



To: Rhode Island Coastal Resources Management Council
Prepared by: RI Waterfront Enterprises
Date: July 16, 2021
Subject: South Quay Marine Terminal, East Providence, RI
Category B Assent Application

RI Waterfront Enterprises, LLC (RIWE) the owner and proponent of the proposed South Quay Marine Terminal (SQMT) Project located at 649 Waterfront Drive in East Providence, RI (hereinafter referred to as the Property), is pleased to submit this letter and accompanying documentation to the Rhode Island Coastal Resources Management Council (CRMC) as part of RIWE's CRMC Application for State Assent. Per State protocols, the following CRMC-required application components are attached to this transmittal letter:

0. Assent Application Checklist
1. Completed CRMC Application for State Assent Form.
2. Proof of Property Ownership.
3. Local (City of East Providence) Approval Letter.
4. Project Location Map.
5. Coastal Hazard Application Worksheet.
6. Site Plans, including:
 - a. Project Plans;
 - b. Cross-sections; and,
 - c. Details and Specifications.
7. This letter with our written response to the governing regulations
8. Soil and Erosion Control Plan.
9. Stormwater Management Plan Report.
10. Project Dredge Application and Sampling Data.
11. Abutting Properties Owners
12. Historical Resource Responses
13. Property Photographs
14. Wetlands Mitigation Plan.
15. United State Army Corps of Engineers (ACE) Section 408 Dredging Permit Application.
16. Project Basis of Design Report.

CRMP Rule 1.4.6(a)20, states “*Projects that are determined to be brownfield sites under applicable DEM Rules and Regulations (250-RICR-140-30-2) shall be assessed an application fee of five thousand dollars (\$5,000.00).*” The South Quay project has been determined to be a brownfield site under DEM Rules and Regulations (250-RICR-140-30-2), thus accompanying this application package is the application fee of \$5,000.

This RIWE correspondence was developed to address the requirements of the CRMC, as noted as Items 10, 11, 13, 14, and 15 of the checklist included in the CRMC Application for State Assent.

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PROJECT BACKGROUND

RIWE has initiated the process (e.g., design, data collection, permitting, etc.) of developing the SQMT into a state-of-the-art maritime port facility to serve the shipping, commodity transport, heavy-lift component transfer and marshalling industries. One of the potential user groups of the completed facility is the offshore wind (OSW) energy-development industry which is rapidly developing off of the U.S. East Coast. The OSW market has expressed particular interested in the SQMT for use as a staging, fabrication (manufacturing), and transfer hub for the over-sized and heavy-weight components that make up the offshore wind farms. With access to deep water and high ground-bearing strength, the facility will be ideally positioned to receive domestic and international vessels delivering and trans-shipping the large and heavy Tier 1 components (e.g., foundation elements, towers, nacelles, etc.), or sub-components and materials, that will be used by the OSW industry to erect the wind turbine generators (WTGs) associated with the offshore wind farms ranging from Maine to the Carolinas.

In order to facilitate the berthing of large transport vessels/feeder barges and the offloading and loading of oversized components, the proposed SQMT facility is being designed with a 1,020-foot long, deep-water (i.e., -32 feet mean lower low water((MLLW)) plus a one-foot allowable over-dredge depth) quay system and berth. The berth will be positioned adjacent to a high load-bearing capacity quayside which will consist of a heavy-load-bearing relieving platform dock underlain by a series of sheet pile cellular cofferdam structures to support the horizontal and vertical loads that will result from the operations at the port. This is of particular importance to the OSW industry as the soil loading capacities required to support on-site operations are much greater than “normal” maritime port facilities.



The demand for such deep-water heavy-lift port facilities is extremely high, as use of traditional shipping continues to grow, the transport vessels become larger and offshore wind industry shipping activity is projected to grow exponentially over the next two-to-three decades. Once constructed, the proposed SQMT facility will enjoy a prime port location situated adjacent to the federally maintained, deep-draft (40-ft MLLW) Providence River navigation channel. It should be noted that historic development plans for the facility (promoted by previous railroad property owner) called for extensive filling, RIWE's proposed development plans are seeking authorization from the USACE for a scaled-down project that involves a greatly reduced amount of filling/disturbance from that originally approved by USACE and CRMC, while still maintaining the utilization criteria required by both the maritime and offshore wind industries. While the proposed project is consistent with the originally permitted project (USACE Permit RI-PROV-78-425, issued on August 22, 1978), which generally consisted of the construction of a port cargo facility that requires dredging and a berthing facility; the minor project differences will reduce significantly impacts of the proposed project to natural resources. RIWE has made the decision to limit the extent of the dredging and filling required for the proposed project from the amounts authorized by the USACE in the original permit. As set forth in the design plans, RIWE is proposing to construct the bulkhead from the edge of the current fill landward, with the associated jack-up berth on the river bottom. This current Project proposal would result in significantly less dredging and filling than originally contemplated and authorized by the USACE under the existing permit. The original permit allowed for a 45-acre fill area, which would include an additional 15 acres of fill beyond what is currently constructed. This present Project proposal remains within the limits of the previously filled areas, a 33% reduction of the permitted area of fill. The area to be dredged will be approximately 33% less of the original dredge footprint and the dredge depth will be eight feet shallower than originally permitted or 20% less of the authorized depth. This would result is a significant reduction in both the dredge areas and depths allowed under the current permit. As such, RIWE respectfully submits that while to overall goals of the original project (e.g., a cargo port facility) would be fully met, the proposed current iteration of the project will have a significantly lower impact on the natural resources, including those associated with the waters of the United States. As such, the project is taking a 30+ acre USACE confined disposal facility (CDF) with little beneficial use to the surrounding community and pivoting it into uses that will result in many jobs over the decades, while all the while minimizing potential impacts to the natural environment of the Project area.

RI CRMC REDBOOK REGULATION COMPLIANCE

In support of this application for State Assent, RIWE has reviewed the governing regulations in the CRMC Redbook (650-RICR-20-00-1 Part 1), and the Preliminary Determination for the South Quay Project issued by CRMC on December 11, 2020 (CRMC File No. 2020-09-143). Below is an analysis of each applicable regulatory requirement from the Redbook and the project details and specifications demonstrating that the SQMT Project meets those requirements.

Section 1.1.10 Climate Change and Sea Level Rise

The project has been designed to fully account for the anticipated effects of climate change and global/local sea level rise, as is demonstrated in the project plans, the CRMC coastal hazard analysis worksheet and supporting materials. The existing site has grades from elevation 10-to-14

MLLW (i.e., 12.5-to-16.5 NAVD88), and is within the mapped flood plain Zone VE, Elevation 14-feet NAVD88, based on FEMA Map Panel 44007C0317J. The project has been designed with a 30-year design life, and its' grade will be sufficiently raised across the property to meet the target design elevation of 19-feet MLLW (21.47-feet NAVD88). In order to effectively achieve this goal, the site will be initially "graded out" to a relatively grade, referred to as the interim grade (see sheet GD-2). This will allow for the installation of fill materials in a uniform and effective manner which will provide for a nominal five feet of dense, granular bearing material as will be required to support future facility operations. To be conservative the fill materials will be placed with a geotextile fabric or geo-grid to further reinforce the high-bearing capacities of the placed materials. The five feet of elevation gain results in a project design life year closer to the year 2060 from a climate change and global/local sea level rise perspective. The type and amount of engineered fill is required to address the lower and variable geotechnical characteristics of the historically emplaced materials as part of former CDF operations.

Another significant design component of this project from a climate change and global/local sea level rise perspective is that there are no permanent structures (with only a limited small utility building as an onsite structure) being contemplated and majority of the site surface area will consist of dense-graded aggregate (DGA), the surface preferred by most OSW entities including developers, supply-chain companies, etc. The lack of a permanent, occupied structure(s) on the SQMT site was selected by the design team to maximizes its flexibility of use, including storage, manufacturing, marshaling, etc. This design will result in a highly adaptable site that can be reconfigured or have new features more easily developed than would be possible with fixed structures, especially in response to global sea level rise and/or more frequents and violent storm events. The DGA wearing surface also exhibits numerous resiliency advantages, most notably of which is that while the material is densely compacted and provides a high bearing surface, any damage(s) that might occur from a storm/flooding event can be quickly and efficiently repaired by placing and grading new DGA to re-establish grades. Similarly, given that the existing site contains a thick layer of backfilled dredge spoils of varying physical characteristics, it is very likely that over time there will be differential settlement that will occur on the surface. As such, the presence of a relatively easily installed wearing surface allows for more effective regrading to re-establish design grades so the site can continue to function as intended.¹

The design flexibility built into the proposed project plan will allow the facility operator(s) to adapt to conditions as conditions may change, either in response to facility/OSW industry needs or impacts associated with global climate change. As part of the design process, the Team evaluated raising the site grade by seven to ten feet to be even more protective of potential future sea level rises (SLR). However, in the short term, which would likely result in significant impacts on operations and development costs of the SQMT and could also be detrimental to the operational efficacy of the facility. For instance, were the site to be built up to an elevation to address those greater-than-anticipated SLR scenarios, the docking geometries would result in a situation where the SQMT could only efficiently serve larger vessels with a higher deck height. Smaller and even medium-sized vessels, with lower deck heights, would only be able to access the site using ladders

¹ During a site inspection of a German OSW facility, senior LR staff witnessed the use of elegant-looking interlocking pavers, facility personnel warned that they frequently failed and were expensive to replace and maintain. Use of DGA is a good example of the Team's knowledge and lessons learned from our European colleagues.

along the bulkhead, which is riskier than using a gangway and less efficient when moving smaller cargo and items that could normally be carried by hand or with a man-powered dolly. Those items would need to be hoisted into and out of the vessel and onto shore, which would diminish the attractiveness of the facilities to potential users of certain types of cargo vessels. The team had this potential limitation in mind during the design and planning of the site configuration. The elevation of the berth and quayside will accommodate a more common deck height of medium and large vessels, as well as achieve compliance with CRMC requirements. The use of DGA will allow for flexibility to address higher-than-anticipated SLR raised by the relatively simple expedient of adding more DGA during regrading, as warranted.

With respect to monitoring, the topography of the site can be surveyed periodically to monitor for settlement or damage to the surface from operations or differential settling due to the nature of the underlying materials. Should the results of the surveys indicate the presence of non-designed low-lying areas developing over the life of the project, DGA can be emplaced to bring the site surface to the required grades.

Section 1.2.1(G) Type 6 Industrial Waterfronts and Commercial Navigation Channels

The proposed project is located in the area of the Port of Providence, which results in a RI Type 6 industrial waterfront. The project is wholly compliant with the goals and policies of the Redbook with respect to this type of waterfront as it will:

- Modernize the existing facility (i.e., the CDF) and encourage increased commercial activity through shipping, which is currently not possible given the rip rap embankment that dominates the facilities shoreline and lack of landside geotechnically-suitable surfaces. By creating a bulkhead/relieving platform, dredging a berth, and providing port laydown area, the site will be modernized to increase commercial activities, and also support the rapidly developing offshore wind industry. It should be noted that there currently is only one part facility in the U.S. that has been specifically designed to support the OSW industry, therefore, “the time is right” for the proposed SQMT to enter into and support this renewable, clean-energy market.
- Target the identified highest priority uses, including berthing, loading/unloading and servicing of commercial vessels; construct a new port facility with a new deep-water berth; and construct a facility capable of supporting commercial activity, notably the offshore wind industry.

1.2.2(F) Manmade shorelines

The existing and proposed shorelines of the property are manmade, with the existing shoreline being comprised of a hardened embankment with placed riprap and concrete blocks to strengthen and armor the shoreline. The proposed shoreline/quayside for the project will feature a steel sheet-pile bulkhead along the western face (i.e., along the Providence River) to support vessel/facility operations. The southern and northern faces of the property will be maintained as a sloped embankment with rip rap. This design approach eliminates any encroachment into the water for the proposed land-side project components, as all work will occur from the toe of existing embankment landward. As discussed elsewhere in this document, there will be dredging and placement of a gravel jack-up pad in front of (seaward) of the bulkhead system.

The resultant hardened shoreline features will be very effective at combating shoreline erosion, especially as the area is not currently subject to erosion. There are currently three existing transects from the CRMC shoreline change maps that transect the site (i.e., 1164 1165 and 1166) and none of them currently exhibit any erosion or accretion along the shoreline. As such, the armored northern and southern faces of the property and the western bulkhead shoreline will maintain and improve the protection of the shoreline conditions from future erosion issues.

1.3.1(A) Category B Requirements

This project will require a Category B Assent from the CRMC. Part A of the Redbook regulations regarding Category B requirements lists the following 11 items required to be compliant for the category B, including the following:

1. *Need for Project Activity:* SQMT project improvements will create a large, integrated, and centralized hub of intermodal shipping that will provide a significant number of jobs for RI residents for many years, along with significant benefits to the State, region, as well as the environment. By providing a marine terminal, the project will result in an economic revival to the East Providence shoreline and be key in the growth of the OSW industry that is currently developing off of the U.S. East Coast. The SQMT is designed as a state-of-the-art port facility with access to deep water and high ground-bearing strength quay sides and uplands, as required by the OSW industry. One of the primary goals of the project is to serve coaster vessels delivering heavy cargos consisting of large OSW components (e.g., foundation elements, towers, nacelles, blades, etc.). The OSW industry requires that such a facility be equipped to berth a vessel(s), provide a stable surface to off-load and on-load heavy components, and provide stevedoring services (e.g., sewage, revictualling, trash disposal, etc.). These same characteristics are also desirable to support the operations of any specialized offshore wind vessels calling on the port to pre-assemble and load out OSW components for installation at their final wind farm locations or other port-type uses. Currently only one other purpose-built facility (New Bedford Marine Commerce Terminal) exists on the East Coast, and it is already under contract for development for the next several years. This has resulted in a large “ports gap” in the East Coast regarding available large waterfront industrial spaces to support the OSW industry. As a complicating issue, the U.S. offshore wind industry is just “kicking in” and is in a race to identify possible port locations where hundreds of millions of dollars will be invested to build out the port infrastructure required to support the OSW industry and the projects already in development. The SQMT will be a key component in the first-mover OSW projects and aid in the supporting the short-term and long-term development of the marketplace.
2. *Local Zoning and Code Compliance:* The City of East Providence is an active partner in the development of the South Quay project which is being developed as a Public Private Partnership (PPP) with RIWE. Accordingly, the City is not only aware of the planned facility but continues to express its strong support for the project. In order to ensure full public participation in the permitting process, residents and the various City Departments all will have the ability to review and comment on the project as part of the local project-review process. The project lies within the jurisdiction of the East Providence Waterfront Commission, and they will also have the opportunity to review and take in public comments on the project during their permitting process.

3. *Boundaries of the Coastal Waters:* The Subject Property is a 30+ acre property located along the east bank of the Providence River in East Providence, RI. The site development limits of the proposed dredging extend to within 130 feet (to the east) of the Federally maintained Providence River Navigation Project (i.e., the “Federal Channel”), and the closest SQMT-related structural component (the bulkhead) is located over 280 feet from the Federal Navigation Project. The site is bordered by the Providence River to the north and south as well, while Waterfront Drive borders the site to the east. There are no coastal waters on the Subject Property. There are coastal wetlands located to the north of the Site, between the South Quay site and the Wilkesbarre Pier, as well as areas of salt marsh along the western and southern faces of the embankment.
4. *Impacts on Erosion and Deposition:* As noted in the Manmade Shoreline section, above, both the existing and proposed shorelines are hardened structures and the hardened shoreline features will be very effective at combating future shoreline erosion, even in the event of anticipated event of sea-level rise. There are currently three transects from the CRMC shoreline change maps that pass through the site, transects 1164, 1165 and 1166 and none of them currently exhibit any erosion or accretion along the shoreline. As the project includes construction of existing hardened shorelines the protection of the shoreline conditions will be maintained with no negative impacts to erosion or deposition patterns.
5. *Impacts on Diversity of Plant and Animal Life:* Based upon review of available publicly available resources, including geographic information system (GIS) data, there are no critical habitat or resource areas present on site that would be negatively impacted by the proposed project. There is a salt marsh wetland located off of the site to the north, and an inland, freshwater wetland located to the northeast of the site on the other side of Waterfront Drive. Both of these resource areas will be protected from development activities and will experience no deleterious effects. There are limited areas of fringe salt marsh habitat along the western face of the embankment that will be impacted to facilitate the installation of the bulkhead. These impacts will be mitigated by the creation and enhancement of salt marsh both onsite and offsite, as detailed in the Wetland Mitigation Plan.
6. *Impact on Public Access* – As this project will be a maritime industrial facility serving foreign flagged vessels, it will be required to comply with US Coast Guard security measures, making it a qualified maritime security (MARSEC) facility. As such, the project will not be able to provide public access to the facility or its shoreline.
7. *Impacts on Water Circulation, Flushing, Turbidity and Sedimentation:* The proposed project-related redevelopment footprint is located entirely within the previously developed footprint; therefore, it is not anticipated that there will be project-related impacts changes water circulation as part of the project. Similarly, stormwater will be managed onsite consistent with all requirements of the RI Department of Environmental Management (RIDEM), and no new untreated point-source discharges will be created as part of this project. During the construction-implementation phase of the project, a site-specific sediment erosion control plan will be implemented and will include use of floating turbidity curtain which will be monitored by the Owner’s engineers to ensure no high levels of turbidity and sedimentation are generated during the execution of the work. Once the site is developed, the hardened bulkhead shoreline feature will protect against sedimentation into the Providence River.

8. *Water Quality Impacts:* The project is located in a RI-designated Type 6 coastal water and the region is dominated industrial-uses properties. The proposed work, most notably the dredge program, will require compliance and approval RIDEM and its Rules and Regulations for Dredging and the Management of Dredge Materials (250-RICR-150-05-2). The environmental controls on dredging and placement proposed as part of this project are industry-standard methods that have proven to be effective at preventing negative water-quality impacts. Additional information regarding the proposed dredge program and the environmental controls are described in detail below.
9. *Impacts to Historical and Archaeological Resources:* The proposed project lies within land that was created by relatively recent authorized filling in the river. Therefore, it is not anticipated that there will be any impacts to historical and archaeological resources as a result of the project.
10. *Conflicts with Water Dependent Uses:* The proposed project will not have any conflicts with existing water-dependent uses or navigation. The vicinity of the project site is predominantly industrial in nature, and the proposed development will complement these uses. The proposed project includes dredging to allow for site access and berthing of vessels accessing the site from the Providence River Navigation Project. Note that any project-related will occur at least 130 feet landward of the limits of the Federal Navigation Channel and the closest structure will be over 280 feet from the limits of the Providence River Navigation Project.
11. *Measures to Minimize Adverse Scenic Impact:* It is not anticipated that the proposed project will result in significant scenic impact(s) to the surrounding areas. There are no proposed permanent occupied structures (only a small utility building) as part of this project that would impact the viewscape. It should be noted that the site is being raised to address sea level rise per CRMC requirements, protect the property and preserve the functionality of the port as sea levels rise. Furthermore, the proposed project involves an industrial property in an industrial working waterfront area, with the Wilkesbarre Pier located just to the north of the Site and ProvPort directly across the River; as such it is respectfully submitted that the existing scenic viewscape (such as it is) will remain consistent with the surrounding industrial waterfront properties which are also predominantly industrial/commercial in nature consistent with the working waterfront nature of the Providence River.

1.3.1(B) Filling, Removing, or Grading of Shoreline Features

In order to protect the surrounding natural resources and prevent erosion and sedimentation, this project has been designed and will be constructed in Compliance with the RI Soil Erosion and Control Handbook (updated 2016) and will be subject to a Rhode Island Pollutant Discharge Elimination System (RIPDES) Construction General Permit.

One of the key components for preventing erosion and sedimentation issues is the project's Erosion and Sediment Control (SESC) Plan, which is demonstrated on project drawing ESC-1 and the supporting details, as well as described in the SESC Plan attached to this application. The general contractor and all earthwork subcontractors will be required to review, acknowledge and follow all of the requirements in the SESC Plan as part of the construction of the project.

Filling, Removing or Grading of Shoreline Features Standards:

1. *Fill slopes of 30%:* Existing slopes located on the northern and southern portions of the Facility will be maintained and not be changed beyond extending upward to meet the new site grades. Along the western face along the riverfront, sheet piles will be driven to contain the site fill to provide stability against any un-engineered slopes. No permanent slopes will exceed the 30% threshold and any design slopes will be installed at a maximum grade of 4:1 (25%) or 5:1 (20%).
 2. *Disposal of Excess Materials:* With the exception of dredging, which is being handled as described under section 1.3.1(1), including CAD cell disposal and beneficial reuse, there will be no excess materials generated as part of this project. In order to achieve the proposed grades, a significant amount of fill materials (meeting RI DEM requirements) will need to be imported to the site. For the existing site materials, they will be leveled out and spread across the site as part of the Interim Grading Plan (see Sheet GD-2) and then the overall property will be filled evenly up to the final grades (see Sheet GD-1) with imported, compacted materials.
 3. *Disturbed uplands to be re-graded and re-vegetated:* All of the areas of soils to be disturbed as part of the project will likely be used as part of site development. However, in the event that there are upland soil areas that are disturbed as part of the construction but not part of the final developed site (e.g., along a top of slope), in compliance with the project SESC Plan, these areas will be graded to a stable slope (based on their physical characteristics) and re-vegetated if left undisturbed for more than 14 days.
 4. *Removal and Placement of Sediments:* As part of the dredge program, the project proposes the re-use of the granular dredge fill to raise site grade. These granular materials were placed into the embankment as part of the original construction of the site as a CDF. Details of this operation are described in the dredge section of this document.
 5. *Fill Materials Not Polluting Tidal Waters:* The project will only use granular fill which will be free of debris, organics, roots, sod, rubbish and other deleterious matter. Fill from off-site resources shall be properly characterized and reviewed for use prior to any placement on site. Dredge materials that will be reused on site will have been characterized and with the environmental controls and methodologies prescribed for this project, do not represent a risk to pollute the tidal waters. The project specifications will clearly dictate these requirements.
 6. *Preference Cutting versus filling over a coastal bank:* All of the proposed work is being conducted within the footprint of previously disturbed site areas, from the toe of the embankment landward. There will be new filling over a coastal bank and all filling will occur within the sheet pile cells and within the adjacent upland portions of the site.
 7. *Limit application of toxic substances;* No toxic substances, such as pesticides or herbicides, are anticipated to be utilized as part of this project.
- Earthwork on Shoreline Features
 - a) Once this project moves into the construction phase, the selected general contractor, as well as any site work and earthwork subcontractors, shall be provided with all relevant permits and plans prepared during the permitting process for review and acknowledgement. The contractor(s) will be required to be prepared to consult with CRMC should it be determined necessary.
 - b) The requirement for a re-vegetation plan for the project is not anticipated as the site is being developed as an industrial port facility that maximizes the usage of the

developed upland areas to support operations. Further, the site is not an existing barrier beach.

- c) Construction materials and excavated soils shall not be placed or stored on any shoreline feature excepting manmade shorelines. Materials staging areas will be located within the upland portion of the site, only in designated areas, as shown on the Erosion and Sedimentation Control Plan, sheet ESC-1.
 - d) All disturbed soils that are not to be included in the operating areas of the property shall be graded smooth to a maximum 5:1 slope, unless otherwise called out on the project plans, and re-vegetated immediately after construction, or temporarily stabilized with mulch, jute matting or similar means until seasonal conditions permit such re-vegetation.
 - e) There exist jurisdictional wetlands around the South Quay site, as shown on Drawing WM-1. The wetlands consist of salt marsh located along the fringe of hardened shoreline and a mix of brackish and saltmarsh wetlands hydraulically affected by the abandoned dewatering basin. The salt marsh wetlands are situated on an accretion shelf generally above MHW and consisting predominantly of Salt Meadow Grass. The shelf is actively eroding and there is no area for inland retreat. No project-related work is anticipated to be conducted within the resource areas located to the north and south of the South Quay Site. Machinery and equipment will be prohibited from entering the resource areas. There are limited amounts of fringe salt marsh habitat that along the western face of the embankment that will be impacted to facilitate the implementation of the bulkhead. The project proposed both on-site enhancement of salt marsh as well as creation of new salt marsh as proposed in the attached Wetland Mitigation Plan.
 - f) The part of the bulkhead that will be in direct contact with the salt-water interface of the Providence River will consist of steel sheet pile. The concrete materials of the relieving platform will be installed well above the high waterline and not likely be in routine contact with salt water. However, due to the risk of splashing associated with wave action, the relieving platform shall be constructed with concrete which utilizes a Type II or Type V air entraining Portland cement or an equivalent that is resistant to sulfate attacks of seawater.
- Upland Work – Erosion controls
As shown in the SESC Plan and on sheet ESC-1 of the project drawings, a silt fence/straw wattle line will encircle the work along the downgradient slopes to keep soils from eroding/migrating offsite during precipitation events. All disturbed slopes will be stabilized and returned to original or design grades, as indicated on the project drawings. If the slopes do become susceptible to erosion, they shall be stabilized and re-vegetated. Temporary stormwater management best management practices (BMPs) will be constructed and maintained such that no stormwater flows will be allowed to discharge offsite or to the permanent stormwater BMPs (e.g., drains, sub-grade piping, etc.), until the site has been stabilized. Any groundwater associated with dewatering activities, as detailed in the RIDPES permit and associated stormwater pollution prevention plan (SWPPP), will be controlled to a discharge rate that is capable of receiving proper filtration through a frac tank, geobag and/or other approved sedimentation device. No unfiltered or sediment-

laden water will be allowed to discharge to storm drains, permanent BMPs or off of the site.

- **Steep Slopes**
The project does not propose to disturb any steep slopes (with the exception of dredging in front of the embankment, which will be handled separately). New design slopes will be less than 20%. However, the majority of the site will be graded at 0.5%. The only slopes steeper than 0.5% will be the existing slopes along the embankment, and those will be maintained and supported with hardened shoreline materials like rip rap and granite block.

1.3.1(C) Residential, Commercial, Industrial, and Recreational Structures

- **Minimize risk of hazards**
This site has been designed to be resilient and mitigate the risks of hazards, consistent with Rhode Island Emergency Management Agency (RIEMA) and FEMA recommendations/requirements for hazard mitigation. Some of the hazard mitigation strategies include not placing any permanent, occupied structures within the flood plain and velocity zone, and elevating the site. These strategies will mitigate the risks of storm damage to the property and coastal resources, endangerment of lives and the public burden of post-storm disaster assistance consistent with policies of the State of Rhode Island as contained in the Hazard Mitigation Plan.
- **Public access:** As this project will be a maritime industrial facility serving foreign flagged vessels, it will be required to comply with US Coast Guard security measures, making it a qualified MARSEC facility. As such, the project will not be able to provide public access to the facility or its shoreline.
- **Structural Perimeter Limit**
 - a) The proposed structural perimeter limit is shown on the Project Drawings, Sheet T-1 Facility Usage Plan.
- **Pre-requisites**
 - a) **Building and Zoning Compliance:** A letter from City of East Providence regarding this project requirement is provided with this application.
 - b) **State Building Compliance:** A letter from the Building Official for the City of East Providence regarding this project requirement is included with this application.
 - c) **Onsite Wastewater Treatment Systems (OWTS):** There will be no OWTS associated with this project. The site will be connected to municipal sewer to support vessel operations and will thus coordinate and receive approval from the municipal sewer authority prior to connecting.
 - d) **Safety and Fire Code Compliance:** The project will comply with all governing safety and fire code regulations. Prior to receiving international vessels, the site will require a Site Security Plan and inspection from the US Coast Guard in order to be deemed a secure MARSEC facility. In addition, the East Providence Fire Department, Harbormaster and local public safety officials will review the Project and Site Security Plan prior to the Terminal becoming operational.
 - e) **Water and Sewer Connections:** Water and sewer connections will be made to the East Providence Municipal System and they will sign off and inspect connections and infrastructure prior to a connection into the municipal system.

- f) Adequate transportation and utility service: The SQMT will be a multi-modal facility serviced by the federally maintained Providence River navigation channel and from the landside by Waterfront Drive, which has quick access to the interstate highway system. Waterfront Drive is improved and maintained by the City of East Providence and the off-ramp from Route 195 Eastbound that would serve Waterfront Drive is being upgraded by RI Department of Transportation (DOT). The proposed SQMT will be a critical component of RI's intermodal system designed to support the developing offshore wind industry. The system will consist of other RI waterfront and landside assets such as ProvPort and Davisville making RI a central component of the East Coast offshore wind industry.
- Industrial wharves shall be certified by a registered professional engineer: The structural details of the bulkhead structure are still in the process of design. The design presented does represent the final configuration and footprint of the bulkhead, other than its shoreward limits. Structural details and connections will continue to be developed under the design process and the final design(s) shall be certified by a Rhode Island Professional Engineer.
- Commercial Marine Facilities
 - a) Fitness of Purpose Inspections: This project represents a major investment from multiple parties and ensuring the facility operability by maintaining its structural integrity and intended design principles is critical part of its operations. The applicant is committed to comply with the CRMC's Fitness of Purpose Inspections for timing and scope, starting with an as-built inspection(s) to serve as the baseline of the facility. The facility inspections will comply both with the CRMC manual, and also the American Society of Civil Engineer's Underwater Inspection Manual and Waterfront Facilities Inspection Manual.
- *Flood Zone Construction*: The SQMT site is within the FEMA mapped floodplain Zone VE, Elevation 14 NAVD88, based on FEMA Map Panel 44007C0317J. Several design measures were included to protect against risks associated with flood damage including the use of permeable, granular wearing surface (that can be more easily cleaned and regraded after a flood event) and the lack of permanent occupied buildings on the site (such facilities, if any, will be located on adjacent, higher elevation parcels that RIWE controls). All structures will be designed to be compliant with the Rhode Island State Building Code (RISBC) and more applicable for the bulkhead, the ASCE's Seismic Design of Piers and Wharves, Design Standard 61-14.

1.3.1(F) Treatment of Sewage and Stormwater

Consistent with the CRMC's policies to maintain and improve water quality surrounding the site, this Project uses low-impact development (LID) stormwater management strategies and does not require the use of an OWTS for sewage disposal. The LID strategies include minimizing the use of impermeable surfaces and providing localized infiltration trenches throughout the site, rather than a more typical catch basin and pipe network which would "use up" valuable site lands.

- *Treatment of Stormwater*: It is recognized that stormwater management is a critical aspect of maintaining and protecting water quality and the natural resources in the coastal environment. This project has been designed to be compliant with the RIDEM Rhode Island Stormwater Design and Installation Standards Manual. The stormwater management

strategies and more detailed information are included in the attached Stormwater Management Plan.

- While the details are more-fully elaborated in the Stormwater Management Plan, the points below briefly described how this project complies with the standards identified in this section of the code:
 - a) OWTS: Not applicable as no OWTS is proposed for this site, as it will be serviced by municipal sewer, as necessary.
 - b) The requirements of the RIDEM Stormwater Management, Design and Installation Rules (250-RICR-150-10-8) are being applied to this project.
 - c) Smart Development for a Greener Bay: The stormwater-management strategies proposed as part of this project will maintain (and actually enhance) pre-development groundwater recharge and infiltration, control post-construction discharge rates and use LID techniques to the maximum extent practicable.
 - d) The project does not propose any new impervious area, please note that compliance with the 11 stormwater management standards is described in the Stormwater Management Report section above.
 - e) Roadways, highways and bridges: Not applicable.
 - f) Disturbance of 10,000 square feet or more of existing impervious: Not applicable as there is no impervious area disturbance(s) proposed as part of this project.
 - g) Coastal runoff discharge: One of the strategies developed as part of this project to protect surrounding coastal resources is to maintain permeable groundcover and promote infiltration as the primary stormwater management option. Excess runoff collected in underdrains will have been filtered through crushed-stone and filter-fabric components of the infiltration trenches. Therefore, it is not anticipated that discharges from the stormwater management system will negatively affect the surrounding resources. Furthermore, as infiltration is the primary strategy, and since modeling shows stormwater discharge rates and volumes are maintained and reduced from pre-development conditions, the stormwater management system should not result in the introduction of new freshwater to marsh areas, nor change the salinity within the Providence River. The use of infiltration trenches to treat stormwater will result in little to no thermal impacts from stormwater runoff nor negatively impact dissolved oxygen levels in the immediate area.
 - h) Single Family Dwellings: Not applicable.
 - i) Single Family Dwellings on CRMC Designated Barriers: Not applicable.
 - j) Discharges to Salt Marsh: No new or enlarged discharges of stormwater to salt marshes are proposed as part of this project.
 - k) Conveyance system sizing: Per the state regulations, the proposed stormwater-infiltration trench and underdrain conveyance systems have been designed to handle more than the 10-year, 24-hour Type III storm event.
 - l) Pollutant Loading Analysis: This is not provided as part of this application and should not be required as the project will not unduly contribute to or cause water resource degradation.
 - m) Hydrodynamic and Filter Separators: Not applicable as such structures are not required or proposed as part of this project.
 - n) Outfalls: The outfalls shall be installed from the shoreline towards the upland.
 - o) Single Family Dwelling Applications: Not applicable.

- p) All other applications: This project includes a site plan depicting the structural stormwater components, a site operations and maintenance (O&M) Plan. Further, the stormwater management system will be inspected and certified upon completion to confirm that these components were installed in accordance with project permits, plans and specifications.
- Shoreline Protection
The existing site perimeter consists of a manmade, hardened shoreline and the proposed condition will maintain a manmade hardened shoreline. It is anticipated that the final project shoreline, including the western bulkheaded shoreline, will provide a highly effective shoreline protection system.

The proposed improvements for the facility are being permitted in parallel with the USACE, who issued a permit for site development in 1978. This current project update currently under consideration by the USACE is consistent with the originally permitted and approved 1978 project. There are a few relatively minor differences, which are being proposed, but these will result in a project which is less impactful to natural resources and the environment than the design included in the original approved USACE permit. The original permit allowed for a 45-acre fill area, which would include an additional 15 acres of fill beyond what is currently constructed. This present Project proposal remains within the limits of the previously filled areas, a 33% reduction of the permitted area of fill.

While the proposed project is consistent with the originally permitted project, which generally consisted of the construction of a port cargo facility that required dredging and a berthing facility; the minor differences in the currently contemplated project will reduce significantly the impacts of the proposed project to natural resources. RIWE has made the decision to limit the extent of the dredging and filling required for the proposed project from the amounts authorized by the USACE in the original permit. As set forth in the design plans, RIWE is proposing to construct the bulkhead from the edge of the current fill landward, with the associated jack-up berth on the river bottom. These project components would result in significantly less dredging and filling than originally contemplated and authorized by the USACE under the existing 1978 permit. The area to be dredged will be approximately 33% less of the original dredge footprint and the dredge depth will be eight feet shallower than originally permitted (i.e., 20% less of the authorized depth). This will result in a significant reduction in both the dredge areas and depths allowed under the current permit.

As noted in the Coastal Hazard Worksheet and other sections of the application, the existing site contains manmade hardened shorelines and erosion is not an issue on the site, as demonstrated by the three CRCM shoreline change transects that run through the site.

1. Shoreline Protection Standards

- a) Location of Bulkhead: The proposed bulkhead is being proposed at the toe of the existing embankment fill area that was originally constructed to create an USACE CDF to receive the dredge fill. Therefore, the limits of the shoreline structural feature will remain in line with the current shoreline condition and not be any further seaward.

- b) Connection to adjacent structures: There will be no change in the shoreline conditions where newly constructed features tie into adjacent site features. The only change to the shoreline conditions will be on the western face of the property where a bulkhead system will tie into the existing manmade embankment that runs along the northern and southern edges of the site.
- c) Hybrid protection: Not applicable to this project
- d) Anchoring of components: The sheet piles will be driven into native bearing soils, well below the existing mudline. The preliminary locations and profiles of the sheet pile structures are shown on the project drawings. However, final tip elevations and depths will be determined during later stages of the project-design process is completed.
- e) Unconsolidated Sediments: Due to the heavy loading and bearing-capacity requirements of the port facility, no structural components will be built or placed upon existing unconsolidated sediments either underwater or on the landside portion of the project.
- f) Bulkhead Backfill: In order to provide the structural integrity required to handle the proposed loads of the design components, site areas requiring the installation of fill materials will be backfilled with a granular structural fill and vibro-compacted in place. The fill materials to be utilized will have less than 10% fines and the desired physical characteristics will fall within the following specifications:

GRANULAR FILL shall be free from ice and snow, roots, sod, rubbish, and other deleterious or organic matter. It shall conform to the following gradation requirements:

SIEVE SIZE	PERCENT FINER BY WEIGHT
2/3 of the loose lift thickness	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

Granular material with greater than 10% passing the No. 200 sieve (i.e., fines) may be used as Granular Fill if placed four feet below finish grade, and only at the discretion of the Owner's Representative, provided it is properly moisture controlled and can meet the compaction requirements. However, it should be noted that materials containing greater than 10% fines are very sensitive to changes in moisture content and may it be difficult to properly compact them utilizing ordinary means and equipment.

DENSE GRADED AGGREGATE (DGA) shall meet M.01.02.2 and the gradations in M1.09 in the RI DOT BlueBook and shall conform to the gradation requirements below.

SIEVE SIZE	PERCENT FINER BY WEIGHT
2-Inch	100
1 1/2-Inch	70-100
3/4-Inch	50-85
No. 4	30-55
No. 50	8-24
No. 200	3-10

- g) *Grade Behind Shoreline:* The site grades are being raised so that the relieving platform for loading and unloading vessels will be 19 feet above the waterline at mean lower low water. The CRCM Redbook calls for sites to remain level for an equal distance to the height of the feature, where feasible. While the grade behind the relieving platform is not perfectly level, the entire site is being graded at a relatively flat 0.005 feet/foot in order to allow for better strength and functionality for crane picks associated with site operations. As such, the design grade is in effect meeting the requirements of this standard as it is so shallow a slope.
- h) *Revetment Slopes:* c: All revetment walls will maintain their current slopes and will not be steeper than 1:1.
- i) *Rip-rap:* If the revetment walls along the northern and southern shorelines of the proposed facility need to be repaired or extended to meet the new fill grades, they will be constructed of angular stone with a minimum unit weight of 165 pounds per cubic foot (such as granite).
- j) *Shoreline Protection Certification:* The structural engineering details of the bulkhead system are still in the process of design. However, the design presented herein does represent the overall configuration and footprint of the bulkhead system. Structural details and connections will continue to be developed as part of the ongoing the design process and the final details/plans shall be certified by a Rhode Island Professional Engineer.
- k) *Hybrid Shoreline:* Not applicable to this project
- l) *Concrete:* The concrete for the relieving platform will be installed well above the waterline and likely not be in routine contact with salt water. However due to the risk of splashing with wave action, the relieving platform shall be constructed with concrete which utilizes a Type II or Type V-air entraining Portland cement or an equivalent that is resistant to sulfate attacks of seawater.
- m) *Water Quality:* The most significant alteration in the existing shoreline protection modality of rip rap will occur along the western edge of the site where bulkhead system will be installed. The most significant construction action with respect to

water-quality issues will be driving the sheet piles (dredging issues are discussed elsewhere). As shown on Sheet ESC-1, the western edge of the site, including the dredge footprint, will be encircled by a turbidity curtain to protect against turbidity from project-sediment disturbance. Further, all of the site-construction activities will be conducted a strict and effective SWPPP which will further limit the risks of this issue.

- n) *Lateral Shoreline Access*: The SQMT cannot provide lateral shoreline access as it will be a secure MARSEC facility.
- o) *Seaward Extent of Shoreline*: The seaward extent of the proposed shoreline (the bulkhead) will be coincident with the existing seaward extent of the shoreline (toe of the embankment).
- p) *Previous Coastal Buffers*: This project was permitted and constructed starting in 1977 as a CDF to handle materials dredged from the Providence River. There were no coastal buffers zones set in place as part of those permits and this project will not go further seaward than of what has already been constructed and permitted.
- q) *Buffer Zone*: The proposed SQMT facility limits will be coincident with the toe of the existing embankment to the west and the existing riprap-stabilized shorelines to the north and south; therefore, there will be no buffer zone included as part of this project.
- r) *25-foot Setback*: Not applicable to this project as there are no nearby structures within 25 feet of the coastal interface.

1.3.1(1) Dredging and Dredged Material Disposal

The designed dredge footprint for the proposed project runs along the 1,020-foot length of the proposed quayside/bulkhead system and extends from immediately adjacent to the proposed bulkhead into the Providence River approximately 150-feet to the west. The outer edge of the dredge footprint will be parallel to the Federal Navigational Channel and the proposed dredge area is separated from the boundary of this feature by approximately 130-feet (i.e., there will be a 130-foot buffer of undisturbed river bottom between the project footprint and the Federal Navigation Channel).

An aspect of this project that is still under evaluation as final design evolves, is the inclusion of a jack-up berth within the dredge footprint. A jack-up berth is a stable, gravel-covered surface with high load-bearing capacity, capable of supporting jack-up barges or jack-up installation vessels (spudded vessels that lift up to provide a stable platform) that will be used in the construction of offshore wind projects. To better support the barges and vessels that will utilize the port for OSW projects and other potential port uses, the final design may involve constructing this 525-foot by 130-foot portion of the berth with a layer of imported crushed stone to provide better bearing strength than the underlying river sediments. In order accomplish this, the jack-up area would be over-dredged (beyond the proposed -32-foot MLLW berth target) and then backfilled with clean, washed and crushed stone up to the target berth depth of -32-feet MLLW. The thickness of this gravel layer will be determined during later project workflow components but is currently estimated at 8 feet deep.

This dredge footprint proposed as part of the SQMT project represents a significant reduction in both footprint and volume of materials to be dredged from the originally proposed dredge footprint associated with the existing USACE permit and previous facility designs submitted by former facility owners. The proposed project represents a reduction of the dredge volume of over 30% from the earlier project, and the proposed final depth of -32-feet MLLW (plus a one-foot over dredge allowance) represents a reduction of 20% of the originally intended and permitted dredge depth of -42.5-feet MLLW. Please note that these estimates are based upon recently acquired bathymetric data collected by RIWE.

Currently, the proposed project design includes the beneficial re-use of dredged materials for filling the upland portions of the site as much of the dredge material can be classified as geotechnically competent material (e.g., sandy materials, low organic content). For dredge spoils that have a high fines content, the design anticipates disposal of that material within the adjacent, in-service CRMC-managed CAD cell.

Consistent with the submitted and CRMC and RI DEM-approved Dredge Material Sampling and Analysis Plan, a series waterside vibracore and land-side borings were conducted at seven locations throughout the dredge footprint.² Copies of the vibracore and boring logs are attached to this report, as are the laboratory analytical data. The following provides a summary table of the sieve-size analyses and chemical analyses. The original laboratory data sheets are provided as an attachment.

² Due the shallow-water conditions, it was not feasible or safe to conduct water-side vibracore borings up against the proposed bulkhead system location. As such, land-side borings were conducted to characterize (both chemically and physically) the soil types which will be encountered during the dredging program. Three land-side boring were conducted to sufficient depths to evaluate geotechnical conditions of deeper soils wherein sheet piles will be installed.

Boring	State Plane X	State Plane Y	Surface Elev	Sample Bottom Elevation	Sample Depth (ft)	Sample 1 Thickness	Sample 1 Desc	Sample 2 Thickness	Sample 2 Description		
2A	357185.92	264809.64	13	-40	53	5	Fine to Coarse Sand	5	Silt trace sand		
6B	357746.95	264091.09	12	-33	45	5	Fine to Coarse Sand	-	-		
7A	357480.63	264411.55	9	-33	42	5	Fine to Coarse Sand	-	-		
Water Borings	State Plane X	State Plane Y	Water Depth	Core to Depth	Core Thickness	Sample 1 Thickness	Sample 1 Desc	Sample 2 Thickness	Sample 2 Description	Sample 3 Thickness	Sample 3 Desc
1	357076.13	264744.74	-28	-39	11	1.5	Organic Silt	6.6	Gray inorganic silt	2.6	Gray inorganic silt
3	357287.78	264476.83	-23	-33	10	3	Organic Silt	7	Gray Clayey Silt	N/A	N/A
4	357526.95	264150.45	-20	-32	12	3.9	Organic Silt	8.1	Gray Clayey Silt	N/A	N/A
5	357806.61	263792.91	-21	-33	12	1	Organic Silt	10	Grey inorganic silt	N/A	N/A

With respect to the dredge project, based on the available data reviewed, it is anticipated that the following materials are present within the proposed dredge prism:

- Materials that require removal from a thin strip of the berth located along the face of the proposed bulkhead which represent the outer slope of the existing berm materials that were placed at the site when the upland facility was constructed. This resulted in a geotechnically-stable berm behind which dredged materials were placed. These berm materials which will require removal by dredging are classified as “Brown Sand, little silt, no fines.” For the purposes of this application, these materials have been classified as “maintenance materials,” since they were originally placed as part of the construction of the CDF’s. This material will be segregated/dredged separately from the other materials, as discussed below, and will be beneficially reused on site as fill to raise the grade of the site as required by the design.
- Materials from the dredge footprint that extend seaward (west) of the berm material along the western berm face. These materials have been classified as a “Gray Organic Silts” on the boring logs prepared for this project. These materials typically extend from 1 -4 ft in depth along the river bottom. For the purposes of this application, these materials have been classified as “improvement material.” Currently, it is planned that these materials will be dredged into a scow and disposed of into a nearby CRMC-managed CAD cell.
- Materials from the dredge footprint that extend seaward (west) of the berm material along the western berm face and below the lower of gray organic silts noted above. These materials make up the bulk of the material to be removed from the dredge prism and have been classified as a “Gray Inorganic Silts” and “Gray Clayey Silts” on the boring logs prepared for this project. For the purposes of this application, these materials have been classified as “improvement material.” Currently, it is planned that these materials will be dredged into a scow, dewatered, and either stockpiled on site or amended for beneficial reuse on site. If these materials cannot be amended or treated to the project re-use specifications, they will be disposed of into a nearby CRMC-managed CAD cell or other appropriate receiving location.
- If required based upon the results of the geotechnical analysis and design, the area of 68,250 sf for the jack-up berth would be over-dredged and backfilled up to the proposed final dredge depth (-32-feet MLLW) with a gravelly material such as crushed stone to provide a stable base for the jack-up vessel operations. This material would be dredged into a scow and disposed of into a CRMC managed CAD cell. As a project alternative, some of these materials may potentially be subject to a physical amendment process which will make them geotechnically amenable for beneficial re-use on the site as fill materials. CRMC and/or RI DEM, as appropriate, will be informed of the final dredge materials re-use/disposal plan as the project evolves.

Based on recently acquired bathymetric surveys and sediment sampling information, the following table was prepared to identify the phases of the designed dredge program to illustrate the volumes of each type of material are expected to encounter during each project phase and where those sediments will be disposed of and/or placed after dredging:

Dredge Phase	Material Composition	Volume to Neat Line (CY)	Volume to Overdredge (CY)	Disposal/Placement Area
Phase 1	Organic and Riverine Silts – Native	50,000	58,300	CAD Cell
Phase 1	Brown Sand – Placed Fill in Berm	14,400	16,100	Re-use on site
Phase 2	Riverine Silts- Native	54,400	62,000	Stockpiled, Amended and Re-used on site ³ -
Phase 2	Brown Sand – Placed Fill	18,100	20,100	Re-use on site
Phase 3	Native Riverine Silts -	13,300	13,300	Stockpiled, Amended and Re-used on site
Project Totals	-	150,200	169,800	-

Category B Requirements

- a) *Soundings*: A single beam bathymetric survey was conducted in March 2021 in the dredge footprint area and the nearby CAD cell disposal area. The survey was conducted with a nominal 25-foot line spacing with periodic crossties. The soundings were processed to display existing river-bottom bathymetric conditions and are shown on the plan set submitted.
- b) *Access Disturbance*: It is anticipated that all dredging equipment (including scows and barges) will be water based and will not require access from the landside to any coastal features. Any disturbance along the shoreline would be a result of the bulkhead construction.
- c) *Fine -grained Sediments*: In order to mitigate water-quality effects associated with the dredging fine-grained sediments (organic and inorganic silts), turbidity curtains are proposed to surround the project footprint during dredging and emplacement of the sheet piles, as shown on Sheet ESC-1
- d) *Time of Year Limitations*: The current plan is to conduct dredging operations within the fisheries approved Time of Year Limitations of October 1 through January 31 of each year. Should dredge operations necessitate performance outside of that window, CRMC, RI DEM and federal fisheries agencies will be consulted.
- e) *Improvement Dredging* – The project involves improvement dredging associated with the creation of the new 1,020 linear foot bulkhead berth. The dredging to create that berth will occur in a footprint of approximately 1,400 linear feet to a depth of -32

³ As noted in the text, the current plan is to dewater and amend the dredged sediments for re-use on site, however if certain areas of the dredge prism display undesirable characteristics that would prevent the proper treatment and re-use on site, those materials would be disposed of in a CAD cell after coordination with the CRMC. The materials will be temporarily stockpiled on site until that CAD cell space is available.

MLLW plus an allowable one-foot over-dredge, as shown on the Proposed Dredge drawings of the Plan set.

- f) *Environmental Degradation*: As noted above, the project intends to beneficially reuse the granular sediments as on-site fill. As shown in the attached analysis, sediments from borings 2A, 6B, and 7A contain fine to coarse sands that comply with the DEM's standards for Commercial/Industrial use. Samples of the river bottom sediments, berm materials and underlying marine sediments were collected and analyzed for a wide range of contaminant types per CRCM and RI DEM requirements. Per the analytical data in the attachment, the chemical conditions of the materials are amendable for placement in the CAD cells. Further, the chemical nature of the berm materials indicated no environmental impairment issues. The river-bottom sediments analyses did indicate slight exceedances of DEM commercial/industrial standards for arsenic which will be addressed under a separate cover.
- g) *Residential Boating*: Not Applicable to this project

Standards

- a) *Dredging Permit*: The completed RI DEM dredge permit application is attached.
- b) *Dredging*
 - 1) The dredge prism slopes downward from the berth to with 130-feet of the Federal Channel;
 - 2) Bottom slopes are between 3 horizontal to 1 vertical and 4 horizontal to 1 vertical.
 - 3) The dredging is setback from all existing coastal features and will be performed from the toe of the proposed bulkhead. Note that the sheet piles will be driven far below the dredge depth and the dredging poses no risk to undermining them.
 - 4) If any shellfish are dredged, they will not be made available for human consumption or bait.
 - 5) Marina dredging is not applicable to this project.
- c) *Open Water disposal*: Not applicable as dredge materials for subaqueous disposal will only be placed in CRMC-managed CAD cells.
- d) *Disposal into a CAD Cell*:
 - 1) Scows will be bottom-dump design and available for inspection by CRMC prior to use on this project.
 - 2) No debris shall be disposed of in the CAD cell. The project specifications will require debris be separated and disposed of in accordance with prevailing regulations.
 - 3) Scows used on this project will required to have a Dredge Quality Management system that is approved and accessible to the CRMC.
 - 4) RIWE will pay the CAD cell disposal fee for each phase of the dredge program.
 - 5) Prior to dredge operations, pre-dredge and pre-disposal bathymetric surveys will be conducted. A Dredge Disposal Plan will be prepared for review and approval by the CRMC prior to the conduct of any dredging operations. The dredging contractor will be required to dispose of dredged materials only within the approved dredge-disposal locations.
 - 6) The dredging contractor will be required to cease all operations in the event that it will prove necessary to dispose of materials outside of the authorized locations. Prior to disposal operations beginning, the dredging contractor will be required to

provide a Contingency Plan for addressing issues such as disposal of materials outside of authorized areas.

- e) *Dredge Disposal for the Creation of Wetlands* – A small volume of dredge material will be used as a base for new or enhanced salt marsh habitat creation.
- 1) The areas selected for dredge material placement are sheltered sites, most notably the wetland to the north of the South Quay, which is protected from wave action by the South Quay itself and the hardened shoreline materials placed around the perimeter of it.
 - 2) The dredged sediments used for wetland creation will be dewatered in a containment area/mechanism and placed after they have consolidated sufficiently.
 - 3) The environmental monitoring program is laid out in the attached mitigation plan. In order to optimize the chances of success with the marsh creation and enhancements, sediment samples from the existing adjacent marshes will be taken and analyzed for their physical characteristics, including organic content, and the dredge material to be used as part of the project will match those physical characteristics, or be blended with clean offsite material to achieve the desired marsh base.
- f) *Upland Disposal*: The granular materials that make up the site berm will be dredged and placed upland for beneficial re-use on the site. Other dredge materials will be dewatered, physically amended and placed on the upland for beneficial re-use on site as well.
- 1) Dewatering of those materials will occur on-site near, in a controlled environment.
 - 2) The placement of the dredged materials will be spread out over the site. The dredge spoils will not be vegetated as they will be covered over with a dense graded aggregate material that will be the Terminal’s final wearing surface.
 - 3) Placement behind the bulkhead
 - i. The bulkhead design will factor into it the pressures exerted from the fill, as well as the live loads associated with future facility crane operations, which are expected to be the most significant pressures exerted on the bulkhead system.
 - ii. The bulkhead system will be constructed of interlocking sheets, with the backfill having minimal fines and being vibro-compacted in place. The vibro-compaction of the granular material within the interlocking sheets shall prevent sediment migration through the sheets.
 - iii. The shoreline protection standards will be met.
 - 4) Compliance with the Grading, Filling for Shoreline features has been addressed above.

1.3.1(L) Coastal Wetland Mitigation

- There are small sections of fringe saltmarsh habitat along the western edges of the facility shoreline that will be impacted by the installation of the proposed bulkhead system and will require replacement/mitigation elsewhere per CRCM requirements. While some mitigation can be achieved in select areas of the site, a larger footprint of mitigation can be focused on the neighboring properties that RIWE controls. A discussion of the wetlands mitigation strategies is detailed in the attached Wetlands Mitigation Plan.
- Coastal Mitigation Category B requirements
 - a) This project will achieve the following

1. Accommodate a priority use for a Type 6 water, that of a marine industrial port.
 2. The development alternative selected only affects salt marsh on the western face of the existing facility shoreline, where the installation of a bulkhead system and dredging is necessary and vital for berthing vessels and becoming a functioning marine terminal. There will be no project-related negative impacts to salt marsh habitats at the northern and southern ends of the property.
 3. Development of the western edge of the existing facility shoreline is the minimum necessary work-flow component to result in a functioning marine terminal.
- b) The Wetlands Mitigation Plan, which is attached, includes the following components:
1. A site plan showing the limits of existing salt marsh habitats and the on- and off-site areas of the proposed mitigation. - See Sheets WM-1 and WM-2
 2. Surface area of the wetlands to be altered, both temporary and permanent, are listed in the table below:

SCHEDULE OF ESTIMATED IMPACTS TO EXISTING WETLANDS DUE TO CONSTRUCTION ACTIVITIES			
TYPE	ESTIMATED PERMANENT IMPACT	ESTIMATED TEMPORARY IMPACTS	NOTES
SALT MARSH	21278	0	TYPICALLY HIGH MARSH VEGETATION (SPARTINA PATENS), ACTIVELY ERODING.
BRACKISH SALT MARSH	5549	31418	INVASION OF PHRAGMITES AUSTRALIS HAS CHOKED OUT NATIVE, MARSH IS OF POOR QUALITY
REQUIRED MITIGATION	2:1	1:1	IN ACCORDANCE WITH THE STANDARDS SET FORTH IN § 1.3.1(L)(5)
REQUIRED MITIGATION AREA	53654	31418	SEE SHEET WM - 1 FOR AREAS
TOTAL REQUIRED MITIGATION AREA		85073	SEE SHEET WM - 2 FOR MITIGATION
MITIGATION TYPE PROVIDED	RESTORATION, CREATION, HYDROLOGIC CONNECTION		THREE PRONGED APPROACH DUE TO SITE LIMITATIONS
MITIGATION AREA PROVIDED		101074	SEE SHEET WM - 2 FOR MITIGATION
STANDARD MET?		YES	

3. A description of the existing elevations, soil types, flora species and vegetative/fauna habitat, which is majority Salt Meadow Grass (Spartina Patens)
4. A description of the hydrology, including which wetlands are brackish,
5. A description of the excavation, grading and filling to occur with Wetlands Mitigation Plan.
6. A description of the species to be planted as shown in the table below

SALT MARSH PLANTING LIST				
LOCATION	ELEVATION	PLANT SPECIES	SPACING	TYPE
LOW MARSH	UP TO MHW	SMOOTH CORDGRASS (<i>spartina alterniflora</i>)	1.5 FT ON CENTER	PLUGS
		SALTMEADOW CORDGRASS (<i>spartina patens</i>)		
HIGH MARSH	ABOVE MHW & SLR RETREAT	SPIKEGRASS (<i>distichlis spicata</i>)	1 FT ON CENTER	PLUGS
		BLACKGRASS (<i>juncus gerardii</i>)		
UPLAND	ABOVE SPRING HIGH WATER & SLR RETREAT	MARSH ELDER (<i>iva frutescens</i>)		PLUGS
		TBD		

7. An implementation schedule for the Wetlands Mitigation Plan tied into facility development schedules.
 8. Success criteria, with post implementation monitoring and reporting conducted by a PWS.
 9. A monitoring program, with observations occurring at least twice per year.
 10. Evidence of financial security.
- Standards
 - a) Coastal Wetland Alteration
 1. The existing wetlands to be altered are salt marsh habitats along the banks of the Providence River, and the proposed mitigation actions will provide new and/or enhanced salt marsh habitats along the banks of the Providence River.
 2. The proposed ratio of area restored and created to area altered and lost exceeds the 2:1 ratio.
 3. The Wetlands Mitigation Plan has been developed to illustrate site-specific mitigation strategies for CRMC review, discussion and eventual approval.
 - b) Mosquito Population Control – Not applicable to this project.

1.3.1(0) Municipal Harbor Regulations

- The City of East Providence is in support of the project. The currently promulgated municipal harbor regulations center mainly around the installation, maintenance and operations of moorings, which is not applicable to this project, as well as the authority of the Harbormaster and the Harbor Management Commission. RIWE, as project proponent, along with the City, has coordinated with the Harbormaster on the development of this project and the Harbormaster supports the development of the project.

SUMMARY

RIWE respectfully requests CRMC review this Category B Assent Application and supporting materials for the proposed project. In order to expedite the review process, RIWE is more-than-pleased to allow access for CRMC to the site, surrounding properties and any of our experts to discuss the project and address any of your question or/or concerns.

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Thank you in advance for your anticipated expeditious review of this Application for State Assent, and please do not hesitate to contact the undersigned to discuss this matter should you have any questions.

Sincerely,



Melissa Martin
RI Waterfront Enterprises, LLC