



Department of Transportation  
Two Capitol Hill  
Providence, RI 02903

Office 401-222-2450  
Fax 401-222-3905

September 13, 2023

Ms. Amy Silva, Supervising Environmental Scientist  
Oliver H. Stedman Government Center  
4808 Tower Hill Road  
Wakefield, RI 02879-1900

Re: 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 File No. 2023-04-094

Dear Amy:

This correspondence is written in response to your September 6, 2023 letter, which identifies a concern regarding recreational fishing opportunities at the proposed East Bay Bike Path bridges over the Barrington and Palmer Rivers. The Department's intention is not to prohibit, preclude, or otherwise restrict public, recreational fishing access in and around the proposed Bike Path bridges. The application narrative has been revised to clarify this position.

The Department underwent a thorough review of bridge design alternatives to determine the bridge design that would overcome the many site constraints in the most cost-effective manner. The selection criteria are explained in the application narrative, and a summary is additionally provided below. Please note that the narrative does not state that fishing would be prohibited, and the Department intends no active role in prohibiting fishing that may in fact occur on the proposed bridges. To cite a similar example, the Department did not provide devoted fishing accommodations on the recently constructed County Road (Route 114) bridge, immediately downstream of the Barrington River Bike Path bridge, yet fishing does occur.

The Department's intention is to replace these two public amenities with in-kind use opportunities to the greatest feasible, and practicable, extent. However, certain design constraints and updated design guidelines have necessitated that the bridges be modified to meet current conditions. The Department has striven to achieve and accommodate these challenges in a manner intended to be least impactful to the public. Two major design factors are discussed separately in the following two paragraphs.

Overhead electric (and communication) wires present at both bridges must remain in place through the duration of construction, and the utility poles supporting these wires cannot be relocated per directive of the utility companies. Consequently, the Department had to select a construction method that did not require the use of cranes or other tall construction equipment. The selected method of constructing the modular bridge spans in place and pushing, or "launching," the spans onto central piers overcame this issue – but restricted the bridge design options available to the Department. By using this construction method, the spans needed to be a strong, rigid, modular steel system. Of significant benefit, the load bearing capabilities of this system enabled the reduction in the number of in-water piers from two to one, thus reducing marine disturbances during construction and further reducing the long-term project footprint within each river environment.

Increased vertical clearance requirements of the US Coast Guard meant that the bridge had to be elevated higher than the existing bridges, and best engineering practice indicates that increased elevation above the calculated 100-year floodplain is advisable. Increased bridge elevation will not only allow for more consistent clearances for passage of emergency marine patrols and the boating public, but it will avoid or minimize the risk of future bridge replacements (with public dollars) due to significant storm events.

The application narrative indicated that the modular steel truss system was the preferred, and required, design to enable the launching method. The truss rails must achieve a certain depth to sustain the span length, incorporating a sturdy bracing system. It is because of these attributes that the application narrative indicated that the proposed bridges might not be conducive to fishing.

While the bridges might not provide devoted amenities to accommodate public recreational fishing, the project is expected to enhance public enjoyment of the area in other ways. The elimination of numerous pile bents, and the creation of a bridge that requires only one central pier for support, is expected to enhance the aesthetics of both rivers and allow for long, unobstructed views up and down the waterways – from the shoreline and from a boater’s perspective. Both rivers are subject to strong tidal currents, and the elimination of the existing pile bents is expected to create more-even flows during incoming and outgoing tides, providing more consistent conditions, and hopefully increased safety, for boaters, kayakers, and those who use these bridge locations for fishing purposes.

In consideration of § 1.2.1(C)(2)(g) of the Coastal Resources Management Program, relative to CRMC Type 2 Low Intensity Use Waters, the Department’s intent is to ensure that the project does not significantly interfere with public use and enjoyment of the Bike Bath facility or with surrounding tidal waters and shoreline features. Conversely, the Department firmly believes that this project will restore and enhance public recreational opportunities, consistent with the goals and policies of the Council.

The proposed bridges are first and foremost transportation infrastructure. The ability to re-open the Bike Path mainline to the public after years of closure due to unsafe, deteriorating conditions of the existing trestle-style bridges is the primary project objective. The Department considers the Bike Path to be a vastly important recreational amenity, for multiple modes of recreation, and the project is believed to comfortably meet the litmus test of a compelling public purpose.

Please note that we have revised the application narrative to eliminate any suggestion that the Department intends to prohibit, preclude, or restrict public recreational fishing from the proposed bridges. Accordingly, please find attached revised narrative text (without the accompanying appendices).

Thank you for your continued review of this application and for your consideration of the items outlined herein. Please feel free to contact me at (401) 479-1327, if you should have any questions or should require additional information.

Sincerely,

Louis Maccarone, PMP, Project Manager II  
RI Department of Transportation

cc: Alisa Diaz Richardson, MS, PE, PMP  
Scott S. Hobson, PWS, VHB  
Andrew F. Prezioso, PE, VHB  
Andres Aveledo, Aetna Bridge

# RIDOT – East Bay Bike Path Bridge Replacements – Reconstruction Component

Towns of Barrington and Warren, RI  
PTSID No. 0188A

RIDOT Bridge No. 083751 over the Barrington River and  
RIDOT Bridge No. 083851 over the Palmer River

PREPARED FOR

---



Rhode Island Department of Transportation  
Two Capitol Hill  
Providence, RI 02903

PREPARED BY



1 Cedar Street, Suite 400  
Providence, RI 02903

APRIL 2023

This page intentionally left blank.

## Table of Contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Project Overview.....	1
1.2	Work Description.....	2
1.3	Purpose and Need.....	4
1.4	Property Ownership.....	4
1.5	List of Adjacent Property Owners (Relative to Category B Work Activities).....	5
<b>2</b>	<b>Permitting Requirements History and Overview.....</b>	<b>7</b>
2.1	Specific Permit Requirements (CRMC, RIDEM, USACE, and USCG).....	7
2.2	Other Authorities and Jurisdictions.....	9
2.2.1	Local Regulatory Requirements.....	9
2.2.2	State Regulatory Requirements.....	9
2.3	Federal Regulatory Requirements.....	11
2.3.1	National Environmental Policy Act.....	11
2.3.2	National Historic Preservation Act of 1966.....	11
2.3.3	U.S. Department of Transportation Act of 1966.....	11
2.3.4	Endangered Species Act of 1973.....	11
2.3.5	Magnuson-Stevens Fisheries Conservation and Management Act.....	12
2.3.6	Coastal Zone Management Act of 1972.....	13
2.3.7	Section 401 of the Clean Water Act.....	13
2.3.8	Section 408 of Section 14 of the Rivers and Harbors Appropriation Act of 1899.....	13
2.3.9	Section 9 of the Rivers and Harbors Appropriation Act of 1899 & General Bridge Act of 1946.....	13
<b>3</b>	<b>Project Setting and Existing Environmental Conditions.....</b>	<b>15</b>
3.1	Project Area.....	15
3.2	CRMC Water Type Classifications.....	15
3.3	Surface Waters.....	16
3.4	Groundwater.....	17
3.5	Riverbed Characteristics.....	17
3.6	Soils.....	18
3.7	Special Flood Hazard Area Zones.....	18
3.8	CRMC Regulated Shoreline Features.....	19
3.8.1	Manmade Shorelines (CRMP § 1.2.2.F) and Artificial Coastal Bank (CRMP § 1.2.2.D).....	19
3.8.2	Coastal Wetland (CRMP § 1.2.2.C).....	20
3.8.3	Coastal Beaches (CRMP § 1.2.2.A).....	22

<b>4</b>	<b>Proposed Project Activities and Associated Environmental Effects.....</b>	<b>25</b>
4.1	Project Access .....	25
4.2	Site Preparation.....	25
4.3	Temporary Bulkhead Construction.....	26
4.4	Demolition of Existing Bike Path Bridges.....	26
4.5	Center Bridge Pier Installation.....	26
4.6	Bridge Abutment Installation.....	27
4.7	Bridge Construction and Launching .....	28
4.8	Salt Marsh Replication and Restoration .....	30
4.8.1	Site Selection.....	30
4.8.2	Mitigation Description – Impact Wetland.....	31
4.8.3	Mitigation Description – Primary Mitigation Wetland.....	31
4.8.4	Total Mitigation Area Achieved and Monitoring Commitment.....	32
4.9	Summary of Project Effects in Tidal Waters and Coastal Wetlands .....	33
4.10	Request for Exemption from TOYRs for Work in Tidal Waters.....	35
4.11	Awareness and Protection of Northern Diamond-backed Terrapins .....	37
4.12	Stormwater Management Features.....	37
4.13	General Site Work, Removal of Temporary Work Areas, and General Site Restoration	38
4.14	Dismantling and Removal of Existing Bike Path Bridge Detour.....	38
4.15	Public Safety Considerations.....	38
<b>5</b>	<b>CRMC Regulatory Compliance .....</b>	<b>41</b>
5.1	CRMP § 1.1 – Authorities and Purpose, Definitions, and Procedures.....	41
5.1.1	CRMP § 1.1.5 – Review Categories and Prohibited Activities in Tidal Waters and on Adjacent Shoreline Features .....	41
5.1.2	CRMP § 1.1.6(F) – Category B Applications .....	42
5.1.3	CRMP § 1.1.6(I) – Coastal Hazard Analysis Application .....	42
5.1.4	CRMP § 1.1.7 – Variances.....	42
5.1.5	CRMP § 1.1.8 – Special Exceptions.....	45
5.1.6	CRMP § 1.1.9 – Setbacks .....	46
5.1.7	CRMP § 1.1.10 – Climate Change and Sea Level Rise.....	46
5.1.8	CRMP § 1.1.11 – Coastal Buffer Zones.....	47
5.1.9	CRMP § 1.1.12 – Fees.....	47
5.2	CRMP § 1.2 – Areas Under Council Jurisdiction.....	47
5.2.1	CRMP § 1.2.1(B) – Type 1 Conservation Areas .....	47
5.2.2	CRMP § 1.2.1(C) – Type 2 Low Intensity Use Waters .....	47
5.2.3	CRMP § 1.2.1(D) – Type 3 High Intensity Boating Waters .....	48
5.2.4	CRMP § 1.2.2(A) – Coastal Beaches .....	48
5.2.5	CRMP § 1.2.2(C) – Coastal Wetlands.....	48
5.2.6	CRMP § 1.2.2(F) – Manmade Shorelines.....	49
5.2.7	CRMP § 1.2.3 – Areas of Historic and Archaeological Significance.....	49
5.3	CRMP § 1.3 – Activities Under Council Jurisdiction.....	49
5.3.1	CRMP § 1.3.1(A) – Category B Requirements .....	49
5.3.2	CRMP § 1.3.1(B) Filling, Removing, or Grading of Shoreline Features.....	52
5.3.3	CRMP § 1.3.1(F) – Treatment of Sewage and Stormwater.....	53

5.3.4	CRMP § 1.3.1(G) – Shoreline Protection.....	54
5.3.5	CRMP § 1.3.1(J) – Filling in Tidal Waters.....	56
5.3.6	CRMP § 1.3.1(L) – Coastal Wetland Mitigation .....	57
5.3.7	CRMP § 1.3.1(M) – Public Roadways, Bridges, Parking Lots, Railroad Lines, and Airports .....	57
5.3.8	CRMP § 1.3.5 – Policies for the Protection and Enhancement of the Scenic Value of the Coastal Region.....	58
5.3.9	CRMP § 1.3.6 – Protection and Enhancement of Public Access to the Shore	58
<b>6</b>	<b>Closing Summary Statement.....</b>	<b>59</b>
<b>7</b>	<b>References.....</b>	<b>61</b>

## List of Appendices

<b>Appendix Reference</b>	<b>Description</b>
Appendix A	Project Figures
	Figure 1 Project Location Map
	Figure 2 Natural Heritage Polygon Mapping
	Figure 3A Project Area Overview – Barrington River Bridge
	Figure 3B Project Area Overview – Palmer River Bridge
	Figure 4 RIDEM Shellfish Closure Mapping
	Figure 5 CRMC Water Type Classification Mapping
	Figure 6 RIDEM Surface Water Quality Mapping
	Figure 7 RIDEM Groundwater Quality Mapping
	Figure 8 NRCS Web Soils Survey Mapping
	Figure 9 Special Flood Hazard Zones Mapping
Appendix B	Photographs of Each Bridge
Appendix C	CRMC Assent No. 2021-05-059 for Temporary Detour Dismantling
Appendix D	List of Direct Abutters
Appendix E	Coastal Hazards Assessment
Appendix F	Limited Subsurface Investigation Summary
Appendix G	§ 106 Finding of No Adverse Effect
Appendix H	§ 4(f) Exemption
Appendix I	USFWS ESA Section 7 - Official Species List, NLAA Consistency Letter, NLAA Concurrence Verification Letter, and Visual Bridge Assessment Surveys
Appendix J	CRMC Maintenance Assent M2022-12-084 for Early Tree Clearing
Appendix K	NOAA Fisheries GARFO PRD – ESA Section 7 Consultation
Appendix L	NOAA Fisheries GARFO HCD – EFH Consultation, TOYRs, and Conservation Measures
Appendix M	USACE NED – § 408 of the Rivers and Harbors Act Consultation
Appendix N	USCG Bridge Permit Exemption for Palmer River Bridge, General Construction Requirements, and Preliminary Navigation Clearance Determination
Appendix O	Site Photographs
Appendix P	Riverbed Geotechnical Data



Appendix Q	Aerial Imagery of Former Route 114 Bypass
Appendix R	Aerial Imagery of Salt Marsh Targeted for Replication/Restoration
Appendix S	Stamped Riprap Sizing Calculations
Appendix T	Bridge Reconstruction Plans – Volume 1 – Highway (Bound Separately)
Appendix U	Bridge Reconstruction Plans – Volume 2 - Bridge (Bound Separately)
Appendix V	Stormwater Management Plan (Bound Separately)
Appendix W	Long Term Stormwater Operation and Maintenance Plan and Pollution Prevention and Source Control (Bound Separately)
Appendix X	RIDOT Small-Site SWPPP (Bound Separately)

This page intentionally left blank.



# 1

## Introduction

This application for Category B Assent is submitted by the Rhode Island Department of Transportation (RIDOT/Applicant) for review by the RI Coastal Resources Management Council (CRMC) to seek authorization for the reconstruction of two East Bay Bike Path bridges. The reconstructed bridges are identified as RIDOT Bridge Nos. 083751 and 083851 and span over the Barrington River in Barrington and the Palmer River in Barrington and Warren, respectively. These proposed bridge replacements comprise the “Project” (see general locus map, **Figure 1** in **Appendix A**, and Volumes 1 and 2 of the Project bridge reconstruction plan sets, which include the site drawings and structural drawings, respectively (**Appendices T and U**, bound separately).

This narrative serves as the technical document to accompany the CRMC Category B Assent application, and describes the proposed Project activities, required permits, and environmental effects relative to State Water Quality Certification (WQC) application to the Rhode Island Department of Environmental Management’s (RIDEM) Office of Water Resources, and Pre-Construction Notification (PCN) application to the US Army Corps of Engineers – New England District (USACE). Language and citations have been included where applicable in this document specific to the USACE applications.

### 1.1 Project Overview

While this submission only involves Project applications required to reconstruct each of the two bridges, the overall RIDOT contract includes the demolition of each bridge. The existing timber rail-trestle bridges (RIDOT Bridge Nos. 083701 and 083801) were repurposed for pedestrian and bicycle use in the 1980’s. Fasteners, timber components, and piles have continued to deteriorate to the extent that RIDOT closed both bridges to the public in 2019 due to safety concerns. Photos of each bridge are provided in **Appendix B**.

To keep the project design and construction advancing on RIDOT’s schedule, RIDOT has coordinated with CRMC, USACE, RIDEM’s Office of Water Resources, RIDEM’s Division of Marine Fisheries, and the US Coast Guard (USCG) and has received concurrence to divide the Project’s work tasks, in recognition that demolition and reconstruction can be considered separate projects, each having Independent Utility that lends well to sequencing into two permitting stages. Applications for the demolition Project were filed previously with CRMC,<sup>1</sup> RIDEM,<sup>2</sup> and USACE<sup>3</sup> and included:

1 CRMC Application No. 2023-03-055

2 RIDEM Application Nos. WQC 23-042 for the Barrington River bridge and WQC 23-043 for the Palmer River bridge

3 USACE File No. NAE-2022-02797

- › the installation of temporary bulkheads to load and offload work and support barges;
- › the demolition and removal of the bridge superstructures; and
- › the extraction/trimming of bridge support piles.

Permit issuance for the demolition Project is pending. Permitting with the USCG for demolition was not required.

This reconstruction Project entails the construction and installation of two new bridges, including installation of new bridge piers and new bridge abutments. It is RIDOT's intention that the temporary bulkheads to be installed at each river crossing as part of the demolition Project remain in place to serve work proposed under this reconstruction Project until the new bridges have been installed.

RIDOT completed a Design Study Report for the Project in 2014, evaluating multiple bridge alternatives, and then elected to pursue the final design, environmental permitting, and construction through the design-build procurement method. RIDOT subsequently awarded the contract to the team of Aetna Bridge and VHB as the design-build entity (DB Entity). RIDOT and the DB Entity have advanced bridge designs that incorporate modular truss superstructures on new piers and abutments to achieve wider bridge decks, greatly increased span lengths (positioned on single, center piers), and increased height clearances to the tidal waters below.

After the new Bike Path bridges are installed and opened to users, the existing temporary Bike Path detour route along County Road (State Route 114), as further described in Section 1.3, will be removed as part of the contract, and all affected sidewalks will be restored to their original configuration and function. Construction and removal of the temporary detour was authorized by CRMC under Assent No. 2021-05-059 (**Appendix C**). The dismantling of the temporary Bike Path detour is discussed in Section 4.14 of this narrative.

## 1.2 Work Description

RIDOT and the DB Entity have developed plans and construction sequences intended to minimize adverse effects to the shoreline and the public during construction activities. Consideration was given to selecting equipment access points, minimizing the extent and duration of work in tidal waters, minimizing encroachments to the shorelines adjacent to the Bike Path causeways, and restricting Project limits to the minimum dimensions required to successfully accomplish the work.

The new bridges will be constructed using a "launching" method, in which new modular truss superstructures will be constructed in stages on the bridge approaches and launched longitudinally along the Bike Path baseline. This method will avoid the use of cranes for superstructure construction, essential for the avoidance of overhead electrical and communication lines that must remain in place while the bridges are being reconstructed at both rivers. New bridge abutments at the Barrington River and at the east approach of the Palmer River will be seated in approximately the same location as the existing abutments, while the Palmer River west approach is proposed to be shifted southerly to avoid existing utility conflicts. All new abutments will be constructed on shallow foundations, except for the west abutment of the Barrington River bridge, which will be supported on micropiles due to poor soil conditions.

The use of work and support barges will be required to construct a single, new, central pier in each river. Each pier will consist of multiple drilled micropiles anchored into bedrock and supporting a

concrete pier cap. Pile drilling activities required to install the micropiles will minimize turbidity and noise during construction, as compared to driven piles.

The reconstructed bridges will be elevated above the 100-year storm event and will accommodate two feet of wave action during the 100-year event. The low chord of the reconstructed Barrington River bridge over the navigable channel will be set at elevation 13.14 feet above the North American Vertical Datum of 1988 (NAVD88), which accommodates USCG requirements, and the low chord of the reconstructed Palmer River Bridge will be at elevation 11.39 feet NAVD88. In comparison, the lowest bottom chord of the existing Barrington River bridge is at  $\pm 6.78$  feet NAVD88, and the lowest bottom chord of the existing Palmer River bridge is at  $\pm 6.35$  feet NAVD88. The new bridges bottom chord elevations that will match, or exceed, the adjacent downstream Route 114 roadway bridges at the navigational channels.

Primary construction elements required at each bridge location are outlined below, and each of the major elements is discussed in greater detail in Section 4 of this narrative.

- › Installation of in-water micropiles to create center piers – to be accomplished via barge-mounted drilling methods with casings and closed sediment capture and recirculation methods to minimize turbidity.
- › Installation of new on-shore abutments at each bridge approach, including the installation of riprap scour protection measures to protect the abutments.
- › Construction of new earthen bridge approaches, raised to accommodate final elevations of the bridge deck at each new abutment.
- › Creation of temporary earthen launching pads at the east approach to the Barrington River Bridge and to the west approach of the Palmer River bridge.
- › Assembly and installation of the new bridge spans, via use of a work barge and “launching” from the existing bike path causeways.
- › Installation of the new bridge deck surface, bridge safety rail, and bridge appurtenances.
- › Construction and installation of stormwater management elements.
- › Restoration of coastal features effected by temporary construction activities.
- › Replication/restoration at Palmer River salt marshes as mitigation for permanent salt marsh displacement at Palmer River bridge.
- › Landscaping along the Bike Path embankments with native shrub and herbaceous plant species.
- › Installation of new rail fencing along the Bike Path to tie into existing fence undisturbed by the project.
- › Paving of the new bridge approaches and bituminous surfaces effected by construction activities.
- › Striping of the paved Bike Path surface to match existing shoulder and centerline striping.
- › Removal of all sediment control measures installed as part of the Project.

Project activities proposed in tidal waters include the temporary use of work and support barges, installation of new micro piles via drilling methods, permanent lateral fills associated with one approach realignment, rock installation for permanent scour protection at the abutments, removal of

the temporary bulkheads, and salt marsh restoration/replacement. Proposed shoreline activities include bridge abutment work, creation of temporary bridge launching areas at the top of the existing causeways, removal of the temporary bulkhead access roads, and restoration of all coastal embankments disturbed by the Project.

The reconstruction activities proposed under this Category B Assent application are anticipated to commence immediately once all required environmental permits and authorizations have been obtained. Substantial completion of the RIDOT contract is targeted for December 31, 2025. To meet this schedule, RIDOT separately filed applications for demolition activities as described above.

## 1.3 Purpose and Need

The East Bay Bike Path is a heavily utilized recreational asset for the Rhode Island public, providing a continuous multi-use pathway from India Point Park in Providence to Colt State Park and downtown Bristol. The completed Project will restore missing links in the Bike Path corridor and will provide uninterrupted access for users.

The existing bridges were rated as being in poor condition and reached the end of their useful service life. Their sub- and super structures were structurally deficient, requiring both bridges to be closed in 2019. The temporary Bike Path detour route was established in 2021 to bypass the bridges and allow continued safe passage to the Bike Path segments west and east of the Barrington and Palmer Rivers. The detour route includes local surface roads, temporary timber accessways assembled on the Route 114 highway bridges, and boardwalk connections installed between the Bike Path's mainline and Route 114 at Police Cove Park and east of the Palmer River.

The new bridges will be constructed with state-of-the-art components designed to withstand the rigors of the marine environment, and their designs purposely increase span widths and clearance heights and reduce in-water pile arrangements to one central pier. The designs greatly reduce in-water contact points and restore each river opening with fewer obstructions for boaters and passing marine and estuarine vertebrates.

## 1.4 Property Ownership

The Bike Path is owned by the State of Rhode Island, and activities associated with reconstruction of the bridges, other than a portion of abutment work required at the Palmer River's east approach in Warren and some of the proposed detour route removal, will occur within State rights-of-way and within State waters. Access for light duty equipment and foot traffic required for installation of the Barrington River bridge may occur through the Town of Barrington's Police Cove Park, and coordination will be appropriately maintained with the Town should this be proposed.

The northernmost portion of the existing bridge abutment in the Town of Warren is located on privately-owned property identified as AP 1, Lot 35. To demolish and replace the abutment and appropriately protect its north end with stone riprap, an easement on the parcel will be required – pertaining to the strip of land located north of the state right-of-way, and southerly of mean high water. RIDOT's Real Estate Section is currently seeking a temporary land use agreement with the landowner.

## 1.5 List of Adjacent Property Owners (Relative to Category B Work Activities)

A list of abutters to the Project is presented in **Appendix D** separately for each bridge. Owner identifications and contact information are provided for each parcel, as are map insets. Abutter information was obtained from the Towns of Barrington and Warren Tax Assessors' on-line mapping database through the Axis GIS web portal<sup>4</sup>. Properties abutting activities associated with the eventual dismantling of the temporary Bike Path detour route have not been included in recognition that construction and removal of the detour route was previously authorized by CRMC.

---

4 <https://www.axisgis.com/barrington/> and <https://www.axisgis.com/warren/>

This page intentionally left blank.





# 2

## Permitting Requirements History and Overview

RIDOT conducted a significant amount of permit-needs research and agency coordination prior to procurement of the DB Entity. RIDOT and the DB Entity have continued this coordination effort via participation in several pre-application meetings and numerous consultations with environmental authorities having jurisdiction over the Project. A summary of these meetings attended jointly by RIDOT and the DB Entity follows:

- › September 27, 2022: Consultation meeting with USCG Bridge Administration
- › October 14, 2022: Informational meeting with Town of Barrington Harbormaster
- › December 21, 2022: Pre-application meeting with USACE and RIDEM's Office of Customer and Technical Assistance, Office of Water Resources, and Division of Marine Fisheries
- › January 6, 2023: Pre-application meeting with CRMC
- › January 27, 2023: Consultation meeting with USCG and the Federal Highway Administration (FHWA)
- › March 17, 2023: Field meeting with USACE and RIDEM's Office of Water Resources

The concept of applying for bridge demolition in advance of bridge reconstruction was discussed at some of these meetings and consultations. Positive feedback was received from the permitting entities in recognition that demolition must occur with or without bridge reconstruction due to the unsafe condition of the existing bridges. It was generally agreed that details concerning pier and abutment installation, bridge erection, Bike Path restoration, stormwater management compliance, coastal feature restoration, and landscaping could be submitted in a separate set of state and federal permit applications shortly after the demolition application set is under review.

### 2.1 Specific Permit Requirements (CRMC, RIDEM, USACE, and USCG)

Environmental permit applications and coordination required for the bridge reconstruction portion of the contract are outlined below.

- › A single CRMC Category B Coastal Assent application for both bridges.
- › Two separate state RIDEM WQC applications – one for each bridge.

- › Two separate USACE GP PCN applications – one for each bridge.
- › A USCG Bridge Permit application for the Barrington River bridge.
- › Coordination with RIDEM’s Office of Land Revitalization and Sustainable Materials Management (LRSMM) for management/disposal of impacted soil.

The CRMC Category B Assent application is being filed for Project activities proposed within tidal waters, on CRMC-regulated shoreline features, and within CRMC’s regulated “200-foot Area Contiguous to Shoreline Features” (200-foot Contiguous Area). Consequently, the Project is subject to the RI Coastal Resources Management Program (CRMP) at 650-RICR-20-00-1. The Project lies within the jurisdictions of CRMC’s Narragansett Bay Special Area Management Plan (SAMP)(Bay SAMP) and the Shoreline Change SAMP (Beach SAMP). The requirements and guidance provided in these SAMPs are discussed in Section 2.2.2.1 below.

The complete Category B Assent application comprises the CRMC Assent Application Form, Disclosure Statement and Applicant Agreement as to Fees, this application narrative and the narrative appendices, including separately bound documents comprising Volumes 1 and 2 of the plan set for bridge reconstruction, a Stormwater Management Report, an Operation and Maintenance Plan, and a RIDOT Small-Site Stormwater Pollution Prevention Plan (SWPPP).

State Water Quality Certification applications will be filed with RIDEM’s Office of Water Resources for the reconstruction of each bridge in accordance with guidance provided by RIDEM staff, in recognition that the bridge reconstructions will occur in different RIDEM-mapped waterbodies and within different Towns. The Barrington River bridge work will occur entirely in the Town of Barrington, while the Palmer River bridge work will occur in the Towns of Barrington and Warren. The WQC applications are being submitted to RIDEM concurrently with the filing of this Category B Assent application to CRMC. A 30-day public notice period will be required, in accordance with the State of RI Water Quality Regulations at 250-RICR-150-05-1.

The PCN applications to USACE will be filed in compliance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899 under the “Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area,” Effective May 6, 2022 (RI General Permits). As discussed during consultations with USACE permitting staff,<sup>5</sup> separate PCN applications are being filed for each bridge reconstruction, consistent with the state WQC applications. The separate application filings recognize that the bridges span separate waterbodies and that reconstruction of each bridge can occur as single and complete projects<sup>6</sup>. The PCNs are being filed for RI General Permit 8 – Discharges of Dredged or Fill Material Incidental to the Construction of Bridges. RIDOT has been coordinating with RIDEM’s Division of Marine Fisheries and is seeking modification of the USACE time of year restrictions (TOYRs) for allowable in-water work, as addressed under Section 4.10. The USACE file number presently assigned to this Project is NAE-2022-02797.

An Individual Bridge Permit application will be filed with the USCG for reconstruction of the Barrington River bridge. A USCG Bridge Permit exemption was issued for reconstruction of the Palmer River

---

5 Discussions specific to demolition work as a separate permitting “stage” occurred with USACE permitting staff on January 9 and February 7, 2023, and were outlined in summary emails to USACE on January 13 and February 7, 2023, respectively (emails are available upon request).

6 Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area, Effective May 6, 2022, Section IV – General Condition 2, p. 43.

bridge (such that authorization for bridge reconstruction from the USCG is not required). Additional information relative to USCG permitting is presented in Section 2.3.9 of this narrative.

## 2.2 Other Authorities and Jurisdictions

### 2.2.1 Local Regulatory Requirements

RIDOT is not subject to municipal jurisdiction, so local permits from the Towns of Barrington or Warren are not required for the Project. Accordingly, RIDOT has not included the CRMC Building and Zoning Official's Form as part of the Category B Assent application.

RIDOT has coordinated with the Harbormasters in the Towns of Barrington and Warren to introduce the Project, indicate temporary barge occupancy, learn of any concerns during bridge construction, and to convey the proposed bridge span widths and clearance heights. The DB Entity will continue to coordinate with the Harbormasters while in-water activities are occurring and while work barges are in use.

### 2.2.2 State Regulatory Requirements

#### 2.2.2.1 CRMC Special Area Management Plans

The Project Area falls within the boundaries of CRMC's Bay SAMP. The Bay SAMP has not yet been fully developed (or codified under the Rhode Island Code of Regulations) at the time this application was prepared. However, the Project is not expected to propose any elements that would be considered contrary to the current goals of the Bay SAMP, and any shoreline features that will be displaced or temporarily disturbed by the Project will be mitigated and fully restored, as described further under Chapter 4 of this narrative.

The Beach SAMP (not codified at the time of application) requires applicants to address the coastal hazards associated with climate change. In accordance with CRMP § 1.1.6(I), certain new projects subject to CRMC jurisdiction require a coastal hazard analysis to be performed and included with the coastal assent application using guidance provided in the Beach SAMP. Such projects include the construction of any new infrastructure project subject to CRMP §§ 1.3.1(F), (H), and (M), where "M" refers to new public roads and bridges. Consequently, a CRMC Coastal Hazard Application Worksheet has been completed for the Project. **Appendix E** of this application narrative contains the worksheets, accompanied by a VHB summary memorandum illustrating the results of the analysis. A summary of the study results is presented in Section 5.1.7.

#### 2.2.2.2 Rhode Island Pollution Discharge Elimination System (RIPDES) Program

Bridge reconstruction activities will cumulatively disturb less than one acre of soil at both bridge locations (0.65 acres proposed, including soil disturbances associated with demolition activities), such that permitting under the RIPDES General Permit for Stormwater Discharges Associated with Construction Activities (CGP) will not be required. A RIDOT Small-Site SWPPP has been prepared to be used for work activities authorized under both permitting stages of the Project (**Appendix X**, bound separately).

### 2.2.2.3 Rhode Island Natural Heritage Program

Reviews of RIDEM’s Environmental Resource Map previously indicated that Natural Heritage polygons for special-status species were not present near the Project Area. However, RIDEM updated the Natural Heritage polygon mapping in December 2022, and a polygon to the northeast of the Project Area has now been expanded southwest, such that the east approach of the Barrington River bridge and the entirety of the Palmer River bridge are in the polygon (see **Figure 2** in **Appendix A**). An information request with RIDEM on February 21, 2023, revealed that a confirmed sighting of the state-endangered northern diamond-backed terrapin (*Malaclemys terrapin terrapin*) occurred on the west shore of Belcher Cove, on the Palmer River.<sup>7</sup> The species is classified as a “Species of Greatest Conservation Need” and is ranked as “Critically Imperiled” in Rhode Island under the Rhode Island Wildlife Action Plan.<sup>8</sup> RIDOT consulted with RIDEM’s Division of Fish and Wildlife early in the Project planning process regarding avoidance and minimization measures that might be necessary to safeguard the species during Project activities. These measures are presented in Section 4.11 of this narrative.

### 2.2.2.4 Controlled and Hazardous Materials

A phase I Environmental Site Assessment (ESA), dated April 3, 2020, and prepared by SAGE Environmental, Inc., concluded that “although a recognized environmental condition] REC was not identified, given the urban nature and proposed construction activities that will include soil handling and cause a likely need for off-Site disposal, SAGE suggests soil sampling be conducted for pre-characterization purposes for off-Site disposal considerations.” VHB reviewed the Phase I ESA on behalf of RIDOT and agreed that based on the historical use of the Project Area, being a former railroad, the presence of oils and/or hazardous materials (OHM) was likely and pre-characterization is recommended.

VHB conducted a Limited Subsurface Investigation (LSI) in January 2023 to pre-characterize soils within the Project Area to facilitate off-Site disposal and soil management during construction. Based on the results of the LSI, certain compounds were reported in exceedance of applicable RIDEM criteria. Therefore, VHB assumes reporting obligations may be required in accordance with the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, at 250-RICR-140-30-1 (Remediation Regulations). Laboratory results and a memorandum prepared by VHB summarizing the results of the LSI are presented in **Appendix F**.

Subsequent RIDEM submittals will be prepared by the DB Entity as required prior to construction, which will outline the regulatory requirements that the DB Entity will be required to comply with during construction. These would include oversight of construction activities, the documentation of compliance via operations logs, photographs, field measurements, etc., and the implementation of engineered controls (i.e., capping), as deemed necessary.

<sup>7</sup> Email between VHB and RIDEM on February 21, 2023, with RIDOT’s NHA Request Form, available upon request.

<sup>8</sup> Rhode Island Wildlife Action Plan (RI WAP) | Rhode Island Department of Environmental Management

## 2.3 Federal Regulatory Requirements

### 2.3.1 National Environmental Policy Act

RIDOT prepared an Individual Categorical Exclusion (CE) Project Narrative and Checklist for the Project under the National Environmental Policy Act (NEPA), as directed by FHWA. The CE was signed by FHWA on October 24, 2022.

### 2.3.2 National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act of 1966, as amended, requires that Federal agencies consider the effects of their federally funded projects on historic properties. The above-ground architectural reconnaissance survey conducted by RIDOT's Cultural Resources Unit (CRU) identified one historic resource listed, or eligible for listing, on the National Register of Historic Places within the Project Area of Potential Effects (APE). The resource is the Warren Waterfront Historic District, but the two Bike Path bridges are not contributing elements to the historic property. FHWA issued a determination of No Adverse Effect on February 15, 2022 (**Appendix G**). The Section 106 process included Tribal outreach, thereby complying with USACE requirements.

### 2.3.3 U.S. Department of Transportation Act of 1966

The East Bay Bike Path itself is the single property within the Project Area that meets requirements of Section 4(f) of the US Department of Transportation (USDOT) Act of 1966. The property is exempted under the exception in 23 CFR 774.13(g) because the work being proposed is solely for preserving and enhancing attributes that qualified the property for Section 4(f) protection. Email concurrence from RIDEM, the official with jurisdiction, is presented in **Appendix H**.

### 2.3.4 Endangered Species Act of 1973

#### 2.3.4.1 U.S. Fish and Wildlife Service

The presence of plant and animal species federally listed for special status was explored for the Project Area in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended, 16 U.S.C. Ch. 35, § 1531, et seq.). An Official Species List generated for the Project using the U.S. Fish and Wildlife Service's (USFWS) Environmental Conservation Online System (ECOS) Information for Planning and Consultation (IPaC) tool on February 9, 2023, included the following species and their protection status:

- › Northern long-eared bat (*Myotis septentrionalis*; NLEB) – Threatened
- › Monarch butterfly (*Danaus plexippus*) – Candidate

Critical habitats under USFWS jurisdiction were not identified for the Project Area by the ECOS-IPaC system.

Visual Bridge Assessment Surveys for the NLEB were conducted on behalf of RIDOT in October 2022 for each bridge. The surveys yielded negative presence for all bat species, including the NLEB. RIDOT has completed the automated consultation for NLEB via the IPaC-assisted Determination Key for FHWA, FRA, FTA Programmatic Biological Opinion (PBO) for Transportation Projects in the Range of

the Indiana Bat and Northern Long-Eared Bat. A Consistency Letter documenting a “May Effect – Not Likely to Adversely Affect (NLAA)” determination was generated on February 9, 2023. RIDOT subsequently submitted a request for concurrence to the USFWS on February 10, 2023, to verify that the Proposed Actions are within the scope and adhere to the criteria of the PBO, including applicable avoidance and minimization measures (AMMs) (included in **Appendix I**). The USFWS has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if they determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. The notification period ended on February 24, 2023, without comment from the USFWS. Therefore, the Proposed Action may proceed under the terms of the NLAA concurrence provided in the PBO.

To provide Project protections for NLEB, a CRMC Maintenance Certification Request was filed with CRMC on December 21, 2022, specifically to seek authorization to remove trees and to conduct overhead tree canopy pruning within proposed Project limits during the allowable USFWS NLEB tree clearing window. Filing in advance of other permit applications would ensure that tree removal and pruning could occur prior to April 1, 2023, to avoid tree disturbances during the regulated active season of NLEB. The CRMC Maintenance Certification Assent was issued on February 17, 2023, under CRMC File No. M2022-12-084, and a copy is provided in **Appendix J**. The authorized tree clearing was completed in March 2023.

As a candidate species, the monarch butterfly has no legal protections under ESA. Nonetheless, RIDOT finds it unlikely that the proposed Project would result in adverse impacts to the monarch butterfly given the characteristics of the Project Area. USFWS ESA consultation documents are presented in **Appendix I**.

#### **2.3.4.2 National Oceanic and Atmospheric Administration Marine Fisheries**

The National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) Greater Atlantic Regional Fisheries Office (GARFO) Protected Resources Division (PRD) administers Section 7 of the ESA as it relates to endangered and threatened vertebrate marine species and important marine habitat. Consultation was required with NOAA GARFO PRD because two federally listed fish species were identified as having the potential to occur in the tidal waters of the Project Area. The species are the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*). RIDOT submitted the FHWA GARFO Not Likely to Adversely Affect Program Appendix A Verification Form for the Project on February 2, 2022 and received the signed verification form from NOAA Fisheries GARFO PRD on February 3, 2022, thus completing the programmatic ESA Section 7 consultation process. The signed verification form serves as NOAA Fisheries GARFO PRD concurrence that the action is Not Likely to Adversely Affect the listed species or critical habitat. Email concurrence between RIDOT and NOAA is provided in **Appendix K**.

#### **2.3.5 Magnuson-Stevens Fisheries Conservation and Management Act**

16 U.S.C. § 1855(2) of the Magnuson-Stevens Fisheries Conservation and Management Act requires federal agencies to consult with the Secretary of Commerce, through NOAA Fisheries, with respect to “any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any Essential Fish Habitat (EFH) identified under this Act.” Consultation with NOAA Fisheries GARFO Habitat Conservation Division (HCD) regarding EFH was required in recognition that EFH and NOAA Trust Resource Species are mapped for the Barrington and

Palmer Rivers. RIDOT submitted the FHWA-GARFO Programmatic Agreement Appendix B Verification Form on February 1, 2022 and received the signed verification form from NOAA Fisheries GARFO HCD on February 18, 2022, serving as concurrence under the programmatic EFH consultation (**Appendix L**).

NOAA Fisheries GARFO HCD determined that adverse effects to EFH would not be substantial if the conservation recommendations indicated are followed as may be applicable, including the specified TOYRs (**Appendix L**). The listed TOYRs are February 1 through June 30, pertaining to winter flounder (*Pseudopleuronectes americanus*) and migrating diadromous fish. In-water work activities are typically prohibited during this restrictive window unless activities can be adequately isolated, or the Project area is unsuitable for the target attributes.

### 2.3.6 Coastal Zone Management Act of 1972

Coastal Assent, once issued by CRMC, will serve as the mechanism for federal Coastal Zone Management Act (CZMA) consistency.

### 2.3.7 Section 401 of the Clean Water Act

Section 401 WQC will be granted conditionally by RIDEM once USACE issues their authorization for work covered under the General Permit (see Section 2.1 above). A Section 404 Individual Permit is not required for the Project, so an application for federal Section 401 water quality certification through RIDEM's Office of Water Resources is not being requested.

### 2.3.8 Section 408 of Section 14 of the Rivers and Harbors Appropriation Act of 1899

Federal navigation channels are absent in the Barrington and Palmer Rivers, and a federal navigation channel is similarly absent at their confluence in the Warren River, the tidal waterbody seaward of the confluence of the Barrington and Palmer Rivers. Correspondence from the USACE Navigation Section has confirmed that Section 408 of the Rivers and Harbors Appropriation Act of 1899 is not applicable to the Project (see email correspondence in **Appendix M**).

### 2.3.9 Section 9 of the Rivers and Harbors Appropriation Act of 1899 & General Bridge Act of 1946

Pursuant to Section 9 of the Rivers and Harbors Appropriation Act of 1899 and the General Bridge Act of 1946, projects that propose to construct, reconstruct, or modify a bridge or causeway across navigable Waters of the U.S. are required to obtain authorization from USCG prior to commencing construction or modification work.

On February 8, 2022, FHWA filed a Finding of USCG Permit Exemption with USCG for the Palmer River Bridge and received concurrence from USCG on March 2, 2022 that a Bridge Permit would not be required for the proposed work. It was noted in the response that other areas of USCG jurisdiction apply, so it will be necessary for the DB Entity to comply with the USCG Bridge Administration General Construction Requirements provided to FHWA as part of the March 2, 2022, concurrence correspondence (**Appendix N**).

USCG informed RIDOT that an Individual Bridge Permit would be required for the Barrington River bridge. Consequently, RIDOT submitted a “Bridge Project Initiation Request” and “Navigational Impact Report” to USCG as a precursor for filing a Bridge Permit application. A consultation meeting was held between USCG, RIDOT, and the DB Entity on September 27, 2022, specific to the Barrington River bridge to further discuss proposed reconstruction activities and appropriate permitting procedure. The Barrington River bridge design will reflect the USCG’s vertical clearance requirement of 10.8 feet above mean high water, as indicated in USCG’s Preliminary Navigation Clearance Determination issued to RIDOT on March 2, 2022 (**Appendix N**). The USCG Bridge Permit will be issued following demonstration of CZMA consistency, via issuance of the CRMC Category B Coastal Assent.

Coordination with USCG will be maintained in advance and throughout in-water portions of the Project so that Notices to Mariners can be issued for any channel restrictions, closures, or partial closures. Project work schedules and a work plan will be provided to USCG. Furthermore, the DB Entity will continue to coordinate with the Towns of Barrington and Warren Harbormasters through the duration of in-water activities.





# 3

## Project Setting and Existing Environmental Conditions

Descriptions of the Project Area and existing environmental conditions are presented below. The tidal waters of the Barrington and Palmer Rivers are the primary coastal resources associated with the Bike Path bridges.

### 3.1 Project Area

The Project Area consists of two separate work areas centered around each Bike Path bridge in the coastal settings of the Barrington and Palmer Rivers. At both locations, work will be required in tidal waters to install the center bridge piers, construct new bridge abutments, and install new protective riprap around the abutments. The work area will include portions of tidal waters sufficient to accommodate the work barges and to shuttle to and from the temporary bulkheads. The Project areas encompass the east and west approaches of both bridges, which will be used for equipment access routes to and from each of the four approaches, as described in Section 4.1. **Figures 3A and 3B in Appendix A** depict the Project Area with approximate work limits and the planned access routes.

At both bridges, the velocity of river currents on incoming and outgoing tides is formidable because the causeways have a damming effect on tide cycles, resulting in rapid current velocities. The significance of these characteristics is expanded upon below in discussions of riverbed characteristics in Section 3.5.

With respect to a USACE jurisdictions, shellfish beds were not observed, and are not known to be present within or immediately near Project limits, and all tidal areas north of both bridges are closed to shellfishing, as indicated in RIDEM shellfish closure mapping (**Figure 4 in Appendix A**).

### 3.2 CRMC Water Type Classifications

CRMC designates the waters of the Barrington and Palmer Rivers at, and north of, each bridge as Type 2 Low Intensity Waters (CRMP § 1.2.1.C) and south of each bridge as Type 3 High Intensity Boating Waters (CRMP § 1.2.1.D). Additionally, a portion of the Palmer River in the quadrant northeast of the Bike Path bridge is designated as Type 1 Conservation Area Waters (CRMP § 1.2.1.B). **Figure 5 in Appendix A** shows the CRMC Water Types, as depicted on CRMC's Map of Water Type Classifications for Barrington and Warren.

### 3.3 Surface Waters

The Barrington and Palmer Rivers are located in the Narragansett Basin and are each separated into distinct water bodies in the RI Water Quality Regulations (250 RICR 150-05-01), with separate Waterbody ID Numbers, up- and downstream of the Bike Path bridges. Their water quality classification up- and downstream of the bridges are listed as being suitable for primary and secondary contact recreation, fish and wildlife habitat, and fish consumption (exhibiting Water Classifications of SA upstream of the bridges and SB1 downstream (**Figure 6 in Appendix A**)). Upstream of the bridges, both rivers are recognized for impairments, and both are associated with total maximum daily loads (TMDLs) for fecal coliform. Portions of the Palmer River upstream of the bridge are assigned Impairment Category 5, meaning that the waterbody is impaired or threatened for one or more uses and requires the development of TMDLs for those constituents causing the impairment. Impairments and TMDLs are not identified downstream of the bridges in either river. Shellfishing is prohibited in the entirety of the tidal reaches of both rivers, as indicated above. **Table 3-1** below illustrates the water quality attributes of each river, as reported in The State of Rhode Island 2018 – 2020 Impaired Waters Report, dated, February 2021.

Both rivers are listed in § 1.28 of the RI Water Quality Regulations as Special Resource Protection Waters (SRPWs), recognized for ecological habitat, critical habitat (rare and endangered species), and conservation area. The Barrington River is additionally recognized as an SRPW for recreation.

**Table 3-1 Summary of Surface Water Attributes for the Barrington and Palmer Rivers**

River – Segment	Waterbody ID	Water Quality Standard*	Impairment	Stormwater Impairment	Impairment Category†	TMDLs	Shellfishing
Barrington – Upstream (North) of EBBP Bridge	RI0007021E-01A	SA	Fecal Coliform	Potential	4A	Fecal Coliform	Prohibited
Barrington – Downstream (South) of EBBP Bridge	RI0007021E-01B	SB1	--	No	2	--	Prohibited
Palmer – Upstream of EBBP Bridge	RI0007022E-01A	SA	Fecal Coliform, Dissolved Oxygen, Total Nitrogen	Confirmed	5	Fecal Coliform	Prohibited
Palmer – Downstream of EBBP Bridge	RI0007022E-01B	SB1	--	No	2	--	Prohibited

Sources: RI Water Quality Regulations (250 RICR 150-05-01); The State of Rhode Island 2018 – 2020 Impaired Waters Report, dated February 2021; and RIDEM’s Environmental Resource Mapper.

- \* Water Quality Standards SA and SB1 are suitable for primary and secondary contact recreation, fish and wildlife habitat, and fish consumption.
- † Impairment Category Descriptions, as taken from the summary provided in The State of Rhode Island 2018 – 2020 Impaired Waters Report, page 9, dated February 2021.
- 2 = Attaining some designated uses, no use is threatened, and/or insufficient or no data are available to assess other uses; i.e., some uses are "fully supporting," while more data are needed for other designated uses.

- 4A = TMDL has already been completed.
- 5 = Impaired or threatened for one or more uses, requires development of TMDL, and is included on 303(d) Impaired Waters List

## 3.4 Groundwater

The RI Groundwater Quality Rules (250-RICR-150-05-3) and RIDEM Environmental Resource Map identify groundwater underlying areas within the Project Area as Groundwater Classifications GB and GA (**Figure 7 in Appendix A**). Areas southerly of the East Bay Bike Path and northerly of the causeway at the west approach of the Barrington River bridge, are mapped as Groundwater Classification GB. The GB designation indicates that groundwater “may not be suitable for public or private drinking water use without treatment due to known or presumed degradation” (250-RICR-150-05-3 § 3.9.A.3). Other areas north of the East Bay Bike Path within the Project Area are designated as Groundwater Classification GA. The GA classification indicates that groundwater has been “designated to be suitable for public or private drinking water use without treatment and which are not described ...” as areas meeting a GAA classification (250-RICR-150-05-3 § 3.9.A.2).

## 3.5 Riverbed Characteristics

A bathymetric survey was conducted in September 2022 for each river and is depicted on the site plans accompanying this application (**Appendix T**, bound separately). Riverbed intertidal and subtidal zones were visible at the west approach of the Barrington River and both approaches of the Palmer River, but not at the Barrington River’s east approach due to water depth, abutment and causeway characteristics. Based on field reviews at each approach, the river currents that pass beneath each bridge appear to prevent the accumulation of fine sediment and organic material on the riverbeds at each bridge location and appear to have scoured any loose, fine sediment off the river bottom. This is true for the areas directly beneath the bridges at the three approaches indicated above, as well as for the adjacent areas up- and downstream of the bridges and along, and off, the causeway embankments adjacent to the bridges.

Visual observation coupled with manual augering revealed that intertidal zones associated with the bridge abutments contained coarse substrate material typically comprising coarse sands, gravel, and cobble-sized stone. This material continued seaward through underwater areas visible from approximately mean low tide seaward under the bridges (see representative photos in **Appendix O**). Large armor stone was present at varying densities at each bridge abutment, extending from the abutments seaward beneath the bridges and from the abutments for as far a distance underwater as could be seen at slack low tide. Where voids were observed between armor stones, the coarse sands, gravel, and cobbly material were typically present between and underlying the stone. At the three approaches where observation of the riverbed was possible, at least the first few pile bents from the abutments were in coarse substrates or in fields of stone placed on the riverbed. At the Barrington River’s east approach, it was difficult to visually assess underwater conditions, but the surface of an adjacent salt marsh to the northeast displayed coarse sand and gravel similar to the conditions observed at the west approach.

Field observations made at slack low tide during multiple visits revealed no evidence of rooted submergent vegetation. Its absence can presumably be attributed to the strong currents and coarse bottom material.

Geotechnical investigations were conducted in 1978 and 2022 specific to the Bike Path bridges. The 1978 investigations were taken through the bridge decks to achieve sampling directly within the bridge alignment, and the 2022 investigations were conducted from a barge north of each bridge. The 1978 study at the Barrington River bridge was limited to blow counts, presumably to determine riverbed resistance and depth to refusal. The 1978 investigations at the Palmer River bridge and the 2022 investigations at both bridges recorded riverbed strata. Boring logs presented in **Appendix P** generally indicate the presence of gravelly fine to coarse sands, occasionally overlying well graded sands, and all overlying weathered shale, with variable indication of silt, shell fragments, and organics.

The significance of the characteristics noted above pertains to the potential for disturbance, suspension, and resettling of fine sediments relative to TOYRs, to protect various finfish life stages, as well as to an absence of submerged rooted vascular vegetation (i.e., Submerged Aquatic Vegetation (SAV), Vegetated Shallows, or Special Aquatic Sites(SAS)).<sup>9</sup> Discussions of sediment and bottom characteristics relative to the potential for sediment suspension during Project activities are described in Section 4.10.

## 3.6 Soils

Much of the proposed work will be conducted on the fills associated with the former rail line causeways, such that native, undisturbed soils are not anticipated within the causeway footprints. Relative to surrounding adjacent land off the causeway fills, the Natural Resources Conservation Service (NRCS) web soil survey identifies four soil types within, or adjacent to, Project limits (see **Figure 8** in **Appendix A**). Soil units mapped for each bridge approach, except for the northeast quadrant of the Palmer River bridge, are mapped as Merrimac fine sandy loams (MmA and MmB) and Merrimac-Urban land complex (MU). The salt marsh present in the northeast quadrant of the Palmer River bridge is mapped as Matunuck mucky peat (Mk). The Merrimac soil units are classified as somewhat excessively drained with very low runoff potential, and the Matunuck soil is classified as very poorly drained, with negligible runoff potential. Urban land is a miscellaneous non-soil area consisting of pavement and rooftops and has a high runoff potential.

Soil associated with the former rail line causeway, and therefore underlying much of the Project Area, is suspected of potential contamination and has been pre-characterized. Appropriate consultation and permitting with RIDEM's Office of LRSMM regarding soil and groundwater management will be implemented, as indicated in Section 2.2.2.4 above.

## 3.7 Special Flood Hazard Area Zones

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 44001C0007H, effective July 7, 2014, depicts special flood hazard area (SFHA) zones for the entirety of the Project Area (see **Figure 9** in **Appendix A**). The Palmer River, up and downstream of the Bike Path bridge, is mapped as being associated with a coastal SFHA zone (Zone AE) with a base flood elevation (BFE) of 13 feet NAVD88. The Barrington River is mapped as being associated with coastal Zone AE, BFE 13 feet NAVD88, downriver of the Bike Path bridge and with coastal Zone AE, BFE 12 feet NAVD88,

<sup>9</sup> Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area, Effective May 6, 2022, Section VI – Definitions, pp. 61 and 62.

upriver of the bridge. An area of moderate wave action is identified for the westerly side of the Palmer River, with inland limits coincident with the zone break between Zones AE, BFE 12 feet and 13 feet.

## 3.8 CRMC Regulated Shoreline Features

Shoreline features and the 200-foot Contiguous Area are regulated by CRMC. Artificially created shoreline features, shoreline stabilization measures, and remnants of past uses characterize the shoreline within the Project Area. The Bike Path causeways are the primary landforms associated with the work areas, but fringes and patches of adjoining salt marsh were field delineated by VHB on September 14 and 15, 2022. The top of the coastal embankments associated with the causeways have delineated on the Project site plans based on topographic mapping in combination with biologist field review, as deemed acceptable at the January 6, 2023 CRMC pre-application meeting.

### 3.8.1 Manmade Shorelines (CRMP § 1.2.2.F) and Artificial Coastal Bank (CRMP § 1.2.2.D)

For the purposes of description in this narrative, VHB considers the seaward facing slopes of the causeway landforms to be artificial coastal embankments<sup>10</sup> protected with manmade shoreline in the form of riprap, stone armor, and stone revetments. Portions of causeway segments at, and near, the bridge abutments were typically heavily armored with large stone to withstand the rigors of the currents racing through the constricted causeway openings. Causeway segments away from the abutments typically comprised placed or dumped stone or were armored with stone at the lowest elevations in contact with the tides. Upper portions of most causeway segments had revegetated to at least some extent with woody cover, often heavily interspersed with, or comprising, invasive species. The 200-foot Contiguous Area from the shoreline features associated with all causeway segments is generally characterized by urbanization and community amenities, including the Bike Path, public streets, occupied residences, and Police Cove Park.

#### 3.8.1.1 Barrington River – West

The causeway at the west approach to the Barrington River bridge appear as a long, prominent landform. On the causeway's south embankment, stone armor is present along the toe, nearly the entire causeway length along the open tidal waters. Where protective toe stone is absent to the west, near the salt marsh described in Section 3.8.2.1 below, the embankment displays erosion and undercutting. The north causeway embankment appears similar in characteristics but is exposed to a longer fetch and exhibits damage from wave energy, displaying undercut banks and slumped segments. Both sides of the causeway directly abut tidal waters, in the absence of other shoreline features where Project activities are proposed.

#### 3.8.1.2 Barrington River – East

At the Barrington River's east approach, the causeway segment is considerably shorter. The south embankment is steep and armored as a revetment of large, blocky stone from the toe nearly to its crest, while the north side is similarly steep but armored predominantly along the toe and midsections.

---

<sup>10</sup> "embankment" is used in this narrative to indicate the seaward face of man-made earthen landforms.

Small patches of salt marsh vegetation are present at the toe of both causeway embankments, as described below in Section 3.8.2.2.

### 3.8.1.3 Palmer River – West

At the Palmer River, the Bike Path’s west approach comprises a short, curvilinear causeway segment that ties into uplands at Sowams Road, and its elevation typically sits approximately two feet lower than the Barrington River causeways. The south causeway embankment is steep but relatively short, and its crest is adjacent to, and followed the configuration of, the Bike Path’s split-rail fence. The embankment face is earthen and vegetated, typically with planted grasses. Much of the length of the embankment abuts the salt marsh described in Section 3.8.2.3. The north causeway’s coastal embankment is set further from the Bike Path’s split-rail fence than the south embankment along much of its length. The upland area between the fence and embankment crest is well stabilized by grasses and forbs. Stone armor is present along the east half of the north embankment, forming a manmade shoreline hardened to resist wave action over the long fetch and against strong currents on outgoing tides. Where the stone armor ended, however, portions of the embankment are eroded, resulting in slumped and undercut conditions. Where manmade shoreline is not present, the embankment toe is abutted by coastal beach, as described in Section 3.8.3.

### 3.8.1.4 Palmer River – East

The Bike Path’s east approach to the Palmer River sits on a lengthy causeway segment with fully vegetated embankments. The terminal portion of the causeway, at a rudimentary timber abutment, as well as portions of the channel edge up- and downriver of the causeway, were armored with stone. The causeway embankment south of the bridge is unarmored, likely in recognition of its relatively protected position abutting salt marsh and buffered by Route 114. Portions of the northerly embankment, closest to the bridge and not attenuated by salt marsh, were observed to be eroded and subject to wave action, as further suggested by the presence of accumulated trash and debris.

## 3.8.2 Coastal Wetland (CRMP § 1.2.2.C)

Salt marshes are associated with the shorelines of both bridge locations. Brief descriptions of each salt marsh are provided below, and their delineated limits are shown on the Project site plans. It should be noted that the field delineations for each salt marsh are not indicative of the landward edge of shoreline features but instead identify the limits of coastal wetlands (unless otherwise noted) for the purposes of impact avoidance and assessment relative to CRMC and USACE permitting. The salt marshes meet the federal National Wetlands Inventory classification of “estuarine intertidal emergent wetland persistent,” per Cowardin et al.<sup>11</sup> and as Special Aquatic Sites (SAS)<sup>12</sup> under the USACE RI General Permits.

### 3.8.2.1 Barrington River – West

At the Barrington River, salt marsh is absent along much of the causeway section to the west of the bridge and is entirely absent at the proposed work area at the west approach. Salt marsh is present

<sup>11</sup> Cowardin, Lewis M., Carter, Virginia, Golet, Francis C., and LaRoe, Edward T., *Classification of Wetlands and Deepwater Habitats of the United States*, Office of Biological Services, USDI Fish & Wildlife Service, FWS/OBS-79/31, 1979.

<sup>12</sup> Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area, Effective May 6, 2022, Section VI – Definitions, p. 61.

where the causeway transitions to the mainland, south and north of the Bike Path, approximately 320 feet from the west end of the bridge.

The salt marsh to the south of the Bike Path is positioned between the causeway embankment and the parking area and concrete boat launch of Police Cove Park. It occurs as a fringe along the tidal shoreline, but gradually narrows to a linear, man-made, ditch-like swale along the toe of the causeway. It transitions to coastal, forested, freshwater wetland landward of a secondary, multi-use bridge that spans the swale that is used as part of the Bike Path's temporary detour route. It abuts CRMC Type 3 Waters and occupied approximately 0.10 acres. The salt marsh is dominated by smooth cordgrass but transitions to common reed (*Phragmites australis*) at the west end of the marsh and swale, closest to the secondary bridge, where tidal influence lessens. The edge of the salt marsh was delineated in the field by wetland edge Flags 1-100 through 1-111 on the south side, against Police Cove Park, and by Flags 1-200 through 1-209 along the north side, at the causeway toe. The delineation terminated at the secondary bridge, and the flag lines remained open to account for continuing wetland to the west.

A better defined and larger salt marsh ( $\pm 0.42$  acres) is present in CRMC Type 2 Waters north of the Bike Path, opposite the salt marsh to the south. It extends from the causeway northerly to the lawn of a private residence. Its causeway-facing limits were field delineated as wetland edge Flags 2-100 through 2-109. It contains low and high salt marsh represented by smooth cordgrass and saltmeadow cordgrass (*Spartina patens*), respectively.

### 3.8.2.2 Barrington River – East

At the causeway segment east of the Barrington River, salt marsh is present against the mainland north of the Bike Path, approximately 30 feet from the existing bridge abutment, while salt marsh to the south of the Bike Path is essentially absent.

Small, patchy (<100 square feet (sf)) clumps of smooth cordgrass are present within the cobbly shoreline of a small, actively used boatyard to the south of the Bike Path. The boundary of this area is delineated by Flags 3-100 through 3-105 and demarcates the semblance of the cobbly beach, inclusive of the small stands of salt marsh vegetation.

The salt marsh to the north of the Bike Path is situated in CRMC Type 2 Waters and occupies approximately 600 sf. It abuts a continuous line of armor stone placed along the base of the Bike Path causeway and along a residential yard to the east. The salt marsh is dominated by smooth cordgrass and was demarcated in the field by Flags 4-100 through 4-105.

### 3.8.2.3 Palmer River – West

Salt marshes are present to the south and north of the Bike Path segment extending between Sowams Road and the Palmer River bridge, along the west shoreline of the Palmer River. The salt marsh to the south extends nearly to the stone armor of the existing bridge abutment, while salt marsh vegetation to the north is set back considerably from the abutment ( $\pm 115$  feet) due to differing shoreline topography and exposure.

The salt marsh to the south of the Bike Path occupies the shallow, tidal area positioned between the Bike Path, Route 114, and Sowams Road abutting CRMC Type 3 Waters. It is approximately 0.17 acres and contains low and high salt marsh components. A drainage outfall is present in the northwest corner of the salt marsh, exiting directly into the coastal wetland. Representative species of flora observed in the salt marsh include smooth cordgrass, saltmeadow cordgrass, sea lavender (*Limonium*

*carolinianum*), and hightide bush (*Iva frutescens*), with a small stand of common reed near the drainage outfall. The field delineated wetland edges are represented by Flags 7-100 through 7-115, and the seaward limit of the salt marsh, as represented by smooth cordgrass, has been determined by field GPS location. The interface of high and low salt marsh along northern portions of the wetland have similarly been field GPS located. The salt marsh was partially disturbed and restored previously due to the construction of the temporary Route 114 bridge bypass, when the Route 114 bridge over the Palmer River were replaced (visible in Google Earth aerial imagery from 2000 - 2009) (**Appendix Q**).

North of the Bike Path, a narrow ( $\pm 10$  ft maximum width) fringe of smooth cordgrass is present within the intertidal zone of the gravelly coastal beach described below in Section 3.8.3. It is situated in CRMC Type 2 Waters and appears as clumps of cordgrass loosely interspersed along a band of similar contour elevation, following the curvature of the beach. The perimeter of the vegetated band was field located via GPS, supplemented with aerial photointerpretation from multiple years to interpret its seaward limits.

#### 3.8.2.4 Palmer River – East

The pronounced and extensive causeway segment to the east of the Palmer River is abutted on the south and north by salt marshes. The salt marsh to the south is located near the bridge abutment, but salt marsh limits to the north are set back considerably further from the existing abutment.

Salt marsh to the south occupies a linear, wedge-shaped tidal depression abutting CRMC Type 3 Waters, positioned between the Bike Path and Route 114. The wetland supports low and high salt marsh components in banded configuration and is dominated by smooth cordgrass and saltmeadow cordgrass, with a light interspersion of salt grass (*Distichlis spicata*) and sea lavender. Its linear interior is unvegetated from the river's edge east for approximately 170 feet. Vegetated salt marsh components occupy approximately 0.18 acres, and the field delineated wetland edges are represented by Flags 5-100 through 5-132. The salt marsh is believed to have been filled nearly in its entirety and then recreated during the temporary relocation of Route 114 when the Route 114 bridge was replaced (**Appendix Q**).

An expansive salt marsh is present north of the Bike Path, abutting CRMC Type 1 Waters. It occupies  $\pm 19$  acres and exhibits classic low and high salt marsh components, dominated by smooth cordgrass and saltmeadow cordgrass. Portions of the wetland edge nearest the Project were field delineated as wetland Flags 6-100 through 6-112, supplemented by aerial imagery to interpret its seaward limits near the Project.

### 3.8.3 Coastal Beaches (CRMP § 1.2.2.A)

The only area near Project limits that supports coastal beach exhibiting any appreciable linear characteristics occurs north of the west approach of the Palmer River bridge. It appears as a narrow band extending from the toe of the abutting coastal embankment seaward through the intertidal zone. The easterly end of the coarse sands and gravelly/pebbly substrates begins at the man-made shoreline, described in Section 3.8.1.3, and extends west and northwest in a curved arc away from the Bike Path and towards Sowams Road. The seaward limits of the beach transition into a sparse fringe of smooth cordgrass as described above in Section 3.8.2.3. The beach proper was essentially unvegetated at the time of observation, but a sparse fringe of hightide bush is present along the toe of the abutting coastal embankment. The landward limits of the beach are delineated by Flags 8-100 through 8-110.



Small, disconnected areas of coastal beach are present in other quadrants of the bridges, but they lack continuity and exhibit only small sandy or gravelly areas above the high tide line. They are likely submerged during high tides but were exposed southeast of the Barrington River bridge and southwest and southeast of the Palmer River bridge during field investigations.

This page intentionally left blank.



# 4

## Proposed Project Activities and Associated Environmental Effects

The Project components discussed below will occur in tidal waters, over tidal waters, on shoreline features, and within the 200-foot Contiguous Area. All proposed Project activities will occur within CRMC's jurisdiction as regulated under the CRMP. For reference, the limits of Project activities described below are shown on the Project site plans and are reflected in **Figures 3A** and **3B** of **Appendix A**. CRMP regulatory aspects of the proposed Project are discussed in Chapter 5.

### 4.1 Project Access

Vehicle and equipment access to the Project work areas will occur via existing public ways. Access to the Bike Path's west approach to the Barrington River will occur from County Road over the Bike Path surface, and light duty equipment and worker foot traffic may access the Bike Path from the secondary bridge that links Police Cove Park to the Bike Path. Access to the Barrington River's east approach will occur from New Meadow Road, and access to the Palmer River's west approach will occur from Sowams Road. The Palmer River's east approach will be accessed via the Bike Path from Crescent and Mill Streets, and possibly Kelly Street, in Warren. Public use of the existing Bike Path detour routes will be maintained through the duration of reconstruction activities, but flaggers may be required during some movements associated with construction vehicle access to and from the Barrington River west approach and the Palmer River east approach.

To access the proposed work areas in tidal waters, a temporary work barge and a support barge will be employed, originating from points south of the Project Area. The temporary bulkheads requested in the Category A Assent application and expanded upon in Section 4.3 below will enable the barges to be loaded and offloaded. The work barge will be secured with retractable spuds and potentially supplemented with anchors.

### 4.2 Site Preparation

Site preparation in the form of land clearing to remove trees, shrubs, and vines within Project limits is required. Early tree, shrub, and vine clearing was permitted under CRMC Maintenance Certification M2022-12-084 so that it could be completed prior to April 1, 2023, in accordance with NLEB AMMs. Tree clearing at both bridge locations was accomplished during the week of March 20, 2023. Removal of tree stumps was not proposed under the Maintenance Assent so that earthwork and the potential

risk of erodible soil exposure could be avoided. Instead, stumps related to construction of the temporary bulkheads will be removed as part of the Category A application for bridge demolition. Stump removal and earthwork pertaining to construction of the temporary launching pads, bridge abutments, elevated Bike Path approaches, and remaining areas within Project limits will be accomplished under this Category B Assent application. Site work associated with specific activities, such as construction of the temporary launching pads and bridge abutments, is discussed separately in their respective sections below.

Perimeter sediment controls site wide, and inlet protection for catch basins on New Meadow and Sowams Roads, will be installed where applicable prior to earthwork activities in any given area. The RIDOT Small-Site SWPPP prepared for the Project provides guidance on perimeter and interior controls, good housekeeping measures, compliance inspections, and reporting requirements, and will be followed by the Contractor.

### 4.3 Temporary Bulkhead Construction

The temporary bulkheads and their associated access roadways to be constructed under the CRMC Category A applications (CRMC File No. 2023-03-055) will be used for loading and offloading the work and support barges with equipment and materials essential for the installation of the proposed bridges.

The temporary bulkheads and their access roadways will be entirely removed, and all shoreline features will be restored once construction of each bridge has been completed and the barges are no longer needed. The sheet piling and fill used to create the bulkheads and their access roadways will be removed. The embankments will be restored to their pre-Project condition and armored with stone to protect the adjacent bridge abutments. The Project plan set accompanying this Category B application contains a restoration plan for each bulkhead, showing the elements described above and incorporating a restorative planting plan of native drought and salt tolerant species.

### 4.4 Demolition of Existing Bike Path Bridges

Bridge demolition is being permitted under the CRMC Category A set of state and federal applications and is anticipated to occur during summer and fall 2023. Permit issuance for the demolition Project is pending.

### 4.5 Center Bridge Pier Installation

Structural piers to support the bridge superstructures will be limited to one pier in the center of each river channel, such that each bridge will comprise two spans. The piers will be constructed as an arrangement of micropiles fitted with a concrete pile cap to support the seaward end of each bridge span. Each micropile will comprise a 14-inch casing filled with concrete grout and containing a central, reinforcing core bar, all protected by a plastic sleeve. Installation of each micropile will involve drilling through bottom substrates into bedrock. Sediment generated by the drilling operation will be controlled via a closed, recirculating capture method. Wash waters from the drilling operation will be piped from the inside of a protective casing directly to a frac tank. Coarse sediments will settle in the frac tank, and the remaining turbid water will be circulated back to the drill rig and into the bottom of

the casing while drilling is in progress. Some leakage may occur at the top of the casing, but it is considered by the drill operators to be *di minimis*.

## 4.6 Bridge Abutment Installation

Reconstruction of the bridges will require the installation of new abutments at each of the four Bike Path approaches. The proposed abutments will be cast in place concrete on concrete footings. The abutment footing at the west approach of the Barrington River will need to be supported by micropiles due to unsuitable soil conditions. Three of the existing abutments are timber and display significant deterioration, but the abutment wall on the east shoreline of the Barrington River is of stone masonry construction. The stone face will be retained to serve as a retaining wall and protect against scour, and a new concrete abutment will be constructed landward of the masonry face. Each abutment has been sited slightly landward of the existing abutment locations to avoid further constriction of the causeway openings, and all portions of the proposed abutments to be exposed have been positioned above the mean high tide line.

Abutment construction may occur concurrently with bridge pier installation. To enable abutment work to be isolated from tidal intrusion, it will be necessary to install cofferdams and to establish a dewatering program based on tide cycles. The cofferdams will be installed in the intertidal zones with bulk sandbags. Other methods were considered, such as the use of sheet piling, but bulk sandbags were selected given the cofferdam location as being elevated in the intertidal zone out of the strongest tidal currents and wave energy. The proposed dewatering system at each abutment location will comprise a multi-chambered, silt-sac-type containment unit positioned within the Bike Path alignment at the top of the causeway with a discharge line carried down the coastal embankment to the water's edge. RIDOT is respectfully requesting modification of the TOYRs, as expanded upon in Section 4.10, in recognition of the bridge settings and coarse riverbed substrate characteristics described in Chapter 3.

To protect each new bridge abutment, stone riprap will be installed around the abutments. Stone size has been calculated in accordance with CRMP § 1.3.1(G), specified to withstand strong tidal currents compounded by wind-driven wave energy. The riprap will be installed from the abutments seaward as specified on the Project plans based on engineering calculations, and it will largely be installed within the intertidal zone. The stone will be native, and it will be installed to supplement the stone currently present and will infill where stone is currently absent or insufficient. The riprap scour protection will typically tie into the rocky manmade shorelines present on either side of the causeways, with the exception of the south side of the Palmer River approaches, where stone is generally absent on the causeway embankments.

To achieve the required riprap protection at the abutment on the west side of the Palmer River, it will be necessary to displace the eastern terminus of a narrow band of low salt marsh supporting a sparse representation of smooth cordgrass, as well as a portion of weakly developed high salt marsh. The smooth cordgrass to be affected was growing as intermittent clumps within existing scattered riprap scour protection (Photo 37 in **Appendix O**), and the riprap proposed in this area will supplement the existing stone. The high salt marsh to be displaced nearly resembled beach and was sparsely vegetated with saltmeadow cordgrass and planted high tide bush (Photos 35 and 36 in **Appendix O**). A discussion of salt marsh replication/restoration proposed as mitigation for the unavoidable displacement is provided in Section 4.8.

The area and volume of stone riprap scour protection to be installed in tidal waters is summarized in Tables 4-1 and 4-2, in Section 4.9 below.

## 4.7 Bridge Construction and Launching

The bridge “launching” method of construction is proposed to avoid conflicts with the overhead utility lines present at both bridges while additionally minimizing in-water work activities. The overhead lines are positioned sufficiently close to and over portions of the bridges that cranes and other equipment of substantial height are precluded from use. By using a launching method, the prefabricated bridge superstructures will be assembled on shore, counterweighted, and pushed, or “launched,” from shore on blocking and rollers over the constructed abutments to the pier. A work barge will be required to assist in guiding and setting the spans in place and then for providing a work platform from which to install all necessary fasteners and appurtenances. Aside from barge use, no in-water work will be required to set the spans in place.

To provide a nearly-level area of sufficient size to accommodate bridge span assembly and launching, it will be necessary to construct a launching pad at each bridge location. The launching area at the Barrington River is proposed on the east approach, for direct access to New Meadow Road, and the launching area at the Palmer River is proposed on the west approach, for direct access to Sowams Road. By siting the launching areas at these locations, conflicts with the Bike Path detour routes will be avoided, and public use will remain unimpeded.

At the Barrington River, the launching pad will be constructed by creating retaining walls that will also serve to elevate the Bike Path approach to meet the deck elevation of the reconstructed bridge. Alternatives considering the use of retaining walls versus riprap slopes were carefully considered, and the retaining wall alternative was ultimately selected for its ability to avoid and minimize lateral fills in tidal waters and the salt marsh to the north. The retaining wall footings will generally be sufficiently deep to allow a required bench of approximately three to four feet wide to be cut into the causeway slopes (for increased structural integrity), as viewed in cross section, in lieu of filling over the embankments to achieve the required bench. In considering a third alternative proposing the use of temporary riprap slopes to create a launching pad to the needed width and then later either resizing the slopes or creating retaining walls to achieve the elevated Bike Path approaches, the wall alternative was preferred in that it will require only a one-time disturbance. The riprap alternative would require temporary fill placement, fill removal, and then construction of the elevated Bike Path approach.

The launching pad will be 150 feet long to accommodate the full length of each bridge span. The bridge width will be 21.5 feet, and the launching pad retaining walls have been designed to a 26-foot minimum outer width so the bridge trusses can be centered over the retaining walls. Temporary overhang brackets may be attached to the wall to provide aerial foot access around the span while it is being assembled - in lieu of widening the launching pad and creating additional fills over the embankment to accommodate foot access. To create a south wall for the elevated Bike Path transition and temporary launching pad, a permanent and temporary retaining wall have been specified. An alternative considering only permanent wall was considered, but it would require excavating too deep around the existing utility pole and would impose the risk of destabilizing the pole. The temporary wall will be constructed around, and east of, the pole and will require only shallow bedding. Permanent riprap installed on the causeway embankment will be required to provide slope protection along the base of the permanent retaining wall and around the utility pole. To minimize the extent of riprap slope protection required for the permanent wall, its footing has been set deep, below elevation zero,

so the required three- to four-foot bench could be lowered in the wall's mid-section and then transitioned higher toward the utility pole. CRMP regulatory implications to working on the coastal embankment and along manmade shorelines are discussed in Chapter 5.

At the Palmer River, the launching pad will follow the axis of the proposed bridge alignment, required to avoid the existing utility poles supporting overhead wires. The launching pad must provide a straight approach centered on each abutment so the launched bridge spans can land centered on the proposed pier. To accomplish this, while minimizing the lateral extent of encroachment into adjacent salt marsh and tidal waters to the south, a retaining wall has been proposed. Slope alternatives were reviewed, but the impact minimization benefits from constructing a wall justified abandoning the slope alternative. Early in design development, an alternative proposing the launching pad at the east approach had been the preferred alternative, but temporary impacts to salt marsh bordering Type 1 Waters would have been necessary, and the access route to the launching area would have conflicted to an unacceptable extent with public use of the Bike Path mainline and detour route.

The Palmer River launching pad will be 140 feet long and 26 feet wide, and overhang brackets may similarly be used to provide additional width for aerial foot access while avoiding additional saltmarsh displacement. The proposed Bike Path approach will curve back into the existing Bike Path alignment to the west to retain Bike Path curvature as a warning to cyclists approaching the Sowams Road intersection. To achieve the required 140-foot length of the launching pad, it will be necessary to extend the wall by creating a temporary modular block wall. Early alternatives considered creating the extended length with riprap slopes, but temporary salt marsh fills would have been required. A narrow band of temporary saltmarsh disturbance will be required to allow sufficient room for installing a temporary footing and for foot access in front of the wall. Once the launching pad is no longer needed, the block wall will be removed, and the causeway embankment will be restored to its pre-Project grades and planted with native trees and shrubs.

The subject salt marsh to be impacted is described in Section 3.8.2.3. Proposed unavoidable permanent salt marsh fill ( $\pm 489$  sf) will comprise the area to be occupied by the proposed retaining wall and its associated backfill, plus the area of proposed riprap described in Section 4.6 above. Proposed temporary salt marsh impacts ( $\pm 362$  sf) will be the area occupied by the footprint of excavation required to install footings for both the permanent retaining wall and temporary modular block wall. An additional area of temporary salt marsh disturbance ( $\pm 126$  sf) will be required for foot access within the Project limits depicted on the Project site plans. All temporary disturbance areas in salt marsh will be fully restored via fine grading as needed to restore salt marsh floor characteristics and then by planting accordingly with smooth and saltmeadow cordgrass and high tide bush. The area to be restored will extend from the limits of disturbance north to the base of the permanent retaining wall and the temporary modular block wall. This restoration area is not included as mitigation area in the description of wetland mitigation in Section 4.8.

The proposed permanent encroachment due to the retaining will occur along the salt marsh edge, in an intertidal area appearing as an elevated, wedge-shaped, transitional fringe between smooth cordgrass and the coastal embankment. The displacement proper will occupy a narrow strip of high salt marsh nearly resembling beach but supporting a light interspersed saltmeadow cordgrass (see photos 35 and 36 in **Appendix O**). High and low salt marsh components are differentiated on the Project site plans based on GPS points collected in the field using a GPS unit registering approximately one-foot accuracy at the time of collection.

The elevated, transitional wedge tapers into the toe of the coastal embankment approximately where the west end of the wall will terminate, such that the temporary launching pad fills will occur opposite stronger salt marsh substrates and within denser salt marsh vegetation. The temporary displacement will occupy a narrow strip of transitional area against the embankment toe and will not impede flows draining from the stormwater outfall located at the westernmost end of the wetland.

Mitigation for the permanent salt marsh displacement is proposed within degraded salt marsh on the east side of the Palmer River and to a lesser extent within the interior of the impact wetland, as described in Section 4.8 below. CRMP regulatory implications to the proposed salt marsh disturbances are discussed in Chapter 5.

## 4.8 Salt Marsh Replication and Restoration

The unavoidable, permanent salt marsh displacement proposed as a result of the abutment realignment described above in Section 4.7 will require salt marsh mitigation at a minimum 2:1 ratio. For CRMC, the mitigation will follow the procedures and requirements of CRMP § 1.3.1(L). For USACE, the proposed permanent displacement will not exceed the 500 square foot threshold (489 sf proposed) and is not expected to trigger the need for mitigation at the federal level. The mitigation proposed for CRMC, however, is expected to additionally fulfill any mitigation requirements for Section 404. For these reasons, it is the Applicant's understanding that the mitigation reflected on the Project site plans and described in this narrative may be filed with the bridge reconstruction PCN application in the absence of a USACE Wetland Mitigation Plan document (which otherwise would be prepared in accordance with the New England District Compensatory Mitigation Standard Operating Procedures, December 29, 2020).]

### 4.8.1 Site Selection

Early Project alternatives considered wetland mitigation to the north of the Bike Path causeway, opposite the wetland impact area, by lowering beach elevations to expand and enhance an existing fringe of smooth cordgrass. However, the potential for high wave energy due to a long northeasterly fetch and a consequent concern for successful salt marsh establishment ultimately led to dismissal of this location. Furthermore, the mitigation could not be initiated until the temporary bulkhead and access roadway were to be removed. Instead, salt marsh mitigation is proposed in two areas south of the Bike Path, at existing salt marshes between the Bike Path and Route 114 retaining walls, where wave energy is considerably lower. The first location is the impact wetland on the west side of the Palmer River, and the second is within the linear salt marsh on the east side of the river. Both areas were formerly in the alignment of the temporary Route 114 relocation while the roadway bridge was being reconstructed and appeared to be filled and recreated (**Appendix Q**).

To identify suitable mitigation locations, the positioning of the proposed wetland displacement was first reviewed relative to the wetland fringe, high and low salt marsh, and tidal characteristics. Similarly, the proposed mitigation sites were reviewed for their ability to offer mitigation at similar elevations of high and low salt marsh and through a comparable range of tides. Based on several field reviews, the selected mitigation sites are believed to offer similar positioning within the salt marsh and for range and reach of tidal inundation. Both high and low salt marsh components will be mitigated.



## 4.8.2 Mitigation Description – Impact Wetland

At the impact wetland, an area central to the low salt marsh was devoid of smooth cordgrass and was considered an appropriate location to mitigate for the displacement of a narrow, intermittent fringe of low salt marsh that will be impacted by proposed riprap scour protection. Plugs of smooth cordgrass will be installed at a density of one per square foot to increase the overall density of vegetative salt marsh coverage. The mitigation area was calculated to occupy  $\pm 210$  sf based on field points documented with the GPS unit. It is assumed that the area never re-established following removal of the temporary Route 114 bypass road (see **Appendix Q** and Photos 41 and 42 in **Appendix O**).

## 4.8.3 Mitigation Description – Primary Mitigation Wetland

At the primary mitigation wetland, the proposed mitigation will take the form of salt marsh replication and restoration, totaling  $\pm 2,610$  sf on the east side of the Palmer River. Efforts will target a linear east-west band of barren substrates present longitudinally through the wetland and an area of exposed gravelly substrates immediately landward of riprap scour protection at the channel edge. The mitigation area was visited by representatives of USACE, RIDEM, RIDOT, and the DB Entity during a March 17, 2023 site meeting, and it is RIDOT's understanding that general concurrence for pursuing wetland mitigation at this location was obtained. Subsequent to the field meeting, three wooden reference stakes were established in the wetland and marked with green flagging denoting approximate lower and upper mitigation limits, with the central stake denoting a change in substrate characteristics and differing mitigation methodology. The wetland was well compartmentalized with low and high salt marsh components, with some interspersions of salt grass (*Distichlis spicata*) in high salt marsh. Both cordgrass species extended easterly to the temporary detour bridge and along a manmade swale over which the bridge spanned. The limits of high and low salt marsh components were GPS located in the field and are depicted on the Project plans. Photographs of the mitigation wetland with the reference stakes installed are presented in **Appendix O**, and an aerial image of the wetland is presented in (**Appendix R**).

A manmade, ditch-like swale was present at the top of the salt marsh, originating at a piped outfall behind Crescent Street. It drained west to the temporary detour bridge and retained some downslope definition through the salt marsh before dissipating in the stand of smooth cordgrass discussed in the paragraph below. Some initial concern existed regarding potential salinity dilution in the salt marsh due to freshwater (likely stormwater) inputs from the swale, but smooth cordgrass grew densely within and along the swale upgradient beyond the temporary detour bridge, suggesting that any freshwater inputs were inconsequential to salinity levels necessary to sustain salt marsh conditions.

At the river's edge, a dense stand of smooth cordgrass occupied the southerly portion of the salt marsh but was absent in the gravelly sandy substrates to the north. To expand this stand within similar contouring, smooth cordgrass will be planted from the stand edge northerly along the edge of the river channel through the seaward-most reference stake. The gravelly substrates abutting the channel riprap will not be altered, so they can remain hardened against currents and wave action, but substrates from the stake landward are proposed to be mechanically loosened and augmented with clean, coarse sand (as conditions warrant) to encourage root development. Landward of the designated planting area for smooth cordgrass and up to the central reference stake, the sandy soils present were observed to be compacted. They are proposed to be mechanically loosened to a depth of  $\pm 18$  inches, amended with clean medium to coarse sand, and planted with saltmeadow cordgrass at

a density of approximately one plant per square foot. The linear barren area represented a clear demarcation between saltmeadow cordgrass to the north and smooth cordgrass to the south.

From the central reference stake landward to the upgradient-most reference stake, barren substrates were observed to be highly compacted and appeared to contain stony debris, including bituminous material. They were slightly elevated above other substrates and were observed to obstruct high tides from extending further inland. Mitigation efforts propose to remove the upper 12 inches of this material, mechanically loosen the remaining material down to a depth of approximately 30 inches, and then introduce approximately 9 inches of clean medium to coarse sand, such that the final surface elevation will be lowered by approximately three inches. The lowered elevation is intended to allow high tides to extend slightly further inland, and the clean sand will allow friable planting media for root development. The area would then be planted with saltmeadow cordgrass at a density of one plant per square foot, with salt grass intermixed at the same spacing density at upgradient most limits, where tidal influence is reduced.

An elevated area against the Route 114 retaining wall supports a stunted stand of common reed. As part of mitigation efforts, RIDOT proposes to mechanically remove the common reed, lower the elevated surface to match salt marsh elevations to the north and west, and replant the area with saltmeadow cordgrass. Other small (<10 sf) pockets of common reed will be hand pulled. The area is outside the state right-of-way for the Bike Path but is in state right-of-way for Route 114.

To accomplish the needed mechanical loosening of salt marsh substrates, a mini-excavator will likely be used, accompanied by a mini, tracked dump vehicle. Access from the Bike Path to the mitigation areas will occur from the easterly end of the salt marsh, where the Bike Path's split rail fence ends. Machinery work would begin near the channel edge and proceed landward (east) to the upper reference stake. All planting of cordgrass plugs will be completed by hand. Proposed work activities, with the exception of those to occur in the easternmost end of the mitigation area, will need to be timed with the tides to gain dry access. The contractor will make every effort to install cordgrass plugs during the spring to allow maximum root development before the next winter. Temporary measures to control Canada goose foraging on the newly planted plugs will likely be implemented as part of the project. Goose control measures are not included in the plan set but would involve deterrents only, such as strung twine with colored flagging.

#### 4.8.4 Total Mitigation Area Achieved and Monitoring Commitment

Total proposed mitigation will occupy  $\pm 2,820$  sf ( $\pm 210$  sf at the impact wetland and  $\pm 2,610$  at the primary mitigation wetland), representing a mitigation to displacement ratio of 5.8:1 for proposed permanent displacement. Temporary displacements are being restored in kind and have not been counted as mitigation, but the mitigation ratio would be 2.9:1 if all disturbances proposed within salt marsh are included. In compliance with CRMP § 1.3.1(L)(4)(b)(9), RIDOT will initiate an annual monitoring program for a duration acceptable to CRMC. RIDOT proposes to submit annual monitoring reports in late November, following the end of the growing season, per recommendation of CRMC permitting staff (*pers. comm.*, March 8, 2023).

## 4.9 Summary of Project Effects in Tidal Waters and Coastal Wetlands

Work proposed in tidal waters, differentiated by the high tide line (HTL) under Section 404 and mean high tide (MHT) under Section 10, is summarized in **Tables 4-1 and 4-2**, below. USACE generally does not consider piles configured in loose arrangements to be fill under Section 404 of the Clean Water Act (USACE, *pers. comm.* on January 20, 2023), so their removal is summarized below simply as “obstruction removal.” Similarly, the installation of micropiles to form the bridge piers has not been considered fill and therefore is not included in **Tables 4-1 and 4-2**. Unavoidable encroachment into coastal wetlands (salt marsh, or Special Aquatic Sites) is proposed, and a summary of Project Effects to salt marsh is presented in **Table 4-3**. No Vegetated Shallows were observed in the Project Area.

**Table 4-1 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)
<b>Bridge Demolition (Applied for Under Previous Category A Stage of Applications)</b>						
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
<b>Bridge Reconstruction (Current Stage of Applications)</b>						
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	--
<b>Project Totals</b>		<b>±3,441</b>	<b>±547</b>	<b>±7,368</b>	<b>±635</b>	<b>±3,082</b>

\* 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 4-2 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)
<b>Bridge Demolition (Applied for Under Previous Category A Stage of Applications)</b>						
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
<b>Bridge Reconstruction (Current Stage of Applications)</b>						
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	--
<b>Project Totals</b>		<b>±2,845</b>	<b>±491</b>	<b>±5,501</b>	<b>±509</b>	<b>±3,082</b>

\* 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 4-3 Summary of Project Effects in Coastal Wetlands at the Barrington and Palmer Rivers (for Demolition and Reconstruction)**

Location	Purpose	Temporary Fill/Excavation Area (sf) *	Temporary Fill/Excavation Volume (cy)†	Permanent Fill/Excavation Area (sf)	Permanent Fill/Excavation Volume (cy)†	Salt Marsh Mitigation Area (sf)
<b>Bridge Demolition (Applied for Under Previous Category A Stage of Applications)</b>						
Barrington River	Temporary Bulkhead Installation	0	0	0	0	--
Barrington River	Bridge Pile Removal	0	0	0	0	--
Palmer River	Temporary Bulkhead Installation	0	0	0	0	--
Palmer River	Bridge Pile Removal	0	0	0	0	--
<b>Bridge Reconstruction (Current Stage of Applications)</b>						

Location	Purpose	Temporary Fill/Excavation Area (sf) *	Temporary Fill/Excavation Volume (cy)†	Permanent Fill/Excavation Area (sf)	Permanent Fill/Excavation Volume (cy)†	Salt Marsh Mitigation Area (sf)
Palmer River	Permanent Retaining Wall and Stone Riprap Scour Protection	0	N/A	±489 (Fill)	N/A (See Tables 4-1 and 4-2)	±2,820 Total Replication/Restoration (5.8:1)
Palmer River	Footing Excavation for Permanent and Temporary Block Retaining Walls (Where excavation will extend seaward of wall faces)	±362 (Excavation)	N/A	0	0	±362 Restoration In-Kind (Not Counted in Mitigation Tally)
<b>Project Totals</b>		<b>±362</b>	<b>N/A</b>	<b>±489</b>	<b>N/A</b>	<b>±2,820</b>

\* Temporary disturbances not associated with fill or footing excavation, as measured from proposed fill/excavation limits to the Project limits of disturbance will comprise an additional ±126 feet cumulatively south of the Bike Path at the Palmer River west approach.  
 † 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.

## 4.10 Request for Exemption from TOYRs for Work in Tidal Waters

USACE’s RI General Permits generally preclude work in tidal waters from February 1 through October 14,<sup>13</sup> leaving only a three-and-one-half month period available in which to conduct in-water work activities. RIDOT respectfully requests the ability to conduct bridge reconstruction activities during the TOYRs, given the Project attributes and river characteristics described below. To help facilitate TOYR discussions, RIDOT invited RIDEM’s Division of Marine Fisheries to the December 21, 2022, pre-application meeting with USACE, in which potential modification of TOYRs was initially discussed. RIDOT has since been coordinating with RIDEM’s Division of Marine Fisheries to review the in-water work activities proposed and to explore the potential to allow work activities to proceed during the TOYRs, while still providing adequate protections for marine life.

Primary factors in seeking TOYR exemptions and/or modifications, relate to the location of the proposed work activities, the tidal currents present, and the nature of the activities proposed. Strong river flows through the constrained causeway openings at each bridge create a unique tidal condition and appear to preclude the presence of loose sediment fines and flocculated organic accumulations at the riverbed surface, as might otherwise be present in calmer waters (the riverbed characteristics at the bridges are described in Section 3.5). The finest of any sediment fractions indicated in the geotechnical borings (**Appendix P**) appear to be intermixed with sands or positioned beneath coarser material, suggesting that surface sands may act as a cap to trap finer sediment beneath. Any silty material that could be inadvertently disturbed by in-water activities would likely disperse in the tidal currents and

13 Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area, Effective May 6, 2022, Section IV – General Condition 17, p. 47.

would not be expected to settle to a density that could negatively impact fish eggs or other marine life.

Bridge reconstruction activities proposed in tidal waters at each river will comprise the center pier installations, abutment construction with coffer damming, and installation of stone riprap scour protection at the abutments. The bridge launching operation will require only barge use, with no other water contact required. The locations of these activities relative to the approximate 300-foot-wide river channels will occur at the channel centers and on, and in proximity to, their shorelines. The activities will be relatively confined in relationship to the broad river widths, suggesting that sufficient undisturbed river width would be present to avoid impendence of daily fish movements and spring and fall diadromous fish runs.

Micropile installation required to construct the piers in each river will be accomplished with a drill rig positioned on the work barge. No pounding or vibratory means will be used to install the piles. As indicated in Section 4.5, the drilling operation will occur entirely within a closed system of protective casings and a closed, recirculating capture method to avoid and minimize the generation of particulates and turbidity in tidal waters. The circulating wash water system will deposit the coarsest sediments in a frac tank, while the finer, turbid sediment fraction will be recirculated through the closed system. Although some sediment leakage may occur at the top of the casing, the leakage is considered by the drill operators to be minimal.

The proposed bridge abutments will be positioned above the MHT line, and all but a portion of the proposed abutment on the west side of the Palmer River will be positioned above the federal high tide line. Construction of the new bridge abutments will require the installation of cofferdams to isolate the work area and ensure that the work area can be adequately dewatered as may be needed at varying tides. Bulk sandbags will be used to form the cofferdams, and each cofferdam will be positioned within the intertidal zone, such that TOYRs are believed not to apply to their installation or to work performed landward of the cofferdams. In this manner, any sediment generation will be retained landward of the cofferdams, and footing installation and abutment casting can occur in the dry, with dewatering anticipated for excavation and to allow poured concrete to cure. Dewatering pump waters will be routed through a baffled silt sack type mechanism so that sediment can be captured prior to discharge.

The installation of stone scour protection at the bridge abutments will extend from the abutment faces outward through the intertidal zone, often only to existing riprap limits, but some will extend slightly below MLLW. Placement of the first "layer" of stone could disturb riverbed substrates, but the sandy-gravelly riverbeds would not be expected to generate significant turbidity. Successive courses of stone would be placed or dumped on the stone below, with little risk of substrate disturbance.

In-water concussive effects from the proposed activities are expected to be minimal. Micropiles for the piers will be drilled, and the abutment installations will largely be located landward of tidal waters, including pile installation required to support a new abutment on the west side of the Barrington River, with the exception of a portion of the west abutment to be realigned at the Palmer River. Conservation Measures provided by NOAA Fisheries will be followed to the extent that they apply to the proposed bridge reconstruction activities (**Appendices H and I**).

## 4.11 Awareness and Protection of Northern Diamond-backed Terrapins

Northern Diamond-backed Terrapin nesting sites are known to occur up-river of the work sites, so awareness of their potential presence during micropile installation, coffer damming, bridge abutment construction, and installation of riprap scour protection must be maintained. An important measure to protect terrapins during construction is entanglement prevention. The conditions that NOAA establishes to protect fish species similarly apply to terrapin protection. Lines, ropes, and chains shall be thick, heavy, and taut to avoid loops and shall otherwise be sleeved with a rigid material to prevent entanglement. The use of turbidity curtains is not proposed for construction activities, but any flaps, folds, or excessive material in any fabric or membranous materials that might be used in the water shall be pulled taught to avoid inadvertent trapping of turtles and other aquatic vertebrates.

Construction crews will receive education in the identification of terrapins, and periodic sweeps of the construction site will be performed over the course of each workday. If terrapins are observed in the work area, caution will be taken to avoid the terrapin and avoid restriction of its movements. If terrapin entanglements in project gear are observed, then properly trained personnel will be brought in to free the entangled terrapin (if submerged, gear will be cut to enable the terrapin to breath until trained personnel can arrive).

## 4.12 Stormwater Management Features

Stormwater runoff will be managed for the Project in accordance with the RI Stormwater Rules through the creation of infiltrating low impact development (LID) techniques comprising infiltration trenches and qualifying pervious areas (QPAs). They are proposed to be installed adjacent to the Bike Path at each approach where physical space and suitable conditions are available. Treatment and management of runoff generated by the bridge decks and Bike Path segments exhibiting shoulder areas insufficient to accommodate LID features will not be possible, so equivalent volumes of stormwater runoff to be generated by these areas will be managed at other Bike Path segments within the Project Area and directed to the infiltrating LID features.

The infiltration trenches will receive sheet flow from the paved Bike Path surface. Runoff exiting the pavement will flow over a grass filter strip to a stone filled infiltration trench. The top 4 inches of the trench will comprise pea stone that will function as a sediment forebay, overlying a bed of crushed stone. The water quality volume will travel through the stone and infiltrate into underlying soils, while larger storms are expected to surcharge the system and overflow. The QPAs will similarly receive sheet flow from the paved Bike Path but will be created as nearly level to slightly pitched (2 to 5 percent) grassed areas. They will reduce runoff velocity, filter coarse sediment, and provide sufficient area for infiltration.

Grading needed to create the LID features along limited segments of the stormwater features extend to, or infrequently slightly over the crests of, the causeway embankments, but the areas selected for supporting the infiltration features were identified as being the only areas available within Project limits in which to install the LID features. Where more than minimal intrusion over the coastal bank would have been required, consideration of LID feature installation was abandoned, and new locations were selected.

## 4.13 General Site Work, Removal of Temporary Work Areas, and General Site Restoration

General Project activities related to the bridge reconstructions but not described in the previous sections are briefly outlined here. They include transitioning the Bike Path approaches to meet the elevated bridge decks, removal of temporary features, restoration of areas disturbed by the Project, loaming, planting of trees and shrubs, seeding, split-rail fence installation, pavement striping, and installation of signage.

Creation of the elevated Bike Path transitions will require a combination of retaining walls and earthen side slopes. Retaining walls are proposed where needed to avoid and minimize permanent encroachment on the causeway embankments, and earthen side slopes are proposed where approach elevations diminish and meet the Bike Path's existing grassed shoulders. Where required to construct the temporary bridge launching pads, the retaining walls have been designed to the vertical and horizontal dimensions of the final approaches so that wall construction and associated work disturbances occur only once. Furthermore, the length of the walls has been extended sufficiently in length to avoid lateral fills over coastal features where the walls otherwise would have terminated. The transitions will be brought to grade with earthen fills and appropriately shaped to accommodate a paved Bike Path surface.

As temporary fills associated with the bulkheads, launching pads, and access roads are being removed, disturbed areas will be restored, and exposed soils will be stabilized. The Bike Path segments will be paved, and exposed areas between the edge of pavement and Project limits will be loamed. The split rail fence will be replaced/re-installed, and safety rails will be installed on the elevated Bike Path transitions. Native, salt-tolerant, mast-producing trees and shrubs will be planted seaward of the split rail fence, where physical space allows, to restore visual interest and a wildlife habitat component. Exposed soils not specified for other surface treatment will be seeded with grass.

## 4.14 Dismantling and Removal of Existing Bike Path Bridge Detour

The temporary Bike Path detour route authorized under CRMC Assent 2021-05-059 (**Appendix C**) will be removed as part of the bridge reconstruction contract. The Assent included demolition, so detour route removal is not part of this Category B Assent application and is not described herein. Of note, the timber bridge linking Police Cove Park with the Bike Path mainline was constructed independently of the detour route and will not be removed.

## 4.15 Public Safety Considerations

The existing Bike Path detour routes will remain in place through the duration of work activities proposed under this Category B application. Temporary, short-term closures may occur at given locations when machinery and trucks are in transit and will be signified by flaggers.

Once the bridges have been removed under the previous permitting stage (CRMC Application No. 2023-03-055), chainlink fence and warning/safety signage will be installed near the bridges to prevent



access to the bridge abutments and temporary bulkheads. The chainlink fence will remain intact until work activities proposed under this Category B application are authorized and work commences. The existing barricades and informational signage further down the Bike Path, at the intersections of the existing detour routes, will remain in place. The existing detour measures will remain in place until bridge reconstruction has been completed and the Bike Path mainline is open for use.

This page intentionally left blank.



# 5

## CRMC Regulatory Compliance

The CRMP requires the Applicant to provide sufficient technical information about the Project for CRMC to adequately understand the Project so that a permitting decision may be rendered. This narrative chapter is divided into three sections to correlate with the first three sections of the CRMP, where § 1.1 is Authorities and Purpose, Definitions, and Procedures, § 1.2 is Areas Under Council Jurisdiction, and § 1.3 is Activities Under Council jurisdiction. CRMP Subsections most pertinent to the Project are outlined below under their respective CRMP Section. They are CRMP Subsections 1.1.5, 1.1.6(F), 1.1.6(I), 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11, 1.1.12, 1.2.1(B), 1.2.1(C), 1.2.1(D), 1.2.2(A), 1.2.2(C), 1.2.2(F), 1.2.3, 1.3.1(A), 1.3.1(B), 1.3.1(F), 1.3.1(G), 1.3.1(J), 1.3.1(L), 1.3.1(M), 1.3.5, and 1.3.6.

### 5.1 CRMP § 1.1 – Authorities and Purpose, Definitions, and Procedures

#### 5.1.1 CRMP § 1.1.5 – Review Categories and Prohibited Activities in Tidal Waters and on Adjacent Shoreline Features

According to the Activity Matrix in Table 1, under CRMP § 1.1.5(A), the construction of public bridges and installation of structural shoreline protection in tidal waters and on manmade shorelines abutting Type 2 and 3 Waters requires the filing of a CRMC Category B application, while the filling, removal, and grading of shoreline features on manmade shorelines abutting Type 2 and 3 Waters may be reviewable as a Category A activity. Therefore, the activities requiring Category B review constitute the proposed installation of the piers, construction of the abutments, and placement of riprap scour protection. The filling, removal, and grading of shoreline features and the construction of public bridges affecting coastal wetlands in Type 2 and 3 Waters are prohibited. The abutment and approach realignment proposed on the west side of the Palmer River will result in unavoidable displacement of salt marsh, and therefore constitutes a CRMP prohibited activity requiring a Special Exception.

Table 2 under CRMP § 1.1.5.B identifies that construction of public bridges and the installation of structural shoreline protection within the 200' Contiguous Area to Manmade Shorelines requires a Category B Application. It further indicates that filling, removal, and grading of shoreline features within the 200-foot Contiguous Area may be reviewable as either Category A or Category B.

Based on Tables 1 and 2, the Project in its entirety, at both bridge locations, is being filed for CRMC Category B review.

## 5.1.2 CRMP § 1.1.6(F) – Category B Applications

*Applicants for activities and alterations listed as "B" in Tables 1, 2, or 3 in § 1.1.5 of this Part, in addition to adhering to the applicable policies, prerequisites, and standards, are required to address all Category B requirements as listed in applicable sections of the program and, where appropriate, other issues identified by the Council.\**

In accordance with CRMC § 1.1.6(F)(1), it fully is the Applicant's intention to demonstrate adherence to the applicable CRMC policies, prerequisites, and standards, or identify thoroughly why such standards cannot be met, and to adequately address all applicable Category B requirements listed in the CRMP.

\* Italicized text henceforth in Section 5 of this document indicates text excerpted from the CRMP.

## 5.1.3 CRMP § 1.1.6(I) – Coastal Hazard Analysis Application

As indicated in Section 2.2.2.1 above, a coastal hazard analysis has been completed for the Project in recognition that public bridges will be constructed (CRMP § 1.3.1(M)). The Coastal Hazard Application Worksheets and a memorandum with supporting mapping are provided in **Appendix E**, and summary findings are expanded upon in Section 5.1.7 below.

## 5.1.4 CRMP § 1.1.7 – Variances

Due to the linear nature of the Project and of the elevated causeway landform, RIDOT is requesting relief from the standards of two CRMP sections. RIDOT respectfully requests variances from the Setback standard under CRMP § 1.1.9(E) and from Standards under CRMC 1.3.1(B) pertaining to work on steep slopes. Specifically, portions of the temporary bridge launching pads and permanent elevated Bike Path transitions at the same locations will require temporary and permanent filling rather than cutting on causeway slopes (CRMP § 1.3.1(B)(3)(a)(6)), and filling will be required on slopes steeper than 15 percent (CRMP § 1.3.1(B)(3)(e)(1)(AA)). The Barrington River launching pad and elevated Bike Path transition will require the construction of permanent and temporary retaining walls on the south-facing, stone-armored causeway embankment, with added riprap shoreline protection along the base of the permanent wall and at the existing utility pole. The Palmer River launching pad and elevated Bike Path transition will require the construction of permanent and temporary retaining walls on the south-facing, vegetated causeway embankment. Each variance request is addressed separately under the six points below.

*1. The proposed alteration conforms with applicable goals and policies of the Coastal Resources Management Program.*

### CRMP § 1.1.9 (Setback) Variance Request:

The proposed use of coastal setback is believed to be consistent with CRMP goals and policies in recognition that the Bike Path is a heavily used, public recreational asset for the State of Rhode Island. It affords public access to the shoreline and through local seaside communities, provides shoreline views, and is believed to maintain the aesthetic character of the shoreline.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

The proposed filling is proposed by the Applicant for public benefit. The character of the proposed activity and materials to be used are physically and aesthetically consistent with the existing shoreline features and character of the specific area. Equivalent impervious area of stormwater runoff generated by the bridge decks and modified Bike Path pavement will be properly managed and treated in conformance with the RI Stormwater Rules at 250-RICR-150-10-8 and in compliance with CRMC § 1.3.1(F). The bridge reconstructions will allow continued shared use recreational and shoreline access opportunities, as well as seaward views of the tidal rivers and shorelines.

*2. The proposed alteration will not result in significant adverse environmental impacts or use conflicts, including but not limited to, taking into account cumulative impacts.*

CRMP § 1.1.9 (Setback) Variance Request:

Proposed impacts within the coastal setback will generally occur within the existing, developed footprint of the Bike Path corridor. Significant environmental consequences are not anticipated, temporary public use conflicts have been considered and minimized, and the Project is intended to restore public use.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

Proposed stone fills over the existing, manmade, stone shoreline that presently forms the causeway embankments at the Barrington River east approach will supplement the existing stone and will remain consistent in appearance and function. At the embankment toe, no salt marsh or vegetated shallows are known to be present. Conflicts with navigation or other uses consistent with Type 2 and 3 Waters are not anticipated; conversely, the fills will contribute to the successful reopening of the Bike Path mainline. At the west side of the Palmer River, the use of a retaining wall over the artificial causeway slope will avoid more significant encroachment that would otherwise be required with the use of earthen or riprap slopes. The extended temporary wall for the bridge launching pad will be removed and restored (and mitigation is proposed for all salt marsh displacements and disturbances).

*3. Due to conditions at the site in question, the applicable standard(s) cannot be met.*

CRMP § 1.1.9 (Setback) Variance Request:

The linear configuration of the Bike Path corridor and proximity to the inland edge of coastal features (top of causeway embankments) precludes any opportunity for working outside the setback when on the causeways.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

The existing causeways are narrow with steep embankments, greatly exceeding 15 percent slopes. To elevate the Bike Path approach at the Barrington River to the proposed bridge deck elevation and accommodate a launching pad sufficient in width to accommodate the bridge trusses, fills are required. The proposed retaining wall alternative has greatly reduced the amount of embankment fills that otherwise would have been proposed with a fill-only alternative, in the absence of retaining walls. At the Palmer River west approach, proposed temporary and permanent fills over the coastal embankment is necessitated by a re-alignment dictated by the presence of the existing utility pole.

*4. The modification requested by the applicant is the minimum variance to the applicable standard(s) necessary to allow a reasonable alteration or use of the site.*

CRMP § 1.1.9 (Setback) Variance Request:

Project work areas have been confined to the greatest feasible extent in recognition of the shoreline settings. All work areas inside Project limits and within the coastal setback are necessary to the Project's success.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

Based on sound engineering practice and the experience of the professional civil engineers responsible for developing the slope fill designs, the modification requested is believed to represent the minimum needed.

*5. The requested variance to the applicable standard(s) is not due to any prior action of the applicant or the applicant's predecessors in title. With respect to subdivisions, the Council will consider the factors as set forth in § 1.1.7(B) of this Part below in determining the prior action of the applicant.*

CRMP § 1.1.9 (Setback) Variance Request:

The requested variance is not due to any prior action of the Applicant. The variance is needed due to the causeway and coastal feature configurations, and the work is needed to maintain public recreational/transportation infrastructure.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

The causeway dimensions were set by the former rail line use and bear no reflection on RIDOT. The elevated bridge heights necessitating elevated Bike Path approaches were set to avoid future conflicts with flood events, and for the Barrington River bridge to comply with USCG vertical clearance requirements (**Appendix N**). The launching pad widths are required to enable the proposed bridge launching method, which is needed to avoid conflicts with the existing overhead utility lines and is the preferred alternative for minimizing in-water work activities. The existing utility poles at both proposed launching areas were not installed by RIDOT and impose Project constraints that cannot be avoided.

*6. Due to the conditions of the site in question, the standard(s) will cause the applicant an undue hardship. In order to receive relief from an undue hardship an applicant must demonstrate inter alia the nature of the hardship and that the hardship is shown to be unique or particular to the site. Mere economic diminution, economic advantage, or inconvenience does not constitute a showing of undue hardship that will support the granting of a variance.*

CRMP § 1.1.9 (Setback) Variance Request:

In the absence of a variance to conduct work within the coastal setback at each bridge approach, the Project work could not occur and would constitute a no-build alternative. The undue hardship that would result would be a hardship for the Rhode Island public.

CRMP § 1.3.1(B) (Filling of Shoreline Features) Variance Request:

The proposed fills are needed for the purpose described immediately above, given the existing causeway limitations and utility pole and overhead wire constraints. To not propose the fills would mean that the elevated Bike Path transitions and launching pads could not be constructed to the minimum required dimensions. The proposed temporary and permanent retaining walls have greatly reduced the need for embankment fills, but the proposed fills are necessary to complete the Project and restore the Bike Path mainline.

### 5.1.5 CRMP § 1.1.8 – Special Exceptions

The Applicant has reviewed the proposed Project elements as outlined in Chapter 4 in relationship to CRMP prohibited activities. For those Project activities that appear to constitute prohibited activities, RIDOT respectfully requests the Council's consideration for the granting of Special Exceptions so that the Project may proceed as designed. The prohibited activities identified by the Applicant are described below, as are the Applicant's methods to attenuate the prohibited activity, as applicable.

Project activities proposing filling, removing, or grading of Manmade Shorelines are not prohibited under CRMP § 1.3.1(B), nor is construction of public bridges on manmade shorelines per CRMP § 1.3.1(M), provided the requirements of CRMP § 1.2.2.G[F] are met (which they are). However, the Project's proposed realignment of the Palmer River's west bridge abutment and the placement of riprap scour protection will require unavoidable temporary and permanent salt marsh displacement, which is a prohibited activity under the CRMP sections pertaining to the Project, as outlined below. The Applicant assumes that filling, removing, or grading on coastal wetlands is not prohibited adjacent to Type 3 Waters under CRMP § 1.3.1(B), as the Applicant is not aware that the subject salt marsh is designated for preservation (CRMP § 1.3.1(B)(2)(b)).

CRMP § 1.3.1(L)(3)(c) – alterations to coastal wetlands not designated for preservation adjacent to Type 3 Waters are prohibited unless: the alteration accommodates a designated priority use, all reasonable alternatives have been examined, the Council has determined that the selected alternative is the most reasonable, and the alteration has been minimized.

CRMP § 1.3.1(M)(2)(a) – the construction of new public transportation facilities in tidal waters and on coastal features is prohibited (with exceptions for manmade shoreline but not for coastal wetlands).

CRMP § 1.3.1(G)(3)(c) – the filling on a coastal feature or tidal waters beyond that which is consistent with CRMP § 1.3.1(G)(5)(a) (where coastal feature equals the subject coastal salt marsh).

The need for RIDOT to request Special Exceptions is predicated on the required abutment realignment at the Palmer River due to the presence of an existing utility pole that RIDOT understands cannot be relocated and which supports electric and communications lines. The proposed southerly abutment shift allows for Bike Path re-alignment to avoid the utility pole and further accommodates the proposed launching pad that is necessary to assemble the bridge and push the spans onto the center pier. The proposed abutment, retaining wall, and riprap scour protection will result in permanent displacement of salt marsh fringe ( $\pm 489$  sf), while the wall footing excavations ( $\pm 362$  sf) and area for worker access ( $\pm 126$  sf) will result in temporary salt marsh disturbances. The Bike Path alignment has been sited as far north as feasible towards the utility pole, and the use of a retaining wall will further minimize the lateral extent of encroachment into the salt marsh (CRMP § 1.1.8(A)(2)). The supplemental riprap proposed in the saltmarsh fringe will extend seaward only to existing stone limits. Wetland mitigation is proposed in excess of a 2:1 ratio, and the launching method and proposed two-span bridge design have been proposed to reduce in-water work activities, while providing a viable method to construct the bridge in the presence of the overhead utility lines. Early alternatives sited the temporary launching pad on the east side of the Palmer River, but unavoidable temporary encroachment into the extensive salt marsh abutting Type 1 Waters would have been required, and machinery access to the launching area would have resulted in conflicts with users of the Bike Path detour. The location sited for the abutment shift and temporary launching pad are believed to be positioned in a location that represents the least environmental damaging practicable alternative (CRMC § 1.31.8(A)(3)) and which causes the least disruption to the public.

In consideration of CRMP § 1.1.8(A)(1)(a-c), the Project is believed to serve a compelling public purpose and provides benefits to the public as a whole. The activity will restore actively used public infrastructure associated with a public transportation facility. 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.

### 5.1.6 CRMP § 1.1.9 – Setbacks

Based on VHB’s understanding of a conversation held with CRMC permitting staff (*pers. comm.*, March, 8, 2023), 50-foot setbacks, as measured from the inland edge of coastal features apply to the Project. Due to the nature of Project activities as being shoreline dependent and to the work area as being linear and surrounded by shoreline features, work is unavoidably proposed in setbacks. Accordingly, a variance to the setback standard is respectfully requested by RIDOT, in accordance with CRMP § 1.1.7, as addressed in Section 5.1.4 above.

### 5.1.7 CRMP § 1.1.10 – Climate Change and Sea Level Rise

A coastal hazards assessment has been completed for each proposed bridge in accordance with CRMP §§ 1.1.10(A)(4) and 1.1.6(l), and results of the analyses and an accompanying summary memorandum are presented in **Appendix E**. Analyses of sea level rise and coastal inundation relative to the Project have been accomplished using the Stormtools online mapping tool (RI CRMC, 2021).

The Applicant acknowledges the policies in Section 1.1.10(A). The Applicant has reviewed the effective FEMA flood maps (07/07/2014) and the 1% annual chance storm event with 10 feet of sea level rise and has determined that this scenario would have an impact over the 75-year useful life of the new construction elements.

The following Project elements will be located within a FEMA AE flood zone.

- › New construction at all four bridge approaches, with the exception of the highest elevations of the Bike Path bridge approaches.
- › Although the footprints of the bridges are located within the mapped AE flood zone, the bridge superstructures will be elevated above the upper flood limits, such that the bridge decks will be at 16 feet (Barrington River) and 14.2 feet (Palmer River).

Based on a sea level rise assessment using Stormtools, limited Project elements will be impacted by projected future sea level rise scenarios. Within the next 75 years, 10 feet of sea level rise will impact lower portions of the new bridge abutments. During a 1% annual chance storm with 10 feet of sea level rise, structures that were once otherwise protected will be impacted by floodwater. At the Barrington River west approach and the Palmer River east approach, the storm surge elevation (Stormtools Design Elevation) ranges from approximately 25-27 feet. The new bridge structures will be elevated above the base flood elevation (13 feet), but the Bikeway may continue to experience flooding, as it likely would along much of its coastal route.

Coastal erosion at the project site near the Barrington River is approximately 0.13 feet per year. Along the Palmer River, the project site has not experienced erosion.



### 5.1.8 CRMP § 1.1.11 – Coastal Buffer Zones

Based on VHB’s understanding of a conversation held with CRMC permitting staff (*pers. comm.*, March 8, 2023), coastal buffer zones will not be regulated for the Project. Native woody plantings will be installed as part of the Project, where site conditions allow, to revegetate areas disturbed as part of Project activities.

### 5.1.9 CRMP § 1.1.12 – Fees

CRMC fees are not assigned to RIDOT projects. Although no fee is required for this application, the “Statement of Disclosure and Applicant Agreement as to Fees” form has been signed by RIDOT and included as part of the application, based on informal conversation with CRMC permitting staff.

## 5.2 CRMP § 1.2 – Areas Under Council Jurisdiction

### 5.2.1 CRMP § 1.2.1(B) – Type 1 Conservation Areas

Type 1 Conservation Areas are associated with the Project only at the northeast quadrant of the Palmer River Bridge, as described in Section 3.2 above and as depicted on the Project site plans. The Project proposes no new encroachment into Type 1 Waters, but abutment replacement work and installation of new riprap as abutment scour protection within the footprint of existing riprap will occur at the fringes of Type 1 Waters. Elevation of the Bike Path surface, as required to transition to the heightened bridge elevation, will not impact the adjacent coastal embankment or salt marsh abutting Type 1 Waters, and stormwater runoff generated by Bike Path surfaces will be managed and treated by methods that will avoid point discharges. A former Project alternative for siting the bridge launching pad on the east approach would have resulted in temporary encroachment into the expansive salt marsh abutting Type 1 Waters, but the alternative was abandoned. It is the Applicant’s intention that proposed Project activities have been designed to be consistent with the Council’s Policies for Type 1 Waters.

### 5.2.2 CRMP § 1.2.1(C) – Type 2 Low Intensity Use Waters

The tidal waters of the Barrington and Palmer Rivers upriver of the bridges are identified as Type 2 Low Intensity Use Waters, as previously described in Section 3.2 above. Proposed Project activities are believed to be consistent with the Council’s Policies for Type 2 Waters, as further described in the narrative sections that address CRMP § 1.3 below. Proposed riprap installation in Type 2 Waters as required for bridge abutment protection constitutes structural shoreline protection and may be permitted if no adverse impact to coastal resources can be demonstrated. The reconstructed bridges will improve navigation opportunities in both rivers due to widened spans and increased vertical clearances and will restore the Bike Path mainline for continued recreational public use. The CRMP recognizes the Palmer River as a poorly flushed estuary. The project will result in no new stormwater point discharges, and stormwater runoff associated with the Project will be managed and treated in accordance with the Stormwater Rules at 250-RICR-150-10-8 (and in accordance with the federal Consent Decree between the USEPA, RIDEM, and RIDOT). Measures taken to ensure that the project is compatible with the scenic quality of the area, in accordance with CRMP § 1.3.5, are described in

Section 5.3.8. With respect to CRMP § 1.2.1(C)(2)(G), all pre-existing public uses on the Bike Path bridges and their modified approaches are expected to be maintained.

### 5.2.3 CRMP § 1.2.1(D) – Type 3 High Intensity Boating Waters

The tidal waters downriver of each bridge are identified as Type 3 High Intensity Boating Waters, as previously described in Section 3.2 above. Although this water type is associated with marinas and high boating activity, many of the protective attributes identified in the Council's policies for Type 2 Waters are presumed to apply to Type 3 Waters, as discussed in the January 6, 2023, CRMC pre-application meeting. Perhaps of most importance to boating, the proposed single center pier for each replacement bridge will eliminate the need for multiple pile bents that otherwise would cause in-water obstructions, as is currently inherent in the existing timber bridges. The proposed bridge span widths and vertical clearances will match and exceed the existing Route 114 bridge clearances, resulting in enhanced conditions for recreational boating. And, although not listed as a priority use, the Bike Path has been a long-standing, and heavily used, public resource directly abutting Type 3 Waters.

### 5.2.4 CRMP § 1.2.2(A) – Coastal Beaches

The linear beach on the north side of the Bike Path's west approach to the Palmer River, as identified in Section 3.8.3, will not be altered as part of proposed bridge reconstruction activities. Its western terminus, however, is proposed to be temporarily altered for construction of the temporary bulkhead and access road to be permitted as part of the demolition activities. A restoration plan has been provided as part of this Category B application, and the beach will be fully restored once the temporary bulkhead is no longer needed and has been removed.

A small area of compacted sand and gravel that perhaps could be considered a coastal beach is proposed to be mechanically loosened and planted with native smooth cordgrass as mitigative salt marsh replication and restoration. CRMP § 1.2.2.(A) does not prohibit alterations on beaches adjacent to Type 3 Waters, and the purpose of the alteration is to preserve or enhance the area as a natural habitat for native plants and wildlife. RIDOT is proposing the salt marsh replication and restoration as a salt marsh enhancement to expand the existing salt marsh vegetation.

### 5.2.5 CRMP § 1.2.2(C) – Coastal Wetlands

The unavoidable salt marsh encroachment proposed on the south side of the Bike Path's west approach to the Palmer River borders Type 3 Waters. In accordance with the Policy listed at CRMC 1.2.2.(C)(1)(f), salt marshes adjacent to Type 3 Waters that are not designated for preservation may be altered if the alteration is made to accommodate a designated priority use, if the Applicant has examined all reasonable alternatives, the Council has determined that the selected alternative is the most reasonable, and the alteration has been minimized. The Applicant is not aware that the salt marsh has been designated for preservation. Although the East Bay Bike Path does not appear to be a priority use for Type 3 Waters, it does appear to be a priority use for Type 2 Waters, and it lies at the interface of the two water types. Additionally, it represents a long-standing public use abutting Type 3 Waters. The salt marsh to be encroached upon was previously altered in its entirety to accommodate the temporary road shift when the Route 114 bridge was replaced. Temporary and permanent displacements are proposed, and each will be limited to a narrow strip along the northern, transitional fringe of the salt marsh, and to a sparse fringe of low salt marsh where riprap scour protection is required. Replication and restoration are proposed as mitigation in accordance with CRMP § 1.3.1(L).

The reasons for selection of the alternative that causes the salt marsh displacement and descriptions of the methods employed to minimize salt marsh encroachment are discussed in Section 4.7. Assuming that the Project is considered a priority use, then the activity is assumed not to be a prohibited activity under CRMP § 1.2.2.(C). However, the proposed salt marsh displacement appears to be a prohibited activity under CRMP § 1.3.1(B)(2)(a) – Filling, Removing, or Grading of Shoreline Features – and, therefore, will require a Special Exception, as addressed above under Section 5.1.5.

### 5.2.6 CRMP § 1.2.2(F) – Manmade Shorelines

The Council's Policies under CRMP § 1.2.2.(F) strive to maintain structures that effectively mitigate erosion and/or sustain landforms adjacent to tidal waters. The existing bridge abutments and riprap scour protection measures are in various states of disrepair due to age. The Project proposes to replace each existing bridge abutment with concrete walls on concrete footings to not only support the reconstructed bridges but to effectively resist the erosive forces of tidal currents and wave action. Each bridge abutment will then be protected by riprap for a distance calculated based on the forces expected to be present at each location. The riprap armor will transition into the existing protective stone where currently present on the causeway embankments to prevent gaps in shoreline protection.

### 5.2.7 CRMP § 1.2.3 – Areas of Historic and Archaeological Significance

Areas of historic and archaeological significance are not known to be present in the Project area. As described in Section 2.3.2 above, procedures for complying with Section 106 of the National Historic Preservation Act of 1966 were followed for the Project, and FHWA issued a finding of No Adverse Effect on February 15, 2022 (**Appendix G**).

Regarding Section 4(f) of the USDOT Act of 1966, the property on which the Project is proposed is exempted, as further described under Section 2.3.3 above and as documented in **Appendix H**.

## 5.3 CRMP § 1.3 – Activities Under Council Jurisdiction

### 5.3.1 CRMP § 1.3.1(A) – Category B Requirements

The Category B written requirements specified in the CRMP are italicized below, and the Applicant's responses follow in non-italicized text.

*The requirements herein for a Category B Assent are necessary data and information for the purposes of federal consistency reviews. All persons applying for a Category B Assent are required to:*

- a. *Demonstrate the need for the proposed activity or alteration.*

The existing trestle bridges over the Barrington and Palmer Rivers, repurposed for Bike Path use from their former rail-line function, have deteriorated to the extent that RIDOT had to close the bridges to the public in 2019. In recognition that the East Bay Bike Path is such a heavily utilized, public, recreational asset, RIDOT constructed a temporary detour route around the closed bridges on local and state surface roads as a means to continue providing continued use of the public Bike Path resource. Replacement of the closed bridges will allow the Bike Path mainline to be reopened and the temporary detour route to be removed. Consequently, portions of public sidewalks on Route 114, New Meadow Road, and Sowams Road that currently accommodate the mixed-use

temporary detour and temporary Bike Path boardwalks can be restored to their former and intended function and configuration. The detour route was authorized by CRMC as a temporary condition under Assent No. 2021-05-059.

- b. *Demonstrate that all applicable local zoning ordinances, building codes, flood hazard standards, and all safety codes, fire codes, and environmental requirements have or will be met; local approvals are required for activities as specifically prescribed for nontidal portions of a project in §§ 1.3.1(B), (C), (F), (H), (I), (K), (M), (O) and (Q) of this Part; for projects on state land, the state building official, for the purposes of this section, is the building official.*

The Project proponent is RIDOT, and RIDOT's State Licensed Professional Engineering consultants have designed all Project component's that require a RI-licensed Professional Engineer's stamp. Where relevant, the licensed professionals adhered to accepted engineering standards, and they certify that the designs are of sound engineering practice. Consultations with state and federal regulatory authorities having jurisdiction over the Project were held to ensure that bridge clearances, spans, and alignments conform with applicable regulatory guidelines and law. Local zoning ordinances are not applicable to RIDOT actions. An overview of agency consultations and permit requirements for the Project are outlined in Chapter 2 above.

- c. *Describe the boundaries of the coastal waters and land area that is anticipated to be affected.*

The Project Area includes the east and west approaches of both rivers as well as limited portions of tidal waters between each set of bridge abutments. The boundary of proposed work activities in tidal waters will essentially be limited to the footprints of the existing bridges, with an adjacent work area sufficient to accommodate work and support barges, and to the seaward radius specified on the Project plans around the proposed new abutments to accommodate riprap scour protection. The CRMC regulated coastal features subject to proposed work activities comprise manmade shoreline, coastal embankment, coastal wetland, and coastal beach. Land-based activities associated with transitioning the elevated bridges into the existing Bike Path surface and constructing the temporary bridge launching pads will be located on manmade causeways and within CRMC's regulated 200-foot Contiguous Areas. Narrative Chapter 4 above provides further description of proposed Project activities and of tidal and land areas to be affected.

- d. *Demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters.*

No evidence of significant erosion was observed in the bridge abutment areas, despite the strong tidal currents present at each bridge location. Stone armor was typically present in the existing abutment areas and along each side of the causeway termini. Riprap scour protection will be installed at each abutment to infill stone currently present. No appreciable change in shoreline configuration is proposed at either bridge, so changes in tidal erosion and deposition processes are not expected as a result of the Project. The replacement abutments will be set slightly landward of the existing abutments so as not to constrain ebb and flood tidal flows.

- e. *Demonstrate that the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life.*

Given that the bridge reconstructions and Bike Path transitions will occur primarily within the existing, disturbed Bike Path footprints, general impacts to the abundance and diversity of flora and fauna are not expected. The proposed single pier configuration of the bridges is anticipated

to be a positive attribute for both rivers and for the passage of estuarine and marine vertebrates. The proposed narrow displacement of salt marsh fringe primarily encroaches landward of the smooth cordgrass present and is not expected to impact salt marsh functions, such as serving as a nursery for fisheries species. Mitigation for the unavoidable salt marsh displacement will occur at a ratio well in excess of 2:1 and is proposed as salt marsh replication and restoration to compensate for any potential loss of salt marsh function and to enhance an existing salt marsh community. All earthen materials brought onto the Project site for use in Project earthwork will be clean, native material free of contaminants. Provisions are provided in the Project for awareness and entanglement prevention of the state endangered northern diamond-backed terrapin. Surveys for bat presence under the existing bridges were conducted during the active season and yielded negative presence, such that impacts to the federally endangered NLEB are not anticipated.

- f. *Demonstrate that the alteration will not unreasonably interfere with, impair, or significantly impact existing public access to, or use of, tidal waters and/or the shore.*

The Project purpose is to restore and encourage public use of the East Bay Bike Path, which provides views of tidal waters and the shoreline. The existing Bike Path does not provide direct access to tidal waters, *per se*, but does provide linkages to shoreline access points. The bridge reconstructions will result in no change in access to tidal waters or to shoreline features and will not interfere with such public access or uses.

- g. *Demonstrate that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation.*

The proposed Project will maintain the same tidal flow patterns, with no appreciable changes in shoreline configuration. The proposed reconstructed abutments at each bridge will be set slightly landward of the existing abutments, ensuring that the full channel widths at causeway openings are maintained, thus alleviating further constriction at the bridges. The west abutment at the Palmer River bridge will be shifted southerly, but the shift will be parallel to the flow path, with no anticipated effect to circulation patterns. The proposed center piers will represent a significant reduction in the number of bridge support piles in tidal waters, as compared to the previous trestle-style bridges. The elimination of such in-water obstructions may facilitate circulation and flushing to a small degree. The reconstructed bridges will not be generators of turbidity and sedimentation. River bottom substrates are relatively coarse under the bridge alignments, and micropile drilling methods will capture sediment fines generated during the operation, such that significant turbidity and sediment deposition is not expected during construction activities.

- h. *Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM.*

The Project will not be a generator of stormwater pollutants, and no appreciable change in the area of impervious surfaces is proposed, as the Project is a replacement of the existing Bike Path Bridges. Treatment of precipitation falling on the bridges will not be possible, so runoff from fifty percent of an equivalent area of Bike Path surface, plus replaced Bike Path pavement, will be managed and treated in accordance with RIDEM's Stormwater Rules. Proposed stormwater management features will be LID infiltration systems, with no point discharges. Consequently, the means or routes by which runoff reaches tidal waters will either remain the same or will be lessened.

Earthen material brought into the site will be clean and free of contaminants, and impacted soils to be excavated will be lawfully handled in accordance with RIDEM LRSMM protocols. Furthermore, proper erosion and sedimentation controls will be installed prior to the commencement of construction and are to be properly maintained throughout the duration of construction. A RIDOT Small-Site SWPPP has been prepared for the Project and will be implemented through construction completion.

- i. *Demonstrate that the alteration or activity will not result in significant impacts to areas of historic and archaeological significance.*

RIDOT CRU has appropriately investigated the potential for cultural resources under Section 106 of the National Historic Preservation Act of 1966, as amended, and FHWA Finding of No Adverse Effect on February 15, 2022 (**Appendix G**). Please see Sections 2.3.2, 2.3.3, and 5.2.7 above for additional information.

- j. *Demonstrate that the alteration or activity will not result in significant conflicts with water dependent uses and activities such as recreational boating, fishing, swimming, navigation, and commerce.*

The Project will open the river channels with single piers and significantly widened spans and vertical clearances, thereby improving conditions for recreational boating and navigation. Commerce is believed to be absent in the rivers, and swimming likely is not a prevalent water dependent recreational use at the bridges, given the severity of currents on incoming and outgoing tides. The Project will not prevent fishing from the new bridges and will maintain fishing access from the bridge abutments, shoreline, and recreational boats.

- k. *Demonstrate that measures have been taken to minimize any adverse scenic impact (see § 1.3.5 of this Part).*

The proposed bridge spans will be approximately 150 feet in length, affording open water views and significantly less water contact and visual obstruction than the previous trestle-style bridges. They will be raised to match or exceed the vertical clearances of the Route 114 bridges over central portions of the river channels and will have a slight arch, adding to their visual quality. Their style, materials, and treatment will be modern in appearance and intended to be visually appealing. Stone riprap to be installed on the seaward side of the bridge abutments will be native material and is expected to blend with the shoreline, resembling the stone comprising the current manmade shorelines. To help naturalize the bridge approaches, native, seaside-tolerant shrubs and low trees will be planted where not in conflict with proposed stormwater management features.

### 5.3.2 CRMP § 1.3.1(B) Filling, Removing, or Grading of Shoreline Features

The Project will generally conform with the Council's Policies outlined in CRMP § 1.3.1(B). An erosion and sediment control plan and RIDOT Small-Site SWPPP have been prepared for the entirety of the Project, consistent with the Policies and standards of CRMP §§ 1.3.1(B)(1)(c and d), the RISESCH, and RI Stormwater Rules. With respect to Category B thresholds outlined at CRMP § 1.3.1(B)(1)(f), proposed Project activities will require the excavation and/or filling of less than 10,000 cubic yards of material, will occupy significantly less than two acres, and will not be associated with areas designated as being historic or as being archaeologically sensitive.

The proposed permanent salt marsh fills required to realign the Bike Path's west approach at the Palmer River appears to constitute a prohibited activity under CRMP § 1.3.1(B)(2)(a) and will require a Special Exception. A description of the activity is provided under Section 4.7, and the need for the alteration and a request for granting a Special Exception under CRMP § 1.1.8 are contained in Section 5.1.5.

A significant amount of slope work has been avoided via use of retaining walls to transition the Bike Path into the elevated bridge abutments. To create the elevated approach and temporary launching pad at the Barrington River, the retaining walls will generally enable the slopes to be cut, in lieu of filling, in conformance with CRMP § 1.3.1(B)(3)(a)(6), except for those proposed on the south side of the east approach, as discussed in Section 4.7. At the Palmer River, construction of the temporary launching pad and elevated Bike Path approach will require filling over the causeway embankment, but the construction of proposed retaining walls that necessitate the fills will minimize encroachment into the adjoining salt marsh. The affected slopes at the Barrington and Palmer River approaches exceed 15 percent, such that the standard under CRMP § 1.3.1(B)(3)(e)(1)(AA) cannot be met. The causeway slopes at the Barrington River approach are entirely stone (CRMP § 1.3.1(B)(3)(e)(1)(CC)). Those at the Palmer River approach are vegetated, but the modular block wall and fills associated with the temporary launching pad extension will be removed, and the slope will be restored and replanted with native woody species. The Applicant assumes that a variance will be required for the proposed embankment fills, consistent with CRMP § 1.1.7, and is respectfully requesting a variance under Section 5.1.4.

The statements in this paragraph are offered as a summary of general compliance items for the Policies and Standards of CRMP § 1.3.1(B). Sediment protection for earthen surfaces that will become temporarily exposed as part of the Project will be implemented as indicated on the Project plans and in the RIDOT Small-Site SWPPP, and final surface treatments will be applied immediately upon completion of the Project element that necessitated the soil exposure. No materials other than the final surface treatments are to be placed or deposited on coastal features or in tidal waters, no materials are to be stored on coastal features, and all materials used in construction are to be clean and free of potential pollutants. The underlying soil material is presumed to be impacted, so appropriate regulatory protocols will be followed for impacted materials handling, testing, transporting, and disposal under the auspices of RIDEM LRSMM and in accordance with applicable federal and state regulations. The need to dewater tidal "groundwater" intrusion during construction of the bridge abutments is anticipated, and pumping and sediment retention will occur in general conformance to the standard listed at CRMP § 1.3.1(B)(3)(d)(5). The concrete type to be used for casting the bridge abutments and retaining walls will conform to CRMP § 1.3.1(B)(3)(c)(7) to guard against salt spray deterioration over time and is expected to be Type II air entrained Portland cement. Filling, removing, or grading of Shoreline Features is not proposed at any location not shown on the Project plans or identified in this narrative.

### 5.3.3 CRMP § 1.3.1(F) – Treatment of Sewage and Stormwater

Stormwater management facets of the project are addressed above under the respective Project work areas described in Section 4. The stormwater designs for the entirety of the Project comply with the RI Stormwater Rules at 250-RICR-150-10-8. On-site wastewater treatment systems are not proposed as part of the Project.

Prohibited activities under CRMP § 1.3.1(F) are not proposed for the Project, and all standards pertaining to stormwater management are expected to be met. In accordance with CRMP §§ 1.3.1(F)(4)(b and c), the Project conforms with the RI Stormwater Rules, proposes only infiltrating stormwater management features, controls post-construction runoff, and uses only LID techniques – with point source discharges. With respect to CRMP § 1.3.1(F)(4)(e), the Project proposes the reconstruction of existing bridges and new elevated Bike Path transitions assumed to be subject to CRMP § 1.3.1(M). Accordingly, treatment and management of stormwater runoff for all new impervious surfaces, including the proposed bridge structures, is provided for in the Project design. A Stormwater Management Plan (**Appendix V**, bound separately) has been prepared specific to the Project to address each bridge location and to demonstrate compliance with the RI Stormwater Rules. A long-term Stormwater Operation and Maintenance (O&M) Plan (**Appendix W**, bound separately) accompanies the Stormwater Management Plan, and a RIDOT Small-Site SWPPP (**Appendix X**, bound separately) has been prepared specific to the Project.

In accordance with CRMP § 1.3.1(F)(4)(g), the stormwater management designs incorporate sound practices to avoid potential impacts associated with the discharge of stormwater runoff into the coastal environment. No point source discharges are proposed, and required volumes of stormwater runoff to be generated by the bridges and paved surfaces to be modified will be directed to infiltrating LID features. Consequently, adverse effects to coastal wetlands and tidal waters concerning salinity, temperature, and dissolved oxygen are not anticipated.

#### 5.3.4 CRMP § 1.3.1(G) – Shoreline Protection

The applicant acknowledges the Council's Policies and notes that the Council prefers nonstructural shoreline protection methods over hybrid and structural measures. Due to the flow characteristics at each bridge, and in consideration of the stone protection at the existing abutments, RIDOT feels it prudent to propose structural shoreline protection at the bridge abutments and contiguous shorelines as part of the reconstruction. Engineering calculations demonstrate that structural measures are required to adequately protect the bridge abutments and adjacent shorelines against the velocity of tidal currents and against wave erosion. The proposed stone will bolster the protection currently present and will bring the level of protection where currently inadequate to the standards of sound engineering practice.

The seaward limits of the proposed riprap abutment and shoreline protection have been kept as far landward as feasible based on engineering calculations in consistency with CRMP §§ 1.3.1(B)(3)(c) and (B)(5)(a). However, the unavoidable encroachment into salt marsh fringe on the west side of the Palmer River to install riprap scour protection is required, and therefore is a prohibited activity that requires a Special Exception under CRMP §§ 1.3.1(B)(3)(c), as it pertains to CRMP §§ 1.3.1(B)(5)(a). Accordingly, the Applicant is respectfully seeking a Special Exception under CRMP §§ 1.1.8 as described under Section 5.1.5.

With respect to the additional Category B requirements listed for structural shoreline protection at CRMP § 1.3.1(G)(4)(b), the Applicant offers the information provided below. Although this CRMP section may traditionally be intended for remedies to currently eroding shorelines, shoreline protection is relevant to this Project to sustain and provide adequate protection for bridge abutments that support a long-standing public recreational use. The seven items specified under CRMP § 1.3.1(G)(4)(b) are addressed individually below.



- (1) *An erosion hazard exists due to natural erosion processes and the proposed structural shoreline protection has a reasonable probability of controlling this erosion problem;*

The setting of the bridges at constricted causeway openings creates strong tidal currents that would likely cause an erosion hazard if shoreline protection were absent. Large stone currently armors most of the shoreline around the abutments to protect them from scour and resultant structural instability. The existing stone protection appears to have alleviated erosion where present in sufficient quantity and at proper elevation ranges. Where stone is absent or insufficient, undercutting and slumping of the coastal embankment is evident. The proposed stone will have a high probability of sustaining current erosion prevention measures and at controlling erosion where current protective measures appear to be insufficient.

- (2) *Nonstructural and hybrid shoreline protection has not worked in the past or will not work in the future because these methods are not suitable for the present site conditions;*

RIDOT is not aware that nonstructural or hybrid solutions have been attempted in the past, but engineering calculations and field observation of current velocities strongly indicate that structural shoreline protection measures are required. RIDOT considers any solution other than structural means (i.e., properly sized stone riprap) to be inconsistent with sound engineering practice, given present site conditions.

- (3) *There are no practical or reasonable alternatives to the proposed activity such as the relocation of existing structures that mitigate the need for structural shoreline protection;*

The Project purpose is the reconstruction of the deteriorating Bike Path bridges, so eliminating or relocating the abutments is not feasible under a Build Alternative. The proposed abutment locations have been set slightly landward of their current locations. Structural shoreline protection would be necessary at the causeway termini regardless of the presence of the bridge abutments – to adequately protect the shoreline.

- (4) *The proposed structure is not likely to increase erosion or disrupt shoreline sediment dynamics that sustain adjacent natural shoreline features, or adversely affect the stability of the shoreline on either side of the project;*

The proposed structural shoreline protection is designed to prevent erosion, and no appreciable change in shoreline configuration due to the stone installation is proposed. Consequently, RIDOT does not anticipate that erosion will increase and that shoreline sediment dynamics will be disrupted. Structural shoreline protection is proposed at the termini of elevated causeway segments that project into each river, so any changes in shoreline sediment dynamics that could occur would likely be inconsequential and would not affect up- or downriver shorelines, or properties.

- (5) *Omitted in CRMP § 1.3.1(G)(4)(b).*

- (6) *Describe the long-term maintenance program for the structure including storm damage, the ability to rebuild the structure following storm damage and financial commitments to pay for said maintenance;*

The angular stone that will comprise the proposed structural shoreline protection has been sized to withstand tidal currents, flooding, and wave action, such that maintenance and the need to reset or replace the stone is not anticipated. The Project is proposed by the State of Rhode Island, currently

with federal funding assistance, so financial commitments for repair or replacement work that may be needed in the future would be initiated at the State and Federal levels.

- (7) *New structural shoreline protection shall be designed and certified by a registered professional engineer; and*

The proposed riprap bridge abutment and shoreline protection have been designed, calculated, and certified by a registered professional engineer. The stamped calculations are provided in **Appendix S**.

- (8) *Describe all likely impacts that the structural shoreline protection may have on the continued public lateral beach access. If lateral public access will be impacted at any time, a lateral public access plan shall be provided, except where preempted by federal law (e.g., U.S. Coast Guard Maritime Security (MARSEC)).*

The structural shoreline protection proposed for bridge abutment scour protection and slope stability will not be installed adjacent to a public beach and is expected to have no adverse effect on shoreline access in general. The stone protection may serve as shoreline fishing locations for saltwater anglers.

The applicable standards listed at 1.3.1(G)(5) are expected to be met. Riprap will comprise angular stone with a minimum unit weight of 165 pounds/cubic foot, and stone sizing has been calculated in believed consistency with the USACE Coastal Engineering Manual. The FHWA HEC-23 guidance document (“Bridge Scour and Stream Instability Countermeasures: Experience, Selection and Design Guidance”) and HEC-25 (“Highways in the Coastal Environment”) have been used for riprap sizing and design. Designs for the proposed stone riprap abutment protection are included in the Project plan set stamped by a RI-registered professional engineer.

### 5.3.5 CRMP § 1.3.1(J) – Filling in Tidal Waters

The Project requires the installation of stone rip in Type 2 and 3 tidal Waters as essential scour protection for the bridge abutments and contiguous shorelines. In accordance with the Council’s Policies listed at CRMP §§ 1.3.1(J)(1)(b-d), the Applicant considers the riprap installation to be sound engineering practice necessary to protect the bridge abutments and contiguous shorelines and to be incidental to bridge reconstruction and shoreline protection. The lateral extent of filling has been limited to that necessary to adequately protect the abutment structures and contiguous shorelines from tidal forces and wave energy and is essential to the protection of the public Bike Path resource. The area and volume of proposed riprap installation in tidal waters at each bridge is presented in **Tables 4-1 and 4-2**. It is the Applicant’s understanding that riprap installed for the purpose of protecting shoreline features is not considered Filling in Tidal Waters, but instead falls under CRMP § 1.3.1(G) – Shoreline Protection.

Installation of new bridge piles generally is not considered fill under Section 404 of the Clean Water Act, and it is the Applicant’s understanding that installation of the proposed micropiles to construct the center piers does not constitute filling in tidal waters under the CRMP. Furthermore, the removal of numerous pile bents in the demolition portion of the contract will remove in-water obstructions, as quantified in **Table 4-1**.

### 5.3.6 CRMP § 1.3.1(L) – Coastal Wetland Mitigation

The Applicant believes that the proposed coastal wetland replication/restoration required to mitigate for unavoidable permanent salt marsh displacement along the Palmer River meets the policies, prerequisites, and standards of CRMP § 1.3.1(L). The coastal wetland mitigation plan is being filed concurrently with this Category B application (CRMP § 1.3.1(L)(1)(f)). The permanent displacements are being proposed at two locations within the same Project site – within the same coastal wetland and directly across the same river – while temporary displacements will be restored to their pre-existing characteristics immediately following temporary fill removal (CRMP §§ 1.3.1(L)(1)(i and j)). The selected mitigation sites will enable the replication/restoration to occur prior to, or concurrent with, the salt marsh displacement (CRMP § 1.3.1(L)(1)(h)), as may be dictated by the planting season. The mitigation areas have been selected for their location relative to the alteration, for their similar topographical elevations, similarity in tidal inundation, similarity in smooth cordgrass and saltmeadow cordgrass composition, and ability to enable replication/restoration of each low and high salt marsh component (CRMP § 1.3.1(L)(5)(a)(1)). The ratio of wetland proposed for mitigation to that proposed to be permanently displaced is approximately 5.8:1, well in excess of the 2:1 ratio required under CRMP § 1.3.1(L)(5)(a)(2).

Alteration of coastal wetlands adjacent to Type 3 Waters and not designated for preservation is a prohibited activity under CRMP § 1.3.1(L)(3) and requires a Special Exception, unless the alteration accommodates a priority use, alternatives have been carefully examined, the council determines that the selected alternative is the most reasonable, and the alteration is the minimum necessary. Although the proposed alteration borders Type 3 Waters, the Bike Path lies at the interface of Type 2 and 3 Waters and could potentially be considered a priority use for Type 2 Waters, or at least a long-standing public use abutting Type 3 Waters. The alteration is the minimum necessary and occurs along the salt marsh fringe and is required to support the reconstruction of a recreational, public transportation resource. Despite this reasoning, RIDOT is applying for a Special Exception under CRMP § 1.1.8 in the event the Council determines that one should be required. Also, although the proposed coastal wetland mitigation will occur in wetlands that were previously altered and recreated (not mitigated), the mitigation is proposed to maintain and enhance the recreated wetlands (CRMP § 1.3.1(F)(3)(e)).

### 5.3.7 CRMP § 1.3.1(M) – Public Roadways, Bridges, Parking Lots, Railroad Lines, and Airports

Reconstruction of the deteriorated Bike Path bridges, including construction of new center support piers and shoreline abutments are the key elements of the Project. The proposed reconstructions will generally occur within the alignment of the existing bridge abutments, but the west abutment at the Palmer River bridge must be shifted southerly to avoid conflicts between bridge launching methods and an existing utility pole that must remain in place. The Project conforms with the policies of CRMP §§ 1.3.1(M)(1)(a and c), with the exception of unavoidable encroachment along the northern fringe of salt marsh due to the Palmer River abutment realignment. Adverse effects to the salt marsh's functions and values are not anticipated, as addressed in other sections of this narrative, but the Applicant assumes that a Special Exception will be required for the unavoidable encroachment. With respect to other prohibitions, the bridges will nearly clear span tidal waters, and bridge abutment reconstruction may be permitted on manmade shorelines, subject to the requirements of CRMP § 1.2.2(F). Although the installation of center piers is required in tidal waters, the reduction in pile bents to one greatly

reduces in-water obstructions as compared to the existing trestle bridges. The abutments are located at the termini of manmade causeways and are typically set in armor stone meeting the definition of manmade shoreline (CRMP § 1.2.2(F)). The Project meets applicable standards for stormwater management at CRMP § 1.3.1(F) and for erosion prevention and sediment retention at CRMP § 1.3.1(B). The Applicant assumes that the standard for permeable surface treatments on the Bike Path surface does not apply, because the Project is not a surface roadway or parking lot.

### **5.3.8 CRMP § 1.3.5 – Policies for the Protection and Enhancement of the Scenic Value of the Coastal Region**

The Project's proposed elements have been designed consistent with the Council's General Policies listed under CRMP § 1.3.5. Given that the proposed bridges are replacements of existing bridges, the visual impact associated with otherwise new structures will be avoided. The proposed bridge designs, materials, and treatments are intended to be visually compatible with the coastal setting, and the heightened bridge elevations and slightly arched spans are expected to enhance visual quality. The designs intentionally incorporate a single pier for each bridge not only to reduce environmental effects and improve navigation, but to minimize visual obstructions and decrease visual impact. The causeway landforms and skylines will remain unimpacted by the Project as viewed from neighborhoods, the Route 114 bridges, and the water, with only subtle modification due to heightening of the Bike Path bridge approaches and the bolstering of stone shoreline protection at the bridge abutments. The proposed stone will be native material intended to be visually compatible with the existing stone, and native, woody, salt tolerant plants will be planted where not in conflict with stormwater management features to soften the newness of construction and to enhance wildlife habitat resources and visual quality.

### **5.3.9 CRMP § 1.3.6 – Protection and Enhancement of Public Access to the Shore**

The proposed Project will restore a heavily used public recreational resource and will provide the same public transportation related shoreline access opportunities that were provided by the Bike Path prior to closure of the Barrington and Palmer River Bike Path Bridges. The proposed bridge reconstructions will allow the Bike Path mainline to function in the absence of detours around the bridges. Views outward from the reconstructed bridges towards local neighborhood settings, tidal waters, and abutting shorelines will be unimpeded by the Project and are expected to be enhanced by the higher bridge vantage points and elevated bridge approaches. Visual access to tidal waters and shorelines as viewed from up or downriver of the bridges from land or boat will be increased due to the expanded openness under the bridges as a result of the increased bridge heights and reduced number of pile bents.

Any pathways or other pedestrian shoreline access points used for sightseeing, fishing, or other recreational purposes that spur off the Bike Path along the causeways are expected to remain unaffected by the Project. The steep, narrow footpaths that currently provide access to the abutment areas of the bridges at the causeway termini will be affected by the elevated Bike Path bridge transitions and by the proposed installation of new riprap shoreline protection. Proposed retaining walls at the elevated transitions and the proposed armor stones will require creating new footpath routes commensurate with the tides, as is currently the case.



# 6

## Closing Summary Statement

RIDOT's proposed reconstruction of the East Bay Bike Path Bridge Nos. 083751 and 083851 over the Barrington and Palmer Rivers has been coordinated with applicable regulatory agencies and designed with the full intention of complying with all applicable regulations, goals, and policies. At a state level, State WQC applications are being filed concurrently with RIDEM's Office of Water Resources, and coordination with RIDEM's Division of Marine Fisheries will continue during the permit review process for potential modification of the TOYRs in recognition of the Project setting and type. Permitting coordination with RIDEM LRSMM regarding the known presence of impacted materials will remain ongoing as may be required through earth excavation activities. At a federal level, the Project meets RI General Permit eligibility for Pre-Construction Notification with USACE, and separate PCN applications will be filed for each bridge. Coordination will be maintained with the USCG, and a USCG Bridge Permit Application will be filed for the Barrington River Bridge (No. 083751).

For the reasons infused throughout preceding sections of this application narrative, RIDOT respectfully requests the Council's granting of the noted variances and Special Exceptions and the ultimate issuance of a Coastal Assent for the Project. Similarly, RIDOT respectfully requests the issuance of state Water Quality Certificates and federal Section 404 authorizations for each bridge.

This page intentionally left blank.



# 7

## References

Cowardin, Lewis M., Carter, Virginia, Golet, Francis C., and LaRoe, Edward T. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, USDI Fish & Wildlife Service, FWS/OBS-79/31. 1979.

Department of the Army General Permits for the State of Rhode Island and Lands Located within the Boundaries of the Narragansett Land Claim Settlement Area. Effective May 6, 2022.

Federal Emergency Management Agency (FEMA), Washington, D.C. Flood Insurance Rate Map (FIRM) for Bristol County Rhode Island. Map Number No. 44001C0007H, effective July 7, 2014.

Rhode Island Coastal Resources Management Council. Rhode Island Coastal Resources Management Program (650-RICR-20-00-01).

Rhode Island Department of Environmental Management. Environmental Resource Map. Accessed in February and March 2023 and available at:  
<http://ridemgis.maps.arcgis.com/apps/webappviewer/index.html?id=87e104c8adb449eb9f905e5f18020de5>.

Rhode Island Department of Environmental Management, Office of Water Resources. Rules and Regulations for Groundwater Quality (250-RICR-150-05-3).

Rhode Island Department of Environmental Management, Office of Water Resources. Water Quality Regulations (250-RICR-150-05-1).

Rhode Island Department of Environmental Management. State of Rhode Island 2018-2020 Impaired Waters Report. February 2021.

Rhode Island Department of Environmental Management. State of Rhode Island 2018-2020 Integrated Water Quality Monitoring and Assessment Report, Section 305(b) State of the State's Waters Report and Section 303(d) List of Impaired Waters. Undated.

Rhode Island Natural History Survey, Rare Native Animals of Rhode Island, Revised March 2006.

Rhode Island State Conservation Committee, Rhode Island Department of Environmental Management, Rhode Island Coastal Resources Management Council, Rhode Island Department of Transportation, and The University of Rhode Island. Rhode Island Soil Erosion and Sediment Control Handbook. 2016.

U.S. Department of Agriculture. Natural Resources Conservation Service. Web Soil Survey  
<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.