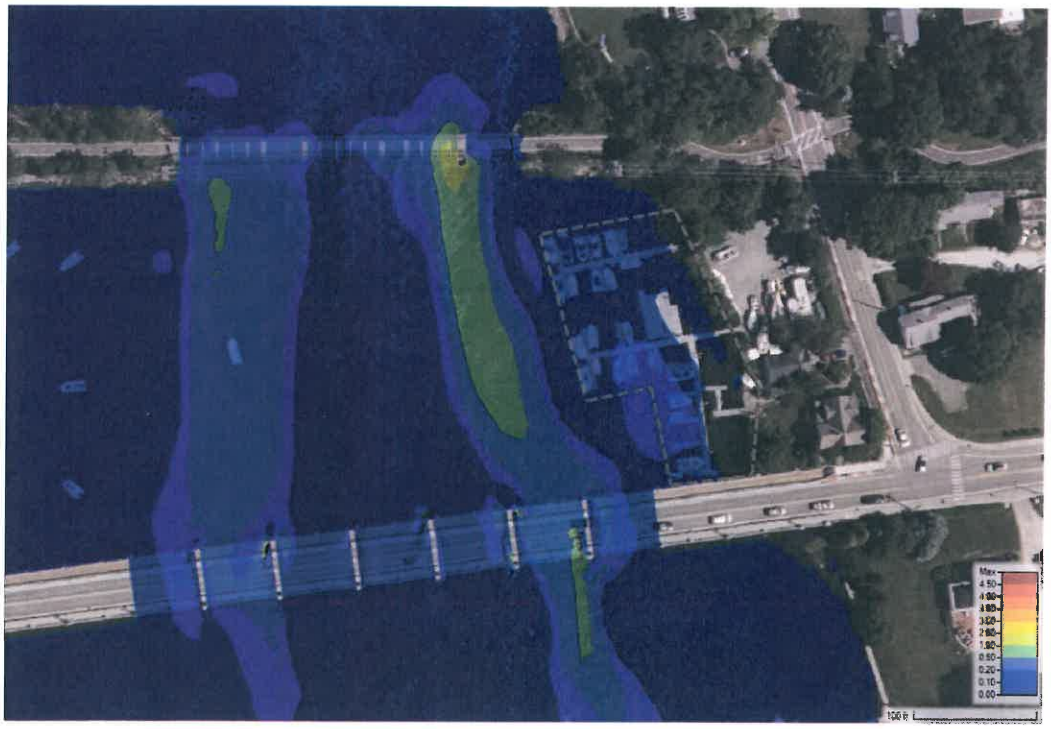

Figure 7 - Change in Velocity (Post Development - Pre-development) – Peak of Outgoing tide during a normal tide cycle

Memorandum

The results of the modeling calculations indicate that there is an increase in flood velocities in the main channel of the Barrington River of approximately 1-3 feet/second during the peak of the outgoing tide during a normal tide cycle in the post-demolition and post-development condition in comparison to the pre-development condition. Within and along the perimeter of the Atlantic Marine marina flood velocities are generally consistent, noting that some internal areas are showing a maximum increase of flood velocity of approximately 0.4 feet/second in the post-demolition condition and 0.2 feet/second in the post-development condition in comparison to the pre-development condition during the peak of the outgoing tide during a normal tide cycle. The Atlantic Marine Marina area has a maximum velocity of approximately 1 foot/second in the pre-development, post-demolition, and post-development condition at the peak of a normal tide.

Abutting Marina Comparison

VHB also evaluated the modeling results for velocities at the nearby Stanley's Boat Yard and Barrington Yacht Club (located directly downstream of the Route 103 crossing over the Barrington River) and the Striper Marina (located southeasterly along the Palmer River). The location of each marina is shown on Figure 8.

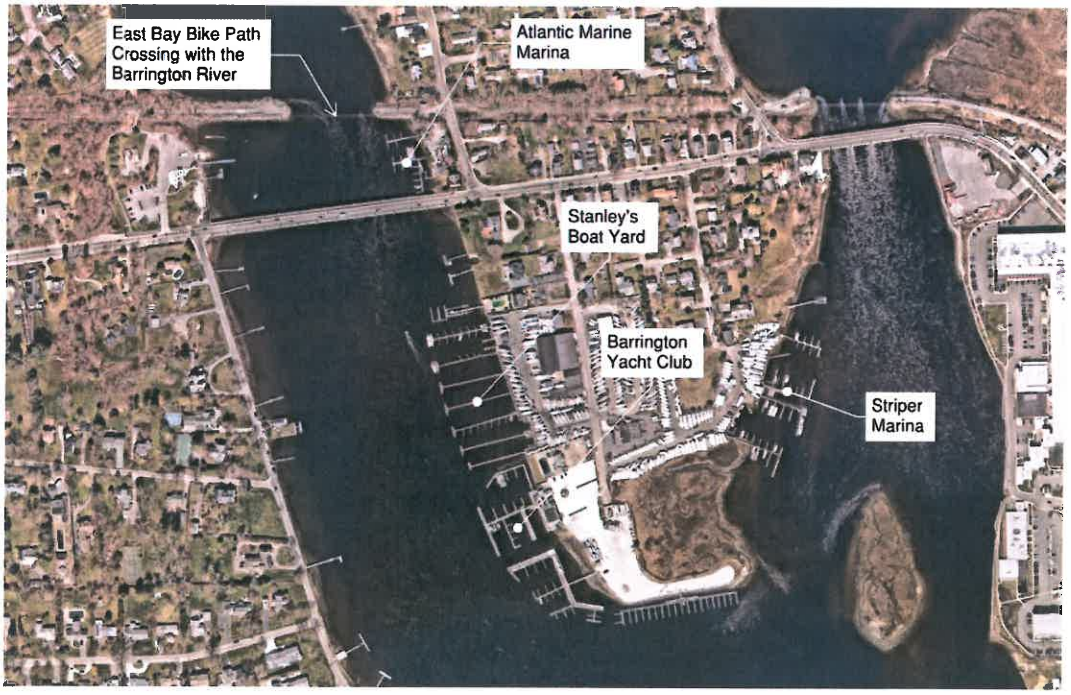

Figure 8 - Locus of Abutting Marinas

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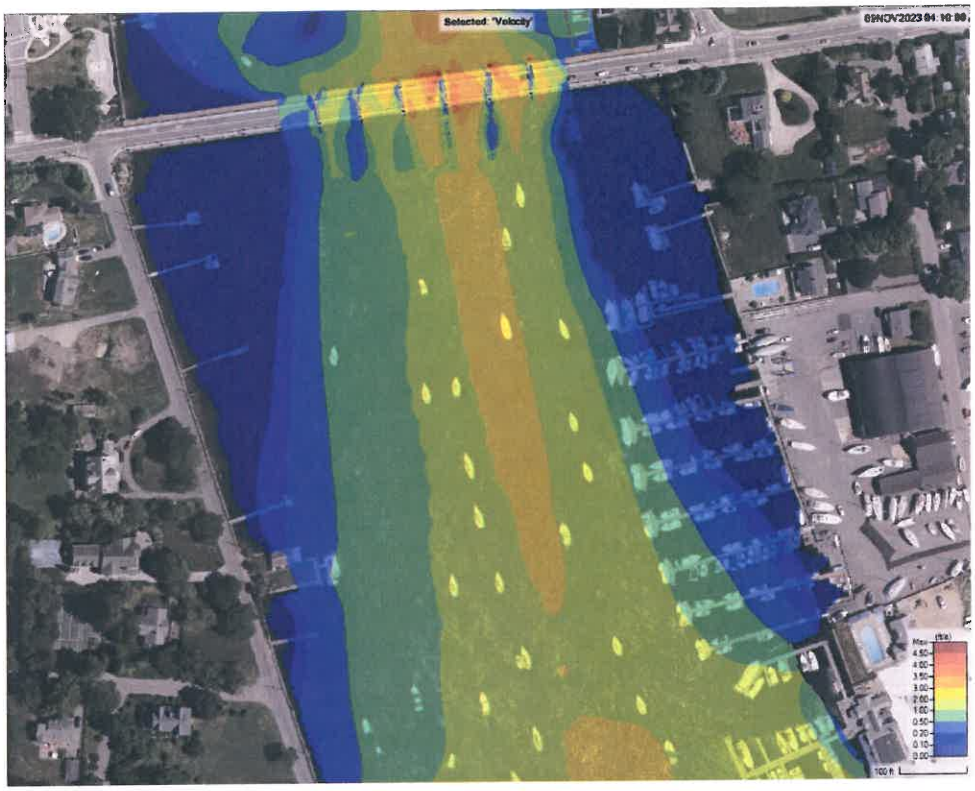

Figure 9 Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Normal Tide Cycle at abutting Marinas

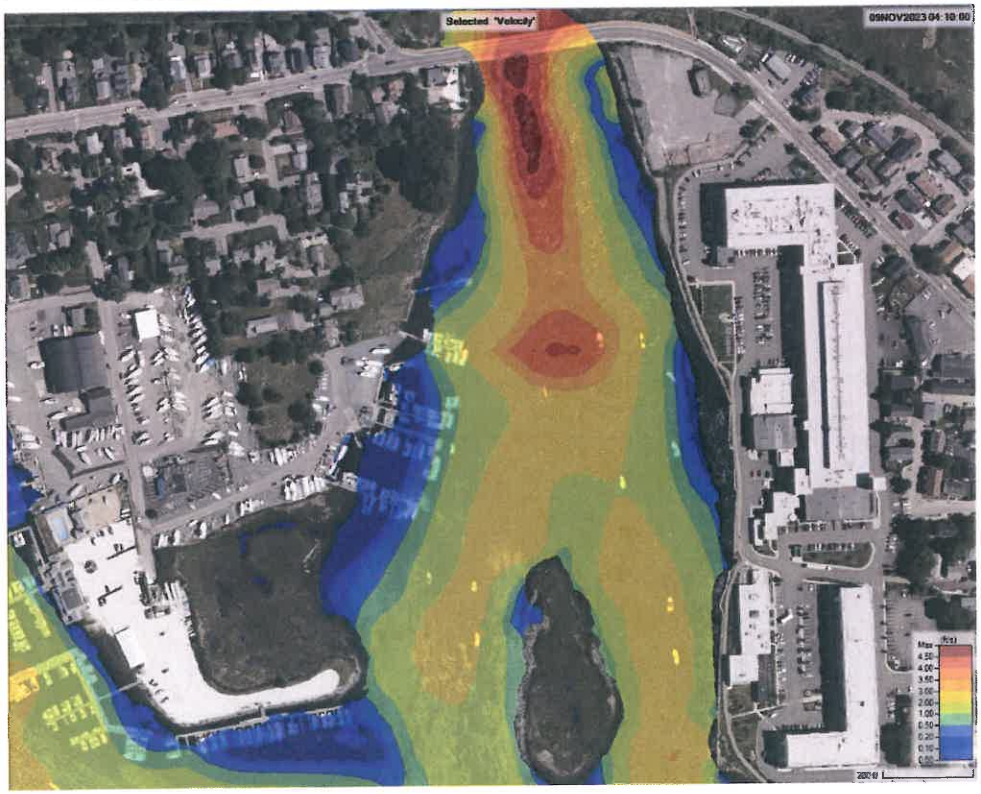

Figure 10 Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Normal Tide (Striper Marina)

Memorandum

The H&H analysis calculates that the abutting Stanley's Boat Yard, Barrington Marina, and Striper Marina experience velocities of approximately greater than 1 foot/second along their perimeter, with a maximum velocity in the Barrington Marina of approximately 2 feet-second during a normal tide condition during the post-demolition condition (current condition).

Highest Astronomical Tide (Scenarios #4 +5)

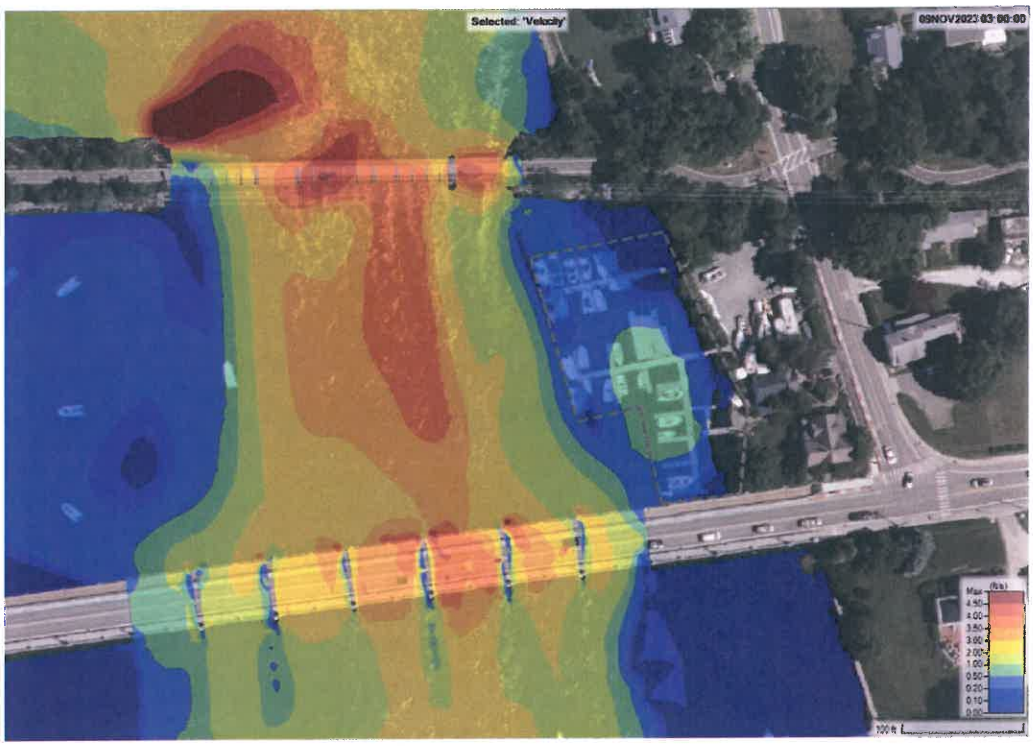

Figure 11 - Pre-development Condition - Velocity - Peak of Outgoing Tide during a Highest Astronomical Tide

Memorandum

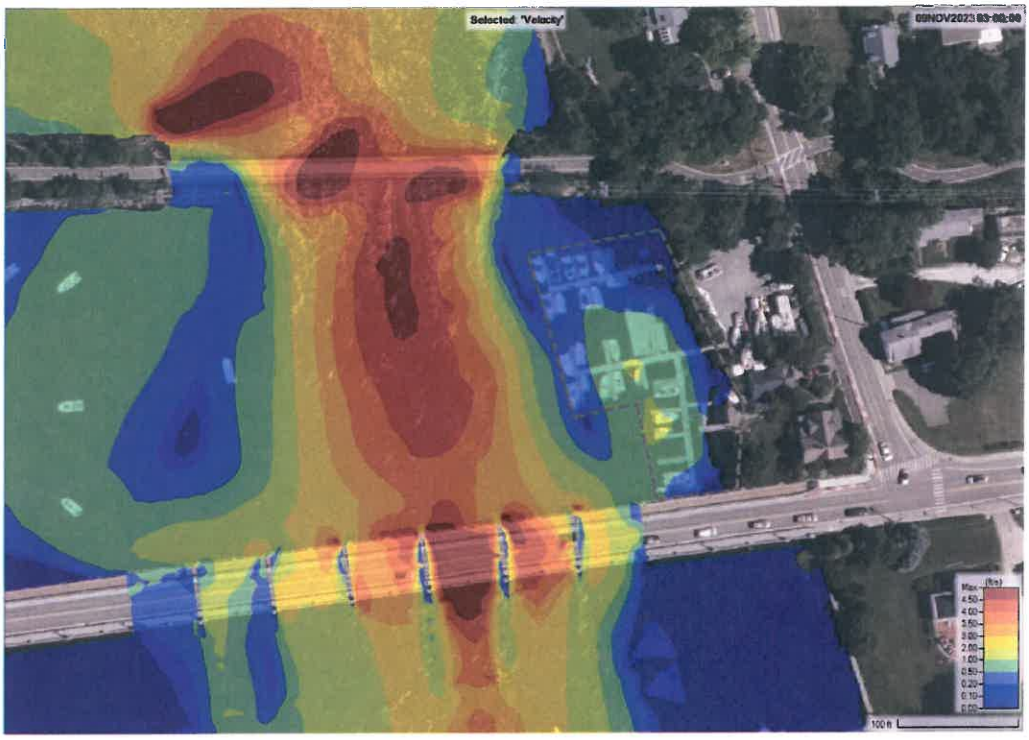

Figure 12 - Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Highest Astronomical Tide

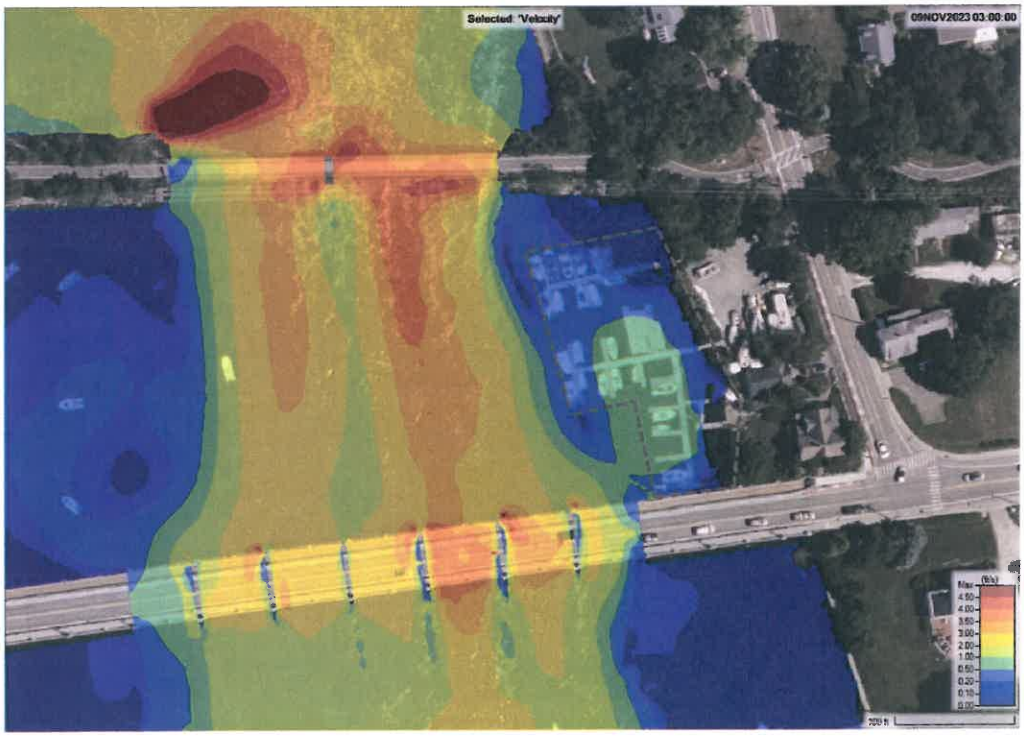

Figure 13 - Post-development Condition - Velocity -Peak Outgoing Tide during a Highest Astronomical Tide

Memorandum

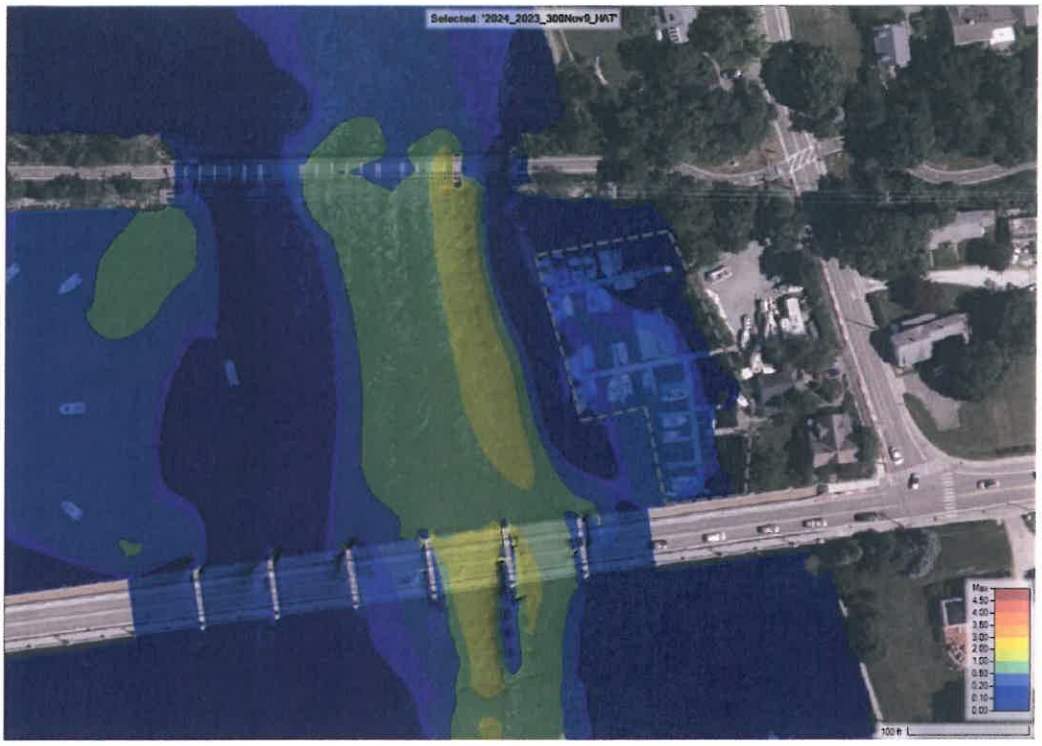

Figure 14 - Change in Velocity (Post Demolition - Pre-development) – Peak of Outgoing tide during a highest astronomical tide

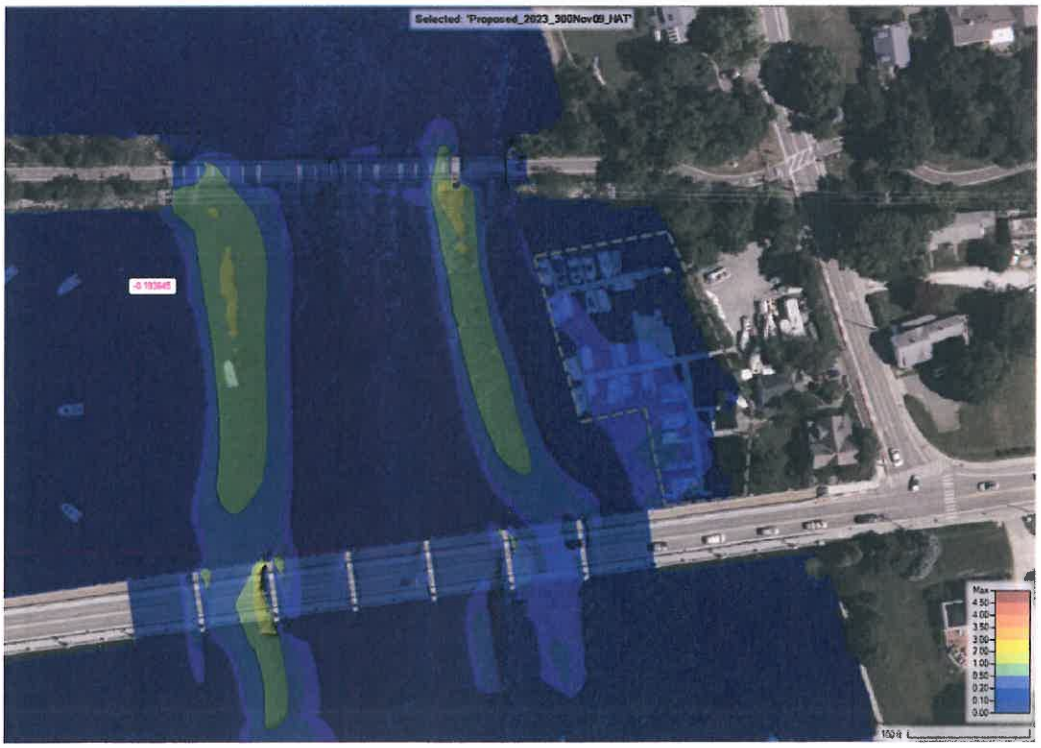

Figure 15 - Change in Velocity (Post Development - Pre-development) – Peak of Outgoing tide during a highest astronomical tide

The results of the modeling calculations indicate that there is an increase in flood velocities in the main channel of the Barrington River of approximately 1-3 feet/second during the peak of the outgoing tide during a highest astronomical tide cycle in the post-demolition and post-development condition in comparison to the pre-development condition. Within and along the perimeter the Atlantic Marine marina flood velocities are generally consistent, noting that some internal areas are showing maximum increase of flood velocity of approximately 0.6 feet/second in the post-demolition condition and approximately 0.4 feet/second in the post-development condition during the peak of the outgoing tide during a highest astronomical tide cycle. The Atlantic Marine Marina has a maximum of velocity of approximately 1.1 feet/second on in the pre-development, post-demolition, and post-development condition at the peak of a highest astronomical tide.

Abutting Marina Comparison

VHB also evaluated the modeling results for velocities at the nearby Stanley's Boat Yard and Barrington Yacht Club (located directly downstream of the Route 103 crossing over the Barrington River) and the Striper Marina (located southeasterly along the Palmer River) during a Highest Astronomical Tide (HAT) during a post demolition conditions (current condition).

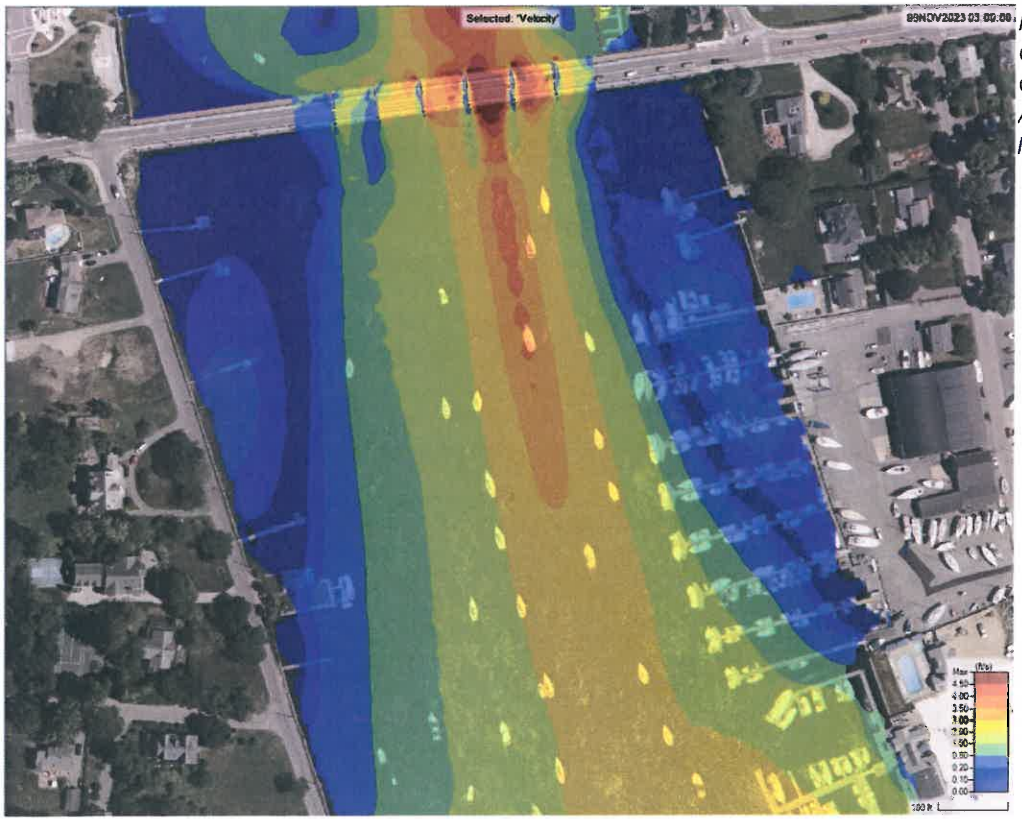

Figure 16 Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Highest Astronomical Tide at abutting Marina

Memorandum

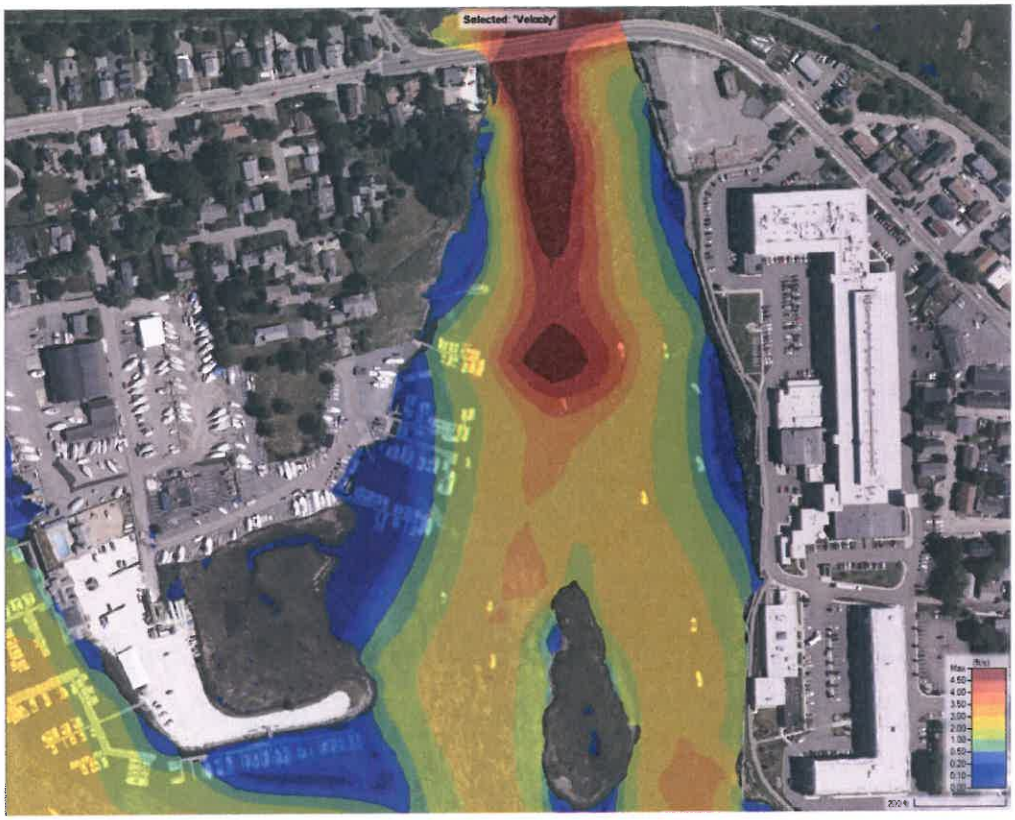

Figure 17 Post-demolition Condition - Velocity - Peak of Outgoing Tide during a Highest Astronomical Tide (Striper Marina)

The H&H analysis calculates that the abutting Stanley's Boat Yard, Barrington Marina, and Striper Marina experience velocities of approximately greater than 1.5 foot/second along their perimeter, with a maximum velocity of approximately 2.9 feet-second during a highest astronomical tide condition during the post-demolition condition (current condition).

Conclusions

VHB analyzed a set of flow and tidal conditions using the two-dimensional H&H model and reviewed the velocities around the bridge and marina for this study.

The H&H model results indicate increases in river channel velocities in the main river channel abutting the Atlantic Marina Marine in both a normal tide and highest astronomical tide condition in the post-demolition and post-development condition. The modeling indicates that the Atlantic Marine Marina area have a maximum velocity of approximately 1 foot/second during the peak of a normal tide and 1.1 feet/second during the peak of a Highest Astronomical Tide during the pre-development, post-demolition, and post-development condition. The maximum velocity of the abutting Stanley's Boat Yard, Barrington Marina, and Striper Marina are approximately 2 feet/second and 2.9 feet/second during the peak of a normal tide and HAT, in the post-demolition condition. The modeling results indicate that the maximum velocities within the Atlantic Marine Marina area are less than those in the nearby abutting

May 3, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **Further Discussion of Fishing Structures**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). More recently, design modifications were submitted under cover letters dated February 7, 2024 pertaining to fishing accommodations at both bridges and on April 18, 2024 for the fishing structure at the Barrington River bridge. The most recent modification shifted the location of the Barrington River fishing pier from the east side of the River to the west in response to public comments submitted to CRMC regarding the February 7, 2024 submission. RIDOT has provided descriptions of the site constraints and design elements associated with the proposed fishing accommodations in correspondence submitted previously, but this correspondence has been prepared to expand on RIDOT's goal of maintaining public fishing opportunities at each bridge location, consistent with Section 1.3.6(A) of the Coastal Resources Management Program (CRMP).

The New England Chapter Backcountry Hunters and Anglers has filed an objection to RIDOT's application describing what they perceive to be a significant decrease in the 'type and level' of public access for fishing, due to the lack of sidewalks on the proposed Bike Path bridges. RIDOT has previously provided information detailing environmental and site constraints which pose challenges and conflicts with other CRMC standards of attempting to widen the bridges. Widened bridges would be in direct conflict with construction methods needed to avoid the existing overhead wires and utility poles and would require a second bridge pier in each river channel to support the added weight. Additional encroachment into tidal waters and coastal wetlands would be required to accommodate wider bridge abutments, somewhat negating the work of the design team to minimize the Project's footprint on shoreline features to the greatest feasible extent.

Notwithstanding these challenges, RIDOT wishes to reiterate that the proposed height of the replacement bridges has been predicated upon vertical clearances dictated by the US Coast Guard (USCG) to match those of the Route 114 highway bridges immediately downstream – and by sound engineering practice to elevate the bridge superstructures above the 100-year wave velocity zones. The table below shows a comparison of the finish deck elevations of the proposed Bike Path bridges and the adjacent Route 114 roadway bridges, demonstrating conformance with the USCG's vertical clearance requirements.

	Proposed Bike Path Deck Elevation	Route 114 Bridge Sidewalk Maximum Elevation
Barrington River	15.95	15.59
Palmer River	14.20	14.35

This information is important in understanding the public benefit gained by widening the proposed bridges to provide sidewalks that could be considered redundant to the access already afforded by the Route 114 bridge sidewalks. Anglers are regularly observed fishing from the Route 114 bridge sidewalks, indicating that these are likely feasible and productive locations for catching fish. Furthermore, fishing from the increased height of the

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proposed Bike Path bridges would bring the angler closer to the overhead utility lines and could pose conflicts with casting and fishing line entanglement. Adding sidewalks to the proposed Bike Path bridges would cause significant environmental, utility, schedule, and cost impacts to the project, without a commensurate level of increase in similar public fishing access.

In recognition that the sidewalks on Route 114 do not provide the same type of fishing access due to the increase in elevation (approximately 4.8 higher) when compared to the sidewalks on the former Bike Path bridges, RIDOT has included in the design a proposed fishing pier and bulkhead that will be built at elevations that more closely resemble the elevation of the former Bike Path bridges. The Barrington River fishing pier will be constructed with a deck elevation of 12.66, and the Palmer River bulkhead will have a finish grade of elevation 6.83. These proposed fishing accommodations will be distinct from each proposed bridge, yet in proximity. Entry to each fishing structure will occur off the Bike Path pavement, and each structure will be ADA accessible, in keeping with the remainder of the Bike Path, in contrast to the former bridges, which did not offer equal accessibility due to their elevated sidewalks that functioned as fishing positions. The structures have been designed in accordance with the United States Access Board's guide for *Accessible Fishing Piers & Platforms* to enhance public access for all anglers regardless of their mobility status. The proposed fishing structures are expected to avoid utility line conflicts and will provide more favorable heights in which to raise caught fish to the pier decks.

Since RIDOT's closure of the Bike Path bridges in 2019 for safety reasons, shore fishing along the banks of the Bike Path causeway, the adjacent shoreline, and Route 114 highway bridge sidewalks have continued to serve anglers as other feasible and productive locations for catching fish. As indicated in previous documentation, these areas will continue to be accessible to anglers following the reconstruction of the Bike Path bridges, and the Route 114 sidewalks will become fully available again once the temporary Bike Path detours are removed following completion of the bridge reconstructions. The proposed fishing accommodations are enhancements to these currently available fishing opportunities, and RIDOT feels that the provision of public fishing access has been met to the maximum extent practicable, as defined under CRMP § 1.1.2(A)(89), with the demonstration of constraints and addition of the separate fishing structures to the Project.

In consideration of CRMP § 1.3.6(A)(3) [*It is the Council's policy to require applicants to provide, where appropriate, on-site access of a similar type and level to that which is being impacted as the result of a proposed activity or development project*], similar types of fishing access will be accommodated on site in the proposed Project design. The proposed fishing structures will be constructed within the Project area adjacent to each bridge, will provide a fair length of edge from which to fish, are expected to maintain dropline, drift, and casting fishing methods, and built to a similar elevation as the historic bridges. Similarly, the added riprap required as scour protection along the Manmade Shoreline of the bridge abutments may increase shoreline fishing opportunities. Consistent with CRMP §§ 1.3.6(A)(2 and 3), the level of public access for fishing opportunities will be enhanced by the Project via the provision of accessible, ADA-compliant fishing accommodations, where none existed previously.

The design of the proposed bridges has been intensively evaluated and specifically honed for maximizing open water restoration and minimizing the footprint of shoreline impacts. RIDOT is offering fishing accommodations so that the loss of an important existing recreational public use will not occur. RIDOT recognizes that these accommodations may not satisfy all access features previously provided by the former Bike Path bridges, but the federal regulations, environmental, constructability, and profile constraints discussed in this application greatly limit the ability to do more. Additionally, RIDOT wishes to restate, as was emphasized in their September 13, 2023 correspondence, that it has no intention to prohibit, preclude, or restrict public recreational fishing from the proposed Bike Path Bridges.

Thank you, and please feel free to contact either Ms. Alisa Diaz Richardson of RIDOT at (401) 479-1327 or Alisa.Richardson@dot.ri.gov, or me at (401) 457-7824 or shobson@vhb.com, if you have any questions or require additional information.

Sincerely,
VHB

Scott S. Hobson, PWS
Senior Ecologist

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
Andrew F. Prezioso, PE, VHB
Andres Aveledo, Project Manager, Aetna Bridge

May 3, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **Hydraulic Analysis of Barrington River adjacent to Atlantic Marine**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). More recently, under a cover letter dated March 18, 2024, Coastal Resources Management Program (CRMP) compliance and Special Exception requests for Bridge Pier Riprap and fishing structures, along with considerations at Atlantic Marine (Marina), were presented. The considerations at the Marina included the design team for the Project conducting a hydrologic and hydraulic study (Study) of the area that includes the Marina, adjacent Barrington River, and the former bikeway bridge and existing highway bridge. The information provided in this letter and the associated appended figures is intended to provide an update on the Study commissioned by RIDOT that is ongoing to investigate the concerns of the Owners. Atlantic Marine is located southeast of the Barrington River bridge and has formally submitted comments indicating that the previous bridge helped attenuate flow velocities and direct strong currents away from the Marina.

Hydrologic and Hydraulic Study Overview

The Study is a full hydrologic and hydraulic (H&H) analysis of the Barrington River at the Marina (around the former bikeway bridge to the north and Route 103 highway bridge to the south) and surrounding estuary system including the upgradient Hundred Acre Cove. The Study uses numerical H&H modeling to evaluate the study area under 1) prior to bikeway bridge removal, 2) after bridge removal (current state), and 3) after the new bridge has been installed "proposed bridge model." The proposed bridge model includes all future riprap protection, in-water piles to support the new bridge pier, and in-water piles to support the proposed fishing pier off the northwest corner of the proposed bridge. Recent velocity measurements in December 2023 along the Barrington and Palmer Rivers, and at other marina locations along these rivers, were measured to assist and calibrate the H&H modeling. A full bathymetric survey of the Barrington River segment extending from just south of the highway bridge to just north of the former bikeway bridge was completed in March 2024 and has been incorporated into the H&H modeling.

Hydraulic Analysis Results

The results of the analysis to date have identified two key aspects of the flows in the Barrington River adjacent to, and within, the Marina.

- First, the current state (with bridge demolition) and proposed bridge model analysis calculates that the velocities in the main channel of the river have increased in comparison to when the former bikeway bridge was in place. The proposed data provides a look at the flows in the river after the new bridge has been constructed. The new bridge will consist of a centralized pier that will be made up of ten piles supporting a concrete pier cap with mounded rip rap at its base and supplemental rip rap provided at each abutment. The Study model also incorporates the fishing pier founded on piles located off the northwest corner of the new bikeway bridge. The

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construction of the new bridge and fishing pier in the river will help to mitigate the flows in the current state. The attached Figure 3 data chart from the Study shows a data point extracted from the model within the river channel and adjacent to the marina that indicate an increase of approximately 38% from 1.6 feet per second (fps) [0.95 knots] to approximately 2.2 fps [1.30 knots] during a normal outgoing tide event. The same data chart also indicates an outgoing tide increase of approximately 25% from 2.4 fps [1.42 knots] to 3.0 fps [1.78 knots] taken at the highest astronomical tide event. As a reference point, attached Figures 4, 5, and 6 provides velocity flow measurements taken in December 2023 on 3 days during the month that correlated closely with full moon and new moon tides of that month. At the time of these measurements, the former bikeway bridge had been demolished. The chart shows a snapshot in time and provides a comparative perspective of the river flows adjacent to the Marina during low (new moon) and high (full moon) tidal flow occurrences taken in the Barrington River and Palmer River confluence area.

- Second, the calculated velocities in the Marina are consistent with the velocities calculated prior to the removal of the former bikeway bridge and the current state and proposed bridge. The area defined as the Marina is the Marina Perimeter Limit (MPL), as defined by RI CRMP as an area extending a maximum of ten (10) feet outside of the marina structures (CRMP § 1.3.1(D)(9)(o). The model graphics attached show the river prior to bridge demolition and after the proposed bridge is constructed, reflecting that the flows within the MPL remain consistent with each other (see Figures 1 and 2). Attached Figure 4, 5, and 6 indicate that the Study model is accurate in showing that lower velocity flows are present within the MPL of the Marina in comparison to the river channel flows at various normal tide occurrences.

While RIDOT acknowledges the data indicates increases in river channel velocities in the main river channel, the modeling indicates that the velocities and flow patterns within the Marina area are consistent with the conditions prior to the bridge removal. These technical analysis results do not substantiate the claims that the MPL has been negatively impacted because of the bridge removal. RIDOT has stated that they are committed to mitigate issues identified as it relates to the Marina, however, at this time, mitigation within the Marina does not appear warranted. It has been noted in discussions with the Barrington Harbormaster that navigation through the Barrington River in the location of the former bridge is safer now with the elimination of the many pile bents that supported the former trestle-style bridge. In addition to the safety benefits provided by this Project, other benefits include better tidal flushing of the river and improved vertical clearance under the proposed bikeway bridge structure in comparison to the former bridge. It is our opinion that the calculated increase to velocity flow in the main river channel is outweighed by the benefits this Project provides to the community.

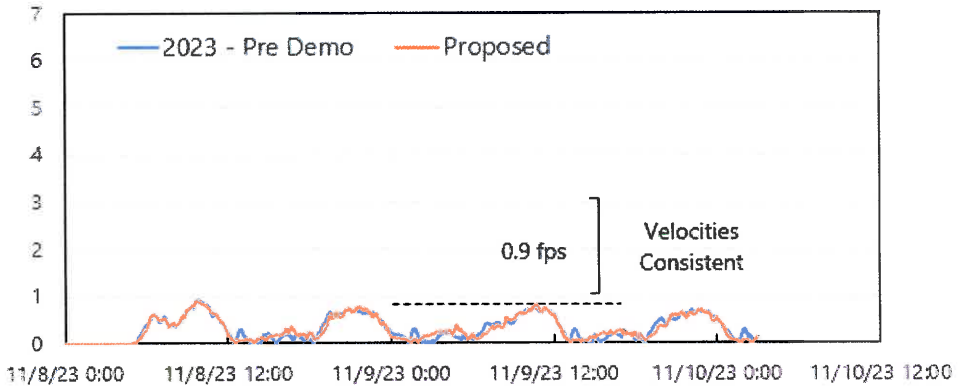
Thank you, and please feel free to contact either Ms. Alisa Diaz Richardson of RIDOT at (401) 479-1327 or Alisa.Richardson@dot.ri.gov, or me at (401) 457-2053 or aprezioso@vhb.com, if you have any questions or require additional information.

Sincerely,
VHB

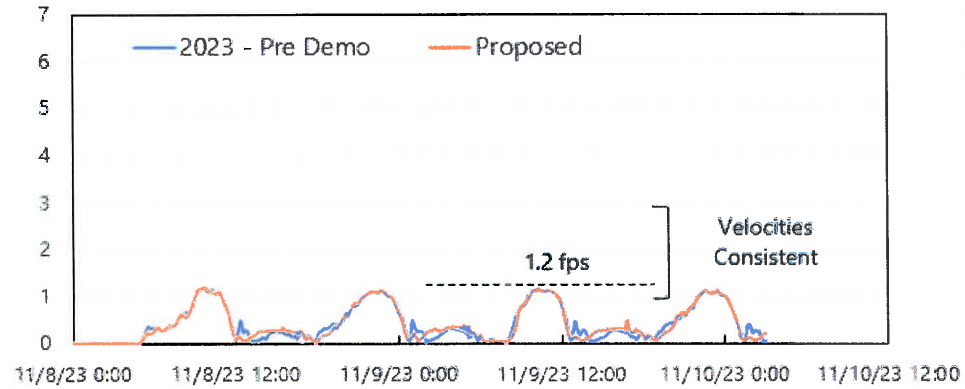
Andrew Prezioso, PE
Project Manager, VHB

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
Scott S. Hobson, PWS, VHB
Andres Aveledo, PE, Project Manager, Aetna Bridge

Figure 1: Comparison between 2023 (Pre-Demo), Proposed: Location 1 (at Marina)



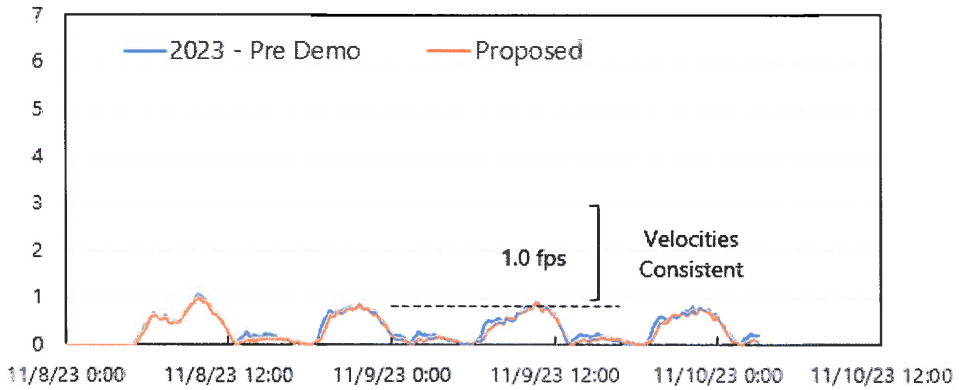
Normal tide event



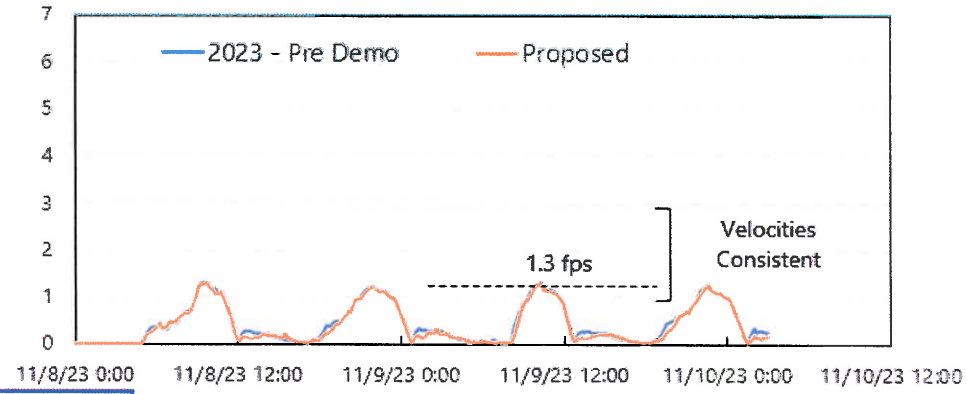
Highest Astronomical Tide event

Location 1

Figure 2: Comparison between 2023 (Pre-Demo), Proposed: Location 2 (at Marina)



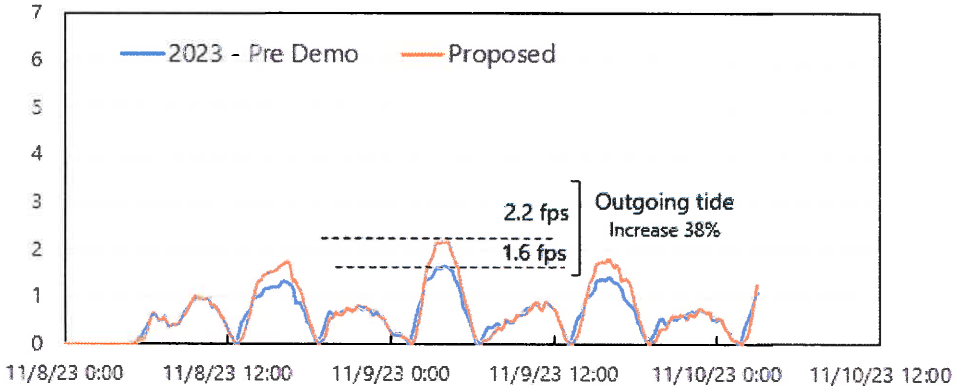
Normal tide event



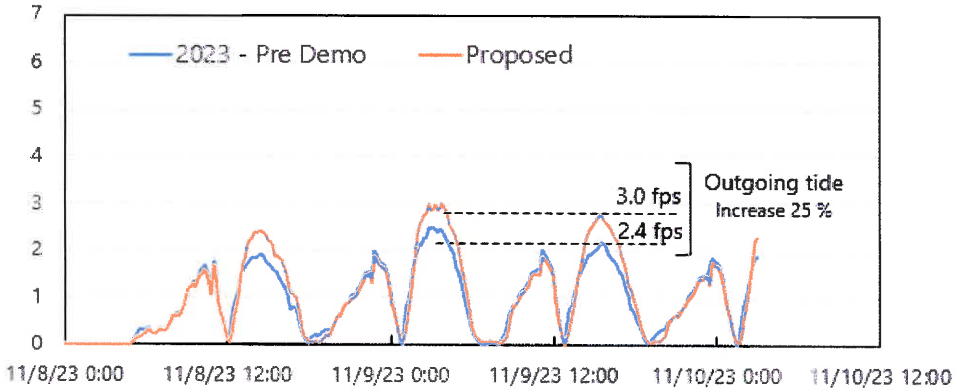
Highest Astronomical Tide event

Location 2

Figure 3: Comparison between 2023 (Pre-Demo) and Proposed : Location 3 (River Channel)



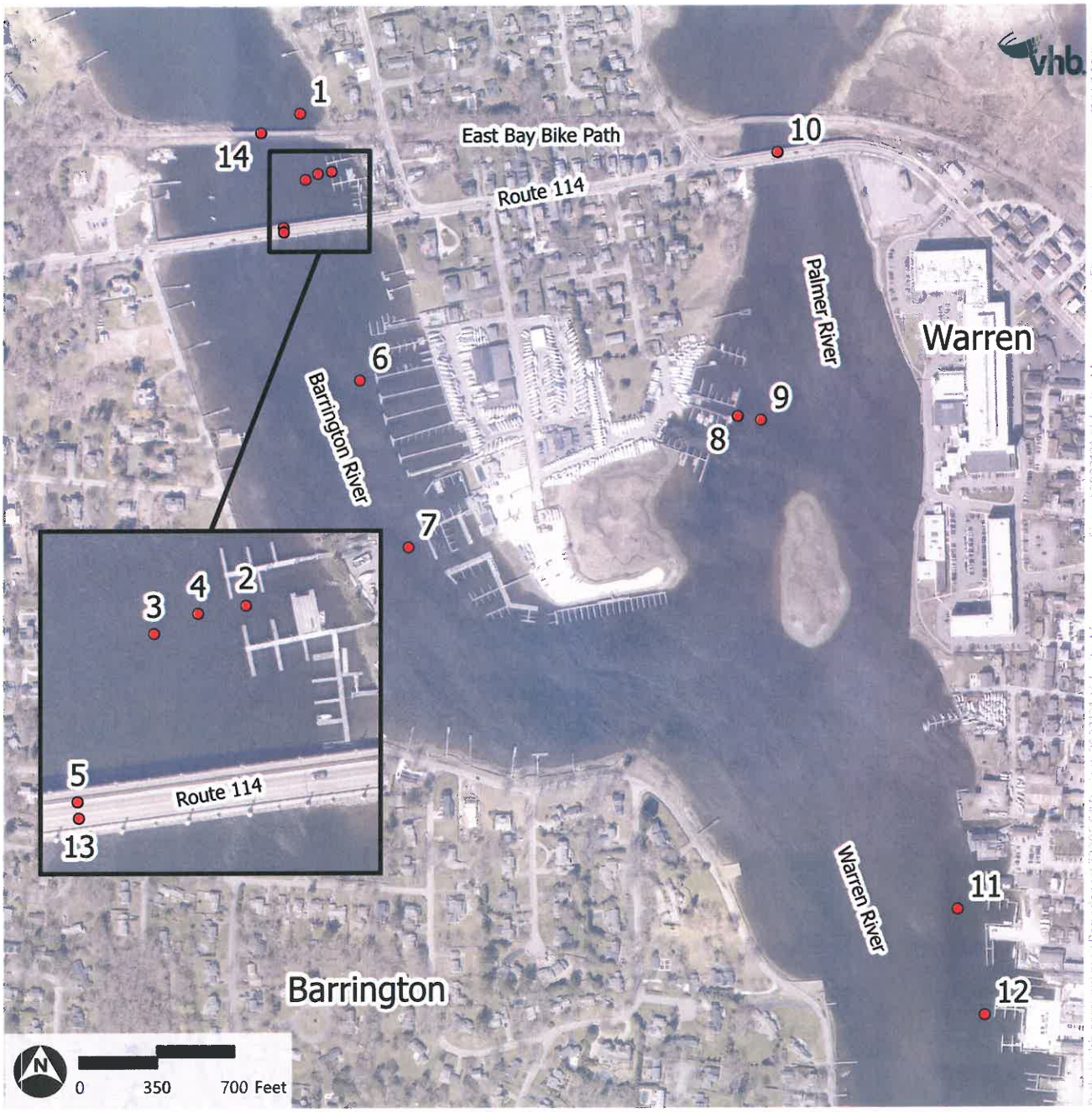
Normal tide event



Highest Astronomical Tide event

Location 3

Figure 4: 12-01-2023 Flow Velocity Measurements
Barrington, RI & Warren, RI



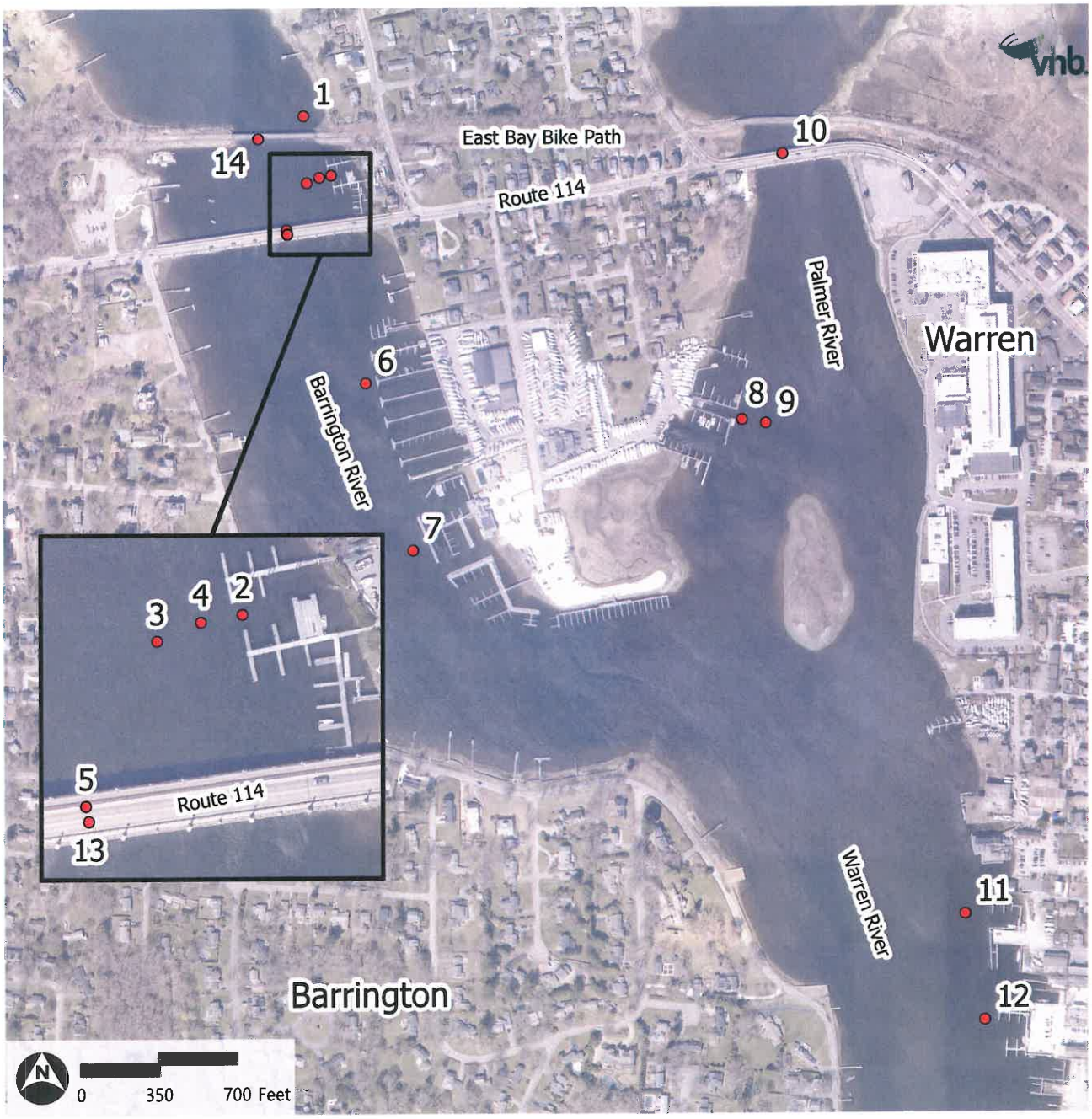
Velocity Measurement Locations

Location ID	Measurement Time	Velocity (fps)
1	12:15 PM	1.6
2	12:20 PM	0.2
3	12:25 PM	2.8
4	12:30 PM	2.0
5	12:35 PM	2.0
13	1:21 PM	1.8
14	1:30 PM	3.0

Measurements taken at Locations 2, 3, and 4 correlate well with the Study model. Locations 2 and 4 in and adjacent to the Marina are lower than the main channel.

Full Moon: November 27, 2023 at 09:16 (GMT)

Figure 5: 12-14-2023 Flow Velocity Measurements
Barrington, RI & Warren, RI



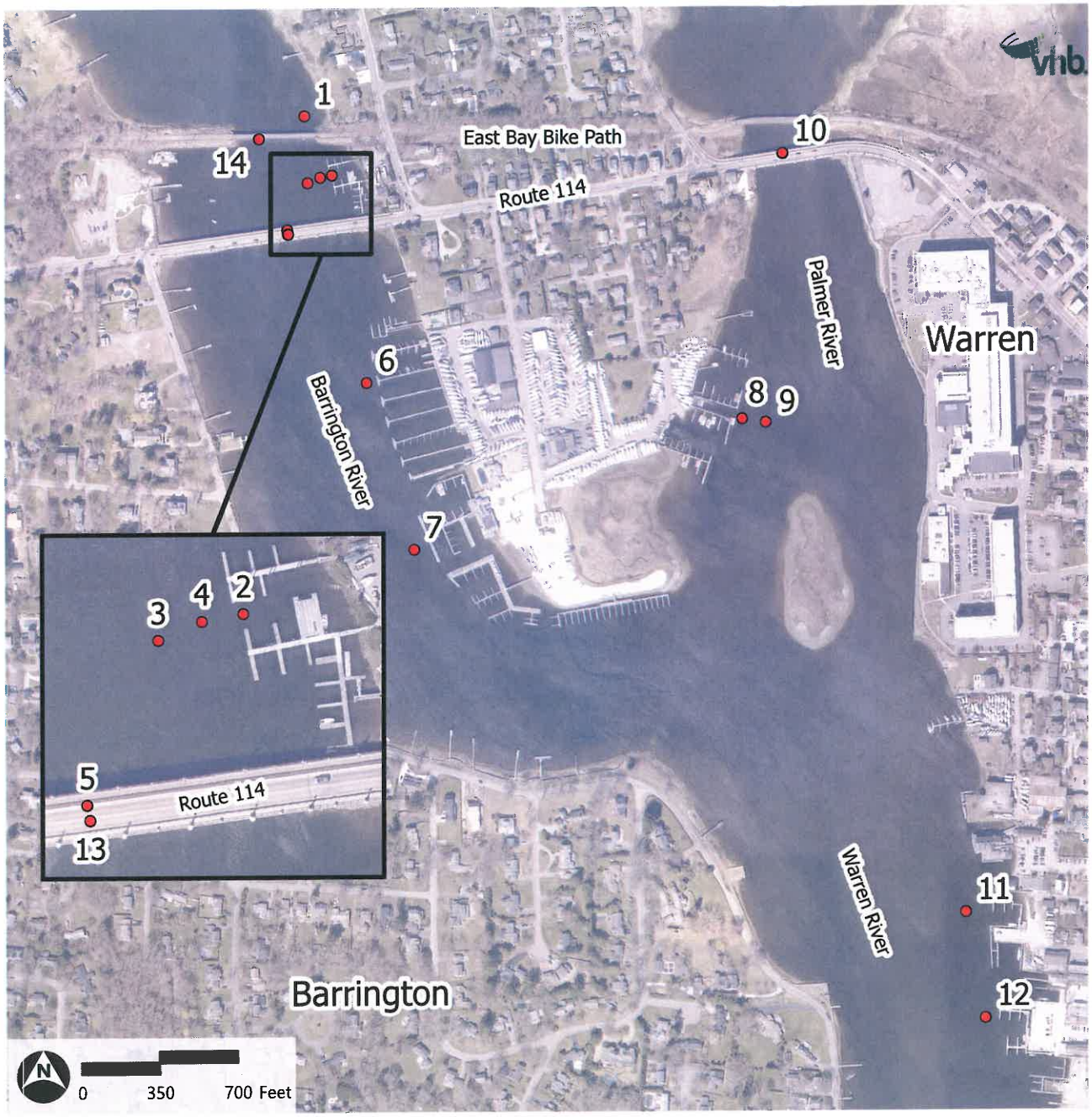
Velocity Measurement Locations

Location ID	Measurement Time	Velocity (fps)
1	2:14 PM	1.4
2	2:17 PM	0.2
3	2:19 PM	1.2
4	2:20 PM	0.7
5	2:22 PM	1.8
13	2:57 PM	0.4
14	2:58 PM	0.4

Measurements taken at Locations 2, 3, and 4 correlate well with the Study model. Locations 2 and 4 in and adjacent to the Marina are lower than the main channel.

New Moon: December 12, 2023 at 23:32 (GMT)

Figure 6: 12-28-2023 Flow Velocity Measurements
Barrington, RI & Warren, RI



Velocity Measurement Locations

Location ID	Measurement Time	Velocity (fps)
1	10:12 AM	2.3
2	10:16 AM	0.7
3	10:14 AM	3.3
4	10:15 AM	0.9
5	10:18 AM	3.5
13	10:45 AM	3.0
14	10:47 AM	3.8

Measurements taken at Locations 2, 3, and 4 correlate well with the Study model. Locations 2 and 4 in and adjacent to the Marina are lower than the main channel.

Full Moon: December 27, 2023 at 00:33 (GMT)

March 15, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **CRMP Compliance and Special Exception Request for Bridge Pier Riprap and Fishing Structure**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). More recently, design modifications were submitted under cover letter dated February 7, 2024 pertaining to fishing accommodations and riprap scour protection at each bridge pier. The February submission presented the design and need for each proposed modification, while this current submission addresses Coastal Resources Management Program (CRMP) compliance aspects of the modifications, as requested by CRMC permitting staff, and expands on the efforts that RIDOT has undertaken to address concerns raised at the public hearing held before the full Council on October 24, 2023. Those concerns focused on maintaining public fishing opportunities and reviewing concerns associated with the potential increase in flows and current velocities at Atlantic Marine, located southeast of the Barrington River bridge.

Pier Riprap and Palmer River Fishing Accommodation

As indicated in VHB's February 7, 2024 correspondence, riprap scour protection at the single pier for each bridge was not initially designed into the Project but was determined necessary during final design, as the effects of prolonged local scour and extreme storm events were studied further. Consequently, RIDOT is proposing the installation of stone riprap to adequately protect the bridge piers from these events. Similarly, designated fishing accommodations were not initially proposed, but are now provided in response to public request, and RIDOT considers the existing fill bulkhead on the Palmer River to be a suitable location for public fishing access. The proposed filling in tidal waters required to accomplish each of these Project elements falls under CRMP § 1.3.1(J) – Filling in Tidal Waters. It should be noted that piles generally are not considered to be "fill" under Section 404 of the Clean Water Act, and it is RIDOT's understanding that installation of the proposed steel micropiles to support the timber fishing pier at the Barrington River does not constitute filling in tidal waters under the CRMP.

CRMP Compliance

In accordance with the Policies listed at CRMP §§ 1.3.1(J)(1)(a, c, e, and f), RIDOT understands that filling in Tidal Waters is discouraged and that filling is to be minimized when it is necessary. The filling currently proposed in Tidal Waters is the minimum necessary to achieve the stated Project goals and will be accomplished exclusively for public use and benefit. The pier riprap will protect the structural integrity of the two public bridges to be reconstructed, and the fishing pier is proposed to provide public access to tidal waters. By virtue of the Project type, all facets of the Project are believed to comply with CRMP § 1.3.6 concerning public access.

In consideration of the Prerequisites listed at CRMP § 1.3.1(J)(2)(a and b), at a federal level, the Project falls under RI General Permit 8, and the bridge reconstruction was authorized as such by the US Army Corps of Engineers (USACE)

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on September 8, 2023 (USACE File Number NAE-2022-02797). Given that the Project was authorized under the RI General Permits, it is RIDOT's understanding that water quality certification under Section 401 of the Clean Water Act is granted conditionally by the RI Department of Environmental Management (RIDEM) under Water Quality Certificate No. 22-011. RIDOT held a consultation meeting with USACE regulatory staff on February 9, 2024 to discuss the pier riprap and fishing accommodations, and it was confirmed that the new fills will still meet the thresholds of the RI General Permits. The pier riprap and Palmer River fishing bulkhead will be permitted as modifications to the initial permit under RI General Permit 8, such that Section 401 water quality certification will continue to be granted conditionally. The timber fishing pier proposed at the Barrington River will be filed as a Pre-Construction Notification application under RI General Permit 4, and Section 401 water quality certification will again be granted conditionally. RIDOT understands that a CRMC Assent is not valid until all required USACE authorizations have been received. Furthermore, the Project is being reviewed for State Water Quality Certification by RIDEM for compliance with the RI Water Quality Regulations (250-RICR-150-05-1).

Filling in Tidal Waters to accomplish scour protection at the piers is proposed at the interface of Type 2 and 3 Waters, and filling required for the fishing accommodation at the Palmer River is proposed in Type 2 Waters – where the Water types are defined under CRMP §§ 1.2.1(C and D) and the Prohibitions are stated under CRMP § 1.3.1(J)(3). Riprap proposed at the bridge piers will be subtidal, such that effects to the scenic value of Type 2 Waters are believed not pertinent (CRMP § 1.2.1(C)(2)(a)), and fills associated with the fishing bulkhead will be low in profile and are not expected to negatively impact shoreline scenic value. Additional stone riprap is proposed at the existing bulkhead to form a more aesthetically pleasing north (seaward) face where sheet piling is not present, and additional riprap scour protection proposed against the sheet piling along the bulkhead's east (seaward) side will be predominantly subtidal. Filling in coastal wetlands is not proposed (CRMP § 1.3.1(J)(3)(b)).

The East Bay Bike Path is a well-established, heavily used public facility that RIDOT considers to be a priority use for the area (CRMP § 1.3.1(J)(3)(c)(1). It enables physical and visual shoreline access for statewide benefit. The filling is believed necessary to ensure the long-term structural integrity of each bridge and to preserve an existing public use in the form of fishing. RIDOT has examined scour protection alternatives (CRMP § 1.3.1(J)(3)(c)(2)), and hydraulic calculations conclude that riprap is required to the proposed depth and lateral dimensions to minimize unacceptable deflection of piles comprising the piers (CRMP § 1.3.1(J)(3)(c)(3)). RIDOT similarly has studied alternatives for fishing locations and has conducted field reviews to assess potential locations and observe active fishing. The location of the existing bulkhead was considered by RIDOT to be an appropriate location with sufficient seaward reach. As such, the need for construction of a separate fishing pier was not identified, and a location at any other bridge quadrant would likely require encroachment within coastal wetlands (salt marsh). The area and volume of proposed riprap installation in Tidal Waters at each bridge and at the fishing bulkhead are presented in Revised Tables 4-1 and 4-2, accompanying the previously filed February 7, 2024 correspondence.

In consideration of CRMP § 1.3.1(J)(4), it is RIDOT's understanding that the Project will not be assessed fees for fills in Tidal Waters (CRMP § 1.1.12), given that the State is the Applicant (and Project proponent) and that no application fees were assessed for the initial filing.

Special Exception Request – CRMP § 1.1.8

RIDOT respectfully requests the Council's consideration for the granting of a Special Exception for proposed filling in Tidal Waters, as required for installation of riprap scour protection on the riverbed of both rivers and for converting the existing construction bulkhead to a permanent fishing structure on the shoreline of the Palmer River. The activities requiring a Special Exception are described above and may constitute prohibited activities under CRMP § 1.3.1(J)(3). The activities are believed to be the minimum needed to achieve the goals of providing adequate scour protection for the bridge piers and of restoring designated public fishing access to the Palmer River within the Project area.

In consideration of CRMP § 1.1.8(A)(1)(a and c), the Project is believed to serve a compelling public purpose and provides a public benefit. The activities support the restoration of actively used public, transportation infrastructure.

The Bike Path is believed to be considered a priority use for Type 2 Waters, has been a long-standing public use abutting Type 3 Waters, and provides physical and visual access to the shoreline for broad segments of the public.

In consideration of CRMP § 1.1.8(A)(2), all reasonable steps are believed to have been taken to minimize environmental impacts and use conflicts. The filling will occur where saltmarsh and other special aquatic sites are absent and where use conflicts will be avoided. For example, coordination has been maintained with the Town of Barrington Harbormaster to ensure that placement of riprap scour protection under the western edge of the Barrington River navigation channel will not pose a conflict with mariners, while the fishing pier is being proposed to avoid potential use conflicts on a replacement bridge of reduced width and to prevent a potential reduction of a popular public use via the creation of designated public fishing access. To ensure Project compatibility with marine resources, RIDOT held a joint consultation meeting with NOAA Fisheries Protected Resources Division, NOAA Fisheries Habitat Conservation Division, and RIDEM's Division of Marine Fisheries on February 26, 2024 specific to the recently proposed tidal fills. Relevant Project documentation was subsequently submitted to NOAA Fisheries, and results of the consultations are attached.

In consideration of CRMP § 1.1.8(A)(3), the pier riprap is required based on hydraulic scour studies conducted during final design. The reduction from two bridge piers to one in the Design-Build Entity's Project design has reduced in-water disturbances and riprap fills in Tidal Waters to a single pier location at each river, and pier locations will be set within the alignment of the former bridges. An alternative proposing no riprap could jeopardize the stability of the bridges in large storm events and over time. The proposed conversion of a temporary bulkhead to a permanent fishing pier was decided upon for its location at minimizing environmental impacts and for providing a location that RIDOT perceives to be readily accessible and suitable for casting to varying water depths. Alternatives proposing a fishing structure at any of the other three bridge quadrants would likely require encroachment within or over coastal wetlands, and potentially in Type 1 Conservation Waters, as defined by CRMP § 1.2.1(B).

With respect to CRMP § 1.1.8(C), the filling in Tidal Waters would be a one-time event during construction, and the fill type and dimensions have been specified on the Project drawings. The Contractor would install the fills in accordance with the approved Project drawings.

Considerations Related to Atlantic Marine

In accordance with the Council's request at the October 24, 2023 hearing regarding the potential increase in tidal flow and velocity at Atlantic Marine, RIDOT has been in communication with the Marina Owners, has been in contact with the Barrington Harbormaster, and has begun initial steps to better understand the concerns of the Owners. The Marina Owners have indicated that the previous bridge helped attenuate flow velocities and direct strong currents away from the Marina. In the time since the Council hearing, RIDOT has set out to collect facts and characterize the Marina's concern.

This is being accomplished by performing a full hydrologic study (Study) of the Barrington River at the Marina and surrounding area (around the former bikeway bridge to the north and Route 103 highway bridge to the south). This Study will model the area prior to bikeway bridge removal, subsequent to bridge removal (current state), and after the new bridge has been installed. The "new bridge" model will include future riprap protection, in-water piles comprising the bridge pier, and in-water piles to support the proposed fishing pier. Of note, it is RIDOT's intention that the piles supporting the proposed fishing pier assist in trapping and deflecting ice and debris flows on the Marina side of the channel on outgoing tides. A comparative assessment to be conducted will provide RIDOT with data driven guidance to determine next steps. As part of the Study, RIDOT has initiated preliminary velocity capture measurements along the Barrington and Palmer Rivers, and at other marina locations along these rivers, to assist with the hydraulic modeling. A full bathymetric survey of the Barrington River segment extending from just south of the highway bridge to just north of the former bikeway bridge has been completed. Additionally, it has been noted that tides in general have been elevated, exacerbating flows through the Barrington River. Tide characteristics will be studied further, and NOAA tide data relevant to this observation will be included in the Study.

The Study is a necessary first step to characterize and understand the hydrology with respect to the project area and Marina. RIDOT is committed to mitigate any issues identified when the final engineering analysis is complete and needs to fully evaluate how any proposed mitigative measure might affect other portions of the channel, as well as existing public and private infrastructure. It has been noted in discussions with the Barrington Harbormaster that navigation through the River in the location of the former bridge is safer now with the elimination of the many pile bents that supported the former trestle-style bridge. Further of note, it is our understanding that mariner travel through the waters at this location was a challenge prior to the bridge removal and will remain subjective to the boater's experience. It is anticipated that early results of the Study will be available to share in presentation format at the next full Council hearing, with a comprehensive finalized report following thereafter.

Thank you, and please feel free to contact either Ms. Alisa Diaz Richardson of RIDOT at (401) 479-1327 or Alisa.Richardson@dot.ri.gov, or me at (401) 457-7824 or shobson@vhb.com, if you have any questions or require additional information.

Sincerely,
VHB

Scott S. Hobson, PWS
Senior Ecologist

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
Andrew F. Prezioso, PE, VHB
Andres Aveledo, Project Manager, Aetna Bridge

NOAA Fisheries GARFO PRD

Updated ESA Section 7 Consultation

March 15, 2024

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Appendix A. Verification Form (updated December 10, 2020)

Federal Highway Administration (FHWA) or the applicable state Department of Transportation (DOT) shall submit a signed version of this completed form, together with any project plans, maps, supporting analyses, etc., to NOAA's National Marine Fisheries Service (NMFS), Greater Atlantic Regional Fisheries Office, Protected Resources Division (GARFO PRD) at nmfs.gar.esa.section7@noaa.gov with "FHWA GARFO NLAA Program: [Project Title or Number]" in the subject line. **Note:** project design contractors and/or consultants may assist in preparing the form, but only FHWA/DOT staff shall sign off on it on the final page.

Project Activity Type (check all that apply to the entire action):

- [x] 1. Bridge repair, demolition, or replacement project
- [ ] 2. Culvert repair or replacement project
- [ ] 3. Dock, pier, or waterway access project (includes construction, demolition, and repairs)
- [ ] 4. Slope stabilization project

Transportation Project Information

Name of Project:	Barrington and Warren East Bay Bike Path Bridges		
Reinitiation (Yes/No):	Yes		
State DOT/Program:	RIDOT		
DOT ID Code:	0188A		
Contact Person:	Nicole Lineberry		
Phone:	401-497-1327	Email:	nicole.leporacci@dot.ri.gov
Project Latitude (e.g., 42.625884):		41.737654	
Project Longitude (e.g., -70.646114):		-71.295501	
Maximum Water Depth (m)		6.0	
Anticipated Project Start Date:	6/1/2024	Anticipated Project End Date:	6/1/2026
City/Town:	Barrington and Warren	Water body:	Barrington and Palmer River
Project/Action Description and Purpose:	This project involves the construction of Bridge No. 083801 which carries the East Bay Bike Path (EBBP) over the Palmer River in Warren and of Bridge No. 083701 which carries the East Bay Bike Path (EBBP) over the Barrington River in Barrington. This form includes both bridges due to the proximity of the bridges to each other and that the proposed activities and impacts are the same at each location. This form has been completed for a re-initiation of consultation as a result of project modifications to the construction of the bridges. Since the first consultation was completed in February 2022, both bridges have been demolished. The following is a summary of work and impacts in square feet below MHW for the construction of the two bridges: • A construction barge will be used for drilling all piles for piers into place. There will be four spuds with an impact of 1 sq. ft each. These spuds will be hydraulically raised and lowered into the river bottom and disturb the surface of the river bottom for a short period of time before being raised and the barge moved to a new location. There will be no impact or vibratory hammer used to drive piles. The barge will be installed from shore at the bridges. The temporary impact will be to preclude use of the substrate surface by aquatic organisms but that use will return upon the removal of the spuds. This will result in a sub-total impact of 40 sq. feet to a mixture of sand/hard bottom. • The construction of a single, central pier (as opposed to the 2 piers that were previously proposed). The work will include pile drilling (not vibratory or hammer		

ESA-listed species and/or critical habitats in the action area (Check all that apply)

☑	Atlantic sturgeon (all DPSs)	☐	Kemp's ridley sea turtle
☐	Atlantic sturgeon critical habitat Indicate which DPS (GOM, NYB, Chesapeake Bay DPSs): Select DPS	☐	Loggerhead sea turtle (Northwest Atlantic DPS)
☑	Shortnose sturgeon	☐	Leatherback sea turtle
☐	Atlantic salmon (GOM DPS)	☐	North Atlantic right whale
☐	Atlantic salmon critical habitat (GOM DPS)	☐	North Atlantic right whale critical habitat
☐	Green sea turtle (North Atlantic DPS)	☐	Fin whale

* Please consult GARFO PRD's ESA Section 7 Mapper for ESA-listed species and critical habitat information for your action area at: https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-species-critical-habitat-information-maps-greater.

The following stressors are applicable to the action:

- ■ Underwater Noise
- ■ Impingement/Entrainment and Entanglement
- ■ Water Quality/Turbidity
- ■ Habitat Alteration
- ☐ Vessel Traffic

Impacts Table

Habitat Alteration		
	Permanent (acres)	Temporary (acres)
Sand (saline)	0.38	0.00
Silt/Mud/Clay (saline)		
Hard bottom (saline)	0.38	0.00
Submerged Aquatic Vegetation (SAV) (saline)		
Sand (freshwater)		
Silt/Mud/Clay (freshwater)		
Hard bottom (freshwater)		
Submerged Aquatic Vegetation (SAV) (freshwater)		
Total amount of habitat alteration	0.38	
In-water Construction Impacts		
	Amount in meters	
Width of water body in action area (m)	180.0	
Stressor category that extends furthest distance into water body (e.g.; underwater noise, turbidity plume)	turbidity	
Maximum extent of stressor into the water body (m)	91.0	

Project Design Criteria (PDC) Checklist

FHWA/DOT shall incorporate all general PDCs and all applicable PDCs in the appropriate stressor categories. For any PDCs that are not incorporated, additional justification is required for a project to be eligible for the NLAA Program. FHWA/DOT shall check the corresponding box for each PDC that is, or will be, incorporated into the project or indicate if not applicable.

GENERAL PDCs			
Yes	N/A	PDC #	PDC Description
☑	☐	1.	Ensure all operators, employees, and contractors are aware of all FHWA environmental commitments, including these PDC, when working in areas where ESA-listed species may be present or in critical habitat.
☑	☐	2.	No portion of the proposed action will individually or cumulatively have an adverse effect on ESA-listed species or critical habitat.
☐	☑	3.	No portion of the proposed action that may affect the GOM DPS of Atlantic salmon will occur in the tidally influenced portion of rivers/streams where their presence is possible from April 10 through November 7. The range of the GOM DPS only occurs in Maine. **Note**: If the project will occur within the geographic range of the GOM DPS Atlantic salmon but their presence is not expected following the best available commercial scientific data, the work window does not need to be applied. Please attach best available information (i.e. local fisheries biologist correspondence).
☐	☑	4.	No portion of the proposed action that may affect shortnose or Atlantic sturgeon will occur in areas identified as spawning grounds as follows: i. Gulf of Maine: Apr 1-Aug 31 ii. Southern New England/New York Bight: Mar 15-Aug 31 iii. Chesapeake Bay: Mar 15-Jul 1 and Sep 15-Nov 1 **Note**: If river specific information exists that provides better or more refined time of year information, those dates may be substituted with NMFS approval.
☐	☑	5.	No portion of the proposed action that may affect shortnose or Atlantic sturgeon will occur in areas identified as overwintering grounds where dense aggregations are known to occur as follows: i. Gulf of Maine: Oct 15-Apr 30 ii. Southern New England/New York Bight: Nov 1-Mar 15 iii. Chesapeake Bay: Nov 1-Mar 15 **Note**: If river specific information exists that provides better or more refined time of year information, those dates may be substituted with NMFS approval.
☐	☑	6.	Within designated critical habitat for Atlantic sturgeon, no work will affect hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand) (PBF 1).
☑	☐	7.	Work will result in no or only temporary/short-term changes in water temperature, water flow, salinity, or dissolved oxygen levels.

Yes	N/A	PDC #	PDC Description
☑	☐	8.	If ESA-listed species are (a) likely to pass through the action area at the time of year when project activities occur; and/or (b) the project will create an obstruction to passage when in-water work is completed, then a zone of passage (~50% of water body) with appropriate habitat for ESA-listed species (e.g., depth, water velocity, etc.) must be maintained (i.e., physical or biological stressors such as turbidity and sound pressure must not create barrier to passage).
☑	☐	9.	The project will not adversely impact any submerged aquatic vegetation (SAV) or oyster reefs.
☑	☐	10.	No blasting or use of explosives will occur.
☑	☐	11.	No in-water work on large dams or tide gates (small dam and tide gate repairs may be permitted with prior review and approval from NMFS).

UNDERWATER NOISE PDCs			
Yes	N/A	PDC #	PDC Description
☐	☑	12.	If pile driving is occurring during a time of year when ESA-listed species may be present, and the anticipated noise is above the behavioral noise threshold, a "soft start" is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. *In addition to using a soft start at the beginning of the work day for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes or longer.* For impact pile driving: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one minute wait period, then two subsequent three-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving. For vibratory pile installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.

Yes	N/A	PDC #	PDC Description
☐	☑	13.	If the project includes non-timber piles*, please attach your calculation to this verification form showing that the noise is below the injury thresholds of ESA-listed species in the action area. The GARFO Acoustic Tool can be used as a source, should you not have other information: https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultation-technical-guidance-greater-atlantic. *Effects from timber and steel sheet piles were analyzed in the NLAA programmatic consultation, so no additional information is necessary.
☑	☐	14.	Any new pile-supported structure must involve the installation of no more than 50 piles (below MHW).

Pile material (e.g., steel pipe, concrete)	Pile diameter/ width (inches)	Number of piles	Installation method (e.g., impact hammer, vibratory start and then impact hammer to depth, drilling)
steel micropiles (bike path	12	20	Drilling
steel micropile (fishing pier)	24	18	Drilling

IMPINGEMENT/ENTRAINMENT AND ENTANGLEMENT PDCs			
Yes	N/A	PDC #	PDC Description
☐	☑	15.	If excavating or dredging, only mechanical buckets, hydraulic cutterheads, or low volume hopper dredges (e.g., CURRITUCK, ≤300 cubic yard maximum bin capacity) may be used. **Note**: We consider excavating a smaller scale form of mechanical dredging.
☐	☑	16.	No new excavation or dredging in Atlantic sturgeon or salmon critical habitat (excavation in a prior construction footprint or maintenance dredging is permitted, but still must meet all other PDCs). New excavation or dredging outside Atlantic sturgeon or salmon critical habitat is limited to one-time events (e.g., burying a cable or utility line) and minor (≤2 acres) expansions of areas already subject to prior excavation or maintenance dredging. Locating a replacement bridge within 250 feet (centerline to centerline) of an existing bridge and excavation of sediment around bridge piers are considered work in a previous construction footprint. **Note**: We consider excavating a smaller scale form of mechanical dredging.

Yes	N/A	PDC #	PDC Description
☐	☑	17.	Temporary intakes related to construction are prohibited in sturgeon and salmon spawning, rearing, or overwintering habitat during the time of year windows identified in General PDCs 3-5. If utilized outside those areas and times of year and in an area with anticipated sturgeon and salmon presence, temporary intakes must be equipped with 2-millimeter wedge wire mesh screening and must not have greater than 0.5 feet per second intake velocities, to prevent impingement or entrainment of juvenile and early life stages of these species.
☐	☑	18.	Work behind cofferdams, turbidity curtains, or other instruments that prevent access of animals to the project area is required when ESA-listed species are likely to be present (if presence is limited to rare, transient individuals, access control measures are not necessary). Once constructed, work inside a cofferdam at any time of year may be permitted with NMFS approval, provided the cofferdam is installed/removed outside the time-restricted period.
☑	☐	19.	No new permanent surface water withdrawal, water intakes, or water diversions.
☑	☐	20.	Turbidity control measures, including cofferdams, must be designed to not entangle or entrap ESA-listed species.
☐	☑	21.	Any in-water lines, ropes, or chains must be made of materials and installed in a manner to minimize or avoid the risk of entanglement by using thick, heavy, and taut lines that do not loop or entangle. Lines can be enclosed in a rigid sleeve.

WATER QUALITY/TURBIDITY PDCs			
Yes	N/A	PDC #	PDC Description
☐	☑	22.	In-water offshore disposal may only occur at designated disposal sites that have already been the subject of ESA section 7 consultation with NMFS and where a valid consultation is in place.
☑	☐	23.	Any temporary discharges must meet state water quality standards (e.g., no discharges of substances in concentrations that may cause acute or chronic adverse reactions, as defined by EPA water quality standards criteria).
☐	☑	24.	Only repair, upgrades, relocations, and improvements of existing discharge pipes or replacement in-kind are allowed; no new construction of untreated discharges.
☑	☐	25.	Work behind cofferdams, turbidity curtains, or other instruments to control turbidity is required when operationally feasible and ESA-listed species are likely to be present (if presence is limited to rare, transient individuals, turbidity control methods are not necessary).

HABITAT ALTERATION PDCs			
Yes	N/A	PDC #	PDC Description
☑	☐	26.	Minimize all new waterward encroachment and permanent fill.
☐	☑	27.	In Atlantic salmon critical habitat, stream simulation design with a minimum span of 1.2 bankfull width will be used in areas with minimal tidal influence. In tidal areas, a design that allows for unimpeded flow will be used (no delay in water entering or exiting the area upstream of the crossing).
☐	☑	28.	In Atlantic salmon critical habitat, no culvert end extensions, invert line culvert rehabilitation, or slipline culvert rehabilitation may occur.

VESSEL TRAFFIC PDCs			
Yes	N/A	PDC #	PDC Description
☐	☑	29.	Maintain project (i.e., construction) vessels operating within the action area to speed limits below 10 knots and dredge vessels to speeds of 4 knots maximum, while dredging.
☐	☑	30.	Maintain a 1,500-foot buffer between project (i.e., construction) vessels and ESA-listed whales and a 300-foot buffer between project vessels and sea turtles. This also applies to dredge vessels.
☐	☑	31.	The number of project (construction) vessels must be limited to the greatest extent possible, as appropriate to size and scale of project.
☐	☑	32.	The project must not result in the permanent net increase of commercial vessels.

Justification for NLAA Determination if not Incorporating All PDC
If the project is not in compliance with all of the general and stressor-based PDCs, but you can provide justification and/or special conditions to demonstrate why the project still meets the NLAA determination and is consistent with the aggregate effects considered in the programmatic consultation, you may still certify your project through the NLAA program using this verification form. Please identify which PDCs your project does not meet (e.g., PDC 9, PDC 15, PDC 22, etc.) and provide your rationale and justification for why the project is still eligible for the verification form. Project modifications must not result in different effects not already considered.

To demonstrate that the project is still NLAA, you must explain why the effects on ESA-listed species or critical habitat are **insignificant** (i.e., too small to be meaningfully measured or detected) or **discountable** (i.e., extremely unlikely to occur). **Please use this language in your justification.**

PDC#	Justification

FHWA/DOT Verification of Determination (To be filled out by FHWA/DOT staff only)
By submitting this Verification Form, FHWA, or the state DOT as FHWA's designated non-federal representative, indicates that they determined that the proposed activity described above is not likely to adversely affect (NLAA) ESA-listed species or designated critical habitat under NMFS jurisdiction in accordance with the Program, and all effects (direct, indirect, interrelated, and interdependent) are either insignificant (so small they cannot meaningfully be measured, detected, or evaluated) or discountable (extremely unlikely to occur).

☑	In accordance with the FHWA GARFO NLAA Program, we have determined that the action complies with all applicable PDCs and is not likely to adversely affect listed species.
☐	In accordance with the FHWA GARFO NLAA Program, we have determined that the action is not likely to adversely affect listed species per the justifications and/or special conditions provided above.

FHWA/DOT Signature:	Date:
Nicole Lineberry Digitally signed by Nicole Lineberry DN: C=US, E=nicole.leporacci@dot.ri.gov, O=RIDOT, OU="Environmental Division ", CN=Nicole Lineberry Reason: I am the author of this document Date: 2024.03.13 10:24:27-04'00'	03/13/2024

By providing your determination and signature, you are certifying that to the best of your knowledge the information provided in this form is accurate and based upon the best available scientific information. This form must be filled out and signed by FHWA or state DOT staff, as an officially designated non-federal representative.

GARFO PRD Concurrence (To be filled out by GARFO PRD)
After receiving the Verification Form, GARFO PRD will contact FHWA/DOT with any concerns and indicate whether GARFO PRD concurs with FHWA/DOT's determination.

☑	In accordance with the FHWA GARFO NLAA Program, GARFO PRD concurs with FHWA/DOT's determination that the action complies with all applicable PDCs and is not likely to adversely affect listed species or critical habitat.
☐	In accordance with the FHWA GARFO NLAA Program, GARFO PRD concurs with FHWA/DOT's determination that the action is not likely to adversely affect listed species or critical habitat per the justifications and/or special conditions provided above.
☐	GARFO PRD does not concur with FHWA/DOT's determination that the action complies with the applicable PDCs (with or without justifications), and recommends an individual Section 7 consultation to be completed independent from the FHWA GARFO NLAA Program.

GARFO PRD Signature:		Date:
MESA GUTIERREZ.ROOSEVELT.ANDRES.1586982881	Digitally signed by MESA GUTIERREZ.ROOSEVELT.ANDRES.1586982881 Date: 2024.03.13 13:41:23 -04'00'	03/13/2024

NATIONAL MARINE FISHERIES SERVICE (NMFS) ENDANGERED SPECIES ACT (ESA)AND ESSENTIAL FISH HABITAT (EFH) PROTECTION

Essential fish habitat consultation under the Federal Highway Administration (FHWA)/NMFS Greater Atlantic Fisheries Office (GARFO) Individual Abbreviated consultation and ESA Section 7 consultation under the FHWA GARFO NLAA Program was completed for the replacement of the Barrington and Warren East Bay bike path bridges over the Barrington and Palmer River. Compliance with the requirements below is necessary to ensure compliance with the consultations:

Ensure all operators, employees, and contractors are aware of all FHWA environmental commitments when working in areas where EFH and ESA-listed species may be present.

Contact the RIDOT Natural Resources Unit (401-479-1327) and **dot.nru@dot.ri.gov** for questions about restrictions or conservation measures.

Time of Year (TOY) Restrictions (Essential Fish Habitat)

Any work that causes greater than minimal turbidity should not be conducted from Feb. 1-June 30, of any year, to protect sensitive life stages of winter flounder.

Pile Driving Restrictions

If pile driving occurs the following is required:

A "soft start" is required to allow animals an opportunity to leave the project vicinity before sound pressure levels increase. In addition to using a soft start at the beginning of the workday for pile driving, one must also be used at any time following cessation of pile driving for a period of 30 minutes or longer.

For impact pile driving: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent three-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.

For vibratory pile installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.

Conservation Measures

Any temporary discharges must meet state water quality standards (e.g., no discharges of substances in concentrations that may cause acute or chronic adverse reactions, as defined by EPA water quality standards criteria).

Prevent construction debris and sediment from entering aquatic areas and remove all construction debris and excess/deteriorated materials and dispose of in an upland area. Ensure that raw concrete does not contact the water; wet pours of concrete must be confined within sealed forms until the concrete is set or pre-cast members installed.

Any in-water lines, ropes, or chains must be made of materials and installed in a manner to minimize or avoid the risk of entanglement by using thick, heavy, and taut lines that do not loop or entangle. Lines can be enclosed in a rigid sleeve.

Return areas impacted by temporary activities, fills, or structures to pre-construction or better condition, including elevations and substrate, and replant with native species.

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NOAA Fisheries GARFO HCD

EFH Consultation

March 15, 2024

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Re: RIDOT - East Bay Bike Path - Barrington and Warren Bridges Project Modification - Appl No. 2019-EH-0221

Sabrina Pereira - NOAA Federal <sabrina.pereira@noaa.gov>
Thu 3/7/2024 4:12 PM

To:Leporacci, Nicole (DOT) <Nicole.Leporacci@dot.ri.gov>
Cc:Scott Hobson <shobson@vhb.com>;Hamilton, Heather (DOT) <Heather.Hamilton@dot.ri.gov>;Schneider, Eric (DEM) <eric.schneider@dem.ri.gov>;Akinfolarin, Hamid (DOT) <Hamid.Akinfolarin@dot.ri.gov>;Pompei, Anthony (DOT) <anthony.pompei@dot.ri.gov>;Padilla, Carlos (FHWA) <carlos.padilla@dot.gov>;D'Alessandro, Michael (FHWA) <michael.dalessandro@dot.gov>;Palumbo, Vincent (DOT) <vincent.palumbo@dot.ri.gov>

This Message Is From an External Sender
This message came from outside your organization.

Report Suspicious

Hi Nicole,

Thank you for sending this information, and again for the meeting a few weeks ago to discuss this project's updates. After reviewing the proposed updates, we have no additional conservation recommendations to provide.

Please let me know if you have any additional questions, and thank you for coordinating with us.

Best wishes,
Sabrina Pereira
Marine Habitat Resource Specialist
Habitat and Ecosystem Services Division
NOAA/ National Marine Fisheries Service
Narragansett, RI
she/her/hers
(978)-675-2178
Sabrina.pereira@noaa.gov

On Thu, Feb 29, 2024 at 1:03 PM Leporacci, Nicole (DOT) <Nicole.Leporacci@dot.ri.gov> wrote:

Good afternoon Sabrina,

The Rhode Island Department of Transportation (RIDOT) submitted an individual abbreviated consultation (Appl No. 2019-EH-0221) for the proposed removal and reconstruction of the East Bay Bike Path Bridges across the Barrington River and Palmer River in Barrington and Warren, RI. Please find attached a narrative explaining the modifications to the construction of the bike path bridges, as discussed at our meeting on February 26th.

Design plans can be found at the link below:
EBBP Bridges - Volume 1 and 2 plan sets with fishing structures [vhb-my.sharepoint.com]

Please let me know if you need any more additional information. Thank you!

Best,
Nicole

Nicole Lineberry (Leporacci)
Senior Environmental Scientist

Natural Resources Unit, RIDOT
E: nicole.leporacci@dot.ri.gov

Re: East Bay Bike Path Bridges - Barrington & Warren, RI

Sabrina Pereira - NOAA Federal <sabrina.pereira@noaa.gov>
Wed 5/10/2023 4:38 PM
To:Johnstone, Erik (DOT) <erik.johnstone@dot.ri.gov>
Cc:Breen, Daniel B CIV USARMY CENAE (US) <Daniel.B.Breen@usace.army.mil>

Hi Erik,

Thanks again for setting up the call today with your team to discuss the design updates to the East Bay bike path bridges project in the Barrington and Palmer Rivers. It was great to hear that the in-water work has been greatly minimized since RIDOT completed the EFH consultation with us last February 2022, and that the creosote piles will be directly pulled and/or cut below the mudline.

Your team noted that most of the in-water work in the Barrington River will be constructing a single, central pier (as opposed to the 2 piers that were previously proposed). The work will include pile drilling (not vibratory driving) 10 micropiles that will be capped with concrete. The piles will be installed from a spudded barge, and the bridge spans will be placed from the shoreline.

In the Palmer River, some of the changes to the project include: installing supplemental riprap around the bridge abutments that will encroach slightly beyond the existing riprap footprint, and impacts to wetlands due to temporary excavation and permanent fill. Your team mentioned that RIDOT is proposing wetland restoration as mitigation for the permanent fill, and 3 years of wetland vegetation monitoring post-implementation.

Based on the information provided during today's call, it seems like the in-water work you described would cause minimal turbidity and could therefore be conducted during the winter flounder and diadromous time of year restrictions that we previously recommended in our consultation last year. Since there will be ample migratory corridor for any potential diadromous fish passage during in-water construction, I would amend our conservation recommendation 2 to the following:

CR 2: Any work that causes greater than minimal turbidity should not be conducted from Feb. 1-June 30, of any year, to protect sensitive life stages of winter flounder.

I still recommend CR 3 (soft start to pile-driving activities) just in case the contractors have to use vibratory pile driving methods instead of the currently proposed pile drilling.

I hope this helps clarify our thoughts on the currently proposed project, but please let me know if you have any additional questions or needs. If other significant changes are proposed for the project going forward, please reach out to us for discussion or to reinitiate EFH consultation.

Thank you again for coordinating with us.

Sabrina Pereira
Marine Resources Management Specialist
Habitat and Ecosystem Services Division
NOAA/ National Marine Fisheries Service
Gloucester, MA

Pronouns: she/her/hers
(978)-675-2178
Sabrina.pereira@noaa.gov

On Mon, May 1, 2023 at 10:47 AM Johnstone, Erik (DOT) <erik.johnstone@dot.ri.gov> wrote:

> Hello again!
>
> Thank you for your quick reply. I am checking in with Eric Schneider and VHB to nail down a time. I'll let you know as soon as I hear back.
>
> Thanks again!
>
> Erik A. Johnstone
> Principal Environmental Scientist
> Natural Resources Unit

From: Sabrina Pereira - NOAA Federal <sabrina.pereira@noaa.gov>
Sent: Monday, May 1, 2023 9:54 AM
To: Johnstone, Erik (DOT) <erik.johnstone@dot.ri.gov>
Subject: Re: East Bay Bike Path Bridges - Barrington & Warren, RI

Hi Erik,

Thanks for reaching out. This week I am traveling for work and therefore unavailable from 5/1 through 5/5. I have availability from 12-1 on 5/8, from 10-2 on 5/9, and 1:30-3 on 5/10. From 5/11 - 5/26 I will be away on leave.

Please let me know what works best for you and your team.

Best wishes,
Sabrina Pereira
Marine Resources Management Specialist
Habitat and Ecosystem Services Division
NOAA/ National Marine Fisheries Service
Gloucester, MA
Pronouns: she/her/hers
(978)-675-2178
Sabrina.pereira@noaa.gov

On Mon, May 1, 2023 at 9:04 AM Johnstone, Erik (DOT) <erik.johnstone@dot.ri.gov> wrote:

> Hi Sabrina:
>
> I hope that this note finds you well. I'm reaching out again regarding the East Bay Bike Path bridges in Barrington and Warren, RI. The design and permitting have been advancing, and our selected Design/Build Entity has been designing the bridges and reviewing riverbed conditions with an eye for further reducing in-water impacts and minimizing turbidity. Together, RIDOT and our D-B Entity have been coordinating with Eric Schneider of RIDEM's Marine Fisheri[illegible] discuss the required in-water work activities and explore the possibility of conduct[illegible]

the TOYRs. Our recent PCN application filings with the Army Corps have introduced that possibility, and we have requested relief from the Corps' TOYRs.

We would like to respectfully request another consultation meeting with you to present the updated project designs and discuss the proposed work activities with respect to fisheries protection. The meeting would reflect that only one bridge pier is now required for each bridge and that much of the work will occur within the intertidal zones and within riverbed areas exhibiting coarse bottom substrates. We expect that meeting attendees would include Eric, design and permitting representatives of the D-B Entity, myself, and other RIDOT representatives.

Eric Schneider has indicated that the timeframes of May 1 - 5 and 10-12 would work best with his schedule. Please feel free to provide meeting dates and times that would work best for you.

Thank you once again.

Erik

Erik A. Johnstone

Principal Environmental Scientist

Natural Resources Unit

Rhode Island Department of Transportation

Federal Interagency Comment Form

Date: 02/18/2022
Project: East Bay Bike Path Bridge Replacements (Barrington and Warren, RI)
Appl No.: 2019-EH-0221
Commenting Agency: NOAA/NMFS/GARFO/HCD
Action Agency Project Manager: Nicole Lineberry, RIDOT
Waterway: Barrington River (Barrington bridge) and Palmer River (Warren bridge) in Rhode Island.

Activity: Replacing 2 bridges on the East Bay Bike Path. There will be 1,702 SF of impacts at the Barrington bridge location, and 1,516 SF of impacts at the Warren bridge location. The existing bridges will be completely demolished and removed, with use of a S-50 series Quadrafloat work barge with spuds or similar. Existing timber supports will be cut off two feet below the mud line and removed since they were previously treated with creosote. The new bridges will approximate the same deck dimensions (300 ft long) but will be supported by only two intermediate sets of stainless steel micropiles, both set 100 feet from each bank, allowing three horizontal clearance gaps of 100 feet each.

ESSENTIAL FISH HABITAT (EFH)

Project may adversely affect EFH. Areas are designated EFH for 16 federally managed species, including winter flounder, and HAPC for summer flounder and juvenile cod. There is no SAV or substantial macroalgae present at either project site.

ESSENTIAL FISH HABITAT CONSERVATION RECOMMENDATIONS: (Note: EFH CRs require a response from the federal action agency within 30 days of receipt or 10 days before a permit is issued if CRs are not included as a special condition of the permit. In addition, a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920 (j) if new information becomes available, or if the project is revised in such a manner that affects the basis for the above EFH determination or EFH conservation recommendations.)

1. Creosote-treated piles should be cut 2 feet below the mudline if they cannot be removed.
2. No in water work should occur from February 2 – June 30 to protect sensitive winter flounder life stages, and migrating diadromous fish.
3. Use a soft start each day of pile driving, after a break of 30 minutes or more, and if any increase in pile installation or removal intensity is required. Build up power slowly from a low energy start-up over a 20-minute period to warn fish to leave the vicinity. This buildup shall occur in uniform stages to provide a constant increase in output.

FISH AND WILDLIFE COORDINATION ACT COMMENTS

ENDANGERED SPECIES

Threatened or endangered species under the jurisdiction of NMFS may be present in the project area. The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NMFS, Greater Atlantic Regional Fisheries Office, Protected Resources Division, 55 Great Republic Drive, Gloucester, MA 01930 or nmfs.gar.esa.section7@noaa.gov. If you have any questions regarding these comments, please contact Roosevelt Mesa at Roosevelt.Mesa@noaa.gov.

OTHER:

Provide a copy of the permit when issued.

Prepared by: _Sabrina Pereira_____ **date:** __02/18/2022_____

February 7, 2024

Ref: 73305.01

Mr. Jeffrey Willis, Executive Director
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: **Design Modifications – Fishing Accommodations and Riprap Scour Protection at Center Piers**
RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction
Barrington River Bridge (RIDOT Bridge No. 083751) and
Palmer River Bridge (RIDOT Bridge No. 083851), Barrington and Warren, RI
PTSID No. 0881A
CRMC Application No. 2023-04-094

Dear Mr. Willis:

The Rhode Island Department of Transportation (RIDOT) submitted a Category B Assent Application on April 19, 2023 for proposed reconstruction of the East Bay Bike Path Bridges across the Barrington and Palmer Rivers in Barrington and Warren (the Project). A public hearing for the Project was held before the full Council on October 24, 2023, at which time the Council requested that public fishing accommodations be incorporated into the Project design. Additionally, final design calculations have been conducted relative to the single, central pier of each bridge, and RIDOT finds it prudent to propose riprap scour protection at both piers. The Project drawings submitted initially with the Category B application proposed scour protection at each bridge abutment but did not include it at the center piers.

Fishing Accommodations

In accordance with the Council's request, RIDOT has analyzed alternatives for providing fishing accommodations at each bridge location, including widening of the proposed Bike Path bridges. The Applicant's design team strove to minimize the extent of fills proposed in tidal waters in the initial plan submission – using measures such as permanent retaining walls, lowered abutment and wall footing elevations, narrowed temporary bridge launching pads, and temporary construction walls. Additional widening would require a substantial volume of additional fills in tidal waters, particularly given the increased bridge heights, and would introduce fills to coastal wetlands previously avoided. The added weight and width of widened bridges would jeopardize the ability to implement the launching alternative that has been designed specifically to avoid conflict with overhead electric and communication wires and poles. The added weight of a widened bridge would necessitate an additional pier support in the river, and preliminary cost estimates to widen the bridges would far exceed the available project budget. In light of these considerations and constraints, RIDOT is proposing independent public fishing structures that would not jeopardize the bridge designs and loadings. RIDOT anticipates that each fishing structure would provide casting reach to the deepest waters within each channel and would enable fishing in both tide swings.

Barrington River Fishing Accommodation:

A new pile-supported, timber fishing pier is proposed on the east side of the Barrington River, north of, and parallel with, the proposed bridge. The elevation of its proposed terminal deck is set lower than the proposed bike path, yet above the 100-year flood elevation, and its accessway way will transition from the Bike Path pavement to the terminal deck at an accessible grade. Structural support for the fishing pier will be accomplished with drilled and socketed steel pipe piles. Consideration was given to driven piles, but drilling was deemed more effective due to the presence of shallow bedrock, and the potential for concussive implications to marine life will be avoided.

Palmer River Fishing Accommodation:

The temporary bulkhead installed to accommodate construction barge loading and offloading on the west shoreline of the Palmer River has been identified by RIDOT as an appropriate accommodation for public fishing, and RIDOT has observed persons fishing from the structure. RIDOT proposes to retain and improve the temporary bulkhead to serve as a permanent public fixture. The bulkhead was designed, permitted, and installed with no

impact to coastal wetlands or to other special aquatic sites. An accessible paved walkway will be constructed to the bulkhead terminus, and a concrete cap and timber railing will be installed along the top of the sheet piling. Additional riprap armor is proposed along the walkway's north side to provide long term erosion protection and to accommodate a slightly heightened surface elevation, and protective riprap will be installed along the sheet piling face. The land area between the fishing walkway and Bike Path will be regraded, loamed, and seeded and will incorporate a subtle, shallow swale graded to drain east. The initial restoration landscape planting plan has been modified for the area between the two paths, using the same native woody species proposed previously.

Riprap Scour Protection at Bridge Piers

Final design calculations of local riverbed scour and of excessively large storm events indicate that scour protection is warranted to prevent undue deflection in the piles comprising the center pier at each bridge location. Calculations indicate that protective riprap should be installed at a minimum depth of six feet for a minimum distance of eight feet from each pile, forming a level shelf. The footprint and volume of stone required, in consideration of the topographical characteristics of each river, are reflected on the Project drawings and summarized in attached Tables 4-1 and 4-2. Riprap is proposed as R-8, or D-50, with 24-inch minimum diameter, based on engineering calculations (see pages 6 and 7 of the attached riprap sizing calculations stamped by a RI-registered professional engineer). A base layer of sand filled geotextile containers is proposed to be placed on the riverbed to stabilize the scour footprint around the piles. Riprap is specified to be installed on top of the geotextile containers through a combination of dumping and careful placement to ensure that the pile casings and geotextile containers are not damaged. Given its mounded configuration above the riverbed surface, the stone may serve an underwater benefit for marine life, potentially providing refuge and down-current protection from strong tides.

Please find enclosed four copies of the following materials: this transmittal letter, revised Project plan sets for Volumes 1 and 2, stamped riprap sizing calculations, and revised Tables 4-1 and 4-2 identifying updated areas and volumes for the Project's proposed fills in tidal waters. Plans, profiles, and cross sections related to the fishing structures and bridge pier riprap have been outlined with revision clouds on the revised Project plans for ease of identification. Please note that RIDOT will provide the same information to the RI Department of Environmental Management for the State Water Quality Certification applications currently under review and is additionally coordinating with the US Army Corps of Engineers.

Thank you, and please feel free to contact either Ms. Alisa Diaz Richardson of RIDOT at (401) 479-1327 or Alisa.Richardson@dot.ri.gov, or me at (401) 457-7824 or shobson@vhb.com, if you have any questions or require additional information.

Sincerely,

Scott S. Hobson, PWS
Senior Ecologist

cc: Alisa Diaz Richardson, MS, PE, PMP, RIDOT
Hamid Akinfolarin, Project Manager I, RIDOT
Andrew F. Prezioso, PE, VHB
Andres Aveledo, Project Manager, Aetna Bridge

Riprap Sizing Worksheet

Project:	EBBP - Barrington & Palmer River Crossings	Project #	73305.01
Location:	Barrington and Warren, RI	Sheet	1
Calculated by:	DWC	Date:	4/4/2023
Checked by:	AP	Date:	4/5/2023
Title:	Bridge 083751 and 083851: Riprap Sizing at Abutments, Inputs and Assumptions		

Calculation Goal: Calculate appropriate riprap stone sizing for scour and wave protection at bridge abutments

Assumptions and Sources:

Hydraulic input data from 2014 Design Study Report (DSR) for Bridges No. 083701 and 083801, October 2014
HEC-RAS hydraulic model results from 2014 NorthStar Hydro model prepared for 2014 DSR
All elevations are referenced to NGVD29, matching Design Study Report and HEC-RAS model
Storm surge and wave data from National Flood Insurance Program (NFIP) Flood Insurance Study (FIS), Bristol County, Rhode Island (FIS No. 44001CV000B), Effective Date July 7, 2014
Riprap design guidance from Federal Highway Administration (FHWA) Hydraulic Engineering Circular (HEC) 23, Bridge Scour and Stream Instability Countermeasures: Experience, Detection and Design, September 2009:
Design Guide 14: Rock Riprap at Bridge Abutments
Design Guide 17: Riprap Design for Wave Attack
Riprap sized for coastal storm surge 1% annual exceedance probability (1% AEP, a.k.a. "100-year") event
DSR provides peak flood elevations and peak flood velocities in summary tables; however, these conditions do not occur simultaneously. Therefore, riprap calculations use values directly from HEC-RAS hydraulic model outputs.
Due to constantly varying water surface elevation, velocity, and flow rates during coastal storm surge events, riprap sized for hydraulic conditions at the time of peak flow through the crossings from HEC-RAS hydraulic model
Peak flow occurs between HEC-RAS hydraulic model time Jan 2 15:00 and 15:30; average values used for this period
Peak flow is negative, indicating flood storm surge travelling upstream; therefore HEC-RAS hydraulic model data at the south ("downstream") fascia of bridge structures used for riprap design.
Riprap sizing recommendations are based on RIDOT Standard Specifications "Blue Book," Section M10 (2022 Edition)

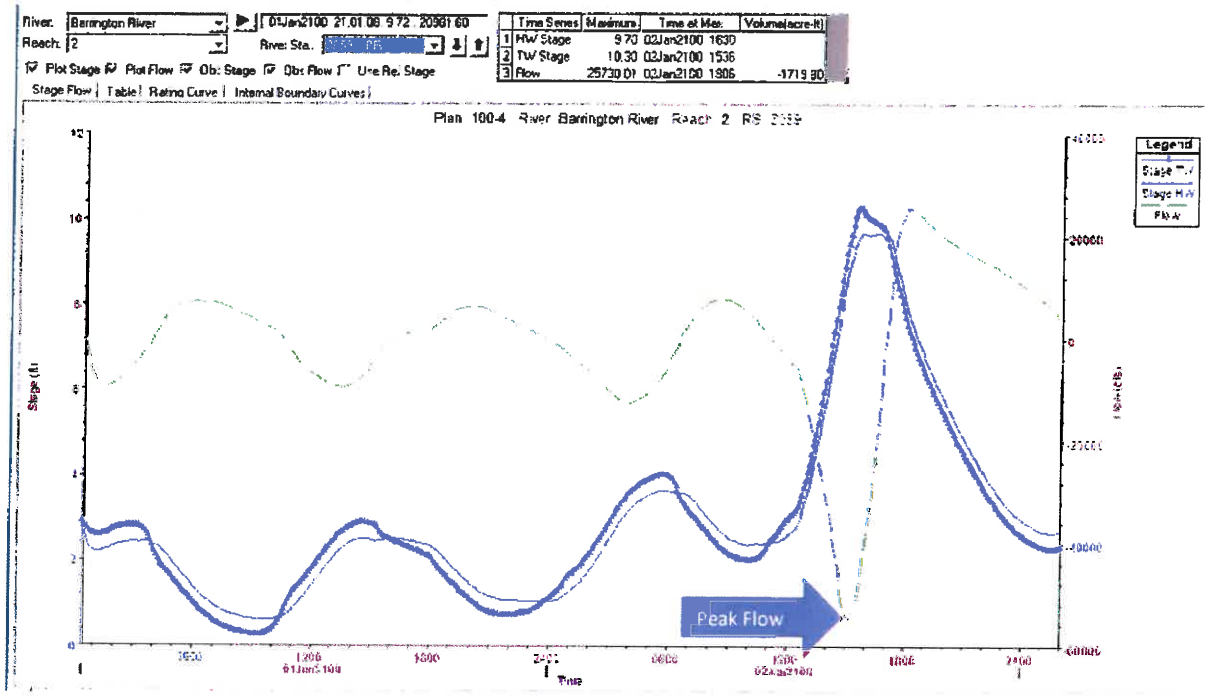
6/14/2023

DAVID WILLIAM CLOUTIER
No. 12531
REGISTERED PROFESSIONAL ENGINEER
(CIVIL)

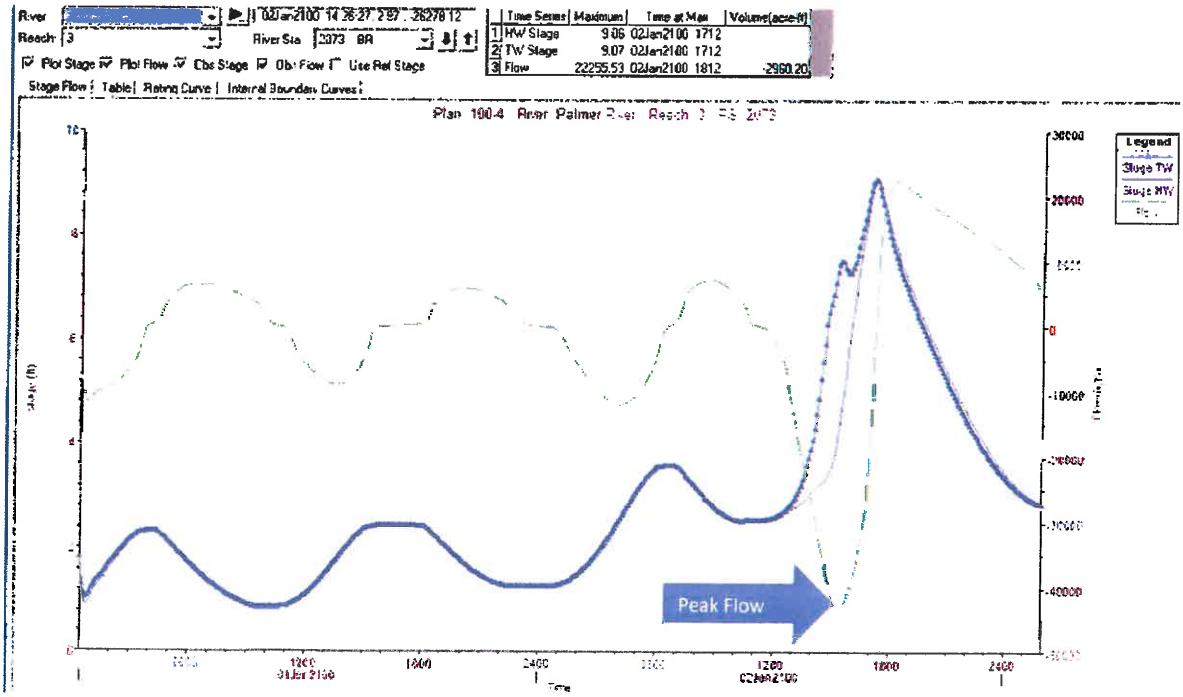
RECEIVED
FEB 07 2024
COASTAL RESOURCES MANAGEMENT COUNCIL

Appendix S:
Riprap Sizing Calculations

HEC-RAS Model Results: Barrington River (Bridge 083751)



HEC-RAS Model Results: Palmer River (Bridge 083851)



HEC-RAS Model: Detailed Results

River: Barrington River Reach: 2 River Sta: 3059 BR

Plot Stage ☑ Plot Flow ☑ Obs Stage ☑ Obs Flow ☐ Use Ref Stage

Stage Flow Table | Rating Curve | Internal Boundary Curves |

	Date	Stage HW INST-VAL FEET	Stage TW INST-VAL FEET	Flow INST-VAL CFS
383	02Jan2100 1442	7.75	8.29	-46817.91
384	02Jan2100 1448	8.04	8.59	-49139.24
385	02Jan2100 1454	8.34	8.91	-51519.87
386	02Jan2100 1500	8.64	9.22	-53801.88
387	02Jan2100 1506	8.88	9.46	-54476.35
388	02Jan2100 1512	9.07	9.67	-54279.41
389	02Jan2100 1518	9.22	9.90	-53753.99
390	02Jan2100 1524	9.36	10.09	-53285.05
391	02Jan2100 1530	9.49	10.25	-52792.15
392	02Jan2100 1536	9.63	10.30	-51148.86
393	02Jan2100 1542	9.69	10.27	-48646.84
394	02Jan2100 1548	9.69	10.21	-45649.23

River: Palmer River Reach: 3 River Sta.: 2073 BR

Plot Stage ☑ Plot Flow ☑ Obs Stage ☑ Obs Flow ☐ Use Ref

Stage Flow Table | Rating Curve | Internal Boundary Curves |

	Date	Stage HW INST-VAL FEET	Stage TW INST-VAL FEET	Flow INST-VAL CFS
387	02Jan2100 1506	3.62	6.85	-42141.46
388	02Jan2100 1512	3.81	7.07	-42656.00
389	02Jan2100 1518	4.03	7.27	-43027.79
390	02Jan2100 1524	4.27	7.43	-43169.69
391	02Jan2100 1530	4.52	7.48	-43289.60
392	02Jan2100 1536	4.81	7.48	-43093.47
393	02Jan2100 1542	5.15	7.37	-42588.91
394	02Jan2100 1548	5.47	7.31	-42154.32
395	02Jan2100 1554	5.79	7.27	-41464.54
396	02Jan2100 1600	6.13	7.27	-40536.88

River	River Sta	Profile	W.S. Elev. (ft)	Q Total (cfs)	Area (sq ft)	Vel. Total (ft/s)	Hydr. Depth (ft)	Froude #
Barrington River	3021	02JAN2100 1500	9.22	-53801.8	10157.51	-7.84	22.43	0.31
Barrington River	3021	02JAN2100 1506	9.46	-54476.3	10326.18	-7.86	22.66	0.3
Barrington River	3021	02JAN2100 1512	9.67	-54279.4	10482.29	-7.76	22.87	0.3
Barrington River	3021	02JAN2100 1518	9.9	-53753.9	10647.92	-7.6	23.1	0.29
Barrington River	3021	02JAN2100 1524	10.09	-53285	10789.72	-5.26	17.08	0.28
Barrington River	3021	02JAN2100 1530	10.25	-52792.1	10906.09	-5.16	17.2	0.28
USE AVERAGE FOR SCOUR CALCULATION:			9.8	53731.4	10551.6	6.9	20.9	0.29
Palmer River	2060	02JAN2100 1500	6.67	-40888.3	3508.58	-11.65	12.85	0.57
Palmer River	2060	02JAN2100 1506	6.85	-42141.4	3556.31	-11.85	12.98	0.58
Palmer River	2060	02JAN2100 1512	7.07	-42656	3616.76	-11.79	13.15	0.57
Palmer River	2060	02JAN2100 1518	7.27	-43027.7	3672.97	-11.72	13.36	0.56
Palmer River	2060	02JAN2100 1524	7.43	-43169.6	3715.74	-11.62	13.51	0.56
Palmer River	2060	02JAN2100 1530	7.48	-43289.6	3731.41	-11.6	13.57	0.56
USE AVERAGE FOR SCOUR CALCULATION:			7.1	42528.8	3633.6	11.7	13.2	0.57

Riprap Sizing Worksheet

Project:	EBBP - Barrington & Palmer River Cros	Project #	73305.01
Location:	Barrington and Warren, RI	Sheet	2
Calculated by	DWC	Date:	4/4/2023
Checked by:	AP	Date:	4/5/2023
Title:	Bridge 083751 and 083851: Riprap Sizing at Abutments, HEC-23 DG 14		

Notes:

1) Calculations based on methodology outlined in HEC-23 3rd Edition (FHWA-NHI-09-112, 2009), Design Guide 14
2) Scour Countermeasure Design Storm = 100 year (coastal storm surge)
3) Hydraulic inputs from HEC-RAS model provided by RIDOT from 2014 Bridge Design Study Report

A) Determine Set-Back Ratio (SBR)

Bridge No.	83751	83851	
River	Barrington River	Palmer River	
Setback Length	0	0	ft
Avg. Chan. Flow Depth	20.89	13.24	ft
SBR	0	0	

SBR < 5: V based on entire contracted area through bridge

B) Determine Minimum Riprap Size At Abutments (Eq. 14.1 or 14.2)

For Fr <0.80: (Eq 14.1)

$$\frac{D_{50}}{y} = \frac{K}{(S_s - 1)}\left[\frac{V^2}{gy}\right]$$

For Fr >=0.80: (Eq 14.2)

$$\frac{D_{50}}{y} = \frac{K}{(S_s - 1)}\left[\frac{V^2}{gy}\right]^{0.14}$$

where:

D_{50} = median stone diameter, ft (m)
V = characteristic average velocity in the contracted section (explained below), ft/s (m/s)
S_s = specific gravity of rock riprap
g = gravitational acceleration, 32.2 ft/s² (9.81 m/s²)
y = depth of flow in the contracted bridge opening, ft (m)
K = 0.89 for a spill-through abutment
1.02 for a vertical wall abutment

Q	53,731.42	42,528.77	cfs	Flow Through Bridge Opening
A	10,551.62	3,633.63	sf	Contracted Flow Area At Bridge
V	6.91	11.71	ft/s	Average Flow Velocity At Bridge
S_g	2.65	2.65	pcf	Specific Gravity of Rip Rap
g	32.20	32.20	ft/s2	Gravitational Acceleration
y	20.89	13.24	ft	Average Channel Depth At Bridge
K	0.89	0.89	ft	Spill-Through Abutment, Fr<.80
Fr	0.29	0.57		Froude Number

D_{50}	0.8	2.3	median stone diameter, ft
D_{50}	**9.6**	**27.5**	median stone diameter, inches

Note: For Palmer River, R-7 size riprap acceptable due to documented stability of existing riprap in light of major storm history and D_{100} size greater than calculated required riprap size for stability.

C) Determine Recommended Riprap Extents

Flow Depth	20.89	13.24	ft	
Extent from Toe	25	25	ft	Note: if existing riprap is in place, stop before 25-ft extent
Extent Downstream	25	25	ft	

RECOMMENDATION: USE R-7 SIZE RIPRAP (D_{50}=18", D_{100}=34") AT BOTH LOCATIONS

Recommended D_{50}	1.5	1.5	ft
Minimum Riprap Thickness	3.0	3.0	ft

Coastal Scour Countermeasures Sizing Worksheet

RIPRAP REVETMENT SIZING				
	Project:	EBBP - Barrington & Palmer River Crossi	Project #	73305.01
	Location:	Barrington and Warren, RI	Sheet	3
	Calculated by:	DWC	Date:	4/4/2023
	Checked by:	AP	Date:	4/5/2023
	Title:	Bridge 083751 and 083851: Riprap Sizing for Wave Attack, HEC-23 DG 17		

Notes:

1) Calculations based on methodology outlined in HEC-23 3rd Edition (FHWA-NHI-09-112, 2009), Design Guide 17
2) Scour Countermeasure Design Storm = 100 year (coastal storm surge)
3) Hydraulic inputs from 2014 National Flood Insurance Program (NFIP) Flood Insurance Study (FIS)

Assumptions:

1. *Use Hudson's Equation for riprap size (HEC-23 Eqn 17.8)*
2. *Assume specific gravity of stone S_r=2.65, unit weight of stone w=165 lb./ft^3, and empirical coefficient K_d=2.2*
3. *Assume design wave heights from FEMA FIS Coastal Transects 9/10: H=2.0 ft*
4. *Assume 1.5:1 riprap slope (θ = 33.7°)*

TABLE 4 - TRANSECT DESCRIPTIONS

TRANSECT	LOCATION	ELEVATION (feet NAVD88[3]) 1-PERCENT-ANNUAL-CHANCE STILLWATER[1]	ELEVATION (feet NAVD88[3]) MAXIMUM 1-PERCENT-ANNUAL-CHANCE WAVE CREST[2]
9	The transect is located at the intersection of Union Street and Bowen Street, extending north towards the Palmer River.	11.6	13.6
10	The transect is located at the intersection of State Street and Joyce Street extending southwest towards the Warren River.	11.4	13.4

$$W_{50} = \frac{\gamma_r H^3 (\tan\theta)}{K_d (S_r - S_w)^3} \qquad (17.8)$$

where:

W_{50} = Weight of the median riprap particle size, lb (kg)
γ_r = Unit weight of riprap, lb/ft^3 (kg/m^3)
H = Design wave height, ft (m)
(Note: Minimum recommended value for use with the Hudson equation is the 10 percent wave, $H_{0.10} = 1.27H_s$)
K_d = Empirical coefficient equal to 2.2 for riprap
S_r = Specific gravity of riprap
S_w = Specific gravity of water
(1.0 for fresh water, 1.03 for seawater)
θ = Angle of slope inclination

	H (ft)	θ (deg)	tan θ	W_{50} (lbs.)	D_{50} (in)
Barrington River	2.0	33.7	0.67	246.8	17.0
Palmer River	2.0	33.7	0.67	246.8	17.0

RECOMMENDATION: USE R-7 SIZE RIPRAP (D_{50}=18", D_{100}=34") AT BOTH LOCATIONS

Recommended D_{50}	1.5	1.5	ft
Minimum Riprap Thickness	3.0	3.0	ft

Riprap Sizing Worksheet

Project:	EBBP - Barrington & Palmer River Cros	Project #	73305.01
Location:	Barrington and Warren, RI	Sheet	4
Calculated by	DWC	Date:	6/14/2023
Checked by:	NDR	Date:	6/14/2023
Title:	Bridge 083751 and 083851: Riprap Sizing at Bridge Piers, HEC-23 DG 11		

Notes:

1) Calculations based on methodology outlined in HEC-23 3rd Edition (FHWA-NHI-09-112, 2009), Design Guide 11
2) Scour Countermeasure Design Storm = 100 year (coastal storm surge)
3) Hydraulic inputs from HEC-RAS model provided by RIDOT from 2014 Bridge Design Study Report

A) Determine Design Velocity at Pier, V_{des} (Eqns. 11.2 and 11.3)

$$V_{des} = K_1 K_2 V_{avg} \quad (11.2)$$

$$V_{des} = K_1 V_{max} \quad (11.3)$$

where:
- V_{des} = Local velocity at pier, ft/s (m/s)
- K_1 = Shape factor equal to 1.5 for round-nose piers or 1.7 for square-faced piers
- K_2 = Velocity adjustment factor for location in the channel (ranges from 0.9 for a pier near the bank in a straight reach, to 1.7 for a pier located in the main current of flow around a sharp bend)
- V_{avg} = Channel average velocity at the bridge, ft/s (m/s)
- V_{max} = Maximum velocity in the active channel, ft/s (m/s)

Bridge No.	83751 Barrington River	83851 Palmer River		
V_{avg}	6.91	11.71	ft/s	Average Flow Velocity through bridge (from HEC-RAS model)
K_1	1.5	1.5		Round-Nose Pier, use 1.5
K_2	1.00	1.00		Straight, wide, uniform channel - use 1.0
V_{des}	10.37	17.56		Design flow

B) Determine Minimum Riprap Size At Pier (Eq. 11.1)

$$d_{50} = \frac{0.692(V_{des})^2}{(S_g - 1)2g} \quad (11.1)$$

where:
- d_{50} = Particle size for which 50% is finer by weight, ft (m)
- V_{des} = Design velocity for local conditions at the pier, ft/s (m/s)
- S_g = Specific gravity of riprap (usually taken as 2.65)
- g = Acceleration due to gravity, 32.2 ft/s^2 (9.81 m/s^2)

Bridge No.	83751 Barrington River	83851 Palmer River		
V_{des}	10.37	17.56	cfs	Design flow (calculated above)
S_g	2.65	2.65	pcf	Specific Gravity of Rip Rap
g	32.20	32.20	ft/s2	Gravitational Acceleration

D_{50}	0.7	2.0	median stone diameter, ft
D_{50}	8.4	24.1	median stone diameter, inches

Note: For Barrington River, use R-6 (13") size riprap; for Palmer River, use R-8 (24") size riprap. May use R-8 (24") size riprap at both bridges if desired.

C) Determine Recommended Riprap Extents

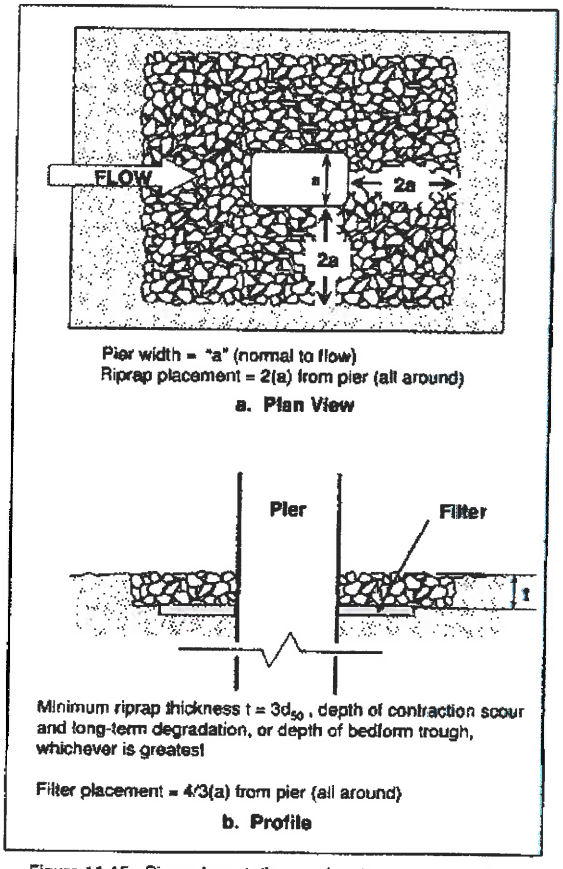
Pier Diameter	3.00	3.00	ft	Combined pile group (2x 18") pier diameter
Minimum Extent from Piers	6	6	ft	Minimum distance to extend from pier piles

RECOMMENDATION: USE R-6 SIZE RIPRAP (D_{50}=13") OR LARGER AT BARRINGTON RIVER, R-8 (D_{50}=24") AT PALMER RIVER

Recommended D_{50}	1.1	2.0	ft	
Minimum Riprap Thickness	6.0	6.0	ft	3x D50 or predicted contraction scour, whichever is greater
Extent From Piles	6	6	ft	Extend beyond predicted scour hole extent (±5 ft)

Graded Riprap Stone

National Stone Association Modified NSA No	Size (inches) (square openings)		
	100% Passing	0 - 50% Passing	0 - 15% Passing
R-1	2	1	No. 4
R-2	4	2	1
R-3	8	4	2
R-4	14	7	4
R-5	20	10	6
R-6	26	13	8
R-7	34	18	14
R-8	50	24	18



Pier width = "a" (normal to flow)
Riprap placement = 2(a) from pier (all around)

a. Plan View

Minimum riprap thickness t = $3d_{50}$, depth of contraction scour and long-term degradation, or depth of bedform trough, whichever is greatest

Filter placement = 4/3(a) from pier (all around)

b. Profile

Figure 11.15. Riprap layout diagram for pier scour protection.

4.9 Summary of Project Effects in Tidal Waters and Coastal Wetlands

Below are tables provided with the initial application filings for the reconstruction of both Bike Path bridges, accompanied by the same tables revised specific to the proposed fishing accommodations and bridge pier riprap at the Barrington and Palmer Rivers. **Table 4-1** pertains to proposed fills below the high tide line (HTL) under Section 404 of the Clean Water Act, and **Table 4-2** pertains to proposed fills below mean high tide (MHT) under State Water Quality regulations and Section 10 of the Rivers and Harbors Act. **Table 4-3**, pertaining to Project effects in coastal wetlands, has not changed.

Table 4-1 (Original – April 19, 2023)

Summary of Project Effects in Tidal Waters of the Barrington and Palmer Rivers Under Section 404 (for Demolition and Reconstruction)

Location	Purpose	Temporary Fill Area* (sf)	Temporary Fill Volume * (cy)	Permanent Fill (sf)	Permanent Fill (cy)	Obstruction Removal† (sf)
Bridge Demolition (Applied for Under Previous Category A Stage of Applications)						
Barrington River	Temporary Bulkhead Installation	±583	±96	0	0	--
Barrington River	Bridge Pile Removal	0	0	0	0	±1,662
Palmer River	Temporary Bulkhead Installation	±2,858	±451	0	0	--
Palmer River	Bridge Pile Removal	0	0	0	0	±1,420
Bridge Reconstruction (Current Stage of Applications)						
Barrington River	Riprap Scour Protection (at both abutments) and shoreline stabilization at east approach	0	0	±3,877	±372	--
Palmer River	Riprap Scour Protection (at both abutments)	0	0	±3,491	±263	--
Project Totals		±3,441	±547	±7,368	±635	±3,082

* Calculated from the highest astronomical tide (HAT), listed by NOAA as elevation 3.78 from tide data obtained at the Providence buoy (Station 8454000), using NAVD88 datum. HAT = Section 404 HTL.

† Figures obtained from the Categorical Exclusion Narrative prepared by Others, signed by FHWA on October 24, 2022.

Table 4-1 (Revised – February 1, 2024)

Summary of Project Effects in Tidal Waters of the Barrington and Palmer Rivers Under Section 404 (for Bridge Reconstruction)

Location	Purpose	Temporary Fill Area* (sf)	Temporary Fill Volume * (cy)	Permanent Fill (sf)	Permanent Fill (cy)	Obstruction Removal (sf)
Bridge Reconstruction						
Barrington River	Riprap Scour Protection (at both abutments) and shoreline stabilization at east approach	0	0	±3,877	±372	--
Barrington River	Bridge Pier Riprap	0	0	±4,080	±478	--
Palmer River	Riprap Scour Protection (at both abutments)	0	0	±3,491	±263	--
Palmer River	Bridge Pier Riprap	0	0	±1,522	±220	--
Palmer River	Retention and Modification of Bulkhead for Fishing	0	0	±4,487	±750	--
Project Totals		**0**	**0**	**±17,457**	**±2,083**	--

* Calculated from the highest astronomical tide (HAT), listed by NOAA as elevation 3.78 from tide data obtained at the Providence buoy (Station 8454000), using NAVD88 datum. HAT = Section 404 HTL.

Table 4-2 (Original – April 19, 2023)

Summary of Project Effects in Tidal Waters of the Barrington and Palmer Rivers – for State Water Quality Certification and Section 10 (for Demolition and Reconstruction)

Location	Purpose	Temporary Fill Area* (sf)	Temporary Fill Volume * (cy)	Permanent Fill (sf)	Permanent Fill (cy)	Obstruction Removal† (sf)
Bridge Demolition (Applied for Under Previous Category A Stage of Applications)						
Barrington River	Temporary Bulkhead Installation	±454	±89	0	0	--
Barrington River	Bridge Pile Removal	0	0	0	0	±1,662
Palmer River	Temporary Bulkhead Installation	±2,391	±402	0	0	--
Palmer River	Bridge Pile Removal	0	0	0	0	±1,420
Bridge Reconstruction (Current Stage of Applications)						
Barrington River	Riprap Scour Protection (at both abutments) and shoreline stabilization at east approach	0	0	±3,403	±320	--
Palmer River	Riprap Scour Protection (at both abutments)	0	0	±2,098	±189	--
Project Totals		±2,845	±491	±5,501	±509	±3,082

* Calculated from mean high water (MHW), listed by NOAA as elevation 2.12 from tide data obtained at the Providence buoy (Station 8454000), using NAVD88 datum. MHW = Section 10 MHT.

† Figures obtained from the Categorical Exclusion Narrative prepared by Others, signed by FHWA on October 24, 2022.

Table 4-2 (Revised – February 1, 2024)

Summary of Project Effects in Tidal Waters of the Barrington and Palmer Rivers – for State Water Quality Certification and Section 10 (for Bridge Reconstruction)

Location	Purpose	Temporary Fill Area* (sf)	Temporary Fill Volume * (cy)	Permanent Fill (sf)	Permanent Fill (cy)	Obstruction Removal (sf)
Bridge Reconstruction (Current Stage of Applications)						
Barrington River	Riprap Scour Protection (at both abutments) and shoreline stabilization at east approach	0	0	±3,403	±320	--
Barrington River	Bridge Pier Riprap	0	0	±4,080	±478	--
Palmer River	Riprap Scour Protection (at both abutments)	0	0	±2,098	±189	--
Palmer River	Bridge Pier Riprap	0	0	±1,552	±220	--
Palmer River	Retention and Modification of Bulkhead for Fishing	0	0	±5,150	±668	--
Project Totals		0	0	±16,283	±1,875	--

* Calculated from mean high water (MHW), listed by NOAA as elevation 2.12 from tide data obtained at the Providence buoy (Station 8454000), using NAVD88 datum. MHW = Section 10 MHT.

INDEX

STATE OF RHODE ISLAND

DEPARTMENT OF TRANSPORTATION

PLAN, PROFILE AND SECTIONS OF PROPOSED

EAST BAY BIKE PATH BRIDGE REPLACEMENTS
BIKE PATH AND BRIDGE APPROACH PLANS
RECONSTRUCTION PLANS
ENVIRONMENTAL PERMITTING SET
VOLUME 1

EAST BAY BIKE PATH OVER BARRINGTON RIVER AND PALMER RIVER

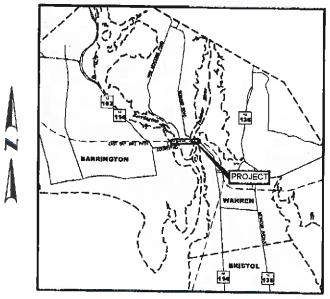
TOWNS OF BARRINGTON AND WARREN
COUNTY OF BRISTOL

R.I. CONTRACT NO. 2022-DB-012 F.A. PROJECT NO. BRO-0838(002)

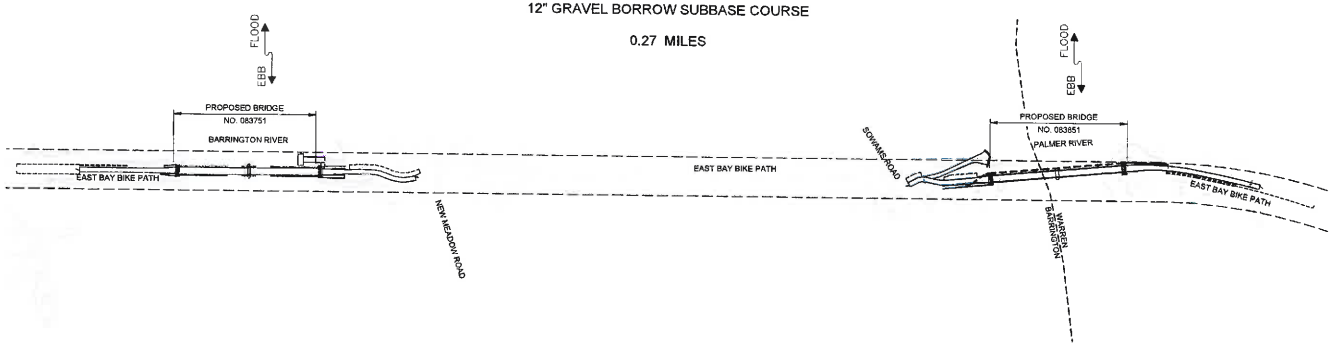
PAVEMENT STRUCTURE
1" CLASS 4.75 HMA
3" CLASS 19.0 HMA
12" GRAVEL BORROW SUBBASE COURSE

0.27 MILES

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	1	26



LOCATION MAP
SCALE: 1"=5000'



LAYOUT PLAN
SCALE: 1"=120'

PERMIT PLAN REVISIONS FEBRUARY 2024

R.I. STANDARD SPECIFICATIONS AND STANDARD DETAILS

SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, MARCH 2018, WITH ALL REVISIONS AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.

STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 1998 EDITION, WITH ALL REVISIONS.

SCALES OF DRAWINGS

Plans	1 inch = 20 feet
Profiles	1 inch = 20 feet Horizontal
Profiles	1 inch = 4 feet Vertical
Cross Sections	1 inch = 4 feet Horizontal
Cross Sections	1 inch = 4 feet Vertical

BASE OF LEVELS
NAVD 88
NAD 83 (2011)

SHAWN A. CIATAS
No. 12676
REGISTERED PROFESSIONAL ENGINEER (CIVIL)

R.I. DEPARTMENT OF TRANSPORTATION

APPROVED

ADMINISTRATOR, PROJECT MANAGEMENT DATE

APPROVED

CHIEF ENGINEER OF INFRASTRUCTURE DATE

APPROVED

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

RECEIVED
2/7/2024
COASTAL RESOURCES MANAGEMENT COUNCIL

RI DOT

AETNA Bridge Company

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

Contract Number 2022-DB-012
Number of Sheet 1
Total Sheets 26

0188A_V1_001_COVER

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	2	26

EXISTING		NEW
	EDGE OF PAVEMENT	
	BERM	
	CURB	
	GUARDRAIL	
	MAILBOX	
	UTILITY POLE	NO.
	POLE GUY	GUY
	LUMINARE	
	SIGN	
(SIZE)SD	SUBDRAIN	N(SIZE)SD (Length — Size)
(SIZE)D	STORMDRAIN	
(SIZE)S	SANITARY SEWER	(Length — Size)
(SIZE)W	WATER MAIN	N(SIZE)W
(SIZE)G	GAS MAIN	N(SIZE)G
(SIZE)T	TELEPHONE DUCT	N-#(SIZE)T
(SIZE)E	ELECTRIC DUCT	N-#(SIZE)E
	PLUG AND CAP PIPE	
	ABANDONED UTILITY	
	FLARED END SECTION	
	HEADWALL	
	WATER OR GAS GATE	
	CATCH BASIN	
	MANHOLE	
	HYDRANT	
1+00	BASELINE OR CENTERLINE	1+00
EXIST. S.H.L. PLAT NO. XX	STATE HIGHWAY LINE	NEW S.H.L. PLAT NO. XX
EXIST. S.F.L. PLAT NO. XX	STATE FREEWAY LINE	NEW S.F.L. PLAT NO. XX
EXIST. P.E.B.	PERMANENT EASEMENT LINE	NEW P.E.B.
EXIST. T.E.B.	TEMPORARY EASEMENT LINE	NEW T.E.B.
	PROPERTY LINE	
CITY NAME / TOWN NAME	CITY OR TOWN LINE	
	PAVED WATERWAY	
	CONTOUR LINE	51.5'
	OPEN DITCH	
	R.I. HIGHWAY BOUND	
	STONE BOUND	
	RETAINING WALL	
	FIELD STONE WALL	
NO.	BORINGS	NO.
	FENCE	
	WOOD OR BRUSH LINE	
	TREES	
	RIVER OR STREAM	
	WETLAND AREA	
	BUILDING	
	FOUNDATION	
	BUILDING TO BE REMOVED	
	RAILROAD TRACKS	
	CUT AND MATCH	
	RIP-RAP	
	CUT SLOPE	ROADWAY / TOP OF SLOPE
	FILL SLOPE	ROADWAY / TOE OF SLOPE
	ROCK CUT	ROCK SHELF / ROCK CUT
	SPOT GRADE	00.00
	AREA GRADED TO DRAIN	ELEV.
	BALED HAY RI STD 9.1.0	
	BALED HAY & SILT FENCE RI STD. 9.3.0	
123 124 125	EDGE OF WETLAND	
	WETLAND PERIMETER	
ASSF	AREA SUBJECT TO STORM FLOW	
100 YR. FLOOD BOUNDARY	100-YEAR FLOOD PLAIN	
	LIMIT OF DISTURBANCE	LIMIT OF DISTURBANCE
	LIMIT OF CLEARING	LIMIT OF CLEARING

1.1.0	UNDERDRAIN	7.5.1	BITUMINOUS BERM
1.3.0	CONCRETE CONNECTING COLLAR	7.6.0	CURB SETTING DETAIL
2.1.0	CONCRETE HEADWALLS FOR PIPE CULVERTS	8.2.0	BITUMINOUS CONCRETE DITCH
2.2.0	STANDARD HEADWALLS FOR MULTIPLE 3'-6" TO 7'-0" PIPE CULVERTS	8.3.0	RIP-RAP DITCH
2.3.0 (DIA.)	PRECAST CONCRETE FLARED END SECTION	8.4.0	PAVED WATERWAY
3.2.0	BRICK/SOLID BLOCK 4'-0" ROUND MANHOLE	9.3.0	BALED HAY DITCH EROSION CHECK AND SILT FENCE COMBINED
3.2.1 (DIA.)	BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND MANHOLE	9.4.0	BALED HAY DITCH AND SWALE EROSION CHECK
3.3.0	BRICK/SOLID BLOCK TYPE "D" SQUARE CATCH BASIN	9.5.0	LOG AND HAY CHECK DAM
3.3.2	BRICK/SOLID BLOCK TYPE "F" SQUARE CATCH BASIN	9.7.0	DEWATERING BASIN
3.3.3	SOLID BLOCK FLUSH SQUARE CATCH BASIN	9.8.0	BALED HAY CATCH BASIN INLET PROTECTION
3.4.0	BRICK/SOLID BLOCK TYPE "D" ROUND CATCH BASIN	9.9.0	CONSTRUCTION ACCESS
3.4.1	BRICK/SOLID BLOCK ROUND CATCH BASIN WITH GUTTER INLET	10.1.0	WET STONE MASONRY RETAINING WALL
3.4.2	BRICK/SOLID BLOCK TYPE "F" ROUND CATCH BASIN	10.2.0	RUBBLE MASONRY WALL
3.4.3	BRICK/SOLID BLOCK TYPE "R" CATCH BASIN	10.3.0	CONCRETE RETAINING WALL
3.4.4	SOLID BLOCK FLUSH ROUND CATCH BASIN	10.4.0	STONE MASONRY STEPS
3.4.5 (DIA.)	BRICK/SOLID BLOCK 5'-0" OR 6'-0" ROUND CATCH BASIN	14.1.0	CONCRETE HIGHWAY BOUND
3.5.0	SOLID BLOCK SHALLOW TYPE "F" SQUARE CATCH BASIN	15.1.0	POST AND MOUNTINGS FOR RURAL MAILBOX
3.5.1 (SIZE)	SOLID BLOCK SHALLOW 5'-0" OR 6'-0" SQUARE CATCH BASIN	15.2.0 (NO.)	POST AND MULTIPLE MOUNTINGS FOR RURAL MAILBOXES
3.6.0	BRICK/SOLID BLOCK DROP INLET	18.2.0	PRECAST TYPE "A" HANDHOLE
3.7.0 (DIA.)	BRICK/SOLID BLOCK ROUND MANHOLE OR CATCH BASIN GREATER THAN 12'-0"	18.2.2	HEAVY DUTY TYPE "H" HANDHOLE
4.2.0	PRECAST 4'-0" ROUND MANHOLE	18.3.0	ALUMINUM LIGHTING STANDARDS
4.2.1	PRECAST 5'-0" ROUND MANHOLE	20.2.0	BI-DIRECTIONAL CONTROL DEVICE
4.2.2	PRECAST 6'-0" ROUND MANHOLE	24.6.1	STREET SIGN MOUNTING DETAIL
4.3.0 (SIZE)	PRECAST 4'-0" OR 6'-0" SQUARE MANHOLE OR CATCH BASIN	26.2.0	POLYETHYLENE DRUM WITH MARKINGS
4.4.0 (DIA.)	PRECAST 4'-0", 5'-0", OR 6'-0" ROUND CATCH BASIN	26.3.0	PVC PLASTIC PIPE TYPE III BARRICADE
4.5.0	PRECAST CONCRETE DROP INLET	31.1.0	CHAIN LINK FENCE 3'-0" TO 4'-0"
4.5.1	PRECAST CONCRETE DROP INLET LATERAL OUTLET	31.2.0	CHAIN LINK FENCE 5'-0" TO 6'-0"
4.5.2	PRECAST CONCRETE DROP INLET LONGITUDINAL OUTLET	31.2.1	CHAIN LINK FENCE 5'-0" TO 6'-0" INTERMEDIATE POST
5.3.0	CATCH BASIN AND MANHOLE STEP	31.3.0	WOVEN WIRE RIGHT-OF-WAY FENCE (STEEL POST)
5.4.0	CONCRETE COLLARS	34.1.0	ROADSIDE GUARDRAIL (GENERAL NOTES, INSTALLATION, POST & OFFSET BLOCK DETAILS)
6.1.0	LIGHT-DUTY SQUARE FRAME AND ROUND COVER	34.1.1	TYPICAL GUARDRAIL INSTALLATION AT STRUCTURES
6.1.1	HEAVY DUTY SQUARE FRAME AND ROUND COVER	34.1.2	STEEL BEAM GUARDRAIL ENCASED POST FOR SHALLOW INSTALLATION
6.2.0	LIGHT-DUTY ROUND FRAME AND COVER	34.1.3	STEEL BEAM GUARDRAIL DEEP POST INSTALLATION
6.2.1	HEAVY-DUTY ROUND FRAME AND COVER	34.1.4	STEEL BEAM GUARDRAIL INSTALLED IN CONCRETE OR HMA SURFACE
6.3.0	SQUARE FRAME AND GRATE	34.2.0	STEEL BEAM GUARDRAIL, TL-3
6.3.1	SQUARE FRAME AND GRATE	34.2.1	STEEL BEAM GUARDRAIL, TL-2
6.3.2	SQUARE FRAME AND GRATE (BICYCLE SAFE)	34.2.2	STEEL BEAM GUARDRAIL DOUBLE FACE ASSEMBLY
6.3.3	HIGH CAPACITY FRAME AND GRATE	34.2.5	STEEL BEAM GUARDRAIL REFLECTORIZED TRIANGULAR DELINEATOR
6.3.4	HIGH CAPACITY FRAME AND GRATE (BICYCLE SAFE)	34.3.0	STEEL BEAM GUARDRAIL APPROACH END TREATMENT
6.4.0	ROUND FRAME AND GRATE	34.3.1	STEEL BEAM GUARDRAIL TERMINAL END SECTION
7.1.0S	PRECAST CONCRETE CURB (STRAIGHT)	34.3.2	STEEL BEAM GUARDRAIL ANCHORAGE TRAILING END SECTION
7.1.0C	PRECAST CONCRETE CURB (CIRCULAR)	34.3.3	STEEL BEAM GUARDRAIL THRIE BEAM TRANSITION PANEL
7.1.1	3'-0" PRECAST CONCRETE TRANSITION CURB	34.3.4	STEEL BEAM GUARDRAIL CONNECTION TO NEW END POST
7.1.2	6'-0" PRECAST CONCRETE TRANSITION CURB	34.3.5	GUARDRAIL CONNECTION TO EXISTING END POST APPROACH END SECTION
7.1.4	PRECAST 2'-0" RADIUS CORNER	34.3.6	GUARDRAIL CONNECTION TO EXISTING END POST TRAILING END SECTION
7.1.5	PRECAST CONCRETE INLET STONE (FOR SQUARE CATCH BASIN)	34.3.7	STEEL BEAM GUARDRAIL TRANSITION TO RIGID BARRIER
7.1.6	PRECAST CONCRETE INLET STONE (FOR ROUND CATCH BASIN)	34.3.8	MASH GUARDRAIL TRANSITION TO EXISTING GUARDRAIL
7.1.7	PRECAST CONCRETE APRON STONE (FOR SQUARE CATCH BASIN)	34.3.9	STEEL BEAM GUARDRAIL LONG SPAN, TL-3
7.1.8	PRECAST CONCRETE APRON STONE (FOR ROUND CATCH BASIN)	34.5.3	STEEL THRIE BEAM GUARDRAIL SINGLE FACE
7.2.0S	PRECAST CONCRETE SLOPED FACE CURB (STRAIGHT)	34.5.4	STEEL THRIE BEAM GUARDRAIL DOUBLE FACE
7.2.0C	PRECAST CONCRETE SLOPED FACE CURB (CIRCULAR)	34.5.5	STEEL THRIE BEAM GUARDRAIL LONG SPAN
7.2.1	PRECAST CONCRETE SLOPED FACE TRANSITION CURB	40.1.0	F SHAPE CONCRETE BARRIER DOUBLE FACE
7.2.2	PRECAST CONCRETE TRANSITION CURB (VERTICAL FACE TO SLOPED FACE)	40.2.0	F SHAPE CONCRETE BARRIER SINGLE FACE
7.3.0S	GRANITE CURB (STRAIGHT)	40.2.1	F SHAPE CONCRETE BARRIER WITH CONCRETE SEPARATOR
7.3.0C	GRANITE CURB (CIRCULAR)	40.3.0	PRECAST MEDIAN BARRIER TRANSITION UNIT
7.3.2	6'-0" GRANITE TRANSITION CURB	40.4.0	PRECAST MEDIAN BARRIER FOR LIGHT STANDARD
7.3.3	GRANITE WHEELCHAIR RAMP TRANSITION CURB	40.5.6	BARRIER MOUNTED DELINEATOR
7.3.4	GRANITE 2'-0" RADIUS CORNER	40.2.1	SINGLE-FACED PRECAST MEDIAN BARRIER
7.3.5	GRANITE INLET STONE (FOR SQUARE CATCH BASIN)	40.3.0	PRECAST MEDIAN BARRIER TRANSITION UNIT
7.3.6	GRANITE INLET STONE (FOR ROUND CATCH BASIN)	40.5.0	BARRIER MOUNTED DELINEATOR
7.3.7	GRANITE APRON STONE (FOR SQUARE CATCH BASIN)	43.1.0	CEMENT CONCRETE SIDEWALK
7.3.8	GRANITE APRON STONE (FOR ROUND CATCH BASIN)	43.2.0	BITUMINOUS CONCRETE SIDEWALK
7.4.0	GRANITE SLOPED FACE CURB	43.3.0	WHEELCHAIR RAMP
7.4.1	GRANITE SLOPED FACE TRANSITION CURB	43.3.1	WHEELCHAIR RAMP FOR LIMITED RIGHT-OF-WAY AREAS
7.4.2	GRANITE TRANSITION CURB (VERTICAL FACE TO SLOPE FACE)	43.4.0	DRIVEWAY DEVELOPMENT FOR 3'-0" TRANSITION CURB
7.5.0	BITUMINOUS CONCRETE LIP CURB	43.4.1	DRIVEWAY DEVELOPMENT FOR 6'-0" TRANSITION CURB

43.5.0	CEMENT CONCRETE DRIVEWAYS		
48.1.0	DETECTABLE WARNING SYSTEM		
51.1.0	TREE PROTECTION DEVICE		
51.1.1	DRIP LINE TREE PROTECTION DEVICE FOR EXISTING TREES	NIC	NOT IN THIS CONSTRUCTION CONTRACT
51.2.0	SHRUB PROTECTION DEVICE	NWB	FURNISH AND INSTALL NEW WATER GATE VALVE BOX
51.3.0	TREE WELL	NWVB	FURNISH AND INSTALL NEW WATER GATE VALVE AND BOX
51.4.0	TREE WALL	NWCB	FURNISH AND INSTALL NEW WATER CURB STOP BOX
AB	ADJUST CATCH BASIN TO GRADE	NWSB	FURNISH AND INSTALL NEW WATER CURB STOP AND BOX
ABM	ADJUST CATCH BASIN TO MANHOLE	PCD	PERMANENT CHECK DAM
AC	ADJUST CURB STOP TO GRADE	PS	4" PLANTABLE SOIL AND SEED
AD	ADJUST DRAINAGE MANHOLE TO GRADE	RCB	RECONSTRUCT TYPE "D" CATCH BASIN, TO CATCH BASIN WITH GUTTER INLET
AE	ADJUST ELECTRIC MANHOLE TO GRADE	RCM	R.I.D.O.T. COMMUNICATIONS MANHOLE
AFC	ADJUST FRAME AND COVER TO GRADE	RHH	REMOVE, HANDLE, HAUL, TRIM, RESET CURB EDGING, STRAIGHT, CIRCULAR (ALL TYPES)
AFG	ADJUST FRAME AND GRATE TO GRADE	RLP	RELOCATE LAMP POST
AH	ADJUST GAS GATE BOX TO GRADE	RMB	RELOCATE MAILBOX (BY OTHERS)
AHH	ADJUST HANDHOLE TO GRADE	RPM	REMOVE PAVEMENT MARKINGS
AS	ADJUST SANITARY SEWER MANHOLE TO GRADE	RRP	RIP-RAP PAD (SEE DETAIL)
AT	ADJUST TELEPHONE MANHOLE TO GRADE	RRS	REMOVE AND RELOCATE SIGN
AW	ADJUST WATER GATE BOX TO GRADE	RUP	RELOCATE UTILITY POLE (BY OTHERS)
BCD	BITUMINOUS CONCRETE DRIVEWAY 3" CLASS 9.5 HMA 8" GRAVEL BORROW SUBBASE COURSE	SB	STONE BAFFLE
		SBAE	STEEL BEAM BRIDGE CONNECTION APPROACH END (W/O NESTED RAIL)
BPS	BUILD NEW STRUCTURE OVER EXISTING PIPE	SBTE	STEEL BEAM BRIDGE CONNECTION TRAILING END (W/NESTED RAIL)
CCB	CLEAN CATCH BASIN	SD-	STRUCTURAL DISPOSITION - SEE CS PAGES OF SPECIFICATION
CCP	CUT AND CAP PIPE WITH RESTRAINT (ALL SIZES)	SF	REMOVE AND STOCKPILE FENCE
CFP	CLEAN AND FLUSH PIPE	SGA	SPECIAL GRADED AGGREGATE
CG	CLEARING AND GRUBBING	SGC	REMOVE AND STOCKPILE GRANITE CURB
CMH	CLEAN MANHOLE	SGR	REMOVE AND STOCKPILE GUARDRAIL
CP (DEPTH)	COLD PLANE	SH	REMOVE AND STOCKPILE HYDRANT
CPP	CUT AND PLUG PIPE (ALL TYPES, ALL SIZES)	SS	REMOVE AND STOCKPILE SIGN
DB	REMOVE AND DISPOSE BITUMINOUS CURB	STS	REMOVE AND STOCKPILE TRAFFIC SIGNAL SYSTEM
DC	REMOVE AND DISPOSE CONCRETE CURB	TB	CONCRETE THRUST BLOCK
DCB	REMOVE AND DISPOSE CATCH BASIN	TEP	TIE EXISTING PIPE INTO NEW STRUCTURE
DDI	REMOVE AND DISPOSE DROP INLET	TNP	TIE NEW PIPE INTO EXISTING STRUCTURE
DF	REMOVE AND DISPOSE FENCE	TBT	THRIE BEAM TRANSITION
DFC	REMOVE AND DISPOSE FRAME AND COVER	TBBC	THRIE BEAM BRIDGE CONNECTION
DFE	REMOVE AND DISPOSE FLARED END SECTION	TT	TREE TRIMMING
DFG	REMOVE AND DISPOSE FRAME AND GRATE	WCM	4" WOOD CHIP MULCH
DFH	REMOVE AND DISPOSE FIRE HYDRANT	4DY	4" EPOXY RESIN PAVEMENT MARKINGS - DOUBLE YELLOW
DFP	REMOVE AND DISPOSE FLEXIBLE PAVEMENT	6W	6" EPOXY RESIN PAVEMENT MARKINGS - WHITE
DG	REMOVE AND DISPOSE GUARDRAIL	12W	12" EPOXY RESIN PAVEMENT MARKINGS - WHITE
DH	REMOVE AND DISPOSE HEADWALL	6WT	6" PREFORMED PATTERNED MARKING (HIGH PERFORMANCE TAPE)
DHB	REMOVE AND DISPOSE HIGHWAY BOUND	4Y	4" EPOXY RESIN PAVEMENT MARKINGS - YELLOW
DHH	REMOVE AND DISPOSE HANDHOLE	6Y	6" EPOXY RESIN PAVEMENT MARKINGS - YELLOW
DL	REMOVE AND DISPOSE LIGHT AND FOUNDATION	P.G.L.	PROFILE GRADE LINE
DMB	REMOVE AND DISPOSE MEDIAN BARRIER		
DMH	REMOVE AND DISPOSE MANHOLE		
DMM	REMOVE AND DISPOSE MEDIAN MARKER		
DOW	REMOVE AND DISPOSE OBSERVATION WELL		
DP	REMOVE AND DISPOSE PIPE		
DPB	REMOVE AND DISPOSE PAVEMENT AND RIGID BASE		
DRB	REMOVE AND DISPOSE RIGID BASE		
DS	REMOVE AND DISPOSE SIGN		
DSS	REMOVE AND DISPOSE TRAFFIC SIGNAL SYSTEM		
DSW	REMOVE AND DISPOSE SIDEWALK		
DTD	REMOVE AND DISPOSE TELEPHONE DUCT BANKS		
DUP	REMOVE AND DISPOSE UTILITY POLE		
DWW	REMOVE AND DISPOSE PAVED WATERWAY		
FF	FILTER FABRIC RIPRAP FLARED END UNDERLAYMENT		
GET	FLARED GUARDRAIL END TREATMENT		
IA	IMPACT ATTENUATOR		
IDL	IMPERVIOUS DITCH LINER		
LOD	LIMIT OF DISTURBANCE		
LOR	LIMIT OF REGRADING		
LS	4" LOAM AND SEED		
NFH	NEW FIRE HYDRANT WITH GATE VALVE		

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 2
OF:

SCALE: NOT TO SCALE

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	6/07	TRB			
2	12/22	RS			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

STANDARD PLAN SYMBOLS & STANDARD LEGEND

0188A_V1_002_STDSYM

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	3	28

GENERAL NOTES:

1. ANY DAMAGE TO EXISTING PAVEMENT, BRIDGES, DRAINAGE STRUCTURES, DRAINAGE PIPES, INFILTRATION AREAS, ROADSIDE, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.

2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF THE TRAVEL LANE SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 106.05 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION. EQUIPMENT AND MATERIAL SHALL NOT BE STORED IN AREAS DESIGNATED FOR STORMWATER INFILTRATION OR OUTSIDE THE L.O.D. WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT DISTURBED OR OBLITERATED BEFORE SURVEY GROUND CONTROL POINTS ARE LOCATED, VERIFIED, AND DEEMED ADEQUATE FOR CONSTRUCTION LAYOUT. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING THE CONTRACTOR TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS. SURVEY WILL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION ACTIVITIES UNTIL ADEQUATE SURVEY GROUND CONTROL POINTS HAVE BEEN ESTABLISHED, TIED DOWN, AND VERIFIED IN WRITING BY THE CONTRACTOR'S PROFESSIONAL LAND SURVEYOR.

4. ALL R.I. STD. 9.9.0 CONSTRUCTION ACCESS ROADS SHALL BE CONSTRUCTED PRIOR TO ANY ROADWAY ACCEPTING CONSTRUCTION TRAFFIC.

5. THE FREQUENCY AND APPLICATION RATES FOR THE DUST CONTROL ITEMS WILL BE DETERMINED BY THE CONTRACTOR TO MEET THE REQUIREMENTS OF SECTION 907.

6. ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

7. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 7 DAYS, AND/OR AS DIRECTED BY THE ENGINEER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS. ALL APPLICATIONS ON BOTH HORIZONTAL AND VERTICAL SURFACES SHALL BE INCIDENTAL TO THE APPLICABLE PAVEMENT ITEMS.

8. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE SHALL BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT ITS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED.

9. THE CONTRACTOR WILL NOT BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS.

10. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE ENGINEER. CLEANING WITH COMPRESSED AIR SHALL ONLY BE ALLOWED WITH THE APPROVAL OF THE ENGINEER.

11. PRIOR TO INSTALLATION, ALL SIGNS, MOUNTINGS AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS AND SHOP DRAWINGS OR AS MODIFIED BY THE ENGINEER.

12. THE COORDINATE SYSTEM, IF SHOWN, IS THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM.

13. PAVEMENT OPERATIONS FOR CURBED SECTIONS: IN AREAS WHERE CURBING IS SET TO FINISH LINE AND GRADE, THE CONTRACTOR WILL NOT BE REQUIRED TO UTILIZE THE SENSOR AND SKY-TYPE DEVICE FOR AUTOMATIC GRADE CONTROL, BUT WILL BE ALLOWED TO MANUALLY ADJUST THE BITUMINOUS PAVER FOR CONTROLLING GRADE.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO MAINTAIN THE SAFE TRAVEL OF THE PUBLIC AT NO ADDITIONAL COST TO THE STATE.

15. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.

16. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING OPERATIONS, FLOW TO NEW AND EXISTING DRAINAGE STRUCTURES HAS BEEN PROPERLY ESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; ANY CORRECTIVE ACTION SHALL BE CONSIDERED INCIDENTAL TO PAVING AND COLD PLANING OPERATIONS.

17. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. ALSO, EMBANKMENT CONSTRUCTION SHALL CONFORM TO SECTION 202.03.2 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

18. IF THIS PROJECT IS ON A HURRICANE EVACUATION AND DIVERSIONARY ROUTE, AS DESIGNATED ON THE COVERSHEET, THE CONTRACTOR IS ADVISED THAT UPON 12 (TWELVE) HOURS NOTICE THE ROADWAY SHALL BE OPEN TO EVACUEES AND EMERGENCY PERSONNEL. ANY EXTRA WORK NECESSARY TO COMPLY WITH THIS REQUIREMENT WILL BE REIMBURSED UNDER FORCE ACCOUNT PROCEDURES.

19. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM), AND/OR THE ARMY CORPS OF ENGINEERS (ACOE). AND/OR THE COASTAL RESOURCES MANAGEMENT COUNCIL (CRMC). COPIES OF EACH OF THESE PERMITS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).

GENERAL NOTES (CONTINUED):

20. FOR ALL PROJECTS INVOLVING KNOWN SITE REMEDIATION ISSUES, THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE CONSTRUCTION RELATED PROVISIONS, CONDITIONS, AND STIPULATIONS OF ANY REMEDIAL ACTION WORK AND/OR SOIL MANAGEMENT PLANS DEVELOPED FOR THE PROJECT. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH COMPLIANCE WITH THESE DOCUMENTS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).

21. NO UNPROTECTED CONSTRUCTED FEATURE MAY PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. HEADWALL, DRAINAGE INLET, ETC.

22. THE REMAINING SECTION OR STUB OF A BREAKAWAY BASE MAY NOT PROJECT MORE THAN 4 INCHES ABOVE THE FINISHED GRADE OF A TRAVERSABLE SLOPE IN A CLEAR ZONE, e.g. SIGN POSTS, LIGHT POLES, FIRE HYDRANTS, ETC.

DRAINAGE AND EROSION CONTROL NOTES:

1. THE CONTRACTOR IS REQUIRED TO ADHERE WITH THE A SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO REMAIN IN COMPLIANCE WITH THE RIPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS OF THE GENERAL PERMIT AND THE SITE-SPECIFIC SWPPP FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AS SITE CONDITIONS WARRANT. A COPY OF THE SWPPP MUST BE ON-SITE AT ALL TIMES. COPIES OF THESE DOCUMENTS ARE INCLUDED IN THE CS PAGES OF THE CONTRACT DOCUMENTS.

2. NO UNDISTURBED AREAS SHALL BE GRUBBED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE RESIDENT ENGINEER OR ENVIRONMENTAL INSPECTOR, BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION, IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.

3. STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODIBLE MATERIAL SHALL ALSO BE SEEDED AND RINGED WITH APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES TO STABILIZE. STOCKPILES OF CONTAMINATED MATERIALS MUST BE PLACED ON TOP OF A POLY-ETHYLENE SHEET AND COVERED AT ALL TIMES UNLESS IT IS AN ACTIVE WORKING PILE.

4. IF THE PLANS INCLUDE SPECIFIC AREAS FOR PLACEMENT OF CONSTRUCTION DEWATERING BASINS AND/OR EQUIPMENT AND MATERIALS STORAGE AND STOCKPILING, AND IF THE CONTRACTOR ELECTS TO UTILIZE ANY OTHER AREAS FOR THESE PURPOSES, THIS SHALL BE APPROVED BY THE ENGINEER ONLY AFTER OBTAINING ANY NECESSARY PERMITS AND/OR PERMIT MODIFICATIONS FROM THE APPROPRIATE REGULATORY AUTHORITY(IES). ANY PERMITTING REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED AT NO COST TO THE STATE. THE ENGINEER WILL COORDINATE SUBMISSION OF ANY REQUIRED PERMIT APPLICATION MATERIALS WITH THE R.I.D.O.T. ENVIRONMENTAL DIVISION.

5. SURFACE EROSION CONTROL MATTING SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.

6. SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.
   a. SEEDING TYPE I.
   b. ADHESIVE MULCH STABILIZER

7. UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS OR THROUGH THE INACTIVE WINTER SEASON.

8. PRIOR TO CONSTRUCTION OPERATIONS, THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL CATCH BASINS AND FLUSHING THE PIPES, AND THEN VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION.

9. ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED ROADWAY SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT PRIOR TO THE WINTER SHUTDOWN.

10. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE EFFICACY OF THE DRAINAGE SYSTEM. ONCE CONSTRUCTION IS COMPLETED THE CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL CATCH BASINS AND FLUSHING ALL PIPES OF ANY CONSTRUCTION RELATED DEBRIS AT NO ADDITIONAL COST.

11. CATCH BASIN RIM GRADES FOR STRUCTURES NOT IN A TRAVEL LANE NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE ENGINEER.

12. PROVISIONS FOR CLEARING TO ACCESS OUTFALLS DURING THE CLEANING AND FLUSHING OF THE CLOSED DRAINAGE SYSTEM SHALL STRICTLY ADHERE TO THE PLANS AND SPECIFICATIONS.

13. THE CONTRACTOR SHALL INSTALL ALL SEDIMENT AND EROSION CONTROL DEVICES FOR OUTLET PROTECTION PRIOR TO CLEANING AND FLUSHING STORM WATER DRAINAGE. SEDIMENT AND EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL FLUSHED SEDIMENTS ARE REMOVED. AT ALL OUTFALL LOCATIONS WHERE PIPES ARE TO BE CLEANED AND FLUSHED, OUTLET PROTECTION (R.I. STD. 9.1.0 OR 9.3.0) SHALL BE INSTALLED TO TRAP SEDIMENTS. THESE SEDIMENTS SHALL THEN BE REMOVED AND DISPOSED OF LEGALLY BEFORE THE OUTLET PROTECTION DEVICES ARE REMOVED. IF OUTLET PROTECTION AT THE OUTFALL IS NOT FEASIBLE, THEN THE OUTLET PIPE OF THE LAST DRAINAGE STRUCTURE TO BE CLEANED SHALL BE PLUGGED TO CAPTURE ALL MATERIALS FLUSHED FROM PIPES. AFTER THE MATERIALS ARE REMOVED FROM THE DRAINAGE STRUCTURE, THE OUTLET SHALL BE UNPLUGGED TO RESUME NORMAL FUNCTIONING.

14. R.I. STD. 9.8.0 BALED STRAW INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.

15. WHERE BALED STRAW INLET PROTECTION AND SILT FENCES ARE USED AT CATCH BASINS, THEY SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE ENGINEER IN ORDER TO PREVENT CLOGGING OF THE INLET.

DRAINAGE AND EROSION CONTROL NOTES (CONTINUED):

16. DETENTION AND RETENTION BASINS MAY BE ROUGH GRADED AND STABILIZED WITH VEGETATION AND/OR OTHER EROSION CONTROL MEASURES AS REQUIRED BY THE ENGINEER PRIOR TO USE AS TEMPORARY SEDIMENTATION BASINS DURING PROJECT CONSTRUCTION. FINAL BASIN CONSTRUCTION SHALL NOT COMMENCE UNTIL ALL SOURCES OF SEDIMENT HAVE BEEN REMOVED AND INFILTRATION IS REESTABLISHED. FINAL ROADSIDE VEGETATION IS ESTABLISHED AND USE OF TEMPORARY BASINS IS NO LONGER REQUIRED TO COMPLY WITH THE PLANS, SPECIFICATIONS, AND PERMITS. ANY ISSUES RELATING TO EROSION AND/OR SEDIMENT TRANSPORT INTO WETLAND AREAS RESULTING FROM SUCH USE OF SEDIMENTATION BASINS DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ANY CORRECTIVE ACTION AND COSTS REQUIRED TO RESOLVE SUCH ISSUES IS THE RESPONSIBILITY OF THE CONTRACTOR.

17. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.

18. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.

19. ALL COMPOST FILTER SOCK, STRAW BALES, SILT FENCE OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.

20. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE STATE.

21. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L.02.03 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

22. ALL COSTS ASSOCIATED WITH ADHERENCE TO THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEMS. ADDITIONAL SEDIMENT AND EROSION CONTROLS, SHALL BE INSTALLED IN ACCORDANCE WITH THE SWPPP REPORT. THESE ADDITIONAL ITEMS WILL BE PAID FOR AT THE UNIT PRICE FOR THAT BID ITEM.

23. ANY OBSERVATIONS OF ILLICIT CONNECTIONS OR DISCHARGES TO RIDOT'S DRAINAGE NETWORK OR OUTFALLS SHALL BE REPORTED TO THE RIDOT STORMWATER UNIT IMMEDIATELY.

UTILITY NOTES:

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. BUILDING SERVICE CONNECTIONS (ELECTRIC, GAS, TELEPHONE, WATER AND SANITARY) ARE NOT SHOWN. CONTRACTOR IS TO ASSUME SERVICES ARE PRESENT TO ALL BUILDINGS.

2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH CHAPTER 39-1.2 OF THE R.I. GENERAL LAWS ENTITLED "EXCAVATION NEAR UNDERGROUND UTILITY FACILITIES", WITH AMENDMENTS EFFECTIVE AS OF NOVEMBER 1, 2005 AND, WHEN NECESSARY, BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE STATE.

3. ALL EXISTING UTILITIES TO BE ABANDONED SHALL BE CAPPED.

4. EXISTING WATER SERVICES SHALL BE RECONNECTED TO THE NEW WATER MAINS.

5. UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES TO REMAIN.

6. FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT WRITTEN AUTHORIZATION FROM THE FIRE DEPARTMENT OR THE WATER AUTHORITY.

7. ALL NEW WATER LINES SHALL BE DISINFECTED TO THE SATISFACTION OF THE WATER AUTHORITY IN ACCORDANCE WITH THE SPECIFICATIONS.

8. ALL UTILITY POLE RELATED WORK SHALL BE BY OTHERS.

9. THE CONTRACTOR SHALL PROVIDE 72-HOUR ADVANCE NOTICE TO THE RIDOT TMC (401-222-2378) FOR WORK AROUND RIDOT OWNED INFRASTRUCTURE (DRAINAGE, LIGHTING, ITS EQUIPMENT, TOLL GANTRIES, COUNTING STATIONS, ETC.). ANY DAMAGE TO THIS INFRASTRUCTURE MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT RIDOT IN ADVANCE, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE STATE.

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 3
OF:

SCALE: NOT TO SCALE

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	4/07	TRB	4	12/22	JRP
2	3/10	RBH			
3	4/14	MLP			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

STANDARD NOTES - 1

0188A_V1_003_STDNOTES01

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	4	26

LANDSCAPE NOTES:

1. ALL PLANT MATERIAL MUST BE TAGGED AT THE NURSERY (A RECOGNIZED GROWER OF PLANT MATERIAL) IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION. ALL PLANT MATERIAL MUST BE NURSERY GROWN; NO PLANTATION GROWN PLANT MATERIAL WILL BE ACCEPTED.
2. ALL PLANT SUBSTITUTIONS AND/OR CHANGES IN PLANT LOCATION MUST BE APPROVED IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
3. ALL PLANT MATERIAL IS TO BE FIELD LOCATED BY A REPRESENTATIVE FROM THE R.I.D.O.T. LANDSCAPE ARCHITECTURE UNIT.
4. COORDINATE WITH THE R.I.D.O.T. CONSTRUCTION MANAGER PRIOR TO ALL TRIMMING AND CLEARING NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.
5. ANY TOPSOIL USED AS PLANTABLE SOIL SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS, AND SHALL CONFORM TO SECTION M.18 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
6. ALL TREES AND SHRUBS SHALL BE MULCHED WITH PINE BARK MULCH IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
7. ALL TREES AND/OR SHRUBS THAT ARE PLANTED AS A BED SHALL BE MULCHED AS A BED.
8. PROVIDE A MINIMUM 6'-8" BRANCHING STANDARD ON ALL TREES INSTALLED ADJACENT TO SIDEWALKS AND/OR PEDESTRIAN ACCESS AREAS.
9. THE CONTRACTOR SHALL PROVIDE CERTIFICATION THAT THERE ARE NO CONTAMINANTS THAT EXCEED THE R.I.D.E.M. PERMISSIBLE LEVELS IN THE SOILS USED AS LOAM OR PLANTABLE SOIL.

STRUCTURAL NOTES FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS:

GENERAL

1. ALL SUPPORT DESIGNS AND ASSOCIATED SHOP DRAWING REVIEWS SHALL BE IN CONFORMANCE WITH THE LATEST EDITION AND REVISIONS, OF THE AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS, INCLUDING THE LATEST INTERIM SPECIFICATIONS, EXCEPT AS MODIFIED HEREIN.

CONSTRUCTION DRAWINGS AND DETAILS

1. THE FOLLOWING NOTES SHALL BE INCLUDED ON ALL PLANS AND/OR SHOP DRAWINGS IN REFERENCE TO ANCHOR BOLTS:
   - "PRETENSIONING OF ALL ANCHOR NUTS IS REQUIRED, AND SHALL BE ACCOMPLISHED BY TIGHTENING TO 1/6TH TURN BEYOND THE SNUG-TIGHT POSITION."
   - "THE MAXIMUM CLEARANCE BETWEEN THE BOTTOM OF THE LEVELING NUTS AND THE TOP OF THE CONCRETE IS CRITICAL AND SHALL NOT EXCEED THE AMOUNT SPECIFIED ON THIS DRAWING."
2. THE USE OF GROUT UNDER BASE PLATES SHALL GENERALLY NOT BE PERMITTED. IF SPECIFIC CONDITIONS WARRANT ITS USE, THE GROUT SHALL NOT BE CONSIDERED LOAD CARRYING; LOADS SHALL BE DIRECTLY SUPPORTED BY THE ANCHOR BOLTS. ADEQUATE DRAINAGE SHALL BE PROVIDED.
3. THE DAMPENING EFFECTS OF VIBRATION MITIGATION DEVICES SHALL NOT BE CONSIDERED IN THE DESIGN OF STRUCTURAL SUPPORTS FOR SIGNS AND TRAFFIC SIGNALS. IF THE CONTRACTOR CHOOSES TO USE THESE DEVICES FOR WARRANTY PURPOSES, THE TYPE OF DEVICES PROPOSED SHALL BE APPROVED BY THE DEPARTMENT PRIOR TO FABRICATION OF SUPPORTS.

TRAFFIC SIGNAL NOTES:

1. ALL SALVAGED TRAFFIC SIGNAL EQUIPMENT SHALL BE DELIVERED TO THE R.I.D.O.T. MAINTENANCE HEADQUARTERS, 360 LINCOLN AVENUE, WARWICK, RHODE ISLAND, 02888. THE COST FOR DELIVERY IS CONSIDERED INCIDENTAL TO THE WORK.
2. BACK PLATES SHALL BE INSTALLED ON ALL TRAFFIC SIGNAL HEADS.
3. THE CONTRACTOR SHALL SUPPLY AND INSTALL ON THE UPPER LEFT HAND CORNER OF THE BACK OF THE CONTROLLER CABINET DOOR A LAMINATED INTERSECTION GRAPHIC AND TABLE DEPICTING THE TRAFFIC DETECTOR RELAY CHANNEL ASSIGNMENTS. THE DIAGRAM SHALL BE A GRAPHIC OF THE INDIVIDUAL INTERSECTION ORIENTED SIMILAR TO THE PLANS SHOWING THE LOCATIONS OF EACH OF THE LOOP DETECTORS. THE DIAGRAM SHALL, AT A MINIMUM, INCLUDE DETECTOR NUMBERS, STREET NAME LABELS, NORTH ARROW, AND CONTROLLER CABINET LOCATION. THE ASSIGNMENT INFORMATION SHALL BE INCLUDED IN A TABLE WHICH SHALL INCLUDE, AT A MINIMUM, THE APPROACH NAME, DETECTOR NUMBER, TERMINAL NUMBER, DETECTOR RACK SLOT NUMBER, RELAY NUMBER, RELAY CHANNEL NUMBER, AND PHASE ASSOCIATED WITH EACH DETECTOR.
4. TRAFFIC CONTROLLER CABINETS, UNLESS OTHERWISE NOTED, SHALL BE NEMA TS2 TYPE 1 CABINET SIZE 6 ("P" TYPE) WITH NOMINAL DIMENSIONS OF 52"Hx44"Wx24"D.
5. ALL DELAY AND EXTENSION TIMES, AS CALLED FOR ON THE PLANS, FOR PROPOSED LOOP DETECTORS SHALL BE PROGRAMMED IN THE TRAFFIC SIGNAL CONTROLLER AND NOT THE DETECTOR RELAY.
6. INSULATED GROUND WIRE SHALL BE PLACED IN ALL PVC CONDUITS AND SHALL BE BONDED TO GROUND RODS IN ACCORDANCE WITH SECTION T.03 OF THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
7. THE FINAL POSITION OF SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, DETECTORS, AND STOP LINE AND CROSSWALK PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER IN THE FIELD ACCORDING TO ACTUAL INTERSECTION CHARACTERISTICS.
8. A 2' MINIMUM BUFFER SHALL BE PROVIDED BETWEEN THE CURB AND ALL LATERAL OBSTRUCTIONS (INCLUDING ALL SIGNAL POLES AND TRAFFIC/PEDESTRIAN SIGNAL HEADS) TO PROVIDE ADEQUATE CLEARANCE FOR TURNING VEHICLES.
9. ALL FOUNDATIONS MUST HAVE CONES OR BARRELS BOLTED TO FOUNDATION BASES UNTIL ACTUAL POLE IS INSTALLED.
10. WHEN PLACING TRAFFIC SIGNAL HANDHOLES OR CONDUIT IN EXISTING PORTLAND CEMENT CONCRETE SIDEWALKS, THE ENTIRE SIDEWALK SQUARE OF CONCRETE SHALL BE REPLACED IN ACCORDANCE WITH R.I. STD. 43.1.0. NO PATCHES WILL BE ALLOWED.
11. ALL PEDESTRIAN PUSHBUTTONS SHALL BE COMPLIANT WITH "THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES" (ADAAG) AND SHALL INCLUDE A PRESSURE-ACTIVATED (NON-MOVING) BUTTON. SIGNS APPLICABLE TO PUSHBUTTON ACTUATION SHALL BE INSTALLED SUCH THAT THE CROSSING ASSIGNED TO EACH BUTTON IS CLEARLY INDICATED. IF SITE CONDITIONS DO NOT ALLOW PEDESTRIAN PUSHBUTTONS TO BE INSTALLED WHERE CALLED FOR ON THE PLANS, THE R.I.D.O.T. TRAFFIC ENGINEERING UNIT SHALL BE CONSULTED WITH THROUGH AN R.F.I. PRIOR TO INSTALLING THE PUSHBUTTONS. THE FINAL PLACEMENT OF ALL PEDESTRIAN PUSHBUTTONS SHALL BE IN ACCORDANCE WITH ADAAG AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
12. ALL LOOP DETECTORS SHALL BE CENTERED WITHIN EACH LANE AS DELINEATED, UNLESS OTHERWISE DIMENSIONED ON PLANS.
13. ALL LOOP DETECTORS SHALL BE CUT INTO THE FINAL PAVEMENT SURFACE COURSE.
14. TRAFFIC SIGNAL CONTROLLERS AND CABINETS SHALL BE PROGRAMMED AND WIRED SO THAT ANY FIRE PRE-EMPTION SHALL OVERRIDE MANUAL (PUSH BUTTON) OPERATION.
15. THE CONTRACTOR SHALL WORK CONTINUOUSLY TO RESTORE TRAFFIC SIGNAL OPERATION TO ITS INTENDED PURPOSE WHEN REPLACING THE TRAFFIC SIGNAL EQUIPMENT. A POLICE DETAIL IS REQUIRED TO DIRECT TRAFFIC AT THE INTERSECTION AT ALL TIMES WHEN THE TRAFFIC SIGNAL IS INOPERATIVE. AT NO TIME SHALL THE CONTRACTOR LEAVE THE SITE BEFORE RESTORING FULL TRAFFIC OPERATIONS.

MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC CONTROL SETUPS, SIGNS, CHANNELIZING DEVICES, ETC., SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
2. ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.
3. THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY PARTICULAR STAGE OF THE CONTRACT.
4. ADVANCE FLAGPERSON SIGNS (W20-7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.
5. POLICE OFFICERS AND FLAGPERSONS SHALL BE UTILIZED AS OUTLINED IN SECTIONS 913 & 914 OF THE RI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
6. POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET-UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.
7. ARROW PANELS SHALL BE SET IN THE FLASHING FOUR CORNERS CAUTION MODE UNLESS UTILIZED FOR A MERGING TAPER. ARROW PANELS SET IN THE FLASHING ARROW MODE SHALL NOT BE UTILIZED FOR LANE SHIFTS.
8. TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND / OR RELOCATED UNDER THE PAY ITEM FOR "MAINTENANCE AND MOVEMENT TRAFFIC PROTECTION."
9. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. THEY MAY BE PARKED WITHIN THE STATE RIGHT-OF-WAY ONLY IN AREAS BEYOND THE OUTSIDE EDGE OF THE TRAVEL LANES AND/OR IN AREAS APPROVED BY THE ENGINEER.
10. TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.
11. THE INTENDED VEHICLE PATHS THROUGH EACH WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES. APPROVED PAVEMENT MARKINGS SHALL BE INSTALLED BEFORE THE END OF THE WORK SHIFT ON ALL COLD-PLANED AND NEW ROADWAY SURFACES THAT WILL BE OPENED TO TRAFFIC AT THE END OF THE SHIFT. FAILURE TO COMPLY WILL RESULT IN AN ASSESSMENT OF A CHARGE AS OUTLINED IN SECTION 937 OF THE RI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

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NO.	DATE	BY	NO.	DATE	BY
1	4/07	TRB	4	12/22	JRP
2	11/07	TRB			
3	3/10	RBH			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

STANDARD NOTES - 2

0188A_V1_004_STDNOTES02

JOB SPECIFIC LEGEND(HIGHWAY):

- (9.2.0) SILT FENCE
- (CFS) COMPOST FILTER SOCK 12" DIAMETER
- (IT-1) INFILTRATION TRENCH - 1 (SEE MISCELLANEOUS DETAILS)
- (IT-2) INFILTRATION TRENCH - 2 (SEE MISCELLANEOUS DETAILS)
- (OBR) 54" OPEN BRIDGE RAIL (SEE VOLUME 2)
- (PRR) PLACED STONE RIP RAP (SEE VOLUME 2)
- (QPA) QUALIFIED PERVIOUS AREA (SEE MISCELLANEOUS DETAILS)
- (SRF) SPLIT RAIL FENCE (SEE MISCELLANEOUS DETAILS)
- (SUP) 1" CLASS 4.75 HMA
3" CLASS 19 HMA
12" GRAVEL BORROW SUBBASE COURSE
- (RS) REMOVE AND RESET SIGN
- (TLOR) TEMPORARY LIMIT OF REGRADING (DURING TEMPORARY PLATFORM CONSTRUCTION) ⚠1

JOB SPECIFIC PLAN SYMBOLS

EXISTING		NEW
COMPOST FILTER SOCK		
SPLIT RAIL FENCE		
TIMBER AND COMPOSITE PEDESTRIAN BRIDGE APPROACH RAIL		
QUALIFIED PERVIOUS AREA		
STONE RIPRAP AT TEMPORARY BULKHEAD		
DUMPED RIPRAP TO SUPPLEMENT EXISTING RIPRAP		
PLACED RIPRAP PROTECTION FROM PROPOSED ABUTMENT TO EXISTING ABUTMENT		

JOB SPECIFIC GENERAL NOTES

1. ALL ITEMS NOT REFERENCED FOR MODIFICATION ON THE PLANS OR IN THE CONTRACT DOCUMENTS WILL BE "EXISTING TO REMAIN" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. ALL EQUIPMENT AND MATERIALS SHALL BE PLACED AN ADEQUATE DISTANCE (AS DETERMINED BY THE ENGINEER) FROM THE ROADWAY TO AVOID INTERFERENCE WITH VEHICULAR OR PEDESTRIAN TRAFFIC.
3. THE CONTRACTOR SHALL TAKE SPECIAL CARE NOT TO DAMAGE ANY EXISTING VEGETATION WHICH OVERHANGS OR IS ADJACENT TO THE CONSTRUCTION ZONE. ANY DAMAGE THAT IS CAUSED BY THE CONTRACTOR'S NEGLIGENCE WILL BE FIXED AT HIS OWN EXPENSE.
4. DIMENSIONS SHOWN ON THE PLANS ARE APPROXIMATE.
5. PER RIDOT STANDARD SPECIFICATIONS, CLEAR AND GRUB ALL AREAS WITHIN FILL LOCATIONS AND LESS THAN 3 FEET IN HEIGHT TO SUBGRADE WITHIN THE LIMITS OF DISTURBANCE OF THE PROJECT. AFTER CLEARING AND GRUBBING, THE AREA SHALL BE STABILIZED AND FINISHED WITH LOAM AND SEED.
6. ALL MATERIALS IMPORTED TO THE SITE BY THE CONTRACTOR SHALL BE CLEAN AND FREE OF CONTAMINATION AND IN ACCORDANCE WITH SECTION M OF THE R.I.D.O.T STANDARD SPECIFICATIONS, LATEST EDITION.
7. THE CONTRACTOR SHALL REUSE ANY CLEAN EXCAVATED MATERIAL REQUIRED FOR BULKHEAD ACCESS AS COMMON BORROW AS DIRECTED BY THE ENGINEER. IN LOCATIONS WHERE SUPPLEMENTAL MATERIAL IS NEEDED, CRUSHED STONE SHALL BE USED AS FILL.
8. THE CONTRACTOR SHALL CAREFULLY REMOVE EXISTING RIPRAP FROM THE EMBANKMENTS WITHIN THE LIMIT OF DISTURBANCE AS NECESSARY AS SHOWN ON PLANS. EXISTING RIPRAP MAY BE USED TEMPORARILY TO REINFORCE SIDE SLOPES OF TEMPORARY ACCESS LOCATIONS TO BULKHEADS OR IN OTHER APPLICATIONS AT THE SATISFACTION OF THE ENGINEER.
9. NON-WOVEN GEOTEXTILE FABRIC SHALL BE USED FOR SOIL SEPARATION. INSTALLATION SHALL BE AS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER. FILTER FABRIC SHALL CONFORM TO AASHTO M-288-06 AND BE A MATERIAL SUITABLE FOR SOIL SEPARATION APPLICATIONS AND BE ONE OF THOSE INCLUDED ON RIDOT'S APPROVED MATERIALS LIST.
10. ANY CONTAMINATED SOILS SHALL BE PROPERLY REMOVED, HANDLED, HAULED AND DISPOSED AS REQUIRED.
11. FOR DEWATERING THAT MAY BE REQUIRED FOR EXCAVATION AND INSTALLATION OF ABUTMENTS AND RETAINING WALLS, SEE PLANSET VOLUME 2.

JOB SPECIFIC UTILITY NOTES

R-1

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION AND ARE APPROXIMATE. LOCATIONS OF THE SERVICES WILL BE CHECKED BY THE CONTRACTOR WITH THE APPROPRIATE UTILITY COMPANIES.
2. ALL EXISTING MANHOLES, CATCH BASINS, ROADWAY BOXES, AND SIDEWALK CURB STOPS FOR ALL UTILITIES WITHIN THE PROJECT WORK LIMITS SHALL BE ADJUSTED TO GRADE AS REQUIRED EXCEPT WHERE REPLACEMENT OR RECONSTRUCTION IS CALLED FOR ON THE PLANS, IN THE CONTRACT DOCUMENTS, OR DIRECTED BY THE ENGINEER.
3. ONLY NON-MECHANICAL MEANS OF EXCAVATION SHALL BE USED IN AREAS ADJACENT TO UNDERGROUND UTILITIES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

JOB SPECIFIC EROSION CONTROL NOTES

1. INLET SEDIMENT CONTROL DEVICES (ISCD) SHALL BE INSTALLED, IN LIEU OF R.I. STD. 9.8.0 BALED HAY INLET PROTECTION, AT ALL CATCH BASINS WHENEVER SUBBASE IS EXPOSED OR AS DIRECTED BY THE ENGINEER, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.
2. IN ORDER TO PREVENT CLOGGING IN THE ROADWAY AND SEDIMENT INTRUSION INTO THE DRAINAGE SYSTEM, ALL INLET SEDIMENT CONTROL DEVICES SHALL BE CLEANED OR REPLACED REGULARLY UNTIL THE CONTRIBUTING AREA HAS BEEN STABILIZED. THE INLET SEDIMENT CONTROL DEVICES SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE RESIDENT ENGINEER.
3. CONCRETE WASHOUT DISCHARGED INTO DRAINAGE SYSTEMS IS PROHIBITED. THE CONTRACTOR MUST PROVIDE A CONCRETE WASHOUT AREA.

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	5	26

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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SHEET: 5
OF:

SCALE: 1"=20'

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
⚠1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

JOB SPECIFIC PLAN SYMBOLS, LEGEND & NOTES

0188A_V1_005_JSNOTSYM

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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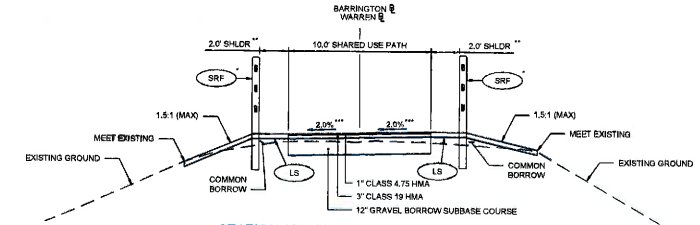


STATION 101+00 RT TO STATION 102+70 RT
STATION 101+00 LT TO STATION 102+80 LT
STATION 106+45 LT TO STATION 108+10 LT
STATION 106+58 RT TO STATION 108+10 RT
BARRINGTON BRIDGE APPROACH

STATION 199+53 RT TO STATION 200+30 RT
STATION 199+53 LT TO STATION 201+27 LT
STATION 205+00 LT TO STATION 206+50 LT
STATION 204+12 RT TO STATION 206+50 RT
WARREN BRIDGE APPROACH

SCALE: 1"=4'

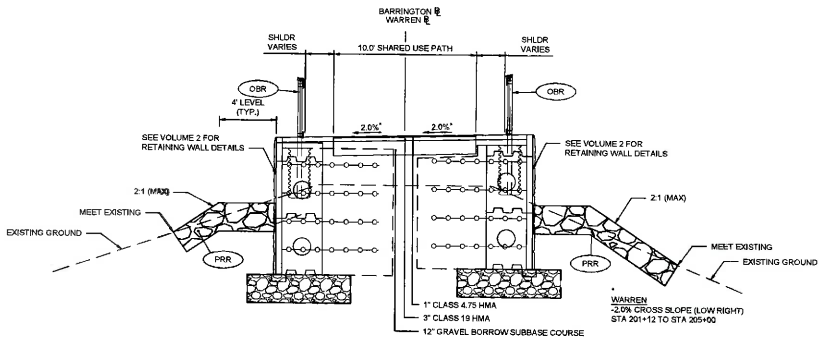
* BARRINGTON
STA 101+00 LT TO STA 103+07 LT & RT
STA 106+07 LT TO STA 107+32 LT
STA 108+07 RT TO STA 107+37 RT

WARREN
STA 199+99 LT TO STA 201+27 LT
STA 200+02 RT TO STA 201+27 RT
STA 204+12 LT TO STA 205+50 LT
STA 204+12 RT TO STA 205+87 RT

** INFILTRATION TRENCH (SEE DETAIL)
BARRINGTON
STA 101+00 LT TO STA 102+00 LT

WARREN
STA 205+00 RT TO STA 206+50 RT

*** WARREN
-2.0% CROSS SLOPE (LOW RIGHT)
STA 205+00 TO STA 206+50

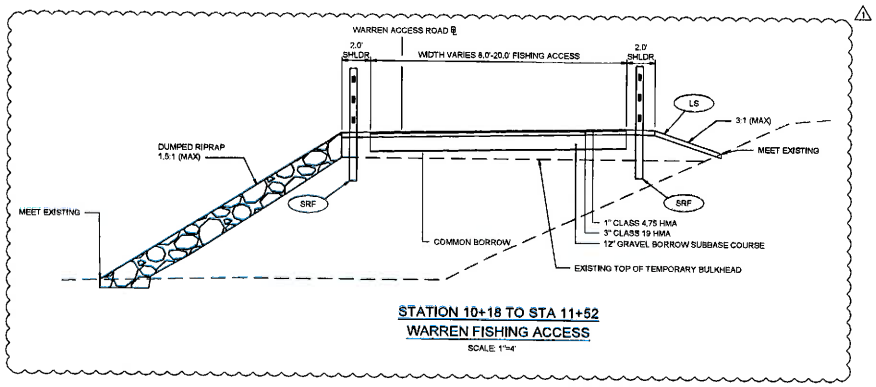


STATION 102+70 RT TO STATION 103+05 RT
STATION 102+80 LT TO STATION 103+05 RT
STATION 106+05 LT TO STATION 106+45 LT
STATION 106+05 RT TO STATION 106+58 RT
BARRINGTON BRIDGE APPROACH

STATION 200+30 RT TO STATION 201+27 RT
STATION 201+12 LT TO STATION 205+00 LT
WARREN BRIDGE APPROACH

SCALE: 1"=4'

* WARREN
-2.0% CROSS SLOPE (LOW RIGHT)
STA 201+12 TO STA 205+00



STATION 10+18 TO STA 11+52
WARREN FISHING ACCESS

SCALE: 1"=4'

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OF: 26

SCALE: 1"=4'

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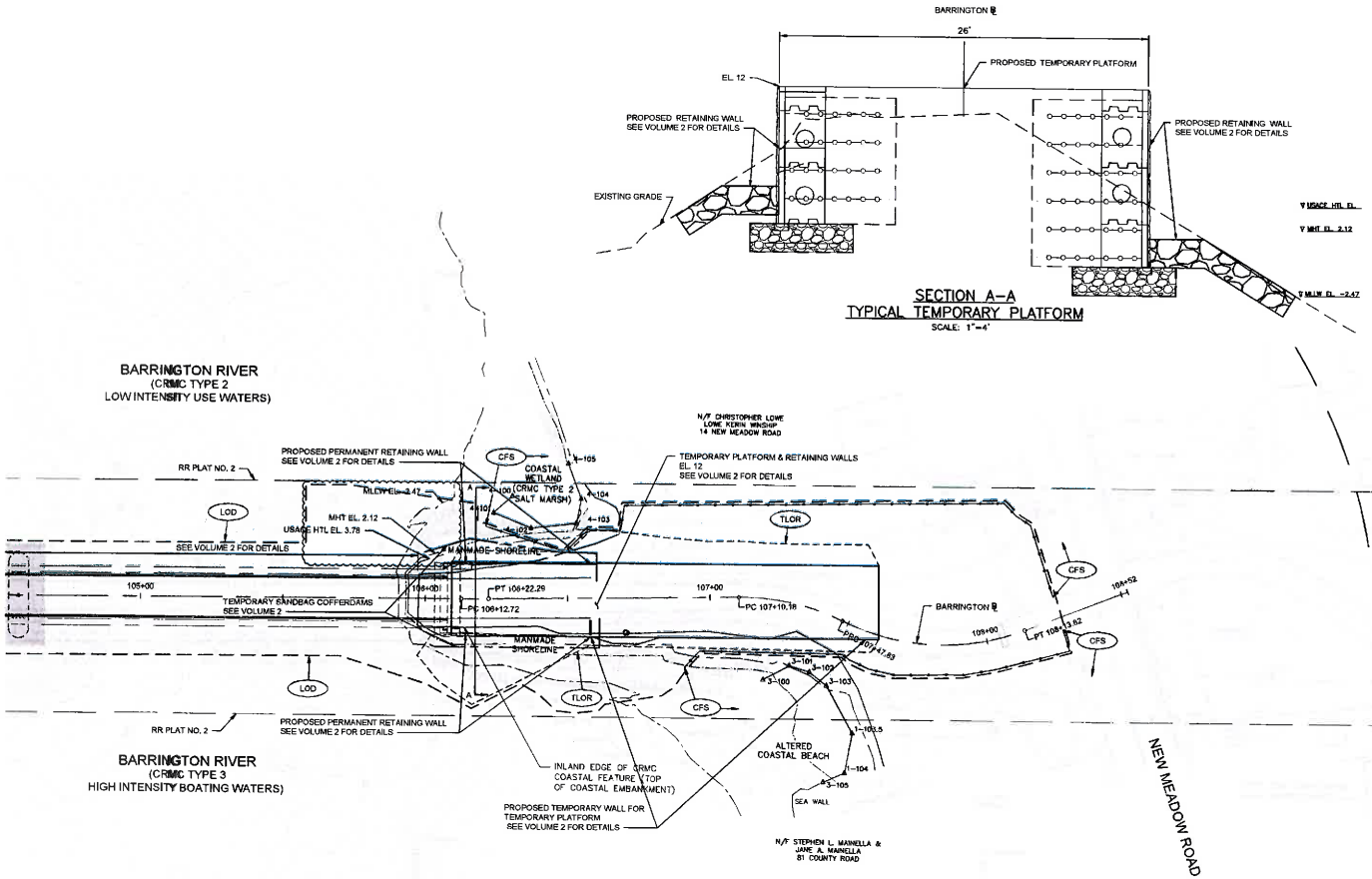
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

TYPICAL SECTIONS

01BBA_V1_006_TYPICAL

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	7	26



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OF: 26

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SCALE IN FEET

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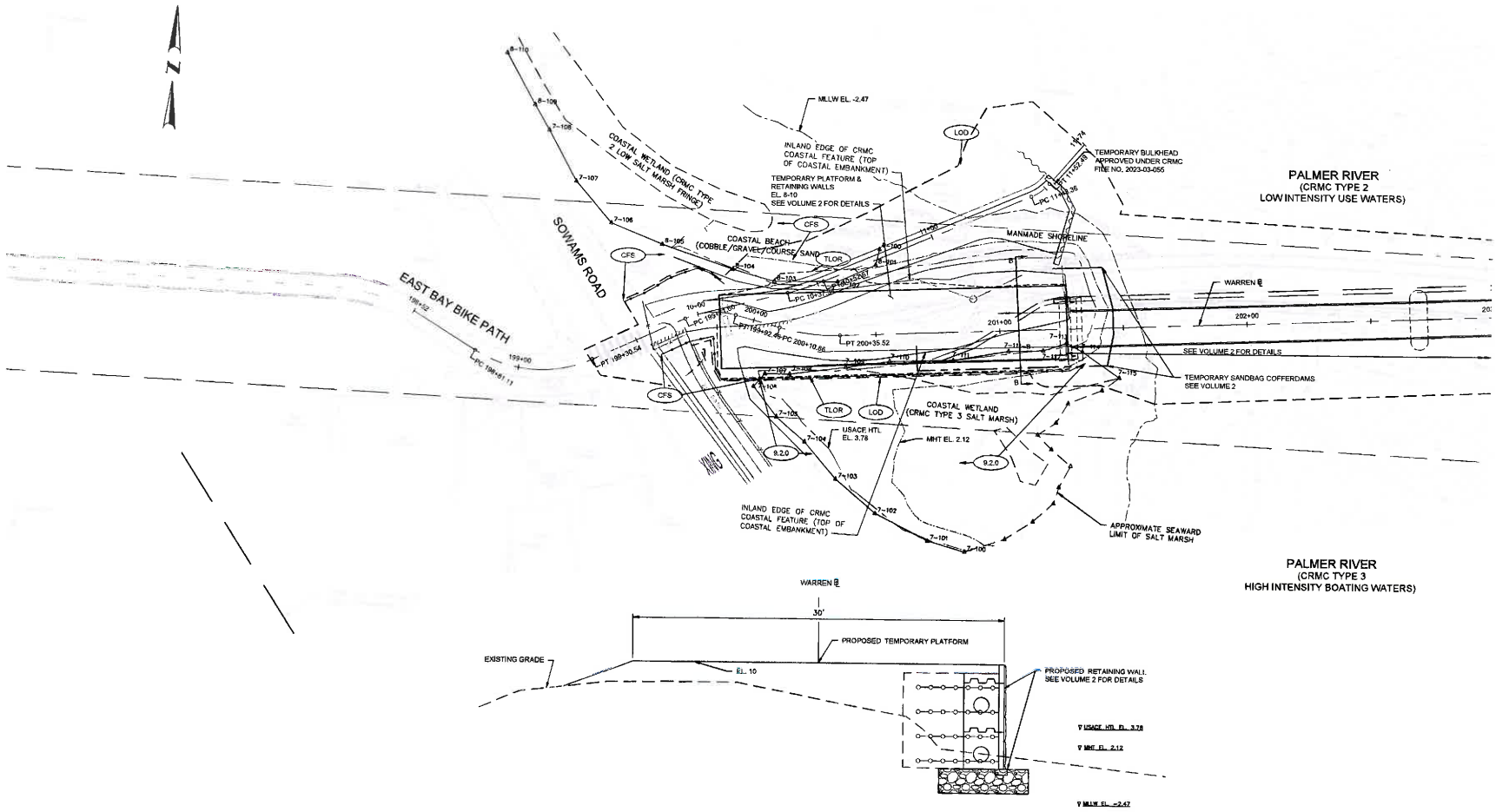
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

TEMPORARY WORK PLATFORM PLAN AND SECTION NO. 1

0188A_V1_007_TEMPPLAT001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	8	26



SECTION B–B
TEMPORARY PLATFORM
SCALE: 1"=4'

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SHEET: 8
OF: 26

SCALE: 1"=20'

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

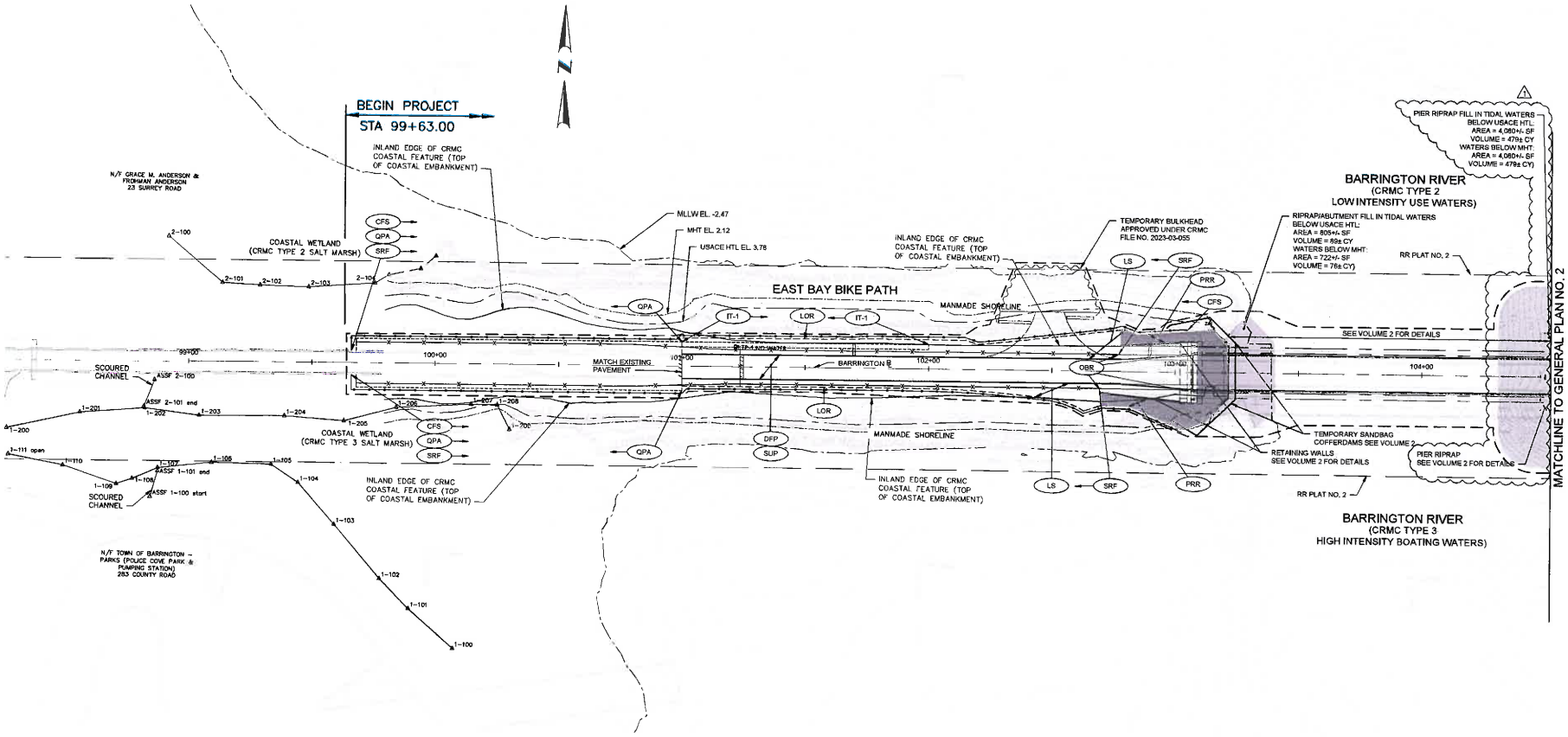
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

TEMPORARY WORK PLATFORM PLAN AND SECTION NO. 2

D188A_V1_008_TEMPPLAT002

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	9	26



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OF: 26

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SCALE IN FEET

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1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

GENERAL PLAN NO. 1

0188A_V1_009_GENERAL001

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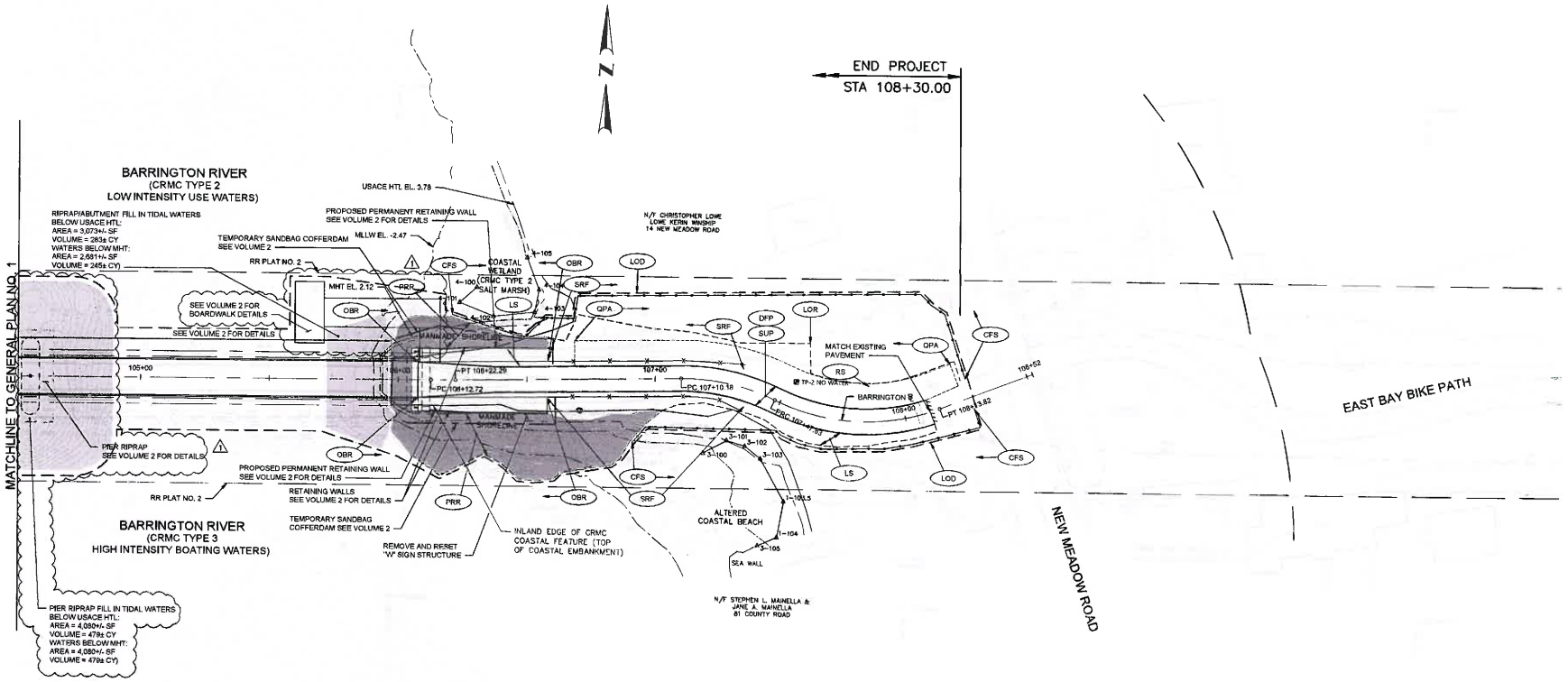
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	10	26



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DATE:
SHEET: 10
OF: 26

SCALE: 1"=20'
SCALE IN FEET

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1	2/1/24	VHB			

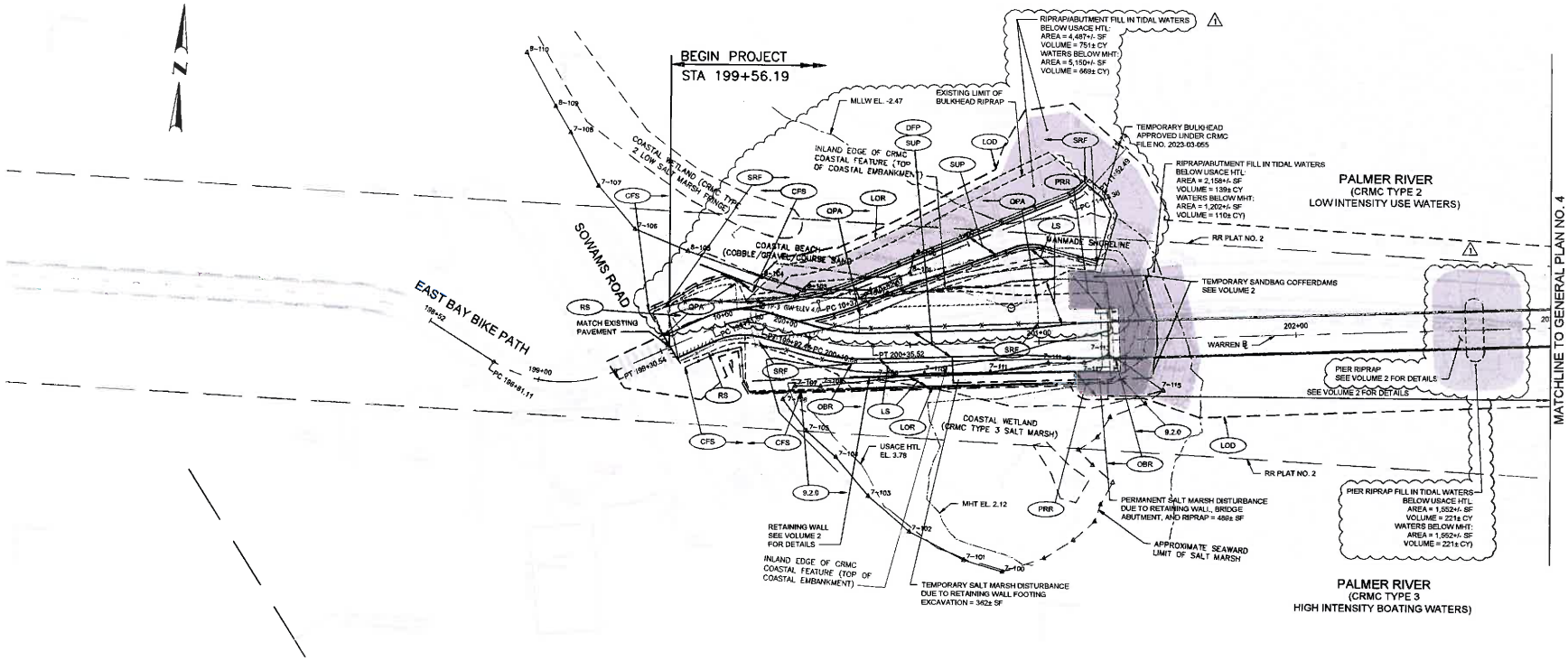
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

GENERAL PLAN NO. 2

0188A_V1_010_GENERAL002

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	11	26



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PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

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OF: 26

SCALE: 1"=20'

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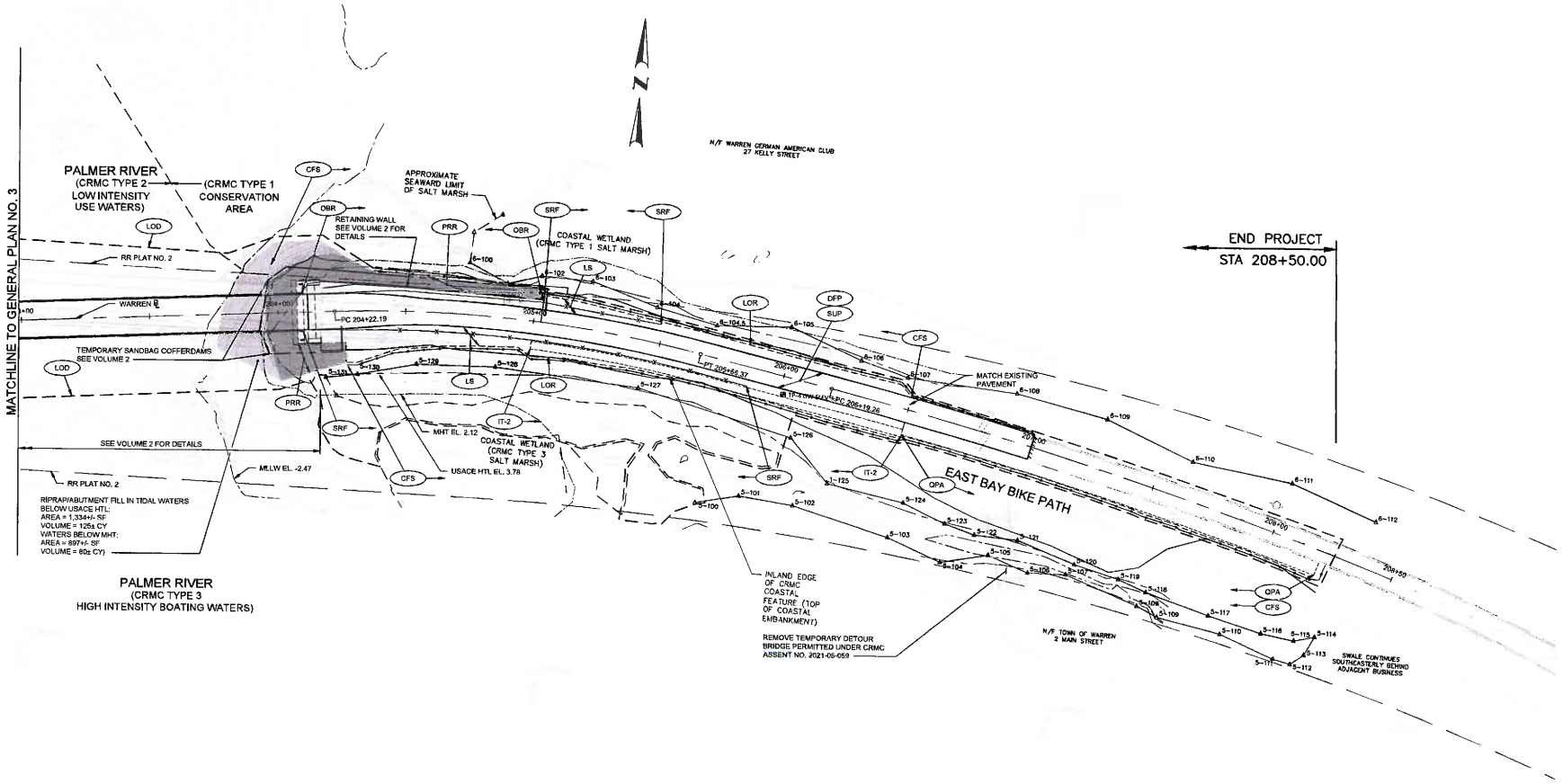
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

GENERAL PLAN NO. 3

0188A_V1_011_GENERAL003

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	12	26



REDEVELOPMENT 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

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OF: 26

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SCALE IN FEET

REVISIONS			REVISIONS		
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EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

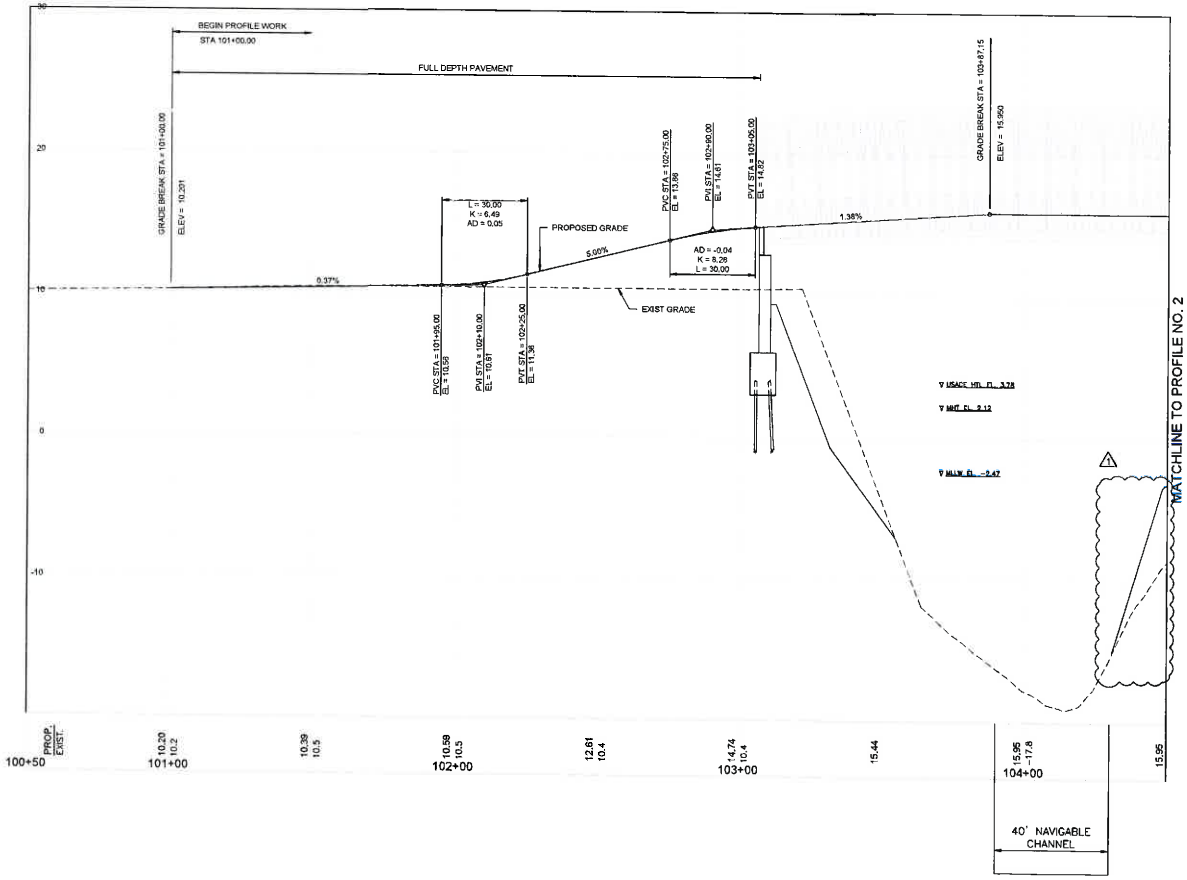
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

GENERAL PLAN NO. 4

0188A_V1_012_GENERAL004

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	13	26



RECEIVED
2/7/2024
COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

RI DOT
RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 13
OF: 26

SCALE: 1"=20' HOR., 1"=4' VERT.

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	2/1/24	VHB			

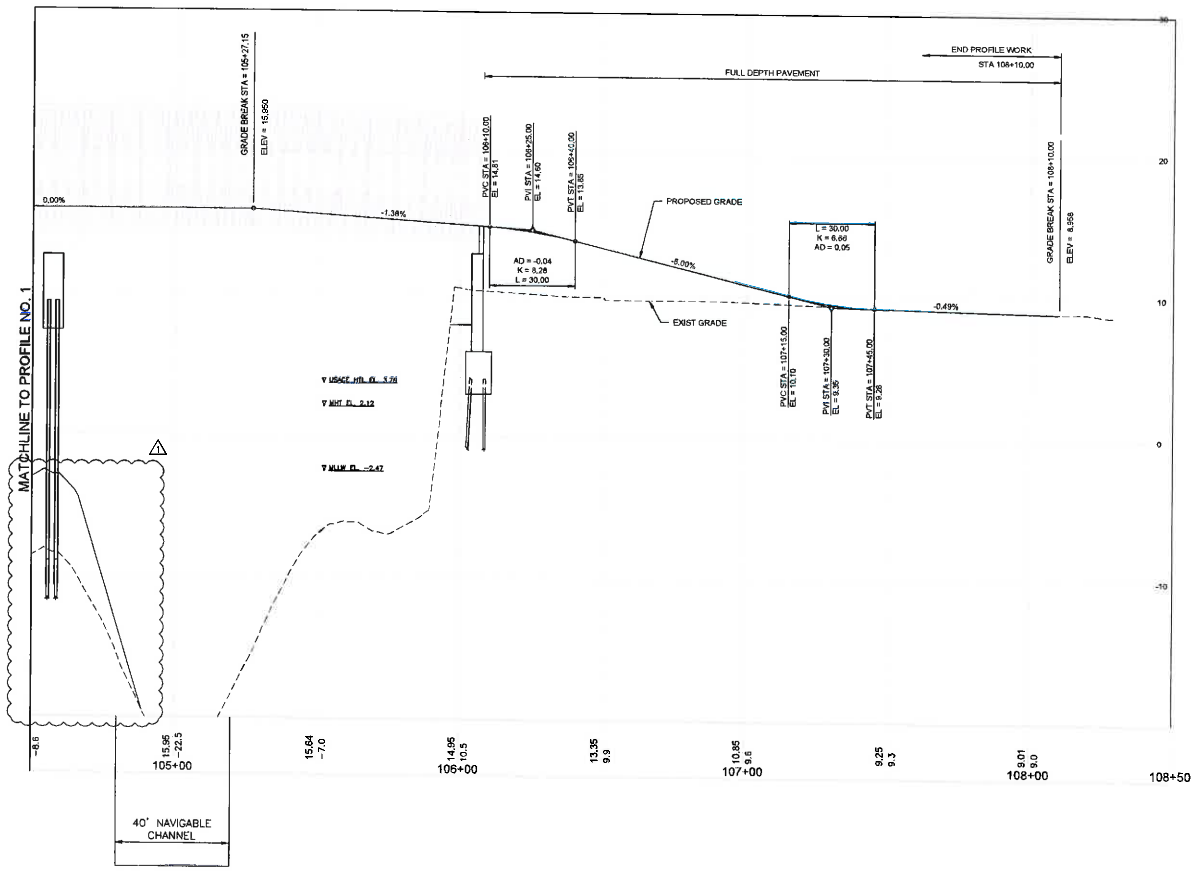
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

PROFILE NO. 1

0188A_V1_013_PROFILE001

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	14	26



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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 14
OF: 26

SCALE: 1"=20' HOR., 1"=4' VERT.

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	2/1/24	VHB			

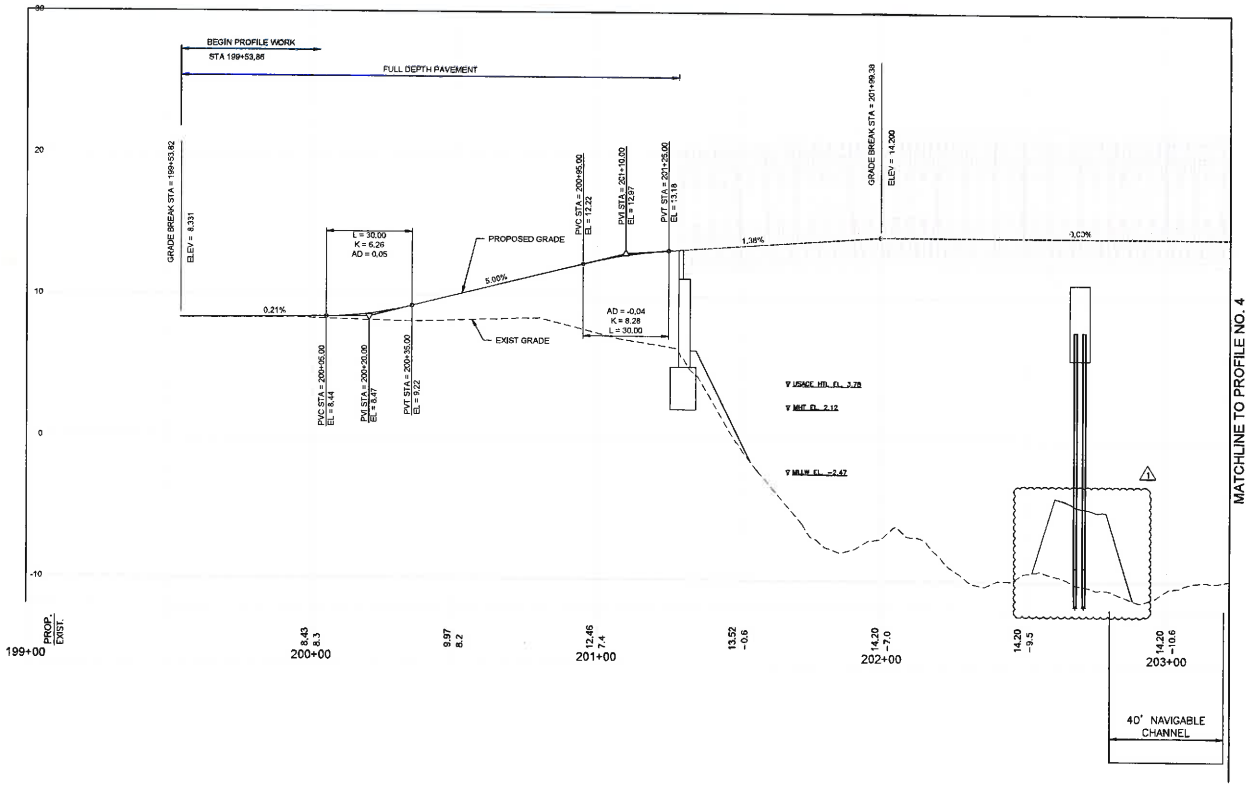
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

PROFILE NO. 2

0188A_V1_014_PROFILE002

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	15	26



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PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023, CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 15
OF: 26

SCALE: 1"=20' HOR., 1"=4' VERT.

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

PROFILE NO. 3

01888A_V1_015_PROFILE003

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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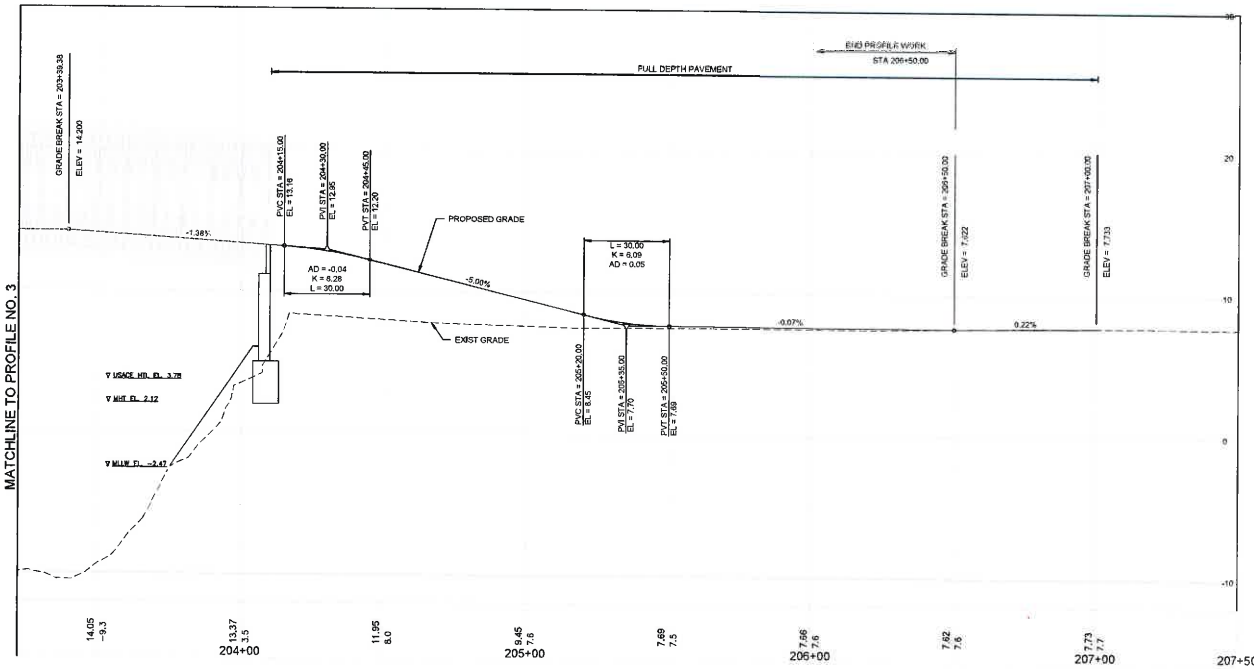

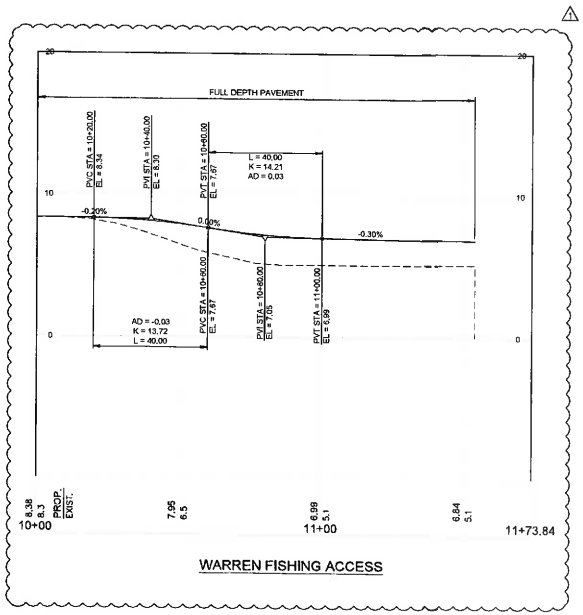

WARREN FISHING ACCESS

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 16
OF: 26

SCALE: 1"=20' HOR., 1"=4' VERT.

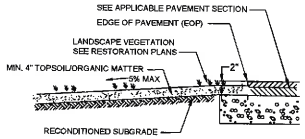
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

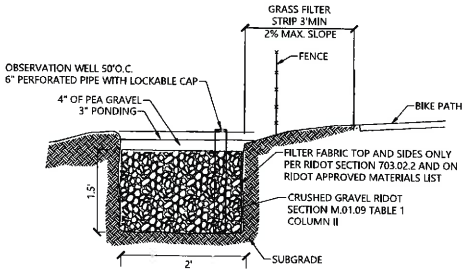
PROFILE NO. 4

0188A_V1_016_PROFILE004

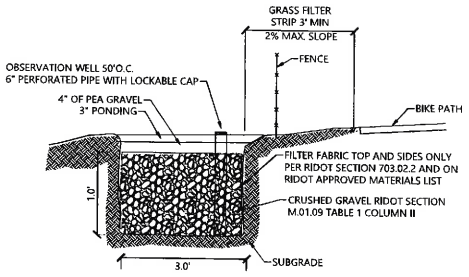
FED. RDWD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	17	26



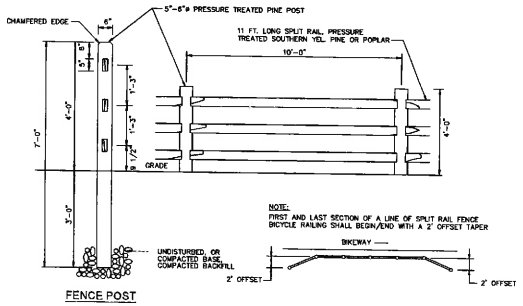
QUALIFIED PERVIOUS AREA (QPA)
NOT TO SCALE



INFILTRATION TRENCH - 1 (IT-1)
NOT TO SCALE

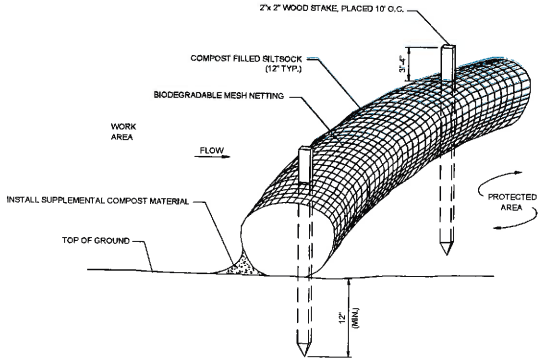


INFILTRATION TRENCH - 2 (IT-2)
NOT TO SCALE



FENCE POST

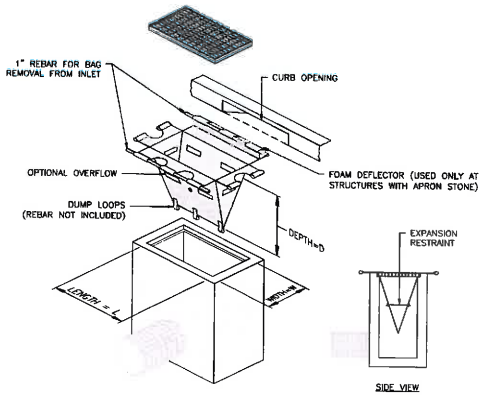
SPLIT RAIL FENCE (SRF)
NOT TO SCALE



NOTES:

1. FILTER SOCK SHALL OVERLAP A MINIMUM OF 12 INCHES.
2. FILTER SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
3. COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
4. IF NON BIODEGRADABLE NETTING IS USED THE NETTING SHALL BE COLLECTED AND DISPOSED OF OFFSITE.

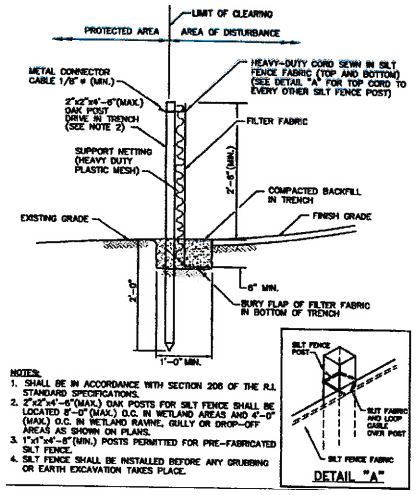
COMPOST FILTER SOCK (CFS)
NOT TO SCALE



INLET SEDIMENT CONTROL DEVICE NOTES:

1. MEASURE CATCH BASIN DIMENSIONS AND PROVIDE APPROPRIATELY-SIZED DEVICES PER MANUFACTURER'S REQUIREMENTS.
2. INSTALL INLET PROTECTION IN CATCH BASIN BEFORE COMMENCING ANY ROADWORK.
3. GRATE TO BE PLACED OVER INLET PROTECTION.
4. INLET PROTECTION SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS. CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED WITH TOPSOIL AND GRASS.

INLET SEDIMENT CONTROL DEVICE DETAIL (IP)
NOT TO SCALE



NOTES:

1. SHALL BE IN ACCORDANCE WITH SECTION 208 OF THE R.I. STANDARD SPECIFICATIONS.
2. 2"x2"x4'-6"(MAX.) OAK POSTS FOR SILT FENCE SHALL BE LOCATED 8'-0"(MAX.) O.C. IN WETLAND AREAS AND 4'-0" (MAX.) O.C. IN WETLAND RAVINE, GULLY OR DROP-OFF AREAS AS SHOWN ON PLANS.
3. 1"x1"x4'-6"(MIN.) POSTS PERMITTED FOR PRE-FABRICATED SILT FENCE.
4. SILT FENCE SHALL BE INSTALLED BEFORE ANY GRUBBING OR EARTH EXCAVATION TAKES PLACE.

SILT FENCE DETAIL (9.2.0)
NOT TO SCALE

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AETNA a Bridge Company
vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 17
OF: 26

SCALE: AS SHOWN

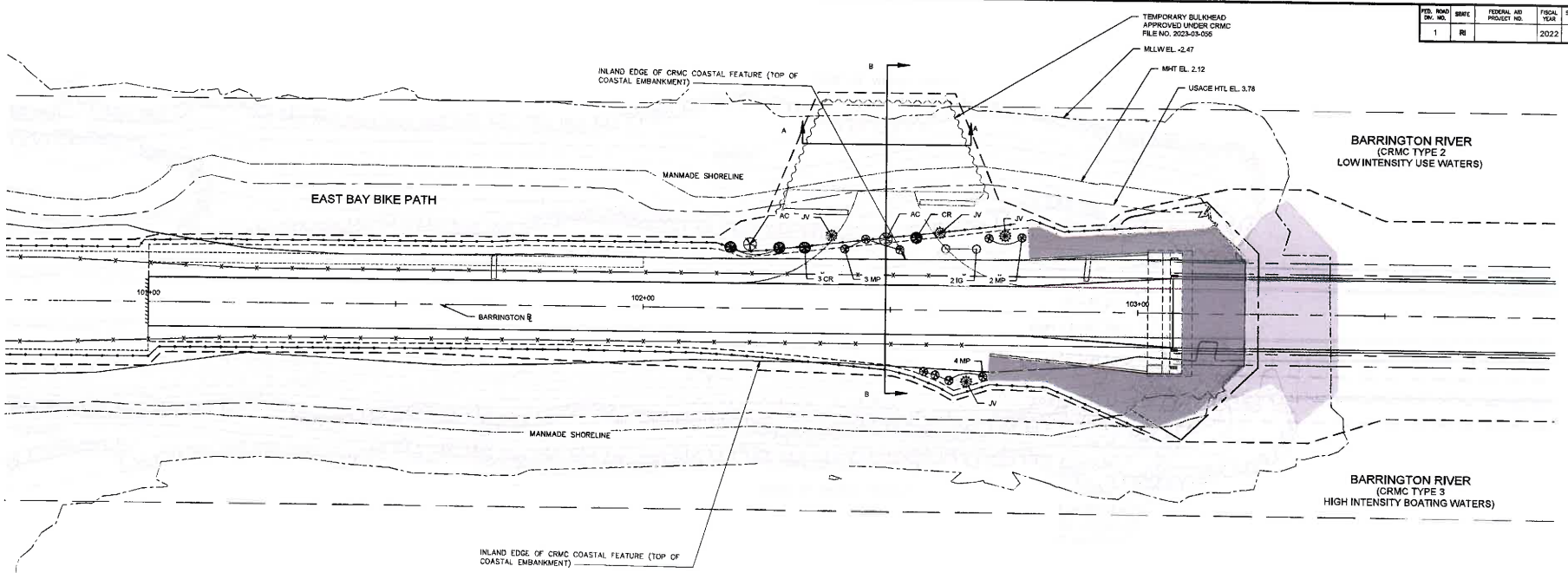
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

MISCELLANEOUS DETAILS

0188A_V1_017_MISCDET001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	18	26

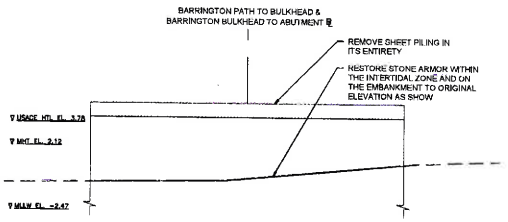


RESTORATION PLANT LIST

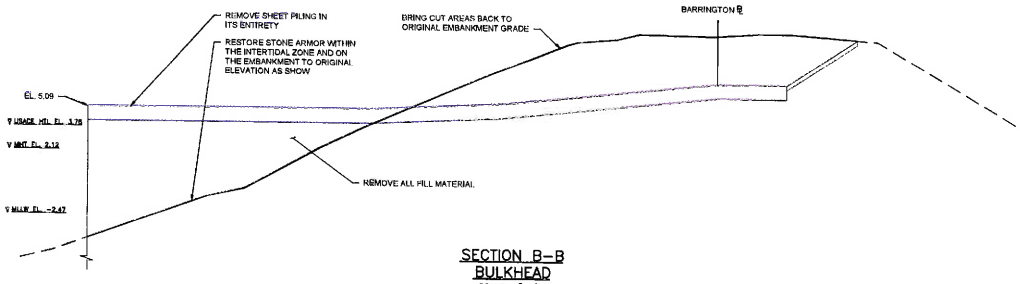
2	AC	AMERICAN SHADBUSH	*(AMELANCHIER CANADENSIS*	B&B	4' MIN.
4	JV	EASTERN RED CEDAR	*(JUNIPERUS VIRGINIANA)*	B&B	4' MIN.
9	MP	NORTHERN BAYBERRY	*(MORELLA PENSYLVANICA)*	B&B	3' MIN.
2	IG	INKBERRY HOLLY	*(ILEX GLABRA)*	B&B	3' MIN.
4	CR	GRAY DOGWOOD	*(CORNUS RACEMOSA)*	B&B	3' MIN.

RESTORATION NOTES

1. REMOVE SHEET PILING IN ITS ENTIRETY, AFTER REMOVING INTERIOR FILLS.
2. REMOVE ALL FILL MATERIAL AND BRING CUT AREAS BACK TO ORIGINAL EMBANKMENT GRADE.
3. RESTORE STONE ARMOR WITHIN THE INTERTIDAL ZONE AND ON THE EMBANKMENT TO ORIGINAL ELEVATION AS SHOWN.
4. REGRADE, LOAM AND SEED EMBANKMENT FROM EMBANKMENT STONE UP TO BIKE PATH.
5. INSTALL TREE AND SHRUB PLANTINGS AS SHOWN.



SECTION A–A
BULKHEAD
SCALE: 1"=4'



SECTION B–B
BULKHEAD
SCALE: 1"=4'

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AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 18
OF: 26

SCALE: 1"=10'
10 0 10 20
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

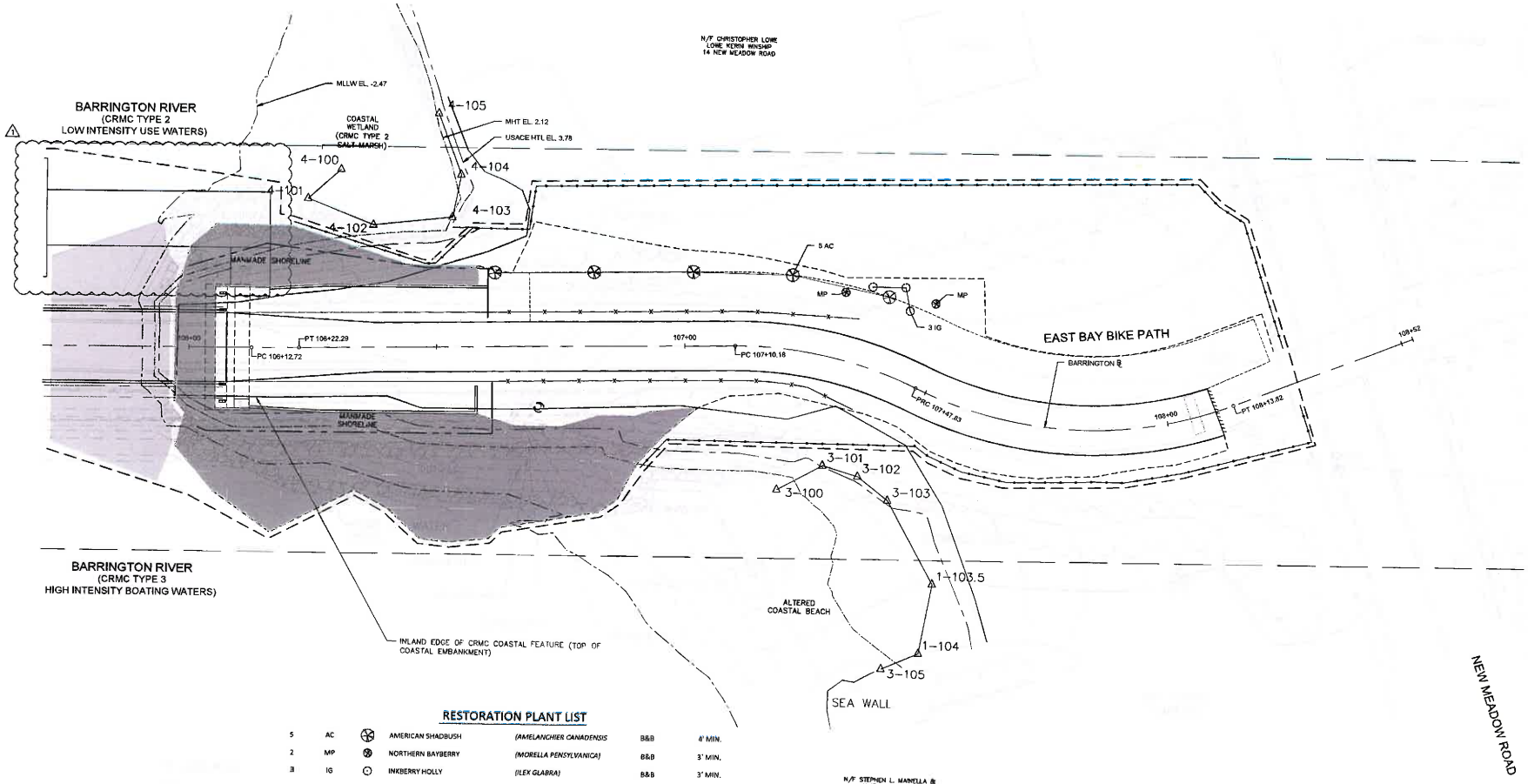
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

RESTORATION PLAN NO. 1

0188A_V1_018_RESTORAT001

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	19	26



RESTORATION PLANT LIST

5	AC		AMERICAN SHADBUSH	*(AMELANCHIER CANADENSIS*	B&B	4' MIN.
2	MP		NORTHERN BAYBERRY	*(MORELLA PENSYLVANICA)*	B&B	3' MIN.
3	IG		INKBERRY HOLLY	*(ILEX GLABRA)*	B&B	3' MIN.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 19
OF: 26

SCALE: 1"=10'

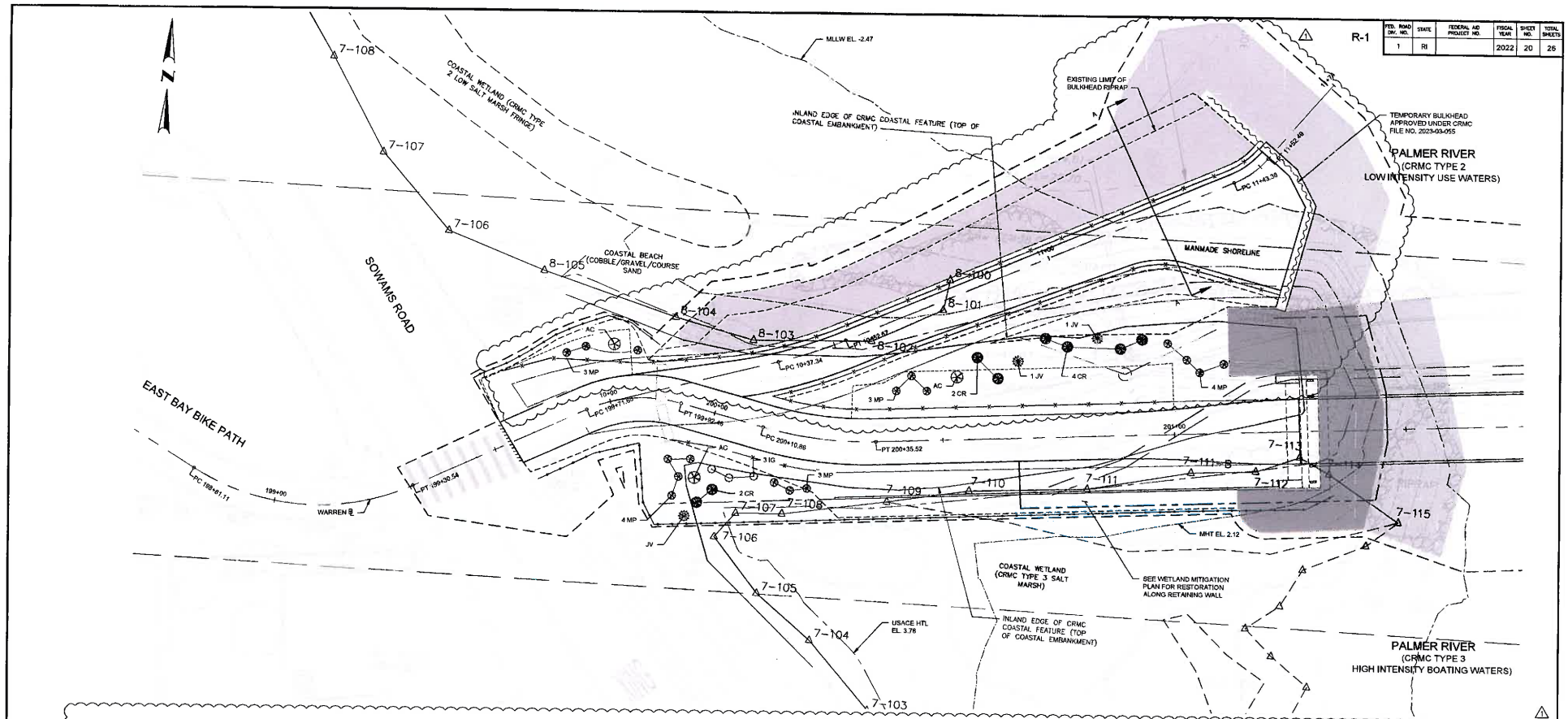
REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

RESTORATION PLAN NO. 2

0188A_V1_019_RESTORAT002

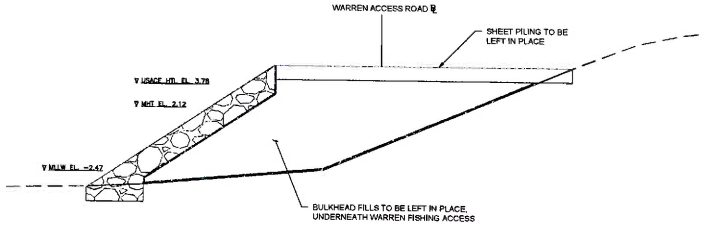


FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	20	26

R-1

RESTORATION PLANT LIST

3	AC	AMERICAN SHADBUSH	*(AMELANCHIER CANADENSIS*	B&B	4' MIN.
3	JV	EASTERN RED CEDAR	*(JUNIPERUS VIRGINIANA)*	B&B	4' MIN.
17	MP	NORTHERN BAYBERRY	*(MORELLA PENSYLVANICA)*	B&B	3' MIN.
3	IG	INKBERRY HOLLY	*(ILEX GLABRA)*	B&B	3' MIN.
8	CR	GRAY DOGWOOD	*(CORNUS RACEMOSA)*	B&B	3' MIN.



SECTION A–A
ACCESS ROAD
SCALE: 1"=4'

RESTORATION NOTES

1. SHEET PILING TO BE LEFT IN PLACE.
2. NON-WOVEN GEOTEXTILE FABRIC TO BE LEFT IN PLACE.
3. REGRADE, LOAM, AND SEED AREA BETWEEN WARREN BIKE PATH AND WARREN FISHING ACCESS
4. REGRADE, LOAM, AND SEED SHOULDER BETWEEN EMBANKMENT CREST AND PAVEMENT OF WARREN FISHING ACCESS.
5. INSTALL TREE AND SHRUB PLANTINGS AS SHOWN.

RECEIVED 2/7/2024 RHODE ISLAND COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 20
OF: 26

SCALE: 1"=10'

REVISIONS NO.	DATE	BY
1	2/1/24	VHB

REVISIONS NO.	DATE	BY

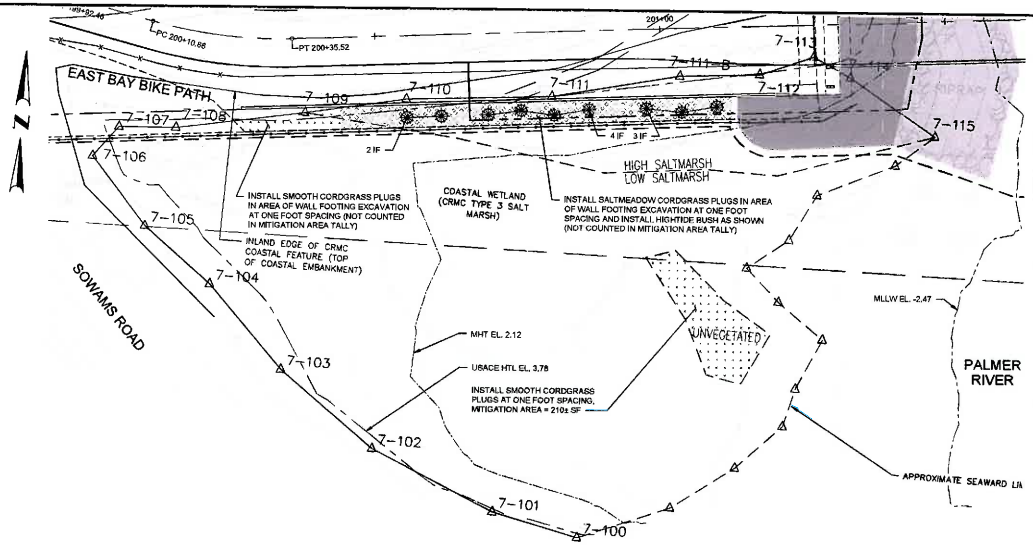
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

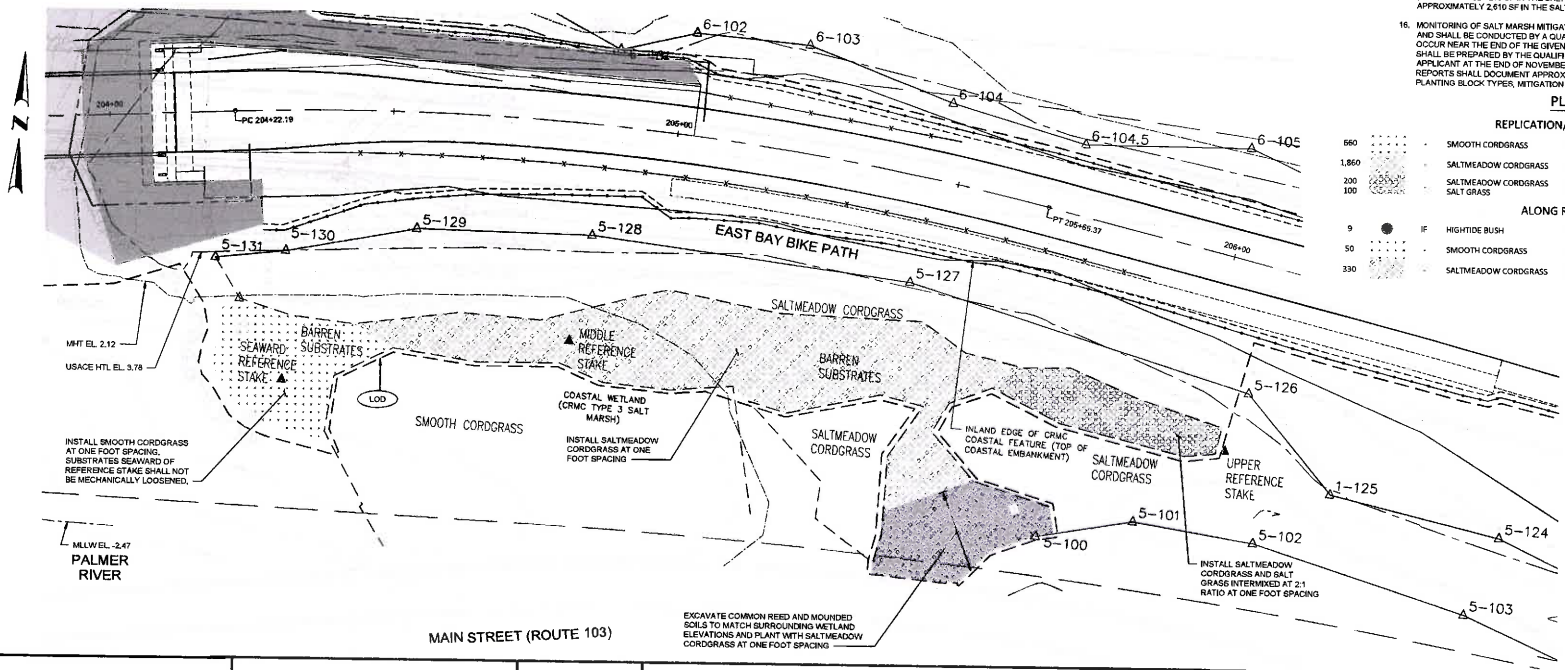
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

RESTORATION PLAN NO. 3

0188A_V1_020_RESTORAT003

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	21	26





LEGEND

SEAWARD MOST BLOCK AND ON THE WEST SIDE OF THE RIVER: SMOOTH CORDGRASS (Spartina alterniflora) TO BE PLANTED AT ONE FOOT SPACING OVER ENTIRE DESIGNATED AREA.

MIDDLE BLOCK: SALTMEADOW CORDGRASS (Spartina patens) TO BE PLANTED AT ONE FOOT SPACING OVER ENTIRE DESIGNATED AREA.

UPPER (EASTERNMOST) BLOCK: SALTMEADOW CORDGRASS AND SALT GRASS (Distichlis spicata) TO BE PLANTED AT ONE FOOT SPACING OVER ENTIRE DESIGNATED AREA AT A RATIO OF 2 PLUGS SALTMEADOW CORDGRASS TO ONE PLUG SALT GRASS RANDOMLY INTERMIXED.

SOIL PREPARATION NOTES FOR SALT MARSH RESTORATION AREA

1. SUBSTRATES ON CHANNEL SIDE OF SEAWARD REFERENCE STAKE SHALL NOT BE MECHANICALLY LOOSENED OR AMENDED SO THEY CAN REMAIN HARDENED AGAINST CURRENTS AND WAVE ACTION.
2. SUBSTRATES BETWEEN SEAWARD AND MIDDLE REFERENCE STAKES SHALL BE MECHANICALLY LOOSENED TO A DEPTH OF ONE FOOT AND AUGMENTED WITH CLEAN MEDIUM TO COARSE SAND AT AN APPROXIMATE RATIO OF 3 PARTS EXISTING SUBSTRATE TO ONE PART INTRODUCED SAND. THE EXISTING SUBSTRATE ELEVATION AND CONTOURING SHALL BE MAINTAINED, SUCH THAT EXISTING SUBSTRATES SHALL BE REMOVED PRIOR TO SAND INTRODUCTION. INTRODUCED SAND SHALL THEN BE WELL MIXED WITH THE EXISTING SUBSTRATES TO THE ONE-FOOT DEPTH.
3. SUBSTRATES BETWEEN THE MIDDLE AND UPPER STAKES SHALL BE MECHANICALLY LOOSED TO AN APPROXIMATE 30 INCH DEPTH SO THAT IT BECOMES FRIABLE. THE UPPER ONE FOOT SHALL BE REMOVED AND REPLACED WITH 9 INCHES OF CLEAN MEDIUM TO COARSE SAND. THE FINAL SURFACE ELEVATION SHALL BE APPROXIMATELY THREE INCHES LOWER THAN THE EXISTING SURFACE ELEVATION AND GRADED SMOOTHLY AND EVENLY UPWARD TO THE UPPER REFERENCE STAKE TO INCREASE THE LANDWARD AREA OF TIDAL INUNDATION.
4. THE MOUNDED AREA CURRENTLY OCCUPIED BY COMMON REED (PHRAGMITES AUSTRALIS) SHALL BE LOWERED IN ELEVATION TO MATCH SURROUNDING SALT MARSH GRADES AND MECHANICALLY LOOSENED TO A DEPTH OF APPROXIMATELY 30 INCHES. ALL COMMON REED RHIZOMES SHALL BE REMOVED AND LAWFULLY DISPOSED OFF SITE.

GENERAL MITIGATION NOTES

1. ALL WORK SHALL COMPLY WITH THE APPROVED SITE PLANS AND ALL PERMITS AND PERMIT CONDITIONS ISSUED BY THE CRMC, RIDEM, AND USACE.
2. A QUALIFIED WETLAND BIOLOGIST SHALL BE PRESENT AT LEAST PART TIME WHILE MITIGATION ACTIVITIES ARE BEING CONDUCTED TO OBSERVE WORK ACTIVITIES AND PROVIDE GUIDANCE AS MAY BE NECESSARY.
3. PRIOR TO WORK COMMENCEMENT, AN ON-SITE MEETING SHALL BE HELD WITH THE CONTRACTOR, QUALIFIED BIOLOGIST, AND ANY INTERESTED REGULATORY PERMITTING PERSONNEL TO REVIEW WORK LIMITS AND METHODS.
4. WORK WILL NEED TO BE TIMED WITH LOW TIDE CYCLES.
5. TO THE EXTENT PRACTICABLE, SALT MARSH MITIGATION SHALL OCCUR DURING THE FIRST FULL GROWING SEASON OF THE PROJECT, PRIOR TO THE PROPOSED SALT MARSH DISPLACEMENT.
6. MACHINERY ACCESS SHALL OCCUR FROM THE BIKE PATH, AT A LOCATION ACCEPTABLE TO THE QUALIFIED WETLANDS BIOLOGIST AND REGULATORY PERSONNEL.
7. MACHINERY WORK IN THE SALT MARSH SHALL OCCUR SEQUENTIALLY FROM SEAWARD TO LANDWARD IN A MANNER THAT MINIMIZES EQUIPMENT PASSES AND AVOIDS PASSING OVER SUBSTRATES THAT HAVE BEEN MECHANICALLY LOOSENED.
8. PLUGS OF SALT MARSH GRASSES SHALL BE OF NATIVE VARIETY AND OBTAINED FROM REPUTABLE NURSERIES IN THE NORTHEAST.
9. PLUGS OF SALT MARSH GRASSES SHALL BE SECURED FIRMLY IN THE SUBSTRATE SO THEY DO NOT FLOAT DURING TIDAL INUNDATION.
10. A FERTILIZER SUPPLEMENT SHALL ACCOMPANY EACH PLUG AT TIME OF PLANTING, AS RECOMMENDED BY THE PLANT SUPPLIER.
11. TO THE EXTENT POSSIBLE, PLUGS OF SALT MARSH GRASSES SHALL BE PLANTED IN THE SPRING TO ALLOW MAXIMUM ROOT DEVELOPMENT OVER A FULL GROWING SEASON.
12. MECHANICAL MEANS OF CANADA GOOSE DETERRENT SHALL BE EMPLOYED, AS WITH ELEVATED TWINE AND FLAGGING TO DISTRACT ENTRY AND INTERFERE WITH LANDING. SUCH DETERRENT SHALL REMAIN IN PLACE FOR AT LEAST ONE GROWING SEASON, UNTIL ROOTS ARE WELL ESTABLISHED AND PROVIDE SUFFICIENT ANCHORING. THE METHOD OF DETERRENT SHALL BE APPROVED BY CRMC PERMITTING PERSONNEL PRIOR TO INSTALLATION.
13. CLUMPS OF COMMON REED (Phragmites australis) PRESENT OUTSIDE OF THE AREA SHOWN FOR REMOVAL SHALL BE REMOVED MANUALLY, SUCH THAT ENTIRE RHIZOMES ARE REMOVED.
14. ALL SAND INTRODUCED TO AMEND EXISTING SUBSTRATES SHALL BE OF LOCAL SOURCE, CLEAN, AND FREE OF DEBRIS AND CONTAMINATION.
15. APPROXIMATELY 2,820 SF OF WETLAND REPLICATION/RESTORATION/ENHANCEMENT IS PROPOSED (APPROXIMATELY 210 SF IN THE SALT MARSH ON THE WEST SIDE OF THE PALMER RIVER AND APPROXIMATELY 2,610 SF IN THE SALT MARSH ON THE EAST SIDE OF THE PALMER RIVER).
16. MONITORING OF SALT MARSH MITIGATION CONDITIONS SHALL OCCUR FOR THREE FULL GROWING SEASONS AND SHALL BE CONDUCTED BY A QUALIFIED WETLANDS BIOLOGIST. FINAL ANNUAL INSPECTIONS SHALL OCCUR NEAR THE END OF THE GIVEN GROWING SEASON, AND A SINGLE ANNUAL MONITORING REPORT SHALL BE PREPARED BY THE QUALIFIED WETLANDS BIOLOGIST AND SUBMITTED BY, OR ON BEHALF OF, THE APPLICANT AT THE END OF NOVEMBER OF THE GIVEN CALENDAR YEAR. THE ANNUAL MONITORING REPORTS SHALL DOCUMENT APPROXIMATE VEGETATIVE COVER ACHIEVED IN EACH OF THE THREE PLANTING BLOCK TYPES, MITIGATION SUCCESS AND FAILURES, AND ANY NEEDED CORRECTIVE ACTIONS.

PLANT LIST

REPLICATION/RESTORATION AREAS

660	·	SMOOTH CORDGRASS	*(SPARTINA ALTERNIFLORA)*	PLUGS	–
1,860	·	SALTMEADOW CORDGRASS	*(SPARTINA PATENS)*	PLUGS	–
200	·	SALTMEADOW CORDGRASS	*(SPARTINA PATENS)*	PLUGS	–
100	·	SALT GRASS	*(DISTICHLIS SPICATA)*	PLUGS	–

ALONG RETAINING WALL

9	IF	HIGHTIDE BUSH	*(IVA FRUTESCENS)*	B&B	3' MIN.
50	·	SMOOTH CORDGRASS	*(SPARTINA ALTERNIFLORA)*	PLUGS	–
330	·	SALTMEADOW CORDGRASS	*(SPARTINA PATENS)*	PLUGS	–

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 21
OF: 26

SCALE: 1"=10'
SCALE IN FEET

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

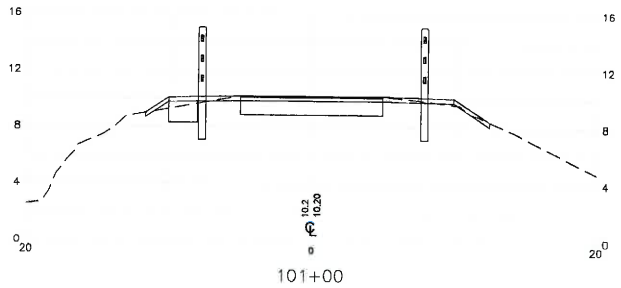
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

WETLAND MITIGATION PLAN

0188A_V1_021_WETLAND

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	22	26



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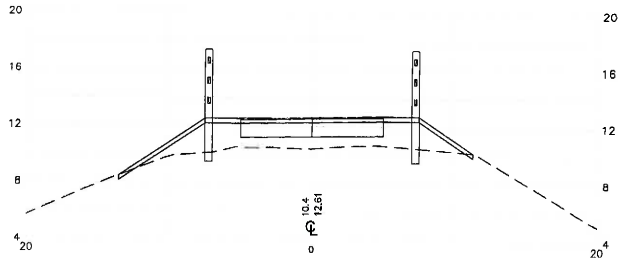

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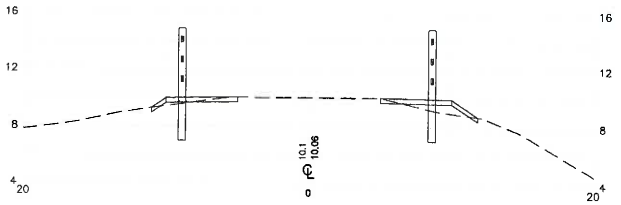

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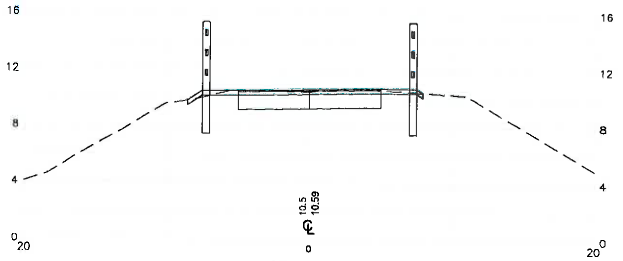

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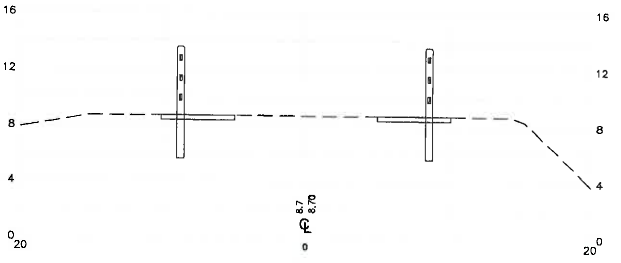

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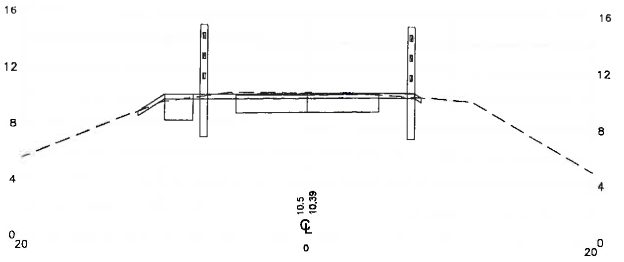

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RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 22
OF: 26

SCALE: 1"=4'
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

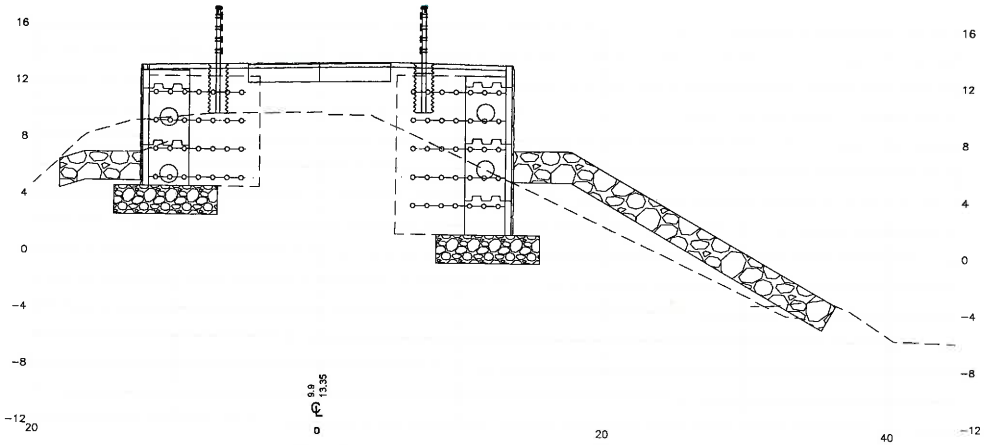
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

CROSS SECTIONS

0188A_V1_022_XSECTION001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	23	26



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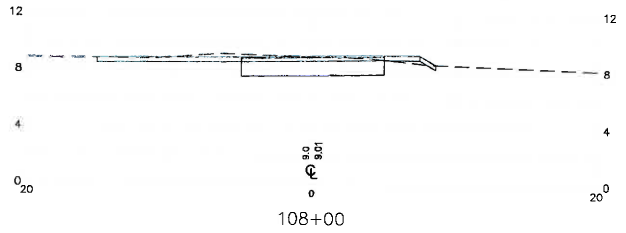

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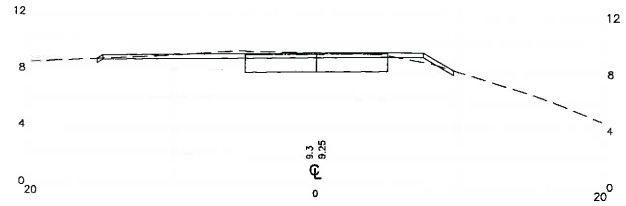

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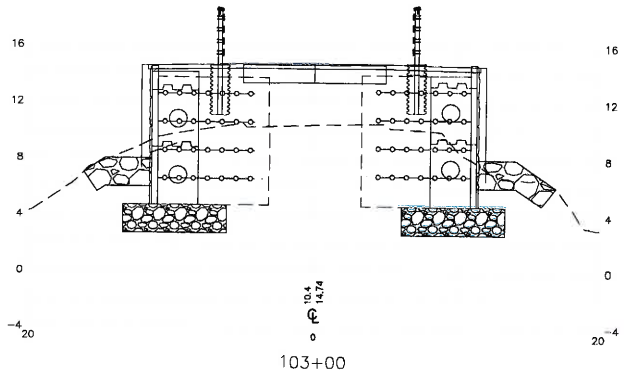

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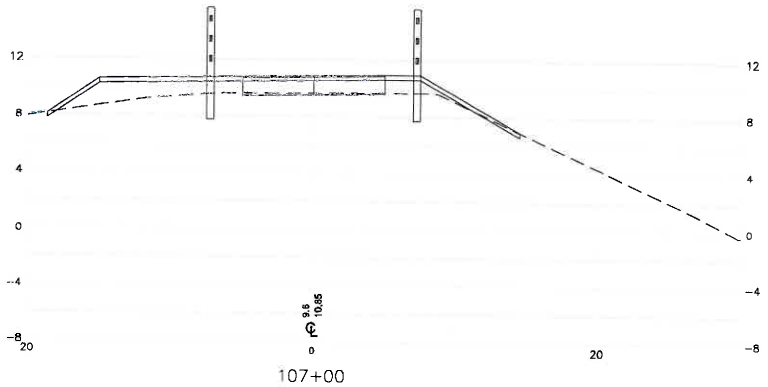

107+00

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 23
OF: 26

SCALE: 1"=4'
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

CROSS SECTIONS

0188A_V1_022_XSECTION001

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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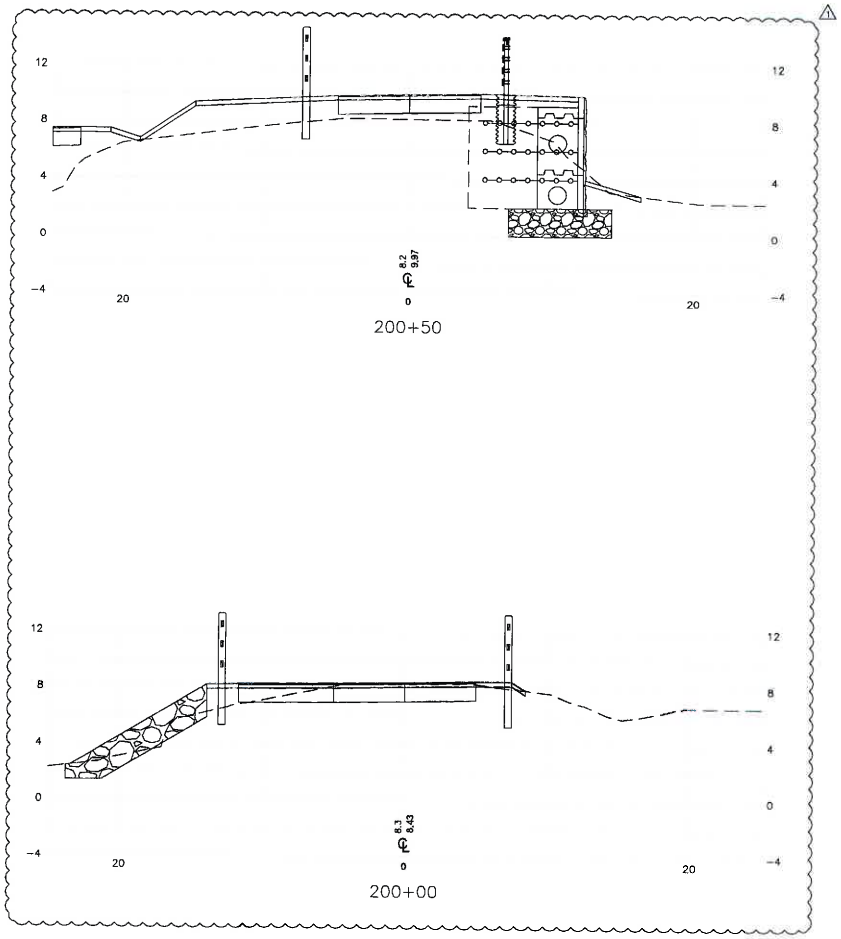
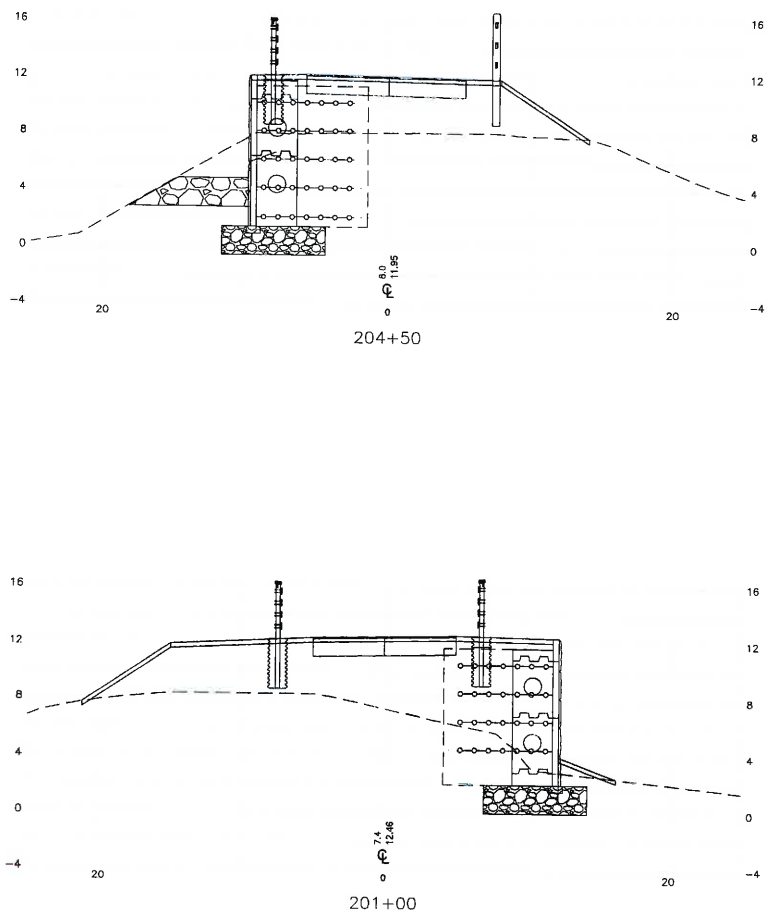




RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 24
OF: 26

SCALE: 1"=4'

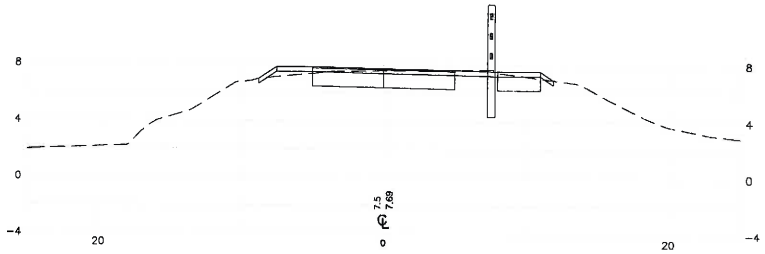
REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
VOLUME 1
BARRINGTON/WARREN RHODE ISLAND

CROSS SECTIONS

0188A_V1_022_XSECTION001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	25	26



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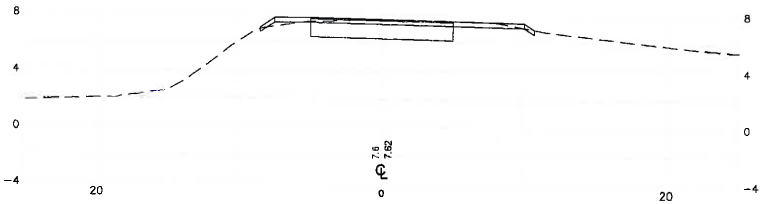

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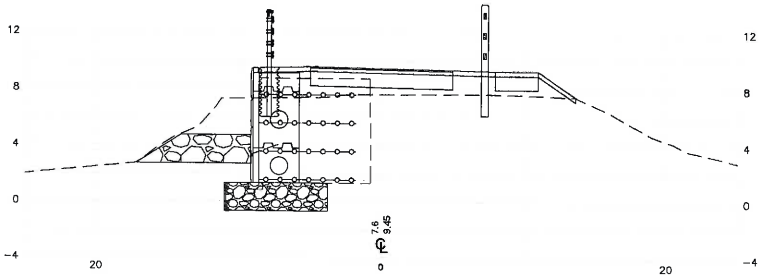

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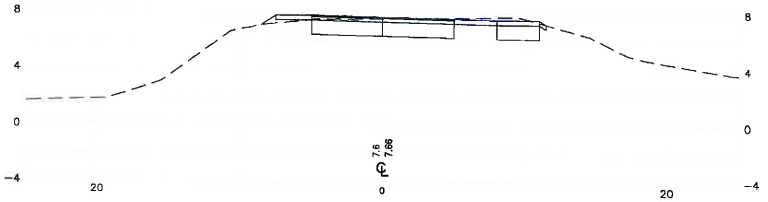

206+00

RECEIVED 2/7/2024 CONSERVATION COMMISSION NARRAGANSETT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 25
OF: 26

SCALE: 1"=4'

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

CROSS SECTIONS

0188A_V1_022_XSECTION001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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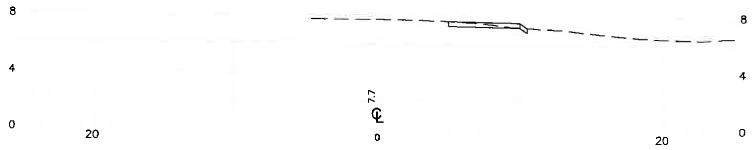

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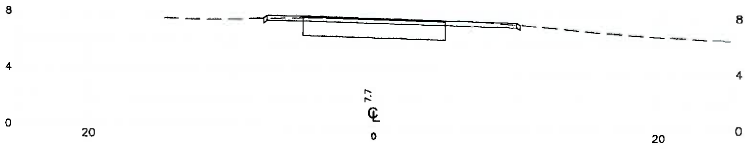

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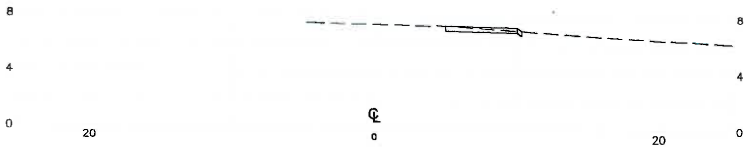


208+00

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 26
OF: 26

SCALE: 1"=4'
SCALE IN FEET

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)

BARRINGTON/WARREN VOLUME 1 RHODE ISLAND

CROSS SECTIONS

0188A_V1_022_XSECTION001

INDEX

STATE OF RHODE ISLAND

DEPARTMENT OF TRANSPORTATION

PLAN, PROFILE AND SECTIONS OF PROPOSED

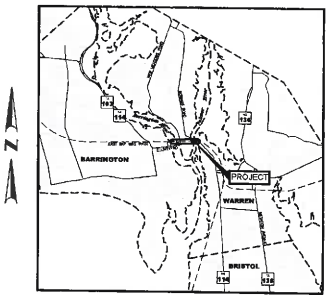
EAST BAY BIKE PATH BRIDGE REPLACEMENTS
BRIDGE NOS. 083751 & 083851
RECONSTRUCTION PLANS
ENVIRONMENTAL PERMITTING SET
VOLUME 2

EAST BAY BIKE PATH OVER BARRINGTON RIVER AND PALMER RIVER

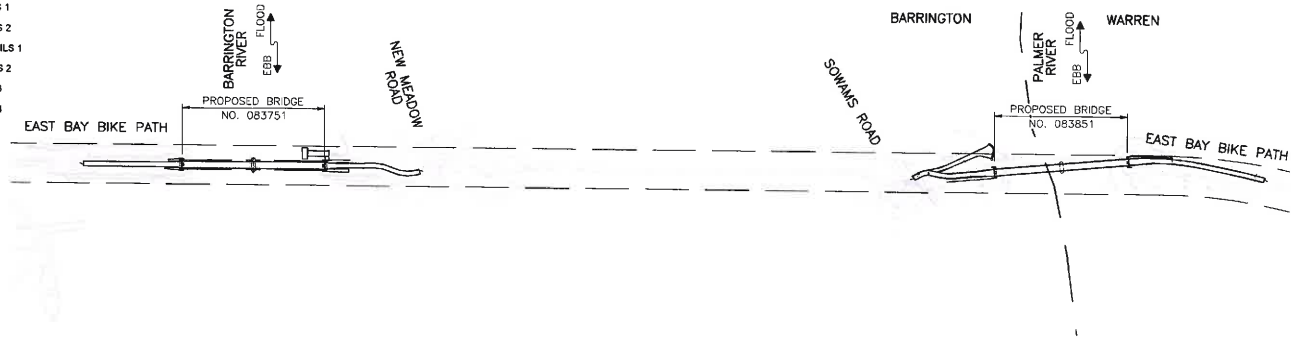
TOWNS OF BARRINGTON AND WARREN
COUNTY OF BRISTOL

R.I. CONTRACT NO. 2022-DB-012 F.A. PROJECT NO. BRO-0838(002)

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	1	38



LOCATION MAP
SCALE: 1"=5000'



LAYOUT PLAN
SCALE: 1"=120'

PERMIT PLAN REVISIONS FEBRUARY 2024

R.I. STANDARD SPECIFICATIONS AND STANDARD DETAILS

SPECIFICATIONS TO GOVERN THIS PROJECT ARE THE R.I. STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, MARCH 2018, WITH ALL REVISIONS AND THE STATE AND FEDERAL SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.

STANDARD DETAILS FOR THIS PROJECT ARE R.I. STANDARD DETAILS, 1998 EDITION, WITH ALL REVISIONS.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

RI DOT

AETNA Aetna Bridge Company

BASE OF LEVELS
NAVD 88
NAD 83 (2011)

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

Contract Number 2022-DB-012
Number of Sheet 1
Total Sheets 38

R.I. DEPARTMENT OF TRANSPORTATION

APPROVED

ADMINISTRATOR, PROJECT MANAGEMENT DATE

APPROVED

CHIEF ENGINEER OF INFRASTRUCTURE DATE

APPROVED

DIRECTOR DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

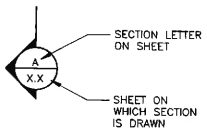
DIVISION ADMINISTRATOR DATE

0188A_V2_XXX_BCOVER

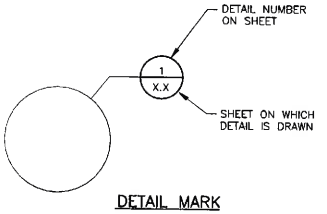
LIST OF ABBREVIATIONS

ABANDONED	= ABD.
ABUTMENT	= ABUT.
ADDITIONAL	= ADD'L
ALTERNATE	= ALT.
AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	= AASHTO
ANCHOR BOLT	= A.B.
AMERICAN PETROLEUM INSTITUTE	= API
APPROVED	= APPD.
APPROXIMATE	= APPROX.
AT	= @
AVERAGE	= AVG.
B	
BASELINE OF CONSTRUCTION	= ℄
BACK TO BACK	= B TO B
BEAM	= BM.
BEARING	= BRG.
BEND POINT	= B.P.
BETWEEN	= BTWN
BITUMINOUS	= BIT.
BITUMINOUS COATED CORRUGATED METAL PIPE	= B.C.C.M.P.
BUILDING	= BLDG.
BUILDING LINE	= B.L.
BOLT CIRCLE	= B.C.
BOTH SIDES	= B.S.
BOTTOM	= BOT.
BOTTOM OF FOOTING	= B.O.F.
C	
CAST IN PLACE	= C.I.P.
CENTER TO CENTER	= C TO C, C/C
COLLECTOR/DISTRIBUTOR	= C/D
CENTERLINE	= ℄
CIRCLE	= CIR.
CONTROLLED LOW STRENGTH MATERIAL	= CLSM
CLEARANCE	= CLR.
COLUMN	= COL.
CONCRETE	= CONC.
CONDUIT	= COND.
CONNECTION	= CONN.
CONSTRUCTION	= CONST.
CONTINUOUS	= CONT.
CONTRACTION	= CONTR.
CORRUGATED METAL PIPE	= CMP
COUNTERSINK	= CSK.
COUPLING	= CPLG.
D	
DETAIL	= DET.
DIAGONAL	= DIAG.
DIAPHRAGM	= DIAPHM.
DIAMETER	= DIA.
DIMENSION	= DIM.
DRAIN	= DR.
DRAWING	= DWG.
DRILL & GROUT	= D&G
E	
EACH	= EA.
EACH FACE	= E.F.
EACH WAY	= E.W.
EAST	= E.
EASTBOUND	= EB
ELECTRIC	= ELEC.
ELEVATION	= EL.
EMBANKMENT	= EMBANK.
EMBEDMENT	= EMBED.
EXISTING	= EXIST.
EXPANSION	= EXP.
EQUAL	= EQ.
F	
FABRICATE	= FAB.
FACE TO FACE	= F TO F
FAR FACE	= F.F.
FAR SIDE	= F.S.
FLANGE	= FLG.
FLAT HEAD	= F.H.
FOOTING	= FTG.
FOUNDATION	= FDN.
FURNISH, FABRICATE & ERECT	= F.F. & E.
G	
GAGE	= GA.
GALVANIZED	= GALV.
GRADE	= GR.
GRATING	= GRTG.
GROUND	= GND.
H	
HEIGHT	= HGT., HT.
HEXAGON	= HEX.
HIGH STRENGTH	= HS
HIGH TIDE LINE	= H.T.L.
HOT MIXED ASPHALT	= HMA
HOLLOW STRUCTURAL SECTION	= HSS
HORIZONTAL	= HORIZ.
I	
INCH	= IN.
INFORMATION	= INFO.
INSIDE DIAMETER	= I.D.
INTELLIGENT TRANSPORTATION SYSTEMS	= I.T.S.
INVERT	= INV.
J	
JOINT	= JT.
L	
LEFT	= LT.
LENGTH	= LGTH.
LIGHTING	= LTG.
LONG	= LG.
LONGITUDINAL	= LONGIT.
M	
MATERIAL	= MATL.
MAXIMUM	= MAX.
MEAN HIGH TIDE	= M.H.T.
MEAN HIGH WATER	= M.H.W.
MEAN LOW LOWER WATER	= M.L.L.W
MEAN LOW WATER	= M.L.W.
MEAN SEA LEVEL	= M.S.L.
MINIMUM	= MIN.
MISCELLANEOUS	= MISC.
N	
NEAR FACE	= N.F.
NEAR SIDE	= N.S.
NORTH	= N.
NORTHBOUND	= NB, N.B.
NOT IN CONTRACT	= N.I.C.
NOT TO SCALE	= N.T.S.
NUMBER	= NO.
O	
ON CENTER	= O.C.
OPENING	= OPNG.
OPPOSITE	= OPP.
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION	= OSHA
OUTSIDE DIAMETER	= O.D.
OPTIONAL	= OPT.
OVERHEAD WIRE	= O.H.W.
P	
PARALLEL	= PRL.
PEDESTRIAN	= PED.
PLATE	= PL
POINT OF VERTICAL CURVATURE	= P.V.C.
POINT OF VERTICAL TANGENCY	= P.V.T.
POINT	= PT.
POINT OF CURVATURE	= PC
POINT OF TANGENCY	= PT
POLYVINYL CHLORIDE	= PVC
POUNDS PER SQUARE INCH	= P.S.I.
PRECAST CONCRETE INSTITUTE	= PCI
PRECAST	= P/C
PRESTRESSED	= P/S
PROFILE GRADE LINE	= PGL
PROPOSED	= PROP.
R	
RADIUS	= RAD., R
RAILROAD	= RR.
REHABILITATION	= REHAB.
REINFORCED CONCRETE PIPE	= RCP
REINFORCING	= REINF.
RELOCATED	= RELOC.
REMOVE & DISPOSE	= R&D
REMOVE & RESET	= R&R
REQUIRED	= REQD.
RETAINING	= RET.
RHODE ISLAND	= R.I.
RIGHT	= RT.
RIGID STEEL CONDUIT	= R.S.C.
ROAD WEATHER INFORMATION SYSTEM	= RWIS
S	
SECTION	= SECT.
SCHEDULE	= SCH.
SCHEMATIC	= SCHEM.
SHEET	= SH., SHT.
SHOULDER	= SHLDR.
SIMILAR	= SIM.
SOLDIER PILE & LAGGING	= SPL
SOUTH	= S.
SOUTHBOUND	= SB, S.B.
SPACES	= SP.
SPACING	= SPC.
STANDARD	= STD.
STAY-IN-PLACE	= S.I.P.
STANDARD	= STD.
STATION	= STA.
STAINLESS STEEL	= S.S.
STIFFENER	= STIFF.
SUPPORT OF EXCAVATION	= SOE, S.O.E.
SYMMETRICAL	= SYM.
T	
TANGENT	= TAN.
TEMPORARY	= TEMP.
TOP	= T
TOP AND BOTTOM	= T&B
TOP OF STEEL	= T.O.S.
TOP OF WALL	= T.O.W.
TRANSVERSE	= TRANSV.
TUBE SECTION	= TS
TYPICAL	= TYP.
U	
UNLESS NOTED OTHERWISE	= U.N.O.
ULTRA HIGH PERFORMANCE CONCRETE	= UHPC
UNITED STATES ARMY CORPS OF ENGINEERS	= USACE
V	
VARIES	= VAR.
VERTICAL CURVE	= V.C.
VERTICAL	= VERT.
W	
WEARING SURFACE	= W.S.
WELDED WIRE FABRIC	= W.W.F.
WEST	= W.
WESTBOUND	= WB
WITH	= W/
WIDE FLANGE	= W
WORKING POINT	= W.P.

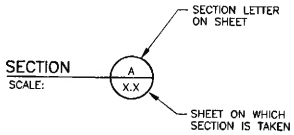
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	2	38



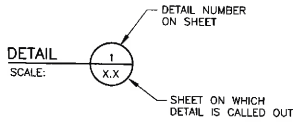
SECTION MARK



DETAIL MARK



SECTION TITLE



DETAIL TITLE

SECTION & DETAIL DESIGNATIONS

RECEIVED 2/7/2024 RHODE ISLAND STATEWIDE PLANNING

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY: .
CHECKED BY: .
DATE: .
SHEET: 2
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

LIST OF ABBREVIATIONS AND LEGEND

0188A_V2_002_INDEXABBR

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	3	38

GENERAL NOTES:

1. ALL CONSTRUCTION INDICATED ON THESE PLANS SHALL BE IN ACCORDANCE WITH:
   - THE 2004 EDITION (AMENDED MARCH 2018) OF, AND SUPPLEMENTS TO, THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (RI STANDARD SPECIFICATIONS).
   - THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, 4TH EDITION, 2017, INCLUDING THE LATEST INTERIM REVISIONS.
   - THE SPECIFICATIONS ACCOMPANYING THESE PLANS.

   IN CASE OF CONFLICT BETWEEN THE PLANS, SPECIFICATIONS OR MANUAL LISTED ABOVE, THE SPECIAL PROVISIONS OF THE SPECIFICATIONS ACCOMPANYING THESE PLANS SHALL GOVERN
2. ALL ELEVATIONS ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM OF NAVD 88.
3. COORDINATES USED ON THESE PLANS ARE BASED ON THE STATEWIDE COORDINATE SYSTEM, THE NORTH AMERICAN DATUM OF 1983 (NAD 83 / 2011).
4. DIMENSIONS, STATIONS, AND ELEVATIONS ARE SHOWN TO THE NEAREST ONE-HUNDREDTH OF A FOOT OR ONE-EIGHTH OF AN INCH, EXCEPT STRUCTURAL STEEL DIMENSIONS WHICH ARE TO THE NEAREST ONE-SIXTEENTH OF AN INCH.
5. ALL ANGLES ARE SHOWN TO THE NEAREST SECOND.
6. TOPOGRAPHIC CONDITIONS WERE OBTAINED FROM AERIAL PHOTOGRAMMETRY. ACCURACY OF VERTICAL TOPOGRAPHY IS WITHIN ONE-HALF OF A FOOT.
7. FOR BENCH MARKS AND TIES SEE HIGHWAY LOCATION PLANS.
8. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL ELEVATIONS, DIMENSIONS, DETAILS, ANGLES, STRUCTURAL MEMBER SIZES, AND LAYOUTS AS SHOWN ON THESE PLANS. THIS PRIOR FIELD VERIFICATION IS ESPECIALLY PERTINENT FOR PRE-FABRICATED STRUCTURAL ITEMS AND WORK IN THE VICINITY OF UTILITIES.
9. TEMPORARY PROTECTIVE SHIELDING:
   DEBRIS SHIELDS SHALL BE PROVIDED AND INSTALLED TO PROTECT MOTORISTS, WATER WAYS, ETC. FROM ANY DEMOLITION OR CONSTRUCTION DEBRIS.
10. EXISTING DETAILS, DIMENSIONS AND ELEVATIONS PROVIDED IN THIS PLAN SET HAVE BEEN OBTAINED FROM THE ORIGINAL DRAWINGS AND SURVEY AND ARE NOT GUARANTEED.
11. FIELD CONDITIONS MAY EXIST WHICH DEVIATE FROM THE TYPICAL AND THEORETICAL DIMENSIONS SHOWN ON THE PLANS. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF THE FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY.
12. THE CONTRACTOR SHALL TAKE THE PROPER PRECAUTION TO ENSURE THE STABILITY OF ALL STRUCTURAL ELEMENTS DURING ALL PHASED CONSTRUCTION UNTIL THE TOTAL STRUCTURE IS IN PLACE.
13. THE CONTRACTOR SHALL CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO STARTING THE WORK TO VERIFY LOCATIONS OF EXISTING UTILITIES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH UTILITY OWNERS.
15. ALL FOOTINGS SHALL BE APPROVED BY THE ENGINEER AS TO DIMENSIONS, ELEVATIONS, AND SUITABILITY OF FOUNDATION MATERIAL BEFORE THE PLACING OF CONCRETE.
16. ALL WORKING POINTS ARE SHOWN AT THE CENTERLINES OF BEARINGS OF ABUTMENTS, UNLESS OTHERWISE NOTED.
17. ALL ABUTMENTS AND WALLS ARE DRAWN LOOKING AT THE EXPOSED FACES.
18. THE EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND WERE LOCATED USING THE BEST AVAILABLE INFORMATION. NO BUILDING SERVICE CONNECTIONS (ELECTRIC, TELEPHONE, GAS, WATER, SANITARY AND OTHERS) ARE SHOWN. THE CONTRACTOR IS TO ASSUME THAT SERVICES TO ALL BUILDINGS ARE PRESENT.
19. BOTH FEDERAL AND STATE LAW (RI. GENERAL LAW 39-1.2) REQUIRE NOTIFICATION OF APPROPRIATE UTILITY COMPANIES BEFORE DIGGING, TRENCHING, BLASTING, DEMOLISHING, BORING, BACK FILLING, GRADING, LANDSCAPING, OR OTHER EARTH MOVING OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES (INCLUDING THROUGH THE "DIG SAFE" PROGRAM) TO ENSURE THAT ALL UTILITIES, BOTH UNDERGROUND AND OVERHEAD, HAVE BEEN MARKED BEFORE COMMENCEMENT OF SUCH WORK. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE "DIG SAFE" PROGRAM. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANIES, SHALL BE REPAIRED OR REPLACED (AS DEEMED APPROPRIATE BY THE STATE AND/OR THE IMPACTED UTILITY COMPANY) AT NO ADDITIONAL COST TO THE STATE.

DESIGN DATA

DESIGN SPECIFICATIONS

- THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, INCLUDING ALL INTERIM REVISIONS.
- THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2009 INCLUDING ALL INTERIM REVISIONS.
- THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL 2007 EDITION INCLUDING ALL REVISIONS.
- ALL OTHER APPLICABLE DESIGN SPECIFICATIONS ARE REFERENCED IN SECTION 1 OF THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL DATED 2007.
- THE 2004 EDITION (AMENDED MARCH 2018) OF, AND SUPPLEMENTS TO, THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (RI STANDARD SPECIFICATIONS).

IN CASE OF CONFLICT, THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL SHALL GOVERN.

LOAD MODIFIERS

UNLESS NOTED OTHERWISE, THE LOAD MODIFIERS FOR THIS PROJECT ARE AS FOLLOWS:

- THE LOAD MODIFIER FOR DUCTILITY SHALL BE TAKEN AS 1.0 FOR ALL LIMIT STATES.
- THE LOAD MODIFIER FOR REDUNDANCY SHALL BE TAKEN AS 1.0 FOR ALL LIMIT STATES.
- THE LOAD MODIFIER FOR OPERATIONAL IMPORTANCE SHALL BE TAKEN AS 1.0 FOR ALL LIMIT STATES.

LOAD FACTORS

ALL LOAD FACTORS SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EXCEPT AS MODIFIED IN THE RHODE ISLAND BRIDGE DESIGN MANUAL.

- THE LOAD FACTOR FOR LIVE LOAD FOR THE EXTREME EVENT I LIMIT STATE SHALL BE TAKEN AS ZERO.
- THE LOAD FACTOR FOR DEAD LOAD FOR THE EXTREME EVENT I AND EXTREME EVENT II LIMIT STATE SHALL BE TAKEN AS 1.0
- THE LOAD FACTOR FOR SETTLEMENT FOR ALL LIMIT STATES SHALL BE TAKEN AS 1.0

LIVE LOADS

- THE DESIGN VEHICULAR LIVE LOAD SHALL BE THE H15-44 DESIGNATION ADJUSTED FOR THE DYNAMIC LOAD ALLOWANCE, MULTIPLE PRESENCE FACTOR AND PER RI TAC 0347.

WIND LOADING DESIGN DATA

THE WIND LOADING DESIGN SHALL BE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THE RHODE ISLAND LRFD BRIDGE DESIGN MANUAL, AND AS MODIFIED HEREIN.

- EXCEPT DURING CONSTRUCTION, THE DESIGN WIND PRESSURE IS BASED ON A DESIGN WIND SPEED OF 140 MPH.
- THE DESIGN WIND PRESSURES DURING CONSTRUCTION SHALL BE AS SPECIFIED UNDER THE NOTES TITLED "GENERAL NOTES REGARDING TEMPORARY CONSTRUCTION CONDITIONS".

TRAFFIC DATA

NOT APPLICABLE

THERMAL DESIGN FORCE DATA

UNIFORM TEMPERATURE EFFECTS HAVE BEEN TAKEN INTO CONSIDERATION IN ACCORDANCE WITH THE PROCEDURE B OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE MINIMUM DESIGN TEMPERATURE SHALL BE -10 DEGREES F, AND THE MAXIMUM TEMPERATURE SHALL BE 105 DEGREES F.

SEISMIC DESIGN DATA

PER RIDOT LRFD BRIDGE MANUAL AND AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EAST BAY BIKE PATH BRIDGES 083751 & 083851 SHALL MEET SEISMIC ZONE 1 DESIGN CRITERIA AND RFP ADDENDUM 3 CRITERIA.

ALL REFERENCES IN THESE GENERAL NOTE SHEETS AND THROUGHOUT THE CONTRACT DRAWINGS TO THE RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SHALL EXCLUDE THE METHOD OF MEASUREMENT SECTION AND BASIS OF PAYMENT SECTION FOR ITEMS PAID FOR BY THE LUMP SUM ITEMS IN THIS CONTRACT.

FOUNDATION DESIGN DATA:

SPREAD FOUNDATIONS:

THE FACTORED BEARING RESISTANCE FOR THE VARIOUS SHALLOW FOUNDATION TYPES ARE AS FOLLOWS:

LOCATION	TYPE OF BEARING MATERIAL	BEARING RESISTANCE (KSF)	
		STRENGTH LIMIT STATES (ϕ=0.45)	SERVICE LIMIT STATES (ϕ=1.0)
ABUTMENTS	UNDISTURBED NATURAL GRANULAR SOILS	7	3.2

DEEP FOUNDATIONS:

THE FACTORED AXIAL AND UPLIFT RESISTANCES FOR THE VARIOUS DEEP FOUNDATION TYPES ARE AS FOLLOWS:

LOCATION	TYPE	FACTORED AXIAL RESISTANCE (KIPS)	
		STRENGTH LIMIT STATES	EXTREME LIMIT STATES
BR. 083751 PIER	DMP	200	286
BR. 083851 PIER	DMP	220	315
BR. 083751 ABUTMENT	DMP	218	312

LOCATION	TYPE	FACTORED UPLIFT RESISTANCE (KIPS)	
		STRENGTH LIMIT STATES	EXTREME LIMIT STATES
BR. 083751 PIER	DMP	123	141
BR. 083851 PIER	DMP	127	145
BR. 083751 ABUTMENT	DMP	23	26.5

- THE FACTORED DESIGN AXIAL RESISTANCE AT EACH LOCATION IS THE LESSER VALUE OF THE FACTORED GEOTECHNICAL AND THE FACTORED STRUCTURAL RESISTANCES INDICATED.
- THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE STRENGTH LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING A NOMINAL BOND RESISTANCE OF 3.6 KSF AND A RESISTANCE FACTOR OF 0.7 (FOR COMPRESSION LOADING).
- THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE EXTREME LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING A NOMINAL BOND RESISTANCE OF 3.6 KSF AND A RESISTANCE FACTOR OF 1.0 (FOR COMPRESSION LOADING).
- THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE STRENGTH LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING A NOMINAL BOND RESISTANCE OF 3.6 KSF AND A RESISTANCE FACTOR OF 0.7 (FOR TENSION).
- THE FACTORED GEOTECHNICAL AXIAL RESISTANCE FOR THE EXTREME LIMIT STATE IS BASED ON THE NOMINAL AXIAL RESISTANCE AS DETERMINED USING A NOMINAL BOND RESISTANCE OF 3.6 KSF AND A RESISTANCE FACTOR OF 0.8 (FOR TENSION).

NOTE:
MODULAR WALLS SHALL BE DESIGNED BY THE WALL SUPPLIER. THE CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL DESIGN CALCULATIONS AND WORKING DRAWINGS SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF RHODE ISLAND.

EARLY RELEASE FOR CONSTRUCTION (ERC 1) APRIL 2023

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 3
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

JOB SPECIFIC GENERAL NOTES 1

0188A_V2_003_JSBRGN01001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	4	38

MATERIALS

STRUCTURAL STEEL:

- AASHTO DESIGNATION M 270, GRADE 50, GALVANIZED
- TRUSS BRIDGE STEEL, REFER TO CODE 801.9901 PREFABRICATED MODULAR BRIDGE FOR MATERIAL.
- API N80 CASING

REINFORCING STEEL:

- AASHTO DESIGNATION M 31, GRADE 60
- GALVANIZED COATING ASTM A767, CLASS I
- ASTM A615 GRADE 75 OR ASTM 722 GRADE 150 FOR MICRO-PILES

TREATED TIMBER

- 2x4 THRU 2x10, 4x4, 4x6 SHALL BE SOUTHERN PINE, GRADE NO. 1 OR BETTER

HARDWARE AND FASTENERS:

- CARRIAGE BOLTS, THREADED RODS, LAG SCREWS — ASTM A307 GRADE A
- HEX BOLTS — ASTM A307 GRADE A
- OGEE WASHERS — ASTM A48

COMPOSITE TOP RAIL:

- COMPOSITE TOP RAIL BOARDS SHALL BE CONSTRUCTED, MANUFACTURED, AND FABRICATED IN ACCORDANCE WITH ASTM D7032-6A STANDARD SPECIFICATIONS. BOARDS SHALL BE SOLID COMPOSITE AND CAPPED. COLOR OF TOP RAIL SHALL BE GRAY.

CONCRETE STRENGTHS:

- CLASS HP ¾" F'C=5,000 PSI
  RETURN WALLS, BACKWALLS
- CLASS MC ¾" F'C=3,500 PSI @ 28 DAYS, F'C=5,000 PSI @ 56 DAYS
  ALL COMPONENTS GREATER THAN 3 FEET IN THICKNESS, INCLUDING, BUT NOT LIMITED TO: ABUTMENT STEMS, PIER CAPS
- CLASS XX ¾" F'C=4,000 PSI
  FOOTINGS
- 4,000 PSI NEAT CEMENT GROUT
  MICRO-PILES
- CLASS A CONCRETE ¾" F'C=3,000 PSI
  PEDESTRIAN BRIDGE RAIL POSTS

CONCRETE NOTES:

1. CLASSES OF CONCRETE SHALL BE HIGH PERFORMANCE CLASS HP, CLASS MC AND CLASS XX, AS DESCRIBED THE RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND THE SPECIAL PROVISIONS OF THE SPECIFICATIONS. REFER TO THE "MATERIALS" NOTES FOR CLASSES OF CONCRETE SPECIFIED FOR VARIOUS COMPONENTS.
2. THE CONTRACTOR MAY, AT THE APPROVAL OF THE ENGINEER, PROPOSE THE USE OF SELF-CONSOLIDATING CONCRETE FOR ANY CLASS OF CONCRETE ON THIS PROJECT. SECTION 606 "SELF CONSOLIDATING CONCRETE (SCC)", CONTAINS THE REQUIREMENTS FOR MODIFYING ALL CLASSES OF CONCRETE MIX DESIGN FOR SELF-CONSOLIDATING APPLICATIONS. THE MAXIMUM WATER-CEMENT RATIO FOR SCC SHALL BE 0.40.
3. ALL PORTLAND CEMENT CONCRETE SHALL BE AIR-ENTRAINED.
4. ALL REINFORCING STEEL SHALL BE GALVANIZED. ALL WIRE TIES AND MISCELLANEOUS HARDWARE USED FOR PLACEMENT OF GALVANIZED REINFORCING SHALL ALSO BE GALVANIZED. GALVANIZED COATING FOR REINFORCING STEEL SHALL CONFORM TO ASTM A767 CLASS 1.
5. ALL LAP SPLICES NOT SHOWN ON THE PLANS SHALL BE LAPPED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR CLASS B LAP SPLICES.
6. UNLESS OTHERWISE INDICATED ON THE PLANS, ALL MAIN REINFORCING BARS SHALL HAVE THE FOLLOWING MINIMUM COVER:

	COVER
CONCRETE CAST AGAINST OR PERMANENTLY EXPOSED TO EARTH (FOOTINGS, ABUTMENT WALL FACES, AND BACKWALLS)	3"
ALL OTHER BARS	2"

   COVER TO TIES AND STIRRUPS MAY BE 0.5 INCH LESS THAN ABOVE VALUES SPECIFIED FOR MAIN REINFORCING, BUT IN NO CASE LESS THAN 1.5 INCHES.
7. UNLESS OTHERWISE NOTED ON THE PLANS, ALL ANCHOR BOLTS SHALL BE ASTM DESIGNATION F1554, GR 55, AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO DESIGNATION M 232 OR METALIZED IN ACCORDANCE WITH SECTION M.05. SWEDGED RODS SHALL BE AASHTO DESIGNATION M 270 GRADE 36 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO DESIGNATION M 232.
8. ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATES PRIOR TO PLACEMENT OF CONCRETE UNLESS OTHERWISE INDICATED ON THE PLANS OR AUTHORIZED BY THE ENGINEER.
9. HORIZONTAL CONSTRUCTION JOINTS OTHER THAN THOSE SHOWN ON PLANS WILL NOT BE PERMITTED WITHOUT A WRITTEN REQUEST BY THE CONTRACTOR AND PRIOR AUTHORIZATION BY THE ENGINEER.
10. UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CONCRETE SURFACES VISIBLE IN ELEVATION TO ONE FOOT BELOW FINAL GROUND LINE, SHALL RECEIVE A CONCRETE SURFACE RUBBED FINISH IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS.
11. THE ENTIRE TOPSIDE SURFACES OF ABUTMENT BEAM SEATS, AS WELL AS VERTICAL FACES OF BACKWALLS SHALL BE PROVIDED WITH A FILM-FORMING SEALER (M12.03.1) CONCRETE SURFACE TREATMENT-PROTECTIVE COATING IN ACCORDANCE WITH SECTION 820 OF THE RI STANDARD SPECIFICATIONS.
12. ALL EXPOSED EDGES AND REENTRANT CORNERS NOT OTHERWISE DETAILED ON THE PLANS SHALL HAVE A MINIMUM ½" CHAMFER.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATIONS DURING CONSTRUCTION UNTIL SUCH TIME AS THE SURFACES ARE APPROVED AND ACCEPTED BY THE ENGINEER. ANY CONCRETE STAINS OR DISCOLORATIONS OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR.
14. ALL JOINT SEALANT SHALL BE POLYURETHANE, POLYURETHANE ELASTOMERIC, OR SILICONE SEALANT AS DESIGNATED ON THE PLANS. THE COLOR OF THE JOINT SEALANT, WHERE EXPOSED, SHALL BE NEUTRAL (LIGHT GRAY OR TAN). THE COLOR OF THE SEALANT, WHERE NOT EXPOSED, WILL BE AT THE DISCRETION OF THE CONTRACTOR.
15. UNLESS OTHERWISE NOTED ON THE PLANS, JOINT FILLER IS TO BE A PREFORMED, NON-EXPANSIVE, NON-EXTRUDING TYPE IN ACCORDANCE WITH SECTION M.02.11.1 OF THE RI STANDARD SPECIFICATIONS.
16. EMBEDMENT LENGTHS FOR DRILLED AND GROUTED DOWELS SHALL BE IN ACCORDANCE WITH SECTION 819 OF THE RI STANDARD SPECIFICATIONS, UNLESS OTHERWISE INDICATED ON THE PLANS.
17. IN ACCORDANCE WITH THE RI STANDARD SPECIFICATIONS, ALL METAL TIES, NON-METALLIC TIES OR ANCHORAGES WHICH ARE REQUIRED FOR CONCRETE FORMWORK SHALL BE SO CONSTRUCTED THAT THEY CAN BE REMOVED TO AT LEAST TWO INCHES BELOW THE EXPOSED SURFACE OF THE CONCRETE WITHOUT CAUSING DAMAGE TO THE CONCRETE SURFACE. SNAP TIES MAY BE USED ONLY IF APPROVED BY THE ENGINEER. IF THE CONTRACTOR PROPOSES TO USE THEM, A CATALOG CUT AND OTHER NECESSARY INFORMATION MUST BE SUBMITTED TO THE ENGINEER TO DEMONSTRATE THAT THE TIES WILL SNAP-OFF FAR ENOUGH INTO THE CONCRETE TO ALLOW FOR PROPER PATCHING. SNAP TIES MUST PROVIDE ADEQUATE STRENGTH TO SUPPORT THE FORMS. ALL CAVITIES SHALL BE FILLED WITH AN APPROVED CEMENT MORTAR MEETING THE REQUIREMENTS OF ASTM C 928.
18. HAND-HELD VIBRATORS SHALL BE EQUIPPED WITH RUBBER TIPPED HEADS WHEN USED TO CONSOLIDATE CONCRETE AROUND REINFORCEMENT AND EMBEDMENTS.
19. WATER STOPS ARE REQUIRED FOR HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ABUTMENTS AND WALLS WHEN EXPOSED TO BACKFILL EARTH MATERIAL. WATER STOPS SHALL BE INSTALLED AT THE LOCATIONS DETAILED ON THE PLANS, AT THE LOCATIONS AS SPECIFIED ABOVE AND AT ALL LOCATIONS AS DIRECTED BY THE ENGINEER, ALL IN ACCORDANCE WITH SECTION 812 OF THE RI STANDARD SPECIFICATIONS.
20. UNLESS OTHERWISE DIMENSIONED ON THE PLANS, ALL REINFORCEMENT BENDS SHOWN ARE STANDARD HOOKS.
21. ALL EXPOSED FACES ABUTMENTS FROM THE BRIDGE SEATS TO THE GROUND SURFACE AND EXPOSED WALL SURFACES SHALL RECEIVE A CONCRETE SURFACE TREATMENT – PROTECTIVE SEALER THAT SHALL BE GRAY IN COLOR. A CLEAR, NON-SACRIFICIAL TYPE ANTI-GRAFFITI COATING THAT CONFORMS TO SECTION 842 SHALL BE APPLIED OVER THE FULLY CURED CONCRETE PROTECTIVE COATING.
22. ANY METALLIC ELEMENTS THAT ARE TO BE LEFT IN PLACE AND NOT STATED HEREIN SHALL BE GALVANIZED. THIS INCLUDES, BUT IS NOT LIMITED TO REINFORCING STEEL, WIRE MESH, SNAP TIES, METAL TIES, ANCHORAGES FOR FORM WORK, SUPPORTS FOR MASS CONCRETE COOLING PIPES, ETC.

REINFORCEMENT NOTE:

THE CONTRACTOR'S REINFORCING BAR FABRICATOR SHALL VERIFY THE CORRECTNESS IN PREPARING HIS ORDER LISTS AND BENDING DIAGRAMS. SHOP DRAWINGS FOR ALL REINFORCEMENT DETAILS AND SCHEDULE SHALL BE SUBMITTED TO THE ENGINEER IN SUFFICIENT TIME TO PERMIT CAREFUL CHECKING.

EARLY RELEASE FOR CONSTRUCTION (ERC 1) APRIL 2023

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY: ·
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DATE:
SHEET: 4
OF: 38

SCALE:

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EAST BAY BIKE PATH BRIDGE REPLACEMENT
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JOB SPECIFIC GENERAL NOTES 2

0188A_V2_004_JSBRGN0T002

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	5	38

STRUCTURAL STEEL NOTES

1. ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH CODE 801.9901 PREFABRICATED MODULAR BRIDGE AND SECTION 824 OF THE RI STANDARD SPECIFICATIONS AS APPLICABLE.

TIMBER CONSTRUCTION NOTES

1. ALL TIMBER SHALL BE PRESSURE TREATED. WOOD SHALL BE PRESSURE TREATED IN ACCORDANCE WITH THE AMERICAN WOOD PROTECTION ASSOCIATION (AWPA).
2. GROUP CONTACT POSTS SHALL BE TREATED WITH PRESERVATIVES TO THE REQUIREMENTS FOR GROUND CONTACT/FRESHWATER, GENERAL USE SERVICE CONDITIONS (UC4A) IN ACCORDANCE WITH AWPA STANDARD U1 OR ICC-ES EVALUATION REPORTS.
3. ALL BOLTS SHALL BE ASTM A307 OR AS ALTERNATE A3125, GRADE A325.
4. ALL BOLTED CONNECTIONS SHALL INCLUDE WASHERS AT BOLT HEADS AND NUTS.
5. LAG SCREWS SHALL BE LOW CARBON STEEL, ASTM A307 OR BETTER.
6. ALL BOLTS, WASHERS AND OTHER HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
7. TIMBER WHICH AT THE DISCRETION OF THE ENGINEER IS SEVERELY WARPED, BOWED, SPLIT, OR SPLINTERED SHALL NOT BE USED.
8. RAILS AND RAIL CAPS SHALL BE CONTINUOUS OVER 1 POST MINIMUM. BUTT JOINTS IN RAILS AND RAIL CAPS SHALL BE STAGGERED AS SHOWN ON SHEET 35 TYPICAL ELEVATION OF PEDESTRIAN BRIDGE RAIL.
9. ALL TIMBER RAILING COMPONENTS SHALL BE TREATED WITH PRESERVATIVES TO THE REQUIREMENTS FOR AN ABOVE GROUND, EXPOSE SERVICE CONDITION (UC3B) IN ACCORDANCE WITH AWPA STANDARD U1 OR ICC-ES EVALUATION REPORTS.
10. TREAT ALL CUT ENDS, HOLES, NOTCHES AND RECESSES WITH COPPER NAPHTHENATE PRESERVATIVE.
11. ALL TIMBER SIZES ARE NOMINAL DIMENSION LUMBER UNLESS OTHERWISE NOTED.
12. LUMBER SUPPLIED SHALL MEET THE REQUIREMENTS OF "SECTION 806 OF THE STANDARD SPECIFICATIONS" AND "THE 2018 NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION". CONDITION AND TREAT STRUCTURAL TIMBER AND LUMBER IN ACCORDANCE WITH THE "2018 NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION".
13. GALVANIZED CARRIAGE BOLTS TO BE USED FOR ALL RAILING/POST CONNECTIONS.

DEMOLITION NOTES

1. DIMENSIONS ARE BASED ON ORIGINAL DESIGN DRAWINGS AND ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. ALL ABUTMENTS SHALL REMAIN IN PLACE, SO AS NOT TO CAUSE ANY SHORELINE DISTURBANCES. ONCE THE ENVIRONMENTAL APPROVALS FOR CONSTRUCTION OF THE NEW BRIDGES HAS BEEN GRANTED, THE EXISTING ABUTMENTS MAY BE DEMOLISHED.
3. IF THE CONTRACTOR'S DEMOLITION OPERATIONS CAUSE ANY DAMAGE TO ACCESS ROUTES AND PROPERTIES OUTSIDE OF THE PROJECT WORK AREA, THE CONTRACTOR SHALL BE REQUIRED TO REPAIR THE AREA TO THE SATISFACTION OF THE ENGINEER.
4. ALL DEMOLITION MATERIALS SHALL BE CONTAINED, COLLECTED, AND LEGALLY DISPOSED. IF DEBRIS FALLS TO THE RIVER, THE CONTRACTOR SHALL IMMEDIATELY REMOVE THE DEBRIS FROM THE WATER.
5. TIMBER PILES SHALL BE REMOVED IN THEIR ENTIRETY. STEEL PILES, THE STONE PIER IN THE BARRINGTON RIVER, AND ANY TIMBER PILES THAT BREAK MUST BE TRIMMED A MINIMUM OF 2'-0" BELOW THE RIVERBED SUBSTRATE LINE.
6. ALL DEMOLITION MATERIALS SHALL BE TAKEN FROM THE SITE TO AN APPROVED DESTINATION AS THE WORK PROGRESSES.
7. THE CONTRACTOR IS NOTIFIED THAT THE EXISTING PAINT SYSTEM OF THE STEEL AND THE TIMBER MAY CONTAIN TOXIC SUBSTANCES, SUCH AS LEAD, CHROMIUM, OR CREOSTATE, WHICH MAY REQUIRE SPECIAL HANDLING AND MAY BE HAZARDOUS WASTE WHEN REMOVED. PROTECT PERSONS AND ENVIRONMENT DURING THE REMOVAL OF THE EXISTING STEEL, IN ACCORDANCE WITH SECTION 826 OF THE STANDARD SPECIFICATIONS.
8. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, IN WRITING, HIS PROPOSED METHOD OF DEMOLITION. DEMOLITION OPERATIONS SHALL NOT BEGIN UNTIL HIS METHOD HAS BEEN APPROVED BY THE ENGINEER. THIS SUBMISSION SHALL INCLUDE THE DEMOLITION PLANS, EQUIPMENT, SEQUENCE AND METHOD THE CONTRACTOR PROPOSED TO USE, IN DETAIL.

THE DEMOLITION AND FALSEWORK SUBMITTALS MUST BE STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF RHODE ISLAND. THE FURNISHING OF DEMOLITION AND FALSEWORK SUBMITTALS AND PLANS SHALL NOT SERVE TO RELIEVE THE CONTRACTOR OF ANY PART OF HIS/HER RESPONSIBILITY FOR THE SAFETY OF THE WORK OR FOR THE SUCCESSFUL COMPLETION OF THE WORK.

EARLY RELEASE FOR CONSTRUCTION
(ERC 1)
APRIL 2023

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 5
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

JOB SPECIFIC GENERAL NOTES 3

0188A_V2_005_JSBRGNOT003

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	6	38

GENERAL NOTES REGARDING TEMPORARY CONSTRUCTION CONDITIONS:

1. DESIGN WIND PRESSURES FOR CONSTRUCTION:

   MINIMUM WIND PRESSURES TO BE USED BY THE CONTRACTOR FOR DESIGN DURING THE CONSTRUCTION CONTRACT (WITH THE EXCEPTION OF SIGNS) SHALL BE FROM THE FOLLOWING TABLE:

HEIGHT ABOVE GROUND	WIND PRESSURE (PSF)
UP TO 17'	33
OVER 17' AND UP TO 33'	37
OVER 33' AND UP TO 50'	41
OVER 50' AND UP TO 75'	44
OVER 75' AND UP TO 100'	47

   TABLE NOTES:

   A. APPLICATION OF THE TABULAR PRESSURE:

   - BRIDGE COMPONENTS DURING CONSTRUCTION, PRIOR TO THE INSTALLATION OF THE PERMANENT BRACING SYSTEMS, NOT INCLUDING CRANE LIFTING.
   - FALSE WORK, SHORING, AND SCAFFOLDING AS DEFINED IN FHWA GUIDE DESIGN SPECIFICATION FOR BRIDGE TEMPORARY WORKS, EXCLUDING 3-DIMENSIONAL LATTICED OR TRUSSED FRAMES OR TOWERS;
   - TEMPORARY SHIELDING.

   WIND PRESSURES FOR ALL OTHER STRUCTURES SHALL BE CALCULATED BASED ON ASCE DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION, SEI/ASCE 37-02 (ALL REFERENCES TO THE ASCE 7 IN THE SEI/ASCE 37-02 PUBLICATION, SHALL BE THE LATEST REVISION OF ASCE 7). THE EXPOSURE CATEGORY SHALL BE C.

   B. WHERE APPLICABLE HIGHER AMTRAK WIND REQUIREMENTS SHALL SUPERSEDE THESE REQUIREMENTS.

   C. FOR STRUCTURES SITUATED ABOVE LIVE INTERSTATE TRAFFIC, THE TABULAR VALUES SHALL BE INCREASED BY 5 PSF.

2. ERECTION OF BRIDGE COMPONENTS:

   FOR THE ERECTION OF STRUCTURES, THE FOLLOWING SHALL APPLY:

   - THE CONTRACTOR SHALL SUBMIT AN ERECTION PLAN THAT PROVIDES COMPLETE DETAILS OF THE PROCESS INCLUDING, BUT NOT LIMITED TO, TEMPORARY SUPPORTS, SCHEDULING AND OPERATION SEQUENCING, CRANE PLACEMENT, AND ASSUMED LOADS AND CALCULATED STRESSES DURING VARYING STAGES OF LIFTING. THIS APPLIES TO STRUCTURES OF ANY KIND. THE CAPACITY OF THE CRANE AND ALL LIFTING AND CONNECTING DEVICES SHALL BE ADEQUATE FOR 125 PERCENT (150 PERCENT OVER AMTRAK) OF THE TOTAL PICK LOAD INCLUDING SPREADERS, RIGGING, HOOKS, AND ALL OTHER MATERIALS. THIS FACTOR OF SAFETY SHALL BE IN ADDITION TO ALL MANUFACTURERS' PUBLISHED FACTORS OF SAFETY.
   - A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF RHODE ISLAND, WILL BE REQUIRED TO STAMP THE CONTRACTOR'S ERECTION PLAN.
   - THE CONTRACTOR'S PROFESSIONAL ENGINEER WILL BE REQUIRED TO INSPECT AND PROVIDE WRITTEN APPROVAL OF INSTALLATION, PRIOR TO ALLOWING VEHICLES OR PEDESTRIANS ON OR BELOW THE STRUCTURE. THE PROFESSIONAL ENGINEER MUST ALSO STAMP ALL CHANGES TO THE CONTRACTOR'S ERECTION PLAN. ADDITIONALLY, ALL PROPOSED CHANGES MUST BE SUBMITTED TO RIDOT FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION.
   - A MANDATORY PRE-ERECTION CONFERENCE WILL BE HELD AT LEAST TWO WEEKS PRIOR TO THE START OF THE GIRDER INSTALLATION TO DISCUSS THE PLAN AND PROCEDURES, WORK SCHEDULES, CONTINGENCY PLANS, SAFETY REQUIREMENTS AND TRAFFIC CONTROL. THE CONTRACTOR'S PROFESSIONAL ENGINEER AND ERECTION SUBCONTRACTOR WILL BE REQUIRED TO ATTEND THIS MEETING, AS WILL THE RIDOT RESIDENT ENGINEER, THE DESIGN PROJECT ENGINEER AND THE DESIGN CONSULTANT. BASED UPON DISCUSSIONS AT THIS MEETING AND A REVIEW OF THE CONTRACTOR'S ERECTION PLAN, RIDOT MAY ORDER THE CONTRACTOR TO MODIFY AND RESUBMIT THE ERECTION PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.
   - THE CONTRACTOR WILL BE REQUIRED TO PERFORM DAILY INSPECTIONS OF THE ERECTED GIRDERS UNTIL THE BRIDGE DECK IS COMPLETELY POURED.

CONSTRUCTION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE IMPLEMENTATION, CONSTRUCTION, OPERATION AND SAFETY OF ALL EQUIPMENT AND PROCEDURES.
2. THE CONTRACTOR SHALL SUBMIT WORKING DOCUMENTS SHOWING PROPOSED METHODS OF LIFTING, SEQUENCING OF LIFTING, LOCATION OF CRANES, CRANE CAPACITIES, LOCATION OF THE LIFTING POINTS ON THE BRIDGE COMPONENTS, WEIGHTS OF THE COMPONENTS, LIFTING DEVICES AND LOAD DISTRIBUTION DEVICE DETAIL. THE METHOD AND ALL SUBMISSIONS SHALL BE PREPARED AND STAMPED BY A RHODE ISLAND REGISTERED PROFESSIONAL ENGINEER.
3. COORDINATE ALL CONSTRUCTION ACTIVITIES WITHIN THE WORKING AREA WITH RIDOT REGARDING UTILITIES, PROTECTION OF TRAFFIC AND SCHEDULE.
4. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO AVOID DAMAGE TO EXISTING STRUCTURES. ALL STRUCTURES DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.
5. ALL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER IN SUFFICIENT TIME TO PERMIT CAREFUL CHECKING AS NOT TO DELAY THE PROJECT.
6. ALL RIGGING IS TO BE IN EXCELLENT WORKING CONDITION.
7. UNLOADED CRANES ARE ALLOWED TO TRAVEL IN THE WORKING AREA.
8. CRANE DELIVERY LOCATIONS MAY VARY AS LONG AS MAXIMUM CRANE RADIUS IS NOT EXCEEDED.
9. TEMPORARY EXCAVATION SUPPORT SYSTEM SHALL BE DESIGNED, FURNISHED AND INSTALLED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF ANY EXCAVATION.
10. CONTRACTOR SHALL SECURE ALL WORK AREAS AT ALL TIMES TO PREVENT UNAUTHORIZED ACCESS.
11. STOCKPILED SOIL SHALL BE NOT CLOSER THAN 30 FEET FROM PIERS, WALLS AND ABUTMENTS.

UTILITY NOTES:

1. EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND WERE LOCATED USING THE BEST AVAILABLE INFORMATION. NO BUILDING SERVICE CONNECTIONS (ELECTRIC, TELEPHONE, GAS, WATER, SANITARY AND OTHERS) ARE SHOWN. THE CONTRACTOR IS TO ASSUME THAT SERVICES TO ALL BUILDINGS ARE PRESENT.
2. BOTH FEDERAL AND STATE LAW (RI. GENERAL LAW 39-1.2) REQUIRE NOTIFICATION OF APPROPRIATE UTILITY COMPANIES BEFORE DIGGING. TRENCHING, BLASTING, DEMOLISHING, BORING, BACKFILLING, GRADING, LANDSCAPING, OR OTHER EARTH MOVING OPERATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES (INCLUDING THROUGH THE "DIG SAFE" PROGRAM) TO ENSURE THAT ALL UTILITIES, BOTH UNDERGROUND AND OVERHEAD, HAVE BEEN MARKED BEFORE COMMENCEMENT OF SUCH WORK. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE "DIG SAFE" PROGRAM. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANIES, SHALL BE REPAIRED OR REPLACED (AS DEEMED APPROPRIATE BY THE STATE AND/OR THE IMPACTED UTILITY COMPANY) AT NO ADDITIONAL COST TO THE STATE.
3. CONSTRUCTION EQUIPMENT OR PERSONNEL SHALL FOLLOW OSHA REGULATION IN REGARDS TO MINIMUM CLEARANCE TO ENERGIZED OVERHEAD LINES.
4. UNDERGROUND UTILITY LINES MAY BE IN CONFLICT WITH REQUIRED TEMPORARY OR PERMANENT CONSTRUCTION, OR THE EQUIPMENT NECESSARY TO PERFORM THIS REQUIRED CONSTRUCTION. DEPENDING UPON THE CONTRACTOR'S METHOD OF CONSTRUCTION, THESE UTILITIES MAY NEED TO BE RELOCATED FOR PORTIONS OF THE CONSTRUCTION PERIOD AND THEN MOVED BACK TO PERMANENT LOCATIONS WHICH MAY BE OTHER THAN CURRENT LOCATIONS. THE ACTUAL RELOCATIONS (TEMPORARY OR PERMANENT) ARE THE RESPONSIBILITY OF THE INDIVIDUAL UTILITY OWNER. HOWEVER, THE CONTRACTOR WILL BE REQUIRED TO COORDINATE THE EXACT LOCATION AND TIMING OF ALL UTILITY RELOCATIONS WITH THE INDIVIDUAL UTILITY OWNER, AND TO PHASE HIS CONSTRUCTION OPERATIONS AS REQUIRED TO ACCOMMODATE ALL (TEMPORARY AND PERMANENT) UTILITY RELOCATIONS. IN ADDITION TO FIELD MEETINGS AND CORRESPONDENCE, THIS COORDINATION MAY INCLUDE STAKING OF LOCATIONS, EXCAVATION AND TEMPORARY GRADING, PROVIDING ACCESS TO EXISTING AND FUTURE UTILITY POLE AND CONDUIT LOCATIONS, OR OTHER PHYSICAL WORK AS REQUIRED TO ALLOW FOR UTILITY RELOCATION WORK. THE CONTRACTOR SHALL ENGAGE IN THE NECESSARY COORDINATION OF UTILITY RELOCATIONS AND ASSOCIATED WORK AT NO ADDITIONAL COST TO THE PROJECT OR THE STATE, AND SHALL HAVE NO RIGHT TO ADDITIONAL COMPENSATION FOR DELAYS OR STAGING AND PHASING OF HIS WORK AS A RESULT OF UTILITY RELOCATION WORK.

TEMPORARY CONSTRUCTION STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO THE LATEST PROVISIONS OF THE ASTM DESIGNATION A 709 GRADE 36 OR AS DESIGNATED ON THE PLANS.
2. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM DESIGNATION A F3125 GRADE A325. THE CONTRACTOR SHALL REFER TO SECTION 824 "CONNECTIONS USING HIGH STRENGTH BOLTS" OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (1997) FOR MATERIAL AND INSTALLATION REQUIREMENTS. ALL HIGH STRENGTH BOLTS SHALL BE 7/8" DIAMETER ON 15/16" DIAMETER HOLES UNLESS OTHERWISE NOTED.
3. WASHERS MEETING ASTM DESIGNATION F 436 ARE TO BE USED OVER ALL HOLES THAT ARE MORE THAN 1/16" IN DIAMETER GREATER THAN THE BOLT DIAMETER AND UNDER ALL PARTS TURNED DURING ASSEMBLY.
4. WELDING SHALL BE IN ACCORDANCE WITH THE LATEST STRUCTURAL WELDING CODE ANSI/AASHTO/AWS D1.5-2015 (INCLUDING ALL INTERIMS TO DATE) AND APPLICABLE SUPPLEMENTAL AWS PUBLICATIONS. ALL SHOP CONNECTIONS SHALL BE WELDED AND ALL FIELD CONNECTIONS SHALL BE BOLTED UNLESS OTHERWISE NOTED.
5. WELDING ELECTRODES SHALL HAVE THE SAME CORROSION RESISTANCE AS THE BASE METAL.
6. NO SHOP FILLET WELD SHALL BE LESS THAN 3/16", UNLESS OTHERWISE SPECIFIED.
7. PRIOR TO FABRICATION, ALL MATERIALS SHALL BE BLAST-CLEANED TO AT LEAST SSPC-SP6 TO REMOVE ALL OIL, DIRT, GREASE, MILL SCALE AND OTHER DELETERIOUS MATERIALS FROM THE SURFACES OF THE STEEL TO BE FABRICATED.
8. WHEN STEEL DIE STAMPS ARE USED TO IDENTIFY PIECES AND MEMBERS, FABRICATORS SHALL UTILIZE LOW STRESS STAMPS.

DESIGN TIDAL INFORMATION

UNITED STATES ARMY CORPS ENGINEERS HIGH TIDE LINE (USACE HTL)	=	EL. 3.78
MEAN HIGH WATER (MHW)	=	EL. 2.12
MEAN LOW WATER (MLW)	=	EL. -1.90
MEAN LOW LOW WATER (MLLW)	=	EL. -2.47
100 YEAR FLOOD (BARRINGTON RIVER)	=	EL. 9.70
100 YEAR FLOOD (PALMER RIVER)	=	EL. 8.20

THE CONTRACTOR SHALL NOTE THAT HIGHER AND LOWER TIDES ARE POSSIBLE.

EARLY RELEASE FOR CONSTRUCTION (ERC 1) APRIL 2023

RECEIVED 2/7/2024 RHODE ISLAND DEPARTMENT OF TRANSPORTATION CONTRACT MANAGEMENT UNIT

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 6
OF: 38
SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

JOB SPECIFIC GENERAL NOTES 4

0188A_V2_006_JSBRGN0T004

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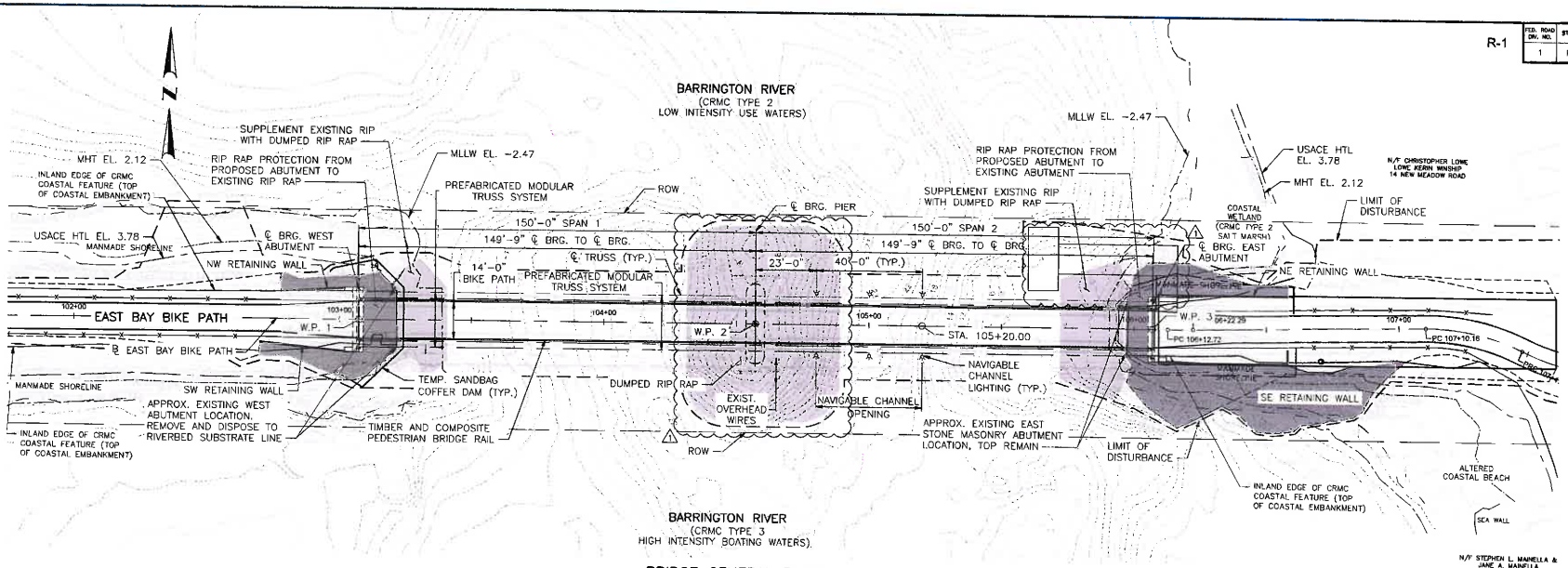
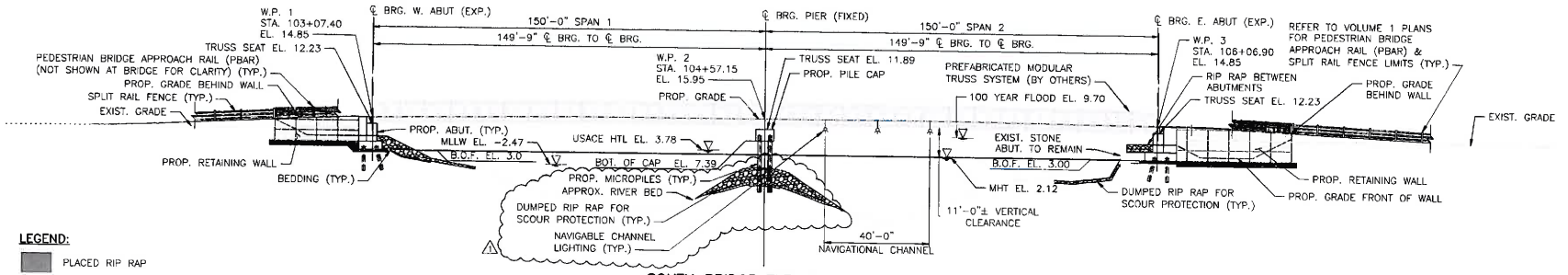
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	7	38



BRIDGE GENERAL PLAN

SCALE: 1"=20'



SOUTH BRIDGE ELEVATION

(LOOKING NORTH)

SCALE: 1"=20'

LEGEND:

- PLACED RIP RAP
- DUMPED RIP RAP

WORKING POINTS			
WORKING POINT	STATION	NORTHING	EASTING
W.P. 1	103+07.40	238481.4311	383709.3991
W.P. 2	104+57.15	238483.3985	383859.1362
W.P. 3	106+06.90	238485.3659	384008.8732

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
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DATE:
SHEET: 7
OF: 38

SCALE:

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT

(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING

BARRINGTON/WARREN RHODE ISLAND

BR. 083751 GENERAL PLAN

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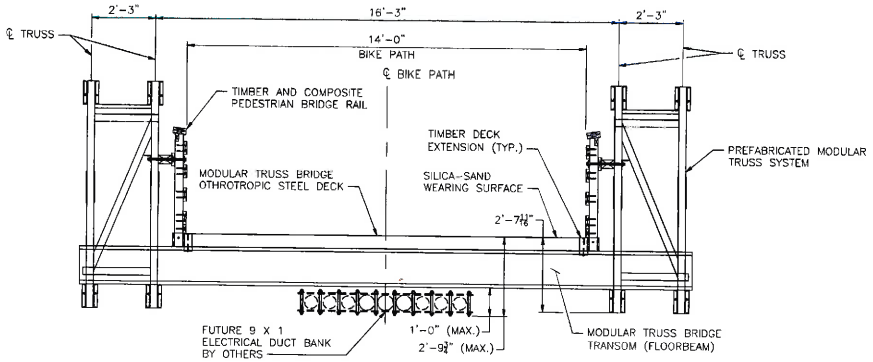
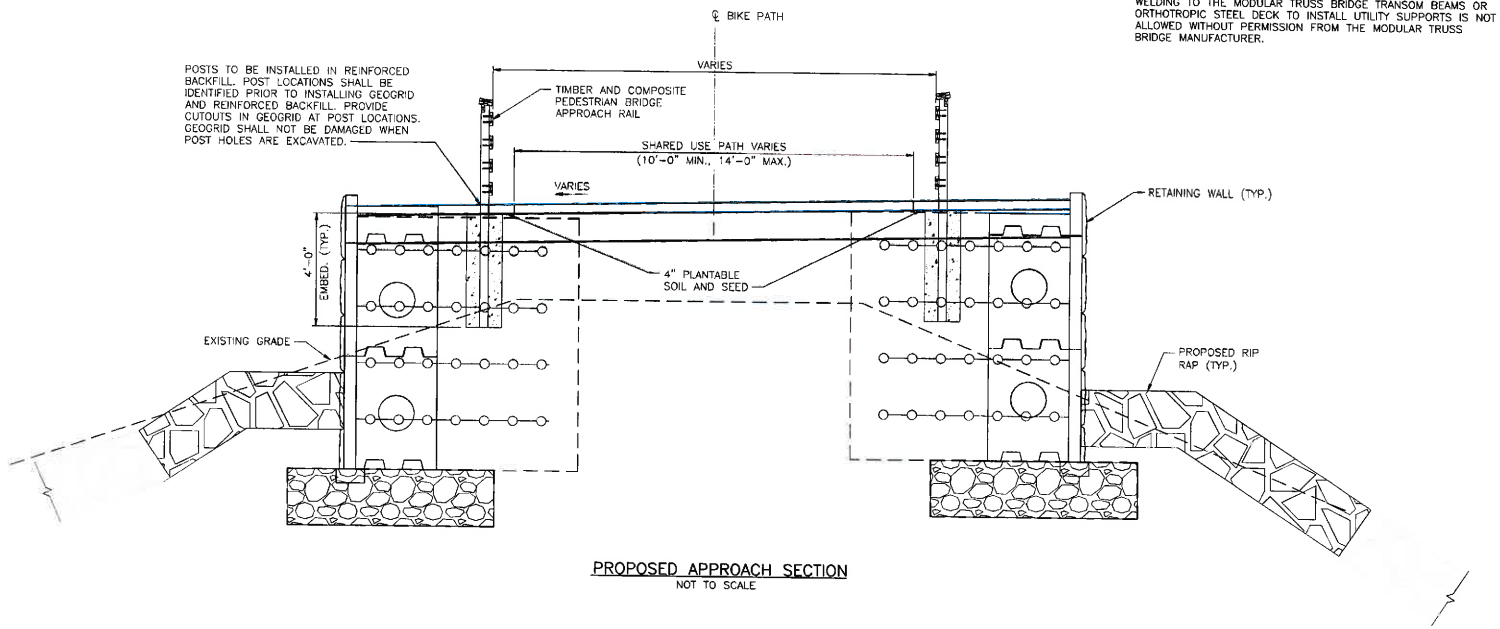
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	8	38



TYPICAL TRUSS SECTION
NOT TO SCALE

NOTES:

1. FUTURE DUCT BANK AND SUPPORTS BY OTHERS. DRILLING AND WELDING TO THE MODULAR TRUSS BRIDGE TRANSOM BEAMS OR ORTHOTROPIC STEEL DECK TO INSTALL UTILITY SUPPORTS IS NOT ALLOWED WITHOUT PERMISSION FROM THE MODULAR TRUSS BRIDGE MANUFACTURER.



PROPOSED APPROACH SECTION
NOT TO SCALE

RECEIVED 2/7/2024 RHODE ISLAND STATEWIDE PLANNING

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY: -
CHECKED BY: -
DATE:
SHEET: 8
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 BRIDGE TYPICAL SECTION

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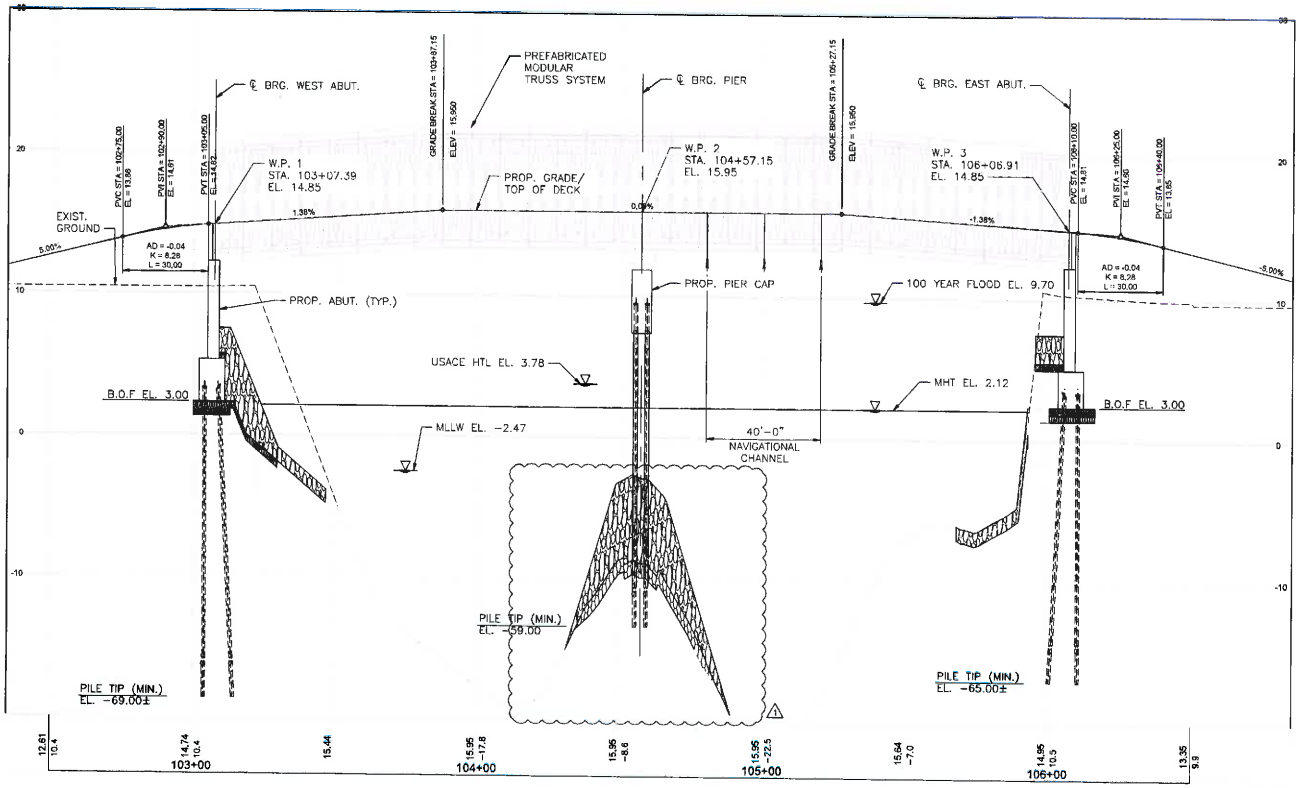
R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	9	38



℄ BARRINGTON PROFILE

SCALE HORIZONTAL: 1"=20'
SCALE VERTICAL: 1"=4'

NOTE:
REFER TO HIGHWAY PLANS FOR ADDITIONAL INFORMATION.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY: -
CHECKED BY: -
DATE:
SHEET: 9
OF: 38

SCALE:

REVISIONS NO.	DATE	BY
1	2/1/24	VHB

REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 PROFILE

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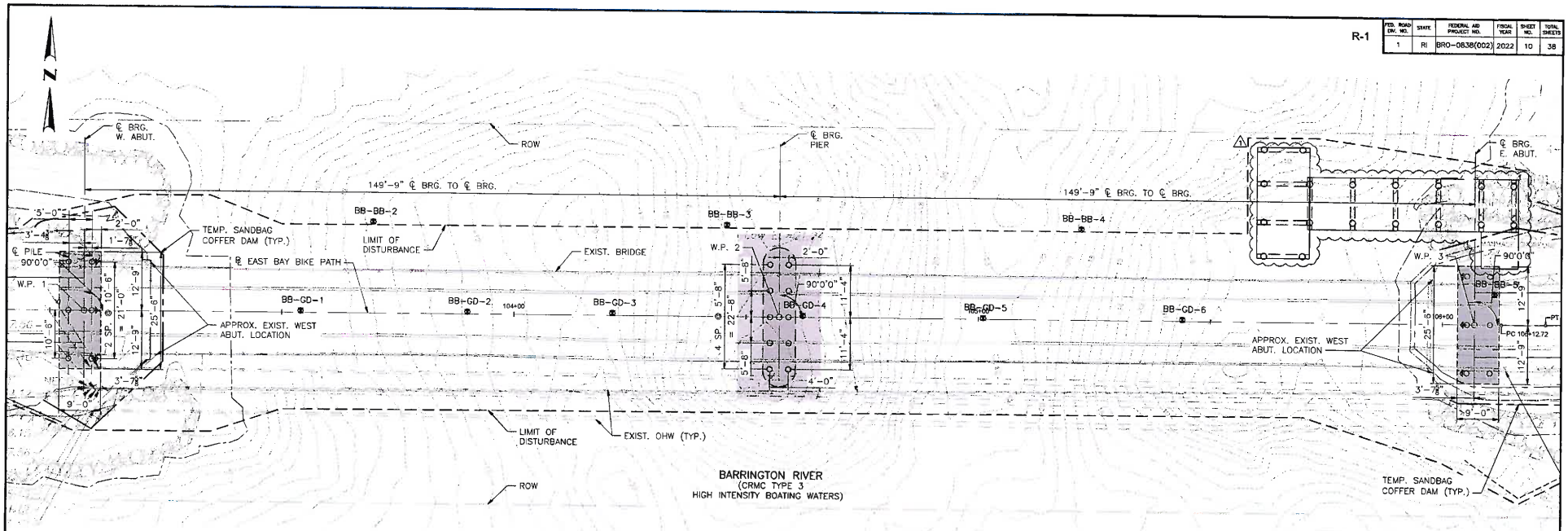

FOUNDATION PLAN
SCALE: 1"=10'

LEGEND

- PROPOSED FOUNDATION
- PIER CAP
- PROPOSED DRILLED MICROPILE (9.625" DIA.) (BATTERED 4:12)
- PROPOSED DRILLED MICROPILE (9.625" DIA. AT ABUTMENT, 14" DIA. AT PIER) (VERTICAL)
- PROPOSED DRILLED STEEL PIPE PILE AT FISHING PIER ⚠1

EARLY RELEASE FOR CONSTRUCTION (ERC 2) JUNE 2023

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	10	38

R-1

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY: . CHECKED BY: . DATE: . SHEET: 10 OF: 38

SCALE:

REVISIONS NO.	DATE	BY
⚠1	2/1/24	VHB

REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 FOUNDATION PLAN

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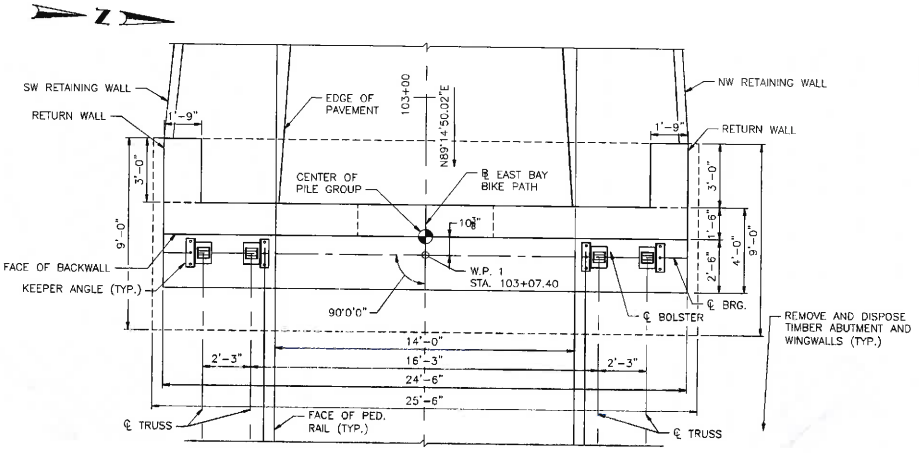
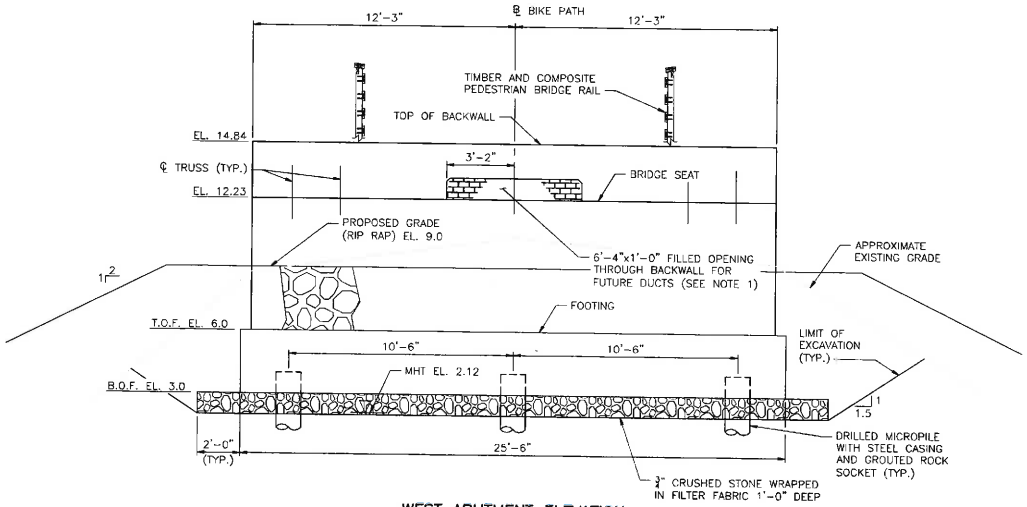
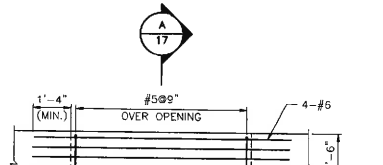
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	11	38



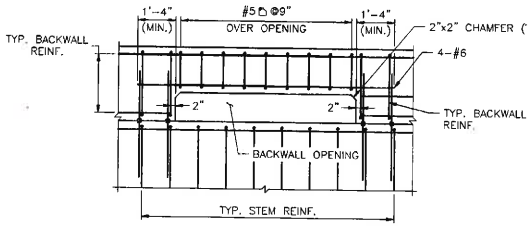
WEST ABUTMENT PLAN
SCALE: 3/8"=1'-0"



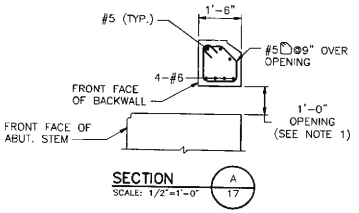
WEST ABUTMENT ELEVATION
SCALE: 3/8"=1'-0"



BACKWALL OPENING – PLAN
SCALE: 1/2"=1'-0"



BACKWALL OPENING – ELEVATION
SCALE: 1/2"=1'-0"



SCALE: 1/2"=1'-0"

NOTE:

1. FILL FUTURE DUCT OPENING WITH CLAY BUILDING BRICK (M.04.03.1) AND MORTAR (M.04.03.5) FOR FULL THICKNESS OF BACKWALL.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY: -
CHECKED BY: -
DATE:
SHEET: 11
OF: 38
SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 WEST ABUTMENT PLAN AND ELEVATION

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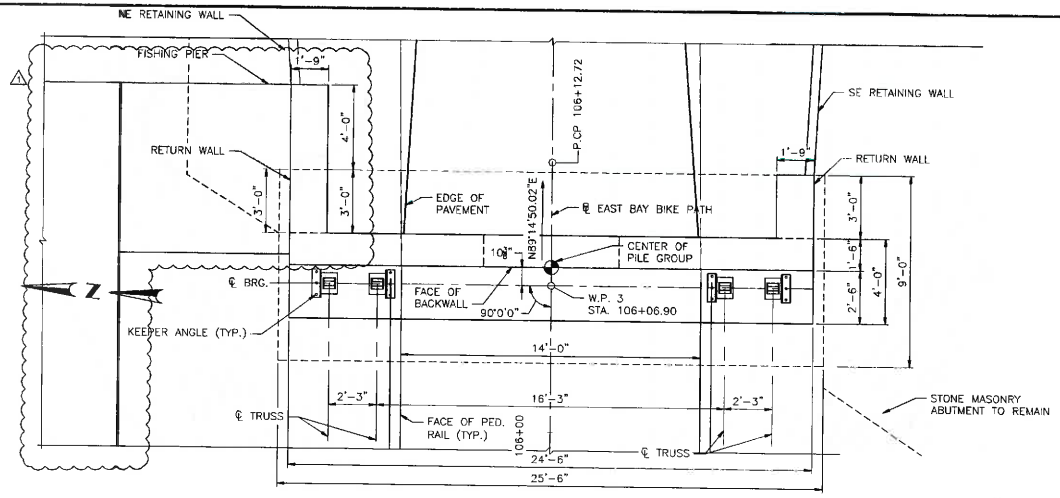
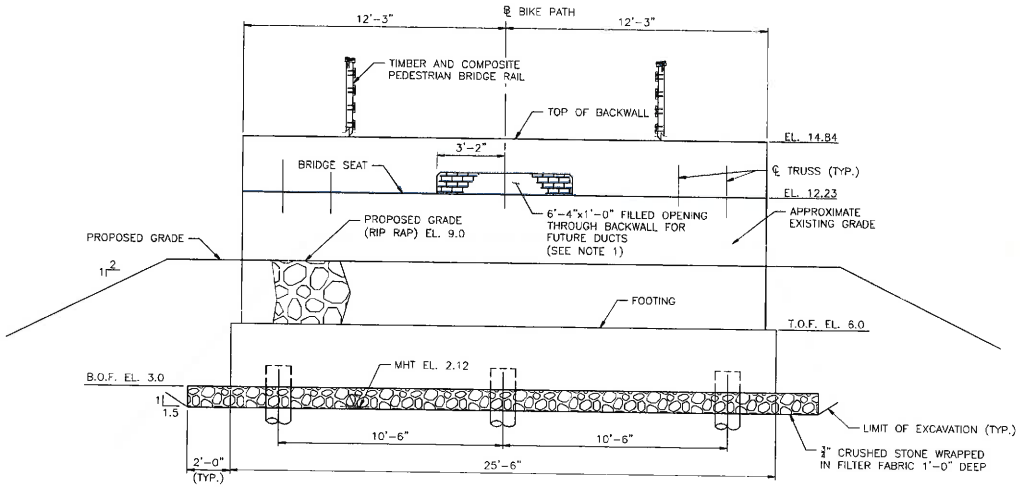
R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	12	38



EAST ABUTMENT PLAN

SCALE: 3/8"=1'-0"



EAST ABUTMENT ELEVATION

SCALE: 3/8"=1'-0"

NOTE:

1. FILL FUTURE DUCT OPENING WITH CLAY BUILDING BRICK (M.04.03.1) AND MORTAR (M.04.03.5) FOR FULL THICKNESS OF BACKWALL.
2. SEE BR. 083751 WEST ABUTMENT PLAN AND ELEVATION FOR BACKWALL OPENING DETAILS.

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RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 12
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	2/1/24	VHB			

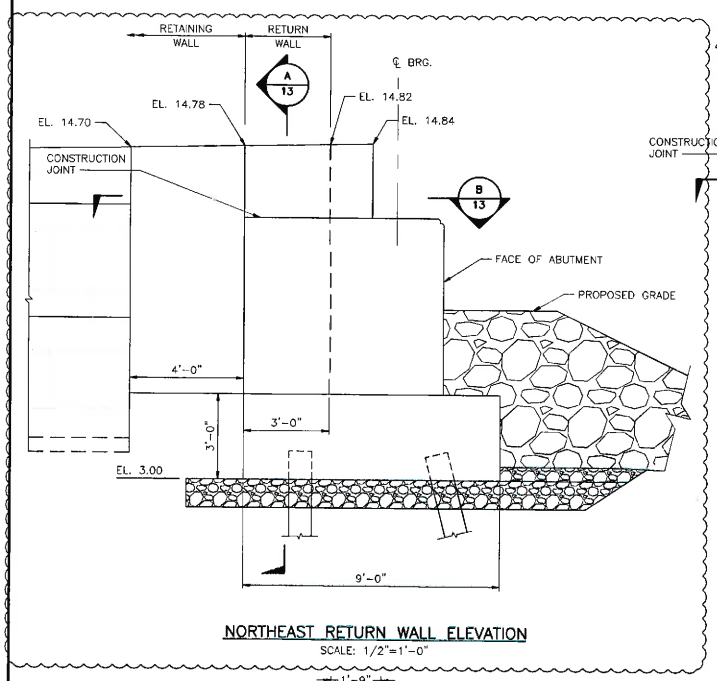
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 EAST ABUTMENT PLAN AND ELEVATION

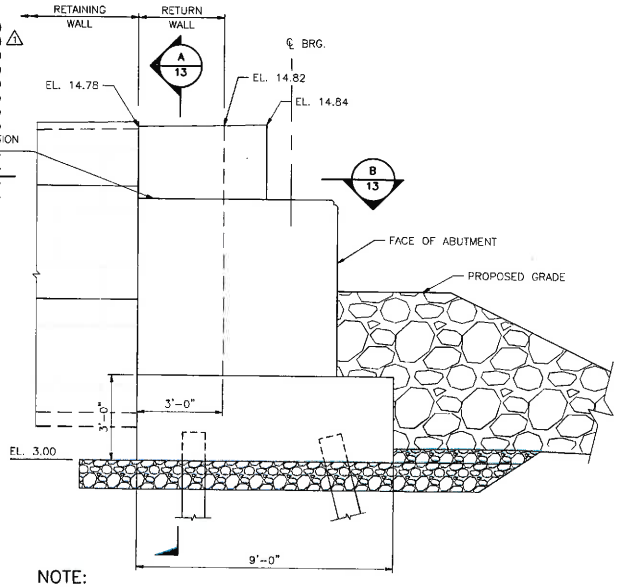
0188A_V2_012_EABUT_083751

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	13	38

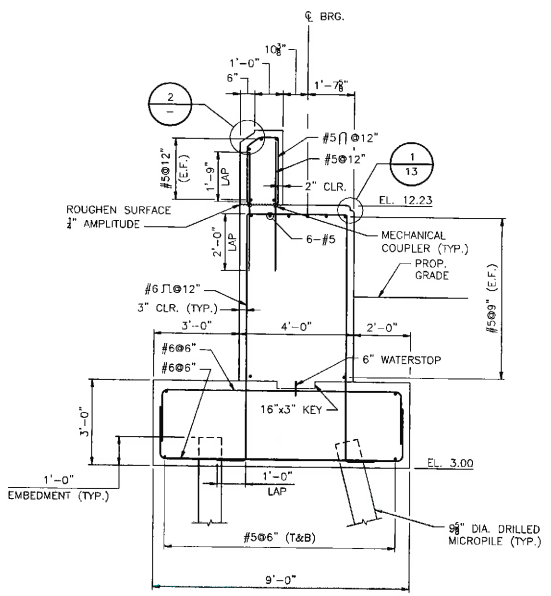


NORTHEAST RETURN WALL ELEVATION
SCALE: 1/2"=1'-0"

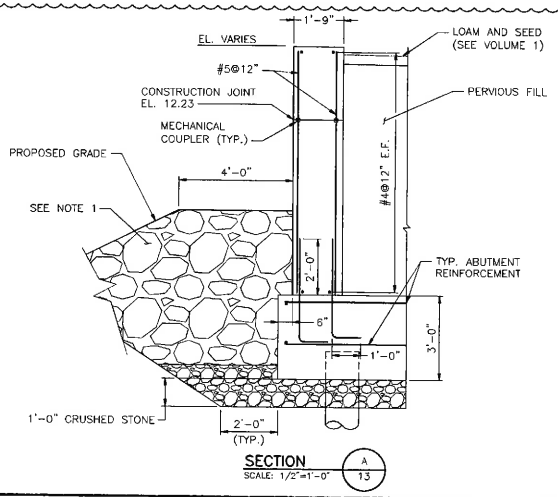


NOTE:
WEST RETURN WALL SHOWN, EAST RETURN WALL SIMILAR.

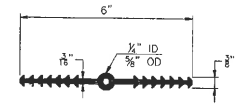
TYPICAL RETURN WALL ELEVATION
SCALE: 1/2"=1'-0"



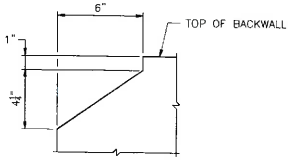
TYPICAL ABUTMENT SECTION
SCALE: 1/2"=1'-0"



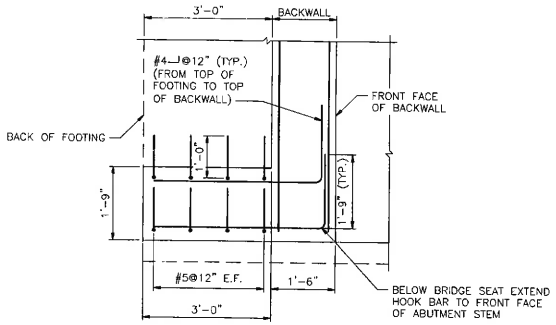
SECTION
SCALE: 1/2"=1'-0"
A 13



6" WATER STOP DETAIL
SCALE: 6"= 1'-0"



DETAIL
SCALE: 3"=1'-0"
2



SECTION
SCALE: 3/4"=1'-0"
B 13

NOTE:
1. SEE Br. 083751 & 083851 RIP RAP DETAILS 1

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
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DATE:
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OF: 38

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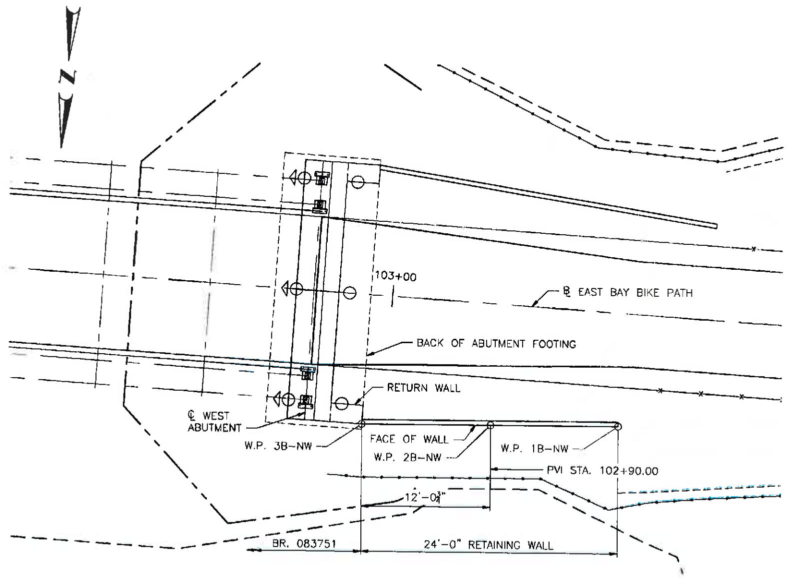
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	2/1/24	VHB			

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 ABUTMENT DETAILS

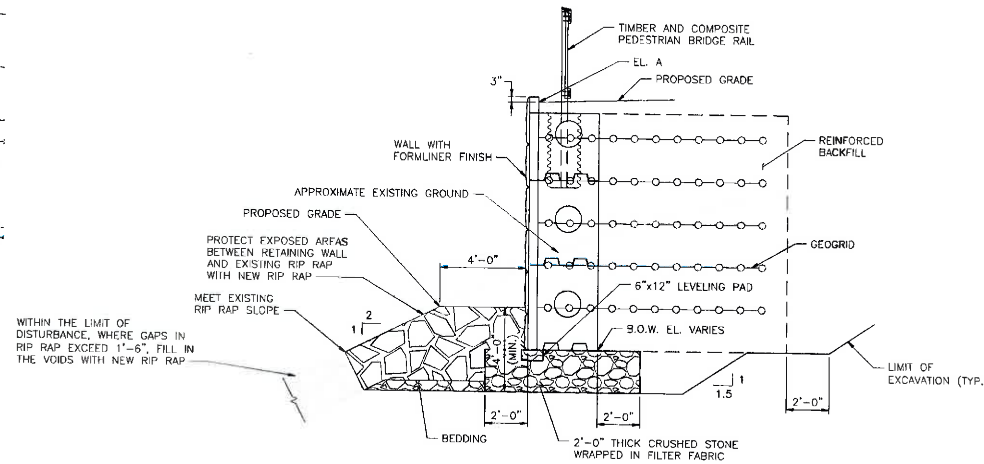
0188A_V2_013_083751_ABUTDETL

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI		2022	14	38



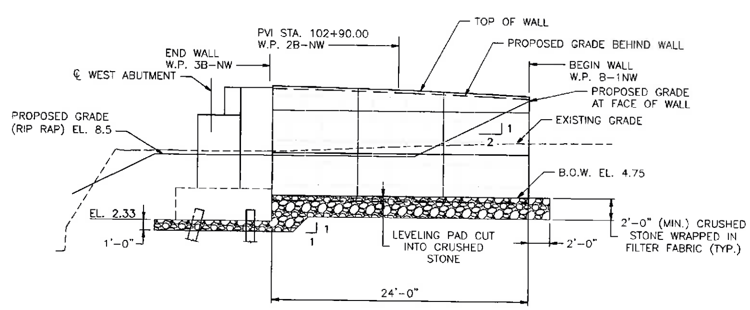
NORTHWEST RETAINING WALL PLAN

SCALE: 3/16"=1'-0"



TYPICAL RETAINING WALL SECTION

SCALE: 3/8"=1'-0"



NORTHWEST RETAINING WALL ELEVATION

SCALE: 3/16"=1'-0"

NORTHWEST RETAINING WALL					
WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1B–NW	102+78.09	-10.69	238491.7362	383679.9507	14.02
W.P. 2B–NW	102+90.00	-11.47	238492.6676	383691.8458	14.50
W.P. 3B–NW	103+02.04	-12.25	238493.6093	383703.8737	14.77

* ELEVATION IS GIVEN AT PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION THIS SHEET.

NOTES:

1. REFER TO HIGHWAY PLANS FOR COMPLETE GEOMETRY AND CURVE DATA FOR BIKE PATH.
2. PANEL SLIP JOINTS ARE NOT SHOWN. SLIP JOINT LOCATION AND QUANTITY SHALL BE DETERMINED BY THE WALL MANUFACTURER.

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY: CHECKED BY: DATE: SHEET: 14 OF: 38

SCALE:

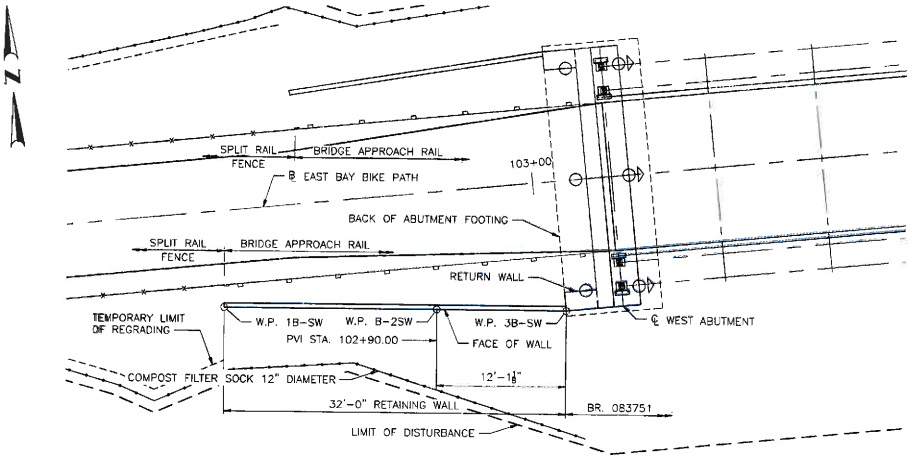
REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 RETAINING WALL PLAN 1

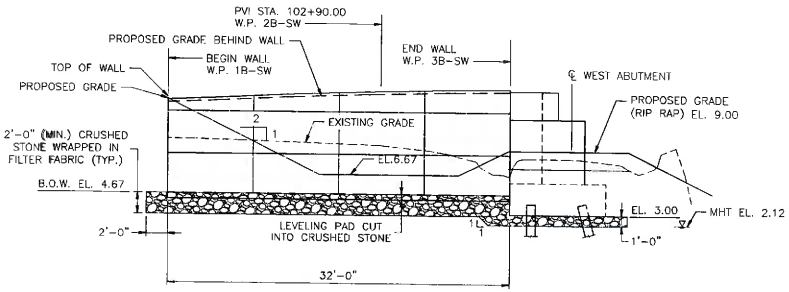
0188A_V2_014_RETWALL01_083751

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	15	38



SOUTHWEST RETAINING WALL PLAN

SCALE: 3/16"=1'-0"



SOUTHWEST RETAINING WALL ELEVATION

SCALE: 3/16"=1'-0"

SOUTHWEST RETAINING WALL					
WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1B-SW	102+70.19	9.09	238471.8537	383672.3115	13.65
W.P. 2B-SW	102+90.00	11.06	238470.1482	383692.1417	14.51
W.P. 3B-SW	103+02.04	12.25	238469.1114	383704.1960	14.77

* ELEVATION IS GIVEN AT PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION.

NOTES:

1. SEE BR. 083751 RETAINING WALL 1 SHEET FOR TYPICAL RETAINING WALL SECTION AND NOTES.

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SHEET: 15
OF: 38

SCALE:

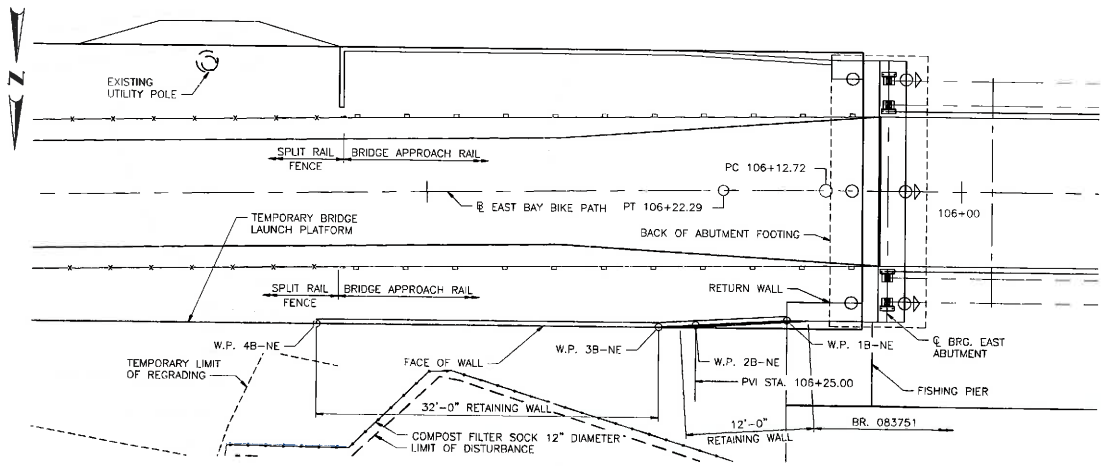
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 RETAINING WALL PLAN 2

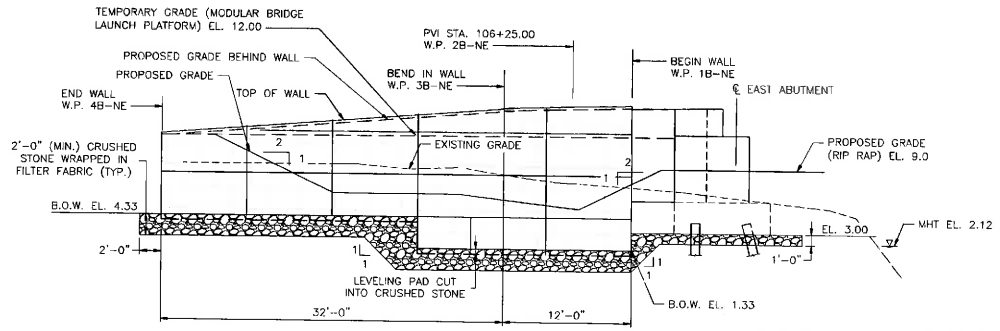
0188A_V2_015_RETWALL02_083751

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	16	38



NORTHEAST RETAINING WALL PLAN

SCALE: 3/16"=1'-0"



NORTHEAST RETAINING WALL ELEVATION – DEVELOPED

SCALE: 3/16"=1'-0"

NORTHEAST RETAINING WALL

WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1B-NE	106+14.30	-12.25	238497.7121	384016.0762	14.73
W.P. 2B-NE	106+25.00	-12.79	238498.5068	384026.5960	14.45
W.P. 3B-NE	106+26.45	-12.86	238498.6160	384028.0418	14.40
W.P. 4B-NE	106+58.45	-12.35	238499.0365	384060.0403	11.62

* ELEVATION IS GIVEN AT PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION.

NOTES:

1. SEE BR. 083751 RETAINING WALL 1 SHEET FOR TYPICAL RETAINING WALL SECTION AND NOTES.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
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DATE:
SHEET: 16
OF: 38

SCALE:

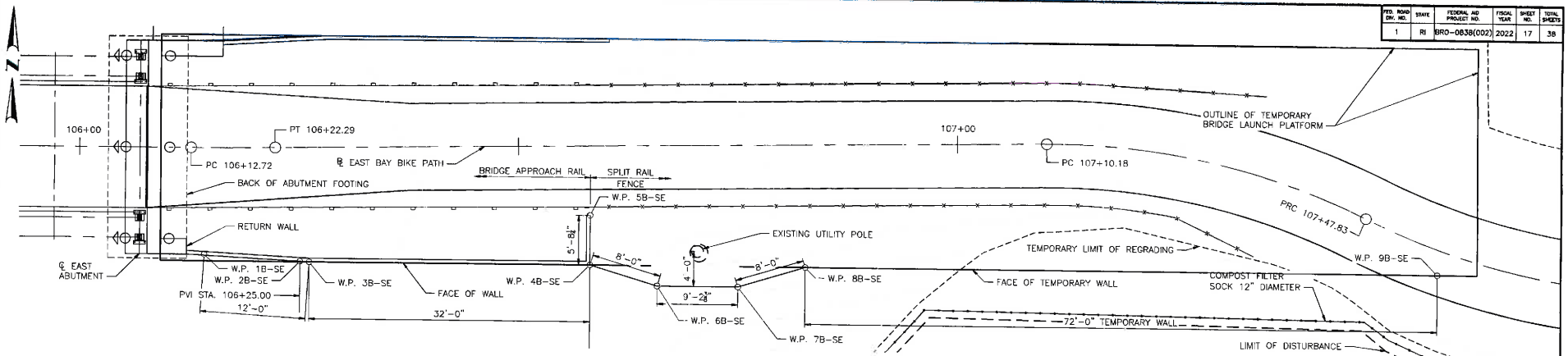
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 RETAINING WALL PLAN 3

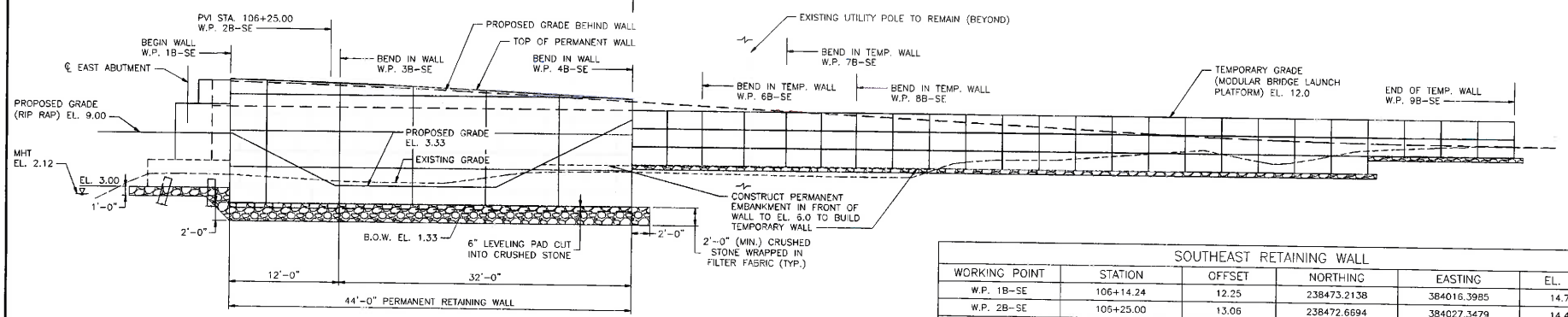
0188A_V2_016_RETWALL03_083751

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	17	38



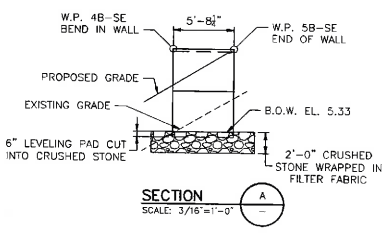
SOUTHEAST RETAINING WALL PLAN

SCALE: 3/16"=1'-0"



SOUTHEAST RETAINING WALL ELEVATION

SCALE: 3/16"=1'-0"



SECTION

SCALE: 3/16"=1'-0"

SOUTHEAST RETAINING WALL					
WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1B-SE	106+14.24	12.25	238473.2138	384016.3985	14.73
W.P. 2B-SE	106+25.00	13.06	238472.6694	384027.3479	14.43
W.P. 3B-SE	106+26.04	13.14	238472.6179	384028.3833	14.40
W.P. 4B-SE	106+58.03	13.65	238473.0383	384060.3806	12.94
W.P. 5B-SE	106+58.12	7.96	238478.7268	384060.3058	12.94
W.P. 6B-SE	106+65.65	16.08	238470.8290	384068.0694	12.00**
W.P. 7B-SE	106+74.85	16.23	238470.9500	384077.2620	12.00**
W.P. 8B-SE	106+82.54	14.04	238473.3619	384084.8929	12.00**
W.P. 9B-SE	107+57.66	2.75	238474.3079	384156.8867	12.00**

* ELEVATION IS TAKEN AT TOP OF PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION.
** THIS GRADE IS TEMPORARY FOR THE LAUNCHING PLATFORM.

NOTES:

1. SEE BR. 083751 RETAINING WALL 1 SHEET FOR TYPICAL RETAINING WALL SECTION AND NOTES.

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OF: 38
SCALE:

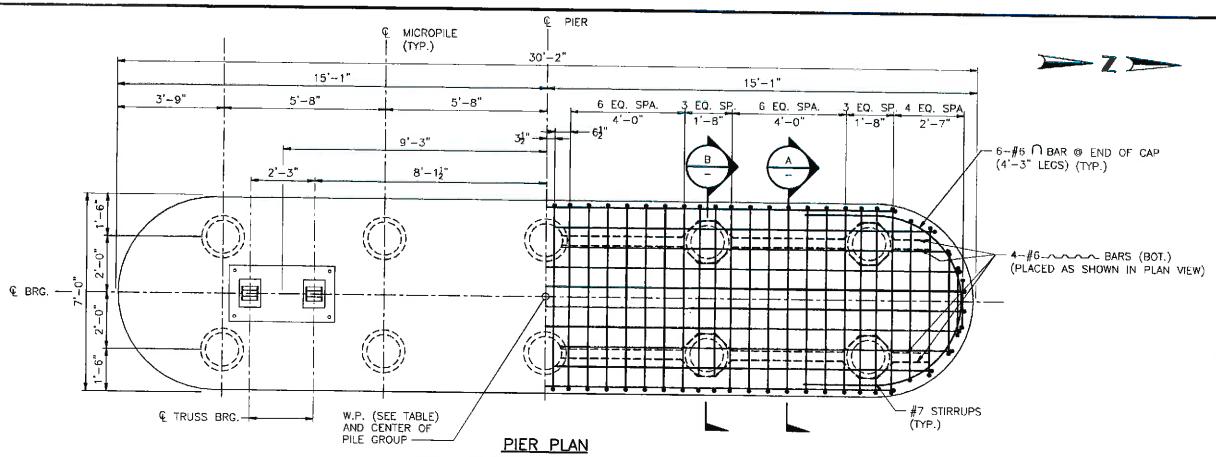
REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 RETAINING WALL PLAN 4

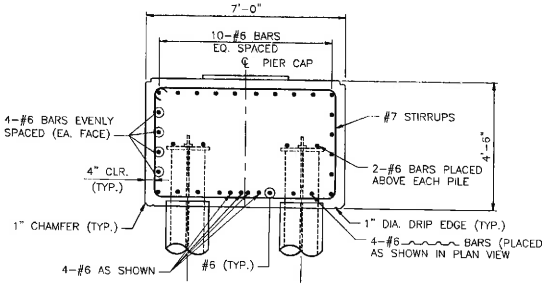
0188A_V2_017_RETWALL04_083751

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	18	38

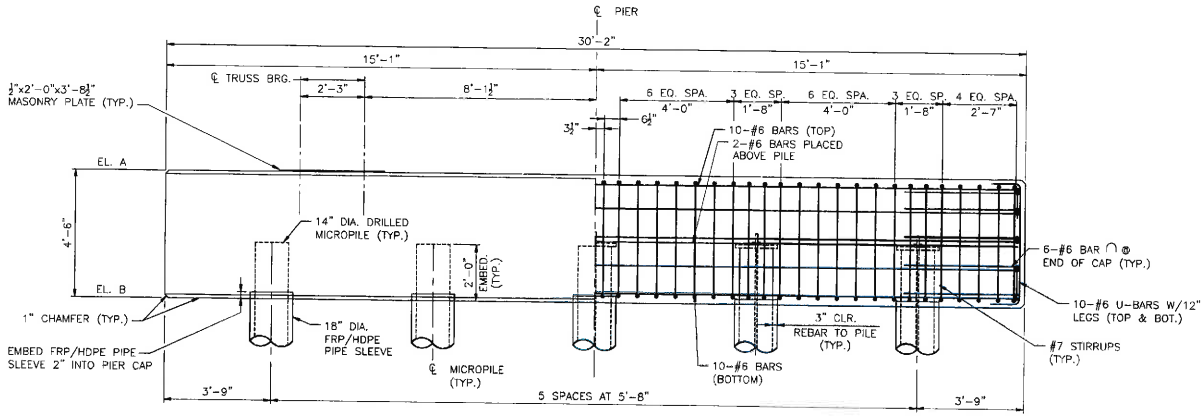


PIER PLAN

(PIER IS SYMMETRICAL ABOUT THE CENTERLINE)
SCALE: ½"=1'-0"

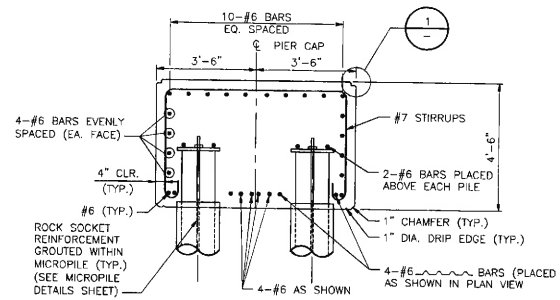


SECTION
SCALE: 1/2"=1'-0"



PIER ELEVATION

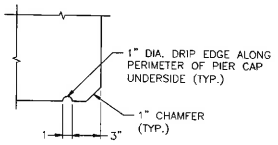
(PIER IS SYMMETRICAL ABOUT THE CENTERLINE)
SCALE: ½"=1'-0"



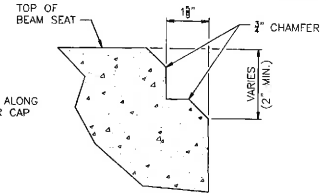
SECTION
SCALE: 1/2"=1'-0"

NOTES:

1. ALL PIER CAP SURFACES SHALL RECEIVE A FILM-FORMING SEALER PROTECTIVE COATING.
2. ONCE PILES ARE INSTALLED, SUBMIT AS-BUILT LOCATIONS TO DESIGN ENGINEER TO VERIFY AND APPROVE THE LOCATIONS.



DRIP EDGE DETAIL
SCALE: NOT TO SCALE



DETAIL
NOT TO SCALE

ELEVATION	BARRINGTON
A	11.85
B	7.35

W.P. #	LOCATION	STATION	NORTHING	EASTING
2	BARRINGTON	104+57.15	238483.3985	383859.1362

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RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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OF: 38
SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

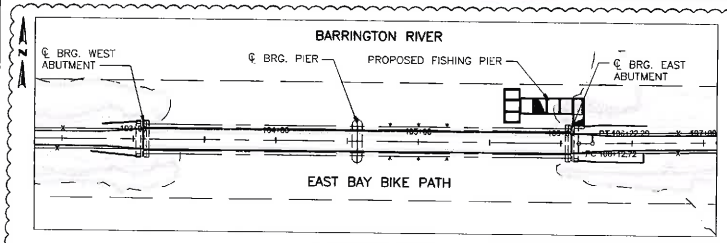
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 PIER DETAILS

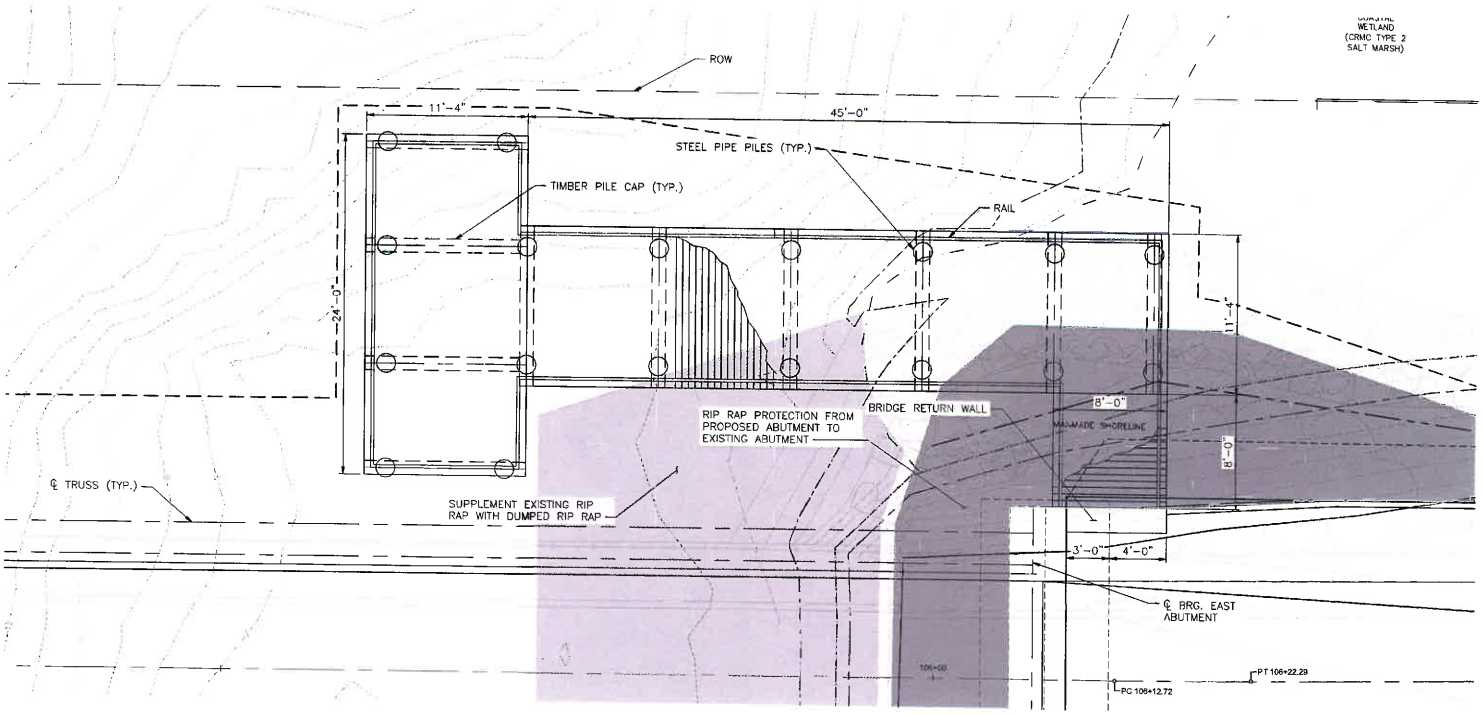
0188A_V2_018_PIER_083751

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	19	38



LOCATION MAP
SCALE: 1"=40'



FISHING PIER GENERAL PLAN
SCALE: 1/4"=1'-0"

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 19
OF: 38

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REVISIONS NO.	DATE	BY
1	2/1/24	VHB

REVISIONS NO.	DATE	BY

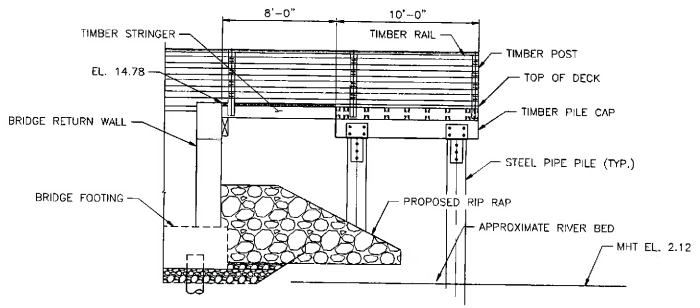
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

Br. 083751 FISHING PIER GENERAL PLAN

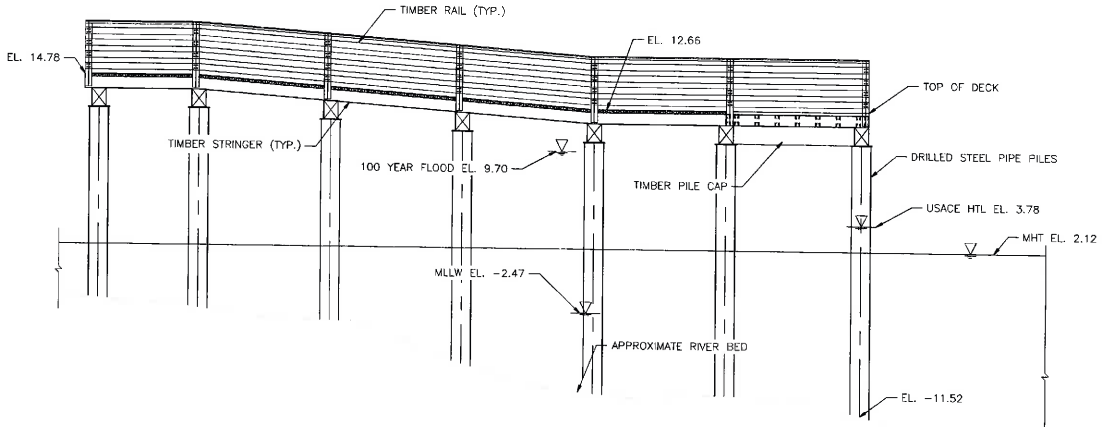
0188A_V2_019_083751_BGENERAL_FPIER

R-1

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	20	48



FISHING PIER – EAST ELEVATION
SCALE: 1/4"=1'-0"
(LOOKING WEST)



FISHING PIER – NORTH ELEVATION
SCALE: 1/4"=1'-0"
(LOOKING SOUTH)

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL
ÆTNA na Bridge Company
vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100
RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

DESIGNED BY: -
CHECKED BY: -
DATE: -
SHEET: 20
OF: 48

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY
1	2/1/24	VHB			

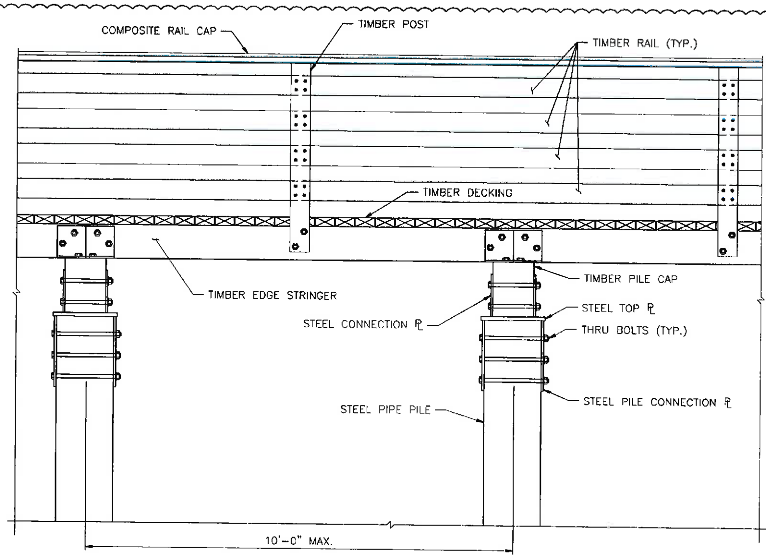
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NOS. 083751 & 083851
VOLUME 2
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 FISHING PIER ELEVATION

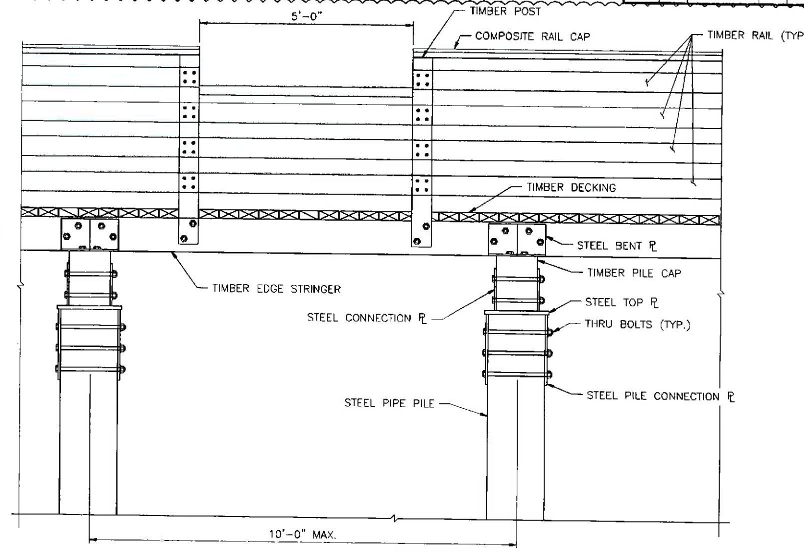
0188A_V2_020_083751_ELEV_FPIER

R-1

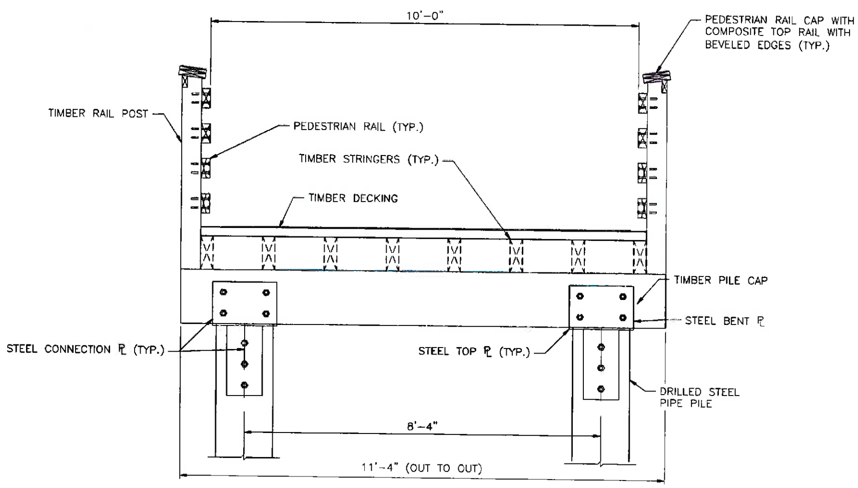
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	21	38



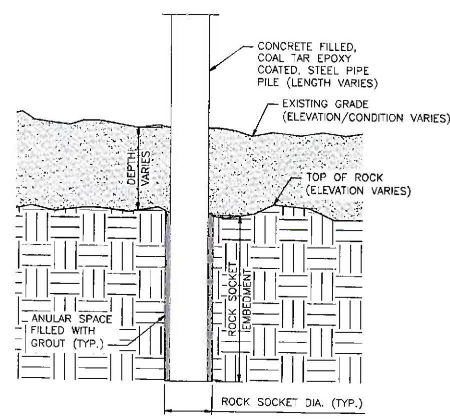
TYPICAL LONGITUDINAL SECTION
SCALE: 3/4"=1'-0"



HANDICAP RAIL DETAIL
SCALE: 3/4"=1'-0"



TYPICAL PIER SECTION
SCALE: 3/4"=1'-0"



PILE ROCK SOCKET DETAIL
SCALE: 1/2"=1'-0"

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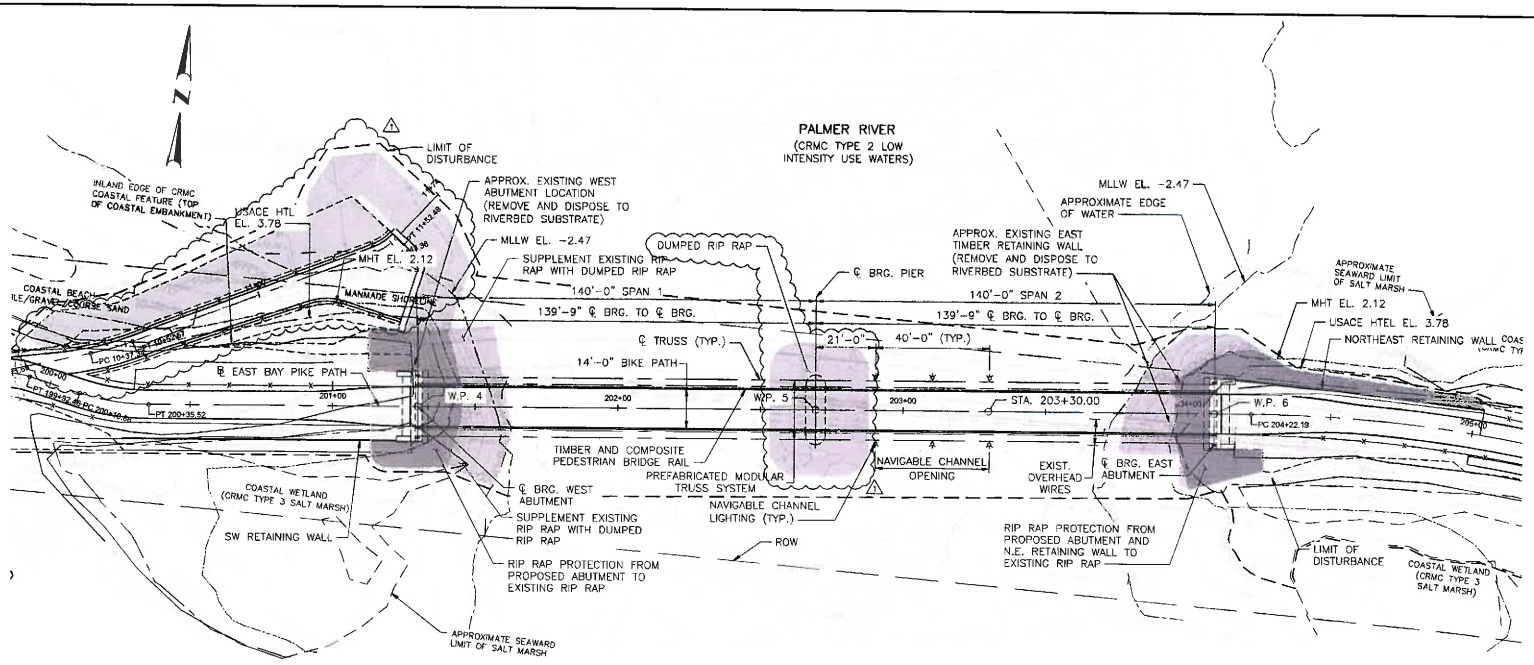
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 FISHING PIER TYPICAL SECTION

0188A_V2_021_083751_BTYPICAL_FPIER

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	22	38

R-1



LEGEND:

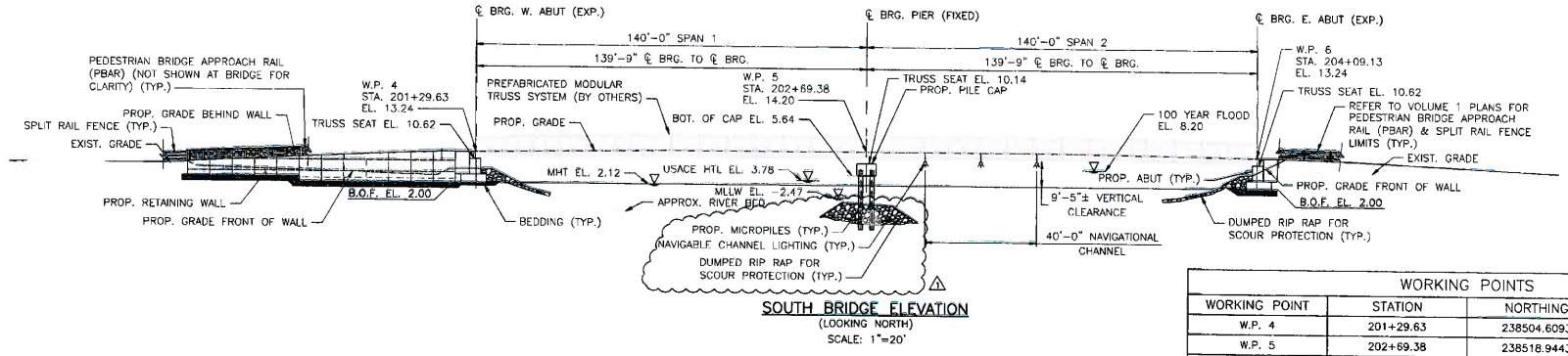
- PLACED RIP RAP
- DUMPED RIP RAP

ROUTE 114

PALMER RIVER
(CRMC TYPE 3
HIGH INTENSITY BOATING WATERS)

BRIDGE GENERAL PLAN

SCALE: 1"=20'



SOUTH BRIDGE ELEVATION

(LOOKING NORTH)

SCALE: 1"=20'

WORKING POINTS			
WORKING POINT	STATION	NORTHING	EASTING
W.P. 4	201+29.63	238504.6093	385420.6628
W.P. 5	202+69.38	238518.9443	385559.6757
W.P. 6	204+09.13	238533.2793	385698.6885

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OF: 38

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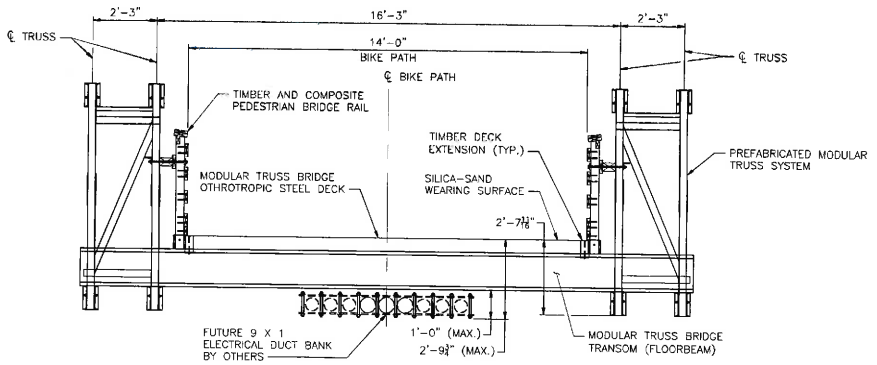
REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

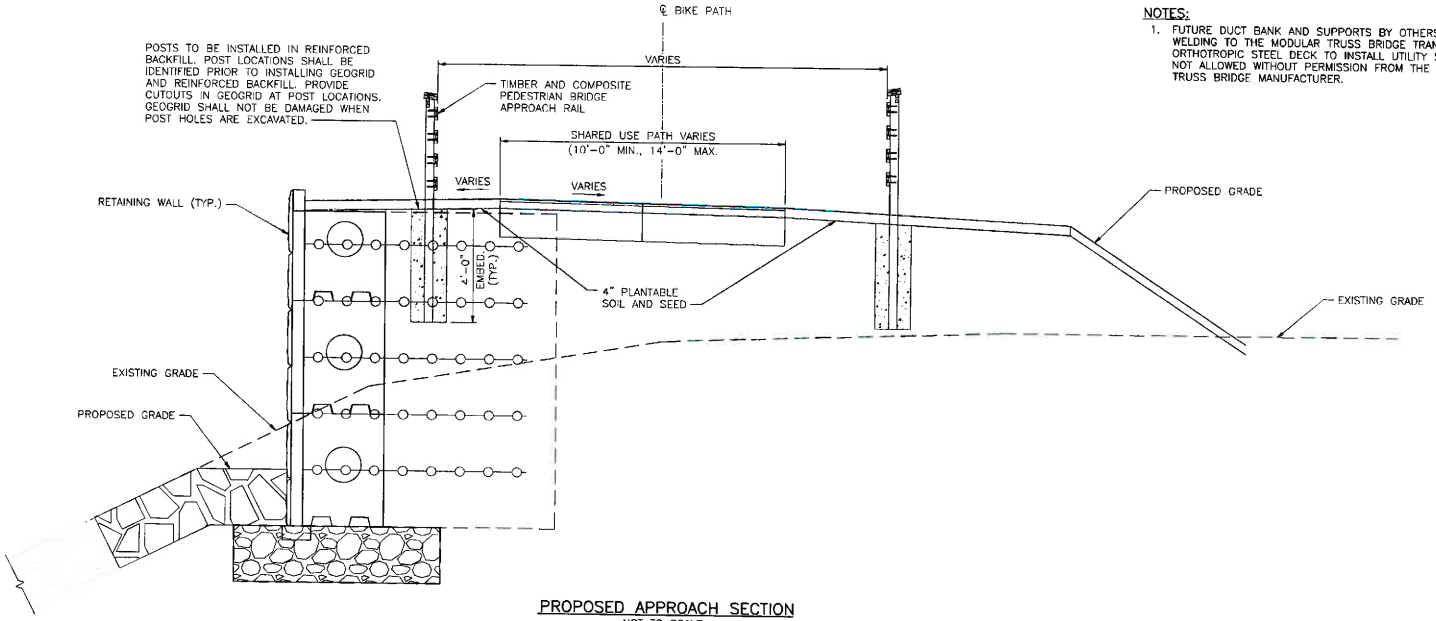
BR. 083851 BRIDGE GENERAL PLAN

D188A_V2_022_BGENERAL_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	23	38



TYPICAL TRUSS SECTION
NOT TO SCALE



PROPOSED APPROACH SECTION
NOT TO SCALE

NOTES:
1. FUTURE DUCT BANK AND SUPPORTS BY OTHERS. DRILLING AND WELDING TO THE MODULAR TRUSS BRIDGE TRANSOM BEAMS OR ORTHOTROPIC STEEL DECK TO INSTALL UTILITY SUPPORTS IS NOT ALLOWED WITHOUT PERMISSION FROM THE MODULAR TRUSS BRIDGE MANUFACTURER.

AETNA Bridge Company

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083851 BRIDGE TYPICAL SECTION

0188A_V2_023_BTYPICAL_083851

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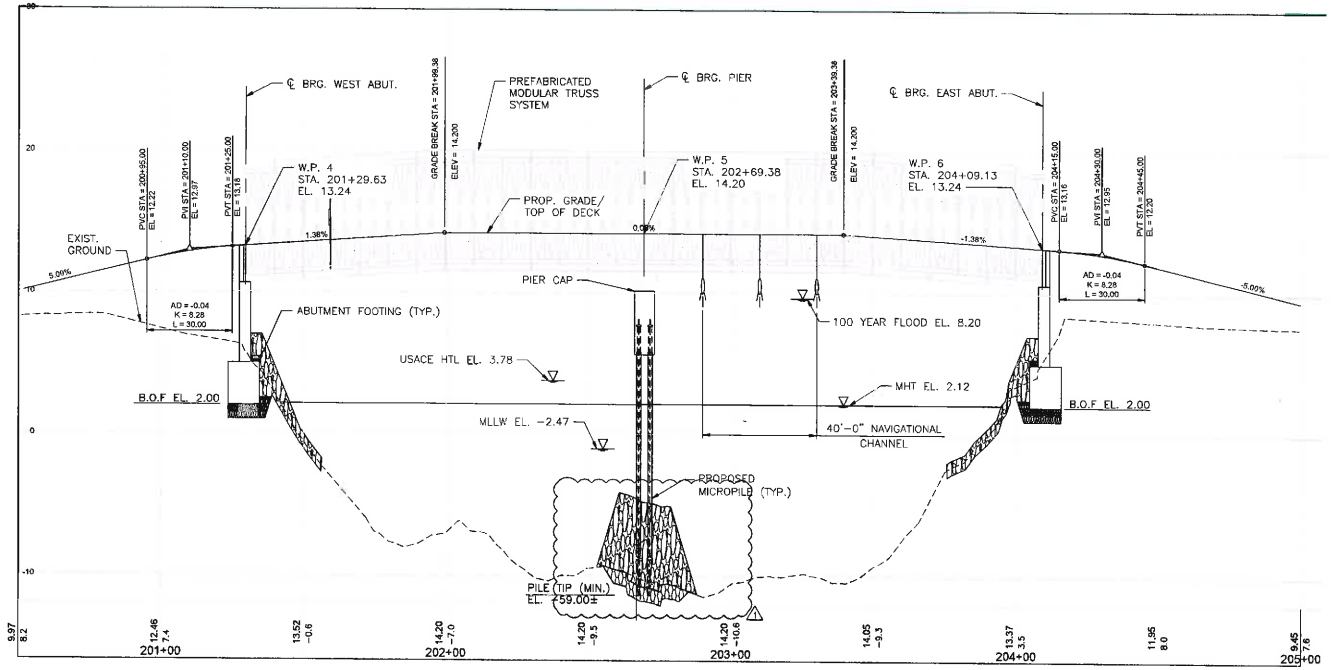
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	24	38



℄ WARREN PROFILE

SCALE HORIZONTAL: 1"=20'
SCALE VERTICAL: 1"=4'

NOTE:
REFER TO HIGHWAY PLANS FOR ADDITIONAL INFORMATION.

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RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

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OF: 38

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1	2/1/24	VHB

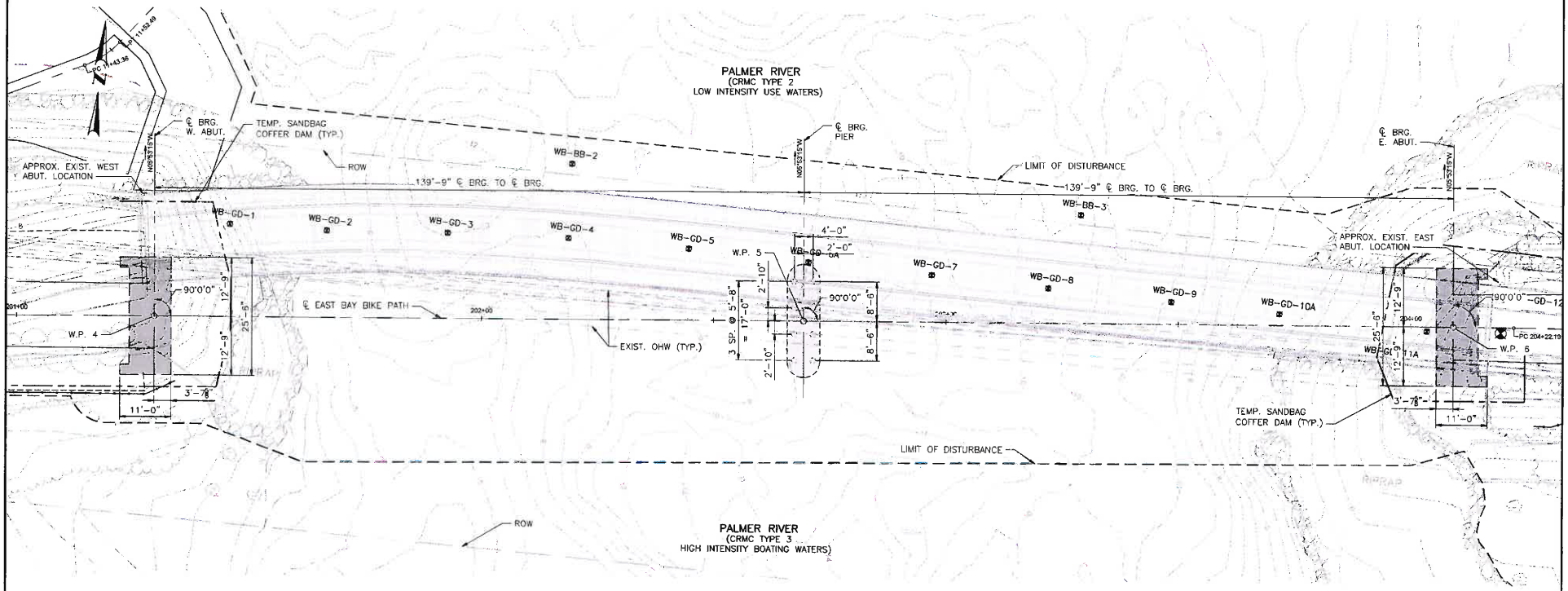
REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083851 BRIDGE PROFILE

0188A_V2_024_BPROFILE_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	25	38



FOUNDATION PLAN
SCALE: 1"=10'

LEGEND

- PROPOSED FOUNDATION
- PIER CAP
- PROPOSED DRILLED MICROPILE (14" DIA.) (VERTICAL)

EARLY RELEASE FOR CONSTRUCTION (ERC 2) JUNE 2023

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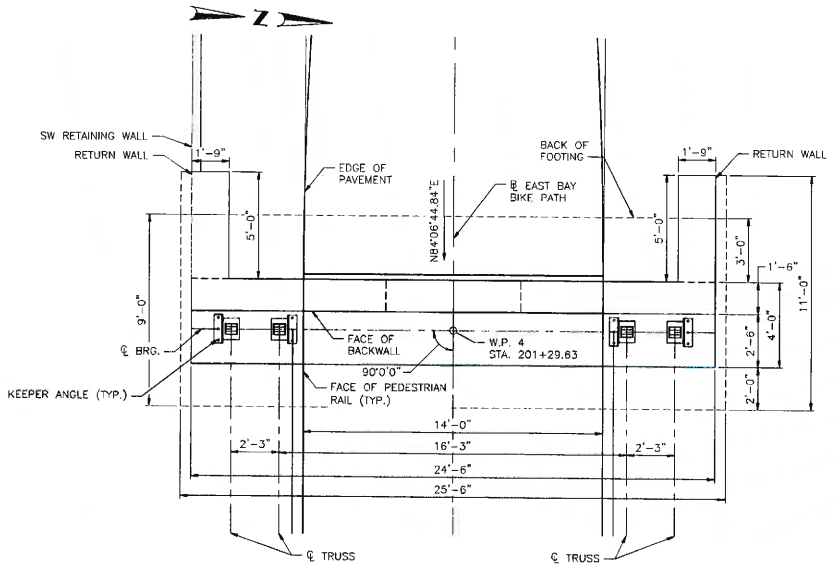
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

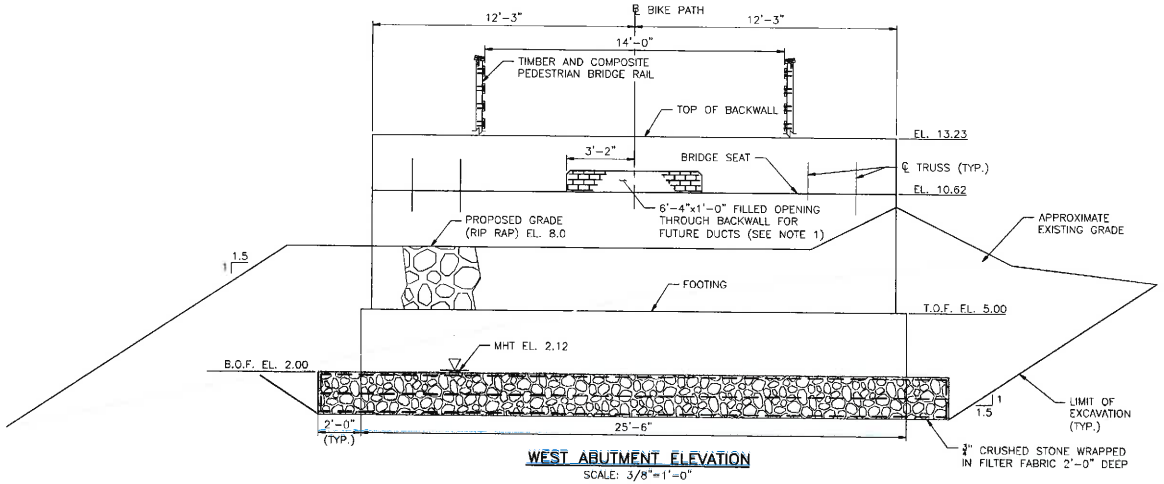
BR. 083851 FOUNDATION PLAN

01688A_V2_025_FOUNDATN_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	26	38



WEST ABUTMENT PLAN
SCALE: 3/8"=1'-0"



WEST ABUTMENT ELEVATION
SCALE: 3/8"=1'-0"

NOTE:

1. FILL FUTURE DUCT OPENING WITH CLAY BUILDING BRICK (M.04.03.1) AND MORTAR (M.04.03.5) FOR FULL THICKNESS OF BACKWALL.
2. CRUSHED STONE UNDER BRIDGE 083851 ABUTMENT FOOTINGS SHALL BE MIRAFI HP 570 GEOTEXTILE WRAPPED ON ALL SIDES, TOP AND BOTTOM.
3. SEE BR. 083751 WEST ABUTMENT PLAN AND ELEVATION FOR BACKWALL OPENING DETAILS.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

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OF: 38

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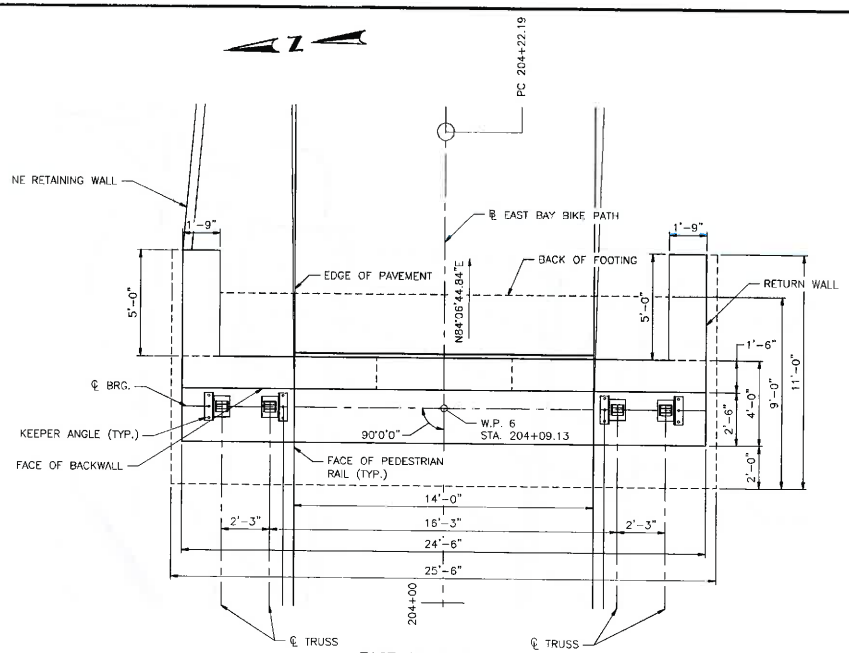
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083851 WEST ABUTMENT PLAN AND ELEVATION

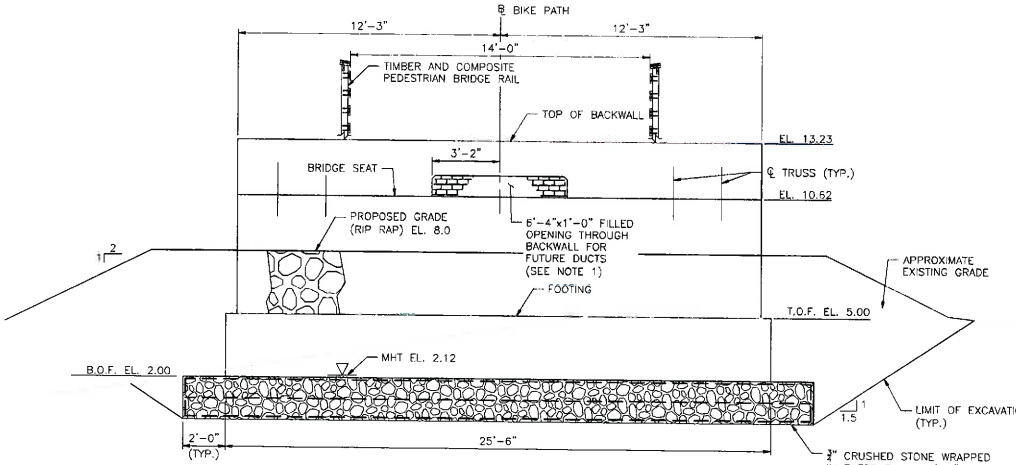
0188A_V2_026_WABUT_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	27	38



EAST ABUTMENT PLAN

SCALE: 3/8"=1'-0"



EAST ABUTMENT ELEVATION

SCALE: 3/8"=1'-0"

NOTE:

1. FILL FUTURE DUCT OPENING WITH CLAY BUILDING BRICK (M.04.03.1) AND MORTAR (M.04.03.5) FOR FULL THICKNESS OF BACKWALL.
2. CRUSHED STONE UNDER BRIDGE 083851 ABUTMENT FOOTINGS SHALL BE MIRAFI HP 570 GEOTEXTILE WRAPPED ON ALL SIDES, TOP AND BOTTOM.
3. SEE BR. 083751 WEST ABUTMENT PLAN AND ELEVATION FOR BACKWALL OPENING DETAILS.

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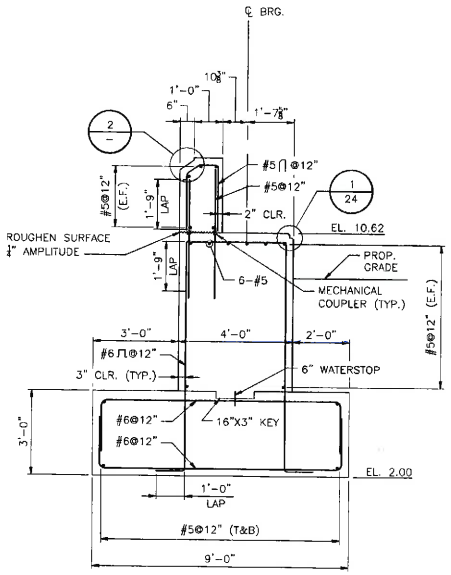
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

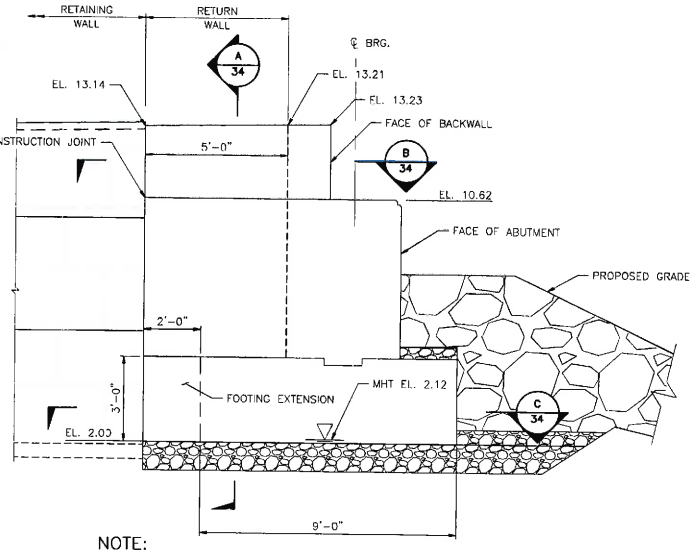
BR. 083851 EAST ABUTMENT PLAN AND ELEVATION

0188A_V2_027_EABUT_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	28	38

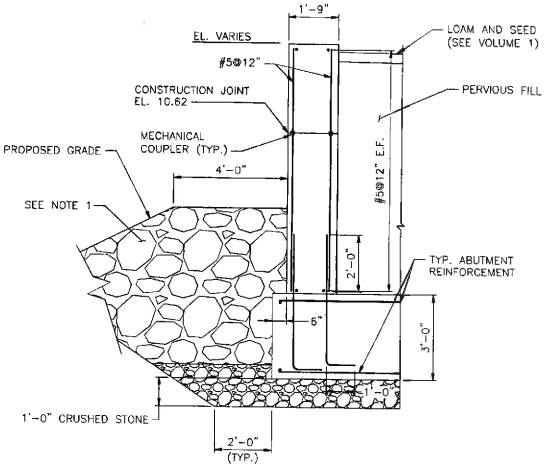


TYPICAL ABUTMENT SECTION
SCALE: 1/2"=1'-0"

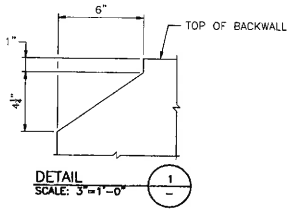


NOTE:
WEST RETURN WALL SHOWN, EAST RETURN WALL SIMILAR.

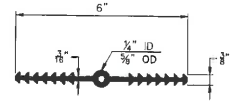
TYPICAL RETURN WALL ELEVATION
SCALE: 1/2"=1'-0"



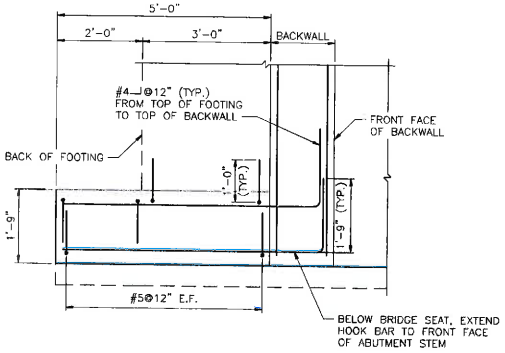
SECTION A 34
SCALE: 1/2"=1'-0"



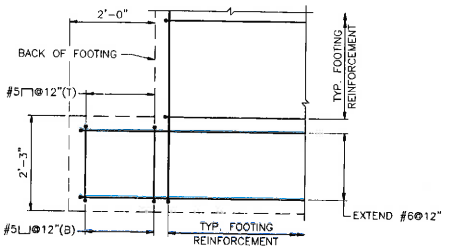
DETAIL 1
SCALE: 3"=1'-0"



6" WATER STOP DETAIL
SCALE: 6"= 1'-0"



SECTION B 34
SCALE: 3/4"=1'-0"



SECTION C 34
SCALE: 3/4"=1'-0"

NOTE:
1. SEE Br. 083751 & 083851 RIP RAP DETAILS 1

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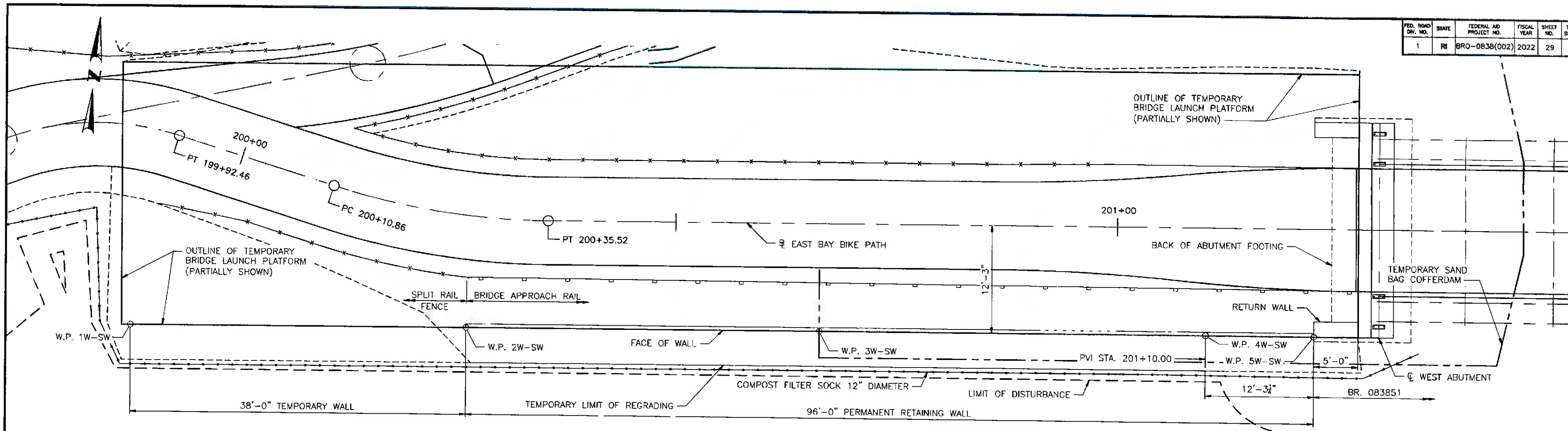
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

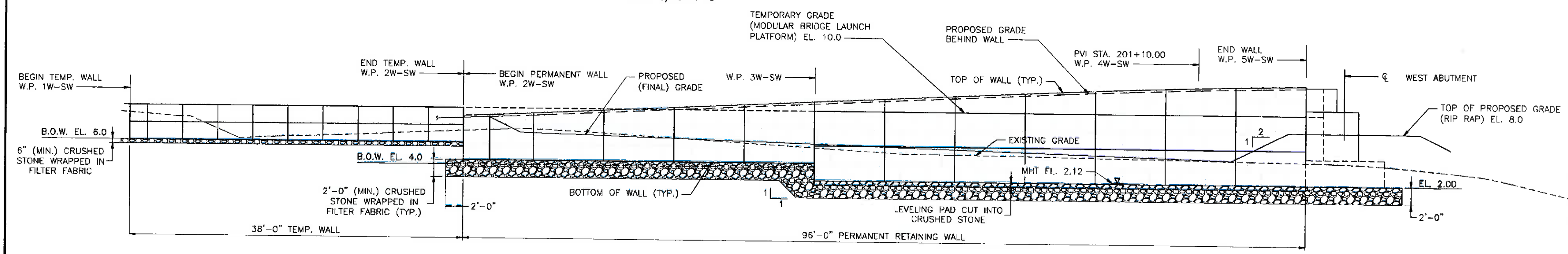
BR. 083851 ABUTMENT DETAILS

0188A_V2_026_083851_ABUTDETL

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	29	38



SOUTHWEST RETAINING WALL PLAN
SCALE: 3/16"=1'-0"



SOUTHWEST RETAINING WALL ELEVATION
SCALE: 3/16"=1'-0"

SOUTHWEST RETAINING WALL					
WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1W-SW	199+93.82	22.24	238477.9197	3852381.3009	10.00**
W.P. 2W-SW	200+27.52	12.72	238481.8185	385319.1003	8.85
W.P. 3W-SW	200+66.27	12.25	238485.9228	385358.8892	10.78
W.P. 4W-SW	201+10.00	12.25	238490.4098	385402.3925	12.83
W.P. 5W-SW	201+22.27	12.25	238491.6683	385414.5937	13.13

* ELEVATION IS GIVEN AT PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION.
** THIS GRADE IS TEMPORARY FOR THE LAUNCHING PLATFORM

NOTES:

1. REFER TO HIGHWAY PLANS FOR COMPLETE GEOMETRY AND CURVE DATA FOR BIKE PATH.
2. PANEL SLIP JOINTS ARE NOT SHOWN. SLIP JOINT LOCATION AND QUANTITY SHALL BE DETERMINED BY THE WALL MANUFACTURER.
3. THE EXPOSED FACE OF THE RETAINING WALL SHALL HAVE AN ASHLAR FORMLINER FINISH. WALL MANUFACTURER SHALL SUBMIT ASHLAR FORMLINER DETAIL FOR APPROVAL.
4. FILTER FABRIC FOR WRAPPING CRUSHED STONE UNDER THE RETAINING WALLS SHALL BE MIRAFI FW 700 FILTER WEAVE OR EQUAL.
5. SEE BR. 083851 RETAINING WALL NO. 2 FOR TYPICAL RETAINING WALL SECTION.

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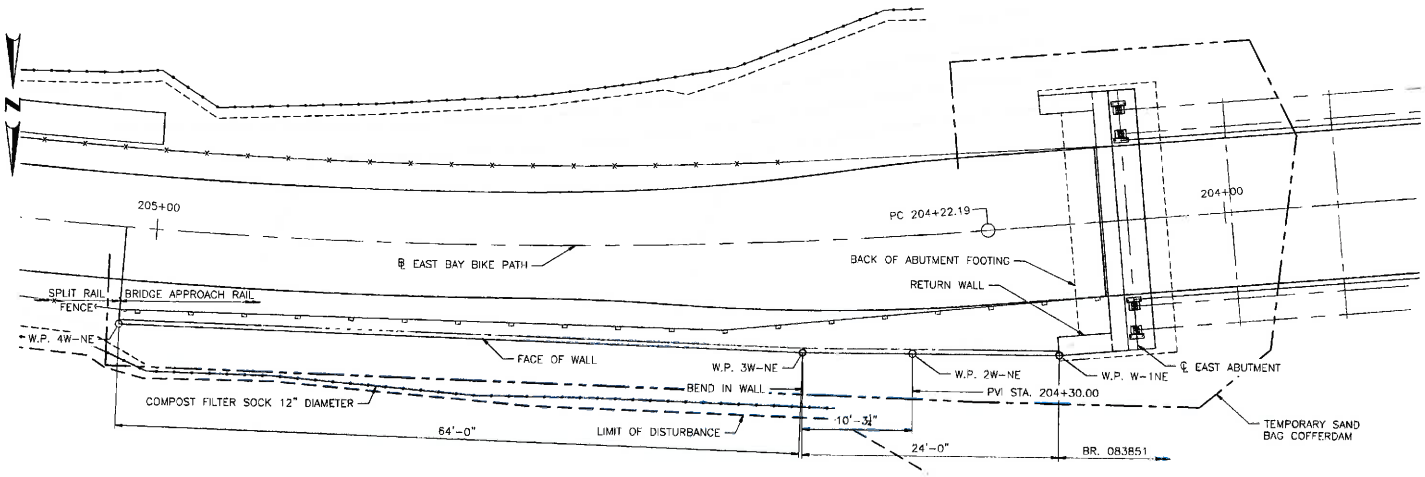
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083851 RETAINING WALL PLAN 1

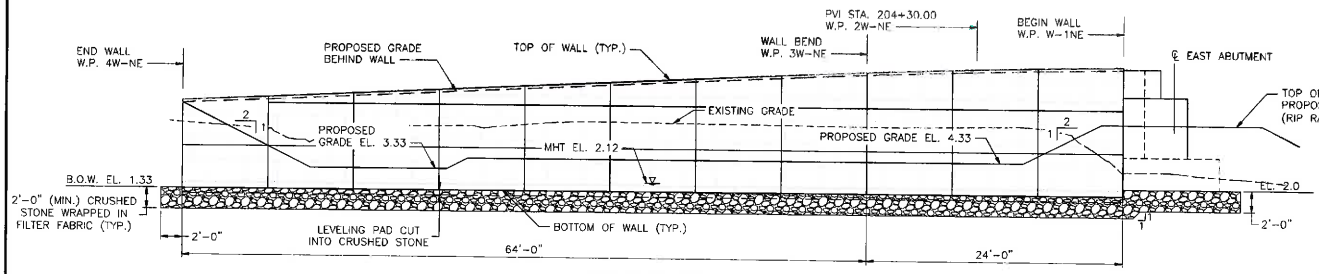
0188A_V2_029_RETWALL01_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	30	38



NORTHEAST RETAINING WALL PLAN

SCALE: 3/16"=1'-0"



NORTHEAST RETAINING WALL ELEVATION – DEVELOPED

SCALE: 3/16"=1'-0"

MINIMUM REQUIRED REINFORCEMENT (GEOGRID) LENGTHS	
RETAINING WALL LOCATION	LENGTH (L)*
SOUTHWEST	0.7H
NORTHEAST	0.7H

*H = EL. A – B.O.W. EL.

NOTE:

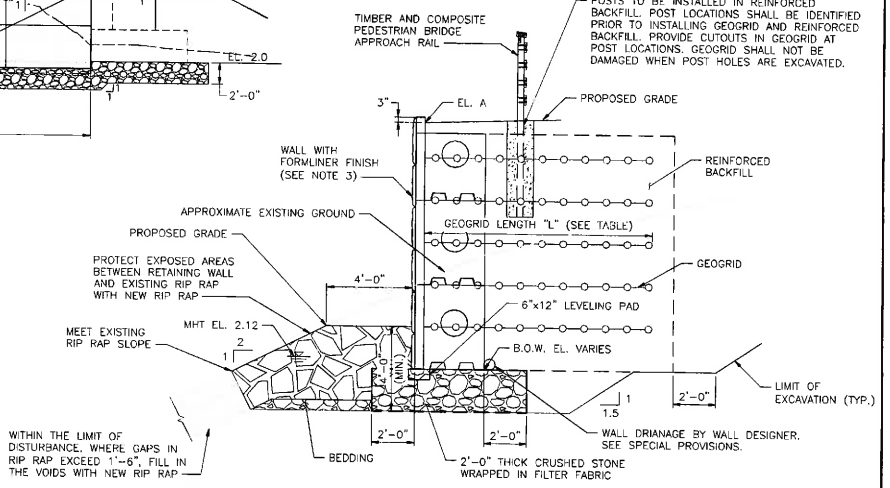
NOTE: GEOGRID LENGTH "L" SHALL BE THE MINIMUM LENGTHS SHOWN TO SATISFY GLOBAL STABILITY. WALL DESIGNER'S DESIGN SHALL INCLUDE AN INTERNAL STABILITY ANALYSIS.

NOTES:

1. SEE BR. 083851 RETAINING WALL PLAN 1 FOR NOTES.

NORTHEAST RETAINING WALL					
WORKING POINT	STATION	OFFSET	NORTHING	EASTING	EL. A*
W.P. 1W-NE	204+16.50	-12.25	238546.2201	385704.7577	13.15
W.P. 2W-NE	204+30.00	-11.13	238546.4429	385718.4901	12.84
W.P. 3W-NE	204+40.03	-10.50	238546.6093	385728.7545	12.47
W.P. 4W-NE	205+02.83	-9.20	238545.5894	385792.7464	9.34

* ELEVATION IS GIVEN AT PROPOSED GRADE BEHIND WALL. SEE TYPICAL RETAINING WALL SECTION.



TYPICAL RETAINING WALL SECTION

SCALE: 3/8"=1'-0"

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SHEET: 30
OF: 38
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EAST BAY BIKE PATH BRIDGE REPLACEMENT

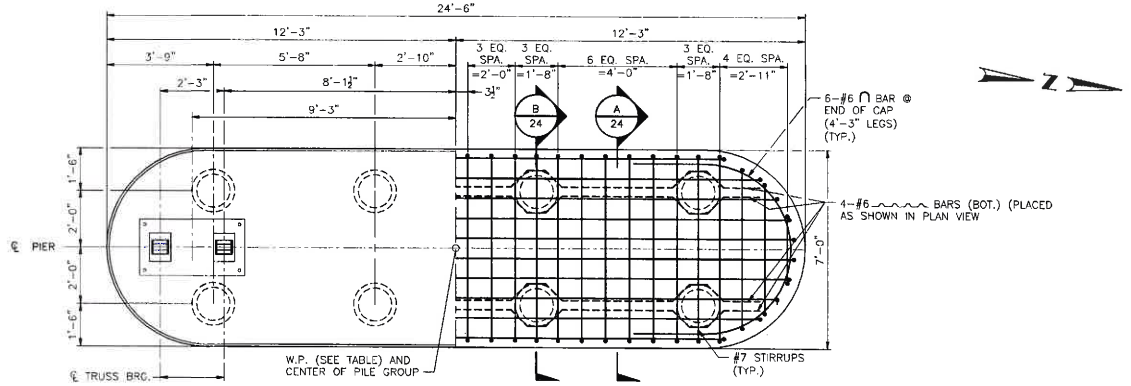
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING

BARRINGTON/WARREN — RHODE ISLAND

BR. 083851 RETAINING WALL PLAN 2

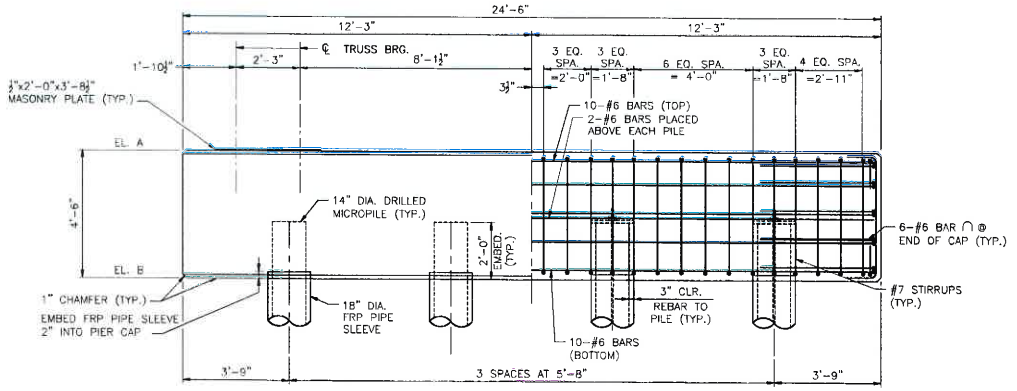
0188A_V2_030_RETWALL02_083851

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	31	38



PIER PLAN

(PIER IS SYMMETRICAL ABOUT THE CENTERLINE)
SCALE: ½"=1'-0"



PIER ELEVATION

(PIER IS SYMMETRICAL ABOUT THE CENTERLINE)
SCALE: ½"=1'-0"

NOTES:

1. SEE NOTES AND DRIP EDGE DETAIL ON BR. 083751 PIER DETAILS.
2. ONCE PILES ARE INSTALLED, SUBMIT AS-BUILT LOCATIONS TO DESIGN ENGINEER TO VERIFY AND APPROVE THE LOCATIONS.

ELEVATION	WARREN
A	10.10
B	5.60

W.P. #	LOCATION	STATION	NORTHING	EASTING
5	WARREN	202+69.38	238518.9443	385559.6757

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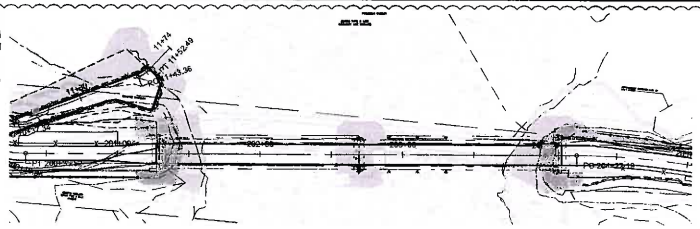
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

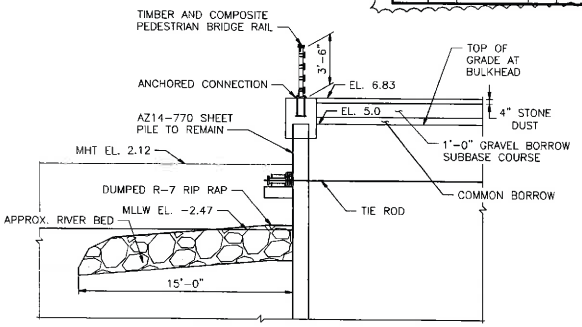
BR. 083851 PIER DETAILS

0188A_V2_031_PIER_083851

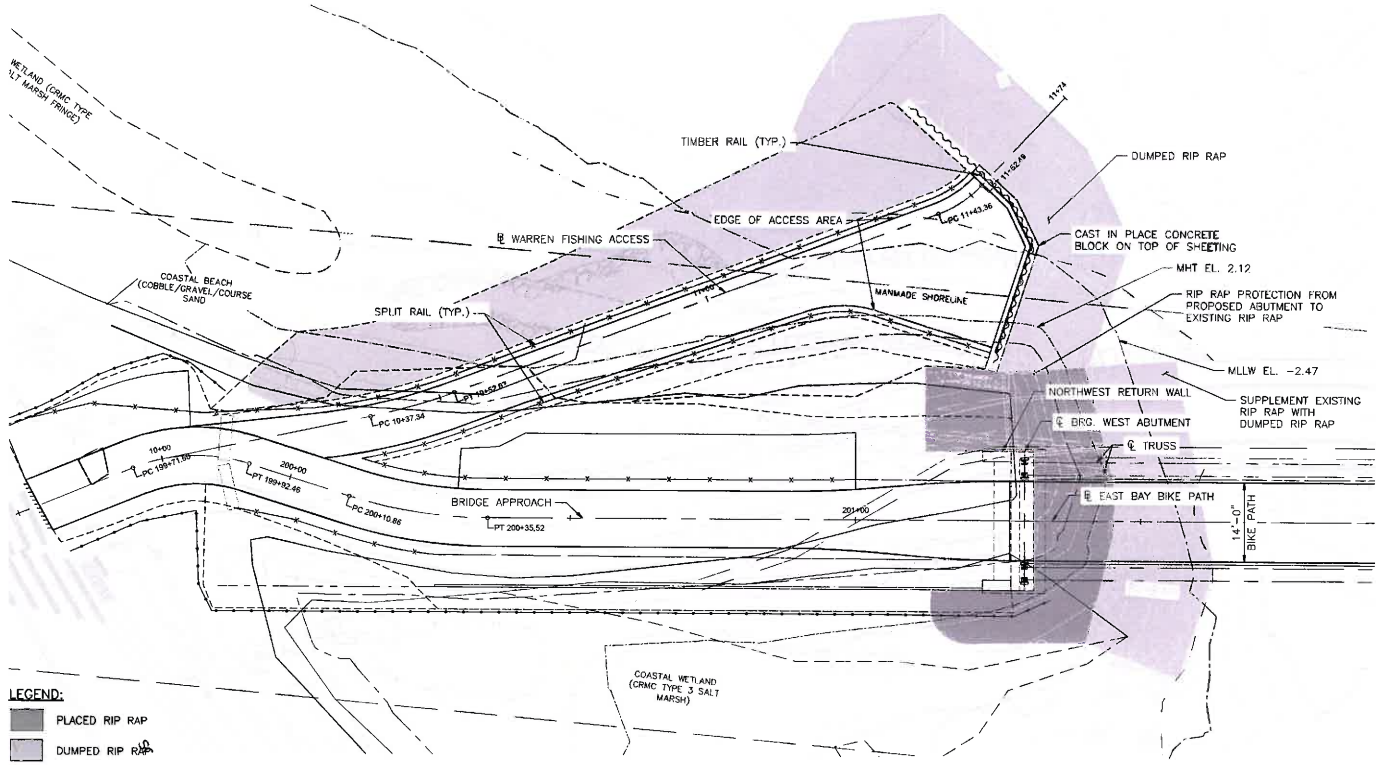
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	32	38



LOCATION MAP
SCALE: 1"=40'



TYPICAL SECTION AT SHEETING
SCALE: 1/4"=1'-0"



FISHING PIER GENERAL PLAN
SCALE: 1"=10'

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EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
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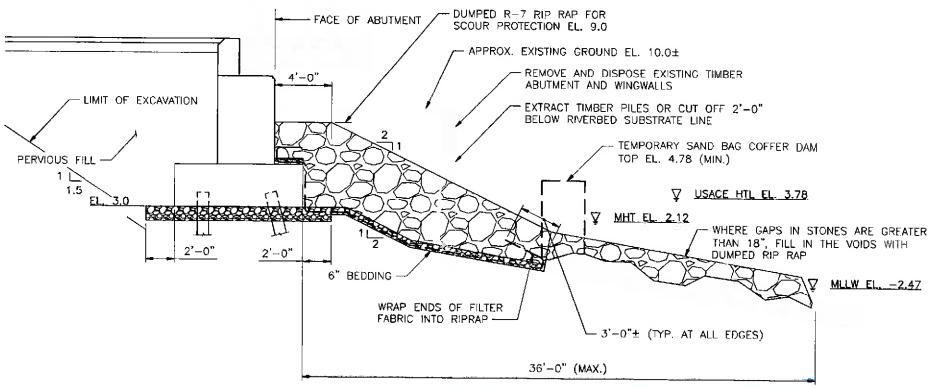
BARRINGTON/WARREN RHODE ISLAND

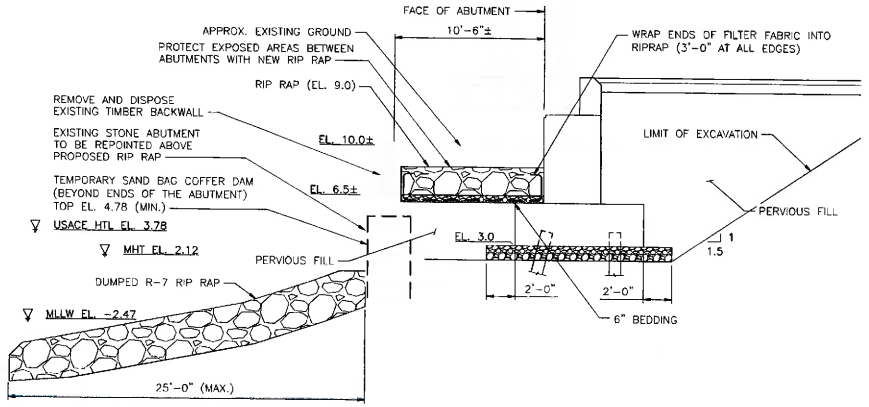
BR. 083851 FISHING PIER GENERAL PLAN

0188A_V2_032_083851_BGENERAL_FPIER

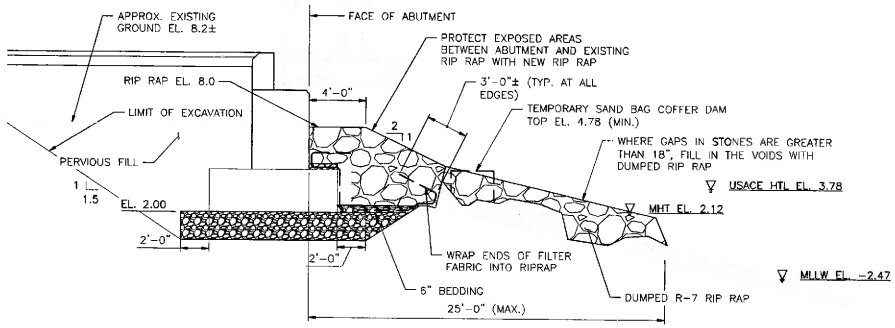
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	33	38



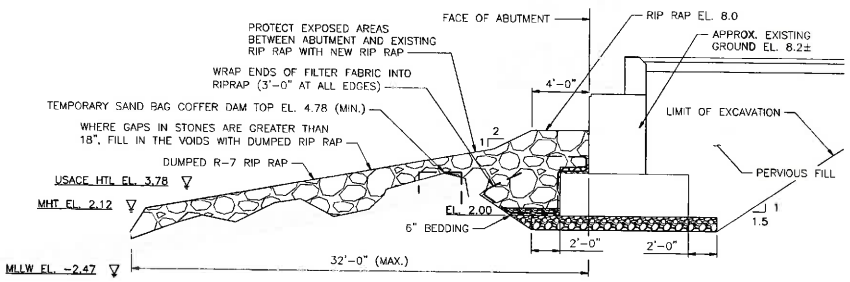
BRIDGE NO. 083751 WEST ABUTMENT
SCALE: 1/4"=1'-0"



BRIDGE NO. 083751 EAST ABUTMENT
SCALE: 1/4"=1'-0"



BRIDGE NO. 083851 WEST ABUTMENT
SCALE: 1/4"=1'-0"



BRIDGE NO. 083851 EAST ABUTMENT
SCALE: 1/4"=1'-0"

NOTES:

1. WATER INSIDE COFFER DAMS SHALL BE DIRECTED TO DEWATERING BASINS (RI STANDARD DETAIL 9.7.0 OR SIMILAR) IN ACCORDANCE WITH SECTION 208 OF THE RIDOT STANDARD SPECIFICATIONS AND SHALL BE FREE OF SUSPENDED SEDIMENTS PRIOR TO DISCHARGING BACK TO THE RIVER.
2. TEMPORARY DEWATERING BASINS (RI STANDARD 9.7.0 OR SIMILAR) FOR EXCAVATION AND INSTALLATION OF BRIDGE ABUTMENT FOOTINGS AND LOWER SECTIONS OF THE RETAINING WALLS SHALL BE LOCATED WITHIN THE LIMITS OF THE ACTIVE WORK AREAS ON THE CAUSEWAYS. THE SHAPE OF THE DEWATERING BASINS MAY BE MODIFIED TO BEST ACCOMMODATE THE WORK AREA.
3. 6" BEDDING UNDER RIP RAP SHALL BE 1.5" STONE BEDDING MATERIAL.

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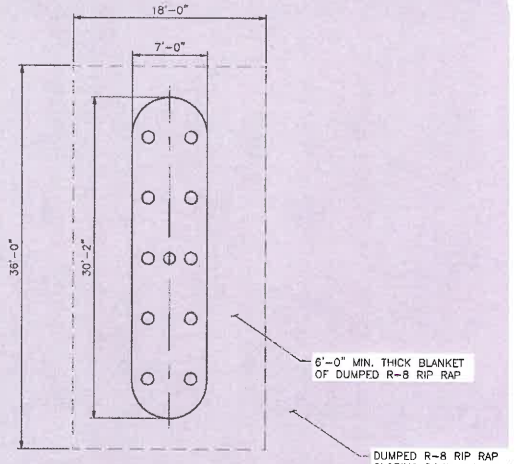
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

Br. 083751 & 083851 RIP RAP DETAILS 1

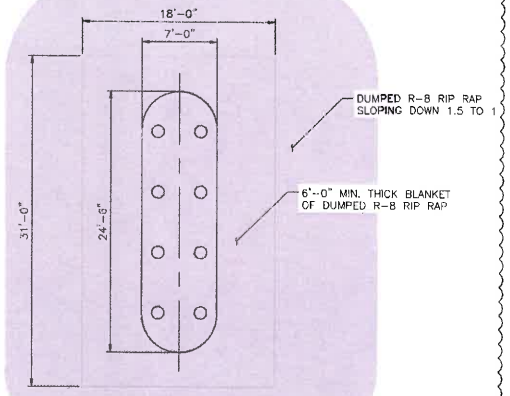
0188A_V2_033_RIPRAPDET001

R-1

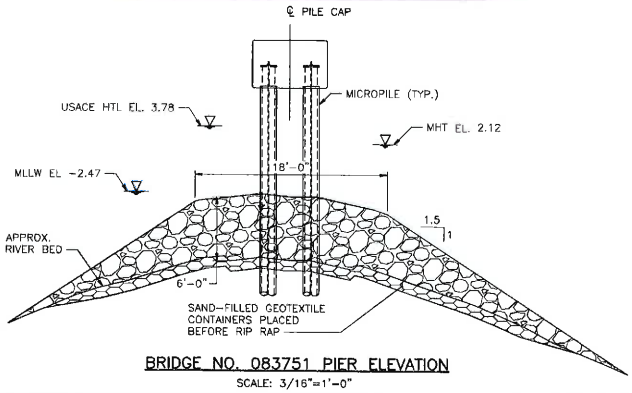
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	34	38



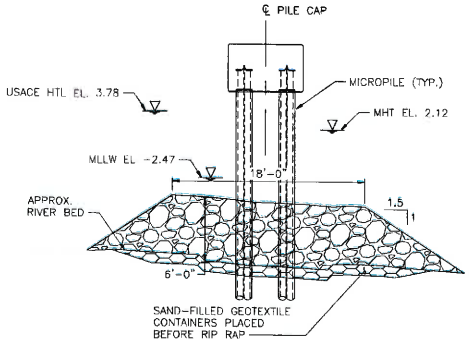
BRIDGE NO. 083751 PIER
SCALE: 3/16"=1'-0"



BRIDGE NO. 083851 PIER
SCALE: 3/16"=1'-0"



BRIDGE NO. 083751 PIER ELEVATION
SCALE: 3/16"=1'-0"



BRIDGE NO. 083851 PIER ELEVATION
SCALE: 3/16"=1'-0"

LEGEND:

DUMPED RIP RAP

NOTES:

1. BASED ON 2014 EAST BAY BIKE PATH DESIGN STUDY REPORTS FOR BARRINGTON RIVER BRIDGE AND PALMER RIVER BRIDGE, THE CALCULATED PIER PILE LOCAL SCOUR IS ANTICIPATED TO BE 4.1 FEET AT BRIDGE NO. 083751 AND 5.0 FEET AT BRIDGE 083851. THE PROPOSED RIP RAP IS INTENDED TO PREVENT LOCAL SCOUR AT THE PIERS.
2. THE GEOTEXTILE CONTAINERS SHALL BE HEAVY DUTY-WOVEN OR NONWOVEN GEOTEXTILE DESIGNED FOR FILTRATION AND STRENGTH. IN BAGS LARGE ENOUGH THAT THEY CAN BE PLACED ACCURATELY AND WITH ENOUGH OVERLAP TO ESURE FULL COVERAGE UNDER THE RIP RAP. ONCE THE GEOTEXTILE CONTAINERS ARE INSTALLED THERE SHALL BE A CONTINUOUS BLANKET OF SAND AT LEAST 6" THICK AND WRAPPED IN FILTER GEOTEXTILE. THE CONTRACTOR MAY DO THIS WITH MULTIPLE BAGS PLACED INDIVIDUALLY OR WITH A PREFABRICATED PANEL. THE RECOMMENDED MATERIAL FOR THE SAND FILLED GEOTEXTILE CONTAINERS ARE AS FOLLOWS:

MASS PER UNIT AREA	AOS	PERMEABILITY	GEOTEXTILE TYPE	Kg/Ks
278 g/m^3	0.18mm	0.21 cm/s	NONWOVEN NEEDLE PUNCHED	5.25

3. CONTRACTOR SHALL AVOID DAMAGE TO THE GEOTEXTILE CONTAINERS WHILE PLACING RIP RAP.

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2/7/2024
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PROJECT MODIFICATIONS SINCE OCTOBER 24, 2023 CRMC FULL COUNCIL PUBLIC HEARING.

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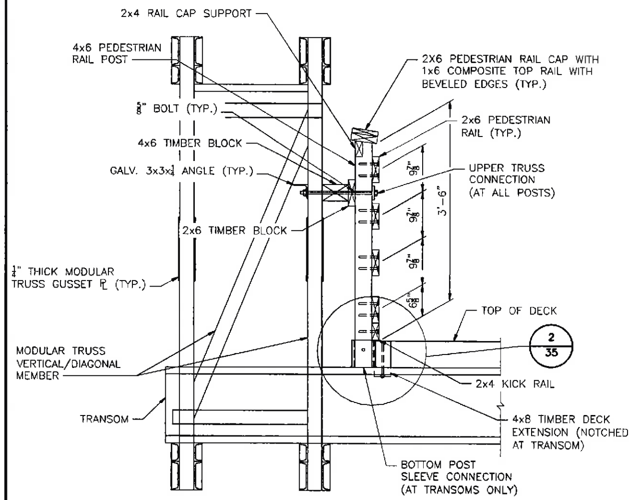
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 & 083851 RIP RAP DETAILS 2

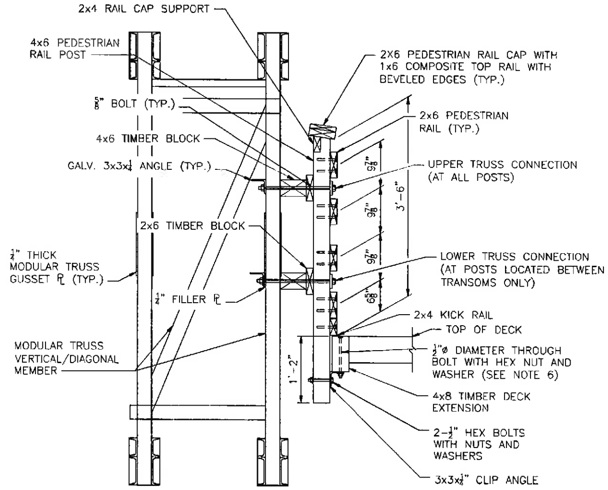
0188A_V2_034_RIPRAPDET002

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	35	38



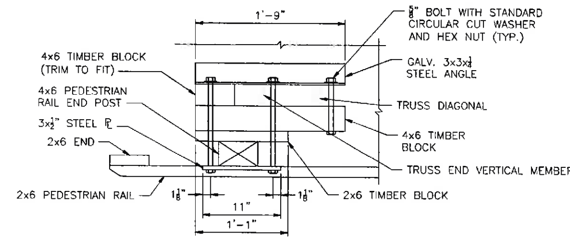
PEDESTRIAN BRIDGE RAIL SECTION AT TRANSOM

SCALE: 1"=1'-0"



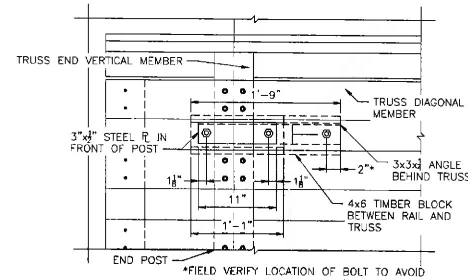
PEDESTRIAN BRIDGE RAIL SECTION AT MID SPAN BETWEEN TRANSOMS

SCALE: 1"=1'-0"



PEDESTRIAN BRIDGE RAIL CONNECTION AT END OF TRUSS PLAN

SCALE: 1-1/2"=1'-0"



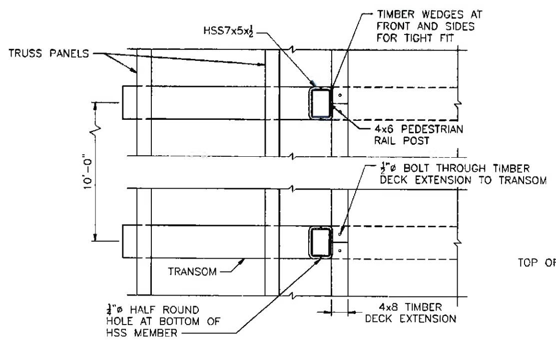
*FIELD VERIFY LOCATION OF BOLT TO AVOID DIAGONAL TRUSS MEMBER (1 1/8" MIN.)

NOTE:

1. END POST IS PARTIALLY SHOWN, BOTTOM CONNECTION TO BE THE SLEEVE DETAIL ON TOP OF TRANSOM (SEE DETAIL 3 ON SHEET 43).

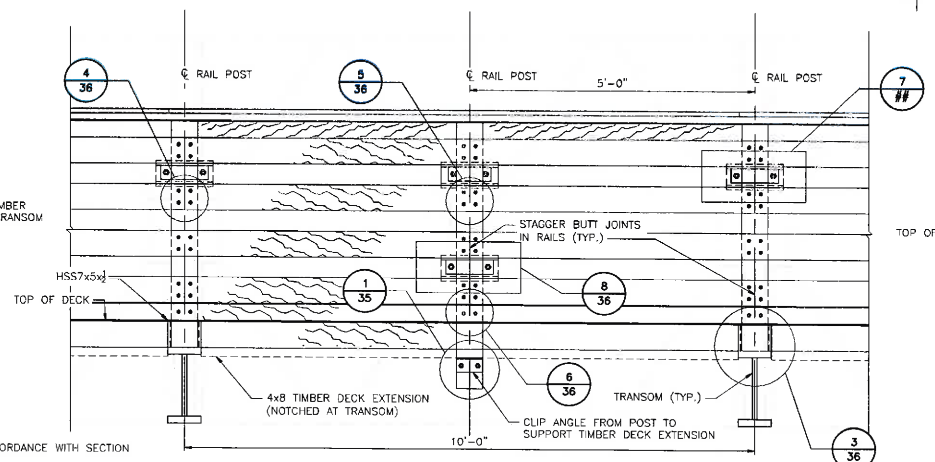
PEDESTRIAN BRIDGE RAIL ELEVATION CONNECTION AT END OF TRUSS

SCALE: 1-1/2"=1'-0"



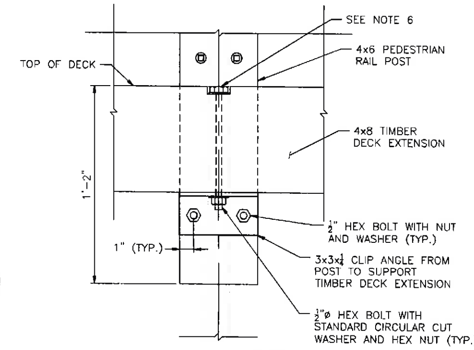
PLAN AT BOTTOM POST SLEEVE

SCALE: 1"=1'-0"



TYPICAL ELEVATION OF PEDESTRIAN BRIDGE RAIL

SCALE: 1"=1'-0"



DETAIL 1/35

SCALE: 3"=1'-0"

NOTES:

1. ALL TIMBER, HARDWARE AND CONSTRUCTION FOR THE BRIDGE RAIL SHALL BE IN ACCORDANCE WITH SECTION 806 OF THE RIDOT STANDARD SPECIFICATIONS.
2. SURFACED FOUR SIDES LUMBER IS LABELED WITH NOMINAL DIMENSIONS. ALL TIMBER SPECIFIED FOR THE RAILING SHALL BE SOUTHERN PINE NO. 1.
3. ALL BOLTS, NUTS, WASHERS AND STRUCTURAL STEEL ARE TO BE GALVANIZED PER SHEET 5 NOTE 6.
4. PROVIDE OPEN JOINT IN COMPOSITE TOP RAIL AT PANELS ADJACENT TO EXPANSION JOINTS.
5. BEVEL 1/8" TOP FACE AND EDGES AT END CUT (ENDS OF BRIDGE).
6. TOP OF 4x8 TIMBER DECK EXTENSION AND BOLT HEAD TO BE FLUSH WITH WEARING SURFACE. FILL BOLT COUNTERBORE RECESS WITH SILICONE SEALANT AFTER TIMBER DECK EXTENSION BOLTS ARE INSTALLED AND TIGHTENED.

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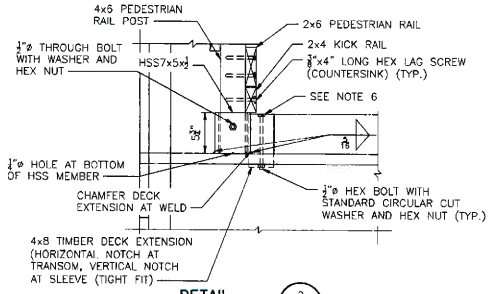
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

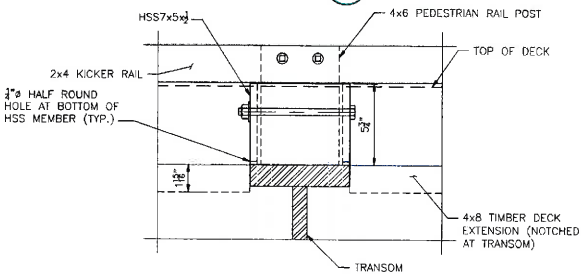
BR. 083751 & 083851 BRIDGE RAIL DETAILS 1

0188A_V2_035_RAILDET001

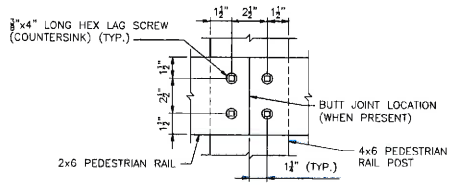
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BR0-0838(002)	2022	36	38



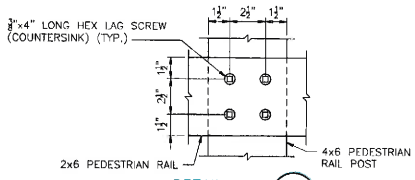
DETAIL 2 / 35
SCALE: 1-1/2"=1'-0"



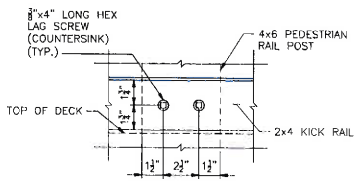
DETAIL 3 / 35
SCALE: 3"=1'-0"



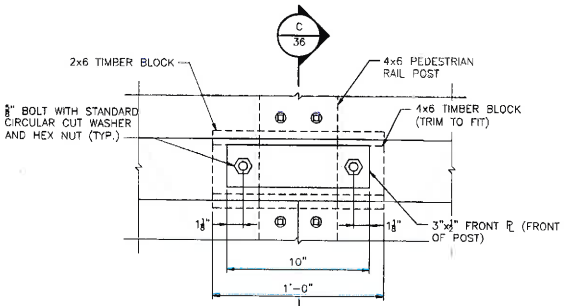
DETAIL 4 / 35
SCALE: 3"=1'-0"



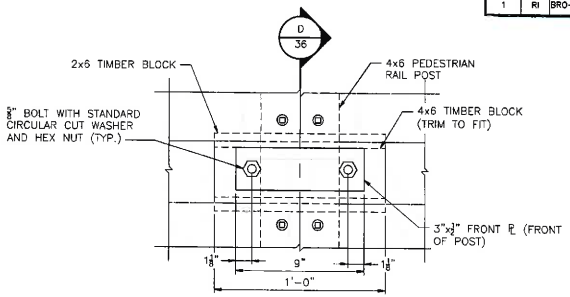
DETAIL 5 / 35
SCALE: 3"=1'-0"



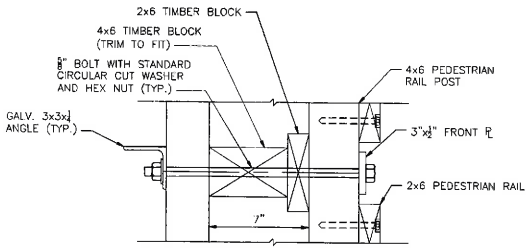
DETAIL 6 / 35
SCALE: 3"=1'-0"



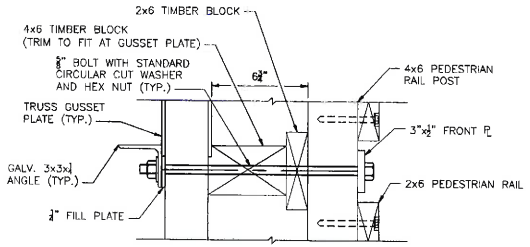
DETAIL 7 / 35
SCALE: 3"=1'-0"



DETAIL 8 / 35
SCALE: 3"=1'-0"



SECTION C / 36
SCALE: 3"=1'-0"



SECTION D / 36
SCALE: 3"=1'-0"

NOTES:

1. SEE NOTES ON BR. 083751 & 083851 BRIDGE RAIL DETAILS 1.

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OF: 38

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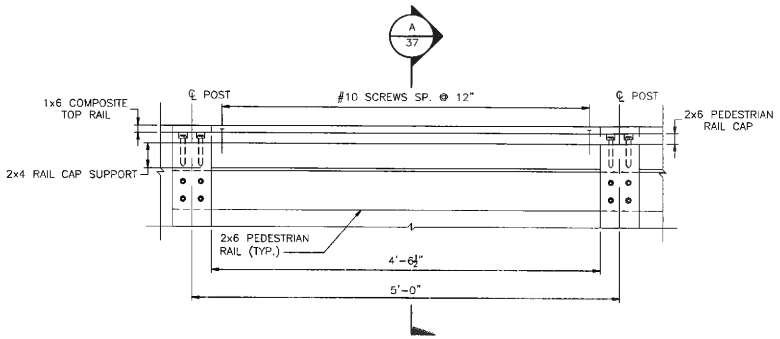
EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 & BR. 083851 RAIL DETAILS 2

G188A_V2_036_RAILDET002

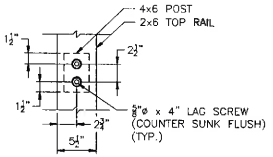
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	37	38



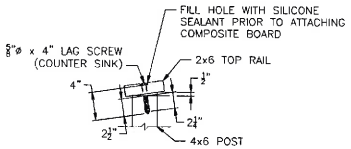
ELEVATION

TYPICAL RAIL CAP SUPPORT TO PEDESTRIAN RAIL CAP CONNECTION

SCALE: 1-1/2"=1'-0"



PLAN – NORMAL TO TOP RAIL

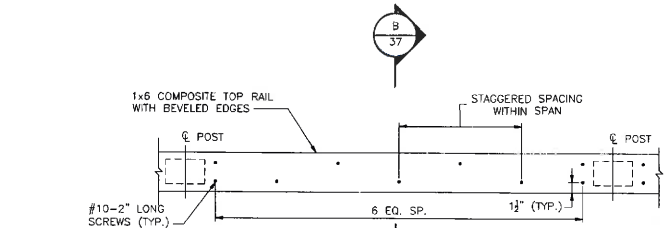


SECTION

NOTE: COMPOSITE TOP RAIL NOT SHOWN FOR CLARITY.

RAIL CAP CONNECTION AT RAILING POST

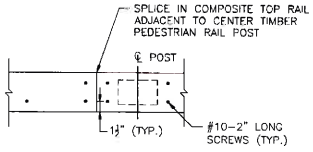
SCALE: 1-1/2" = 1'-0"



PLAN

TYPICAL COMPOSITE TOP RAIL TO PEDESTRIAN RAIL CAP CONNECTION

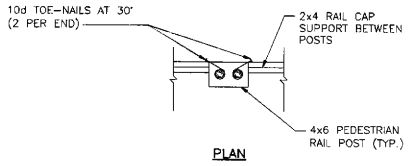
SCALE: 1-1/2"=1'-0"



PLAN

TYPICAL COMPOSITE TOP RAIL TO PEDESTRIAN RAIL CAP CONNECTION AT SPLICE LOCATION

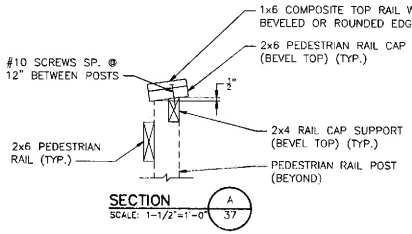
SCALE: 1-1/2"=1'-0"



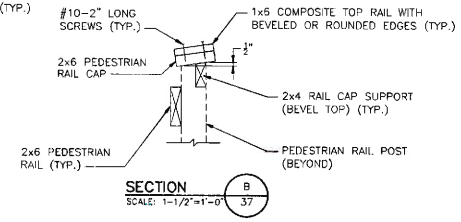
PLAN

TYPICAL RAIL CAP SUPPORT TO RAIL CONNECTION

SCALE: 1-1/2"=1'-0"



SECTION A 37
SCALE: 1-1/2"=1'-0"



SECTION B 37
SCALE: 1-1/2"=1'-0"

NOTES:

1. SEE NOTES ON BR. 083751 & 083851 BRIDGE RAIL DETAILS 1.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

AETNA Bridge Company

vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET: 37
OF: 38

SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
(BARRINGTON RIVER AND WARREN BRIDGES)
BRIDGE NO. 083751 & 083851
ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 & 083851 RAIL DETAILS 3

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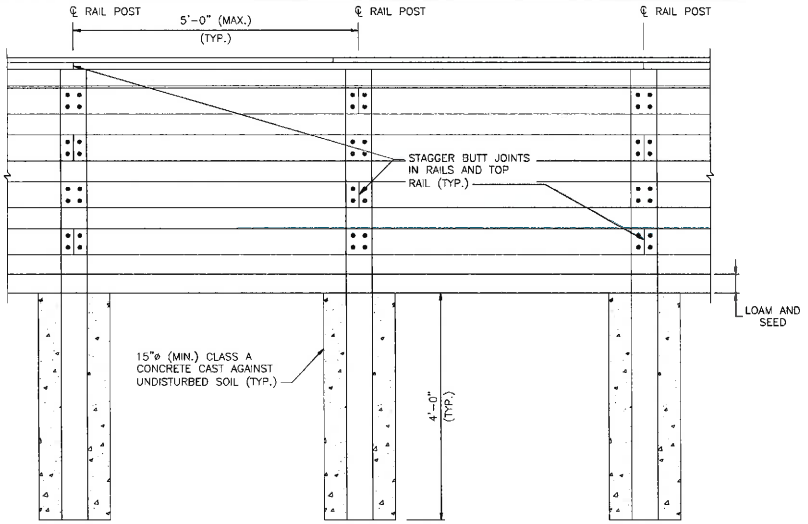
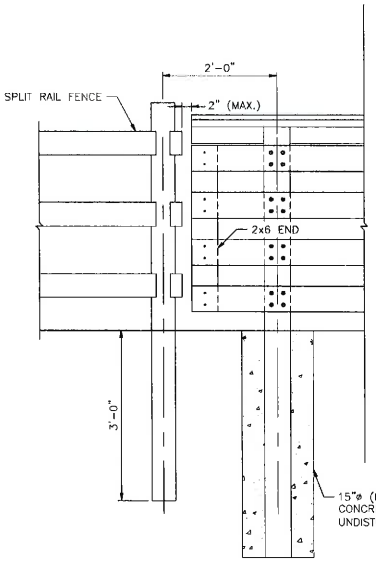
FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	RI	BRO-0838(002)	2022	38	38



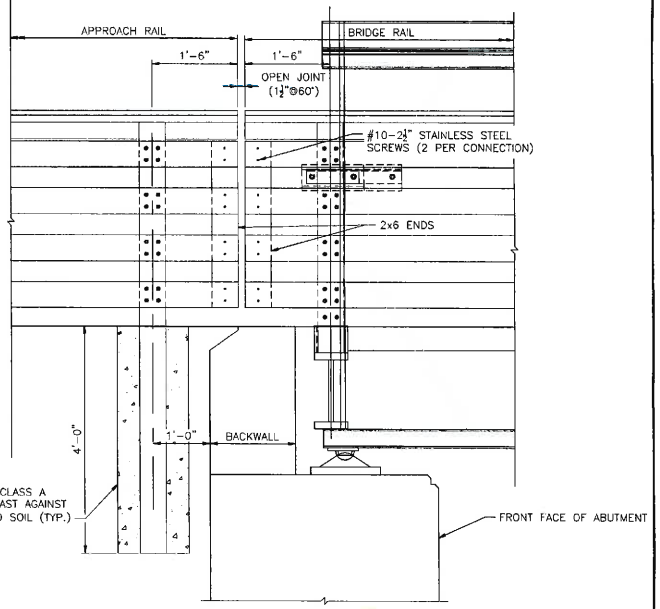
PEDESTRIAN BRIDGE APPROACH RAIL (PBAR) ELEVATION

SCALE: 1"=1'-0"



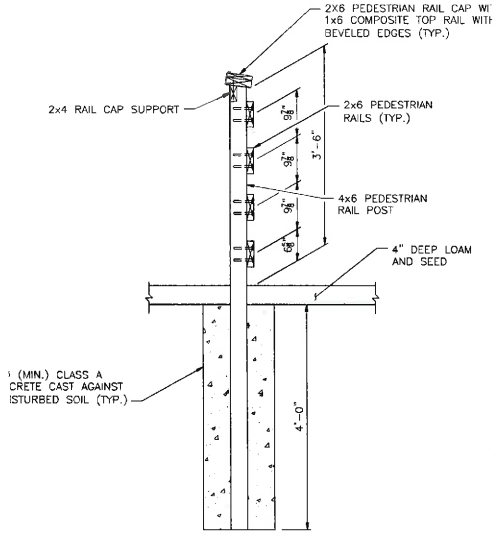
PEDESTRIAN RAIL TREATMENT AT SPLIT RAIL FENCE DETAIL

SCALE: 1"=1'-0"



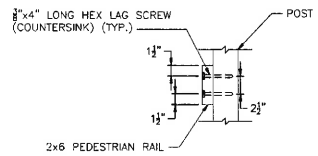
PEDESTRIAN RAIL TREATMENT AT ABUTMENT DETAIL

SCALE: 1"=1'-0"

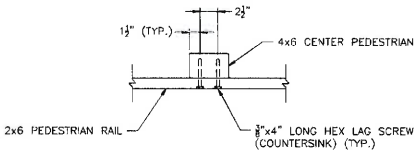


PEDESTRIAN BRIDGE APPROACH RAIL (PBAR) DETAIL

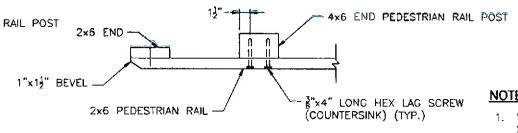
SCALE: 1"=1'-0"



SECTION AT RAILING POST CONNECTION



PLAN AT RAILING POST CONNECTION



PLAN AT END OF RAILING CONNECTION

TYPICAL RAIL CONNECTION DETAILS

SCALE: 1-1/2" = 1'-0"

NOTES:

1. WHERE POSTS ARE INSTALLED IN REINFORCED BACKFILL, POST LOCATIONS SHALL BE IDENTIFIED PRIOR TO INSTALLING GEOGRID AND REINFORCED BACKFILL. PROVIDE CUTOUTS IN GEOGRID AT POST LOCATIONS. GEOGRID SHALL NOT BE DAMAGED WHEN POST HOLES ARE EXCAVATED.
2. SEE ADDITIONAL NOTES ON BR. 083751 & 083851 BRIDGE RAIL DETAILS 1.

RECEIVED 2/7/2024 COASTAL RESOURCES MANAGEMENT COUNCIL

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vhb 1 Cedar Street Suite 400 Providence, RI 02903 401.272.8100

RI DOT RHODE ISLAND DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
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SHEET: 38
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SCALE:

REVISIONS NO.	DATE	BY	REVISIONS NO.	DATE	BY

EAST BAY BIKE PATH BRIDGE REPLACEMENT
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ENVIRONMENTAL PERMITTING
BARRINGTON/WARREN RHODE ISLAND

BR. 083751 & 083851 RAIL DETAILS 4

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